

Knowledge Domain: Motors
Unit: Cleaning/Lubrication
Skill: Repack bearings

Tools and Parts Required:

- 1) Grease (or Vaseline)
- 2) Bearings
- 3) Bearing puller/Wrench
- 4) Bowl
- 5) Torch

Introduction

A bearing is a device to allow constrained relative motion between two or more parts. A bearing typically allows rotation or linear movement. Improper care of bearings leads to friction in the motor. Friction in the motor can cause damage to the motor. Lack of lubrication is the primary cause of bearing failure. Bearing failure is one of the major causes of breakdowns in rotating machinery. Bearing failure can be catastrophic, resulting in costly downtime. Bearings should be periodically repacked (after lubrication) to prevent major damages. Some bearings are sealed. If sealed bearings are damaged, they cannot be repaired.

Example

Below are some illustrations



Wrenches used to open and close the bearings. A bearing puller on the left



Bearings in a bicycle wheel

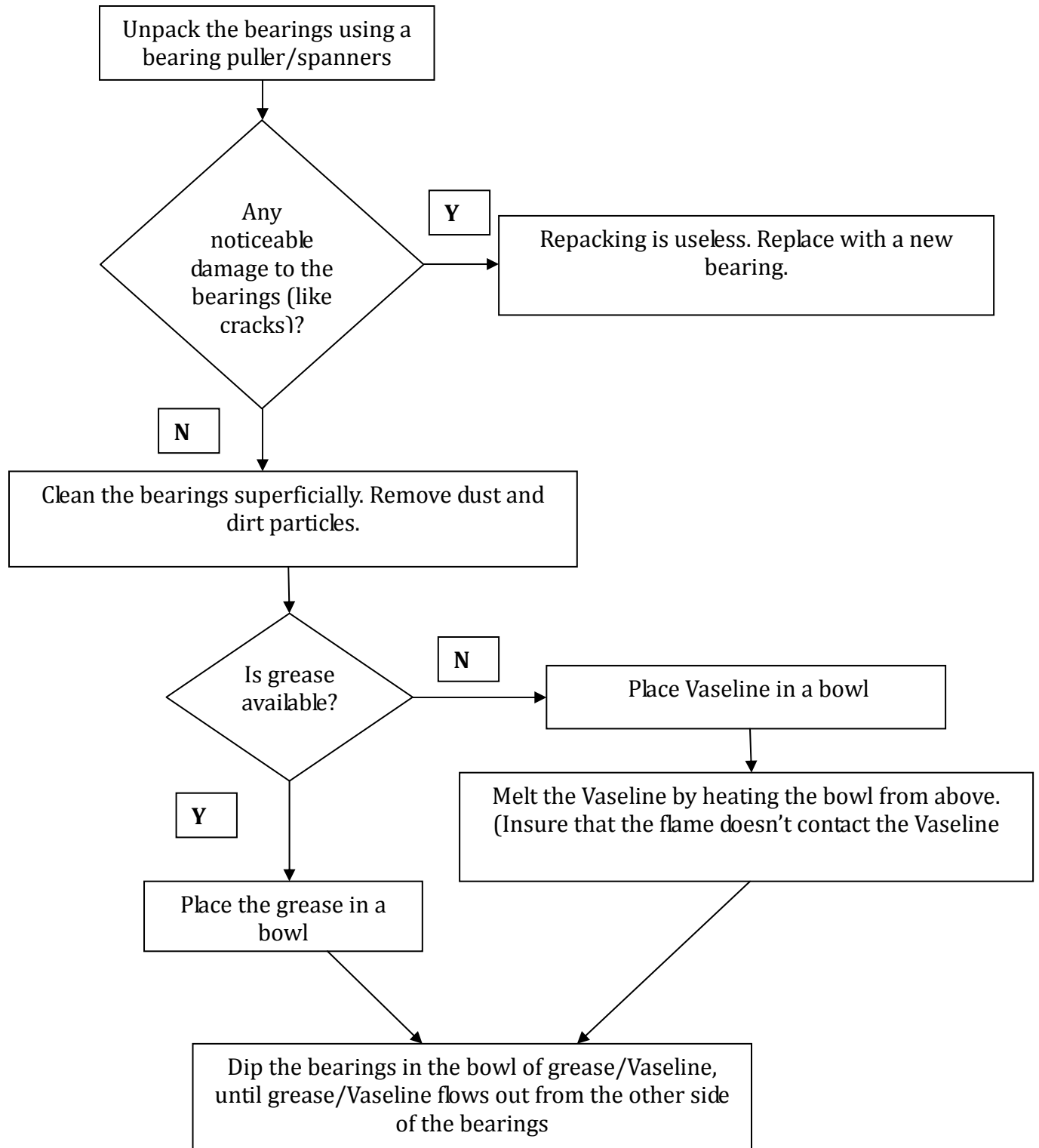


Left Bearing is clean and lubricated; Right bearing is dirty needs maintenance

Identification and Diagnosis

Develop a schedule of preventative maintenance for motor bearings.

Procedure



Exercise

Identify which equipment contains bearings. (Hint: Look for anything that rotates like rotating chairs)

Repack the bearings using the procedure described above. Let your instructor verify your work at each step.

Preventive Maintenance & Calibration

How to Prevent Wheel Bearing Failure

- Clean bearings **properly**. Use clean solvent and brushes and dry thoroughly with clean air.
- **Never** rotate dry bearings; rotating dry bearings causes scratching of the polished surface and may result in premature failure.
- **Do not** pack the bearing unless it is perfectly dry.
- Pack the bearing **immediately** following cleaning, drying and inspection.
- **Do not** use an excessive amount of grease - be sure the grease is worked into every bearing space, but do not fill the hub with grease.
- Keep bearings clean.
- Work on a clean bench and **do not** handle bearings with dirty or moist hands.
- Make sure that the bowl used to clean the bearings is perfectly clean and has little or no dust particles attached to it.
- When re-assembling **check** the bearing for proper seating.
- Keep grease containers **completely covered** when not in use to avoid contamination. (Replace the lid immediately after sufficient grease has been removed from the container).
- **Do not** mix different types of grease. **Never** mix lithium based multi-purpose grease and soda base wheel bearing grease or an adverse chemical reaction will occur.
- Carefully **avoid** contact of the packed bearing with dirt, dust, water or dirty hands.
- **Do not** clean with air unless holding the race.
- **Always** use grease before Vaseline.

Bearing life is limited by the following factors:

- Contamination of the lubricant
- Lack of attention to bearing installation and maintenance
- Too little or too much lubricant
- The type of grease used