

Engine Type: Yanmar 2GM20F, 3YM20, 3YM30

Replacing bearings, Oil and water seal for Johnson Cooling Water Pump

Tools:

Socket spanner set (17 & 32 mm with extension)
Some open-end spanners
Bearing Insertion Tube (14mmD x 100mmL x 1.5mmT)
Wooden block (2"x 2"x 1/2")
Medium size hammer
Steel-wire rotary brush machine or hand copper brush
Grease (Selden Furlex grease)
Super Lube Teflon grease
Long Nose Pliers
C-Clip pliers opening type
C-Clip pliers closing type
Cloth/rags



Parts from CLLS, 23 Tuas Ave 2, S639454 ([Seiho Machinery Blk 803 #02-218 King George's Ave](#))

Complete Pump type: Johnson F4B CW Pump 121575-42000 (721575-42702) ~\$580

Cover, O-ring X0506597 \$4.46

Cover, screws X0504163 \$1.55/ea (req 6pcs)

Shaft, X0146541 \$129.23

Belt (Mitsuboshi M-19) 104511-78780 \$7.00

Parts from Marintech, #02-14 Jln Besar Plaza, S208511

Johnson Impeller 09-810B-1 \$32.00

Repair parts from Kian Ho Bearings, Changi South Street 3, KHB Building S(486117):

Oil Seal p/n: 12x24x7-TC-NOK \$1.30

Water Seal O-Ring p/n: P12-OR-KHS \$0.10

Bearing p/n: 6201-LLU-NTN \$2.60

Bearing p/n: 6001-JRXLLU-NTN \$2.60

C-clip small p/n: A12-CIRCLIP-ADT \$0.30

C-clip big p/n: B32-CIRCLIP-ADT \$0.50

SG Tooling, 150 South Bridge Road #B1-28 Fook Hai Building S(058727)

(<http://shop.sgtooling.com/index.php?act=viewProd&productId=49>)

Super Lube teflon (PTFE) grease S\$19.90

Disassembling the pump

1. Loosen & remove the pump pulley nut with the assembly still mounted (with belt).
2. Remove pump assembly from engine.
3. Remove pump impeller.
4. Remove the large C-Clip (bearing retainer) from pump housing.
5. Sit the pump (pulley side) on two blocks/stand-off. With wooden block and hammer, tap the shaft from impeller side to push the shaft assembly out. Ensure shaft assembly doesn't drop on floor.
6. Put a tool in the slot to hold the shaft and unscrew the 13mm reverse thread nut.

7. To remove the large bearing, screw in the captive nut back on the shaft to protect the upper threads.
8. Place the long nose pliers under the large bearing and sit it on the wooden stand-off blocks. Tap out the bearing from the shaft using a piece of wooden block between hammer and nut.
9. Remove spacer and small C-Clip from the shaft.
10. Repeat step 9 for the smaller bearing. Bearing should come out via threaded end of shaft and NOT the impeller side to avoid scratching the shaft where oil seal sits.
11. To remove the oil seal, use a suitable sized socket (17mm with extension), push against the seal from impeller side of housing.

Assembling the pump

1. Polish the shaft with SS rotary wire brush (or hand copper brush). Avoid scratching/scoring the shaft.
2. Grease the shaft lightly.
3. To assemble new smaller bearing, stand the shaft on slot end, put the bearing from threaded end and tap it in with bearing insertion tube until the bearing is just below the C-Clip groove. Take care not to damage the shaft threads. Put in the small C-Clip and spacer piece and coat them with grease.
4. Insert large bearing as in Step 3.
5. Clean up and grease the bearing housing.
6. Coat the oil seal with Superlube or glycerine and insert the seal via impeller side by hammering/tapping the seal into hole using a suitable sized socket spanner. Oil seal cup side to face impeller and flat side towards bearings. Ensure seal surface at impeller side is flush with the pump face.
7. On the shaft slot side, 1st insert water seal washer then the O-ring.
8. Insert the shaft-bearing assembly from bearing side of housing. Use suitably sized socket spanner on the large bearing. Socket hole should be large enough for pump shaft to pass through without damaging the threads.
9. Ensure large bearing is inserted far enough to allow large C-Clip to fit in its grooves.
10. Install the reverse threaded nut, a spacer washer, the pulley, washer and nut.
11. Install the impeller, O-ring and cover.

