Service Call:
Rotation Bearing Deflection Test

Tools Required:
- Dial Indicator with Magnetic Base
- Maintenance Manual for the Unit Being Tested
- Dynamometer
- Digger Derrick for the negative deflection test
- Auxiliary Load Line

Model(s):
TPL 29, TPL 33, TE/TS
Tech Tip Safety Rules

Danger
Failure to obey the instructions and safety rules in the appropriate Operator's Manual and Service Manual for your machine will result in death or serious injury. Many of the hazards identified in the operator's manual are also safety hazards when maintenance and repair procedures are performed.

Do Not Perform Maintenance Unless:
- You are trained and qualified to perform maintenance on this machine.
- You read, understand and obey:
  - manufacturer's instructions and safety rules
  - employer's safety rules and worksite regulations
  - applicable governmental regulations
- You have the appropriate tools, lifting equipment and a suitable workshop.

The information contained in this tech tip is a supplement to the service manual. Consult the appropriate service manual of your machine for safety rules and hazards.
Step 1
Read this entire procedure and the section in the maintenance manual that applies to this procedure before starting the work.

Step 2
Position the truck in a suitable location. Check for overhead obstructions. Set the outriggers. There can be no additional tools or materials in the platform with the exception of a platform liner.

Step 3
Check for obstructions before rotating boom. Rotate boom 90 degrees off the side or rear of the vehicle. Place upper boom at 0 degrees with boom extension fully retracted. See images below.
**Step 4**
Attach a dynamometer between the boom tip and the auxiliary load line for pulling up the boom (negative deflection).
Step 5
Attach the dial indicator base to the pedestal, positioning the tip perpendicular to the edge of the turntable bottom plate at the specified indicator radius.

Note: Consult the table at the end of this document for the dial indicator radius for your specific unit.

Note: Make sure you know which way the dial indicator rotates when it moves to get the correct reading.
Step 6
Zero out the dial indicator. Verify that you have at least .25 inches of movement on the dial indicator in both directions when zeroing.

Step 7
Pull up on the boom using the Digger Derrick, dynamometer, and auxiliary load line.

Note: Do not exceed the value specified in the appropriate manual.

Step 8
Read the number on the dial indicator. This is your rotation bearing deflection. Record the reading and check this reading against the “Maximum Allowable Bearing Deflection” in the following table.

Step 9
Release the up pressure on the boom.
Step 10
Attach a dynamometer between the weight and load line for pulling down the boom (positive deflection). Do not exert any load on the boom.

Step 11
Zero out the dial indicator.

Step 12
If equipped use the winch and pull up, if not equipped lift up with the lift cylinder.

Note: Do not exceed the value specified in the appropriate manual.

Step 13
Read the number on the dial indicator. This is your rotation bearing deflection. Record this reading and check this reading against the “Maximum Allowable Bearing Deflection” in the following table.
**Tech Tips**

**Note:** Measure the deflection at the same boom location and dial indicator radius every time this test is performed to provide consistent measurements that can be compared over the life of the machine.

<table>
<thead>
<tr>
<th>Unit Model</th>
<th>Maintenance Manual</th>
<th>Indicator Radius (inch)</th>
<th>Max Deflection (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPL</td>
<td>463668</td>
<td>11.50</td>
<td>0.176</td>
</tr>
<tr>
<td>TE/TS</td>
<td>463312</td>
<td>12.75</td>
<td>0.160</td>
</tr>
</tbody>
</table>

*Unit Specific Maximum Allowable Bearing Deflection*