



ONE-POINT LESSON

KHS Guarding Manipulated Fault 114

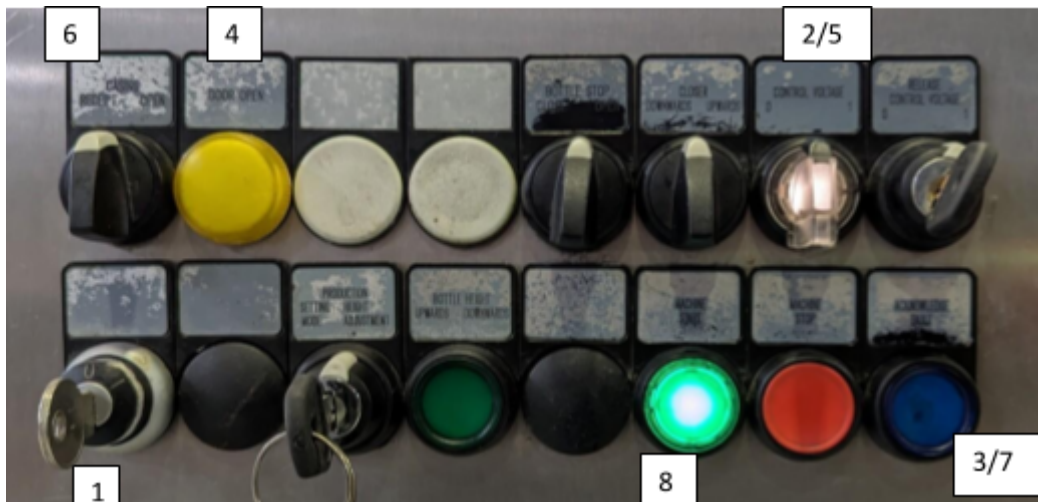
Purpose: Clear the Guarding Manipulated Fault

Frequency: As Needed

Materials/Equipment: KHS Bottle Filler HMI

Procedure:

1. Turn Power Reset Key (Bottom Left Key)
2. The Control Voltage lighted switch will go out
3. Press the blue Acknowledge Fault button
4. Wait for 30 seconds, The Door Open light will blink, let it blink a few times
5. Turn the Control Voltage Switch to power KHS back on.
6. Turn Casing switch to Receipt twice to turn off door open on front and rear doors.
7. Press the blue Acknowledge Fault button until all faults clear
8. Press the green Start button



Revision History:

Revision	Date	Description of Changes	Edited By:	Approved By:
[#]	12/05/24	Create Document	Damon	[Name]



ONE-POINT LESSON

Work Order Search in Ignition OEE

Purpose: Quickly find your work order without scrolling and searching

Frequency: As needed

Spreadsheets/Programs: Ignition / Packaging OEE

Procedure:

1. Make sure you are signed in to Ignition Packaging and Click the OEE tab. It may take a few minutes to populate the screen.
2. Move the cursor to the Work Order cell.
3. The filter icon should appear.
4. Click on the filter icon.
5. Press * and the MFG number. (in this example *63950)

The sequence of screenshots shows the following steps:

- Screenshot 1:** The main Ignition OEE interface with the 'OEE' tab selected. The 'MES Work Order Table' is visible, showing columns for Work Order, Material, Work Order Quantity, Scheduled Quantity, Actual Quantity, Remaining Quantity, and Due Date. A list of work orders is shown on the left.
- Screenshot 2:** A close-up of the 'Work Order' column header in the table, with a red box highlighting it.
- Screenshot 3:** A close-up of the 'Work Order' column header, showing a filter icon (a funnel) that appears when the cursor is over the header.
- Screenshot 4:** A close-up of the filter icon being clicked, which opens a search dropdown menu. The text 'Search for: *63950' is entered into the search field.
- Screenshot 5:** The result of the search, showing a single row in the table for Work Order 'MFG-063950' with Material '12061', Work Order Quantity '1,521', and Scheduled Quantity '0'.

Revision History:

Revision	Date	Description of Changes	Edited By:	Approved By:
0	12/05/24	New	Damon Adamo	[Name]

Varioline Setpoints Guide - Manual

INFEED	Recipe #	12oz BTL 4/6 24/1	12oz BTL 12pk	22oz no part.
	A01	2001 2003	2002	0014
	A01- Height	03A01	04A01	05A01
	A02	29.0 cm	29.0 cm	35.0 cm
	A02 - Height	03A02	04A02	05A02
	A14	31.0 cm	31.0 cm	35.0 cm
	A16	02A14	03A14	04A14
	A19	03A16	04A16	05A16
	A24	03A19	04A19	05A19
	A25	41.0 cm	41.0 cm	35.1 cm
	A26	41.0 cm	41.0 cm	37.0 cm
	A27	26.5 cm	31.5 cm	24.0 cm
	A28	26.5 cm	31.5 cm	24.5 cm
	A29	26.5 cm	31.5 cm	24.5 cm
MAGAZINE	B10	12oz BTL 4/6 24/1	12oz BTL 12pk	22oz no part.
	B1	298	468	278
	B2	479	20	185
	B20	46	160	100
M4	M4 GLUE #1	67	14	67
	M4 GLUE #2	34.5 cm	32.0 cm	33.5 cm
NON-OP	M4R1 ADJ #1	490	24	727
	M4R1 ADJ #2	12oz BTL 4/6 24/1	12oz BTL 12pk	22oz no part.
	M5R2	OUT	IN	IN
NON-OP	M4R1 ADJ #1	11.0 cm	7.0 cm	9.5 cm
	M4R1 ADJ #2	8.5 cm	0.7 cm	3.7 cm
	M5R2			

Revised 06/06/25 removed old 22 and merged 4/6 and 24/1 cells

Version: 2.9	 SAPPORO-STONE BREWING	Page: 1 of 21
Date Written: 9/18/14		Written By: Roy Knox
Date Revised: 08/22/2024		Revised By: Damon Adamo
STANDARD OPERATING PROCEDURES Packaging		
File Location: H:\Brewing\SOP\00. SOPs for Use\05. Packaging\00. Packaging - Bottling\07. KHS Bottle Filler\SOP - KHS Filler - Operation.pdf		
Area: Escondido, CA – Packaging Hall – KHS Filler		
Title: KHS Filler Operation		

OVERVIEW

This standard operating procedure explains all the preparation, steps, and verification that will be required to safely and effectively operate the KHS filler, located in the Escondido Packaging Hall. To achieve this, the procedure will cover the following topics:

- **Preparing for Production Run**
- **Production Run**
- **Ending a Production Run – Sapporo**
- **Ending a Production Run - Stone**
- **Quality Inspection**
- **Troubleshooting**
- **PMs and Cleaning**

SAFETY

Potential Hazards

- **Use caution while working inside the safety guards**
- Make sure to lock out the machine before doing any kind of maintenance work inside the safety guard.

Required Personal Protective Equipment

Standard PPE for work on the production floor is required at all times. **No exceptions.**

- **Standard PPE for Work on Production Floor**
- Slip resistant steel toe boots
- Safety glasses that are ANSI Z87 certified
- Long pants worn over boots
- Hat with Bump Cap or Hard Hat

PROCEDURE

Preparing for a Production Run – Switches, Doors, and HMI

1. Confirm that the control voltage is on the switch will be lit.
2. Confirm that the filler doors are closed and locked. Door Open light is off, and Production Key Switch is centered.
3. The filler should be rotating, and the Green Machine Start button should be lit.
4. Select Machine Screen from the Filler HMI (Human Machine Interface)
5. Press the FS1 Button to open the Filler Menu
6. Confirm that it is in Production and End of Production w/o rinsing and close program screen
7. Go back to the machine screen and press HPI
8. Confirm that the Production is checked, and the temperature is 200°F + On the HPI Screen
9. Return to the Machine Screen and press the Filler Graphic Button
10. Confirm all valves are set to auto and not manual.
11. Confirm the crowner elevator is on, set to run, bottle size is selected, crowns are loaded, and reset light is off.
12. Reset the Filtec Counters by the kickout table.
13. The dump barrel should be empty, if it isn't empty and rinse it.
14. Confirm the rinser and Sanitron are on. There will be a blue light on the Sanitron when it is working.

Preparing for a Production Run – Production Log, Checklist and OEE WO

1. Go to the Bottle Filler Windows Computer and Open the Web Browser and Packaging (Ignition)
2. Select the Packaging Homepage from the Toolbar
3. Click on the Green Bottle Button
4. Press the "+" at the top to create a new Production Log
5. Enter the MFG, Date, Primary Production Shift, Container Size, Domestic or INTL (until Jan 2025), Case Size, Brand and Quantity. Press the PgDn button on the keyboard. Then switch to the Packaging Program.
6. Select the Bright Beer tab in the Tab Menu bar and go to the appropriate tank to get the tank info
7. Make sure there is not a hold on the tank.
8. Get the following Information to enter in the production log: BBT #, Brand, Batch No., CO2, D.O., F.T.U. and BBT Level.
9. Save Production Log. Press the save icon in the top right of the screen. This will create the checklist.
10. Refresh the web page by pressing CTRL + F5 or the refresh icon at the top left of the browser.
11. Press the Green "Bottle" Button. Confirm the new MFG has been created in the left side menu. Click on the MFG.
12. Next click on the Checklist Icon next to the "+" to open the Checklist.
13. From the submenu click on Bottle Filler, then Startup.
14. Enter your name and fill out the steps as you complete them. Always check the Filtec and Crowner elevator settings even if the prior shift said it has been done.
15. Save the checklist.
16. Go to the Packaging Program and Select OOE.

17. Click on Work Order then click on the Filter icon next to "Work Order" Enter * or MFG-0#####. i.e. *63006 or MFG-063006

Starting the Production Run - Beer Delivery and Startup

1. Request labeled bottles be sent down if they aren't down already.
2. Check the KHS HMI Bowl Setting by going to the Machine Screen then open the Parameter screen.
3. If the bowl level is not at 35% change it to 35%.
4. On the KHS HMI go to the Filler Program screen and Press "FS1".
5. It will stop at Step 3 "Product Advance Flow", 1 "Wait Step / Request Product"
6. You will need to manually advance to Step 3 "Product Advance Flow", 3 "Wait Step for Sampling". Press the "Activate" button and go to 3,3.
7. Notify Brewing that the Bottle Filler is ready for beer delivery.
8. Open the Beer Delivery program to monitor the beer flow to the filler.
9. You should see DAW or Beer flow to the ground. It will stop when the Anton Paar is in spec or errors out.
10. If the Anton Paar is in spec press "FS1" to continue startup to production. If it fails, check the Anton Paar, contact brewing and/or supervisor. If instructed, you can press the Green Pre-run button to restart flow to the filler.
11. When the filler is in Production, press the "Diagram" button to go to the "Filler Graphic" screen. Click on the Vacuum Unit and look at Valve 404/407 and sensors 406 /440. If the valves are both open and sensor 440 is green and 406 is white, you will need to manually close valve 404, until sensor 440 is white. Set 407 back to "auto" and open 404 until both sensor 406/440 are green. This may take 3-5 minutes. Set 404 back to "auto". Open and close the bottle stop. You should hear the vacuum unit start up.
12. When the vacuum pressure reaches -12.0 PSI open the bottle stop and run the first slug of bottles
13. As the empty bottles enter the "Worm" and "Stars" they should transition smoothly. If not, check and adjust after running the slug.
14. Drop the bowl by pressing the "Parameters" button and set the bowl level to 5%-10%.
15. Check HPI while running the slug. If the FOB is not cresting over the bottle tops, the HPI will need to be increased. The lowest starting HPI is 60% and the highest is 85%, unless directed otherwise.
16. If at any point the FOB is set to higher than 85% to achieve proper foam over, or due to QA intervention, complete the following steps while running:
 17. Escalate to Supervisor, Lead or AMS
 18. Place a High, Preventative maintenance ticket to validate FOB pump, temperature, screen and gasket for performance.
 19. At the next opportunity allow Maintenance, Supervisor, Lead or AMS to remove head of the FOB. Inspect the screen for buildup, the gasket for damage and check that the FOB is reaching temperature and pressure. Verify there are no leaks at the FOB head. Verify the FOB is shooting directly into the bottle.
 20. If at any point the FOB is set below 50% while running beer, escalate to Supervisor, Lead or AMS.
FOB operation is a critical component to operating the filler. Anyone changing the FOB must be fully certified to operate the KHS filler or directly monitored by a fully certified operator.
21. Notify QA to get samples for TPO and ABV check.
22. Collect an Inlet Sample of ~100ml and place in the QA cold box Bottle Inlet Sample Bin.
23. When bottles are cleared by QA set the bowl to 35% and open the bottle stop when the filler Pressure Gas is at 29 PSI.

During the Production Run

1. Maintain proper HPI / FOB. Beer temperature and clogged jetter can affect the FOB.
2. Do PQC checks ~ every 15 minutes unless you are stopped / downtime.
3. PQC includes checking the bottle ink code, Julian laser code, labels, visible damage, crown and crimp, crown type, FOB/head/fill level, excess water or grease, and filler speed.
4. Input downtime notes if there is downtime. Click the downtime clock icon in the Production Log
5. Remove and drain rejects from kickout table into dump barrel.
6. Dump barrel as needed. Note the gallons dumped into the Production Log.
7. Check the crown hopper, do not overfill. Each box contains 10,000 crowns, keep that in mind when adding crowns to the hopper.
8. Clear crowns from crown elevator and floor periodically.
9. Dump red trashcans when full of bottles (2 person lift or Eagle Lift).
10. Be aware of overhead conveyors for Zone 1. If there are no bottles overhead, check the overflow bin by the bottle elevator. If the bin is clear check the depalletizer.
11. Clear out broken glass around the filler if there is a break in production.
12. When a bottle or crown jam occurs inside of the filler enclosure:
13. Stop the filler if not already stopped, by pressing the "Machine Stop" button on the control panel.
14. Open the filler doors by turning the "Production" key to "Setting Mode" then turning the "Casing" switch "Open". ("Door Open" light should be lit)
15. Remove the obstruction then close the filler doors.
16. Turn the "Production" key and the "Casing" switch to their neutral positions.
17. Turn the "Casing" switch to "Receipt". (Ensure that "Door Open" light turns off)
18. Restart the filler by pressing the "Acknowledge Fault" button then the "Machine Start" button on the control panel.

Ending a Production Run Pressout with Flash Pasteurizer – Sapporo

1. Operator will be notified that it is time to pressout,
2. At pressout time there will be up to 60 bbls between the Blender and Flash Pasteurizer.
3. Check that DAW is active and resume filling bottles.
4. It is critical that the Flash Pasteurizer (FP) does not go below 12 BBLS as a fault can cause issues in the press out process. If it reaches 12 BBLS then stop filling and let the FP fill up to 18-20 BBLS.
5. The Blender will continue to fill the FP until it is empty then fill with 10 Bbls of DAW.
6. Run out the beer and the DAW will be pulled into the FP. The Blender will go into idle.
7. When the FP is empty and all bottles are run through the filler, verify that the "End Production w/o Rinsing" program is selected.

Note: This will always be the program selected for any Bottling Run, unless you intend to rinse out the Filler pre-CIP.

8. Press FS1.
9. The filler should finish production and move to Full until system and filler empty. If it does not go to this step, you may need to manually set to Program 6 Step 5 Decrease Ring Bowl Pressure.
10. End of sub-program the filler should go back to Program 1 Idle Step.

11. You should see DAW draining from the filler.
12. Start an external hot rinse by pressing Hot Water Flushing on the Machine Screen.
Note: This process uses the Sani Make Up, you **cannot** run if the Can Filler is doing a CIP.

Ending a Production Run without Flash Pasteurizer – Stone

1. The PSL operator will notify you that it is time to pressout.
2. Inform brewing that you are ready to pressout and they will begin to pressout with DAW.
3. Verify that the DAW is ready in the Beer Delivery Program.
4. Run all the bottles out, select “Empty Out active”.
5. Once all the bottles are through, verify that the “End Production w/o Rinsing” program is selected.
Note: This will always be the program selected for any Bottling Run, unless you intend to rinse out the Filler pre-CIP.
6. Press FS1.
7. The filler should finish production and move to Full until system and filler empty. If it does not go to this step, you may need to manually set to Program 6 Step 5 Decrease Ring Bowl Pressure.
8. After End of sub-program the filler should go back to Program 1 Idle Step.
9. You should see DAW draining from the filler.
10. Start an external hot rinse by pressing Hot Water Flushing on the Machine Screen.
Note: This process uses the Sani Make Up, you **cannot** run if the Can Filler is doing a CIP.

QUALITY INSPECTION

1. Check for leaking bottles on the outfeed.
2. Check for underfills that may have passed through the bottle Filtec.
3. Check for FOB (foam on bottle) regularly throughout each run.
4. Check for the “Enjoy By/Bottled On” codes on the bottles on the infeed and outfeed conveyors every 15 minutes.
5. Check for the Julian Date codes on the bottles on the infeed and outfeed conveyors every 15 minutes.
6. Check for downed bottles. (Especially after the fryer, bottle Filtec, at the combiner and after the rinser)
7. Check for broken bottles on the infeed and outfeed conveyors. (especially after and prior to the rinser)
8. Check for debris on and/or in the empty bottles on the infeed conveyors. (i.e. – Stretch Wrap)

TROUBLESHOOTING

Filler Lamp Indicator Lights

-  Red = General Faults
-  Yellow = Warning
-  Green = Machine is Running
-  White = Control Voltage is On
-  Blue = Backup/Shortage of Bottles on the Conveyors

Note: "Lamp Test" switch in filler HMI will illuminate all indicator lights when enabled.

Servo Fault

1. On the filler HMI, select the "Servo Axis" option from the Main Menu then select "Acknowledge Fault" on all servos affected
2. Press the "Acknowledge Faults" button on the control panel
3. Press the "Start" button to restart the machine.
4. Bottle Jam in filler "Worm", and "Stars".
5. Unlock and open the filler doors, remove the obstruction
6. Close and lock the filler doors
7. Press the "Acknowledge Fault" then the "Start" button to restart the filler.

Note: *You may need to reset a servo axis before "acknowledging the fault" to start*

Vacuum Pump not Activating

1. Check the small reservoir tank and ensure that it is not filled with foam.
2. Ensure the water level is at or above the sensor level for both reservoir tanks.
3. Check vacuum unit on "Filler Graphic" screen.
4. Ensure vacuum unit is filling to sensor and that the empty valve (407) is closed (gray) if not then put water fill valve (404) in "manual" and "force off". Once other valves flash red, put 404 back into "auto". Empty valve 407 should now be closed and the vacuum unit will fill to sensor.

Crown Jam in Crowner Chute

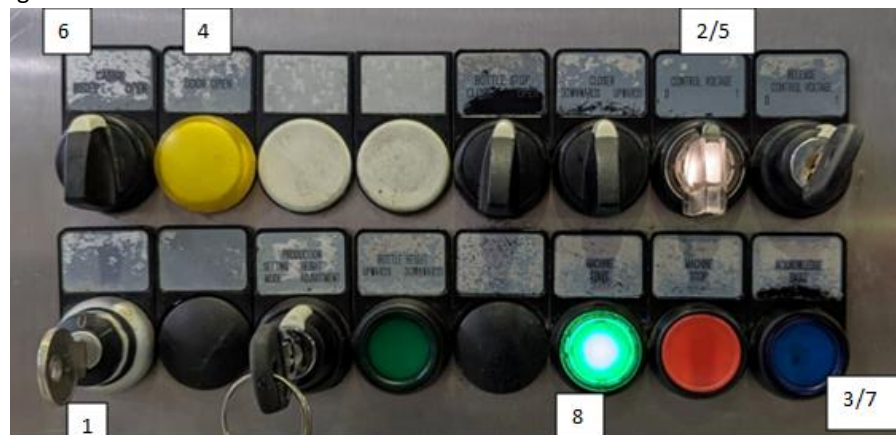
1. Unlock and open the filler doors, remove the obstruction, close and lock the filler doors, press the "Acknowledge Fault" button then the "Start" button to restart the filler.
2. If the crown jam is at the chute exit, remove the chute exit block by disengaging the chute exit block clamp then removing the clamp. (Ensure that the chute exit block clamp is fully engaged prior to restarting the machine).

No Crowns in Chute

1. Check the crown feeder for fault. (see – SOP – Crowner – CSE Crown Feeder)
2. Ensure that crown feeder hopper has sufficient crowns.

Safety Guarding Fault

1. Turn Power Reset Key (Bottom Left Key)
2. The Control Voltage lighted switch will go out
3. Press the blue Acknowledge Fault button
4. Wait for 30 seconds, The Door Open light will blink, let it blink a few times
5. Turn the Control Voltage Switch to power KHS back on.
6. Turn Casing switch to Receipt twice to turn off door open on front and rear doors.
7. Press the blue Acknowledge Fault button until all faults clear
8. Press the green Start button



Jam Table Full Fault

1. Unlock and open the filler doors
2. Remove the obstruction blocking the jam table sensor
3. Close and lock the filler doors
4. Press the “Acknowledge Fault” button then the “Start” button to restart the machine.

HPI Stream not Spraying Properly

1. Stop the filler immediately
2. Turn off the HPI on the HMI
3. Remove the HPI nozzle head
4. Inspect and remove any obstructions in the nozzle head.
5. Clean the nozzle head with isopropyl alcohol
6. Re-install nozzle head
7. Turn HPI back in the filler HMI, ensure that the HPI is spraying properly, close and lock the filler doors, then press the “Acknowledge Fault” and “Start” buttons to restart the machine. If still not spraying properly, check the “Pressure at Nozzle” psi and the “Bypass Flow” in the HPI Menu on the filler HMI to

ensure that the HPI has sufficient flow. If leaking from nozzle head, change seal.

HPI Not Reaching the Proper Temperature

1. Stop the machine immediately then notify maintenance.
2. Most likely an issue with the temperature sensor
3. Exterior Bottle Wash Not Working Properly.
4. Ensure that the water supply valve is open. Check nozzles for obstructions.

Exterior Filler Wash Not Working Properly

1. If pump cavitating, prime pump by opening side valve on "T" until there is steady flow.

No Bottles at Infeed Fault

1. If infeed conveyor contains bottles, check for fallen bottles on the conveyor.
2. Ensure that the infeed conveyor sensor is aligned and working properly.

Not Allowed Standstill Fault

1. Usually occurs after a filler height adjustment
2. If filler in 12oz height setting, adjust filler height to 22oz setting then back down to the 12oz height setting. (see – SOP – KHS Filler – KHS Filler Changeover)
3. If filler in 22oz height setting, adjust filler height down to 12oz setting then back up to 22oz setting. (see – SOP – KHS Filler – KHS Filler Changeover)

No Power to Filler

1. Ensure that the main power is on.
2. Ensure that control voltage switch is on (will be lit, if on)

Crowner Not Locked Fault

1. Check behind the crowner and ensure that the 2 lock collar bolts are fully secured.

Filler Not Faulting Out after Crown Jam/Bottles Not Being Crowned

1. Check in the "Functions" menu (ON/OFF button) that "Crown Supply" and "Crown" are selected (Green Check Mark)
2. Navigate to the next screen and ensure that "Crown Stop" is set to automatic.

Bent Crown on Bottles

1. Immediately stop the filler then check for bent crowns on the bottom side of the crowner heads.

Misaligned "Stars"

1. Stop the filler immediately then clear out the broken glass from the "Stars"
2. Re-align the appropriate "Stars" so that they provide a smooth transition and reset the home positions.
3. In the filler HMI, access the service menu by selecting the "Service" option (the wrench looking icon) from the bottom menu bar then select "Special Functions".
4. When asked if "You are ready to abort filling?" select the "Check Mark" to continue to the "special functions" menu. (Be sure there are no bottles in the filler)
5. When in the special functions menu, select "Set Axis Position" then using the up/down arrow, scroll to the

appropriate “Star(s)” and select “Set axis to Position” to reset the home position.

Roller Guide Fault

1. Roller may be stuck in the “Up” position while the filler is rotating due to beer buildup.
2. Rinse off the appropriate roller guide.
3. If a fault excessively occurs, check the roller guide position sensor to ensure that it is in the correct position.

Low air flow in the crowner conveyor air filter

1. The air filter may be clogged from debris
2. Clean the air filter by rinsing with water from the inside to the outside of the filter.
3. Use compressed air to dry. (Figure 22).
4. **Do not** re-install air filter when wet.

Excessive Foam Over on Bottles

1. Increase the speed of the filler (Figure 6).
2. Increase the counter pressure in the ring bowl (Figure 7).
(When increasing the counter pressure, be sure to not exceed the beer pressure from the BBT or you may raise the head pressure in the BBT to increase the beer pressure from the BBT)
3. Decrease the multiplier on the HPI (Figure 8).
4. If the beer is too warm (+40°), empty bowl then refill with cold beer.

Bottle Stop won't open (Fault No. 111)

1. FOB is not in Production mode.
2. Navigate to the HPI screen (as seen in Figure 8) and activate the Production mode.
(This may require the de-activation of the Flushing button, if that mode is currently turned on).

This standard operating procedure explains all the preparation, steps, and verification that will be required to safely and effectively operate the KHS filler, located in the Escondido Packaging Hall. To achieve this, the procedure will cover the following topics:

CLEANING

Rinse off Bottle Filler

1. Run and External Rinse Cycle
2. Use hot water hose to remove dried beer from filler, star wheels, crowner, and jam table.

Cleaning the HPI Nozzle Head & Pipelines

1. Remove the nozzle nut & head then cleaning with isopropyl alcohol
2. Clean the pipelines by accessing the HPI menu on the HMI then selecting the “Flushing” option to rinse the pipelines with water for 2-3 minutes.
3. Re-install the nozzle head.

Cleaning the filler Exterior.

1. Remove the filler bottle burst shields.
2. Rinse down the filler of any debris.
Be aware of and do not spray directly on sensors. Do not spray inside of ring bowl.
Use the Chemco foamer to give the filler and parts a chemical bath and break down any hard to remove mold and dirt. Scrub, if necessary. (Be sure to use proper PPE. Be aware of and do not spray directly on sensors. Do not spray inside of the ring bowl)
3. Rinse off ALL caustic foam with water.

Cleaning Changeover Parts

1. At least once a week individually scrub the filler changeover parts.
2. Thoroughly clean all mold, dirt, beer, grease, etc. off of the filler changeover with the chemical scrub brush. (Be sure to wear PPE)
3. Thoroughly rinse off the changeover parts after using the chemical scrub brush.
4. Place changeover parts back on the parts rack in the appropriate spot.

Cleaning Infeed & Outfeed Conveyors.

1. Remove the conveyor side covers.
2. Use the Chemco foamer to break down hard to remove mold and dirt. Scrub, if necessary. (Be sure to use proper PPE. Be aware of and do not spray directly onto any sensor)
3. Thoroughly rinse down all caustic from the conveyors then replace the conveyors side covers.

Cleaning the Filler Enclosure.

1. Use a **soft white** scrubbing pad with degreaser/window cleaner.
2. Rinse thoroughly with water. (Ensure not to spray directly onto HMI and/or sensors)
3. Chemco foamer can be used to clean both inside and outside of filler enclosure. Be sure to rinse thoroughly with water and DO NOT spray water or foam directly onto filler HMI.

MSS Link: <https://tinyurl.com/52bh2bn8>

OUTLINE OF FILL PROCESS

1. A vacuum is created in the bottle
2. The bottle is purged with CO2 from the ring bowl.
3. The remaining air is evacuated from the bottle
4. The bottle is purged with CO2 from the ring bowl for a second time.
5. The remaining air is evacuated from the bottle.
6. CO2 flows out of the ring bowl into the bottle until pressure in the bottle equals the CO2 pressure in the ring bowl.
7. The spring opens the product valve when the bowl and bottle pressure are equal then the product flows out of the ring bowl and into the bottle.
8. The product in the bottle will fill until it reaches the bottom edge of the return gas tube.
9. The pressure in the bottle is reduced via nozzle in the vacuum channel (a.k.a. "snifting")

**The Following areas have been identified as being critical hazard control points.
Use the following links to navigate to documentation about each control point.**

Adjusting the Servos: [Documentation > 00. Bottling & Canning > KHS Bottle Filler > Operation and Troubleshooting > SOP – KHS Filler – Servo Re-homing](#)

Infeed Worm Adjustments: [Documentation > 04. OPLs > KHS Filler Infeed Worm Blanks](#)

How to switch Vacuum Pumps: [Documentation > 00. Bottling and Canning > KHS Bottle Filler > Operation and Troubleshooting > SOP – KHS Filler – Alternating Vacuum Pumps](#)

TPO Troubleshooting: [Documentation > 00. Bottling and Canning > KHS Bottle Filler > Operation and Troubleshooting > Guide – KHS Filler – High TPO Trouble Shooting](#)

Crowner

Crimps need to be between 1.125 and 1.150

Section II Step 2 of this SOP

Filtec

Do not adjust from set point

Stop the line and escalate up if any issues arise

[Documentation > 00. Bottling & Canning > Filtec \(Container\) > Operation and Trouble Shooting > SOP – Container Filtec - Operation](#)

REFERENCES

SOP – Bottling & Canning – Sampling :

[Documentation > 00. Bottling & Canning > Quality > Sampling](#)

REVISION HISTORY

Revision	Date	Description of Changes	Requested By
2.0	9/5/16	Updated to new format	Jason Aguirre
2.1	1/4/18	Updated HPI wording, Updated external rinse steps.	Bryan Rivera
2.2	8/8/18	Added section about BOR TPO check + reference	Bryan Rivera
2.3	01/28/19	Added troubleshooting #22 (FOB not in Prod.)	Pedro Carvalho
2.4	03/01/19	Updated for BBT Automation	Pedro Carvalho
2.4a	03/08/19	Minor corrections to DAW alarm & formatting	Pedro Carvalho
2.5	03/14/19	Revised Max Beer Back volume protocol	Pedro Carvalho
2.6	04/03/19	Updated Startup section, Glass Loss updates	Pedro Carvalho
2.7	05/31/19	Re-added "Outline of Fill Process" section	Chris Norwood
2.8	10/22/20	Updated lines related to BOR/EOR samples, updated DAW Backpack section, and Jake added clearing of drop pans	Pete Sierra
2.9	5/13/2021	Added Critical to Quality Section	Jake Speakman

Wild Barrel Brewing Company
Standard Operating Procedure
Premiere Stainless 2 Head Keg Washer Operational Procedure

Overview: Clean kegs are essential to any modern brewery operation. Using this device properly insures the interior shell and spear of the keg are clean, sanitized, and ultimately ready to receive beer. This SOP is a chronological numbered guide on the proper use of WBBC's Premiere Stainless keg washer to clean standard ½ barrel sanke kegs.

PPE: Gloves, Eye-protection, and boots are required personal protection for this procedure, Any procedure involving hazardous chemicals and high temperatures requires attention to and application of personal protective equipment.

Prior to starting (turning on power)

Ensure the detergent tank is full of *clean detergent fluid*.

To clean and refill detergent tank:

1. Ensure keg washer is turned off
2. Remove tank lid (Black know on top of detergent tank reservoir)
3. Open ball valve at the bottom of tank and completely drain tank
4. Rinse with hot water (clean as necessary with *white scrubby pad* and/or plastic brush)
5. Close ball valve and fill tank with 140°-150°F water
6. Add 2 *Liters* of **Caustic**
7. Bleed air out of system with small yellow handle ball valve above pump during first part of wash cycle
8. Connect cold water hose and waste hose.
9. The waste hose and drain hose should be in the drain

Turn On Keg Washer

1. Ensure sanitizer container has sufficient amount 50/50 mix of PAA and H2O, and is primed
2. Turn on Keg Washer
3. Open cold-water valve
4. Connect CO2 and open CO2 Valve
5. Connect Air Hose and turn on air compressor
6. Select "*Wash 1*" cycle on touch screen and reset counter
7. Begin washing when detergent temperature is 140°F

Washing kegs

1. Clean keg necks with hot water and brush (pre-soak if needed with caustic or PPW solution)
2. Spray off tops of keg and use white or green scrubby or plastic brush to remove dried beer, food, tape, and other debris.
3. Place first coupler on keg and turn ¼ turn to lock on.
4. Place the other coupler on the second keg, turn ¼ turn and engage coupler by pushing lever down
5. Fully open gas and liquid valves on second keg
6. Engage coupler on the first keg and fully open gas and liquid valves on first keg

7. Place both kegs upside down on keg washer
8. Check that the coupler lever is still in the “down” position
9. Press the *black* “RESET” button then press the *green* “START” button
10. Wipe down / scrub any loose material on the sides and bottom of the kegs

When the Cycle is Complete

1. Take the kegs off keg washer
2. Shut off gas and liquid valves
3. Disengage couplers by lifting levers
4. Remove couplers by twisting ¼ turn and place them on the keg washer
5. Fill neck with diluted Quaternary Sanitizer solution (mix 3oz. Bar Rinse DS-10 per 5-gal water)
DO NOT USE PAA
6. Place *CLEAN green* cap on top of keg neck and put clean kegs on keg pallet.
7. Use *KegID* on phone or tablet and scan in the kegs as “Clean”

When all keg cleaning is complete

1. Turn keg washer off
2. Close CO2 valve
3. Turn off air compressor and close air valve
4. Scrub and hose down work area
5. Close water valve and bleed off pressure
6. Add remaining PAA to Sani-brink

Canning Line

Hose set up for canning line:

1.1 You will need the following hoses and parts to connect the brite tank to the heat exchanger and canning line.

1.2 Connect the one long hose to the bottom of the heat exchanger (in), connect the second long hose to the end of that hose. At the end of the two hoses connect a sight glass then an elbow and finally a valve, this will be the rig that will connect to the brite tank.

1.3 Connect the medium hose to the top of the heat exchanger (out). At the end of that hose connect a sight glass and a valve, this will connect to the canning line.

2 C.I.P. Canning line with Caustic:

2.1 You will need a water pump, a caustic brink, a short hose, a valve, 2 tri-clamps and 2 T.C. gaskets.

2.2 Connect the short hose to the front of the pump (in). At the end of that hose connect a valve. Connect this hose to the hot water hose.

2.3 Connect the hose from the top of the Heatex to the top valve of the caustic brink.

2.4 Open both valves on the Heatex, open both valves on top of the caustic brink as well as the bottom valve of the brink.

2.5 Set water heater to 185*. Turn on both valves connected to the hot water, open both valve from the hose connected to the pump.

2.6 Water will start to flow into the caustic brink, water will run out of the bottom valve. Wait until water reaches 185*, you will know once you see steam coming out of the brink, Close bottom valve to start collecting water, stop once water reaches above the top valve of the brink.

2.7 Add 1 liter of caustic to the water collected on the brink. Make sure you are using proper PPE to handle chemicals. Always add chemicals when the water has reached the amount necessary.

2.8 Connect power cable from the pump, make sure all valves are open, purge water from the pump, power on at 25 hz.

2.9 Check and make sure the water is circulating in the brink. Run for 15 minutes, then dump, disconnect pump from brink and connect to hot water run at 135* to rinse out.

KEG WASHER CHECKLIST

Pre-Start up checks

- ✓ Turn on CO2 / open valve
- ✓ Turn on air compressor
- ✓ Open air valve
- ✓ Open pump valve
- ✓ Check PAA
- ✓ Connect ambient water and waste hose
- ✓ Turn on ambient water

Starting Keg washer

- ✓ Fill keg washer with 16 gallons of water
- ✓ Close pump valve
- ✓ Add 2 liters of caustic
- ✓ Turn on keg washer
- ✓ Select "Wash 1" for WB kegs and "Wash 2" for Microstar Kegs
- ✓ Reset wash cycles

Cleaning Outside of Kegs

- ✓ Remove food
- ✓ Remove tape
- ✓ Clean keg neck
- ✓ Remove dirt
- ✓ Wipe outside of keg

After Cleaning Cycle

- ✓ Check neck for leaks
- ✓ Fill neck with Bar Rinse quaternary sanitizer
- ✓ Use a clean green keg cap
- ✓ Scan keg as clean in KegID
- ✓ Stack on pallet

Shut Down Keg Washer

- ✓ Turn off power
- ✓ Drain caustic tank
- ✓ Rinse caustic tank with water
- ✓ Turn off CO2
- ✓ Turn of air valve and air compressor

Wild Barrel Brewing Company
Standard Operating Procedure
Jockey Box CIP Procedure

Overview: A jockey Box is a portable tap dispenser and cooling unit for keg beer. Between uses, the beer lines and unit must be cleaned and sanitized for functional sanitary beer delivery and portable dispensing.

PPE: Gloves, boots, and glasses are required equipment for personal protection anytime working with cleaning solutions, and gas pressure.

- Use 4 head cleaning keg, and fill with ambient temperature water.
- Connect Sankey taps and CO₂ Line to rinse the beer out of the jockey box circuit. Flush all beer out, refill cleaning keg if needed. Light pressure under 5 psi is all that will be required for this entire SOP.
- Fill the cleaning keg with 4.5 gallons of ambient water leaving .5 gallon volume area head space. The 4 head cleaning keg also known as R2-D2 holds 5 gallons.
- Add 3 packets of Desana Max Line Cleaner to the keg (1.5 gallons water per packet)
- Sample the Desana max for appearance into a glass or clear container before you start flushing the lines. This is a control solution to be used as a comparison to future flushes during the rest of this SOP. The appropriate color of the solution is light purple to pink.
- Flush or run the Desana Max cleaning solution through the jockey box circuit lines until the water is replaced by solution, often ending with a green color solution coming out. Shut the tap valve(s) and let the solution sit for 20 minutes.
- Continue to flush the Desana Max solution through the line until it matches the color of the control sample taken before and as noted when originally mixing the Desana Max line cleaner packets into solution in the R2-D2 cleaning keg.
- Once the solution flowing out the taps is purple/pink, shut the tap handles, empty the solution from the R2-D2 cleaning keg and rinse thoroughly.
- Fill the keg with ambient temp water and flush the lines. Run the water through for a minute after the line appears a water clear lacking color.
- Fill the cleaning keg with water and add PAA/Sanitizer between 100 and 250 ppm ~30ml.
- Flush the lines using the same method above with sanitizer.
- Connect CO₂ line and force the PAA water out. Purge the jockey box with under 5psi
- When the lines appear free of liquid, close the taps and CO₂ pressurize the line for 20-30 seconds.
- Label the Jockey box as Cleaned, Sanitized and Pressurized, including the date and initials of the performer of this procedure.