CPC6000

Operation and Maintenance Manual

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1.0 Receiving Equipment & Setup

1.1 Inspection

Upon receipt of the Centrifugal Barrel System with integrated Computerized Process Controller (CPC), please perform a thorough inspection of the shipment. Compare what is received to the packing list to be sure all the components, including any ordered supplies are present. Check for any damage to the equipment, and notify the delivering freight company and UNITED SURFACE SOLUTIONS, LLC immediately if damage is found.

1.2 Selecting Equipment Location

The equipment should be conveniently located to the "flow of parts." The CPC System will require the appropriate electrical power. If a sump system and water recycling unit is to be used, separate power must be provided for those units as well. It is suggested to leave at least two (2) feet on each side of the machine for maintenance purposes. Sufficient work and storage space is also required.

1.3 Isolation Pads

While setting up the CPC, make certain that high-capacity rubber isolation pads (rated at a min. of 1500 psi) are installed under each leg of the unit. These pads are used to level the equipment and will extend the service life of the machine. The leveling procedures will be explained later in this section.

1.4 Electrical

With the CPC in position, a licensed electrician will be required to connect electrical power. The power requirements for your new equipment are printed on the data plate, which is located on the right-side panel. Refer to included schematics for setup details. UNITED SURFACE SOLUTIONS, LLC personnel are not authorized to make connections to your building's electrical system. Likewise, non-UNITED SURFACE SOLUTIONS personnel are not authorized to make any modifications or adjustments to the equipment without written authorization. Doing so may compromise operator safety as well as your warranty.

Caution: Be sure to connect only the specified voltage to the machine. These systems are built with standard voltage 460VAC / 60Hz. Applying improper voltage will result in severe damage to the system and will void the warranty. Inspect the motor and AC drive to confirm the rated voltage.

1.5 Leveling

Once the electrical connections have been made, it is necessary to level the unit. Do not skip this step. This unit uses a fluid mass of media to finish your parts and if it is not level, this mass will favor one side of the barrel, effectively reducing the available working volume of the barrel and increasing part-on-part damage.

1. Install High-Capacity Rubber Isolation Pads (rated at 1500 psi) under each leg of the unit. Recommended pad size is 3" X 3" X ¼".
2. Place a level on the center beam.
3. If adjustment is needed, shim under the isolation pad with varying thicknesses of sheet metal. If large adjustments are necessary, use thicker padding

DO NOT BOLT DOWN SYSTEM. Being on isolation pads, the machine is allowed to "flex" and absorb this stress. If the machine is bolted down, additional stress would be placed on the bearings. The added stress on the bearings will cause premature bearing failure. The warranty is valid only when the CPC is on the isolation pads. If the CPC is bolted to the floor, the warranty on bearings, barrels and belts will be void.

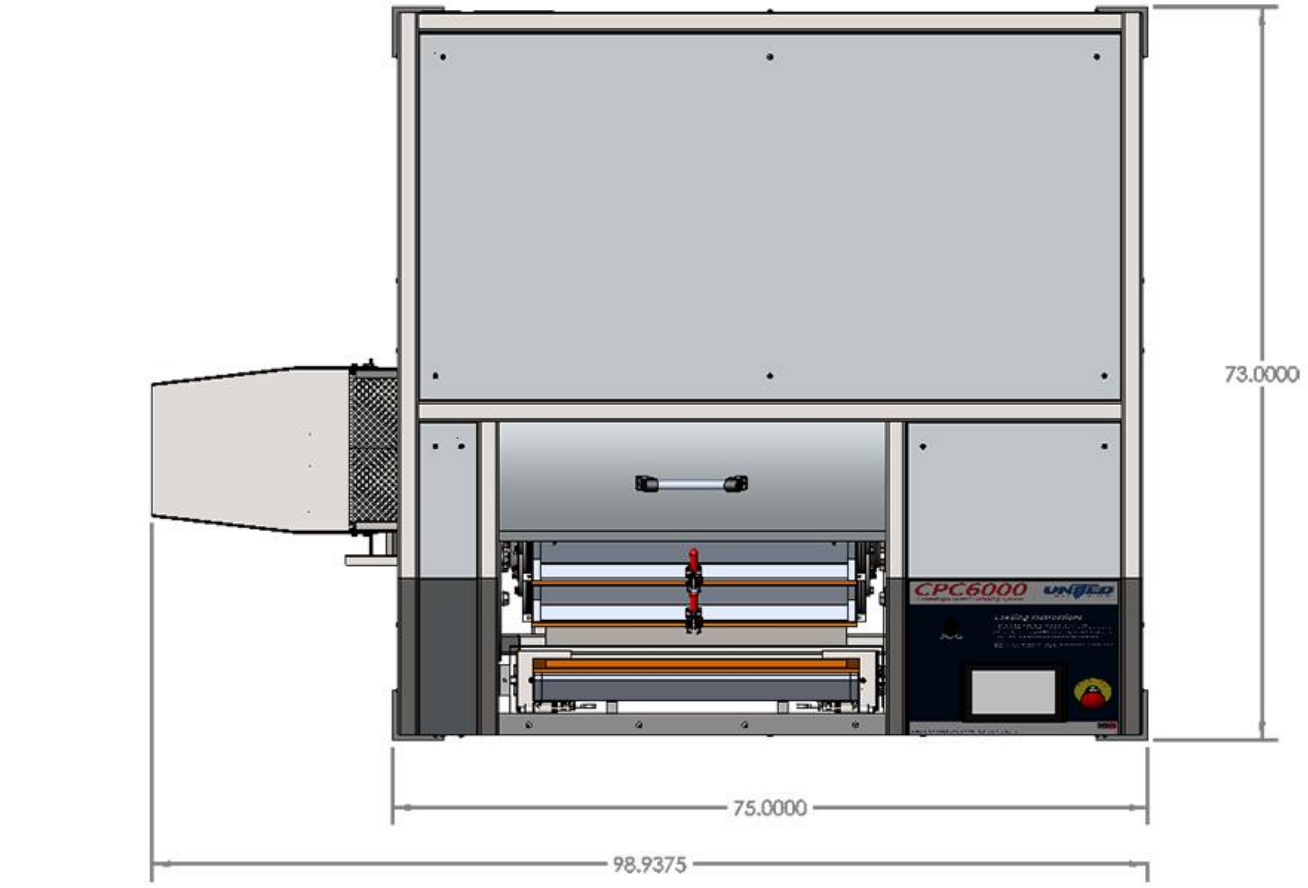
2.0 Overview

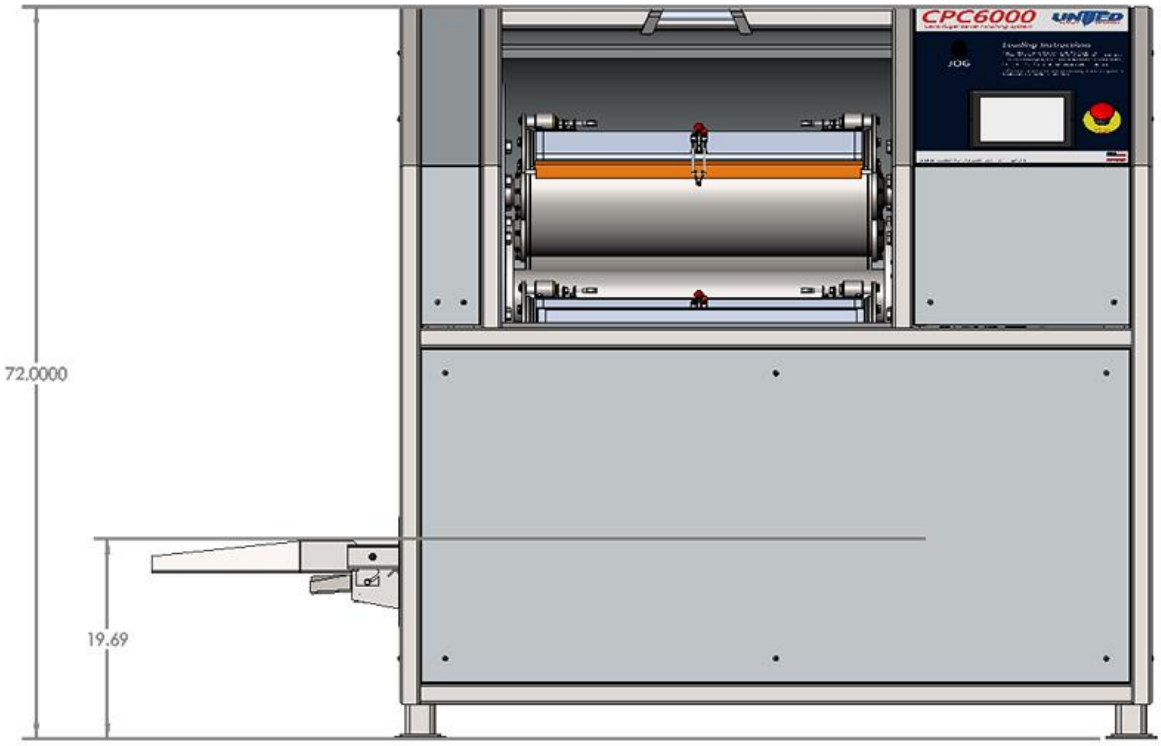
2.1 Specifications

Model	CPC6000HD
Description	Centrifugal barrel finishing system with removable barrels.
Maximum Capacity	6 cubic feet (170 L)
Barrel Capacity	1.5 cubic feet (42 L) 30" *Left to Right* x 10" *Front to Back* x 7.5" *Top to Bottom*
Capacity Distribution	4 barrels, 1.5 cubic feet each.
CPC Interface	PLC/touchscreen controls
Main Drive	10HP three phase AC motor, inverter controlled
Turret Speed Range	0 - 225 RPM fully adjustable
Barrel Rotation Ratio	1:1
Barrel Construction	Stainless steel with removable urethane lining.
Machine Enclosure	304 Stainless steel.
Power Requirements	460/480 (± 10%) VAC, 50/60Hz,
Compressed Air	None
Dry Floor Compatible	YES
Warranty	Up to three years, dependent on component type.
Options	Divided barrels with dividers. Allen-Bradley controls. Indicator Beacon

2.2 Dimensions

Width: 98.94” | Depth: 73” | Height: 72”





3.0 Operation

3.1 Applying Power

Before applying power, ensure that the electrical control box is closed and secure, and that there are no obvious exposed electrical conductors. To apply power to the CPC4000HD, simply connect it to a 460VAC power source. The display will show the initialization screen. Once initialization is complete, proceed to the main menu.

3.1.1 Main Menu

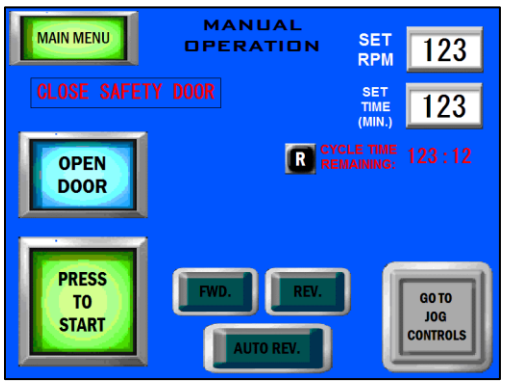
After boot is complete, the Main Menu shows with buttons for Auto Operation, Manual Operation, System Tools, and System Help.

WARNING: The Touch Screen is built to NEMA 4 standards and is resistant to water but can be easily damaged by sharp hard objects. DO NOT use any such objects to operate the touchscreen.

3.2 Manual Operation

To begin operating the CPC manually chose the MANUAL OPERATION touch key from the Main Menu. This will bring up the Manual Operation screen of the CPC.

At this level, all necessary functions can be controlled to operate the CPC. Simply press any touch key to operate the related function. If at any time the operator needs a brief explanation regarding the function of a touch key, they may do so by using the Help option in the Main Menu.



3.2.1 Setting Manual Process Parameters

After selecting MANUAL OPERATION from the Main Menu, the Manual Operation screen will appear. et the RPM by pressing the RPM field and entering a value, then press ENT. Set the Cycle Time by pressing the Cycle Time field and entering a value, then press ENT. Press R to reset Cycle Time Remaining if needed. Choose FWD or REV to specify the direction the turret will spin or press AUTO REV. to split the process between forward and reverse. To start the cycle, START. The system will prompt you to hold the job button and Close Door button on the next screen. Hold the button until the door is completely shut. This step can be removed in the system options.

3.3 Jog Mode

The CPC has two basic modes of operation, the jog mode and the run mode. The mode of operation is determined by the position of the door. Once the door is up or open, the Jog controls will be activated in the Jog controls screen and the operator can safely position the turret for loading and unloading.

3.3.1 Positioning the Turret

When the door is open, the turret may be jogged utilizing the Jog Button in conjunction with the JOG FWD or JOG REV. The Safety Jog Button is located below the touchscreen. The JOG FWD and JOG REV are located on the touch screen interface.

3.3.2 Barrel Rotation

While in Jog Mode the barrels may be rotated to load or unload contents and media by utilizing the Hands Free Safety Jog Button in conjunction with the BARREL FWD or BARREL REV touch key.

WARNING: Never jog the turret while any part of your body is in contact with either the barrels or the turret, or is anywhere within the confines of the machine cabinet. Serious injury could occur.

3.3.3 Barrels

The CPC6000 has four barrels held perpendicular to the Axle Shaft and rotate at a 1:1 ratio relative to the Turret. The barrels are constructed of 304-stainless steel with aluminum lids with attached hardened steel and stainless steel hardware and locking assemblies. Within the barrel seats a removable liner of various configurations including compartmental dividers for total part segregation. This barrel and liner assembly holds the work pieces, media, compounds and water during the finishing process.

3.3.4 Opening and Closing Barrels

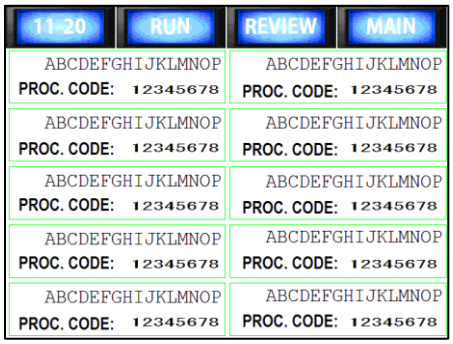
The barrels use an over-centering cam operation to create an airtight seal between the lid and the base of the barrel. A spring and pin locking mechanism is used to hold the cam in the locked position. To open pull the Lock-Pin and hold while rotating the Handle of the cam up and towards the back of the machine using the tool provided. Place the lid in the lid lift compartment. It will lower slowly. *WARNING: Barrels may become pressurized. Some processes can generate super-heated steam in as little as 10 minutes. Open slowly, use caution.*

To close the lid. Lift from the lid assist compartment. It will raise slowly as you lift. Place the lid back on the barrel and align it with the liner. Push the cams in and pull each one down, while pulling back the respective safety pin. When the cam is fully pushed down, release the pin to lock it in place. Ensure both pins are locked into place before running a process.

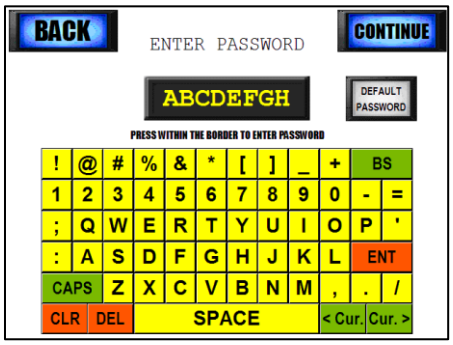
3.4 Auto Operation

3.4.1 Entering a New Process

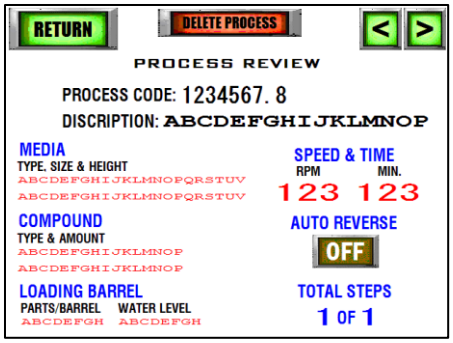
After selecting AUTO OPERATION from the Main Menu, the Process List screen will appear. To create a new process, choose an empty cell (if all cells are full, press 11-20 to view the second screen, > to view the third) then press REVIEW. The Enter Password screen will appear.



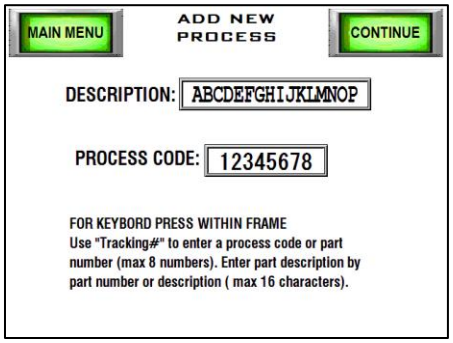
To enter a password, press the empty password field [redacted] then begin typing the password that was either set by United Surface Solutions or changed by you (details on changing passwords will be in a later section of the manual). After typing the password, press ENT then. If successful, the screen will display PASSWORD CORRECT above the password field. If this is displayed, proceed by pressing CONTINUE. To correct any mistakes, press BS (backspace) and continue typing.



After the Enter Password screen, the Select a Screen screen appears. Press ENTER PROCESS, which brings up the Process Review screen. To begin entering your new process, press PROCESS CODE.



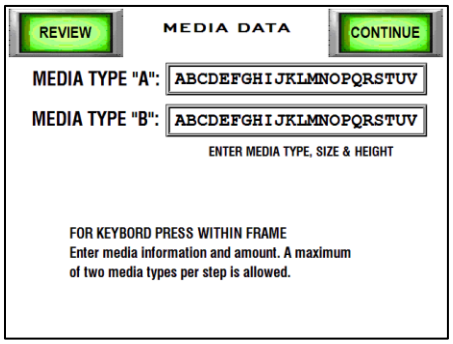
This will recall the Add New Process screen. Press the box next to Description to enter a new description. Press ENT. Repeat for the Process Code field. The Process Report given to you by United Surface Solutions contains all process information, including the process code. United recommends following all the Process Report data. If a process needs to be modified to produce different results, contact United Surface Solutions for no-charge process development. After entering the process description and code, press CONTINUE to proceed to the Media Data screen.



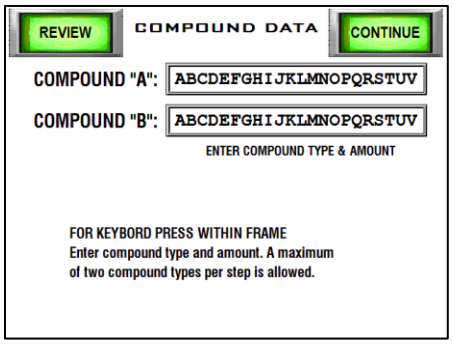
Press the Media Type A field to enter the media part number. Add a space then type the height of the media (measured as inches below the top of the barrel) and press ENTER.

Example: MC-CACC-18x1132 2”

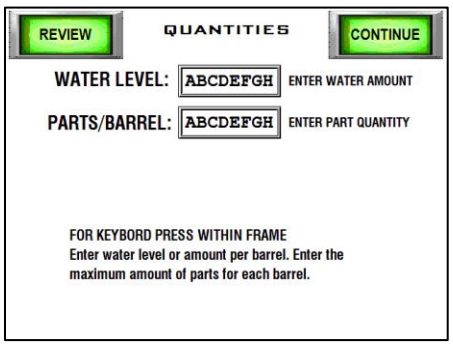
If two types of media are used, enter Media Type B. Press CONTINUE.



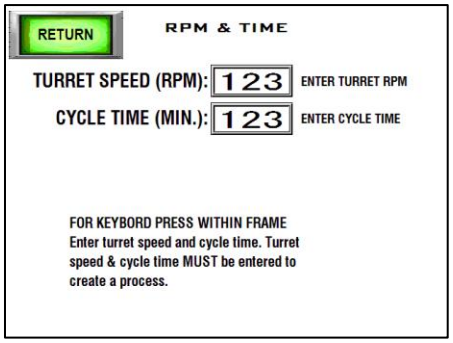
The Compound Data screen is much like the Media Data screen. Repeat all the steps but instead of height, input the compound part number and the amount of compound required (1/2 Cup, 0.25 Cup, etc.). The measurement is for operator reference, so any number format is acceptable. Press CONTINUE to proceed to the next screen.



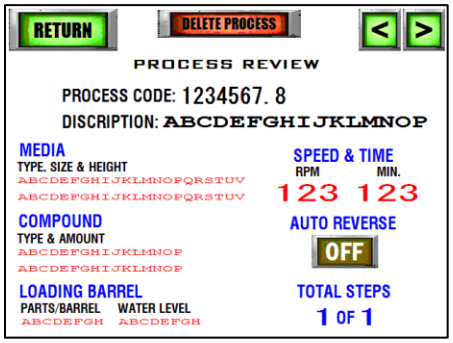
The Quantities screen is used to input information about parts and water in each barrel. Enter Water Level by pressing the empty field. Enter it as “Level” (just covering the media), or +/- a measurement (1”) above or below the media. This measurement if per barrel. Next, enter the Parts/Barrel by pressing the empty field next to the label. Simply enter the number designated on your Process Report. Press CONTINUE to proceed to the next screen.



The RPM & Time screen is one of the most important screens in process storage and is required to save a process. This screen directly controls machine settings when running a process. Tap on each empty field to enter the recommended time and RPM. Press ENT after entering each value. These values are only for the first (or only) step. Press RETURN when done to review the process.



The process screen has options to press > to add a 2nd step, turn auto reverse on (reverses the rotation of the turret at the halfway point in a process), or press RETURN to complete the process storage. If there are any errors, you may correct them by pressing on them. You will be notified if the RPM & Time are missing. You will be returned to the Process List screen.



3.4.2 Running a Stored Process

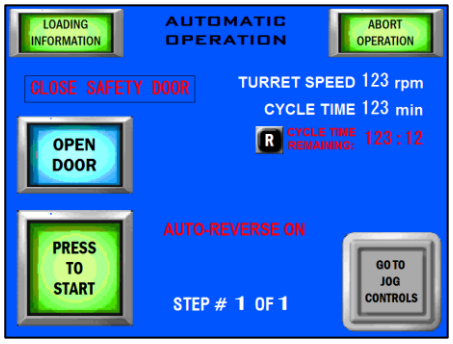
Loading Barrels

To run a process, choose a process from the Process List screen and press RUN. The Loading Instructions screen will appear. Use these instructions to load each barrel with the correct amount of compound, water, media, and parts.

Beginning Process

To begin a process, press CONTINUE from the Loading Instructions screen.

The CPC6000 comes equipped with an automatic opening door. To open the door, hold the Jog button under the touchscreen and press and hold Open Door until it is completely open.



To load a barrel, first remove it from the cradle. Do this by pulling the pin, rotating the cam lock, and pulling it out. To open a barrel, rotate and remove its lockbar. Then remove the lid. Load it starting with media and parts, then water, and finally compound. Replace the lid and lock it in place.

To jog the turret, hold the button and press JOG FWD or JOG REV on the Automatic Operation screen. Before beginning operation, ensure all information on the screen is correct and you have loaded the barrel with the correct materials. If starting a process from the beginning, ensure the CYCLE TIME REMAINING matches the CYCLE TIME. If it does not, press R to reset it. To start the cycle, press PRESS TO START. Follow the door close prompt as demonstrated in the Manual Operation section.

Stopping a Process

To stop a process before it has been completed, press STOP (takes the place of PRESS TO START). The turret will slow to a stop. Once stopped, the door will unlock and may be opened. The cycle time remaining will be saved on the Automatic Operation screen. The process can be continued by pressing PRESS TO START. If the process will not continue, remove your parts and reset the cycle time.

Stopping a Process in Emergency Situation

If the machine needs to be stopped immediately in an emergency situation, press the emergency stop button. This will quickly stop the machine. The Emergency Stop Activated screen will display and the door will unlock when the machine has stopped. Inspect the machine and make adjustments/repairs as necessary. Reset the E-Stop by turning it counterclockwise and pulling it out. A countdown will appear and unlock the machine when completed. The cycle time remaining will be the same as when the machine was stopped.

3.4.3 Opening and Closing Barrels

The barrels use an over-centering cam operation to create an airtight seal between the lid and the base of the barrel. A spring and pin locking mechanism is used to hold the cam in the locked position. To open pull the Lock-Pin and hold while rotating the Handle of the cam up and towards the back of the machine using the tool provided. Place the lid in the lid lift compartment. It will lower slowly. *WARNING: Barrels may become pressurized. Some processes can generate super-heated steam in as little as 10 minutes. Open slowly, use caution.*

To close the lid. Lift from the lid assist compartment. It will raise slowly as you lift. Place the lid back on the barrel and align it with the liner. Push the cams in and pull each one down, while pulling back the respective safety pin. When the cam is fully pushed down, release the pin to lock it in place. Ensure both pins are locked into place before running a process.

4.0 Maintenance

4.1 Preventative Maintenance Schedule

Every Shift

- Inspect and Lubricate Lid Lock Cams
- Inspect Lid Seals.

First 25 Machine Hours

- Inspect turret belt and tighten as needed
- Inspect barrel chains, lubricate and adjust as needed

First 250 Machine Hours

- Inspect turret belt and tighten as needed
- Inspect barrel chains, lubricate and adjust as needed
- Grease turret bearings
- Grease motor bearings
- Inspect barrel & lid linings
- Inspect electrical connections and tighten as needed.

Every 250 Machine Hours

- Grease turret bearings
- Grease motor bearings
- Inspect turret belt and tighten as needed
- Inspect barrel chains, lubricate and adjust as needed
- Inspect barrel & lid linings
- Inspect electrical connections and tighten as needed.

4.2 Maintenance

4.2.1 Replacing Main Drive Belt

1. Empty ALL barrels, insert into the cradles and latch cradle lids.
2. Turn OFF the power at the Safety Disconnect and lock the handle in this position.
3. Release the motor brake by pulling outward on the brake release knob shown in photo 5-*4 Motor Brake*.
4. Loosen the motor adjustment nuts and move motor forwards to loosen the main drive belt. Remove the belt from the motor pulley.
5. Remove the eight (8) bolts from the pillow blocks, four (4) on drive side, two (4) on free side.
6. Raise the turret and pillow blocks off the frame and slide the old drive belt out under the pillow block and the new drive belt in.
7. Tighten the eight (8) the pillow block bolts four (4) on drive side, four (4) on free side and torque to 80 ft-lbs.?
8. Adjust the main drive belt per the procedure given above as described in Adjusting the Main Drive Belt.
9. Engage the motor brake by pushing in the brake release knob shown in photo *5-4 Motor Brake*.

4.2.2 Drive Component Removal

To remove and replace barrel drive components follow these procedures:

1. Empty ALL barrels, position into the cradles and latch cradle lids.
2. Turn OFF the power at the safety disconnect and lock the handle in this position.
3. Release the motor brake by pulling outward on the brake release knob shown in photo *5-4 Motor Brake*.
4. Position the turret so that the drive components to be repaired or replaced are conveniently located and set the motor brake.
5. Remove the two (2) bolts holding the idler arm assembly in place and remove the Idler arm from the turret.
6. Check the Idler Sprocket Bearing for ease of movement and side play and inspect the sprocket for wear. Replace Bearing/Sprocket Assemble if necessary. Torque sprocket retainer nut to 50 ft-lbs.?
7. Remove the chain by means of the master link. Clean with mild solvent if necessary and lubricate with penetrating oil.
8. Inspect the Barrel Drive Sprockets for wear and movement. . . Replace sprocket if wear is excessive.
9. Install Idler Arm Assembly and any sprockets removed and slightly tighten, do not torque.
10. Align Barrel and Turret Sprocket to Idler Sprocket using a measuring device. First measure the distance from the turret disc (disc that the Idler Assy. is mounted on) the center of the Idler Sprocket, record the distance. Next adjust the Barrel and Turret Sprockets so that the centerline of the sprocket equals that of the recorded distance. Refer to photo *5-7 Align Sprockets* for a demonstration view. Torque Turret

and Barrel Sprocket setscrew to 20 ft-lbs.

11. Install the chain and lock the master link using the retainer.

4.2.3 Adjusting Barrel Chain

To adjust the barrel chain, please refer to the following procedure (if continuing from the previous section skip steps 1-5):

1. Empty ALL barrels, position into the cradles and latch cradle lids.
2. Turn OFF the power at the safety disconnect and lock the handle in this position.
3. Release the motor brake by pulling outward on the brake release knob shown in photo *5-4 Motor Brake*.
4. Position the turret so that the Idler Arm Assembly for the butterfly assembly that needs adjustment is conveniently located and set the motor brake.
5. Slightly loosen the two (2) bolts holding the idler arm assembly in place and remove the Idler arm from the turret.
6. Using a pry bar gently press down (applying 10 to 15 pounds of pressure) on the Idler assembly taking up all slack in the chain. Refer to photo *5-8 Adjusting Idler Assembly* for tightening method.
7. Retighten the two (2) bolts holding the idler arm assembly and torque to 80 ft-lbs.

4.2.4 Bearings

Lubricating

The barrel and turret bearings must be periodically lubricated with water-resistant grease, such as Deoplex Multi-Purpose #2EP, to maintain their service life. Each of the eight (8) barrel bearings (four per side) is equipped with a zerk-fitting for this purpose. Refer to photo 5-9 and 5-10 for zerk-fitting locations.

When lubricating, add only a small amount of grease at any one time, usually only one or two pumps on a grease gun. Adding too much will result in damage to the seal, which will allow water and process chemicals to enter the bearing. If this occurs, the bearing will have to be replaced within a short period of time.

Barrel Bearing - Replacement

1. Empty ALL barrels, position into the cradles and latch cradle lids.
2. Turn OFF the power at the safety disconnect and lock the handle in this position.
3. Release the motor brake by pulling outward on the brake release knob shown in photo *5-4 Motor Brake*.
4. Position the turret so that the barrel bearing to be replaced is conveniently located and set the motor brake.
5. Remove the two (2) retaining bolts holding the idler arm assembly in place and remove the Idler arm from the turret.
6. Loosen the setscrews holding the sprocket to the shaft, and slide the sprocket off the barrel shaft, using a bearing puller if necessary.
7. Loosen the two (2) setscrews holding the bearing onto the shaft.
8. Remove the two (2) retaining bolts holding the bearing to the turret and slide the bearing off the shaft.

9. Install the new bearing using the method shown in photo *5-11 Install Barrel Bearing*. Measure the distance from the center shaft to the cradle shaft center point. The distance should equal that of the existing bearings or exactly 8 inches. Torque bearing retaining bolts to 80 ft-lbs.
10. Proceed to line #9 in Drive Component Removal in the previous section for installation instructions.
11. Lubricate the new bearing according to the instructions given in the section Lubricating.

Turret Bearing - Replacement

1. Empty ALL barrels, insert into the cradles and latch cradle lids.
2. Turn OFF the power at the safety disconnect and lock the handle in this position.
3. Release the motor brake by pulling outward on the brake release knob shown in photo 5-*4 Motor Brake*.
4. Loosen the motor adjustment nuts and move motor forwards to loosen the main drive belt. Remove the belt from the motor pulley.
5. If replacing bearing on the Drive Side, remove all Idler Assemblies and both chains.
6. Loosen setscrews on both pillow blocks, Do Not remove the pillow block retaining bolts.
7. Remove the four (4) Turret Bearing Retaining Bolts for the bearing that is being replaced.
8. Loosen the Turret Bearing Setscrews for the bearing on the OPPOSITE side of the turret.
9. Gentle tap the center shaft, OPPOSITE the side of the bearing being replaced, moving it inward about 3/8 of an inch. This will push the bearing that is being replaced out of its centering grove.
10. Remove all six (6) Pillow Block Retaining Bolts; four (4) on drive side and two (2) on free side.
11. Raise the Turret and remove the Pillow Block from the Center Shaft.
12. Loosen the setscrew on the bearing to be removed and slide it off the shaft. If replacing the bearing on the Drive Side, loosen the Sprocket Setscrews and remove both sprockets followed by the bearing.
13. Install the new Turret Bearing into the centering grove and tighten the retaining bolts by hand. Install the Center Shaft Sprockets if replacing the bearing on the Drive Side.
14. Install the Pillow Block and lower the Turret. Torque the Pillow Block Retaining Bolts to 80 ft-lbs.
15. Position the Center Shaft evenly between the Pillow Blocks and torque the setscrews to 20 ft-lbs.
16. Torque the Turret Bearing Retaining Bolts to 60 ft-lbs and torque the setscrews for BOTH Turret Bearings to 15 ft-lbs.
17. Proceed to line #9 in Drive Component Removal in the previous section for installation instructions.
18. Lubricate the new bearing according to the instructions given in the section Lubricating.

5.0 Troubleshooting

Interface Not Functioning

Possible Problem	Item to Check	Remarks
Control voltage fuse blown	Check for blown fuses.	If the door interlock has shorted out, it is usually because someone attempted to open the shutter door while in Run Mode. Check the interlock before re-energizing this circuit. Replace as necessary.
No power to the machine	Carefully check the three terminal blocks on the top of the main disconnect for line power.	Consult with your plant electrician to determine the source of the power outage.
PLC Power Supply Blown	Check the lights on the PLC located inside the control box.	The Power Supply on the PLC also powers the Interface, If there is power to the Drive Inverter and not to the PLC first check fuses then replace the Power Supply if needed.
No input voltage	Check that the main disconnect located on the electrical cabinet door is turned to the "On" position	Make sure that the machine is not being serviced before re-energizing the machine.
Main fuses blown	There are three fuses located in the main disconnect. With the power off, check for continuity across each of these fuses.	If a fuse is blown, DO NOT REPLACE IT until the problem that caused the fuse to blow has been corrected.
Loose wire or defective component	Turn the main disconnect to the "Off" position and carefully check and retighten electrical connections beginning at the main disconnect.	If you are certified to work with high voltage AC, re-energize the Disconnect and follow the voltage paths until you find the problem.

Will Not Begin Cycle

Possible Problem	Item to Check	Remarks
No power to the machine	Verify that the Power Indicator is lit and the CPC screen is operational.	Follow the procedures under "Interface Not Functioning"
Shutter Door is not closed entirely	The Shutter Door must be closed in order in order to place the machine in Run Mode.	Always either completely open or completely close the Shutter Door.
Drive error	Check Drive Keypad for error code.	Refer to the instruction manual for the drive that was supplied with the machine or contact AXYS for support.
Loose wire or defective component	Turn the main disconnect to the "Off" position and carefully check and retighten electrical connections beginning at the main disconnect.	If you are certified to work with high voltage AC, re-energize the Disconnect and follow the voltage paths until you find the problem.

Premature System Halt

Possible Problem	Item to Check	Remarks
No power to the machine	Verify that the Power Indicator is lit	Follow the procedures under "Interface Not Functioning"
Drive error or overload	Check Drive Keypad for error code.	Refer to the instruction manual for the drive that was supplied with the machine or contact AXYS for support.
Human error	Attempting to open the Shutter Door while the machine is running may result in the cycle being canceled. The Stop Button may have been accidentally pressed.	If the cycle timer has reset, human error is likely the problem. If the machine is stopped and the timer is still running, human error must be discounted.
E-Stop activated	Check the CPC Touch Screen to determine if the E-Stop has been activated.	If the E-Stop has been activated the timer will display the remaining time. Proceed to Manual Mode Screen to determine time remaining and finish the current process.
Loose wire or defective component	Turn the main disconnect to the "Off" position and carefully check and retighten electrical connections beginning at the main disconnect.	If you are certified to work with high voltage AC, re-energize the Disconnect and follow the voltage paths until you find the problem.

Desired RPM Not Reached

Possible Problem	Item to Check	Remarks
Machine overloaded	If the acceleration of the machine slows before the desired RPM is reached, the machine is attempting to avoid an overload condition.	Loading the barrels with more material will not overload the machine. With the CPC, the **greatest load condition occurs at approximately 60% fill height.** Try running your process with more parts and media to eliminate this condition.
Exceeds Maximum RPM	If in Manual or Auto Mode Screens the "EXCEEDS MAXIMUM RPM" is displayed, check the Maximum RPM setting in the System Tools screen.	Maximum RPM and Cycle Time limits are set to protect the system from operator error. These settings can be password proteced.

Barrels Leak

Possible Problem	Item to Check	Remarks
Contamination on the sealing surface of the barrel and lid	Remove the lid and check for media, compound or other obstructions on the sealing surfaces	Review the section "Closing & Loading Barrels" for procedures to eliminate this problem.
Process too hot	Verify that the process is not building up significant heat and pressure that is causing the seal to fail.	Refer to the section "Opening the Barrels" for information and tips about building up pressure in the barrels.
Worn barrel tabs	Inspect the barrel tabs on each end of each Lock bar and adjust as necessary.	Refer to the section "Lockbar" for detailed instructions.
Worn linings	Inspect the barrel linings	Refer to the section "Inspecting Barrel Lining" instructions.

Turret Slips During Loading

Possible Problem	Item to Check	Remarks
Loose or broken main drive belt.	Attempt to rotate the turret by hand, if it rotates, then the belt needs servicing.	Refer to the "Main Drive Belt" section for tensioning and replacement instructions.
"Glazed" main brake rotor	Run the machine at 120-180 rpm empty and then remove power from the machine. This will grind a thin layer off the rotor allowing the brake to re-seat.	Due to the requirements of the machine, this "glazing" may become a common occurrence. In which case add this procedure to your preventative maintenance schedule.