# Bearing Repair

**Bearing Repair**

Even under the best managed operating conditions, a precision anti-friction bearing eventually fails. Reconditioning used bearings for additional life is a way to minimize replacement expense. Bearing repair is a highly specialized technology. Bearing repair technicians are experts in understanding wear and damage. Types of bearings repaired include spherical roller bearings, tapered roller bearings, cylindrical roller bearings, ball bearings, thrust bearings, Z mill bearings, and triple ring bearings.

**Four Levels of Bearing Repair**

The exacting science of bearing repair starts with an expert's eye, A simple visual inspection begins a process of careful evaluation that will compare common types of bearing damage such as scuffing and staining against their repair potential. Once the type and extent of damages are determined, the degree of repair work can be established. Serious damage can demand extensive rework, up to and including major component replacement.

There are four basic levels of inspection and rework operations. The operations are listed below in order of increasing repair time, difficulty, and cost:

| Repair Type | Repair Description |
|---|---|
| I | Cleaning, Inspection, Written Report, Repack |
| II | Level I plus polishing all components |
| III | Level I plus grinding rings plus manufacturing new rollers and cages |
| IV | Level I plus Level III plus new inner and outer ring |

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The following is a detailed description of a typical Level III operation:

1. Clean entire bearing.
2. Disassemble and inspect every component, etch serial repair number and record pertinent information about the bearing (conditions and critical dimensions).
3. Generate written report of inspection and formal quote.
4. Launch manufacturing order for regrinding races and manufacturing new sets of rolls; generate routings and process prints.
5. Grind raceways on inner and outer ring until all surface damage is removed.

6. Polish all other surfaces as good as possible without removing material on critical surfaces.
7. Magnetest and inspect inner and outer ring.
8. Size new rollers based on amount of material removed from raceways and on internal geometry.
9. Perform necessary work on cages.
10. Grind rollers to size required.
11. Magnetest, inspect and size rollers.
12. Assemble bearing; check clearances.
13. Preserve, pack and ship.

**What does it cost?**

The cost of bearing repair ranges from as little as 10% of new bearing cost for minor surface reconditioning to more than 50% for replacement of a major bearing component. As a basic rule, large heavy-duty bearings offer the best possibility for a cost-effective repair. For the four basic levels of repair operations, the following represents typical repair charges as a percent of new bearing replacement cost:

| Repair Type | Repair Charge (% of new) |
|---|---|
| I | 10% |
| II | 25% |
| III | 50% |
| IV | Quote |

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