SHERLINE PRODUCTS
INCORPORATED 1974

Accu-Pro Machine Maintenance

Maintaining Your Accu-Pro Machine

These maintenance instructions cover lubrication, gib adjustment, and ball screw protection for your new Accu-Pro Ball Screw machine. Keeping your machine lubricated and clean will ensure it remains in top condition for years to come.

Lubrication

The biggest reason for machine failure in all mechanical machines, is inadequate lubrication.

1. We recommend using 3-in-One oil (or a fine sewing machine oil) to lubricate all of the dovetail surfaces on our machines. Remington Rem Oil is another good lubricating oil.
   Note: We have done some testing with "5W-30 "Synthetic" motor oil". We have found it to be very beneficial in reducing wear. We now recommend using this oil especially on high use machines and for industrial and semi-industrial machines.
   IMPORTANT NOTE: DO NOT ever use WD-40 as a machine lubricant. WD-40 has chemicals in it that will remove the black anodized surface from our machine parts. This will lead to machine failure!
2. Our ball screws are lubricated with grease. The factory recommended grease is NSK Grease AS2. When adding new grease to the ball screw, add a small amount by "finger wipe" to the exposed ball screw. Then jog the axis back and forth a few times to coat the entire length of the ball screw. The grease remains on the ball screw for a long period of time. Therefore, new grease is not needed very often.
3. The Accu-Pro machines have gravity feed oilers on some of the axis slides, but not on all of them.
4. The oiler reservoir on the mill saddle, the chucker lathe saddle, and the lathe saddle should be filled once for every 24 to 32 hours of machine use.

Mill and Chucker Lathe Saddle Oilers

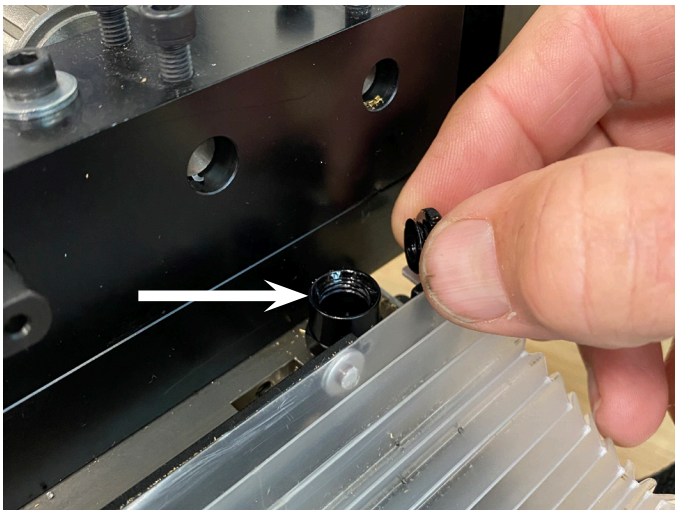

FIGURE 1—The arrow is pointing to the oiler reservoir on the mill and chucker lathe saddles. Remove the screw cap to fill the reservoir.

Lathe Saddle Oiler

FIGURE 2— The arrow is pointing to the oiler reservoir on the lathe saddle. The reservoir cover on the ball screw lathe is a spring-loaded, hinged cap.

1. The mill saddle and the chucker lathe saddle are the same. However, the oiler is underneath the tooling plate on the mill. Because of this, there is an oiler access hole in the tooling plate (see Figure 3). You must first remove the cap from the oiler, which you can do by partially shifting the tooling plate to the left. Remove the cap, then reposition your tooling plate and secure it. Once the tooling plate is secured to the mill table, jog the X-axis until the access hole is directly above the oiler and add oil.

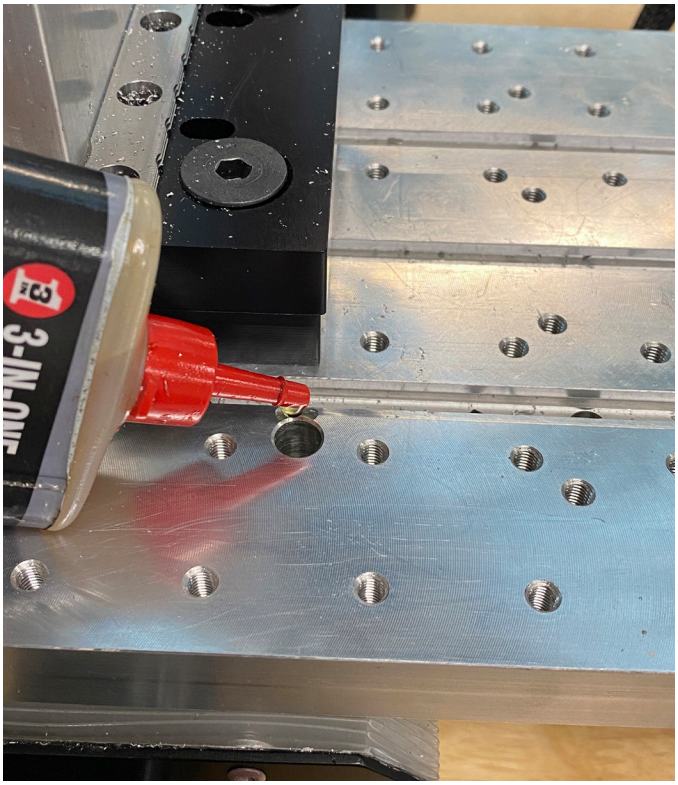

FIGURE 3—The saddle oiler access hole on the tooling plate.

NOTE: To make this easier in the future. When you position the access hole over the oiler, write down the X-axis machine position. Then you can use MDI and input a command to move to that exact position for future lubrication (G90 G00 G53 X value). Another option would be to enter this position as your G59 position on the F4 tools & offset page. Then a MDI command of (G90 G59 G00 X0 Y0) will move to this position. The X position is approximately X-4.200 for the access hole location to align with the oiler.

2. On all of our saddle oilers, the dovetail surface on the bottom of the saddle will be lubricated. The dovetail surface on the top of the saddle will NOT be lubricated.

3. To lubricate the top dovetail surface, place a drop of 3-in-One oil on your finger tip. Then wipe it on the bottom and inside dovetail surface of the exposed dovetail on the mill table or crosslide when the machine is at the home position (see Figure 4). Then jog the table to the other end of travel and back to home. This will lubricate all mating dovetail surfaces on the top of the saddle. Feel the top dovetail surface periodically (once a week). If the surface is dry, apply more oil.

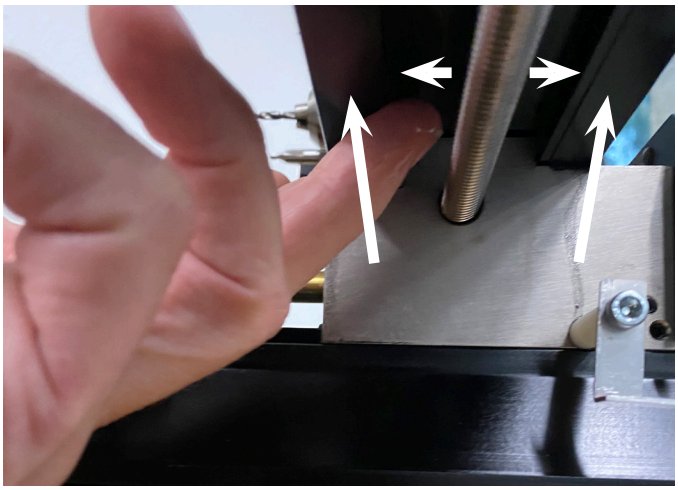

FIGURE 4—The white arrows indicate the dovetail and mating surfaces that require lubrication.

4. To lubricate the column saddle and bed on the mill, jog the Z-axis down. Put a few drops of 3-in-One oil on both the front and side of the bed dovetail above the column saddle. Then jog the Z-axis home.

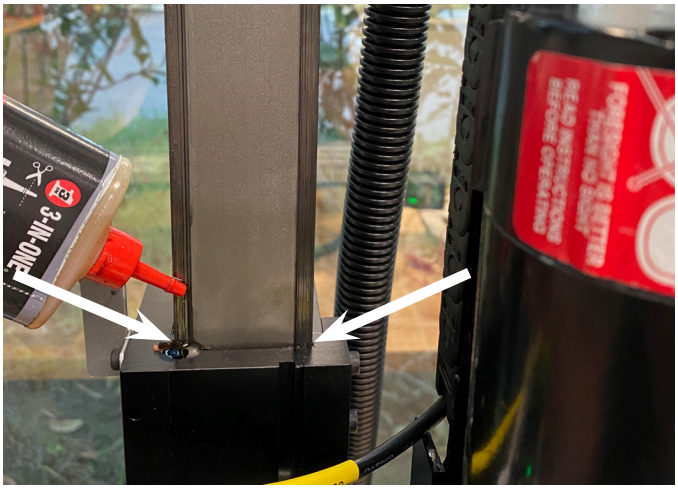

FIGURE 5—The front side of the column bed and Z-axis saddle. Apply oil to both sides of the column bed dovetail.

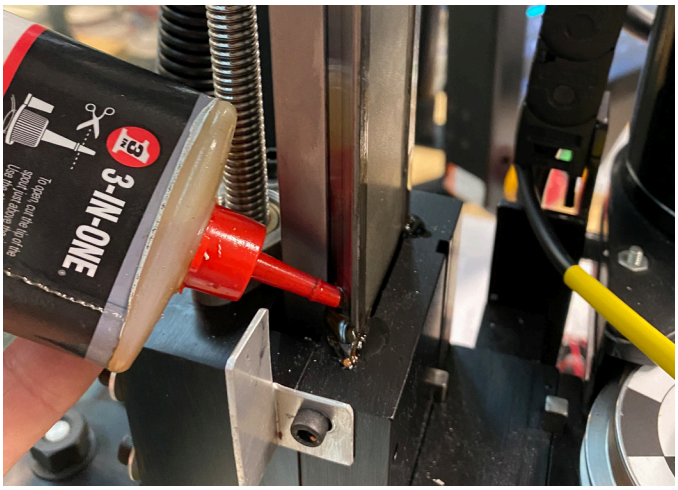

FIGURE 6— The side of the column bed dovetail and Z-axis saddle.

NOTE: If you notice excessive oil under your machine, then fill the oiler less frequently.

Gibs and Gib Adjustment

The gibs on our machines are made from a plastic/glass composite that contain a lubricant. They will wear in initially within the first few weeks of use. Once they have worn in, you may experience some excessive looseness between the saddle and the mating parts. This can be adjusted by loosening the gib lock screw and tapping the gib in slightly. Then retighten the gib lock screw.

NOTE: Use our P/N 40992 Gib Removal Tool to tap on the end of the gib. This tool is nylon, so it will not damage the machine if your accuracy is off and you miss the end of the gib.

Mill and Chucker Lathe Gib and Screw Access Holes

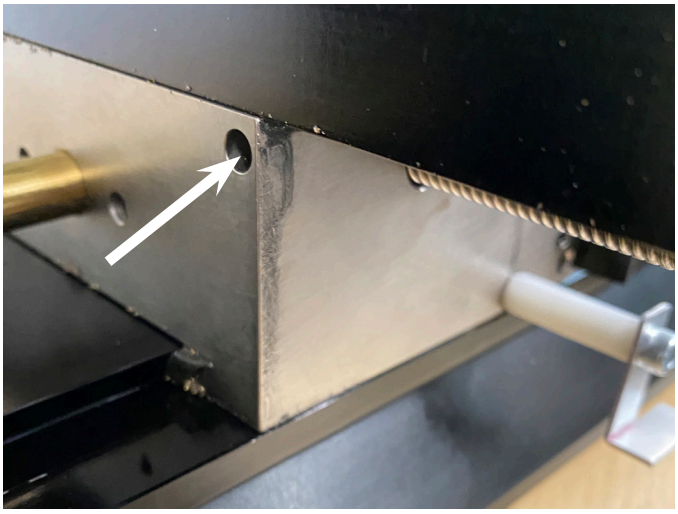

FIGURE 7—The arrow is pointing to the X-axis gib set screw access hole on the mill and chucker lathe saddles.

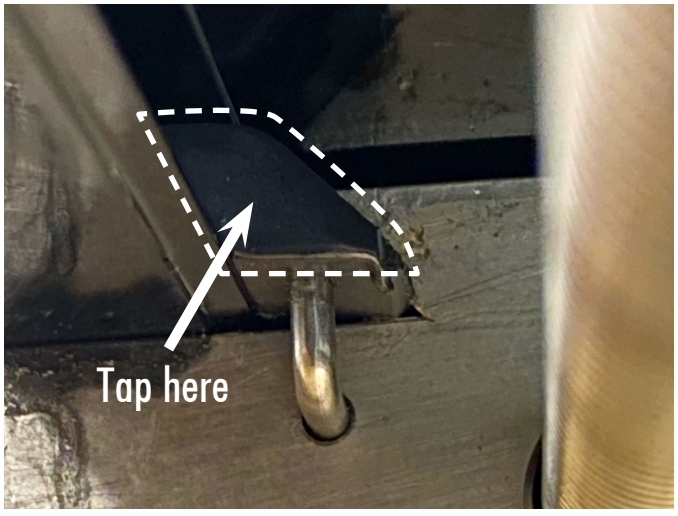

FIGURE 8—X-axis gib location on the mill and chucker lathe saddles. Tap the end of the gib as indicated by the arrow and dashed line.

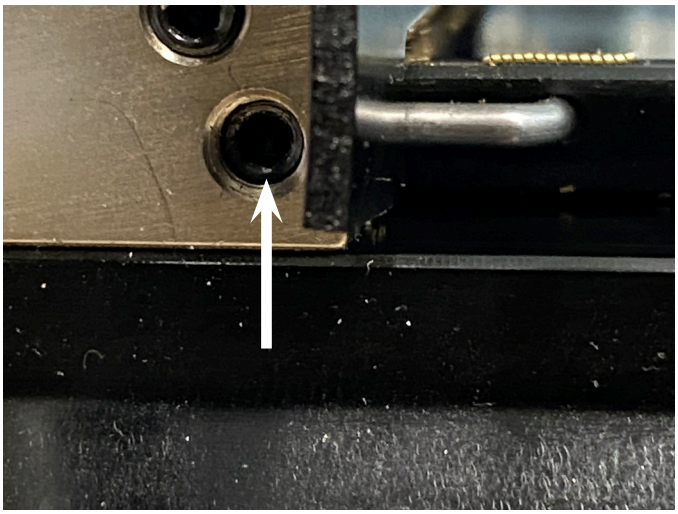

FIGURE 9—The Y-axis (mill) and Z-axis (chucker lathe) gib set screw access hole on the mill and chucker lathe saddles.

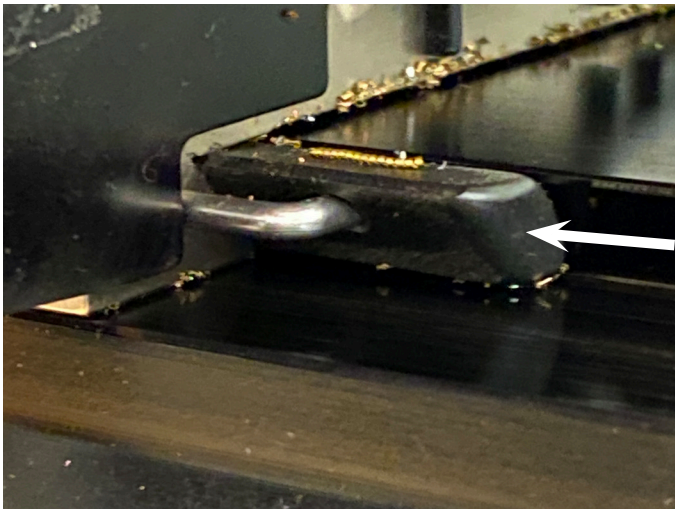

FIGURE 10—The arrow is pointing to the Y-axis gib location. The accordion way cover must be lifted to gain access to the gib.

FIGURE 11—The arrows are pointing to the Z-axis mill set screw and gib.

Lathe Gib and Screw Access Holes

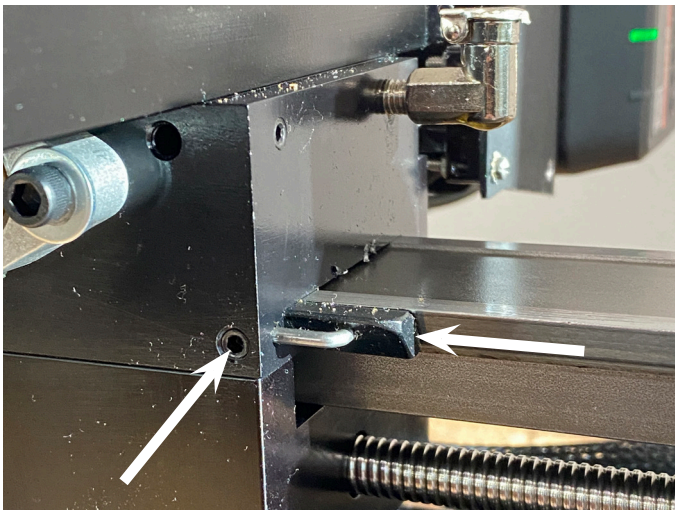

FIGURE 12—The arrows are pointing to the Z-axis lathe set screw and gib locations.

1. First, you will need to jog the crosslide in the X+ direction so the stepper motor moves away from the saddle in order to gain access to the end of the gib.
2. The gib lock set screw access hole is on the bottom, back side of P/N 46291. To gain access to the gib lock set screw, we have added a 1/2" access hole in the lathe base. The access hole has a plastic plug in it. Remove the plastic plug. Then jog the Z-axis until the set screw access hole is over the 1/2" hole in the base (see Figure 13).

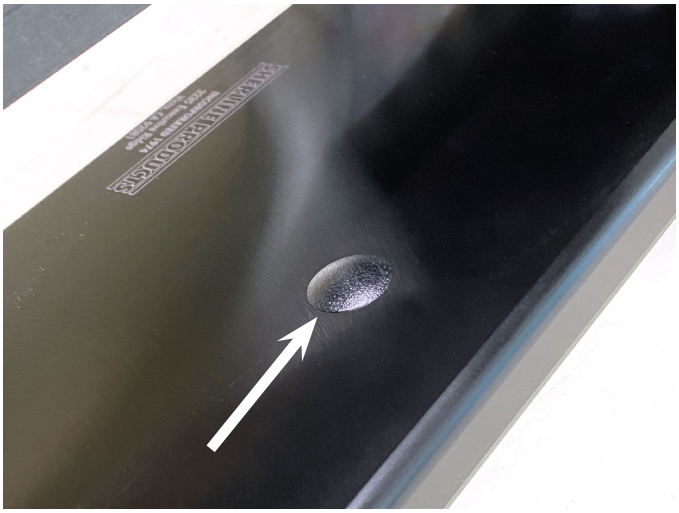

FIGURE 13—The white arrow is pointing to the plastic button plug that covers the 1/2" access hole in the lathe base.

3. You will need to use a 3/32" hex wrench to loosen the gib lock set screw. Using the 1/2" access hole in the base, insert the hex wrench from the bottom side of the lathe base and loosen the set screw. Once the set screw is loose, tap the gib on the end that is facing the stepper motor and retighten the set screw (see Figure 14).

Video Instructions: *Adjusting Gibs on the Accu-Pro Ball Screw Lathe* (YouTube: https://youtu.be/TBD)

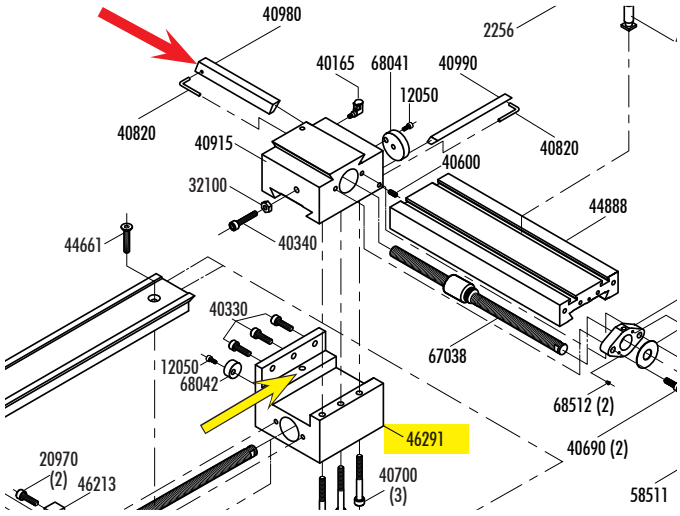

FIGURE 14—Exploded view of the Ball Screw Lathe saddle. The red arrow is pointing to the end of the X-axis gib. The yellow arrow is pointing to the gib set screw access hole on P/N 46291.

4. Jog the Z-axis to the home position and reinsert the plastic plug in the 1/2" access hole in the base.

   NOTE: The gibs are tapered. If you tap the gib in too far, it will act as a brake and restrict the axis from moving. Only tap the gib in enough to remove the looseness between the mating parts. If the gib is too tight, tap the opposite end of the gib to loosen it. Then readjust.

Our gibs wear extremely well under normal conditions. However, if you are machining materials such a fiberglass, carbon fiber, cast iron, and some plastics, the machine dust that results from machining these materials is very abrasive. This will lead to excessive wear on both the gib and other machine parts.

Ball Screw and Ball Screw Covers

1. The ball screw nut has a wiper on both ends. This wiper will keep some contaminants out of the ball screw nut. However, it will not keep all contaminants out. For this reason, we have covers over our ball screws, or the ball screw is located underneath the machine axis.
2. One end of our ball screw is protected with a brass tube. This brass tube is on the end of the ball screw that is most susceptible to chip and particle contamination. The brass tube size is designed for a slight press fit into the ball nut carrier.

   Should this fit become loose and the brass tube comes out, wipe a thin amount of silicone (or comparable adhesive) onto the outer surface of the tube where the tube presses into the saddle. Do not put the silicone directly on the end of the brass tube or inside the brass tube, as this will allow the silicon to get onto the ball screw and into the ball screw nut.

   Insert the bass tube back into the saddle and allow the silicone to dry. This should keep the brass tube in place.

   Video Instructions: *Installing Brass Tube Covers on Ball Screw Machines* (YouTube: https://youtu.be/kgJ8C1qHceM)

3. On the opposite side of the saddle of the mills and chucker lathe, we have an accordion way cover. These way covers are very effective for keeping chips and contaminants off of the ball screw.

General Notes

1. Do not allow excessive chip buildup on the way cover as this will begin to restrict the amount of table travel when you home the Y-axis.
2. Do not use compressed air to remove chips from the machine. Compressed air will inadvertently blow chips up under the way cover.
3. Use a brush or shop vacuum to remove chips from the machine and the way cover.

Thank you,
Sherline Products Inc.