
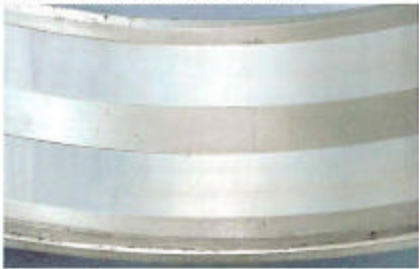





III . Failures, Causes and Countermeasures

2 Wear and Fretting

	Phenomena, causes and countermeasures	Examples of failures
Phenomena	<ul style="list-style-type: none"> ■ Wear is caused mainly by sliding abrasion on parts including the roller end face and rib, cage pocket surface, cage, and the guide surface of the bearing ring. Wear due to contamination by foreign matter and corrosion occurs not only to the sliding surface but also to the rolling surface. ● Fretting is a phenomena which occurs when slight sliding is repeatedly caused on the contact surface. On the fitting surface, fretting corrosion occurs, generating a rust like powder. ▲ If bearings receive a vibration load when they stop or operate, slight sliding occurs in the section between the rolling element and bearing ring due to elastic distortion. False brinelling, a flaw similar to brinelling, is generated by this condition. 	<ul style="list-style-type: none"> ■ Wear on roller and face of Cylindrical Roller Bearing  (A-4718) ■ Wear on outer ring raceway surface of Double-Row Cylindrical Roller Bearing  (A-6714)
Causes	<ul style="list-style-type: none"> ■ Wear <ol style="list-style-type: none"> 1) Improper lubricant or shortage of lubricant. 2) Contamination by foreign matter(s). ● Fretting <ol style="list-style-type: none"> 1) Vibration load. 2) Slight vibration on fitting surface caused by load. 	<ul style="list-style-type: none"> ● Fretting on inner ring bore surface of Tapered Roller Bearing  (A-6649) ● Fretting on outer ring O.D. surface of Deep Groove Ball Bearing Vertical fretting at symmetric positions 180° apart.  (A-6735)
Countermeasures	<ul style="list-style-type: none"> ■ Wear <ol style="list-style-type: none"> a) Review and improvement of lubricant and lubrication method. b) Filtering of oil. c) Improvement of sealing. ● Fretting <ol style="list-style-type: none"> a) Investigation and countermeasures for the source of vibration. b) Investigation and increase of interference. c) Enhancement of shaft rigidity. 	<ul style="list-style-type: none"> ▲ False brinelling on inner ring raceway surface of Deep Groove Ball Bearing  (A-7278)