



CPC250



Manual & Parts List

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1.0 Receiving Equipment

1.1 Inspection

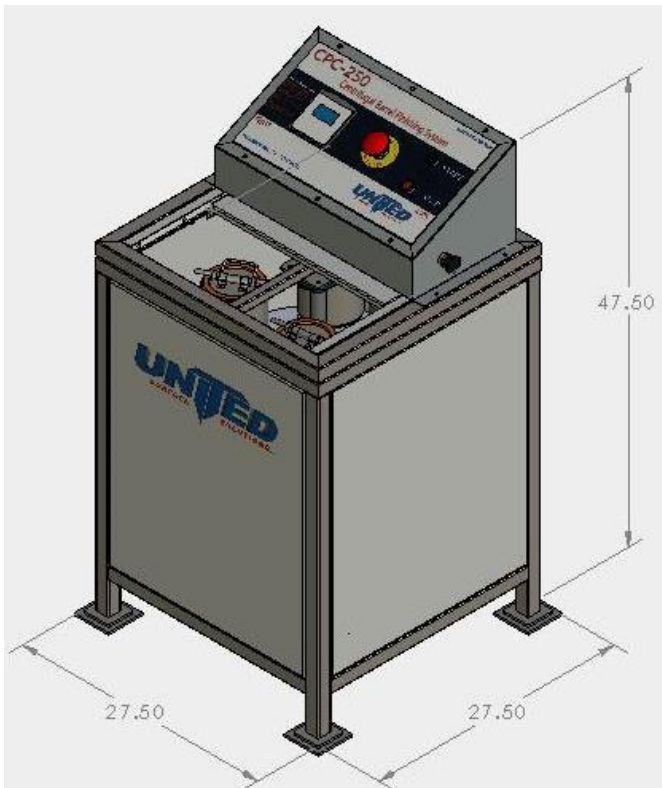
Upon receipt of the Centrifugal Barrel System with integrated Computerized Process Controller (CPC), please perform a thorough inspection of the shipment. Compare what is received to the packing list to be sure all the components, including any ordered supplies are present. Check for any damage to the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

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.

2.1 CPC250 Specifications

Description	Centrifugal barrel finishing system with removable barrels.
Maximum Capacity	0.25 Cubic Feet (7.07 Liters)
Barrel Capacity	0.0625 Cubic Feet (1.77 Liters) W 4.5" (11.4cm) x H 6" (15.2cm)
Capacity Distribution	4 barrels, each holding one 0.0625 cubic foot barrel.
CPC Interface	PLC/Digital touch controls
Main Drive	1HP single phase AC motor, inverter controlled
Turret Speed Range:	100-350 RPM fully adjustable
Barrel Construction:	Coated steel with removable urethane lining.
Machine Enclosure:	304 Stainless steel.
Power Requirements:	208/230 (\pm 10%) VAC, 50/60Hz, 1 \emptyset , 25A, UL certified
Compressed Air:	None
Dry Floor Compatible:	YES
Warranty:	Up to three years, dependent on component type.
Options:	Extra barrels, workstation.



Height	48"
Width	28.5"
Depth	28.5"
Approx. Weight	480lbs.

2.2 CPC500 Specifications

Description	Centrifugal barrel finishing system with removable barrels.
Maximum Capacity	0.5 Cubic Feet (14.16 Liters)
Barrel Capacity	0.125 Cubic Feet (3.54 Liters) W 6" (15.25cm) x H 6.75" (17.15cm)
Capacity Distribution	4 barrels, each holding one 0.125 cubic foot barrel.
CPC Interface	PLC/Digital touch controls
Main Drive	2HP, inverter controlled, single-phase
Turret Speed Range:	100-300 RPM fully adjustable
Barrel Construction:	Coated steel with removable urethane lining.
Machine Enclosure:	304 Stainless steel.
Power Requirements:	208/230 (\pm 10%) VAC, 50/60Hz, 1 \emptyset , 30A, UL certified
Compressed Air:	None
Dry Floor Compatible:	YES
Warranty:	Up to three years, dependent on component type.
Options:	Extra barrels, workstation.



Height	51"
Width	32"
Depth	32"
Approx. Weight	480lbs.

3.0 Equipment Setup

3.1 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.



3.2 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 230VAC / 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.

3.3 Leveling

Once the electrical connections have been made, it will be necessary to level the unit. Do not skip this step of the setup process. This unit uses a fluid mass of media to finish your parts and if the machine is not level, this fluid mass will favor one side of the barrel, effectively reducing the available working volume of the barrel. This may result in an increase in 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 1/4".
2. Place a magnetic beam 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. The CPC uses a rotating turret that puts stress on the machine. Being on isolation pads, the machine is allowed to "flex" and absorb this stress. If the machine is bolted down and not allowed to flex, additional stress would be placed on the bearings. The added stress on the bearings will cause premature bearing failure. The warranty stands in effect 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.

4.0 Operation

4.1 Component Overview

A brief explanation of the system's major components is necessary for safe and trouble-free operation. Please refer to this figure displaying the various components of the CPC.



4.2 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 CPC250, simply connect it to a 230VAC power source. The display will show the initialization screen. Once initialization is complete, proceed to the main menu.

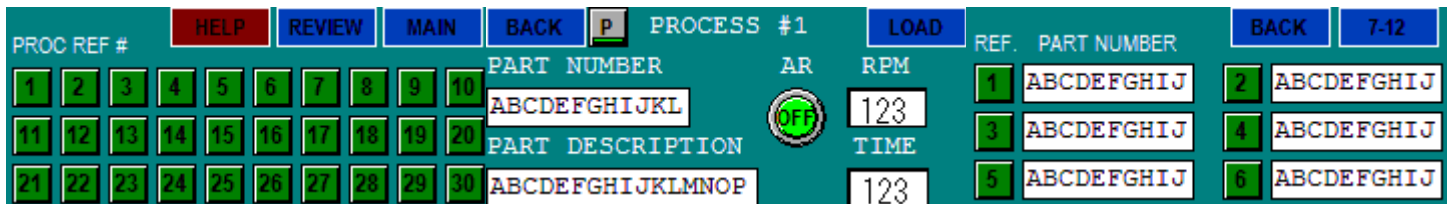
4.3 Operation

4.3.0 Configuring Cycle Settings with IDEC Controls



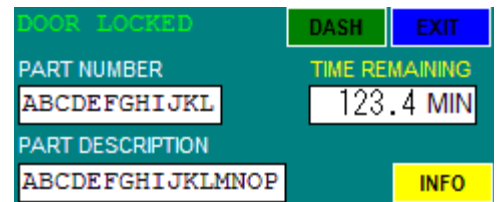
The IDEC touchscreen is simple to operate. To edit any setting, simply touch the setting box on the display. To set the speed press SET SPEED and adjust the RPM. To set time, press SET TIME and enter the appropriate time. CYCLE END is a countdown to the end of the currently running process. To choose the rotation direction, move the digital circular switch by pressing ◀ ▶ to cycle through rotation left, rotation right, and auto reverse, which changes rotation direction mid process. In the top left corner of the screen is the door lock state. Processes cannot be started unless the door is locked.

NOTE: Refer to your Process Report for specified time, direction of rotation, and RPM requirements.



4.3.1 Programming Processes into Memory

1. From the main screen, press AUTO MODE
2. Press the number of the process you want to edit.
3. Press the field/parameter to edit value.
4. Type the value.
5. Press ENT.
6. Repeat for other parameters.
7. Choose ON or OFF under the AR parameter to set Auto Rotation.
8. Values are saved when entered.
9. Press BACK to exit or LOAD to load the process.
10. If process has been loaded, press INFO to view RPM and Time.
11. Press Start Button to run process.
12. Any process can be edited from the AUTO MODE process selection screen.
13. Processes can't be edited from the screen that appears after loading the process.



If asked for a password, choose Admin and enter the default password UNITED. Highlight each letter and hit ENT to type. Then navigate to OK at the bottom and hit ENT once again. The password permission will clear after 10 minutes or you can clear it by power cycling the machine once you are done entering processes to prevent accidental editing.

4.3.2 Rotating the Turret

When the shutter door is open, the turret may be manually rotated by pushing it either clockwise or counterclockwise.

4.3.3 Barrels

The CPC250 has four barrels held perpendicular to the turret. The barrels are constructed of 304-stainless steel or mild steel, stainless steel lids with attached hardened steel and stainless steel hardware and locking assemblies. Within the barrel sits a removable liner. This barrel and liner assembly holds work pieces, media, compounds, and water during the finishing process.

4.3.4 Loading Barrels

Pull the locks upwards and pull out the lid. Then, pull out the liner. Load the barrel with the contents (refer to the process report). First load the media, then the part, the water, then the compound. Ensure that opposing barrels are always balanced by weight.

4.3.5 Closing Barrels

It is important to ensure that the sealing surfaces of the barrel and the barrel lid are clean and free from media, compound, and parts that could disrupt the seal. Please follow the guidelines below for closing the barrels.

1. Clean the sealing surfaces of the barrel and lid of all media and compound. Rinse the lid.
2. Secure the locking clamps. Ensure they lock firmly into place and are not easy to unlock.
3. If using only one or two barrels, use opposing barrels. This will balance the turret. Approximate barrel weights should be within ten percent of each other.
4. Operate the machine with all lids in place, even if the barrel is empty. Failure to do so may cause abnormal vibration or damage due to the machine being out of balance.



Unlocked

Locked

NOTE: It is usually most efficient to unload and reload one barrel at a time.

4.3.6 Running a Cycle

Ensure the cycle time and turret speed are set properly. Once all barrels are loaded and safety latches are secure, close the door. Once the door is closed, press start to lock it and begin the cycle. The timer counts down until the cycle has ended or has been stopped by an operator using the stop button. If the cycle is stopped using the stop button, the timer will display the remaining time but will reset to the set time once the start button is pushed again. Pushing the stop button will safely slow down and stop the machine. When the cycle ends and the machine has come to a complete stop, the door will unlock. Unload barrels just as they were loaded. Be sure to open them slowly as their internal pressure and heat increases during the cycle which creates pressure buildup.

4.3.7 Emergency Stop

If the emergency stop button is pressed, (button is located in the center of the control panel at the rear top of the machine) the machine will come to a complete stop as quickly as possible. However, the door will remain locked. The emergency stop button must now be turned counter-clockwise and pulled upwards (toward the operator). Then, the F1 button on the touch panel must be pressed to unlock the door and return the machine to its standby state.

4.3.8 Operating Tips

Here are a few tips for working with your CPC that should make production easier and more consistent:

- Always use a soap or detergent in every process. Otherwise the media will soon take on a glazed appearance and will no longer cut properly.
- Rinse parts after each step of the process. Do not let the compound dry on the parts.
- Do not let parts sit for an extended period after finishing. Some materials, especially aluminum and zinc alloys will develop corrosion spots if left in the machine for as little as 10 minutes after the end of the process. If the parts have sat in the barrel, operate the CPC for a few extra minutes before unloading the barrels. This may help eliminate spotting that may have developed.
- Never put compound directly on work pieces. Always load media and water on top of parts before adding compound or compound residue may be found on the parts.
- Thoroughly rinse the empty barrels between process steps.
- Never use the same scooper for more than one compound. Doing so will contaminate both products and may result in inferior finishing.
- Keep finishing media as clean and uncontaminated as possible.
- Avoid inadvertently mixing media together.
- If the work pieces are subject to rust, a rustproof treatment must be used

5.0 Maintenance

5.1 Maintenance and Repair

5.1.1 Preventative Maintenance Schedule

Every Shift

- Inspect barrel lock bars.

First 50 Machine Hours

- Inspect barrel belts for proper tension.
- Inspect and tighten set screws on barrel shaft sprockets

First 250 Machine Hours

- Inspect barrel belts, and adjust as needed
- Inspect and tighten set screws on barrel shaft sprockets

Every 500 Machine Hours

- Grease turret bearings
- Grease barrel bearings
- Inspect barrel belts, and adjust as needed
- Inspect and tighten set screws on barrel shaft sprockets
- Inspect barrel linings

Every 1000 Machine Hours

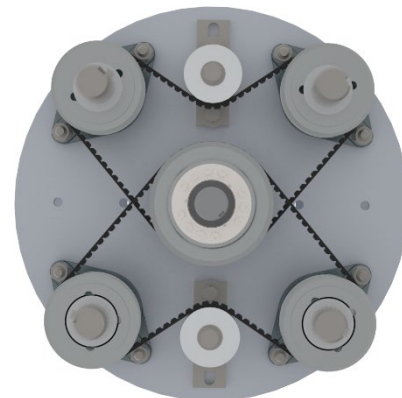
- Inspect electrical connections and tighten as needed.

5.1.2 Drive System

The barrels are driven at a 1.5:1 ratio opposite the rotation of the turret by a sprocket and belt system. The belt type is classified as Cleated Belt and is very resistant to stretching after the brake-in period of 30-40 hours of operation. During this brake-in period some adjustment may be necessary.

5.1.3 Inspection

A butterfly configuration is used to drive the cradle assemblies that accommodate the barrels. Each butterfly configuration drives two (2) cradle assemblies and is adjusted by an idler arm assembly. Please refer to the photo *5-5 Barrel Drive Assembly* on the left for associated components. The operator can check for belt slack and determine if an adjustment is necessary simply by rocking the cradle assembly in a forward and reverse rotation while the CPC is powered OFF and the door is open. If movement is preset then adjustment is necessary.



Visually examine the belts and sprockets for signs of wear or misalignment. If indications of wear are present use the following procedure for further inspection:

5.1.5 Drive Component Removal

To remove and replace barrel drive components follow these procedures:

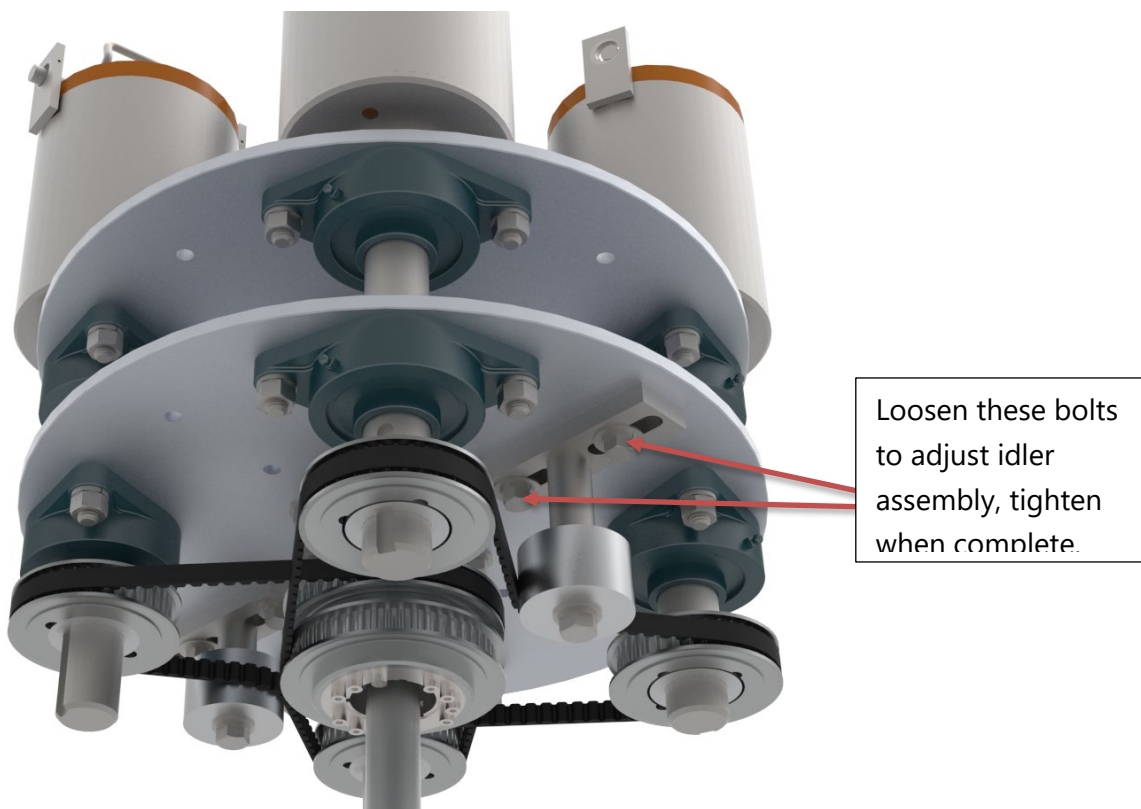
1. Empty ALL barrels.
2. Turn OFF the power at the safety disconnect and lock the handle in this position.
3. Remove the two (2) bolts holding the idler arm assembly in place and remove the Idler arm from the turret.
4. Check the Idler Sprocket Bearing for ease of movement and side play and inspect the sprocket for wear. Replace Bearing/Sprocket Assemble if necessary. Torque sprocket retainer nut to 50 ft-lbs.
5. Remove the belt. Inspect the Barrel Drive Sprockets and keyways for movement. Visually inspect for rust between the sprocket and cradle shaft and physically grasp the sprocket and check for movement on the shaft. If movement is evident remove sprocket and examine keyways for wear. Replace key, shaft or sprocket if wear is excessive.
6. Install Idler Arm Assembly and any sprockets removed and slightly tighten, do not torque.
7. Align Barrel and Turret Sprocket to Idler Sprocket using a measuring device. 2 barrel sprockets (red) must be aligned with the top sprocket. The distance between their centerlines and the turret plate must be the same. Repeat for other sprockets with the lower turret sprocket (blue).
8. Install the chain and lock the master link using the retainer.



5.1.6 Adjusting Barrel Belts

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

1. Empty ALL barrels.
2. Turn OFF the power at the safety disconnect and lock the handle in this position.
3. Position the turret so that the Idler Arm Assembly for the butterfly assembly that needs adjustment is conveniently located.
4. Slightly loosen the two (2) bolts holding the idler arm assembly in place and remove the Idler arm from the turret.
5. Using a pry bar gently press down (applying 10 to 15 pounds of pressure) on the Idler assembly taking up all slack in the belt.
6. Retighten the two (2) bolts holding the idler arm assembly and torque to 80 ft-lbs.



5.1.7 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

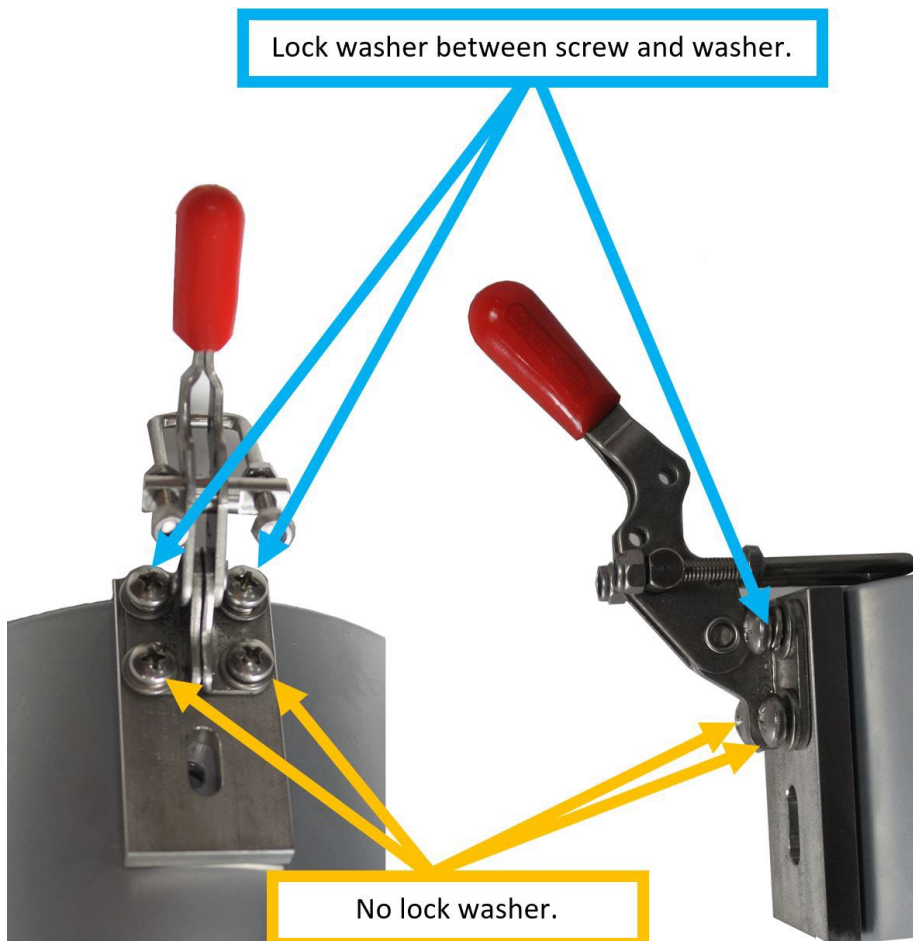
When lubricating, add only a small amount of grease at any one time, usually only one or two pumps on a grease gun. Adding too much will result in damage to the seal, which will allow water and process chemicals to enter the bearing. If this occurs, the bearing will have to be replaced within a short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

5.3.8 Barrel Locks

Barrel locking clamps is used to apply pressure on the lid and create seal between the lid and barrel. If the barrel lid is not secure, the barrel will leak water during operation.

Periodically inspect the locks for wear. The locks should click into place and require effort to pull up and unlock.

If repair is needed please contact UNITED SURFACE SOLUTIONS Product Support Team, Service Department, (877) 837-4623. Displayed below is a reference for replacement procedures. Note that the bottom two screws for each locking clamp DO NOT use a lock washer.



5.3.9 Torque Specifications

<i>PART DESCRIPTION</i>	<i>TORQUE</i>
Turret Bearings Retaining Bolts (four per bearing)	60 ft-lbs
Barrel Bearings Retaining Bolts (two per bearing)	80 ft-lbs
Idler Assembly Retaining Bolts (two per idler)	80 ft-lbs
Idler Sprocket Retaining Nut (one per idler)	50 ft-lbs
Motor Adjustment Base to Frame Retaining Bolts (four total)	80 ft-lbs
Motor to Motor Adjustment Base Retaining Nuts (four total)	30 ft-lbs
Setscrews – Sprocket (two per sprocket)	20 ft-lbs
Setscrews – Bearings (two per bearing)	15 ft-lbs
Isolator Pad Retaining Nut (one per pad)	15 ft-lbs

6.0 Troubleshooting

6.1 Interface Not Functioning

Possible Problem	Item to Check	Remarks
Control voltage fuse blown	Check for blown breakers.	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	If a fuse is blown, DO NOT REPLACE IT until the problem that caused the fuse to blow has been corrected.

	continuity across each of these fuses.	
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.

6.2 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.	
Door is not closed entirely	The door must be closed in order in order to place the machine in Run Mode.	Always either completely open or completely close the Door.
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.

6.3 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"
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.
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.

6.4 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.	<p>Loading the barrels with <u>more</u> material <u>will not overload</u> the machine. With the CPC, the greatest load condition occurs at approximately 60% fill height.</p> <p>Try running your process with <u>more</u> parts and media to eliminate this condition.</p>
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 protected.

6.5 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.

6.6 Turret Slips during Loading

7.0 Appendix

The following information for the CPC250 finishing system is intended to assist personnel with the basic operations of the system. Some or all of the information may not be current. If updated information is required, please contact our technical support team. Thank you for choosing UNITED SURFACE SOLUTIONS, LLC for your finishing solutions.

7.1 Handling Compounds

Compounds are soaps, chemicals and abrasives used in conjunction with a media. Depending on your process, some keep the parts and media clean throughout the process, and some assist the media's cutting properties. Others react to the work piece to remove scale or brighten the surface finish.

In order to perform these tasks, some compounds include harsh chemicals. The pH levels of the compounds that you will be using range from 10 to 2. A pH level of 7 is neutral, like water. It is neither acidic nor base. The farther from neutral a compound becomes (whether up or down from seven), the more harmful the effects.

Each container of compound will have an UNITED SURFACE SOLUTIONS label that shows the "Hazardous Material Identification Guide" (HMIG) rating of the compound. These labels give the level of health risk, degree of flammability and the reactivity of the compound. Also, the protective equipment requirements for handling the compound are shown. This information is furnished in compliance with OSHA Federal Hazard Communication Standard 29 CFR1900.1200, known as the "Right to Know" law.

Another source of information is the Material Safety Data Sheet. This form can be obtained from your supplier and depicts every hazard or concern related to it. We recommend that these forms be filed for future reference.

It is a good idea to provide a "wash down station" near the work area. At minimum, a manual eye wash bottle should be available. This suggestion, like all others, is deferent to Occupational Safety and Health Administration (OSHA) requirements and local safety code.

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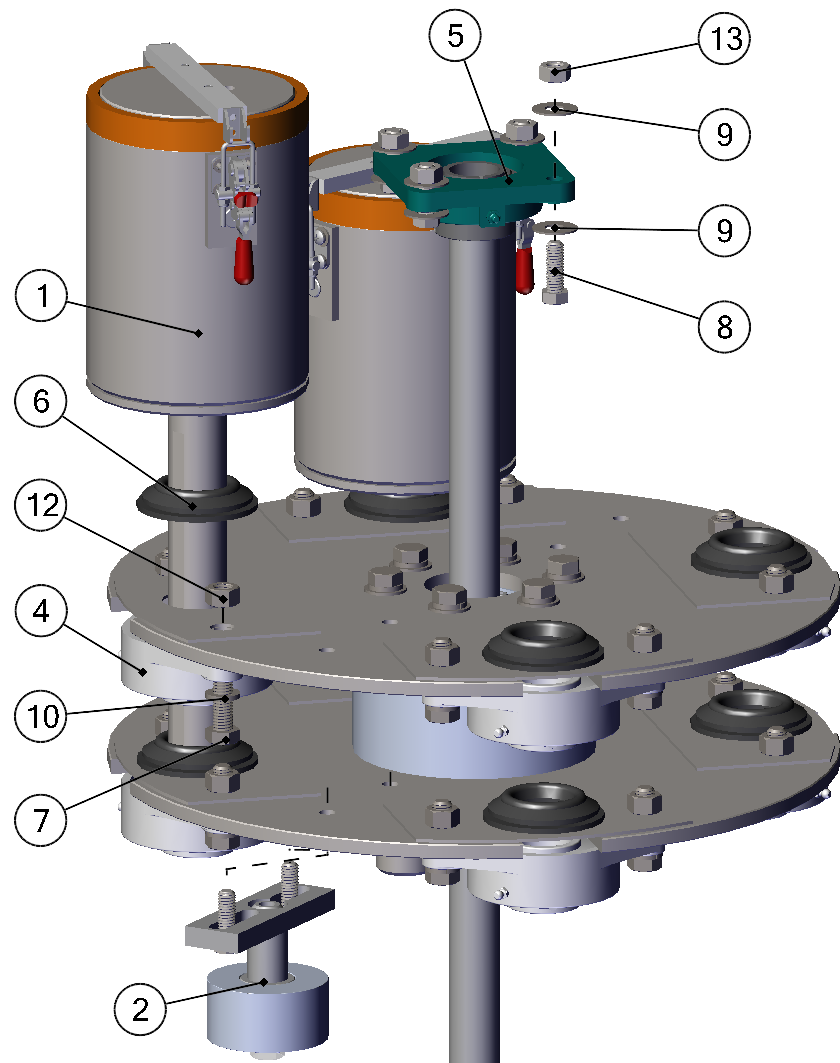
Electrical Box Assembly

Door Assembly

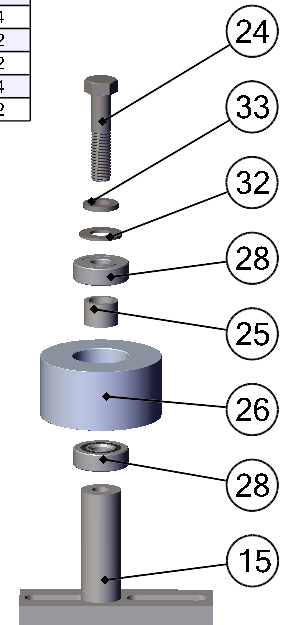
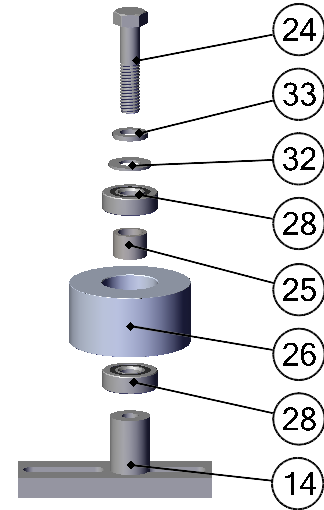
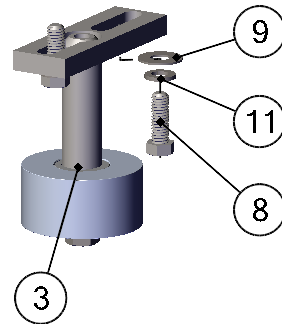
Turret Assembly

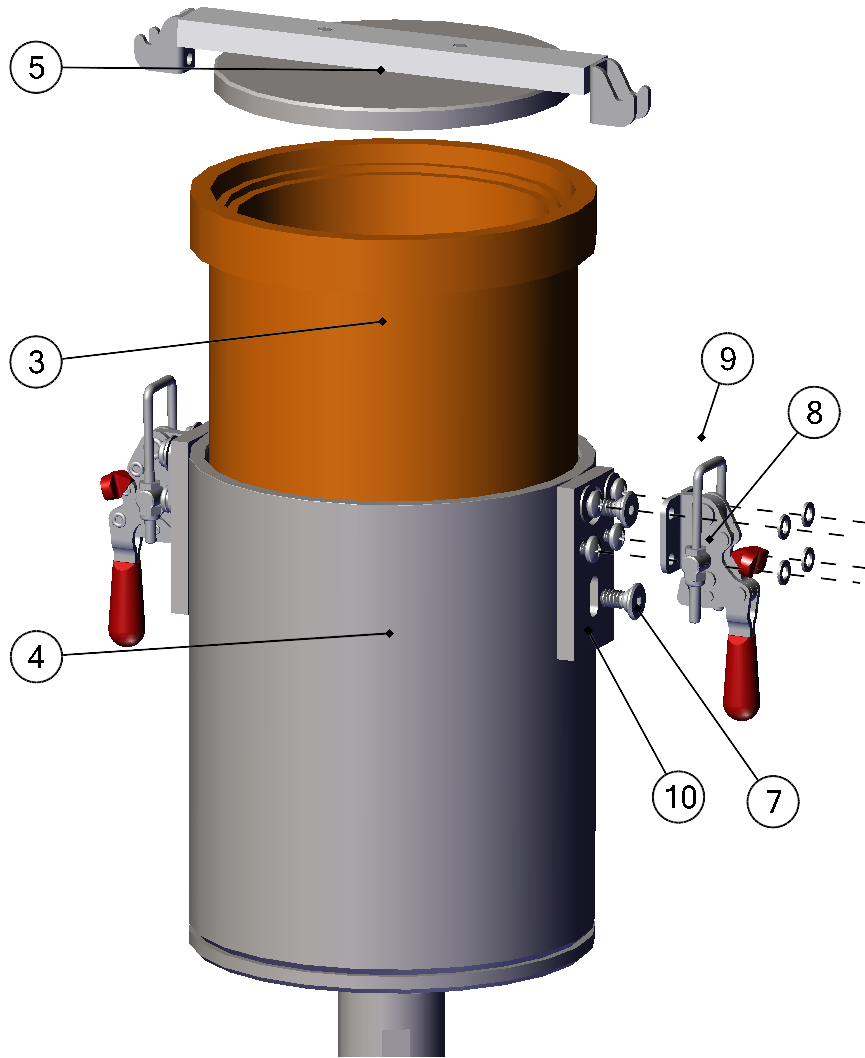
Drive System



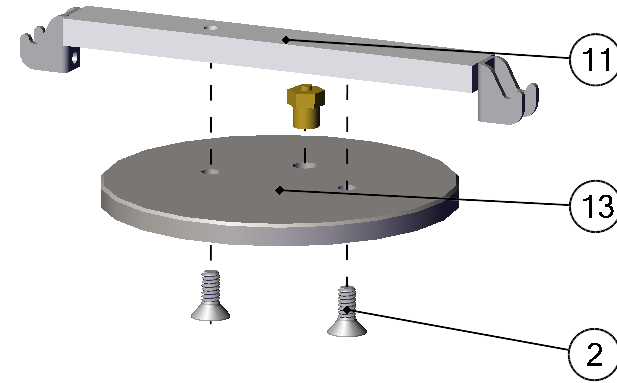


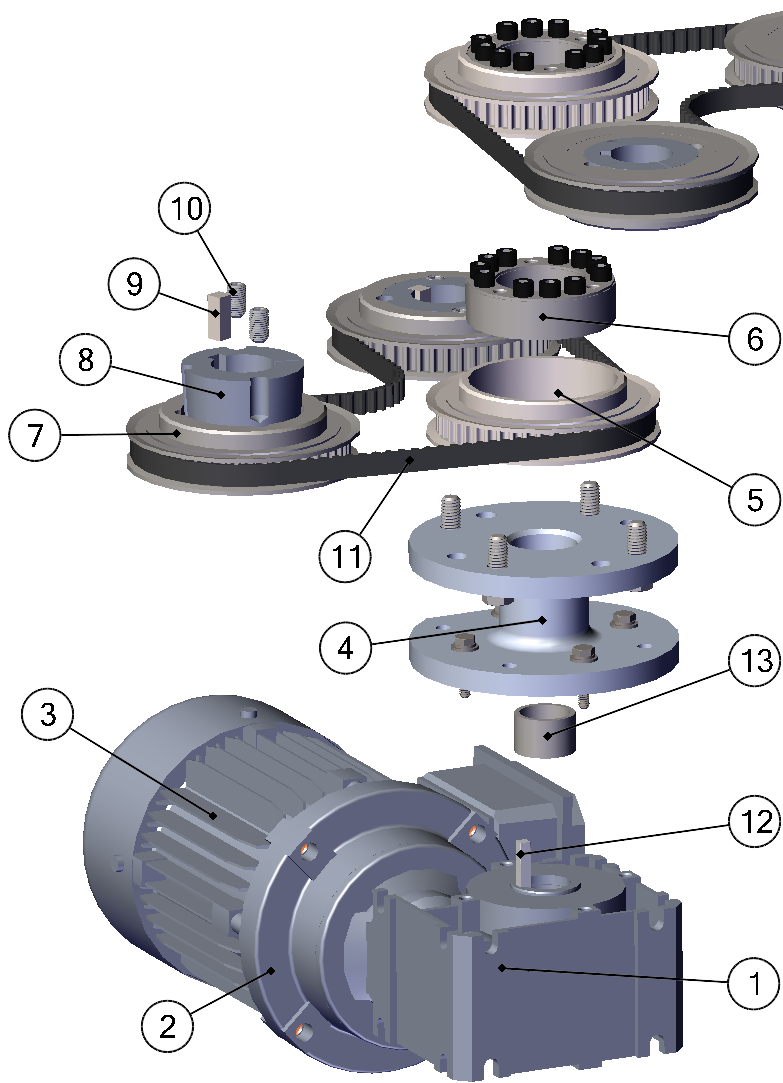
BOM ID	SW Component Name	Description	Qty
1	C25-T03	Barrel Assembly, C02	1
2	T0206	1.875 in Tensioner Assembly, C02, C05	2
3	T0207	3.250 in Tensioner Assembly, C02, C05	2
4	C25-T02-0201	Cradle Bearing, C02, C05, C10, C15, C40	8
5	C25-T02-0202	Main Turret Bearing, 0.645 in. ID, C02, C05	1
6	C25-T02-2004	Snap-in Grommet, C02, C05	8
7	B12-02	Hex Head Bolt 1/2-13 X 1.75	16
8	B716-07	Hex Head Bolt 7/16-14 X 1.25, SS	8
9	FW716-01	Flat Washer 7/16	12
10	LW12-01	Lock Washer, 1/2, SS	15
11	LW716-01	Lock Washer 7/16	4
12	N12-01	Hex Nut, 1/2-13, SS	17
13	N716-01	Nut 7/16-14	4
14	T0206W	1.875 in Tensioner Post Weldment, C02, C05	2
15	T0207W	3.250 in Tensioner Post Weldment, C02, C05	2
24	B12-04	Partly Threaded Hex Head Bolt 1/2-13 X 2.25	2
25	D01-0221	Idler Wheel Bearing Sleeve, C02, C05	2
26	D01-2007	Timing Belt Idler Wheel, C02, C05, C10, C15, C40	2
28	D01-2014	Tensioner Bearing, 1.375in OD, 0.5in ID, C02, C05	4
32	FW12-01	SAE Flat Washer, 1/2, SS	2
33	LW12-01	Lock Washer, 1/2, SS	2
87	S10-03	Phillips Machine Screw, #10-32 X 0.375, SS	4
129	FW10-01	Flat Washer #10, SS	2





BOM ID	SW Component Name	Description	Qty
2	B14-17	Flat Head Screw 1/4-20 X 0.625	2
3	C25-T03-0201	Barrel Liner, C02	1
4	C25-T0301W	Barrel Weldment, C20	1
5	C25-T0401	Barrel Lid and Lock Bar Assembly, C02	1
7	S14-05	Ultra-Low-Profile Socket Head, 1/4-20 X 0.375, SS	4
8	T03-2002	Barrel, Lid Lock Latch, C20, C50	2
9	T03-2002-1	U Bolt, C02, C05	2
10	T0301-1006	Barrel Lid Latch Plate, C02, C05	2
11	C25-T04-1001	Barrel Lid, Lock Bar Weldment, C02	1
13	C25-T0401-0101	Barrel Lid Plate, C02	1
87	S10-03	Phillips Machine Screw, #10-32 X 0.375, SS	8
94	T04-2001	Pressure Relief Vent, Lid, C02, C05	1
129	FW10-01	Flat Washer #10, SS	4





BOM ID	SW Component Name	Description	Qty
1	C02-D02-0201	Motor Gearbox, C02	1
2	C02-D02-0202	Motor Adapter for Gearbox, C02	1
3	D02-0204	1 HP Motor 1650 RPM, 230/460V, SK80L/4, C02	1
4	D01-3004	Gearbox Spacer, C02, C05	1
5	D01-2002	Center Timing Gear, C02, C05	2
6	D01-0212	2 in. ID Power Lock, C02, C05	2
7	D01-2002A	Center Timing Gear 8MX-48S-12, C02, C05	4
8	D01-2005A	Cradle Sprocket Keyed Sleeve, C02, C05	4
9	D01-1003	Cradle Sprocket Key, C02, C05	4
10	SS716-01	Set Screw, 7/16-20 X 0.750, SS	8
11	C25-D01-0206-01	Belt, 1040, 41 in., C02	2
12	D01-0205	Motor Key, C02, C05	1
13	C25-D01-0102	Turret Shaft Sleeve Support, C02, C05	1