1st stage MC5

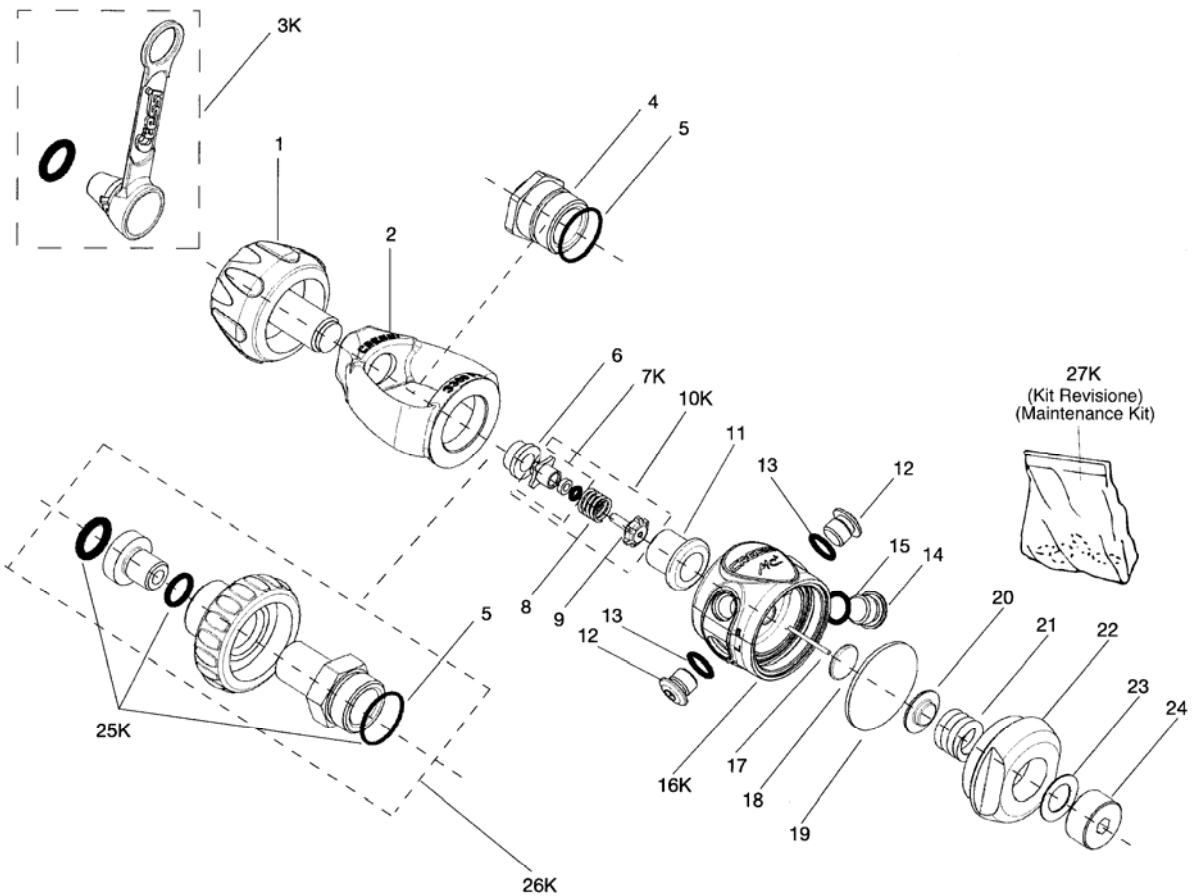
WARNING !

- This document is intended for experienced technical personnel who have already attended a Cressi-sub training course on equipment repair and maintenance.
- We decline any responsibility for any maintenance and/or repair operation carried out by unauthorized personnel.
- Avoid carrying out maintenance and repair operations on the equipment without the correct training required.
- Should the information reported in this manual be unclear or not fully understandable, please contact Cressi-sub before carrying out any disassembling or maintenance operation.
- Before carrying out any operation, Cressi-sub recommend to read this manual carefully in order to get to know thoroughly all necessary tools and techniques to carry out a correct maintenance and repair of the equipment.

WARNING !

- Before any operation, Cressi-sub recommend to read carefully the present document in order to get to know thoroughly all necessary tools and techniques to carry out a correct maintenance and repair of the equipment.
- Use this document during every phase of the equipment maintenance and repair, in order not to leave out any sequence.
- On the contrary, bad working or even accidents might occur.
- Pay particular attention to the advices written on the sides of the pictures representing the different phases of maintenance and repair, in order to avoid any possible problem that might cause accidents.
- All operations described in this manual are relating and destined *only* to disassembling, maintenance and assembly of equipments to be used with air (21% oxygen, 79% nitrogen).

1st stage MC5: exploded diagram



POS.	CODICE / CODE
1	HZ 730027
2	HZ 770080
3K	HZ 800090
4	HZ 800054
5	HZ 800055
6	HZ 800056
7K	HZ 800057
8	HZ 800086
9	HZ 800085
10K	HZ 800058
11	HZ 800059
12	HZ 730106
13	HZ 730108
14	HZ 730127
15	HZ 730132
16K	HZ 800060
17	HZ 800061
18	HZ 800062
19	HZ 800082
20	HZ 800081
21	HZ 800080
22	HZ 800063
23	HZ 800064
24	HZ 800065
25K	HZ 800066 (kit OR DIN)
26K	HZ 800067
27K	HZ 800068 (INT) (Kit Revisione/Maintenance Kit)
27K	HZ 800053 (DIN) (Kit Revisione/Maintenance Kit)

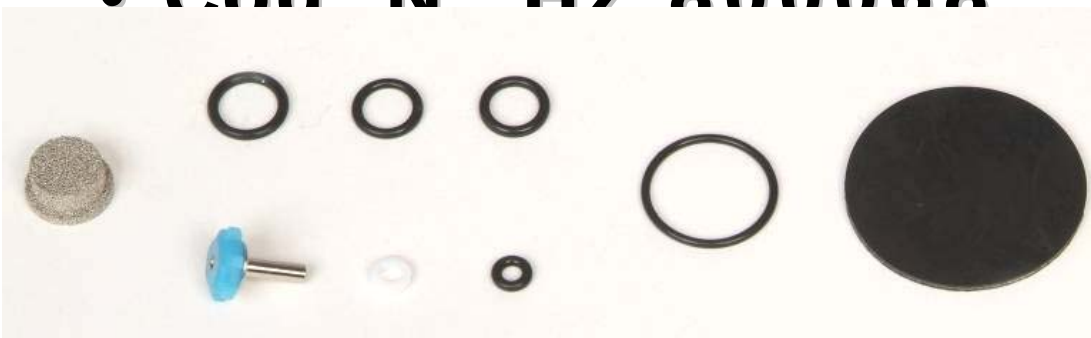
1° Stadio a Membrana Bilanciata MC5 CE / Balanced Diaphragm 1st Stage MC5 CE	Ed./Issue	MC5/1
	A/08	N° Tav./Rev.

MC5 INT 1st STAGE (HZ 80068) ANNUAL REPLACEMENT KIT CHART (Real Size)

MC5 DIN 1st STAGE (HZ 80053) ANNUAL REPLACEMENT KIT CHART (Real Size)

1st stage MC5 INT

- **Kit MC5 Int Yearly maintenance**
- **Cod. N° HZ 800068**



(Real Size) *MC5 INT 1st STAGE (HZ 800068) ANNUAL REPLACEMENT KIT CHART*

O-RING Reference Table

SPARE PARTS Reference Table

1 Diaphragm HZ 800082	1 Back-Up Ring HZ 800057
1 HP Valve HZ 800085	1 Sintered Filter HZ 800056

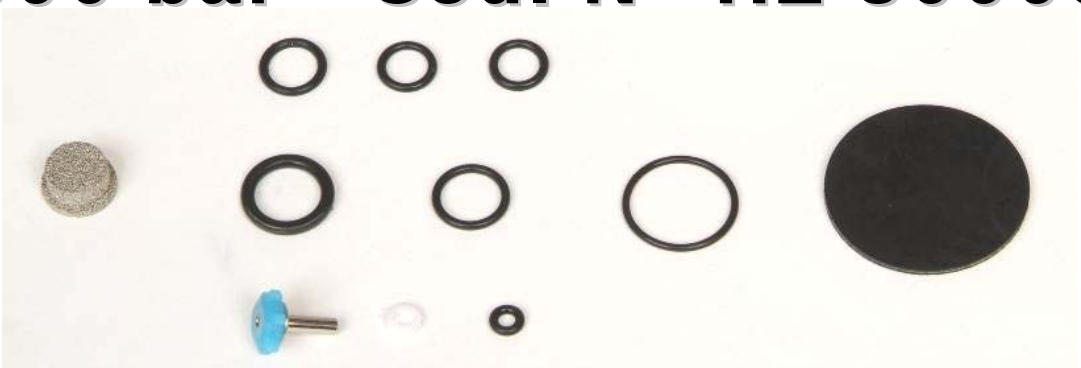
Go back to

- ***Use only Cressi-sub original replacement units***

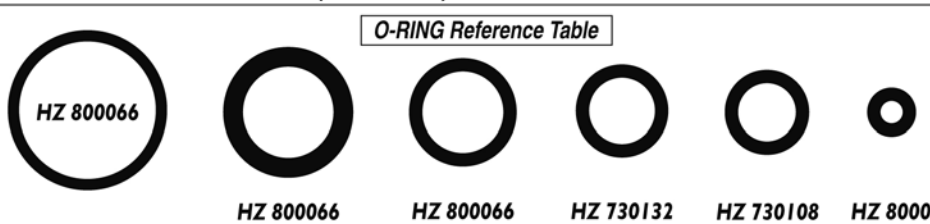
•Note: we recommend to carry out a complete maintenance of your regulator once a year or more in case of a particularly intensive use.

1st stage MC5 DIN

- **Kit MC5 Int Yearly maintenance 300 bar - Cod. N° HZ 800053**



(Real Size) MC5 DIN 1st STAGE (HZ 800053) ANNUAL REPLACEMENT KIT CHART



Go back to

- ***Use only Cressi-sub original replacement units***

•Note: we recommend to carry out a complete maintenance of your regulator once a year or more in case of a particularly intensive use.

• Yearly maintenance

- Cressi-sub recommends a full maintenance of the regulator at least once a year or more in case of particularly intensive use. The maintenance must include the replacement of every OR, of the conical filter and relating clip, of the first stadium HP pad and of the seal.
- The required tools to carry out the maintenance are described in a section of this manual.
- Wash the metal parts in warm water and soap, then rinse them in fresh water. Remove any concretion by means of ultra-sound cleaning or diluted acid solutions and rinse them carefully in fresh water.

• Yearly maintenance

- Grease all new OR with a thin silicone film: this will reduce to the minimum the risk of damage during the assembly phases.
- You may grease the first two turns of the metal threads.
- All operations described in this manual are relating and destined *only* to disassembling, maintenance and assembly of equipments to be used with air (21% oxygen, 79% nitrogen).

• ***Use only original Cressi-sub spare parts***

1st stage MC5: disassembling phases

- Use the special spanner to disassemble the bracket blocking nut, as shown in the picture, after screwing the special threaded tool in one of the first stage ports and tightening the regulator in a vice.

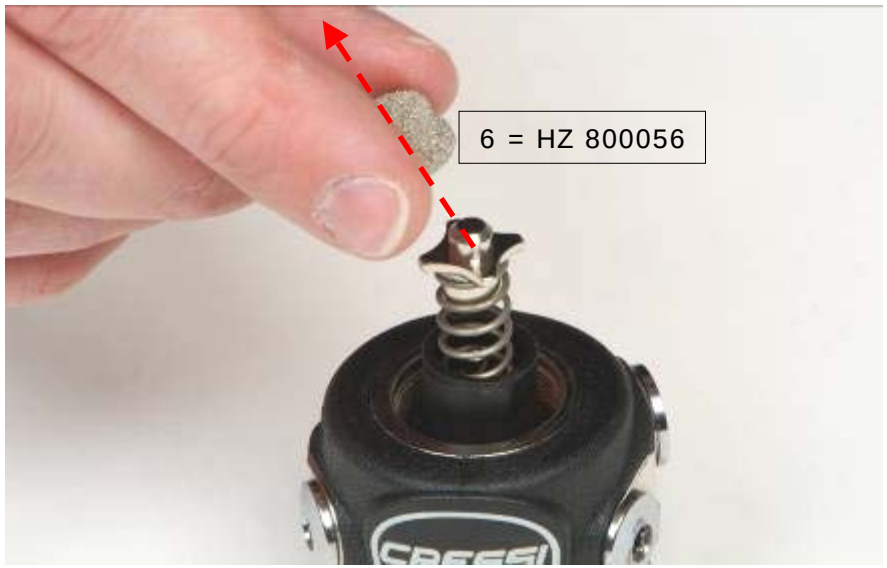
1st stage MC5: disassembling phases

- Should you not have the special spanner to remove the bracket, you can use a big roll spanner to unscrew the blocking nut, as shown in the picture.

1st stage MC5: disassembling phases

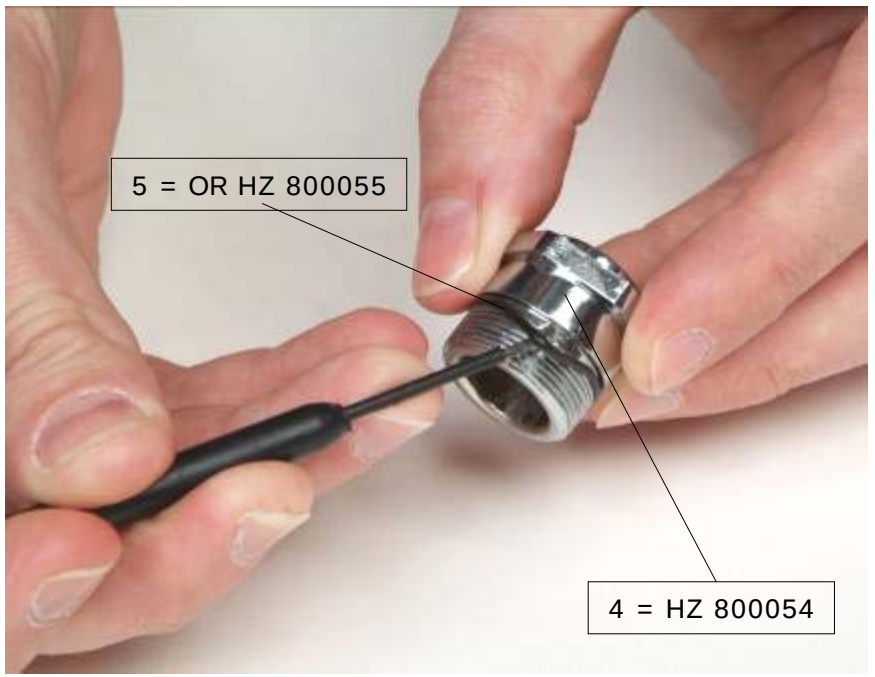
- Remove the 1st stage bracket blocking nut and the bracket.

1st stage MC5: disassembling phases



- Remove the sintered filter and take out the 1st stage whole valve.

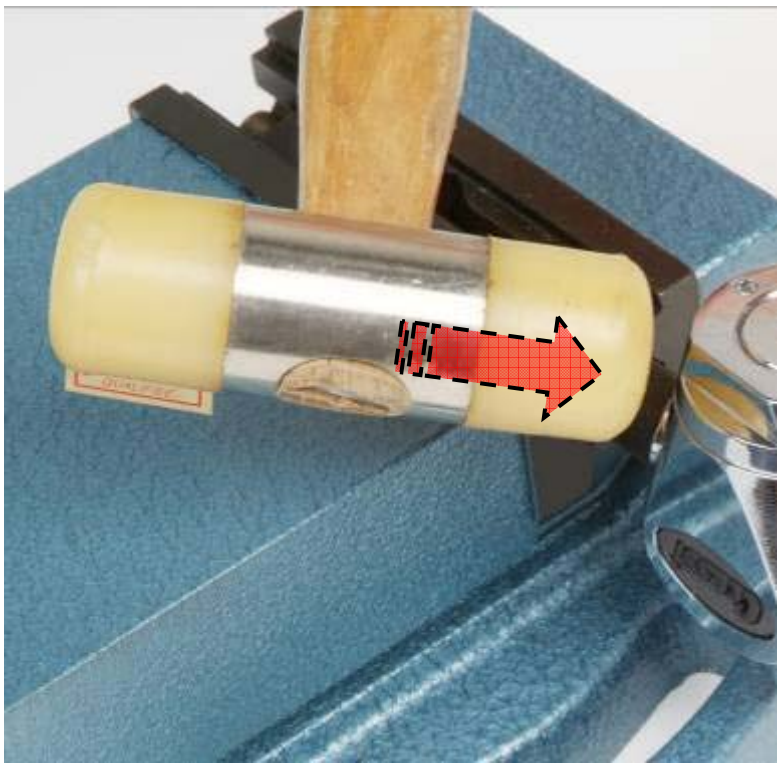
1st stage MC5: disassembling phases



- Remove the bracket blocking nut OR washer, then take the whole HP racket-piston bush out of its seat.

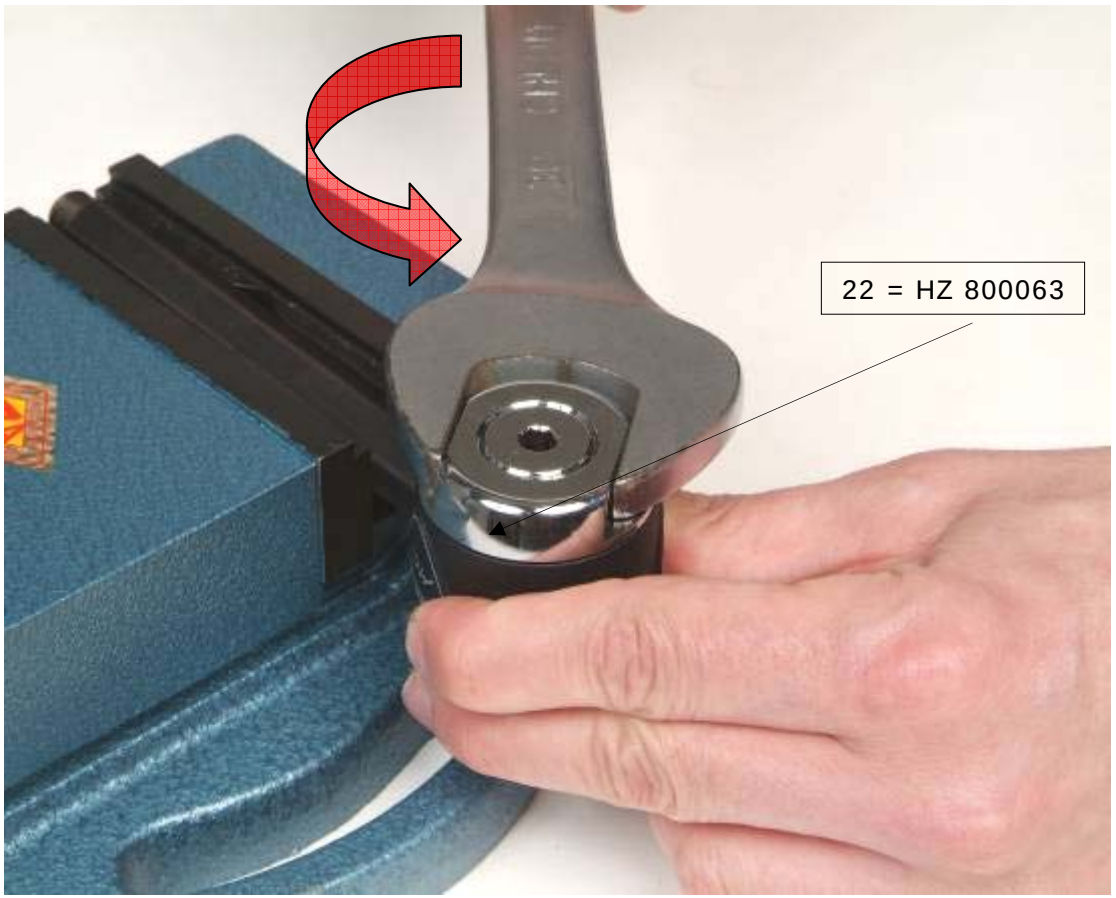
1st stage MC5: disassembling phases

- Should the regulator have been used intensively and show oxidization spots, we recommend to hit slightly all around the perimeter of the 1st stage disk with a hammer of synthetic material.

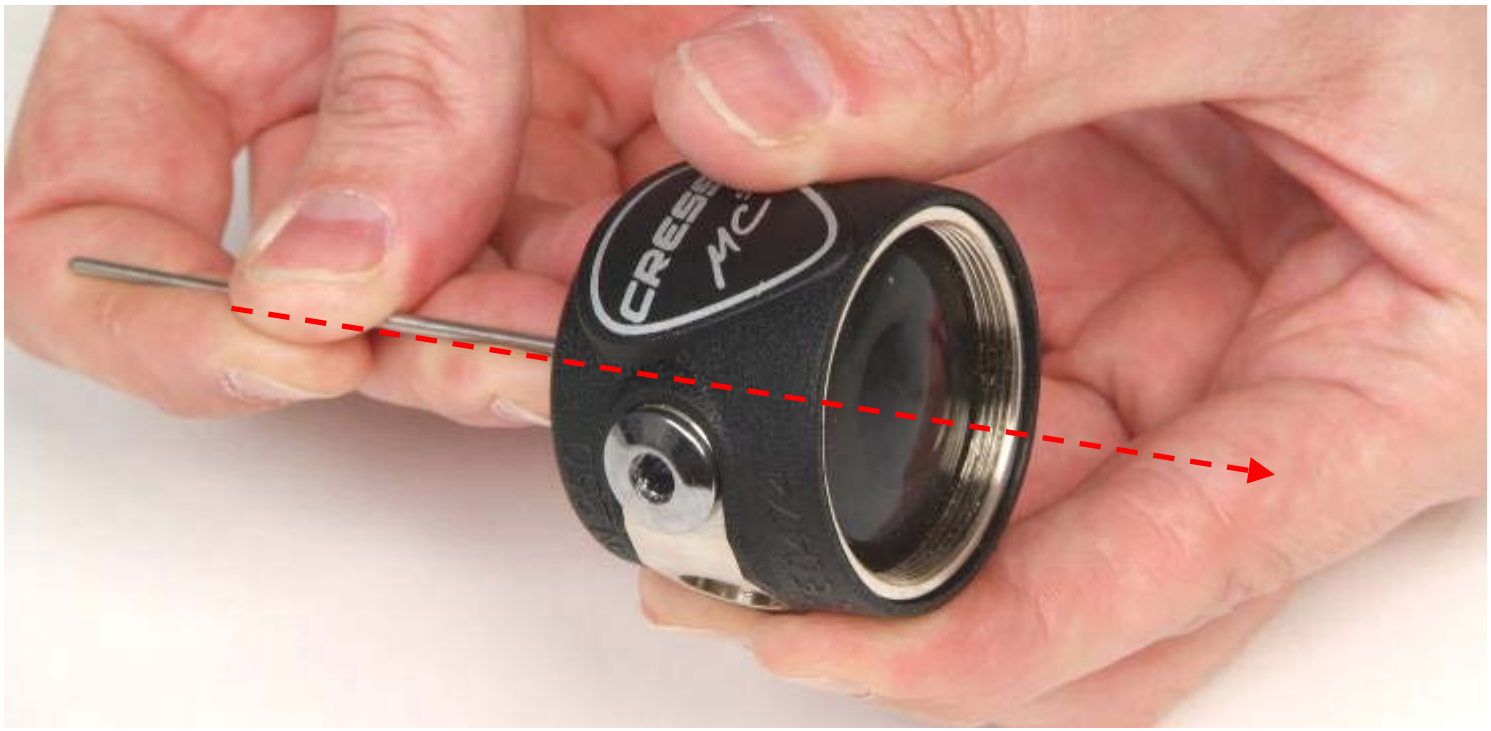


1st stage MC5: disassembling phases

- Keeping the 1st stage tightened on the vice by means of the threaded tool, remove the disk using a 11,8 in. hexagonal spanner.

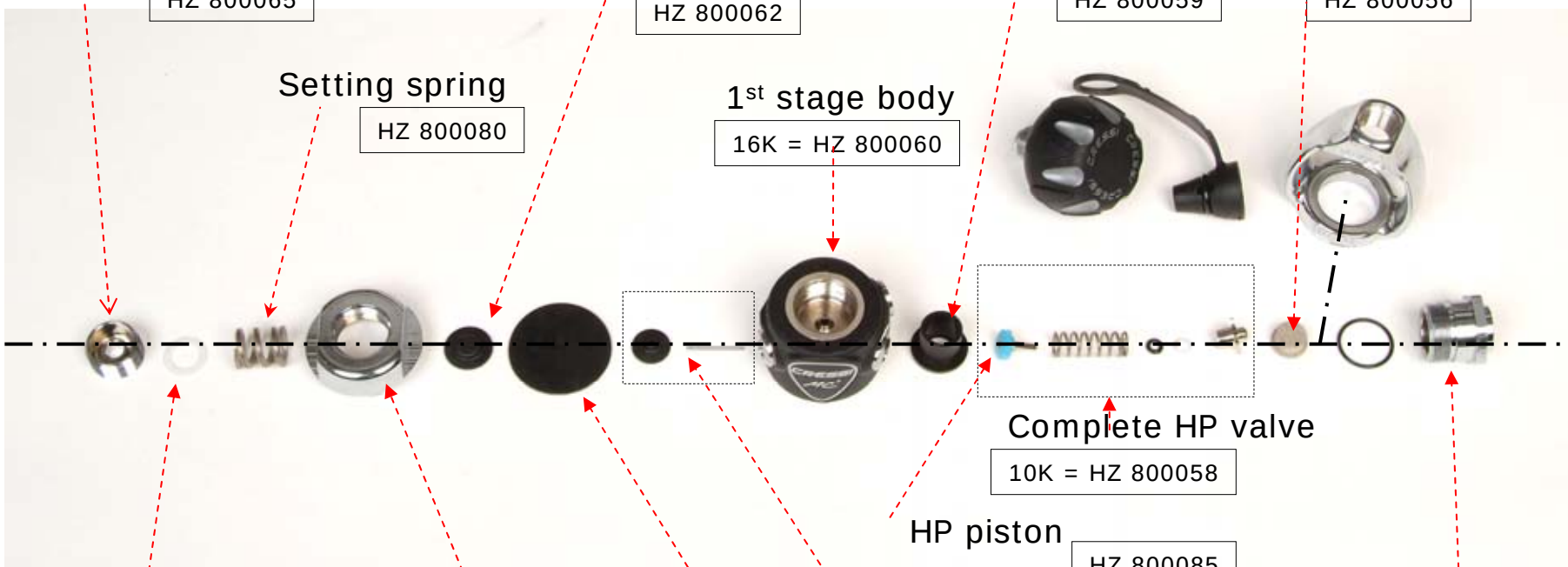


1st stage MC5: disassembling phases



- Remove the diaphragm, inserting a blunt tool inside the 1st stage and pushing, as shown in the picture.
- You can also remove the diaphragm out of its seat, by letting in low pressurized water through a 3/8“LP port.

1st stage MC5 INT



Setting screw
HZ 800065

Spring-guide flat
HZ 800062

HP piston jacket
HZ 800059

Filter
HZ 800056

Setting spring
HZ 800080

1st stage body
16K = HZ 800060

Complete HP valve
10K = HZ 800058

HP piston
HZ 800085

Pin pushing tool – pin
HZ 800062 / HZ 800061

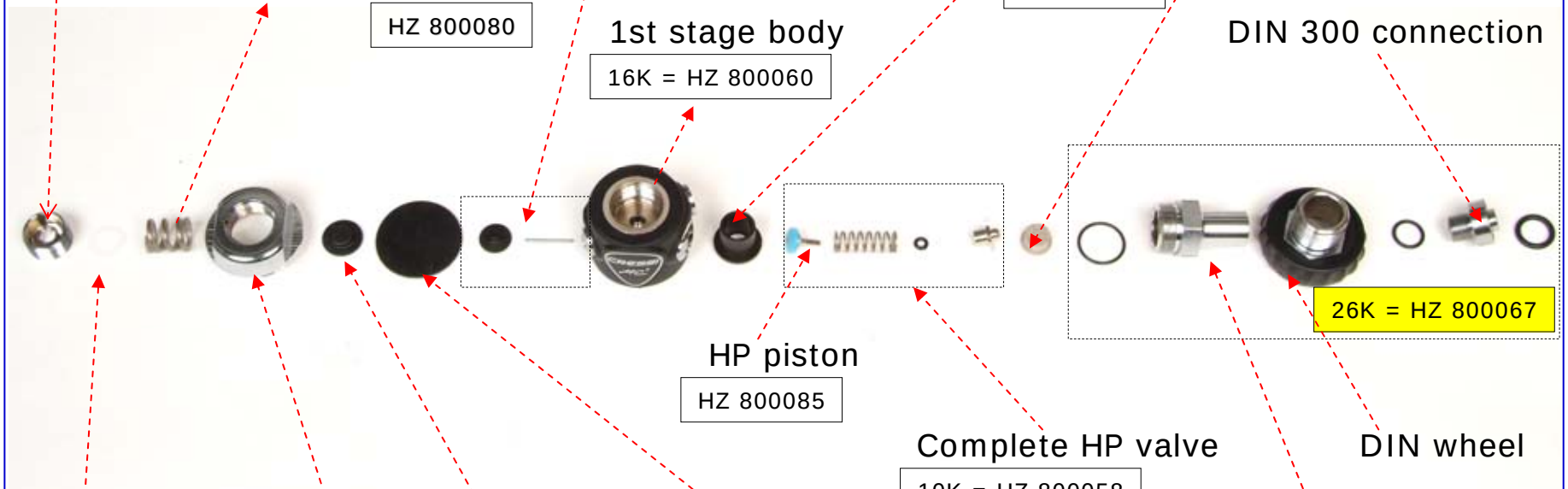
Diaphragm blocking disk
HZ 800063

Spring smoother
HZ 800064

Diaphragm
HZ 800082

Bracket blocking nut
HZ 800054

1st stage MC5 DIN



Setting screw
HZ 800065

Pin pushing tool – pin
HZ 800062 / HZ 800061

Filter
HZ 800056

HP piston jacket
HZ 800059

Setting spring
HZ 800080

1st stage body
16K = HZ 800060

DIN 300 connection

26K = HZ 800067

HP piston
HZ 800085

Complete HP valve
10K = HZ 800058

DIN wheel

Piattello guida molla
HZ 800081

Diaphragm blocking disk
HZ 800063

Diaphragm
HZ 800082

DIN filter body

Spring smoother
HZ 800064

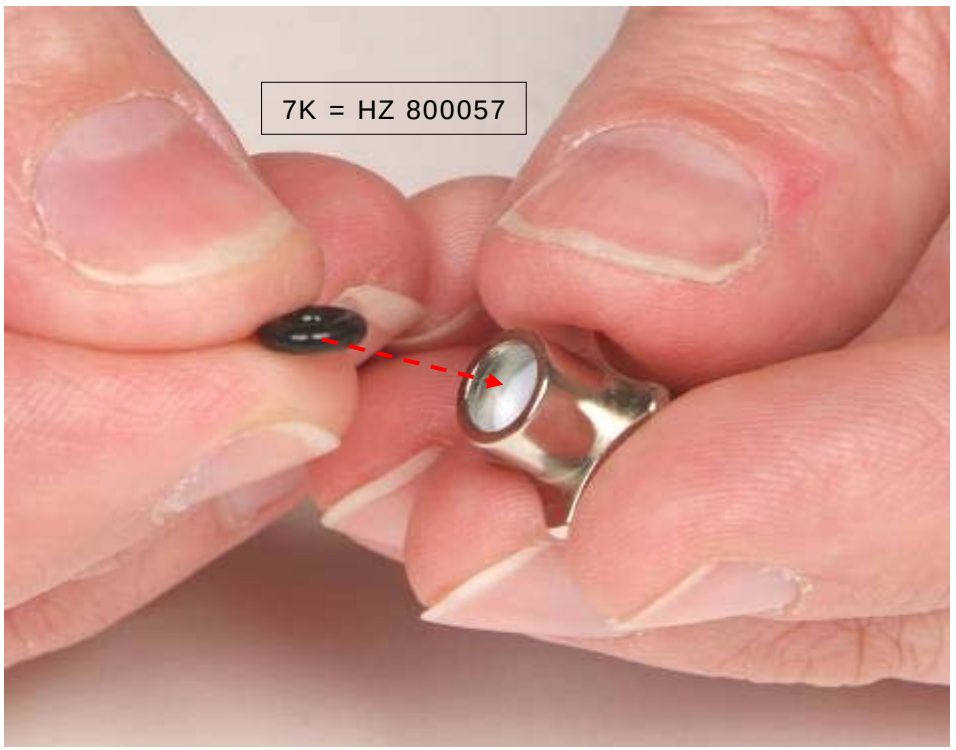
1st stage MC5: assembling phases INT-DIN

- Use a tool to insert the anti-extrusion ring in the balancing chamber.

7K = HZ 800057

1st stage MC5: assembling phases INT-DIN

- Insert the OR in the balancing chamber, after greasing it properly.
- Note: it is very important to grease the HP valve well, to make it work correctly.

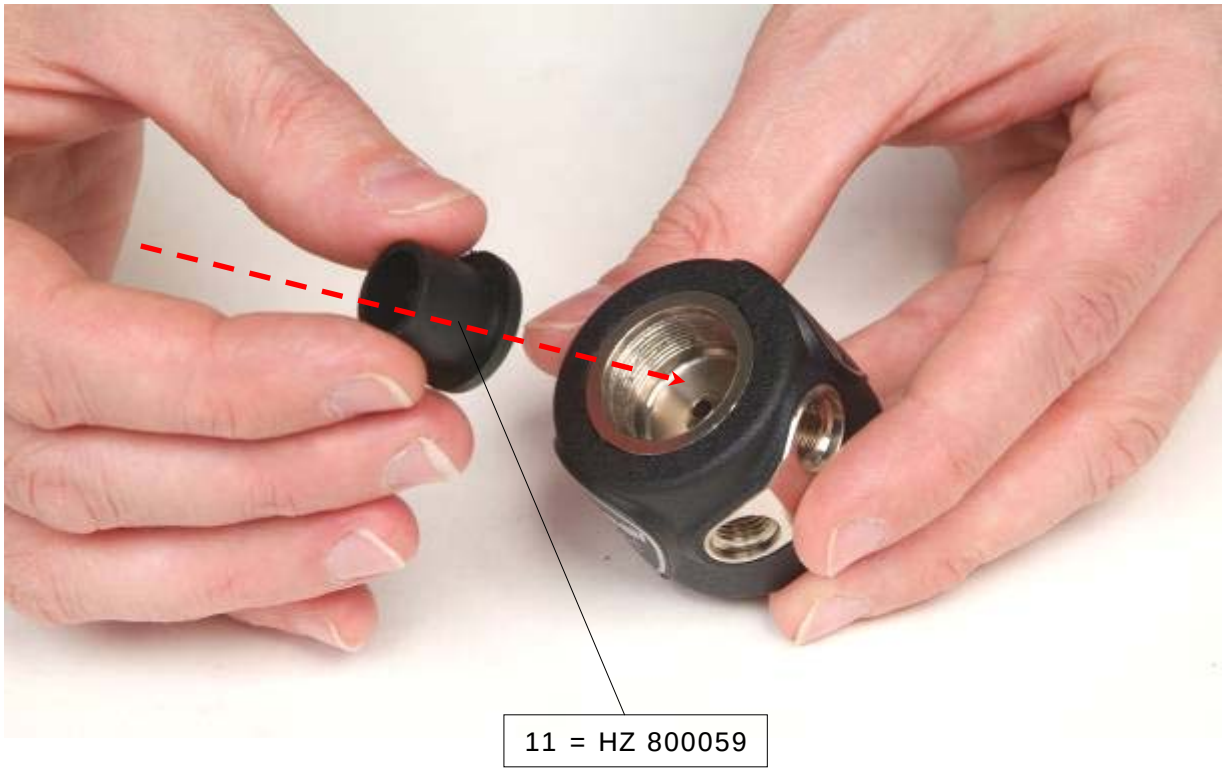


1st stage MC5: assembling phases INT-DIN

- Place the piston spring on the balancing chamber and the HP piston in the same, as shown in the picture.
- Note: Be sure the hole through the HP piston leg IS NOT blocked by any foreign body.

1st stage MC5: assembling phases INT-DIN

- Insert the HP bracket piston bush in the 1st stage body, as shown in the picture.



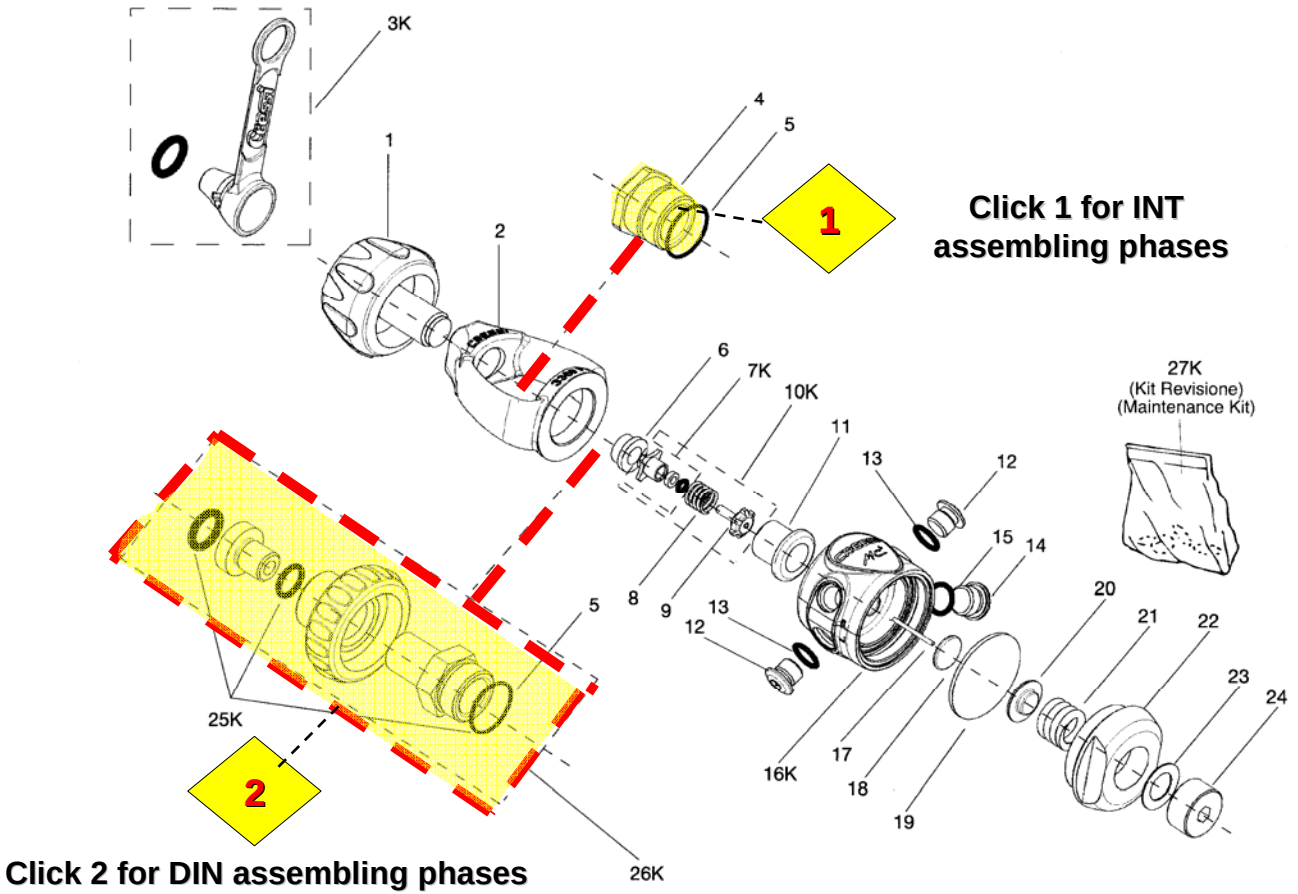
1st stage MC5: assembling phases INT-DIN

- Insert the assembled HP valve in the 1st stage body, as shown in the picture.

1st stage MC5: assembling phases INT-DIN

- Lay the sintered filter on the valve, as shown in the picture.

1st stage MC5: assembling phases INT-DIN



Click 1 for INT assembling phases

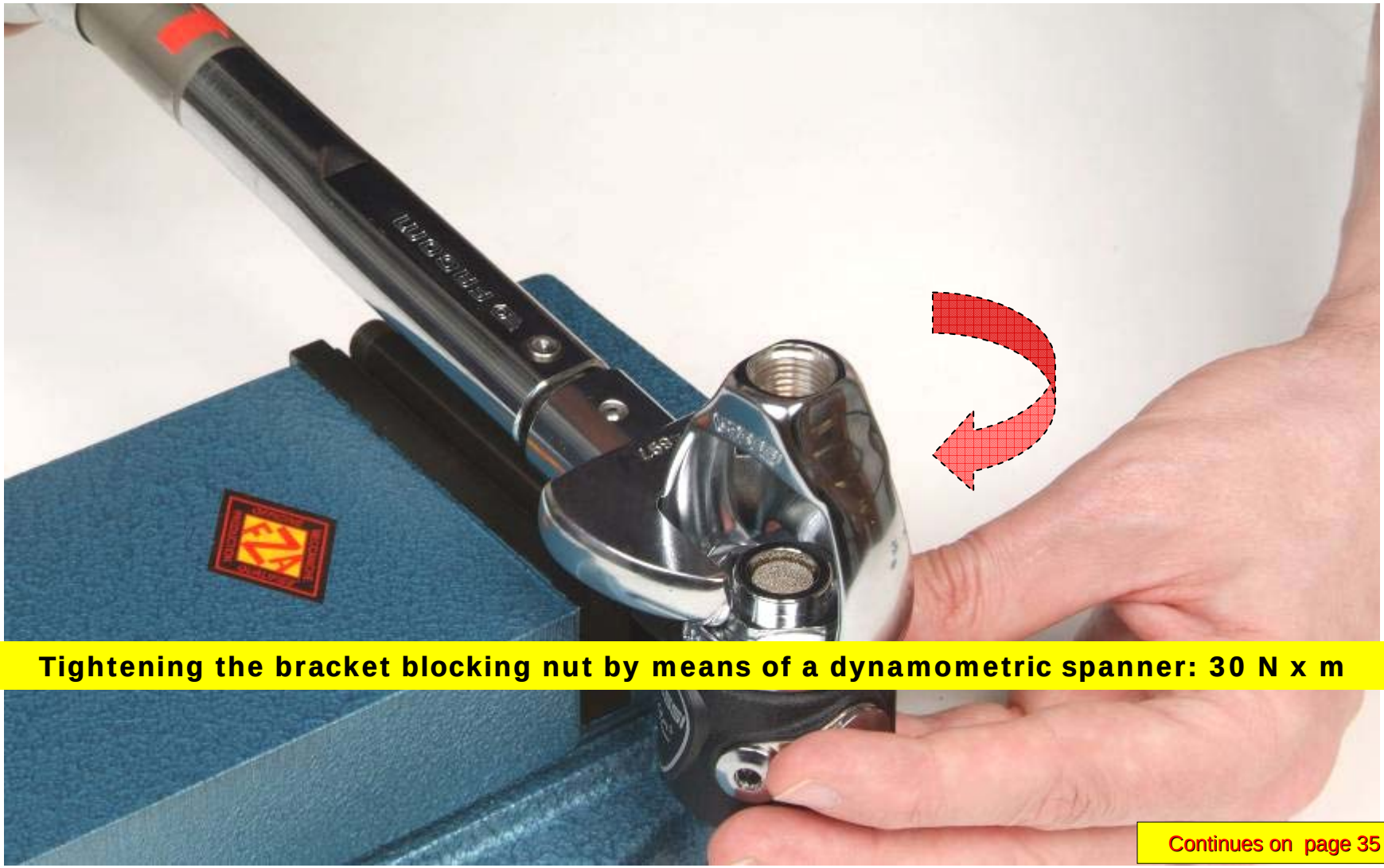
Click 2 for DIN assembling phases

1st stage MC5: assembling phases INT

1st stage MC5: assembling phases INT

- After replacing the OR of the bracket blocking nut, place the INT bracket between the nut and the 1st stage body. Overcoming the spring resistance, push the bracket blocking nut on the filter, down to the threading inside the 1st stage body. Screw down the nut completely, keeping the 1st stage against the work-table, in order to be sure the OR is correctly placed in its own seat.

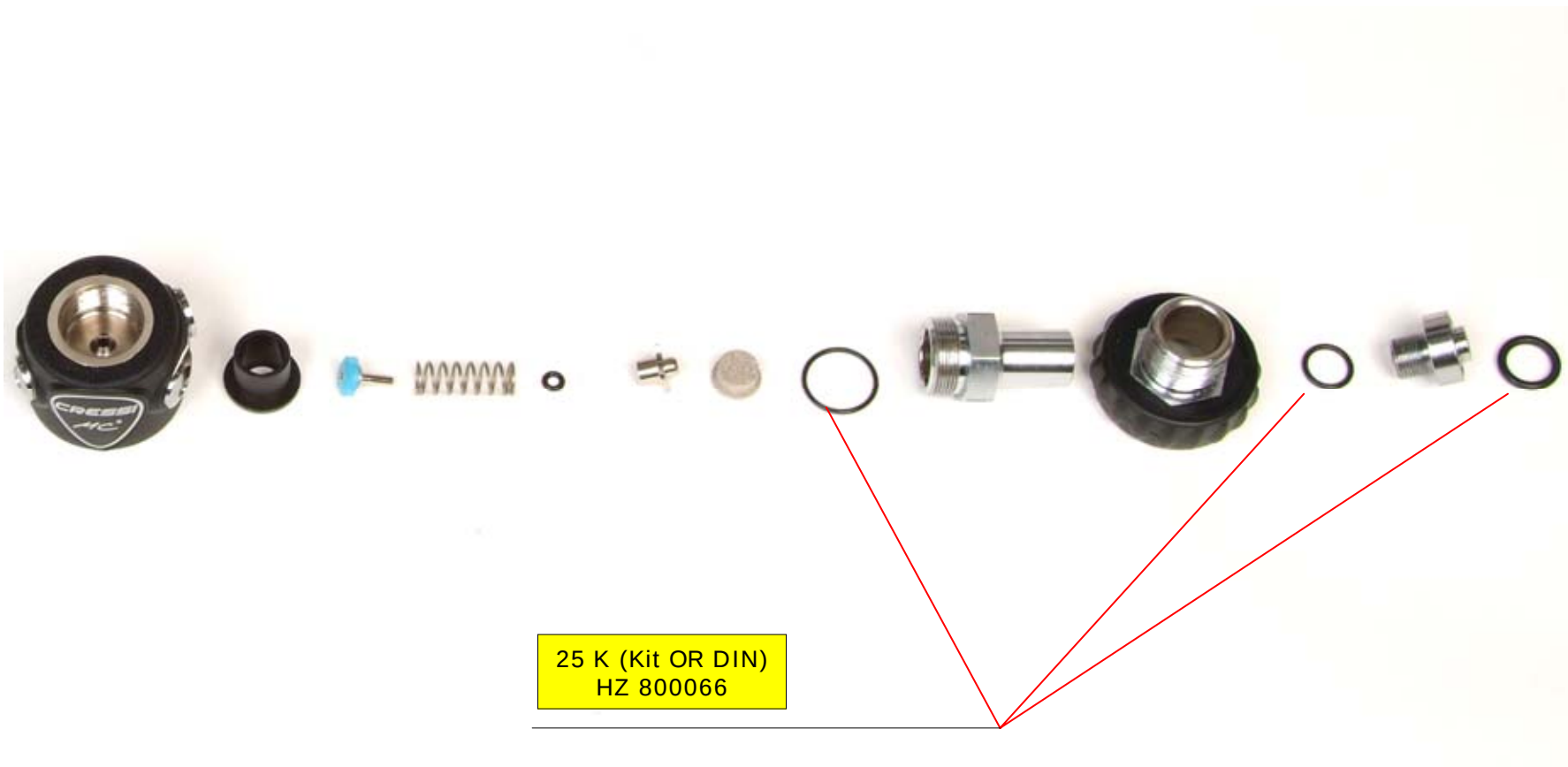
1st stage MC5: assembling phases INT



Tightening the bracket blocking nut by means of a dynamometric spanner: 30 N x m

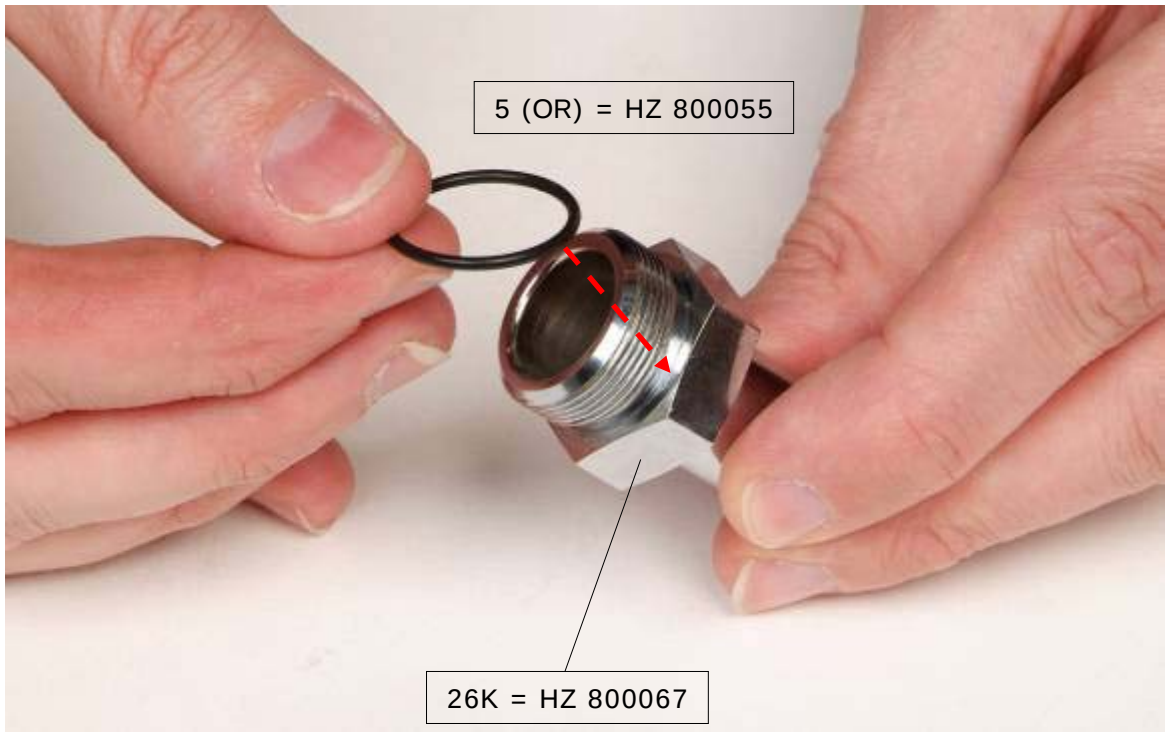
Continues on page 35

1st stage MC5: assembling phases DIN



1st stage MC5: assembling phases DIN

- After greasing the DIN filter body' s OR, insert it in its seat.



1st stage MC5: assembling phases DIN

* Overcoming the spring resistance, push the DIN filter body on the filter, down to the threading inside the 1st stage body. Screw down the filter body completely, keeping the 1st stage against the work-table, in order to be sure the OR is correctly placed in its own seat.

1st stage MC5: assembling phases DIN

- Using the threaded bar, tighten the 1st stage body in a vice. Tighten the DIN filter body with a dynamometric spanner, supplied with a 22 mm (8,66”) hexagonal insert. Apply a force of 30 N x m.

1st stage MC5: assembling phases DIN

- Place the DIN connection ring on the DIN filter body.

1st stage MC5: assembling phases DIN

- Use a 6mm (0,24”) Allen wrench to screw the DIN connection in the relating thread of the DIN filter body.
- Tighten the latter with a dynamometric spanner, supplied with a 6mm (0,24”) hexagonal insert. Apply a force of 1.5 - 2 N x m.

1st stage MC5: assembling phases INT-DIN

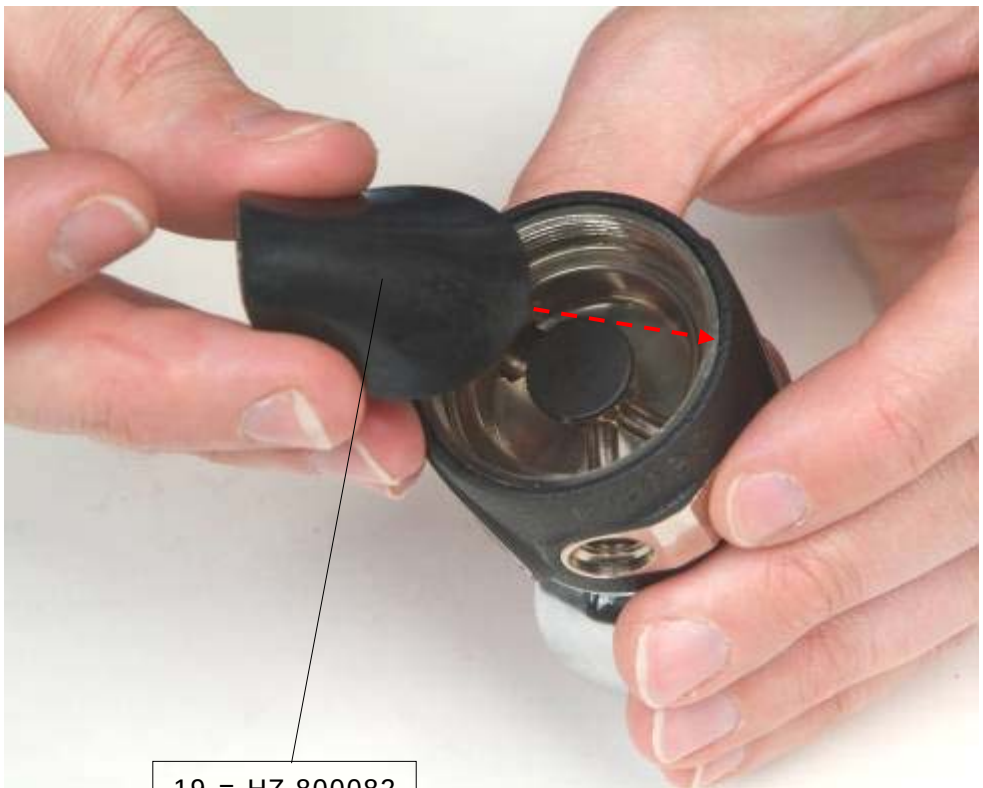
- After tightening the HP valve, including the filter, by means of the bracket blocking nut (INT model) or the DIN filter body (DIN model), turn the body and insert the pushing pin in its seat.

1st stage MC5: assembling phases INT-DIN

- Insert the pushing pin and press it slightly, in order to be sure the device works correctly.

1st stage MC5: assembling phases INT-DIN

- Insert the diaphragm in its seat inside the body, getting sure it is placed correctly in its working seat.



1st stage MC5: assembling phases INT-DIN

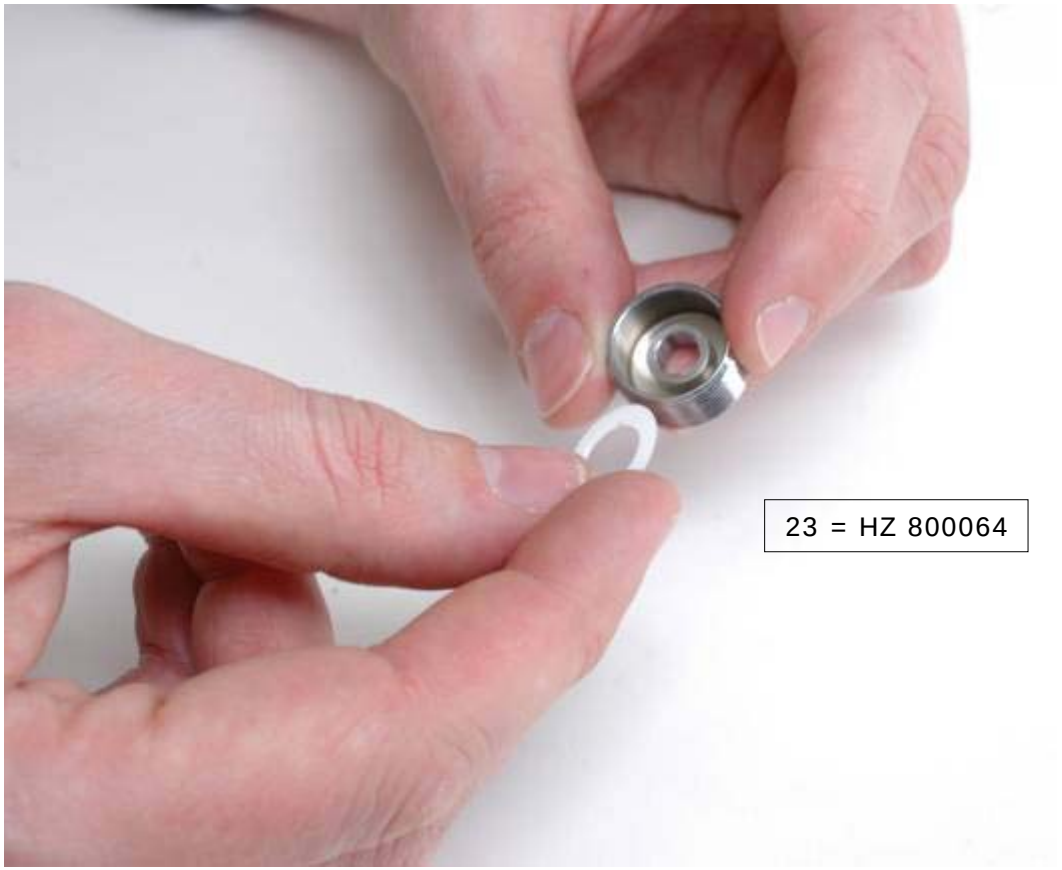
- Screw the diaphragm blocking disk down, tightening it with a dynamometric spanner, supplied with a 30mm (11,8”) hexagonal insert. Apply a force of 30 N x m.

1st stage MC5: assembling phases INT-DIN

- Place the spring-guide flat on the spring itself and assemble the whole on the 1st stage as shown in the picture.

1st stage MC5: assembling phases INT-DIN

- Insert the spring smoother in the 1st stage setting screw.



1st stage MC5: assembling phases INT-DIN

- Use a (6mm) 0,24” Allen wrench to turn the setting screw - not too tightly - into the threaded seat of the diaphragm blocking disk, before setting the 1st stage correctly.

MC5 1st stage setting

- MC5 1st stage setting procedure, as shown in the picture on page 44:
- Assemble the setting pressure-gauge on one of the LP ports of the 1st stage
- Assemble the whole regulator (including 1st and 2nd stages) on a 200 bar pressurized tank, or on an equally pressurized test-bed.
- *Note: although the regulator is hyper-balanced (that is, increasing the intermediate pressure as the tank pressure decreases), we recommend to set the first stage at 200 bar, in order to check better the working of the regulator itself. The intermediate pressure will slightly increase, as soon as the tank pressure decreases (+ 0,6 bar every 50 bar of the tank).*
- Slowly open the air tap while pressing the 2nd stage air discharge button. Repeat some times. .

MC5 1st stage setting

- Check the pressure shown by the gauge. MC5 1st stage is correctly set when the intermediate pressure is 10 bar. Should it be different, close the air tap and discharge the regulator. Insert a 0,24 in. Allen wrench in the setting screw and *screw clockwise (+)*in order to increase the 1st stage intermediate pressure. When screwing anticlockwise (-), the pressure will decrease.
- Note: always remember to discharge the regulator before setting the intermediate pressure, in order to prevent the pressure gauge from showing any incorrect data.
- Check the intermediate pressure is quickly reached and remains so, without increasing, after pressing the 2nd stage discharge button several times.
- After setting the regulator, the 1st stage pressure decrease, by pressing the 2nd stage discharge button, must be less than 1 bar.

MC5 1st stage setting

1st stage MC5: Tools

MC5 1st stage tools kit

1st stage MC5: Tools

- Bracket-lock spanner and compass
  - Cod. HZ 709012

1st stage MC5: Tools

- Threaded bar for regulator's vice closing
- Cod. HZ 709008

1st stage MC5: Tools

- 0,23” (6 mm) hexagonal spanner
- Cod. HZ 709006

1st stage MC5: Tools

- O-ring removal tool
- Cod.HZ 709004

1st stage MC5

- Torque wrench

(Not available)