Service Kit 753-05609

Date: April 17, 2009 (Revised 6/08/2009)

Subject: Hydraulic Cylinder Seal Replacement

Models Affected: XINGHUI 5.0" Cylinder 718-0313A

Read through and understand these instructions completely before proceeding with repair.

NOTE: *These materials are prepared for use by trained technicians who are experienced in the service and repair of equipment of the kind described in this publication, and are not intended for use by untrained or inexperienced individuals. Such individuals should seek the assistance of an authorized service technician or dealer.*

NOTE: ***Save this Instruction Sheet. Refer to it when ordering replacement parts.***

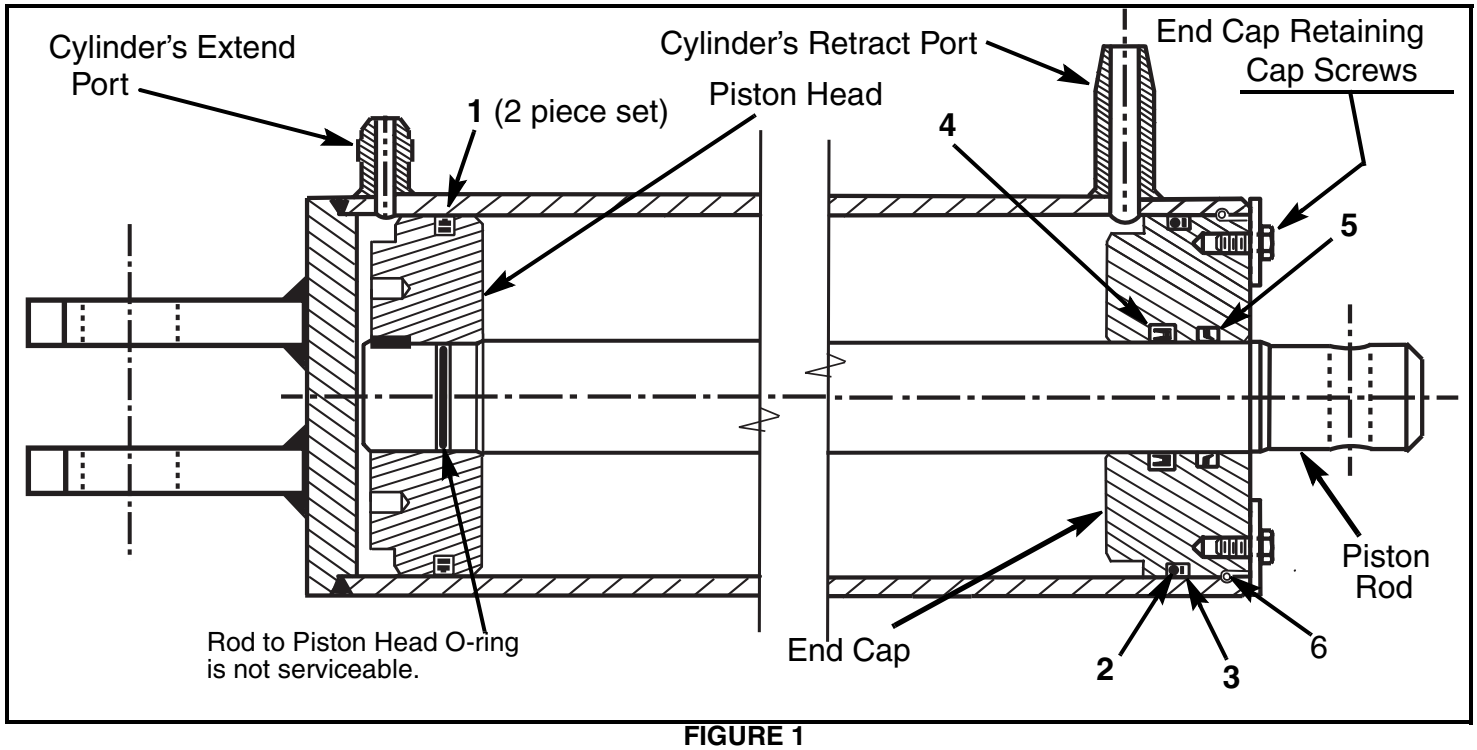

FIGURE 1

Service Kit Contents

(See Figure 1)

ITEM NO.	PART NUMBER	QTY	DESCRIPTION
1	*	1	Piston Seal: 2 piece set (Outer ring w/ flat under ring)
2	*	1	O-ring
3	*	1	Backup Ring
4	*	1	Rod-Guide U-Cup
5	*	1	Scraper: Rod
6	*	1	Ring: Retaining
7	*	1	THIS INSTRUCTION SHEET

* - Not Available Separately

Regarding The Following Instructions...

Cylinder seal replacement may be accomplished with either the cylinder removed from the log splitter beam and set in a bench vise or remain secured to the log splitter beam.

The following instructions are written assuming the later method. This method provides several advantages:
a) cylinder is at a comfortable working height
b) only the extend port tubing needs to be removed
c) minimizes potential damage to control valve
d) no lifting/carrying of the heavy cylinder assembly

Disadvantage:
a) beam and area surrounding rod end must be cleaned to ensure no dirt or debris gets into the open cylinder or on the piston head/rod assembly.

CAUTION Hot hydraulic fluid can cause burns. Do not work on the cylinder until the hydraulic system has cooled to ambient temperature after use.

DANGER Hydraulic fluid under high pressure can be dangerous. A high-pressure hydraulic fluid leak or spray can penetrate the skin. If this happens, seek immediate medical attention to reduce the risk of blood poisoning leading to death or limb amputation.

DANGER If a piece of hydraulic equipment develops a high pressure leak, turn it off immediately. Do not operate it until the leak is repaired.

For your safety and eye protection wear safety glasses during the following repair.

IMPORTANT!- The cylinder should be disassembled in a clean environment to prevent dirt or other contamination from entering the interior of the cylinder. Prior to proceeding, clean any accumulated dirt or debris from the port openings, end cap areas and the beam around the piston rod end of the cylinder. Clean the beam's surface where the wedge slides and lubricate surface with clean engine oil.

RECOMMENDED TOOLS:

Safety glasses, wheel blocks, supply of wood shims and a 2"x4" piece, bench vise, a flat soft metal or wood punch, hammer, SAE and metric wrenches and sockets w/ ratchet, heavy duty ratchet tie down strap, 1/2" diameter x 12-15" long steel rod, 5 Ft. of 3/4" clear plastic tubing, 2 flat blade screw drivers (one thin blade and one large blade, clean oil drain pan, 5 gal. clean plastic bucket, clean hydraulic oil, and clean paper or shop towels.

Pre-Service Preparation:

1. Place the log splitter on a flat and level surface.

2. Block the wheels at the front and rear to prevent the log splitter from rolling during cylinder repair. Position the beam in the horizontal position and secure with the horizontal beam lock.

3. If the piston rod is fully retracted, proceed to Step 4.

If the piston rod is somewhere other than fully retracted and the log splitter is **SAFE** to operate (see both **"DANGER"** notes above), start the engine and retract the piston rod to the fully retracted position. Turn off the engine. Proceed to Step 4.

If the piston rod is somewhere other than fully retracted but is **NOT SAFE** to operate (see both **"DANGER"** notes above), proceed to Step 4.

4. Cycle the directional control valve to the retract and extend positions several times to relieve any pressure remaining in the cylinder and hoses.

5. Allow engine, muffler and hydraulic cylinder to cool before proceeding.

6. Remove the spark plug wire from the spark plug and ground to the engine block.

7. Place a 1/4" - 3/8" wood shim under the forward end of the cylinder to support the cylinder when the cross bolt is removed from the splitting wedge in Step 9. See Figure 2.

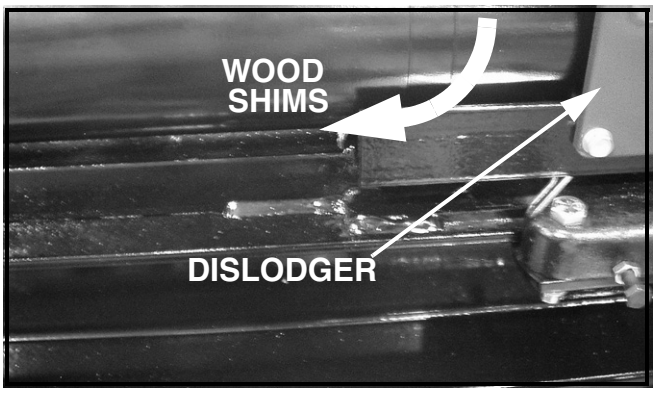

FIGURE 2

8. Using a 9/16" socket and ratchet, remove and retain the four 3/8"-16 x 1.0 self-tapping screws securing the dislodger to the beam bracket. Remove and retain the dislodger.

9. Using a 3/4" socket and ratchet and a 3/4" box wrench, remove and retain the 1/2"-13 lock nut and 1/2" cross bolt securing the wedge to the piston rod.

10. Slide the wedge away from the cylinder until it is against the foot plate.

Draining the Cylinder:

11. Using an adjustable wrench, remove the J.I.C. flare nut from the cylinder's EXTEND port. Cap the end of the 1/2" hydraulic tube with a 3/4"-16 J.I.C. (37^0 Flare) male plug or plastic cap or plug. Leave the EXTEND port fitting open.

NOTE: *In the next step the return-to-tank hose will be removed from the filter adapter fitting. There is hydraulic fluid in the hose and control valve. Have an oil drain pan ready to collect the fluid.*

12. Place an oil drain pan below the return-to-tank hose connection at the filter adapter. Loosen the hose clamp and remove the return-to-tank hose from the filter adapter fitting, place the hose end into the oil drain pan to drain. Then place the end of the return-to-tank hose into the 5 gal. bucket. See Figure 3.

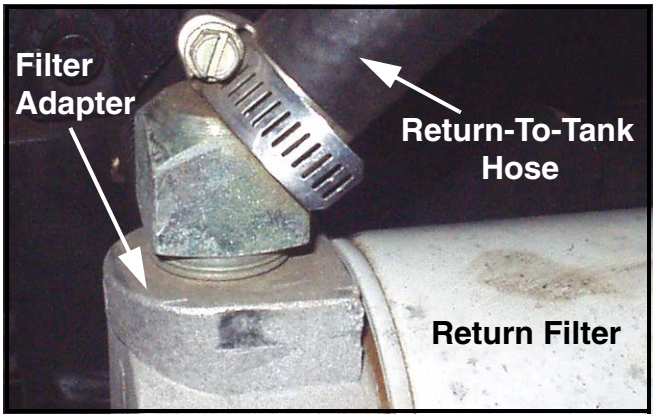

FIGURE 3

13. If the piston rod is in the **fully retracted** position proceed to Step 18.

If the piston rod is **fully extended** or **somewhere between fully retracted and fully extended,** perform Steps 14 through 17 and then perform Steps 18 through 19.

Draining the EXTEND Side of Cylinder...

14. Install the 3/4" ID clear plastic tubing onto the cylinder's extend port fitting and secure with the hose clamp removed in Step 12. Place the end of the tubing into the 5 gal. bucket.

15. Place and temporarily restrain the control valve lever in the EXTEND position.

16. Place the 1/2" diameter steel rod through the hole in the end of the piston rod. Using a heavy duty ratchet strap wrapped around both ends of the steel rod and the cylinder attach plate at the rear of the cylinder, SLOWLY pull (retract) the piston rod in to expel the fluid from the cylinder into the 5 gal. bucket.

17. Remove the clear plastic hose from the extend port fitting.

Draining the RETRACT Side of Cylinder...

18. Place and temporarily restrain the control valve lever in the EXTEND position.

19. Place the 1/2" diameter steel rod through the hole in the end of the piston rod. Using a heavy duty ratchet strap wrapped around both ends of the steel rod and the foot plate of the beam, SLOWLY pull (extend) the piston rod out to expel the fluid from the cylinder into the 5 gal. bucket.

Piston Assembly Removal Instructions:

NOTE: *There will be some oil remaining in the cylinder. Place sufficient paper towels or shop towels under the rod end of the cylinder to absorb the residual oil when the end cap is removed.*

20. Lift the front end of the cylinder and add sufficient wood shims on top of the wood shims installed in Step 7. This will raise the front of the cylinder to allow the piston rod to clear the wedge when removed from the cylinder.

21. Remove the two (2) end-cap retaining cap screws and flat washers that are installed on the face of the end-cap. See Figure 1.

22 Using a flat punch (aluminum, brass or wood dowel), gently tap on the end of the punch with a hammer to drive the end-cap back into the cylinder bore until the face of the end-cap is past the retaining ring. Alternate sides when tapping on the end-cap to drive the end-cap back evenly. See Figure 4.

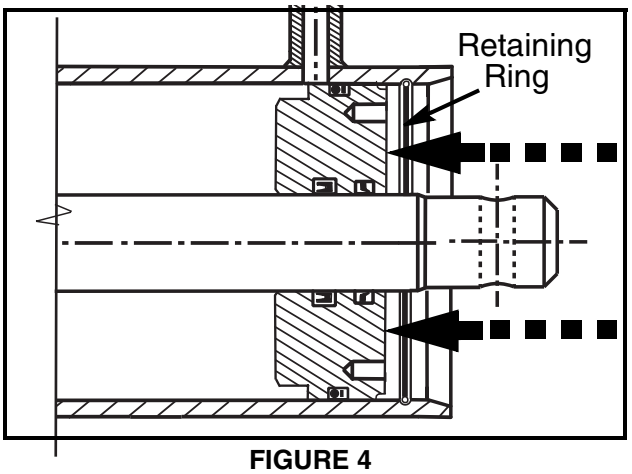

FIGURE 4

23. Using your fingers, remove the retaining ring from the groove in the cylinder wall.

NOTE: *A screw driver may also be used to lift the retaining ring out of the groove. Be very careful not to scratch any part of the cylinder bore which may damage the piston seals upon reassembly.*

IMPORTANT - In the next step be careful when removing the piston assembly (rod and head) and end-cap as they may separate from the cylinder barrel quickly. Be ready to support the weight of the assembly. Be careful not to mar the chromed *surface of the rod.*

NOTE: *The piston head seal and end-cap static seal will likely be cut by the edge of the retaining ring groove on removal from the barrel. This result is normal and difficult to avoid.*

24. While keeping the rod centered and parallel with the cylinder, pull the rod out vigorously and allow the piston head to bump the end-cap. Continue to pull the end-cap with piston assembly out of the cylinder bore.

25. Secure the rod so that the end-cap can be removed. If securing the rod in a vise, use clean cardboard or a thick dense rubber sheet to pad the vise jaws.

BE CAREFUL not to scratch or mar the rod chromed surface, it cannot be repaired if dented or scratched.

26. Remove any burrs from around the 1/2" diameter hole in the end of the piston rod. Remove the end-cap from the rod by pulling it off the end of the rod.

Seal Replacement Instructions:

IMPORTANT - Make note (sketch) the position and orientation of the seals on the piston head and end-cap before removing them to assist in replacement. It is very important that the two small seals are set into their respective grooves in the same orientation as the old seals are.

27. The seals may be removed with a sharp tool like an awl (brass awls are preferred) by carefully pushing the point partially into the seal and prying the seal from the groove. Hard seals can be removed by carefully cutting the seal with an exacto type blade being careful not to scratch the groove walls or adjacent surfaces. Discard the old seals.

28. Inspect the seal grooves and clean away any contamination. Apply a light coating of clean oil to the new seals and into the seal grooves to ease installation and prevent scuffing of the sealing surfaces.

Optional - A plain petroleum jelly may be used in lieu of or in combination with the clean oil.

29. Install the new seals into the appropriate seal grooves on the piston head and in and on the end-cap.

30. Coat the internal end-cap seals and chromed end of the rod with additional oil and/or petroleum jelly.

31. Carefully assemble the end-cap onto the rod by gently pushing it over the end of the rod.

32. Apply a light coating of clean oil to the piston head and end-cap outer diameters, and to the mouth of the cylinder barrel.

33. Carefully position the piston head so that it is centered and square with the cylinder wall mouth.

34. Once started, push firmly until the piston is about half way down the length of the cylinder bore.

NOTE: *Be careful not to mar the chromed rod surface in the next step.*

35. Carefully push the end-cap into the cylinder bore until the front face is past the retaining ring groove. The end-cap may have to be gently driven down into the cylinder bore using a hammer and a soft metal or wood dowel.

36. Install the end-cap Retaining Ring, Item 6, into the cylinder's groove. Ensure that the ring is completely nested into the bottom of the groove.

37. Pull the rod outward until the piston head contacts the end-cap. Continue to carefully pull on the rod until the end-cap is firmly in position against the retaining ring.

38. Install the end-cap retaining cap screws and flat washers. Tighten securely.

39. Remove the wood blocking installed in Step 20.

NOTE: *Check the cylinder's EXTEND port fitting and the hydraulic tube's flare nut to ensure that there are no nicks, scratches or debris on the fitting's coned/tapered surfaces that can cause leaks under pressure.*

40. Reconnect the hydraulic tube, removed in Step 11, to the cylinder's EXTEND port fitting. Tighten securely.

41. Reconnect the return-to-tank hose to the filter adapter fitting. Tighten hose clamp to 50-60 In.-Lbs.

42. Re-attach the splitting wedge to the piston rod using the hardware removed in Step 9. Do not tighten hardware, lock nut should be threaded on until it is approximately 1/16" from wedge surface. Bolt should float freely.

43. Re-install the dislodger and hardware removed in Step 8. Tighten hardware securely.

Refilling and Purging the Cylinder:

44. Ensure that the wedge's path is clean of debris and the beam surface is well lubricated with oil during cycling and log splitting.

45. Check the level of the hydraulic oil in the tank. If low add the appropriate hydraulic oil (see the Operator's Manual) to bring the level up into the fill/full marks on the dipstick. Replace the dipstick securely when full.

46. Remove any restraining devise from the control valve lever. Ensure the control valve lever is in the NEUTRAL position.

47. Reconnect the spark plug wire to the spark plug. Start the log splitter engine.

48. Move the control valve lever to the RETRACT position. Allow the cylinder rod to fully retract into the cylinder. Check for fluid leaks around the rod and end-cap. Lever should return to NEUTRAL automatically.

49. Check the level of the hydraulic oil in the tank. If low add the appropriate hydraulic oil (see the Operator's Manual) to bring the level up into the fill/full marks on the dipstick. Replace the dipstick securely when full.

50. Move the control valve lever to the EXTEND position. Allow the cylinder rod to fully extend until it stops. Allow pressure to set there for 2-3 seconds. Check for fluid leaks around the cylinder's EXTEND port fitting.

51. Check the level of the hydraulic oil in the tank. If low add the appropriate hydraulic oil (see the Operator's Manual) to bring the level up into the fill/full marks on the dipstick. Replace the dipstick securely when full.

52. Repeat the full RETRACT and EXTEND cycle sequence at least an additional ten (10) times to purge the system of air. Check for leaks after each cycle.

NOTE: *Air remaining in the hydraulic lines and/or cylinder will cause an erratic stroke and or slow response. Additional cycling will be needed to remove the air from the system.*

53. Ensure that the control valve lever automatically kicks off to NEUTRAL consistently at the end of the retract stroke.

This completes the installation of the hydraulic seal kit.