



I N T E R M E D I A T E S H A F T B E A R I N G

K E M E L K M S T Y P E
(S E L F L U B R I C A T I O N S Y S T E M)
I N S T R U C T I O N M A N U A L

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<http://www.kemel.com>

This instruction manual is a guidebook for your installation and maintenance works on KEMEL KMS Type Line Shaft Bearings.

A sketch illustration is attached hereto. As to dimensions of every part, please refer to separate assembly drawings.

1. Checks prior to installation

1-1 A set of KMS Type Line Shaft Bearing is usually packed in one case.

The fitting bolts, chock liners, thermometer and etc., like optional items and oil cut ring are to be separately packed, but these are in the same package with bearing body.

1-2 On unpacking, check if every part is in good order and condition.

1-3 Remove the upper body (2) from lower body (1) and check if the inside of oil tub and the babbitted surface of bearings are clean without dust and other foreign particles.

2. Preparatory arrangement before installation

There are two sorts of practices as to the preparatory arrangement before installation of the line shaft bearing.

One is to make the arrangement on board, where the intermediate shaft is incorporated with the line shaft bearing put in place.

The other is to do it in factory, where the shaft is assembled with the bearing and then the assembly is moved to the location on board.

In this instruction manual, the latter (in factory) is explained as follows.

2-1 Remove the side covers (13) from the bodies.

2-2 Remove the upper body (2) from the lower body (1), take off anti-corrosive paint (NOX-RUST 366) and check if babbitted surfaces and all other interior parts are clean without dust and other foreign particles. Make the babbitted surfaces wet by lube oil.

2-3 Clean the journal of corresponding intermediate shaft and make it wet by lube oil. put the shaft on the lower body (1) of the bearing.

2-4 Put slippery paper like paper-board (1 mm in thickness, 100 mm in width, about 100 mm over babbitt metal length) on the journal to prevent from bearing sliding, when using crane.

2-5 Mount the upper body (2) on the lower body (1) and temporarily fasten it by bolts.

2-6 Set the side covers (13) in place and temporarily fasten them to the bodies by bolts.

2-7 The bearing and shaft are in a bloc now.

Move the assembly to the location on board using crane.

- 2-8 Put slippery paper like paper-board (1 mm in thickness, 100 mm in width, about 100 mm over babbitt metal length) on the journal to prevent from bearing sliding, when using crane.
- 2-9 Mount the upper body (2) on the lower body (1) and temporarily fasten it by bolts.
- 2-10 Set the side covers (13) in place and temporarily fasten them to the bodies by bolts.
- 2-11 The bearing and shaft are in a bloc now.
Move the assembly to the location on board using crane.

3. Installation

- 3-1 Remove the side covers (13) ,upper body (2) ,oil collar (11) and put rubber made oil cut rings (17) on the journal shaft tentatively.
- 3-2 Apply jack bolts to the corresponding holes of lower body (1) and adjust the height of shaft center line by operating the bolts.
- 3-3 Adjust the location of bearing against the portside to starboard direction, keeping an even gap between the babbitted surface and the intermediate shaft.
- 3-4 Set the oil cut ring (17) and oil collar (11) according to the DWG and fix them on the shaft with spring ring for the oil cut ring.
- 3-5 Apply sealant (Non-dry, Oil resistance) to mating surface on lower housing slightly. Then do not flood of the sealant to outside of housing.
Fix the upper body (2) on the lower body (1). Tight them by bolts and reamer bolts.
- 3-6 Fix the side covers (13) to the body applying gasket packings.
Make sure of even clearance between the intermediate shaft and the inner face of side covers.
- 3-7 Make sure that the oil cut plate (19) exactly fits the oil collar (11) according to DWG.
- 3-8 Machine chock liners to obtain the necessary thickness.
- 3-9 Machine reamer holes on the lower body (1) and apply the fitting bolts tightly.
- 3-10 Fix the cooling water pipe in place.
- 3-11 Fix the thermometer in place.
- 3-12 Feed the bearing with LUB oil through the inlet on hinge cover (22), so that the oil level comes up to "NORMAL" mark on the oil gauge stick (36).
- 3-13 The bearing is ready for turning of shaft.
Prior to turning of shaft, it is necessary to feed with the oil.

4. Lube oil

The same lube oil as main engine oil can be used.

The recommended viscosity is ISO-VG 100/150 or SAE 30/40.

When the lube oil becomes dirty, renew it.

In general, renewing of oil every 3000 hours is advisable.

5. Oil level

5-1 While in anchor (Confirm after 10 minutes of stopping.), the oil level should be between min. and max. . If the oil level is less than proper range, please supply oil from the top cover.

5-2 While running, the oil level might be below min. level because the oil circulates through the bearing. Then, don't supply oil from the hinge cover.

6. Check point during the operation

6-1 Though depending on atmosphere temperature, the range of expected normal temperature of the bearing is 30°C to 60°C, during the rotating of shaft.

In case of temperature exceeding 60 °C, check if the lube oil supply is all right, or if there is any increase of bearing load due to a change of bearing alignment including hull deformation.

6-2 Prior to every turning of shaft, confirm oil level in the oil reservoir.

6-3 In case oil leaks through the clearance between side cover (13) and the shaft, the following possibility is thought :

a) There is too much oil in the oil reservoir.

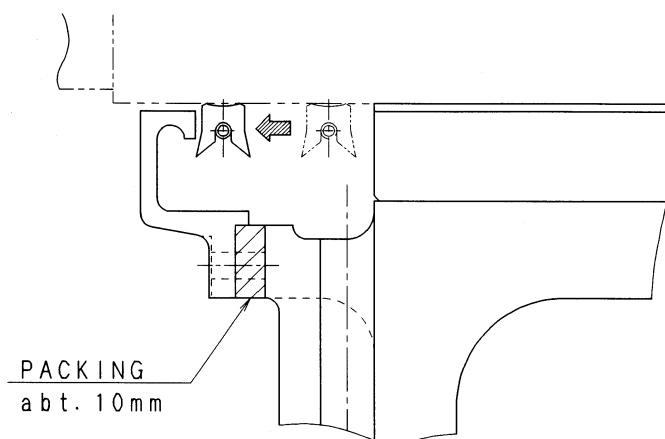
Please adjust oil level, if necessary.

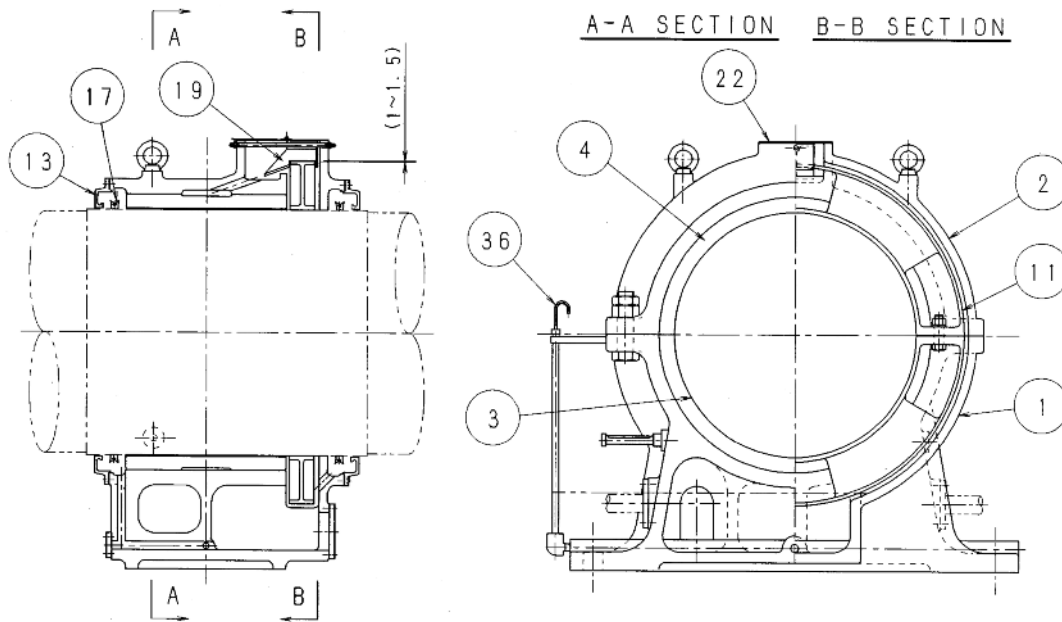
b) The position of oil cut ring (17) is not in order.

Adjust the position of oil cut ring (17) in accordance with DWG.

If oil leakage continues after the above, installation of thick packing between side cover(13) and bearing body to widen the space between side cover(13) and bearing body and shift oil cut ring(17) to the side cover(13) is effective.

(Please refer to the sketch below)

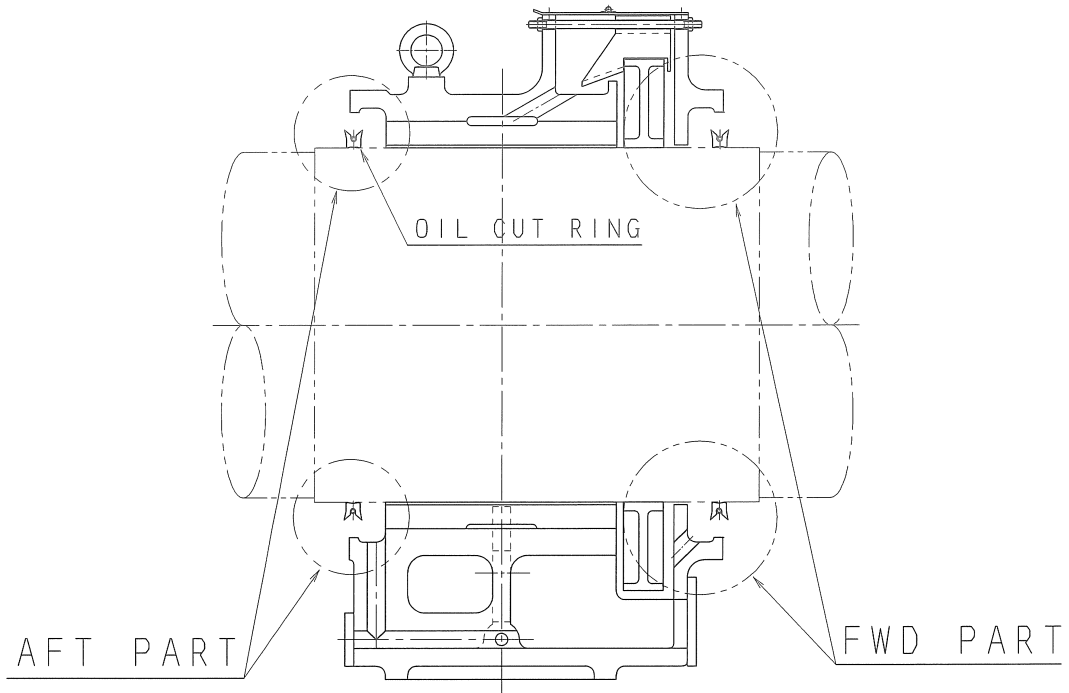




PARTS LIST

| ITEM | DESCRIPTION |
|------|-----------------|
| 1 | LOWER BODY |
| 2 | UPPER BODY |
| 3 | LOWER BEARING |
| 4 | UPPER BEARING |
| 11 | OIL COLLAR |
| 13 | SIDE COVER |
| 17 | OIL CUT RING |
| 19 | OIL CUT PLATE |
| 22 | HINGE COVER |
| 36 | OIL LEVEL GAUGE |

OIL CUT RING POSITION



OIL CUT RING POSITION オイルカットリングの位置

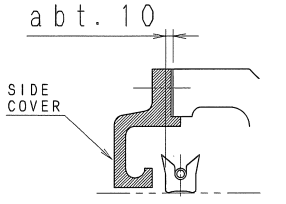
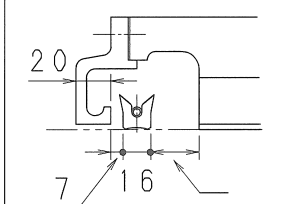
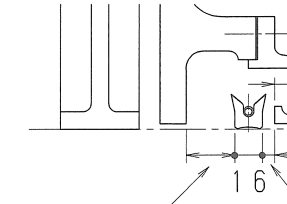
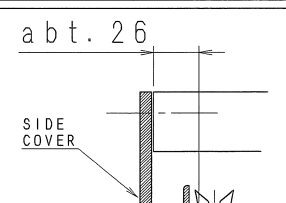
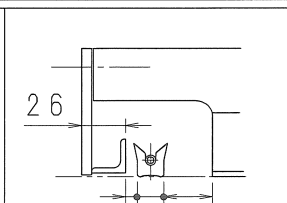
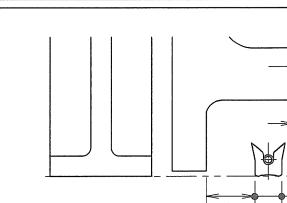
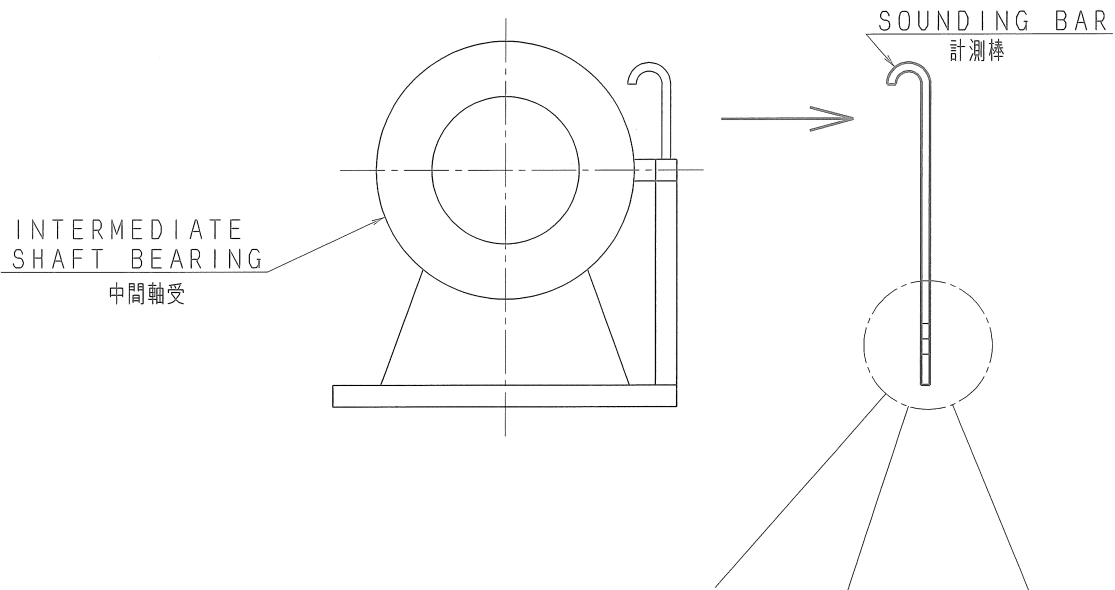
| | DISTANCE BETWEEN BODY & SIDE COVER 本体との距離 | AFT PART | FWD PART |
|----------------------------------|--|---|--|
| SHAPE OF SIDE COVER サイドカバーの形状 | abt. 10  |  |  |
| | abt. 26  |  |  |

Fig. 1 Oil Level

- Oil level is to be checked when main engine stops.
- Oil is not to be supplied when main engine is running, even if the oil level is less than min. level of the sounding bar.
- Otherwise oil leaks due to the over-supply.



| MAIN ENGINE / 主機 | | | |
|-------------------------------------|--------------|---------------|---|
| STOP / 停止中 | | RUNNING / 運転中 | |
| OIL LEVEL BY SOUNDING BAR オイルレベル | | | |
| QUANTITY OF THE OIL オイルの量 | NORMAL 適正 | NORMAL 適正 | OVER SUPPLY 入れ過ぎ |
| REMARKS 備考 | — | — | OIL LEAKAGE DUE TO THE OVER-SUPPLY オイルの入れ過ぎによる漏洩 |

Table.1 Trouble shooting of intermediate shaft Bearing
(Self Lubrication Type)

| Trouble | Possible cause | Countermeasures |
|---|--|---|
| Oil leakage from side cover | <ul style="list-style-type: none"> • Too much amount of oil supply • Blockade of oil passage to the oil reservoir • Not in good order position of oil cut rings | <ul style="list-style-type: none"> • The quantity of oil in the reservoir is to be adjusted to proper. • Remove side cover & check oil passage on lower bearing body. If there is anything stuck on the oil passage, remove it. • Adjust the position of oil cut ring in accordance with the DWG or install thin shelter plate between side cover and lower Body. (See instruction manual) |
| Oil leakage from the clearance between upper and lower body | <ul style="list-style-type: none"> • Some foreign particles caught on mating surfaces of upper and lower body. • The foundation bolts for upper and lower body are loosened. • The defective contacting of flanges. | <ul style="list-style-type: none"> • Open the upper body. Clean the surface of split part and put a sealant slightly on the surface. • Tighten the bolts of upper body and lower body. • Put sealant slightly to mating surface on lower housing. |
| Increase of bearing temp | <ul style="list-style-type: none"> • Defect of thermo sensor. • Shortage of lubricant oil. • Increase of bearing load due to a change of bearing alignment. | <ul style="list-style-type: none"> • Check the thermo sensor. • If the bearing temp. does not increase suddenly and is kept less than 60 °C, there is not any problem. • In case of high temp. due to miss-alignment, it is necessary to inspect the shaft alignment by shipyard. |
| No oil supply | <ul style="list-style-type: none"> • bolt loosening of oil collar. • large clearance between oil cut plate & collar. • Low shaft speed. (under 20 rpm) | <ul style="list-style-type: none"> • Tighten the bolt of oil collar. • Confirm & adjust the clearance between oil cut plate & collar (Clearance: $0 < C < 1.5\text{mm}$) • Confirm oil is supplied to the bearing or not If no oil supply is confirmed, supply oil from the top cover continuously. Oil level is to be adjusted as needed. |