

The Rowe BC-1 bill changer [\$1 or \$5] changer with an OBA acceptor will be around for many more years.

The BC-1 bill changers do need a certain amount of preventive maintenance and cleaning. I will give you information on the cleaning the hoppers. Do it once a month or at least every six months. Lubricate the dispenser motor and coin escrow assembly once a year. The acceptor rollers and bearings should be lubricated once a year. **Do not** lubricate the anticheat flipper.

Running the acceptor into the ground means you may have major expense when the acceptor cannot no longer accept bills. Like all bil changers many problems have to do with the acceptor getting tired and worn. Remenber when every rejected bill cuts the acceptor life down by two [2] bills. If several attempts are made to accept a bill that will cut the acceptor life by fourteen [14] bills.

The BC-1 uses an OBA acceptor and it should be taken out and cleaned and lubricated at lease once a year. If the acceptor gets high usage, lubricate it every \$30,000. Clean the belts, leds and photocells with Kodak lens cleaner. When removing and replacing the acceptor be mindful of the type of screw (long or short) and where they go. The short screw and washer must be used on the lower side of the bracket because a long screw can hit the OBA's drive gear.

A problem noted over the years is No or wrong payout. Some how maybe when removing the money from the stacker, the payout switches on the depenser control board get changed. If there is a payout coin count problem check the payout switches and if need be reset them. No one seems to know how these switches get changed.

Failure of the 755 bulb behind the hopper will occur from time to time so have 755 bulbs on hand. The dispenser board will show a [C] if a 755 is weak or dead.

If the AC power is turned off when a major error is displayed on the LED when the power is turned on again a [1] will be displayed. So...Look at the error display and record the error code BEFORE turning off

the AC power. If a 1 does exist reset the computer and see if the error code appears on the display. Write down the error code. When a major problem does occur the machine will shutdown and the stacker push plate will be pushed into the cash box section of the stacker. You cannot open the stacker without doing damage if an error exists. Attempts to open the stacker have caused a great deal of damage to the stacker. You have to fix the problem and then the stacker will reset. If the problem is in the stacker, remove it from the bill changer.

Rowe now has a computer update IC for those of you who use the BC-1 to accept new \$5 bills. It requires unsoldering and resoldering of the main computer 40 pin IC. You will need to have the newer upper version computer board which has 1 computer IC and no eprom. The update part cost around \$40.00 + Labor installation costs

Dispensor control lockups can occur with the BC-1 as in any computer. Computer lockup can cause the solenoid to burn up, damage the dispensor control and maybe the stacker to cycle contentiously. Fixing the dispensor board and maybe replacing a burned solenoid may not be enough. Always check the .39 ohm 2 watt resistor and the TIP 102. In some cases further damage occurred and the problem of lockup was traced to bad stacker relay boards. Over the years I have noted stacker problems and other bill changer problems which are due to a stacker relay with badly burned or pitted contacts. The relay is mounted on a small board in the stacker. First check the connections going to the relay board are tightened by removing the pins, re-forming the and replacing them back into the connector. You can replace the entire really board or replace the relay, .1 mfd @ 400 volts and the 100 ohm [use carbon resistor]. Also check and/or resolder every connection on the relay board.

In another cases, the micro switches were slightly out of adjustment and sometimes the relay would dropout. You may be able to see the relay arc as the stacker reaches the home position.

Lockups can also be caused by bad diodes on the solenoid and/or the counter diode in the power unit. Since testing the diode with a

Rowe BC1 Bill Changers Page 2

meter is not a valid test just replace both of them with 1N5404 diodes. We have seen solenoids break down once in 1500 vendos so replace the solenoid too.

Some dispensor problems have been occurred because of the power control relay in the dispensor had burned or pitted contacts. The contacts are hard to clean so you may need a replacement relay.

As always, bad connections and bad contacts can cause computer lockups and crashes. They can be located anywhere. Check the connectors on the power supply.

Also check to OBA cable at the OBA end. Tape up any exposed shields so they don't touch each other or any metal. Pull out the OBA control box and clean/erase the two connectors on the control unit.

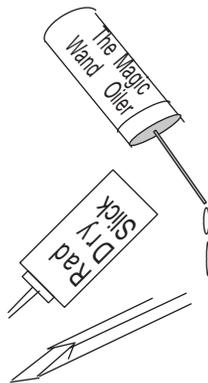
Remove the dispenser control unit and clean/erase the contacts on the dispenser board.

Lockups can also occur from glitches and

voltage problems which come down the AC line. All too often many service people seldom look for AC line voltage and glitch problems. A good device and investment is one of those multimeters which record Max hi-low readings. Some people have spent months and many dollars and never saw voltage problems until they used a Max Hi-low meter.

CLEANING ROWE HOPPERS !

Just brushing a Rowe hopper is not good enough to get rid of dirt build up on either side of the chain, A person should not scrap the plate with a sharp object like a screw-driver or use something like steel wool. Would you use these items to scrap a teflon coated pan ? Of course not ! You can make a wooden chisel out of hard wood or file/grind the back end of the hopper brush into a wooden or plastic chisel.



Rad Dry Slick !

What can you use to clean Rowe hoppers and coin mechs ? The product called Rad Dry Slick is a very good cleaner when wet and when it dries, it leaves a slick surface film which does not collect dirt. I do not recommend its use where a build up will cause a serious tightening. (such as tight shaft and nylon bearing). There is no problem when used on a Rowe hopper or on the coin mech area where the coin slides.

Why does a vendor push the limits of an acceptor in a stickation mode and keep it on line until it will not accept bills. This does additional harm to all of the acceptor parts, but even more important, the amount of money found in the bill box. This is much less then it would be with a good acceptor. In 99 % of the cases I see, serious damage from knives or other sharp objects, the acceptor was in a frozen, or stickation, mode. This is why I say : " May the Magic Wand Oiler be with you ! "



BC_1.ps
MAR 3,2003 1V

OBA Acceptor lubrication, cleaning & rebuilding

Warning: Do not over lubricate or get oil on the belts

Use wire hold down springs on newer Mag head assembly

Part # 35112301

upper rear rollers
Keep oil away from the anticheat lever, Oil outside edges only

2 top belt input rollers

2 Take up rollers

2 large rollers

Gear shaft pin

Older OBAs have a motor belt roller.

2 side shaft bearings 2 (4) total

Top view Upper input assembly

Note: Cleaning gray or orange upper belts is only a short term fix. Replace with semi-clear belts. Blacks when worn.

Lower input rubber roller assembly Look for E clips

Bottom view

The Rowe OBA manual does not give a preventive maintenance schedule for lubrication. If you wait till acceptor slows down, the damage to all parts has already occurred. Lubrication should be done at least once a year or more often when the OBA gets high usage. Save yourself expensive repair costs and keep the bill box filled !

Clean the photo cells and LEDs with Kodax lens cleaner, belts with rubber drive cleaner or denatured alcohol (Paint supply store), and the mag head pressure roller with scotch tape. Do not remove the mag head from the head assembly because it is normally factory aligned with a special alignment fixtur.

If you use those pre-soaked cleaning cards, let them dry first, then put denatured alcohol (paint store) on them. ALWAYS finish by running a dry card into the acceptor. Never leave the Mag head pressure roller wet. Clean only when dirty.

Replacing worn belts may require replacing worn shafts, cleaning rollers (use gun wire brush) and lubrication. If you take short cut the acceptor may not operate correctly. OBAs may have a lot of wear so the mag head and pressure roller may need replacement. Always use the newer extended tab anticheat and lighter (blue) spring. Do not use those hi-low sheet metal screws in the head holder. Use the hold down springs.

OBA_Lube Jan 6,2002 1 T



To join the MAGIC WAND CLUB buy one of NECo's Trinity Oilers or a similar type.

Your dues are:

1 Buy an oiler, Radio Shack's lubricator # 64-2301A or Rowe's silicone lubricant 270628-01

2 Use it for preventive maintenance.

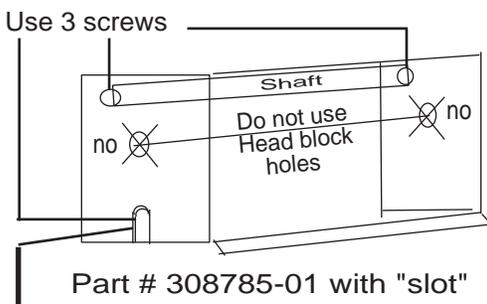
- Warning -
3 Over lubrication and/or getting oil on the belts voids your membership. More is not always better !

When the oiler is empty you will be a full member in the :



4900 Single board ,OBA Bracket

With an OBA with a new Head assembly (no metal inserts for screws) use the Hold-Down wire springs [part # 35112301 and use the newer OBA 4900 bracket. use only three (3) screws. If you have the older bracket which does not have the slot-hole drill a new hole in the older bracket.



No slot, then drill a new hole in the bracket !

SPEED ADJUST ON OBA 4-50575-xx UNITS

Speed adjust is a must ! There is only a 3 % acceptance range. The speed must be adjusted BEFORE using my mag adjust procedure, With a good lubricated acceptor, good control unit with good cable and clean connectors start with the FAULT indicator OFF. Turn switch #6 ON as marked on the cover and press the TEST switch. Slowly adjust the speed until the FAULT indicator stays OFF. If you can not keep it off, keep it off as much as possible. Blinking on and off may mean you need another acceptor or you have a problem in the system. You can leave #6 on if you are going to use the [Bruno] Mag adjust system

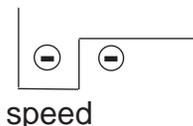
Where they exist, Speed and/or Mag adjustments is a must. Many acceptors do not have a speed and/or mag adjustment.

SPEED ADJUSTMENTS OTHER THAN 4-50575-xx Units

Before doing a Mag adjust, you must make the speed adjustment first. No amount of speed and/or Mag adjusting will fix an acceptor which has stickation problem and it needs lubrication. After you adjust the speed, it may accept bills for a short period but if the acceptor has stickation, and you take no action, you will be back.

Most control units use a status or fault indicator for adjusting the speed. Press the TEST button or the reset button. Adjust the speed until the status (or fault) indicator stays on all the time. If it blinks perhaps there is an acceptor or a control unit problem.

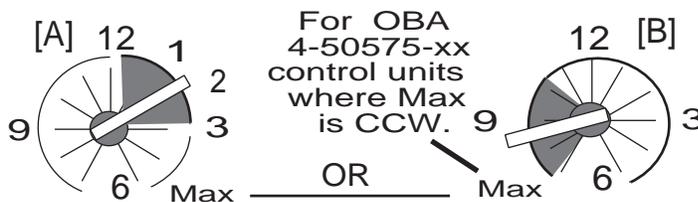
Older CBA/UCBA-2s have a speed adjustment pot. New upside down modules do not. Make sure you adjust the "speed " pot and not one of the other pots.



Spd_mag1M March 03, 2003 1M

Adjusting Rowe Mag Gains

There are many reasons to adjust the mag gain as listed below. If a speed adjust exists, adjust the speed FIRST. With an average bill, start at one end and insert the bill. Move one clock position and reinsert the bill and repeat the process until it is accepted. Note this position, say 12 noon. Go to the other end of the pot and repeat the process again going back one clock position till the bill is accepted. Say 3 pm. Set the mag gain between the 2 accept points (shaded area) at 1:30 or 2. See [A]. With OBA 4-50575-xx [B] units Max is CCW. You may find the range is between 7:30 and 10 so you would set the gain at 9 or 8:30. If it does not work when tested, repeat the process with another bill. In checking, you may find you get some rejections and the adjustment wants to be closer to the Max position or Min position. If the unit gives an error code when the bill is rejected. Use them and the manual as an aid. With the new \$5 conversion follow the procedure given in the installation note. Then you may have to try this system.



Bruno's "STICKATION"

STICKATION describes is a condition which occurs when an acceptor can not come up acceptance speed. Generally this occurs because the acceptor needs lubrication. If it has been at rest for a while, it can not make speed. With repeated inserts of the bill or adjusting the speed, the acceptor works but after a period of idle time, it slows down AGAIN.. Preventive lubrication is required and this will also cut down on wear and tear which leads to expensive repairs and exchanges costs. This is what Magic Wandings all about.

The Magic Wand Club !



Every \$30,000 or once a year which ever comes first !

Cleaning Mag Head Pressure Rollers

Rowe has designed a card using paper and thin double sided tape to clean ink, dirt, and other contaminants off the magnetic head pressure rollers. The one sticky side is attached to the paper and when you are ready to use the card remove the protective aper to expose the sticky tape. Then stick the card into the acceptor. While the cards were made for the BA50 acceptor they can be used on all Rowe acceptors (except the RBA-7) and other acceptors. Some acceptors do not pull the paper into the acceptor so you will have to hand crack the acceptor. People who have seen me work know I always use tape to clean the roller/s under the magnetic head/s.



Rowe Part #
252548-01

Rowe now has a card
for the RBA-7.
Use
252548-03

Bruno

Clean51T.pgs Mar 05, 2005 1T



To join the MAGIC WAND CLUB buy one of NECo's Trinity Oilers or a similar type.

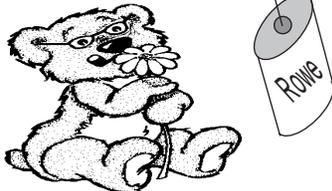
Your dues are:

- 1 Buy an oiler, Trinity, Radio Shack's Lubricator # 64-2301A or Rowe's silicone lubricant 270628-01
- 2 Use it for preventive maintenance.

- Warning -
3 Over lubrication and/or getting oil on the belts voids your membership. More is not always better !

When the oiler is empty you will be a full member in the :

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Bruno



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Bear does
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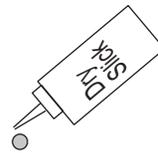
Rubber and belt cleaning should be done when cleaning and lubricating the acceptor. It should be at least once a year and more often in a dirty location. Do not over use the rubber cleaner ! Apply evenly with a soft cloth until clean. Wipe off all excess including the edges. Re-Grip is a cleaner and revitalizer.

Re-Grip
Rubber
Cleaner

Cleaning Rowe Hoppers and Dry Slick !

What can you use to clean and lubricate Rowe Hoppers and clean coin mechs ? Brushing alone is not good enough. Make a wooden or plastic chisel to clean off the hard dirt on either side of the chain. You can grind or file the end of the hopper brush to make a chisel. The product called Dry/Slick is a very good cleaner when wet and when it dries it leaves a surface film which does not collect dirt. It also lubricates the hopper chain. I do not recommend Dry/Slick use where a build up will cause a serious tightening (such as tight shaft and nylon bearing). There is no problem when used on a Rowe hopper or on the coin mech area where the coin slides.

If you can't get hoppers to work right remember "Bruno" can refurbisher your hopper and fix the rivet problem too. . Generally the cost per hopper is \$80-\$100 if it has normal wear and tear.



More good
stuff !



Using those Cleaning Cards on Rowe Acceptors ?

Rowe original recommended using **denatured alcohol** (paint or hardware store) to clean Rowe bill acceptors so how can you use these cleaning cards? First, let the cards dry and then apply denatured alcohol on the paper to clean the acceptor. After cleaning with a wet card **ALWAYS run a dry card into the acceptor.**

Over kill should be avoided so **do not** use the cards every week, or month, but just when the belts start to get dirty. You can judge time between card use after the first time use by inspecting the amount of dirt picked up on the card.

At some point in time you may want to check out my other Bear notebook articles because they contain a great deal of related material. You will find them on Bruno's Page in <http://www.eastcoastamusements.com/> then: left click on: **Visit his page for service notes and tips.** **OR:** <http://www.eastcoastamusements.com/services.htm> and then click on the BEAR with the flower!!

Note: These files were checked with Acrobat Reader 7.0. Earlier versions **may not** view/print correctly. I know version 5.0 will not work correctly.

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You will want to check the East Coast Amusements site for revised or new articles. I do have more titles in the works. Here are some the posted articles.

ROWE 4900 ACCEPTOR ISSUES
ROWE BC-1 BILL CHANGER
THE MAGIC WAND (Dick's - my favorite)!
CONNECTORS - FIXING AND TESTING (another good one)
ROWE BILL CHANGER HOPPER REPAIR
MEASURING VOLTAGES
BUCKET POWER ON ERRORS
ROWE STACKERS
MAG HEAD LOOP SECRETS
DREMEL & ROWE STUFF
FEK MOTOR TEST UNIT
OBA ACCEPTORS
JACKPOTTING, FS, BUCKET POWER ON & CRASHES
BC-8 to BC-35 Bill Changers
CBA_UCBA
Basics_101
BCxx00_bill_changers

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Adobe Acrobat printing of some drawn picture pages correctly may require using Acrobat printer setup and setting Print to image on.

Please take note that East Coast Amusements is supplying the Bear Note pages on their web site for you and for me at their expense. I just write and East Coast Amusements does all the rest.

To East Coast Amusements
> THANKS ! Bruno

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