



Technical Bulletin

TSTB Number 1

Leaf Spring Repair: Rebuild or Replace?

Repairing vs. replacing has been, and will remain, a judgement call on the part of the operator. However, over the years some general “common sense” guidelines have developed which can help guide the decision making process. These include:

▶ **How many leaves are broken?**

Multi-leaf springs in which 3 or more leaves are broken are generally replaced.

▶ **Where are the leaves broken?**

If breakage occurs between the u-bolts, breakage was probably a by-product of loose u-bolts and the spring is a candidate for rebuild. However, if breakage occurs between a u-bolt and an end of the spring, breakage was probably caused by fatigue. Depending on the mileage experienced, replacement should be considered in this instance.

▶ **How many miles have the springs been in operation?**

All steel leaf springs have a finite life and will eventually suffer fatigue. When fatigue failure will happen depends upon the type of operational service they experience. Springs in over-the-road applications will generally outlive springs which see off-road, or other severe service applications by a wide margin.

If, based on the operating history, “normal” spring life was experienced for the application, then replacement would be the best option. Note: Due to the unavoidable frequency of breakage in severe service applications, the rebuild-to-replace ratio is generally higher in these applications.

▶ **Is it a front spring, rear spring or trailer spring? Long taper, multi-leaf or single leaf?**

Medium duty multi-leaf and heavy duty long taper front springs are generally replaced. Rear springs are often rebuilt. Three-leaf trailer springs are commonly replaced. Single leaf trailer and tractor “z” springs are replaced.

▶ **Has the spring ever been rebuilt before?**

If the spring has been rebuilt once, common practice is to replace it the second time around.

▶ **How important is “downtime” to the operation?**

Avoiding downtime is usually important to most operations. If normal spring service life has been experienced, then replacement of the broken spring is usually the best choice. Further, a thorough examination of the remaining spring on the opposite side of the axle should be made as it too has experienced fatigue. To keep downtime to a minimum, replacement should be a serious consideration.

Up Next: Rebuilding



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