

SAFETY AND OPERATIONS INSTRUCTIONS FROM:



PLEASE READ THIS INFORMATION CAREFULLY PRIOR TO
OPERATING EQUIPMENT

UNCRATING EQUIPMENT

When you uncrate your equipment, make certain that the machine has not been damaged and that all fasteners and guards are properly tightened.

Your machine may not have been shipped assembled with cutters and other accessories. Assembly may be required.

REMEMBER: Only authorized, experienced and properly trained personnel should operate this equipment. Operating personnel should practice safety at all times and wear protective gear (gloves, goggles, safety vests, ear plugs, steel-toe shoes, etc.)

SAFETY GUIDELINES



Incorrect use of the surface preparator can result in property damage, personal injury, or death. Be sure to read and follow all directions and precautions as outlined in this manual.

OPERATION

- Get acquainted with the controls
- Always wear protective equipment, including ear protection, breathing apparatus, steel-toed shoes, and goggles
- Never wear baggy or loose fitting clothing that can be caught on controls or moving parts
- The surface preparator can emit flying particles and debris during operation. Never operate the machine near bystanders, animals or children

- Do not operate the machine in an explosive atmosphere, near combustible materials, or when gas fumes may not be properly dispersed
- Never leave the machine unattended when running, and you must hold onto the handle with two hands when the cutter drum is engaged
- Avoid contact with the muffler when the engine is hot, as it may cause severe burns
- When using a vacuum system, avoid hose contact with the muffler
- Stop engine before refueling tank. Do not allow fuel to come in contact with the hot parts of the engine or spill on the ground
- Do not smoke or handle open fire near this machine
- Gas tank lid must close tightly. Shut off fuel chock when shutting off engine. When transporting the machine, the fuel tank must be completely drained

SERVICE

- Make sure that the engine is shut down and the spark plug is disconnected before servicing
 - Repair any fuel leaks immediately and remove accumulated dust frequently from the air filter system
 - Clean machine regularly
- Remove sideplate screws and check for wear

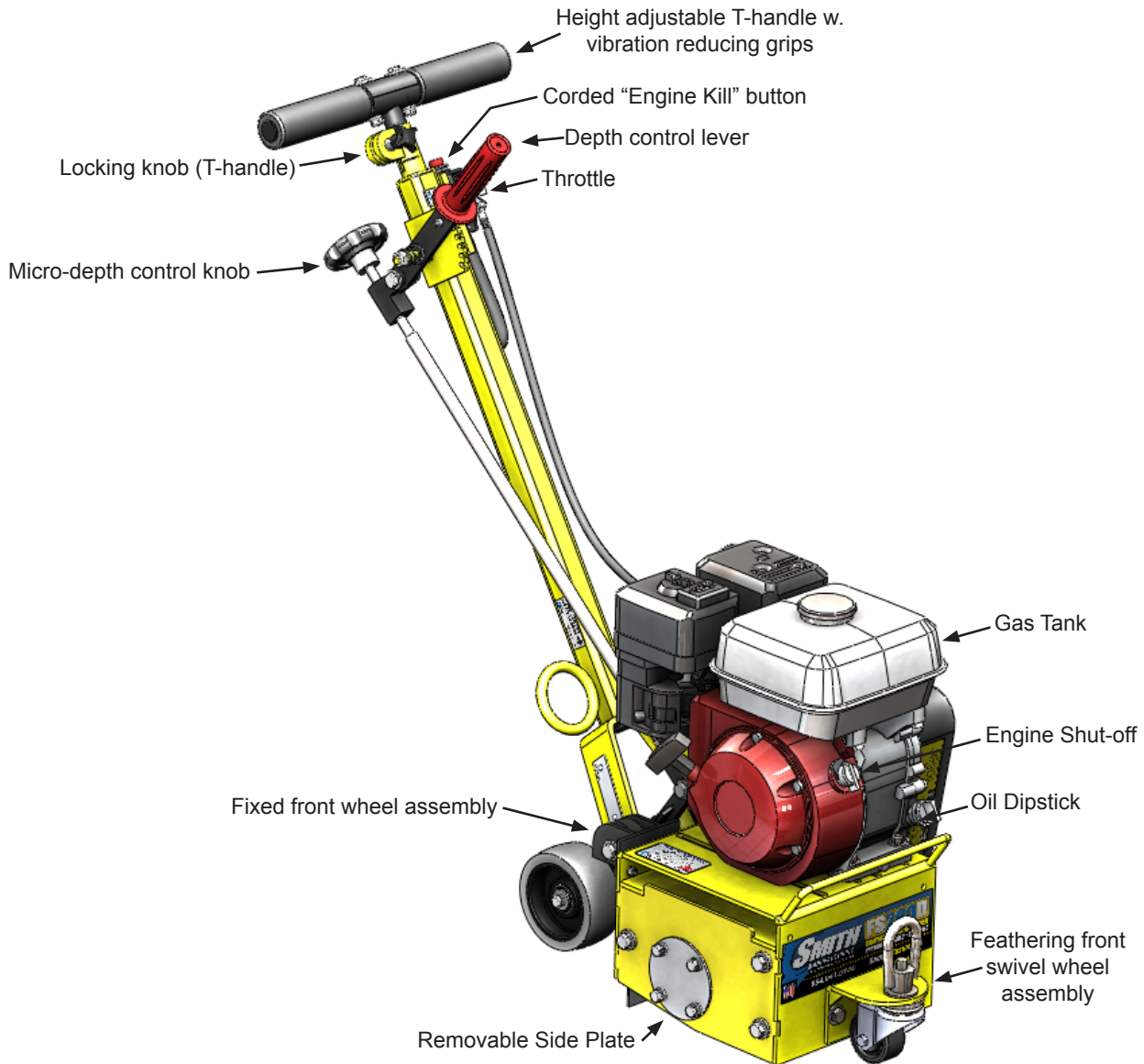
DAILY CHECKLIST

- Check fluid levels
- Ensure that all guards are in place before the machine is operated, since rotating and moving parts will cause injury upon contact.
- Check and replace (as needed)
 - *Cutters *Bearings *Shafts
 - *Drive shaft *Dust flap *Wheels
- Check that all fasteners are secure
- Check that all controls and safety devices are functioning properly

YOUR FS200™ SURFACE PREPARATOR

Please take time to familiarize yourself with the FS200™'s controls, as well as some of the features of your new machine.

Read the engine manual before preparing the engine for starting.



MACHINE START-UP



Do not start machine while drum is in contact with the ground. Doing so can cause the operator to lose control of the machine, resulting in property damage and/or personal injury.

- Open the fuel shut off on the gas tank and then place the trottle lever at the “fast Idle” position.
- Start the engine, open the choke slightly to prevent flooding.
- Move throttle control open or run position when engine is warmed up.
- Increase throttle to maximum operating position (approx. 1800RPM) and close choke.

Before substrate removal, test run the drum with cutters not touching the surface. If there is excessive vibration, you need to re-balance the cutter set-up, check bearing condition, and/or make sure that the engine side-plate is secured.

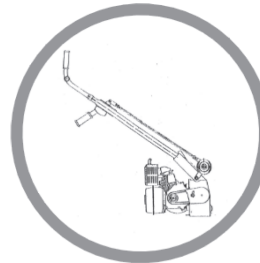
IF THE ENGINE DOES NOT START

- Check engine for proper gas levers (refer to engine manual)
- Check the spark plug. Make sure socket areas are clean and clear of debris, and the proper gap is set. (replace if needed)
- Turn the On/Off switch on the front of the engine to “On”.
- Engine may have tilted backwards. If so, allow oil to drain after removing spark plug

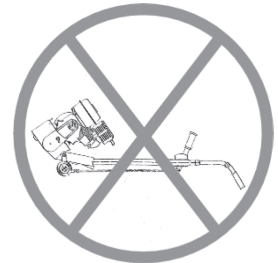
***Engine repair and engine warranty issues are handled directly by your local engine service center.**



Warning: Should you desire to tilt the machine, always tilt forward. Tilting the machine backwards at any time will flood the spark plug with oil and may cause damage to your engine!



RIGHT



WRONG

SUBSTRATE REMOVAL

Adjust the height of the cutter drum with the depth control lever. Set the depth of cut to allow the cutters to go through only the materials to be removed. Make certain that the drum is positioned to where only the cutters strike the surface, and that the drum assembly never comes into contact with the substrate. **The cutter tips alone should strike the surface** (1/8" to 1/4" maximum depth per removal pass on new cutters).

The drum will not withstand substrate contact. **Contacting the removal surface too deeply will cause premature wear to cutters, shafts, drum and other components!** **TIP: The correct depth setting is indicated by relatively little machine vibration.**

Too much downward pressure only has negative results. Try to remove materials in several passes rather than one, deep pass. Several tests will show the best, most appropriate cutter impact. Use a forward, backward and/or circular pattern to achieve your desired finish.

NOTE: Only use a forward motion when the CM2519 or CM2535 carbide scraping cutters are used.

TIP: Positioning the machine over the surface in many directions, as well as dialing the hand wheel up or down can help create desirable surface patterns. After several hours of practice, the operator will become comfortable and should be able to remove materials faster with enhanced results.

When the job is completed, or the operator wants to cease work, stop the engine by first lifting the drum above the substrate using the hand-wheel and/or the cam lever. Stop the machine only at the engine. Then close the fuel cock to shut off the fuel supply.

The drum assembly must be removed daily and inspected for drum wear, hole elongation and possible weld separation. Replace the cutter shafts and drum bushings every 40 hours, or prior to any drum wear. If the drum's center holes are elongated, order another SMITH cutter drum.

STORAGE

- Shut off fuel and siphon all excess fuel.
- Start engine and run until it stalls.
- Remove the spark plug and pour two ounces of motor oil into cylinder and slowly crank the engine to distribute oil to prevent rust during storage.
- Replace spark plug and store machine upright in a cool, dry, and well ventilated area.

ORDERING

To ensure product safety and reliability, and to maintain your warranty, always use genuine replacement cutters and parts from SMITH when making repairs to equipment.

When ordering please specify the model and serial number of the machine. In addition, give a part number, description, and quantity as listed on your parts list.

If you have any questions about the operation of your machine or would like to order replacement parts, contact your SMITH Manufacturing representative directly.
Contact 1-800-653-9311 (954-941-9744) for information.

Visit our website at
www.smithmfg.com

WARRANTY CLAIMS

The manufacturer reserves the right to change or improve the machine design without assuming any obligation to update any products previously manufactured before this manual. It is the customer's responsibility to complete the warranty card and mail it to the seller within 10 days from date of purchase. If a failure occurs during the warranty period, the customer must contact the seller to determine the appropriate action.

Any and all transportation charges are to be borne by the purchaser.

TROUBLESHOOTING

PROBLEM

- Possible Reason(s)/Solution(s)

CUTTERS WEARING UNEVENLY/PREMATURELY

- Drum is too low
- Incorrect set-up
- Material Build-up
- Cutters too tightly loaded
- Wrong cutters for application

CUTTERS SHAFT BREAKAGE UNEVENLY/PREMATURELY

- Drum is too low
- End plates or bushings worn
- Shafts worn
- Wrong cutter set-up

DRUM WEARING PREMATURELY OR CRACKING

- Drum hitting ground
- Shafts and bushings not replaced in time

EXCESS VIBRATION

- Bearing worn
- Hex bushing worn
- Drive shaft worn
- Improper cutter set-up
- Drum contacting ground
- Wheels worn out

MACHINE JUMPS ERRATICALLY

- Drum hitting ground
- RPM is too low
- Surface is severely uneven

DRIVE BELT WEARING PREMATURELY

- Pulley is misaligned
- Wrong belt
- Drum is contacting the surface

DEPTH CONTROL LEVER IS SET TOO LOW

- Adjust the height of lever

UNEVEN CUTTING

- Cutting too deeply
- Rear wheel fork is bent

For any other problems or questions,
please contact your local representative
or
SMITH Mfg today at 800-653-9311
or
(954) 941-9744.

***Engine repair and engine warranty
issues are handled directly
by your local engine service center.**

MAINTENANCE CHECK LIST



Before beginning servicing on any gasoline-powered unit, DISCONNECT SPARK PLUG WIRE!

- Keep a coating of grease on the drive shaft and threads for easy installation or removal, and for longer hex bushing life.
- Grease the depth control lever, lower linkage. (Clean dirt off of fittings before greasing.)
- Check all fasteners and re-tighten, since the machine will vibrate the fasteners loose if they are not secured. Use locktight.
- All three hex Bolts on drum retaining plate must be aligned and tight.
- Check the Drive belt for wear, and adjust (tighten), or replace as required.
- Check that the pulleys are aligned properly to ensure the Drive belt is running true.
- Check wheel for wear and that they are rotating properly, replace if worn. Clean wheels of material build-up.
- The inside housing must be clean, and remove any build-up from inside the cage so cutters and drum rotate freely.

- Inspect and change drum bushings and shafts every 40 hours, or when worn.

DRUM REPLACEMENT

Normal use will require periodic drum inspection and may necessitate drum replacement.

Time of replacement will vary according to usage and load factors.

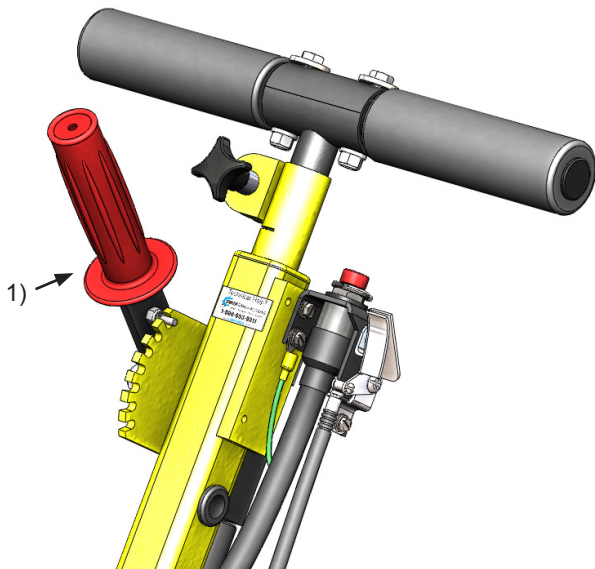
Replacement is easy and requires a few hand tools.

1. 17mm socket or wrench
2. Rubber mallet



Before beginning servicing on any gasoline-powered unit, **DISCONNECT SPARK PLUG WIRE!**

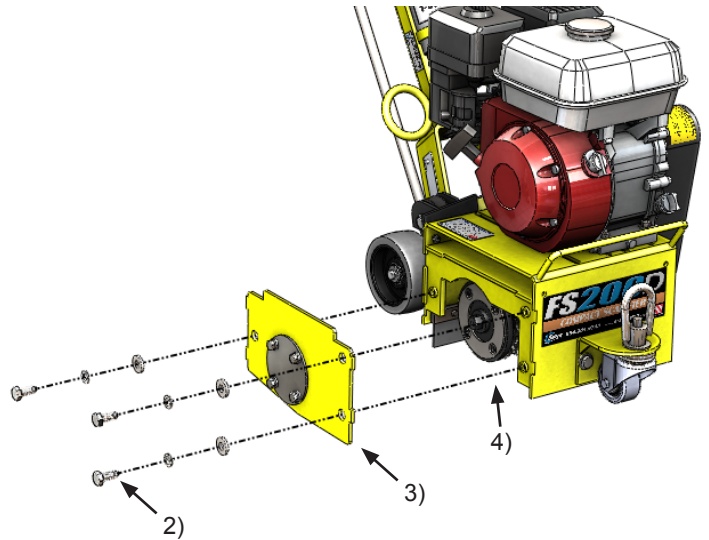
1. Raise the depth control lever to the up position so the cutter drum is off the ground.



2. Remove the three hex head cap screws from the sideplate using the 17mm socket or wrench.

3. Remove the sideplate (this may require the rubber mallet to break it loose)

4. Slide out drum assembly. (use precaution as it is **HEAVY**)



5. Once the cutter drum is removed take to a workbench for assembly.

- a) Inspect condition of cutters, spacers, shafts, bushings and drum.

- 6) Before replacing the drum onto hex shaft:

- a) Check that all bearings are in good working order
- b) Remove dirt and material build-up from inside drive carriage and drum.
- c) Lube all metal contacts

- 7) Align and slide drum back onto the hex shaft.

- 8) Replace side plate (lift-up and lock into place) over hex shaft and secure hardware.

***TIP: SMITH recommends owning an extra drum loaded with cutters for rapid job-site replacement**

BELT REPLACEMENT

Normal wear may necessitate belt tensioning or replacement. Time of replacement will vary according to usage and belt load factors.

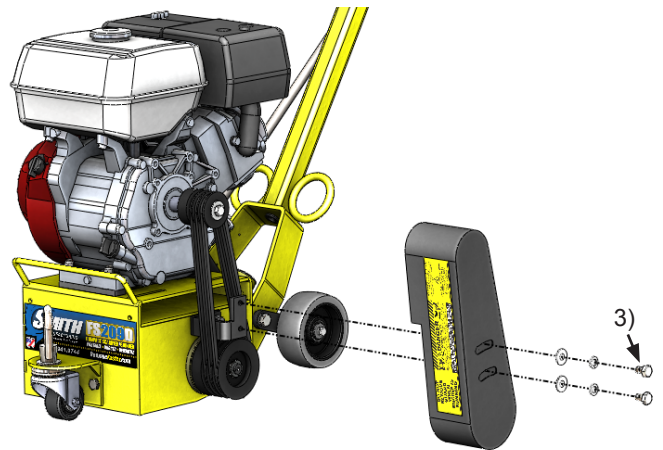
Replacement is easy and requires a few hand tools.

1. 17mm wrenches
2. 1/2" socket or wrench
3. 13mm socket or wrench
4. Rubber mallet

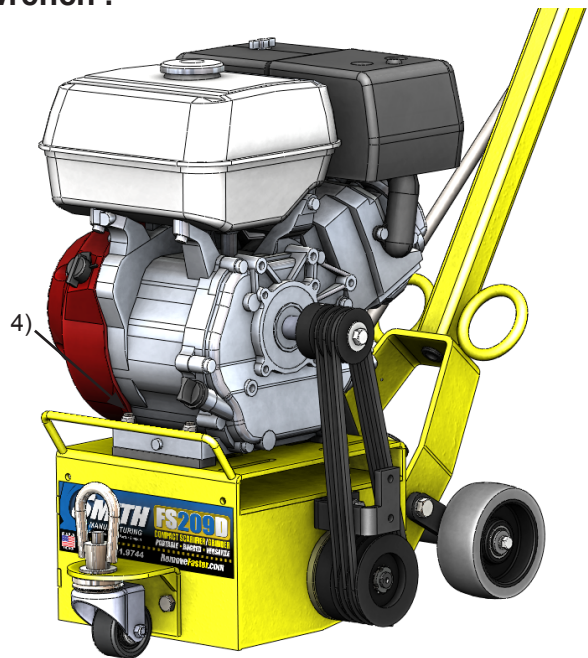


Before beginning servicing on any gasoline-powered unit, **DISCONNECT SPARK PLUG WIRE!**

1. Make sure the removable side cover is installed. This ensures the drive ends are in the proper position for servicing.
2. Clean the machine exterior so you can locate all the appropriate parts.
3. Using a 17mm socket or wrench, remove the two hex nuts attaching the belt cover to the side of the machine. Remove the cover and set it aside.



4. Loosen (do not remove) the four nylock nuts locking down the engine until the engine slides freely using the 1/2" socket or wrench .



5. Slide the engine back enough to remove and replace the belts as necessary.

BELT REPLACEMENT (CONTINUED)

6. Roll the new belt on one groove at a time (two or single multi-groove belt) on both the top and bottom pulleys.

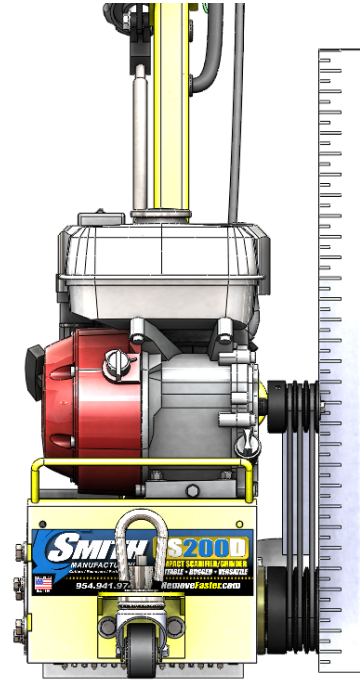
7. Using the straight edge, lay it across the lower pulley outer face and against the upper pulley. They must be directly over top of each other to ensure long belt life. If adjustment is required, align before tensioning the belt.

NOTE: It may be necessary to remove the belt guard support bracket in order to get the straight edge flush on the pulleys. Do this using a 13mm socket or wrench.



8. Verify pulley alignment by looking from the front of the machine.

9. Once the pulleys are properly aligned, tighten everything down and re-check pulley alignment one last time.



BELT ALIGNMENT

If the unit has premature belt wear, breakage or pulley problems, the issue may be incorrect alignment or excessive belt tensioning. All pulleys must be aligned directly above each other to ensure belt integrity. This includes possible timing belts used on newer models. Incorrect alignment wears the sides of the belts excessively and will cause slippage.

1. Use a long straight edge (carpenters square) to check alignment during belt tensioning or belt replacement time.

2. By laying the straight edge against the outer face of the lower pulley, the square will extend up and rest against the outer face of the upper (engine pulley). If not, move the motor pulley in or out to obtain alignment.

3. If replacing pulleys (top or bottom) be sure to place the pulley on the same plane as the original one to ensure alignment.

BEARING REPLACEMENT

Before reading ahead go back and follow the instructions on how to remove the belt from the machine. Bearing replacement is easy and requires a few additional hand tools.

1. 16mm socket or wrench
2. 1/2" socket or wrench
3. 9/16" socket or wrench
4. 13mm socket or wrench
4. Flat head screw driver
5. Hammer or rubber mallet
6. 6mm hex key
7. Circlip pliers

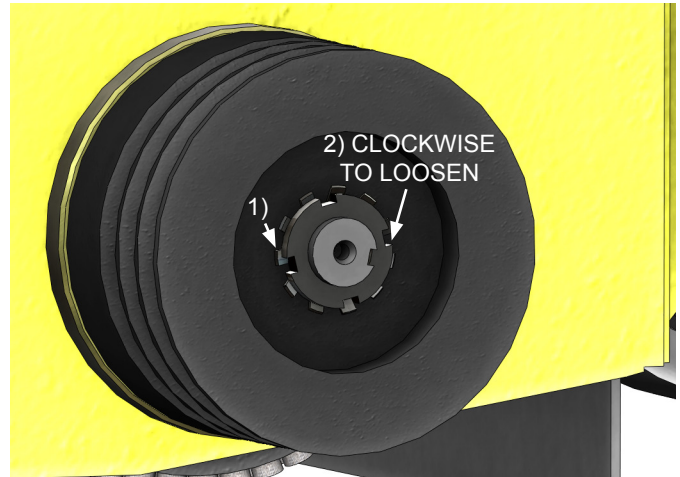


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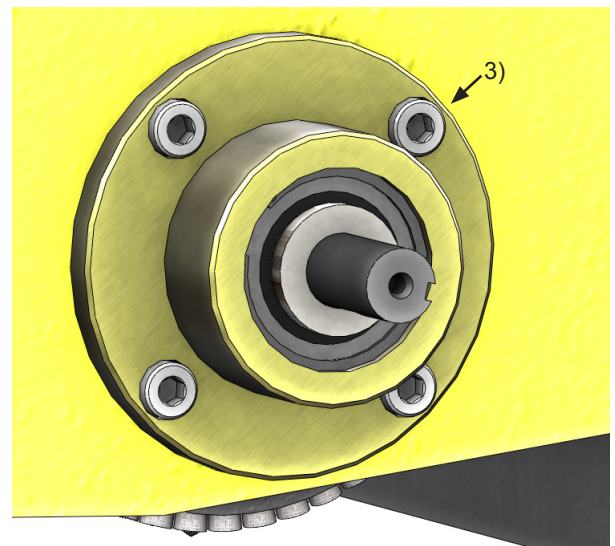
1. Follow the instructions to remove the drum and belts from the machine, leave the sideplate aside to remove the bearing housing later. Remove the lower pulley using a screw driver to flatten out the tabs securing the lock nut to the shaft.

2. Remove the lock nut on the shaft by putting the screw driver on one of the tabs and hitting it with a hammer or mallet.

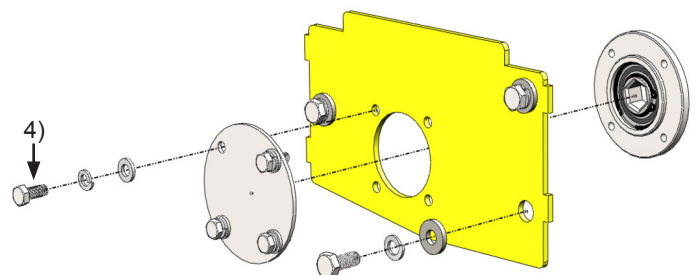
NOTE: The lock nut is LEFT HAND threads therefore it must be rotated **CLOCKWISE** to loosen it.



3. Once the pulley is removed, the bearing assembly on that side can be removed using the 6mm hex key.

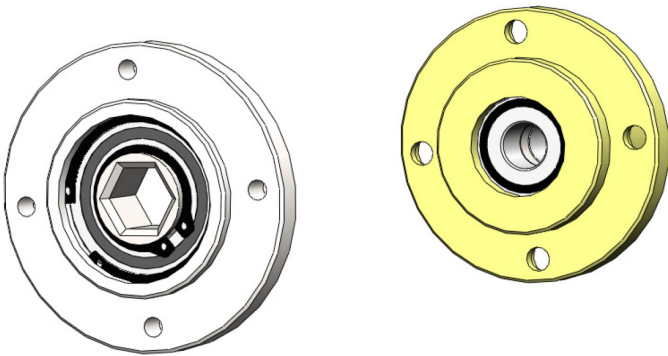


4. At this point remove the bearing housing from the sideplate using the 13mm socket or wrench

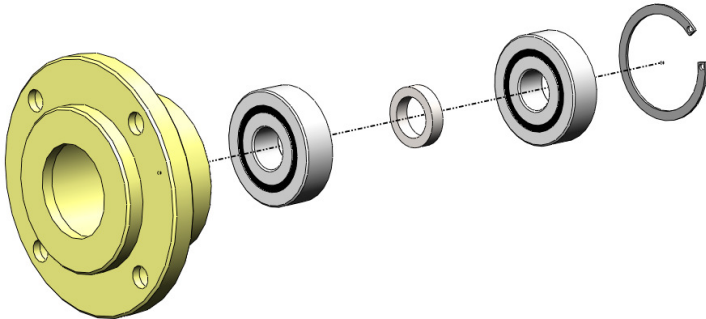


BEARING REPLACEMENT (CONTINUED)

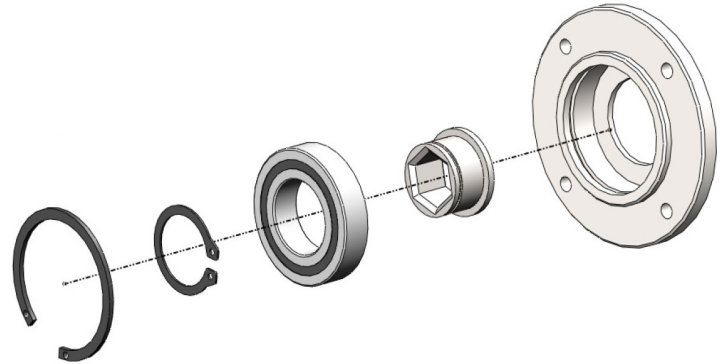
5. Once both bearing housings are removed, the circlip pliers will be needed to remove the snap rings and a block of wood or something similar to knock the bearings out of the housing.



6. The BELT SIDE bearing assembly (yellow zinc plated) is shown below.

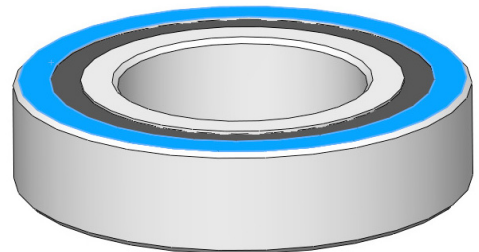


7. The side plate side bearing assembly (clear zinc plated) is shown below.



*****WARNING*****

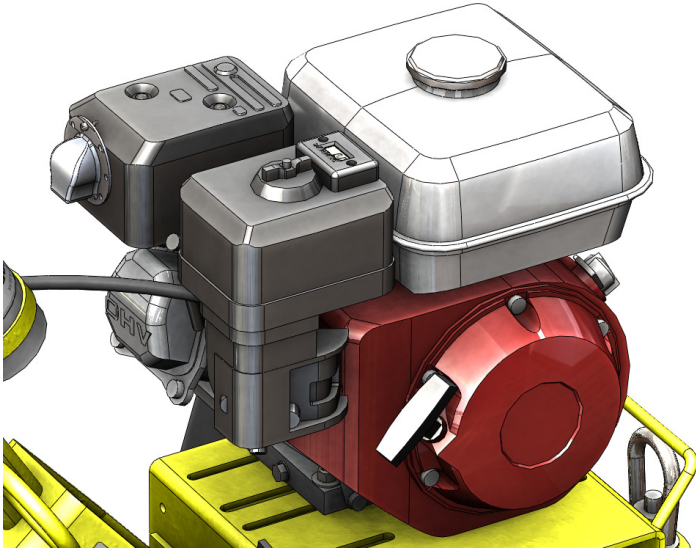
When pressing bearings in, use a soft wooden dowel and only apply pressure to the outer race of the bearings



OPTIONAL EQUIPMENT

• TACH/HOUR METER

Maintenance meter for service and use control



• WATER CONTROLS

Used to extend life on diamond drum applications and for dust control on all others



OPTIONAL EQUIPMENT

• MAXIVAC DUST COLLECTOR

Available in both gas or electric powered applications with the standard 5 micron bags or upgrade to the 1 micron filter with shake down bar



• EDGER DRUM ASSEMBLY

Available for Diamond blades and cutter applications

