

Maintenance Guidelines & Expectations for Handheld Precision Fastening Tools



I. Preventative Maintenance Guidelines

Ingersoll Rand tools are developed for tightening threaded fasteners. Specific application and environmental variables such as torque target, run down angle, joint type, operator technique and performed maintenance can have a significant impact on the durability of an assembly tool.

The following guidelines in *Figure 1* recommend maintenance intervals for specific tool types and components. **Recommendation:** Check repeatability and calibration after all maintenance procedures. Recalibrate if required.

Figure 1: Recommended Preventative Maintenance Intervals

| Interval | Recommended Preventative Maintenance |
|----------------|--|
| Monthly | <p><i>Safety Inspection:</i> Inspect condition of all power cables and connections. Inspect tool suspension components and torque reaction devices. Replace worn or damaged components. Replace worn or damaged safety cables.</p> <p>Note: Failure to perform this inspection could result in unsafe or hazardous conditions being present.</p> |
| 25,000 cycles | <p><i>Tubenut tools:</i> Lubricate head according to head supplier recommendation.</p> <p>Note: Failure to perform routine maintenance will result in reduced life, increased repair cost and downtime. Inspect housing, gears, bearings, bushings, & socket and replace worn components.</p> |
| 75,000 cycles | <p><i>Crowfoot tools:</i> Lubricate head according to head supplier recommendation.</p> <p>Note: Failure to perform routine maintenance will result in reduced life, increased repair cost and downtime. Inspect housing, gears, bearings, bushings, & socket and replace worn components</p> |
| 150,000 cycles | <p><i>Angle Heads:</i> Most Ingersoll Rand angle heads are lubricated for life. The heads are not serviceable, but heads with grease fittings should be lubricated with 2-3 pumps of recommended grease. Inspect pin retainer to ensure they are in good operating condition and replace parts as needed.</p> <p>Note: Failure to perform this maintenance could reduce gear life. Excessive grease may cause heat build up an leakage.</p> |
| 500,000 cycles | <p><i>Electric Tools:</i> Inspect switches actuators, cables, and connectors and replace any worn components.</p> <p>Remove gear case and output inspect for wear, replace any visibly worn assemblies. Wipe off old grease and reapply recommended amount of designated grease in planetary gearing. Note: Use of degreaser will remove lubrication from inaccessible bearings and cause premature failures.</p> |

II. Lubricant Descriptions

Use specific grease that is recommend in the Product information Manual. Typical greases include:

IR 67
IR 69
IR72

GREASE MSD

III. Usage Adjustment Factor (UAF)

Operation **below** the rated torque can **increase** the number of expected cycles to failure on drivetrain components.

Multiply MTBF ratings below for each component by these provided Usage Adjustment Factors (UAF) for proper expectations of operation at other than rated torque levels.

Figure 2: UAF

| % of Max Torque | Usage Adjustment Factor (UAF) |
|-----------------|-------------------------------|
| 100% | 1.0 X |
| 90% | 1.3 X |
| 80% | 1.8 X |
| 70% | 2.5 X |

IV. MTBF (Mean Time Between Failure) Guidelines

MTBF Guidelines for estimating spare parts use. Use in conjunction with the Usage Adjustment Factor (UAF) above for optimal expectations.

NOTE: These are general guidelines. Individual tool models may have different MTBF (Mean Time Between Failures) ratings depending upon tool construction and the conditions of use.

Figure 3: MTBF

| Component(s) | Cycles |
|-------------------------|---------------|
| Angle Heads | 500,000 X UAF |
| Planetary Gear Assembly | 750,000 X UAF |
| Electric Motors | >1,000,000 |
| Transducers | >1,000,000 |
| Tool Cables | >1,000,000 |

V. Component Part Inspection

Use the following guidelines when performing component part inspections as a part of recommended preventative and/or requirement maintenance practices.

Figure 4: Component part inspection guidelines

| Component(s) | Guidelines |
|---|---|
| Spindles, Shafts, Couplings, Clutches, Springs | Replace if there is visible surface deformation or brinelling, surface scoring, nicks, cracks, or pitting |
| Gearing | To maximize uptime, replace entire gear set if individual component gears are damaged. |
| Seals | Replace if surfaces are worn flat, notched, cut, or cracked. |
| Ball Bearings | Most ball bearings are not user serviceable. Replace assembly if ball bearing does not spin smoothly when turned by hand. |
| Needle Bearings | Most needle bearings are not user serviceable. Replace assembly if needle bearing does not spin smoothly when turned by hand. |
| Tool Cables | Replace cables when outer jacket is damaged exposing shielding or when tool operation is affected. |