

E-05: Replace Chuck (Hydra Lock/Cold Test)

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- Perform a lockout/tagout when working on the chuck.
- Wear hearing protection in this noise area.

EQUIPMENT

- Maintenance Mechanic hand tools
- freezer
- test part

RESOURCES

- none

Replace Chuck (Hydra Lock/Cold Test)

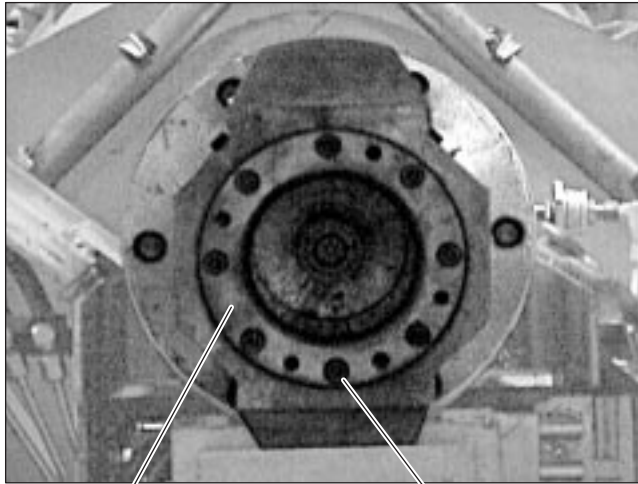
Note: These symptoms warrant the repair or replacement of the chuck.

Symptom: The smooth shaft mounted on the crank will not slide into the steel sleeve.

Note: Before removing the sleeve, first loosen the cone point set screw in the top of the chuck to check for residual pressure in the chuck. If any pressure escapes, retry the drive adapter in the chuck.

1. Perform lockout/tagout.
2. Remove the steel sleeve.

- Remove the eight 5/16-inch low head screws holding the steel sleeve to the chuck.



Steel Sleeve

Low Head Screws

- Install four 5/16 X 1 1/2-inch sock head screws into the threaded screw holes used for jacking.
- Turn each of the screws alternately until the steel sleeve is free from the press area.
- Pull the steel sleeve from the chuck.

3. Install the new steel sleeve.

- Place the new steel sleeve in the freezer for 30 minutes.

- Carefully slide the steel sleeve into the chuck. Note the orientation of the sleeve. The slots in the sleeve must align with the pins in the body. Also there is one hole on the flange of the sleeve that is not counter bored or tapped. This hole must align with the set screw on the face of the chuck to allow additional bleed port.



Steel Sleeve

- Install the eight 5/16-inch screws and tighten wrench-tight.
- 4. Remove lockout/tagout and restore the power.**

Symptom: The chuck will not hold hydraulic pressure, oil leak inside the chuck.

1. Check the hydraulic pressure.

Warning: This test must be preformed with the engine and adapter in place.

- Remove the cone point set screw from the top of the chuck and install the 3000 psi gage.

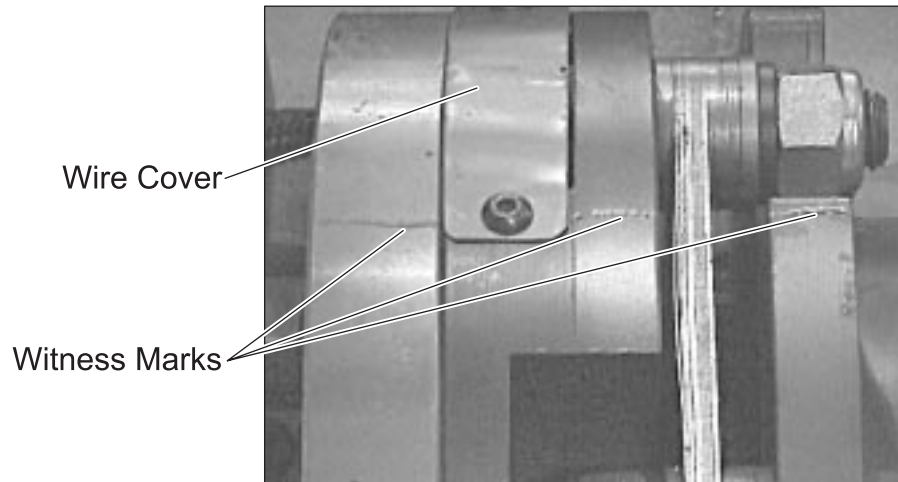
Pressure Gauge
Back of Engine



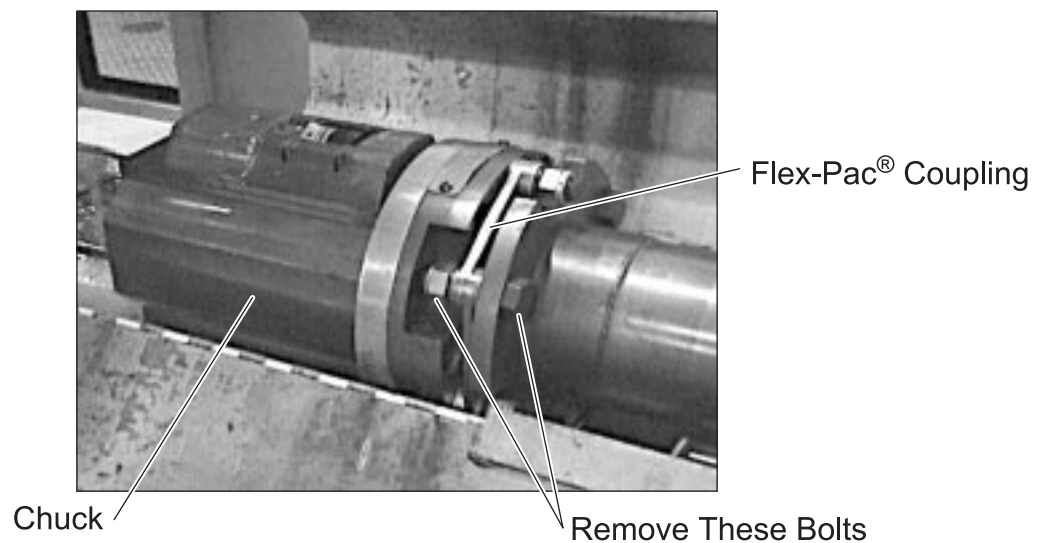
- Apply hydraulic pressure (approximately 2200 psi) to the chuck, then remove the pressure.
 - Observe the pressure gage, the pressure should hold for at least 10 minutes. If the pressure falls, inspect the inside of the chuck.
 - Remove the pressure gage.
- 2. Check the inside of the chuck for red hydraulic fluid. If there is evidence of hydraulic fluid, remove the chuck.**
- 3. Perform lockout/tagout.**

4. Remove the chuck.

- Note the position of the witness marks.



- Ask the Electrician to disconnect the electrical leads to the sensor. The electrical leads may have to be disconnected after the three bolts that hold the chuck to the drive shaft have been removed.
- Remove the three bolts holding the flex-pac coupling to the drive shaft.



- Remove the chuck and take it to the work bench.

5. Remove the outer cover from the chuck.

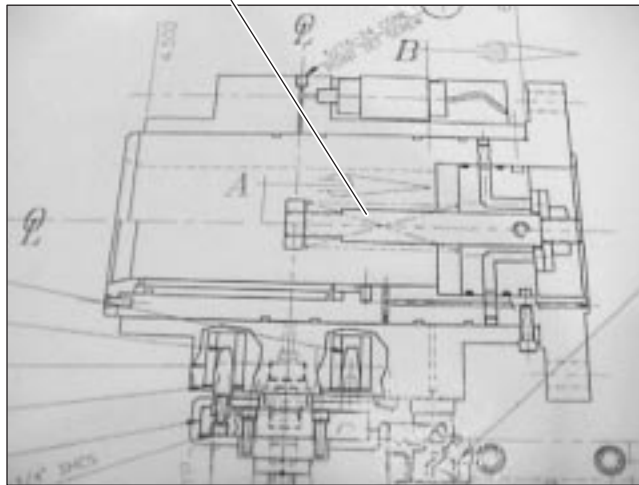
- Remove the remaining half of the coupling from the chuck.

- Remove the four Allen head screws (located near the flange end of the chuck) holding the outer cover to the chuck.
- Pry or use pressure to slide the cover from the chuck. Use caution not to damage the aluminum chuck.

6. Remove the Part Present Plunger.

- Remove the four set screws located below the Allen head screws you removed in step 5.

Part Present Plunger



- Note the position of the plunger. Tap out the back of the chuck with a Telfon or other nonmetallic rod.

7. Remove the steel sleeve.


- Remove eight 5/16-inch low head screws holding the steel sleeve to the chuck.
- Install four 5/16-18 X 1 1/2-inch socket head screws into the threaded screw holes used for jacking.
- Turn each of the screws alternately until the steel sleeve is free from the press area.
- Pull the steel sleeve from the chuck.

8. Remove the plastic sleeve from the inside of the chuck.

- Using a pry bar, work the plastic sleeve out of the chuck far enough to use a plastic rod to continue to remove the plastic sleeve.

9. Install the O-ring and backer ring in the grooves of the new plastic sleeve and apply WD 40 over the O-rings.



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10. **Place the plastic sleeve and the steel sleeve in the freezer for 30 minutes.**
 11. **Carefully insert the plastic sleeve into the chuck, making sure not to damage the O-rings.**
 12. **Install the steel sleeve.**
 - Align slots in the sleeve with the pins in the body and carefully insert the steel sleeve. Note the orientation of the sleeve. The slots in the sleeve must align with the pins in the body. Also there is one hole on the flange of the sleeve that is not counter bored or tapped. This hole must align with the set screw on the face of the chuck to allow additional bleed port.
 - Reinstall the 5/16-18 inch low head screws and tighten wrench-tight.
 13. **Install the Part Present Plunger.**
 14. **Install the mounting plate and tighten the bolts wrench-tight.**
 15. **Install the outer cover over the chuck and tighten the bolts wrench-tight.**
 16. **Install the chuck, making sure to align the chuck with the witness marks, then tighten the bolts wrench-tight.**
 17. **Ask the Electrician to reconnect the electrical leads to the sensor. This may need to be done while installing the chuck.**
 18. **Remove the lock and tag and restore power.**
 19. **Install a test part and bleed the air from the chuck.**
 20. **Test for leaks.**

Symptom: The chuck will not hold hydraulic pressure, no evidence of oil inside the chuck.

1. Check the hydraulic pressure.

Warning: This test must be performed with the engine and adapter in place.

- Install a pressure gage on the chuck.
- Apply hydraulic power to the chuck, then remove the power.
- Observe the pressure gage. If the pressure falls, perform the following procedures.
- Remove the pressure gage.

2. Verify that the chuck check valve is tight.

- Check the valve to see if it is tight. If the valve is loose, tighten it.

3. Replace the chuck check valve if it is loose and can not be tightened.

