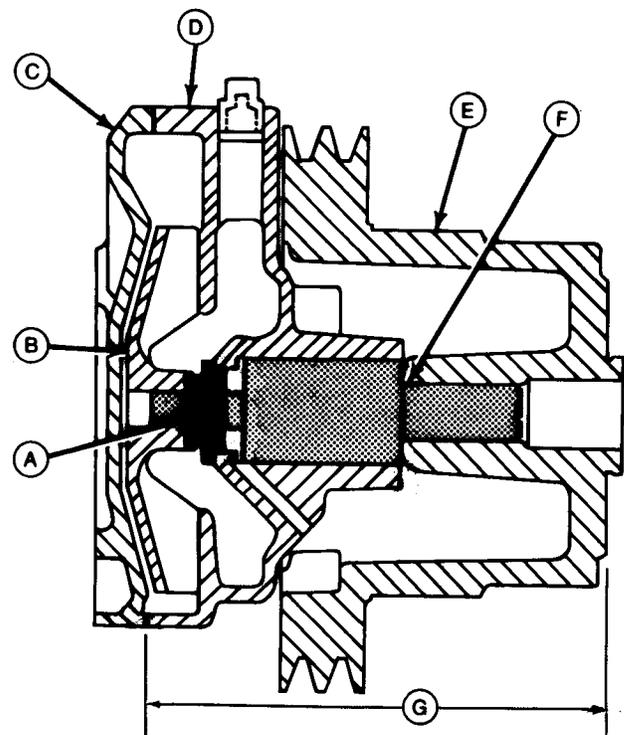


**INSTALLATION INSTRUCTIONS FOR UNITIZED WATER PUMP SEAL
(FOR WATER PUMP SEAL/REPAIR KITS)**

6404, 6466, 6076, 6531, 6619 and 6101 Engines

1. Disconnect negative ground cable from battery.
2. Drain engine coolant into a clean container.
3. Disconnect all wiring from alternator.
4. Remove alternator and belts.
5. Remove fan.
6. Disconnect inlet and outlet hoses from water pump.
7. Disconnect coolant conditioner line, if so equipped.
8. Remove water pump.
9. Remove water pump cover(C, Fig. 1) and gasket from pump housing(D).
10. Measure and record the dimension (G, Fig. 1) from front face of pulley where fan mounts to gasket surface on back of pump housing.
11. Remove fan pulley(E) from bearing/shaft using D-01200AA or D-01206AA Puller.
NOTE: Remove snap ring and outer oil seal from bearing , if equipped.
12. Remove bearing/shaft assembly(F) by pressing shaft through the impeller (B). Continue to press until bearing/shaft comes out the pulley end of housing. Note that bearing/shaft is a single unit. Remove impeller.

NOTE: Seal(A) will remain in housing as bearing/shaft is pressed out. Drive seal out of housing(from pulley end toward impeller end). Remove cup and ceramic insert from impeller, if impeller is to be reused.



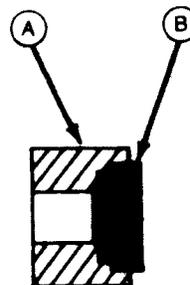
- | | |
|------------------------|-----------------------|
| A - Seal | E - Fan Pulley |
| B - Impeller | F - Bearing and Shaft |
| C - Water Pump Cover | G - Dimension |
| D - Water Pump Housing | |

Fig. 1

13. Coat O.D. of new bearing/shaft with a thin film of clean SAE 10W oil.

Insert bearing/shaft into housing (small end of shaft goes in first), and press into place using the **JDE-74** Driver. Outer race of bearing must be flush to 0.005 in.(0.13 mm) above edge of housing.

IMPORTANT: Do not press bearing/shaft into housing by applying pressure to shaft. Press on outer race only to avoid possible damage to the bearing. If water pump is equipped with an oil seal and snap ring at front of housing, use a dial indicator and measure shaft end play. The maximum allowable end play is 0.25 mm(0.010 in.). Select the snap ring size which will allow the proper end play. Refer to appropriate technical manual.



A - Special Tool
B - Unitized Seal

Fig. 2

14. Support pump shaft(fan pulley end) and install unitized seal(B, Fig.2) using driver(A) supplied in kit. Make sure that seal is fully in housing.

IMPORTANT: Shaft must be supported when installing seal to prevent damage to bearing (seal has press fit on shaft as well as in housing bore: however, seal does not fit tight in housing bore). The seal driver sets the preload on seal and must be used to prevent damaging the seal.

15. Again, support pump shaft on fan pulley end(to prevent damaging the bearing) and install impeller. Press until impeller-to-housing clearance is 0.015-0.035 in.(0.39-0.89 mm). Make sure that impeller rotates freely and does not contact housing.

NOTE: Install outer oil seal, if equipped.

16. Support impeller end of shaft -- do not support impeller -- and press pulley on shaft until dimension recorded in Step 11 is obtained (fan blade surface on pulley face-to-gasket surface on housing. Refer to the appropriate machine Technical Manual to obtain this dimension if the dimension was not recorded previously.
17. Install cover using new gasket.

Note: Use following specifications for Steps 17, 18 and 21.

Tighten screws to following torque:

- 5/16" Screws=20 ft.-lbs (27 Nm)
(2.7 kgm)
- 3/8" Screws=35 ft.-lbs (48 Nm)
(4.8 kgm)

IMPORTANT:

Rotate pulley to insure no interference.

18. Install water pump using new gasket.
19. Connect coolant conditioner line, if so equipped.
20. Connect inlet and outlet hoses to pump.

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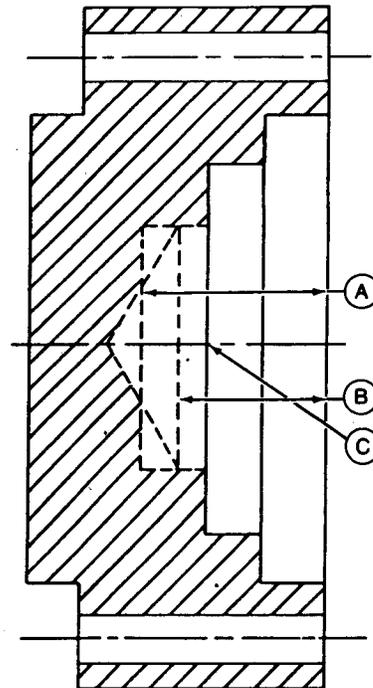
21. Install fan.

NOTE: 644C and 646C Industrial Loaders used a T64717 Spacer between the fan and pulley, 6466 Engine Serial No. (-258760).

Interference will prevent this spacer from being used on the above engines having an **SE500909** Water Pump; or **RE524408** Water Pump Rebuild Kit; or R79618 Shaft, T20217 Washer, and 19H2644 Cap Screw installed. Production 6466 Engines used a new spacer(T77164) at Engine Serial No. (258761-) to provide necessary clearance.

If fan spacer interference is experienced, use one of the following two alternatives:

- (1) Install T77164 Spacer
- (2) Rework the T64717 Spacer as shown in Fig. 3. Rework can be done on a drill press or by a local machine shop.



- A - 38.35 mm(1.51 in.) Minimum
- B - 29.97 mm(1.18 in.) Minimum
- C - Drill 51 mm x 29.97 mm Deep
(Drill 2.0 in. x 1.18 in. Deep)

Fig. 3

22. Install alternator and belts.
23. Connect wiring to alternator.
24. Refill cooling system.

IMPORTANT:

Be certain coolant is clean, or replace with new.

25. Connect negative ground cable to battery.
26. Start engine and check for leaks.