

## **Rowe BC100/BC150 Update Kit Installation Instructions**

### **KIT CONTENTS**

Control Board with yellow printing  
Metal Slide Plate – short wide mouth  
Wiring Harness – main power to P1 of board  
Wiring Harness – to empty lamp on front door to P5 on left hand side of board = empty  
Wiring Harness – to Coin Dispense Assembly to C2A of board  
Wiring Harness – to Mars AE/VN validator to C4 of board; standard

### **PARTS KITS CONTENTS**

4 8-/32 3/8" self threading screws  
8 of 11-32 hex nuts

The following instructions are for installation of an upgrade board kit in a Rowe BC100/BC150. Prior to installation be sure to confirm the hopper, hopper drive motor, coin count sensor, and red LED count emitter are in working condition.

1. Remove the hopper from the changer.
2. Insert a \$5.00 bill so the Coin Dispenser Assembly releases most of the coins held in escrow.
3. Unplug the power cord from the wall outlet.
4. Remove the bill transport by sliding the transport forward until it "catches". Unplug the connector from the right hand side, depress the release lever and slide the transport forward out of the tracks.
5. Remove the bill box (4-50346-01) from the stacker assembly.
6. Remove the stacker assembly by unscrewing the two ¼" hex screws, it may be necessary to hold the nuts under the assembly with a pair of pliers. Disconnect the harness from the upper rear right hand side and pull the stacker assembly forward out of the changer. Replace the two screws and nuts.
7. Remove the coin chute that channels the coins from the hopper to the coin cup. It is held in place by two ¼" hex screws on the left hand side of the chute.
8. Remove the Power Control Center (65073501). Unscrew the two ¼" hex screws at the very bottom of the changer cabinet. Begin sliding the power supply out of the changer and twist it upright so the four wiring harness connectors are visible. Disconnect all four of the wiring harness connectors and remove the Power Control Center.
9. Remove the Bill Changer Computer Control Center. Slide the board towards yourself. When the board is about 60% out of the cabinet it should automatically "catch" on a hook. Remove the four wiring harness connectors; there are three on the rear and one on the bottom. Remove the green and yellow ground wire by unscrewing it from the upper rear of the metal slide plate. The board can now be removed from the cabinet by depressing the release latch that is attached to the side of the cabinet.
10. Unhook the harness at the bottom of the Coin Dispenser Assembly (6-50880-09). Unscrew the 3/8" bolt at the top center of the assembly. Tilt the unit forward, and then slide the assembly to the left so it is released from the side pivot hooks. Lift the assembly up and out of the changer and place it in a work area.
11. The Coin Dispenser Assembly is converted to a direct payout system. The modification of the assembly involves removing the two-bucket solenoids and permanently positioning the internal coin diverting flaps. The electronics used to count the coins are

not changed. The upgrade kit does not hold any coins in escrow, so the metal escrow flaps connected to the bucket solenoids are removed.

## **FLAP REMOVAL INSTRUCTIONS**

There are three black rods on the bucket assembly. Remove the e-clip on either side of the assembly from each of the two rods that have e-clips on the outside of the assembly. Push the rods in the direction of the remaining e-clip; the springs and spacers will fall out. The two shafts, springs, and spacers are no longer needed.

In order to remove the plunger arms and flap assemblies you need to temporarily remove the lower rear black shaft. Remove one of the e-clips (inside the assembly) and slide the black rod in the direction of the e-clip that was not removed. The flap/plunger arms will fall out. Slide the rod back into place and secure the e-clip. The white diverting flaps should be positioned so they are securely locked in position. The position, vertical or sixty degrees, is not important. The modification is complete.

12. The entire wiring harness in the cabinet will be replaced with new harnesses included in the kit. The following steps are the easiest method of removing the original harness.
13. Using a pair of cutters cut the tie straps that secure the empty bulb harness to the front door of the changer. Next cut the three tie straps on the rear mid-level bundle and one tie strap on the lower bundle of harnessing.
14. Unhook the small harness that originally connected to the transport. This six-inch harness may have all ready been removed with the transport. The fifteen-position connector that mates to this harness must be removed from its bracket. The easiest method is to depress the tabs on the top then bottom of the connector with a small straight blade screwdriver while pushing the connector towards the rear of the cabinet.
15. Unhook the twelve-inch adapter harness that originally connected to the stacker assembly. This harness may have already been removed when the stacker was removed.
16. Unhook the main cabinet AC wiring harness. It connects to the power input box at the upper left hand side of the cabinet. The connector is a three-position plug with a black, white, and green wire.
17. Disconnect the two terminals from the empty bulb on the front door of the changer; white/blue and black wires. This harness should be fed to the lower area of the cabinet.
18. Push the large main bundle of harnesses from the bottom of the changer up to the mid section of the cabinet. The harness will be fed through the holes at the left and right rear of the changer.
19. At this point the entire wiring harnesses is removed from the changer.

## **REASSEMBLY**

20. Mount the new control board in the bottom compartment of the changer. The placement is not critical but should be positioned near the bottom so it is easy to view the meter. If the changer will be mounted to a wall it may be best to position the board higher so the two rear cabinet mounting holes are exposed. The new board is mounted using the four holes in the control board case. The easiest way to drill the holes is to mark the holes on the back of the changer. Drill the holes from the rear and clean the burrs from the interior area. Insert the four flat headed bolts from the rear. Secure the new bolts using the first set of four 11/32" nuts supplied. Next mount the board by securing it to the four bolt studs and tightening the second set of 11/32" nuts supplied. The four bolts and eight nuts are included in the parts kit.
21. Connect the main power harness to header P2 on the control board. Run the harness up the left hand side of the cabinet and connect it to the power input box.

22. Reinstall the modified Coin Dispenser Assembly and secure it with the 3/8" bolt.
23. Reinstall the coin chute with the two 1/4" screws.
24. Connect the new Coin Dispenser Assembly harness to header C2A of the new board.  
Run the harness up through the left rear hole and connect it to the Coin Dispenser Assembly.
25. Mount the hopper into the Coin Dispenser Assembly and set it back into position.
26. Connect the two terminals of the empty lamp harness to the bulb on the front door; polarity is not important. Run the harness down along the hinge of the door identically to the original harness. Route the harness along the right hand wall of the changer and then attached to header P5 of the control board.
27. Mount the validator to the metal slide plate using three of the four 11/32" nuts provided with the Mars validator.
28. Connect the validator harness to the validator. Attach the green and yellow wires to the stud post on the slide plate that did not have a bolt attached to it in the above step. The validator is now secured to the slide plate with all four nuts.
29. Slide the validator slide plate assembly down the tracks that originally held the transport.
30. Connect the harness from the validator to header P7 of the control board.
31. Confirm that the harnesses are connected to headers P3, P4, P5, P6, and P7. Headers P1 and P2 are used when the board is installed in a SBC2/SBC4 and not used in this application.
32. Dump enough coins into the hopper to cover the low coins screw and make contact with the metal of the hopper.
33. Plug the power cord into a wall outlet to restore power to the changer. If the red +5vdc power LED on the board does not light the on/off switch of the new power input cord is in the off position.
34. If the installation has been done properly the mode LED will light.
35. If the mode LED is not lit depress the reset button.
36. Insert a bill into the validator to confirm the update is working properly. When the board is shipped, dipswitch 3 is in the "on" position so four coins are paid out for each dollar value. The payouts are programmed as shown below:
  - Switch 1 "on" pays out 1 coin
  - Switch 2 "on" pays out 2 coins
  - Switch 3 "on" pays out 4 coins
  - Switch 4 "on" pays out 8 coins

### **Installation Instructions for Hopper "Low Coins" Screw** (Rowe BC1, SBC2/4 and BC100 Changers)

Upon verifying the kit and changer are working properly, a low coins screw can be installed. The low coins screw is installed to prevent shortchanging a customer. If the changer is in an attended location and the hopper will not empty, it is not necessary to install the low coins screws. The bypass jumper is installed on header P7 when the kits are shipped. The screw is used to detect ground through the coins in the hopper. When the coins are not touching the screw and metal wall of the hopper, the changer will no longer accept bills. The reset button on the control board must be depressed after the hopper has been filled to reset the board.

#### **Installation Instructions**

1. Turn off the changer.
2. Remove the hopper form the changer and set it in a work area. If it is filled with coins, remove the coins.

3. Drill an 11/64" hole in the black plastic area at the bottom of the hopper. The hole should be located at the center of the hopper and 7/8" from the very bottom of the plastic. Positioning is important so that a coin does not get wedged between the screw and the hopper body.
4. Insert a screw through the hole. Reach your hand into the hopper and align the nut. Begin tightening the screw while holding the nut. When the nut is almost fully tightened, slip the open spade terminal under the screw head. Finish tightening the screw so the harness is held securely in place. The terminal should be positioned so that it is vertical; 3:00 or 9:00.
5. Place the second fork terminal under one of the 1/4" hex screws near the black plastic area.
6. Place the hopper back in the changer.
7. Run the harness over the control board. Unplug the bypass Jumper at P7 and attach the new harness.
8. Secure the harness neatly in the changer using the tie mounts supplied in the parts kit.
9. Refill the hopper with coins so the screw is covered.
10. Turn on the changer. After a 10-second warm-up period, the validator will accept bills.
11. Place the label on hopper that warns service personnel not to remove hopper without disconnecting the empty sensor wire

### **TROUBLESHOOTING TIPS**

The status LED on the control board will display the following codes:

- 1 Blink – Hopper is empty or has no continuity from harness to control board
- 2 Blinks – Time out feature; the maximum allowed time of 20 seconds between coin counts was exceeded
- 3 Blinks – Over payment of coins
- 4 Blinks – The red LED count emitter is bad or is covered – the counting collector (across from emitter) may be bad.
- 5 Blinks – The dipswitches are not set, thus no payout is possible

If the +5vdc LED on the board is not lit check the following:

1. Wall outlet has power and the machines power cord is in excellent condition.
2. The on/off switch on the power input line is in the "on" position.
3. Unplug the machine and confirm that fuse #1 on the control board is good. It is a 2 amp fuse; 20mm.

The input button on the control board can be used to simulate pulses from a dollar bill validator to test the board. This button must be pressed rapidly. It must be pressed once, twice, five, ten, or twenty times as the board will shut down if an impossible dollar value is entered. The pulses must be inputted quickly. If the board shuts down depress the reset button.

## **OPERATIONAL OVERVIEW**

The hopper LED lights while the hopper is running

The meter clicks once per dollar value at the end of the vend cycle

Headers P1 and P2 are not used in this application; reserved for SBC2/SBC4.

### Dip Switch Settings

#### **AE2400 \$1-\$5**

1. ON
2. ON
3. OFF
4. ON
5. ON
6. ON
7. OFF
8. ON

#### **AE2600 \$1-\$20**

1. ON
2. ON
3. ON
4. ON
5. ON
6. OFF
7. OFF
8. ON

#### **VN2500 \$1-\$5**

1. ON
2. ON
3. OFF
4. ON
5. ON
6. ON
7. ON
8. OFF

Revision 072502

# Rowe BC 100



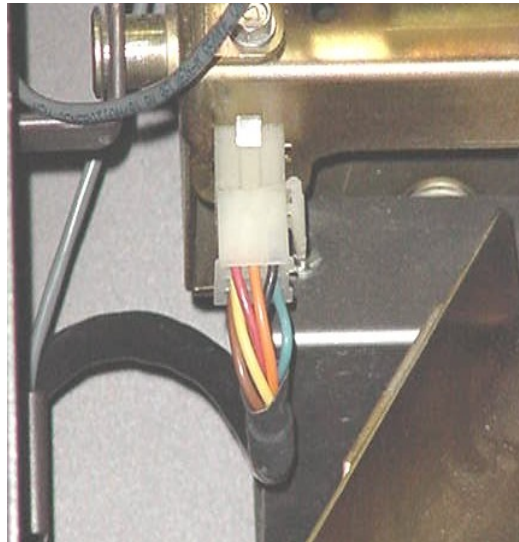
**Figure 1**



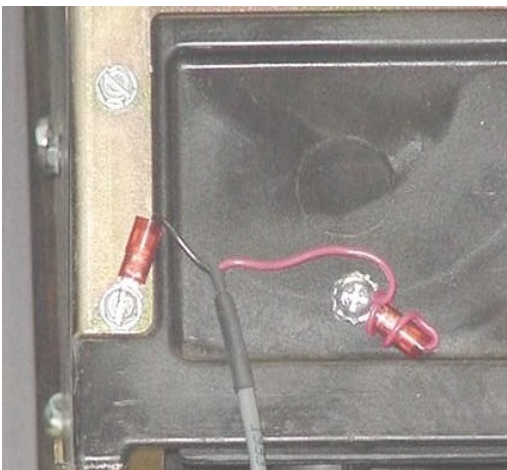
**Figure 2**



**Figure 3**



**Figure 4**



**Figure 5**



**Figure 6**

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