KMTNet R2000
Rigid Coupling
Field Replacement
Procedure

R2000 Rigid Coupling Kit Parts, Materials, Tools

- Water pump pre-assembled with Rigid coupling, tangent arm, levelling pad, suction & bypass tubing
- McMaster Carr # 6412K14 Steel Black Oxide Rigid Coupling,

½" to ½" shafts with ¼-20 setscrews (Pre-assembled to water pump)

- 30 " long 3/8" hose
- P-Clips

- 1/8" allen wrench for ¼-20 coupling hub setscrews
- 5/32" allen wrench for fan hub setscrew

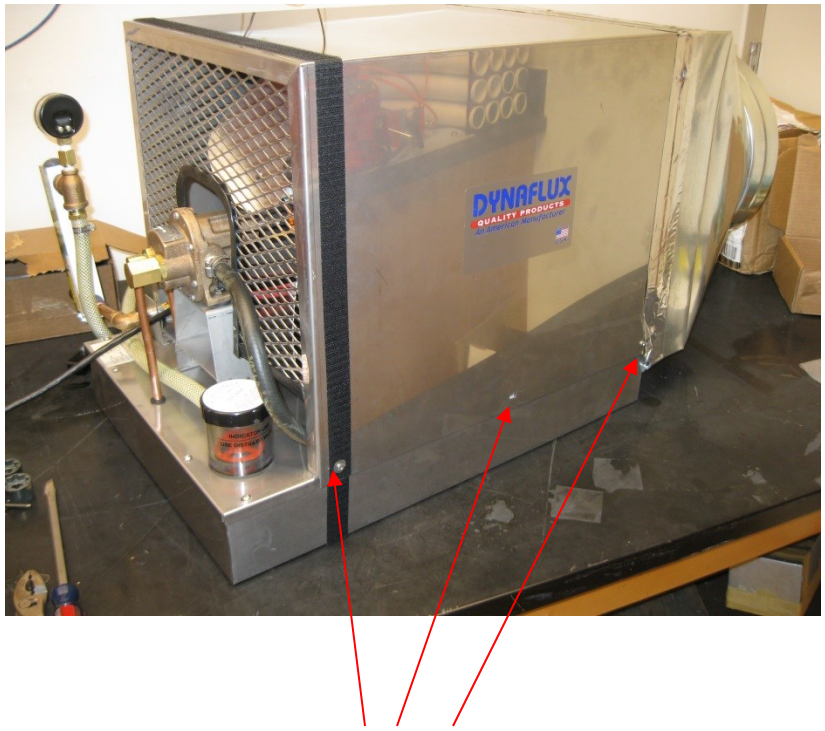
- 7/16" combination wrench for motor and pump hex head bolts

Notes

- This procedure describes the installation of the replacement R2000 water pump/coupling with a new water pump/rigid steel coupling. This new assembly uses a “tangent arm” to counteract the water pump torque.
- The advantage of this new design is that it does not require exceptional alignment between the fan motor and the water pump and there are no rubber parts to deteriorate
- The new water pumps have a heavier bypass spring installed with the bypass relief pressure pre-set to 70psi.
- The new water pump assembly has flexible hose sections in the suction line and the bypass line to permit some motion of the water pump. (This will prevent the type of copper tube fatigue that was seen at CTIO with the old rigid copper suction line)

Remove R2000 Stainless Cover

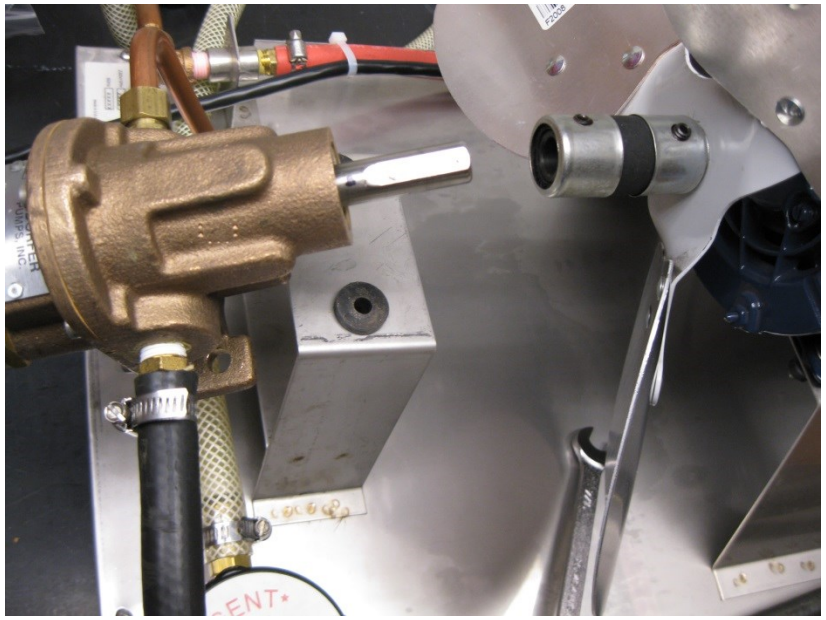
- Remove the rubber from the stainless steel R2000 cover by stripping back at Velcro strips
- Remove 6 Phillips head sheet metal screws
- Remove sheet metal cover and set aside



Phillips head screws

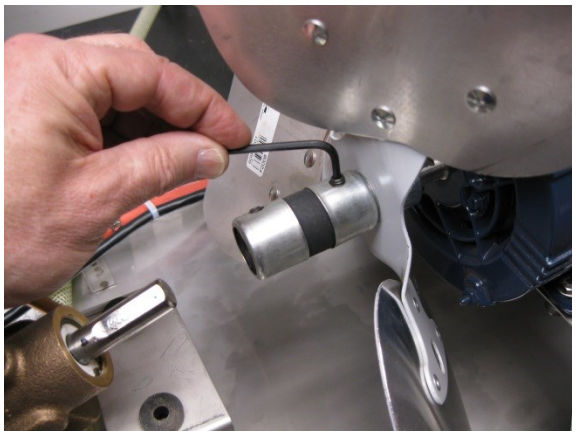
Loosen Water Pump

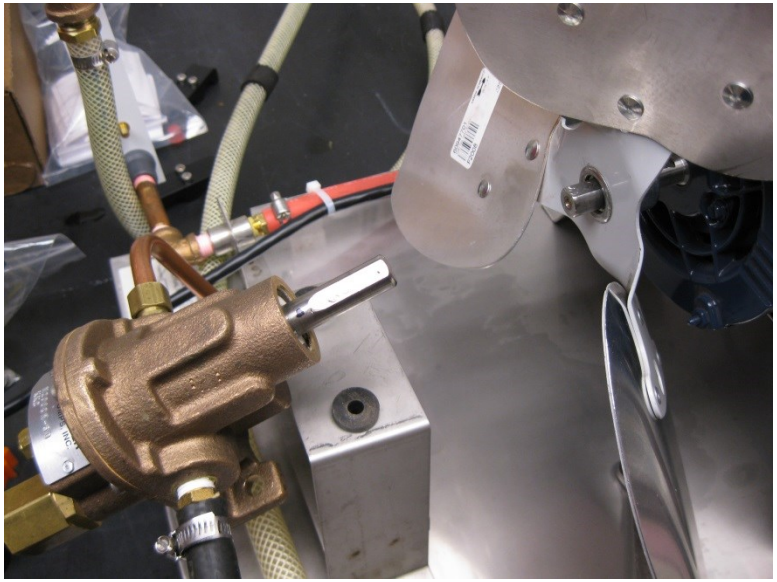
- Remove the two hex head bolts that hold the water pump to the stainless steel bracket
- Loosen setscrew of old coupling on pump shaft
- Slide water pump away from the motor/fan as shown



Remove old coupling

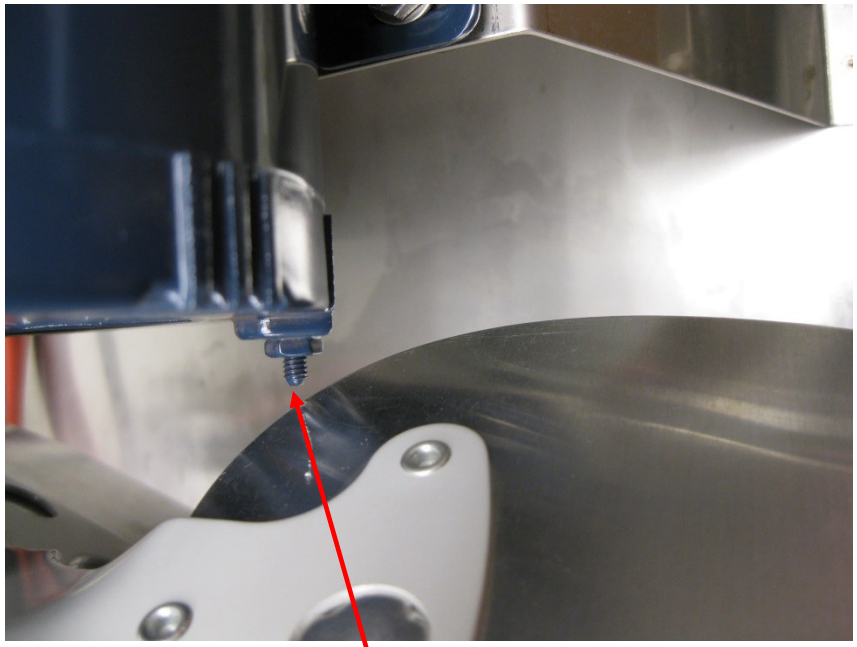
- Remove the old rubber shaft coupling from the motor/fan
- Inspect the shafts for any damage like heavy scratches.
- Use a file to smooth any nicks or heavy scratches
- Note: some units have the different orange urethane couplings





Check Fan Blade/motor clearance

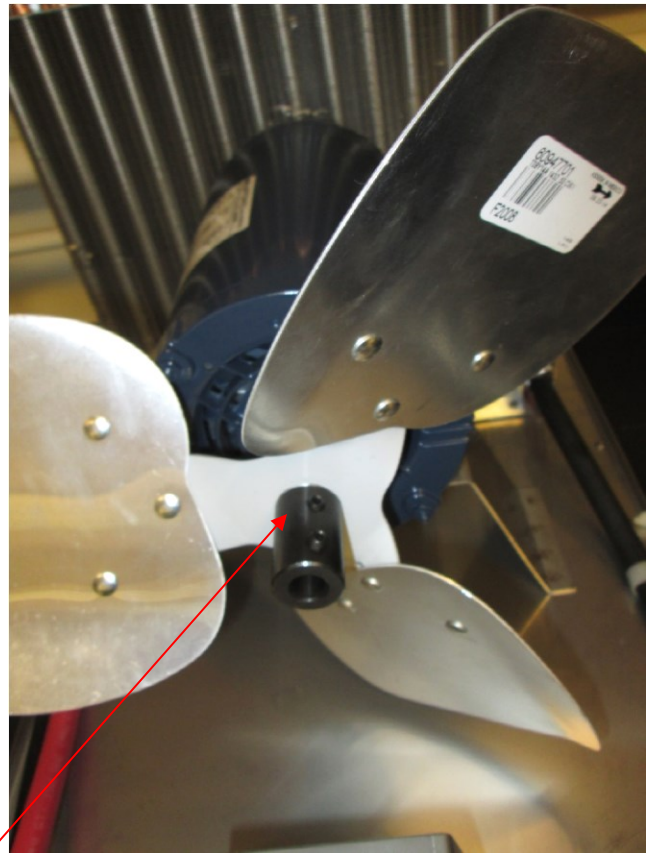
- Check that the fan blades have enough clearance to the motor screws (see Photo)
- If the fan blades are hitting the motor screws, loosen the fan setscrew and slide it on the shaft away from the motor
- Clearance should be at ~3mm
- Check & Tighten the fan setscrew on the motor shaft



Fan blade to Screw clearance ~ 3mm

Install Rigid shaft coupling

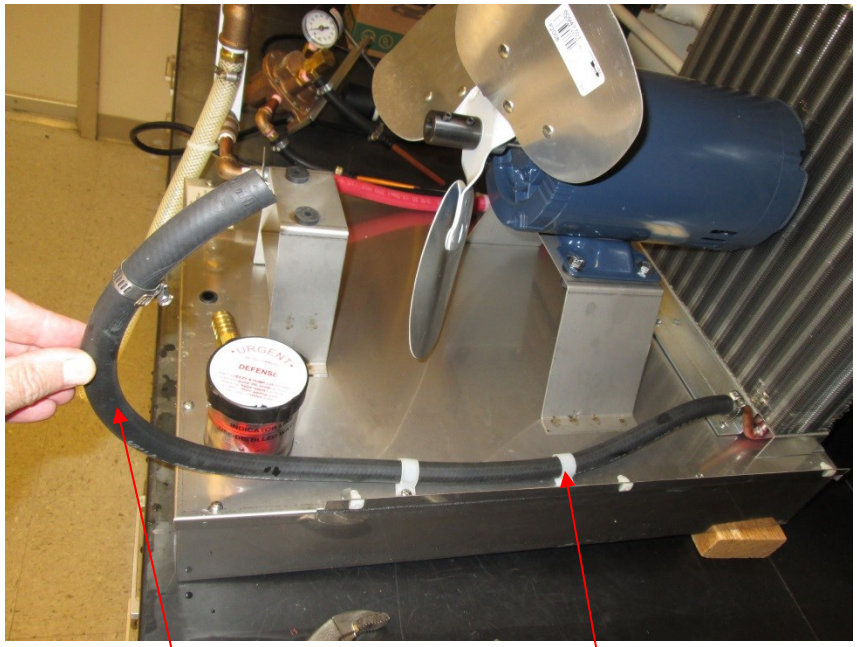
- Align Rigid Coupling setscrew with flat on motor shaft
- Slide Rigid Coupling onto motor/fan shaft as far as it will go. Coupling should be in contact with fan hub as shown.
- Tighten setscrew with 1/8” allen wrench



Rigid coupling on Motor shaft

Install 3/8” hose

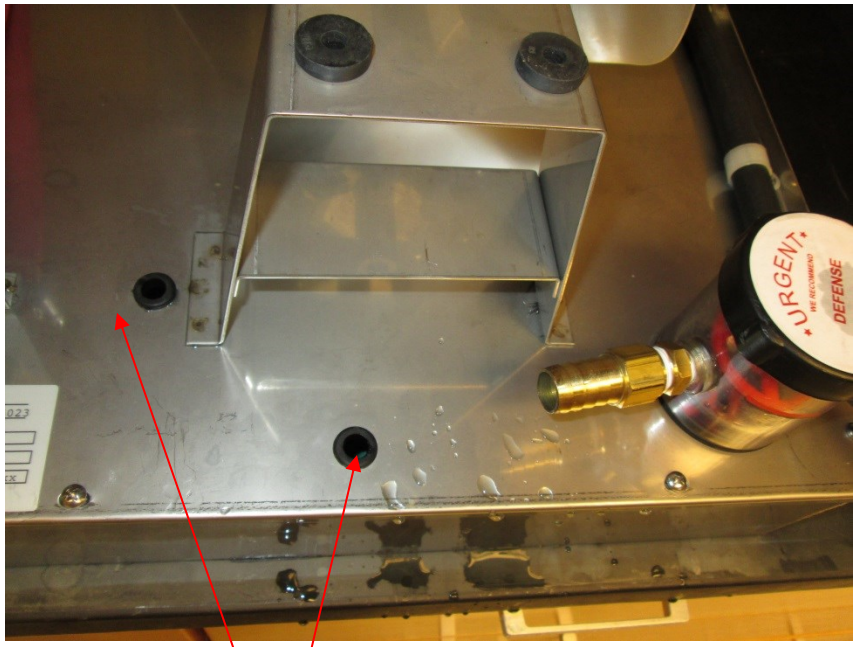
- Install 30” long 3/8” hose to heat exchanger
- Tighten hose clamp
- Route hose through 2 P-clips as shown
- The P-clips use the sheet metal screws of the reservoir to hold them in place
- The P-clips are important to prevent the hose from getting cut by the fan blade.



30” long 3/8” hose though P-clips

Check Grommets

- Check that rubber grommets are placed in stainless glycol reservoir
- There are spare grommets on the pump hose copper lines if required. Leave them on the copper lines.



Rubber Grommets

Install Water Pump & hoses

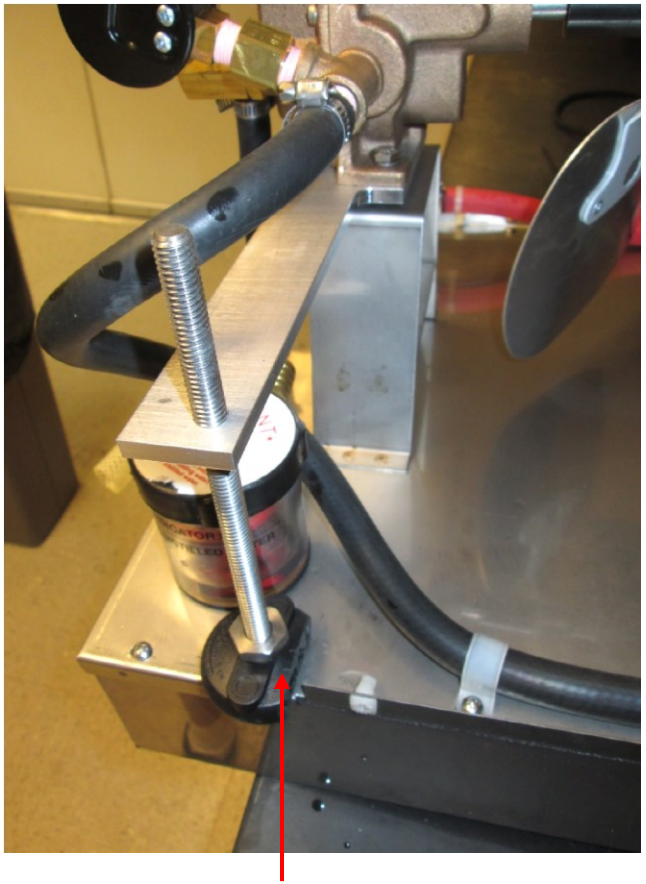
- Lift water pump assembly onto pedestal
- Push copper tubes for suction line and bypass line through the two rubber grommets
- Align pump shaft flat with coupling setscrew
- Insert pump shaft into rigid coupling as far as it will go
- Tighten setscrew on coupling
- NOTE: **DO NOT** INSTALL THE HEX HEAD BOLTS FOR THE WATER PUMP!

Install Water Pump & hoses

- NOTE: **DO NOT** INSTALL THE HEX HEAD BOLTS FOR THE WATER PUMP! They are not needed with tangent arm design
- Rotate coupling by hand to confirm smooth rotation

Align flat on tangent arm

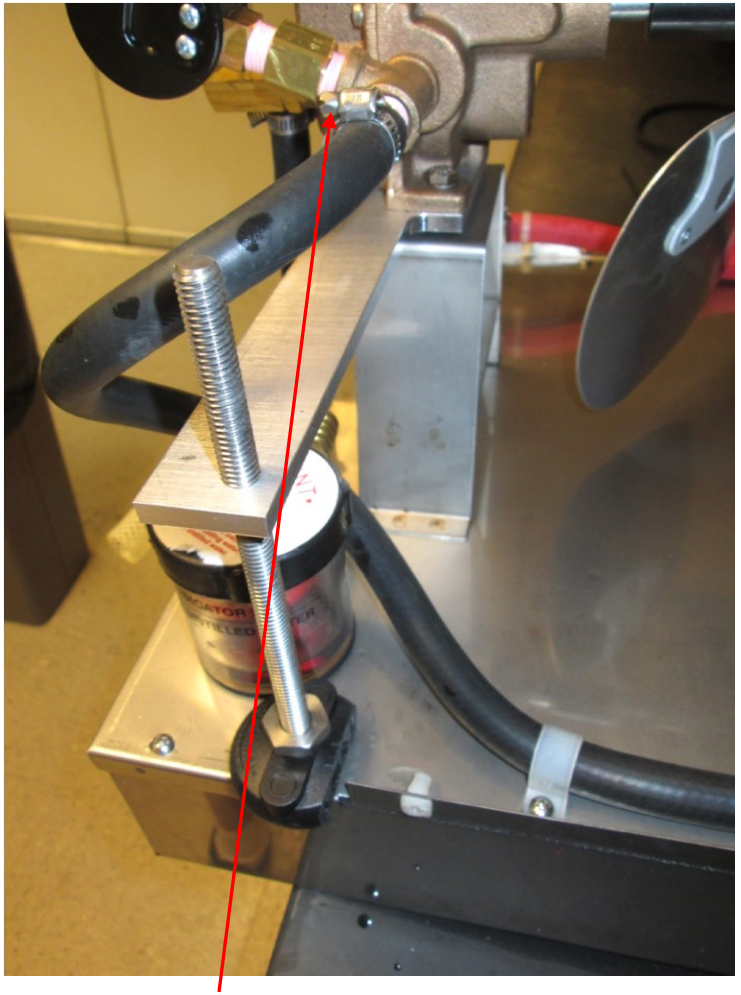
- Align the flat on the tangent arm rubber pad so that it does not interfere with the cover



Flat on rubber pad

Route & Attach 3/8” Hose

- Route the 3/8” hose around the sight glass and tangent arm as shown
- Attach 3/8” hose to pump output
- Tighten hose clamp
- Be sure that screw on hose clamp is facing away from cover

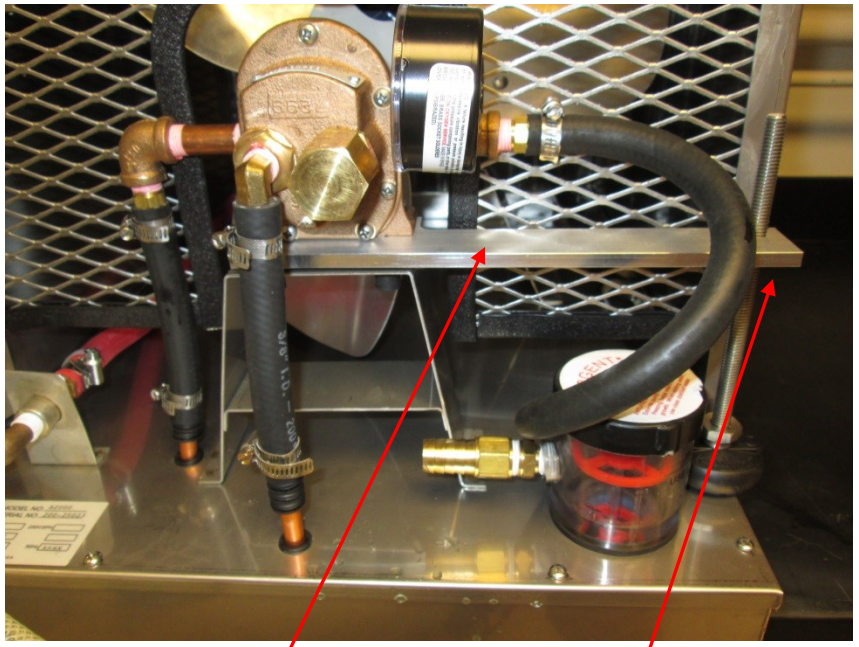


Tighten hose clamp,

Screw away from cover

Level the tangent arm

- Level the tangent arm by adjusting threaded levelling pad. Tangent arm should be parallel to the reservoir top surface
- Tighten the hex nut on bottom of levelling pad to lock it in place
- Confirm that the pump shaft and tangent arm are free to rotate

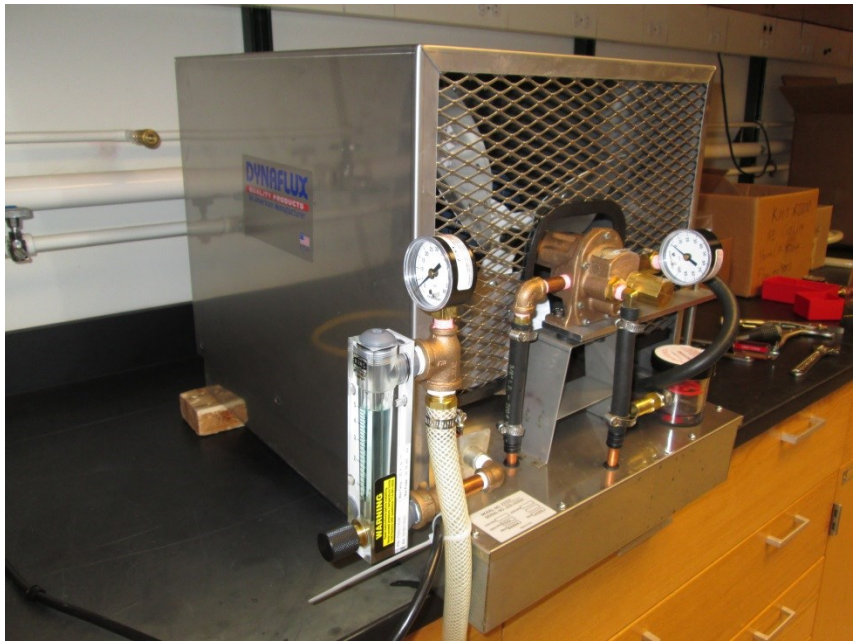


Install Cover

- Place Cover onto reservoir
- Secure cover with 6 sheet metal screws
- Check that cover is not interfering with operation of tangent arm and that tangent arm is free to move
- Bend screen part of cover away from tangent arm if required

Final Inspection

- Re-confirm smooth operation of tangent arm
- Inspect for any loose parts or tools inside the cover



Test Operation

- Clear all loose tools and hardware from work area
- Stand far from the unit to run it
- Plug R2000 into the APC power strip and let it run
- Check for smooth operation and low vibration of the water pump
- Unplug R2000

Finished