

# Operator's Manual

## G-320D



# CPS

Concrete Polishing Solutions



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## **Contact Information**

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## **1.0 GENERAL INFORMATION**

### **1.1 Warranty Information**

Concrete Polishing Solutions (CPS) warrants to the purchaser that under normal use and service, the G-320D grinder purchased hereunder shall be free from defects in material and workmanship for a period of one (1) year. Expendable or consumable items or parts (such as belts, gaskets, or parts with wear) are not covered under this warranty. This warranty does not cover equipment or parts which have been misused, altered, neglected, handled carelessly, or used for purposes other than which they have been manufactured. Further, this warranty does not cover loss, damages resulting from accident, or damages resulting from an unauthorized service. Please note, unauthorized modifications or repairs to the machine may void this warranty.

### **1.2 Return Policy**

Please open and inspect your order promptly upon receipt. Should you find an issue with the contents, please contact a member of the CPS sales and technical staff first, so they can resolve the issue as quickly as possible.

Any returns must be made within 30 days of delivery and must be accompanied by a return authorization number, as well as a copy of the original invoice. CPS will then review the complaint and inspect the merchandise before a credit can be processed.

Any items that are returned because of obvious misuse will be shipped back to the sender at their expense and no credit shall be issued.

Any returned items, including items under warranty, must be sent at the customer's expense. No authorization number is necessary if you are returning an item for repair that will be returned to you after repairs.

Before you return an item, CPS asks that you first call a member of the sales and technical staff at 877.472.8200 and provide your company name, address, telephone number, and a brief statement explaining the problem.

If an item was delivered to you in error, please let CPS know and the item will be picked up at CPS' expense. If your order contains a shortage, report the shortage no later than 24 hours after receiving your shipment. Shortage claims will be honored only when reported promptly. CPS cannot accept any products that have been either modified to a customer's specifications, or is a non-stocking special order item. Any products, such as machines or other equipment that sustain aftermarket alterations not pre-approved by CPS are not returnable.

### **1.3 Damaged Shipments**

CPS carefully inspects all orders prior to shipment and then packs shipments as carefully as possible. CPS advises that you thoroughly check all cartons before you sign for the order. Any claims for merchandise damaged in transit must be filed with the delivering carrier, not CPS.

## 1.4 Liability

### Important Notice:

The following is made in lieu of all warranties, expressed or implied. CPS and/or manufacturer's only obligation shall be to replace such quantity of product proved to be defective, provided that such guarantees or replacements are a stated policy of the manufacturer. CPS and/or manufacturers shall not be liable for any injury, loss, or damage whether direct, incidental, or consequential, arising from the negligence or misuse of the product. Before using, user shall determine the suitability of the product for its intended use and the user assumes all risk and liability whatsoever in connection therewith. The foregoing may not be altered, except by an agreement signed by at least two of the officers of Concrete Polishing Technologies, Inc. CPS will not be liable for delays in shipping due to circumstance beyond the control of CPS. Warranties will be null and void if after-market alterations, changes, or modifications have been made to the equipment.

## 1.5 Customer Service and 24/7 Technical Support

Concrete Polishing Solutions has a well-trained service department and our sales and technical staff have extensive knowledge on how to service our equipment. Being the manufacturer, we best understand our equipment and already have parts in stock. We can also send you the parts and help you to service your own equipment over the phone. In some locations, we can also provide you with information regarding an outside service person in your area that can assist you with parts and service.

If you do need to contact the Service Department, you will need to provide the product model and serial numbers to the person assisting you. CPS provides technical support to our customers twenty-four hours a day, seven days a week. Trained representatives will be happy to help you with any questions you may have. You can reach the CPS Service Department 24/7 by calling 877.472.8200 or via email at [info@go2cps.com](mailto:info@go2cps.com).

### 1.5.1 Contact Information and Additional Support:

If you are in need of assistance, contact CPS Customer Service, day or night:

By phone: 877.472.8200

By email: [info@go2cps.com](mailto:info@go2cps.com)

For informational videos on CPS equipment, including instructional videos and tips for bidding and more, visit CPS on YouTube by searching Concrete Polishing Solutions and clicking 'Subscribe'. Follow us on Facebook at <http://www.facebook.com/concretepolishingsolutions>.

## 2.0 SAFETY

This operator's manual provides instructions for safe, efficient, and trouble-free operation of your machine. You and anyone else who will be using or maintaining the machine are required to read and understand the information contained in this manual. Owners and operators must keep the owner's manual available for frequent reference. Contact Concrete Polishing Solutions if you need any assistance, information, or additional copies. The G-320 machines are designed to be used by a professional. The user is expected to have good knowledge and understanding of the user and safety instructions before operating, inspecting, or adjusting the machine.

### 2.1 Special Symbols

The symbols below represent a need for extra consideration when using the G-320 Machine.

# Special Symbols

Throughout this manual, you will see symbols that accompany important information at a glance, including warnings to prevent machine damage, injury, or death. Please pay close attention to warnings.



## Use Caution

This symbol and text highlights potential hazards or death to the operator or bystanders and/or property damage if proper procedures are ignored.



## Tip

Text following this symbol indicates advice on operating the machine most effectively.

### 2.2 Safety Rules

It is imperative to follow all safety instructions herein, as well as ensuring that safety guidelines are followed by anyone in the vicinity of work being done with the G-320, along with any current workplace safety regulations or rules.

**Work should only be performed by a trained professional. Each operator of the machine should be familiar with the manual and should be aware of the risks of incorrect use or operation.**

CPS offers free training to machine operators both upon scheduled requests, as well as through our distributors across the United States. For more information on trainings in your area, visit <http://www.go2cps.com> or call 877.472.8200.





## Warning

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- Training is required before operating this machine.
- Keep machine out of the vicinity of children.
- Do not allow children on or near the machine.
- Those with impaired mental, physical, or sensory abilities should not operate the machine.

Concrete Polishing Solutions machines should be used only in the manner CPS recommends. Anyone using the G-320 should know about:

- Machine Functions
- Emergency Stop Procedure
- Workplace Safety Rules

### The operator of the machine:

- Should ensure that no unauthorized person is in the area when the machine is started.

### The workplace:

- Should be suitable to using a propane grinder, including proper ventilation
- Should be free of debris and loose objects that could potentially be thrown out by the machine
- Should be free of exposed bolts or other implements that could damage the machine or cause injury.

### Proper Personal Protective Equipment (PPE):

- Safety Goggles
- Protective Gloves
- Steel Toe Safety Shoes
- Hearing Protection
- Respiratory Mask
- Do not wear clothing that is loose-fitting, as it could become caught or snagged by the machine, including scarves, bracelets, or rings.

### Precautions:

- Be sure that propane tank and hose are free of holes and leaks and is properly attached to the grinder at all times.
- Maintenance and service should only be performed by qualified personnel or certified servicers.
- Access to a clearly marked fire extinguisher should be provided at all times.
- Do not perform maintenance or service on live or operational machines. Machine should be turned off before any service or maintenance is completed.
- An electrician should be consulted to inspect any exposed wires, leads, or to open electrical boxes on job sites. **Protect yourself and others from electrical shock and potential death by consulting an electrician. Do not attempt to repair electrical issues with machines.**

## 3.0 TRANSPORTATION OF YOUR MACHINE

To transport the G-320:

1. Place the handle in the upright position and lock the handle pin.
2. Carefully pull the machine back, using a foot placed on the weights to gain leverage.
3. Transport the machine using the wheels, with the machine tipped back.



### Warning

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- Strap down equipment securely (across non-moving parts) when transporting from jobsite. Unsecure or unanchored equipment can cause property damage, injury, or death.
- Be sure to place hands in the center of handlebars when lowering and raising the machine. The placement increases stability and reduces the risk of machine tilting and causing injury.



### Tip

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- Make sure machine weights are in their upright position when attempting to transport the machine. The weights exert 150 pounds of downward pressure when engaged, making tilting back the machine for transport much more difficult and dangerous.

## 3.1 Storage

Store your CPS grinder in an area that is dry. Long exposure to cold or damp conditions can damage the grinder.

## 4.0 MACHINE INFORMATION

Your G-320 machine was carefully inspected and protectively packaged to prevent damage in shipment. We suggest that upon removing the unit from its carton, you carefully inspect it for any possible damage in transit. Immediately notify the transportation company who delivered your machine. CPS grinders are equipped to handle various types of jobs, including surface preparation, grinding, and polishing of concrete flooring. The G-320 is equipped with three grinding heads upon which plates and tooling for different applications can be attached. For more information on CPS tooling visit <http://www.go2cps.com/tooling.html>

The following items should be included with the delivery of your machine. Please notify CPS if anything is missing:

1. One (1) G-320D Grinder
2. One (1) Dust Skirt
3. One (1) Operator's Manual

<b>G-320D Propane</b>	
<b>Weight:</b>	896lbs
<b>Grinding Pressure:</b>	565-715lbs
<b>Grinding Width:</b>	32"
<b>Power Required:</b>	Vapor Draw Propane Tank
<b>Engine:</b>	31 HP
<b>RPM:</b>	1300-3400

<b>G-320D Electric</b>	
<b>Weight:</b>	896lbs
<b>Grinding Pressure:</b>	565-715lbs
<b>Grinding Width:</b>	32"
<b>Power Required:</b>	3-Phase/480v/30amp
<b>Engine:</b>	20 HP
<b>RPM:</b>	Variable to 1800

## 4.1 Machine Diagram

# G-320D Propane

1. Grinding Head Assembly
2. Kawasaki Engine
3. Safety Shroud
4. Two Dust Exhaust Ports
5. Chassis
6. Water Tank
7. Control Box (Start/E-Stop)
8. Weights
9. Adjustable Handlebars
10. Propane Tank

### Grinding Head Assembly



## 4.2 G-320D Electric Machine Diagram

# G-320D Electric

1. Grinding Head Assembly
2. Motor
3. Safety Shroud
4. Two Dust Exhaust Ports
5. Inverter Box
6. Water Tank
7. Adjustable Handlebars
8. Weights
9. Control Panel

### Grinding Head Assembly



## 5.0 PREPARING THE MACHINE

### 5.1 General

The following information is intended to provide you with general instruction on how to properly operate your G-320 machine. Be sure to follow all workplace safety regulations and rules when operating the machine. Training in proper techniques and methods is available through CPS and its distributors. To find a training near you and more visit [www.go2cps.com](http://www.go2cps.com)

### 5.2 Adjusting The Handle



When adjusting the handle, first, locate the pin (circled on the drawing above). While holding the handle bars with one hand, press the lock in and pull the pin out fully. Raise or lower the handlebars as needed, being sure to secure the handle with the pin when the handlebars are in the desired position.



#### Warning

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- Whenever moving the handle of the machine, be sure that it locks into position. Failure to lock the handle can lead to injury.



#### Tip

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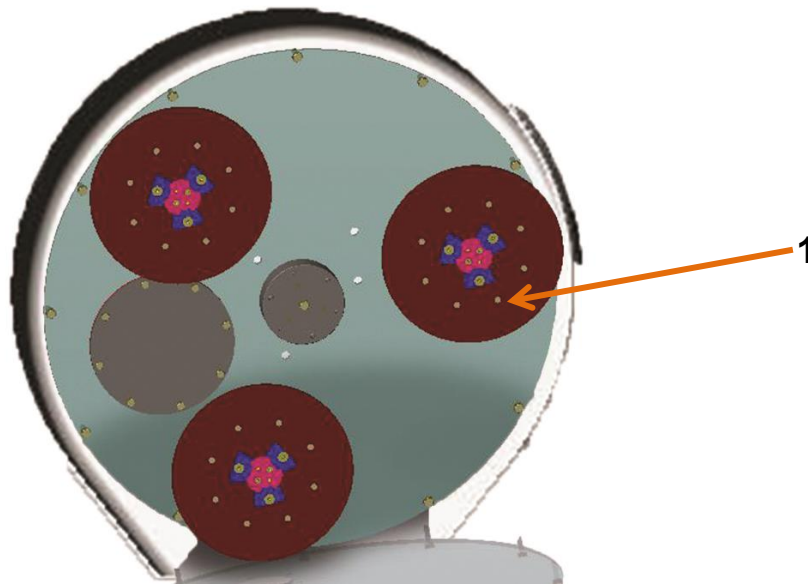
- When adjusting handlebars, be sure to find a handlebar position that will give you adequate and comfortable control of the machine.

## 5.3 Attaching Tooling

The G-320 Machine is fitted with three cross-completes inside the grinding head assembly for attaching plates and tooling.

To attach the appropriate grinding tools to the G-320:

1. Make sure the handle is in the upright “locked” position. Place hands in the center of the handlebars when lowering and raising the machine. This method increases the control you have when maneuvering the machine.
2. Lay the machine on its back with the handle lying on the floor. This exposes the driving plate on the underside of the machine.
3. From a standing position at the side of the upended machine, put metal bond plate or resin plates on the cross-complete (1). Turn the cross-complete in either direction to lock the plate onto the machine
4. Place the tooling of choice securely onto the plates.
5. Return the machine to the upright position.



### Warning

- Never kneel in front of the machine when attaching tooling or replacing tooling.
- Increased heating of the tooling and equipment may occur due to grinding speed, increase of pad diameter, or grinding with or without water. Wear heat-resistant gloves when changing tooling.

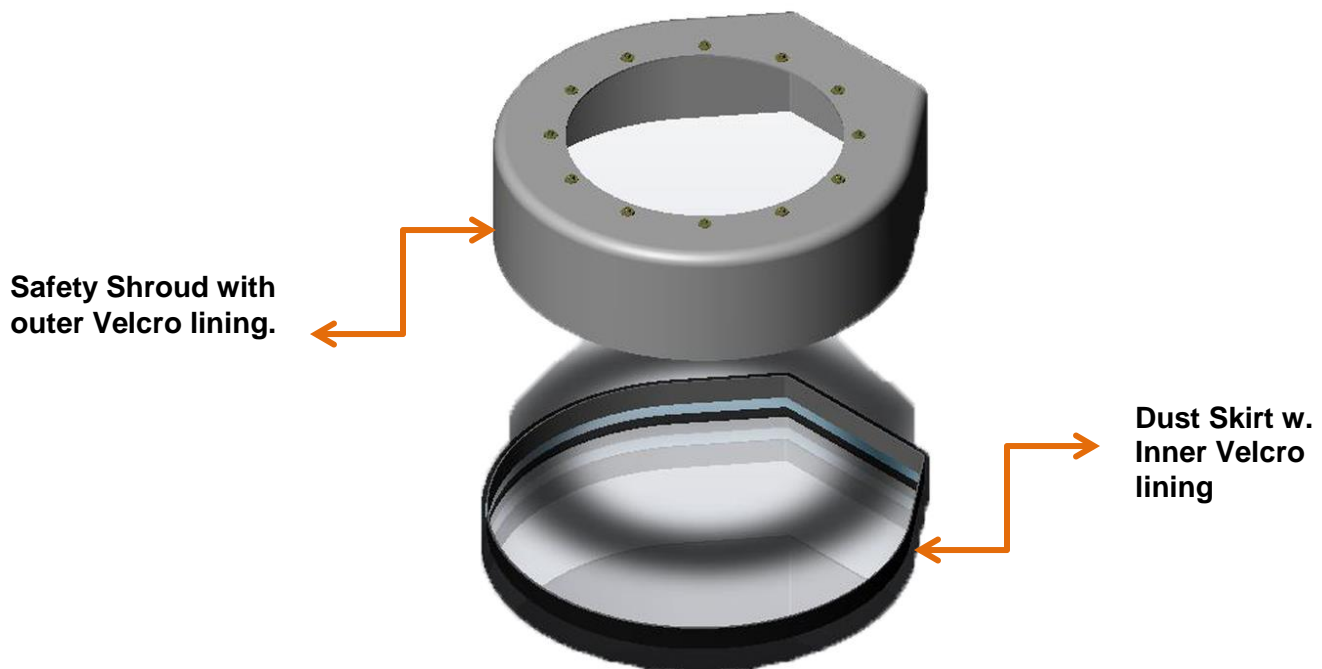
## 5.4 Attaching the Dust Skirt

Your G-320 machine includes a dust skirt that should be placed on the machine before machine operation. The dust skirt is lined with velcro for easy attachment and removal from the bottom of the safety shroud.

1. To attach the dust skirt, first locate the strip of velcro around the bottom of the safety shroud. (See diagram on p.9)
2. Working from one side of the machine to the other, line up inner velcro on dust skirt with velcro on safety shroud and attach the dust skirt.

### Tip

- Make sure that the dust skirt is not placed too tightly around the safety shroud. The machine can lose suction if the dust skirt is too tight.



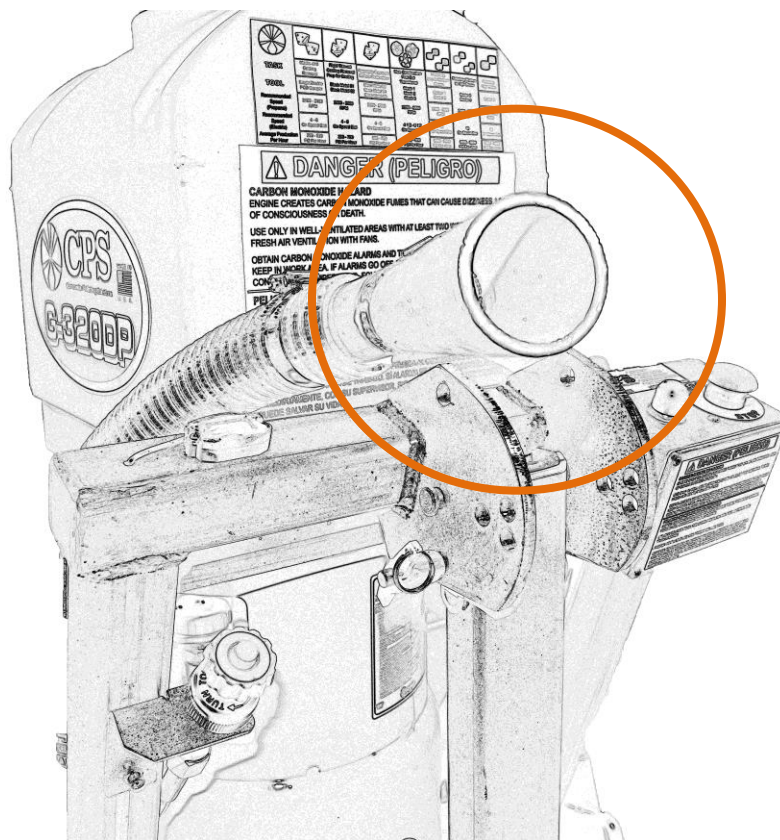


## 5.5 Attaching the Vacuum Hose

If dry-grinding, be sure to attach the vacuum hose to your G-320 machine before beginning any work. Follow all workplace safety requirements when wet or dry-grinding.

### **WARNING**

- Dust from grinding can be dangerous and damaging to the lungs. Be sure to wear proper protective equipment to prevent inhalation.
- If wet grinding, be sure to have a slurry containment system in place.



To attach a dust interceptor/vacuum, locate the hose on the upper frame of the machine. (See above diagram). Be sure to connect hoses firmly for most efficient dust interception.

## 5.6 Attaching the Propane Tank

Each G-320 is shipped with a vapor draw propane tank. To connect the propane tank to the machine, be sure the propane tank is secure in its location between the safety swing arms.

1. After securing the propane tank on the machine, locate the connection hose with brass-fitting.
2. Press down on the brass fitting connector to release any residual vapor that may be in the line before connecting to the propane tank.
3. Tightly connect the brass fitting of the propane hose to the valve on top of the propane tank.
4. Turn the knob to open the valve on the tank.



### WARNING

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- Only refill vapor draw tank to 80%. Overfilling can cause the machine to draw liquid, causing damage.
- Be sure to check all hoses for cracks and leaks. Propane is an odorless gas with a sulfur additive. If you recognize a strong odor, immediately turn off the valve on your tank and contact CPS.
- Only operate in well-ventilated areas.

## 5.7 Preparing to Wet Grind

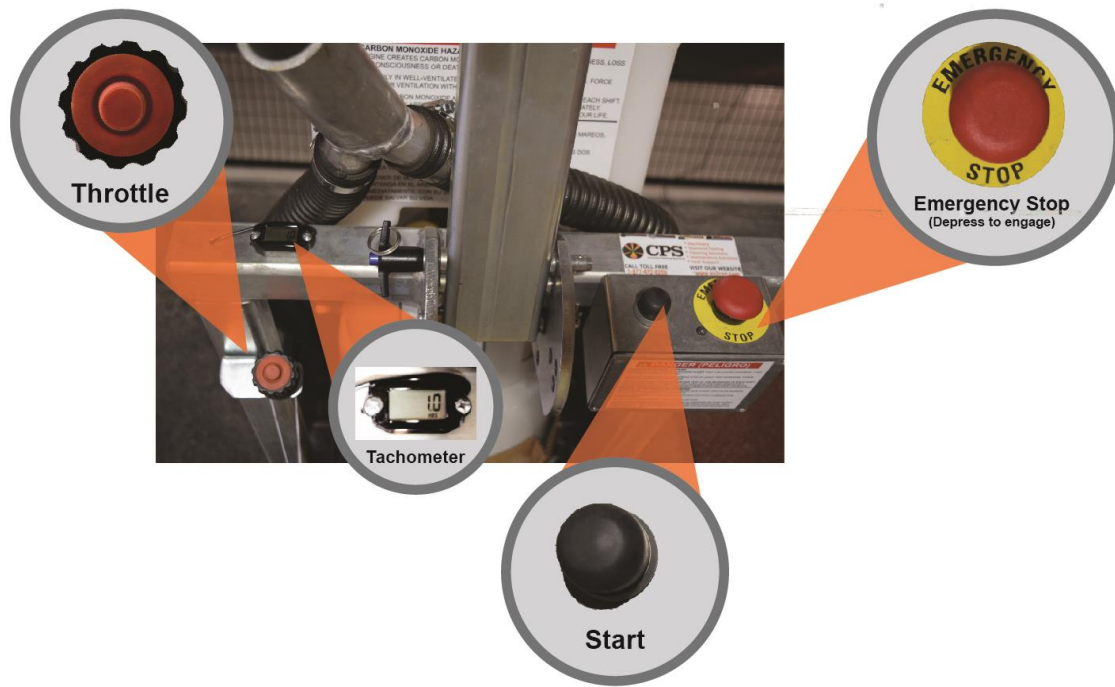
Each G-320D Grinder is equipped to grind wet or dry. Both the propane and electric grinders are equipped to wet grind, using the gravity fed systems for water dispersal. When planning to wet grind:

- Have a slurry containment system already in place.
- Be sure to follow any regulations ordinances about slurry disposal in your area. Each municipality may have different rules regarding slurry disposal.
- Clean and dispose of concrete slurry quickly, as it thickens as it dries, making clean up more difficult.

## 6.0 OPERATING THE MACHINE

G-320 Machines are designed to be simple to operate. Below are diagrams of the G-320 Propane and Electric control panels. Familiarize yourself with the controls and operating procedures for your particular machine before starting any work.

### 6.1 320D- Propane Control Panel



#### The Start Button

The Start Button should be pressed after disengaging the emergency stop button. Upon pressing the start button, begin to turn the throttle slowly counterclockwise until desired RPM is reached.

#### The Emergency Stop Button

The emergency stop button must be disengaged before starting the machine. When stopping the machine, turn the throttle down to lower the RPM and depress the Emergency Stop button. This button should also be depressed in case of emergency necessitating stopping the machine.

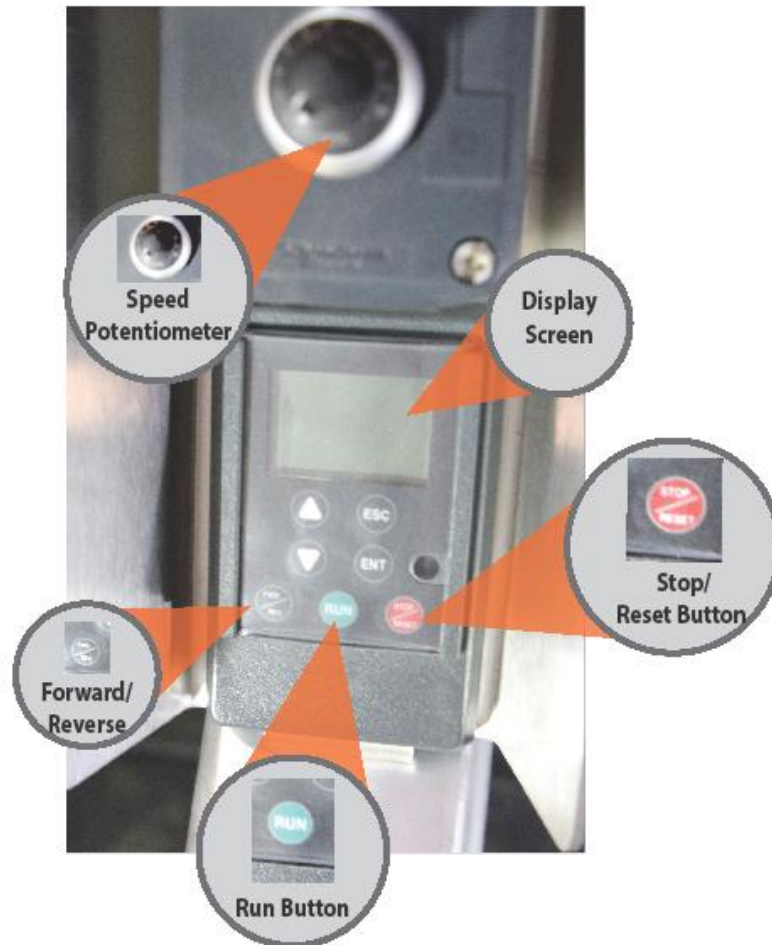
#### The Throttle

The throttle is located on the upper left hand side of the machine frame. When starting the machine, the throttle must be turned slowly counterclockwise to engage the engine. Continue to turn the throttle until the machine reaches the desired RPM.

#### The Tachometer

The tachometer, located on the upper frame of the grinder displays both machine hours and RPM of the machine. The button located on the right of the face of the tachometer allows toggling between the machine hours and RPM.

## 6.2 G-320D Electric Control Panel



### The Run Button

The Run button turns on the main electric motor to begin machine function.

### The Stop / Reset Button

Use the top part of the button, labeled **“Stop”** to initiate a shutdown sequence, bringing the grinding heads to a slow stop and shutting down power to the machine. The bottom part of the button, labeled **“Reset”** is used to reactivate the initial start-up sequence and is used after the **“Stop”** button has been pressed. For emergency stopping, locate the large red button near the speed potentiometer. **The Emergency Stop button should be depressed to immediately stop the machine when needed.**

### The Forward/ Reverse Button

The forward and reverse buttons determine the direction of the head and the direction of the machine. Pressing **“FWD”** causes the heads to rotate in a forward direction, while **“REV”** causes the machine heads to rotate in a counterclockwise direction, moving the machine in the reverse direction.

### The Speed Potentiometer.

This is a variable speed, rotating selection with parameters from 1-10, depending on how fast or how slow you want to operate your machine.

## 6.3 Starting the Propane Machine

Before starting the machine, be sure to check that your work area is free of debris or other material that could be run over by the machine.

### Starting the Propane Machine

1. Adjust handlebars to desired height and grasp firmly.
2. Stand behind the machine with feet planted firmly on even ground.
3. Pull up on the '**Emergency Stop**' button, making sure it is disengaged.
4. Press the '**START**' button to engage the engine, while slowly turning the throttle counterclockwise.
5. Turn the throttle to desired RPM, which is displayed on the tachometer (located on the frame) for your convenience.
6. Weights can be lowered to increase grinding pressure, though weights need to be returned to their upright position when attempting to change tooling or to transport.
7. To stop machine, decrease RPM by turning the throttle counterclockwise, then depress the "**Emergency Stop**" button on the machine.
8. Return weights to upright position after shutting machine off. Be sure to return the weights to their original position any time the machine needs to be laid back or transported, such as during tooling changes.
9. Turn propane valve to the off position when finished with work and store machine as is appropriate.



### WARNING

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- Be sure to run machine in a well-ventilated area. Lack of ventilation can cause machine issues and are dangerous for operators and bystanders.
- Do not start machine with grinding head in the upright position.
- Be sure the dust skirt is attached before starting the machine.



### Tip

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- Do not let machine idle for more than a minute. Extended idling can cause damage to centrifugal clutch.
- Over-torqueing the throttle in either direction can cause throttle damage.

### Starting the Electric Machine

1. Adjust handlebars to the desired height.
2. Check to be sure the dust skirt is properly attached and secured.
3. If dry grinding, hook machine hose to vacuum for dust removal.
4. Locate the power cord for your electric grinder. Plug electric cord into the receptacle located next to the handle pin on top of the inverter box (see diagram p.)
5. Plug machine into appropriate power source.
6. Stand behind the machine with feet planted firmly.
7. Press the **“Run”** button (See diagram p.) to engage the power supply.
8. Turn Speed Potentiometer (See diagram p.) to the desired RPM.
9. Weights may be lowered to increase grinding weight if necessary.
10. To stop machine, press button labeled **“Stop”** to turn machine off.
11. After stopping machine, lower the speed potentiometer back to 0.
12. Be sure to return machine weights to their original position when
13. Disconnect the power cord from the outlet, then from the grinder.



### WARNING

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- Do not start machine with grinding head in the upright position.
- Be sure the dust skirt is attached before starting the machine.
- Always use a three-wire electrical system connected to the electrical ground.
- For maximum electric shock protection, use a circuit protected by a ground fault circuit interrupter.

## 6.4 Grinding Weights

The grinding weights on the CPS G-320 Grinder are designed to maximize grinding pressure when necessary. Weights are located above the shroud on both sides of the machine (See p.9) and are approximately 75 lbs per weight for a total of 150 lbs additional grinding pressure.

Weights may be lowered when needed by grasping the handle on the weights and pulling them forward. To replace weights, lift by handle and return to original position.



### WARNING

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- Weights are pinch-points. Be careful when moving to keep fingers from being smashed.
- Do not attempt to transport the machine with weights engaged.

## 6.5 Wet Grinding

To use gravity-fed water dispersal on the G-320D, be sure the water tank is filled with water. Locate the water release valve and open to let gravity-fed system begin to release water.

## 7.0 MAINTENANCE

CPS Machines are meant to be low-maintenance for the owner/operator, though there are some important routine maintenance that should be done. See the Maintenance Checklist in the Maintenance Index (located in the back of this manual) for more information. Be sure to follow all workplace safety procedures when performing maintenance.

### 7.1 Cleaning The Machine

The CPS G-320 should be cleaned after each use to ensure continued functionality.



#### WARNING

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- Do not use chemicals or solvents to clean the machine. Harsh chemicals can cause damage to the inner workings of the machine.
- When wet grinding, be sure to clean machine of slurry thoroughly before storing.

### 7.2 Before Beginning Work

Your machine should be checked before beginning each new project.

- **Check oil levels.** Oil should read as full before beginning work.
  - Use only SAE 30W Engine Oil in the G-320D Propane machine.
- **Check the belt.** Examine the belt for any signs of wear and tear.
- **Check that the cooling system air inlet is clean.** Located on the engine, the cooling system air inlet should be checked every before operation to clear it of debris and dust.

### 7.3 Every 100 Hours of Operation

- **Change the oil.** Oil should be changed after the first 8 hours of use and every 100 hours after that. Use only SAE 30W Engine Oil in the G-320D Propane machine.
- **Change the spark plugs.**
- **Clean the cooling system.** The engine cooling system should be free of debris and dust.
- **Clean oil cooler fins.** The oil cooler fins should be cleaned every 100 hours to ensure they are free of debris and dust and cooling effectively.

- **Tighten nuts and screws.** The engine should be checked for loose nuts and screws regularly, with special attention to tightening every 100 hours of operation.

## 7.4 Every 200 Hours of Operation

- **Change the oil filter.** The oil filter should be checked regularly to ensure it is not dirty. If filter appears dirty, replace with new clean filter. Filter should not be cleaned for reuse. See p. for instructions.
- **Change the fuel filter.** The fuel filter should be changed every 200 hours. If the filter appears dirty, replace with a new clean filter. The filter cannot be disassembled, so new parts must be ordered for replacement.
- **Change the primary air filter element.** The air filter primary element should be replaced after 200 hours of use.
- **Change the belt.** The belt should be replaced with a new belt every 200 hours, or when wear and tear becomes apparent.

## 7.5 Every 300 Hours of Operation

- **Grease the ring gear.** The ring gear should be greased every 300 hours of operation.
- **Check the Secondary Element.** The secondary element should be replaced when dirty, or after 500 hours, whichever comes first.



## 8.0 TROUBLESHOOTING

### 8.1 Propane Machine Troubleshooting

The G-320D Propane grinder from Concrete Polishing Solutions is designed to be inherently low-maintenance and to perform for long periods without extensive troubleshooting in the field. If difficulty is encountered, refer to the following:

<b>Symptoms</b>	
<b>Failure to Start</b>	<ul style="list-style-type: none"> <li>• Ensure there is adequate propane in the tank</li> <li>• Ensure the E-Stop button is disengaged.</li> <li>• Check the battery for a charge.</li> <li>• Check to ensure the oil level is correct.</li> <li>• Check the speed you are starting at. Start at a low speed and slowly build to higher RPMs.</li> </ul>
<b>Stops Suddenly</b>	<ul style="list-style-type: none"> <li>• Ensure there is adequate propane in the tank</li> <li>• Make sure the tank is not overfilled. (80% full maximum)</li> <li>• Make sure you are using a vapor draw tank. CPS machines will not function with any other propane tank.</li> <li>• Be sure that exhaust is not covered or blocked.</li> <li>• Ensure there is adequate ventilation.</li> </ul>
<b>Vacuum Not Working</b>	<ul style="list-style-type: none"> <li>• Check that hoses are fastened securely and that vacuum is functional.</li> </ul>
<b>Head Does Not Turn</b>	<ul style="list-style-type: none"> <li>• Check belt tension.</li> <li>• If the engine is running and the head does not turn, contact CPS for certified service providers who can assist you.</li> </ul>
<b>Heads Spin, Housing Doesn't</b>	<ul style="list-style-type: none"> <li>• If the heads spin, but the housing doesn't, it's likely that a pinion gear shear pin has broken.</li> <li>• Test to see if shear pin has broken by turning one of the heads while the machine is shut off. The housing should turn if the machine is functional. If it isn't call CPS to find a certified service provider to assist you.</li> </ul>
<b>Machine is Vibrating or Running Unevenly</b>	<ul style="list-style-type: none"> <li>• Turn machine off.</li> <li>• Tilt machine to check evenness of heads.</li> <li>• If the heads are not running evenly, rebuild heads.</li> <li>• Check for uneven wear on diamonds.</li> <li>• Check that the grinding tools are not worn down and that they are properly positioned on the wheel.</li> <li>• A concentration of dirt causes the driving plates to become hard and inelastic. Clean the machine between the housing and heads.</li> </ul>

Should you still have difficulty, contact CPS at 877.472.8200 for assistance, 24/7.

## 8.2 Electric Machine Troubleshooting

Symptoms	
<b>Failure to Start</b>	<ul style="list-style-type: none"> <li>• Ensure that the power cord is securely plugged in.</li> <li>• Make sure the prongs on the cord are making good contact with the outlet.</li> <li>• Check that all phase indicator diodes are lit up.</li> <li>• Check the speed you are starting on.</li> <li>• Press <b>Reset</b> if the <b>Stop</b> button was pressed.</li> </ul>
<b>Stops Suddenly</b>	<ul style="list-style-type: none"> <li>• Check to see if the cable is hot. If it is hot, the cable may be too long or have too small a cross-sectional area.</li> <li>• Reduce speed. The machine may have been continuously run at high speed with an inefficient electrical supply.</li> </ul>
<b>Vacuum Not Working</b>	<ul style="list-style-type: none"> <li>• Check that hoses are fastened securely and that vacuum is functional.</li> </ul>
<b>Head Does Not Turn</b>	<ul style="list-style-type: none"> <li>• Check belt tension.</li> <li>• If the fan on the engine is running but the head is not turning, the belt is slipping or broken. Call CPS for service.</li> </ul>
<b>Heads Spin, Housing Doesn't</b>	<ul style="list-style-type: none"> <li>• If the heads spin, but the housing doesn't, the pinion gear shear pin has broken. Test it by turning one of the heads manually. The housing should turn.</li> <li>•</li> </ul>
<b>Machine is Vibrating or Running Unevenly</b>	<ul style="list-style-type: none"> <li>• Check for uneven wear on diamonds. If the heads are not running evenly, rebuild Flex Heads.</li> <li>• A concentration of dirt can cause the driving plates to become hard and inelastic. Clean the machine between the housing and heads.</li> <li>• Check that grinding tools are properly positioned and not too worn.</li> </ul>
<b>Error Code on Display</b>	<ul style="list-style-type: none"> <li>• If "<b>UPS</b>" is shown, check the power source.</li> <li>• If "<b>FST</b>" is shown, the emergency stop has been engaged. Press the "<b>Reset</b>" button to reactivate the machine.</li> <li>• If "<b>NST</b>" is shown, turn the machine completely off and then back on.</li> </ul>

For all other error codes your machine may display, contact CPS at 877.472.8200 or your certified service technician.

### Repairs

All repairs for CPS machines must be completed by a CPS authorized service technician. Contact CPS or your retailer to locate certified service centers. Repairs must be completed by trained specialists that have been authorized by CPS to complete machine repairs. Failure to use a certified service technician may result in a voided machine warranty.

### 8.3 Replacement Parts

Replacement parts are available for routine maintenance on your machine.

<b>Part #</b>	
<b>APMF0254</b>	<b>Lower Belt (Pulley Box) for G-320D</b>
<b>GPPT0392</b>	<b>Flex Head Assembly</b>
<b>GPPT0077</b>	<b>Dust Skirt for G320D</b>
<b>APMF1239</b>	<b>Filter Kit</b>
<b>MTMC0047</b>	<b>Safe Fill Propane Tank</b>
<b>APMF1851K</b>	<b>Flex Head Rebuild Kit (1 per head)</b>
<b>APMF1534</b>	<b>Upper Belt (From Engine to Center Pulley)</b>

## 9.0 ACCESSORIES

The G-320D Propane machine is ideal for use with CPS products and accessories. Below are some of CPS' most popular items for use with the G-320D Propane machine.

### 9.1 Plates

There are several plates by CPS that fit the G-320D Propane machines.



Quick Change Plate

**GPPT0601**



Recessed Cup Resin  
Plate

**MTPT0138K**



Thick RD Driver Plate

**MTPT0130K**



Metal Bond Plate

**APMF1477**

### 9.2 Tooling

There are many applicable tools for the G-320D Propane. From tools perfect for surface prep to polishing resins, CPS has you covered. Visit [www.go2cps.com/tooling.html](http://www.go2cps.com/tooling.html) for more.

## 10.0 MAINTENANCE INDEX

In this section, you will find instructions for the most common routine maintenance procedures. For any other issues or maintenance your machine requires, call CPS or your retailer to find a certified service technician in your area. Please see the Maintenance Checklist below for more information on when to do maintenance.

	Before Operation	First 8 Hours	Every 100 Hours	Every 200 Hours	Beginning of each job
Oil Levels	●				
Oil Changes		●	●		
Oil Filter				●	
Spark Plugs			●		
Fuel Filter				●	
Air Cleaner				●	
Belt				●*	●
Oil Filter				●	
Cooling System			●		

	Before Operation	First 8 Hours	Every 100 Hours	Every 200 Hours	Every 300 Hours
Grease Ring Gear					●
Loose Nuts or Screws	●				
Clean Oil Cooler Fins	●		●		
Tighten Nuts & Screws			●		
Air Cleaner Secondary				●	

\* Change belt when signs of wear appear. Belt should be checked for damage and wear regularly.

## 10.1 Rebuilding Flex Heads

# Rebuilding Flex Heads

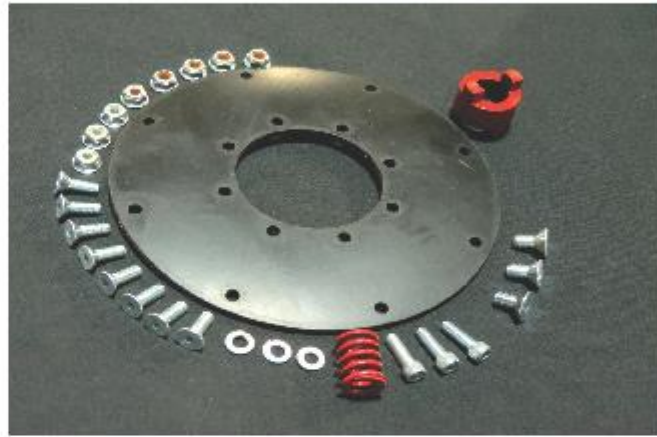
Rebuilding heads after extended periods of use is one important way to maintain grinding consistency and the consistency of the final product. Flex heads should be rebuilt when they aren't seeming to run "true", that is, they are warped or off-kilter.

### Parts Needed

- AMPF1818: One (1) 1/4" Polycord
- AMPF1039: One (1) Inner Polycord Holder
- AMPF1145: Eight (8) 1/4" x 20x 3/4" Flat Head Socket Screws
- Loctite
- APMF0313: One (1) Mounting Plate
- APMF0317: One (1) Die Spring
- APMF0316: One (1) Drive Shaft
- APMF0310: One (1) Backing Plate with Studs
- APMF1038: One (1) Outer Polycord Holder
- APMF.....: Eight (8) 1/4" x 20 Nylon Lock Nuts
- APMF.....: Eight (8) 5/16" Flat Washers

### Tools Needed

- Manual Press
- Socket
- 7/16" Wrench



Flex Head Rebuild Kit: APMF1851K

#### Step 1:



Place the inner polycord holder on the polycord with the countersink holes facing up. Be sure the inner polycord holder is placed such that four holes are in one line from bottom to top. (See photo)

#### Step 2:



Place the inner polycord holder on the polycord and push through 8 flat head screws dipped in Loctite. The screw heads should be flush with the surface of the inner polycord.

#### Step 3:



Place the mounting plate on the screws, ensuring that the three holes on the mounting plate line up with the three holes on the polycord holder. The above picture shows the way plate should be lined up when placed on screws.

#### Step 4:



Tighten the 8 flat head socket screws to a snug fit by tightening screws across from each other (criss-cross method). Only do one full turn of the wrench before moving onto the next screw, until snug. After all screws are snug, tighten all screws in the same pattern to 6 foot lbs of torque.

**Step 6:**



Place the main mounting plate with the studs facing up. Place the grinding shaft in the center slots. Then place the spring in the center hole of the grinding shaft. The prongs on the grinding shaft should be aligned to the mounting slots as well.

**Step 7:**



Place the first assembly (inner polycord holder) onto the grinding shaft making sure the holes are aligned with the main mounting plate.

**Step 8:**



Place the outer polycord holder on top of the inner polycord assembly. Move the loosely fit assemblies to the press, making sure to keep the two assemblies properly aligned.

**Step 9:**



Place the assembly on the manual press. Apply downward pressure. Studs from below should protrude through the inner polycord holder, polycord, and outer polycord holder. Place a flat washer and nut on studs. Do not tighten nuts.

**Step 10:**



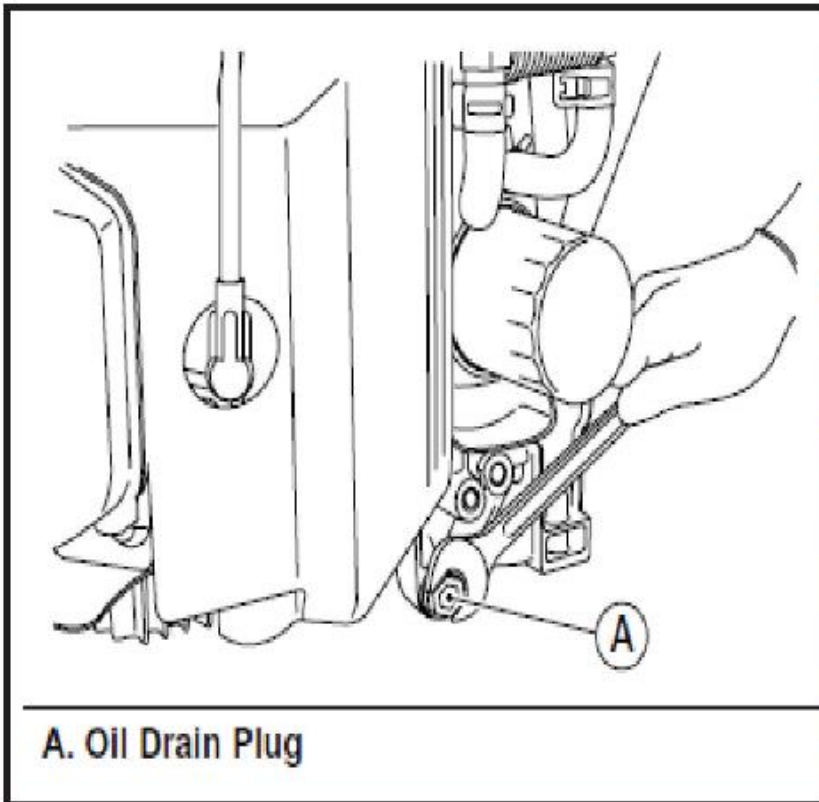
Tighten nuts to snug with a 7/16" wrench. Remove assembly from the press. Torque all nuts to 6 foot lbs.

## 10.2 Oil Changes

# Changing The Oil

You will need:

- One (1) 10mm wrench
- Two (2) quarts SAE 30W Engine Oil
- One (1) new air filter
- One (1) 1/2 inch diameter plastic tube
- Container for used oil



A. Oil Drain Plug

### Step 1:

Run the engine to warm the oil.

### Step 2:

Be sure the equipment is on a level surface. Stop the engine.

### Step 3:

Attach plastic tubing to oil drain pipe and set bucket underneath.

### Step 4:

Using 10mm wrench, locate the drain plug (A) and turn counterclockwise to drain oil.

### Step 5:

Reinstall oil drain plug.

### Step 5:

Remove oil gauge and fill with two (2) quarts SAE 30 Engine Oil. Replace oil gauge.

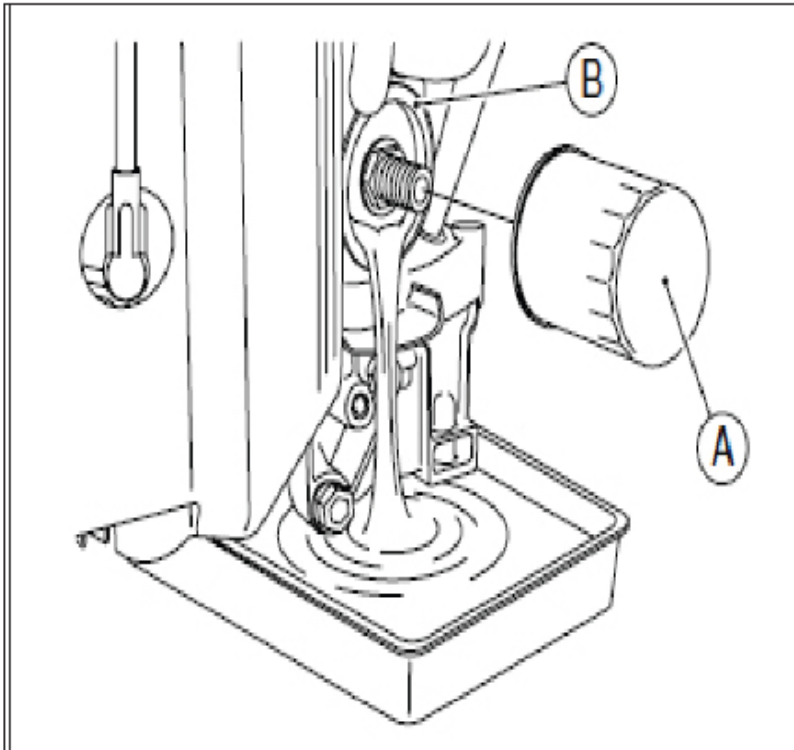


## 10.3 Changing the Oil Filter

# Changing The Filter

You will need:

- Quart SAE 30 Oil for replacement, if needed.
- One (1) new air filter
- One (1) 1/2 inch diameter plastic tube
- Container for used oil / oil pan



- A. Oil Filter
- B. Mounting Surface

**Step 1:**  
Allow engine temperature to drop to warm before attempting to remove oil

**Step 2:**  
Drain the engine oil into a suitable container and place pan under filter connection

**Step 3:**  
Rotate the oil filter (A) counterclockwise to remove it.

**Step 4:**  
Coat a film of engine oil on the seal of the new filter.

**Step 5:**  
Install new filter, rotating clockwise until the seal contacts the mounting surface, then rotate the filter 2/3 more by hand.

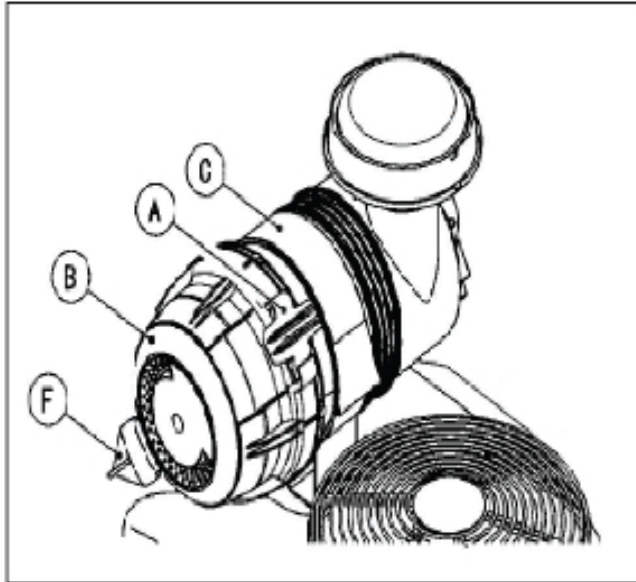
**Step 6:**  
Run the engine for 3 minutes, stop engine and check for leakage. Add oil to compensate for level drop due to filter capacity.

## 10.4 Air Filter Service

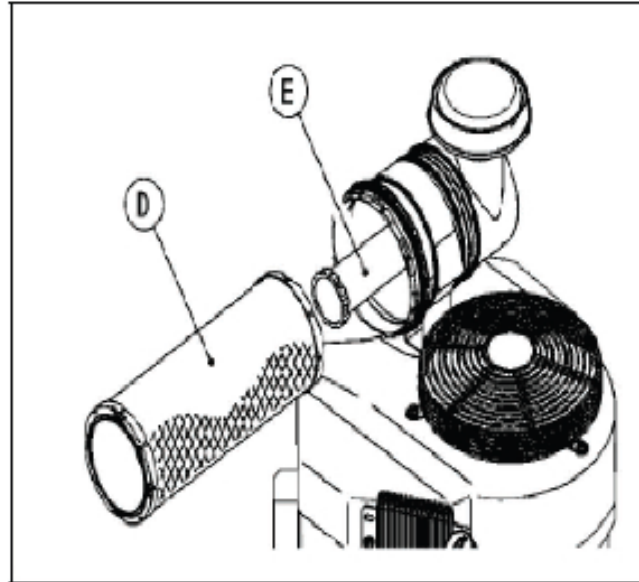
### Changing The Filter

You will need:

- Primary Element
- Secondary Element



- A. Retaining Clamps
- B. Case
- C. Air Cleaner Body
- F. Cap (Dust Ejector Valve)



- D. Primary Element
- E. Secondary Element

#### Step 1:

Replace the primary element every 250 hours. Replace the secondary element with a new one if the secondary element is dirty when the primary element is checked. The secondary element should also be replaced every 500 hours.

#### Step 2:

Push and open the cap (F) on the case of the air cleaner body (C) to expel dust and/or water accumulated inside.

#### Step 3:

Unfasten the two retaining clamps (A) and remove the case (B) from the air cleaner body (C).

#### Step 4:

Remove the primary element (D) and the secondary element (E) from the air cleaner body (C) by pulling them out.

#### Step 5:

Install the new air cleaner elements into the air cleaner body (C).

#### Step 6:

Reinstall the case (C) and cap (F), then securely refasten the two retaining clamps. (A)

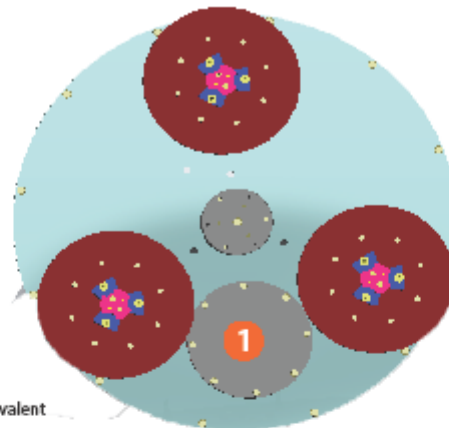
## 10.5 Greasing The Ring Gear

# Greasing The Ring Gear

The Ring Gear of your machine should be re-greased every 300 hours of operation. It is also a good time to check for wear and tear on the belt.

You will need:

- Flathead Screwdriver
- $\frac{7}{16}$  socket
- Lubritech 940 Synthetic Grease or equivalent



Lower Plate (Figure 1)

### Step 1:

Be sure machine is turned off/unplugged from its power source. Tip the machine on its back and weigh handles down if necessary.



Fig. 2 Inspection plate removed.



Fig 3. Plastic cap for removal. (Bottom plate removed for easier identification.)

### Step 2:

Using the socket, remove the 6 bolts from the tensioner inspection plate (See Figure 1.1) and then remove the plate.

### Step 3:

Looking through the hole left by the inspection plate (see Fig 2) locate the small plastic cap (approximately 3 inches in diameter) in the upper plate (see Fig 3). Using the flathead screwdriver, pry the plastic cap out and set aside. Be sure not to drop anything into the machine through the hole.

### Step 4:

Locate the "teeth" of the ring gear through the center hole. Using LubriTech 940 Synthetic Grease or its equivalent, apply a good amount of grease onto the teeth.

### Step 5:

Turn one of the heads so that you can see another section of teeth, applying grease to each new section.

### Step 6:

Repeat step 5 until the entire ring gear has been greased. The entire process should use approximately 8 oz of grease.

## 10.6 Adjusting The Regulator

### Adjusting The Regulator

You will need:

- Low Pressure Gauge
- Small Drill Bit
- Flathead Screwdriver



**Step 1:**  
Locate the 1/4" plug and remove it from the regulator.



**Step 2:**  
Thread in low pressure gauge. Start machine and increase to 3,000 RPM. The pressure should reach 2-2.25 psi. If the pressure is not within this range, the regulator will need to be adjusted.



**Step 3:**  
To adjust the regulator, turn the machine off. Locate the silver cap on the back of the regulator. Take small drill bit and drill a hole in the cap, being careful not to hit adjustment screw.

Pop the cap off with a screwdriver. Start the machine and gradually increase the RPM to 3,000. If the psi is too high, turn the screw counterclockwise. If the psi is too low, turn the screw clockwise. Once you reach the 2-2.25 psi level, replace the cap and remove the gauge.

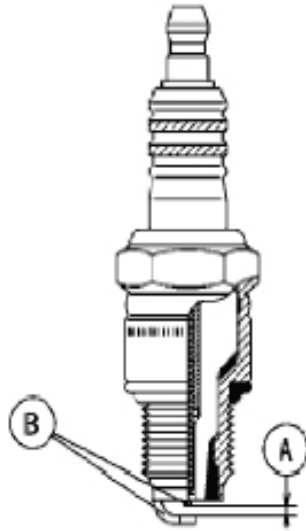
## 10.7 Changing The Spark Plugs

### Spark Plug Service

You will need:

- Wire Brush or Scraper
- New Spark Plugs
- Spark Plug Tool

**RECOMMENDED SPARK PLUG**  
NGK .....BPR4ES



A. Spark Plug Gap  
B. Electrodes

**Step 1:**

Clean or replace every 100 hours.

**Step 2:**

Stop Engine and allow to cool before checking plugs.

**Step 3:**

Disconnect spark plug caps from the spark plugs and remove the plugs.

**Step 4:**

Clean the electrodes by scraping or with a wire brush to remove carbon deposits

**Step 5:**

Inspect for cracked porcelain, or other wear. Replace if necessary.

**Step 6:**

Check the spark plug gap and reset if necessary. The gap must be .75mm (.030 in). To change the gap, bend only the side electrode using a spark plug tool.

**Step 7:**

Install and tighten the spark plug. Fit the spark plug caps securely on the plugs. Pull up on the caps lightly to make sure they are installed properly.

# Operator's Manual



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