



TurnaSure LLC

International Headquarters
340 E. Maple Avenue
Suite 305
Langhorne, PA 19047

Telephone: 215-750-1300
800-525-7193
Facsimile: 215-750-6300

Website: www.turnasure.com
E-mail: info@turnasure.com

Technical Report No.25

Stress relaxation test on high strength bolt and Coronet Load Indicator

Introduction

The design of a high strength bolted joint depends on the maintenance of static tension in the bolts throughout their working life. The test examines relaxation over a number of years.

Summary

Over a period of eight years there was no measurable loss of tension.

Procedure

A $\frac{1}{2}$ " diameter bolt was tightened in a simulated joint with a Coronet Load Indicator under the bolt head and a flat round washer under the nut. Measurements of overall bolt length and Indicator gap were taken at intervals.

Results

Bolt length before tightening — 3.983"

Date Readings Taken	Duration Hrs.	Length after Bolting	Load Indicator Gap at each measuring point				Average Gap	Bolt Extension
7/26/63	Nil	3.9920"	.013"	.015"	.016"	.016"	.015"	.0090"
8/16/63	(500)	3.9920"	.013"	.013"	.015"	.016"	.0142"	.0090"
11/29/63	(3000)	3.9918"	.016"	.016"	.014"	.013"	.0147"	.0088"
9/15/66	(10000)	3.9920"	.016"	.016"	.014"	.014"	.015"	.0090"
11/5/66	(20000)	3.9923"	.016"	.016"	.014"	.013"	.0147"	.0093"
12/29/66	(30000)	3.9922"	.015"	.014"	.016"	.013"	.0145"	.0090"
6/8/71	(8 years)	3.9923"	.016"	.016"	.014"	.013"	.0148"	.0093"

Observations

The slight variations which have occurred throughout these tests will be seen to go up and down and are considered to be due to ambient temperature variation.