

MARES SERVICE MANUAL

2008

mares[®]

The Mares logo features the word "mares" in a bold, lowercase, sans-serif font. Below the letter "a" is a red downward-pointing chevron shape.

REGULATORS SERVICE

▶ GENERAL

Servicing at the repair shop level mainly involves cleaning, inspection, replacement of necessary parts and adjustment of the regulator.

Numerous O-rings are used throughout the regulator. Cleanliness is of the utmost importance in obtaining effective O-ring seals.

Tools required for maintenance and repair are shown in the special tools section of this manual.

Reusable rubber parts can be cleaned by scrubbing with a soft brush in a mild detergent and water solution. Do not use solvents or acids on rubber or plastic parts. Ideally, metal parts should be cleaned in an ultrasonic cleaner with fresh water. However, if an ultrasonic cleaner is not available, these parts may be cleaned with a mild acid (diluted white vinegar is recommended).

▶ SERIALIZATION

All Mares regulators are identified by individual serial numbers. The serial number for the complete regulator is located on the regulator second stage case near the mouthpiece. The first stage also carries the same serial number.

▶ WARRANTY

This warranty is offered by Mares for the best support service to the consumer, and does not replace nor limit the rights guaranteed by law in compliance with the rules of Directive 1999/44/CE, as enacted in Italy by Legislative Decree #24, 2 February 2002, regarding the sale and warranty of consumer goods.

WHAT IS THE CONVENTIONAL MARES WARRANTY PROGRAM?

Mares guarantees, to the original purchaser only, that a Mares Product purchased from any Authorized Mares Dealer worldwide will be free of defects in material or workmanship under normal recreational scuba use. All Authorized Mares dealers are listed on www.mares.com.

The Mares warranty may differ for individual components and also based on the model year, and is generally limited to a period of 2 years from the date of purchase by the customer ("warranty period") unless otherwise specified. This date must be verified by a valid sales document (tax receipt or sales receipt).

Warranty claims are only accepted upon return of the

defective product complete with all its parts accompanied by with the warranty certificate, duly signed and stamped by the Authorized Mares dealer , and by a copy of the original sales receipt showing the date of purchase.

Mares reserves the right to refuse free service if the required documentation cannot be provided or if information is incomplete, illegible, or incorrect.

HOW WARRANTY CLAIMS BE SUBMITTED UNDER THE MARES WARRANTY PROGRAM?

Warranty claims must be submitted to the authorized Mares dealer where the product was purchased within two months of when the defect is found. The Dealer will deliver the product to Mares.

If the product was purchased within the warranty period, as evidenced by the documentation requested above, and proves to be defective for any reason (other than those listed in the limitations), Mares will repair or replace the defective product at its own discretion at no charge. Mares reserves the right to replace the claimed product with a similar product of comparable value if the product in question is not available. All replaced components and products become the property of Mares.

Any repair or replacement of components or the product itself does not extend the term of the warranty , which will in any case remain in effect until expiration at 2 years.

If the product is found to be free of conformity defects, Mares reserves the right to charge for the value of the technical review , any repairs made, and the subsequent shipping.

In case the Mares Product was purchased abroad the regional Mares distributor of your home country will render the respective warranty service (pls. refer to Mares distributors on www.mares.com). Please note that the regional Mares distributor is entitled to charge handling fees and all other freight and duty expenses related to a warranty claim for purchases made abroad. Mares will refuse warranty service if the product was purchased via the Internet or was NOT purchased from an Authorized Mares dealer as listed on the website **www.mares.com**.

DEFECTS NOT COVERED BY THE MARES WARRANTY PROGRAM

Only defects or damages resulting from a failure in material or workmanship are covered by the Mares Conventional Warranty program. Other defects or damages, in particular those listed below, are not covered by our warranty:

- Defects or damage caused by normal use and wear
- Defects or damage caused by heavy, unusual, or incorrect use, or use under abnormal conditions (blows, jerks, falls, bumps, etc.)
- Defects or damages caused by lack of or incorrect maintenance or by negligence
- Defects or damages known or evident at the time the product was purchased
- Clear defects or damage, tacitly accepted, that did not

interfere with the product's operation

- Scratches or damage to the plastic surfaces, glass, and all other external areas due to normal use of the product
- Defects or damages caused by cleaning materials or other substances containing aggressive chemicals (solvents, surfactants, aggressive cleansers, etc.)
- Defects or damages resulting from alterations and changes made to the products without authorization
- Defects or damages caused by improper assembly of the components
- Defects or damages caused by failure to observe the product information
- Defects or damages caused by prolonged use of the product in chlorinated or polluted water
- Defects or damages caused by exposing the product to excessive temperatures, fire, or prolonged exposure to sunlight.

All components subject to normal wear and tear (O-Rings, filters, diaphragms, light bulbs, batteries, rubber parts, silicone parts, latex, neoprene, zippers, etc.) are not covered by the warranty unless it can be shown that the problem is a manufacturing defect. This Conventional Warranty does not cover products intended for rentals or for commercial or military use.

LIMITS OF THE MANUFACTURER'S RESPONSIBILITY

Mares declines all responsibility for any damage that may directly or indirectly occur to persons, things, or animals resulting from a failure to observe the full content of the Instruction Manual and especially instructions concerning the use and maintenance of the product.

Mares will not be responsible for any agreement, written or oral, outside this Conventional Warranty.

Mares' sole responsibility is to repair or replace the product at its own unappealable discretion.

Mares will not pay any compensation for any inconveniences which might be caused by the inability to use the Product or for any potential expenses incurred while the Product is being repaired or replaced.

▶ ROUTINE CARE

The following instructions will help increase the life and proper functioning of the first stage.

1. The first stage should be rinsed with fresh water after every use while it is still pressurized on the tank. This allows the second stage to be rinsed internally without introducing contaminants into critical sealing areas.
2. Thoroughly rinse the first stage and also run water into the mouthpiece of the second stage and out of the exhaust tee to remove any foreign matter. If the regulator is not pressurized, do not depress the purge button while rinsing. Depressing the purge button while rinsing may allow particles to contaminate the valve seat and cause leakage.
3. In order to avoid filter and first stage contamination, prevent water from entering the high pressure inlet of the first stage. Place the dust cap over the high pressure filter and secure it with the yoke screw.
4. Allow the regulator to dry completely before storage.
5. Prolonged storage in direct sunlight or in oily and dusty areas can be damaging to some of the regulator components. Lubricants are not necessary and should not be used in routine care and maintenance.

▶ SERVICE REQUIREMENTS

As stated in the owners manual, regulators should be inspected and serviced yearly or every 100 hours of use whichever comes first. Inspection involves disassembling, cleaning, replacement of parts as needed, re-assembly and adjustment. Users should not undertake inspections. Only qualified technicians in a **Mares Service center** should do so.



WARNING!

PROTECT EYES AND SKIN ADEQUATELY WHEN WORKING WITH ANY KIND OF ACID. BEFORE CLEANING METAL PARTS, MAKE SURE THAT ALL RUBBER AND PLASTIC PARTS HAVE BEEN REMOVED. ACIDS OR OTHER SOLVENTS MAY DAMAGE RUBBER AND PLASTIC PARTS.

OBJECT:
HOW TO INSTALL DRY CWD KIT



ATTENTION!

THE PROCEDURE TO INSTALL DRY CWD KIT IS VALID ONLY FOR FIRST STAGES MR42/V42. IN CASE OF ANY DOUBT PLEASE GET IN TOUCH WITH MARES BEFORE ANY MAINTENANCE ADJUSTMENT AND INSPECTION.



The procedure to install the DRY CWD kit is addressed exclusively to Mares authorized Assistance centres and to authorized distributors, therefore the instructions are meant only for authorized MARES technicians.

DISASSEMBLING :

1. Insert the disassembling tool (B5) into a 3/8 LP Port
2. Unscrew the regulating nut (18) using the 10mm, 1st stage adj allen wrench. (B13) and take the diaphragm spring out (16).
3. Unscrew the retaining nut (17) using the 1st stage 30mm diaphragm retaining nut wrench, and remove the spring plate base (15).
4. Clean the 1st stage diaphragm with a humid cloth and dry it. Clean the diaphragm spring as per the instructions given as indicated in the cleaning section of this leaflet.

ASSEMBLING:

5. Centre the spring plate base (15) onto the 1st stage diaphragm.
6. Position the first stage ring (69) above the DRY CWD body (57).
7. Screw tight the DRY CWD body (57) to the 1stage body (1), using the diaphragm retaining nut wrench (B16)



IF YOU USE A TORQUE WRENCH, APPLY A TORQUE OF /ABOUT 20-25 N/m

9. Position the diaphragm spring (16) on the spring plate base (15).
10. Screw the regulating nut (2-3 turns) (18) into the DRY CWD body (57), using the 10mm, 1st stage adj allen wrench (B13).

**ATTENTION!**

DO NOT TIGHTEN UP THE REGULATING NUT SINCE THIS INCREASES THE INTERMEDIATE PRESSURE AND INTERFERES WITH THE NEXT ADJUSTMENTS.

IMPORTANT

PLEASE LOOK UP IN MARES 2008 MAINTENANCE MANUAL THE PROCEDURES NEEDED TO ADJUST AND CHECK THE INTERMEDIATE PRESSURE (F-7.1 ; F -7.2) (TABLES MR42-V42 CWD DRY).

11. Install the DRY CWD membrane (58) with the concave part up side (see Fig. 1).
12. Install the DRY CWD kit locknut (59) and tighten it using the special tools included in the DRY CWD kit.

IMPORTANT

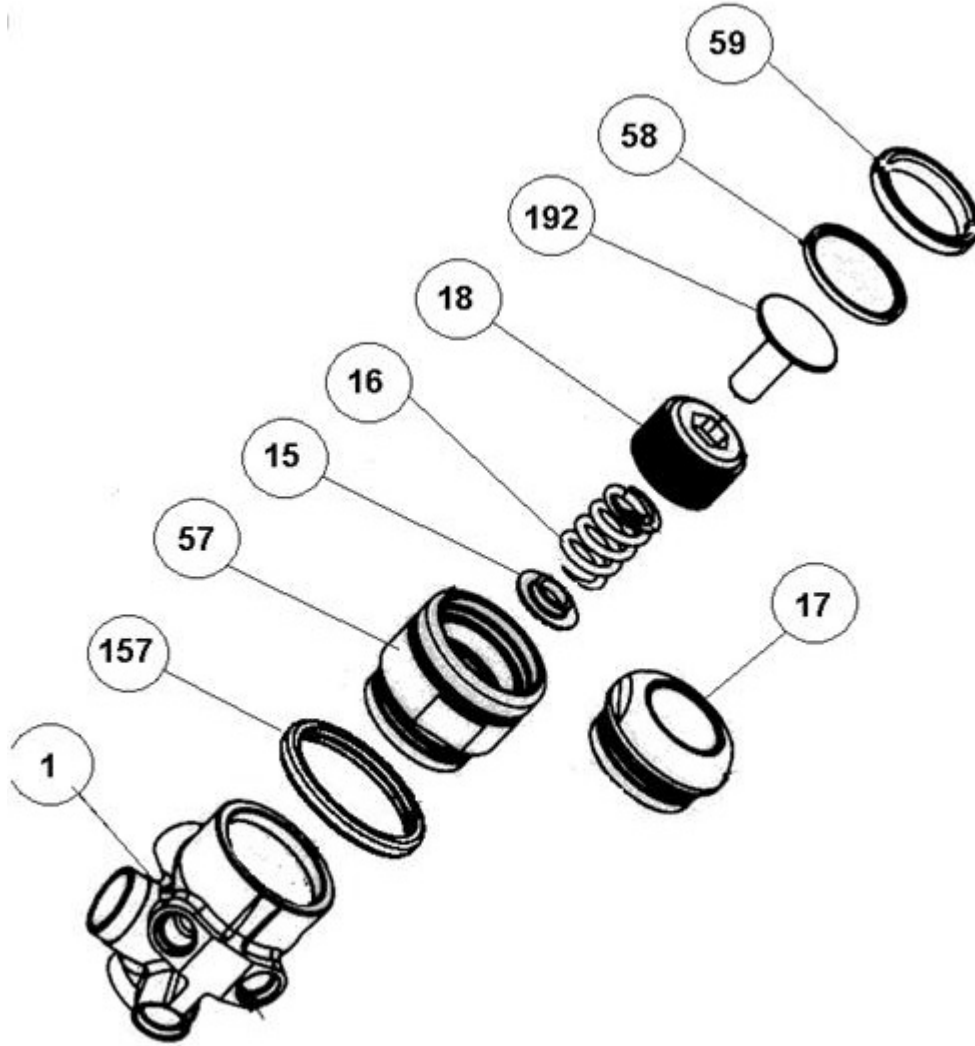
PLEASE DO NOT TOUCH THE DRY CWD MEMBRANE WITH FINGERS AND/OR WITH ANY TOOLS (ESPECIALLY POINTED) AND DO NOT DIRECT ANY HIGH PRESSURE WATER JET ON IT TO PREVENT ANY WATER ENTRY.

13. Once the DRY CWD kit is installed check that the intermediate pressure is between the range values indicated by MARES. (LIST INTERMEDIATE PRESSURE).

UP SIDE



HOW TO INSTALL DRY CWD KIT



RIF.N.	CODE	DISCRPTION	RIF.N.	CODE	DISCRPTION
1	---	1 ST STAGE BODY	57	46200557	DRY CWD BODY
15	46200582	SPRING PLATE BASE	58	46200558	DIAPHRAGM FOR DRY CWD
16	46185023	DIAPHRAGM SPRING 1 ST STAGE REG.	59	46200556	LOCK NUT FOR DRY CWD
17	46200544	RETAINING NUT	157	46200554	1 ^{STG} ANTISHOCK RING
18	46185028	REGULATING NUT	192	46200555	DRY CWD PISTION

Drawing No. E 109	MR32^T FIRST STAGE	Drawing updated: 22/01/2007
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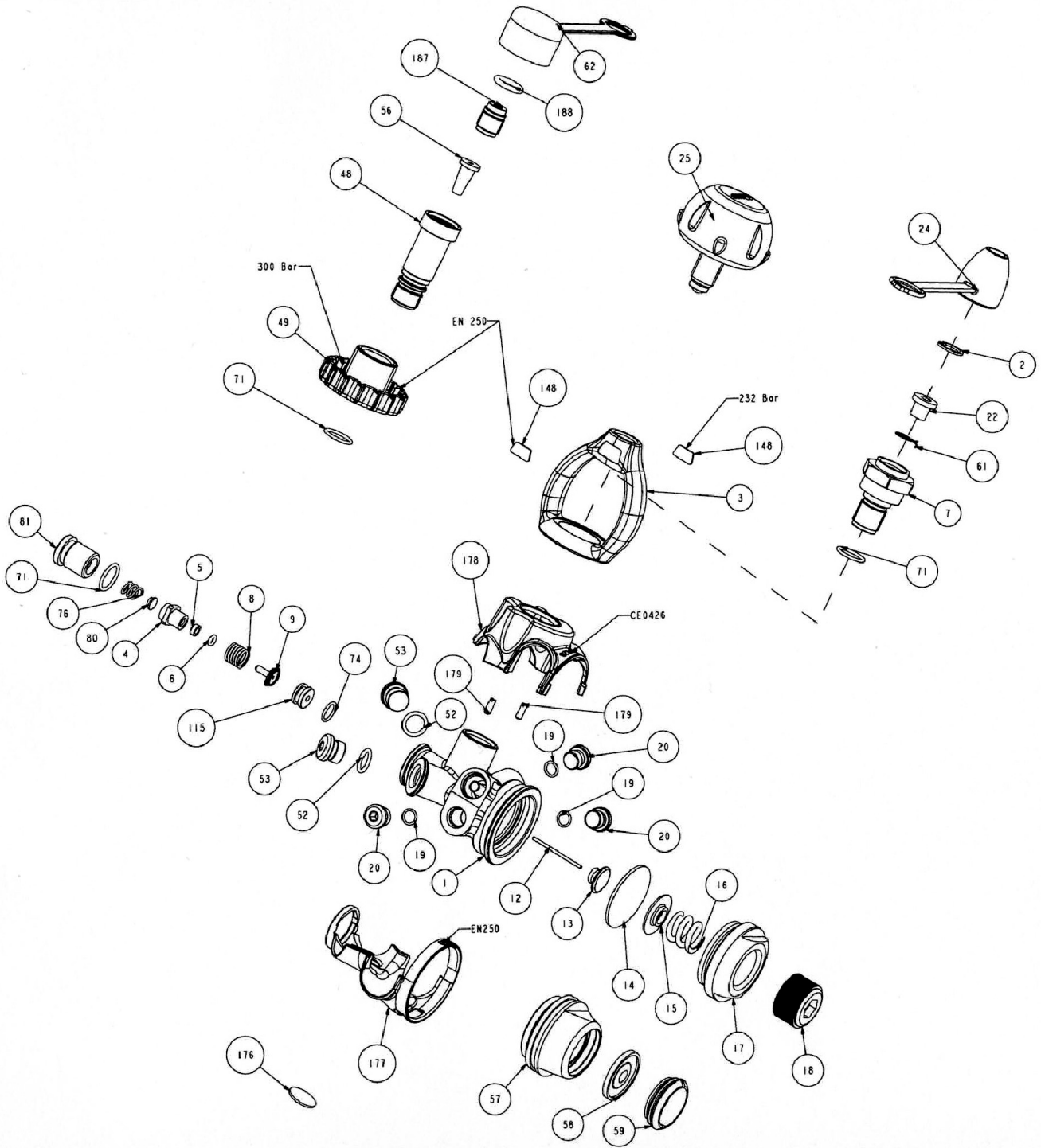


Table No. 32	MR32^T FIRST STAGE	Drawing reference No.: E 109 Table updated on: 11/07/2006
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Ref.No.	Code	Description	Ref.No.	Code	Description
1	A	1 ST st body V32 with DFC port .	59	I	C.W.D. ring nut
2	46185015	Snap ring Int. D. 13	61	46185013	Filter spring
3	46185270	Sandblasted yoke	62	46200562	DIN connector dust cap
4	D	HP chamber	71	46110211	OR 2050
5	46185038	Backup ring	71	46110413	OR 2050 Viton 014-9707
6	46110101	OR 2012	74	46110107	OR 2031
6	46110401	OR 2012 Viton 006-9707	74	46110403	OR 2031 Viton 011-9707
7	46186205	Yoke retainer nut	76	46186210	HP chamber spring
8	46185011	1 ST stage poppet spring	80	46186206	Anti-drag head
9	46200652	1 ST stage poppet	81	46186208	Port plug
12	46186214	Poppet pin 32,5 mm	115	46186216	SCS poppet seat (MR22)
13	46186213	Poppet button	148	46184315	"EN 250 - 200 bar" Sticker
14	46185022	Diaphragm	176	46200720	Oval Sticker
15	46185034	Spring base plate	177	46200747	MR32 bottom casing
16	46185023	Diaphragm spring	178	46200367	Top casing
17	46186268	Retaining nut	187	46200547	DIN OR seat
18	46185028	Spring adjusting nut	188	46110247	O-Ring 3043
19	46110106	OR 106			ASSEMBLIES
19	46110402	OR 106 Viton 610-9707	A	46200760	MR32 1 ST ST assembly CPL INT
20	46185204	3/8" UNF Port plug	D	46185210	HP Chamber assembly (4-5-6)
22	46186202	Tapered sintered filter	F	416805	Connector assembly DIN 300 BAR
24	46185010	Dust cap	I	416851	CWD KIT
25	46184079	Yoke knob	* * *	46186152	Service kit INT 1 ST STAGE 32/22/16/TP (2-5-6-19-22-52-61-71-74)
48	46200548	300 BAR DIN connector body	* * *	46200606	Service kit DIN 1 ST Stage 32/22/16/TP 2K5 (5-6-19-52-56-71-74-188)
49	46200546	DIN 300 BAR threaded locking ring	* * *	46185167	Service kit Ruby INT VITON/32/22/16 (2-5-6-19-22-52-71-74)
52	46110108	OR 108	ooo		
52	46110404	OR 108 Viton 611-9754			ACCESSORIES
53	46185205	7/16" HP port plug	98	46186207	1/2 UNF Port plug
56	46200561	DIN fitting filter	97	46110215	OR 2043
57	I	C.W.D. body			
58	46185301	C.W.D. diaphragm			

Drawing No. E 109	MR32 EXTREME FIRST STAGE	Drawing updated: 22/01/2007
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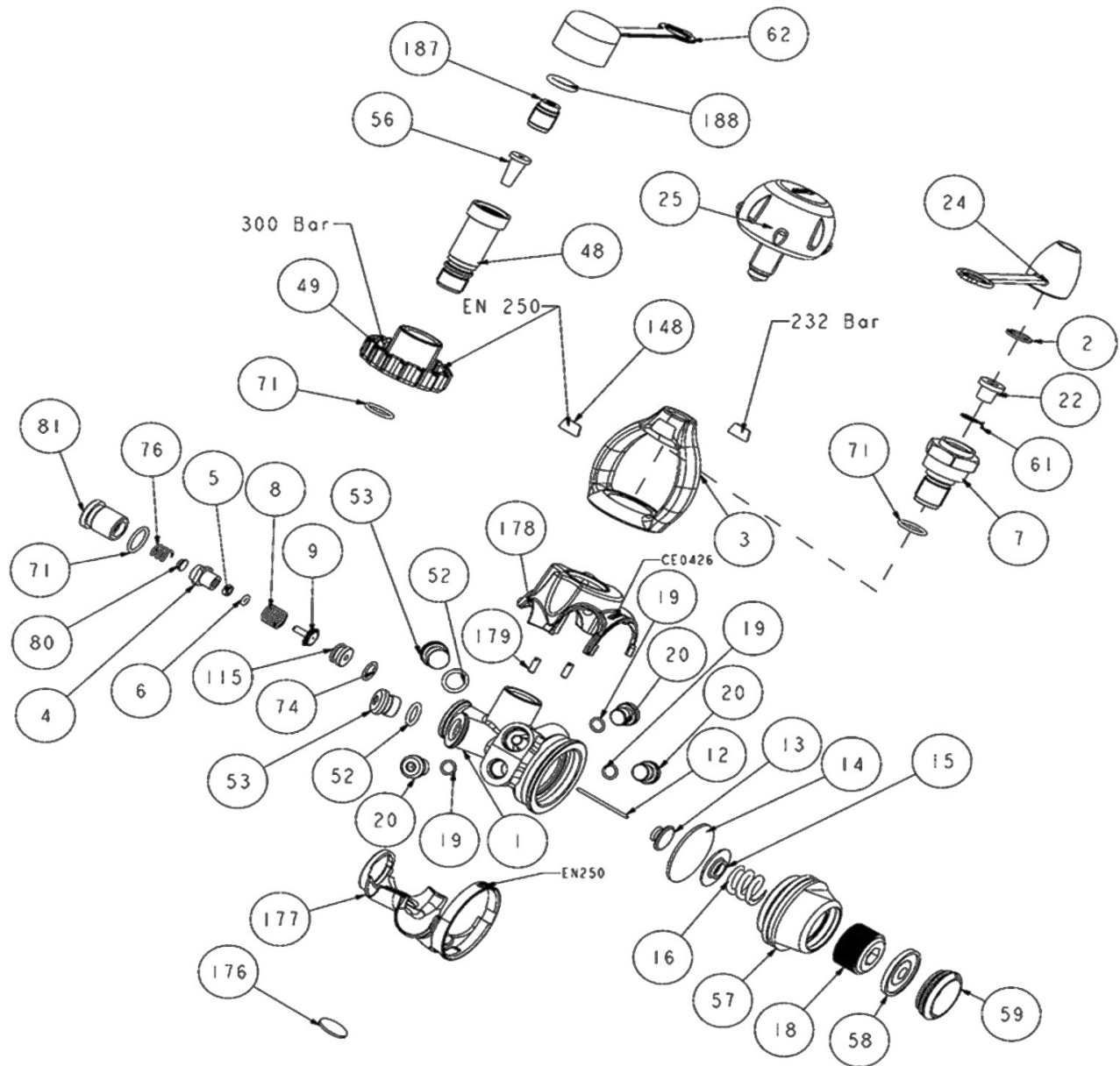


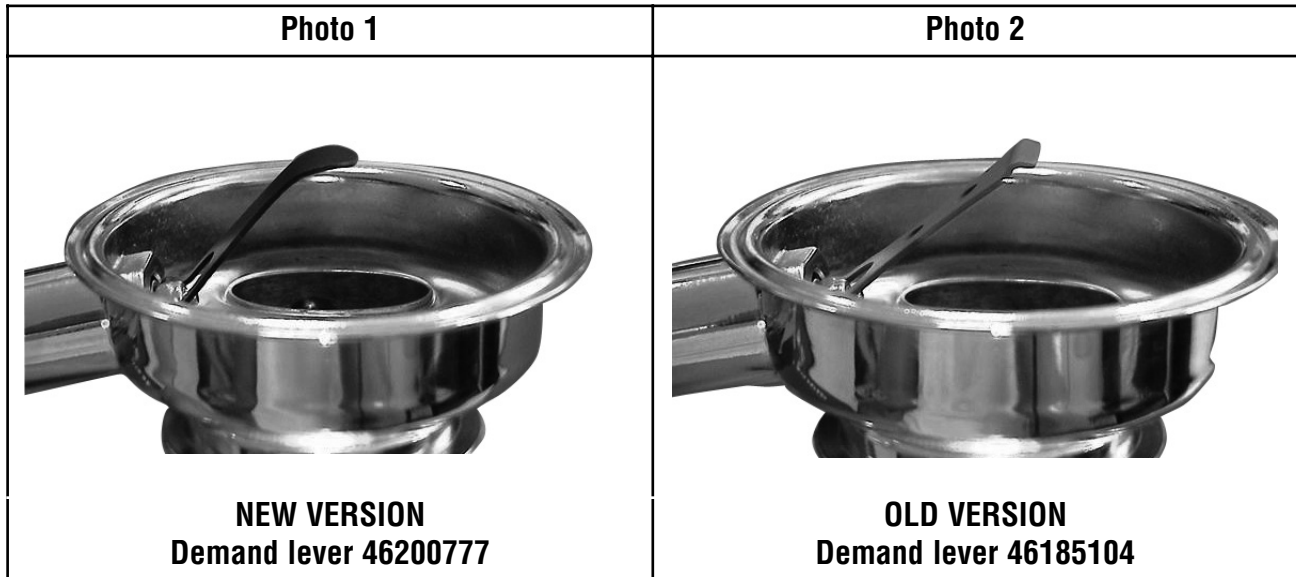
Table No. 32	MR32 EXTREME FIRST STAGE	Drawing reference No.: E 109 Table updated on: 11/07/2006
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Ref.No.	Code	Description	Ref.No.	Code	Description
1	A	1 st st body V32 with DFC port .	61	46185013	Filter spring
2	46185015	Snap ring Int. D. 13	62	46200562	DIN connector dust cap
3	46185270	Sandblasted yoke	71	46110211	OR 2050
4	D	HP chamber	71	46110413	OR 2050 Viton 014-9707
5	46185038	Backup ring	74	46110107	OR 2031
6	46110101	OR 2012	74	46110403	OR 2031 Viton 011-9707
6	46110401	OR 2012 Viton 006-9707	76	46186210	HP chamber spring
7	46186205	Yoke retainer nut	80	46186206	Anti-drag head
8	46185011	1 st stage poppet spring	81	46186208	Port plug
9	46200652	1 st stage poppet	115	46186216	SCS poppet seat (MR22)
12	46186214	Poppet pin 32,5 mm	148	46184315	"EN 250 - 200 bar" Sticker
13	46186213	Poppet button	176	46200720	Oval Sticker
14	46185022	Diaphragm	177	46200747	MR32 bottom casing
15	46185034	Spring base plate	178	46200367	Top casing
16	46185023	Diaphragm spring	187	46200547	DIN OR seat
17	46186268	Retaining nut	188	46110247	O-Ring 3043
18	46185028	Spring adjusting nut			
19	46110106	OR 106			ASSEMBLIES
19	46110402	OR 106 Viton 610-9707	D	46185210	HP Chamber assembly (4-5-6)
20	46185204	3/8" UNF Port plug	F	416805	Connector assembly DIN 300 BAR
22	46186202	Tapered sintered filter	I	416851	CWD KIT
24	46185010	Dust cap	* * *	46186152	Service kit INT 1 st STAGE 32/22/16/TP (2-5-6-19-22-52-61-71-74)
25	46184079	Yoke knob	* * *	46200606	Service kit DIN 1 st Stage 32/22/16/TP 2K5 (5-6-19-52-56-71-74-188)
48	46200548	300 BAR DIN connector body	* * *	46185167	Service kit Ruby INT VITON/32/22/16 (2-5-6-19-22-52-71-74)
49	46200546	DIN 300 BAR threaded locking ring	ooo		
52	46110108	OR 108			ACCESSORIES
52	46110404	OR 108 Viton 611-9754		46185340	Vial with silicone-oil for CWD
53	46185205	7/16" HP port plug	98	46186207	1/2 UNF Port plug
56	46200561	DIN fitting filter	97	46110215	OR 2043
57	I	C.W.D. body	97	46110215	OR 2043
58	46185301	C.W.D. diaphragm			
58	46185301	C.W.D. diaphragm			
59	I	C.W.D. ring nut			

RE:
ABYSS 08 2ND STAGE DEMAND LEVER (CODE: 46200777)

BTM19

MARES TECHNICAL SUPPORT ANNOUNCES THAT BEGINNING WITH THE 2008 COLLECTION, ALL ABYSS 08 SECOND STAGES (ABYSS 42 CODE 416133; ABYSS 22 CODE 416134) WILL FEATURE STANDARD A NEW DEMAND LEVER WITH A DIFFERENT SHAPE THAN THAT USED IN THE PREVIOUS VERSION (PHOTO #1). THIS INNOVATION ENSURES BETTER PERFORMANCE FROM THE REGULATOR, PARTICULARLY AT DEPTHS OF GREATER THAN 35 M (115 F), ALLOWING FOR MORE NATURAL AND COMFORTABLE BREATHING IN ALL DIVING CONDITIONS. THE NEW DEMAND LEVEL (# 46200777) CAN BE USED IN VOLTREX/RUBY/ORBITER/ABYSS SECOND STAGES TO REPLACE THE PREVIOUS VERSION (CODE 46185104) (PHOTO #2).



⚠ WARNING!

TO DISASSEMBLE, REASSEMBLE, ADJUST, OR CHECK THE DEMAND LEVER 46200777 IN THE VOL TREX SECOND STAGE CASE 46186025, CONSULT THE CORRESPONDING MAINTENANCE MANUAL UNDER SECTION S 1-1 / S 1-6. IF THE MANUAL IS UNAVAILABLE PLEASE CONTACT MARES BEFORE PERFORMING ANY MAINTENANCE, ADJUSTMENT, OR CHECK PROCEDURE.

**PRESTIGE - ROVER
SECOND STAGES**

mares®

▶ DISASSEMBLY

1. Move the hose cover off the 1st stage.
2. Unscrew the hose from the 1st stage and remove the O-ring (19).
3. Remove the clamp (43) from the mouthpiece using cutting nippers or a similar tool.

NOTE ONLY REMOVE THE CLAMP FROM THE MOUTHPIECE IF A REPLACEMENT PART IS AVAILABLE.

4. Remove the mouthpiece (44).
5. Remove the fixing pin (174) from the cap (41) of the exhaust tee (Fig. 1).

NOTE FOR THE OPERATION DESCRIBED IN STEP 4, IT IS RECOMMENDED THAT YOU USE A METAL PRICKER HAVING A MAX DIAMETER OF 2 MM (FIG. 1).

6. Remove the inspection cap (41).
7. Move the hose cover (46).
8. Using the two 17-mm open end wrenches (B-17), unscrew the hose from the 2nd stage connector.
9. Remove the O-ring (27) from the seat of the swivel hose coupling.
10. Unscrew the case assembly connector (28) using a 17-mm open end wrench (B-17).
11. Remove the O-Ring (71) from the case assembly connector (28).
12. Unscrew the poppet seat (21) from the case assembly connector (28) using a 5-mm hex wrench (B-4).
13. Remove the O-Ring (27) from the poppet seat (21).
14. Pull out the by-pass retainer ring (96).
15. Remove the safety clip (63).
16. Unscrew the cover (101).
17. Remove the button (103) from the cover (101).
18. Remove the diaphragm retaining ring (78) and the diaphragm (36) from the 2nd stage case (32).
19. Unscrew the case plug (64) using a 6 mm hex wrench (B-8).
20. Remove the O-ring (83) from the case plug.

DPD VERSIONS

- a. Remove the sticker (186) from the Dive/Pre Dive knob (184).
- b. Use a Phillips head screwdriver (USAG 327 type) to unscrew the screw (185) and remove the DPD knob (184), the DPD clamp (183) and the spring (102) (Fig. 9).

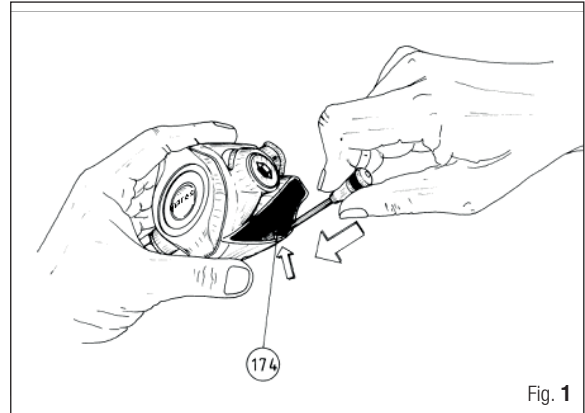


Fig. 1

- c. Remove the lever support (181) and the DPD lever (180) from the DPD body.
- d. Remove the O-ring (6) from the DPD support lever (181).
- e. Use the special wrench (B-37) to unscrew the DPD body (182) (Fig. 7).
- f. Remove the O-Ring (171) from the DPD body (182).

⚠ WARNING!

REMOVE THE DPD LEVER (180) FROM THE DPD SUPPORT LEVER (181) ONLY IF NECESSARY

21. Gently press the demand lever connector assembly into the case (Fig. 2).
22. Remove the O-Ring (83) from its seat in the second stage case (32).
23. Position the demand lever connector assembly on the special tool (B-6) and use the screwdriver (B-12) to unscrew the retaining nut (33) from the demand lever (35). Then remove the washer (34), the poppet assembly (30+47+92), and the spring (31) (Fig. 5).
24. Remove the poppet seat (47), pressing slightly on the poppet seat holder (92) in the direction of the threaded stem.
25. Remove the poppet seat holder (92) from the stem of the 2nd stage valve shaft (30).
26. Remove the exhaust valve (40). (40).

NOTE ONLY REMOVE THE EXHAUST VALVE IF A REPLACEMENT PART IS AVAILABLE.

► **CLEANING**

⚠ WARNING!

WHEN WORKING WITH ANY KIND OF ACID, WEAR ADEQUATE PROTECTIVE GEAR FOR EYES AND SKIN

For routine cleaning of reusable rubber components, wash all parts in a mixture of hot water and mild detergent. Make sure all the components have been thoroughly rinsed in fresh water before reassembling them. Chrome-plated brass and stainless steel parts can be cleaned with an ultrasonic cleaner in fresh water, or in a mild acid solution (for example white vinegar, diluted as necessary).

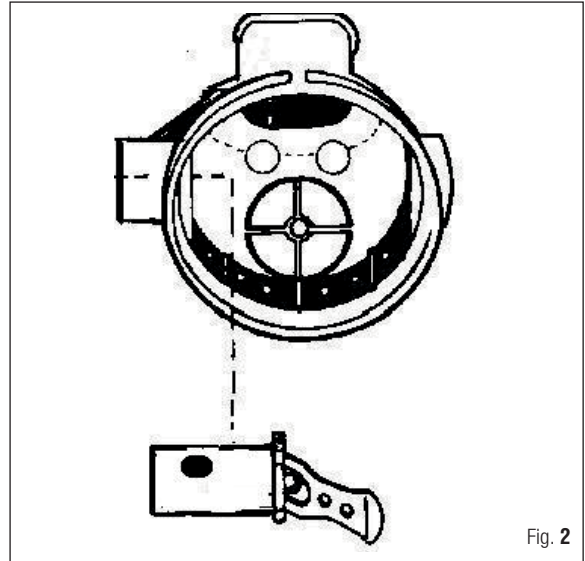


Fig. 2



WARNING!

ACIDS OR OTHER SOLVENTS MAY DAMAGE PLASTIC AND RUBBER PARTS. BEFORE CLEANING METAL COMPONENTS, MAKE SURE THAT ALL SEALS AND OTHER PARTS SUBJECT TO DETERIORATION HAVE BEEN REMOVED

► **INSPECTION**

Certain key components of the 2nd stage should be regularly replaced at each scheduled overhaul. Below is a list of components including in the Prestige 2nd stage and NTT 2nd stage (DPD) service kit.

SERVICE KIT

QUANTITY	REF.	DESCRIPTION	CODE
1	6 (DPD)	O-Ring 2012	Cod. 46110101 cod. Viton 46110401
2	27	O-Ring 2025	Cod. 46110205 cod. Viton 46110411
1	72 (DPD)	O-Ring 2043	Cod. 46110215 cod. Viton 46110415
1	71	O-Ring 2050	Cod. 46110211 cod. Viton 46110413
2	83	O-Ring 2068	Cod. 46110225 cod. Viton 46110420
1	19	O-Ring 106	Cod. 46110106 cod. Viton 46110402
1	171 (DPD)	O-Ring 2062	Cod. 46110220 cod. Viton 46110417
1	47	2 nd stage poppet seat	Cod. 46184062
1	33	Demand lever adjusting nut	Cod. 46185051
1	40	Exhaust valve	Cod. 46184006
1	43	Exhaust valve	Cod. 47157984
1	63	Safety pin	Cod. 46184289

► **DO NOT USE PARTS WITH THE FOLLOWING DEFECTS:**

2nd STAGE CASE	(32)	Check that sealing surfaces are free of scratches, cracks, or deformations. Check that the threads in the seats for the cover screws are perfectly clean.
POPPET SEAT	(21)	Check the integrity of the sealing surface and the O-ring seat.
DIAPHRAGM	(36)	Check for tears or pinholes around the metal disk, deformation of the outer rim or signs of separation of the diaphragm from the metal disk
POPPET SEAT HOLDER	(92)	Check for cracks, cuts or deformation
MOUHPIECE	(44)	Inspect for cuts, tears or signs of wear
DPD SPRING	(102)	Check for any split or broken coils
SOFT HOSE	(26)	Inspect for splits, blistering or any other signs of damage. Check that the O-ring seat are intact
SPRING	(31)	Check for any split or broken coils

► REASSEMBLY

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



WARNING!

IF THE 2ND STAGE IS USED FOR DIVING WITH OXYGEN-RICH MIXTURES, IT MUST BE PERFECTLY CLEANED AND FREE OF ANY RESIDUAL SILICONE OR OTHER IMPURITIES. VITON ORINGS MUST BE LUBRICATED WITH SPECIAL OXYGENCOMPATIBLE GREASE. DO NOT USE SILICONE GREASE. YOU MUST CONSULT THE NITROX SECTION OF THE MAINTENANCE MANUAL FOR THESE PROCEDURES.

27. Install a new exhaust valve (40), carefully pulling its silicone stem through the center hole of the 2nd stage exhaust valve support.



WARNING!

DO NOT PULL TOO HARD ON SILICONE STEM AS THIS MAY DAMAGE THE EXHAUST VALVE.

28. Use cutting nippers to cut the silicone stem at approximately half its length.
29. Reassemble the poppet seat holder (92) on the 2nd stage poppet stem (30).
30. Reassemble the poppet seat (47) in the poppet seat holder (92).
31. Place the 2nd stage poppet assembly (30+47+92) together with its spring (31) on the special tool (B-6).
32. Pressing gently, correctly position the 2nd stage valve and its spring into the demand lever connector (91) (Fig. 4).

IMPORTANT

ROTATE THE SECOND STAGE CASE SLIGHTLY TO THE RIGHT AND LEFT TO OBTAIN CORRECT POSITIONING OF THE 2ND STAGE POPPET STEM (FIG. 4).

33. Correctly position the demand lever (35) in the 2nd stage metal insert (91).
34. Fit the washer (34) on the poppet stem and tighten the demand lever adjusting nut (33) 2-3 threads using the special wrench (B-12) (Fig. 5).



PRESS THE DEMAND LEVER A FEW TIMES TO BE SURE IT IS ABLE TO MOVE FREELY. **CORRECTLY POSITION THE DEMAND LEVER CONNECTOR ASSEMBLY (91) IN THE 2ND STAGE CASE (FIG. 2)**

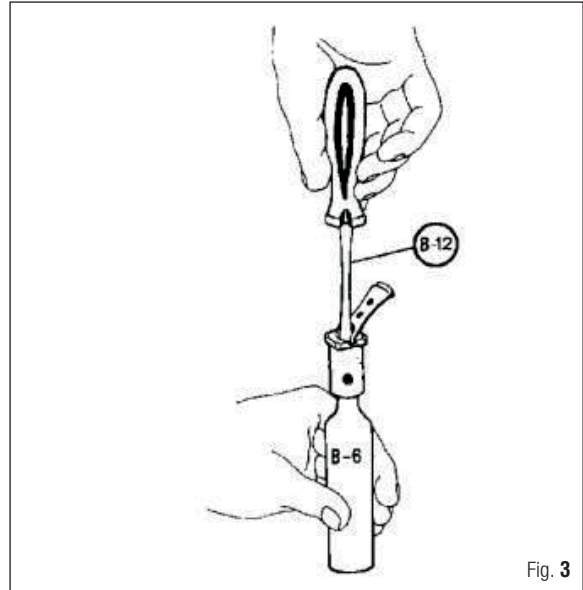


Fig. 3

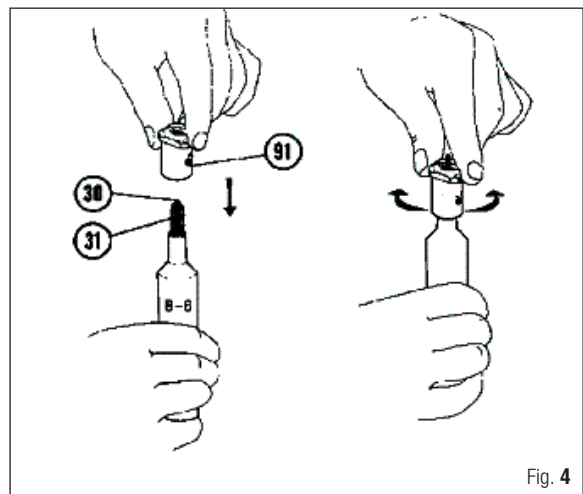


Fig. 4

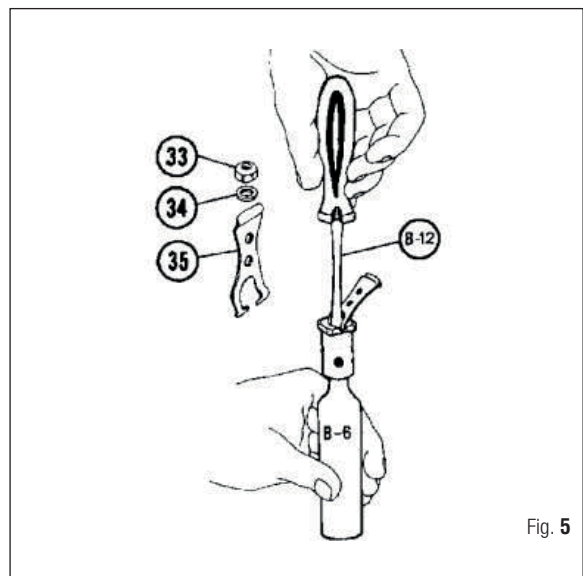


Fig. 5

35. Place the O-Ring (83) in the seat between the 2nd stage case and the demand lever connector using the special tool (B 6) (Fig. 6).

! WARNING!

MAKE SURE THAT THE AIR HOLE IN THE DEMAND LEVER CONNECTOR (91) IS POSITIONED SO THAT IT IS ALIGNED WITH THE BY-PASS TUBE.

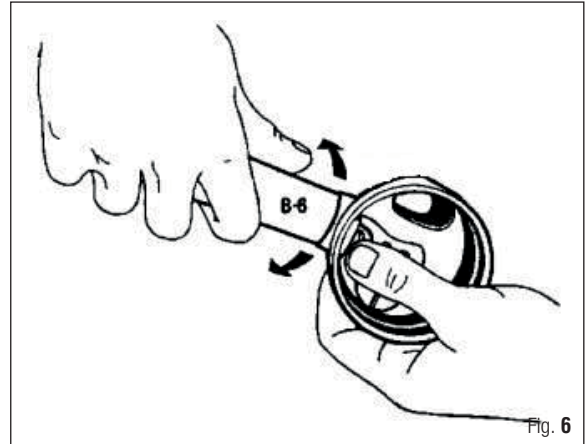
! WARNING!

CHECK THAT THE DEMAND LEVER CONNECTOR HAS STAYED IN PLACE.

36. Fit the O-ring (27) in its seat in the seat connector housing (21).
37. Insert and lock down the seat connector (21) into the case assembly connector (28) using the 5-mm hex wrench (B-4) so that it protrudes from the connector by about 2.2-2.5 mm.
38. Fit the O-Ring (71) in the seat of the case assembly connector (28).
39. Put the spacer ring (96) in place, and then use the 17-mm open-end wrench (B-17) to fully lock down the case assembly connector in the 2nd stage case.

NOTE IF USING A TORQUE WRENCH, USE TIGHTENING TORQUE OF 8 - 8.5 N/m

40. Fit the O-ring (27) in the seat on the swivel connector of the hose (26) and the O-Ring (19) in the seat of the metal coupler that screws into the first stage.
41. Screw the hose (26) onto the case assembly connector (28) with the help of two 17-mm open end wrenches (B-17).



FINAL ADJUSTMENTS

To correctly adjust the regulator:

- A.** The repair shop should be equipped with a high- and lowpressure compressed air supply.
- B.** A pressure gauge is required for checking the intermediate pressure (the pressure gauge should have a full scale value MAX 30 - 40 BAR, for greater adjustment accuracy).
- I.** Screw the intermediate pressure measuring gauge into one of the 3/8" low-pressure ports on the 1st stage, using the wrench (B-18).
- II.** Assemble the hose with the partially finished 2nd stage on the port marked D.F.C., tightening it with the 14-mm wrench.
- III.** Mount the regulator group on the control valve (of the tank or test bench).
- IV.** Holding down the second stage demand lever, slowly open the tank valve and, almost simultaneously, release the demand lever.
- V.** Read the pressure gauge to check whether the 1st stage pressure is correct.



WARNING!

THE 1ST STAGE INTERMEDIATE PRESSURE MUST BE MEASURED WHEN THERE IS NO AIR COMING OUT OF THE 2ND STAGE. FOR ANY NECESSARY 1ST STAGE ADJUSTMENTS, REFER TO THE SEPARATE MANUAL.

PROCEDURE FOR ADJUSTING THE INTERMEDIATE PRESSURE

IMPORTANT!

ALL THE ADJUSTMENTS BELOW MUST BE MADE WITH THE SECOND STAGE CONSISTENTLY SUPPLIED WITH THE CORRECT INTERMEDIATE PRESSURE

- A.1.** Position the 2nd stage diaphragm (36) in the 2nd stage case.
- A.2.** Insert the diaphragm retaining ring (78).
- A.3.** Place the button (103) inside the cover (101).
- A.4.** Arrange the purge button (103) in the cover (104) and screw it to the 2nd stage body (32).

IMPORTANTE!

CONTINUE TIGHTENING THE COVER UNTIL THE TWO SEATS (ON THE CASE AND COVER) THAT ACCOMMODATE THE SAFETY CLIP ARE ALIGNED.

- A.5.** Insert the safety clip (63). Then lock down the clip all the way down to the cover.
- A.6.** Working through the hole in the second stage case, use the wrench (B-12) to lock down or back off the demand lever nut (32) in order to adjust the demand lever (35).



WARNING!

THE DEMAND LEVER (35) IS ADJUSTED CORRECTLY WHEN YOU CAN PRESS THE PURGE BUTTON ON THE COVER DOWN AT LEAST 1 MM BEFORE AIR BEGINS TO RELEASE, AND THE SOUND OF THE DEMAND LEVER TOUCHING THE METAL DISK OF THE SECOND STAGE DIAPHRAGM AS IT MOVES ("TAPPING") SHOULD BE AUDIBLE WHEN THE PRESSURIZED SECOND STAGE IS SHAKEN VIGOROUSLY UP AND DOWN.

- A.7.** Press the purge button a few times.
- A.8.** Reassemble the O-ring (72) on the case plug (64).
- A.9.** Using the hex wrench (B-8), screw the case plug into the threaded bushing.

FINAL ASSEMBLY (DPD VERSION ONLY)

- a. Using the special wrench (B 37), screw the DPD body to the 2nd stage case (32).

⚠ WARNING!

THE DPD HOUSING (182) SHOULD BE SCREWED SNUGLY, CHECKING THAT THE GROOVE IS PERFECTLY ALIGNED WITH THE REFERENCE ON THE SECOND STAGE BOX (32) AS SHOWN IN FIG. 7

- b. Position the O-ring (6) in the seat of the DPD lever support (181) (Fig. 8a).
c. Insert the DPD lever support (181), complete with lever (180), into the DPD housing (182) (Fig. 8a).

⚠ WARNING!

ENSURE THAT AT THE END OF THE OPERATION DESCRIBED ABOVE AT STEP "F" YOU HAVE:

1. THE DPD LEVER (180) POSITIONED WITH THE CONCAVE PART UPWARD
2. THE GROOVE OF THE DPD LEVER SUPPORT (181) FACING UPWARD (FIG. 8B).

- d. Correctly insert the spring (102) into the DPD housing (182).

⚠ WARNING!

POSITION THE TAPERED SPRING CORRECTLY BY INSERTING IT INTO THE DPD HOUSING WITH THE NARROW END POINTING INSIDE THE SECOND STAGE CASE.

- e. Correctly position the DPD block (183) on the spring (102) (Fig. 9).
f. Correctly insert the DPD knob (184) on the DPD housing (182) (Fig. 9).

⚠ WARNING!

MARES SUGGESTS THAT WHILE CONDUCTING THE OPERATIONS DESCRIBED IN STEPS "G-H-I-J", YOU KEEP THE DPD LEVER (180) AND THE CORRESPONDING SUPPORT (181) IN POSITION INSIDE THE DPD HOUSING, USING YOUR FINGER IF NECESSARY.

- g. Tighten the screw (185) on the DPD knob (184), using a Phillips head screwdriver (USAG type 327).

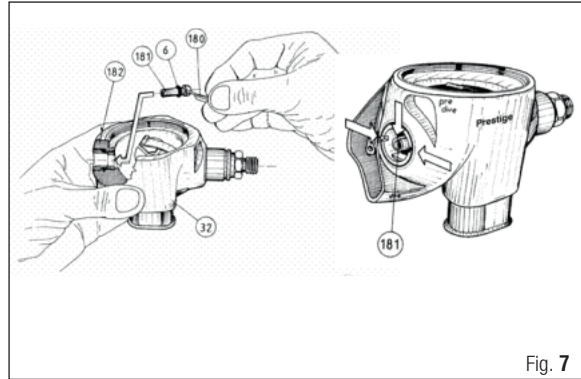


Fig. 7

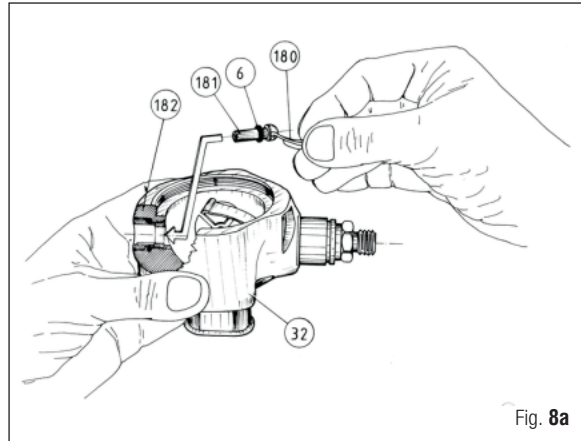


Fig. 8a

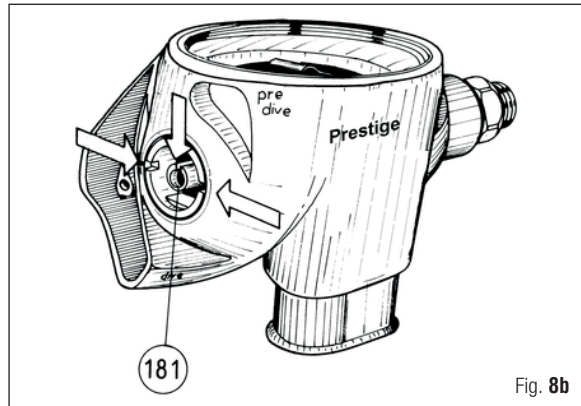


Fig. 8b

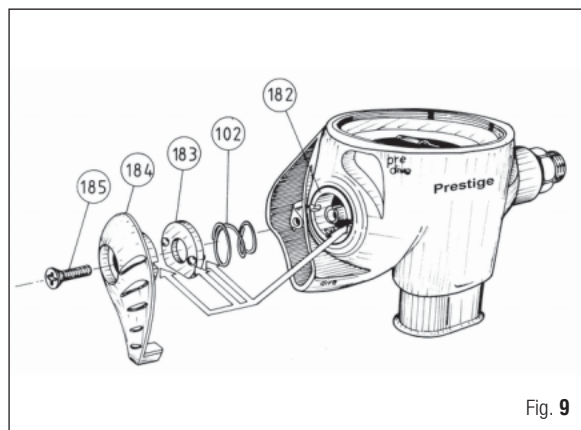


Fig. 9

⚠ WARNING!

AFTER THE OPERATION DESCRIBED IN STEP "J" ENSURE THAT:

1. IN PRE-DIVE POSITION THE DPD LEVER PREVENTS THE DEMAND LEVER FROM MOVING (32).
2. IN DIVE POSITION, THE DEMAND LEVER (32) MOVES FREELY

h. Place the DPD knob sticker (186) on the DPD knob (184).

PROCEDURE FOR ADJUSTING THE PRESTIGE NTT (DPD) DEMAND LEVER

IMPORTANT!

ALL THE ADJUSTMENTS BELOW MUST BE MADE WITH THE SECOND STAGE CONSISTENTLY SUPPLIED WITH THE CORRECT INTERMEDIATE PRESSURE

- B.1.** Working through the hole in the second stage case, use the wrench (B-20) to lock down or back off the demand lever nut (33) in order to adjust the demand lever (35) (Fig. 10).

⚠ WARNING!

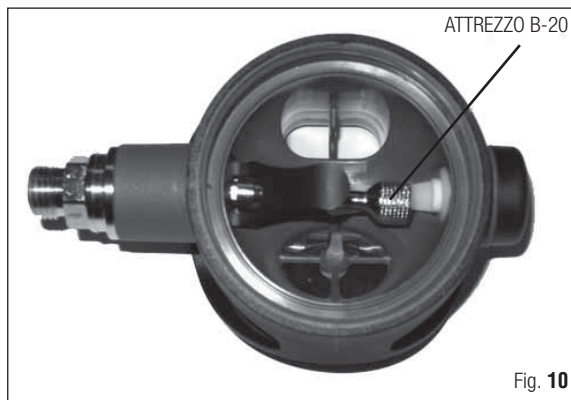
THE DEMAND LEVER (35) IS CORRECTLY ADJUSTED WHEN IT JUST TOUCHES THE GAUGE BUT THERE IS NO AIR COMING OUT

- B.2.** Depress and trigger the demand lever a few times.

⚠ WARNING!

THE DEMAND LEVER (35) IS ADJUSTED CORRECTLY WHEN YOU CAN PRESS THE PURGE BUTTON ON THE COVER DOWN AT LEAST 1 MM BEFORE AIR BEGINS TO RELEASE, AND THE SOUND OF THE DEMAND LEVER TOUCHING THE METAL DISK OF THE SECOND STAGE DIAPHRAGM AS IT MOVES ("TAPPING") SHOULD BE AUDIBLE WHEN THE PRESSURIZED SECOND STAGE IS SHAKEN VIGOROUSLY UP AND DOWN.

- i. Fit the 2nd stage diaphragm (36) in the 2nd stage case (32).
- j. Insert the diaphragm retaining ring (78).
- k. Arrange the purge button (103) in the cover (104) and screw it to the 2nd stage body (32).



**WARNING!**

CONTINUE TIGHTENING THE COVER UNTIL THE TWO SEATS (ON THE CASE AND COVER) THAT ACCOMMODATE THE SAFETY CLIP ARE ALIGNED.

TO FACILITATE THIS OPERATION, USE THE GROOVE ON THE COVER AS A REFERENCE.

- I. Insert the safety clip (63). Then lock down the clip all the way down to the cover.

ALL VERSIONS

42. Position the hose protector (46).
43. Disassemble the control valve unit.
44. Disassemble the intermediate pressure measuring gauge and screw the port plug with its O-ring seal back on.
45. Fit the inspection cap (41) and secure it with the fixing pin (174).
46. Assemble the mouthpiece (44), securing it with a new mouthpiece clamp (43).

**WARNING!**

FOR CHECKS AND ADJUSTMENTS ON THE SECOND STAGE, CONSULT THE CORRESPONDING SECTION OF THE MAINTENANCE MANUAL.

**ABYSS
SECOND STAGE**

mares®

▶ DISASSEMBLY

1. Using cutting nippers (or pliers), cut the mouthpiece clamp (43) and remove the mouthpiece (44).
2. Remove the exhaust tee (41) from the second stage case (32).
3. Shift the hose protector (46) using the tool shown in in Fig. 1 (cod 41106000)

! WARNING!

PROCEED AS SHOWN IN THE PHOTOS ABOVE TAKING CARE TO AVOID BREAKING THE COVER PIN, WHICH WILL CAUSE THE HOSE PROTECTOR TO FAIL TO LATCH WHEN YOU REASSEMBLE IT LATER.

4. Using two wrenches (B-17), unscrew the hose (26) from the 2nd stage.
5. Remove the O-ring (27) from the hose (26).
6. Unscrew the connector (28) from the second stage using the wrench (B-17).
7. Remove the O-ring (29) and, using the hex wrench (B-4) unscrew the seat connector (21) with the O-ring (27) from the case assembly connector (28).

! WARNING!

YOU CAN CLEAN THE GRILL USING A SOFT BRUSH. DISASSEMBLY OF THE COVER UNIT (PURGE BUTTON, SPRING, AND COVER) IS NOT GENERALLY NECESSARY UNLESS IT IS EXTREMELY DIRTY AND ENCRUSTED, OR WHEN THE BUTTON DOES NOT RETURN TO THE NORMAL POSITION. REMOVING THE PURGE BUTTON CAN DAMAGE THE COMPONENTS. BE VERY CAREFUL AND PAY CLOSE ATTENTION WHEN PERFORMING THIS OPERATION.

8. Remove the screw (38) with a Phillips head screwdriver and take it off the ring clamp (37).
9. Open the ring clamp (37) and pull it out of the second stage case (32).
10. Remove the cover (39) and the diaphragm (36).
11. Remove the adjusting nut (33), the washer (34), and the valve lever (35), using the special 5.5-mm wrench (B-12).



Fig. 1

**WARNING!**

TO PREVENT THE SECOND STAGE VALVE AND SPRING FROM BURSTING FORTH VIOLENTLY FROM THE CASE ASSEMBLY CONNECTOR, COVER IT WITH YOUR HAND OR A FINGER.

12. Remove the poppet (30) and the spring (31) from the second stage.
13. Remove the poppet seat (47) from the poppet body (30).
14. Remove the exhaust valve (40).
15. Using a 4-mm Allen wrench, unscrew the side cap (20) from the 2nd stage case (32) and remove the O-ring from it (19).

▶ **CLEANING**

**WARNING!**

WHEN WORKING WITH ANY KIND OF ACID, WEAR ADEQUATE PROTECTIVE GEAR FOR EYES AND SKIN.

Routine cleaning of the parts should include careful washing of all parts in a mixture of warm water and mild detergent. Metal parts in chrome-plated brass and stainless steel can be cleaned with descaling solutions (such as DEOX Extra) or using an ultrasonic cleaner with fresh water or a mild acid solution (such as white vinegar, diluted as necessary). Make sure to rinse all parts in fresh water before reassembling them, and then dry all components with low pressure air at 8-10 bar.

**WARNING!**

ACIDS OR OTHER SOLVENTS MAY DAMAGE PLASTIC AND RUBBER PARTS. BEFORE CLEANING METAL COMPONENTS, MAKE SURE THAT ALL SEALS AND OTHER PARTS SUBJECT TO DETERIORATION HAVE BEEN REMOVED.

► INSPECTION

Certain key components of the first stage should be regularly replaced at each scheduled overhaul.

Below are listed the components included in the Abyss 2nd stage service kit (46186160 // 46185166 Viton O-rings) :

Quantity	Ref.	Description	Code
2	27	O-Ring 2025	Code 46110205 cod. Viton 46110411
1	29	O-Ring 2050	Code 46110211 cod. Viton 46110413
1	19	O-Ring 2043 (½" hose)	Code 46110215 cod. Viton 46110415
2	19	O-Ring 106 (3/8" hose)	Cod. 46110106 cod. Viton 46110402
1	47	2 nd stage poppet seat	Cod. 46184062
1	33	Demand lever adjusting nut	Cod. 46185051
1	40	Exhaust valve	Cod. 46184006
1	43	Mouthpiece clamp	Cod. 47157984

► DO NOT USE PARTS WITH THE FOLLOWING DEFECTS:

2nd stage case:	(32)	Inspect the sealing surfaces for scratches or cracks. Check that the exhaust valve seat is perfectly clean and intact. Check that the by-pass is not deformed.
Ring clamp:	(37)	Check for breakage or distortion
Case assembly connector:	(28)	Check the integrity of the sealing surface and the O-ring seat.
Diaphragm:	(36)	Check for tears or pinholes around the metal disk, deformation of the outer rim or signs of separation of the diaphragm from the metal disk.
O-Rings:	(27-29)	Check for cuts, burrs or foreign particles. The presence of any of these defects may result in leakage
2nd stage poppet seat	(47)	Check for cuts, burrs or abrasion of the rubber
Demand lever adjusting nut	(33)	Verify its self-locking capacity and inspect for rust. It is recommended to replace it at each scheduled overhaul
Mouthpiece	(44)	Inspect for cuts, tears or signs of wear.
Exhaust tee cap	(41)	Check that is intact
Soft hose	(26)	Inspect for splits, blistering or any other signs of damage. Check that the O-ring seat are intact
Spring	(31)	Check for any split or broken coils

► REASSEMBLY

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

! WARNING!

IF THE SECOND STAGE IS USED FOR DIVES WITH OXYGEN-ENRICHED MIXTURES, STRICTLY FOLLOW ALL THE INSTRUCTIONS PROVIDED IN THIS MAINTENANCE MANUAL IN THE NITROX CHAPTER BEFORE BEGINNING REASSEMBLY!

16. Carefully install a new exhaust valve (40) by gently pulling the silicone stem through the hole of the 2nd stage exhaust valve support.

! WARNING!

IN ORDER TO AVOID DAMAGING THE EXHAUST VALVE, DO NOT PULL TOO HARD ON THE STEM.

17. Use cutting nippers (or scissors) to cut the end section of the exhaust valve stem (40) at approximately half its length.
18. Reassemble the poppet seat (47) on the poppet body (30).
19. Place the 2nd stage poppet assembly and its spring (31) on the special tool (B-6).
20. Exerting slight pressure, correctly insert the 2nd stage poppet assembly and its spring into the inlet fitting of the 2nd stage case (Fig. 1).

! WARNING!

IN ORDER TO CORRECTLY POSITION THE 2ND STAGE VALVE, ROTATE THE SECOND STAGE CASE LEFT AND RIGHT (FIG. 1).

! WARNING!

ALL ADJUSTMENTS TO THE VALVE LEVER (35) REQUIRE TOOL B-12, CODE 46106212, TYPE BETA 942BX 5.5 (PHOTO 4) OR A WRENCH WITH A HEAD DIAMETER OF NO MORE THAN 8.2 mm (PHOTO 5).

IF A WRENCH (B-12) FITTING THIS DESCRIPTION IS NOT AVAILABLE, IT WILL BE NECESSARY TO FOLLOW THE INSTRUCTIONS PROVIDED IN THE CORRESPONDING MAINTENANCE MANUAL UNDER SECTION S 1-4; S 1-5 (REV. 1998)

21. Correctly position the demand lever in the groove of the second stage case (32), fit the washer (34) on the poppet stem and lock down the adjusting nut (33) by about 5-6 full turns, using the special 5.5-mm wrench (B-12) (Fig. 2-3-4-5).

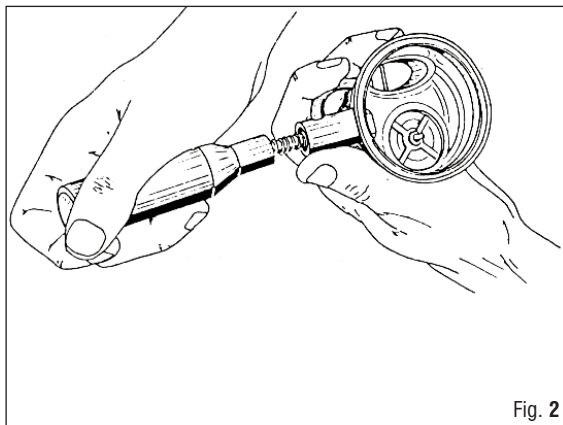


Fig. 2

NOTE DO NOT OVER-TIGHTEN THE ADJUSTING NUT. IF THE ADJUSTING NUT IS TOO TIGHT IT MAY CAUSE FREE FLOWING OF THE SECOND STAGE, INTERFERING WITH THE ADJUSTMENT OF THE INTERMEDIATE PRESSURE.

NOTE PRESS THE DEMAND LEVER A FEW TIMES TO CHECK THAT IT CAN MOVE FREELY.

22. Position the O-ring (29) on the case assembly connector (28).
23. Fit the O-ring (27) in the groove in the seat connector housing (21).
24. Use the 5-mm hex wrench (B-4) to screw the poppet seat (21) into the connector until it protrudes about 3 mm.
25. Properly screw the connector (28) into the second stage inlet fitting, tightening with the 17-mm wrench (B-17).
26. Reassemble the O-ring (27) in the seat of the swivel hose coupling (26).
27. Using two wrenches (B-17), release the hose (26) from the connection (28).

▶ ADJUSTMENTS

In order to make reasonably accurate adjustments to the regulator, repair facilities must have both high- and low-pressure air available. A submersible pressure gauge is also needed to check the intermediate pressure. (A pressure gauge with a max. full scale of 30 - 40 bar is required for better precision in adjustments).

- I. Screw the intermediate pressure measuring gauge (cod. 46106252) into one of the 3/8" low-pressure ports, using the special wrench (B-18).
- II. Using the wrench (B-18 or B-17), apply the hose with the partially assembled second stage to the port marked D.F.C. on the first stage.
- III. Mount the regulator group on the control valve (of a tank or Test Bench).
- IV. Holding down the second stage demand lever, slowly open the tank valve and, almost simultaneously, release the demand lever.
- V. Check the pressure gauge to see that the calibration value of the first stage is correct.
- VI. Depress and trigger the demand lever a few times.

WARNING!

THE INTERMEDIATE PRESSURE READING OF THE FIRST STAGE MUST BE TAKEN WHEN THERE ARE NO AIR LEAKS. IF THE FIRST STAGE NEEDS TO BE CALIBRATED, CONSULT THE CORRESPONDING MANUAL UNDER SECTIONS F 7-1; F 7-2.

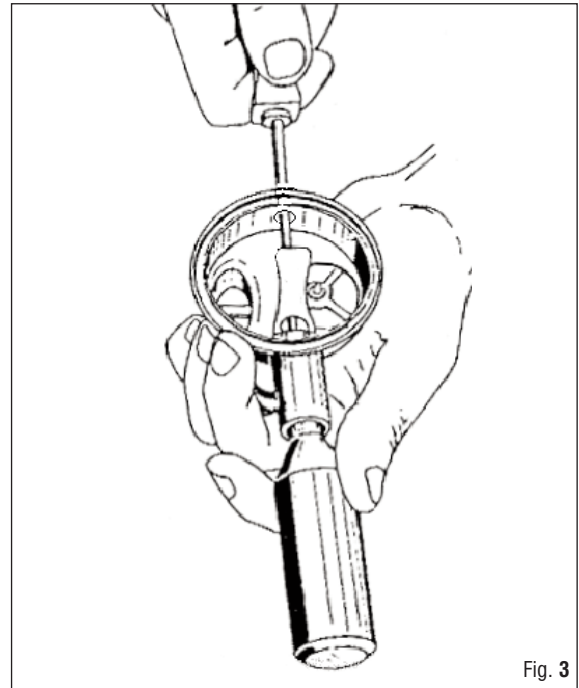


Fig. 3



Fig. 4

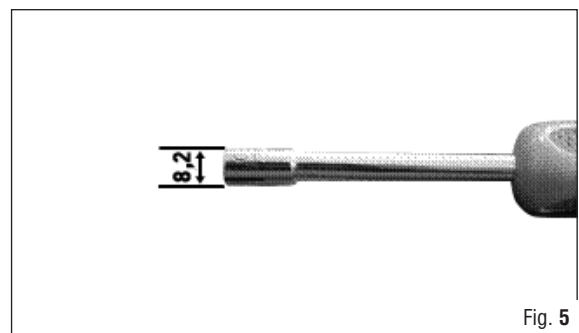


Fig. 5

28. Correctly fit the diaphragm (36) with the metal disk in contact with the demand lever.
29. Fit the cover (39) on the diaphragm, orienting it the right way round.
30. Fit the ring clamp (37) so that the eye-holes are on top of the second stage fitting.
31. Lock down the clamp screw (38).
32. Working through the hole in the second stage case, use the B-12 wrench to lock down or back off the demand lever nut (32) in order to adjust the demand lever (35) photo 6.

**WARNING!**

THE DEMAND LEVER IS ADJUSTED CORRECTLY WHEN YOU CAN PRESS THE PURGE BUTTON ON THE COVER DOWN ABOUT 1 MM BEFORE AIR BEGINS TO RELEASE. IN ADDITION, THE SOUND OF THE DEMAND LEVER TOUCHING THE METAL DISK OF THE SECOND STAGE DIAPHRAGM AS IT MOVES ("TAPPING") SHOULD BE AUDIBLE WHEN THE PRESSURIZED SECOND STAGE IS SHAKEN VIGOROUSLY UP AND DOWN.

33. Assemble the exhaust tee (41) on the support flange on the second stage.

**WARNING!**

MAKE SURE THAT THE EDGE OF THE EXHAUST TEE IS CORRECTLY FITTED ON THE FLANGE. LIGHT LUBRICATION WITH LIQUID SOAP OR DETERGENT FACILITATES INSTALLATION. DO NOT USE SILICONE LUBRICANTS, AS THEY MAY DAMAGE CERTAIN COMPONENTS (DIAPHRAGMS) AND CAUSE THE EXHAUST TEE TO COME OUT OF ITS SEAT DURING USE.

34. Carefully assemble the mouthpiece (44), securing it with a new mouthpiece clamp (43).

**WARNING!**

FOR CHECKS AND ADJUSTMENTS ON THE SECOND STAGE, CONSULT THE CORRESPONDING SECTION OF THE MAINTENANCE MANUAL.

35. Screw the port plug (20), complete with O-ring (19), to the second stage case (32), using a 4-mm hex wrench.



Fig. 6

Drawing
N F 208

SPARK MIMETIC SPEARGUN SERIES

Drawing updated
as of 10 Nov 2006

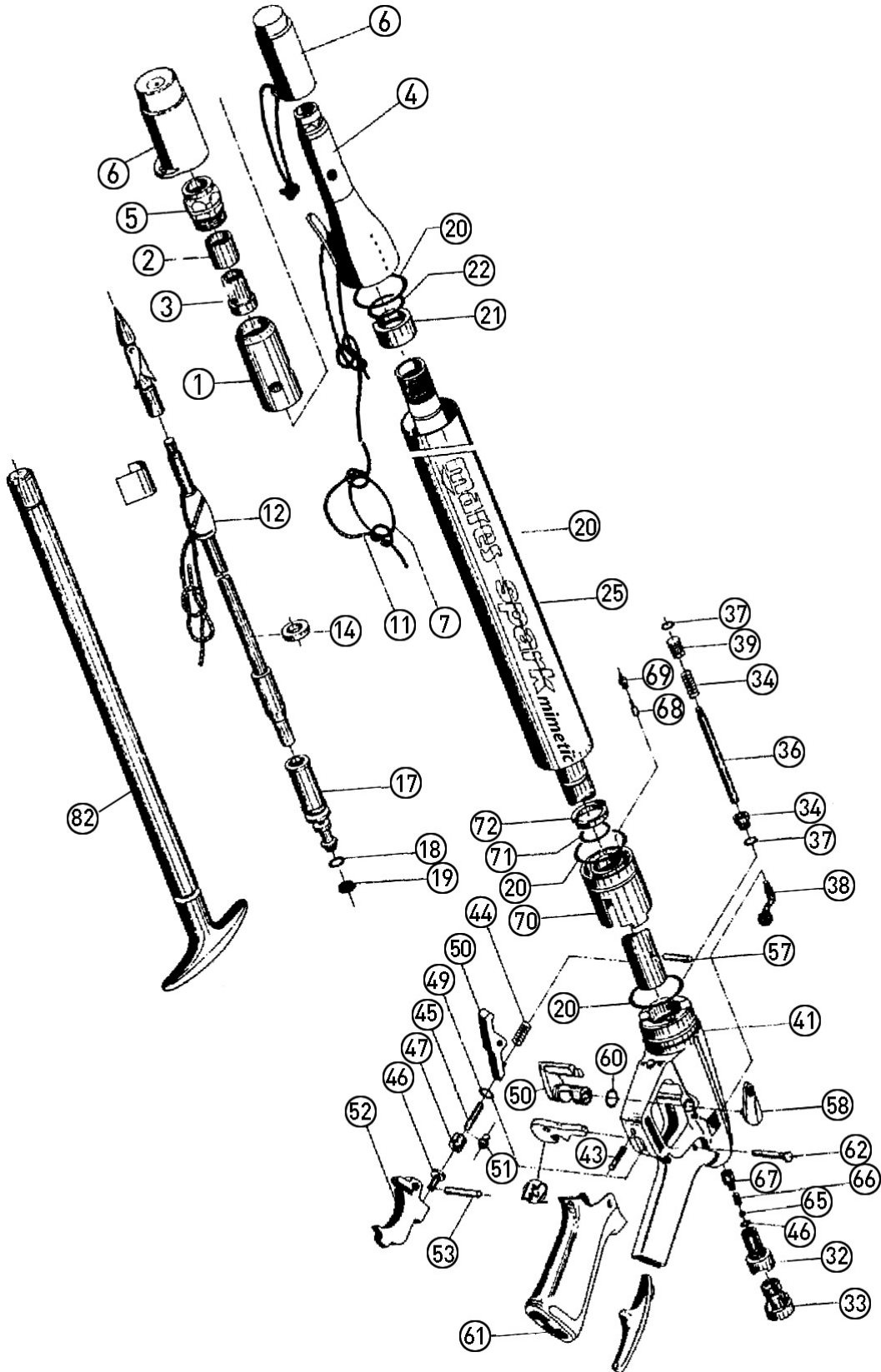


Table N 501	SPARK MIMETIC SPEARGUN	Drawing Reference #: F 208 Table update as of 10 Nov 2006
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Ref.No.	Code	Description	Ref.No.	Code	Description
1	A	Head body	43	43163614	Pin - line release
2	43163856	Shock absorber, rubber	44	43163313	Catch hook spring
3	43164207	Shock absorber insert	45	43164282	Connecting piston D. 1.5 A S
4	43164301	Nose cone	46	43110201	OR R/1
5	A	Head ferrule	47	43164284	Housing connecting plunger A S
6	43164008	Protective cap - head	48	E	Trigger adjustment screw
7	43163968	Rubber ring - shock	49	46110242	OR 2-003 Apnea System
11	43169821	Shock line - m 3	50	43163377	Catch hook
11	43169818	Shock line - m 5	51	43164286	Spacing sleeve A S
12	43164004	Line retainer for shaft Ø 7 mm	52	E	Trigger
14	43163503	Washer for shaft Ø 7 mm	53	43163337	4 x 23 Pin
17	#	Piston	57	43163338	4 x 20 Pin
18	46110107	OR 2031	58	43163539	White Stealth safety stop
19	#	Oil wiper piston	59	43163538	White Stealth safety body
20	46110208	Special OR	60	46110106	OR 106
21	43164204	OR bushing	61	43163540	Stealth grip cover
22	46110228	OR 3062	62	43164233	Pin - handle
25	43200050	Stealth Tank 42	65	43163808	3/16 Ball bearing
25	43164302	Stealth Tank 55	66	43163807	Spring - inlet valve
25	43164303	Stealth Tank 70	67	43164220	Bushing - inlet valve
25	43164304	Stealth Tank 85	68	43163635	Seat, one way valve
25	43164305	Stealth Tank 97	69	43163636	Housing pin, one way valve
25	43164306	Stealth Tank 110	70	D	Power regulator block
26	43163560	Stealth Barrel 42	71	46110227	OR 3056
26	43164215	Stealth Barrel 55	72	43164212	Circlip D. 16 - power regulator
26	43164216	Stealth Barrel 70	ASSEMBLIES		
26	43164217	Stealth Barrel 85	82	423901	Injector
26	43164218	Stealth Barrel 97	A	43164210	Full Muzzle (1-2-3-5)
26	43164219	Stealth Barrel 110	D	43164214	Power regulator assembly (68-69-70)
32	M	Body - inlet valve	E	43164230	Trigger assembly Spark (48-52)
33	43163563	White valve-cover plug	H	43200033	Full C/R handle, Spark (38-41-42-43-46-47-61- L)
34	L	Spring - power adjustment rod	H	43163561	Camouflage handle assembly (38-41-42-43-46-47-61)
35	L	Rod - power adjustment	L	43163937	Power adjustment assembly (34-35-36-37-39)
36	L	Power adjustment rod bushing	M	43164222	Spark valve assembly (32-46-65-66-67)
37	46110102	OR 2015		43164211	Piston assembly Ø 16 (17-18-19)
38	L	Lever power adjustment	***	43164290	Cyrano/Spark gaskets series (18-19-20-22-37-46-49-60-71)
39	L	Power adjustment rod OR comp.			
41	H	Handle C/R			
42	43163668	Line release, black			

SUBJECT:
PROCEDURE FOR REPLACING THE BATTERY

ITM16



ATTENTION!

MARES RECOMMENDS REPLACING THE BATTERY ONLY AND EXCLUSIVELY IN THE FOLLOWING CASES:

- NEMO COMPUTER SWITCHED OFF AND/OR INACTIVE (WITH NO INDICATION OF WHAT CAUSED IT TO SWITCH OFF)
- LOW BATTERY ICON APPEARS ON THE DISPLAY
- WHEN YOU PLAN TO CONDUCT A SERIES OF DIVES IN A BRIEF PERIOD OF TIME (SUCH AS A "DIVING WEEK"), AND WHEN CHECKING THE BATTERY CHARGE (SEE THE USER MANUAL, "DIVE" MENU, "PRE-DIVE - AIR" SECTION) THE REMAINING CHARGE IS SHOWN AS BELOW 50%.

IF OTHER TYPES OF MALFUNCTIONS SHOULD OCCUR (INCORRECT DEPTH AND/OR INFORMATION, COMPUTER FREEZES, SEGMENTS MISSING FROM THE DISPLAY, ETC.), OR IF THE SAME DEFECT FOR WHICH THE REPAIR WAS MADE OCCURS AGAIN (WITHIN 3 MONTHS), KINDLY RETURN THE PRODUCT WITHOUT ATTEMPTING ANY TYPE OF PROCEDURE.



THE BATTERY MUST BE REPLACED BY AN AUTHORIZED MARES SERVICE CENTER, AND CONSEQUENTLY THE INFORMATION BELOW IS INTENDED EXCLUSIVELY FOR THE SERVICE TECHNICIANS.

IT IS GOOD PRACTICE TO PERFORM THE OPERATIONS DESCRIBED BELOW WITH THE NEMO PLACED ON A SOFT SURFACE (SUCH AS A NEOPRENE SHEET), WHICH IS CLEAN AND NON-ABRASIVE, TO AVOID DAMAGING THE LENS FACE.



PERFORM ALL THE STEPS IN THE PROCEDURE STRICTLY IN THE ORDER SHOWN, TAKING EVERY PRECAUTION TO AVOID DAMAGING ANY OF THE MECHANICAL, ELECTRONIC OR AESTHETIC COMPONENTS, IN ORDER TO ASSURE CONTINUED CORRECT FUNCTIONING OF THE PRODUCT.

TOOLS NEEDED

- 2mm FLAT-BLADE WATCHMAKER'S SCREWDRIVER (TYPE USAG 342 – 160)
- FINE-POINT TWEEZERS
- SILICONE SPRAY (TYPE TKN CHEM SYMBOL HQ SIL L 630)
- SOFT ANTISTATIC CLOTH
- 3 VOLT LITHIUM REPLACEMENT BATTERY, TYPE CR 2430 OR DL 2430 - (CODE: 44200496)
(RENATA OR DURACELL RECOMMENDED)
- NEMO O-RING (5 PIECE KIT – CODE: 44200495)
- NEMO EXCEL, NEMO APNEIST O-RING (5 PIECE KIT - CODE: 44200691)
- NEMO COVER SCREWS KIT 44200494



ATTENTION!

UNDER NO CIRCUMSTANCES USE:

- COMPRESSED AIR
- CHEMICAL SOLVENTS
- ABRASIVE PASTES
- MINERAL OILS OR GREASE

- ELECTRIC SCREWDRIVERS
- BLADES OR POINTED TOOLS OTHER THAN THOSE SPECIFIED IN THE PROCEDURE.



MANUAL OPERATION



WARNING!!! EXERCISE CAUTION WHEN USING THE SCREWDRIVER!!!



-USE OF THE SOFT ANTISTATIC CLOTH




CAREFULLY INSPECT THE SPECIFIED PARTS



USE OF THE SILICONE SPRAY

DISASSEMBLY

- 1)  BEFORE PROCEEDING WITH DISASSEMBLY, USE THE SOFT CLOTH TO CAREFULLY WIPE THE COVER AND THE SEAM BETWEEN THE CASE AND COVER.



BEFORE OPENING AND DISASSEMBLING THE NEMO COMPUTER, CHECK THAT IT IS CLEAN. IF IT IS EXCESSIVELY DIRTY AND/OR ENCRUSTED WITH SALT CRYSTALS, IT IS ADVISABLE TO WASH IT IN FRESH WATER AND DRY IT THOROUGHLY BEFORE PROCEEDING.



ATTENTION!

UNDER NO CIRCUMSTANCES SHOULD DIRT OR WATER BE ALLOWED TO PENETRATE THE CASE, AS THIS MAY PERMANENTLY DAMAGE THE ELECTRONICS.



MARES RECOMMENDS THE USE OF A GROUNDED WRIST STRAP DURING THE PROCEDURES DESCRIBED BELOW!

WITH THE FLATHEAD SCREWDRIVER, RELEASE AND UNSCREW THE FOUR COVER SCREWS ONE HALF TURN (PHOTO 1).




PHOTO

1



THEN, USING THE FLATHEAD SCREWDRIVER, COMPLETELY UNSCREW THE FOUR COVER SCREWS, REMOVE THEM FROM THEIR SEATS USING TWEEZERS, AND PUT THEM IN A CLEAN PLACE.

- 4)  REMOVE THE COVER, USING THE SCREWDRIVER OR THE TIP OF THE TWEEZERS AS A LEVER IN THE SIDE HOLE NEAR THE SEAT OF SCREW NUMBER 1 (PHOTO 2).

 **ATTENTION!**

PROCEED WITH EXTREME CARE IN THIS OPERATION TO AVOID DAMAGE BETWEEN THE CASE AND COVER.




PHOTO

2

- 5)  REMOVE THE O-RING, PINCHING IT WITH YOUR FINGERS.

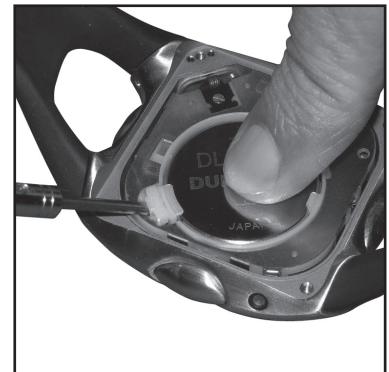
 **ATTENTION!**

IF USING TOOLS TO PERFORM THE OPERATION DESCRIBED UNDER POINT 5, PROCEED CAREFULLY TO AVOID CAUSING IRREPARABLE DAMAGE (TO THE GASKET SEAT).

- 6)  EXTRACT THE BATTERY BLOCK, REMOVING IT FROM ITS SEAT WITH THE SCREWDRIVER AS SHOWN IN THE FIGURE, MAINTAINING GENTLE PRESSURE ON THE BATTERY WITH ONE FINGER SO THAT THE ELECTRONIC MODULE DOES NOT LIFT OUT OF THE CASE. (PHOTO 3)

 **ATTENTION!**

MARES RECOMMENDS PROCEEDING WITH GREAT CARE TO AVOID ALLOWING THE INNER CIRCUIT TO LIFT UP, WHICH CAUSES IRREPARABLE DAMAGE TO INTERNAL COMPONENTS (PRESSURE SENSOR).



PHOTO

3



 **ATTENTION!**

IN ORDER TO PREVENT IRREPARABLE DAMAGE, MARES RECOMMENDS THAT DURING BATTERY REPLACEMENT OPERATIONS YOU BE ESPECIALLY CAREFUL TO AVOID DAMAGING THE SURFACE OF THE INNER MODULE, LOCATED BELOW THE BATTERY HOUSING, WITH THE SCREWDRIVER AND/OR TWEEZERS. (PHOTO 4)



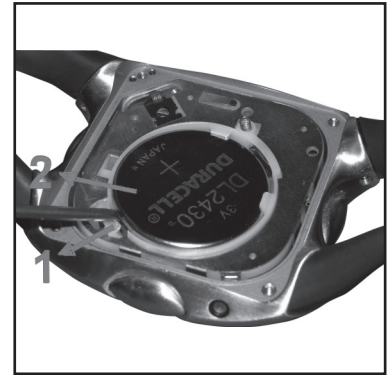
PHOTO

4

- 7)   USING A SCREWDRIVER OR TWEEZERS, TILT THE MOBILE BATTERY RETAINER SLIGHTLY TOWARDS THE CASE (PHOTO 5-1). REMOVE THE BATTERY IN THE DIRECTION SHOWN IN THE PHOTO (PHOTO 5-2).



DISPOSE OF THE OLD BATTERY PROPERLY. MARES ADOPTS A POLICY OF RESPECT FOR THE ENVIRONMENT, AND URGES USE OF THE APPROPRIATE SEPARATED WASTE COLLECTION SERVICE.



PHOTO

5

REASSEMBLY

- 8)  PLACE THE NEW BATTERY IN THE SEAT, WITH THE POSITIVE POLE (+) FACING UPWARDS (PHOTO 6).

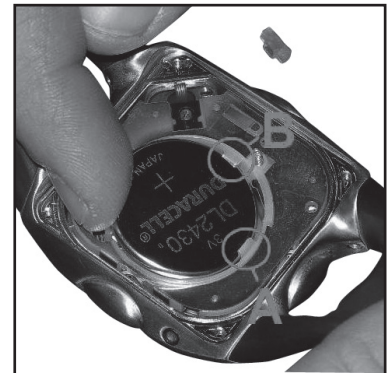


ATTENTION!

BE SURE THAT THE BATTERY IS PLACED PERFECTLY UNDER THE CORRESPONDING "BATTERY RETAINERS" A AND B (PHOTO 6).

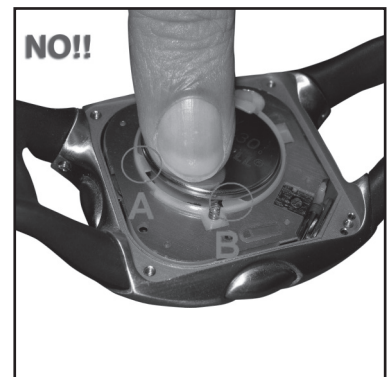
FAILURE TO PLACE THE BATTERY PROPERLY COULD DAMAGE AND/OR BEND "BATTERY RETAINERS" A AND B (PHOTO 7).

BREAKING AND/OR BENDING THESE RETAINERS COULD CAUSE THE COMPUTER TO SHUT OFF DURING THE DIVE.




PHOTO

6



PHOTO

7

- 8)  AFTER INSERTING THE BATTERY AS DESCRIBED IN STEP 9, USE THE SCREWDRIVER OR TWEEZERS TO MOVE THE "MOBILE BATTERY RETAINER" (C) IN THE DIRECTION INDICATED (PHOTO 8). THEN FULLY INSERT THE BATTERY.

 **ATTENTION!**

PERFORMING THIS OPERATION INCORRECTLY COULD CAUSE DAMAGE AND/OR BEND THE "MOBILE BATTERY RETAINER" (PHOTO 9 - C).

BROKEN AND/OR BENT "MOBILE BATTERY RETAINERS" COULD CAUSE THE COMPUTER TO SHUT OFF DURING THE DIVE.

 **ATTENTION!**

MAKE SURE THAT THE BATTERY RETAINERS (A-B-C) ARE POSITIONED PROPERLY OVER THE BATTERY (PHOTO 10).

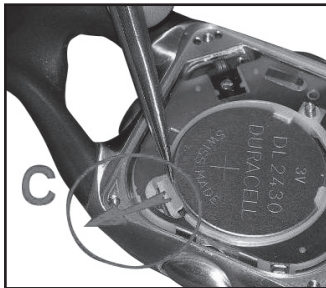


PHOTO 8



PHOTO 9

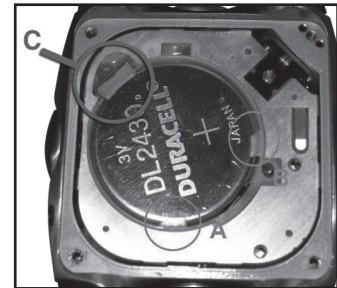



PHOTO 10

- 10)  USING A PAIR OF TWEEZERS, CORRECTLY INSERT THE SAFETY (PHOTO 11) IN THE SEAT FROM WHICH IT WAS PREVIOUSLY REMOVED.

 **ATTENTION!**

ARRANGE THE SAFETY, PAYING SPECIAL ATTENTION THAT IT IS POSITIONED CORRECTLY. THE SAFETY IS POSITIONED CORRECTLY WHEN THE SURFACE (S) INDICATED IN FIGURE 12 TOUCHES THE "MOBILE BATTERY RETAINER" (PHOTO 13).

 **NOTA**

USE TWEEZERS OR A SCREWDRIVER, AND PROCEED WITH EXTREME CAUTION, TO FACILITATE PLACEMENT OF THE BATTERY RETAINER.



PHOTO 11



PHOTO 12



PHOTO 13

11) **! ATTENTION!**

IF, AFTER THE BATTERY IS INSERTED, YOU FIND THAT THE DISPLAY SHOWS ALL SEGMENTS ON, OR ANY OTHER TYPE OF MALFUNCTION, PHOTO 14, RESET THE WATCH USING TWEEZERS: TOUCH AND IMMEDIATELY RELEASE THE BATTERY WITH ONE POINT OF THE TWEEZERS AND THE GOLD GRILL WITH THE OTHER POINT (PHOTO 15). THE COUNTDOWN WILL REAPPEAR ON THE DISPLAY (PHOTO 16).

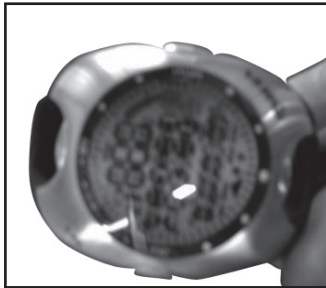


PHOTO 14

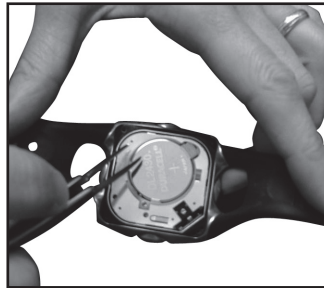


PHOTO 15

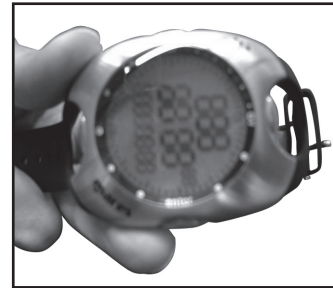





PHOTO 16

12)   CLEAN BOTH O-RING HOUSINGS ON THE CASE AND COVER USING THE SOFT CLOTH.

! ATTENTION!

IT IS ESSENTIAL THAT THE SURFACES BE VERY CLEAN. BE CAREFUL NOT TO LEAVE RESIDUES SUCH AS FIBERS OR DUST ON EITHER O-RING SEAT. DO NOT USE AN EXCESSIVE QUANTITY OF SILICONE ON THE O-RINGS!

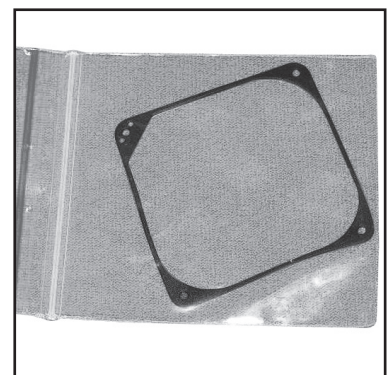
13)  REPLACE THE O-RING WITH A NEW ONE:

NEMO O-RINGS KIT 44200495
NEMO EXCEL O-RINGS KIT 44200691
NEMO APNEIST O-RINGS KIT 44200691

FIG.17


! ATTENTION!

CAUTION: THE O-RINGS FOR NEMO AND NEMO EXCEL ARE DIFFERENT.



PHOTO



17

- 14)  LUBRICATE BOTH SIDES OF THE O-RING WITH THE SILICONE SPRAY.



ATTENTION!

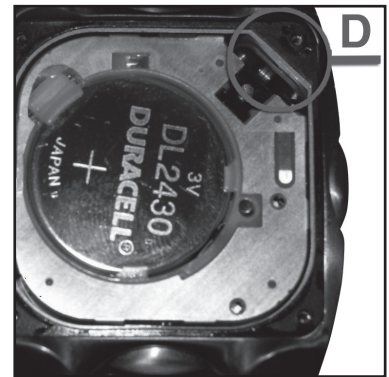
DO NOT USE AN EXCESSIVE QUANTITY OF SILICONE ON THE O-RINGS!

- 15)   PLACE THE O-RING IN ITS SEAT ON THE CASE, (PHOTO 18) USING THE 3 HOLES LOCATED NEAR THE SENSOR (D) FOR REFERENCE.




ATTENTION!

MAKE SURE THAT THE INNER PROFILE OF THE O-RING IS PLACED FULLY IN ITS HOUSING.



PHOTO

18


- 16)  REPLACE THE COVER, MATCHING UP THE SENSOR CIRCULATION HOLES (PHOTO 19 - D) AND PRESS GENTLY ON THE COVER WITH YOUR FINGERS TO SETTLE THE O-RING IN PLACE.



PHOTO

19

- 17)  ARRANGE THE SCREWS IN THEIR SEATS, BEING CAREFUL NOT TO LIFT UP THE COVER.

- 18)  LOCK DOWN THE SCREWS IN TURN, FOLLOWING THE ORDER INDICATED IN THE FIGURE, UNTIL THEIR HEADS ARE UP AGAINST THE COVER (PHOTO 20).



DO NOT FULLY LOCK DOWN ANY ONE SCREW: THE COVER SHOULD NOT BECOME MISALIGNED.




ATTENTION!

DO NOT EXERT FORCE IF A SCREW APPEARS TO STICK. INSTEAD, BACK OFF THE SCREW AND TRY INSERTING IT AGAIN (THE SCREW SHOULD GO IN WITHOUT FORCE).




PHOTO

20

- 19)  ONCE ALL THE SCREWS ARE IN PLACE, FINISH LOCKING THEM DOWN IN THE EXACT ORDER SHOWN IN THE PREVIOUS FIGURE.



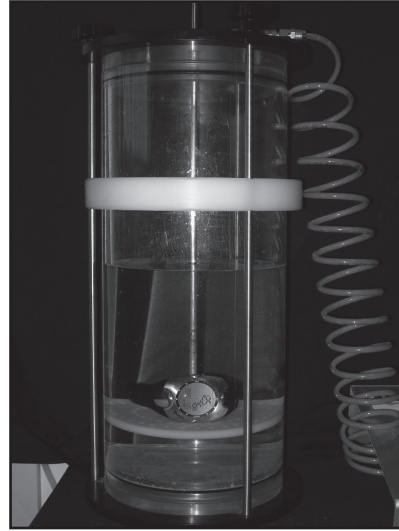
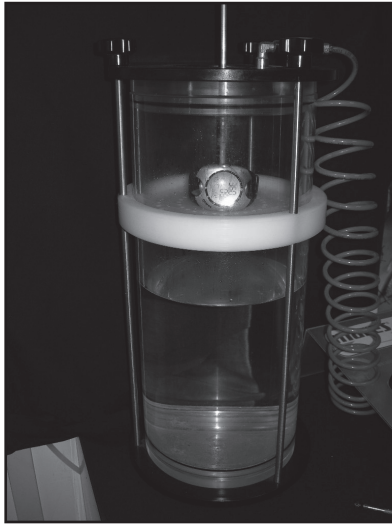
IF YOU HAVE A DYNAMOMETRIC SCREWDRIVER, SET A TIGHTENING TORQUE OF 10 N/cm.

-
- 20)  CAREFULLY CLEAN THE NEMO WITH AN ANTISTATIC CLOTH TO REMOVE ANY STAINS OR FINGERPRINTS FROM THE GLASS AND CASE.



IN SOME CASES, DUE TO A VARIETY OF FACTORS, REPEATING STEP 17 WILL NOT PRODUCE ANY FURTHER TIGHTENING.

IN A TESTING CHAMBER, TEST FOR WATER SEEPAGE AFTER REPLACING THE BATTERY.



BEFORE PERFORMING THE OPERATIONS DESCRIBED BELOW, CAREFULLY READ THE USAGE MANUAL PROVIDED WITH THE TESTING CHAMBER (CODE 414991)



MARES CONDUCTS THE WATER SEEPAGE TEST USING SPECIALLY DEDICATED AND EXTREMELY ADVANCED EQUIPMENT. A METHOD IS DESCRIBED BELOW THAT WILL YIELD SIMILAR RESULTS DESPITE USING A DIFFERENT TOOL.

A)

- 1) PLACE THE NEMO COMPUTER ON THE MOBILE PLATE OF THE TESTING CHAMBER (CODE 414991).
- 2) AFTER CLOSING THE CHAMBER, MAKE SURE THAT THE MOBILE PLATE WITH THE COMPUTER IS NOT IMMERSSED IN WATER.
- 3) USING THE CONTROL DEVICE, BRING THE PRESSURE VALUE INSIDE THE CHAMBER TO APPROXIMATELY 4 BAR FOR AT LEAST FIVE MINUTES.
- 4) THEN, USING THE SHAFT CONNECTED TO THE MOBILE PLATE, IMMERSSE THE NEMO COMPUTER IN WATER, AND AT THE SAME TIME RELEASE ALL PRESSURE FROM INSIDE THE CHAMBER.



ATTENTION!

IF ANY WATER LEAKS ARE FOUND (AS EVIDENCED BY A CONTINUOUS STREAM OF BUBBLES), IMMEDIATELY REMOVE THE COMPUTER FROM THE TESTING CHAMBER AND DISASSEMBLE IT TO IDENTIFY THE CAUSE AND MAKE ANY REPAIRS NECESSARY. ANY TIME THE COVER OF THE NEMO COMPUTER BATTERY COMPARTMENT IS REMOVED, IT IS RECOMMENDED THAT YOU PERFORM THE SEAL TEST DESCRIBED IN SECTION A.

- 5) IF NO LEAKS ARE FOUND AFTER STEP 4, BRING THE PRESSURE VALUE TO 1 BAR AND HOLD IT THERE FOR 5 MINUTES.
- 6) THEN, INCREASE THE PRESSURE TO A VALUE BETWEEN 3 AND 4 BAR, AND HOLD IT THERE FOR 2 MINUTES.
- 7) FULLY RELEASE THE PRESSURE INSIDE THE TESTING CHAMBER, AND PROCEED WITH STEP "B".

B)

- 1) REMOVE THE NEMO FROM THE TESTING CHAMBER and place it under a lamp (max 50 W att) at a distance of approximately 30 cm.
- 2) WHEN THE TEMPERATURE ON THE NEMO DISPLAY REACHES 50 °C (122 °F) CHECK FOR POSSIBLE CONDENSATION FORMED ON THE GLASS.



ATTENTION!

THE FORMATION OF LIGHT CONDENSATION, INDICATED BY A SLIGHTLY OPAQUE QUALITY TO THE GLASS, INDICATES MINIMAL WATER SEEPAGE. NEMO MUST BE OPENED AGAIN AS DESCRIBED ABOVE, REMOVING THE BATTERY AND O-RING, AND THEN PLACED BACK UNDER THE LAMP TO ALLOW IT TO DRY. REPEAT STEP "A" TO CLOSE THE COMPUTER AND TEST FOR LEAKAGE.



ATTENTION!

IF THE GLASS IS VERY OPAQUE, THERE HAS BEEN SIGNIFICANT WATER SEEPAGE. IN THIS CASE THE NEMO MUST BE SENT TO MARES.

SUBJECT:
NEMO EXCEL GASKET

ITM17



ATTENTION!

WHEN REPLACING THE NEMO EXCEL BATTERY (414157), MARES S.p.A. RECOMMENDS USING SOLELY AND EXCLUSIVELY GASKET WITH CODE 44200691.
TO REPLACE THE BATTERY IN THE NEMO EXCEL, PROCEED AS INDICATED IN THE INSTRUCTIONS PROVIDED IN THE TECHNICAL INFORMATION 16 (ITM 16), SENT PREVIOUSLY.

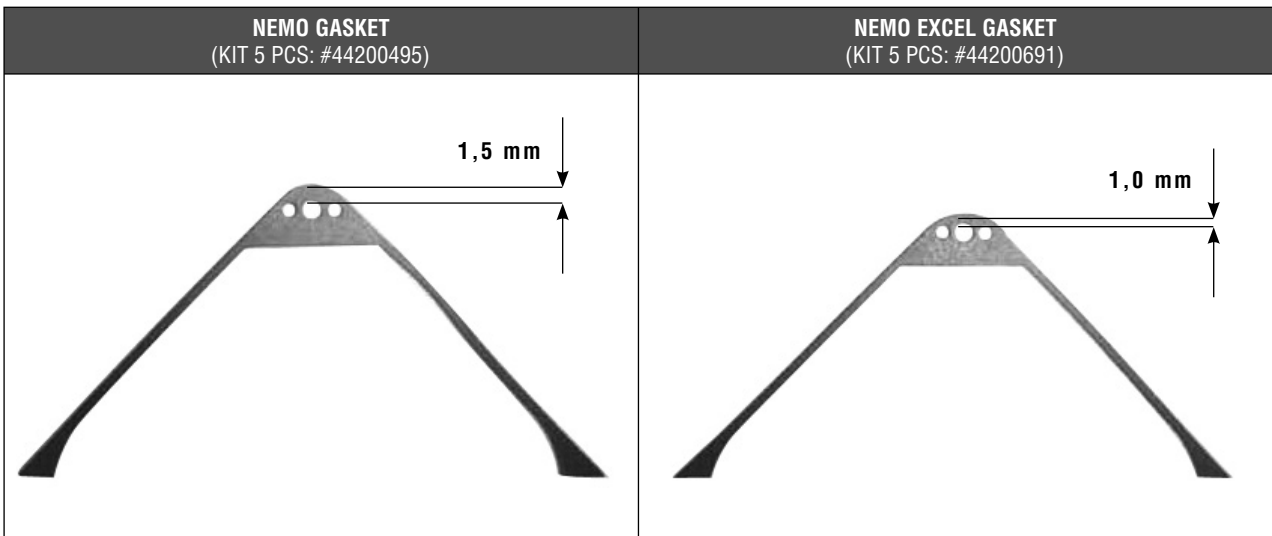


ATTENTION!

MARES S.p.A. RECOMMENDS THAT YOU DO NOT USE THE GASKET WITH CODE 44200495, USED IN PREVIOUS NEMO STAINLESS STEEL (414150) AND NEMO TITANIUM (414151) VERSIONS AND IN VERSIONS OF NEMO EXCEL (414157), BECAUSE THE SEAL PROFILE OF THE GASKET IS DIFFERENT AND WILL THUS CAUSE LEAKAGE OF WATER.



THE BATTERY MUST BE REPLACED BY AN AUTHORIZED MARES SERVICE CENTER, AND CONSEQUENTLY THE INFORMATION BELOW IS INTENDED EXCLUSIVELY FOR THE SERVICE TECHNICIANS.



OBJECT:
NEMO SPORT BATTERY REPLACEMENT MANUAL

ITM18

IMPORTANT INFORMATIONS

POSSESSION OF THIS MANUAL DOES NOT CONSTITUTE AN IMPLICIT AUTHORIZATION FROM MARES S.P.A. FOR SERVICING ITS PRODUCTS. MAINTENANCE AND REPAIR OPERATIONS MAY BE CONDUCTED ONLY AND EXCLUSIVELY BY AUTHORIZED TECHNICIANS AT MARES AUTHORIZED SERVICE CENTRES. ANY PERSON ATTEMPTING TO SERVICE THE EQUIPMENT AUTOMATICALLY TAKES ON FULL RESPONSIBILITY FOR ANY DAMAGES OR HAZARDS WHICH MAY RESULT FROM MAINTENANCE OPERATIONS THAT ARE PERFORMED INCORRECTLY.

SHOULD ANY WARNINGS OR INFORMATION CONTAINED IN THIS MANUAL BE UNCLEAR OR NOT FULLY UNDERSTOOD, PLEASE CONTACT MARES S.P.A. BEFORE PERFORMING ANY REPAIRS.

CAREFULLY READ ALL PARTS OF THIS MANUAL BEFORE ATTEMPTING TO PERFORM ANY REPAIRS ON DIVING EQUIPMENT.

THE MAINTENANCE MANUAL IS OF OWNERSHIP OF MARES S.P.A. THAT IT RESERVES TO BRING CHANGES.

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EVERY USE NOT AUTHORIZED WILL BE PURSUED TO NORM OF LA W

SPARE PARTS FOR NEMO SPORT

MARES CODE	DESCRIPTION
44200608	STRAP KIT NEMO SPORT
44200609	BATTERY COVER SCREWS KIT NEMO SPORT (4 PZ)
44200610	BATTERY NEMO SPORT (2032 - 3V) + GASKET
44200611 STRAP	EXTENSION

1. SCOPE

THIS IS THE REFERENCE MANUAL FOR REPLACING THE BATTERY OF THE NEMO SPORT DIVE COMPUTER, AND IT MAY BE REFERRED FOR MAKING PRODUCT MANUALS.

BE SURE TO READ THIS MANUAL CAREFULLY BEFORE REPLACING THE DIVE COMPUTER'S BATTERIES.

THE MANUAL IS OF OWNERSHIP OF MARES S.P.A. THAT IT RESERVES HIM TO BRING CHANGES. ALL THE RESERVED RIGHTS. THE TOTAL OR PARTIAL REPRODUCTION OF THIS PUBLICATION IS FORBIDDEN, ON ANY SUPPORT, WITHOUT EXPLICIT AUTHORIZATION WRITTEN OF THE MARES S.P.A. THAT IT HOLDS TO FULL TITLE OF IT ALL THE RIGHTS. EVERY USE NOT AUTHORIZED WILL BE PURSUED TO NORM OF LA W 2

2. SETUP AND ENVIRONMENTAL FACTORS

2-1. JIGS AND TOOLS REQUIRING FOR SETUP

- A. CROSS-TIP SCREWDRIVER (I.E. TYPE USAG 342 - PH0)
- B. TWEEZERS
- C. TESTER (VOLTAGE)
- D. SILICON OIL (500,000 CS).

- E. CHAMOIS CLOTH
- F. NYLON CLOTH
- G. BRUSH (TOOTHBRUSH)
- I. PRESSURE CHAMBER TEST (A KIND OF PRESSURE TANK, MUST WITHSTAND 10 X ATMOSPHERIC PRESSURE) – (MARES PRODUCT CODE: 414991)
- J. LAMP WITH 50W BULB OR OVEN (MUST HOLD THE TEMPERATURE ON 50°C)
- K. WORK GLOVES (RUBBER) OR FINGERSTALLS
- L. FITTING AND REMOVING TOOL FOR SPRING BARS (I.E: BERGEON N° 6767-F) OR A FLAT-TIP SCREWDRIVER (1,4 MM CUT PROFILE, I.E: USAG 342 - 140)

2-2. ENVIRONMENTAL FACTORS

REPLACE BATTERIES IN AN ENVIRONMENT THAT HAS SUITABLE TEMPERATURE AND HUMIDITY CONDITIONS AND IS RELATIVELY FREE OF DIRT AND DUST.

2-3. BATTERIES

USE CR2032 LITHIUM BATTERY (MARES SPARE PART CODE: 44200610)

3. DISASSEMBLY AND ASSEMBLY

3-1. DISASSEMBLY AND ASSEMBLY STEPS

- DISASSEMBLY STEPS: FROM 1 TO 6
- ASSEMBLY STEPS: FROM 7 TO 12

- 1 REMOVE STRAP AND SPRING BAR
- 2 LOOSEN CASE BACK FIXING SCREWS
- 3 REMOVE CASE BACK
- 4 REMOVE CASE BACK GASKET
- 5 UNHOOK BATTERY CLAMP
- 6 REMOVE BATTERY
- 7 INSERT NEW BATTERY
- 8 HOOK BATTERY CLAMP
- 9 INSERT CASE BACK GASKET
- 10 RE-ASSEMBLE CASE BACK
- 11 FASTEN CASE BACK FIXING SCREWS
- 12 SET STRAP AND SPRING BAR

4. CAUTION POINTS FOR DISASSEMBLY AND ASSEMBLY

- BEFORE LOOSENING THE CASE BACK FIXING SCREWS, USE A BRUSH (SUCH AS A SOFT TOOTHBRUSH) TO CLEAN ON AND AROUND THE CASE BACK SO THAT DUST AND/OR DIRT DOES NOT ENTER THE MODULE.
- PUT ON A PAIR OF WORK GLOVES OR FINGERSTALLS TO PREVENT CONTAMINATION OF THE CASE BACK OR MODULE (BY FINGERPRINTS, SKIN FRAGMENTS, DIRT, ETC.).

4-1. STRAP AND SPRING BAR

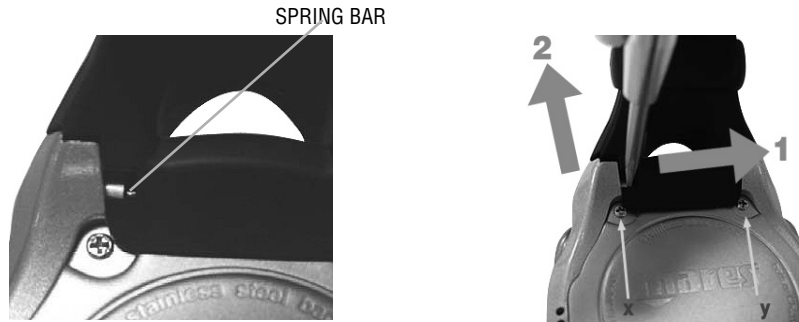
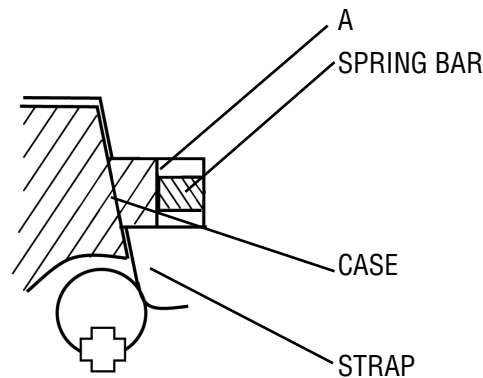


FIG.-1 REMOVE STRAP FROM CASE

- SELECT A STRAP WHICHEVER SIDE (WITH BUCKLE SIDE OR W/O BUCKLE SIDE) YOU FEEL EASIER. SELECTION OF THE ONE SIDE STRAP IS ENOUGH TO REMOVE THE CASE BACK.
- INSERT A FITTING AND REMOVING TOOL FOR SPRING BARS (I.E: BERGEON N° 6767-F) OR A THIN FLAT SCREWDRIVER(1,4MM CUT PROFILE, I.E: USAG 342 - 140) FOR SPRING BARS INTO GAP BETWEEN CASE AND STRAP, SHOWN BELOW DRAWING A.
- PUSH DOWN THE TOOL TO FIT BETWEEN CASE AND SPRING BAR GAP IN.



- FOR REMOVING SPRING-BAR, SLIDE PARALLEL DIRECTION OF THE SPRING BAR ACCORDING TO SHOWN ARROW 1 FIRSTLY THEN SLIDE OUT THE CORNER X (X: STRAP HAS NOTCH FOR SPRING BAR OPERATION) SECONDLY ACCORDING TO ARROW 2 WITH KEEPING THE WORK OF ARROW 1, SHOWN FIG.-1.
- NEED A CERTAIN FORCE TO THOSE WORKS
- FOR SET THE STRAP, REVERSE WORK OF THE REMOVING SPRING BAR PROCESS ARE REQUIRED.
- TO MAKE THE SET EASIER, FIRSTLY SET THE OPPOSITE CORNER OF THE STRAP Y (Y : STRAP HASN'T NOTCH) FIT TO THE CASE FIRMLY WITH SPRING BAR, THEN SET THE CORNER X (X: STRAP HAS NOTCH FOR SPRING BAR OPERATION) OF THE STRAP.
WHEN SET THE CORNER OF THE STRAP X, THE OPPOSITE CORNER OF THE STRAP Y SHOULD BE HELD TIGHTLY NOT TO COME OFF.



IN ORDER TO MAKE SURE THE SET, IT IS RECOMMENDED TO PUSH THE STRAP X AND Y CORNER INTO THE CASE. WHEN SET IS PROPERLY, A SNAP SOUND MAY HEAR. FOR A CONFIRMATION OF PROPER SET OF THE STRAP, PULL THE PAIR OF THE STRAP IF THEY COME THE CASE OFF..

4-2. CASE BACK FIXING SCREWS

- FOLLOW THE STEPS SHOWN FIG.-2 WHEN LOOSENING THE SCREWS 1 TO 4.

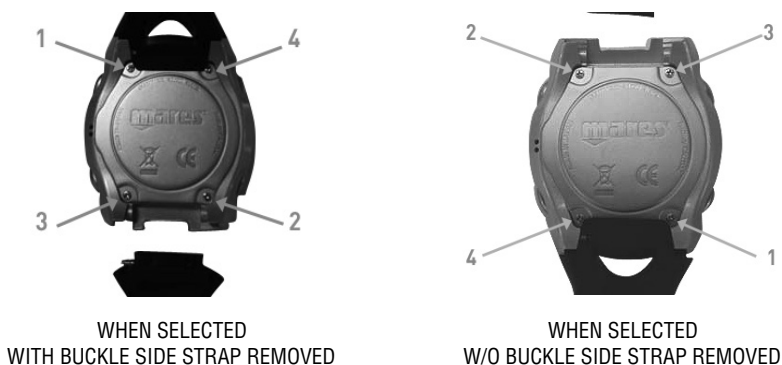


FIG.-2 LOOSEN AND FASTEN CASE BACK SCREW

- WHEN TIGHTENING THE SCREWS, TURN EACH SCREW ONCE IN THE ORDER 1 TO 4 SHOWN ABOVE, THEN TURN THEM AGAIN IN THE REVERSE ORDER 4 TO 1.
- BE SURE THE DIRECTION OF THE CASE BACK AND CASE BACK GASKET .
- FASTEN SCREWS WITH THE TORQUE VALUE AROUND 1 KG*CM.
- EXCESSIVE FASTENING TORQUE MAY DAMAGE THE SCREW HEAD, CASE AND/OR CAUSE THE SCREW HEAD TO DAMAGE THE CASE BACK.

4-3. CASE BACK

- AFTER REMOVING THE CASE BACK, USE A NYLON CLOTH TO REMOVE ANY DUST AND/OR DIR T FROM THE CASE BACK GASKET’S CONTACT AREA. DO NOT USE A FUZZY CLOTH THAT EASILY BECOMES DIRTY AND/OR FUZZY.
- AS THE ALARM FUNCTION A PIEZOCERAMIC ELEMENT IS USED. IT IS A TTACHED TO THE INSIDE OF THE CASE BACK. WHEN HANDLING THE DIVE COMPUTER, BE CAREFUL TO PROTECT THIS PIEZOCERAMIC ELEMENT DAMAGE OR DIRT (SUCH AS FINGERPRINTS).
- IF THE PIEZOCERAMIC ELEMENT GETS DIRTY, IT MAY CAUSE ALARM OPERATION FAULTS (THE ALARM BUZZER MAY NOT SOUND).

4-4. CASE BACK GASKET

- BE CAREFUL TO AVOID DAMAGING OR CHIPPING THE CASE BACK GASKET (HEAR AFTER GASKET). IF THE GASKET APPEARS WORN, INFLEXIBLE, OR OTHERWISE DAMAGED, REPLACE IT WITH A NEW ONE.
- WE RECOMMEND TO CHANGE A GASKET AT THIS TIME.



GASKET IS CUT



GASKET IS WORN

- APPLY A COAT OF SILICON OIL TO THE GASKET BEFORE INSERTING IT.
- BE CAREFUL NOT TO LET ANY DUST, DIRT OR OTHER CONTAMINANTS ADHERE TO THE SILICON OIL-DIPPED THE GASKET.

4-5. BATTERY CLAMP

- INSERT THE TWEEZERS INTO THE BATTERY CLAMP SHOWN FIG.-3, AND UNHOOK THE BATTERY CLAMP (THE DIRECTION OF THE ARROW).



WHEN UNHOOKING OR HOOKING THE BATTERY CLAMP, BE CAREFUL NOT TO TOUCH THE ELECTRONIC COMPONENTS. TOUCHING THESE COMPONENTS MAY AFFECT THE ACCURACY OF MEASUREMENT SUCH AS WATER DEPTH AND ALTITUDE, OTHERWISE IMPROPER OPERATION.



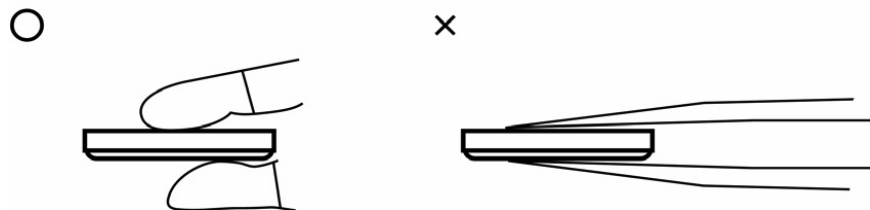
FIG.-3 UNHOOKING BATTERY CLAMP

4-6. BATTERY

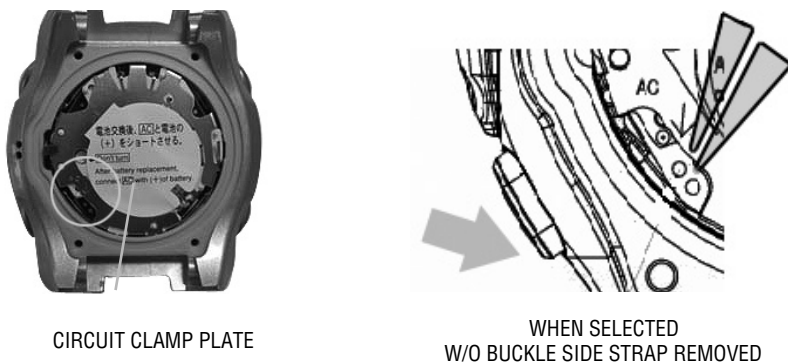
- BE CAREFUL NOT TO CUT YOUR FINGERS ON THE BATTERY CLAMP PLATE.
- IMMEDIATELY AFTER REMOVING THE BATTERY, APPLY A PIECE OF TAPE TO IT OR MARK IT WITH A PERMANENT MARKER TO DISTINGUISH IT FROM NEW BATTERIES.
- BEFORE INSERTING A NEW BATTERY, USE A TESTER TO CONFIRM THE BATTERY'S VOLTAGE AS 3.0V OR MORE.

WEAR WORK GLOVES OR FINGERSTALLS WHEN HANDLING THE BATTERY, AS SHOWN BELOW. IF USING TWEEZERS, BE CAREFUL TO AVOID SHORT-CIRCUITING THE BATTERY. A SHORT-CIRCUITED BATTERY HAS A GREATLY REDUCED POWER CAPACITY.

HOW TO HANDLE THE BATTERY



- AFTER INSERTING THE NEW BATTERY, CONNECT AC TERMINAL SPOT ON THE CIRCUIT BOARD AND PLUS OF THE BATTERY (CIRCUIT CLAMP PLATE) BY TWEEZERS. OR SHORT THE TWO SPOTS AT THE CIRCUIT BOARD'S RESET TERMINAL SHOWN FIG.-4. THESE OF EACH RESET THE SYSTEM.



CIRCUIT CLAMP PLATE

WHEN SELECTED
W/O BUCKLE SIDE STRAP REMOVED

FIG.- 4 HOW TO RESET THE SYSTEM

- WHEN THE SYSTEM IS CORRECTLY RESET, THE DISPLAY GOES BLANK FOR A MOMENT THEN REAPPEARS AS SHOWN FIG.-5.



FIG.- 5 DISPLAY AFTER THE SYSTEM RESET

- IF THE SYSTEM HAS NOT BEEN RESET THE DIVE COMPUTER MAY NOT FUNCTION CORRECTLY, SO BE SURE TO RESET IT AND THEN CONFIRM CORRECT OPERATION OF FUNCTIONS.



AFTER THE UNIT HAS BEEN RESET CORRECTLY, MEASUREMENT SYSTEM ENTERED "M" (IT IS DEFAULT STATE). AT THE PLAN MODE, PUSH THE LOCK BUTTON FOR 15 SECONDS, SO THAT THE ALARM SOUNDS ONE TIME, AND THE MEASUREMENT SYSTEM CHANGES TO "FT".

5. CHECKS TO BE PERFORMED AFTER REPLACING THE BATTERY

BE SURE TO PERFORM THE FOLLOWING CHECKS FOR AFTER THE REP AIR.

PRESSURE CHAMBER TEST



BEFORE PERFORMING THE OPERATIONS FOLLOWING DESCRIBED ATTENTIVELY READ THE MANUAL OF USE SUPPLIED WITH THE PRESSURE CHAMBER (COD. 414991)



MARES REALIZES THE TEST OF VERIFICATION OF INFILTRATION OF WATER WITH EQUIPMENTS DEVOTED AND EXTREMELY ADVANCES. IN SUCCESSION IT IS DESCRIBED A METHOD THAT GIVES ANALOGOUS RESULTS DESPITE THE USE OF DIFFERENT INSTRUMENTATION



FIG. 6A

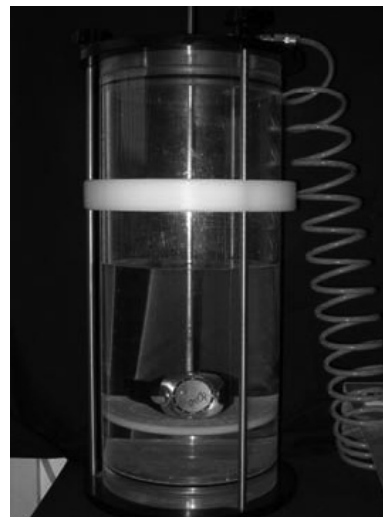


FIG. 6B

5-1. CLOCK SETTING

USE THE LOCK, SELECT AND SET BUTTONS TO SET THE CORRECT TIME AND DATE.



THESE BUTTONS MAY NOT OPERATE CORRECTLY IF THE MODULE WAS NOT SECURELY SET BEFORE FASTENING THE CASE BACK.

5-2. CHECK WATERPROOFING (FIG. 6A - 6B)

- PLACE THE COMPLETE UNIT INTO THE PRESSURE CHAMBER TEST, THEN INCREASE THE PRESSURE TO 6 ATMOSPHERES (PER 60 METERS) AND LEAVE IT IN THE TESTER FOR 10 TO 20 MINUTES.
- REMOVE THE UNIT FROM THE TESTER AND WIPE THE UNIT, THEN PUT UNDER THE 50W LAMP AT 30CM AT 50° C ABOUT 30 MINUTES



IN ORDER TO CHECK THE TEMPERATURE, MARES RECOMMEND TO USE, CLOSE TO NEMO SPORT, A THERMOMETER OR A NEMO DIVE COMPUTER WITH THE DISPLAY SET WITH PERMANENT TEMPERATURE.

- TAKE OUT THE UNIT AND PLACE A DROP OF WATER (20 TO 25°C) ON THE GLASS OF THE UNIT.
- AFTER ABOUT 1 MINUTE, WIPE THE GLASS WITH A DRY CLOTH THEN CHECK FOR CONDENSATION ON THE GLASS'S INNER SURFACE. IF ANY CONDENSATION (CLOUDING, DROPLETS, ETC.) APPEARS, THERE IS A WATERPROOFING PROBLEM.