

**MR12 - V12 FIRST STAGE -  
12S "2011" INT**

**mares**<sup>®</sup>

► **DISASSEMBLY:**

MR12 and V12 regulators:

To make disassembly easier, disconnect the hoses connected to the First Stage and replace them with the appropriate plugs.

1. Screw lever B-5 into a low pressure port (3/8") to disassemble the First Stage.
2. Unscrew yoke retainer nut (7) with the special wrench (B-1), remove yoke (3) and knob assembly (25) (Fig. 1).

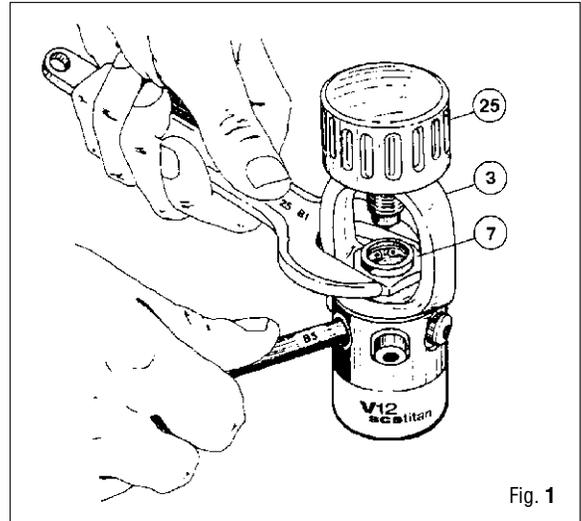


Fig. 1

**DIN version**

► **DISASSEMBLY:**

(instead of step 2)

- A. With the 6 mm Allen wrench (B-8), unscrew DIN connector valve (51) and remove O-rings (23) and (50).
- B. Remove locking nut (49).
- C. With wrench B-16, unscrew DIN connector (48) and remove O-ring (23).

3. Use snap ring pliers (B-14) to remove retaining ring (2), filter (22), HP poppet retainer assembly (4+5+6), spring (8), poppet (9) and poppet pin (12) from first stage body (1). (Fig. 2)
4. Remove O-ring (6) from the HP poppet retainer.

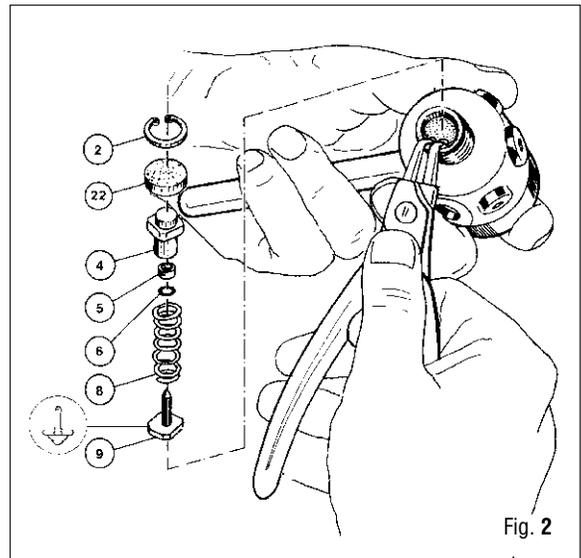


Fig. 2



**WARNING !**

REMOVE BACK-UP RING (5) FROM HP POPPET RETAINER ONLY IF REPLACEMENT IS NEEDED.

**For V12 regulators only:**

5. Locate special tool (B-21) on First Stage seat connector (75) and exert a slight pressure. Inject compressed air (less than 7 bar - 101.5 psi) through a low pressure port (3/8"). (Fig. 3)



When the seat connector is displaced due to the compressed air being pumped in, decrease pressure on special tool (B-21).



**WARNING !**

DO NOT ATTEMPT TO REMOVE THE SEAT CONNECTOR USING SHARP OR POINTED TOOLS; SCRATCHING THE SEAT CONNECTOR MAY CAUSE OPERATING FLAWS.

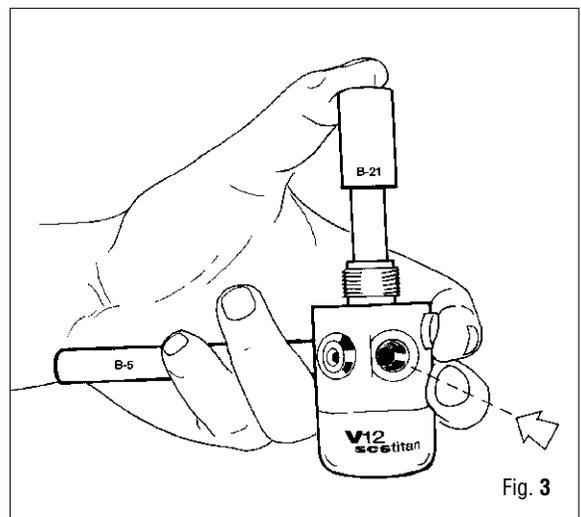


Fig. 3

6. Remove seat connector (75) and O-ring (74) from the First Stage.

**MR12 and V12 regulators:**

7. Remove regulating nut cover (70).
8. With the setscrew wrench (B-13), unscrew regulating nut (18) and remove spring (16). (Fig. 4)
9. Unscrew retaining nut (17) with wrench B-16 and remove spring base plate (15). (Fig. 5)
10. Introduce compressed air (less than 7 bar - 101.5 psi) through a low pressure port (3/8"), then remove diaphragm (14) and poppet button (13).



To facilitate diaphragm removal, plug (e.g. with a finger) the inlet to the HP poppet retainer. (Fig. 6)

**WARNING !**

DO NOT ATTEMPT TO REMOVE THE DIAPHRAGM WITH SHARP OR POINTED TOOLS; SCRATCHING THE DIAPHRAGM SURFACE OR THE FIRST STAGE BODY SEAT MAY CAUSE AIR LEAKAGE.

11. Unscrew HP plug (53) and LP plug (29) from first stage body. Remove O-rings (52) and (19).
12. Unscrew lever B-5 from the first stage body.

► **CLEANING**

**WARNING !**

USE APPROPRIATE EYE AND SKIN PROTECTION WHEN HANDLING ANY TYPE OF ACIDS.

Ordinary cleaning of any rubber parts to be reused should be performed by washing all parts with a mixture of lukewarm water and mild detergent and possibly fretting them with a soft brush. Do not use any solvents or acids on rubber parts. Chromed brass and stainless steel parts may be cleaned by ultrasound with fresh water or, if this equipment is not available, with a mild acid solution (e.g. white vinegar, possibly diluted with lukewarm water). Make sure that all parts are rinsed and dried before reassembly.

**WARNING !**

ACIDS OR OTHER SOLVENTS MAY DAMAGE PLASTIC AND RUBBER PARTS. BEFORE CLEANING METAL PARTS, MAKE SURE THAT ALL SEALS AND WEAR PARTS ARE REMOVED.

**WARNING !**

DO NOT IMMERSER THE FILTER IN AN ACID SOLUTION.

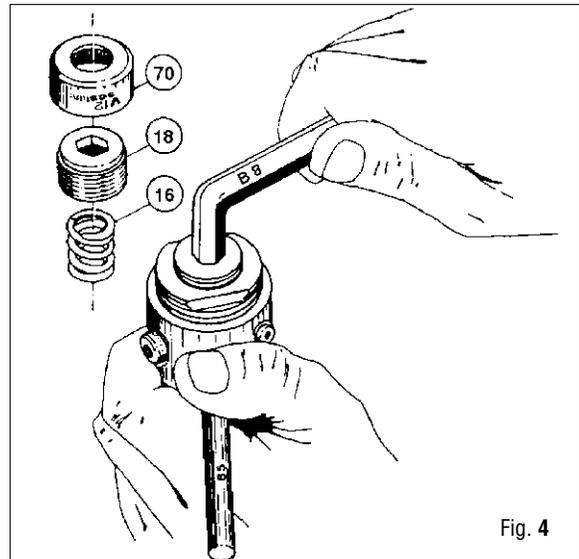


Fig. 4

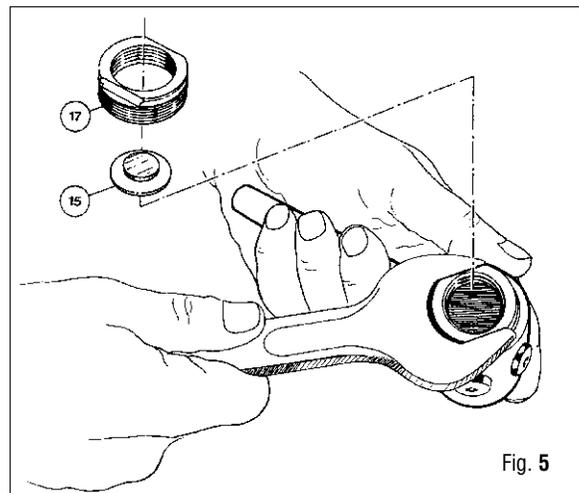


Fig. 5

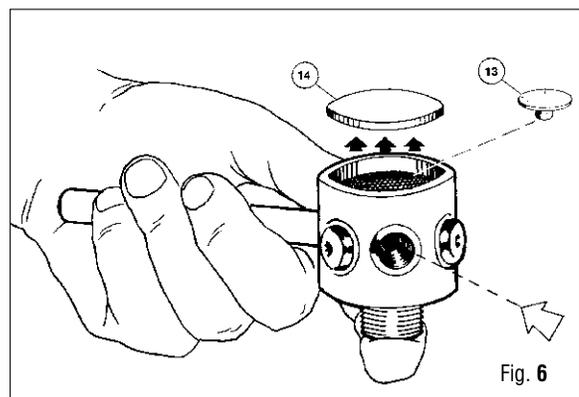


Fig. 6

## ► REASSEMBLY

### MR12 and V12 regulators:

Before reassembly, lightly lubricate all O-rings with silicone grease (General Electric Versalube G 322 or equivalent type). Lubrication will minimize the risk of damage during reassembly.



### WARNING !

IF THE FIRST STAGE IS USED FOR **ENRICHED AIR DIVES**, IT MUST BE PERFECTLY CLEAN AND FREE OF SILICONE RESIDUES OR CONTAMINATION. VITON O-RINGS MAY BE LUBRICATED WITH A SPECIAL OXYGEN-COMPATIBLE GREASE.

**DO NOT USE SILICONE GREASE!**

1. Screw lever B-5 into a low pressure port (3/8").
2. Put poppet button (13) in the first stage body.
3. Install first stage diaphragm (14) into position.
4. Place spring base plate (15) on the diaphragm.
5. Lightly lubricate the sealing edge of retaining nut (17) and tighten it up into the first stage body using wrench B-16.

**NOTE** If a torque wrench is used, set a torque value of approximately 3-3.5 kg/m (approx. 30-35 N/m 267.6-312.2 lb.in.).

6. After lightly lubricating diaphragm spring (16), install it on the spring base plate.
7. With the setscrew wrench (B-13), tighten regulating nut (18) by 2-3 turns into the retaining nut.

**NOTE** Do not overtighten the regulating nut. This will cause intermediate pressure to increase and interfere with later adjustment.

8. Install regulating nut cover (70).

### V12 regulators only:

9. Install O-ring (74) on seat connector (75).
10. Properly position seat connector using special tool B-21.
11. With a slight pressure, push seat connector into position in the first stage body. (Fig. 7)

### MR12 and V12 regulators:

12. Insert poppet pin (12) in seat connector (75) using special tool B-6. (Fig. 8)
13. Properly and carefully position poppet (9) on poppet pin (12), using special tool B-6. (Fig. 9)



### WARNING !

EXTREME CARE IS NEEDED DURING POPPET INSTALLATION. MAKE SURE THAT IT IS PROPERLY POSITIONED OVER ITS SEAT CONNECTOR.

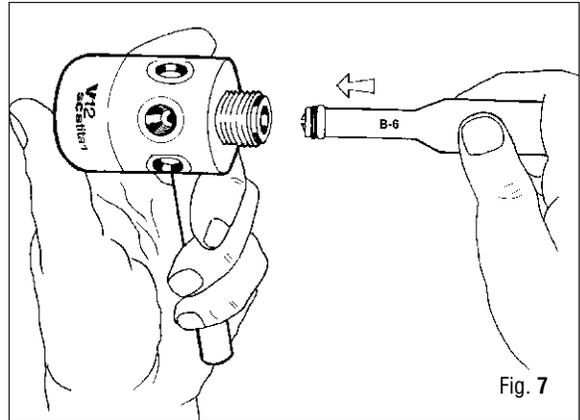


Fig. 7

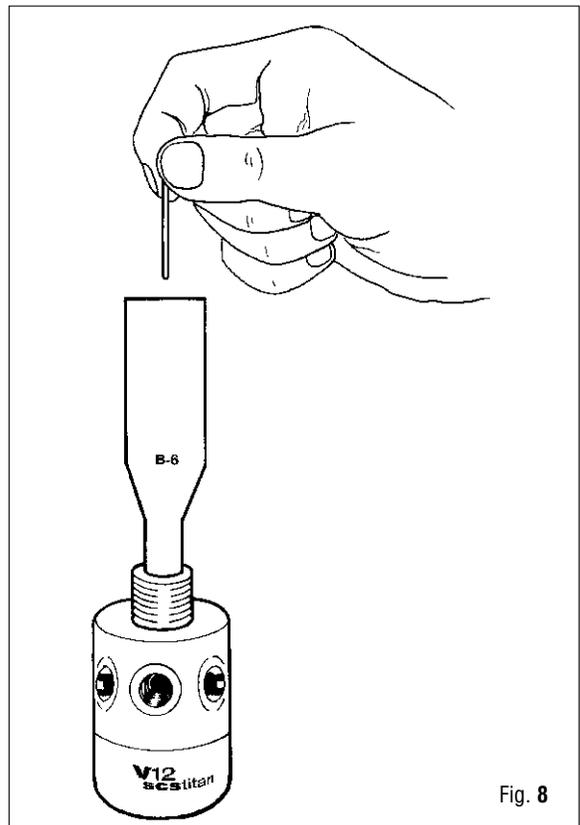


Fig. 8

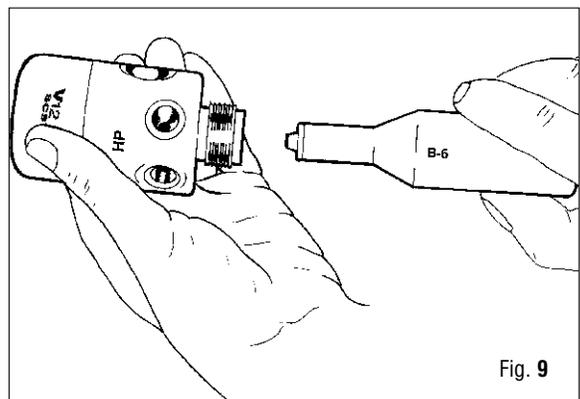


Fig. 9

14. Place spring (8) over the poppet.
15. Position back-up ring (5) (if it had been removed) and O-ring (6) in HP poppet retainer.
16. Locate HP poppet retainer assembly (4-5-6) over the spring.
17. Place filter (22) on HP poppet retainer.
18. Use the snap ring pliers (B-14) to tighten retaining ring (2) and locate the latter on the filter. Press on the filter until the retaining ring is perfectly positioned in the first stage groove.



Turn the retaining ring to make sure that it is properly positioned.

19. Position yoke (3) and knob assembly (25) on first stage body.
20. With wrench B-1, tighten yoke retainer nut (7).



**WARNING !**

TO PREVENT ACCIDENTAL LOOSENING OF THE YOKE RETAINER NUT, POUR ONE OR TWO DROPS OF SEALING COMPOUND (LOCTITE 242 E TYPE) ON ITS THREADS.

## DIN version

▶ **REASSEMBLY:**

(instead of steps 19 and 20)

- D. Position O-ring (23) in the DIN connector (48).
- E. Tighten DIN connector (48) on the first stage body using wrench B-16.
- F. Properly position DIN locking nut (29) on the first stage.
- G. Install O-rings (23) and (50) on valve DIN connector (51).
- H. With the 6 mm Allen wrench, tighten the valve DIN connector into the first stage body.



**WARNING !**

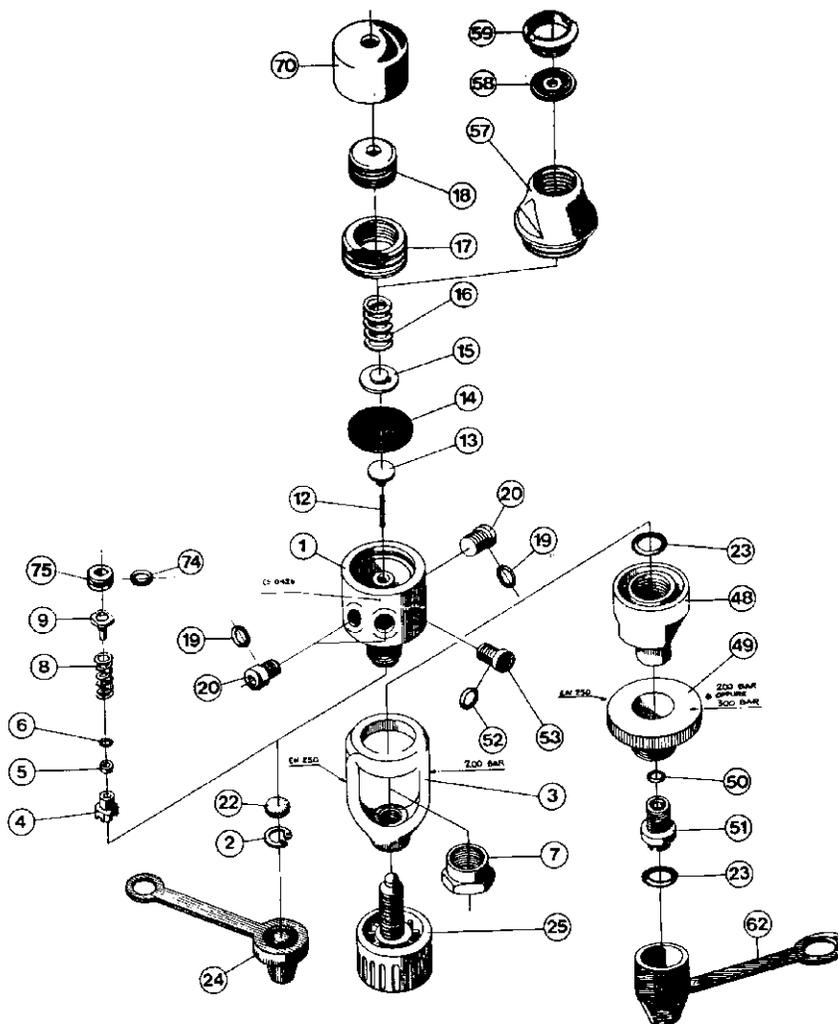
TO PREVENT ACCIDENTAL LOOSENING OF DIN CONNECTOR (48) AND VALVE DIN CONNECTOR (51), POUR ONE OR TWO DROPS OF SEALING COMPOUND (LOCTITE 242 E TYPE) ON THEIR THREADS.

21. Unscrew lever B-5.
22. Place LP (19) and HP (52) O-rings on their plugs (20) and (53) or hoses.
23. Screw the plugs and/or hoses into the appropriate first stage ports.

**FIRST STAGE, MR12 DFC  
FIRST STAGE, MR12 DFC NITROX  
FIRST STAGE, V12 SCS DFC**

Table 5

Updated to 30-05-97



Ref.	Code	Description
1	186021	Body, MR12 DFC
1	186305	Body, V12 DFC
2	185015	Retaining ring
3	185208	Yoke
4	185209	Poppet retainer
5	185038	Back-up ring
6	110101	O-Ring 2012
6	110401	O-Ring 2012 Viton 006-9707
7	186241	Nut, yoke retainer
8	185011	Spring, poppet MR12
8	186306	Spring, poppet V12
9	185002	Poppet assembly, MR12
9	185304	Poppet assembly, Titanium V12
12	185206	Pin, poppet
12	186303	Pin, poppet
13	185032	Button, poppet
14	185022	Diaphragm
15	185034	Plate, spring base
16	185023	Spring, diaphragm
17	184510	Retaining nut
18	184511	Regulating nut
18	185028	Regulating nut (C.W.D.)
19	110106	O-Ring 106
19	110402	O-Ring 106 Viton 610-9707
20	185204	Plug, LP - 3/8"
22	185014	Tapered filter
23	110117	O-Ring 115
23	110406	O-Ring 115 Viton 614-9707
24	185009	Dust cap
25	184076	Knob assembly
48	183008	DIN connector body, 200 BAR
48	183004	DIN connector body, 300 BAR
49	183006	DIN connector wheel, 200 BAR
49	183001	DIN connector wheel, 300 BAR
50	110203	O-Ring 2018
50	110409	O-Ring 2018 Viton 008-9707
51	179261	DIN connector 200 BAR
51	183003	DIN connector 300 BAR
52	110108	O-Ring 108
52	110404	O-Ring 108 Viton 611-9707
53	185205	Plug, H.P. 7/16"
57	185300	Body, C.W.D.
58	185301	Diaphragm, C.W.D.
59	185302	Bezel, C.W.D.
62	183013	Dust cap, DIN connector
70	184454	Plug, V12
70	184452	Plug, MR12
74	110107	O-Ring 2031
74	110403	O-Ring 2031 Viton 011-9707
75	186249	Seat connector, SCS V12
107	184313	Label, knob assembly
107	184366	Label, knob assembly, Nitrox

Ref.	Code	Description
<b>ASSEMBLIES</b>		
A	185980	First stage assembly, MR12
A	185981	First stage assembly, MR 12 J.
A	185985	First stage assembly, MR12 DIN
A	185990	First stage assembly, MR12 CWD
A	185995	First stage assembly, MR12 DIN/CWD
A	185963	First stage assembly, MR12 Nitrox
A	185969	First stage assembly, MR12 Nitrox J.
A	185964	First stage assembly, V12 INT.
A	185965	First stage assembly, V12 DIN
D	185210	Poppet assembly (4-5-6)
D	185259	Poppet assembly (4-5-6), Nitrox
F	183020	DIN connector assembly 200 BAR (23-48-49-50-51-62)
F	183015	DIN connector assembly 300 BAR (23-48-49-50-51-62)
F	183042	DIN connector assembly 200 BAR, Nitrox (23-48-49-50-51-62)
F	183041	DIN connector assembly 300 BAR, Nitrox (23-48-49-50-51-62)
I	185335	C.W.D. kit, MR12
***	186150	First stage maintenance kit MR12-V12 INT./DIN (2-5-6-19-22-23-50-52-74)
***	186154	First stage maintenance kit MR12-V12 INT./DIN Nitrox (2-5-6-19-22-23-50-52-74)
<b>NOTES</b>		
In maintenance kits (codes 186150 and 186152), O-ring (74) of the V12 seat connector is in Viton		
<b>ACCESSORIES</b>		
***	179257	Yoke adaptor assembly, INT./DIN
***	179258	Nut adaptor assembly, INT./DIN
***	179260	DIN nylon cap, external threading