Board Update for BC1200 – Installation Instructions

The following instructions are for the installation of a new board in a Rowe BC1200 dollar bill changer. A Rowe BC1200 changer is a front opening model with 2 hoppers. The original BA50 bill transport, stacker, control board, and power control center are replaced. The two hoppers and Coin Dispenser Assembly 6-50580-11 are reused.

When coins are dispensed, they feed directly from the hoppers to the coin cup. The flaps that were originally used to hold the coins in escrow are removed from the Coin Dispenser Assembly. The new control board is capable of making change if a quarter/dollar coin is inserted into the coin acceptor. The parts for this option are not included with the kit.

The standard configuration of this kit is for the installation of a Mars 120V validator with a compact mask. The bill validator determines the denominations of notes processed by the board. Models AE2411/AE2451 and VN2511 will accept $1, $2, and $5. Model AE2611 accepts $1-$20. The bill box capacities currently available for these validators are 200, 300, 500, 700, and 1000 notes.

The installation information is intended for experienced personnel familiar with the operation of these components. All of the installation procedures should be reviewed and understood prior to installing the kit. The installation instructions are based upon a machine that has not been modified from the original factory configuration. If the machine has been in any way, restore the machine to the original factory configuration prior to beginning the conversion.

There are a few variations of the BC1200 model of changer. One option was a dual stacker. Some models did not have a coin acceptor assembly on the front door. This kit will work in all models.

Kit Components

New board assembly in a black metal enclosure with yellow text
Slide plate to mount Mars validator with compact mask -AE2411/AE2451, VN2511, or AE2611
Installation Instructions titled Board Update for BC1200 – Installation Instructions
Four self threading 8-32 ¼" screws
Wiring harnesses:

- Mars validator to new control board part # HM120-36"
- Coin Dispenser assembly harness part #HBC1200CDA -flat ramped connector
- Main power input harness part #HBC12MAINPOWER-2 of 3 position male plug
- Empty lamp harness part #HRBC12EMPTYLAMP
- A by-pass harness jumper will be placed on Header C3 of the board
- Non-resettable 12vdc meter to register the number of bills inserted
- Low coins screw & harness for single input (OPTIONAL)

Additional Required Items Not Included With Kit

Working Mars validator – Model AE2411/2451, VN2511, or AE2611
The four 11/32" hex nuts used to mount the Mars validator to the metal slide plate are included in the Mars validator shipping box.
Dollar bills to test the validator and verify operation of the kit

Optional Kit Components Not Included With Kit

If you will be using the coin acceptor, you will need to order part number KITRBC1200COINACCEPTOR. The kit includes a harness to attach the board to the coin acceptor assembly and a meter to register the amount of coins inserted.

Tools Required

1/4" long handle nut drivers or ratchet wrench
3/8" nut driver or ratchet wrench
5/16" nut driver or ratchet wrench
11/32" nut driver
Regular screwdriver
Phillips screwdriver
Pliers
Electric drill with 7/32" drill bit and safety goggles
Tape - scotch or electrical

Installation Instructions

Removal of the Changer's Original Assemblies

1. Depress the test switches to confirm the hoppers and Coin Dispenser Assembly are working properly.
2. Unplug the machine's power cord from the wall outlet.
3. Remove both of the hoppers.
4. Remove the BA50 bill transport by unplugging the 15 position connector at the metal bracket above the transport. Slide the transport forward and out of the tracks
5. Remove the bill box(es).
6. Remove the stacker assembly by unscrewing the two ¼" hex screws at the top of the transport tracks. It may be necessary to hold the nuts under the assembly with a pair of pliers. If the BC1200 being updated has a dual stacker assembly remove the ¼" hex screws that secure the bottom of the stacker assembly to the base of the changer. Disconnect the harness from the upper right hand side and pull the stacker assembly forward and out of the changer.
7. Unscrew the two 3/8" bolt that secure the Coin Dispenser Assembly, then tilt the unit forward. Slide the assembly to the left and forward so it is no longer resting on the side pivot rods. Reach to the rear of the unit and unplug the wiring harness.
8. 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, the metal escrow flaps connected to the 2 bucket solenoids are removed.

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.

9. The entire cabinet wiring harness assembly is replaced with new harnesses included in the kit. Using a ¼" nut driver remove the bracket directly above the transport slot. This bracket is used to hold the 15 position transport connector on the right hand side. There will be a open hole for a connector on the left hand side. It is held in place with 2 ¼" hex nuts.
10. Unplug the 3 position main power harnesses from the main AC power box located at the forward top right of the cabinet.
11. Unplug the 4 position wiring harness from the forward connector next to the main AC power box. The wiring to the empty bulb and coin return switch remain on the front door
12. If the machine has a Coin Acceptor Assembly on the front door unplug the 9 position connector.
13. Slide the bill Changer Control Computer 65069xxx forward. Unplug the 5 wiring harness connectors. Remove the board from the cabinet.
14. The entire Power Control Center 65073501 is now removed. Using a 5/16" nut driver remove the hex screw at the bottom of the assembly and the hex screw at the top forward left corner of the assembly. Some of the harnessing will need to be released from the cable holders. Once all the harnesses are free remove the Power Control Center from the cabinet.

REASSEMBLY

15. Review the safety procedures supplied by the manufacture of the power drill. Drill the four mounting holes for the new board using the paper drilling template. Mount the new control board to the rear wall 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. Drill the holes and clean the burrs from the interior area.
16. Screw the four self-threading screws into the new holes to "thread" the metal. Remove the screws.
17. Mount the new control board starting with the upper and lower right hand holes. One of the left hand screws should also be used to secure the dollars inserted meter. Insert the screws through one of the holes in the meter base and then through the slot of the enclosure. Tighten the screw. Insert the fourth screw to secure the enclosure.

18. Attach the white connector from the meter to header “Dollar” on the control board.
19. The main power harness will be connected to header P3 on the control board. Run the harness up the right hand side of the cabinet and connect it to the power input box. Route the harness using the existing harness tie/down and metal clips in the cabinet for a neat job.
20. Connect the new empty bulb harness originating at header P4 of the new board to the 4 position connector next to the main power box. This harness has a 4 position plug with two wires. Route the harness using the existing harness tie/down and metal clips in the cabinet for a neat job.
21. Reinstall the modified Coin Dispenser Assembly.
22. Run the new Coin Dispenser Assembly harness (originates at header P4 of the new board) up the rear wall of the changer. Pull the Coin Dispenser Assembly forward and insert the straight ramped connector into the plug. Gently set the Assembly back into place.
23. Secure the Coin Dispenser Assembly using both 3/8” bolts.
24. **Set the dip switches on the validator per the chart printed in yellow on the metal board enclosure.**
25. Mount the validator to the metal slide plate using the four 11-32 nuts provided with the Mars validator.
26. Slide the validator assembly most of the way down the tracks.
27. Attach the harness originating at C4 of the control board to the validator; be sure to observe the key pins.
28. Reinstall the hoppers. Be sure there are ample coins in inventory.

Test Procedures

1. Plug the machine back into the wall.
2. The red +5v led indicator on the control board should light. If not, confirm the ON/OFF switch is in the On position.
3. After a 6 second reset period the green arrows on the validator should begin blinking. If not depress the reset button on the control board.
4. Insert bills to test the kit.

PROGRAMMING THE COIN PAYOUTS

Two sets of two dip switches are used to programmed the amount of coins dispensed. Each of the hoppers as 2 sets of dip switch banks. The upper bank is used to set the payout for a $1 bill. When a $2 bill is inserted the values double. The lower bank is used to program the amount of coins for a $5 bill. When a $10 bill is inserted the payout is doubled. When a $20 bill is insert the payout is quadrupled.

Regular Payout Examples Non Hopper Swapper Feature

Payout for a $1 bill = 3 quarters from right hopper and 5 nickels from left
upper right bank #1 and #2 ON Upper left bank # 1 and #3 ON
Payout for a $5 bill = 19 quarters from right hopper and 5 nickels from left
Lower right bank #1,#2, & #5 ON Lower left bank # 1 and #3 ON

Payout for a $1 bill = 2 quarters from right hopper and 2 quarters from left
upper right bank #2 ON Upper left bank # 2 ON

Payout for a $5 bill = 10 quarters from right hopper and 10 quarters from left
Lower right bank #2, and #4 ON Lower left bank # 2 and #4 ON

Hopper Swapper Payout

If the same value coin is being dispensed from all of the hoppers, this new feature can be used. The coins are dispensed from the right hopper, then the left hopper. This allows the maximum amount of coins to be dispensed, as well as preventing the changer from shutting down if the right hopper jams.

The coins are initially dispensed from the right hopper. When no coins are sensed for 8 seconds, the payout then shifts to the left hopper. Once the center hopper gets low, and no coins are sensed, the payout shifts to the left hopper.

The control board is programmed for maximum change/hopper swapper payout by turning switch “MC” at the bottom of the upper right bank for $1. The dip switch banks for each of the hoppers are set to the amount of coins to dispensed for each dollar value received. The most popular setting is to dispense four coins per dollar value.

When using this mode, it is important that the reset button be pressed each time the changer is refilled. If it is not, the payout sequence from right, center, left is not reset and the changer may go empty prematurely. If the coins are at the point of being dispensed from the left hopper and the changer is not reset, they will continue to be dispensed from the left hopper instead of starting at the right hopper.

Hopper Swapper Feature Payout Examples

Payout for a $1 bill = 4 quarters
upper right bank #3 and #5 ON Upper left bank #3 ON
Payout for a $5 bill = 20 quarters
Lower right bank #3 and #5 ON Lower left bank #3 and #5 ON

Notes

The new control board does not continuously supply power to the two LED emitters used to count the coins. Once a bill has been accepted, the bulbs will illuminate and the hoppers begin to payout coins. If either of the LEDs fail the board will shut down and the status led will flash 4 times. The reset button on the board will need to be depressed after the LED is replaced.

Status Codes

The following Status codes apply to all boards made by Capital Vending. The below codes represent the number of times the red LED flashes on the following control boards. After correcting the problem the reset button must be depressed.

1 blink – hopper empty
2 blinks – time out error – a hopper ran over 16 seconds
3 blinks – overpay A hopper overpaid at least one coin
4 blinks – bulb in count circuitry is burned out
5 blinks - control board failure
6 blinks – impossible dip switch values
7 blinks - control board failure – Watch Dog Timer

Dip Switch Settings

AE2400 $1-$5	**AE2600 $1-$20**	**VN2500 $1-$5**
1. ON	1. ON	1. ON
2. ON	2. ON	2. ON
3. OFF	3. ON	3. OFF
4. ON	4. ON	4. ON
5. ON	5. ON	5. ON
6. ON	6. OFF	6. ON
7. OFF	7. OFF	7. ON
8. ON	8. ON	8. OFF

Technical Assistance

Prior to calling please confirm the dip switches on the validator match the required settings. This is our most frequent phone call.

Technical Assistance for kit part number KITRBC1200BD-MAEVN is available from 9:00am – 4:00pm EST at (800) 814-7756.

Revision 120303

BC 1200 Control Board Kit

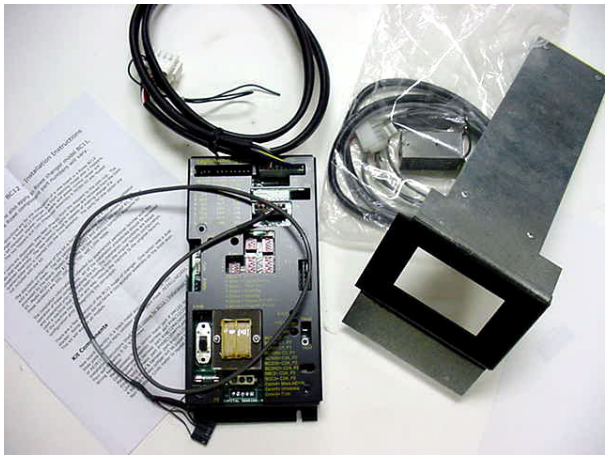


Image 1

Image 2

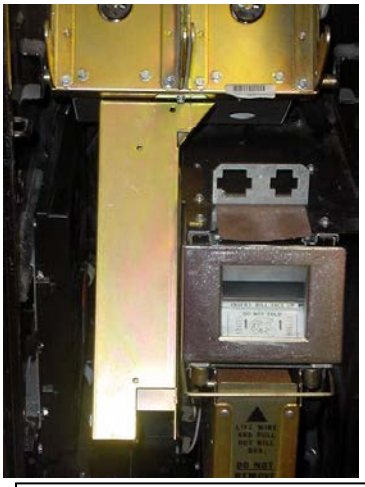
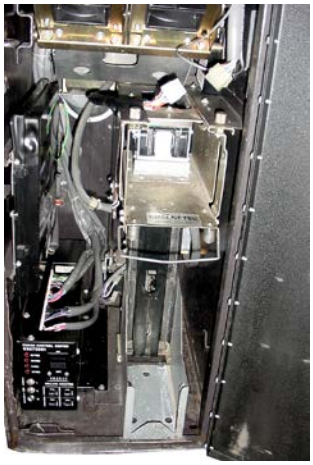


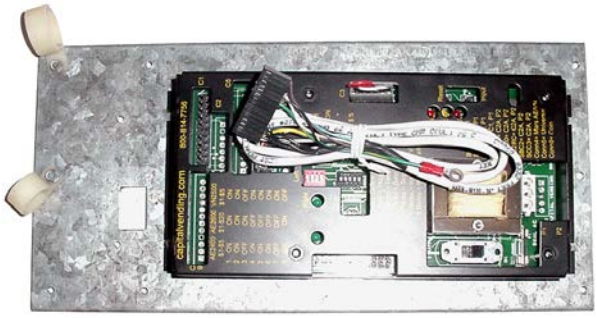
Image 3

Image 4



BC 1200 Control Board Kit

Image 7



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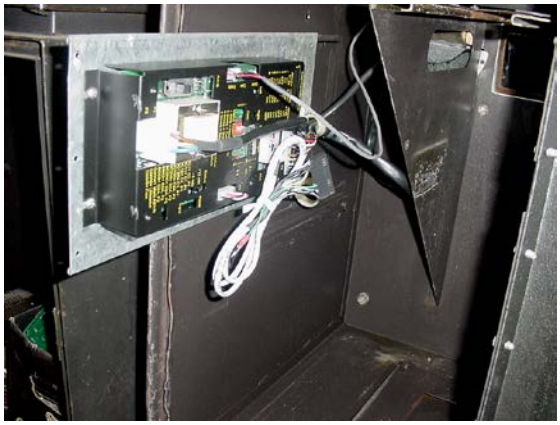
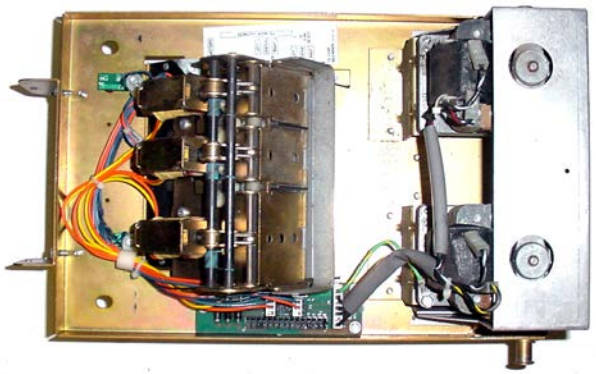


Image 9

Image 10

BC 1200 Coin Payout Modification



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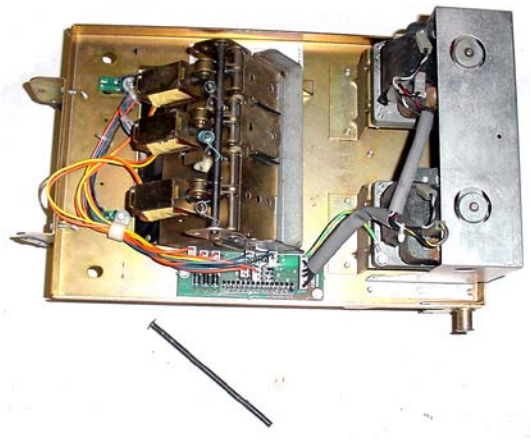

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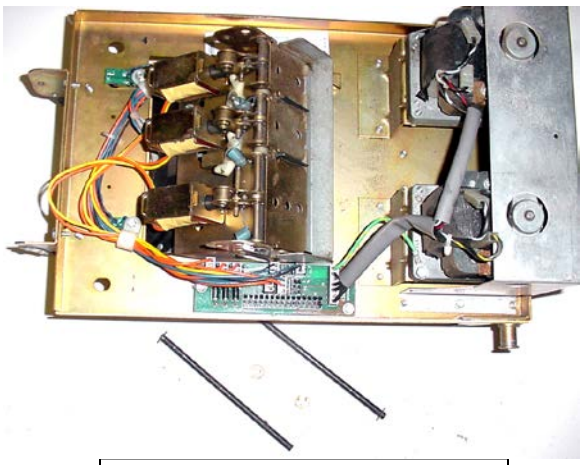

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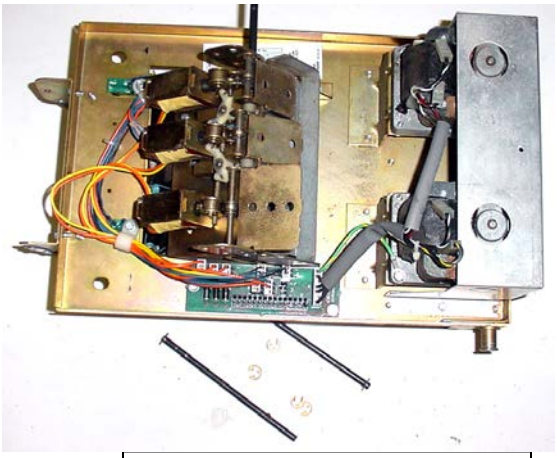

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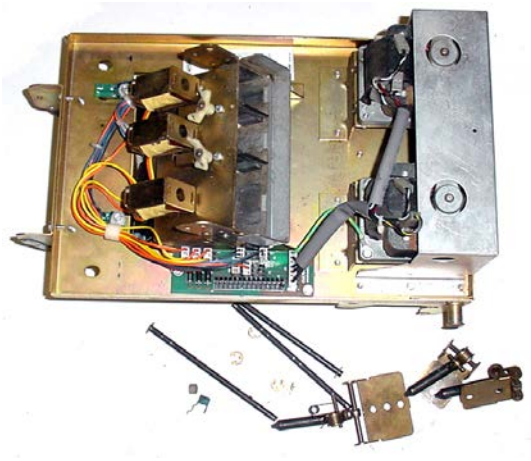
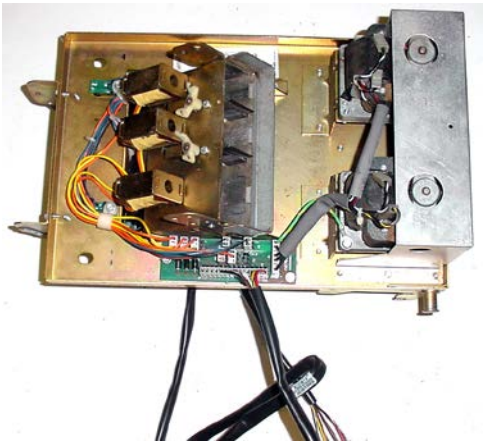
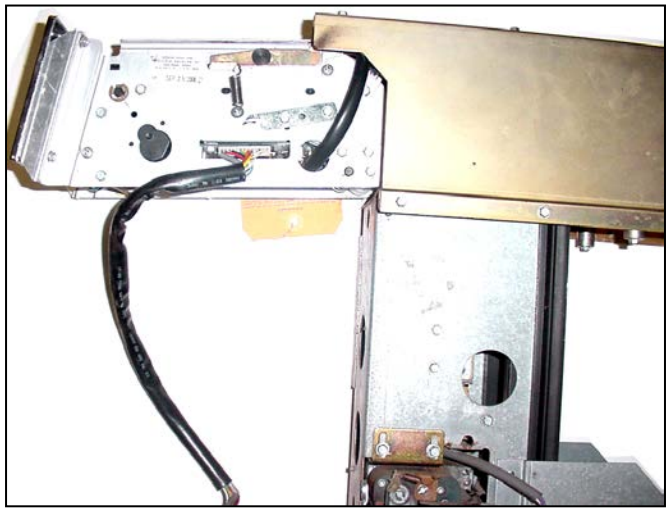




Rowe BCxx00 Transport Modification



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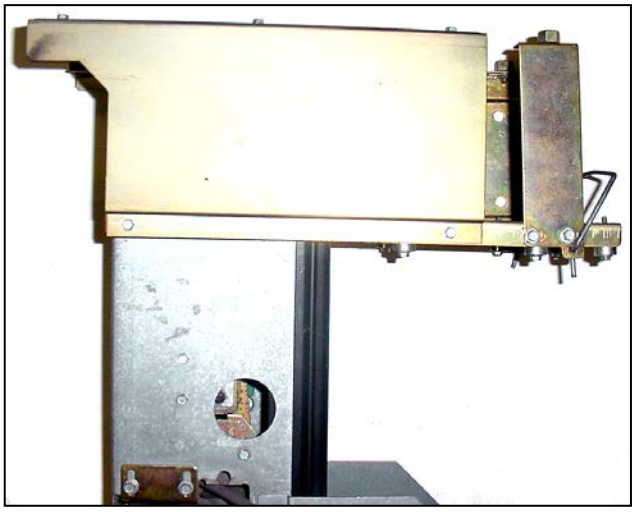


Image 2

Image 3

Bullet Bulb for Rowe Changers

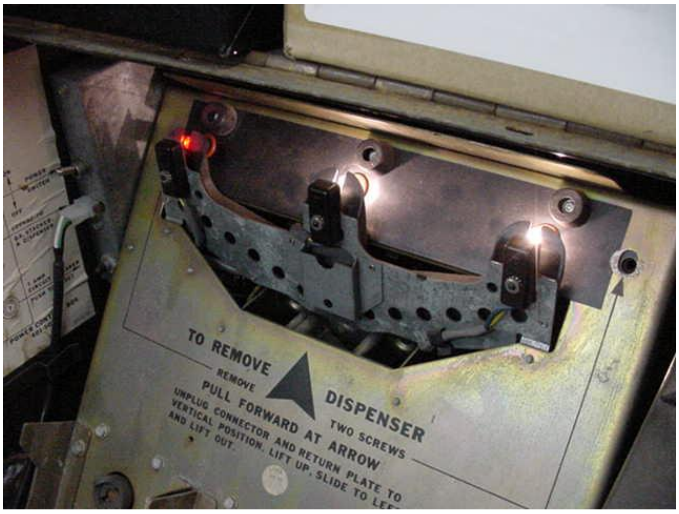
This custom part replaces the *755* incandescent count emitter bulb in Rowe dollar bill changers. This part is installed in the coin dispenser assembly that is located behind the hoppers. This new part offers the advantage of a considerably longer life and will not fail due to vibrations. This is very important as Rowe changers shut down when the count emitter bulb fails. This item easily pays for it self by eliminating service calls and unnecessary downtime.

The "Bullet Bulb" can be installed in a bill changer that originally used an incandescent lamp *BC2RC, SCC3, BC9, C10, BC11, BC115, BC12, BC12R, BC20, BC25, BC25MC*, and *BC35*.
Part# NRBULLETBULB

For Rowe changer models *BC100, BC150, BC200, BC1200, BC1400, BC2800, and BC3500.*
Part # NRBULBxx00

Installation: On location installation time of 5 minutes or less.

Tools Required: Regular screwdriver, *3/8*" socket or pliers to remove the *2* bolts securing the coin dispenser assembly.



New Bullet Bulb shown on left hand side

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