Pure Pressure

Axis Trichome Separator

Axis Service Manual R1.2

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1. Introduction

From all of us here at PurePressure, thank you for your purchase!
Our Axis trichome separator is engineered to last for many years with proper care. The following service manual covers many service topics, including maintenance schedule, tips on servicing every aspect of the machine, and much more.

Please refer to the Axis User Manual for how to use the machine, technical specifications, tips on getting the most out of your equipment, and much more.

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We're always here to help. Talk to us!

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1.1 Lockout Tagout (LOTO)

DO NOT OPERATE THIS MACHINE WITHOUT THE GUARDS IN PLACE.

The Axis has internal moving parts that can cause serious injury and bodily harm if exposed while operating. Lockout Tagout addresses the practice and procedure necessary to disable machinery, thereby preventing the release of hazardous energy while employees perform servicing and maintenance activities.

Recommendations:

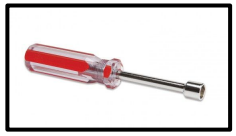
- Utilize LOTO safety procedures as outlined in OSHA National Safety Compliance Standards for doing any maintenance related actions on this machine.
- Before performing any servicing or maintenance activity, power down and LOTO using an OSHA compliant lockout tagout plug lock as shown in the image above.
- Always wear eye protection while doing any sort of maintenance or servicing related actions on the machine.

2. Service Tools & Equipment

Note: Use of any grease must be food-grade, regardless of the manufacturer!!!

Tools for the Job

While there are plenty of tools available to setup and maintain your equipment, the following tools are necessary to have for complete and accurate assembly and tune-up of the machine. PurePressure recommends the use of these tools to help prevent damage to the machine caused by using inappropriate techniques or non-advised tools.

Tool Name	Description & Recommended Sizes	Illustration
Thread Locker	Semi-permanent adhesive for securing nuts, bolts, and studs during vibrational loads. **Recommendation:** Loctite 248 in 0.32oz glue stick (or something equivalent)	
Food-Grade Grease	Food-grade lubricant for mechanical components. **Recommendation:** Molykote G-0051 FM (or something equivalent)	
Allen Wrenches	Tools to quickly tighten & loosen fasteners. **Recommendation:** Allen wrench set, T-handle sets, or hex key with ball end and short arm.	 OR 
Bolt Drivers	Manual tools for installing and removing bolts. **Recommendation:** Flathead & Phillips	 
Hex Drivers	Tool to drive bolts & loosen frozen bolts/nuts. **Recommendation:** 5/16” Hex Socket Nut Driver	 
Belt Tension Meter	Tool to measure the static tension of the belt. **Recommendation:** Universal Belt Tension Meter SM5	

3. Maintenance Schedule

Your PurePressure Axis trichome separator is engineered to go the distance. Make sure to do the following to ensure long term reliability.

- ★ Preventative v. Reactive
  - Preventive maintenance is based on the theoretical rate of a component's failure and typically occurs before a failure happens.
  - Reactive maintenance takes place after a problem has occurred and typically costs more money because of down time.
- ★ Maintenance schedule:
  - The maintenance schedule for mechanical parts is factored by hours of operation. For this list, we are assuming the machine is running for a 40 hour work week.
  - A facilities maintenance schedule should be adjusted based on the amount of time the motor is running.
  - **Daily**:
    - Clean & wipedown
    - Visual inspection
  - **Weekly**:
    - Inspect hinges & hinge hardware for loose or backed out bolts
  - **120 hours**: Check belt tension. See belt tensioning instructions for additional detail
  - **Monthly**:
    - Inspect the interior of the control stand electrical enclosure for moisture
    - Check vertical movement and pivoting for smooth operation.
    - Check filter regulator for condensation.
  - **6 Months**: Grease hinges
  - **20,000 hours (L10 predicted life)**: Replace bearings, drive belt, motor and gearbox

If you encounter an issue with your Axis that is not described in the following pages, please contact us at support@gopurepressure.com

4. Pneumatics

Air Supply & Pneumatic Function

The Axis has a pneumatic assist designed into the function of the relocating head. The upward travel is controlled by the regulator on the back of the control stand. The downward travel has an internal regulator (not shown) that is factory set and requires no maintenance. This pneumatic circuit allows you to easily raise and lower the machine by the flip of a toggle switch.

- The compressed air is supplied to a filter regulator. The moisture trap on the regulator collects condensation that is created from compressed air.

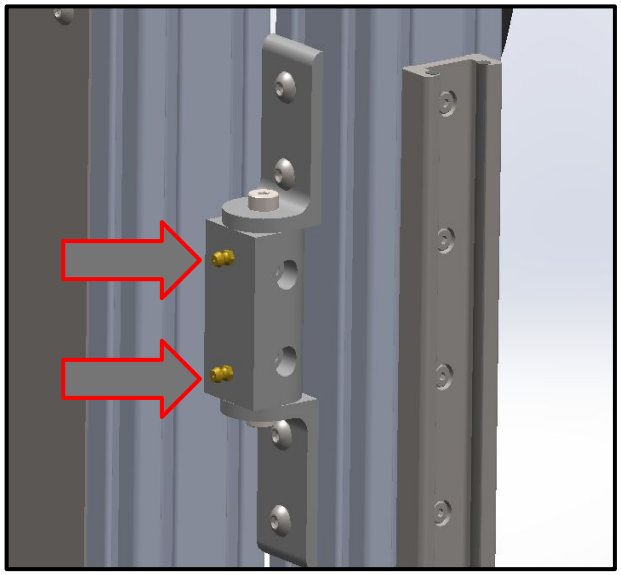
- To drain the trap, use the valve on the bottom of the regulator. Loosen to open the valve and drain the moisture. If the system is energized with air, a mist will shoot out. Do not be alarmed, as this is normal. Close back the valve before operation.

- This should be checked and drained on a monthly basis or as needed.

5.1 Machine Travel

Pivoting Function

A food grade grease is used to lubricate the friction components on the Axis. The following pages highlight the most commonly lubricated components for optimal functionality of the machine:



The hinge function should be smooth acting without binding or sticking. Greasing these fittings regularly will flush out particulates and prevent failures.

a. The Axis has 8 zerk fittings used for lubrication. Using a standard grease gun with a flexible nozzle, grease the fittings.
b. When greasing a zerk fitting, pump in lubrication until you see it push out from between the hinge components. Wipe away the excess that comes from between the hinge components.
c. Lubricate the hinges every 6 months or if any binding occurs.

Note: PurePressure's recommend grease is Molykote G-0051 FM.

5.2 Machine Travel

Latch Pins

The latch pin engagement plates for vertical travel and pivot should be greased. These pins are important for securing the vessel in the up-position, as well as in either quadrant for washing. Greasing these fittings will help with consistent engagement and prevent failures.

- For the vertical travel (image **A.**)
  a. Apply a thin layer of grease to the up position latch plate.
  b. Apply the grease in a vertical orientation from the latch hole and down the vertical ramp.

- For the pivot (image **B.**)
  a. Apply a thin layer of grease to the underside of the top pivot plate.
  b. Apply the grease in a smiley pattern similar to the travel pattern of the pin.

Lubricate these components every 6 months or as needed.

Note: PurePressure's recommend grease is Molykote G-0051 FM.

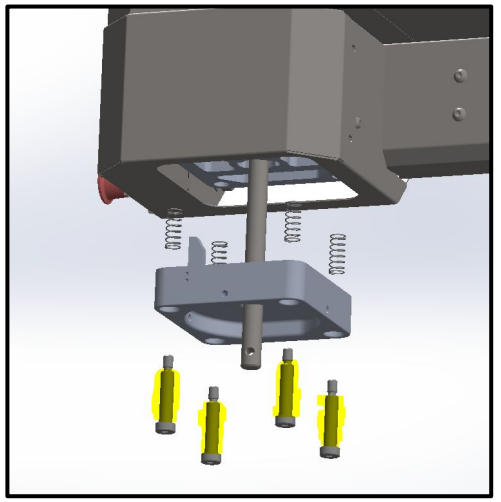
5.3 Machine Travel

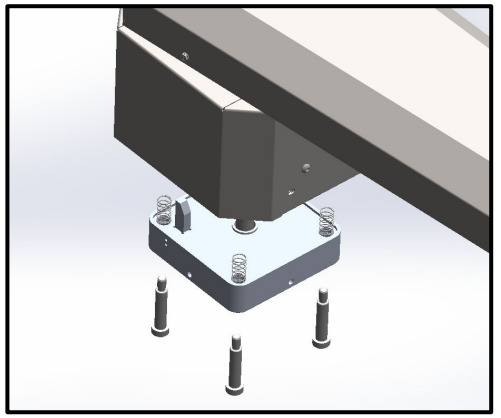
Guard Interlock Assembly

The function of this spring loaded assembly is to engage the safety interlock for the function of your paddle. To prevent both binding and particulate build-up from migrating, this has to be maintained.

Follow the below steps to maintain the guard interlock assembly. Lubricate these interlock bolts no less than every **6 months**.

a. First, follow **LOTO** procedures.
b. Remove the guard and guard hardware
c. Now, remove the four shoulder bolts holding the lower mount plate (shown in the image) with a 1/4” allen wrench. Springs will come with that plate as it is removed.
d. Clean all the parts with a lint-free rag and iso water mixture removing all the used grease.
e. Apply grease to the shoulder and thread of the bolts.
f. Set all four springs on the top side of the plate and align the component as shown back inside the receiving end. Make sure all four springs are seated in both parts.
g. Compress the components and apply the newly greased shoulder bolts one at a time.





Note: PurePressure’s recommend grease is Molykote G-0051 FM.

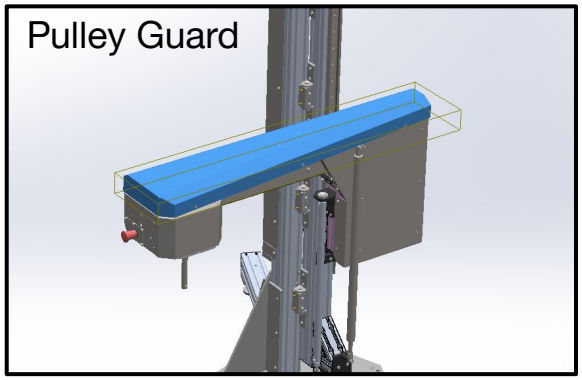
6.1 Belt Tension

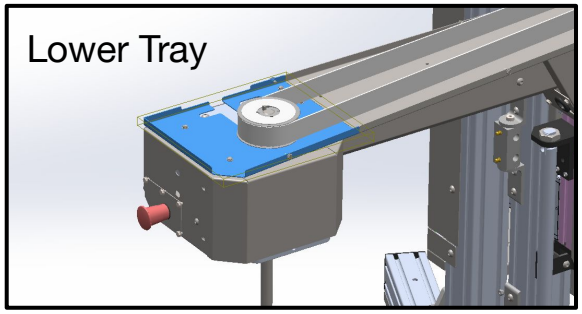
How to properly tension the belt

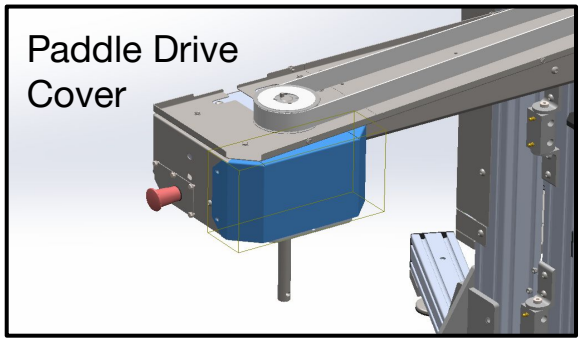
Belt functionality is one of the keys to optimal success of the machine. Proper belt tension extends the life of the mechanical components used in operating the axis drive system.

The following instructions highlight how to tension the belt:

1. Remove the paddle assembly and the vessel from under the Axis. Ensure the area is clear.
2. Next, lower the head. Make sure you are locked into position from pivoting.
3. Now, turn the power off, following **LOTO** procedure.
4. Remove the pulley guard pan. Unfasten 6x bolts using a 5/16” hex or flathead bolt driver.
5. Power on belt tension meter. The tool will beep to let you know its ready. Hold 1” from the belt at the middle of the belt (between the 2 pulleys). Pluck the belt like a guitar string and record the reading from the meter.
6. Your belt tension should read between 28-29 Hz. If the meter does not read between these values, you need to tension the belt.
7. Power down the machine to adjust belt tension.
8. Before adjusting tension, take off the following safety guards with a 5/16” hex driver or flathead screwdriver:
    a. Pulley Guard
    b. Lower Tray
    c. Paddle Drive Cover







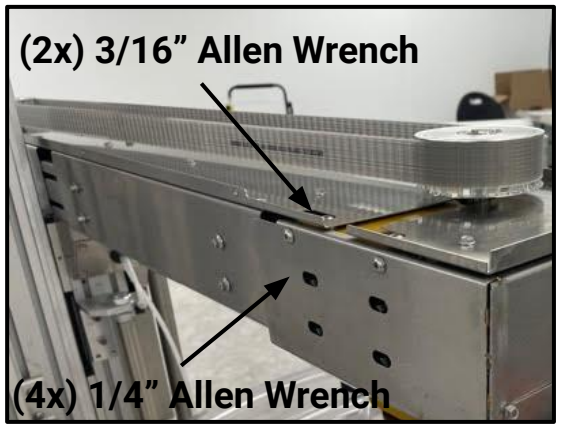
6.1.1 Belt Tensioning (continued)

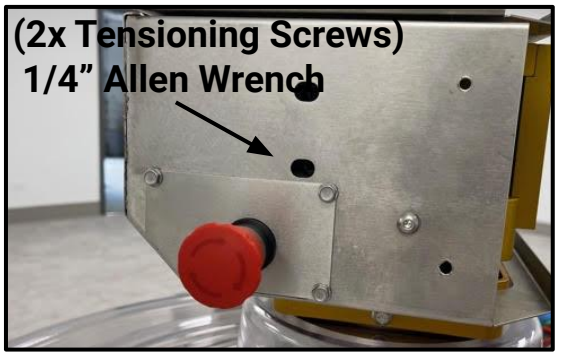
How to properly tension the belt (continued)

9. **LOOSEN, but do not remove the 6x paddle drive mount bolts. Use a ¼" and 3/16" allen socket wrench to loosen.**
10. Using a ¼" allen and a 9/16" flat wrench, loosen the 2x jam nuts.
11. Now, we are ready to adjust the 2x belt tensioning bolts. Using a ¼" allen, equally adjust the bolts clockwise or counterclockwise to change the belt tension. Clockwise is to tighten the belt, counterclockwise is to loosen the belt. Make small adjustments to both bolts then use the belt tension meter to check the tension after each adjustment.

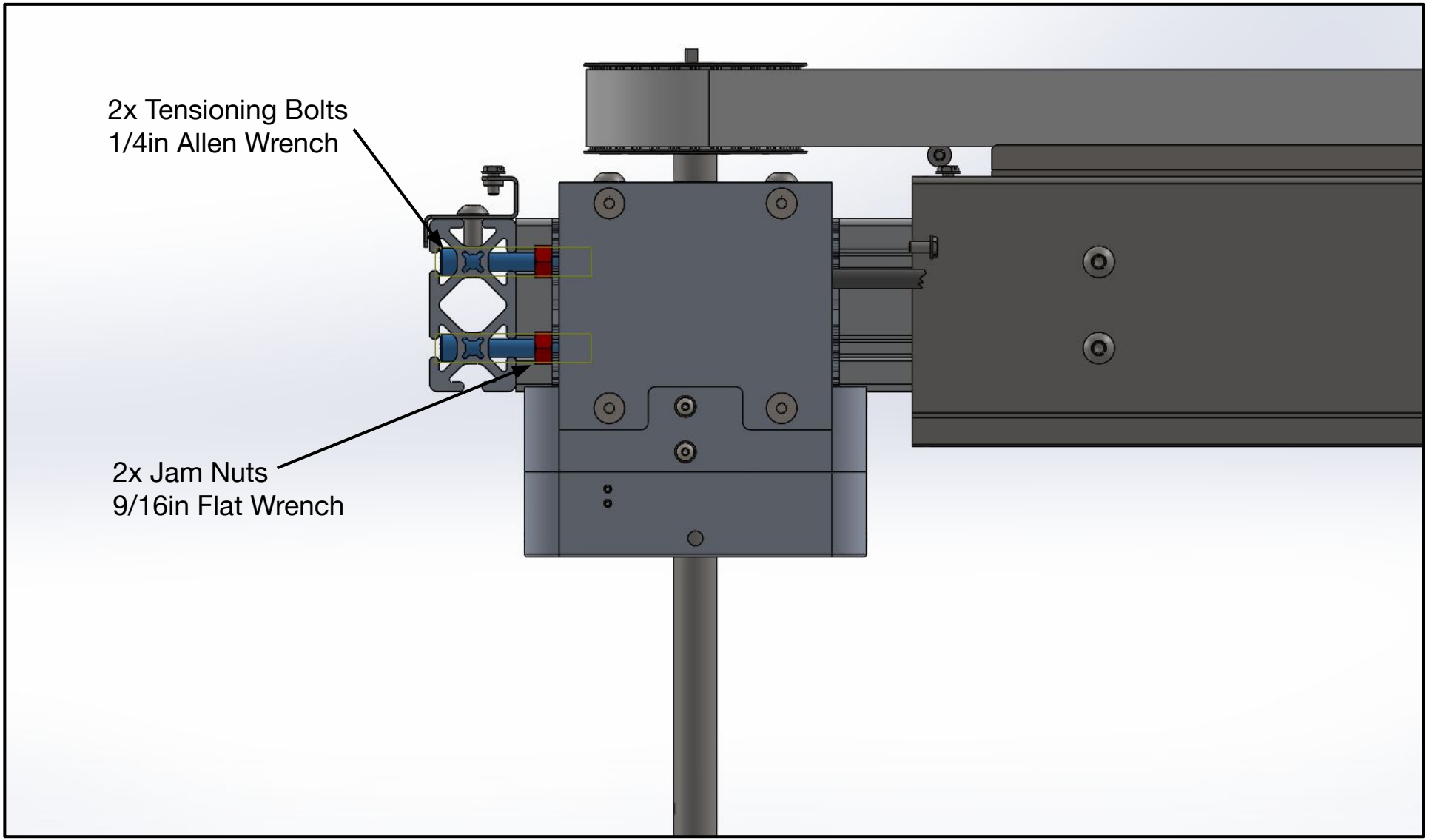
    Note – The bearing life is directly affected by belt tension. Running the motor with belt tension greater than 29 Hz for prolonged periods of time will decrease bearing life. If you accidentally exceed the recommended belt tension during the tensioning process, you will not decrease bearing life. Never exceed 40 Hz in belt tensioning, as you may permanently damage the belt.

12. Tighten the 6x paddle drive mount bolts. You may find after tightening these bolts that the belt tension will change slightly. This is an iterative process as you want the final belt tension when everything is tight to land between 28-29 Hz.
13. Tighten the 2x the tension bolts with a ¼" allen. Be sure the 6x padde drive mount bolts are already tight or you will adjust the belt tension without meaning to.
14. Lock the jam nuts to prevent the tensioning bolts from moving.
15. Ensure all sheet metal guards and hardware are tightened and secured before operating.





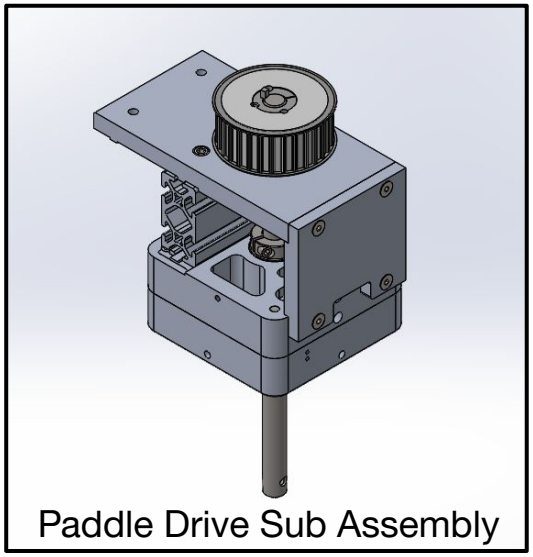
6.1.2 Belt Tensioning (continued)

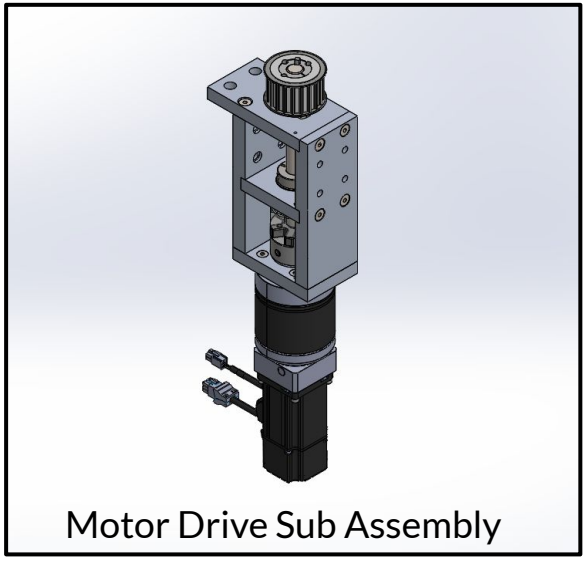


6.2 Options to Replace Bearings

Bearing Replacement Options

- Food-grade bearings exist on the paddle and motor drive assemblies of the Axis.
- These bearings help with friction in the moving components. In the case that these assemblies need to be serviced, PurePressure offers multiple options for its customers to get them back up to speed.
- The service options available for bearing replacements are as follows:
    1. We sell you the components and you do the repair.
    2. You send the sub assemblies to us. PurePressure will replace the components and rebuild the sub assembly. PurePressure sends the good assembly back to be reinstalled.
    3. Keep an additional drive assembly on-hand (paddle & motor drive). Swap out the old assembly for a good assembly. Send PurePressure the old assembly to be rebuilt and then we send back to you.


Paddle Drive Sub Assembly

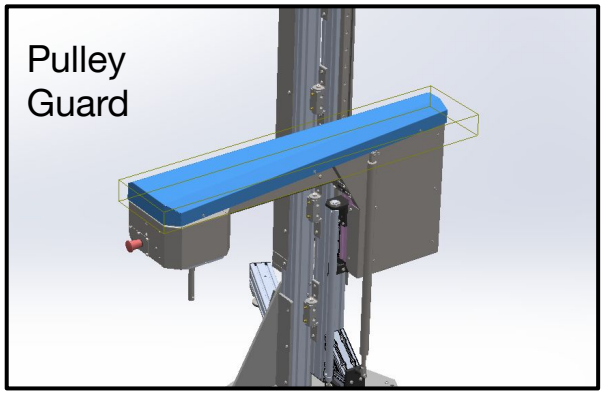

Motor Drive Sub Assembly

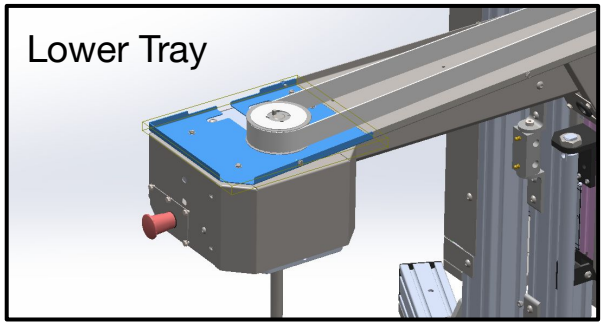
6.3 Removing Paddle Drive Assembly

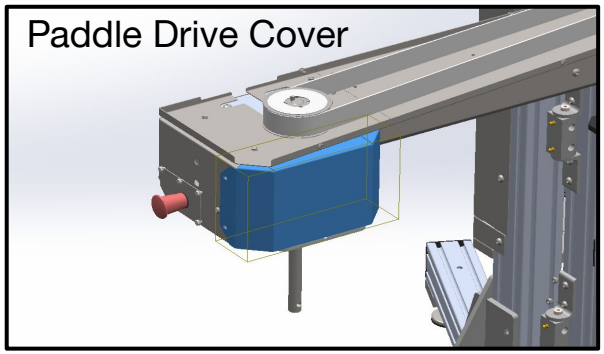
How to Remove the Paddle Drive Assembly

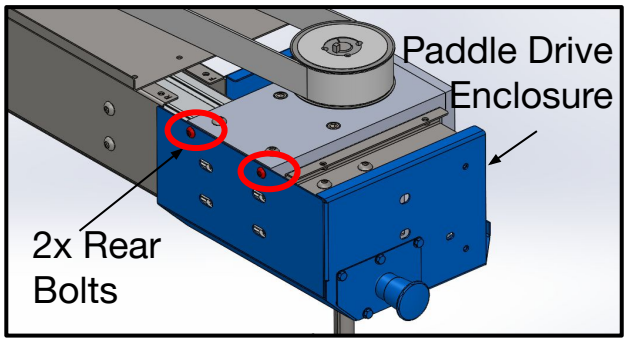
The following pages highlight how to remove, replace, and re-install the paddle drive bearings.

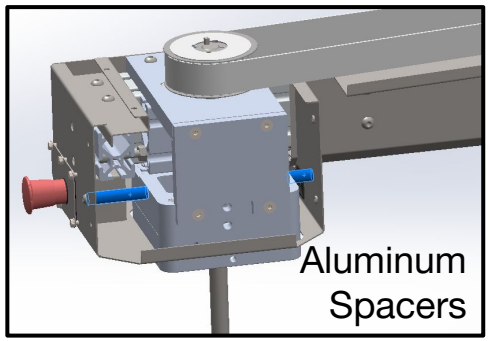
1. Disconnect power, following **LOTO** procedure. Remove the guard from the relocating head (see user manual for detailed instruction).
2. Start with removing the pulley guard. It is a sheet metal component (x6 #10-32 bolts).
3. Take off the lower tray (x4 #10-32 bolts).
4. Remove the paddle drive cover (x4 #10-32 bolts).
5. Disassemble the aluminum spacers (x2) from either side of the paddle drive enclosure and the rear enclosure bolts (x2). Use a 5/32” allen wrench for all 4 bolts.
6. Now, slide off the paddle drive enclosure sheet metal part. The E-Stop cord will be attached to the sheet metal enclosure. Hang the part from the noted hole, using a zip tie or some string, until part gets reinstalled.
    a. **Note** - Do not remove completely from the machine. Let the enclosure hang due to the limit switch cable wiring.







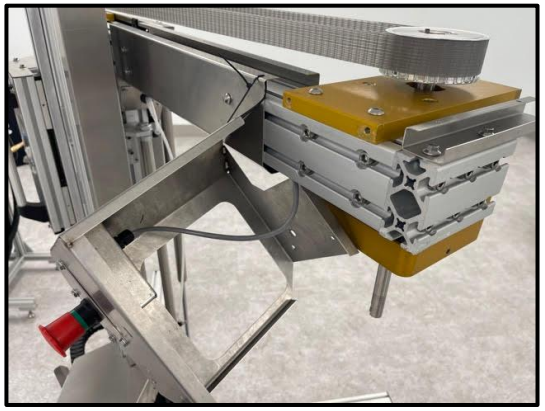


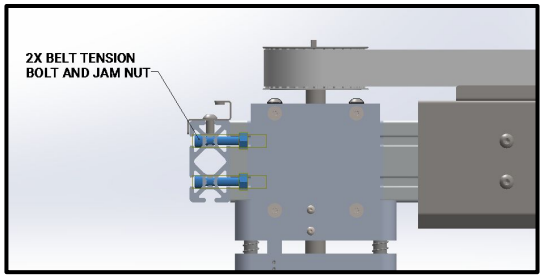


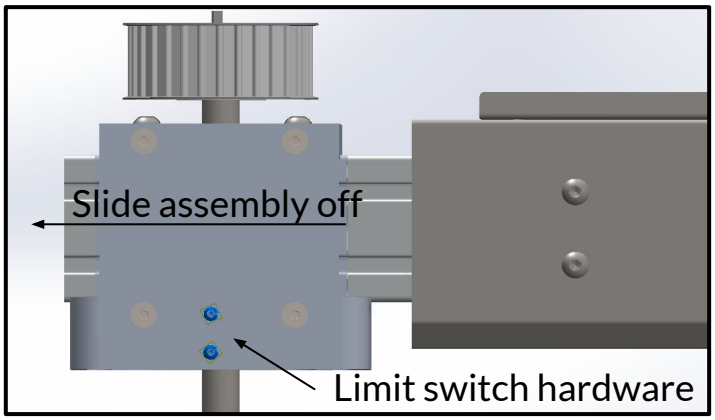
6.3.1 Removing Paddle Drive Assembly (continued)

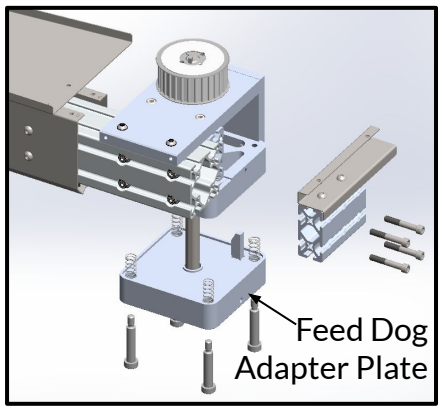
How to Remove the Paddle Drive Assembly (continued)

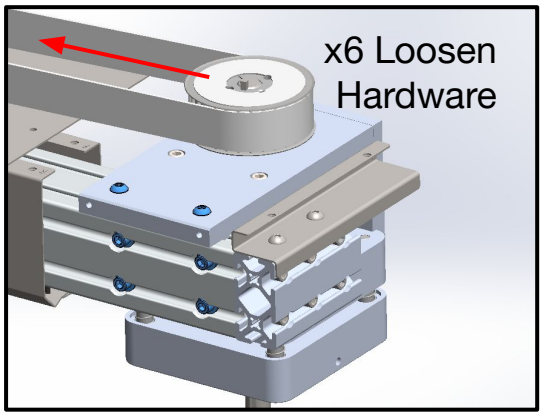
7. Loosen the belt tension jam nuts (qty 2) and then remove the belt tension bolts. These bolts are finer thread than the other bolts used in the assembly. Do not mix them with other hardware, keep them separate
8. Loosen (**DO NOT FULLY REMOVE**) the x6 allen socket head bolts for fixing the paddle drive block.
9. To disengage the belt, push the paddle drive towards the motor and the belt should come right off.
10. Remove the feed dog adapter plate (x4 shoulder bolts) from the paddle drive block using a ¼" allen wrench. The x4 springs should come with it.
11. Remove the 1530 belt tension piece) from the end of the machine using a ¼" allen wrench (x4 bolts). Leave the belt pan support bracket installed. Set aside for re-installation.
12. Remove the x2 bolts for the guard limit switch using a 3/32" allen wrench. Let the limit switch cable assemble dangle.
13. You should now be able to slide the bearing block sub-assembly off. Carefully slide away from the machine to remove.











6.3.2 Replacing Paddle Drive Bearings

How to Replace the Paddle Drive Bearings

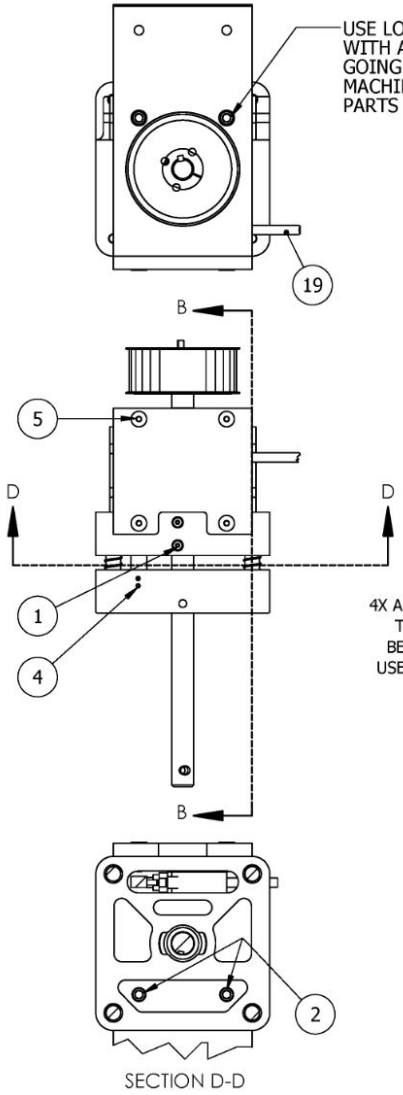
Now that the paddle drive assembly is removed from the machine, we are ready to swap out the bearings. See the next page for a sub assembly drawing of the paddle drive.

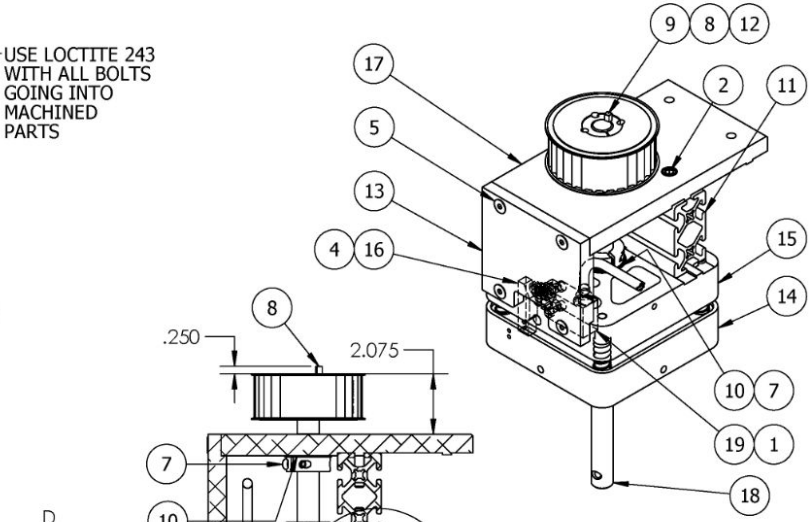
Follow the below steps to replace the bearings in the paddle drive:

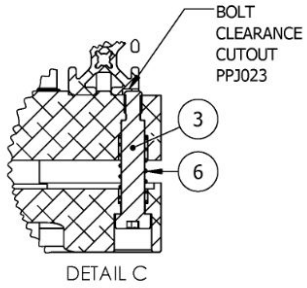
1. Bring the paddle drive assembly over to a working area.
2. Loosen the shaft collars (PPH148).
3. Remove the shaft (PPM118) with the pulley (PPJ004) attached.
4. Disassemble the bearing closure plate (PPM107), upper bearing plate (PPM111), and the 1530-bearing block aluminum extrusion (PPJ023) from the limit switch bearing plate (PPM109).
5. Now, we are ready to press out the bearings. Press out the old bearings (PPJ005).
6. Grab a set of fresh bearings. Press-in the new bearings (PPJ005).
7. Assemble the 1530-bearing block (PPJ023) to the limit switch bearing plate (PPM109). Align notches.
8. Assemble the upper bearing plate (PPM11) to the bearing block (PPJ023).
9. Assemble the bearing closure plate (PPM107) to the upper and limit switch bearing plates (PPM111 and PPM109, respectively)
10. Slide the shaft (PPM118) into the upper bearing (PPJ005). Slide on the two shaft collars (PPH148) and slide into the lower bearing (PPJ005).
11. Space pulley (PPJ004) with ½” spacer or shaft mark.
12. Tighten the shaft collars (PPH148), applying pressure towards the bearings (PPJ005) to minimize shaft play in axial direction.
13. Ensure everything is tight, there is no shaft play, and there is a ½” pulley spacing.
14. Done….the assembly is ready to go back into the machine!!!

6.3.3 Paddle Drive Assembly Print

ITEM NO.	Part#	DESCRIPTION	QTY.
1	PPH115	#8-32 X .75 SS BUTTON HEAD	2
2	PPH117	5/16-18 X 1.5in SS SOCKET HEAD	4
3	PPH131	1/2in x 2in SS SHOULDER BOLT	4
4	PPH132	#8-32 x .5in EXTENDED POINT SET SCREW	2
5	PPH146	1/4-20 x 1in SS FLAT-HEAD	4
6	PPH147	SS COMPRESSION SPRINGS	4
7	PPH148	S.S. SHAFT COLLAR	2
8	PPH102	3/16in SS KEYSTOCK OVERSIZED	1
9	PPJ004	30 Tooth Pulley	1
10	PPJ005	SS Sealed Bearings	2
11	PPJ023	1530-Bearing Block	1
12	PPJ037	Taper Lock Bushing	1
13	PPM107	Paddle Drive, Bearing Closure Plate	1
14	PPM108	Paddle Drive, Feed Dog Lid Adapter Plate	1
15	PPM109	Paddle Drive, Limit Switch Bearing	1
16	PPM110	Guard Feed dog	1
17	PPM111	Paddle Drive, Upper Bearing Plate	1
18	PPM118	15in Axel Shaft Paddle Drive	1
19	PPW053-3	Guard Limit Switch	1







6.3.4 Re-install the Paddle Drive Assembly

How to Re-install the Paddle Drive Assembly

Now that the bearings have been swapped and the paddle drive assembly is back together, we are ready to re-install the assembly into the machine.

1. Slide the paddle drive assembly onto the relocating head
2. Reinstall the guard limit switch (PPW053-3) with a 3/32” allen wrench (x2 bolts).
3. Reinstall the 1530 belt tension piece (PPJ027) with a ¼” allen wrench (x4 bolts). The belt pan support bracket should still be attached (x2 bolts).
4. Reinstall shoulder bolts and springs to the paddle drive block.
    a. **Note** - Be careful when engaging the feed dog and limit switch. Ensure to not damage the limit switch.
5. Reinstall the belt.
6. Tighten the bolts for fixing the paddle drive block.
7. Tighten the belt tension bolts and jam nuts.
8. Reinstall the paddle drive enclosure. Shimmy head around the machine and align the holes.
9. Reinstall the aluminum spacers onto the paddle drive enclosure.
10. Reassemble the paddle drive cover and lower tray.
11. Check that all bolts are tight, all sheet metal is re-installed, and guard is re-attached...You are now ready to power up the machine!

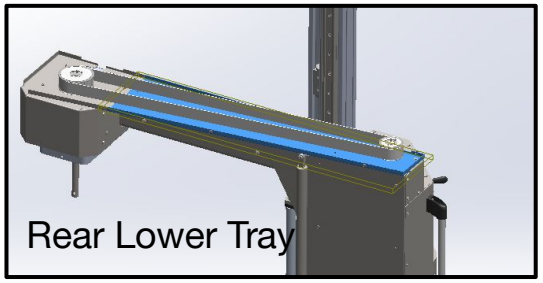
6.4 Removing Motor Drive Assembly

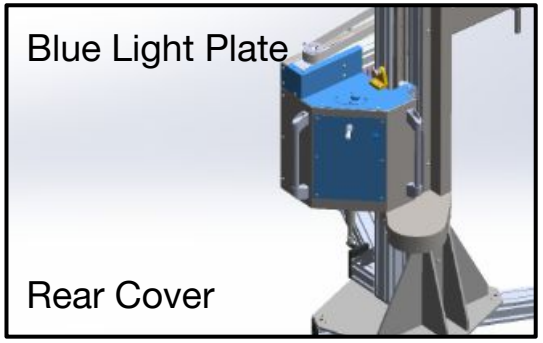
How to Remove the Motor Drive Assembly

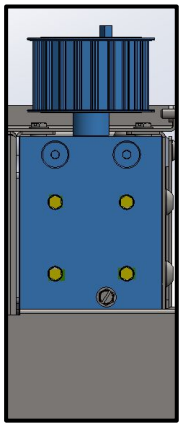
The following pages highlight how to remove, replace, and re-install the motor drive bearings.

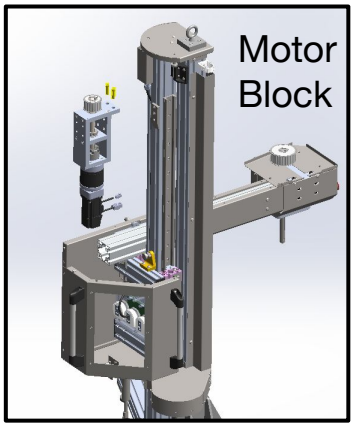
Follow the below steps to remove the motor drive assembly:

1. Disconnect power, following **LOTO** procedure. See Section 6.3 for how to remove the drive belt.
2. After the drive belt is removed, take off the rear lower tray using a 5/16” hex driver or flathead screwdriver.
3. Unfasten the blue light plate. This assembly will have an electrical cable attached. Set on top the relocating head or use a mounting hole to hang the part with a zip tie. Do not stress or hang from the electrical cable.
4. Remove the motor mount bolts using a 1/4” allen wrench (x4 bolts) from the relocating arm. Set aside.
5. Take off the motor mount bolts using a 1/4” allen wrench from the top (x4 bolts). Set aside.
6. Disconnect the power power cable connector. Cut the shrink tube and disconnect the clip.
7. Take of the x6 bolts from the junction box using a phillips bolt driver to get to the motor encoder cable.
8. To remove the encoder cable, find the cable gland with the cable running in/out of it. Unbolt the nut on the backside of the gland. Use an M3 allen wrench to remove the x2 bolts from the gland. Unthread and pop off cover. Remove cable assembly.
9. Now, we are ready to slide the motor assembly out of the top of the machine. Carefully extract the assembly and set aside.









6.4.1 Replacing Motor Drive Bearings

How to Replace the Motor Drive Bearings

Now that the motor drive assembly is removed from the machine, we are ready to swap out the bearings.

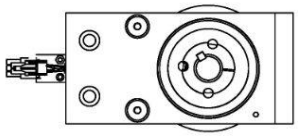
Follow the below steps to replace the bearings in the motor drive:

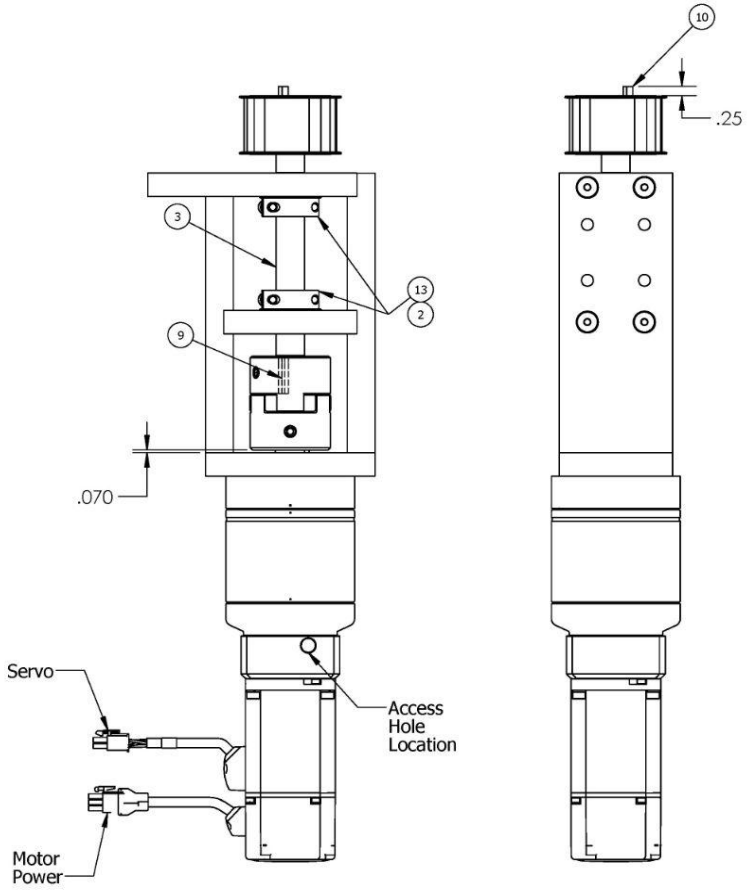
1. Bring the motor drive assembly over to a working area.
2. Loosen the shaft collars (PPH148) with a 3/16” allen wrench (x4 bolts).
3. Loosen the set bolt from the shaft coupler (PPH151/PPH152) with a 5/16” allen wrench.
4. Slide out the shaft (PPM117) and bearing (PPJ005) from the top of the assembly.
5. Slide off the shaft couplers (PPH151/PPH152/PPH153).
6. Unfasten the countersunk bolts from the top of the assembly (2x) and side of the motor block (x4) using a 5/32” allen wrench. In removing these bolts, the drive bearing block plate (PPM098) should slide out.
7. Take the blocks with the bearings and press out the old bearings (PPJ005).
8. Grab a set of new bearings (PPJ005) and press into the assembly where the old bearings are located.
9. Now, we are ready to reinstall the assembly in the reverse order. Slide back in the drive bearing block plate (PPM098), and secure to the assembly with bolts from the top (x2) and side of the motor block (x4)
10. Slide in the shaft couplers (PPH151/PPH152/PPH153)
11. Slide in the shaft (PPM117) and bearing (PPJ005) into the top of the assembly.
12. Tighten the set bolt in the shaft coupler.
13. Tighten the shaft collars (PPH148)
14. Done….the assembly is ready to go back into the machine!

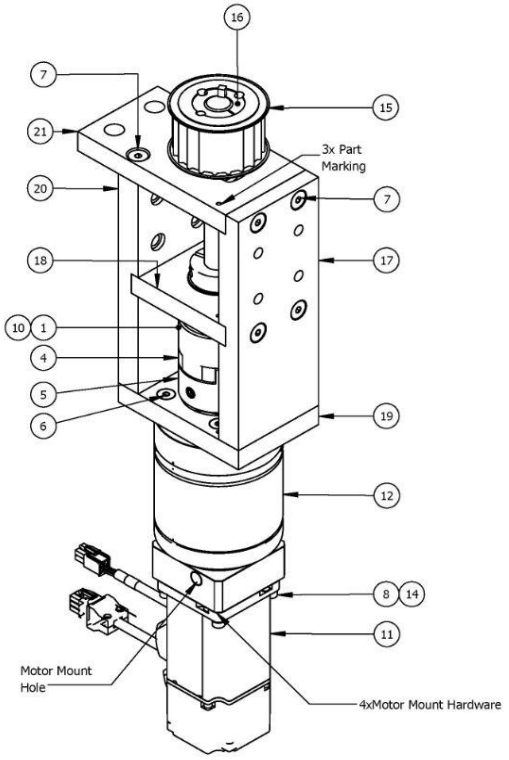
6.4.2 Replacing Motor Drive Bearings

Motor Drive
Sub Assembly Print

Note: Make sure you install the correct keyway in the correct location.







ITEM NO.	Part#	DESCRIPTION	QTY.
1	PPH151	Spider Hub for .75in Shaft	1
2	PPJ005	SS Sealed Bearings	2
3	PPM117	8in Shaft, Motor Drive Axel	1
4	PPH153	Spider Coupler	1
5	PPH152	Spider Hub for 20mm Shaft	1
6	PPH150	M6 x 25mm SS Flat Head	4
7	PPH146	1/4-20 x 1in SS FLAT-HEAD	12
8	PPH165	M5 X 18MM SS SOC HEAD SCREW	4
9	PPH103	3/16 X 1in SS Keystock UNDERSIZED	1
10	PPH102	3/16in x1.5in Keystock OVERSIZED	1
11	PPE031	Servo Motor	1
12	PPE055	Gearbox	1
13	PPH148	S.S. SHAFT COLLAR	2
14	PPH166	M5 SS LOCK WASHER	4
15	PPJ003	20 tooth Pulley	1
16	PPJ037	Taper Lock Bushing	1
17	PPM097	Drive Block Closure Plate	1
18	PPM098	Drive Block Bearing Plate	1
19	PPM099	Drive Block Motor Mount Plate	1
20	PPM100	Drive Block Mounting Plate	1
21	PPM101	Drive Block, Upper Bearing Plate	1

6.4.3 Re-install the Motor Drive Assembly

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How to Re-install the Motor Drive Assembly

Now that the bearings have been swapped and the motor drive assembly is back together, we are ready to re-install the assembly into the machine.

Follow the below steps to re-install the motor drive assembly:

1. Disconnect power, following **LOTO** procedure, and grab the motor drive assembly ready to be installed.
2. First step is to re-install the motor encoder cable. Find the cable gland and re-install the wire into the gland. Secure with an M3 allen wrench.
3. Re-install the cable gland into the junction box, ensuring the nut is secured.
4. Tighten the junction box cover down using a phillips driver (x6 bolts).
5. Reconnect the motor power cable connector clip. Reinstall shrink wrap and connect the cable assembly.
6. Reinstall the motor drive assembly via the motor mount bolts. Secure to the relocating head.
7. Install the sheet metal bolts and secure the pilot light enclosure.
8. Secure the pilot light plate using x4 bolts.
9. Check that all bolts are tight and all sheet metal is re-installed. You are now ready to power up the machine!

Pure Pressure

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We're always here to help.

Axis Service Manual
R1.1