

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

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