



How to Service / Rebuild Hydraulic Breaker

1. Remove the bolt cap.
2. Remove the damper from the top of the breaker.
3. Take the grease cover off the front of the hydraulic breaker and remove the hose.
4. Remove the front dust cover where the hoses pass through.
5. Remove the main body from the case. Screw the lifting eyelet provided in your toolbox into the top of the head, and pull the main body up and out of the case. The head damper will come out as you lift the main body.
6. Once the main body is removed from the case, release the nitrogen from the head cap. The head cap is under high pressure, and the nitrogen must be released before the bolts are loosened. This nitrogen can be released with your gauge or by pushing in the plunger with a small screwdriver.
7. Release the nitrogen from the accumulator, if your model has one.
8. Remove the remainder of the grease line so it will not be in your way.
9. To release the nitrogen from the accumulator, remove the front plug and the cap screw from the charge valve. Use an Allen wrench to unscrew the charge valve about halfway to release the nitrogen.
10. Once the nitrogen has been released from the hydraulic breaker, remove the nuts from the through-bolts. Always use an X pattern when removing and installing the through-bolts.
11. After removing the top nuts, unscrew the through-bolts from the bottom threads or nuts, depending on your model. Pull all four through-bolts completely out of the unit.
12. Begin disassembling the main components of the breaker by removing the head cap.
13. A small amount of hydraulic oil may drip from the head cap. It is very important that a small amount of hydraulic fluid, approximately 3–4 ounces, is left in the head cap to lubricate the gas seal.
14. Screw the eyebolt provided in your toolbox into the top of the piston. Pull the piston out from the top and set it on your table.
15. Screw the eyebolt into the back of the control valve and remove it. The control valve comes out in three pieces but functions as one unit.
16. Use the eyebolts provided in your toolbox to remove the cylinder from the front head.
17. Lay the front head horizontally on your bench or table. The cylinder needs to have its seals replaced and be inspected for damage. The front head also needs to be inspected.
18. Inspect the front cover bushing. Wear tolerances depend on the breaker's size and model. Excessive bushing wear can cause piston problems later.
19. Inspect the round bushing inside the top of the front head. Check it for wear and damage.

20. Inspect the chisel pins and stopper pins that retain the tool in the front head.
21. Once the front head has been inspected and any necessary repairs have been made, begin working on the cylinder.
22. Remove all bolts from the accumulator.
23. Remove the needle valve at the top of the accumulator. Inspect it for damage and replace its O-ring.
24. Take the accumulator apart and inspect its components for damage.
25. Inspect the diaphragm for holes or leaks.
26. Check the rings in the bottom of the accumulator to make sure none are broken. Make sure the nut is still tight, and inspect the seal that must be replaced during reassembly.
27. With the accumulator removed and inspected, replace the accumulator seal with the new seal provided in your seal kit. The complete seal kit should contain every O-ring and seal needed to rebuild the hydraulic breaker.
28. Apply a little grease to the new seal on the bottom of the accumulator to hold it in position when the accumulator is turned over. This helps prevent the seal from being pinched.
29. Remove all RO plugs from the cylinder and replace their O-rings. These O-rings are provided in the seal kit.
30. Remove the BPM adjuster. Start by loosening the top nut, then remove the larger nut.
31. The larger nut contains a needle, a seat, and an O-ring. Inspect these parts for damage, especially the bottom of the needle, and replace the O-ring.
32. Remove the hose adapters. Inspect their O-rings and replace them.
33. Before removing the seals from the bottom of the cylinder, note their orientation. The lowest seal has its lip pointing down, while the seal above it has its lip pointing up.
34. Remove the old seals with a pick and discard them.
35. The uppermost of the three seals in the bottom of the cylinder is a two-piece wiper seal. It can only be installed one way.
36. Once the seals are removed, inspect the cylinder for damage. If there is any scarring or scratching inside the cylinder walls, it can be polished with the correct tools.
37. After polishing the cylinder, use an air hose to clean every RO plug opening and passage. Dirt and debris can become trapped in the smaller machined passages, so thoroughly blow out all holes in the cylinder.
38. Once the cylinder is clean and all debris has been removed, replace the O-rings on the RO plugs, hose adapters, and BPM adjuster.
39. Reinstall the components removed from the cylinder.
40. When reinstalling RO plugs with an air wrench, be careful as they approach the bottom of their travel. Spinning or displacing an O-ring can cause a leak later.
41. After replacing the BPM adjuster's O-ring, back the needle out counterclockwise before installing the main nut. This prevents the needle from bottoming out while the main nut is installed.
42. Once the BPM adjuster is back in the cylinder, use an Allen wrench to slowly turn the needle down until it bottoms out. Back it out one full turn. That should be maximum impact power to start out with.

43. Tighten the jam nut on top of the BPM adjuster.
44. Replace the hose adapter O-rings with new ones and reinstall the adapters.
45. Once the RO plugs, BPM adjuster, and hose adapters have been reinstalled and the cylinder is thoroughly clean, install the new cylinder seals.
46. Install the bottom seal with its lip pointing down toward the bottom.
47. Install the middle seal using the same technique, with its lip pointing toward the top.
48. Make sure the seals are properly seated, then install the uppermost two-piece wiper seal. This seal only fits one way.
49. Check that all seals are fully seated.
50. With the new accumulator seal attached to the bottom, position the accumulator on the cylinder. Align it carefully and avoid pinching the bottom seal.
51. Once the diaphragm has been inspected and thoroughly cleaned, reinstall it in the accumulator.
52. Align the accumulator components and reinstall all accumulator bolts.
53. Torque the accumulator bolts to the specifications in your owner's manual. Torque specifications vary by model, and the accumulator body bolts have different specifications from the accumulator cover bolts.
54. Inspect the piston. Use a rubber hammer to remove the cylinder bush from the piston.
55. Replace all seals inside the cylinder bush. Use a pick or small screwdriver to remove them.
56. Note the seal locations. The gas seal is at the top of the cylinder bush, at the end where the external O-ring is located. Two hard seals occupy the other two locations.
57. Each hard seal is a two-piece assembly with a hard outer seal and an O-ring underneath. Remove both the hard seal and its underlying O-ring.
58. Inspect the inside of the cylinder bush for scarring or damage. This cylinder bush can also be polished.
59. Remove the external O-ring from the cylinder bush and clean the bush thoroughly.
60. Install the new internal O-rings first, followed by the hard seals. The lips of the hard seals should point toward the top.
61. Install the gas seal in the top position.
62. Replace the rubber O-ring around the outside of the cylinder bush.
63. Before reinstalling the cylinder bush, inspect the piston for scarring. Put the piston in a lathe, turn it at medium speed, and use very fine sandpaper to remove the debris.
64. After removing debris from the grooves, begin the cross-hatching process. Hold the die grinder at a 45-degree angle to create an X pattern on the piston.
65. Do not move the die grinder straight up and down the piston. This can create grooves that allow hydraulic fluid to pass the seals.
66. Once the piston has been polished, reinstall the cylinder bush. Apply hydraulic oil before tapping the bush back onto the piston, using only a rubber hammer or wood.
67. Make sure the gas seal and external O-ring are at the top when reassembling the cylinder bush.

68. Inspect the control valve. It is a three-piece assembly with very tight tolerances. Separate the components and inspect them thoroughly for scarring.
69. You can polish the control valve the same way you polish the piston and cylinder to remove scarring. Because of its tight tolerances, the control valve must be clean and smooth.
70. The control valve works in time with the piston and must function properly. Apply hydraulic oil when reassembling it.
71. Shake the assembled control valve to check its movement. You should hear a thud or thump as the internal component moves back and forth.
72. Replace the two O-rings on the control valve. These help prevent hydraulic fluid from entering the head cap.
73. Once the piston, control valve, and cylinder have been cleaned, begin reassembly. Make sure the dowel pins between the sections are in place to keep the sections straight and aligned.
74. Lower the cylinder onto the front head. Make sure the O-ring is not pinched and that the grease passage to the bushings is aligned.
75. Install the O-ring that sits in the top of the cylinder underneath the cylinder bush before reinstalling the piston and upper bushing.
76. Screw the supplied eyebolt into the top of the piston. Slowly lower the piston and cylinder bush back into the unit, taking care not to damage any components.
77. Apply hydraulic fluid when reinstalling the piston so it slides smoothly into the cylinder and is protected during initial startup.
78. Use a rubber hammer to seat the piston and cylinder bush in the breaker.
79. Apply hydraulic oil and reinstall the control valve into the cylinder.
80. Prepare the head cap by replacing its O-ring, which seals the nitrogen against external leaks. Thoroughly clean the inside of the head cap.
81. Once the head cap is clean and its O-ring has been replaced, add 3–4 ounces of hydraulic oil. This lubricates the gas seal on top of the cylinder bush.
82. Make sure the dowel pin at the top of the breaker is in place. Lower the head cap onto the cylinder and seat it with a rubber hammer.
83. Inspect the through-bolts for damage, thread wear, or signs of stress. Once they have been determined to be in good condition, reinstall them.
84. Make sure there is full thread engagement between each top nut and through-bolt. Do not bottom the through-bolts against the front head.
85. Adjust the through-bolt height as needed by positioning the nuts and through-bolts correctly.
86. Once the through-bolts are at the correct height, tighten them in an X pattern. You can use an air wrench to tighten them.
87. Torque the through-bolts to the specifications in your owner's manual. Through-bolt torque specifications vary by model.

88. Before returning the main body to the case, inspect the MC pads inside the case for damage. Check the bottom damper and upper damper for wear.
89. Use the lifting eyebolt supplied in your toolbox to lift the main body over the case and lower it back into position.
90. Recharge the accumulator with nitrogen. The accumulator should be charged between 55 and 60 bar.
91. After charging the accumulator, tighten the needle set screw and reinstall the cap nut on the needle.
92. Replace the cap on the accumulator cover.
93. Charge the head cap with nitrogen. The head cap should have 10 to 12 bar of nitrogen put into it.
94. Once the head cap has the stated nitrogen charge, unscrew the gauge and replace the nut on the charge valve.
95. Reconnect the grease line to the cylinder. Leave it extending out of the breaker, then reconnect it to the front cover.
96. Reinstall the grease cover on the case.
97. Inspect the MC pad and slide the head damper back into the top part of the breaker. This holds the main body securely inside the case.
98. Replace the upper damper on top of the main body.
99. Reinstall the dust cover on the front of the case.
100. Reinstall the top cap and all its bolts. Retighten the bolts.
101. Use a grease gun to add approximately 10–15 pumps of grease through the grease line. This provides lubrication between the chisel and bushing during initial startup.