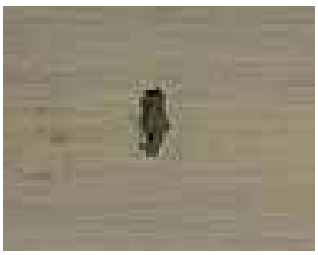
Tapered Roller Bearing Damage

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