

The Challenges of Mill Maintenance—Part II

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In order to present the entire outline from the workshop presented at the 1999 Conference, it has been divided into three separate sections. Part I discussed routine maintenance. In Part II, the reader will learn about maintaining the power source and machinery. The third section provides a list of recommended tools and supplies needed for most mill maintenance work.

Power Source:

Waterwheel maintenance requires the following:

- Inspection of buckets, sole plats, and rims for corrosion or rot.
- Wooden wheels are best kept wet as much as possible.
- Inspection of any bolts, such as those which hold segment gears.
- Inspection of bearings for wear and adjustment of bearing caps to compensate. Bearings and gears need lubrication, while hubs, spokes, gears, and axle require periodic checks. Don't operate in icy or below freezing conditions.

Turbine maintenance includes:

- Checking to see that the turbine is submerged to top bearings when not being inspected.
- Keeping gates clean of debris.
- Maintaining effective a trash rack system.
- Checking wear on upper lignum vitae bearings and adjusting as needed.
- Checking coupling for "slop."

- Checking all bolts, gate control rods, and gates—insure that gates open and close properly and completely.
- If turbine shaft shows noticeable drop, lower lignum vitae bearing is wearing.
- If turbine is ever disassembled, check runner for cavitation and inspect bearings.
- Check shaft for wobble and excessive vibration.

Dam maintenance:

- Inspect for excessive leaning, particularly underneath the dam.
- Check drain/flood gates.
- Keep clean of debris (also silt).
- Check for cracks in masonry and cap.
- Inspect abutments.

Flume/race/penstock maintenance:

- Inspect gates for leakage or rotting.
- Keep clean of debris, silt, and roots.
- Inspect for muskrat and other "varmint" holes.
- Watch for excessive leaking.

Engine/Motor maintenance:

- Perform routine inspections and maintenance as required.
- If operating a steam boiler, have it inspected and certified annually.

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