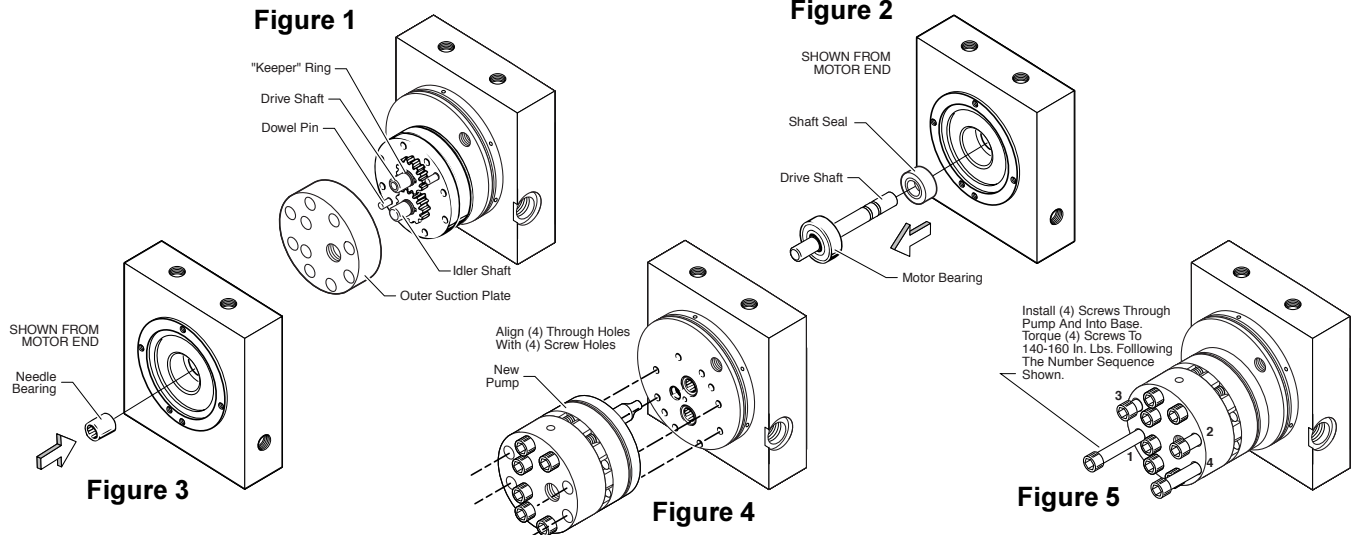




Monarch Hydraulics, Inc.

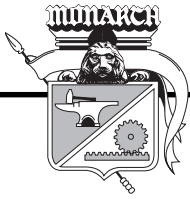
Instructions for Installing AC Modular Pump on Existing Units

1. Remove motor and pump motor adapter from unit.
2. Discard pump drive shaft end of lovejoy coupling. A new coupling half is supplied in your new kit.
3. Remove pump from reservoir by loosening the (6) screws or loosening the band clamp.
4. Note the orientation of the tubes in the old pump. Remove the suction tube and screen assembly.
5. Disassemble the old pump by loosening the (10) screws that hold the pump to the base. Once loose, remove the outer suction plate.
6. Using a small screwdriver, remove the "keeper" ring from the drive shaft. This holds the gear on the shaft. Remove the gear and then the second "keeper" ring. You can now pull or tap the drive shaft out of the base (**Figure #1**)
7. Remove the idler shaft and gear and discard both. You do not need to remove the "keeper" rings to do this.
8. **IMPORTANT:** There are two shaft holes in the base, one goes all the way through (drive shaft) and one does not (idler shaft). Remove all loose needle bearings from the idler shaft hole and throw the bearings away, as they are not needed with the new pump. You will need to reinstall the needles in the drive shaft hole. There are twenty-four (24) needles in the bearing. Coat the needle bearings with grease and place them back in the bearing housing in the drive shaft hole that goes all the way through. Newer units should have caged bearings; if the bearings are "caged" do nothing with them.
9. Remove (2) dowel pins from pump base and wipe the surface of the base clean, removing oil, dirt, etc..
10. Remove old shaft seal (**Figure #2**) from the base. Remove and discard the motor bearing from the drive shaft, or base.
11. Press needle bearing provided in your kit into the base from the motor end (**Figure #3**). There will now be two (2) needle bearings in the drive shaft hole. This second needle bearing eliminates the need for the motor bearing on the old drive shaft.
12. Install new pump to base by aligning (4) through holes in new pump with proper screw holes in the base (**Figure #4**). Drop (4) new screws provided with pump kit into the holes. Start screws by hand – no air tools.
13. Torque (4) provided screws to between 140 and 160 inch pounds (**Figure #5**). Follow the number sequence shown. **IMPORTANT:** Do not over tighten! Do not tighten any screws in the pump other than the (4) provided loose in the kit.
14. Install new shaft seal into base after putting a small amount of grease on the drive shaft to help it slide through.
15. Screw suction tube/screen assembly into new pump's suction plate. Make sure orientation is the same as it was on old pump.
16. Steel Reservoirs: Align the reservoir screw holes with those in the pump base while sliding them together, making sure O-ring is properly installed on pump base. A pinched or deformed seal may result in leaking. You may need to tap the pump in with a rubber mallet. Insert (6) tank screws and tighten.
Plastic Reservoirs: Slide band clamp over reservoir collar, then slide pump base into reservoir collar, making sure O-ring is still properly installed on pump base. A pinched or deformed seal may result in leaking. Make sure suction tube assembly is pointing to the bottom of the reservoir.
17. Re-attach pump motor adapter and motor. Tighten lovejoy coupling making sure to leave 1/16" to 1/8" space between coupling halves.



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Monarch Hydraulics, Inc.

Instructions for Installing Modular Pump on Existing Unit

1. Remove pump from reservoir by loosening the (6) screws or loosening the band clamp. Note the orientation of the suction screen and tube assembly on the old pump.
2. Loosen (10) pump screws in old pump.
3. Pull old pump off after loosening the (10) screws.
4. **IMPORTANT:** There are two shaft holes in the base, one goes all the way through (drive shaft) and one does not (idler shaft). Remove all loose needle bearings from the idler shaft hole and throw them away, as they are not needed with the new pump. You will need to reinstall the needles in the drive shaft hole. There are twenty-four (24) needles in each bearing. Coat the needle bearings with grease and place them back in the bearing housings in the drive shaft hole that goes all the way through. If the bearings are "caged" do nothing with them.
5. Remove (2) dowel pins from the pump base.
6. Wipe surface of the base clean, removing old oil, dirt, etc.
7. Replace 00120 O-ring provided in pump kit. **(See Figure #1)**
8. **IMPORTANT:** Place a small amount of grease on the tang of the drive shaft. This will help the tang slide past the shaft seal in the pump base without damaging it. Carefully slide the pump into place.
9. Align (4) through holes with (4) empty screw holes in the pump. **(See Figure #2)**
10. Drop the (4) screws provided in the pump kit into the holes. The screws should be started by hand -- no air tools.
11. Torque (4) provided screws to between 140 and 160 inch pounds. **(See Figure #3)**
IMPORTANT: Do not over tighten! Do not tighten any other screws in the pump other than the (4) provided loose in the kit.
12. If you removed the motor, turn the drive shaft with a pair of pliers to ensure it turns freely after you have tightened the screws.
13. Remove the suction tube and screen assembly from the old pump's suction plate and install it in the new suction plate.
14. Slide the pump assembly back into the reservoir collar, making sure that the tank O-ring is properly installed. A pinched or deformed seal may result in leaking. Make sure that the suction tube assembly is pointing to the bottom of the reservoir. Align the reservoir screw holes with the screw holes in the base while sliding them together. You may need to tap on the base with a rubber mallet to get it into the reservoir collar.
15. Replace (6) tank screws and tighten. If you have a plastic reservoir, tighten the band clamp.

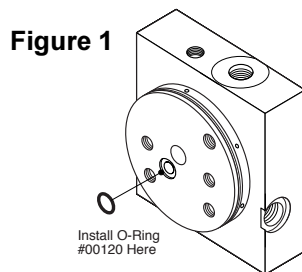


Figure 1

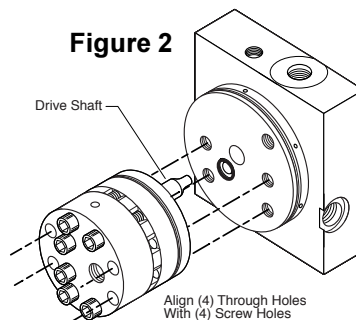


Figure 2

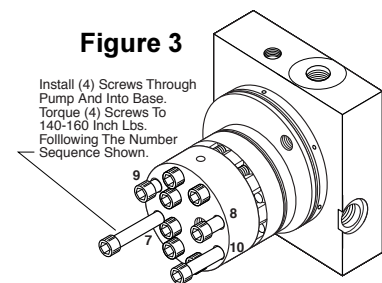


Figure 3



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Litho in U.S.A.

Instructions for installing i-Pump on Existing Unit

1. Remove reservoir by loosening the (6) screws or loosening the band. Note the orientation of the suction screen and tube assembly on the old pump.
2. Loosen (10) pump screws in old pump.
3. Pull old pump off after loosening the (10) screws.
4. **Important:** There are two shaft holes in the base, one goes all the way through (drive shaft) and one does not (idler shaft). There is a possibility of two bearings in the base, "Cage less" or "Caged". If "cage less", remove all loose needles from the idler shaft bearing and throw them away, as they are not needed with the new pump. There needs to be (24) needles in the drive shaft bearing. Coat the needle bearing with grease. If the bearings are "caged" bearings, do nothing with them.
5. Remove (2) dowel pins from the pump base.
6. Wipe surface of the base clean, removing old oil, dirt. Etc.
7. Replace 00120 O-ring provided in pump kit.
8. Install (2) dowel pins-17018 provided in pump kit.
9. Place the Jackshaft in place. **Important:** Place a small amount of grease on the tang of the jackshaft. This will help the tang slide past the shaft seal in the pump base without damaging it. While installing, turn jackshaft into base and through shaft seal. Turn shaft by hand to engage into motor. Make sure the Jackshaft slot is in vertical or horizontal position for easy alignment of the pump drive shaft.
10. Align the drive shaft tang with the jackshaft slot. Position pump on the base by locating with the dowel pins. Make sure that the suction of pump is installed opposite of O-ring in base.
11. Drop the (4) screws provided in the pump kit into the holes. The screws should be started by hand - no air tools!
12. Torque (4) provided screws to between 140 and 160 inch pounds. **Important: Do not over tighten.** Do not tighten any other screws in the pump other than the (4) provided loose in the kit.
13. If you remove the motor, the jackshaft can be installed from the motor end after the pump is installed onto base. Turn the jackshaft with a pair of pliers to ensure it engages into pump.
14. Remove the suction tube and screen assembly from the old pump suction plate and install it in the new pump suction port. Make sure of the orientation.
15. Slide the pump assembly back into the reservoir collar, making sure that the tank O-ring is properly installed. A pinched or deformed seal may result in leakage. Make sure that the suction tube assembly is pointing to the bottom of the reservoir. Align the reservoir screw holes with the screw holes in the base while sliding them together. You may need to tap on the base with a rubber mallet to get it into the reservoir collar. **DO NOT USE FORCE ON THE MOTOR IF THE MOTOR IS NOT REMOVED.**
16. Replace (6) tank screws and tighten. If you have a plastic reservoir, tighten the band clamp.

