



J. LANFRANCO

LOCKNUTS FOR CRITICAL BOLTED JOINTS

REPLACING WEAK FASTENER TECHNOLOGY WITH A BETTER SOLUTION

THU locknuts are fully capable of correcting flawed bolting installations



CHALLENGE

Unreliable Fasteners Disrupt Railway Traffic

With heavy traffic from four different railways, inspections at a Class 1 double diamond in the American Midwest revealed almost **every bolted joint in a state of loosening** or completely unloaded. Locking washers were shattered and nuts no longer provided any prevailing torque. As a result, maintenance crews had to contend with approximately 60 loose or broken bolts every week. This forced railroad operators to leave two crates of bolted assemblies beside the diamond for weekly repairs — an average of 3,000 replacement assemblies annually.

Because track maintenance was always conducted in a live state, crews had very little time to work in between trains. These already challenging conditions were compounded when **nuts seized up during installation or removal**. In these cases, weld crews had to be called in to cut the parts free, potentially damaging through holes and further increasing maintenance costs.

These problems stemmed from the locking nuts installed at the time: a prevailing torque design using deformed threads. This type of locking generates **irregular torque** that can result in no locking or such high values that nuts would seize up during installation. Additionally, this style of locking exhibits **fatigue over time**, especially with multiple installations.

THU LOCKNUT CHARACTERISTICS

Prevailing torque

ASME B18.16.6
(IFI 100/107)

Mechanical

SAE J995- Gr.5 & Gr.8
ASTM A563, A194
ASME B18.16.6

For use with

Standard track bolts
Threaded rods
Frog bolts/hex bolts

Features

Installs with standard tools
Suitable for hand tools
Locks in any position
Highly reusable



WHY USE THE THU?

Benefits of THU Locknuts

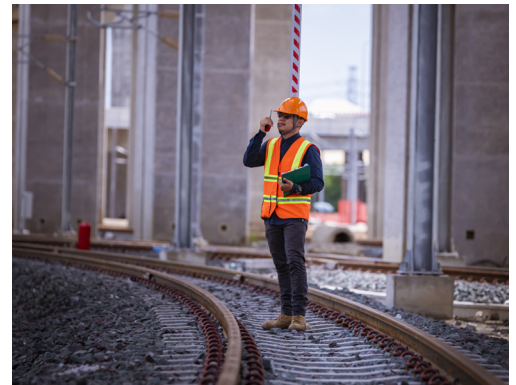
- 1 Increase track time**
by reducing service interruptions caused by track damage and the associated maintenance.
- 2 Improve operational efficiency**
by eliminating the need for regular maintenance crew visits to repair or re-tighten loosened/broken fasteners.
- 3 Reduce inventory**
since there is no longer any need to leave spare parts beside the diamond.
- 4 Reliable and predictable performance**
with no galling and no damage to bolt threads.
- Easy to install**
with standard tools and bolts — no need for specialized equipment or training.

SOLUTION

THU Locknuts Prove to be a More Effective Solution

Operators of the Class 1 diamond sought a better solution that would **reduce maintenance, increase track availability, and improve maintenance crew safety.** To facilitate this solution, a total of 70 J.Lanfranco 1”3/8-6 UNC Gr.8 THU nuts were installed without any problems using a hydraulic impact and reusing existing on-site bolts.

Since the installation of the THU locknuts, inspections have not revealed any loosening. And, over a six month period, this elimination of weekly changeouts has resulted in overall savings of nearly \$50,000 at this single location.



Engineer inspecting track

What are THU locknuts?

With an all-metal design made of a single unique material, the J.Lanfranco THU locknut requires no insert. It derives its prevailing torque from two radially de-pitched locking slots positioned parallel to the thread pitch in the turret portion of the nut.

The locking slots are opened by the bolt threads and apply precise and controlled locking torque directly on the thread flank. As a result, this non-galling fastener technology resists all forms of dynamic and cyclical vibration without damaging the bolt threads.

**Annual maintenance savings
of \$100,000.**

