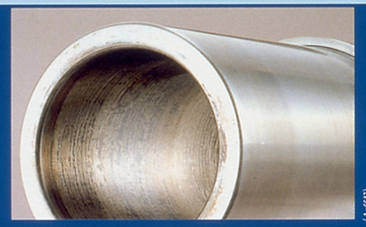
Koyo®

Rolling Bearing Failures and Their Causes

KOYO SEIKO CO., LTD.

1 Improper Fit

■Phenomenon:Fretting Corrosion (Left)/Creep (Right) on Inner Ring Bore Surface
●Cause:Less Interference Fit with Shaft

■Phenomenon:Scuffing on Inner Ring Bore Surface
●Cause:Excessive Interference Fit with Shaft

2 Improper Adjustment


■Phenomenon:Smearing on Raceway
●Cause:Improper Preload

■Phenomenon:Seizure at Roller End Surface and Inner Ring Rib
●Cause:Insufficient Bench End Play

3 Misalignment (Inclination of Bearings)


■Phenomenon:Symmetrical Fretting on Upper and Lower Sides
●Cause:Misalignment

■Phenomenon:Retainer Broken
●Cause:Abnormal Load due to Misalignment

■Phenomenon:Flaking on Opposite Faces of Raceway
●Cause:Diagonal Assembly

4 Impact Load


■Phenomenon:Retainer Broken
●Cause:Excessive Vibration or Impact during Operation

■Phenomenon:Flaking at Intervals on Ball Pitch
●Cause:Indentations Caused by Impact Load Develop into Flaking

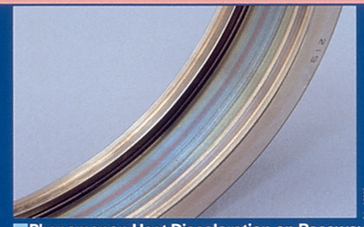
■Phenomenon:Cracks and Chips on Inner and Outer Rings and Rollers (Left)/ Seizure Caused by Chips on Ribs (Right)
●Cause:Excessive Axial Impact Load

5 Dirty Lubricant


■Phenomenon:Indentations on Raceway
●Cause:Contamination by Foreign Matter or Flakes from Other Bearing

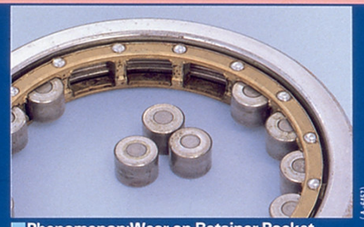
■Phenomenon:Smearing/Wear on Roller
●Cause:Lubricant Contaminated by Water or Other Foreign Matter

6 Improper Lubrication



■Phenomenon:Heat Discoloration on Raceway/ Guide Surface of Retainer

■Phenomenon:Scuffing on Roller End Surface and Inner Ring Rib

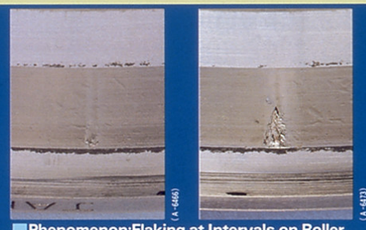


■Phenomenon:Wear on Retainer Pocket Surface/Guide Surface

●Cause:Improper Lubrication Method or Inappropriate Lubricant

7 Mishandling

■Phenomenon:Scratches (Left)/Scuffing (Right) on Roller Surface



■Phenomenon:Flaking at Intervals on Roller Pitch (Due to Scratches and Scuffing)

■Phenomenon:Scuffing on Bore Surface
●Cause:Diagonal Assembly or Foreign Matter on Fitting Surface

●Cause:Careless Handling during Assembling

8 Corrosion

■Phenomenon:Rust Generated on Raceway at Intervals on Roller Pitch
●Cause:Bearings Left Unused for Long Period under Moist Conditions

■Phenomenon:Rust Generated on One Row of Raceway
●Cause:Water Contamination during Operation

9 Electric Pitting

■Phenomenon:Flaking Generated Around Half the Raceway
●Cause:Flaking Caused by Rust


■Phenomenon:Electric Pitting (Pit-or Ridge-) and Staining
●Cause:Current Passed Through Inside of Bearing

Koyo For Any Information Regarding Bearings, Please Contact:

KOYO SEIKO CO., LTD.(Japan)
is certified to ISO9001 and QS-9000.

CAT.NO.2000E Printed in Japan '01.10-1CDS('91.1)