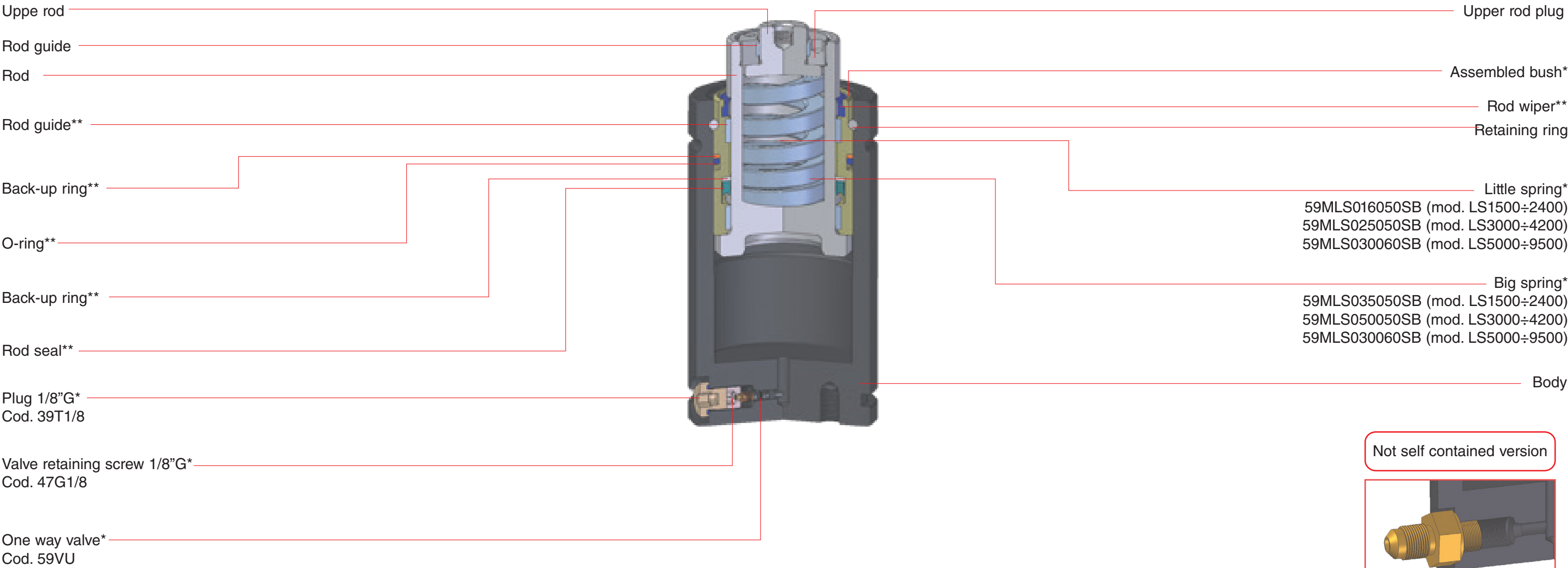
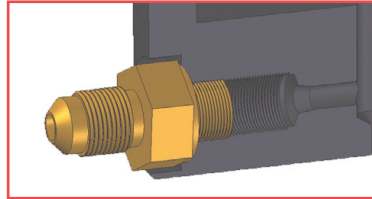


LS 1500 A ÷ LS 9500 A

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



Not self contained version



Charging hole 1/8"G

Cod. **39DMA**
The DMA multi device is designed and built to facilitate cheking, decreasing/increasing pressure or pressurising self-contained cylinders or hoses systems. It consists of two units: Main (**39DMCILA**) and 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** for 1/8"G hole
Cod. **QDFV02** for M6 hole
Cejin male quick fit adapter for direct charging.



NITROGEN CYLINDERS MAINTENANCE KIT

LS1500A
LS2400A
LS3000A
LS4200A
LS5000A
LS6600A
LS7500A
LS9500A

Cod. **39BMLS01500A**
Cod. **39BMLS01500A**
Cod. **39BMLS03000A**
Cod. **39BMLS03000A**
Cod. **39BMLS05000A**
Cod. **39BMLS05000A**
Cod. **39BMLS07500A**
Cod. **39BMLS07500A**

Cod. **58CE03** for M6 thread
Cod. **58CE05** for 1/8"G thread
Hex T-key to remove charging hole plug and valve retaining screw.



Cod. **39DDS01A**
Discharging device.
BLUE side for M6 hole
GOLD side for 1/8"G hole



Code **39EVU**
One way valve E59VU removal tool.



Cod. **58EM06**
T-handle to remove piston-rod + bushing.



Code **58EAR**
Retaining C-ring removal tool.



Cod **58KNIPEX**
Multipurpose clamp with spouts.



Cod. **49TB045** (LS1500A;LS2400A)
Cod. **49TB060** (LS3000A;LS4200A)
Cod. **49TB075** (LS5000A;LS6600A)
Cod. **49TB080** (LS7500A;LS9500A)



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

Cod. **49TN055** (LS1500A;LS2400A)
Cod. **49TN070** (LS3000A;LS4200A)
Cod. **49TN088** (LS5000A;LS6600A)
Cod. **49TN108** (LS7500A;LS9500A)



Anti scratch nylon tube to set the bushing into the cylinder body to release the retaining C-ring.

Cod. **39PM02A**
Table manual press for an easy assembly of piston-rod, assembled bushing and retaining C-ring.



Cod. **58UT002A**(LS1500A)
Cod. **58UT003A**(LS3000A)
Cod. **58UT004A**(LS5000A)
Cod. **58UT005A**(LS7500A)

Screw extracting device for rod and bushing.



Cod. **58CC05**
Key with plugs to remove the rod top cap.



Cod. **39RFG**
Special Springs gas detector special made to check possible gas leakage.



⚠ The complete assembled kit along with this step-by-step service manual is result of Special Springs research for the most useful maintenance operation for Special Springs nitrogen gas cylinders. Few minutes and the Special Springs nitrogen gas cylinders are regenerated as new one.

⚠ Special Springs along with its own global network are pleased to help you anytime for the best result of your work.

⚠ Before starting any maintenance work, carefully check if the rod or the body of the cylinder are damage or wear. If yes, it is recommended to replace the cylinder immediatley and do not procede with the maintenance operation.

⚠ Before starting any maintenance work carefully check the maintenance kit to correspond to the model of cylinder for which is required.

⚠ Before starting any maintenance work carefully check this step-by-step manual to correspond to the model of cylinder for which is required.

⚠ Instructions and pictures of this step-by-step manual could slightly differ from practise.



All Special Springs step-by-step manuals are available for download from our web site: www.specialsprings.com



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NITROGEN GAS CYLINDERS MAINTENANCE INSTRUCTIONS

LS 1500 A
LS 2400 A
LS 3000 A
LS 4200 A
LS 5000 A
LS 6600 A
LS 7500 A
LS 9500 A

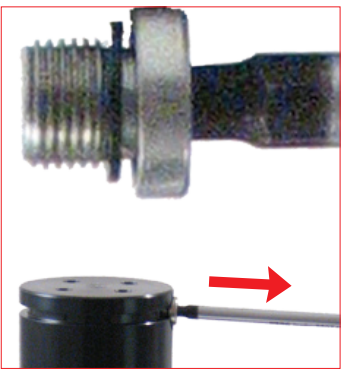
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W: www.berger-tools.co.uk



I. DISCHARGING.



1. Remove the protective screw cap from the charging hole 1/8G by using the hex key (58CE05). Preserve the screw cap from reassembly.



2. Thread the discharging device (39DDSO1A) on the charging hole then exhaust completely the gas. For safety point the gas flow away from the operator.



3. 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.



4. Unthread the valve retaining screw by using the hex key (58CE03). Preserve the valve retaining screw for reassembly.

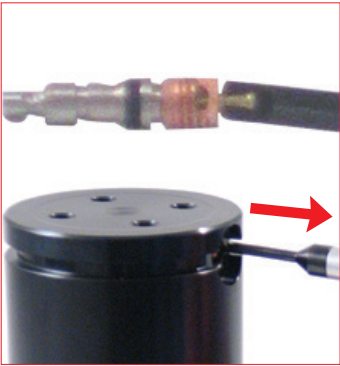
NON SELF-CONTAINED VERSION.



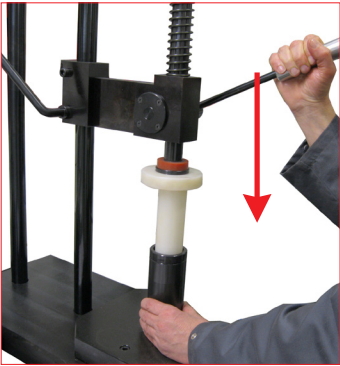
A. To exhaust pressure of hoses cylinders open the discharging valve on the control panel.



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

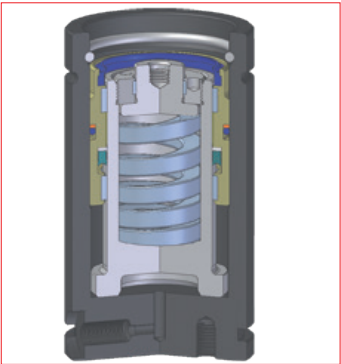


5. Hang and remove the one way valve from the conical lodging site by using the proper tool (39EVU).



III. RETAINING C-RING REMOVAL.

IV. PISTON ROD AND BUSHING REMOVAL.



6.1. Cut off of the cylinder to see the right position of the cartridge and C-ring after operation #6.



7. Clamp the cylinder into a self-centring chuck or a vise.



8. By using the C-ring removal tool (58EAR) and the clamp (58KNIPLEX) hook and remove the retaining C-ring. Preserve the C-ring for reassembly.



9. By using the removal C-ring (58EV) hook up the retaining C-ring. Preserve the retaining C-ring for reassembly.



10. Then slide off the bushing from the rod and discard the bushing.



11. By using the compass key (58CC05) remove the upper plug (47TS...).



12. Remove the upper rod (42LS...) and the upper plug (47TS). Preserve them for reassembly.



13. Remove the springs from the lodge hole. Discard the springs.

V. CLEANING AND INSPECTION.



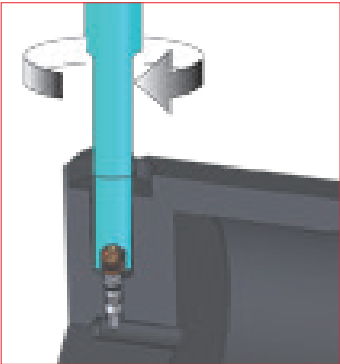
14. Carefully check and clean the cylinder body. If the cylinder body shows any damage or wear do not use it again and replace it with a new one.



15. 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.



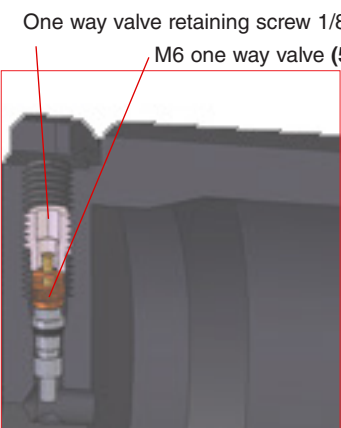
16. Carefully clean through the charging hole with an air gun, then drop the new one way valve (59VU) into the conical hole.



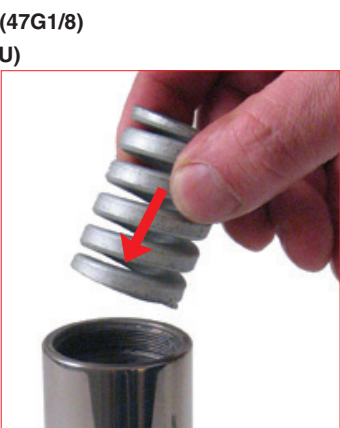
16.1 Corretto alloggiamento della valvola unidirezionale (59VU) nella sede conica all'interno del foro di caricamento, per mezzo del posizionatore per valvola unidirezionale (47ASVU).



17. By using the hex key (58CE05) thread the one way valve retaining screw (47G1/8G). Pay attention to not tight excessively the retaining screw to avoid damage on the one way valve. Torque force required max N 0,6.



17.1 Cut off of piston-rod with the one way valve and the M6 one way valve retaining screw correctly positioned.



18. Then insert the new springs into the lodge hole. The little spring goes inside the big spring.

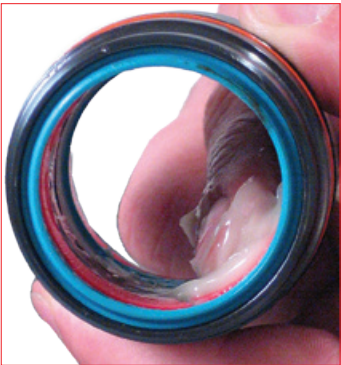


19. Then positioning the upper rod (42LS...) and the upper plug (47TS).

VII. PISTON-ROD AND BUSHING REASSEMBLY.



20. By using the compass key (58CC05) thread the upper plug (47TS) into the upper rod (42LS...).



21. Take the new assembled bushing and grease inside all over by using the specific Special Springs grease compound supplied with the repair kit.



22. Manually or by using the manual press (39PM02) insert the assembled bushing into the rod. Be careful to position it on the right side, following the laser print arrows on the bushing.



23. Slide down the assembled bushing to the piston shoulder.



24. Grease the O-ring on the assembled bushing with the specific Special Springs grease compound supplied with the repair kit.



25. Lubricate inside the cylinder body with the specific Special Springs oil supplied with the repair kit. Be careful to the quantity as indicated for each cylinder model. NOTE: Each oil dispenser contains a volume of 5 ml.

Model	OIL
LS1500A	LS2400A 10 ml
LS3000A	LS4200A 20 ml
LS5000A	LS6800A 35 ml
LS7500A	LS9500A 60 ml

VIII. RETAINING C-RING REASSEMBLY.



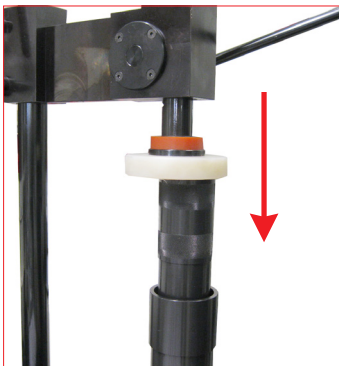
26. Position the assembly guiding tube (49TB...) on the top side of the cylinder body then insert the piston-rod and the assembled bushing into the assembly tube.



27. Then position the retaining C-ring into the assembly guiding tube (49TB...).



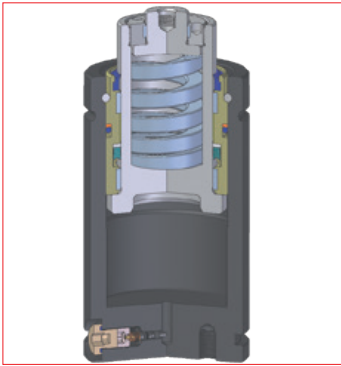
28. Insert the positioning tube (49TB...) over the rod. Carefully verify the tube is correctly resting against the top side of the assembled bushing.



29. By using the manual press (39PM02A) act on the positioning tube to push down the retaining C-ring into its groove. When the C-ring enters the groove you will hear a "click". Be sure the retaining C-ring is in the right position into its own groove.



30. After threading the T-handle M8 (58EM08) into the rod head threaded hole, pull completely the unit piston-rod and bushing.



30.1 Cut off of the piston-rod, bushing and retaining C-ring correctly positioned.

IX. CHARGING AND FORCE CHECK.



31. Open the nitrogen bottle main tap. 39R... pressure regulation valve.



32. Adjust the required charging pressure through the regulation valve. Usually the gauge on the right displays the set charging pressure. 39R... pressure regulation valve.



33. Select and assemble the desired charging adapter on the charging unit device (DMA), thread it on the charging hole and proceed to fill the gas on the desired pressure (Max. 150 if not different specified). Do not exceed the maximum indicated charging pressure.



34. Wait a while for pressure stabilization, close the shut-off hose and bottle valves. Then unthread the adapter from the cylinder. More detail included with the DMA instruction manual.



35. When charging directly through the adapter (ODFV01) and the desired pressure is reached, shut-off hose and bottle valves and disconnect the quick fit coupling.



36. Unthread the adapter from the charging hole.



37. More precise force control can be carried out by using the digital Special Springs force test ring FT... Digital force tester IPCDIG Digital force tester



38. Use Special Springs gas detector to check leaks on valve port.

VI. ONE WAY VALVE REASSEMBLY.



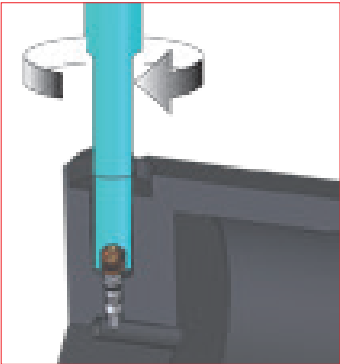
14. Carefully check and clean the cylinder body. If the cylinder body shows any damage or wear do not use it again and replace it with a new one.



15. 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.



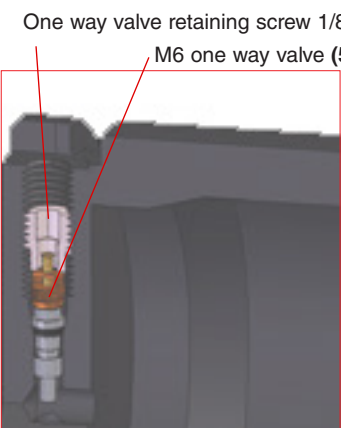
16. Carefully clean through the charging hole with an air gun, then drop the new one way valve (59VU) into the conical hole.



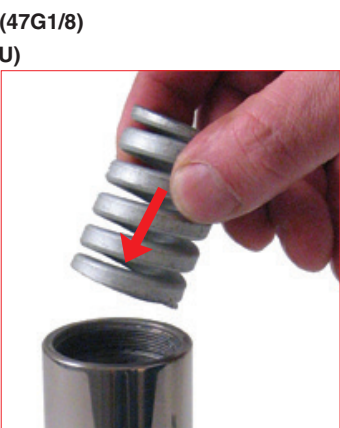
16.1 Corretto alloggiamento della valvola unidirezionale (59VU) nella sede conica all'interno del foro di caricamento, per mezzo del posizionatore per valvola unidirezionale (47ASVU).



17. By using the hex key (58CE05) thread the one way valve retaining screw (47G1/8G). Pay attention to not tight excessively the retaining screw to avoid damage on the one way valve. Torque force required max N 0,6.



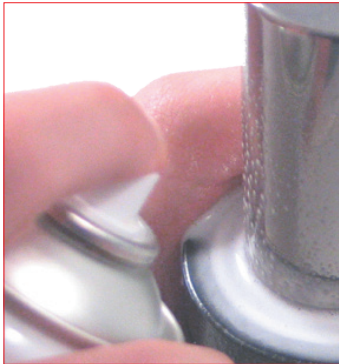
17.1 Cut off of piston-rod with the one way valve and the M6 one way valve retaining screw correctly positioned.



18. Then insert the new springs into the lodge hole. The little spring goes inside the big spring.



19. Then positioning the upper rod (42LS...) and the upper plug (47TS).



38.1. Use Special Springs gas detector to check leaks on top of the body.



39. Thread the protective screw cap into the charging hole 1/8"G by using the hex key (58CE05).

NON SELF-CONTAINED VERSION.



A. For charging hosed system use the proper device (DMPCVA) to connect the control panel.



B. Adjust the required charging pressure through the regulation valve. Usually the gauge on the right displays the set charging pressure.



C. Charge the system to desired pressure. More details included with DMA instruction manual.



D. Use the Special Springs gas detector to check hose cylinders connections.



E. Use the Special Springs gas detector to check top side of cylinders body and bushing.

X. PRESSURE ADJUSTING.



40. When required the adjusting pressure can be easily adjusted by using the main unit (DMCILA) of the Special Springs charging device. More details included with DMA instruction manual.

NON SELF-CONTAINED VERSION.



A. When required the adjusting of pressure can be easily adjusted by using the main unit (DMCILA) of the Special Springs charging device. More details included with DMA instruction manual.