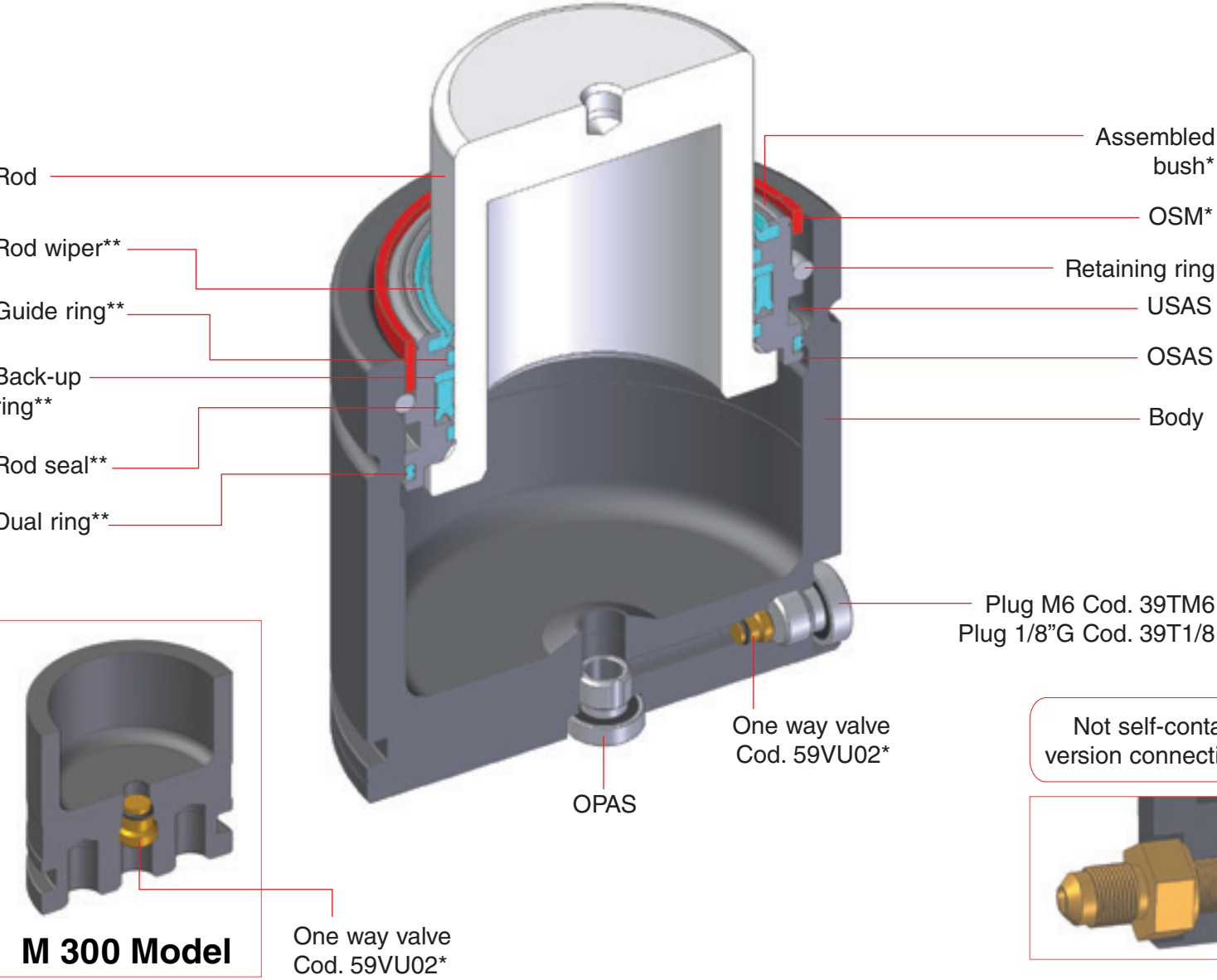
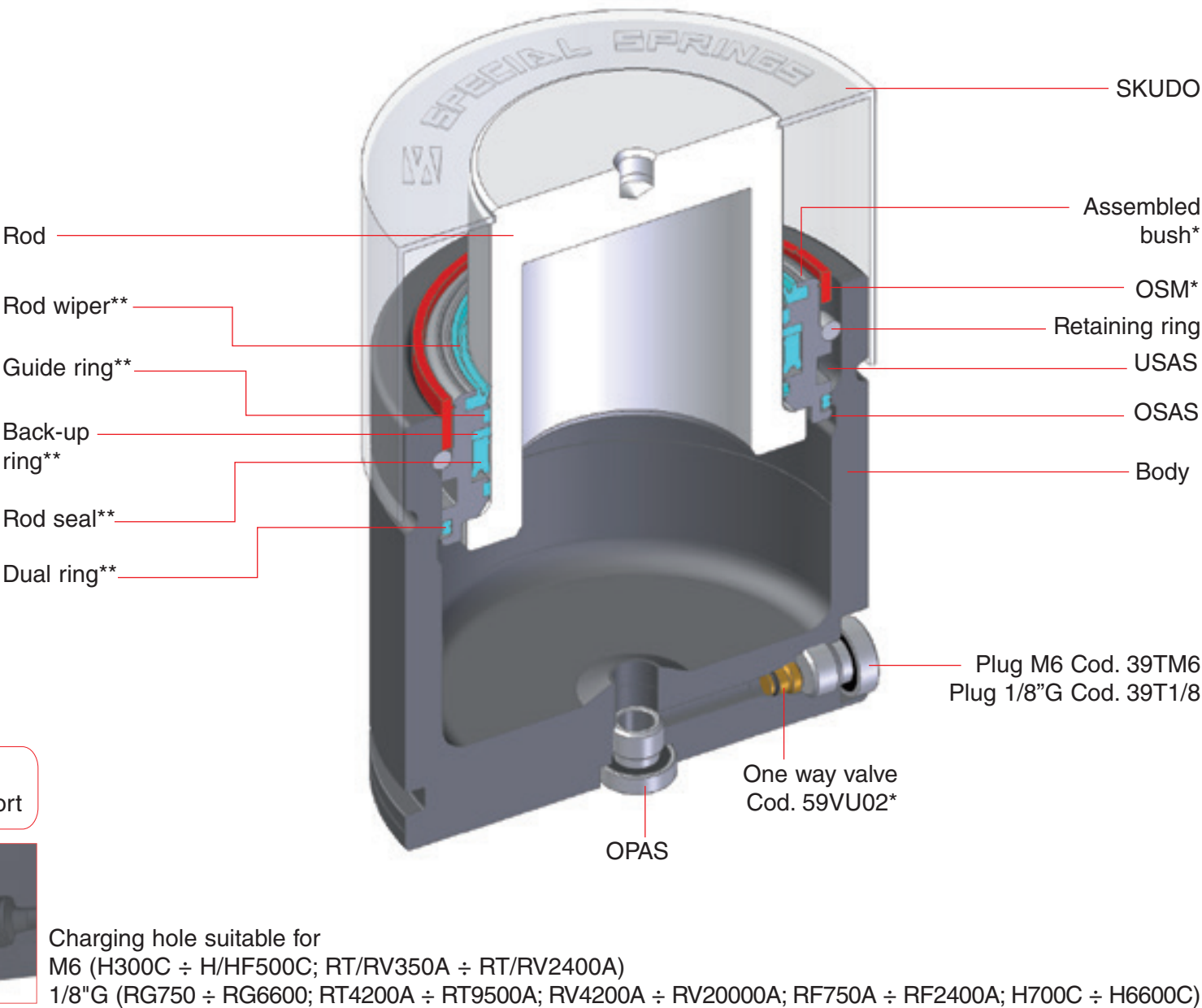


RT 350 A ÷ RT 9500 A    RV 350 A ÷ RV 20000 A    RF 750 A ÷ RF 2400 A  
M 300 A    H 300 C    H/HF500C    H 700 C (for Cu ≤ 80)    H 1000 C (for Cu ≤ 80)  
H 2400 C ÷ H 6600 C (for Cu ≤ 80)    RG750A ÷ RG6600A  
\* included in the mainenance kit - \*\* included in the assembled bush



RS350A ÷ RS9500A

\* included in the mainenance kit - \*\* included in the assembled bush



Cod. 39DMA

The multi device for, decrea-  
sing/increasing pressure.  
It consists of two units:  
- Main 39DMCILA  
- Secondary 39DMCPVA



Cod. 39DMCILA

Multi device for charging,  
discharging and adjust gas  
pressure.



Cod. 39DMCPVA

3 meters of high pressure  
hose, 1 female Cejin quick fit,  
1 ON/OFF valve, 1 shut off  
valve and 1/2-20 UNF male  
coupling to connect to the  
nitrogen bottle.



Cod. QDFV01 per foro 1/8"G  
Cod. QDFV02 per foro M6

Cejin male quick fit adapter for  
direct charging.



Cod. 58CE03 per M6  
Cod. 58CE05 per 1/8"G

Hex T-key to remove charg-  
ing hole plug and valve  
retaining screw.



Cod. 39DDS01A

Discharging device.  
BLUE side for M6 hole  
GOLD side for 1/8"G hole



Cod. 39RFG

Special Springs gas detec-  
tor for easy gas leakage.



Cod. 58KNIPEX

Multipurpose pliers with spouts.



Cod. 58CD01

Torque wrench for one way  
valve.



Cod. 58EM06  
Cod. 58EM08

Estrattore manuale per gruppo  
stelo + boccia.



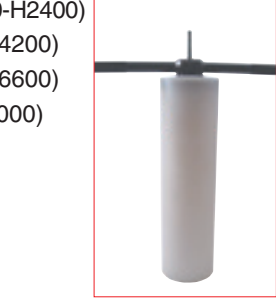
Cod. 39PM02A

Pressa manuale per assem-  
blaggio stelo, boccia e  
anello di ritegno a C.



Cod. 58UT002A (RG/RT/RV/RF/RS2400-H2400)  
Cod. 58UT003A (RG/RT/RV/RS4200-H4200)  
Cod. 58UT004A (RG/RT/RV/RS6600-H6600)  
Cod. 58UT005A (RT/RV/RS9500-RV12000)  
Cod. 58UT006A (RV20000)

Screw extracting device for rod  
and bushing.



Cod. 49TB016 (RT/RV/RS350-H300-M300)  
Cod. 49TB020 (RT/RV/RS500-H/HF500)  
Cod. 49TB024 (RG/RT/RV/RF/RS750-H700)  
Cod. 49TB030 (RG/RT/RV/RF/RS1000-H1000)  
Cod. 49TB030 (RT/RV/RF/RS1200)  
Cod. 49TB036.5 (RG/RT/RV/RF/RS1500)

Cod. 49TB046 (RG/RT/RV/RF/RS2400-H2400)  
Cod. 49TB061.5 (RG/RT/RV/RS4200-H4200)  
Cod. 49TB081.5 (RG/RT/RV/RS6600-H6600)  
Cod. 49TB106.5 (RT/RV/RS9500-RV12000)  
Cod. 49TB095 (RV20000)



Reassembly guiding tube + reassembly positioning tube for the retaining C-ring.

Cod. 49TN023 (RT/RV/RS350-H300-M300)  
Cod. 49TN027 (RT/RV/RS500-H/HF500)  
Cod. 49TN032 (RG/RT/RV/RF/RS750-H700)  
Cod. 49TN036 (RG/RT/RV/RF/RS1000-H1000)  
Cod. 49TN036 (RG/RT/RV/RF/RS1200)  
Cod. 49TN045 (RG/RT/RV/RF/RS1500)

Cod. 49TN055 (RG/RT/RV/RF/RS2400-H2400)  
Cod. 49TN070 (RG/RT/RV/RS4200-H4200)  
Cod. 49TN088 (RG/RT/RV/RS6600-H6600)  
Cod. 49TN117 (RT/RV/RS9500-RV12000)  
Cod. 49TN148 (RV20000)



Anti scratch nylon tube.



UK Sole Distributer  
**BERGER TOOLS LTD**

Unit B1 & B2 Chaucer Business Park,  
Watery Lane, Kemsing, Kent, TN15 6QY  
T: +44 (0) 1732 763377  
E: sales@berger-tools.co.uk  
W: www.berger-tools.co.uk

All Special Springs step-by-step manuals  
are available for download from our web site:  
[www.specialsprings.com](http://www.specialsprings.com)



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www.specialsprings.com





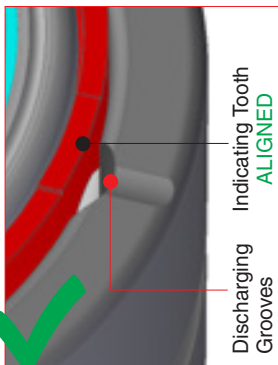
SKUDO REMOVAL. I. HOW TO REMOVE THE OVER STROKE MARKER.



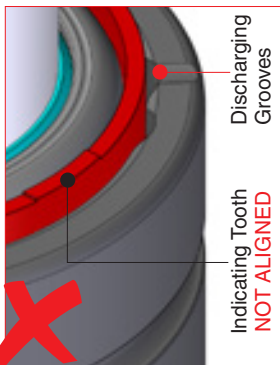
**FOR RS CYLINDERS ONLY.**  
Remove the protective SKUDO cap. For certain models the operation will require a certain strain. Preserve the protective SKUDO cap for further reassembly.



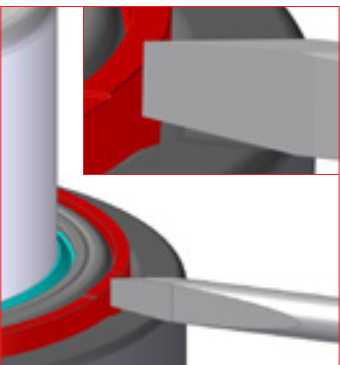
1. Position and clamp the cylinder into a self-centring chuck or a vice.



2. On the upper side of the cylinder's body, find the indicating tooth on the OSM ring and the discharging grooves.

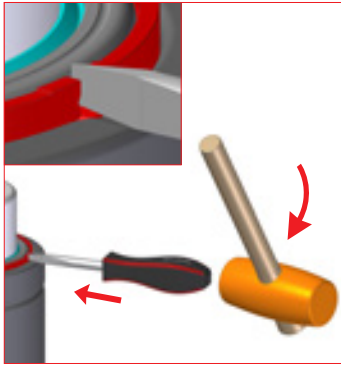


3. If the Indicating Tooth is not aligned with the discharging grooves, reposition it manually.

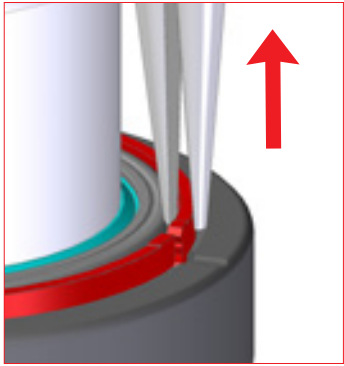


4. Position the flathead screwdriver at the center of the discharging grooves and keep it in contact with the Over Stroke Marker (OSM) ring.

II. DISCHARGING + VALVE REMOVAL for self-contained cylinders.



5. By using a rubber mallet, hit the flathead screwdriver to break the OSM ring halfway.



6. Remove the broken Over Stroke Marker (OSM) ring from its location with a pliers. Clean any residual material.



7. Remove the charging plug from the charging hole by using the appropriate tool. Preserve the charging plug for further reassembly.  
**58CE05** for the 1/8 G port.  
**58CE03** M6/3 for the M6 port.

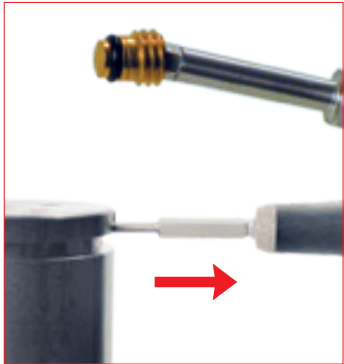


8. Thread DDS discharging device on the charging port then exhaust completely the pressure. Point away from the operator for maximum safety.  
**39DDS01A** BLUE side for M6 hole GOLD side for 1/8"G hole

III. DISCHARGING non self-contained cylinders.



9. Be sure the pressure is completely exhausted by pressing down the piston rod into the cylinder body. Then unthread the discharging device from the discharging hole.



10. Hang and release the one way valve from the hole by using the appropriate tool. Some oil leaks may occur when cylinder is upside down.  
**58CD01** one way valve removing-setting dynamometric wrench.



A. To exhaust pressure of hosed cylinders open the discharging valve on the control panel.

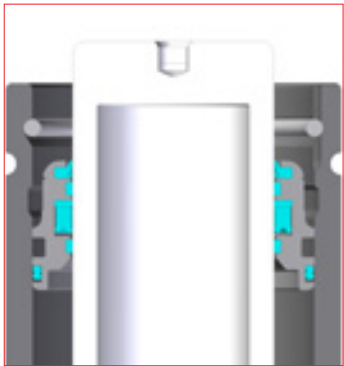


B. Be sure the pressure is completely exhausted by pressing down the piston rod into the cylinders body.

IV. RETAINING RING REMOVAL.



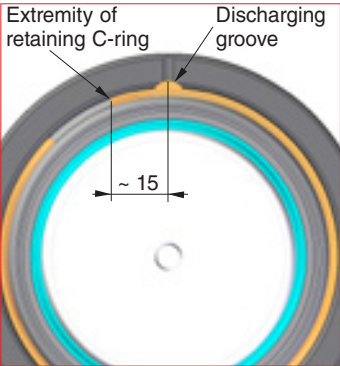
11. Position the anti scratch nylon removal tube (**49TN**...) on the bush then by the manual press (**39PM02A**) press all down into the body. The retaining ring is now free for an easy removal.



11.1. Cross section view of cylinder to see the right position of the bush and C-ring after operation.



12. Position and clamp the cylinder into a self-centring chuck or a vice.



12.1. Position the extremity of the retaining ring at about 15 mm from the groove centre.

V. PISTON ROD + BUSH REMOVAL.



13. By inserting the screwdriver on the appropriate discharging groove, between the retaining ring and the body border, remove the ring as indicated. Use the pliers (**58KNIPEX**) to avoid that the ring comes out sharply. Use the flat screwdriver 2,5 x 75.



14. By using the T-handle M6/M8 (**58EM**...) extract the piston-rod and the bush from the body (only model RT/RV350÷RT/RV1500;RF750÷RF1500;M300A). By using the proper Screw extracting device (**58UT**...) extract the piston-rod and the bush for other models.



15. Slide off the bush from the rod. Discard the bush.



15. Slide off the bush from the rod. Discard the bush.

VI. CLEANING AND INSPECTION.



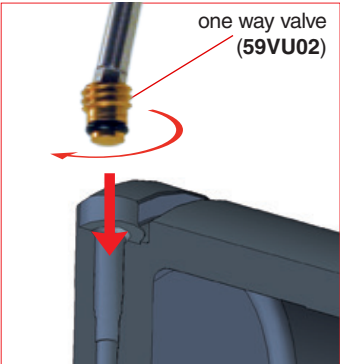
16. Carefully check and clean the cylinder body. If the body show any wear or damage do not use it again and replace it with a new one.



17. Carefully check and clean the piston-rod. If the piston rod shows any damage, wear or scratch do not use it again and replace it with a new one.



18. Carefully clean the lodging hole of the valve with compressed air and then position the new one way valve supplied along with the maintenance kit. Pay attention to its right position.



19. Position and thread the one way valve into the hole by using the appropriate special dynamometric tool already calibrated. **Torque force required maximum 0,6 Nm.** Do not exceed the maximum torque force indicated to not damage the one way valve.  
**58CD01** dynamometric wrench.

VIII. REASSEMBLY OF PISTON-ROD AND BUSH.



20. Lubricate all the installed components into the assembled bush with the Special Springs grease.



21. With the manual press (**39PM02A**) insert the assembled bush into the rod. Pay attention to position it on the right side, follow the laser print arrows on the bush. (↑TOP)



22. Slide down the assembled bush to the piston shoulder.



23. Grease the external seal on the assembled bush with the specific Special Springs grease.



24. Lubricate inside the cylinder body with the specific Special Springs oil supplied with the repair kit. Pay attention to the quantity as indicated for each cylinder model.

Modello	OIL
RT/RV/RS350A H300C M300A	5 ml
RT/RV/RS500A H/HF500C	5 ml
RG/RT/RV/RF/RS750A H700C	5 ml
RG/RT/RV/RF/RS1000A H1000C	5 ml
RT/RV/RF/RS1200A	5 ml
RG/RT/RV/RF/RS1500A	5 ml
RG/RT/RV/RF/RS2400A H2400C	5 ml
RG/RT/RV/RS4200A H4200C	10 ml
RG/RT/RV/RS6600A H6600C	10 ml
RT/RV/RS9500A RV12000A	10 ml
RV20000A	15 ml

**NOTE:** Each oil dispenser contains a volume of 5 ml.



25. Set the positioning tube on the upper part of the cylinder body, then manually insert the piston-rod and the assembled bushing into the positioning tube.  
**49TB**... positioning tube.

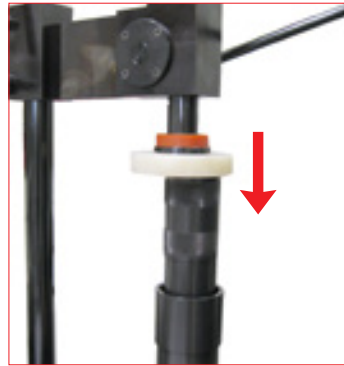


26. Insert the positioning tube over the rod in contact with the upper side of the assembled bushing, then by the manual press, press down into the cylinder body, the piston rod and the assembled bushing.  
**49TB**... conical centring guide tube.  
**39PM02A** manual press.

IX. REASSEMBLY OF THE RETAINING C-RING.



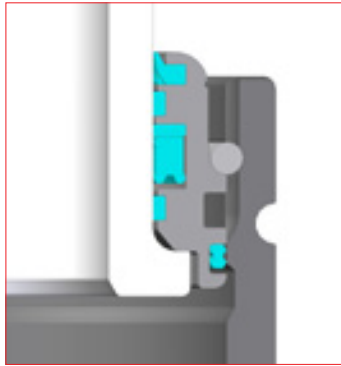
27. Position the retaining C-ring into the conical centring guide tube.



28. Insert the positioning tube in contact with the retaining C-ring, then by the manual press, press down the retaining C-ring into the groove. When the C-ring enters correctly into the groove you will hear a loud like "CLICK".  
**49TB**... conical centring guide tube.  
**39PM02A** manual press.



29. Manually extract the assembly piston-rod/bush until it rests against the C-ring.  
**58EM06** T-handle M6.  
**58EM08** T-handle M8.



29.1. Cross section view with all components correctly assembled.

X. CHARGING AND FORCE TEST for self-contained cylinders.



30. Check the correct assembly of the pressure regulation valve on the gas bottle, then open the main tap. The gauge on the left will indicate the bottle pressure.  
**39R**... pressure reducer.



31. Adjust the required maximum pressure through the regulation valve. The gauge on the right will indicate the maximum allowed pressure to charge the cylinder.  
**39R**... pressure reducer.



32. Select and assemble the desired charging adapter and thread it on the charging port. For an easy and safe operation carefully follow the instructions supplied with the charging unit. DO NOT exceed the maximum pressure indicated for any specific model.  
**39DMA** charging unit.



33. Once reached and stabilized the desired pressure, for an easy and safe operation carefully follow the instructions supplied with the charging unit.  
**39DMA** charging unit.



34. When directly charging through the adapter, after the desired pressure is reached, shut off the hose and bottle valves and disconnect the quick fit coupling. For an easy and safe operation carefully follow the instructions supplied with the charging unit.  
**39DMCPVA** charging unit.  
**QDFV**... adapter for direct charging.



35. Thread and release the adapter from the charging hole.



36. More precise force control can be carried out by using the digital force testing rigs.  
**FT**... Digital force tester  
**IPCDIG** Digital force tester

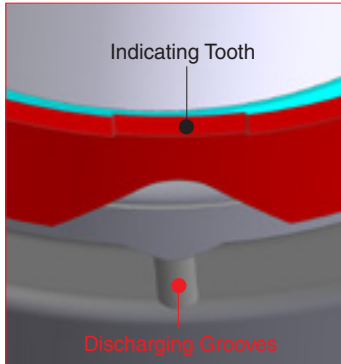


37. It is always recommended to check leaks on the charging port after the maintenance work and before re-using the cylinders by using the special gas detector.  
**39RFG** Special Springs gas detector.

XI. HOW TO INSERT THE OVER STROKE MARKER



40. Direct the V-shaped discharging section, as shown in the image. Place the Over Stroke Marker by aligning the indicator tooth with the discharging grooves.



XII. CHARGING AND FORCE TEST for non self-contained cylinders.



A. After positioning and hosing all the cylinders, proceed through the quick fit device through the control panel for charging all the cylinders. Make sure that the discharging valve is closed properly (15 Nm).  
**39DMCPVA** control panel charging unit.



B. Adjust the required pressure on the regulation valve on the bottle. The gauge on the right will indicate the maximum allowed pressure to charge the cylinders.  
**39R**... pressure reducer.

SKUDO REASSEMBLY.



Manually reassembly the protective SKUDO cap on the proper groove on the top of the rod. It would be required a light pressure to correctly position it. When the protective SKUDO cap enter correctly into the groove you will hear a sound like "CLICK".



Manually reassembly the protective SKUDO cap on the proper groove on the top of the rod. It would be required a light pressure to correctly position it. When the protective SKUDO cap enter correctly into the groove you will hear a sound like "CLICK".