VSX Double Suction Service

Always Think Safety!

Personal
- Your own
- Others’

Hydraulic

Electrical

System

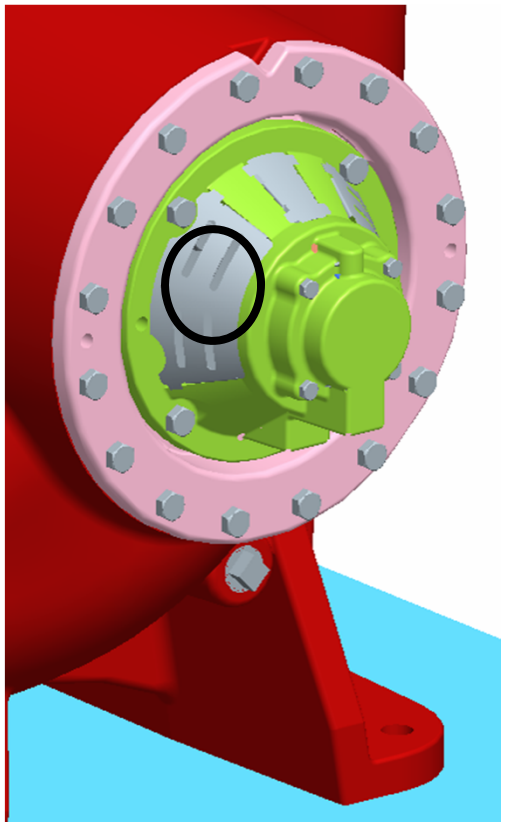
Work Environment

Shutdown

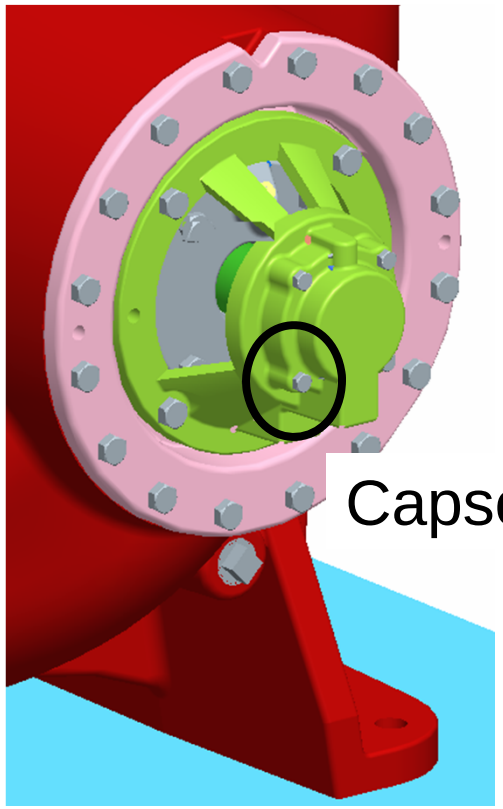
- Shut down and tag out the pump driver.
- Close and tag out the suction and discharge service valves.
  - Note Triple Duty Valve stem position.
- Close external flush lines if the pump must be drained.
- Open casing drains and vents.
- If necessary, allow the pump to cool down.

Remove bearing guards by springing them out of place.
Remove four capscrews from the bearing cap

Bearing Guards

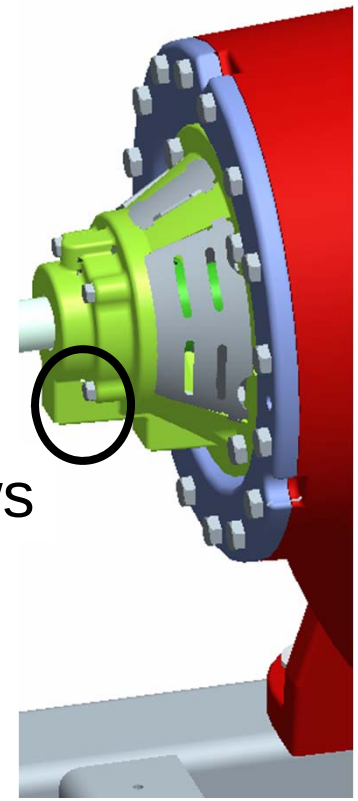


Outboard

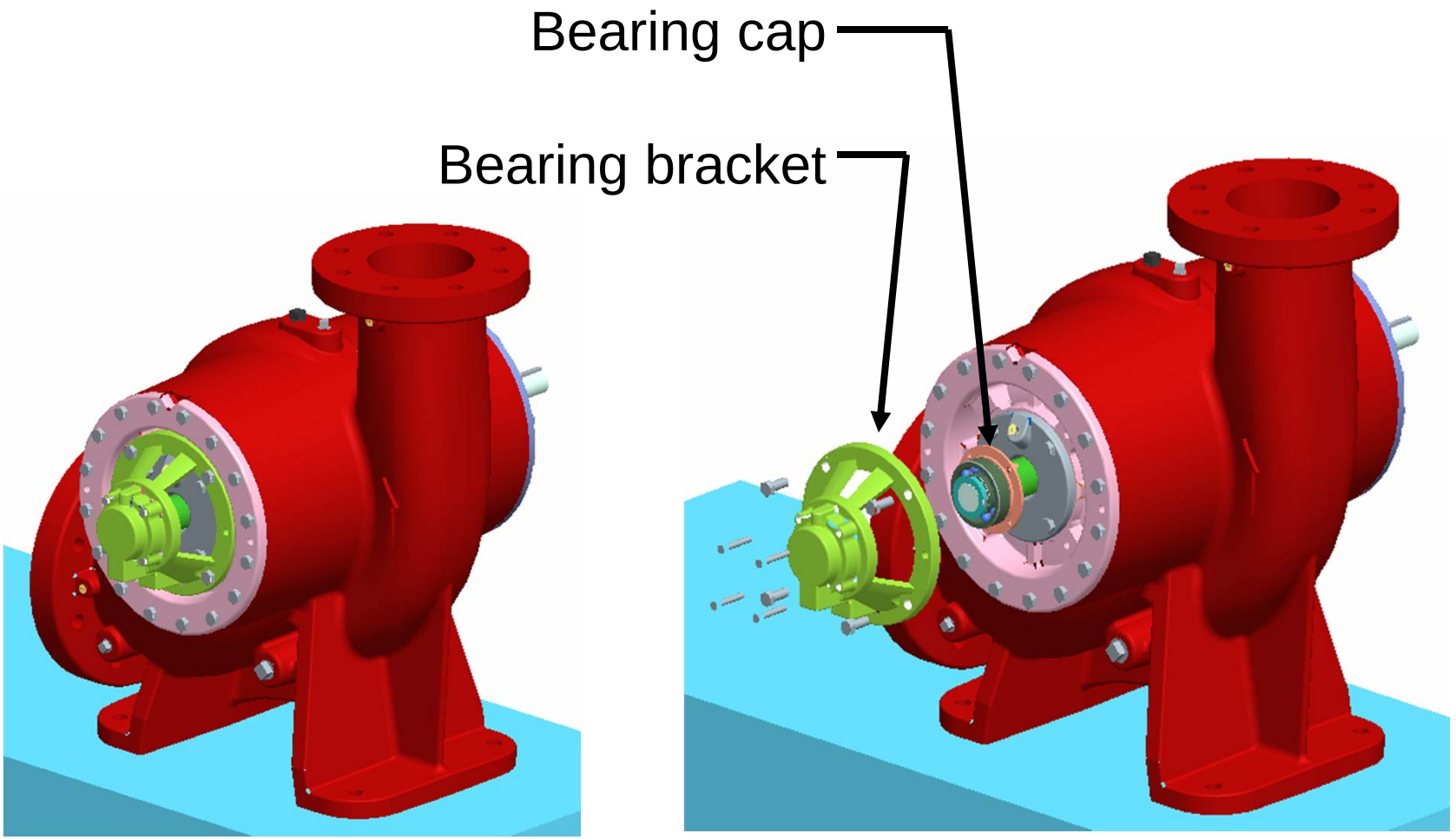


Capscrews

Inboard



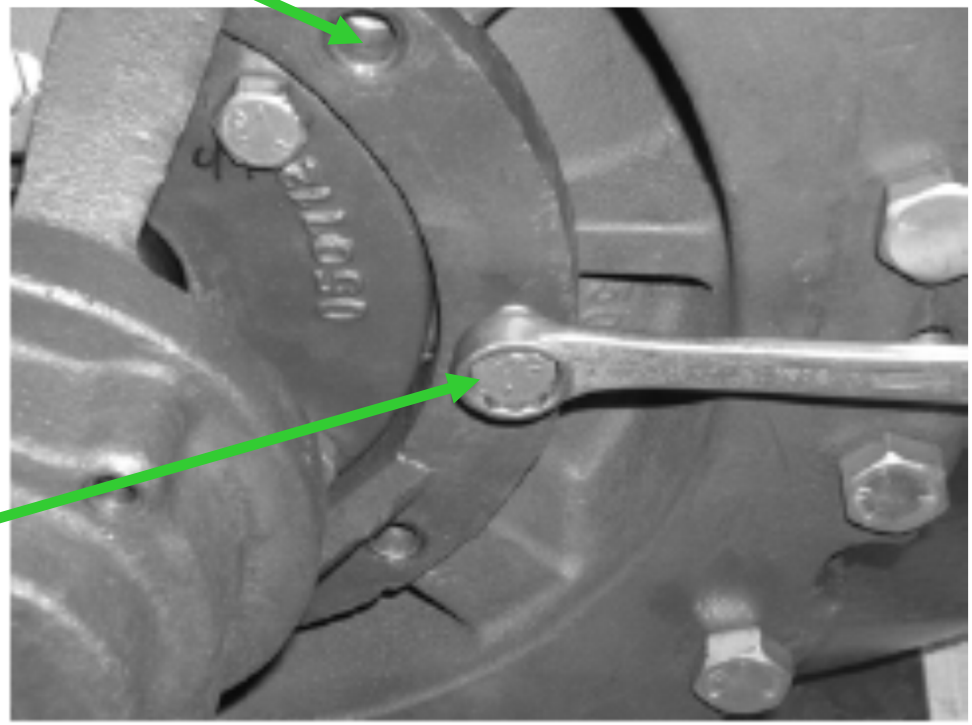
Remove four bearing bracket capscrews



Removing the Outboard Bearing Bracket

Capscrews removed

Note: Leave at least one capscrew engaged a few threads to keep the bracket from rotating while completing step below

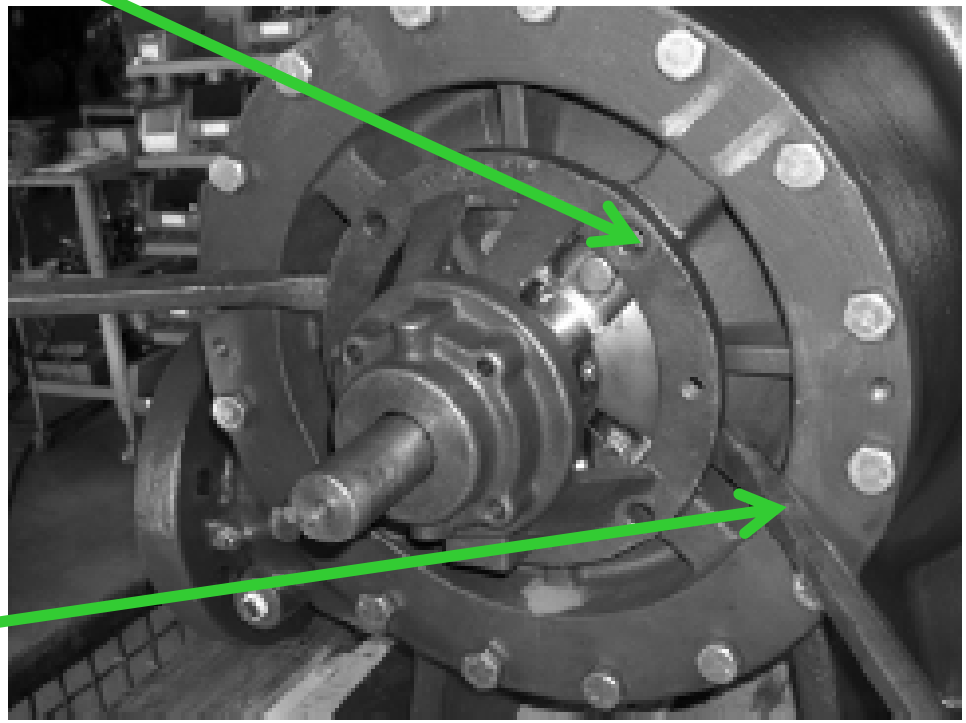


Use jacking screws or pry bars

Removing the Inboard Bearing Bracket

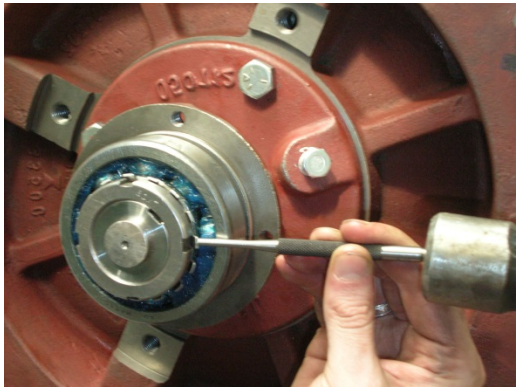
Capscrews removed

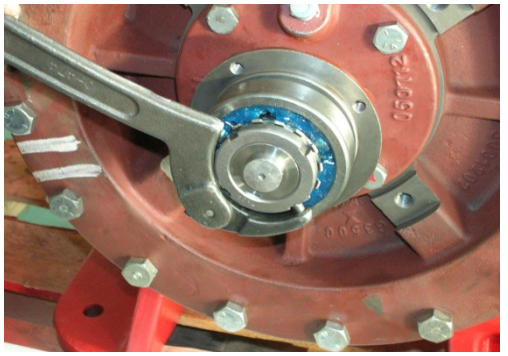
Note: Leave at least one capscrew engaged a few threads to keep the bracket from rotating while completing step below

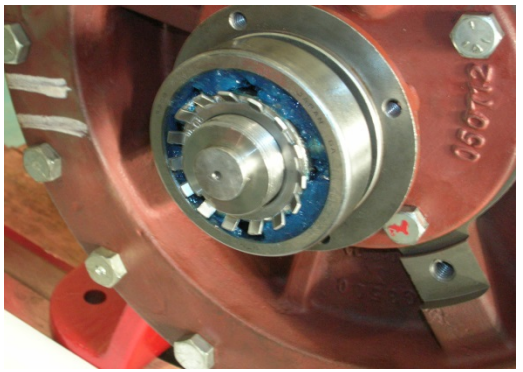


Use pry bars or jacking screws

- Bend back the lockwasher tab.
- Remove the locknut.
- Remove the lockwasher.

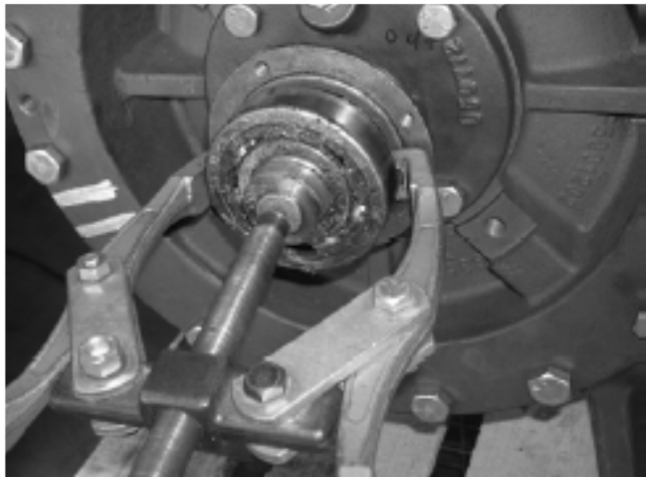




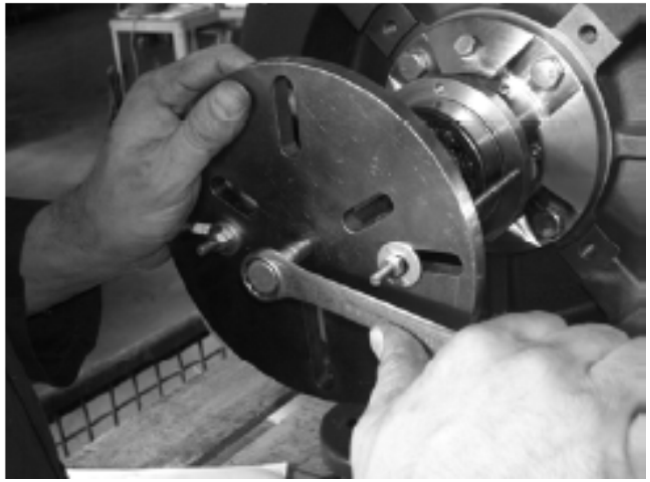


Remove the Bearing

Use a standard bearing puller for any size pump.

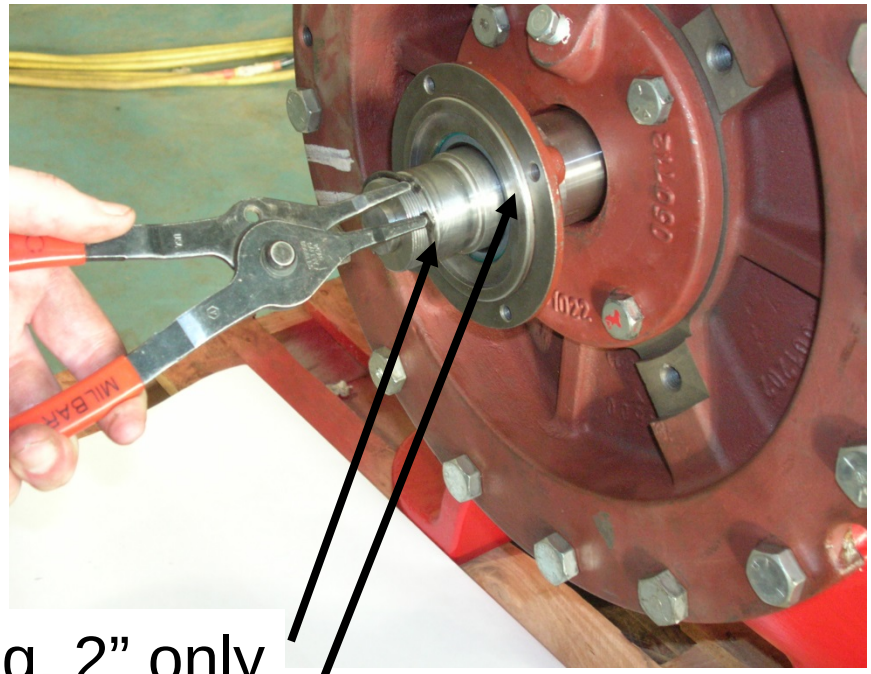


A Universal Fixture Kit, part # AC2394, is available for use on all except the 2” frame size.



For 2” Frame Pumps

- Remove the bearing back-up ring on:
  - 4x6x10.5
  - 5x6x10.5
  - 5x6x13.5
  - 6x8x10.5
  - 6x8x13.5
  - 8x10x10.5
- Use a snap ring wrench

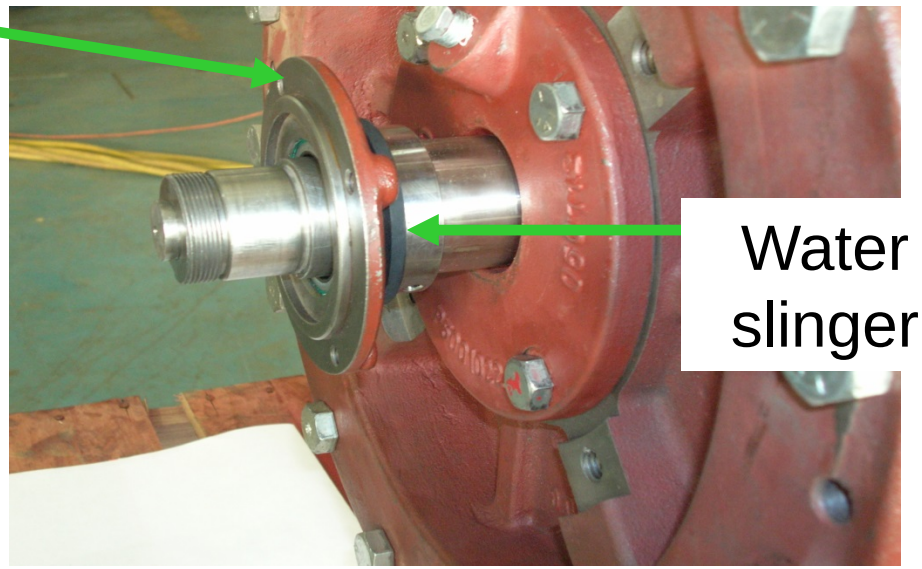


Bearing back-up ring, 2” only

Bearing cap, all sizes

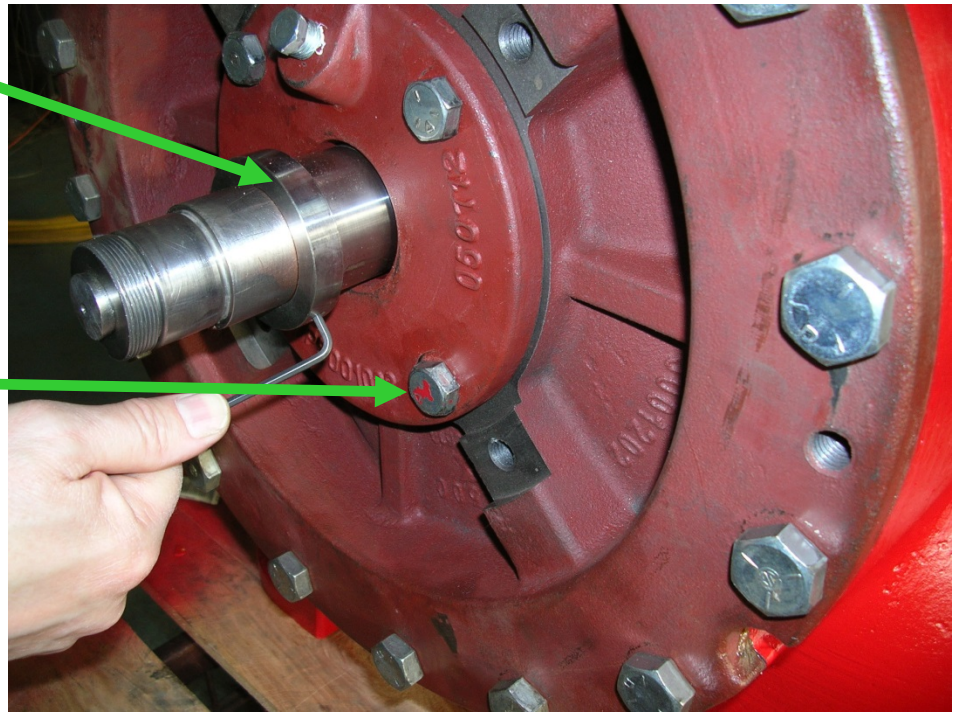
Remove Bearing Cap

- Slide the bearing cap off the shaft.
- Slide the water slinger off the shaft.



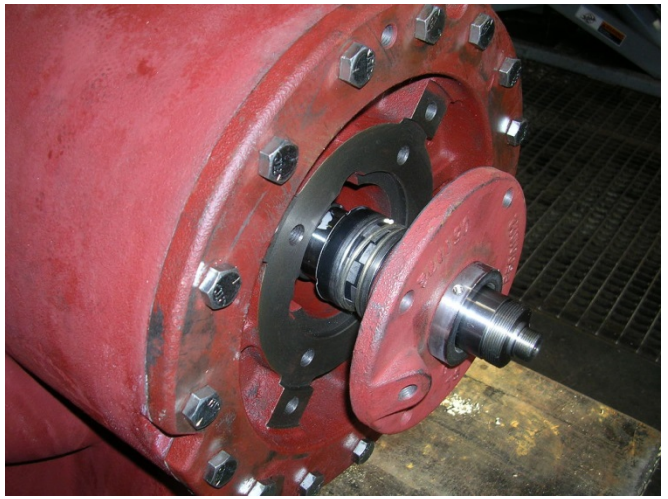
Removing the Seal

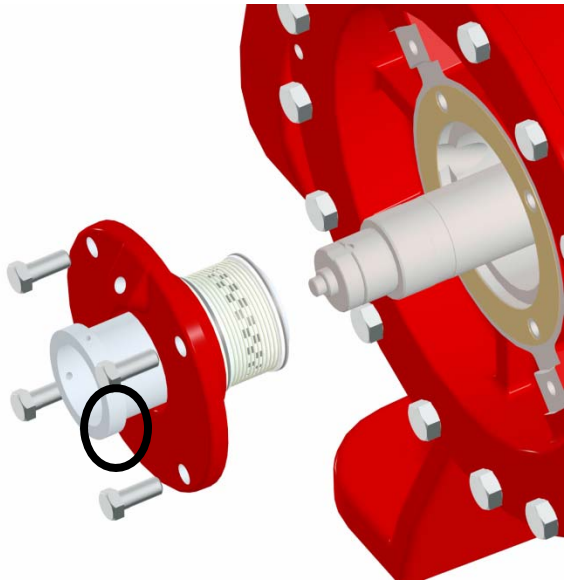
- Loosen set screws in the sleeve.
- Remove four gland assembly capscrews



Seal Removal

- Slide the gland assembly and sleeve off the shaft.
- A bearing puller may be used if necessary. It can be easily applied to the step in the shaft sleeve.
- Remove the gland gasket.





Step

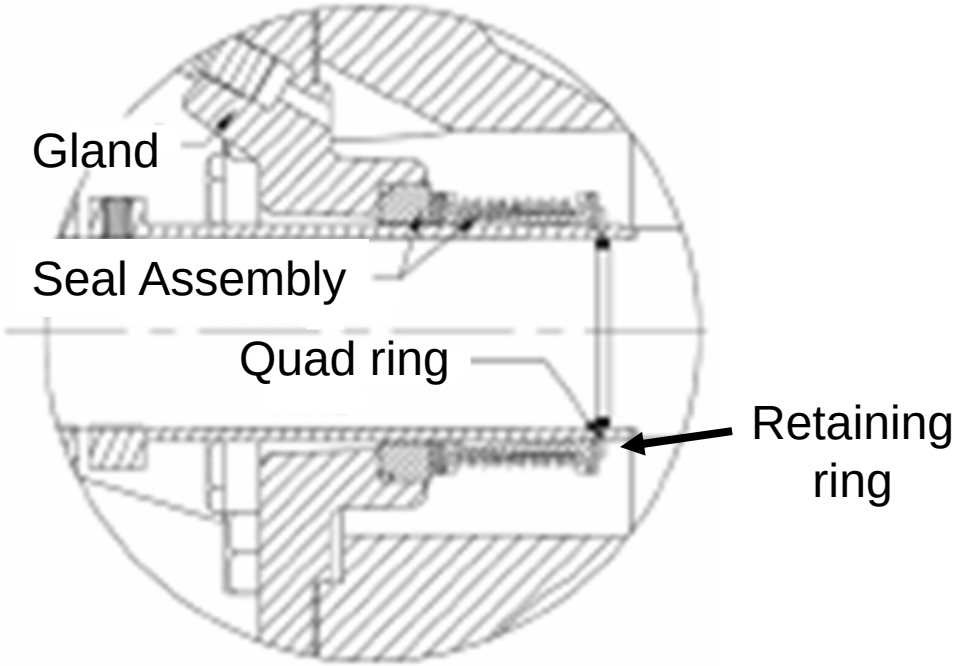
Seal Service

- Use a snap ring pliers to remove the retaining ring while pushing down on the seal head.
- Remove the seal head from the sleeve assembly.
- Slide the gland off the sleeve.

Seal Service

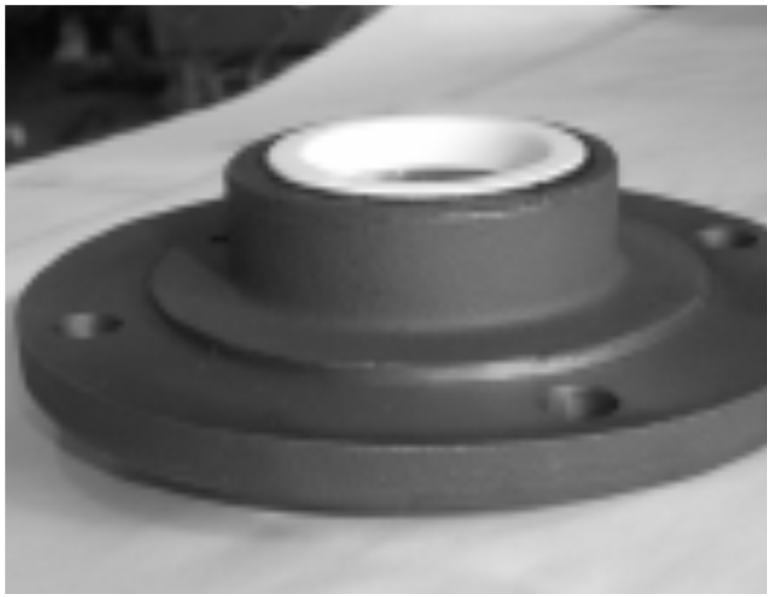
- Remove the stationary insert from the gland bore.

- Remove the quad ring from the shaft.



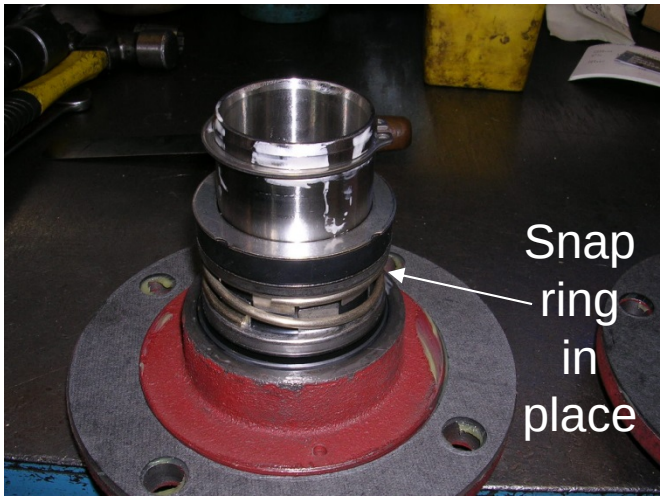
Seal Service

- Lubricate and press a new insert into the gland bore.
- Slide the gland over the shaft sleeve.
- Lubricate the sleeve.



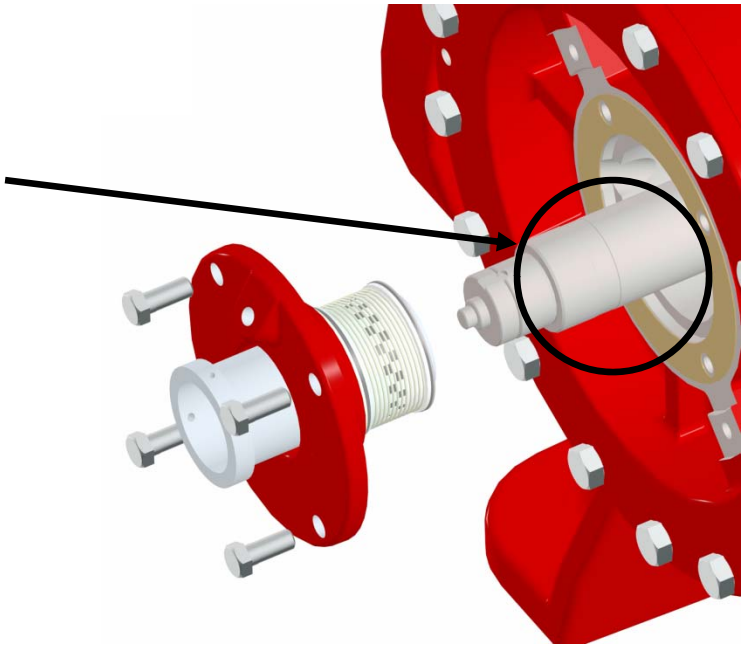
Seal Service

- Keep the seal faces clean.
- Press the mechanical seal over sleeve past the snap ring groove.
- Assemble snap ring to sleeve.



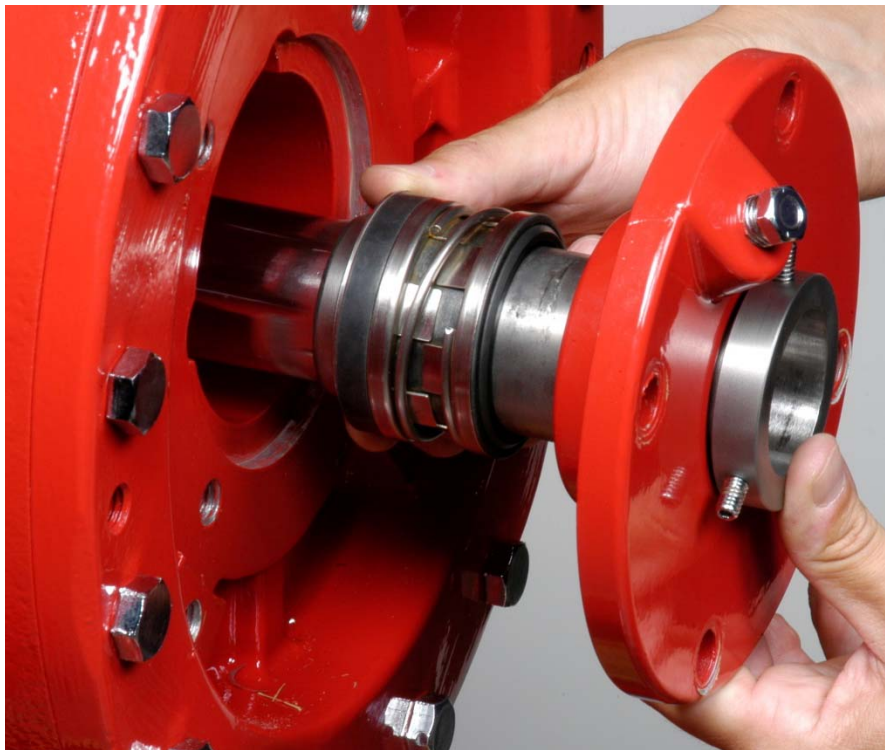
Anti-seize Compound

Apply Anti-seize Compound to this area of the shaft

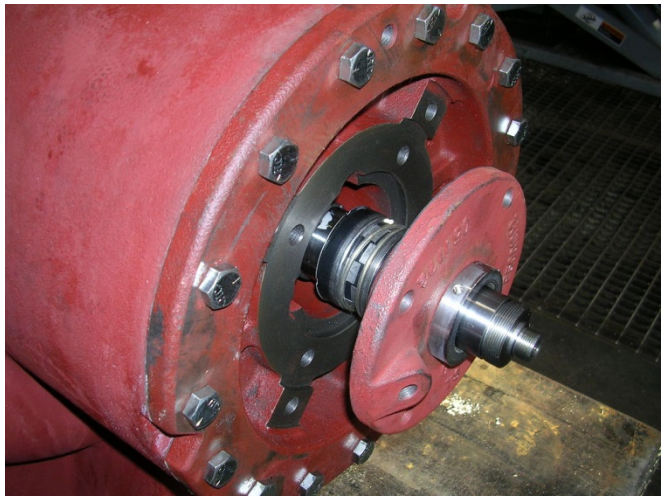


Assemble the Gland

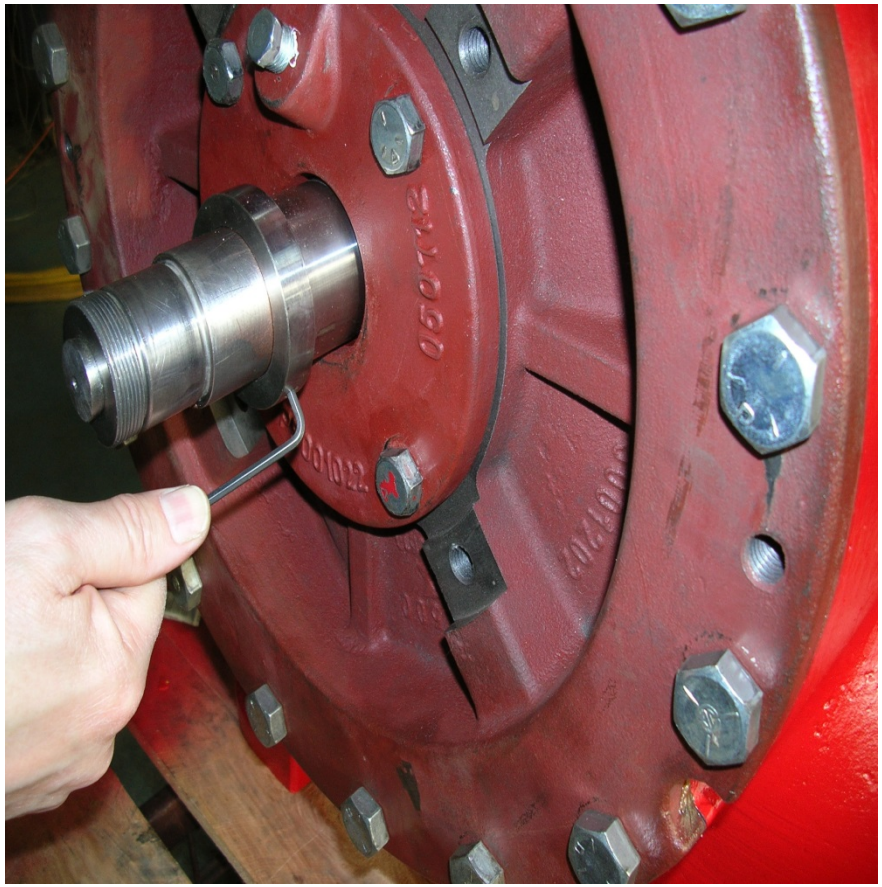
- Apply grease to a new gland gasket to hold it in place.
- Slide the gland assembly over the shaft until the sleeve bottoms out on the shaft shoulder.
- Be careful as the sleeve slides over the quad ring.



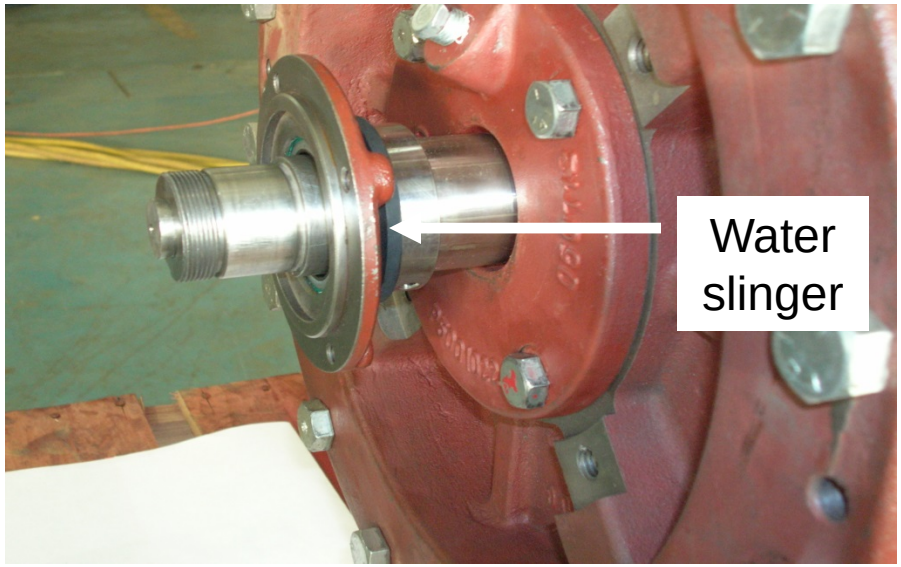
- Slide seal/sleeve assemblies on to shaft – be careful not to damage Quad rings



- Install set screws in shoulder of sleeve and tighten sleeve to shaft
- Note: Push sleeve until it stops against shaft shoulder
- Set screws engage groove in shaft
- Torque both set screws to 50 in-lbs



- Install four gland capscrews.
- Tighten sleeve set screws to 50 inch-lbs.
- Slide water slinger over shaft.
- Prepare bearing cap for installation.



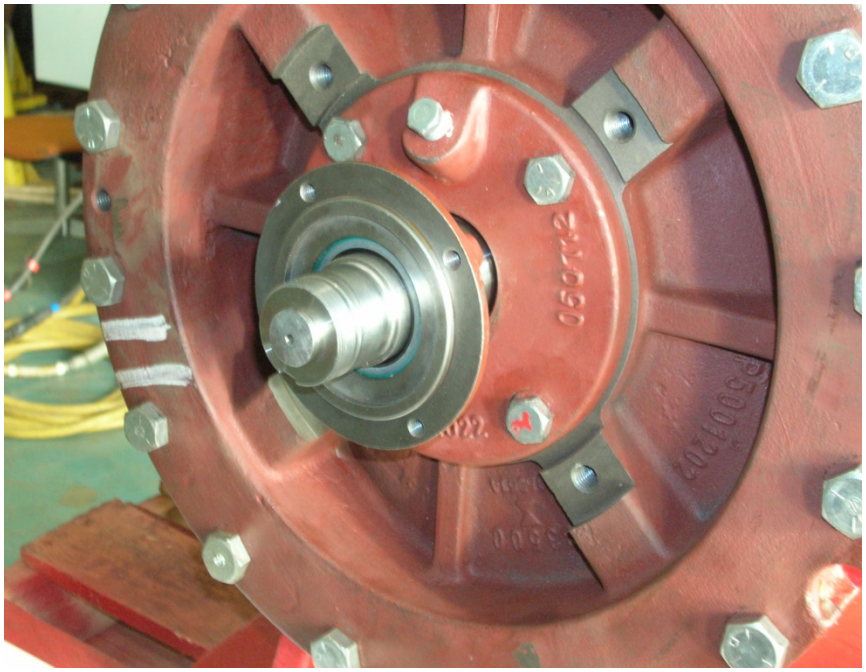
- Lubricate outside diameter of lip seal.

- Press lip seal into bearing cap bore. The lip seal should sit on the bottom of the bore, with the lip facing away from the bearing cavity.

Seal lip tapers toward bottom of bore

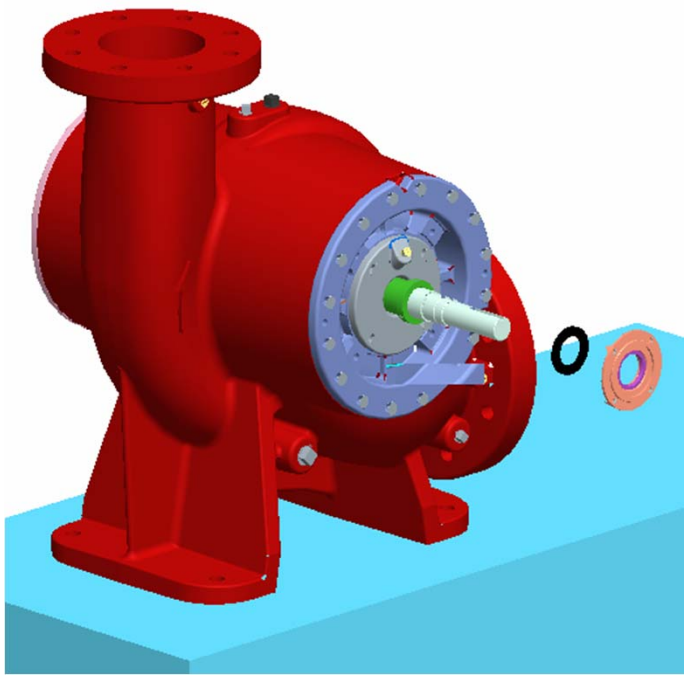
Bearing Cap

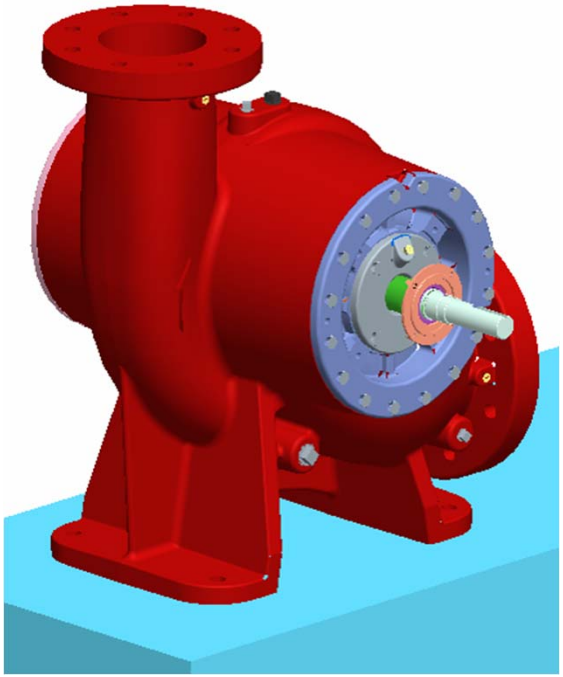
- Slide the bearing cap onto the shaft.



Water slinger and bearing cap exploded view

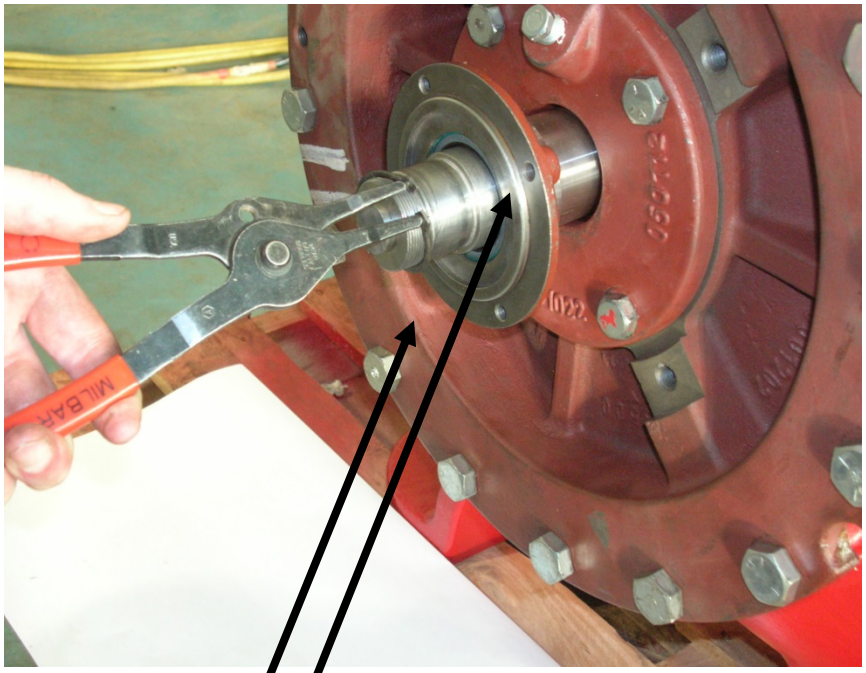
Note: Water slinger goes on shaft prior to bearing cap.





For 2” Frame Pumps

- These pumps require a bearing back-up ring:
  - 4x6x10.5
  - 5x6x10.5
  - 5x6x13.5
  - 6x8x10.5
  - 6x8x13.5
  - 8x10x10.5

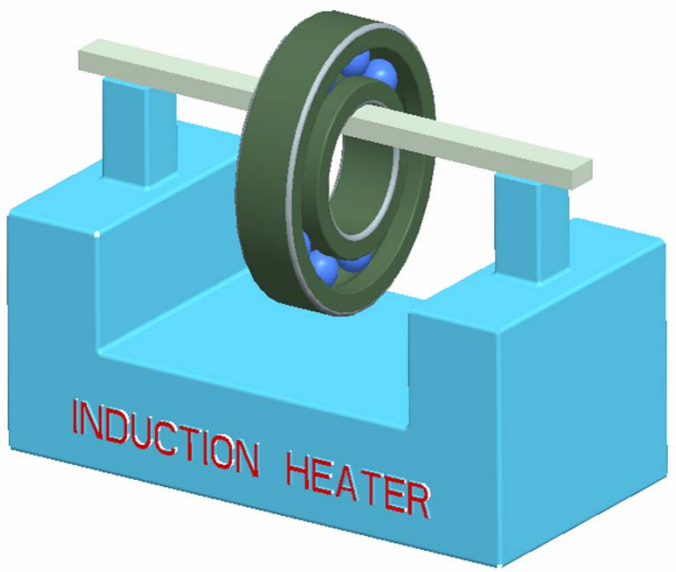


Bearing back-up ring, 2” only

Bearing cap, all sizes

Heat the Bearing

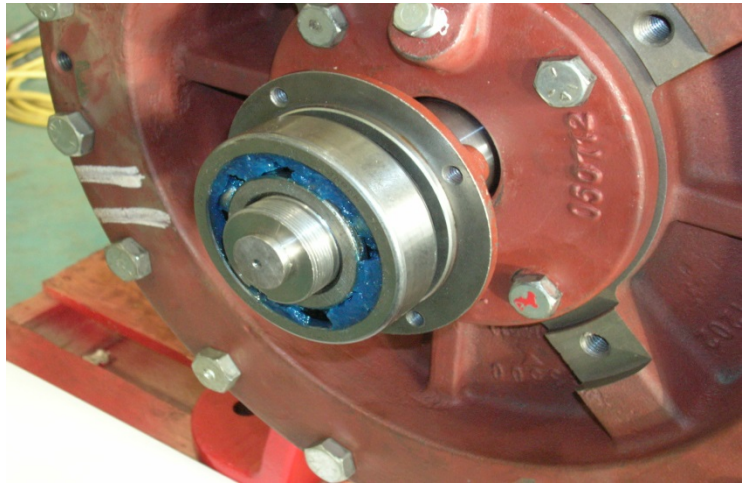
- Induction heaters are often used to expand the inner race.
- A hot plate or oven can also be used.
- Do not exceed 275°F
- Use heavy gloves to prevent burns.



Install the Bearing

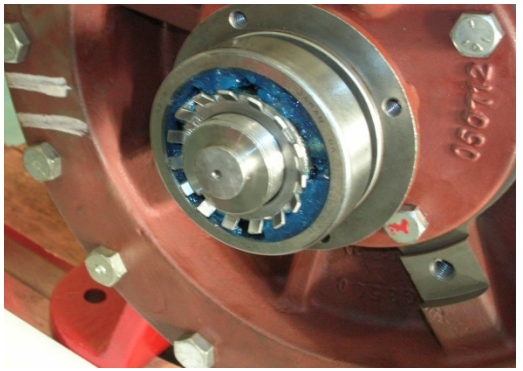
- The bearings are single shielded. The shield side must face inward, toward the impeller.

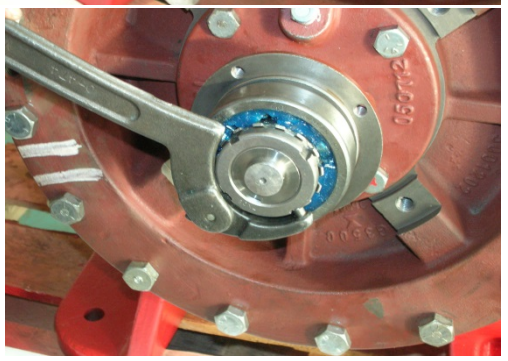
- Slide the heated bearing onto the shaft against the shoulder.

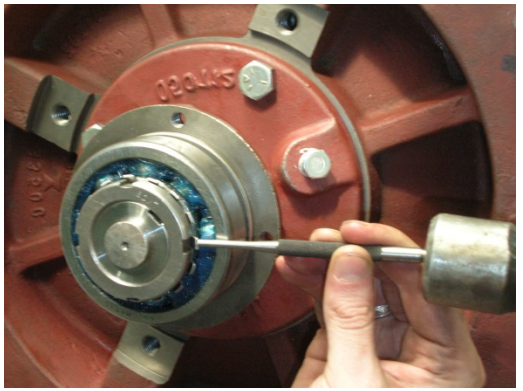


- For 2” frames, the bearing will rest against the back-up ring.

- Install a new lockwasher and locknut.
- Tighten with a spanner wrench or hammer and punch.
- Bend one of the lockwasher tabs into the locknut.







Detail View
Outboard Bearing

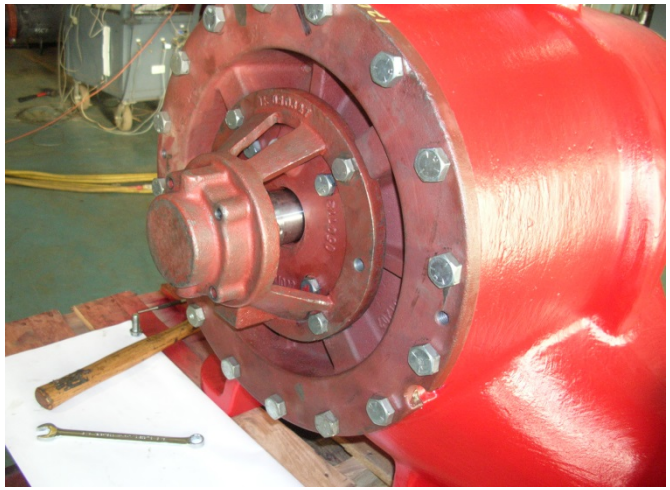
•After bearing has cooled, slide bearing bracket over bearing.

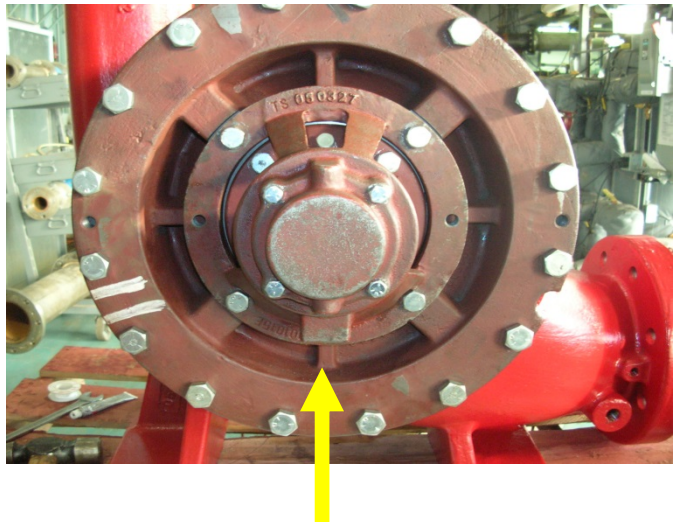
•Rotate the bracket so the grease fitting is at the bottom.

•Install capscrews and secure to coverplate.

•Install capscrews for the bearing cap and tighten.

•The outboard bearing bracket does not use a lip seal.





Grease fitting at bottom

Inboard Bracket Only

- Apply grease to the lip seal.
- Press the lip seal into the bearing cap bore.
- The taper of the seal goes toward bottom of the bore.

Securing the Inboard Bearing

- Slide the bracket over the shaft and bearing.
- Install four capscrews to secure the bracket to the coverplate.
- Fasten the bearing cap to the bearing bracket with four capscrews.