

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  
Mobil XHP222 Grease (for bearings & shaft)  
SuperLube Teflon grease (for oil seal & impeller)  
Long Nose Pliers  
C-clip pliers opening type  
C-clip pliers closing type  
Cloth/rags



**Parts from Seiho Machinery, 803 King George's Ave, #02-218, S200803**

Complete Pump type: Johnson F4B CW Pump 128990-42500 ~\$600 (in/out nozzle 17mmD)  
Cover, O-ring X0506597 \$4.46  
Cover, screws X0504163 \$1.55/ea (req 6pcs)  
Shaft, X0146541 \$129.23  
Spacer, X0146542 \$7.40  
Belt, M-19 104511-78780 \$7.00

**Parts from Marintech, #02-14 Jalan Besar Plaza, S208511**

Johnson Impeller 09-810B-1 \$35.00  
(complete with cover O-ring)

**Repair parts from Kian Ho Bearings, 359 Jalan Besar, S208992**

\*\* 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 (big) \$2.60  
Bearing p/n: 6001-JRXLLU-NTN (small) \$2.60  
C-clip small p/n: A12-CIRCLIP-ADT \$0.30 (external c-clip)  
C-clip big p/n: B32-CIRCLIP-ADT \$0.50 (internal c-clip)

**Kims Marketing, 18 Tuas Avenue 9, S639177**

Mobil XHP222 waterproof grease S\$18 (14ozs cartridge, MOQ 2pcs)

**SG Tooling, 150 South Bridge Road #B1-28 Fook Hai Building S058727**

Super Lube (PTFE) grease S\$19.90

<https://sgtooling.com/products/super-lube-teflon-ptfe-grease-2>

\*\* To replace the spring ring within the oil seal with suitable size rubber O-ring (*XmmID x XmmT*).  
*As the oil seal spring ring is usually not SS material, the spring ring will corrode away causing oil seal to leak at shaft.*

### 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 of shaft 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** and coat with Mobil XHP222 NLGI waterproof grease.
4. Insert large bearing as in Step 3.
5. Fill space around the bearings with sufficient grease.
6. On the shaft slot side, 1<sup>st</sup> insert water seal washer then the O-ring. Ensure there is sufficient grease between the washer and bearing.
7. Coat the oil seal with SuperLube and insert the seal via impeller side by 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 inner pump face.
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. Coat impeller blades and pump face and cover O-ring with SuperLube.
12. Insert impeller with dowel pin into shaft slot. Direction of blade not critical as it will align itself after pump rotates.

