LV8

# **Tapered Roller Bearing Damage**

Recognizing causes and types of bearing damage can help you prevent further damage resulting in improved bearing life and performance.

## Fatigue Spalling



Geometric stress concentration (GSC): Misalignment, system deflections and heavy loading.



**Point surface origin (PSO):**Debris and raised metal exceeding the lubricant film thickness.



**Inclusion origin:** Oxides or other hard inclusions in bearing steel.

#### Deformation .....



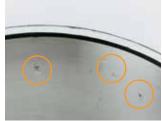
Bearing cone (inner race) large rib face deformation: Metal flow from excessive heat generation.

### **Deformation**



**Total bearing lock-up:** Rollers skew and slide sideways.

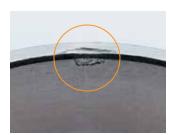
## Handling Damage



Roller spaced nicking: Raised metal on races from contact with roller edges.



**Roller nicking and denting:** Rough handling or installation damage.



**Bearing cup (outer race) -face denting:** Indentations from hardened driver.

Skill Level: Easy | Special Tools: None

TIMKEN