

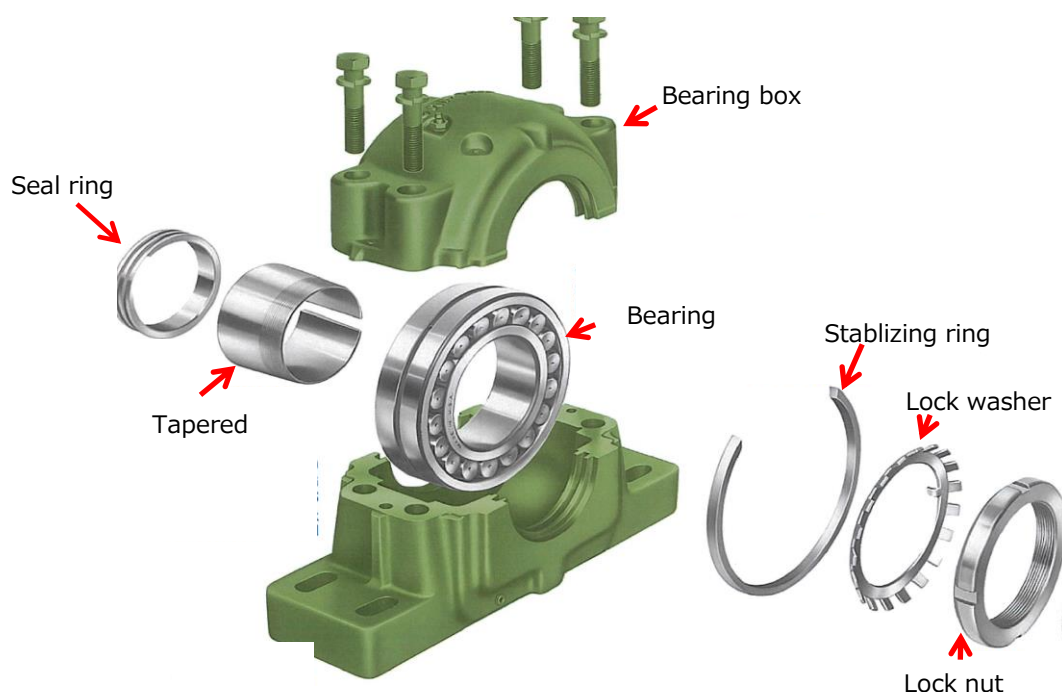
YE SERVICE NEWS

Subject	Pillow Block set on intermediate shaft	No. : YEN-MK-22740-3 Date : 2018/06/01
Engine Model	All Marine Main & Aux. Engines	Use Marine Main & Aux. Engines
		Engine No. All numbers

【Introduction】

Many of the marine main front drive equipment use the pillow block (bearing unit) for the intermediate bearing. The bearing, however, after replacement, caused premature damage due to improper reassembly. This manual is prepared to prevent such trouble. Use this manual when removing the bearing for replacement or reassembly.

【Pillow Block Structure】



【Reassembly Procedure】

1. Pass the seal ring, tapered sleeve, bearing, stable ring, lock washer and the lock nut through the shaft.
2. Insert the taper sleeve to the taper of the bearing inner race.
(*Check that the taper direction of the inner race and taper sleeve are the same.)
3. Set the lock washer to the sleeve, (the lock washer clips should fit to the notch of the sleeve.)
4. Tighten the nut by hand provisionally. (The chamfered side of the nut should face to the unit.)
5. Tighten the unit to the mount provisionally.
6. Decide the bearing position by knocking on the sleeve end face and bearing box with a rubber hammer, etc.
(The sleeve and the inner race taper should contact each other fully.)
7. Tighten the nut with the specified tightening torque. (*Check the catalog or manual for the tightening torque.)
8. After completing torque tightening, make additional tightening for adjustment. (The lock washer clips and the nut's notch should align. *Do not turn the nut to the loosening direction for adjustment.)
9. Weave the lock washer clips in the groove of tightening nut to prevent loosening.
10. Loosen the installation bolts of the unit once to release thrust load.
11. Check the alignment of the shaft and tighten the unit finally to the mount.

YANMAR ENGINEERING CO.,LTD
Market Service Division

Approved	Checked	Prepared
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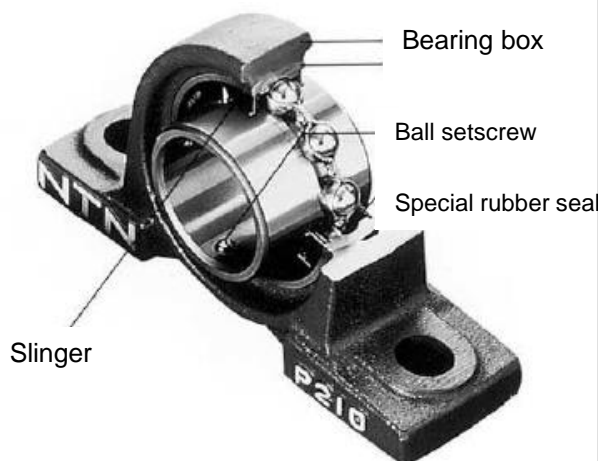
K. Yumae

【Cautions for Servicing and Replacing the Bearing Unit】

1. The shaft is tightened either by the setscrew system, adaptor system, eccentric collar system or the tight fit system. Upon reassembly after maintenance or replacement, the drive shaft and bearing inner race need to be assembled firmly. For reassembly, read carefully the instructions of the operation manual of the relevant bearing manufacturer. (Refer to Page 3/3.)
2. Check for the correct alignment of the drive side shaft and the driven side shaft. If alignment found deviated, adjust it by the shims at the unit installation face or by reworking the chock-fast. When the elastic coupling is used for the drive shaft system, keep the installation within the allowable eccentricity range of the elastic coupling.
3. When the bearing of the front drive equipment is of the oil-bearing type, it is recommended to replace grease wholly and to supply grease semi-annually thereafter, (since the service life of grease is about 1.5 years).
4. The bearing unit bearing has a definite service life. The bearing is selected for the intended application. Concerning the oil-free bearings or oil-bearings, (assuming fully maintained including sufficient greasing), the service life of the bearing is 2~4 years for the front drive system of the pulley lateral pulling and is 6~8 years for the direct drive as the intermediate shaft bearing. Plan the replacement of the bearing in consideration of this standard. (When the bearing replacement & maintenance standard is specified in the completion drawing, etc., follow to the instructions specified there.)
5. Check that the convergence temperature of bearing during load operation of the front-drive equipment, (after being maintained), does not exceed [ambient temp. + 40°C]. If such temperature was surpassed, installation failure is possible. Re-adjust the installation. Factors considered for abnormal temperature rise are bearing deviation, excessively small internal clearance, excessive precompression, excessive or insufficient lubrication, and heating from sealing equipment.

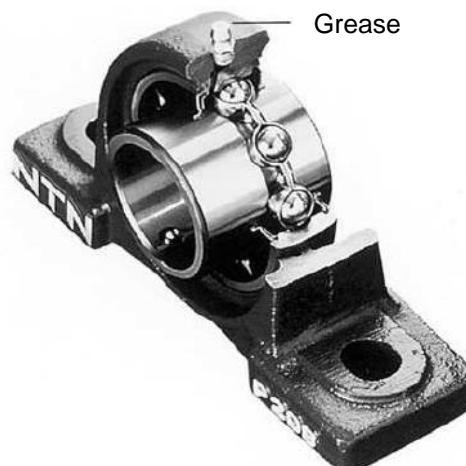
【Types of Bearing Unit】

Oil-free bearing unit



- When used under ordinary condition

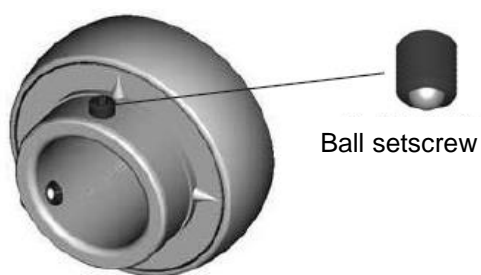
Oil-bearing unit



【 The case of use this type unit 】

- When bearing temp. exceeds about 100°C
- For extremely dusty site and without enough space to use bearing unit with cover
- When exposed to watersplash and without enough space to use bearing unit with cover
- For highly humid site and intermittent operation after long interval
- When operated at heavy load and at low speed
- For use in noise nuisance area, (highspeed noise likewise the case with air conditioner fan)

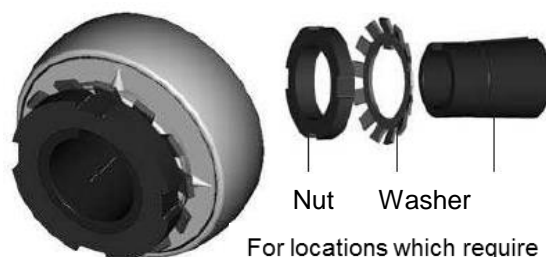
【Types of Bearing Unit Shaft Fastening】



Ball setscrew

Ordinary Use Condition Setscrew System

- For use under ordinary condition; the shaft and inner race, clearance fit, are used.



Nut Washer

For locations which require speed precision

Adapter System

- The system displays superior performance against impact load or loosening due to vibrations
- Shaft's dimensional allowance shall be over h9 tightening-wise value.



For locations which require shaft's fixed power against one-way revolutions

Eccentric Collar System

- Unlike the case with the setscrew system, the eccentric collar is tightened toward the shaft's revolving direction for fixing. Accordingly, the shaft and inner race are fixed for sure.
- For the right & reverse revolving shaft system, this system is not recommended since loosening tends to be caused.



For locations which require revolving precision

Tight Fit System

- Superior in shaft's alignment stability and slipping resistance. However, hard in removing the installation.

Remarks

There is a bearing unit called Plummer Block. This nominal designation is used for the housing when the bearing and housing are manufactured by a different manufacturer. The Plummer Block, however, is treated in the same way as for the bearing unit. Accordingly, for maintenance, follow to the instructions of the operation manual of the relevant Plummer Block manufacturer.