

PRODUCT: TM-80, 110"

DATE: May 06, 2011

SUBJECT: Inspection of Main Boom Pin Tube and Support Gussets

SERIAL NUMBERS: All TM-80, 110" Torq-Matic Wrenches

DISCUSSION: In two isolated instances, rig crews in the process of servicing a TM-80 (110" reach) wrench, discovered cracks along the welds connecting support gussets to the horizontal cylinder pin tubes located near the top of the main boom. Both wrenches had been in operation for over a year.

Figure 1 shows the location of the pin tube on the main boom. Two halves of the pin tube are welded to the insides of the main boom side plates. The horizontal cylinder is secured between the tubes with a 1 1/4" pin and is used to extend the wrench tong assembly over the well.

Main Boom Pin Tube

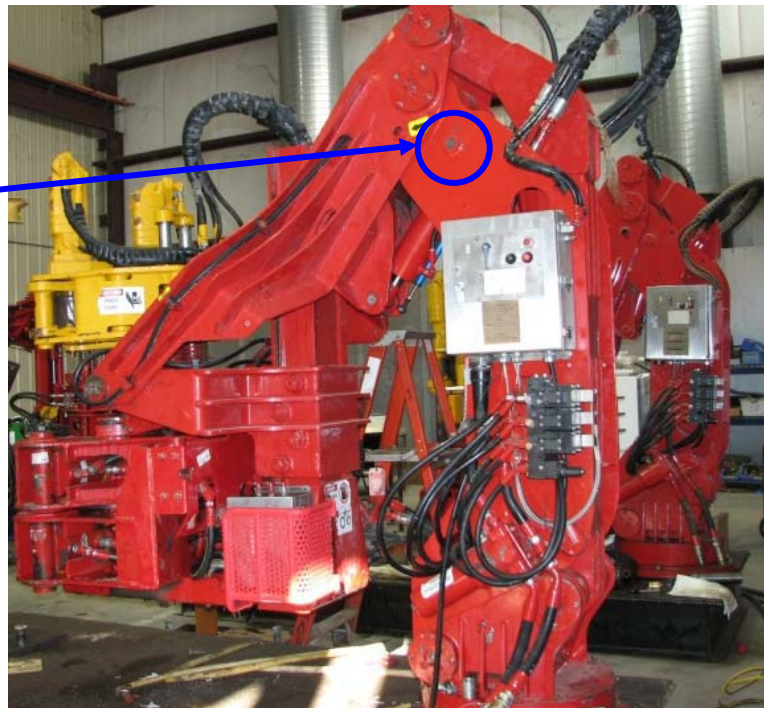


Figure 1

For precautionary and operational reasons the wrenches were removed from service and returned to Canrig. The main booms are purchased components and Canrig discovered that both of the failed booms were supplied by the same manufacturer. Canrig then conducted a detailed analysis of both of the booms in question.

Pin tubes and gussets were cut off the main boom and cross-sectioned in order to get a detailed look at the weld joints.

Examination of the weld joints revealed voids between the support gussets and pin tubes, poor penetration of the weld into the gusset material, and lack of weld fusion with the pin tubes. Canrig estimates that the inferior quality of the welds could have reduced the maximum allowable stress in that area by as much as 70%. Because the weld deficiencies were hidden underneath the weld, they

would have been nearly impossible to visually detect during receiving or final shipping inspections.

Canrig is currently working with the manufacturer to identify and repair other booms in stock which could exhibit the same deficiencies. In addition, we are in the process of evaluating the overall boom design, with specific emphasis on the pin tube design, in order to come up with a solution that will both strengthen the boom and make it less susceptible to failures due to unobservable defects in the welded areas.

RECOMMENDATION:

1. Conduct inspection of the wrench following the below steps.
 - a. Extend the wrench out far enough so that the vertical can be fully lowered down and carefully set on the floor, without putting stress on the vertical cylinder.
 - b. Disconnect power. Follow local tag out and lock out procedures. Remove any valve hand controls if installed.
 - c. View main boom from underneath with flashlight and inspect main pin tube and supporting gussets for cracks in the welds. Clean the area around the pin tubes and support gussets if necessary for better visibility
 - d. Using a step ladder and flashlight, perform similar inspection from above main boom.
 - e. Inspect pin tube and weld from the outside on both sides for cracks or evidence of buckling.
 - f. Figures 2 and 3 below indicate the areas of inspection.

Pin Tubes

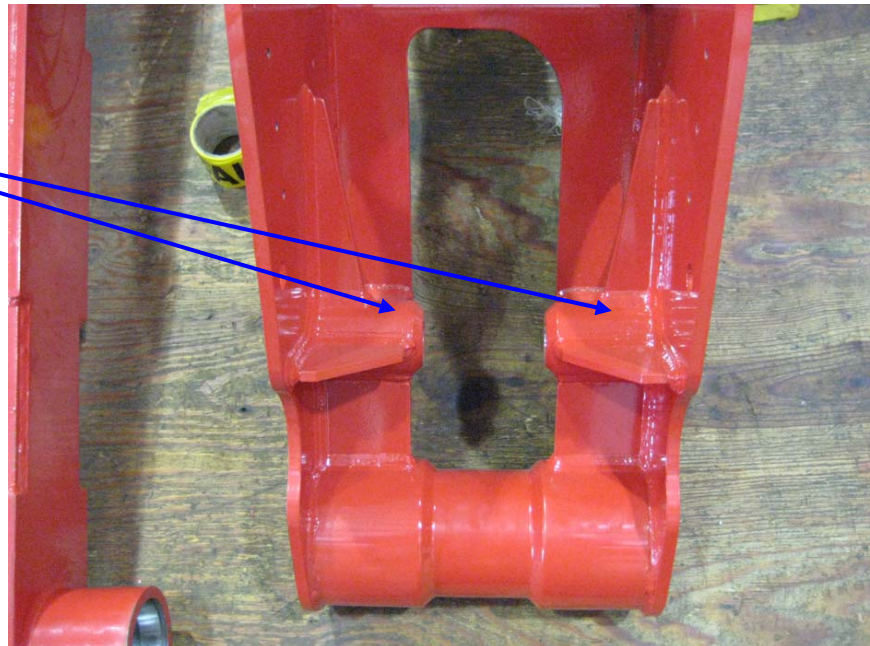


Figure 2

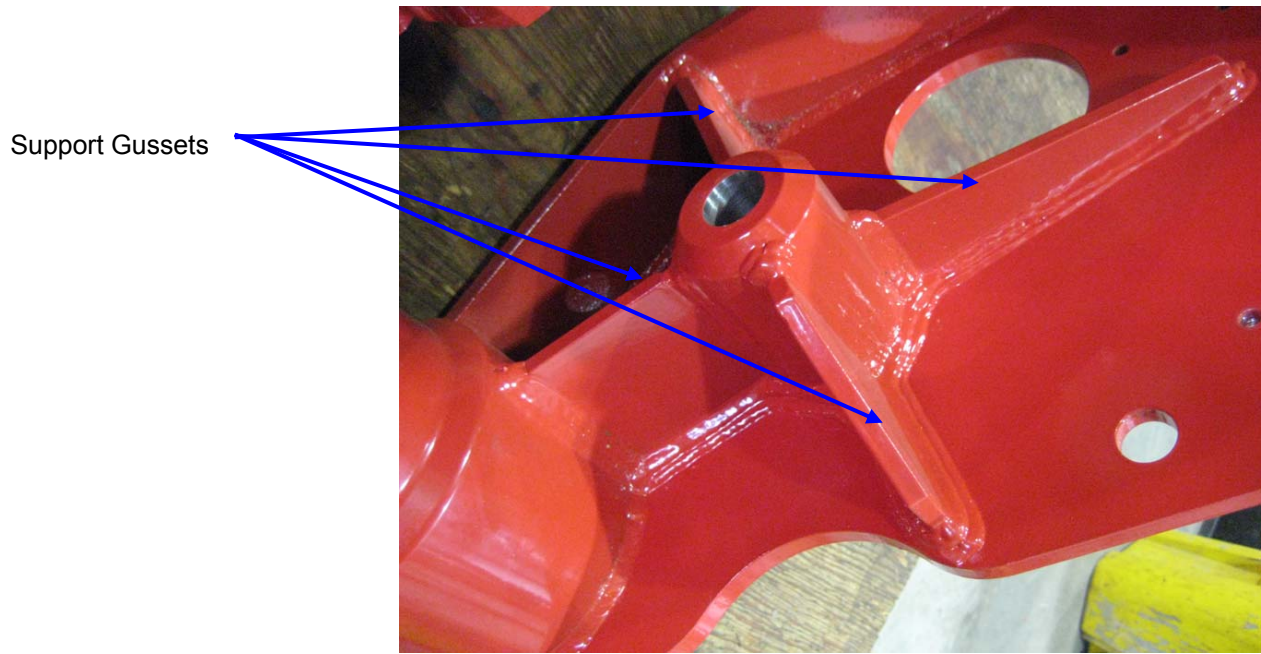


Figure 3

- g. Evidence of cracking at the weld joints between the pin tube and support gussets is indicated in Figures 4 and 5 below.

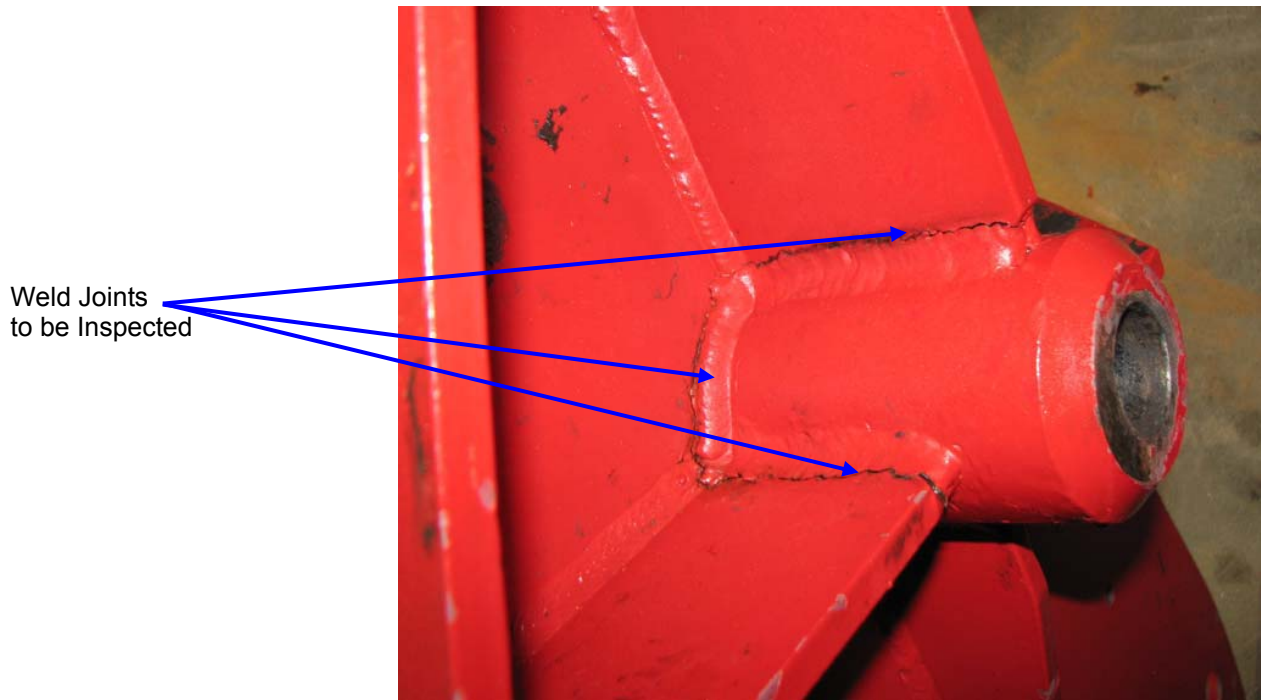


Figure 4

Weld Joints
to be Inspected

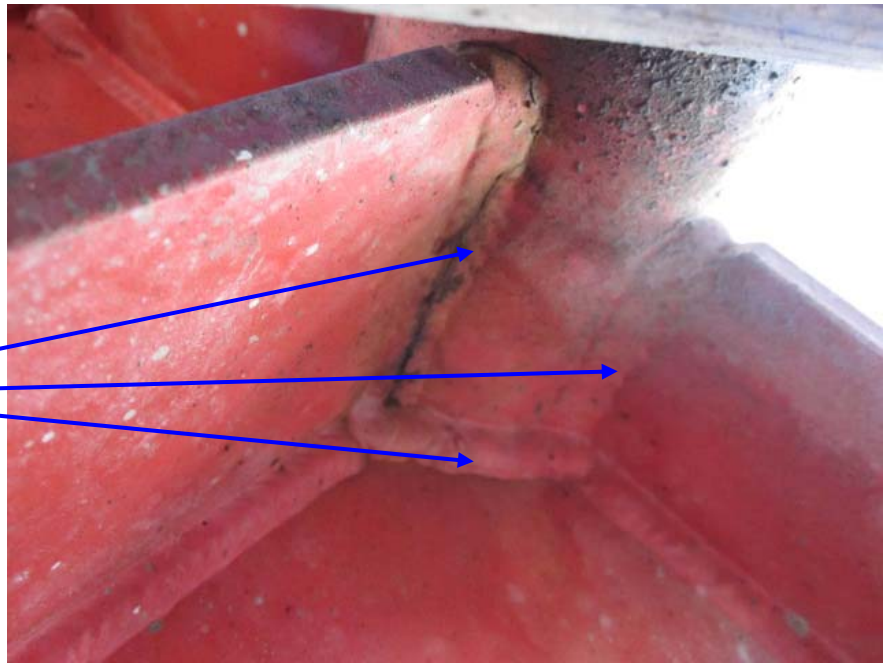


Figure 5

2. If you find evidence of cracking at the weld joints similar to that depicted in the above images, contact the Canrig Service Support Department immediately for an assessment. Contact information is provided below.

3. Failure to identify the problem and have it promptly corrected could potentially damage the equipment and, if not dealt with, could potentially become a hazard to personnel.

INFORMATION:

For further information contact:

For a complete list of all bulletins go to www.canrig.com

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