FLOWSERVE

Various Issues During Shop Diagnostic Testing

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QUG 2014

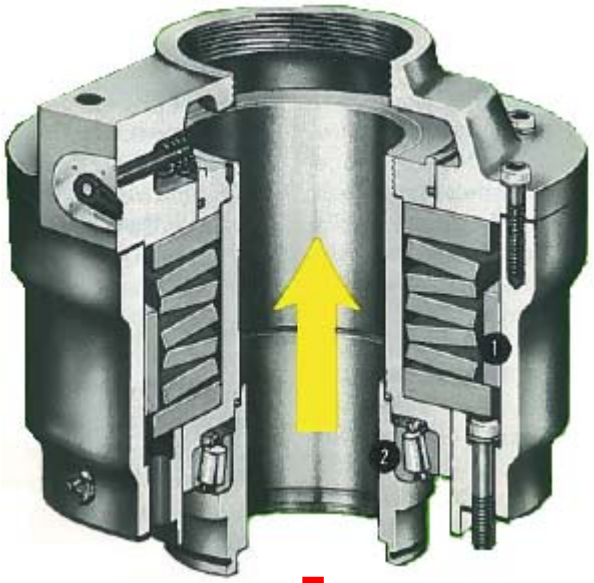
August 21st, 2014

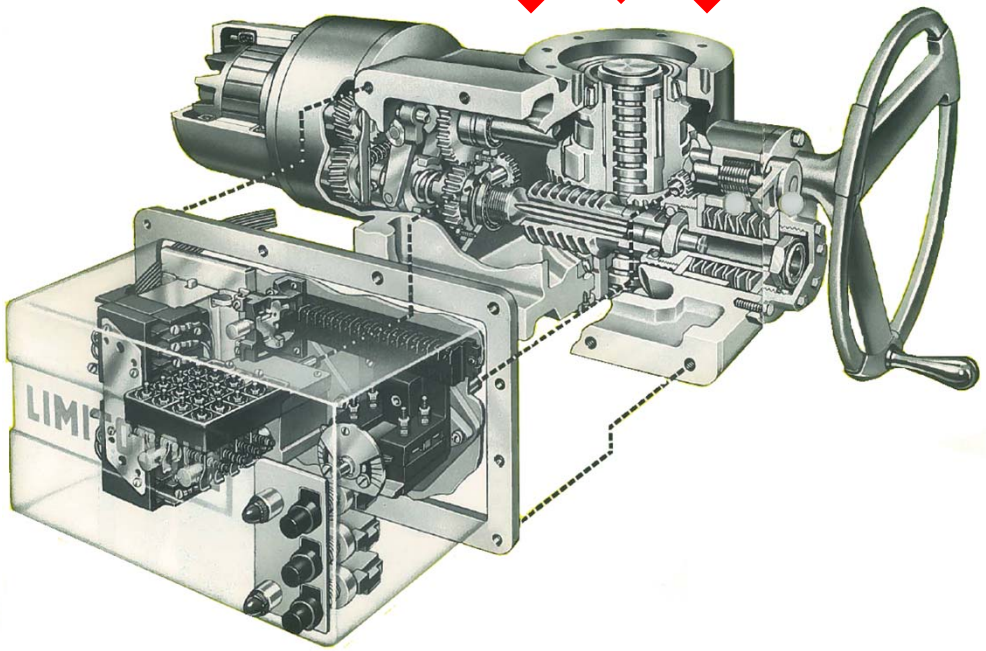
Marion, MA, USA

Experience In Motion

1.) Effect of Spring Compensator Pack Preload on MOV

Experience In Motion





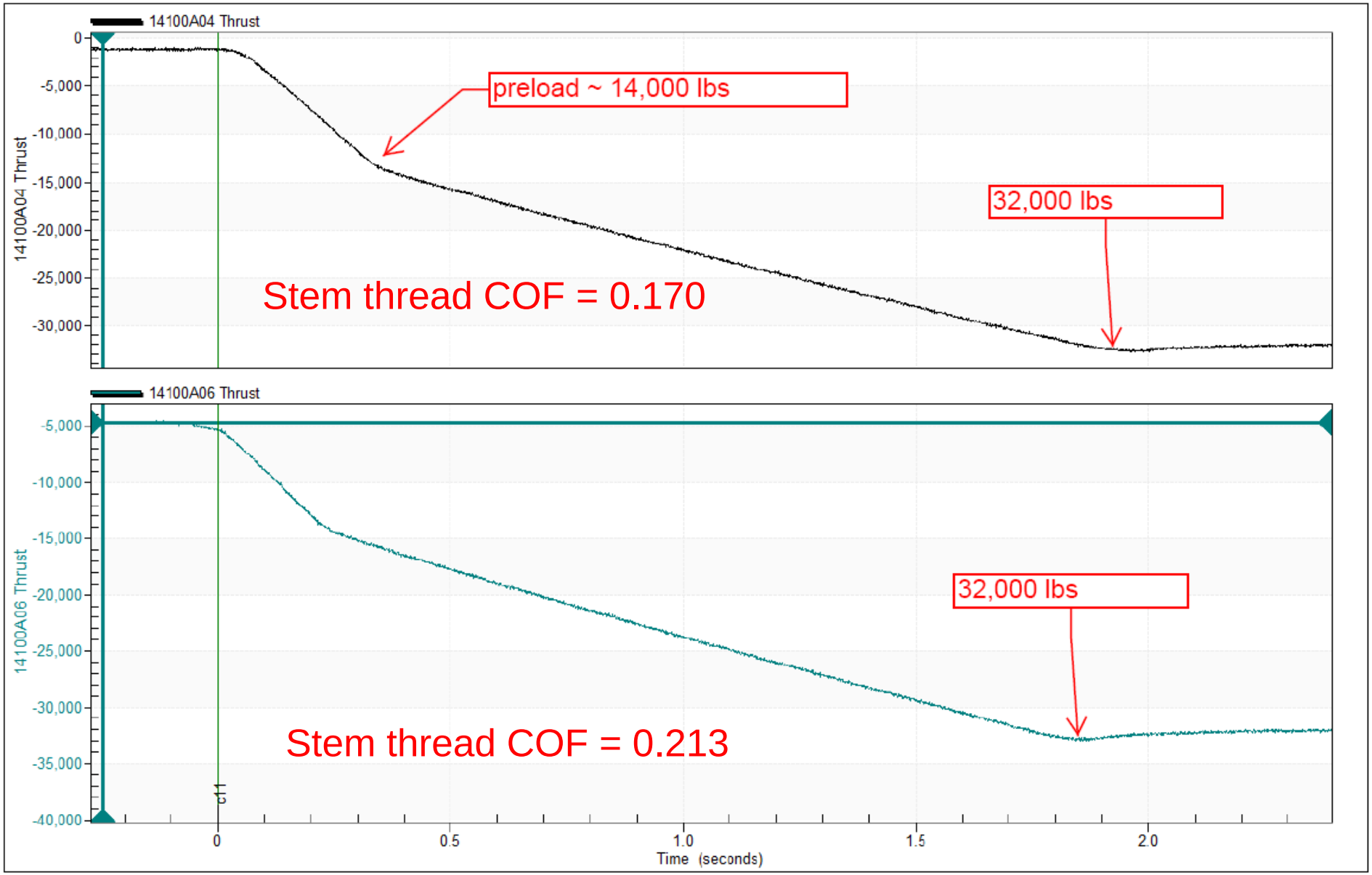
- **Spring Pack Design Basics**
  - Two-piece stem nut secured by Belleville spring assembly
  - This design permits stem nut to “float” relative to actuator

- **Uses:**
  - High Speed:
    - Absorbs inertia from motor
  - High Temperature:
    - Absorbs thermal expansion of various valve parts

Example

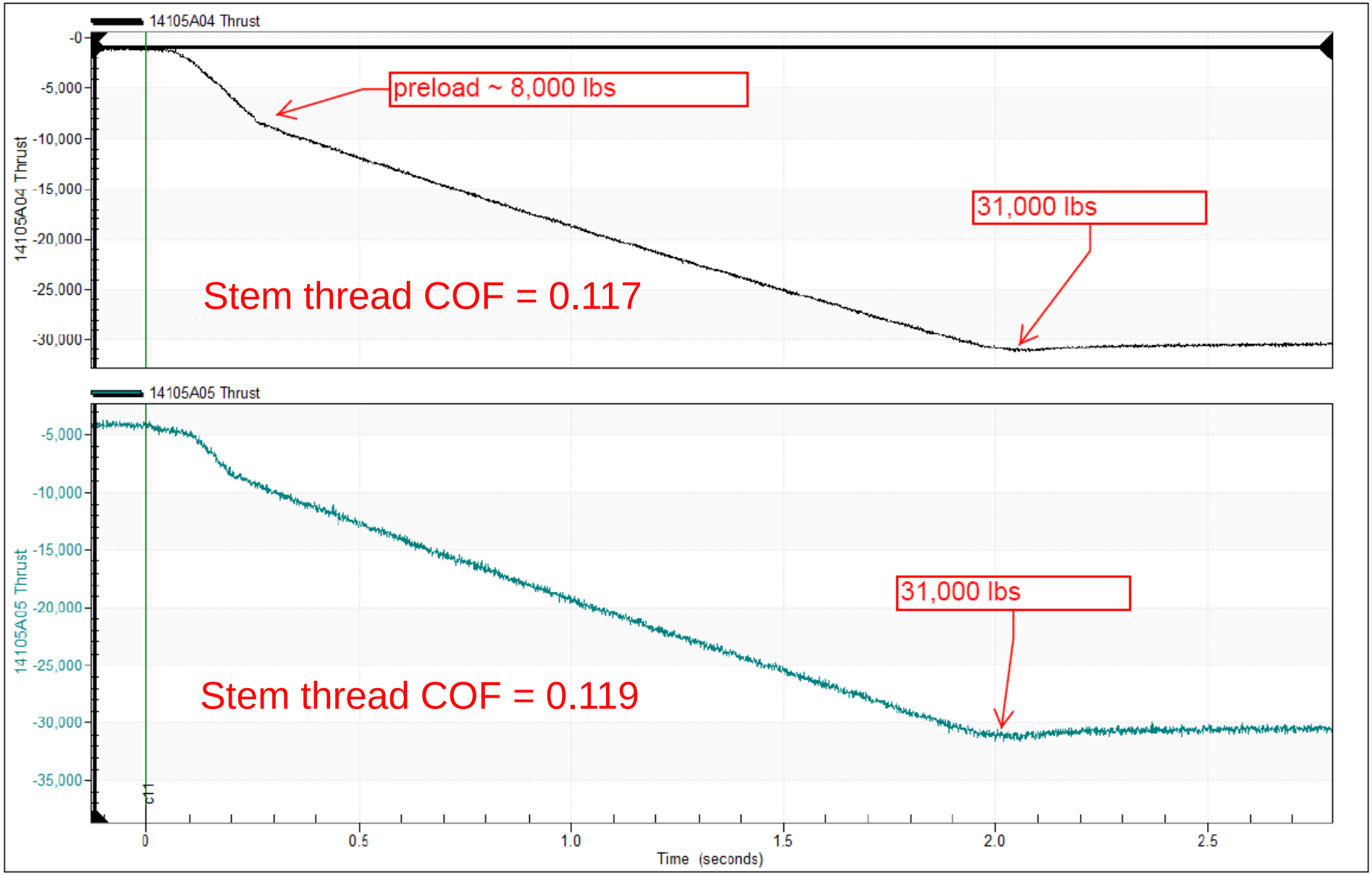
- Size 6 Class 900 Flex Wedge Gate Valve
  - With Limitorque SB-2-80 (DC)
  - Spring Pack Pre-load design nominal = 7,575 lbs

Top test is static, Bottom test is DP test



Original Actuator with high spring pack preload

Top test is static, bottom test is DP test



Actuator repaired with spring pack preload adjusted correctly

Questions

- How closely should spring packs be analyzed?
- At what point does the preload have a negative impact on the valve assembly?

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2.) Effect of Improper Installation of Strain Gage and Effect on the Data

Experience In Motion

QSS Ends are Not Aligned

Stem COF values are:

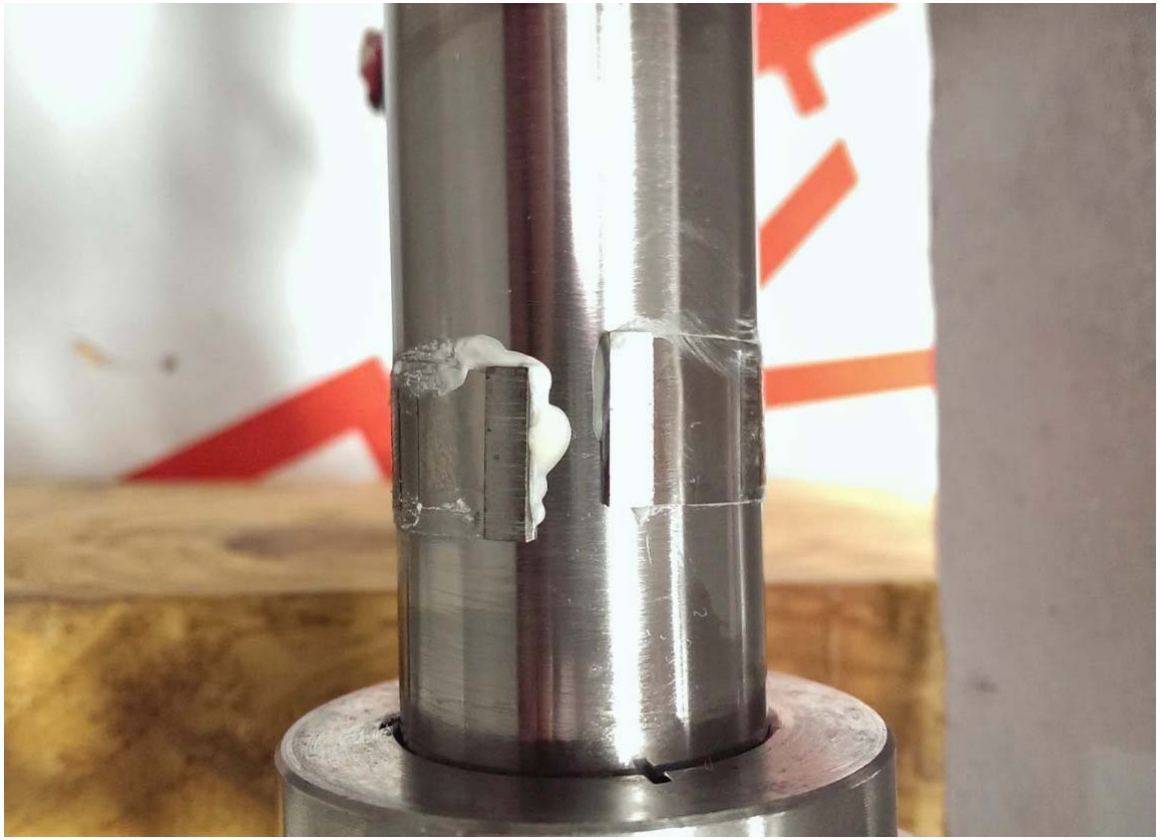
0.14 (static)

0.22 (DP test)

QSS was then removed and correctly installed. COF values were then:

0.10 (static)

0.12 (DP test)



Questions

- At what point to the alignment of the ends become a negative impact to the test data?
- Are there other strain gage installation issues that should be checked?