

BC-03: Check Ball Screw Nut (Sundstrand)

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- A greasy surface, wires, cables, and hoses on and around the Sundstrand contribute to an existing tripping hazard.
- The machine must be positioned after the way covers are removed. Use caution around rotating shafts and moving equipment.

EQUIPMENT

- Maintenance Mechanic hand tools
- Dial indicator capable of measuring .001", with magnetic base

RESOURCES

- Sundstrand Maintenance Mechanic Manual

Check Ball Screw Nut (Sundstrand)

1. Remove way covers if working on the X-axis.

- Carefully slide the covers together and store in a safe place to avoid damaging them.

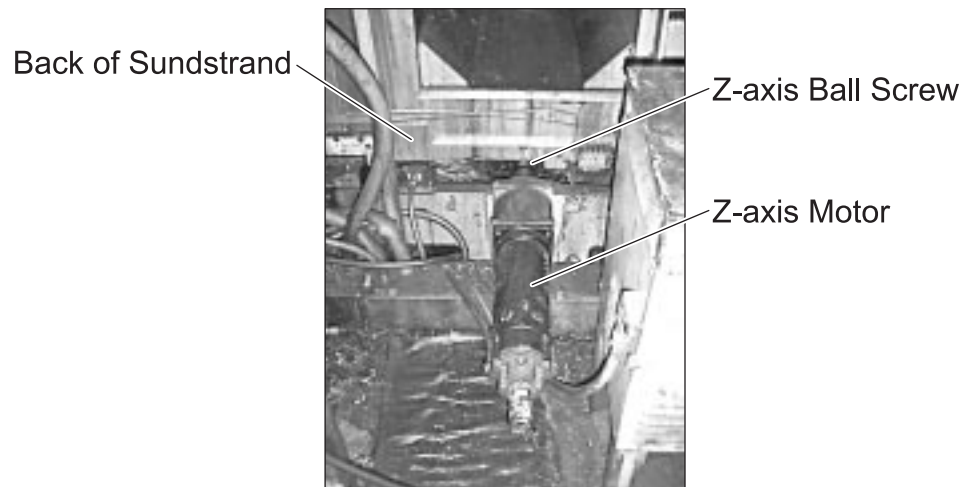
2. Position the axis and provide access to the ball screw.

- Remove the top curtain if working on the Y-axis.

Spindle Head Top Curtain

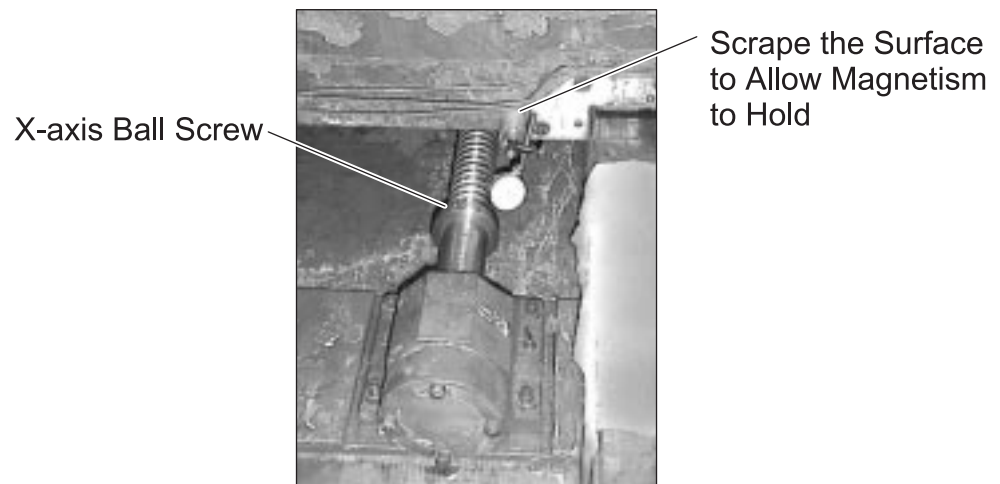


- Check the Z-axis from the rear of the machine.



3. Set up the dial indicator to inspect the Y-axis ball screw nut, if necessary.

- Place the magnetic base on the head or the table for the Y-axis (figure shows a setup on the X-axis).



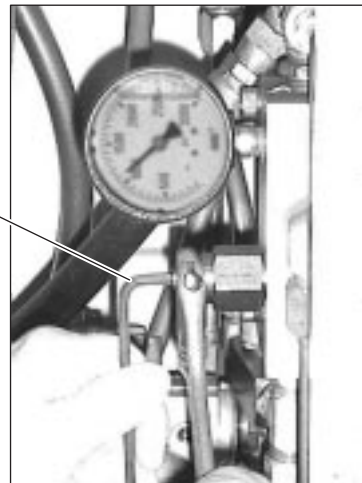
- Make sure the indicator is set up on the ball screw thread, as shown.



Indicator Set Up
on Ball Screw Thread

4. **Manipulate the Y-axis with the counterbalance valve.**

Turn Allen Wrench
Clockwise to Increase,
or Counterclockwise
to Decrease Pressure

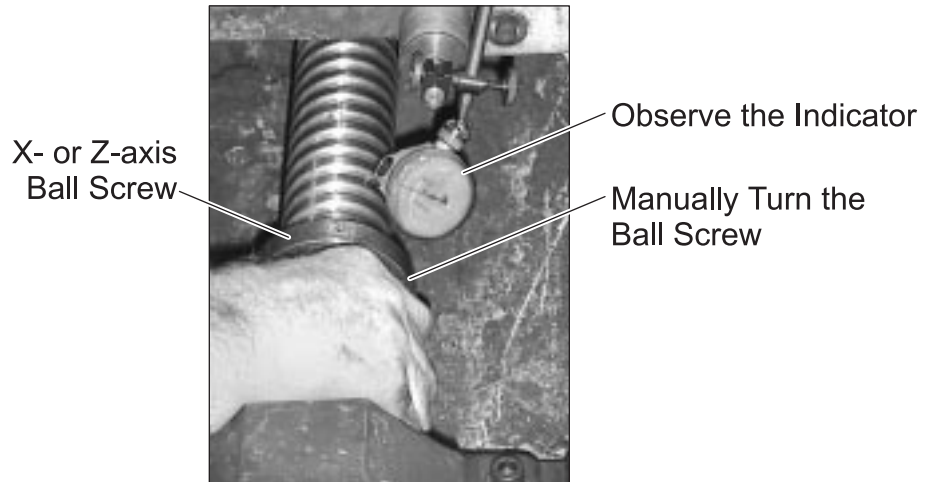


- Lower the counterbalance pressure to 200 psi, noting any indicator movement.
 - Restore the counterbalance pressure to 900 psi, verifying indicator movement is less than .001 inches.
5. **Turn off power and perform a lockout/tagout.**
 6. **Set up the dial indicator to inspect the X- or Z-axis ball screw nut, if necessary.**

- Place the magnetic base on the head or the table as shown in step 3.
- Make sure the indicator is set up on the ball screw thread as shown in step 3.

7. Measure lost motion on the ball screw nut for the X- and Z-axes.

- Manually turn the ball screw, observing the dial on the indicator.



- If the readings exceed .001 inch, then the ball screw nut is worn and must be replaced.

8. Replace ball screw if the ball screw nut is damaged.

9. Verify that no tools or other material is within the way area.

10. Replace the way covers.

11. Replace any curtains removed.

12. Remove lockout/tagout and turn on the machine power.

13. Cycle the machine to verify proper operation.

14. Check the axis for lost motion as shown in the procedure BC-04: Check Axis for Lost Motion.