



Automotive	Chemicals	Cutting Tools/ Abrasives	Electrical	<b>Fasteners</b>	Fluid Power	Safety/ Material Handling	Shop Supplies/ Hand Tools	Welding
Farming	<b>Industrial</b>	Manufacturing	Military	Mining	Recreation	Service		

## Exhaust Systems May Exceed Service Temperature For Standard Fasteners

### Problem

Fasteners used to repair exhaust joint assemblies were causing leaks that compromised the overall efficiency of the system.

### Review

Standard SAE Grade 8 fasteners with All-Metal Grade C Locknuts are often installed by default because of their availability and common usage for protection against excessive vibration.

### Assessment

Exhaust system components such as turbochargers on frac pump engines can reach temperatures as high as 1300°F.

Standards for leak-free exhaust joints have created an emerging need for bolting materials that combine temperature resistance and strength.

### Recommendation

It is essential to refer to the original equipment requirements when replacing fasteners commonly used in engine exhaust manifolds, catalytic converters, and turbocharger systems.

### Result

Use of High Nickel Alloy bolting materials will meet both the high strength and elevated-temperature demands required to provide reliable leak-free exhaust joints.



Frac pump engine



Close-up of exhaust joint



Close-up of exhaust joint



High-temperature bolt head