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User Manual

Model: NBFC

INTRODUCTION

Congratulations on the purchase of your new **Nano-Brewery Filler Crowner** from **CBK Fillers**! This unit will compliment your existing brewery with a quick and efficient packaging system. The NBFC uses a **touch-screen** to provide simple, intuitive controls for operation, and visual confirmation of the machine's active operations.
The NBFC, when optimally calibrated, will provide your brewery with a 4-7 bottles-per-minute production rate (depending on bottle size).

The NBFC is controlled by a **Programmable Logic Controller** (**PLC**) and includes the following features:

- Pneumatic process control
- Integrated Cleaning-In-Place operations
- CO_2 pre-purge
- Long-tube Counter-Pressure Fill
- Adjustable Snift
- Automatic crown placement

The following manual will provide detailed instructions for assembling and operating the NBFC. There are also instructions for changing bottle sizes, aligning the NBFC, and some quick troubleshooting tips.

Cheers!

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REQUIREMENTS

- 120V AC / 15 amp power source (240V AC / 50Hz available)
- Dry, compressed air at 5cfm and 80-100 PSI
- CO_2 at 25 PSI
- Product from keg or tank at 1-2°C

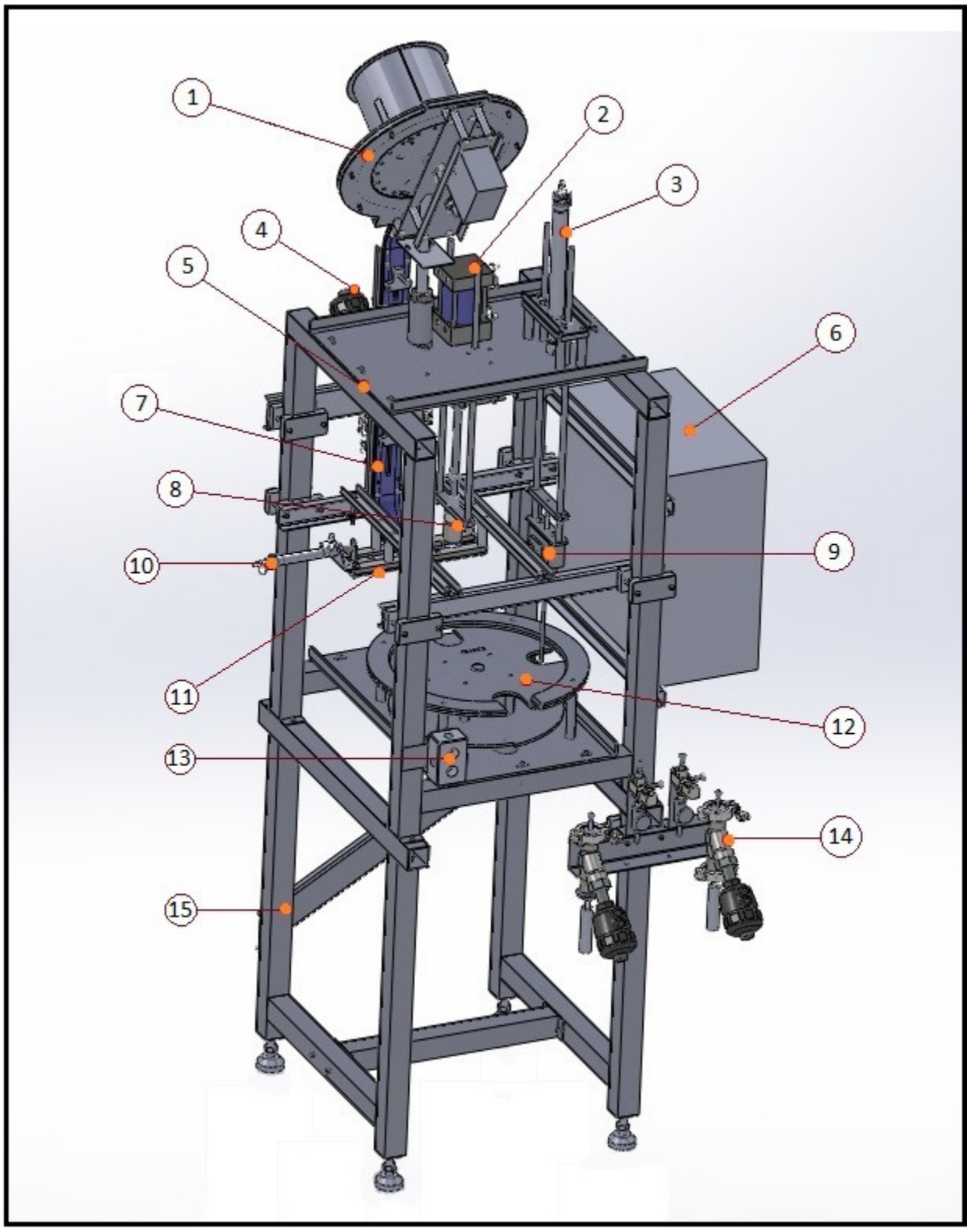
TOOLS

- 5M Allen wrench
- 3⁄16” Allen wrench
- 8M Allen wrench
- 3M Allen wrench
- 10mm socket or wrench
- 7mm socket
- 8mm wrench
- 3⁄4” wrench
- 11⁄16” wrench
- Adjustable “crescent” wrench
- Rubber mallet
- Torpedo level
- Measuring tape
- Electric drill with #2 Robertson screw bit
  (a #2 Robertson screwdriver will suffice, but the drill will save time)
- Hand-held circular saw or reciprocating saw

CRATE CONTENTS

- Top Frame Assembly
- Base Frame (not assembled)
- Crown Sorter Assembly
- Socket-head bolts for frame assembly
- Parts for alternate bottle sizes (Fill Tube, inner rotation guide, outer rotation guide)
- Spare parts (Fill Head, Cylinder Sensor)
- Optional Equipment (Tabletop Rinser, Tabletop Labeller)

OVERVIEW



OVERVIEW cont'd

1	**CROWN SORTER**	load your crown supply here
2	**CROWN CYLINDER**	actuates Crown Head
3	**FILL CYLINDER**	actuates Fill Head
4	**UPPER VALVE ASSEMBLY**	contains Snift In, Offgas In valves; also CO_2 manifold
5	**TOP FRAME ASSEMBLY**	upper section of NBFC
6	**CONTROL PANEL**	houses all of NBFC's electronic controls
7	**CROWN SORTER CHUTE**	distributes crowns to Slide Assembly
8	**CROWN HEAD**	presses crowns onto bottles
9	**FILL HEAD**	fills bottle with beer, CO_2
10	**SLIDE CYLINDER**	actuates Crown Slide
11	**CROWN SLIDE ASSEMBLY**	supplies crowns to the Crown Head
12	**BOTTLE GUIDE ASSEMBLY**	aligns bottles as they are filled and crowned
13	**AUXILLARY CONTROLS**	Stop switch and Start Fill button
14	**LOWER VALVE ASSEMBLY**	contains Snift and Offgas Out valves, vacuums
15	**BASE FRAME ASSEMBLY**	stable, height-adjustable base for NBFC

ASSEMBLY

This section will cover removing the NBFC from its shipping crate and setting the machine up for use

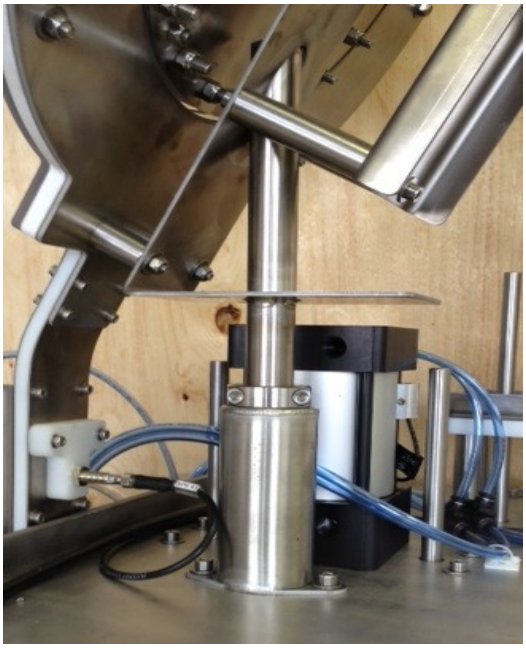
1. Remove the three small sheets of OSB from the front end of the crate by removing the screws with a #2 Robertson screw bit
2. Use a circular or reciprocating saw to cut around the base of the crate, 1-1⁄2” up from the bottom of the OSB sheets, with the cutting depth set to 1⁄2"

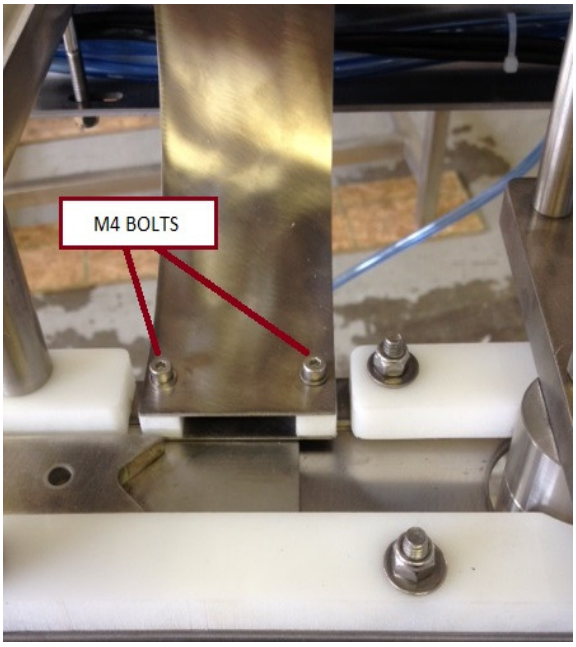
3. Tip back the upper half of the crate, leaving the machine open on the pallet
4. Using a 5M Allen key and a 10mm socket or wrench, remove the bolts holding the machine on the pallet. You will have to reach under the pallet with the Allen key to get at the bolts
5. Remove all components and lay them out in your assembly area. See **Crate Contents** on page 3 for a complete list.
6. Assemble the **Base Frame** as it is shown in the Overview on page 2. Use the 65mm socket-head frame bolts provided.
7. Carefully lift the **Top Frame** assembly onto the **Base Frame**, ensuring that each of the 4 feet is lined up with the corre4sponding holes in the Base Frame. When lifting the Top Frame Assembly, lift by the corners of the frame, **NOT the Control Panel or any of the Valve Assemblies**. Secure the two frames together with the 65mm frame bolts.

NOTE

The Top Frame Assembly is VERY heavy. Lifting it by hand will require at least 2 people. A forklift or chain hoist will work as well. However, try to keep ferrous metal (such as forks or chains) from touching the stainless steel frame, as it can lead to corrosion.

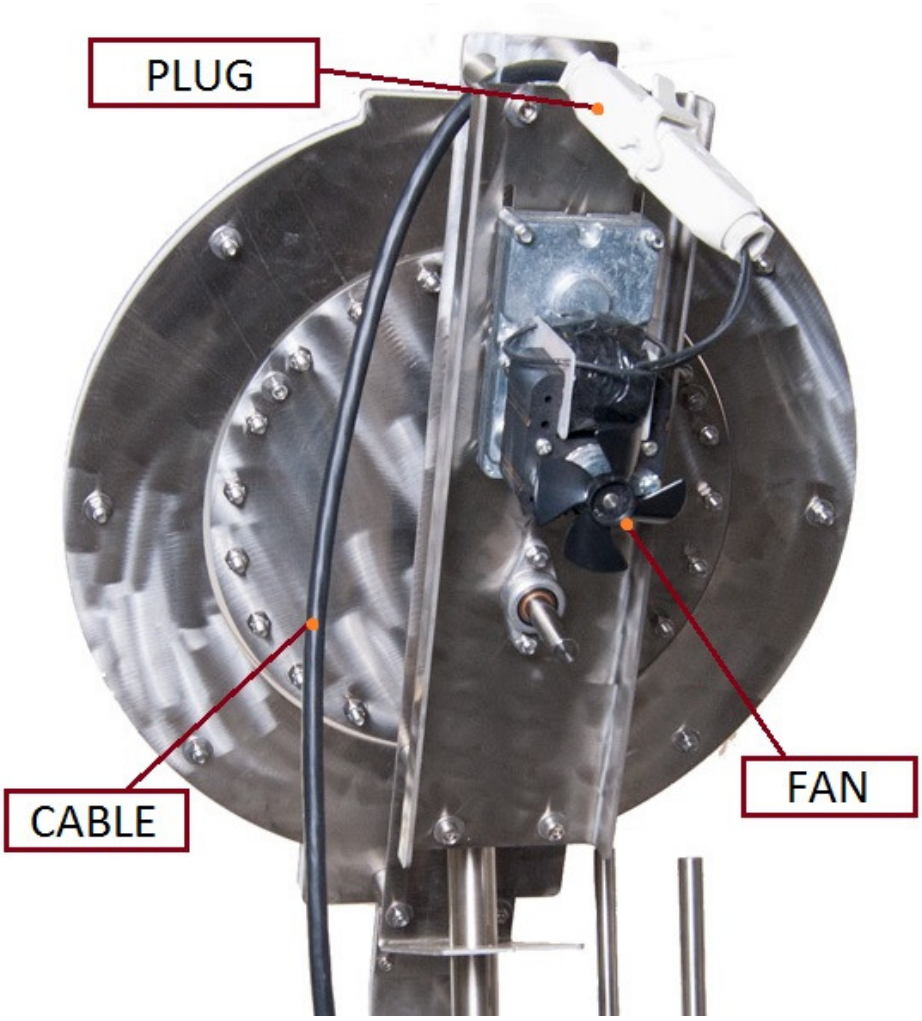
8. Take the Crown Sorter Assembly, holding it by its mounting shaft and the Crown Chute. Insert the mounting shaft into the receptacle on the top of the NBFC, next to the Crown Cylinder. Carefully guide the chute down to the Crown Slide Assembly, taking care not to hit the small Chute Cylinders on the frame. The bottom of the chute fits into the opening on the side of the Crown Slide Assembly, and is held in place by the two M4 bolts there. Use an M3 Allen key and a 7mm socket to fasten them, as shown.





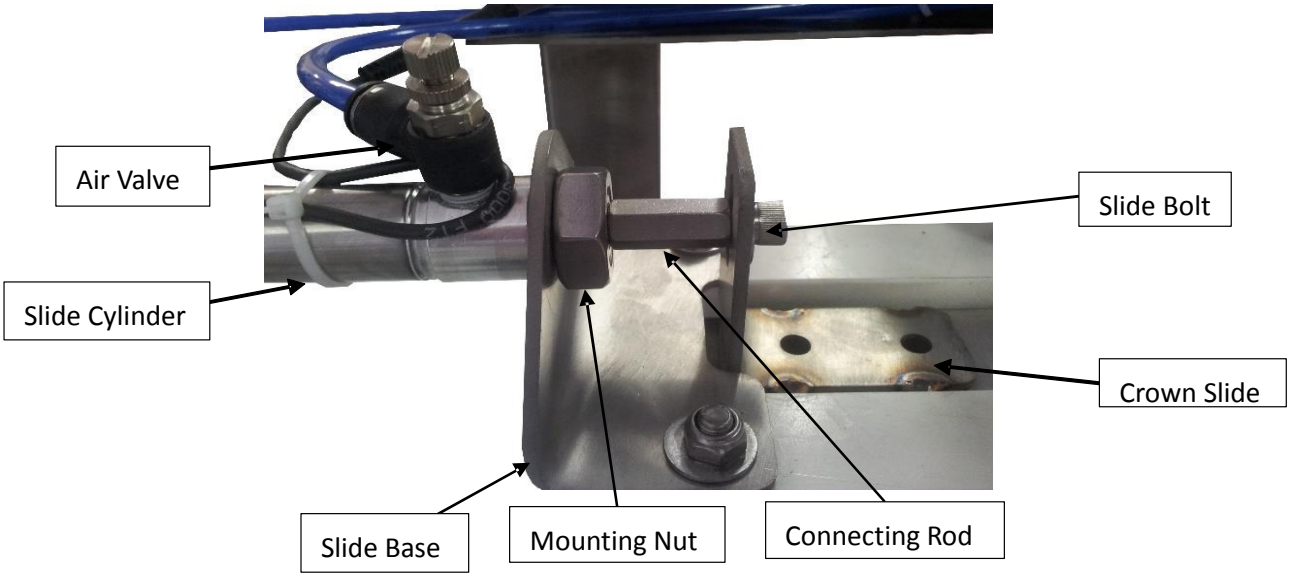
9. Connect the blue air hoses hanging off the Crown Sorter Assembly to their corresponding one-touch fittings. These are found on the top plate of the Top Frame Assembly. The hoses and fittings will be numbered accordingly.

10. Also located on the top plate is the Sorter Motor Power Cable. Guide it through the two zip-ties hanging loose from the Crown Sorter Assembly and connect it into the corresponding plug on the Sorter Motor. Tighten the zip ties to ensure the cable doesn't interfere with the Sorter Motor Drive Chain, or the Sorter Motor's cooling fan.



11. Cut the zip-ties holding the **Slide Cylinder** to the frame. Unscrew the **Mounting Nut** and **Slide Bolt**. Install the cylinder by positioning it (with air valves facing up) in the

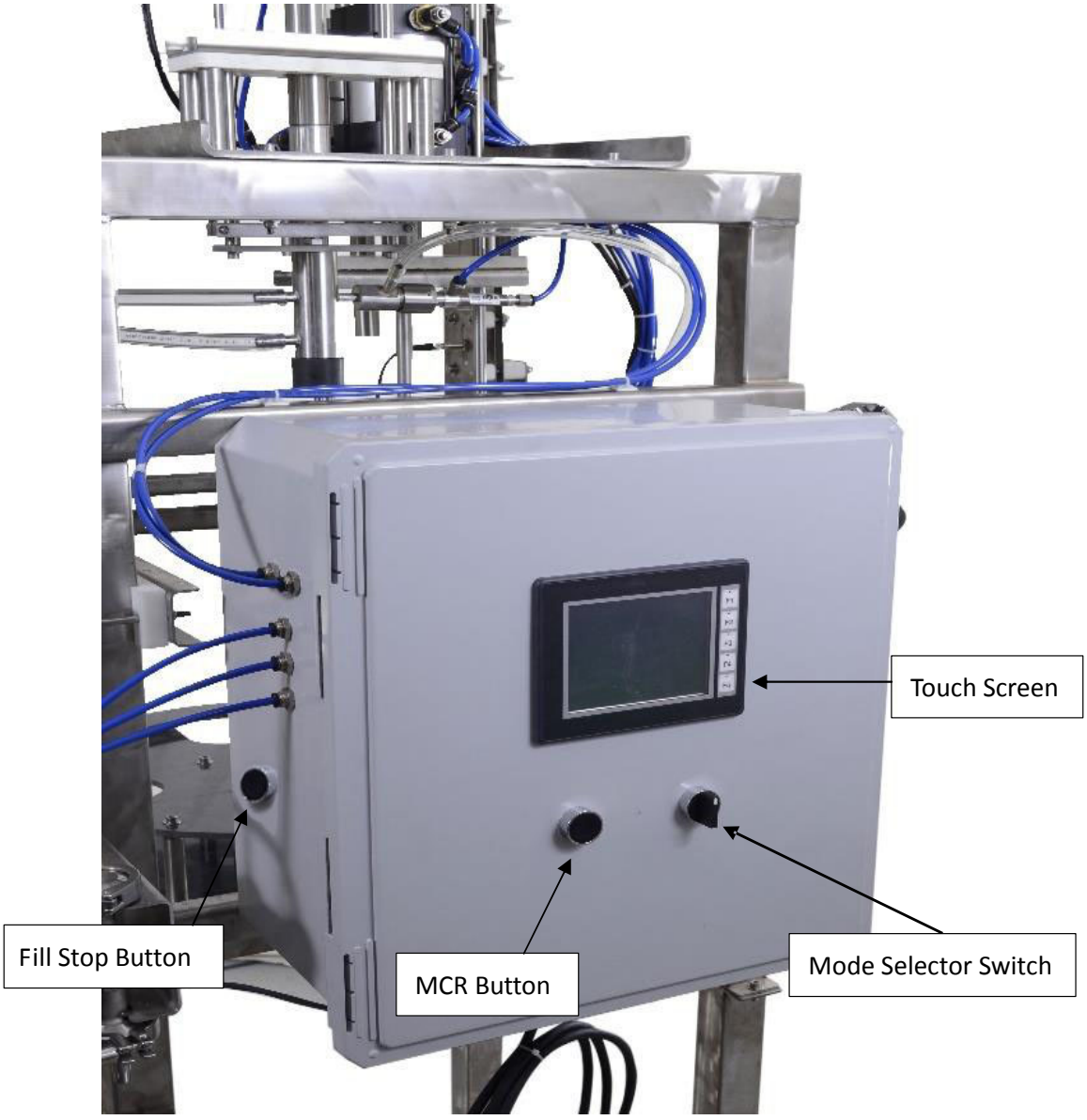
mounting hole on the end of the **Slide Base**. Secure it by threading the **Mounting Nut** onto the thread protruding from the mounting hole, and tighten it with an adjustable crescent wrench. Attach the **Connecting Rod** of the cylinder to the slide with the **Slide Bolt**



12. Using the 5M Allen key and 10mm socket, unbolt the bracket holding the **Lower Valve Assembly** from the **Top Frame** and move it to the **Base Frame**. Ensure the hoses running from the **Fill Head** to the valves are not kinked. Manually extend and retract the Fill Head to ensure the hoses are not stretched and do not interfere with the bottling process.
13. Place 4 bottles on the **Rotary Table** and ensure that the **Fill Head** and **Crowning Head** line up with the mouth of each bottle. The Fill Tube and the Crown Head should be **concentric** with the mouth of each bottle. If the machine is out of alignment, see “Alignment” on page 34
14. Put a few handfuls of crowns in the **Crown Sorter**
15. Plug the power cord into an acceptable 3-prong, 120V outlet. The NBFC is now ready to use.

THE CONTROL PANEL

The control panel contains the electronic and pneumatic controls at the heart of the NBFC. Pictured below are the main controls: the **Touch Screen**, the **MCR Button**, the **Mode Selector Switch**, and the **Fill Stop Button**.

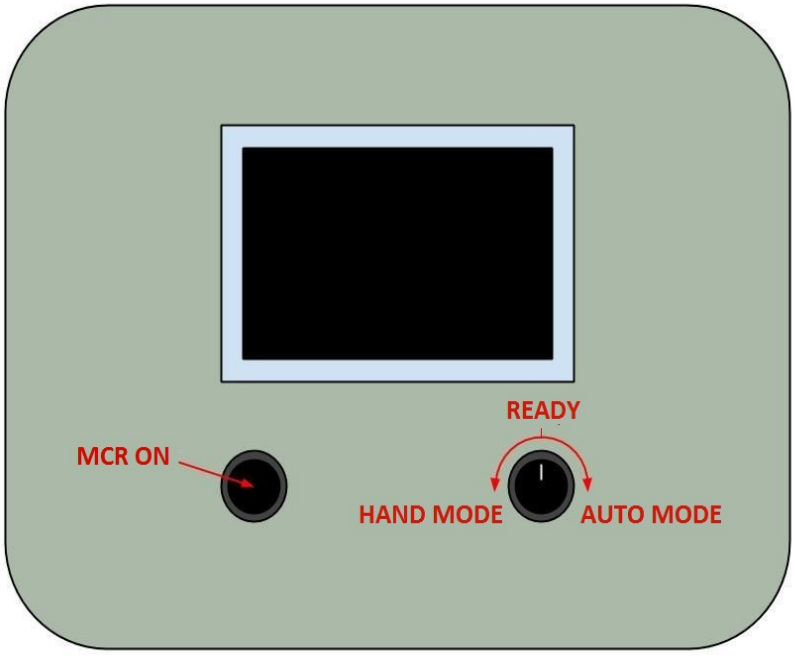


Once you have plugged in the NBFC, flip the **Circuit Breakers** into their **ON** positions. This will power up the NBFC. The breakers can be left on and the machine powered up or down simply by unplugging the cord. Alternatively, you can leave the cord plugged in and use the breakers as a power switch. The **Touch Screen** will light up and boot to the Info Screen when the machine is correctly powered up.

NOTE: If leaving the NBFC for any length of time with product or cleaning solution in the system, be sure to leave the power **ON.**

THE MODE SELECTOR SWITCH

The **Mode Selector Switch** has three positions, as shown below. Select **Hand Mode** for cleaning, aligning, or troubleshooting the NBFC. Select **Auto Mode** to run the Fill and Crowner Cycles. Selecting **Ready** will make the machine "pause" at any point. Use this to safely clear obstructions during operation cycles, or when stepping away from the machine for a short time.



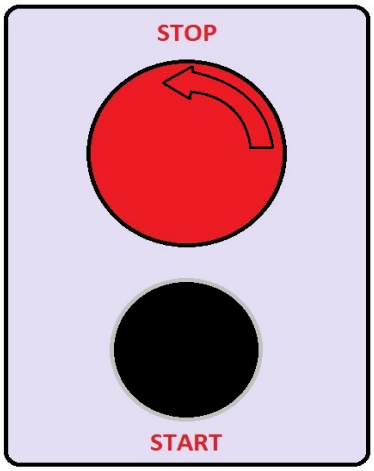
THE MCR BUTTON

The **MCR** (**Master Control Relay**) must be turned on to use the NBFC's pneumatic controls. When the machine is powered up, the MCR is not on. Operation parameters can be changed on the **Touch Screen**, and the **Mode Selector Switch** can be used to change modes, but the

machine will not run. When you are ready to activate the MCR, push the **MCR Button**. This button will not turn the MCR off. To turn the MCR off, depress the **Stop Button** on the auxiliary control panel (see **"Auxiliary Controls"** below). Ensure that there are no obstructions in the bottling area of the NBFC before turning on the MCR.

THE FILL STOP BUTTON

The **Fill Stop Button** ends the Fill Cycle. It is used when calibrating the automation of the Fill Cycle, which is described on page23



AUXILIARY CONTROLS

On the side of the NBFC you will find a small, auxiliary control panel. This houses the **Start** and **Stop** buttons. The black **Start Button** will initiate the Fill and Crowner cycles. The red **Stop Button**, when depressed, will turn off the MCR. This will shut down the NBFC's pneumatic systems, and should not be used during operation, except in emergency situations. To turn the MCR back on, twist the **Stop Button** counterclockwise to "open" it, and then press the **MCR Button**. If the **Stop Button** is "closed" or depressed, the **MCR Button** will have no effect. Turning off the MCR with the **Stop Button** is a good way to put the NBFC to "sleep" when leaving the machine for longer periods.

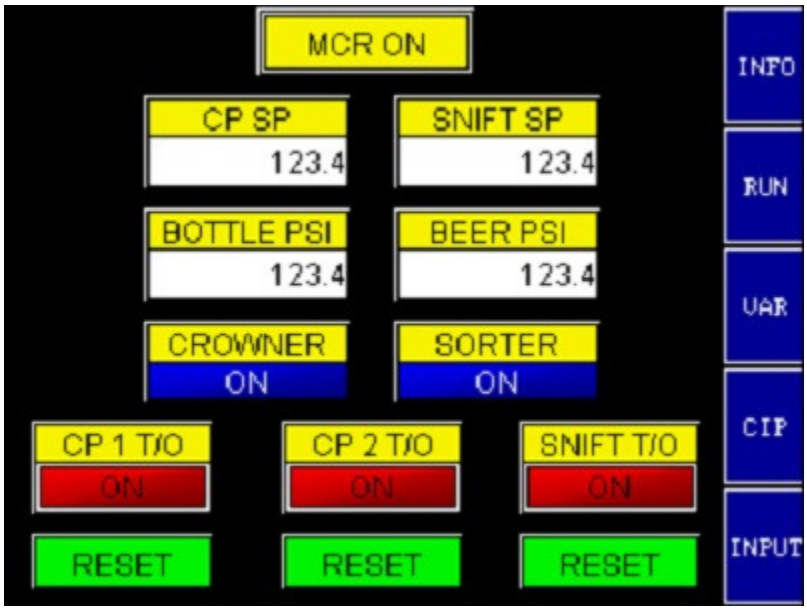
THE TOUCH SCREEN

The **Touch Screen** is the NBFC's data-entry interface, and can also be used to test and control the machine's pneumatic systems. The different processes are shown on five menus, or "**screens**", as detailed below. You can switch between screens at any point by pressing the blue Screen Icons on the right of the display, or the keys F1-F5 which correspond to them.

THE INFO SCREEN

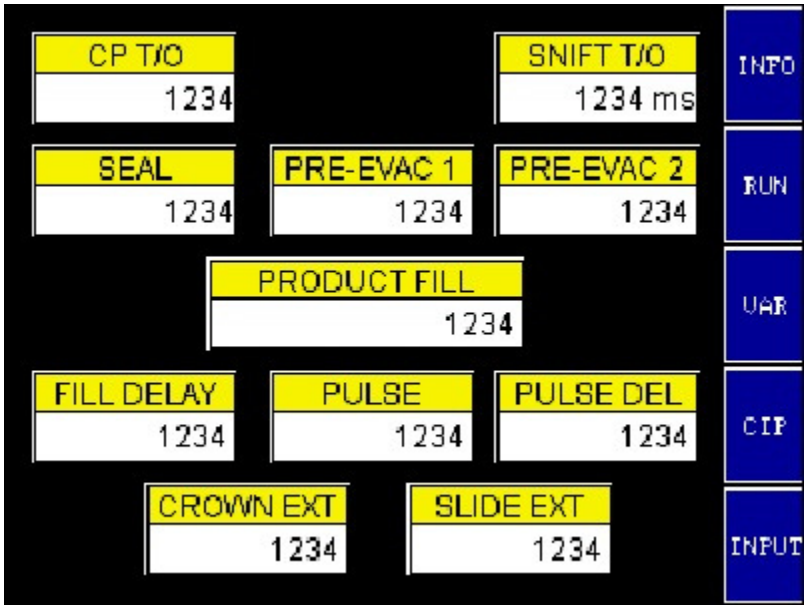
The **Info Screen** displays the NBFC's model number, PLC code, and HMI code, as well as contact info for us here at CBK Fillers, Ltd. It also displays a **Contrast Icon**, which you can use to adjust the Touch Screen's contrast for different lighting environments. Press the up and down arrows to increase or decrease the contrast.

THE RUN SCREEN



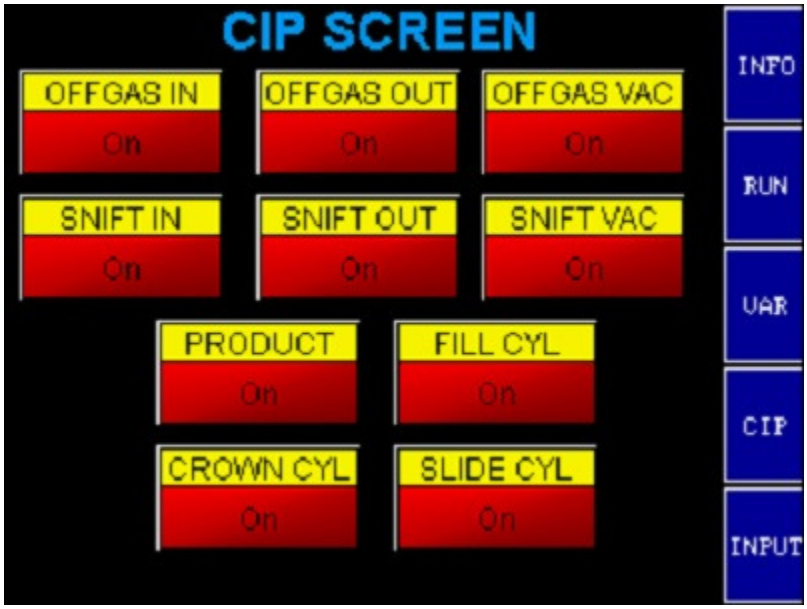
Pressing the RUN Icon or F2 will bring up the **Run Screen**. Once the machine has been set up and calibrated for your bottles, the Run Screen is where you can control the various automated cycles involved in the filling process. See the OPERATION and AUTO MODE sections for more information on these cycles. The Run Screen also shows if the **Master Control Relay** is activated or not, and the readings from the NBFC's pressure sensors.

THE VARIABLES SCREEN



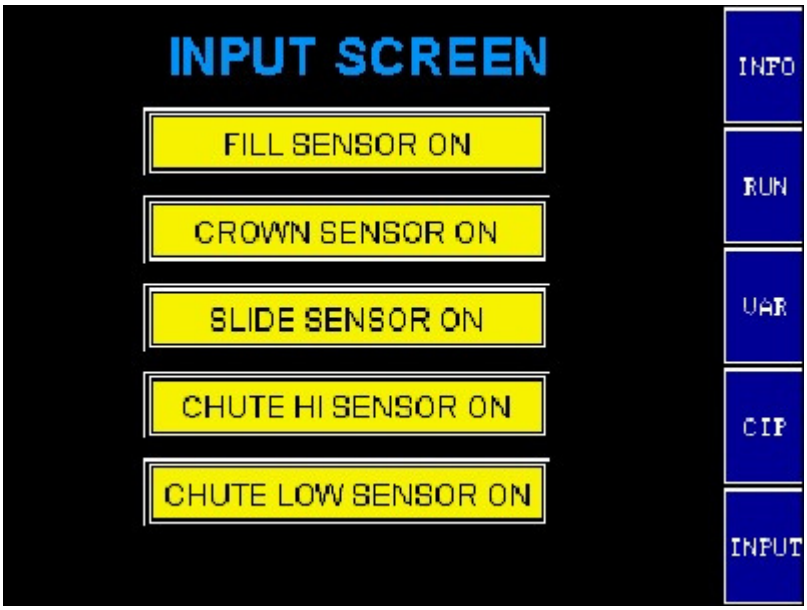
Press the **PROC VAR** icon to go to the **Variables Screen**. Here you can set the time variables for the NBFC's filling operations. To set each variable, simply touch the box containing the variable you wish to change. This will bring up the Variable Entry Keypad.
Each variable is represented in tenths of a second, so if you set **FILL DELAY** to 5, the delay time will be set to 5⁄10 of a second (half a second). If you want to set a variable to 5 seconds, enter 50, etc. If you make a mistake while entering a variable, press BS (backspace) to delete the last digit entered, or CLR to delete the entire field. Press ENT to confirm the variable you've entered and go back to the variables screen.

THE CIP SCREEN



Press the **HAND CIP** icon to go to the **ClP (Cleaning In Place) Screen**. This lets you actuate the NBFC's different valves and cylinders individually for easy cleaning and calibrating. In order to use the **CIP Screen**, the **Mode Selector Switch** must be in **Hand Mode**. This screen is also used when adjusting the machine for different bottle sizes, for general alignment, and for testing the various valves, cylinders, and their sensors prior to the bottling process. Once Hand Mode has been activated, press any of the boxes shown above to activate each cylinder or valve.
NOTE: The **SLIDE** and **CROWN** cylinders cannot be active at the same time. The NBFC is programmed not to allow this, but avoid pressing one while the other is active just in case. Damage to the machine may occur.

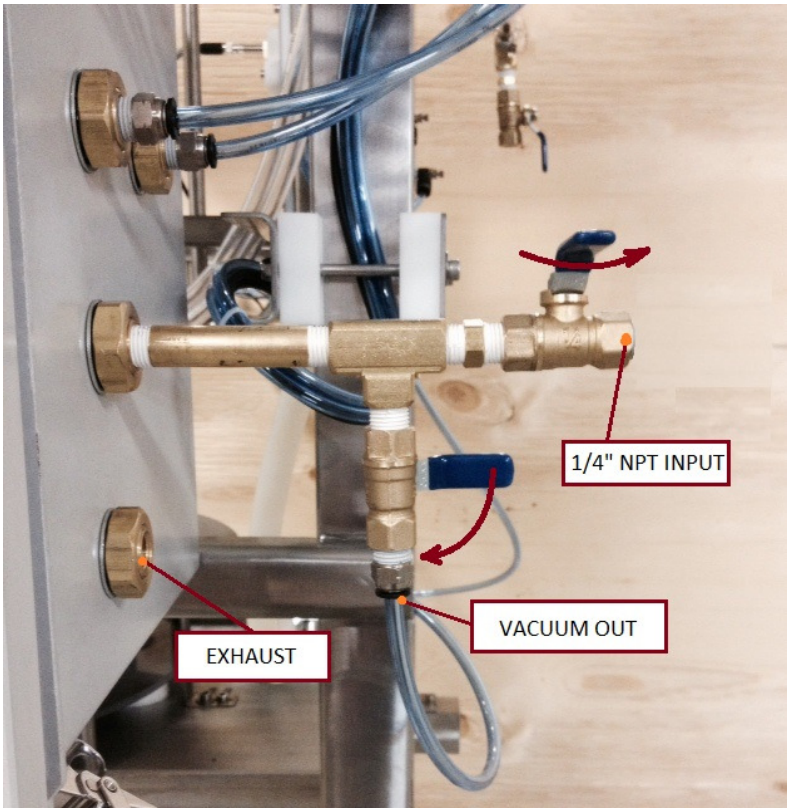
THE INPUT SCREEN



Press the **INPUT** icon to go to the **Input Screen**. This screen shows which of the NBFC's sensors are activated. The sensors are located on most of the pneumatic cylinders and on the Crown Sorter Chute. Testing the sensors after starting up the machine is an easy way to prevent jams. The inputs should light up when the cylinders are retracted, or when a crown is at rest in front of either of the chute sensors .

THE AIR SUPPLY

The NBFC's supply of compressed air and CO_2 must be connected to the two brass manifolds on the back of the machine. You'll have to supply the appropriate adapters to connect your air compressor and CO_2 supply to the NBFC's ¼" NPT fittings.



Before you hook up the air supply, close both valves. After the supply hose has been attached, open the top valve.

The pneumatic parts of the NBFC will quickly return to their "at rest" positions, so be sure to clear the production area. If at any point you need to shut off the flow of air, close the top ball valve. To purge the system of air (if you need to manually move a cylinder, say) open the bottom valve while leaving the top one closed.

Connect your CO_2 supply to the brass control valve hanging from the Upper Valve Assembly, pictured below.

Only open the CO_2 supply once you are ready to run in Auto Mode with fluid in the machine, to avoid wasting CO_2.

As noted on page 4, your air compressor should be set to supply the NBFC with a steady supply of 90psi, and your CO_2 supply should never be set higher than 25psi.

THE BEVERAGE SUPPLY

Pictured above is the Beverage Input Manifold. When you run beverage, water, or cleaning solution through the NBFC, you must adapt your fluid supply hose to the Tri-Clamp fitting on the Input Manifold. The flow of fluid is controlled by the Product Clamp, so when Cleaning-In-Place, you have to activate the PRODUCT button on the CIP Screen to start the flow.

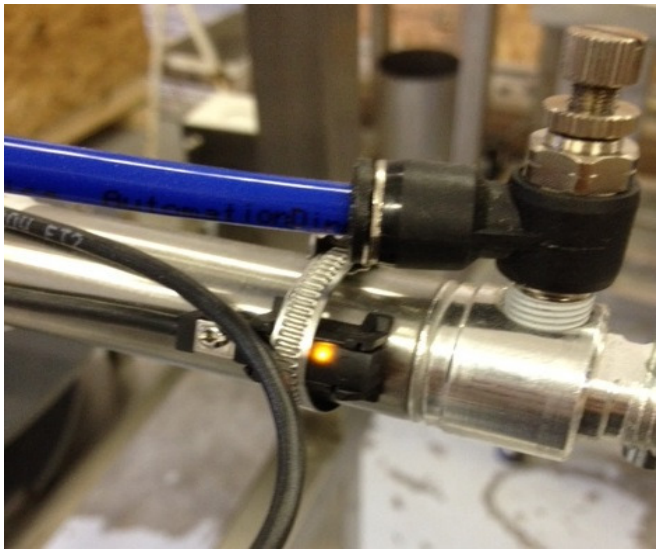
CYLINDER ADJUSTMENT

The NBFC should be shipped with its cylinders set at appropriate speeds, but if one goes out of alignment, most of the NBFC's pneumatic cylinders have a flow-control valve on each end of them. These control the speed at which the cylinders retract and extend.

There is also a spinner on each valve which, when tightened, will lock the valve at that particular speed.

SENSORS

As described in the INPUT SCREEN section, almost every cylinder on the NBFC has a sensor attached which tells the PLC if the cylinder is extended or retracted. The sensor for each cylinder is a small black plastic unit with a thin black cable leading to it. Each sensor has a small LED which lights when the sensor is active.



Most of the sensors are set up to read when a cylinder is retracted. The only exception is the **Transfer** cylinder, which has sensors in both extended and retracted positions.

There are also two sensors on the **Crown Sorter Chute**, which tell the PLC when the chute is full or empty. These activate when a crown is in the chute in front of them. Once again, each has an amber LED to show that it is active.

Testing Sensors

To test the sensors, activate the MCR and turn on Hand Mode. Enter the CIP Screen on the Touch Screen, and make it so that each cylinder is in its retracted position. Now, inspect each sensor to see if the LED is lit. You will notice the Product Cylinder (which controls the flow of liquid into the Fill Head) doesn't have a sensor.

If any of the LEDs aren’t lit, use a small flat-head screwdriver to loosen the clamp holding that sensor, and slide it up or down the cylinder until it lights (you shouldn't have to slide it more than an inch or so). Tighten the clamp back up once the LED stays lit.

Now, on the CIP screen, press the box for the Transfer Cylinder, and once it has reached the other end of its travel, check the applicable sensor.

To test the chute sensors, simply insert a screwdriver through the hole in the chute and place it in front of the white tip of the sensor. Be sure to check the chute sensors during regular operation to make sure the crowns are activating them, or a jam may occur in the Sorter.

If one of the sensors isn't staying lit when a crown is at rest in front of it, pause the machine, deactivate the Sorter and use a 13mm wrench to adjust the sensor until it reads the crown.

OPERATION CYCLES

Below are descriptions of each of the operation cycles which the NBFC is programmed to perform. The FILL cycle and CROWN cycle are initiated with the **Start Button**, and are automated according to the variables you program into the **Variables Screen**.

FILL CYCLE

- Bottle Seal – time allowed for fill head to seal on the bottle
- Pre-Evacuation 1 – Vacuum valves open and vacuum is applied to the bottle
- Counter Pressure 1 – "OFFGAS IN" and "SNIFT IN" open and CO2 replaces the vacuum in the bottle. The system looks for the pressure in the bottle to come up to the value set in "CP SP" or "COUNTER PRESSURE SET POINT". The time allowed for this set in "CP T/O" or "COUNTER PRESSURE TIME OUT". If the bottle comes up to pressure within this time then the system will go to pre-evacuation 2. If the system does not come up to CP SP value in CP T/O time then CP Alarm 1 lights up and then the cycle goes to Pre-Evac 2.
- Pre-Evacuation 2 – Vacuum valves open and vacuum is applied to the bottle.
- Counter Pressure 2 – works the same as CP 1 except that if the bottle doesn't reach the CP SP value within the CP T/O Value, then the CP 2 Alarm turns on and the fill cycle is terminated. If the bottle does come up to pressure then the system goes to the Pressure Equalization Cycle
- Pressure Equalization Cycle – OFFGAS OUT valve opens and the pressure in the bottle will reduce until it matches the pressure of the beer.
- Product Fill – OFFGAS OUT valve is already open from previous cycle, PRODUCT valve opens and bottle fills with beer. This cycle is controlled via both the value set in "PRODUCT FILL" and the button on the side of the control panel (STOP FILL BUTTON – SFB). To set the exact time required for filling, the operator starts the cycle with the Product Fill time set too high and then hits the SFB when the beer is at the correct level. The operator then adjusts the Product Fill time slightly and then repeats the process until the fill time is correct and doesn't need the SFB. Usually takes about 3 to 5 fill cycles to dial it in to where the system shuts off at the correct fill level while minimal product is wasted. Filling speed is controlled by the Offgas Out needle valve.
- Fill Delay – this cycle allows the operator a pause after filling if needed. Can be set to zero if

not needed.

- Pulse Cycle – inject CO2 into bottle via the snift port to help create a better FOB if needed.
- Pulse Delay – allows a pause after the pulse cycle if needed.
- Snift – SNIFT OUT valve opens and the system waits for the pressure in the bottle to reduce to the value set in “SNIFT SP” or SNIFT SET POINT. Like the CP cycles, there is a time limit for the snift to reduce to the Snift SP value. This time value is set by Snift Timeout value. If the bottle doesn’t reduce to the Snift SP value within the time set by the Snift Timeout Value, then the fill head will just lift off the bottle and the snift alarm will turn on. Snift flow rate is set by the Snift Needle Valve.

CROWN CYCLE

- crown cylinder extends for time set in “Crown Ext”.
- crown cylinder retracts to sensor
- slide cylinder extends for time set in “Slide Ext”
- slide cylinder retracts to sensor
- Crown and slide cylinders will never extend at the same time and each requires the other to be retracted before they can extend.
- There are two crown indexers on the crown chute that are linked to the crown cylinder and allow one crown to drop to the slide every time the crown cylinder is actuated.

SORTER CYCLE

- sorter cycle operation maintains the level of bottle caps in the crown chute between the upper and lower crown chute sensors

CALIBRATION

Calibrating the cycles of the NBFC involves trial and error, so it's best to do some dry runs before connecting your beverage supply. First off, ensure the NBFC is properly aligned, the bottles concentric with the Fill Tube and the Crown Head. If it's not, see ALIGNMENT on pg… Below are steps to familiarize yourself with operating the NBFC, and to eventually calibrate it for your production runs.

DRY RUN - CIP

1. No bottles, CO_2, beverage, or cleaning solution required
2. Connect the air supply.
3. Turn on the NBFC
4. If the Stop Button is closed, open it. Press the MCR Button and turn the Mode Selector Switch to Hand Mode
5. On the Touch Screen, enter the CIP Screen
6. Using the buttons on the Touch Screen, play around with the various pneumatic controls. Extend and retract the cylinders, open and close the process valves. Get to know where each part is located.
7. Notice that the IN valves and VAC valves have a round, clear cap on them. When these valves are activated, a yellow tab will pop up into view inside the cap.
8. The OUT valves have no visual indicator, but you can hear them open and close.
9. When standing in front of any of the process valves, you will see that the Offgas valve is always on the left, and Snift is always on the right. Feel free to make labels for the valves to make memorization easier.
10. When finished, close the Stop Button and disconnect the air supply as outlined on page18

CLEANING-IN-PLACE

1. No CO_2 required
2. Connect the air supply.
3. Turn on the NBFC.
4. Connect your cleaning solution (see CLEANING for more info) to the Product Line. Do not

exceed 25psi.

5. Open the Stop Button, activate the MCR, and put the NBFC into Hand Mode. Enter the CIP Screen.
6. Place a bottle under the Fill Head
7. Extend the Fill Head down onto the bottle. Activate the Product cylinder, which will fill the bottle with cleaning solution.
8. Use the CIP Screen to activate each of the six process valves (OFFGAS IN, SNIFT IN, OFFGAS VAC, SNIFT VAC, OFFGAS OUT, SNIFT OUT). Let the cleaning solution flow through each valve for a minute or two. (Later, when you are actually cleaning beverage out of the machine, let it flow for a while longer).
9. When satisfied that the lines are clean, close the Product cylinder. Open the VAC and OUT valves to purge the lines.
10. Disconnect your cleaning solution system and connect a supply of clean water. If this will take more than a minute or two, turn the Mode Selector Switch to Ready Mode. Once the water is hooked up, turn it back to Hand Mode.
11. Repeat the above steps to flush the cleaning solution out of the system. Once the lines have been flushed, close the Product cylinder, retract the Fill Head, shut down the NBFC, disconnect the water, and rinse off the production area.

DRY RUN - RUN CYCLES BY HAND

1. No CO_2, bottles, or beverage required
2. Connect the air supply.
3. Turn on the NBFC.
4. Load a few handfuls of crowns into the Crown Sorter.
5. Open the Stop Button, activate the MCR, and put the NBFC into Hand Mode. Press PROC VAR.
6. On the Variables Screen, change CP SP and SNIFT SP to 0 PSI. This is to prevent the Fill cycle from hanging when it looks for CO_2 counter-pressure.
7. Enter the Run Screen. Press SORTER to activate the Crown Sorter. Watch the Sorter Chute fill up as described in the SENSORS section.

8. Activate the FILL and CROWN cycles one by one. **Compare what you see with the descriptions in the OPERATION CYCLES chapter**. This will give you a better understanding of the NBFC's processes. Notice that once activated, the CROWN cycle stays on, and is run automatically each time FILL is activated.
9. -As mentioned on page… the Start Button on the Auxiliary Control box activates the FILL cycle from the front of the machine.
10. When the Crown Head extends, grab the crown off the end of it to prevent jams on the Crown Slide.
11. This is a good time to adjust cylinder speed as outlined on page 21 Most of the cylinders should operate at a medium speed, but adjusting them in conjunction with the timing variables on the Variables Screens will give you a more efficient production process.
12. When finished, close the Stop Button and disconnect the air supply as outlined on page 18

AUTO MODE

Once the NBFC has been set up and aligned for the proper bottle size, and you have familiarized yourself with its various parts and operations, you can begin to run the machine in Auto Mode. In this mode, you load the bottles into the NBFC, press Start, and cycle the bottles through the machine.

Be sure to call or e-mail us here at CBK to discuss the variables you need to enter before running the machine with your product.

We recommended that you do a practice run with water instead of beverage when you first use Auto Mode. This is mainly to conserve your product, and also to set variables before foaming product is introduced into the mix.

To use the NBFC in Auto Mode, follow these steps:

1. Turn on the NBFC
2. Enter time and pressure variables applicable to your particular production run into the Variables Screen (PROC VAR). Call us for help with this.
3. Connect your air and CO_2 supplies
4. Connect your water or beverage supply to the Product Line

5. Load a bottle into the Rotary Bottle Guide, and spin it into place under the Fill Head.
6. Open the Stop Button, activate the MCR, and put the NBFC into Hand Mode.
7. On the Run Screen, Press SORTER. This will activate the Crown Sorter. Keep an eye on the Sorter Chute as outlined in Testing Sensors on page 22.
8. Press CROWN on the Run Screen to activate the Crowning cycle.
9. Once the Sorter Chute has begun to fill up, turn the Mode Selector Switch to Auto Mode.
10. Press the Start Button to begin the first FILL cycle.
11. Initially, the NBFC will fill the bottles based on the time entered into the PRODUCT FILL variable field. This time will probably be too long on your first run, so use the Fill Stop Button (see p.) right before the bottle reaches the desired level. Using a stopwatch or just a clock, you can figure out how long this time actually needs to be, and program it into the PRODUCT FILL field. The same goes for most of the time variables. Carefully watching the different cycles will give you an idea how to set the variables for maximum efficiency and minimal foaming. In addition, you'll have to adjust the Snift Out and Offgas Out valves by hand to get the right back pressure. They are located on the Lower Valve Assembly. **Call or e-mail us for further details on this and other nuances of the filling process.**
12. Once through the FILL cycle, load another empty bottle into the Rotary Guide, and spin it into the filling position. Make sure there is a crown centred on the end of the Crown Head.
13. Press the Start Button to crown and fill the two bottles. Once this cycle is complete, spin the crowned bottle into the unloading position and remove it from the NBFC. Load an empty bottle into place and repeat. You're now bottling.
14. To pause and clean up before your next run, put the NBFC into Ready Mode. It's fine to leave product or cleaning solution in the lines for a short period of time, provided the NBFC remains turned on. If you are finished for the day, press the Stop Button, disconnect your water or beverage supply, and then disconnect the CO_2 and air supplies. If you've been filling with a beverage but don't plan on using the NBFC for more than a day or so, cleaning the lines is recommended before full shut-down.

CLEANING THE NBFC

The NBFC is made entirely out of high-quality Stainless Steel and food-grade plastics. Cleaning the exterior of it is as simple as hosing it down with clean water. However, the electrical components are not completely sealed, so avoid getting water on the Crown Sorter Motor and the underside of the Rotary Table. The Control Panel is sealed and can handle the occasional splash but avoid hosing it down.

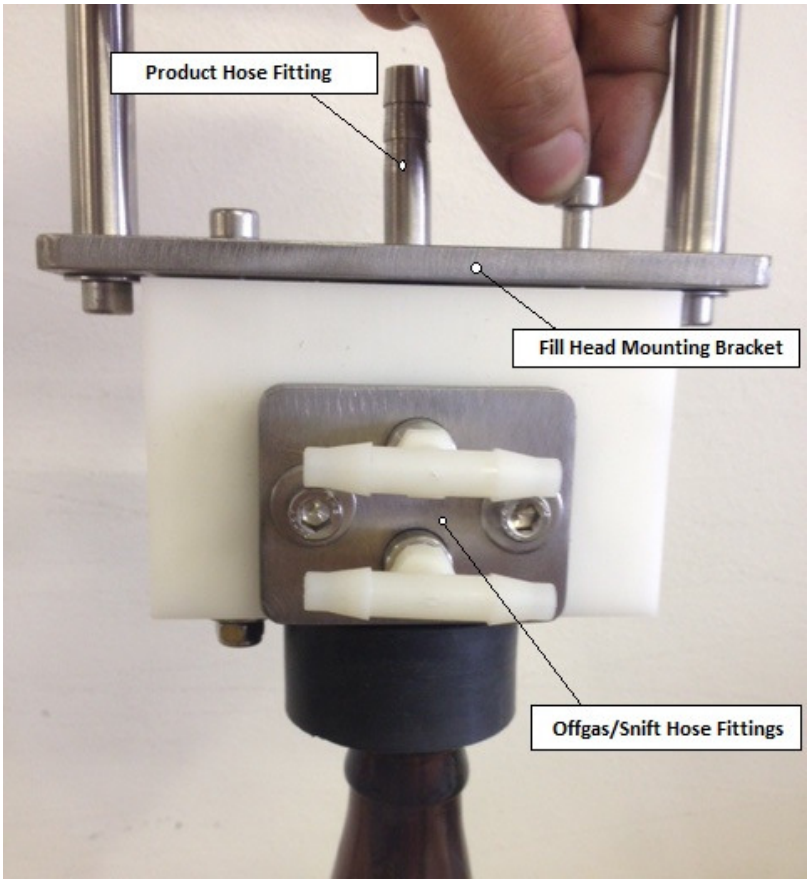
To clean beverage out of the NBFC's various hoses and valves, a cleaning solution is required. All cleaning products for the beverage industry, from hot caustic to mild sterilizers, are compatible with the NBFC. Give us a call or email us during setup to discuss cleaning solutions. Once the type of solution and delivery method have been sorted out, see CLEANING-IN-PLACE on page 25 for instructions.

CHANGING BOTTLE SIZES

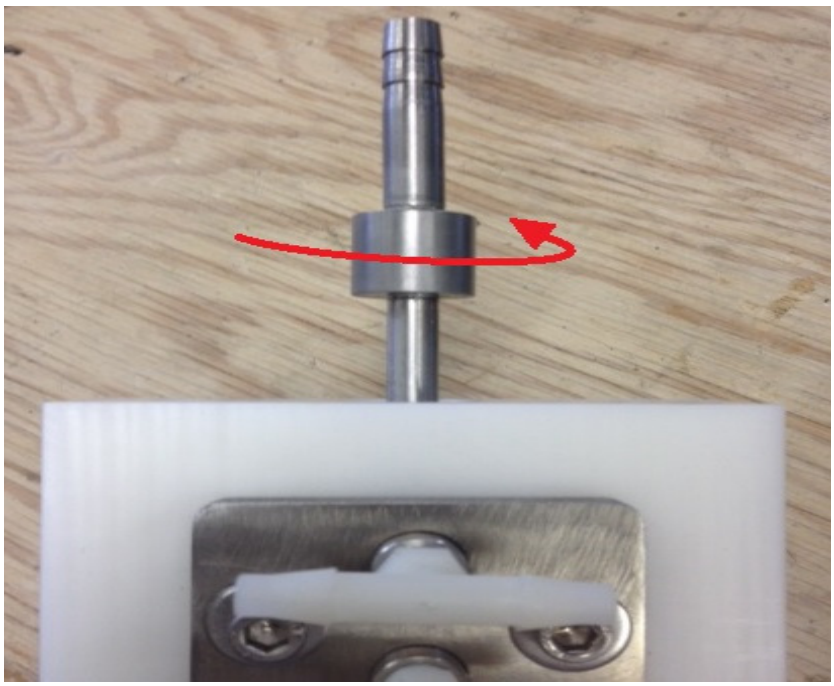
The NBFC is compatible with all bottle sizes. Converting from one size to another is outlined below.

1. Power down the NBFC. Ensure there are no bottles on the rotary table, and disconnect the air supply. With the Fill Head retracted (up), use a 1⁄4” socket or flat-head screwdriver to undo the clamp holding the Product Hose (the thick, white hose) where it connects to the fill head. Remove the Product Hose.

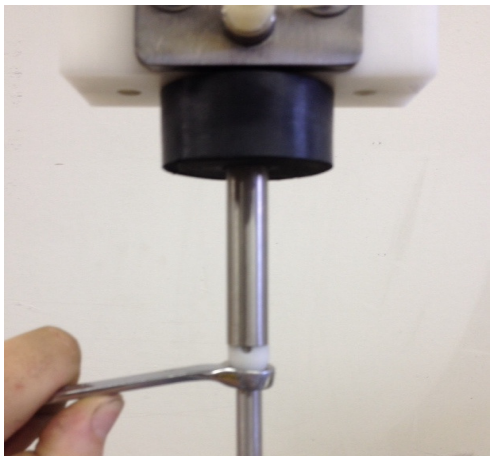
2. With a 5M Allen key and a 10mm Socket, undo the two bolts connecting the Offgas/Snift Hose Fitting Assembly to the Fill Head, and remove the assembly. Be sure to keep track of the o-rings under the Offgas/Snift fittings. Then, undo the bolts connecting the Fill Head to the Fill Head Mounting Bracket, as pictured on the following page.



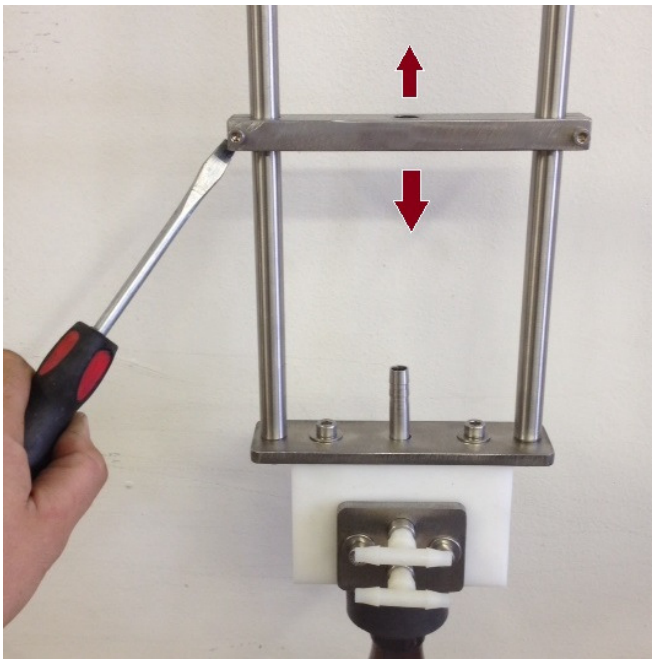
3. Remove the Fill Head from the bracket.
4. Tap the bottom end of the Fill Tube with a rubber mallet (or - gently but firmly tap the bottom of it against a piece of wood or plastic) to pop the Fill Tube and Product Hose Fitting out of the Fill Head.



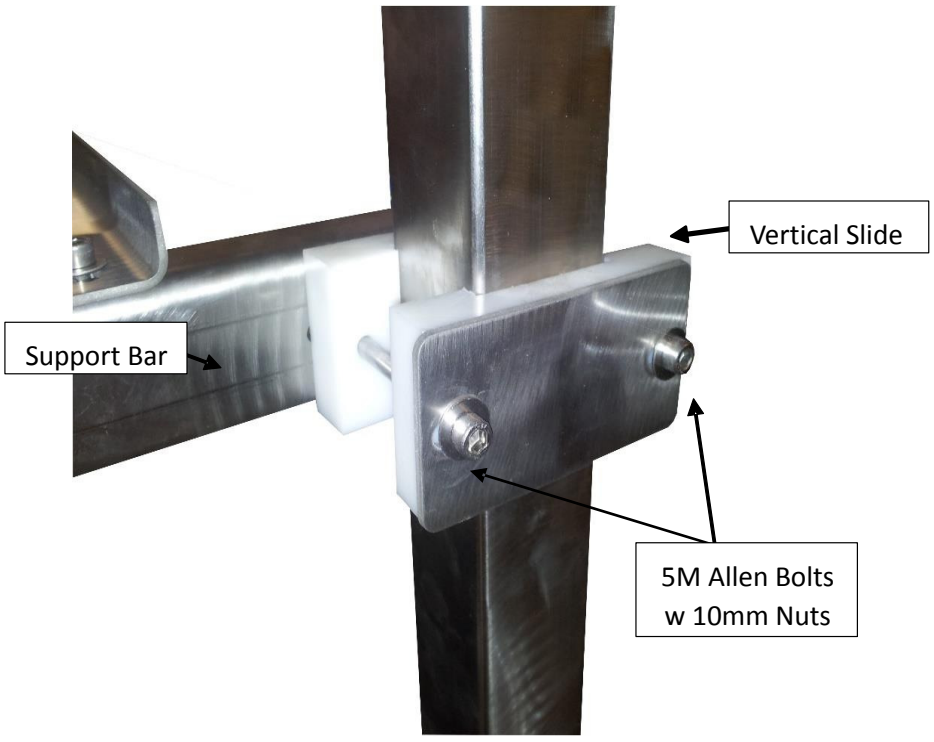
5. Unscrew the Product Hose Fitting, and remove the Fill Tube from the Fill Head. Make sure the o-ring under the Product Hose Fitting remains in place.
6. Ensure the threads of the new Fill Tube have been wrapped with teflon tape or a similar pipe-thread sealing compound. Insert the new Fill Tube into the Fill Head, through the o-ring. Thread the Product Hose Fitting onto the new Fill Tube and tap it back into place in the Fill Head, ensuring the o-ring is still in position.
7. If the new Fill Tube did not come with a plastic Tube Aligner on it, you will have to install the Aligner yourself. It should be a very tight fit, so you may have to use another metal tube or small wrench to push it into place. Line up the top (non-tapered end) of the Aligner with the bottom of the Fill Tube's outer sleeve, as pictured below:



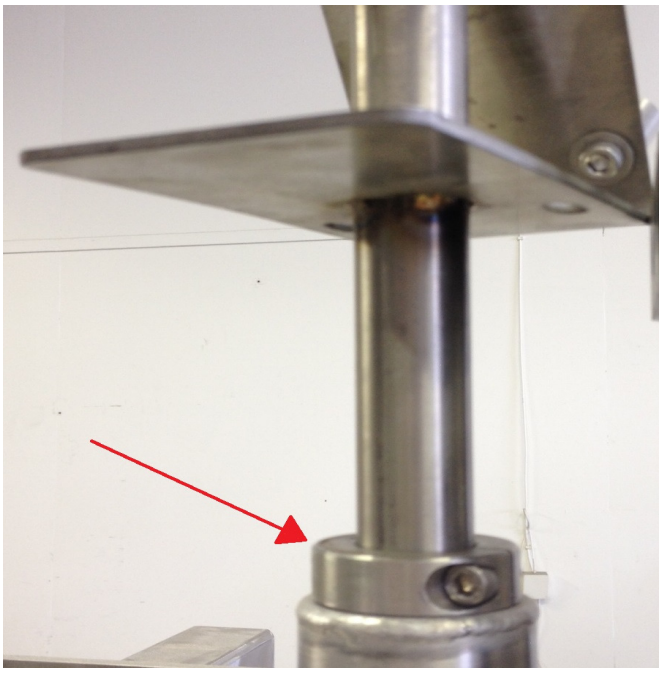
8. Reconnect the Fill Head to the Mounting Bracket, and the Offgas/Snift Assembly to the Fill Head. Ensure the o-rings on the Offgas/Snift fittings remain in place.
9. Place a bottle (of the new size) into the filling position on the Rotary Table
10. Manually extend the Fill Cylinder, as far as it will go, by firmly but gently pulling down on the Fill Head
11. With a 7mm socket and a 3M Allen wrench, loosen the bolts holding the Fill Head Clamp (located just above the Fill Head) on the Slide Rods
12. Slide the Fill Head down until the rubber stopper seats on the top of the bottle. This may be difficult and you may have to use a flat tool (chisel or screwdriver) to pry open the sides of the Fill Head Clamp (see picture on following page)



13. Ensure the bottom of the Fill Tube rests about 3⁄8” (10mm) above the bottom of the bottle. If this is not the case, **contact us**.
14. Tighten the bolts on the Fill Head Clamp and push the cylinder back up to its retracted position
15. Loosen off the nuts on all four Vertical Position Slides (as shown below) using a 10mm socket and 5M Allen wrench



16. You may have to use a 3⁄16” Allen wrench to loosen the **Shaft Collar** holding up the **Crown Sorter Assembly**, as shown below:

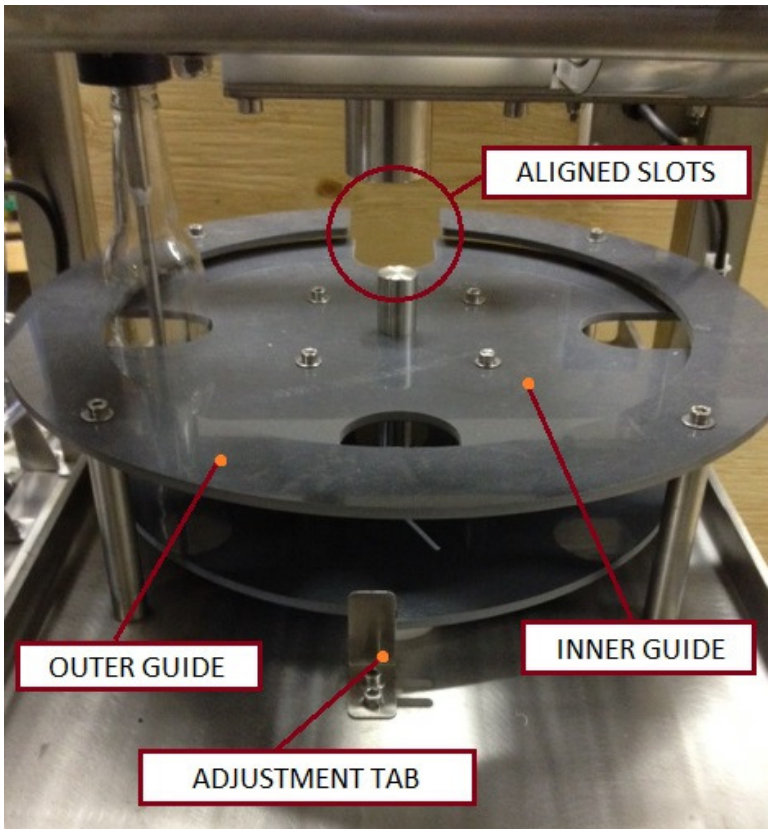


17. Tap each **Vertical Positioning Slide** up or down, depending on bottle size, with a rubber mallet. The slides are in the correct position when the bottom of the **Crown Slide Assembly** is 1⁄2” above the mouth of the bottle.
18. Re-tighten the **Shaft Collar** and each nut, checking the level of the support bars with a torpedo level. Do not over-torque the nuts.
19. Using two 19mm or 3⁄4” wrenches, adjust the Crowning Head until, when retracted (up) it sits just above the Crown Slide. A crown, when moved into place by the Crown Slide, shouldn't touch the Crown Head during its travel, but once in place the magnet in the Head should grab the crown and keep it in place when the Slide retracts.
20. The NBFC ships with extra pieces for the Rotary Bottle Guide, which can be swapped out using a 5M Allen key. If your new bottles won’t fit in the slots in the extra Guide, let us know.

ALIGNMENT

Over the course of its lifetime, parts of the NBFC may go out of alignment. Many of the frame components have Alignment Slots machined into them, to make re-alignment a simple and easy procedure. When a part of the NBFC is out of alignment, do the following:

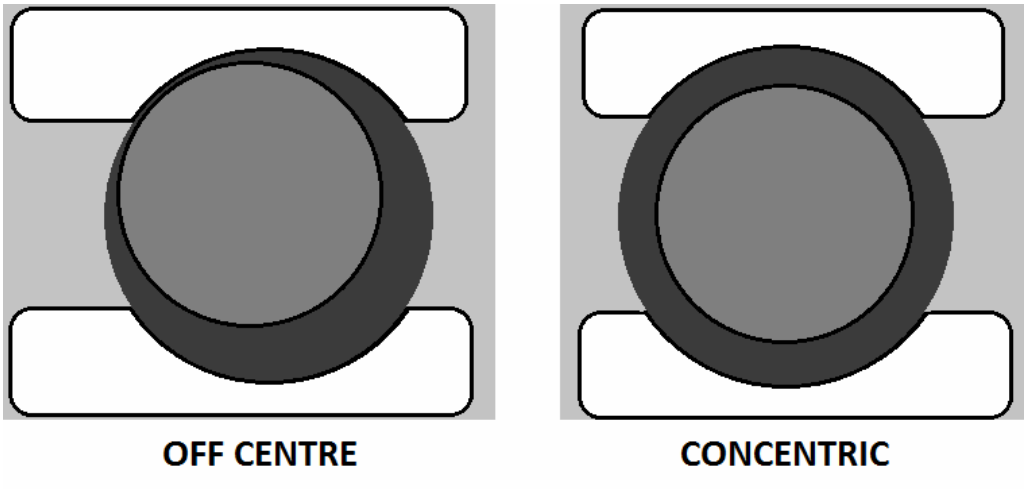
1. Turn the Rotary Bottle Guide clockwise until it stops against the Rotary Adjustment tab. If the slot closest to you in the Rotary Bottle Guide lines up straight with the opening in the outer ring of the Guide, skip to step 4. If it doesn't, follow steps 2 and 3



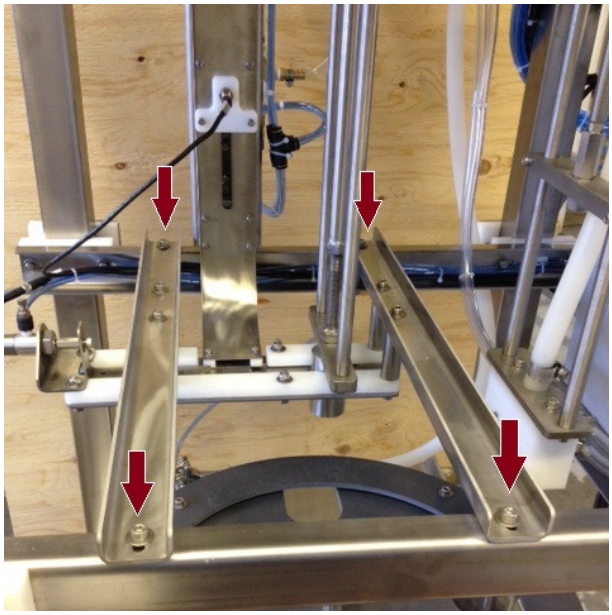
2. Loosen the bolts holding the Rotary Adjustment Tab in place. Turn the Rotary Bottle Guide until the bottle slot lines up evenly with the opening in the outer ring
3. Tighten the bolts holding the Rotary Adjustment Tab. Now, test the Rotary Bottle Guide by turning it counterclockwise. It should just slightly bend the Adjustment Tab as it turns. Once the Adjustment Tab snaps back into place, turn the Guide clockwise until it comes to a stop. It should be evenly lined up with the outer ring. If not, repeat steps 2 and 3

4. Place a bottle under the Crown Head
5. Disconnect the air supply
6. If the Crown Head doesn't automatically lower onto the bottle as the air leaves the system, lower it manually. If the Crown Head sits dead-centre (concentrically) on the mouth of the bottle, skip to step 9. If it isn't centred, follow steps 7-8.
7. Assuming the side with the Control Panel is the front of the machine, adjustment from left to right is possible by loosening the bolts connecting the Top Plate to the Top Frame with a 5M Allen wrench and a 10mm socket. Tap the Top Base in the appropriate direction with a rubber mallet.
8. Adjustment front to back is possible by repeating step 7 with the Bottom Plate and Bottom Frame.
9. Connect the air supply
10. Place an empty bottle underneath the Fill Head
11. Activate the MCR and turn the Mode Selector Switch to Hand Mode
12. Press the CIP Icon on the right of the touch screen to access the CIP Screen
13. Press the FILL button on the CIP Screen. As the Fill Head lowers, make sure no part of the Fill Tube makes contact with the bottle. (The tube should be concentric with the mouth of the bottle, but if it's slightly off, that's OK. As long as the Crown Head is dead-centred, and the only part of the Fill Head which touches the bottle is the rubber seal, the heads are aligned). If the tube makes contact with the bottle, repeat steps 7-8. If the Crown Head is aligned perfectly and this happens, something may be bent. Give us a call or e-mail us.
14. Once the heads are aligned with the bottles, tighten the bolts you've loosened.
15. Remove the bottle from under the Crown Head. Now press the CROWN button to lower the Crown Head.

16. Examine the Crown Head in relation to the round hole in the Crown Slide Assembly which it passes through. Look at it from the front of the machine and the side, and make sure it's concentric with the hole. If it's centred, then the NBFC is properly aligned. If not, follow step 17.



17. The Crown Slide Assembly hangs down from two rails which are bolted to the Vertical Positioning Crossmembers. Loosen the bolts connecting the rails to the crossmembers, you can then adjust the position of the Crown Slide Assembly in relation to the Fill Head.



Once the hole in the Slide Assembly is concentric with the Crown Head, tighten the bolts back up. The NBFC should now be properly aligned.

TROUBLESHOOTING

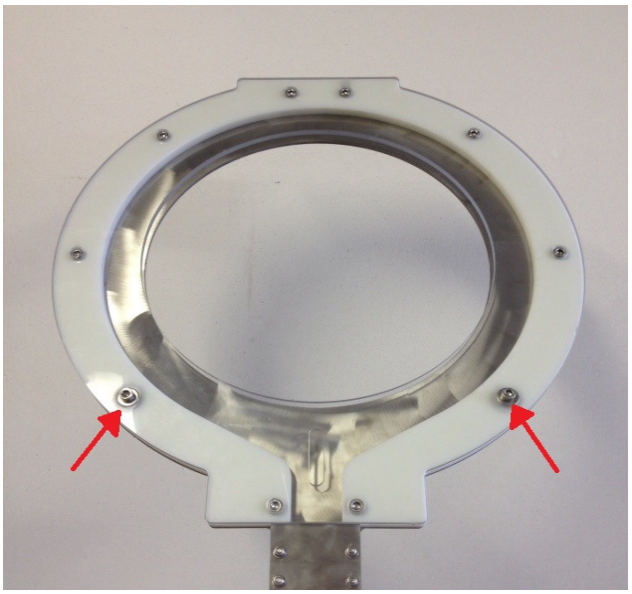
Below are some solutions to common problems that may occur when operating the NBFC. If the solutions presented below don't fix the problem, email info@cbkfillers.com or give us a call at 1-250-483-4329.

PROBLEM: The NBFC powers up but the Touch Screen remains blank

SOLUTION: Replace the fuse. You'll find it inside the Control Panel, on the lower terminal strip, in a gray and black fuse-box.

PROBLEM: The crowns have backed up into the upper part of the Sorter Chute and are jammed.

SOLUTION: Turn off the Sorter immediately by pressing the SORTER button on the Run Screen or by hitting the Stop Button. You'll probably need a step-ladder to access the Sorter. Once it's accessible, use a 5M Allen key and a 10mm socket to undo the two bolts holding the Plexiglass cover on the top of the Sorter Chute, as shown below:



Once the cover is removed, clear the jammed crowns out of the way. Leave the cover off until the Sorter Chute is working properly. The crowns have jammed up in this case because the Chute Sensors are not reading the crowns properly. The solution to this problem is outlined in

the SENSORS section on page 21. If either of the Sensors are not reading anything, call us.

PROBLEM: The Crown Slide is jammed or multiple crowns are coming out of the bottom of the chute.

SOLUTION: Pause the NBFC by putting it in Ready Mode. Wait for the cycle to finish, then clear the slide and Crown Head of any crowns. By tapping on the base of the Sorter Chute, you should be able to clear any extra crowns from the lower portion. There should never be any crowns in the chute below the two small cylinders. The jam has occurred because the two cylinders are improperly calibrated. The shorter top cylinder must extend rapidly and retract at a medium speed, and the longer bottom cylinder must extend at a medium speed and retract rapidly. See the CYLINDER ADJUSTMENT section for more details about cylinder adjustment.

	EXTEND	RETRACT
TOP CHUTE CYLINDER	FAST	MEDIUM
BOTTOM CHUTE CYLINDER	MEDIUM	FAST

PROBLEM: The Fill Head or Crown Head are breaking bottles when they extend.

SOLUTION: You must re-align the machine. See the ALIGNMENT section for instructions.

PROBLEM: The product is exploding into foam during the filling process.

SOLUTION: Each beverage reacts differently during bottling, and you need to calibrate the NBFC accordingly through trial and error. Call or email us to cut down on this.