

12.5 Dismounting bearing

A bearing may be removed for periodic inspection or periodic change. If the removed bearing is to be used again or it is removed only for inspection, it should be dismantled as carefully as when it was mounted. If the bearing has a interference fit, its removal may be difficult. The means for removal should be considered in the original design, of the adjacent parts of the machine. When dismantling, the procedure and sequence of removal should first be studied using the machine drawing and considering the type of mounting fit in order to perform the operation properly.

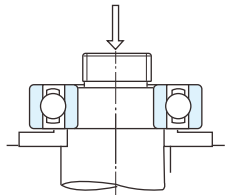


Fig. 12.5 Removal of inner ring using press

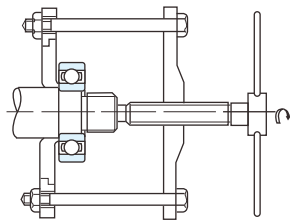


Fig. 12.6 Removal of inner ring using withdrawal tools

12.5.1 Dismounting of bearings with cylindrical bores .

For small bearings using press to dismount the inter ring (Fig 12.5) or using withdrawal force (Fig 12.6) is often used .The efficient to dismount is high and there is no damage to the bearings.

To be convenient for withdrawal cases ,the claws of the tools as shown in Fig12.7 and Fig12.8. Must substantially engage the face of the inner ring, therefore. It is advisable to consider the size of the shaft shoulder or to cut grooves in the shoulder to Accommodate the withdrawal tools.

For large bearings mounted with stationary fit, a heavy withdrawal force will be used to dismount since there is friction on the surface after a long term operation .Induction heating is also used to dismount bearings frequently of these type. The efficiency of this method is high.

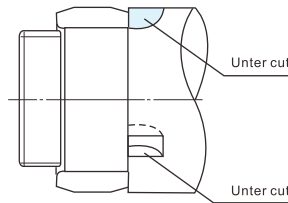


Fig. 12.7 Cut grooves for withdrawal force

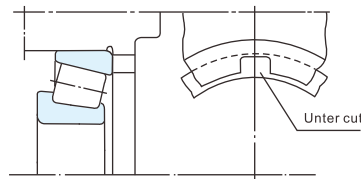


Fig. 12.8 Cut grooves for dismantling outer rings

12.5.2 Dismounting of bearings with tapered bore

When dismantling relatively small bearings with adapters, the inner ring is held by a stop fastened to the shaft and the nut is loosened several turns. This is followed by hammering on the sleeve using a suitable tool as shown in Fig12.9, while dismantling bearings with a withdrawal sleeve by tightening the removal nut as shown in Fig12.10.

Bearings mounted directly on the tapered shaft or large bearings with adapter or withdrawal sleeves may be withdrawn easily using oil pressure. Fig12.11 illustrate the removal of a bearing mounted on a tapered shaft by forcing oil under pressure on the fitting surface.

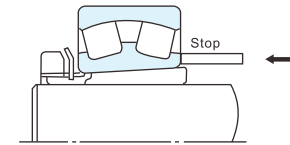


Fig. 12.9 Dismounting bearings with adapter

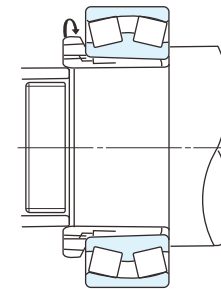


Fig. 12.10 Removal of withdrawal sleeve

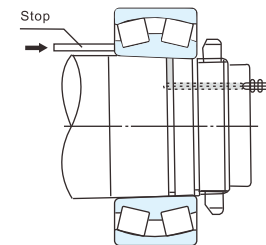


Fig. 12.11 Dismounting using oil pressure

12.6 Maintenance of bearing

To keep the original performance, proper maintenance and inspection should be performed.

Periodically according to the operation standard of target machinery. This periodic maintenance encompasses the supervision of operation conditions, the periodic inspection.

If an irregularity is found during operation, the cause should be determined and the proper corrective actions should be taken after referring to section 13. If necessary, the bearing should be dismantled and examined in detail.

12.7 Methods of analyzing bearing failures

1) Noise checking

Since the detection of abnormalities in bearings from noises requires ample experience, sufficient training must be given to inspectors. Given this , it is recommended that specific persons be assigned to this work in order to gain this experience. Attaching hearing aids or listening rods on housings is effective for detecting bearing noise.

2) Checking of operating temperature

Since this method utilizes change in operating temperature, its application is limited to relatively stable operations. For detection, operating temperatures must be continuously recorded. If abnormalities occur in bearings, operating temperature not only increase but also change irregularly. It is recommended that this method be employed together with noise checking.

3) Lubricant checking

This method detects abnormalities from the foreign matter, including dirt and metallic powder, in lubricants collected as samples. This method is recommended for inspection of bearings which cannot be checked by close visual inspection, and large size bearings.