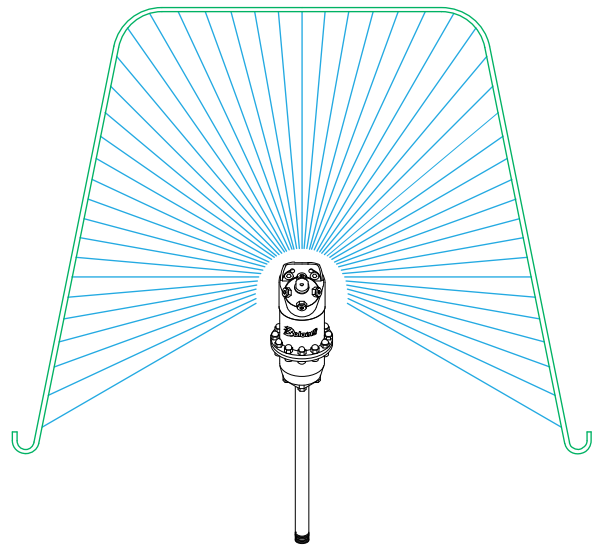
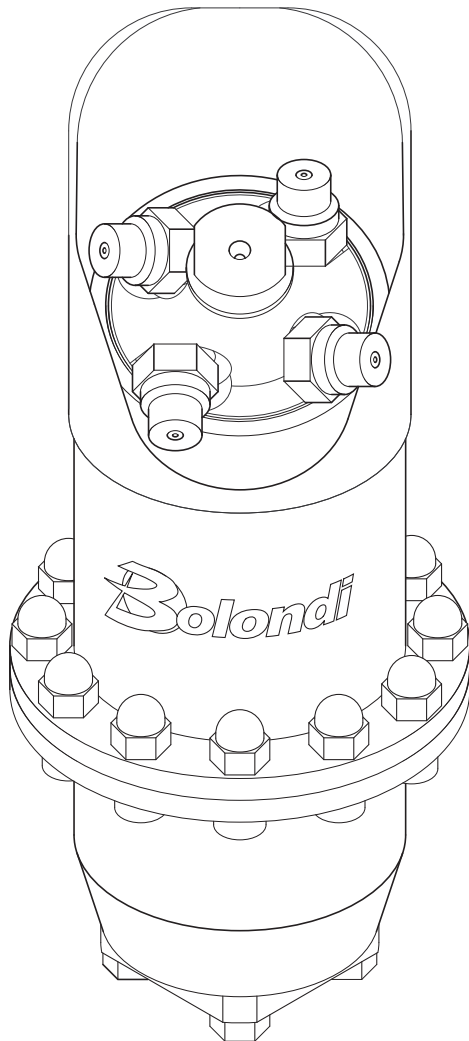


# **Bolondi** Cleaning Heads

CE



## **OPERATING AND MAINTENANCE MANUAL HEADS mod. SW 049.05**

SERIAL N°: XXXXXXXX



**WARNING:** THIS MANUAL IS AN INTEGRAL PART OF THE MACHINE AND MUST BE READ AND KEPT FOR REFERENCE.

**Translation of the original instructions**

SW 049.05-MANUAL Rev.07

# INTRODUCTION

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# DECLARATION OF INCORPORATION OF INCOMPLETE MACHINES

The undersigned Bolondi Ivano in his role of Legal Representative of Officina meccanica Bolondi Ivano and Person authorised to constitute the technical folder, DECLARES under his own responsibility that the material supplied, indicated in this manual and to which this declaration refers, consists of a washing head that complies with:

- The applicable essential safety requirements (1.1.2 – 1.1.3 – 1.1.5 – 1.3.1 – 1.3.2 – 1.3.3 – 1.3.4 – 1.3.9 – 1.5.2 – 1.5.3 – 1.5.4 – 1.5.6 – 1.5.7 – 1.5.8 – 1.5.13 – 1.6 – 1.7) of appendix I of machinery directive 2006/42/EC
- The applicable essential safety requirements of directive 97/23/EC (pressurised equipment classified in art. 3 cat. 3)

It also complies with the following harmonised European standards:

UNI EN 14121:2009 - Risk Assessment Principles

UNI EN ISO 12100:2010 - Safety of machinery - General principles for design.

The undersigned also declares that the incomplete machine cannot be started-up until the machine on which it will be incorporated and of which it will become part has been identified and declared to be compliant with the provisions of directive 2006/42/EC; in other words until the incomplete machine to which this declaration refers has become an integral part of the end machine.

The pertinent technical documents have been drawn-up in compliance with appendix VII B.

We shall forward the information concerning the incomplete machine by fax, e-mail or other means following a reasonable request from National authorities.

(00A-01CE-06-EN)

BOLONDI IVANO

The legal representative  
Ivano Bolondi



Via Volta 4  
42027 Montecchio (R.E.) ITALY  
Tel.+39 522 864434 Fax. +39 522 865780



ROTOJET ...  
MATRIC. - SERIAL N. ...  
ANNO - YEAR ...  
PORTATA - FLOW MAX ... lt/min  
PRESSIONE - PRESSURE MAX ... bar  
TEMP. MAX ... °C

## REFERENCE LEGISLATION

### AIRBORNE NOISE AND VIBRATIONS:

Sound intensity measurements relating to the noise produced by the machine were taken in compliance with DIR. 2006/42/EC.

The acoustic pressure was measured at the workstation, at 1 m from the machine surface and 1.6 m off the ground, in normal machine operating conditions.

Sound intensity measurements gave readings below 70 dB(A).

Measurement of vibrations was not made as these were considered clearly below risk levels.

The intensity of the sound produced by machine operation is normally below sound intensity caused by the impact of washing water against the walls to be washed.

*(00D-010-01-EN)*


## TERMS OF WARRANTY

- 1) The Manufacturer guarantees the rotating head as free of material or construction faults and defects.
- 2) Warranty: 2 years from the date of delivery for EEC countries, 1 year from the date of delivery for non-EEC countries. During this period the Manufacturer undertakes to repair or replace parts that present acknowledged construction defects free of charge excluding transport and labour costs which are entirely at the expense of the purchaser.
- 3) The warranty does not cover: all parts that are subject to wear, parts that have been damaged due to improper use or negligence; these parts are always and entirely at the Customer's expense.
- 4) The validity of the warranty is at the exclusive and unquestionable judgement of the Manufacturer.
- 5) All spare parts replaced under warranty must be returned to the Manufacturer carriage free within 20 days maximum, failure to do so shall cause the warranty to be invalidated.
- 6) The warranty shall become invalid if the head is intentionally tampered with without the written authorisation of the Manufacturer.
- 7) Any disputes shall be assigned to the jurisdiction of the Judicial Authority of the Reggio Emilia Law Court.

# 1) INTRODUCTION

Read this operating and maintenance manually carefully before using the head. Only by following the instructions herein and becoming familiar with the symbols used is it possible to obtain conditions of maximum efficiency and safety. The contents of this manual are in compliance with machine directive 2006/42/EC and subsequent amendments. The Manufacturer reserves the right to make any modifications without notice and without incurring any sanctions on condition that the main technical safety features are not affected. The Manufacturer is not responsible for personal injury or material damage resulting from the non-observance of the indications that accompany the symbol.



The symbol  represents a safety warning. Failure to follow the instructions given can cause serious personal injury.

**N.B.: for accident prevention purposes the equipment must be fitted with suitable devices to prevent automatic re-starting when the equipment is powered after a shut-down. The head must not be used without these devices. The Manufacturer declines all responsibility in the case of improper use of the equipment.**

(01-000-01-EN)

## 2) RECEIVING GOODS

### 2.1) CHECKING

- a) Check on receipt that the goods delivered correspond to those ordered.
- b) Make sure that goods were not damaged during transport.
- c) Any damage found when the goods are received must be documented and the sender informed within 3 days of receipt.
- d) Packaging consists of cardboard boxes which, unless reused for other purposes, should be disposed of according to the regulations in force in the place of use.

(02-001-00-EN)

### 2.2) MARKINGS AND IDENTIFICATION

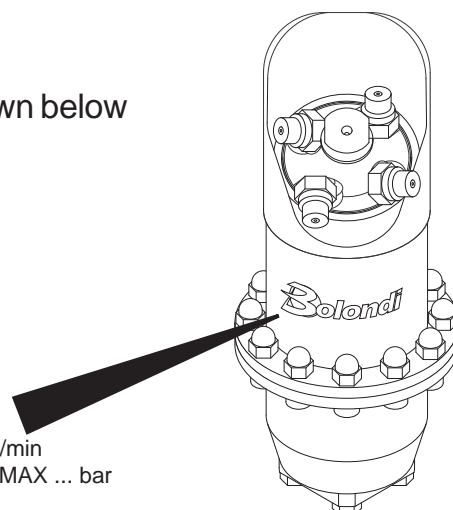
Upon receiving the head, make sure the marking shown below is identical to that stamped on the machine.

(02-002-01-EN)

Via Volta 4  
42027 Montecchio (R.E.) ITALY  
Tel.+39 522 864434 Fax. +39 522 865780



ROTOJET ...  
MATRIC. - SERIAL N. ...  
ANNO - YEAR ...  
PORTATA - FLOW MAX ... lt/min  
PRESSIONE - PRESSURE MAX ... bar  
TEMP. MAX ... °C



SW 049.05-MANUAL Rev.07

## 2.3) DEMOLITION AND DISPOSAL

It is the purchaser's responsibility to follow the correct procedure and comply with the current laws in force in his country as regards to disposing of consumables and materials resulting from demolition.

Please remember that by waste is meant any substance or object under obligation of disposal. According to their origin and pursuant to the above mentioned Decree, waste products are classified as urban or special waste and, depending on their dangerous characteristics, as hazardous or non-hazardous waste.

Waste resulting from the demolition of the machine is classified as special waste.



**WARNING! It is forbidden to mix together different categories of hazardous waste and hazardous waste with non-hazardous waste.**

## INSTRUCTIONS FOR THE MOST APPROPRIATE HANDLING OF WASTE

### **Ferrous materials:**

Ferrous materials are recyclable (secondary raw materials) and must be given to the relevant authorised collection centres.

### **Plastics:**

Recycling Allowed where carried out.

Dispose of in dumps for waste assimilable to urban waste.

Incineration Allowed in plants equipped with post-combustion and a system to eliminate dust before being let into the atmosphere.

*(02-003-01-EN)*

## 3) CONDITIONS AND LIMITS OF USE

**3.1)** Never point the jet of water at people, animals or electrical parts.

**3.2)** Always check that the equipment and the safety features are in good working before using the machine. It is forbidden to use the equipment if it is not in perfect condition.

**3.3) Intended use: the head was designed exclusively for washing closed containers.**


**3.4)** Improper use: any other use that does not comply with the safety standards indicated in this manual is to be considered improper.

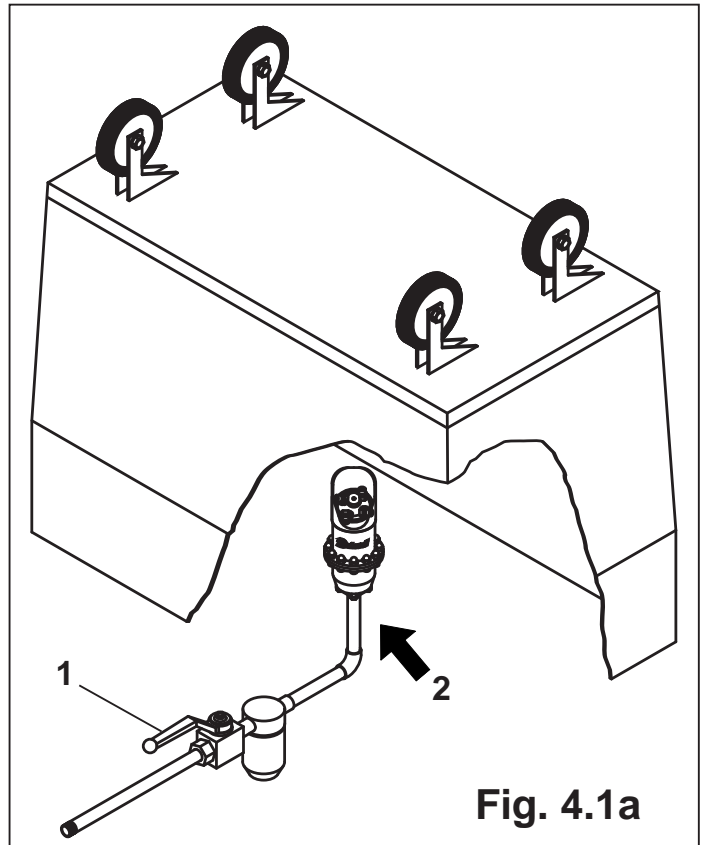
**3.5)** Declaration of the manufacturer: if the head is installed, as a component, on machines or systems, it is forbidden to use it before the latter have been declared to comply with the provisions of the Machine Directive.

*(03-000-00-EN)*



## 4) GENERAL SAFETY STANDARDS

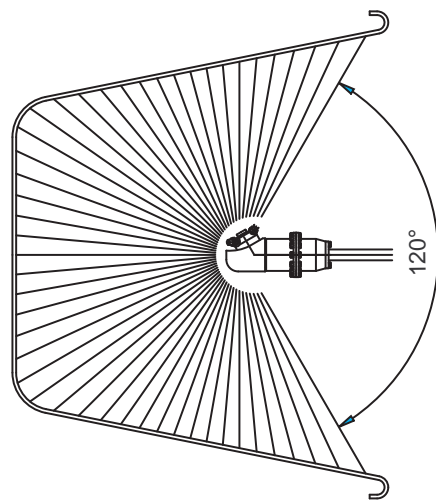
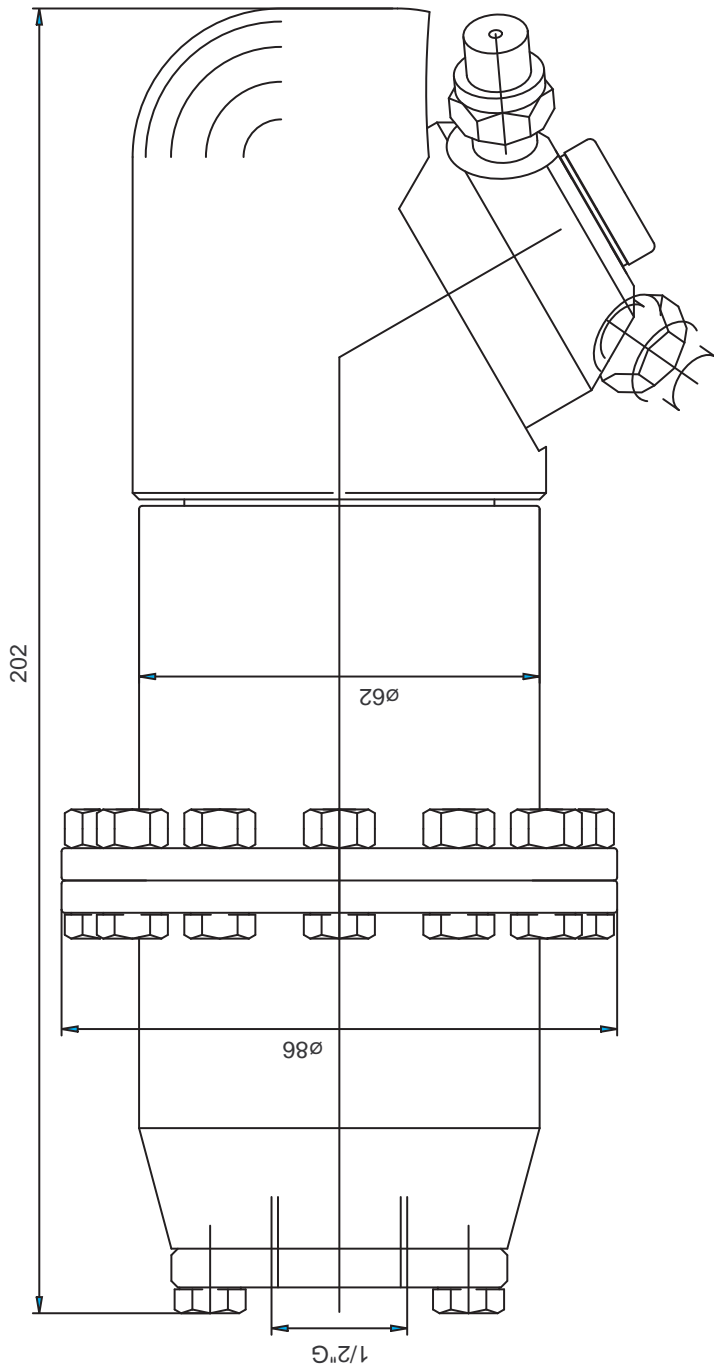
- 4.1) The equipment should be used by the persons assigned, having specific training or having shown the necessary competence, only. It is forbidden for children or adolescents to use the equipment.
- 4.2) Never leave the equipment unattended.
- 4.2.1) Before using, and after each operation, make sure the screws are perfectly tight. **See table B “tightening torques”.**
- 4.3) Make sure that the supply motor pump is fitted with a relief valve and that the valve setting is compatible with the head.
- 4.4) Make sure that the supply pipes and connections are suitable for the working pressures and for the type of fluids used.
- 4.5) Make sure that the quantity and diameter of the nozzles is suitable for the characteristics of the plant (pressure and flow rate of pump).
- 4.6) Install a relief cock (1) that is as near the water inlet (2) as possible when the head is in use but always remains on the outside and is easily accessed by the operator (**Fig. 4.1a**).
- 4.7) The cock should be normally closed and the head should only be started inside the container to be washed and with the container properly closed.
- 4.8) The screw connections of all the flexible connecting pipes must be airtight.
- 4.9) The high pressure flexible pipe must be in perfect condition (danger of bursting). If the high pressure flexible pipe is damaged it must be replaced immediately.
- 4.10) Never inspect the container when the head is working or in the presence of considerable quantities of vapour.
- 4.11) The symbol marked on the head  draws the operator's attention to situations that could compromise human safety.
- 4.12) The general safety and accident prevention regulations laid down by law must be observed as well as the warnings given in the operating instructions.



(04-000-01-EN)

## 5) TECHNICAL SPECIFICATIONS

FLOW	15 - 60 Lt/min
MAX PRESSURE	150 bar
HYDROSTATIC TEST PRESSURE	255 bar
MAX OPERATING TEMPERATURE	90 °C
WATER INLET	1/2"
FILTER	700 MICRON
NUMBER OF NOZZLES	2 - 3 - 4
NOZZLES	1/8" NPT
O.RING	NBR - EPDM - VITON
SEALS	PTFE + CARBON FIBRE
MATERIAL	AISI 316 - ALUMINIUM
MIN.CENTER LINE THROUGH HOLE	88 mm
DIFFUSER	SEE CHART "A"
FULL CYCLE TIME	14 MIN A 100 RPM
WEIGHT	Kg 3,500



RUGOSITA' (UNI 4600)		MODIFICA		1		2		3		4		5	
GREZZO		FOGLIO		XXXX									
= $\nabla$		DATA		XX.XX.XX									
SGROSS.		TOLLERANZE GENERALI classe m UNI-EN 22768/1		0-6		30-120		120-400		400-1000		1000-2000	
= $\nabla$		NOTE: vers.05		+ 0.1		+ 0.2		+ 0.3		+ 0.5		+ 0.8	
FINITURA		MATERIALE: INOX + AL											
= $\nabla$		DESCRIZIONE: SW 049AA											
RETTIFICA		DISEGNO DI INSTALLAZIONE											
= $\nabla$		CODICE: SW 049 A											



CLEANING HEADS  
MONTECCHIO E. (RE) - ITALY

DISEGN.: CR | CONTR.: DM  
DATA: 27.04.12 | MOD.

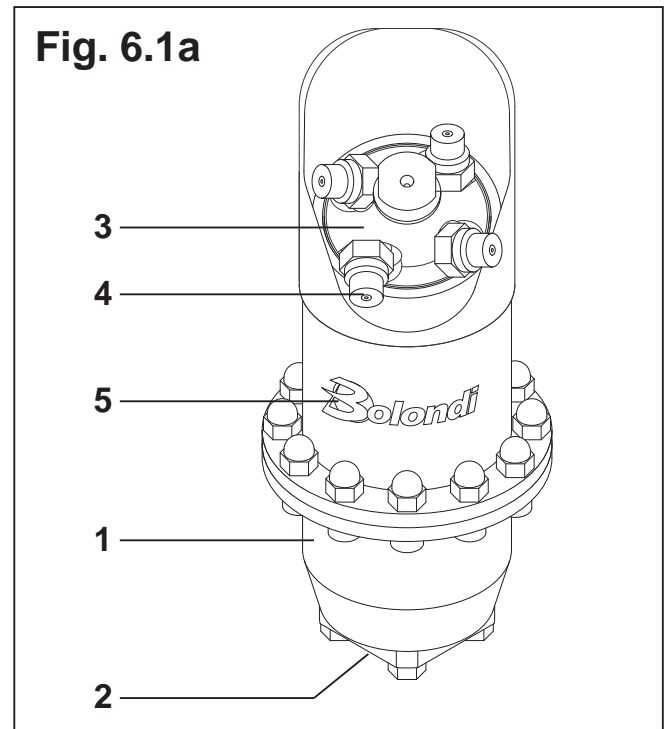
SCALA: 1:1 | A4 | 5

CODICE: SW 049 A

## 6) DIAGRAM OF THE ASSEMBLY

- 1) Main body
- 2) Inlet connection
- 3) Nozzle-holder
- 4) Nozzles
- 5) Identification plate

(06-000-00-EN)



## 7) INSTALLATION AND COMMISSIONING



Before you actually start the system, you are recommended to purge it to eliminate any sludge or impurities. Breakages or problems caused by soiling will not be accepted under warranty.



On the head inlet install a safety valve set at the maximum pressure shown on its mark or at page 8 of this manual.

a) Screw the head (5) directly to the supply system using a ½" end union (1) pre-installed on the delivery hose (2).

b) Filtration: install a 30-mesh filter (3) (0.53 mm).

c) Make sure the head seals and the component materials are compatible with the chemical characteristics of the fluids used.

d) Fit the head so that the "no work" angle in the container is that required.

e) Open the safety tap (4) on the supply line near the inlet.

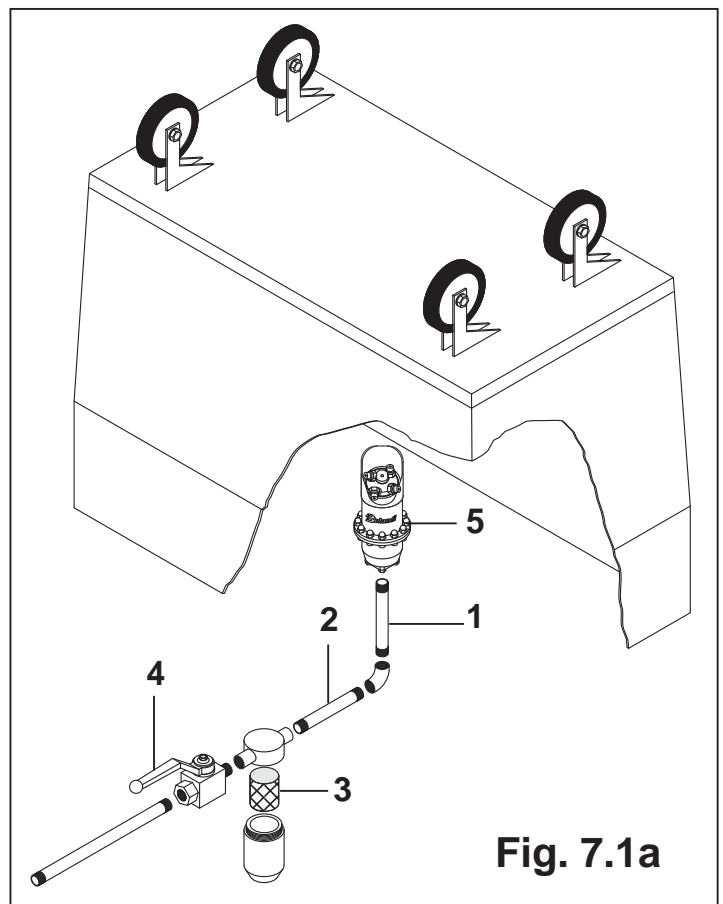


Fig. 7.1a

f) Only at this stage is the head in the best washing position and also has the required safety requirements.

g) Upon completion, shut-off the tap immediately (4).

h) Take the head (5) off the container.

(07-200-00-EN)



## 8) SPINNING SPEED CONTROL

To use the head in the best way according to the flow rate of the pump (10 - 30 l/min.), this must be set as follows. Taking into account that the rotation speed is regulated by the internal diffuser (part pos. 33 of the spare parts exploded drawing).

When selecting the diffuser, **carefully follow** the following table "A".

To replace the internal diffuser, follow the procedure below.

(08-200-00-EN)

		Diffuser
FLOW lt / min	15/18	DF0402
	20	DF0404
	25	DF0403
	30	DF0409
	35	DF0405
	40	DF0406
	45	DF0410
	50	DF0408
	55/60	DF0419

### 8.1) DISASSEMBLING THE DIFFUSER

a) Remove the filter at entry as at chapter 9.4 (fig. 9.4a) at page 19 of the manual.

b) Proceed to remove the diffuser according to the instructions in chapter 9.1 from paragraph (a) to paragraph (e) at pages 12 and 13 of the manual (fig. 9.1a, fig. 9.1b and fig.9.1c).

(08-201-00-EN)

## 8.2) ASSEMBLING THE DIFFUSER

- a) Insert the O-ring **pos. 6** in the seat of the diffuser **pos. 33** and lubricate with KLUBER PARALIQ® GTE 703 type silicon grease.
- b) Fit the diffuser **pos. 33** in the upper body **pos. 1**. This must be selected according to flow rate, as per **table "A"**, of the manual, see **(fig. 8.2a)**.
- c) With the diffuser inserted, position the upper casing on the remaining part of the head, see **(fig. 8.2b)**, and fix it with the twelve bolts **pos. 57** and nuts **pos. 58**.
- d) To tighten, use the torque wrench set as per **table "B"** of the manual, see **(fig. 8.2c)**.
- e) Fit the filter back at entry as per chapter 9.4 **(fig. 9.4a)**.

(08-203-00-EN)

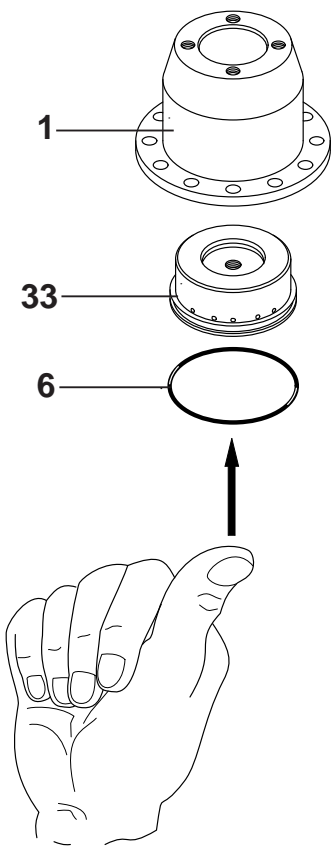


Fig. 8.2a

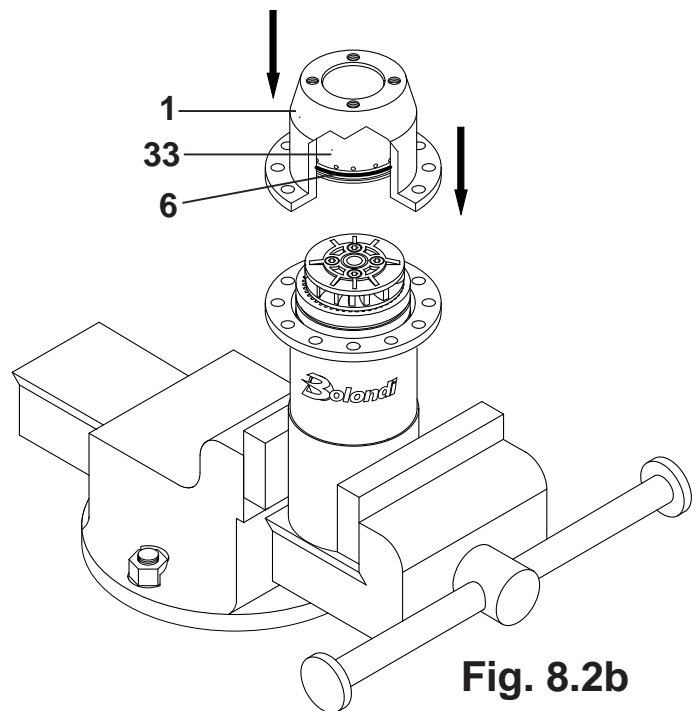


Fig. 8.2b

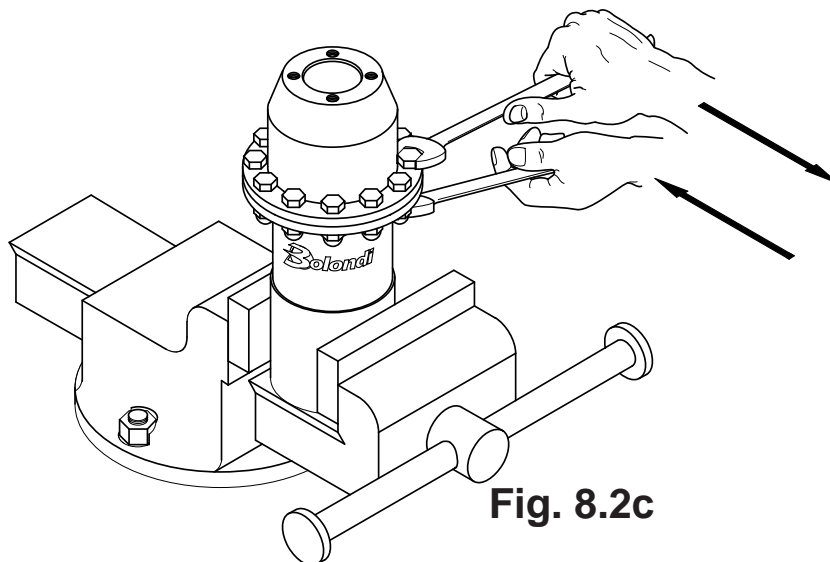


Fig. 8.2c



## 9) MAINTENANCE

(NB. For all the numbers and references written in the chapter refer to the spare parts exploded diagram on page 26)

(NB. For all the tightening jobs with dynamometric spanner refer to the table "B" on page 22)

### 9.1) DISASSEMBLING THE HEAD

9.1.01) After disassembling the filter, as explained in chapter 9.4 (fig. 9.4a), using a 17-mm fixed jaw spanner, unscrew the pin pos.21 (fig. 9.1a) and disassemble the complete pin/ nozzle holder crown unit (A), (fig. 9.1b).

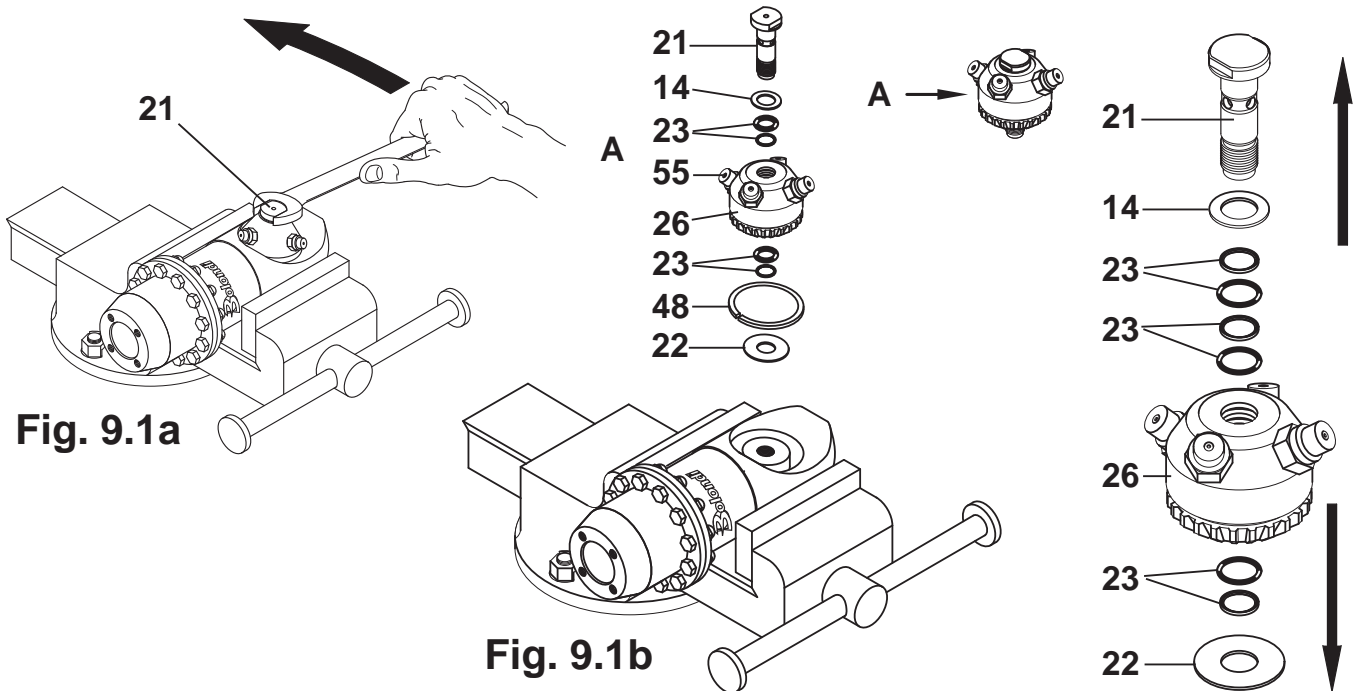
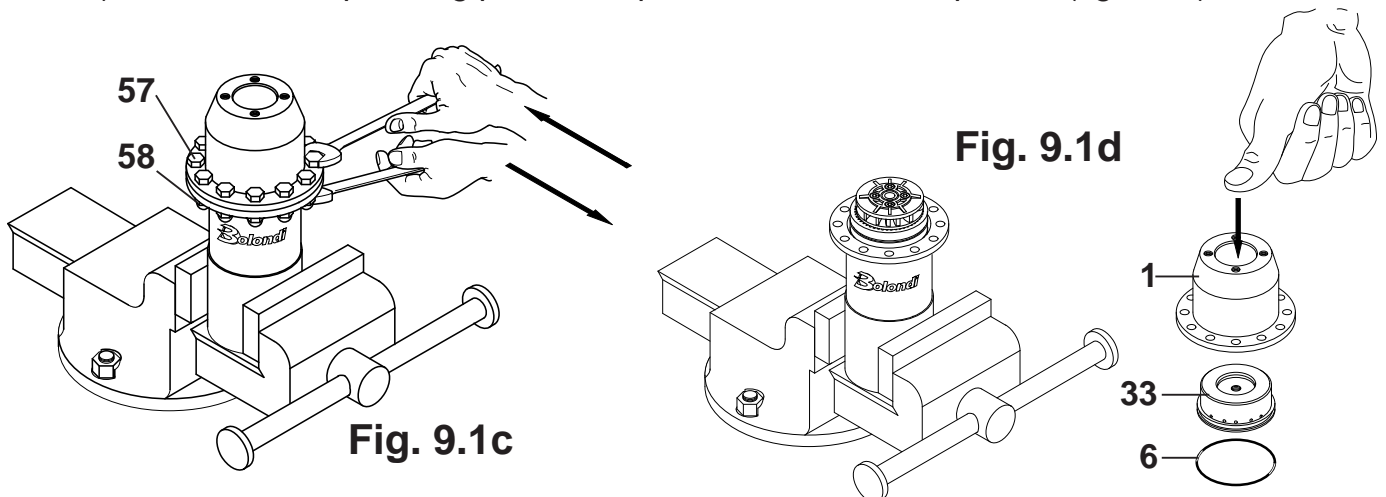


Fig. 9.1a

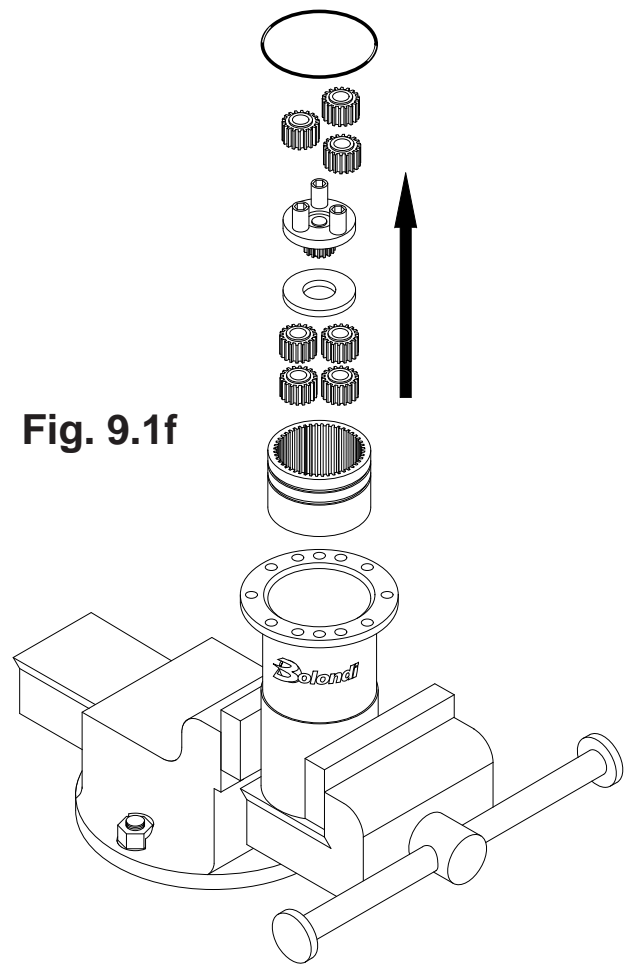
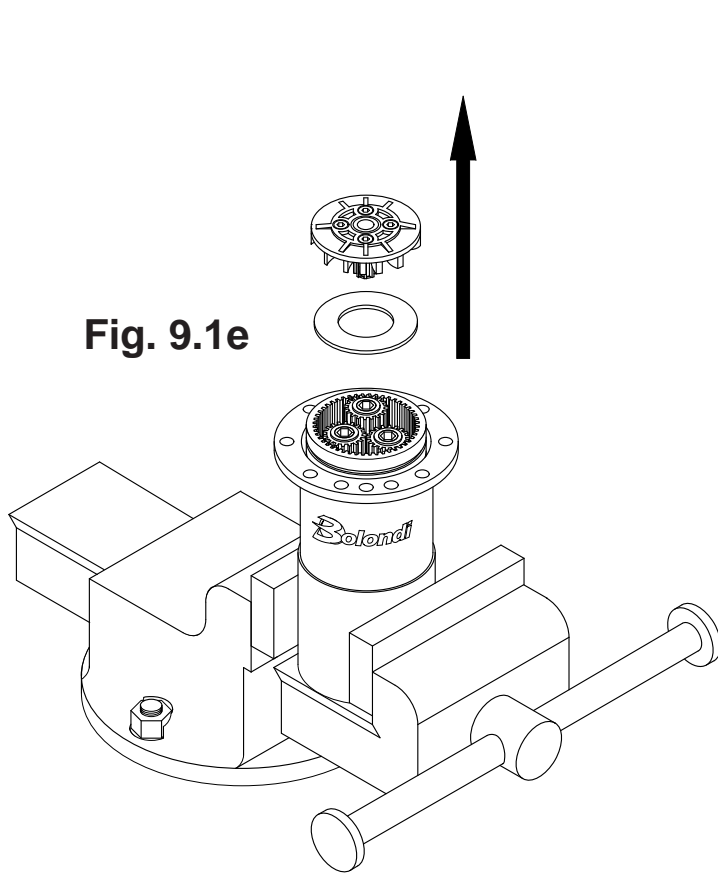
Fig. 9.1b

9.1.02) Clamp the head in the bench vice and using special spanners, unscrew the 12 screws and 12 nuts pos.57 and pos.58 (fig. 9.1c).

9.1.03) Remove the top casing pos.1 and push the diffuser out pos.33 (fig. 9.1d).

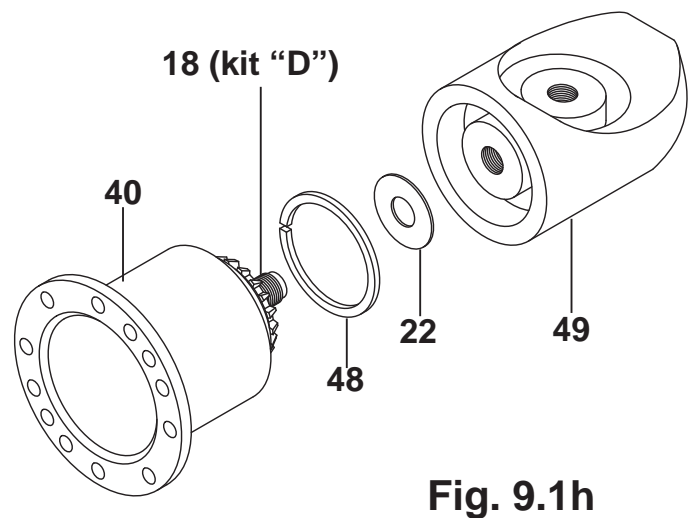
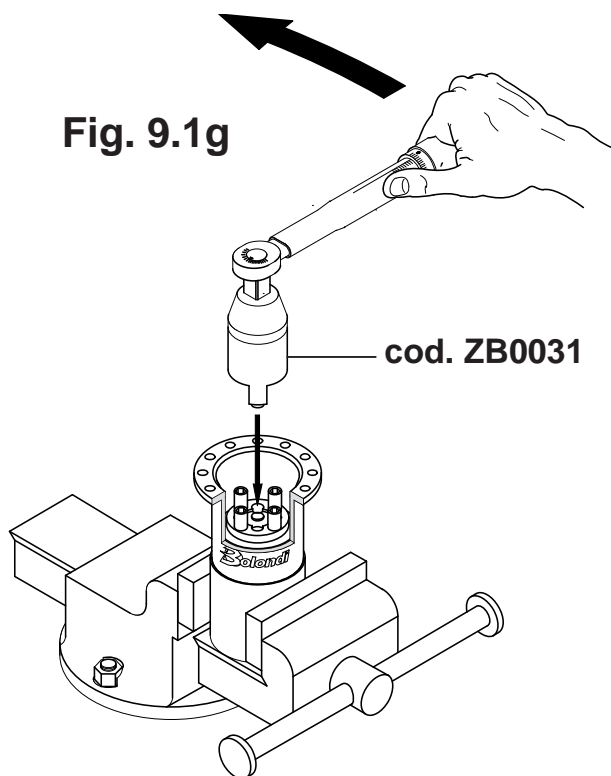


9.1.04) Take all the parts out of the head, see fig. 9.1e – 9.1f.



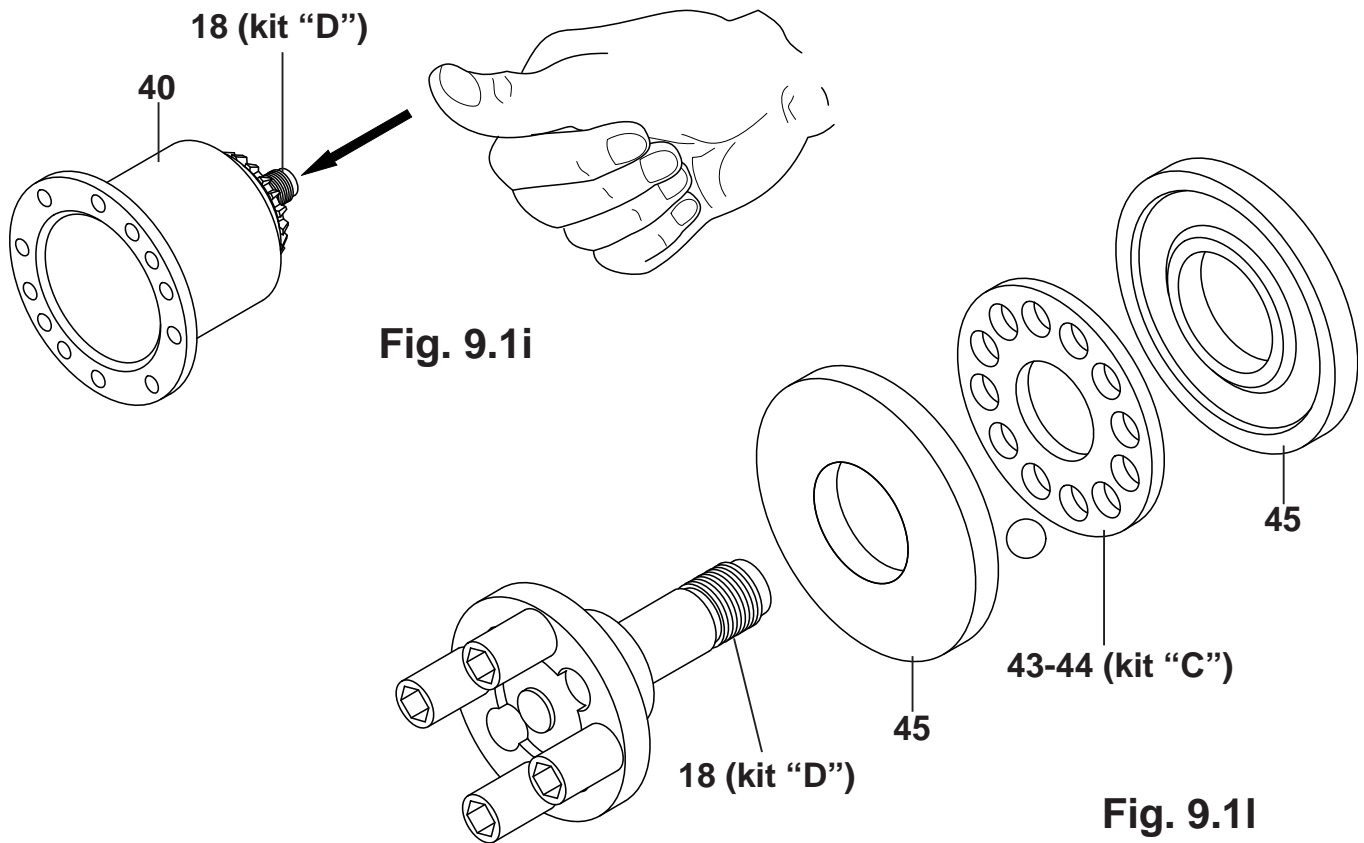
9.1.05) Insert the special tool (code ZB0031) on the central shaft pos.18 (kit "D") and, using a 17-mm fixed jaw spanner unscrew the afore-said part (fig. 9.1g).

9.1.06) Remove the semi-spherical casing pos.49 and the washer pos.22 (fig.9.1h).



9.1.07) Push the shaft pos.18 (kit "D") out of the part pos.40 and also the bearing made up of part pos.45 and parts pos.43 – 44 (kit "C") (fig.9.1i).

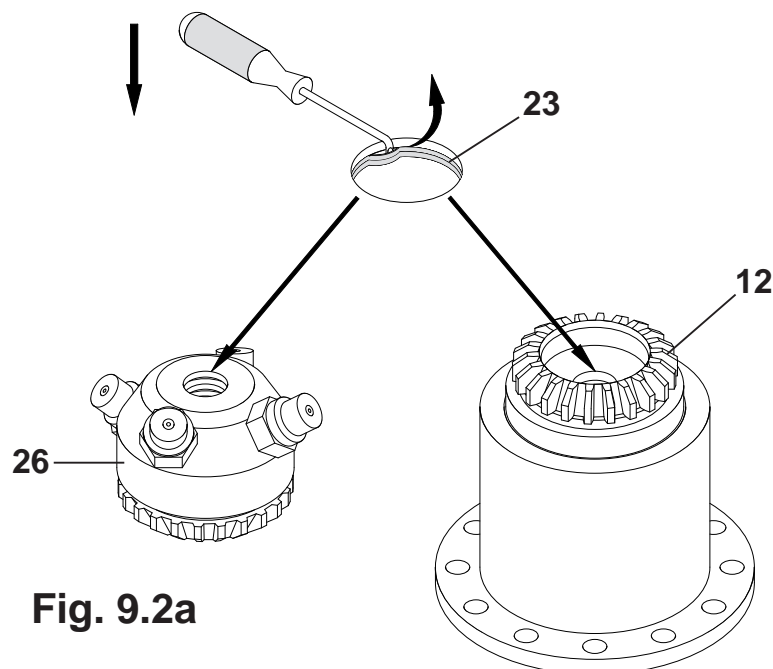
9.1.08) Take the complete bearing out of the shaft pos.18 (kit "D") (fig.9.1l).



## 9.2) REPLACING THE SEAL RINGS

### DISASSEMBLY

9.2.01) Once you have disassembled the nozzle holder crown and the head completely, as explained in chapter 9.1 of the manual, using the special tool, remove the seal rings and the O-rings pos.23 from their seats situated in parts pos.26 and pos.12 (fig.9.2a).



## ASSEMBLY

9.2.02) First fit the O-ring back in its seat and then the seal ring pos.23.

To make it easier to insert the ring, follow the instructions in fig.9.2b, making the O-ring adhere perfectly using a blunt tool.

9.2.03) Make sure everything is fitted correctly in its seat and lubricate with silicone grease type KLUBER PARALIQ ® GTE 703.

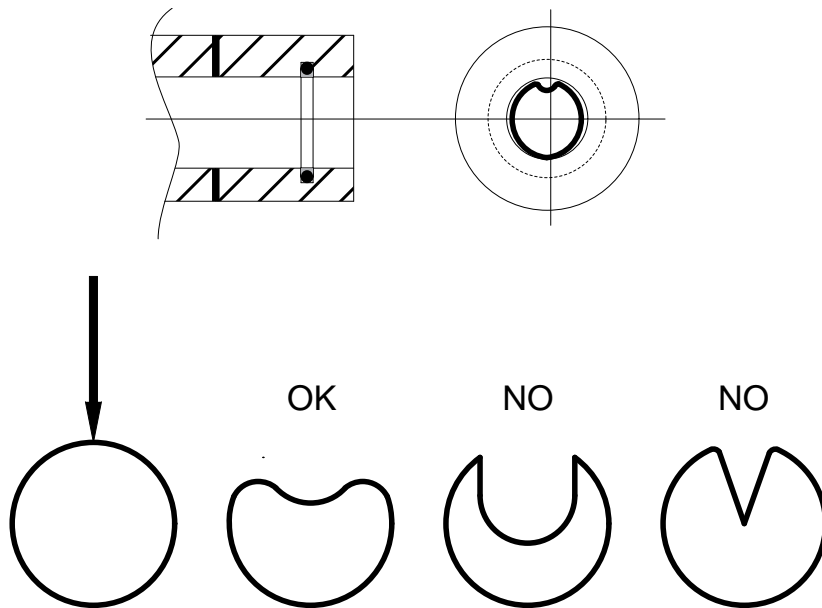


Fig. 9.2b

## 9.3) HEAD ASSEMBLY PROCEDURE

IMPORTANT, LUBRICATE ALL THE THREADED PARTS (NOT SUBJECT TO APPLICATION OF LOCTITE), ALL THE O-RINGS AND THE SEAL RINGS WITH SILICONE GREASE TYPE KLUBER PARALIQ ® GTE 703.

9.3.01) Once you have replaced the seals on the pinion pos.12 as per section 9.2, insert the following in the bottom casing pos.40, in the given sequence: the bearing pos.45 with the seat of the balls facing upwards, the cage pos.44 with the 12 balls pos.43 and the second bearing pos.45 with the seat of the balls facing downwards.

9.3.02) Insert the output shaft pos.18 (kit "D") (make a screwing motion to make it easier to pass the threaded part over the seals).

9.3.03) Once you have fitted the shaft, clean its threaded part carefully, put the washer back in place pos.22, and put a few drops of Loctite 572 on the thread.

9.3.04) Screw the semi-spherical casing pos.49 on the shaft pos.18 and tighten with the special tool (code ZB0031) and the dynamometric spanner (fig.9.3a).

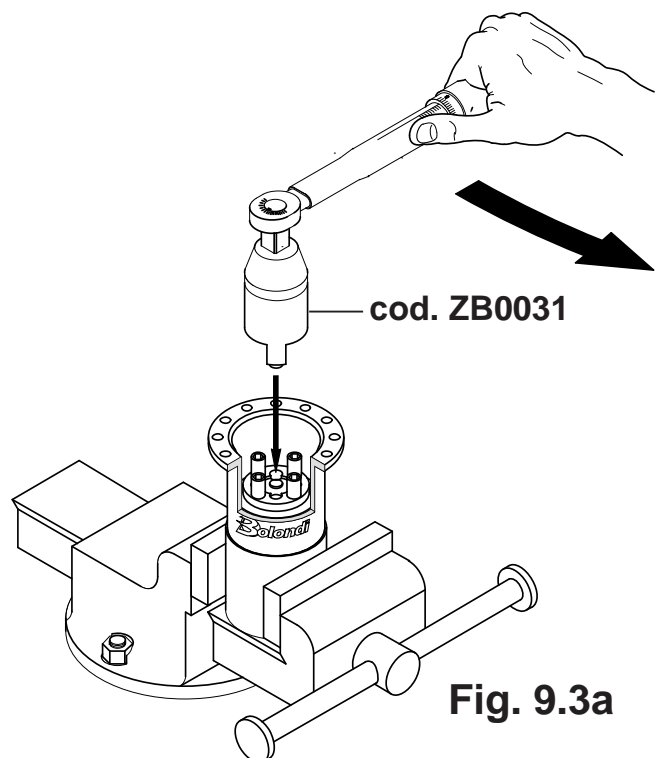


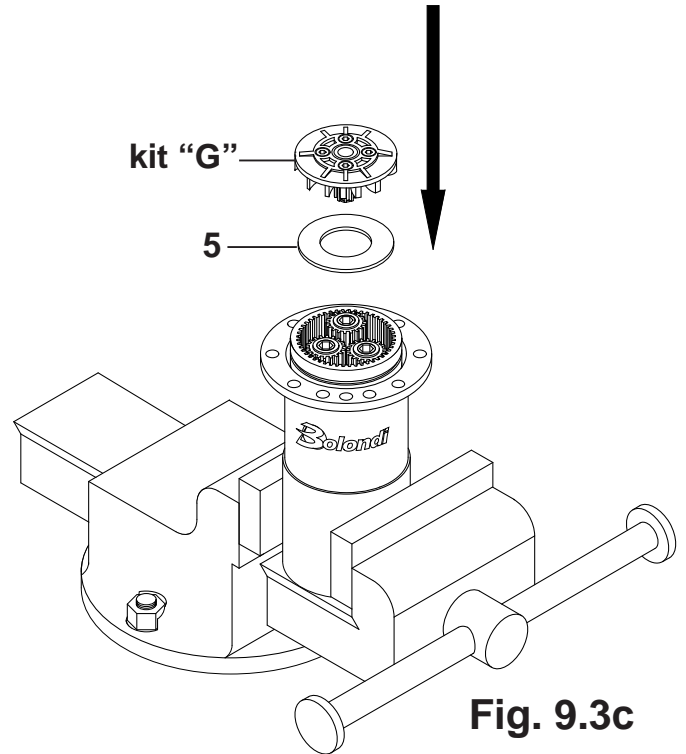
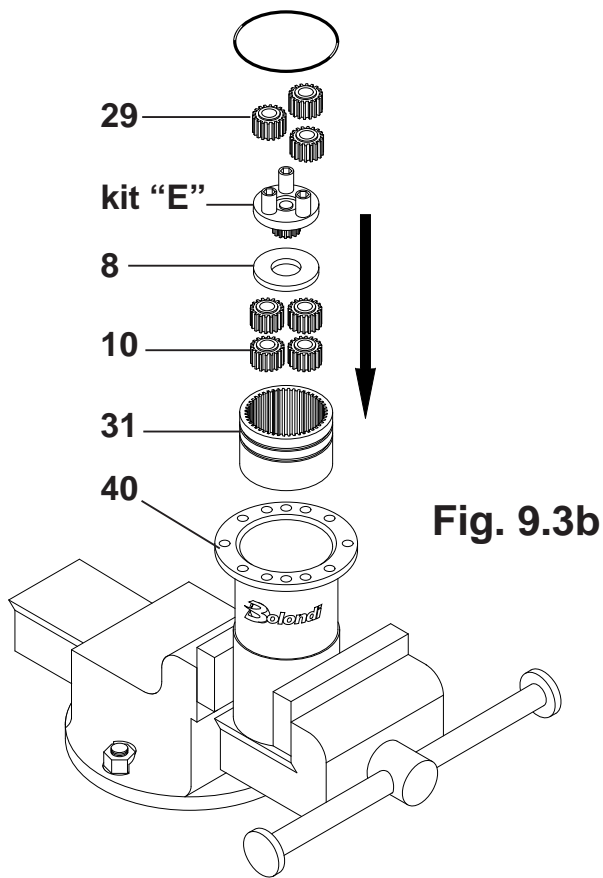
Fig. 9.3a

9.3.05) Fit the crown pos. 31 in the bottom casing pos.40.

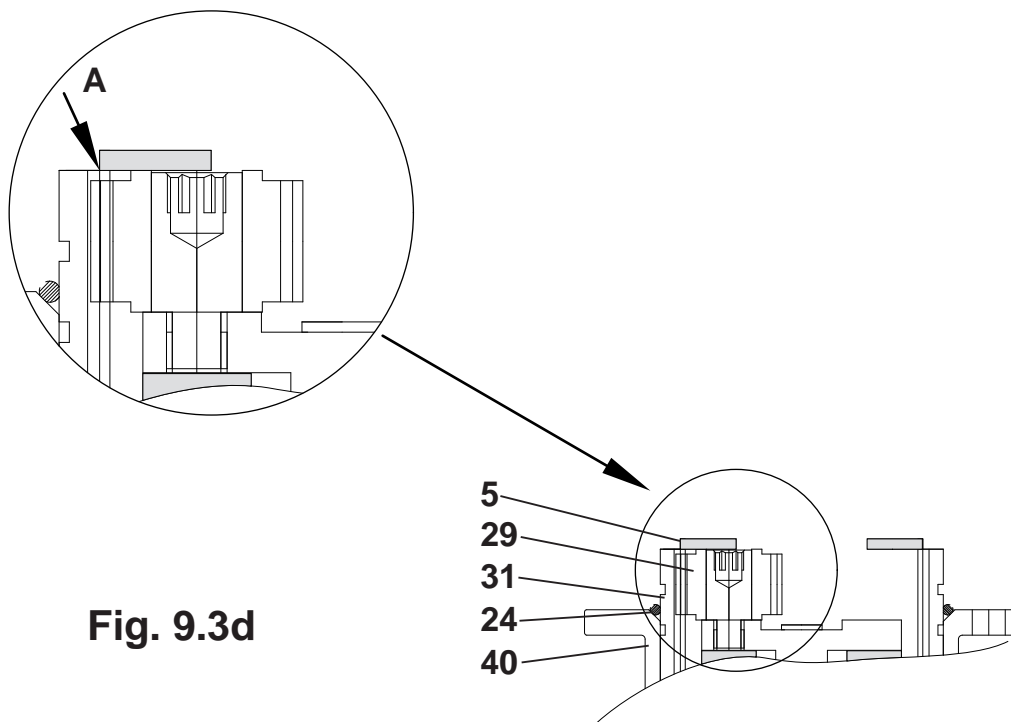
9.3.06) Fit the four gears pos.10 (kit "F1") on the shaft pos.18 (kit "D").

9.3.07) Fit the following in the given sequence: the washer pos.8, the planetary holder gear kit "E" and the three gears pos.29 (kit "F") see fig.9.3b.

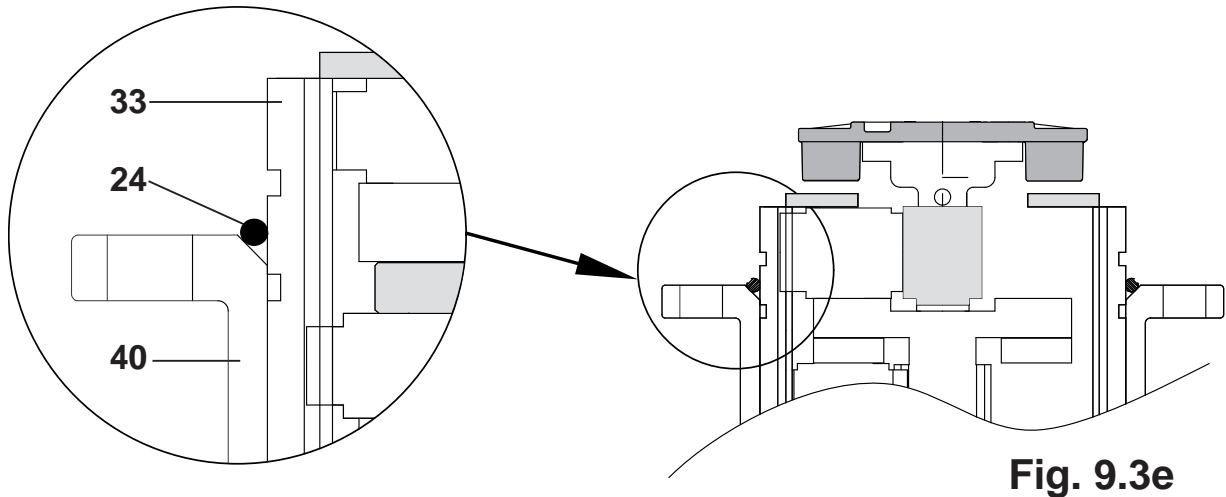
9.3.08) Put the washer on pos.5 (fig.9.3c).



9.3.09) Make sure everything has been assembled correctly, checking there is no friction between part pos.5 and the gears pos.29, see fig.9.3d.



9.3.10) Fit the O-ring pos.24 and the complete turning unit (kit "G"), as per fig.9.3e, so that the next assembly phase can be done correctly.

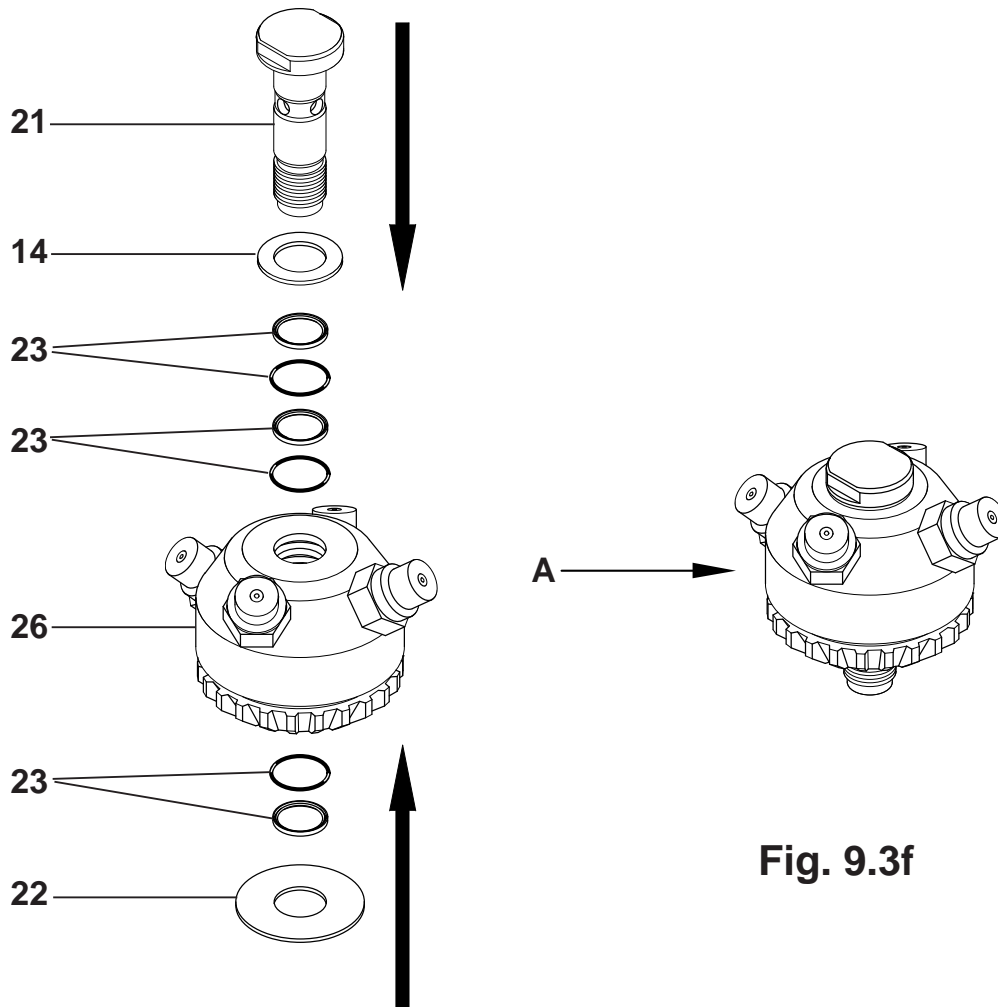


**Fig. 9.3e**

9.3.11) Fit the diffuser pos.33, the O-ring pos.6 and the top casing pos.1 as per chapter 8.2 of the manual.

9.3.12) Once the seals on the nozzle holder crown have been replaced pos.26 as per chapter 9.2, fit a washer pos.14 on the pin pos.21.

9.3.13) Fit the pin pos.21 and the washer pos.14 on the nozzle holder crown pos.26 (fig.9.3f) (make a screwing motion to make it easier to pass the threaded part over the seals).

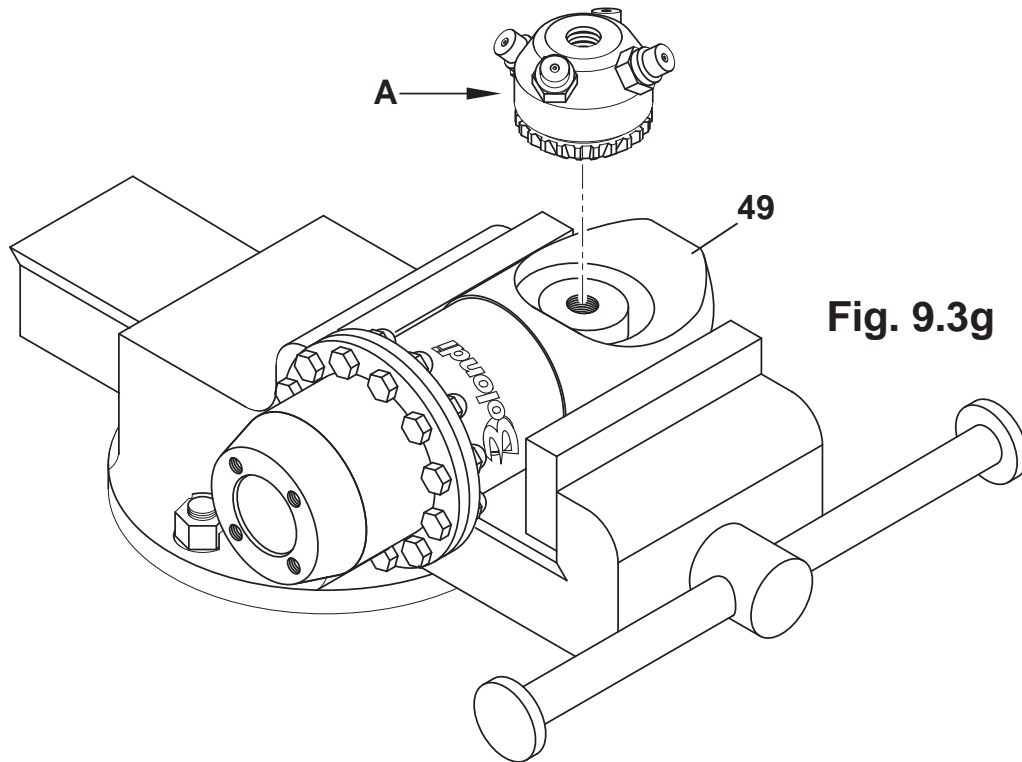


**Fig. 9.3f**

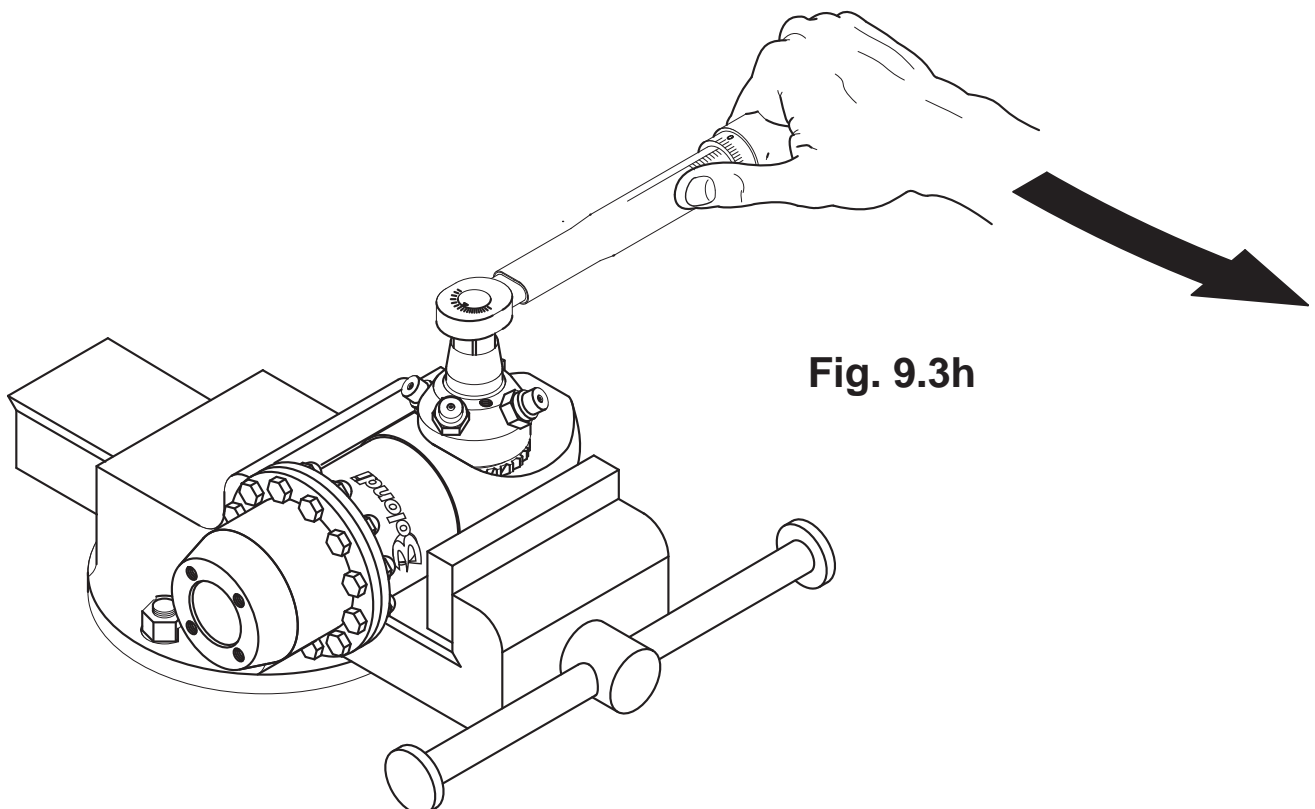
9.3.14) Once you have fitted the shaft, clean its threaded part carefully, put the washer back in place pos.22, and put a few drops of Loctite 572 on the thread.

9.3.15) Screw the complete unit "A" on the semi-spherical casing pos.49 (fig.9.3g) and tighten with the dynamometric spanner (fig9.3h).

9.3.16) Fit the inlet filter (cleaned beforehand) as explained in chapter 9.4 of the manual.



**Fig. 9.3g**



**Fig. 9.3h**

## 9.4) CLEAN FILTER INLET

### REMOVING

Loosen the screws pos. 57 using the 10 spanner and remove the filter flange pos. 62.  
Clean the filter pos. 63.

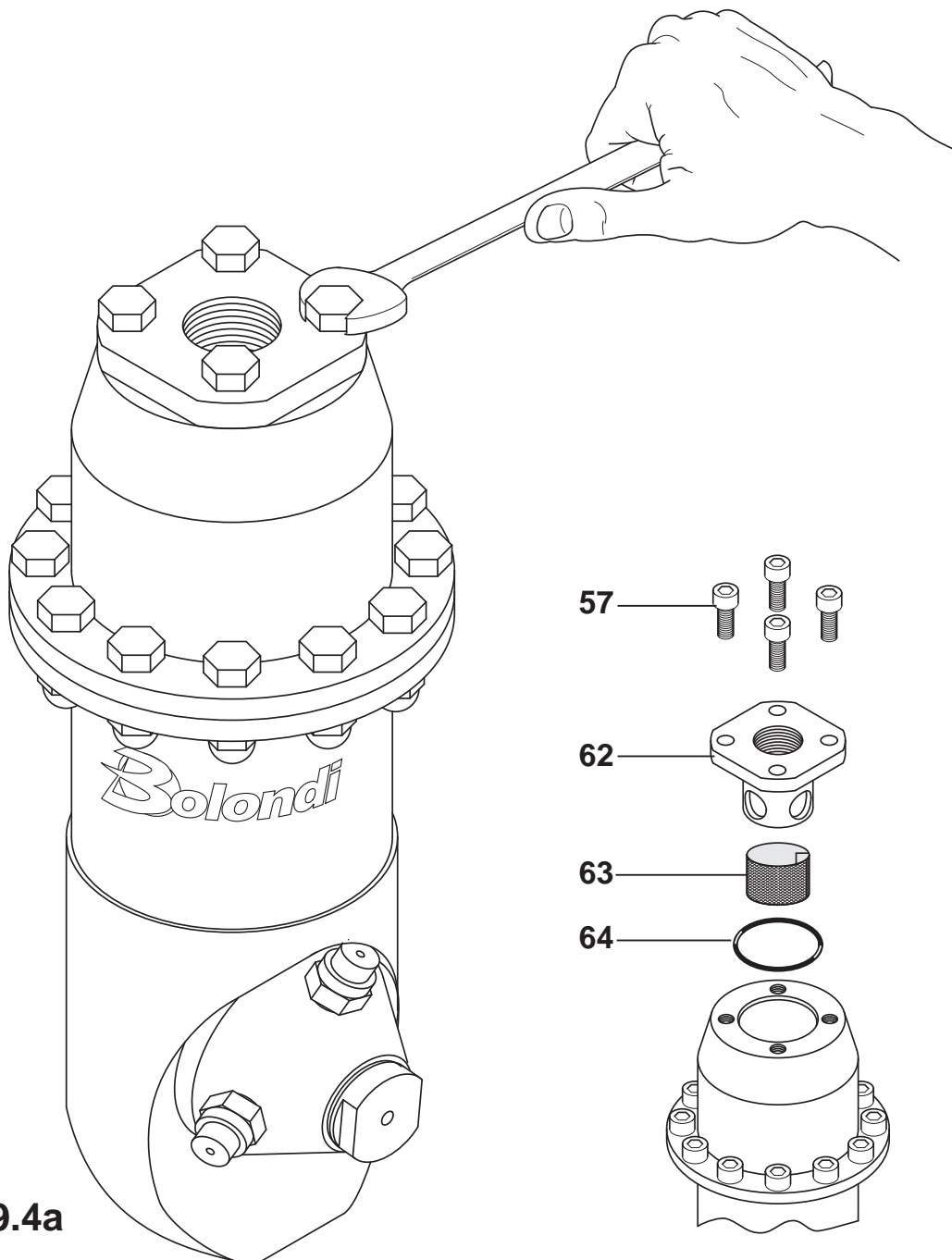
### FITTING

Fit filter pos. 63 into flange pos. 62.

Lubricate the filter flange pos. 62 with silicone grease type KLUBER PARALIQ® GTE 703 where the o-ring pos. 64 is fitted. Correctly replace the filter flange pos. 62.

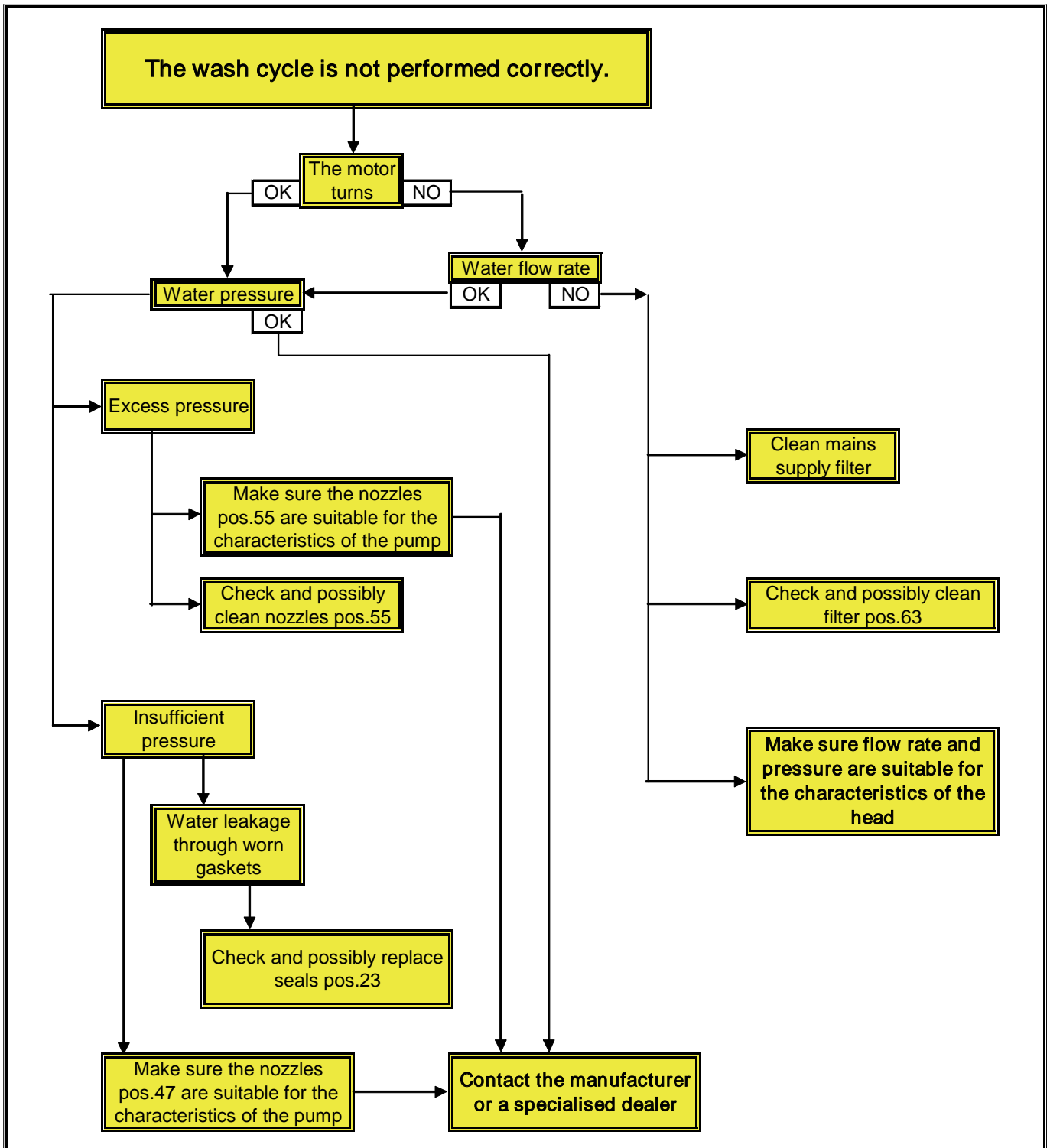
Tighten the screws pos. 57 To tighten use the torque wrench set as per table "B" of this manual, see (fig. 9.4a).

(00M-SW049-01-EN)



**Fig. 9.4a**

# 10) TROUBLE SHOOTING



## 11) SPARE PARTS

Always refer to the spare parts tables when choosing spare parts. Spare parts should be requested by fax to following address:

Bolondi  
Via A. Volta, 4 - 42027 MONTECCHIO (RE) - ITALY  
Tel. +39 0522 864434 Fax +39 0522 865780  
e-mail: bolondi@bolondi.com

always indicate:

- the model and serial number of the head (see identification plate)
- the code and description of the part ordered (see table)
- the quantity required
- the preferred means of shipment

(11-000-00-E)

### TABLE "B" TORQUE WRENCH SETTINGS

TABLE TORQUE WRENCH SETTINGS		
Structural screws		
Pitch	Nm	
M6	11	All
M12x1.00	30	All
Nozzles		
Pitch	Nm	
1/8 npt	5	

## **REGISTRATION OF JOBS DONE :**

Date

Description of failure

Description of the job

Result

Operator's signature

*(13-000-00-E)*

## **REGISTRATION OF JOBS DONE :**

Date

Description of failure

Description of the job

Result

Operator's signature

*(13-000-00-E)*

## **NOTE**

## **REGISTRATION OF JOBS DONE :**

Date

Description of failure

Description of the job

Result

Operator's signature

*(13-000-00-E)*

## **REGISTRATION OF JOBS DONE :**

Date

Description of failure

Description of the job

Result

Operator's signature

*(13-000-00-E)*

## **NOTE**

## **REGISTRATION OF JOBS DONE :**

Date

Description of failure

Description of the job

Result

Operator's signature

*(13-000-00-E)*

## **REGISTRATION OF JOBS DONE :**

Date

Description of failure

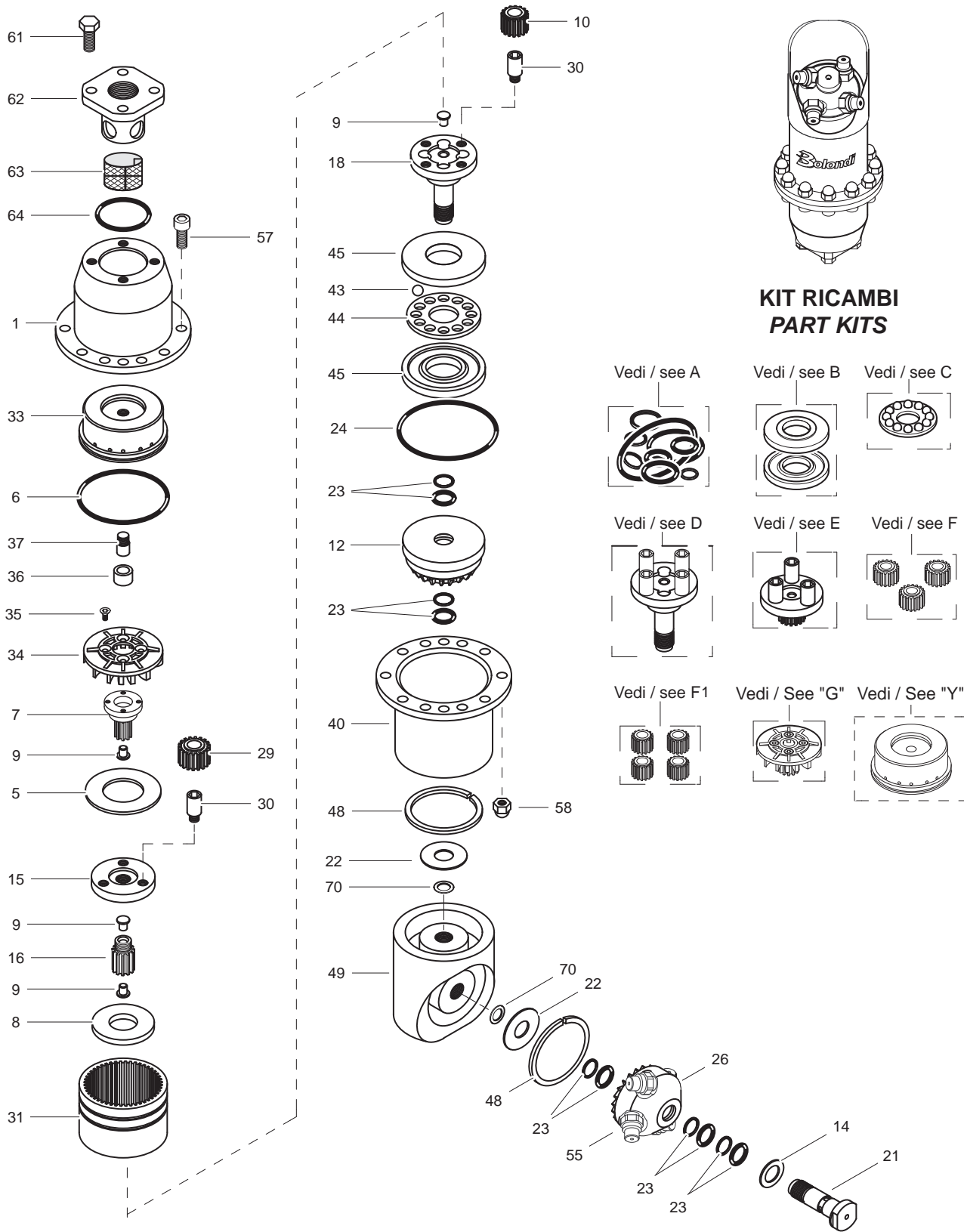
Description of the job

Result

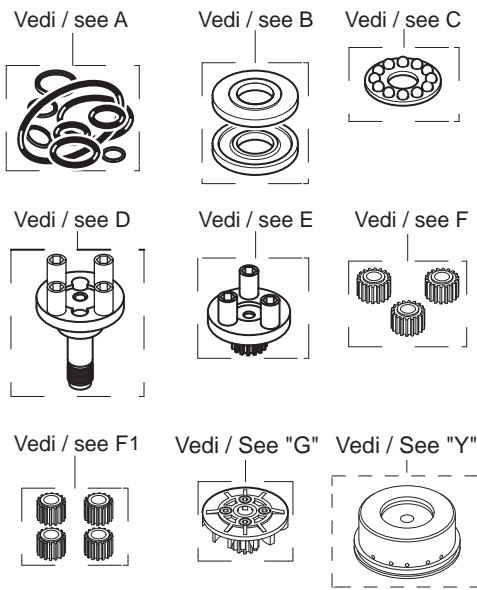
Operator's signature

*(13-000-00-E)*

## **NOTE**



**KIT RICAMBI  
PART KITS**



			VIA VOLTA 4 MONTECCHIO E. (RE) ITALY TEL. +39 522 864434 FAX +39 522 865780 E-Mail bolondi@bolondi.com	
	MODELLO: SW 049-AA		DISEGN.: LP	
	NOTE:		Versione: 05	
			Data: 01.06.2012	





Via A.Volta, 4  
Tel. (0522) 864434 - Fax 865780  
42027 MONTECCHIO E. (Reggio E.) Italy

E-mail: [bolondi@bolondi.com](mailto:bolondi@bolondi.com)  
Web site: <http://www.bolondi.com>