SERVICE INSTRUCTION

SR20 25 & 32 Series Hydraulic Cylinders

Disassembly

1. Fix the bottom end of the cylinder in a vice (1.1). Long/large cylinders should be supported by a trestle.

    To unscrew the stuffing box, use a hammer mandrel (1.2 (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.

    Use a hammer to strike the mandrel anticlockwise (seen from the rod end) to loosen the stuffing box.

2. Unscrew and remove the stuffing box (B) from the cylinder tube and pull the piston rod and piston out of the tube.

3. Fasten the piston rod eye in a vice. Do NOT use the vice directly on the piston rod (*see Note 1*).

4. *K-type pistons:* Remove the piston guide rings (4.1) and gasket 4.2)
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    TE-type pistons: (4.3) Remove the guide band, (4.4) the gasket and the compression o-ring.

    P-type pistons: (4.5) Remove the X-ring gasket.

5. The piston is locked with Loctite. To loosen the piston, heat it to approximately 120° C /5.1) and unscrew it from the rod (anti-clockwise) by means of a pair of tongs (5.2: ø25 series) or a two-pin key (5.3: ø32 series).

    Note: P-type pistons (POM/nylon) must not be heated. Fasten the piston in a three-jaw chuck (protect with thin metal foil) and use a spanner on the rod eye/flats to unscrew the rod from the piston.

6. *ø32 series*: Remove the O-ring from the rod and clean/brush the thread to remove old LocTite.

7. Pull the stuffing box off the rod. Remove the scraper (7.1) and the rod seal (7.2) and the internal O-ring from the stuffing box (7.3).

    Note: On piston rods Ø16 and larger the scraper may be two-piece: a PTFE scraper ring + a compression O-ring.

8. Remove the guide bushing. Use a soft metal mandrel to loosen the bushing (8.1), then pull it out from the bottom of the stuffing box (8.2).

Reassembly

9. Fit the new rod seal. *Note* that the lipped edge (E) must face down-ward.

10. Fit the new scraper. (10.1) First put the compression O-ring (F) in the groove of the scraper (G), (10.2) 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.

    Note: Ø12 rods and older cylinders use single-piece scrapers only.

11. Clean, inspect and insert the guide bushing into the stuffing box (see 8.2).

12. Insert the internal O-ring in the stuffing box (see 7.3).

13. *K-type pistons:* (13.1) Fit the new guide rings, distance rings and gasket on the piston (13.2).

    TE-type pistons: (13.3) Fit the compression O-ring. To install the PTFE gasket ring it is recommended to use a tapered mandrel as shown (13.4). Slide and expand the gasket over the mandrel until it slips into the groove on the piston, over the compression O-ring.

    P-type pistons: Fit the X-ring into the groove. Stretch the ring slightly (13.5) to make sure that it sits square in the groove around the perimeter of the piston (13.6).

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(Reassembly, continued)

14. Fix the piston rod in a vice. Ad a bit of oil on the piston rod end and carefully slide the stuffing box onto the rod. Take *care* not to damage the scraper and seal on the rod thread.

15. Fit the O-ring on the rod (15.1). Degrease the piston and the piston rod threads.

    Ø25 mm pistons: Apply LocTite 542 (thread seal) on the rod thread and screw on the piston (15.2). Fix the piston in a three-jaw and tighten by using a spanner on the rod head.

    Ø32 mm pistons: Apply LocTite 2701 (thread lock) on the rod thread and screw on the piston on (15.3). Tighten the piston by means of a two-pin tool (15.4)

16. Fix the cylinder tube in a vice. Lubricate the tube inside with a bit of oil and (16.1) use a spilt lead 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 oil 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 aligning of the bearing with the eye.
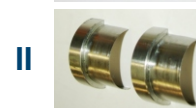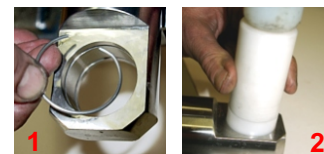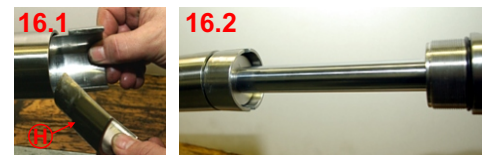5. Fit the upper locking ring.

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 for 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", ½", 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 slide 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.