

BC-02: Replace Ball Screw Bearings (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.

EQUIPMENT

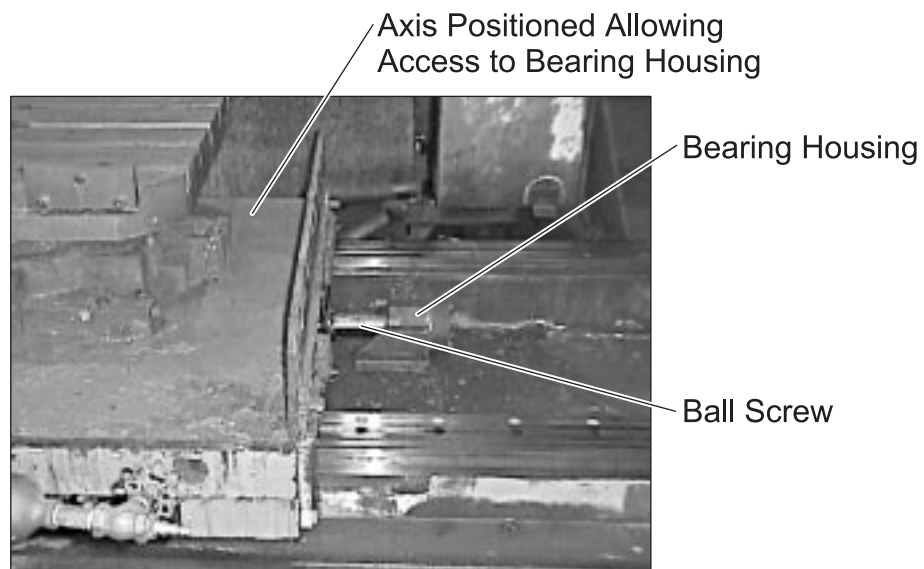
- Maintenance Mechanic hand tools
- Micrometer
- Sliding hammer (or tapered pin removal tool)

RESOURCES

- Sundstrand Maintenance Mechanic Manual

Replace Ball Screw Bearings (Sundstrand)

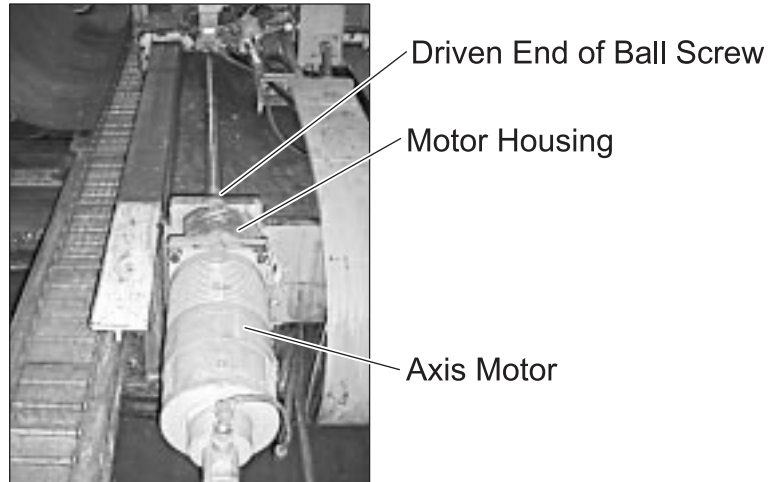
1. **Obtain replacement bearings.**
2. **Remove way covers if working on the X-axis.**
 - Carefully slide the covers together and store in a safe place to avoid damage.
3. **Position the axis and provide access to the bearing housing.**



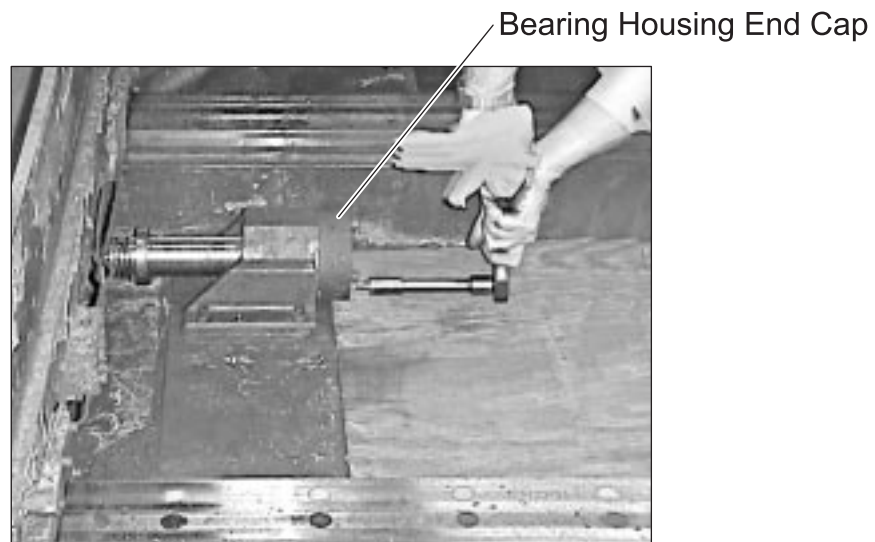
- Block the head if working on the Y-axis.
- Remove the appropriate curtain if working on the Y- or Z-axes.

4. Turn off power and perform a lockout/tagout.

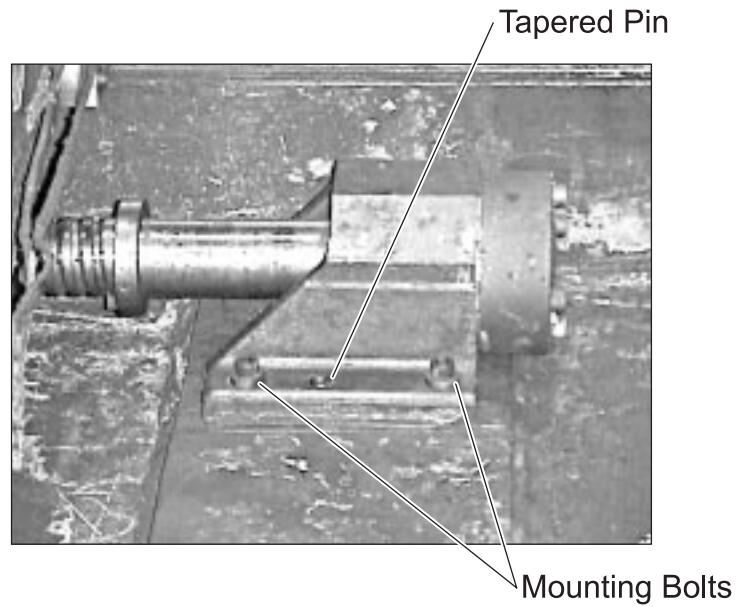
- Remove the motor and motor housing if the bearings are located on the driven end of the ball screw.



5. Remove the bearing housing end-cap.

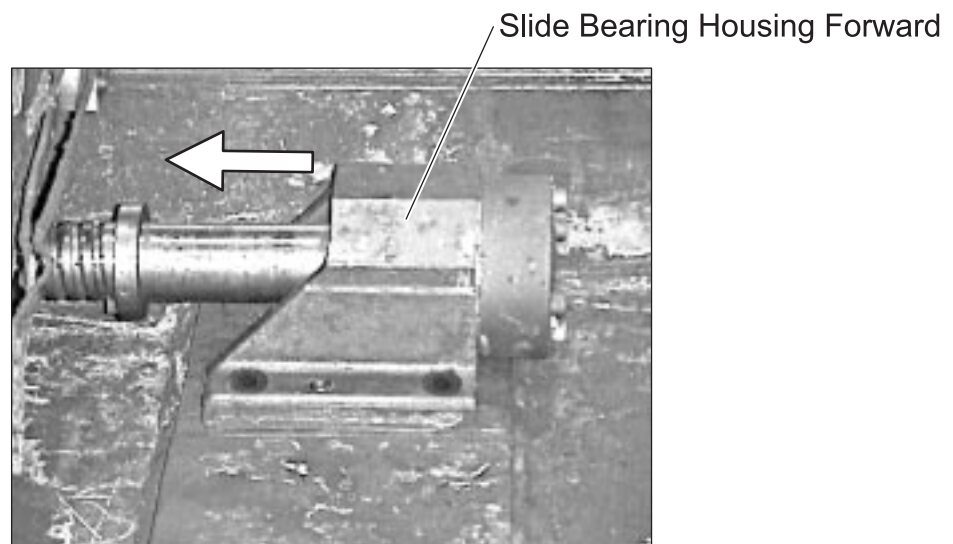


6. Remove the housing mounting tapered pins.



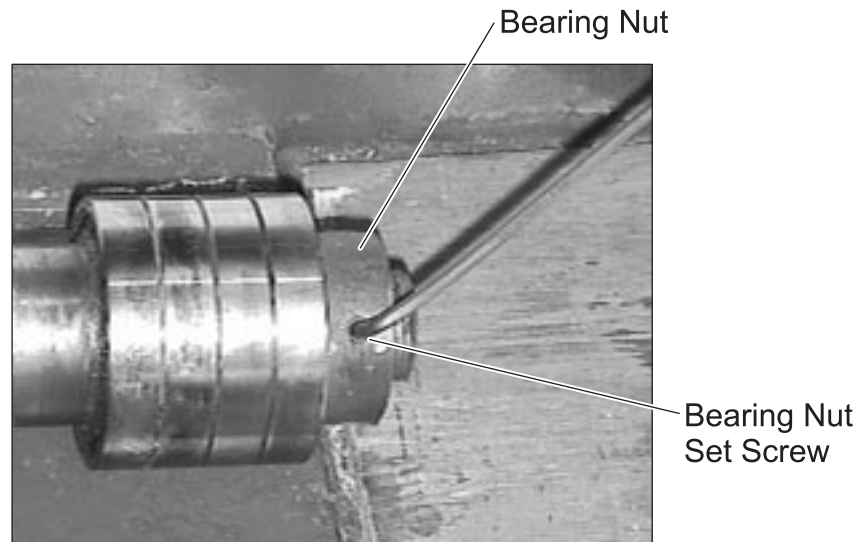
7. Remove the housing mounting bolts.

8. Slide the bearing housing away from the bearing assembly.



9. Remove the bearing nut.

- Loosen the set screw.



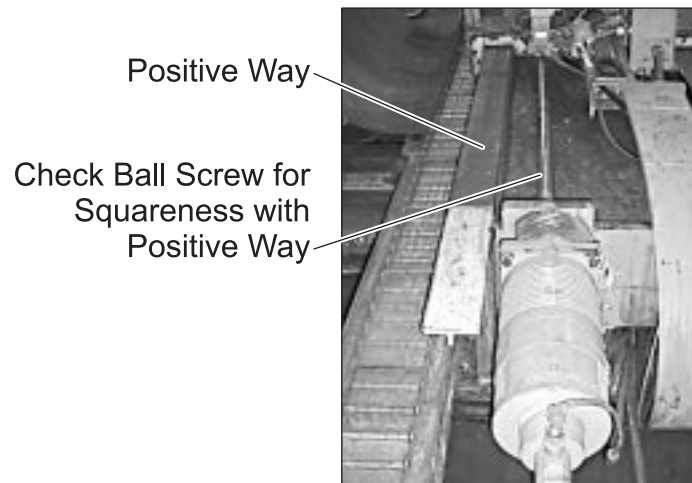
- Thread the bearing nut off the end of the ball screw.

10. Remove the bearing assembly.

Bearing Assembly

- 11. Use a micrometer to measure the depth of the bearing housing pocket.**
- 12. Use a micrometer to measure the replacement bearing assembly.**

13. **Adjust the spacer thickness to put a .002" to .005" load on the outer race of the bearing.**
14. **Install the new bearing assembly.**
 - Make sure the arrow on the bearing assembly is properly aligned.
15. **Replace the bearing nut and set screw.**
 - Tighten the bearing nut wrench tight.
16. **Slide the housing over the bearings.**
17. **Reinstall the tapered pins.**
18. **Reinstall the mounting bolts.**
19. **Install the pre-load spacer and end-cap.**
20. **Verify the ball screw alignment by measuring the distance from the ball screw to the positive rail at each end.**



21. **Replace any motors or curtains removed.**
22. **Replace the way covers.**
23. **Remove lockout/tagout and turn on the machine power.**

24. **Cycle the machine to verify proper operation.**
25. **Perform the procedure BC-04: Check Axis for Lost Motion to verify the bearing replacement.**

