

SERVICE INSTRUCTION



SR20 40 & 50 Series Hydraulic Cylinders

Disassembly

1. Fix the bottom end of the cylinder in a vice. Long/large cylinders should be supported by a trestle.
 2. To unscrew the stuffing box, use a hammer mandrel (A) with a BSP-threaded end which fits into the cylinder connection port. The shoulder of the mandrel must fit tightly towards the port land.
 3. Use a hammer to strike the mandrel anticlockwise (seen from the rod end) to loosen the stuffing box.
 4. Unscrew and remove the stuffing box (B) from the cylinder tube and pull the piston rod and piston out of the tube.
 5. Fasten the piston rod eye in a vice. Do NOT use the vice directly on the piston rod (see Note 1).
 6. Remove the piston guide rings (6.1) and gasket (6.2).
 7. The piston is locked with LocTite. To loosen the piston, heat it to approximately 120° C (7.1) and unscrew it from the rod (anticlockwise) by means of a two-pin tool (7.2).
 8. Remove the O-ring from the rod and clean/brush the thread.
 9. Pull the stuffing box off the rod. Remove the two-piece scraper*) (9.1), the rod seal (9.2) and the external O-ring (C) from the stuffing box (9.3).
- *) Older cylinders usually have a one-piece nitrile scraper only.
10. Remove the two guide rings. Tip one end out with a screwdriver and use a pair of pliers to pull out the band in a turning, upward movement.

Reassembly

11. Fit the new rod seal. Note that the lipped edge (E) must face downward.
12. Fit the new scraper. (12.1) First put the compression O-ring (F) in the groove of the scraper (G), (12.2) then fold the scraper unit as shown. Fit the larger loop of the scraper (O-ring facing up) into the upper groove of the stuffing box, then carefully edge the rest of the scraper in place. (Older cylinders may have one-piece scrapers only).
13. Fit the two new guide rings/bands in the stuffing box. (13.1) First curl the band and hold it with a set of pliers, then place the band in the groove in the stuffing box. (13.2) Use a tapered mandrel to press and shape the guide rings into the grooves.
14. Fix the piston rod in a vice. Add a bit of oil on the piston rod end and (14.1) carefully slide the stuffing box on to the rod. Take care not to damage the scraper and seal on the rod thread. (14.2) Fit the new O-ring externally on the stuffing box. Take care not to damage the ring on the thread.
15. Fit the new slide rings and gasket on the piston (15.1). Fit the O-ring on the rod (15.2). Degrease the piston and the piston rod threads and apply LocTite 2701 on the rod thread and screw the piston on (15.3). Tighten the piston by means of a two-pin key (15.4).



Manufacturer

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(Reassembly, continued)

16. Fix the cylinder tube in a vice. Lubricate the tube with a little oil and (16.1) use a split guide bushing (H) to introduce the piston and rod into the cylinder tube. (16.2) Push the piston rod 2/3 into the tube.
17. Apply Anti-Block grease on the outside thread of the stuffing box and on the inside thread of the cylinder tube.
18. Screw the stuffing box into the tube clockwise. Tighten it by using the hammer mandrel in inlet port on the stuffing box – and strike the mandrel with a hammer until the port/mandrel is in line with the inlet port in the cylinder bottom piece.
After reassembling the cylinder it is recommended to extract and retract the rod a few times to ensure smooth operation before the cylinder is reinstalled.
If possible, subject the cylinder to a pressure/functional test in a hydraulic test bench.



Replacement of Spherical Bearings

1. Remove the locking ring from both sides of the bearing
2. Use a suitable diameter mandrel (nylon or soft metal) to push the bearing out from the cylinder eye.
3. Insert a new locking ring in one of the eye grooves (1) and place the new bearing from the opposite side of the cylinder eye.
4. Use a mandrel to push/strike the bearing in place until it rests against the locking ring. A dual diameter mandrel as shown on the photo will ease the alignment of the bearing with the eye.
5. Fit the upper locking ring.



NOTES

- I. An alternative to fixing the piston rod (eye) in a vice when unscrewing the piston is to fix the piston in a *three-jaw chuck* as shown left.
If the piston rod has no eye (which can be fastened in a vice), but an internally or externally threaded end this is the most practical method to holding the piston while disassembling rod and piston.



TOOLS

The servicing of SSH Stainless hydraulic cylinders can be facilitated through the use of specialized tools:

- I. Mandrel with BSP thread, fitting the thread in the stuffing box port. Available with 1/8", 1/4", 3/8", 1/2", and 3/4" BSP thread.
- II. Split bushing for guiding the piston into the cylinder tube. Available for ID 25 mm thru 80 mm cylinders.
- III. Cone piece for rounding scraper, rod seal and guide rings in the stuffing box *and* for covering the thread on the piston rod when introducing the stuffing box (with fresh seals) onto the piston rod.



Contact SSH Stainless a.s for tool article numbers and prices.

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