

LOCTITE*Adhesives for more
reliable assemblies***APPLICATION CASE HISTORY****No. 239**

Loctite® Retaining Compound Keeps Bucket Loader Moving; Increases Mine Production

A base metal (copper and zinc) mine hosted a Loctite proactive maintenance training program on site. This series of seminars helped mine personnel identify applications where Loctite® products could be helpful in reducing downtime or increasing productivity. Mine production depends on how quickly material can be scooped up and moved to the milling operation. Any downtime means less production for the mine.

Situation:

One application they identified was the bucket loader or "scoop." A scoop is like an excavating front end loading tractor, constantly loading 6-8 yards of earth. This heavy work load causes extreme shock and impact on the hinge arms and pin bearings of the bucket loader.

A shrink fit was used to insert the hinge pin bearings into the hinge arm, but surface imperfections on the bushing create space allowing for movement and corrosion over time. Every time the hinge pin bearings pounded out the housing, maintenance on the equipment was required. Mine engineers wanted to find a better way to secure the hinge pin bearings into the hinge arm that would increase in-service time for the bucket loader.

Solution:

Loctite® RC™ 680 is a medium-viscosity, fast curing retaining compound. It fixtures in 10 minutes at room temperature and provides a shear strength of 4,000 psi on steel.



Loctite® RC™ 680 applied to sleeve OD and housing ID prior to shrink fit assembly.



The worn hinges were machined to round and sized .002" smaller than the sleeve OD. All surfaces were cleaned with Loctite® 7070 ODC-Free Cleaner. After cooling the replacement sleeve, Loctite RC 680 was applied to the housing ID and the sleeve OD. The sleeve was slid into place and allowed to cure for 24 hours.

Results:

Augmenting the shrink fit with RC 680 completely filled any voids in the fit of the two parts. This added a significant amount of strength to the final assembly, enabling the bucket loader to stay in service longer.

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