5,000 psi Blind Shear Ram Bolting Torque

Engineering Bulletin

Scope
This bulletin addresses a field installation occurrence, of which GE has been made aware, performed on 5,000psi (5K) Blind Shear Ram (BSR) blade to block attachment bolts that could lead to an attachment bolt (P/N 3149078) fracture, resulting in the inability to successfully contain well bore pressure.

Background
GE has reviewed two recent field events where a limited number of 5K Blind Shear Ram upper blade attachment bolts parted, leading to the fracture of the shear ram upper blade. These events occurred during preoperational surface testing after maintenance on 18 ¾” – 15,000 psi (18-15) Ram Blowout Preventers (BOP). GE was informed that, preceding the events, the blades were attached to the ram blocks and bolts torqued in situ on the operator. During the wellbore portion of testing, pressure was raised to 15,000 psi and observed to drop rapidly. Investigation of the equipment after the incident showed a fracture of the blind shear ram blade and missing heads on some of the shear blade bolting. GE has confirmed the blade and bolt material meet GE specifications. During post-event testing, GE fractured bolts after overtorqueing the bolting in a laboratory setting.

Issue
A Root Cause Analysis (RCA) identified overtorqueing during the blade to bolt torqueing process to be the primary contributing factor to the events.

Solution
GE recommends, at the next maintenance opportunity, to verify that the bolt torque meets GE recommended values. If bolt torque history cannot be verified, GE recommends installing new attachment bolts and following the blade bolt torqueing procedure (X-1007775 Rev E or later, as applicable). The blade should be NDE inspected per ASTM E165 prior to installing and torqueing. The blade should be replaced if any indications are noted.

During the course of the RCA, interference was noted between the bolt head (P/N 3149078) and counter bore radius of the blade. This interference was identified as a potential contributing factor, but the interference alone would not cause the event. GE has a bolt that mitigates this interference that will be implemented on new assemblies. The new part number for this bolt is 3165670 (Table 1).

Contact your local GE Sales Representative for further assistance to order bolts and or blades.

GE Oil & Gas

The information contained in this Bulletin is confidential and proprietary. This Bulletin and the information contained in it are protected by trade secret, copyright and/or other intellectual property or contractual rights. This Bulletin and information are provided for authorized use only, and may not be used, disclosed, copied, or distributed without the prior express written consent of GE Oil & Gas.
Bolts can be exchanged by opening an AskDrilling (Figure 1) case ([https://www.engagedrilling.com/](https://www.engagedrilling.com/)) to return existing bolt (P/N 3149078) and receive replacement bolting (P/N 3165670).

![Figure 1. AskDrilling inquiry submission in engageDrilling.](image)

The actions recommended in this Engineering Bulletin are considered complete when bolting is replaced and installed per X-1007757 Rev. E or later and retested as necessary, or torque has been verified per the above.

<table>
<thead>
<tr>
<th>Part number</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper back bolt (Existing)</td>
<td>3149300</td>
</tr>
<tr>
<td>Upper front bolt (New)</td>
<td>3165670</td>
</tr>
<tr>
<td>Lower bolt (Existing)</td>
<td>3149262</td>
</tr>
</tbody>
</table>

**5K BSR Assemblies Affected**

3149285  
3149285-01  
3149285-02  
3149285-03  
3149285-04

**Document Revision Chart**

<table>
<thead>
<tr>
<th>Rev.</th>
<th>Section Modified and Revision Description</th>
<th>Date</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>First issue</td>
<td>January 15, 2016</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Corrected lower Blind Shear Ram bolt part number in Table 1</td>
<td>January 16, 2016</td>
<td></td>
</tr>
</tbody>
</table>

The information contained in this Bulletin is confidential and proprietary. This Bulletin and the information contained in it are protected by trade secret, copyright and/or other intellectual property or contractual rights. This Bulletin and information are provided for authorized use only, and may not be used, disclosed, copied, or distributed without the prior express written consent of GE Oil & Gas.