

INSTALLATION MANUAL

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| REF NO. | BT97039 |
| DATE | Jul. 28, 1997 |

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SUBJECT: IMPROVED WATER SEAL ON 6D170, S6D170, SA6D170

PURPOSE: To introduce newly-designed water seal cases with improved durability for use with water pumps for 6D170 series engines.

APPLICATION: Refer to page 4/5 to 5/5.

DESCRIPTION:

1. Introduction

This Service News will introduce newly-designed water seal cases with superb anti-fatigue strength for use with the water pumps for the above engine models to prolong the service life of the water seal.

2. List of parts

| Part No. | Part Name | Purpose of part | Qty | Remarks |
|--------------------------------|----------------------------|-----------------|----------|---|
| 6162-63-1015 (6162-63-1014) | Water pump (Water pump) | Replacement | 1 (1) | Standard spec. water pump for the HD465-5, WA700-1 and other vehicle and machine models |
| 6162-63-1025 (6162-63-1024) | Water pump (Water pump) | | 1 (1) | Extreme cold weather spec. water pump for the WA700-1, D375A-1 and other vehicle and machine models |
| 6162-K6-2803 (6162-K6-2802) | Gasket kit (Gasket kit) | | 1 (1) | Gasket kit for the 6M160-A, 6M170-B and others |
| 6162-63-1514 (6162-63-1513) | Water seal (Water seal) | | 1 (1) | Component parts of 6162-63-1014/1015 and 6162-K6-2802/2803. |
| 6162-63-1553 (6162-63-1552) | Water seal (Water seal) | | 1 (1) | Component parts of 6162-63-1024/1025. |
| 6162-63-1291 (6162-63-1290) | Water pump (Water pump) | | 1 (1) | Water pump for the SA6D170 stationary normal-service generator |
| 6162-63-1041 (6162-63-1040) | Water pump (Water pump) | | 1 (1) | Water pump for the SA6D170 for the ship-borne crane for IMI |
| 6162-63-1033 (6162-63-1032) | Water pump (Water pump) | | 1 (1) | Water pump for the 6M170B, 6M160A-1, etc. |
| 6162-63-1093 (6162-63-1092) | Water pump (Water pump) | | 1 (1) | Water pump for the 6M170B, 6M160A-1, etc. (Conforming to the JG.) |
| 6162-63-1514 (6162-63-1513) | Water seal (Water seal) | | 1 (1) | A component part of the above water pumps. |

2. Contents of the modification

The water seal case has been strengthened to improve its durability against cracks and other damage.

| Codings in the drawing | Modified sections | Current part | | New part |
|------------------------|--|--------------|---|-----------|
| A | The sheet thickness has been increased. | t0.4 | ⇒ | t0.6 |
| B | The corner radius of the inner cylinder has been enlarged. | (R0.4) | ⇒ | min. R0.8 |
| C | The press-fitting margin has been lessened. | max. 0.15 | ⇒ | max. 0.12 |

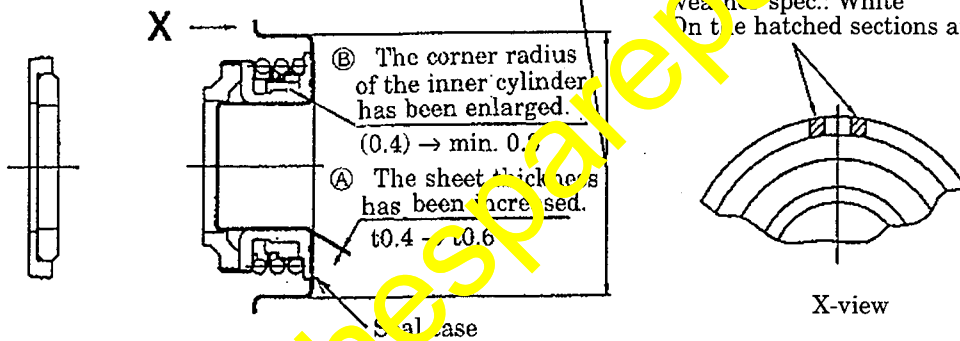
3. Identification method for the improved part

Identify the improved part and current part by the following points.

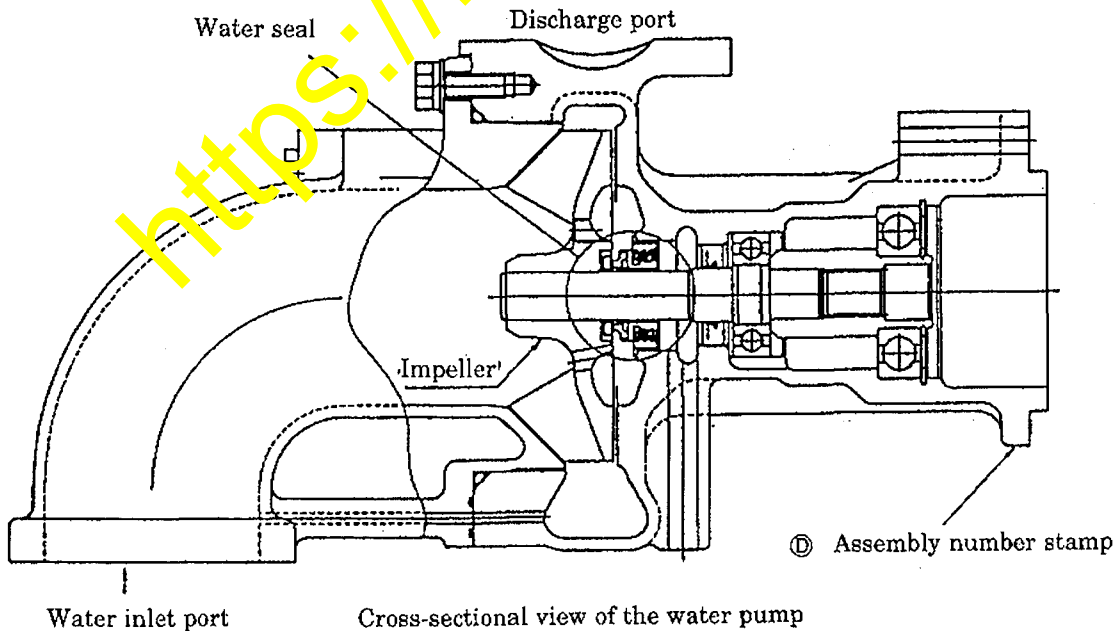
| Codings in the drawing | | Identification markings | Current part | | New part | Applicable seals (pumps) |
|------------------------|---------------------|---|--|---|---|--|
| D | Water pump assembly | Assembly number stamp | 6162-63-1014 (Typical part number) | ⇒ | 6162-63-1015 (Typical part number) | Standard spec. and Extreme cold weather spec. water pump |
| E | Water seal | Application of identifying ink or paint (at 2 places on the peripheral surface of the seal case.) | Nil. | ⇒ | Application of black ink or paint (at 2 places on the peripheral surface of the seal case.) | Standard spec. seal (Part No. 6162-63-1514) |
| | | | Application of white ink or paint (at 1 place on the peripheral surface of the seal case.) | ⇒ | Application of white ink or paint (at 2 places on the peripheral surface of the seal case.) | Very cold weather spec. seal (Part No. 6162-63-1553) |

Ⓒ The press fitting margin has been lessened.
Max. 0.15 → Max. 0.12

Ⓔ Application of ink or paint at 2 places on the peripheral surface of the seal case.
(Standard spec.: Black, Extreme cold weather spec.: White
On the hatched sections at 2 places)



(The side to be mounted to the impeller) (The side to be mounted to the body)



4. Replacement procedures

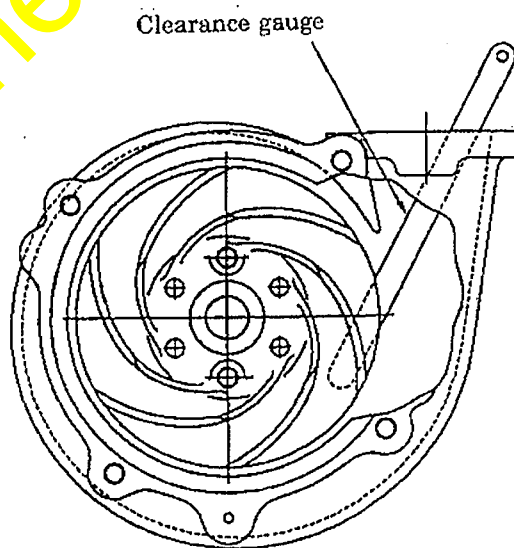
- (1) Drain the engine cooling water.
- (2) Remove the water pump assembly and replace the water seal with the improved part, referring to the Shop Manual.
- (3) When reassembling, press-fit the impeller so that the rear clearance of the impeller comes within the range given below. (Refer to the schematic diagram below.)

Prescribed range of the rear clearance of the impeller: 1.5 – 2.0mm

- (4) Install the water pump assembly back to the engine and refill the cooling water up to the full level following the instructions given in the Operation and Maintenance Manual.
- (5) Run the engine and check if water is leaking from respective joints.

5. Other

- (1) If the engine is started with some air mixed into the cooling water or with the pressurizing valve for the radiator left out of order, the cooling effect for the water seal section becomes insufficient and causes a loss of durability of the water seal. Consequently, check the radiator and the pressurizing valve while making this modification, and also check if water leakage is occurring from respective joints. Meanwhile, always check the water level of the radiator after completing this modification.
- (2) When water containing foreign substances, such as mud, sand and rust is used as the cooling water, such foreign substances enter into, and adhere to, the sliding surfaces of the water seal to damage the sliding surfaces, also causing a decrease in the durability of the water seal. Consequently, always use fresh and clean water as the cooling water. Meanwhile, it is suggested to perform washing of the internal surfaces of the cooling circuit periodically, referring to the Operation and Maintenance Manual.



Adjusting the rear clearance of the impeller.

Data No.

Service News

List of applicable models.

Current part number

New part number

(Replacing part: 6162-63-1014 → 6162-63-1015)

| No. | Applicable models | Serial numbers of applicable machines and vehicles | | Effective on: |
|-----|-------------------|--|--|---------------|
| | | Already shipped machines and vehicles | Machines and vehicles being shipped from our factory | |
| 1 | HD465-3 | 10001-15255 | | |
| 2 | HD465-3C | 10001-17267 | | |
| 3 | WA600-1 | 10001-18319 | 18320- | 5/8 |
| 4 | WA700-1 | 10001-18263 | 18264- | |
| 5 | WA700-AP-1 | 10001-18295 | | |
| 6 | WD600-1 | 10001-18429 | 18430- | 5/16 |
| 7 | D155A-1B | — | | |
| 8 | D275A-2 | 10001-18407 | 18408- | 5/8 |
| 9 | D355A-3B | — | | |
| 10 | D375A-1 | 10001-17480 | | |
| 11 | D375A-2 | 10001-18080 | | |
| 12 | D375A-3 | 10001-18450 | 18451- | 6/4 |
| 13 | SA6D170-C2-1 | 10001-17636 | | |
| 14 | PC1000-1 | 10001-18384 | 18385- | 5/16 |
| 15 | SA6D170B-C2-1 | 10001-17635 | | |
| 16 | HD465-5 | 10001-18413 | 18414- | 5/4 |
| 17 | SA6D170-W1-1 | 10001-17638 | | |
| 18 | SAA6D170E-W2-2 | 10001-18379 | 18380- | 5/22 |
| 19 | EG480-1 | 10001-16863 | 16864- | 5/8 |
| 20 | EG480L-2 | 10001-17798 | 17799- | 5/8 |
| 21 | EG480A-L-2 | 10001-15226 | 15227- | 5/8 |
| 22 | EG480B-1 | 10001-18379 | 18380- | 5/22 |
| 23 | EG480B-L-2 | 10001-16863 | 16864- | 5/8 |
| 24 | EG500-1 | 10001-18379 | 18380- | 5/8 |
| 25 | EG500L-1 | 10001-18379 | 18380- | 5/8 |
| 26 | EG500BS-1 | 10001-17330 | 17331- | 5/8 |
| 27 | EG580-1 | 10001-17684 | 17685- | 5/8 |
| 28 | EG580B-1 | 10001-17684 | 17685- | 5/8 |
| 29 | EG580B-L-1 | 10001-17684 | 17685- | 5/8 |
| 30 | EG600-1 | 10001-17684 | 17685- | 5/8 |

| No. | Applicable models | Serial numbers of applicable machines and vehicles | | Effective on: |
|-----|-------------------|--|--|---------------|
| | | Already shipped machines and vehicles | Machines and vehicles being shipped from our factory | |
| 41 | EG600B-1 | 10001-17684 | 17685- | 5/8 |
| 42 | EG600BS-1 | 10001-17495 | 17496- | 5/8 |
| 43 | EPSA6D170-A-1 | 10001-16039 | 16040- | 5/8 |
| 44 | EPSA6D170-B-1 | — | — | |
| 45 | SA6D170-A-1 | 10001-18435 | 18436- | 5/20 |
| 46 | SA6D170-B-1 | 10001-17772 | 17773- | 5/8 |
| 47 | SA6D170A-C2-1 | 10001-17636 | 17637- | 5/8 |
| 48 | SA6D170A-GA-1 | 10001-17684 | 17685- | 5/8 |
| 49 | SA6D170A-GD-1 | 10001-18439 | 18437- | 6/16 |
| | | 10001-18241 | 18242- | 5/8 |
| | | 10001-18329 | 18330- | 5/8 |
| 50 | SA6D170A-G2-1 | 10001-18239 | 18240- | 5/8 |
| 51 | SA6D170A-G3-1 | 10001-17705 | 17706- | 5/8 |
| 52 | SA6D170A-F-1 | 10001-18239 | 18240- | 5/8 |
| 53 | SA6D170B-GA-1 | 10001-17798 | 17799- | 5/8 |
| 54 | SA6D170B-GD-1 | 10001-18439 | 18440- | 6/16 |
| | | 10001-18297 | 18298- | 5/8 |
| | | 10001-18518 | 18519- | 7/21 |
| 55 | SA6D170B-G2-1 | 10001-18435 | 18436- | 5/29 |
| 56 | SA6D170B-G3-1 | 10001-17185 | 17186- | 5/8 |
| 57 | SA6D170B-P-1 | 10001-18077 | 18078- | 5/8 |
| 58 | SA6D170B-R-1 | 10001-18439 | 18440- | 5/8 |
| 59 | SA6N170-G1-1 | 10001-16832 | 16833- | 5/8 |
| 60 | S6D170-G2-1 | 10001-17522 | 17523- | 5/8 |
| 61 | S6D170-G3-1 | 10001-11656 | 11657- | 5/8 |
| 62 | 6N170-G1-1 | 10001-16756 | 16757- | 5/8 |
| 63 | SAA6D170-G3-1 | 10001-18387 | 18388- | 5/8 |
| 64 | SA6D170A-GH-1 | 10001-17937 | 17938- | 5/8 |
| | | 10001-18259 | 18260- | 5/8 |
| 65 | SA6D170B-GH-1 | 10001-18498 | 18499- | 6/18 |

Current part number New part number
(Replacing part: 6162-K6-2802 → 6162-K6-2803)

| No. | Applicable models | Serial numbers of applicable machines and vehicles | | Effective on: |
|--|------------------------------|--|--|---------------|
| | | Already shipped machines and vehicles | Machines and vehicles being shipped from our factory | |
| 66 | SA6D170A-M-1 | 10001-18521 | 18522- | 7/9 |
| | | 10001-18302 | 18303- | 5/8 |
| 67 | BE-D155A-1 | — | CKD | |
| 68 | BE-D355A-3 | — | CKD | |
| 69 | BE-PC1000-1 | — | CKD | |
| 60 | BE-B60-1 | — | CKD | |
| 61 | BE-SA170AG-1 | — | CKD | |
| (Replacing part: 6162-K6-2802 → 6162-K6-2803) | | | | |
| 1 | EM680A-1 | 10001-15492 | 15493- | 5/19 |
| 2 | 6M170B-1 | 10001-16849 | 16850- | 5/19 |
| 3 | EM680A-A | 10001-14758 | 14759- | 5/19 |
| 4 | EM679A-A | 10001-14832 | 14833- | 5/19 |
| 5 | 6M160A-1 | 10001-17127 | 17128- | 6/19 |
| (Replacing part: 6162-63-1200 → 6162-63-1201) | | | | |
| 1 | (DCA600SPK) SA6D170A-GD-1 | 10001-18436 | 18437- | 6/16 |
| 2 | SA6D170A-GT-1 | 10001-18329 | 18330- | 5/8 |
| 3 | SA6D170A-G1-1 | 10001-18447 | 18448- | 6/4 |
| 4 | (DCA500SPK) SA6D170B-GD-1 | 10001-18439 | 18440- | 6/16 |
| 5 | SA6D170B-GT-1 | 10001-18518 | 18519- | 7/21 |
| 6 | SA6D170B-G1-1 | 10001-18499 | 18500- | 6/23 |
| 7 | (DSG545) SA6D170A-GD-1 | 10001-18329 | 18330- | 5/8 |
| 8 | (DCA500SPK) SA6D170A-G1-1 | 10001-18241 | 18242- | 5/8 |
| 9 | (DCA500SPK) SA6D170B-GD-1 | 10001-18297 | 18298- | 5/8 |
| 10 | (DSG470) SA6D170B-GD-1 | 10001-18518 | 18519- | 7/21 |
| (Replacing part: 6162-63-1040 → 6162-63-1041) | | | | |
| 1 | SA6D170A-P-1 | 10001-18239 | 18240- | 5/8 |

Current part number New part number
(Replacing part: 6162-63-1032 → 6162-63-1033)

| No. | Applicable models | Serial numbers of applicable machines and vehicles | | Effective on: |
|--|-------------------|--|--|---------------|
| | | Already shipped machines and vehicles | Machines and vehicles being shipped from our factory | |
| 1 | SA6D170A-GN-1 | 10001-18490 | 18491- | 6/2 |
| 2 | EM680A-1 | 10001-16863 | 16864- | 5/19 |
| 3 | 6M170B-1 | 10001-16851 | 16852- | 5/19 |
| 4 | SA6D170A-M-1 | 10001-18265 | 18266- | 5/8 |
| (Replacing part: 6162-63-1092 → 6162-63-1093) | | | | |
| 1 | SA6D170A-G1-1 | 10001-18447 | 18448- | 6/4 |
| 2 | EM680A-1 | 10001-16863 | 16864- | 5/19 |
| 3 | 6M170B-1 | 10001-16851 | 16852- | 5/19 |
| 4 | EM679A-A-0 | 10001-14832 | 14833- | 5/19 |
| 5 | EM680A-A-0 | 10001-14758 | 14759- | 5/19 |
| 6 | 6M160A-1 | 10001-17127 | 17128- | 5/19 |

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