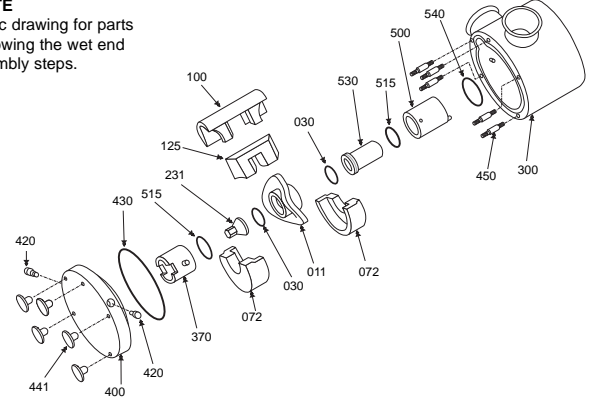


WATSON MARLOW MasoSine

Assembly/Disassembly Instruction Sheet

NOTE

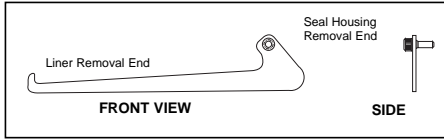
Reference the isometric drawing for parts identification while following the wet end disassembly and assembly steps.



WARNING:
Before attempting assembly/disassembly of the Sine Pump, be sure that the power source to the drive is disconnected or locked out. Ensure that the electrical switch gear cannot be operated while work is performed on the pump. Failure to do so could result in severe personal injury from rotating components.

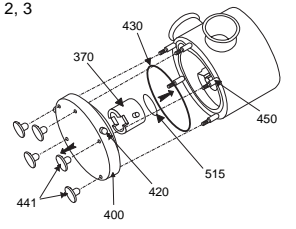
TOOLS

Removal tools are supplied with every new Sine Pump. The tools are shaped like skate blades and have a pin extending from one end. These tools are used for removing the rear liner and seal housing.



WET END DISASSEMBLY

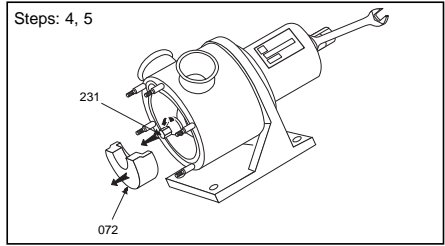
Steps: 1, 2, 3



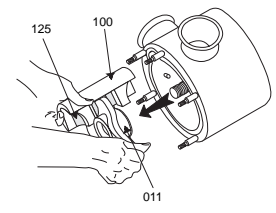
- Loosen and remove the wing nuts, item 441, and slide the front cover, item 400, off the studs, item 450. If necessary, a rubber mallet may be used to separate the cover from the pump housing by tapping on the front cover pins, item 420.
- Remove the scraper gate support, item 370, from the front cover. If the scraper gate support is stainless steel, remove the dynamic face o-ring, item 515, from the groove.
- The front cover o-ring, item 430, may now be removed from the groove in the pump housing face.

WET END DISASSEMBLY

- Remove the front liner, item 072, by pulling with even pressure on both ends.
- Remove the shaft nut, item 231. Wrench flats have been machined into the rear of the shaft to secure the shaft while loosening the nut. The rotor o-ring, item 030, can now be removed from the groove in the shaft nut.

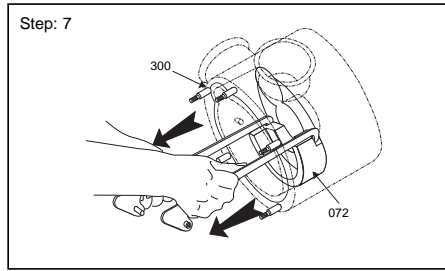


Step: 6



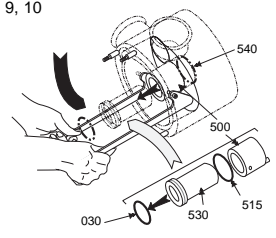
6. Next, the rotor, item 011, the scraper gate, item 125, and the scraper gate guide, item 100, can be pulled off the shaft and removed from the pump housing. **This will require two hands.**

- Remove the rear liner, item 072. This is where the liner/seal housing removal tools will be helpful. Insert the hooked ends of the liner pullers into the slots located on each end of the liner. Again, apply even pressure on both ends to prevent the liner from lodging in the pump housing.



Step: 7

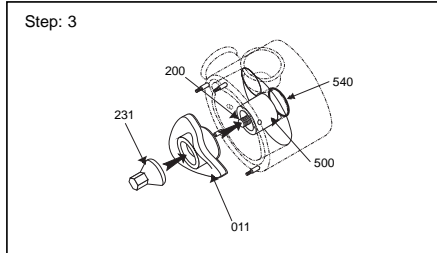
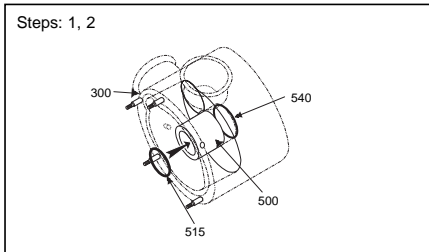
Steps: 8, 9, 10



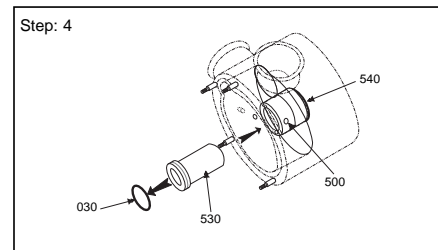
- The seal housing, item 500, along with the shaft sleeve, item 530, may now be removed from the pump housing, using the pinned end of the removal tools. Insert the pins on the pullers into the holes in the outer diameter of the seal housing, located 180 degrees from each other and lever the seal housing out of the pump housing. If the seal housing is stainless steel, remove the dynamic face o-ring, item 515, from the groove.
- Remove the shaft sleeve, item 530, from the seal housing. The rotor o-ring, item 030, may then be removed from the groove in the flanged end of the shaft sleeve.
- Next, remove the seal housing o-ring, item 540, from the groove in the rear of the pump housing. A small notch has been machined into the rear bore of the pump to facilitate this.

WET END ASSEMBLY

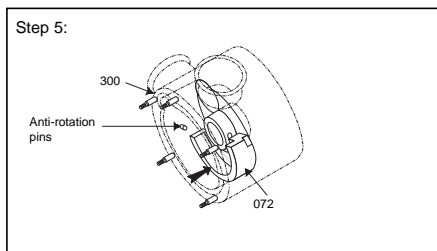
1. Lubricate the seal housing o-ring, item 540, with a food grade grease and insert it into the groove at the rear of the pump housing.
2. If the seal housing, item 500, is stainless steel, place the dynamic face o-ring, item 515, into the groove on the the seal housing face. Again apply a food grade lubricant to the o-ring. Then place the seal housing over the shaft and into the rear bore of the pump housing with the removal holes exposed. **If the seal housing is stainless steel, the anti-rotation pin located at the rear must be properly located into the slot in the rear of the pump housing.**



3. To properly seat the seal housing, place the rotor, item 011, and shaft nut, item 231, onto the shaft and tighten the nut until the seal housing is forced past the seal housing o-ring. **Remove the rotor and shaft nut from the shaft before proceeding.**

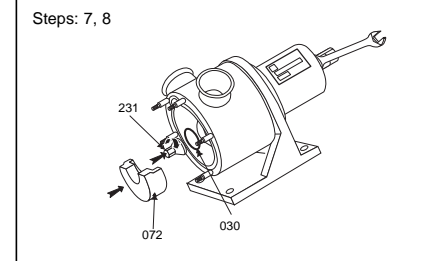
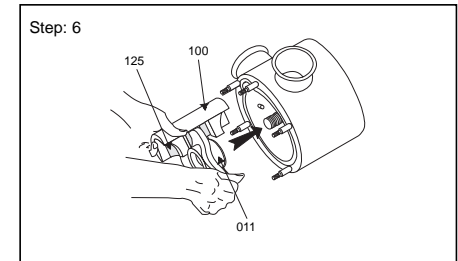


4. Apply a food grade lubricant to one of the rotor o-rings, item 030, and place it into the groove on the shaft sleeve, item 530. Next lubricate the O.D. of the sleeve and place it over the shaft and into the seal housing.



5. Install one of the liners, item 072, into the pump housing and locate it between the anti-rotation pins on the I.D. of the pump housing as shown. Apply even pressure at both ends to prevent the liner from lodging in the pump housing.

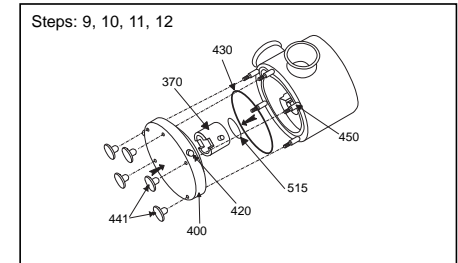
6. Place the scrapergate, item 125, into the scrapergate guide, item 100, being sure that the marked ends (SL and SR) match up properly. **See Appendix 2 in the instruction manual for detailed description of scrapergate/scrapergate guide orientation.** With the scrapergate and guide in the desired orientation, place the assembly onto the rotor, item 011, fitting the "slot" over the rotor vane. **With two hands,** insert the three piece assembly into the pump by placing the scrapergate guide into the bore between the nozzles and fitting the rotor over the splined section of the shaft. Once the rotor meets the o-ring on the shaft sleeve, apply extra pressure to seat the o-ring properly.



7. Apply a food grade lubricant to the other rotor o-ring, item 030, and place it into the groove on the shaft nut, item 231. Place the shaft nut onto the shaft and firmly tighten. Wrench flats have been machined into the rear of the shaft to secure the shaft while tightening the nut.

8. Install the remaining liner, item 072, into the pump housing and locate it between the anti-rotation pins on the I.D. of the pump housing as shown. Apply even pressure at both ends to prevent the liner from lodging in the pump housing.

9. Apply a food grade lubricant to the front cover o-ring, item 430, and place it into the groove on the pump housing face.
10. If the scrapergate support, item 370, is stainless steel, lubricate the dynamic face o-ring, item 515, and place it into the groove on the end of the support. Next, place the scrapergate support into the center bore of the front cover, item 400, slotted end first. **If the support is stainless steel, be sure the anti-rotation pins fit into the relief slots in the cover.**



11. Place the front cover and scrapergate support assembly onto the pump housing by aligning the studs, item 450, with the corresponding holes in the cover. Front cover pins, item 420, have been provided to facilitate this.
12. Install the wing nuts, item 441, and hand tighten. The wing nuts may be tightened further with a rubber mallet.