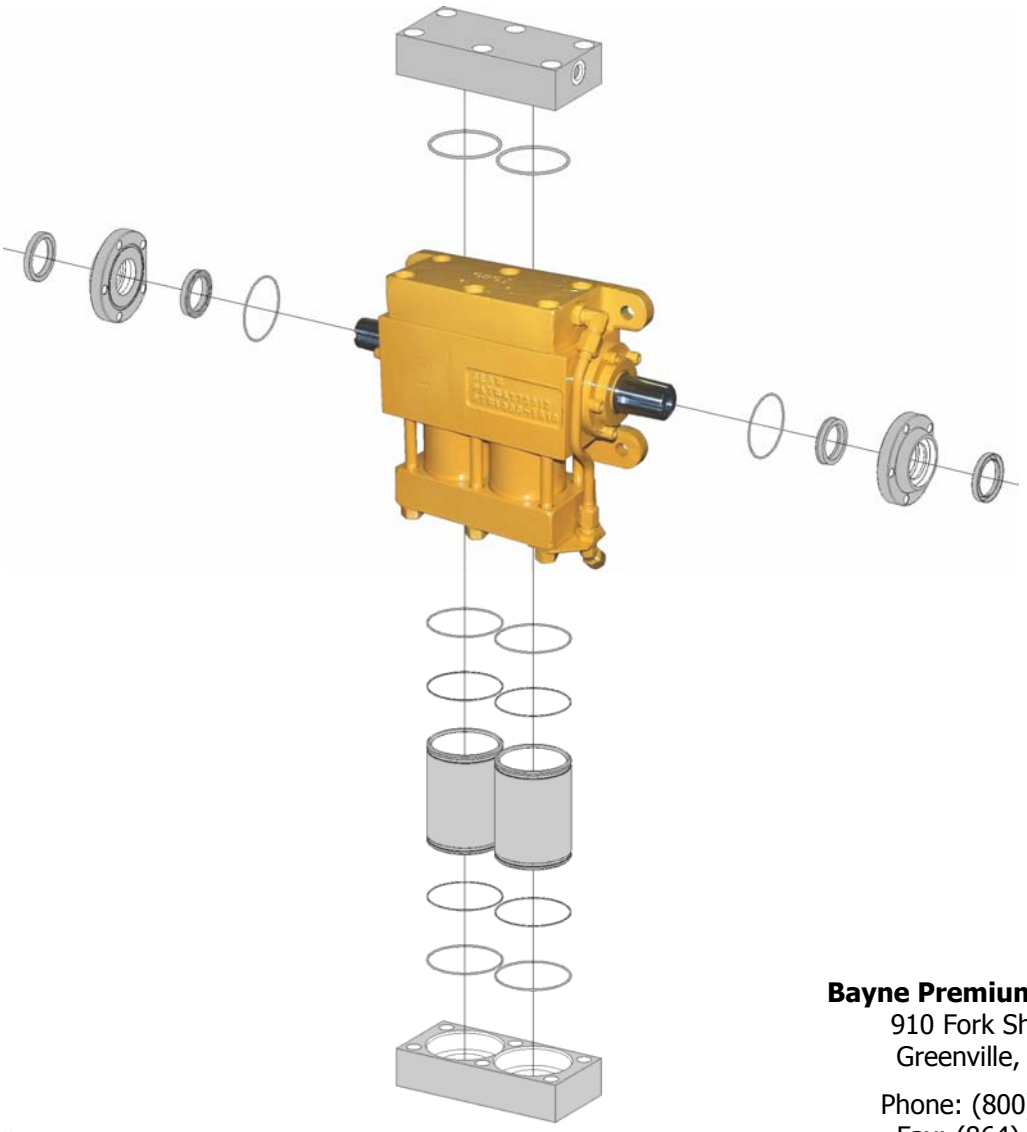
BAYNE Thinline®

Premium Lift Systems

1100 Series Roller Bearing Actuator Rebuild Instructions



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Notes

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Introduction:

The following information is intended to be a ***General Guide*** to rebuilding a Bayne 1100 Series Actuator. Before starting the rebuild, read these instructions completely. ***ALWAYS*** use the proper tools, lift devices, and personal protective equipment to prevent injury while performing the rebuild.

Information:

8000-1111 1100 Actuator Upgrade Kit

Bayne serial #'s 08725 to 15699 - These actuators were originally produced with seals and bearing caps that are now obsolete. This upgrade kit includes all parts necessary to upgrade these actuators to the current more durable seal design.

8000-0311 1100 Actuator Seal Kit

Bayne serial #'s Over 15700 - Includes all seals necessary to completely rebuild an 1100 actuator.

8000-0302 1100/2200 Pinion Seal Kit

Bayne serial #'s Over 15700 - Includes all seals necessary to repair an oil leak around the pinion.

Required Tools:

1. *11/16" Open-End Wrench*
2. *1/2" Drive Ratchet*
3. *1/2" Drive Torque Wrench*
4. *3/4" Socket (1/2" Drive)*
5. *1/4" Hex Bit Socket (1/2" Drive)*
6. *3/8" Hex Bit Socket (1/2" Drive)*
7. *Bayne Torque Arm*
8. *Rubber Dead Blow Hammer*
9. *Small Flat Screwdriver*
10. *Ring Compressor*
11. *Loctite® Retaining Compound 609*
12. *STP® oil treatment.*

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Disassembly:

1. Place the actuator on a table with the tube cap positioned upward.

2. Use an 11/16" open-end wrench to remove all hydraulic fittings and tubing.

3. Remove the six hex nuts from the tube cap studs with a ratchet and 3/4" socket.

4. Use a Bayne torque arm to rotate the pinion shaft in the downward direction until the racks stop against the rack cap.

   This places the racks at the bottom of the tubes, making it easier to remove the tubes from the actuator body.

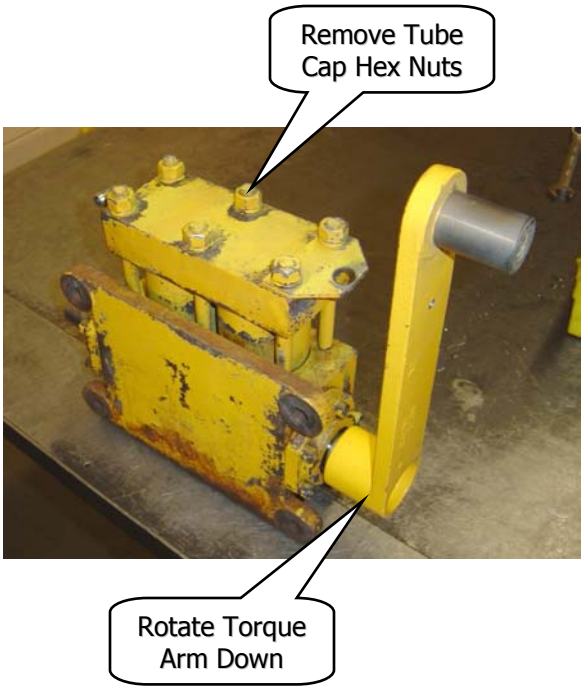
5. Carefully remove the tube cap and tubes from the actuator body by lightly tapping them with a rubber dead blow hammer.

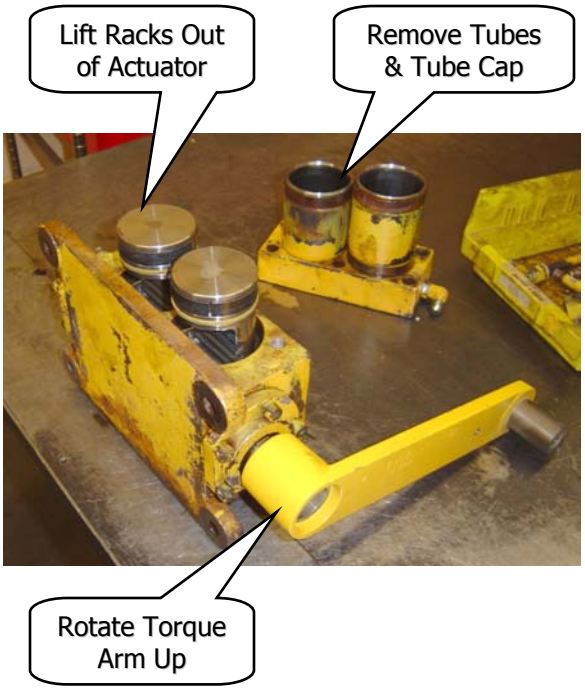
   If the tubes come off with the tube cap, place the tube cap in a vise and use a rubber dead blow hammer to tap them out.

6. Use the Bayne torque arm to rotate the pinion shaft upward to disengage the rack and pinion teeth.

7. Lift the racks out of the actuator body.

8. Carefully remove the old seals from the racks with a small flat screwdriver. Take care not to damage the sealing surfaces of the racks.





Disassembly: *(Continued)*

9. Remove the six tie rods from the actuator body.

   Lightly taping the exposed ends of the tie rods with a hammer will loosen the threads making them easier to remove.

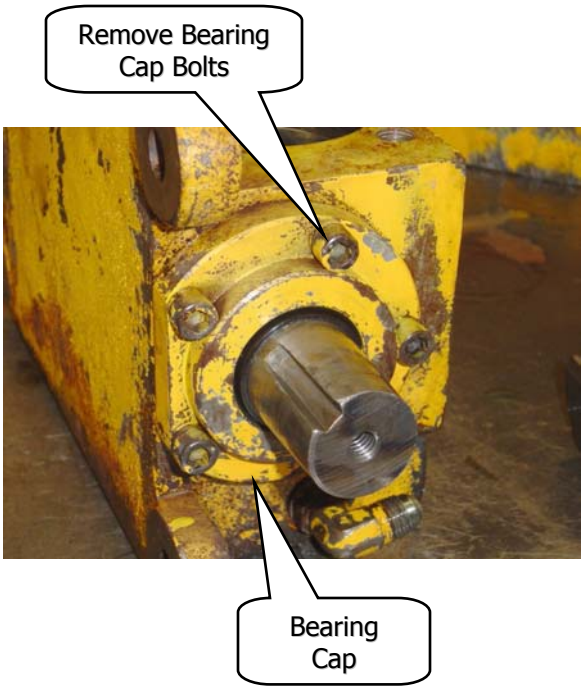
10. Use a ratchet and 1/4" hex bit socket to remove the five bearing cap bolts from each side of the actuator body.

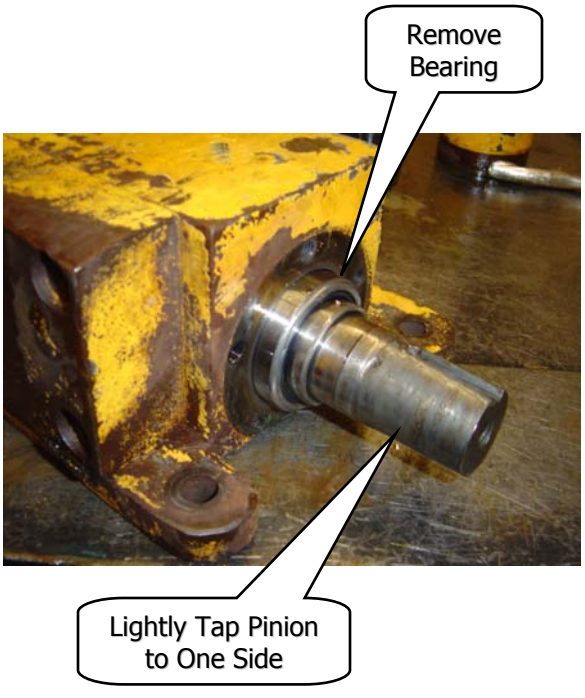
11. Place the actuator flat on the table, mounting feet down.

12. Use a rubber dead blow hammer to lightly tap the pinion shaft to one side of the actuator body. Remove the bearing cap, bearing, and seals. Repeat for the opposite side.

13. Carefully remove the old seals from inside the bearing caps with a small flat screwdriver. Take care not to damage the sealing surfaces of the bearing caps.

14. Remove the pinion shaft from the actuator body.





Disassembly: *(Continued)*

15. To ease the removal of the rack cap, use a small flat screwdriver to clean out the hex sockets in the six rack cap bolts.

16. Use a ratchet and 3/8" hex bit socket to remove the six socket head bolts from the rack cap.

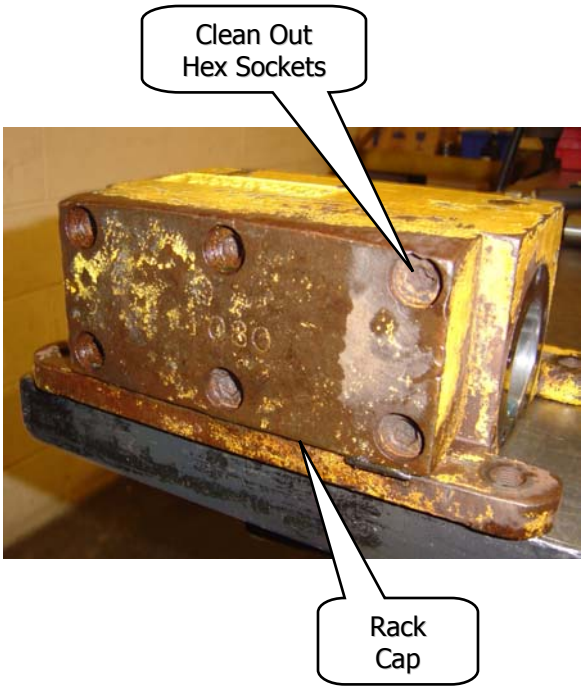
    Lightly taping the exposed ends of the socket head bolts with a hammer and punch will loosen the threads making them easier to remove.

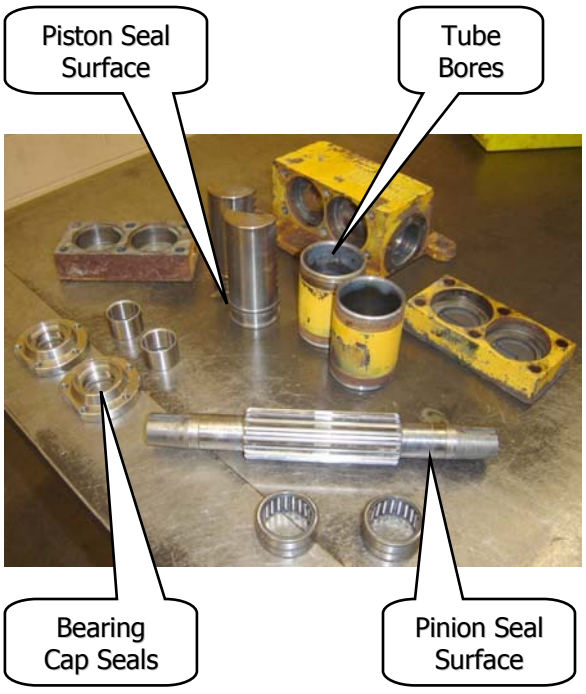
17. Remove the rack cap from the actuator body.

18. Carefully remove the old seals from inside the rack cap. Take care not to damage the sealing surfaces of the rack cap.

19. Thoroughly clean all the parts of the actuator.

20. Inspect all parts for damage and wear. Closely examine all sealing surfaces and replace any defective components.





Reassembly:

21. Thoroughly clean the assembly area before reassembling the actuator.

22. Place the pinion shaft on the table and clean the inner race contact area with a mild solvent.

23. Apply Loctite® Retaining Compound 609 to the inner race contact area of the pinion. Slide the inner race into place against the gear teeth and twist to secure the race in place.

    Allow the retaining compound to set before continuing with the assembly.

24. Repeat steps 22 through 23 for the other side of the pinion.

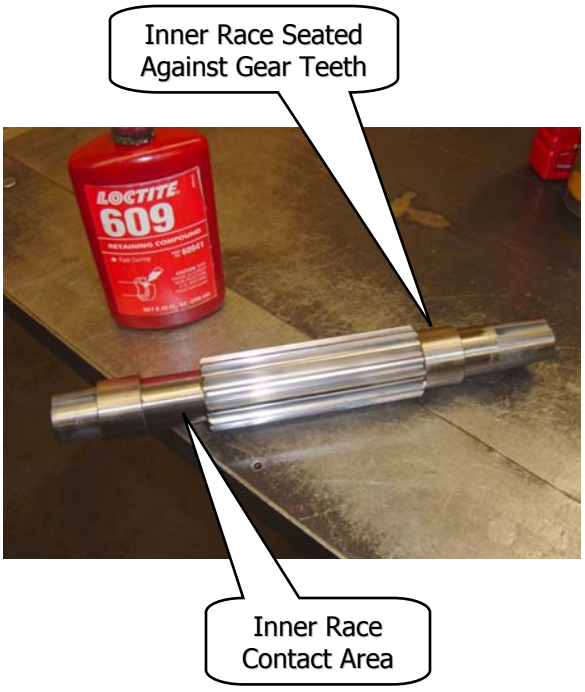
25. Carefully place the new piston seal o-ring down over the gear teeth into the small groove on the rack piston.

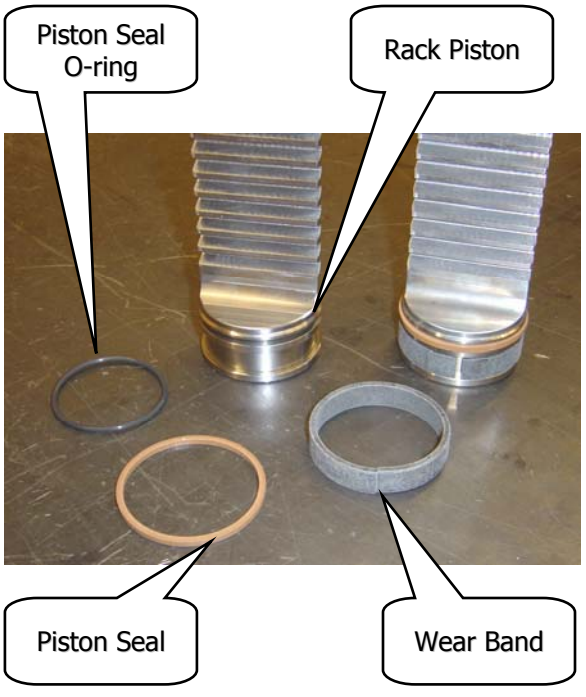
26. Carefully place the new piston seal down over the gear teeth into the small groove on top of the piston seal o-ring.

    Check piston seal to make sure it is not twisted in the groove.

27. Snap the wear band into the large groove on the rack piston.

28. Repeat steps 25 through 27 for the other rack.





Reassembly: *(Continued)*

29. Place the new "square" tube seal backups to the inside of the seal groove on both ends of the tube.

30. Place the new tube seal o-rings to the outside of the seal grooves on both ends of the tube.

    Check to make sure seals do not overlap in the groove.

31. Repeat steps 29 and 30 for the other tube.

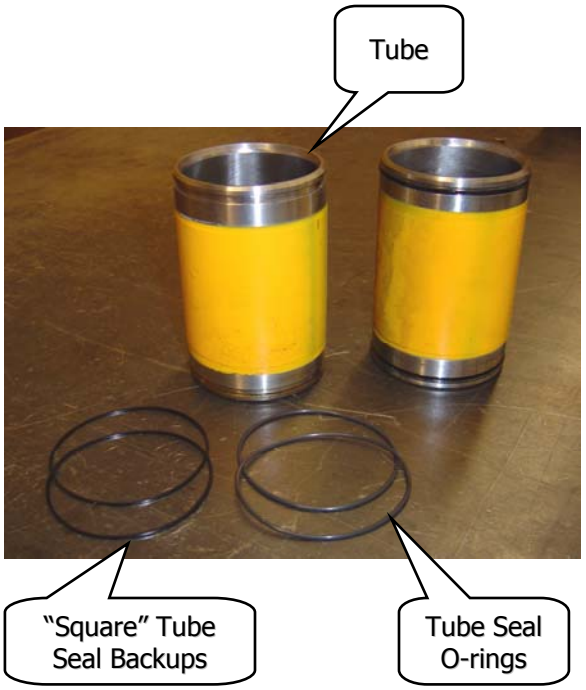
32. Place the actuator on the edge of the table with the tube counter-bores up.

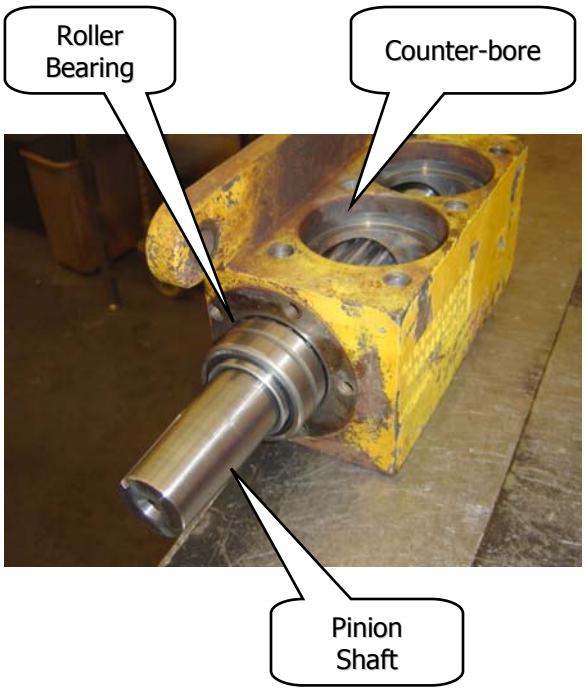
33. Insert the pinion shaft through the pinion bore on either side of the actuator body.

34. Install the roller bearing over the end of the pinion shaft and into the actuator body.

    To ease the assembly, shift the pinion shaft over, slide the roller bearing over the inner race, then slide them both into the body at the same time.

35. Repeat step 34 for the other roller bearing.





Reassembly: *(Continued)*

36. Center the pinion in the body with the keyway facing upward and back toward the mounting flanges.

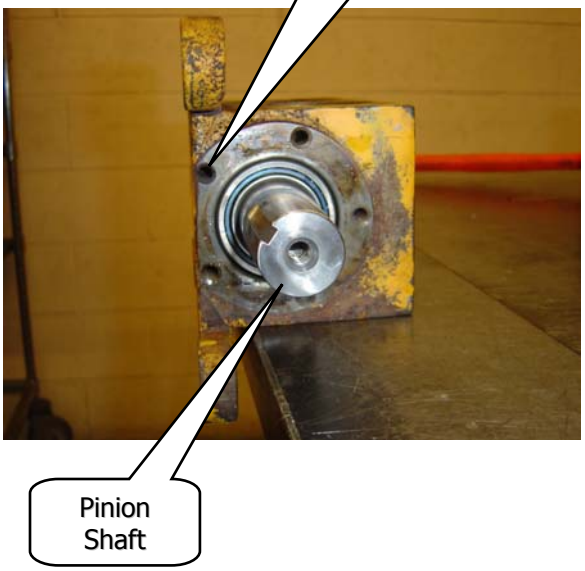
37. Align the keyway with the top bearing cap mounting hole between the mounting flanges.

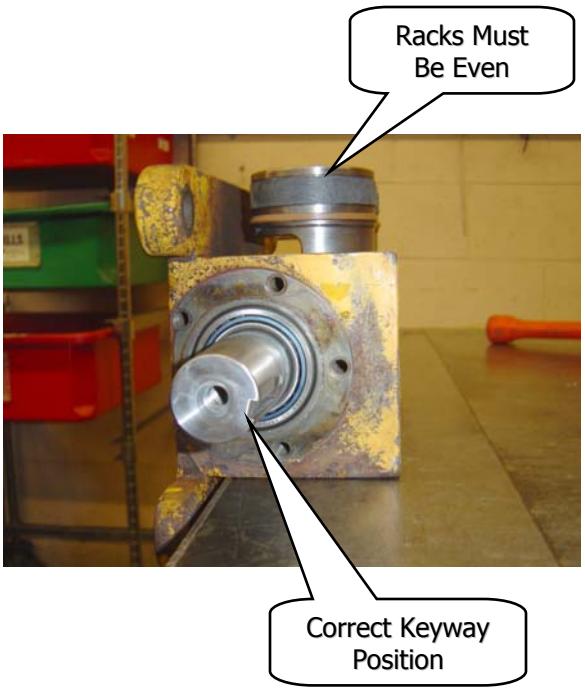
38. Carefully install the racks down into the actuator bores with the seal portion upward and gear teeth facing the mounting flanges.

39. Rotate the pinion shaft to engage the racks into the pinion. Make sure the racks simultaneously mesh with the pinion.

    The racks should move freely when engaged with the pinion. If there is any restriction in movement, check the racks, pinion, and body for damage.

40. Check the racks for correct timing with the pinion by making sure both racks seat against the table at the same time and the keyway faces away from the mounting flanges and slightly downward toward the table.





Reassembly: *(Continued)*

41. Make sure all seals are still installed correctly, and use a ring compressor to seat the rack seals.

42. Thoroughly coat the seal area of the racks and tubes with STP® oil treatment.

    Coating the seals with STP® oil treatment reduces friction and helps hold the seals in position during assembly.

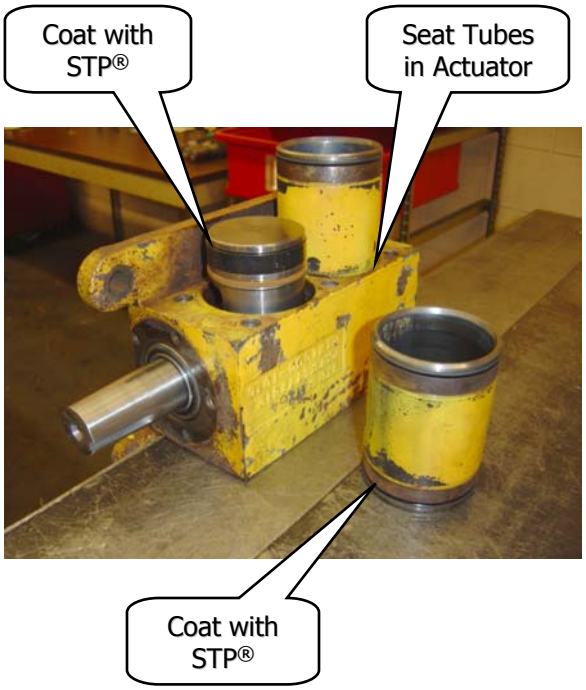
43. Use a rubber dead blow hammer to drive the tubes over the exposed rack seals and into the actuator body, making sure the seals remain in place. Completely seat the tubes against the actuator body.

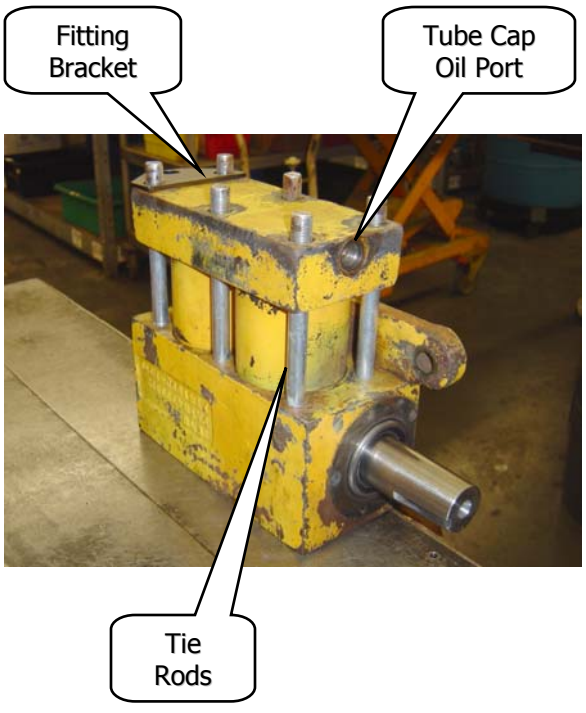
44. Thread the short threaded end of the six tie rods into the actuator body around the tubes.

45. Install the tube cap over the tubes and tie rod studs with the oil port positioned as shown. Use a rubber dead blow hammer to seat the tube cap against the tubes, making sure the seals remain in place.

46. Place the fitting bracket over the two end tie rods opposite the oil port in the tube cap.

47. Install the six hex nuts and lock washers on the tie rods. Use a torque wrench and 3/4" socket to torque them to 50 ft-lb in a crossing pattern.





Reassembly: *(Continued)*

48. Rotate the actuator on the table so the tube cap is positioned downward.

49. Rotate the pinion shaft to allow approximately 3/4" of the racks to protrude from the top of the actuator body.

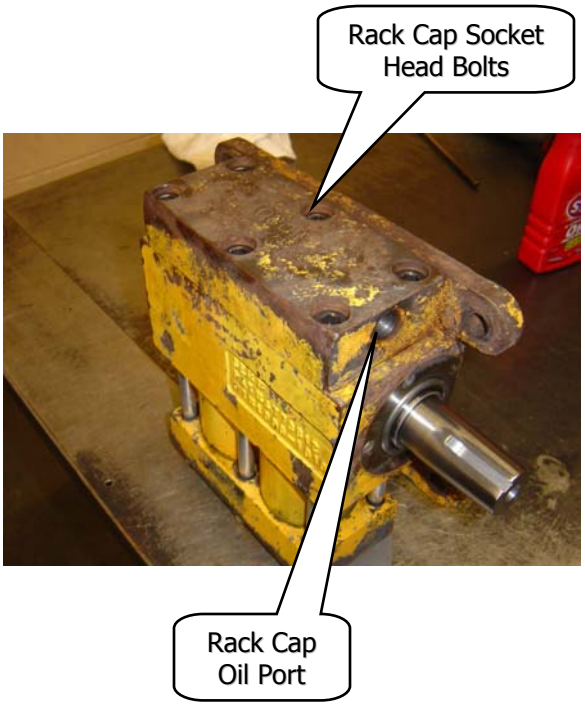
50. Coat the seal grooves of the rack cap with STP® oil treatment, and install the rack cap seals into the grooves.

51. Install the rack cap over the protruding racks with the oil port positioned opposite the oil port in the tube cap.

52. Attach the rack cap to the actuator body using the six socket head bolts and lock washers. Use a torque wrench and 3/8" hex bit socket to torque the bolts to 90 ft-lb in a crossing pattern.

53. Rotate the pinion shaft to ensure the racks move freely. Make sure the key-ways point perfectly toward the rack cap and tube cap at each end of the 180° stroke.

54. If the assembly does not perform all of these functions correctly, it must be disassembled, cleaned, and reassembled.



Reassembly: *(Continued)*

55. Carefully collapse the yellow pinion seal and work it into the center groove in the bearing cap with the o-ring facing away from the pinion wiper groove.

56. Press the metal pinion wiper into the outside groove of the bearing cap with the cupped side out.

57. Coat the bearing cap o-ring groove with STP® oil treatment.

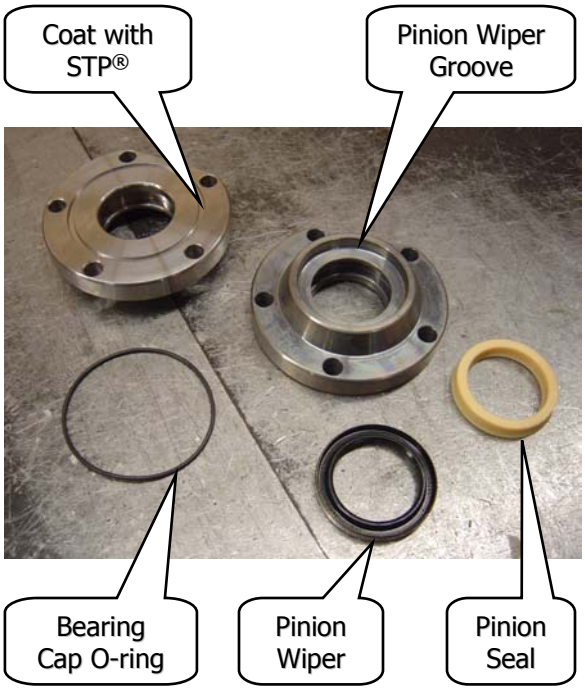
58. Install the bearing cap o-ring into the groove on the mounting surface of the bearing caps.

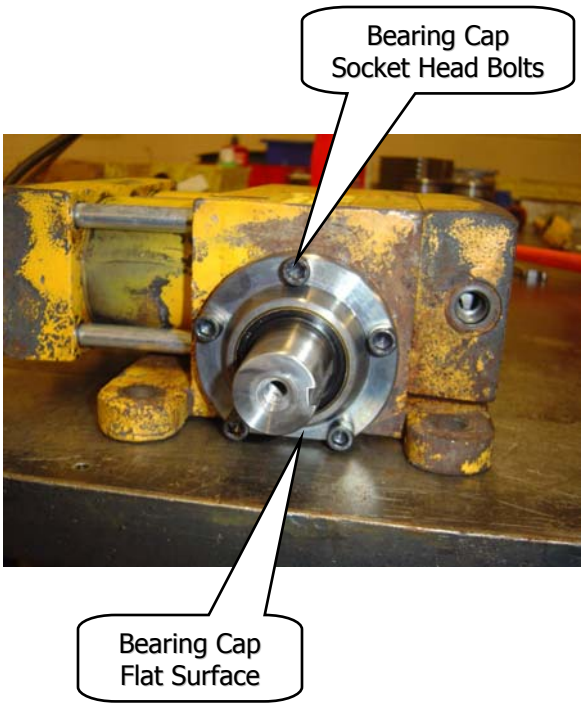
59. Repeat steps 55 through 58 for the other bearing cap.

60. Slide the bearing caps over each end of the pinion shaft with the flat surface flange between the mounting feet of the actuator body.

61. Attach the bearing caps to the actuator body using the ten socket head bolts and lock washers. Use a torque wrench and 1/4" hex bit socket to torque the bolts to 30 ft-lb in a crossing pattern.

62. Use an 11/16" open-end wrench to reinstall all hydraulic fittings and tubing.





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