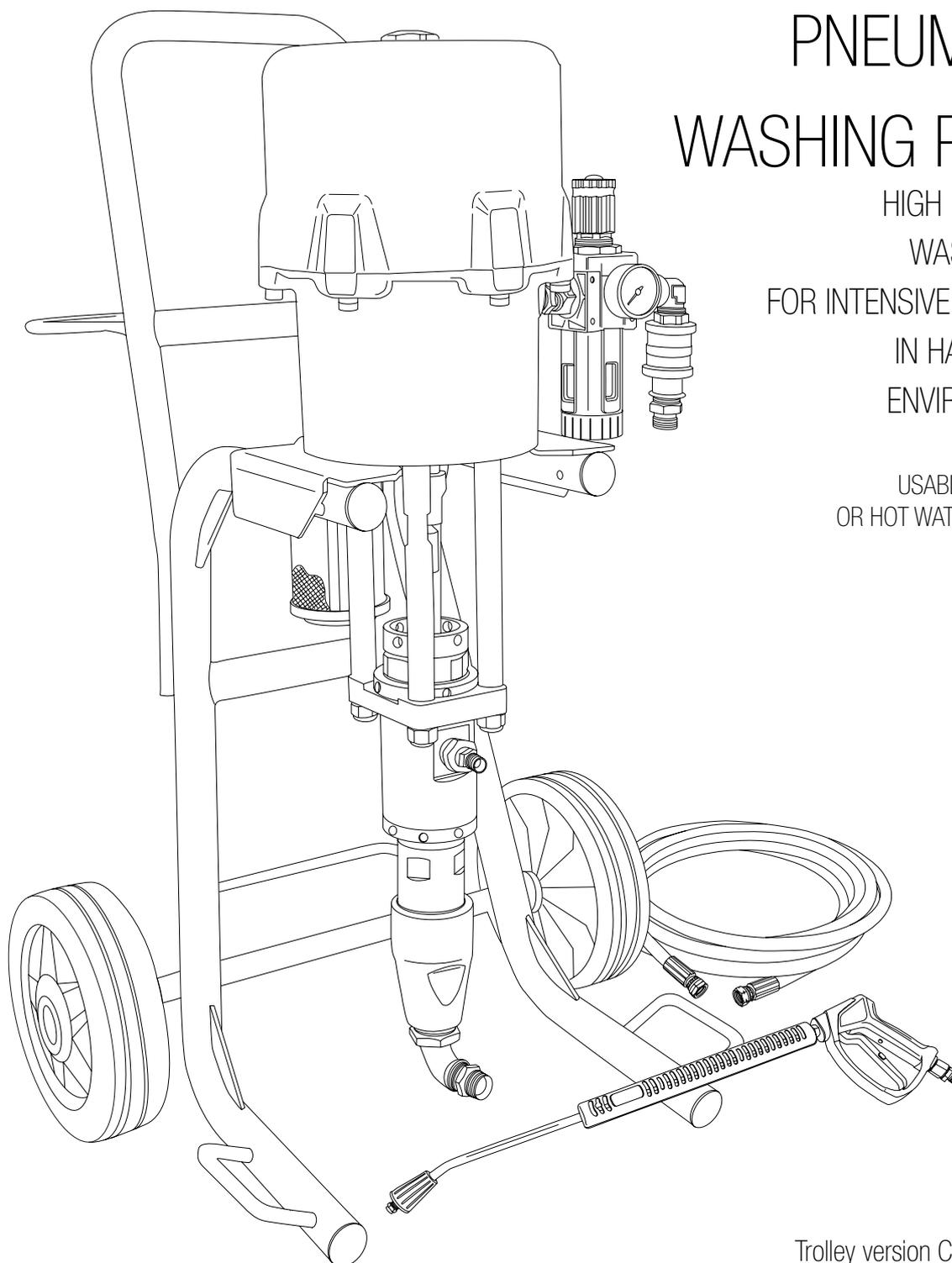


SIRIO 32:1

PNEUMATIC WASHING PUMP

HIGH PRESSURE
WASH PUMPS
FOR INTENSIVE CLEANING
IN HAZARDOUS
ENVIRONMENTS

USABLE WITH COLD
OR HOT WATER UP TO 90°



Trolley version Cod. 99002/1

This manual is to be considered as an English language translation of the original manual in Italian. The manufacturer shall bear no responsibility for any damages or inconveniences that may arise due to the incorrect translation of the instructions contained within the original manual in Italian.

Due to a constant product improvement programme, the factory reserves the right to modify technical details mentioned in this manual without prior notice.



SIRIO 32:1

Pneumatic washing pump

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**WE ADVISE THE USE OF THIS EQUIPMENT ONLY BY PROFESSIONAL OPERATORS.
ONLY USE THIS MACHINE FOR USAGE SPECIFICALLY MENTIONED IN THIS MANUAL.**

Thank you for choosing a **LARIUS S.R.L.** product.
As well as the product purchased, you will receive a range of support services
enabling you to achieve the results desired, quickly and professionally.

**A WARNINGS**

The table below provides the meaning of the symbols used in this manual in relation to using, earthing, operating, maintaining, and repairing of this equipment.

	<ul style="list-style-type: none"> • Read this operator's manual carefully before using the equipment. • An improper use of this machine can cause injuries to people or things. • Do not use this machine when under the influence of drugs or alcohol. • Do not modify the equipment under any circumstances. • Use products and solvents that are compatible with the various parts of the equipment, and read the manufacturer's warnings carefully. • See the Technical Details for the equipment given in the Manual. • Check the equipment for worn parts once a day. If any worn parts are found, replace them using ONLY original spare parts. • Keep children and animals away from work area. • Comply with all safety standards.
	<ul style="list-style-type: none"> • It indicates an accident risk or serious damage to equipment if this warning is not followed.
 	<p>FIRE AND EXPLOSION HAZARD</p> <ul style="list-style-type: none"> • Solvent and paint fumes in work area can ignite or explode. • To help prevent fire and explosion: <ul style="list-style-type: none"> - Use equipment ONLY in well ventilated area. - Eliminate all ignition sources, such as pilot lights, cigarettes and plastic drop cloths (potential static arc). - Ground equipment and conductive objects. - Use only grounded hoses. - Do not use trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminium equipment. Such use can cause serious chemical reaction and equipment rupture, and result in death, serious injury, and property damage. - Do not form connections or switch light switches on or off if the air contains inflammable fumes. • If electrical shocks or discharges are encountered the operation being carried out using the equipment must be stopped immediately. • Keep a fire extinguisher at hand in the immediate vicinity of the work area.
	<ul style="list-style-type: none"> • It indicates wound and finger squashing risk due to movable parts in the equipment. • Keep away from moving parts. • Do not use the equipment without the proper protection. • Before any inspection or maintenance of the equipment, carry out the decompression procedure explained in this manual, and prevent any risk of the equipment starting unexpectedly.
 	<ul style="list-style-type: none"> • Report any risk of chemical reaction or explosion if this warning has not been given. • (IF PROVIDED) There is a risk of injury or serious lesion related to contact with the jet from the spray gun. If this should occur, IMMEDIATELY contact a doctor, indicating the type of product injected. • (IF PROVIDED) Do not spray before the guard has been placed over the nozzle and the trigger on the spray gun. • (IF PROVIDED) Do not put your fingers in the spray gun nozzle. • Once work has been completed, before carrying out any maintenance, complete the decompression procedure.
	<ul style="list-style-type: none"> • It indicates important recommendations about disposal and recycling process of products in accordance with the environmental regulations.
 	<ul style="list-style-type: none"> • Mark any clamps attached to earth cables. • Use ONLY 3-wire extension cords and grounded electrical outlets. • Before starting work make sure that the electrical system is grounded and that it complies with safety standards. • High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. • To help prevent injection, always: <ul style="list-style-type: none"> - (IF PROVIDED) Engage trigger lock when not spraying. - (IF PROVIDED) Do not put your hand over the spray tip. Do not stop or deflect leaks with your hand, body or other. - (IF PROVIDED) Do not point gun at anyone or at any part of the body. - (IF PROVIDED) Never spray without tip guard. - Do pressure relief if you stop spraying or being servicing sprayer and before any maintenance operations. - Do not use components rated less than sprayer Maximum Working Pressure. - Never allow children to use this unit - (IF PROVIDED) Brace yourself; gun may recoil when triggered. • If high pressure fluid pierces your skin, the injury might look like "just a cut", but it is a serious wound! Get immediate medical attention.
 	<ul style="list-style-type: none"> • It is obligatory to wear suitable clothing as gloves, goggles and face shield. • Wear clothing that complies with the safety standards in force in the country in which the equipment is used. • Do not wear bracelets, earrings, rings, chains, or anything else that may hinder the operator's work. • Do not wear clothing with wide sleeves, scarves, ties, or any other piece of clothing that could get tangled up in moving parts of the equipment during the work, inspection, or maintenance cycles.



B WORKING PRINCIPLE

SIRIO 32:1 PNEUMATIC WASHING PUMP is a high pressure pneumatic pump for professional use to be used for cleaning with water.

SIRIO pump is essentially constituted of an air motor and a structure called «pumping group» .

In the pneumatic motor, compressed air causes the vertical reciprocating movement of the motor piston: this movement is transmitted through a connecting rod to the material pumping piston which allows to suck water.

The ratio 32:1 means that the outlet pressure of water is 32 times higher than the pump feed air pressure.

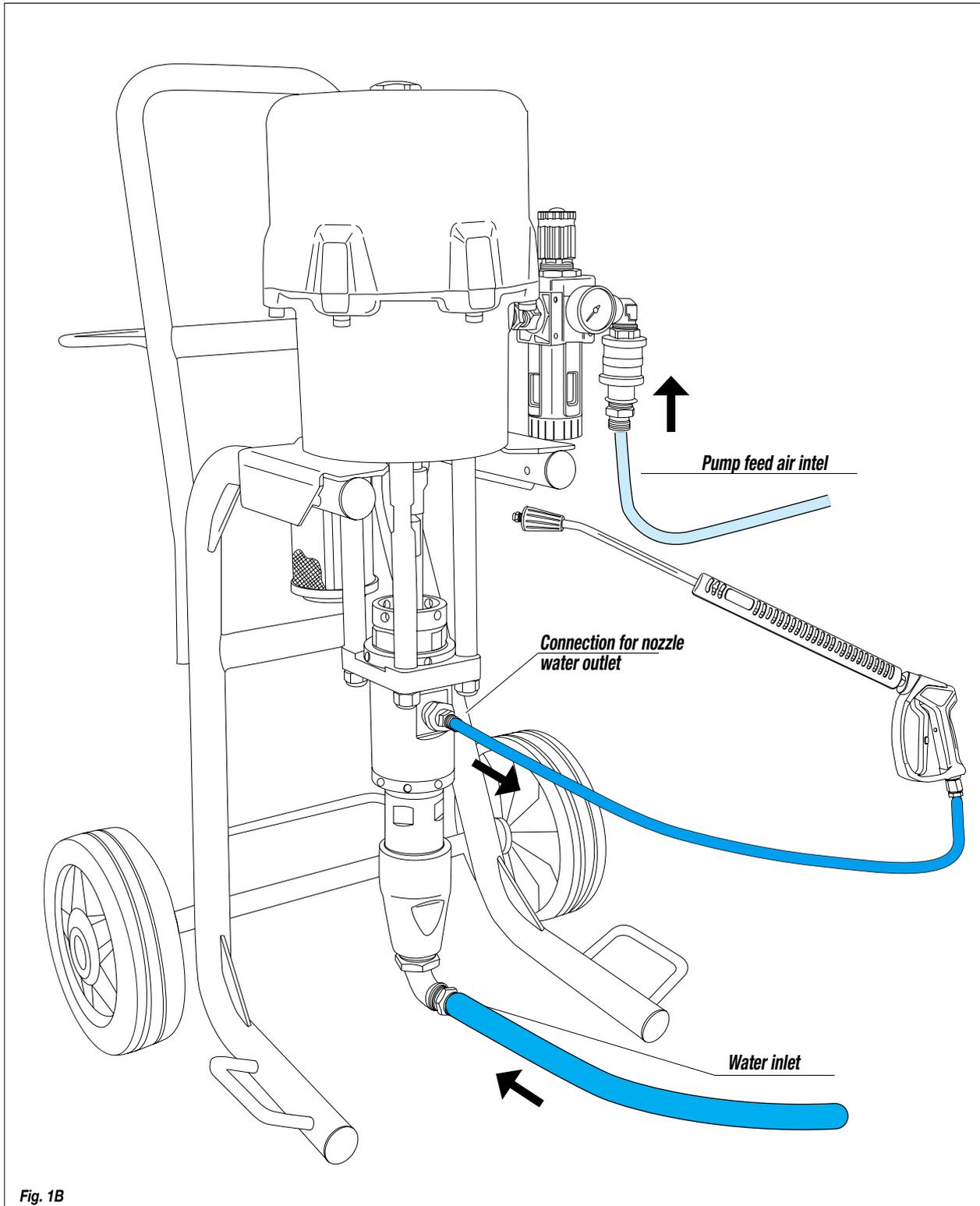


Fig. 1B



C TECHNICAL DATA

SIRIO 32:1 PNEUMATIC WASHING PUMP

Pump feed air pressure	3-7 bar
Maximum pressure of the product	224 bar
Feed air inlet	3/4" BSPP (M)
Maximum delivery	8.2 l/min
Material output	3/8" BSPP
Maximum water temperature	90°

Parts of the pump in contact with the material

Pumping group: galvanised carbon steel and aluminium or stainless steel (based on the versions)

Sealing balls: stainless steel AISI 420B

Gaskets: PTFE



The disposal of some parts of the pump no more usable is a customer's competence and must be performed in accordance with the regulations in force in the country where the plant is installed and used.

Other parts of the pump

Motor casing and motor piston: aluminium

Pneumatic motor piston rod: stainless steel

Trolley structure: painted sheet metal

D DESCRIPTION OF THE EQUIPMENT



Fig. 1D

Pos.	Description
1	Pneumatic motor
2	Pressure regulator
3	Manometer

Pos.	Description
4	Slide valve
5	Pump feed air inlet



Fig. 2D

Pos.	Description
6	Grounding cable
7	Sound absorbing filter
8	Trolley wheel
9	Trolley

Pos.	Description
10	Pumping group
11	Water outlet
12	Water feed inlet



E TRANSPORT AND UNPACKING

- The packed parts should be handled as indicated in the symbols and markings on the outside of the packing.
- Before installing the equipment, ensure that the area to be used is large enough for such purposes, is properly lit and has a clean, smooth floor surface.
- The user is responsible for the operations of unloading and handling and should use the maximum care so as not to damage the individual parts or injure anyone.

To perform the unloading operation, use only qualified and trained personnel (truck and crane operators, etc.) and also suitable hoisting equipment for the weight of the installation or its parts.

Follow carefully all the safety rules.

The personnel must be equipped with the necessary safety clothing.

- The manufacturer will not be responsible for the unloading operations and transport to the workplace of the machine.
- Check the packing is undamaged on receipt of the equipment. Unpack the machine and verify if there has been any damage due to transportation.

In case of damage, call immediately LARIUS and the Shipping Agent. All the notices about possible damage or anomalies must arrive timely within 8 days at least from the date of receipt of the plant through Registered Letter to the Shipping Agent and to LARIUS.



The disposal of packaging materials is a customer's competence and must be performed in accordance with the regulations in force in the country where the plant is installed and used. It is nevertheless sound practice to recycle packaging materials in an environment-friendly manner as much as possible.

F CONDITIONS OF GUARANTEE

The conditions of guarantee do not apply in the following situations:

- improper washing and cleaning of components causing malfunction, wear or damage to the equipment or any of its parts;
- improper use of the equipment;
- use that does not conform with applicable national legislation;
- incorrect or faulty installation;
- modifications, interventions and maintenance that have not been authorised by the manufacturer;
- use of non-original spare parts or parts that do not correspond to the specific model;
- total or partial non-compliance with the instructions provided.



G SAFETY RULES

Read carefully and entirely the following instructions before using the product. Please save these instructions in a safe place.



The unauthorised tampering/replacement of one or more parts composing the machine, the use of accessories, tools, expendable materials other than those recommended by the manufacturer can be a danger of accident.



The manufacturer will be relieved from tort and criminal liability.

- THE EMPLOYER SHALL TRAIN ITS EMPLOYEES ABOUT ALL THOSE RISKS STEMMING FROM ACCIDENTS, ABOUT THE USE OF SAFETY DEVICES FOR THEIR OWN SAFETY AND ABOUT THE GENERAL RULES FOR ACCIDENT PREVENTION IN COMPLIANCE WITH INTERNATIONAL REGULATIONS AND WITH THE LAWS OF THE COUNTRY WHERE THE PLANT IS USED.
- THE BEHAVIOUR OF THE EMPLOYEES SHALL STRICTLY COMPLY WITH THE ACCIDENT PREVENTION AND ALSO ENVIRONMENTAL REGULATIONS IN FORCE IN THE COUNTRY WHERE THE PLANT IS INSTALLED AND USED.
- KEEP YOUR WORK PLACE CLEAN AND TIDY. DISORDER WHERE YOU ARE WORKING CREATES A POTENTIAL RISK OF ACCIDENTS.
- ALWAYS KEEP PROPER BALANCE AVOIDING UNUSUAL STANCE.
- BEFORE USING THE TOOL, ENSURE THERE ARE NOT DAMAGED PARTS AND THE MACHINE CAN WORK PROPERLY.
- ALWAYS FOLLOW THE INSTRUCTIONS ABOUT SAFETY AND THE REGULATIONS IN FORCE.
- KEEP THOSE WHO ARE NOT RESPONSIBLE FOR THE EQUIPMENT OUT OF THE WORK AREA.
- **NEVER** EXCEED THE MAXIMUM WORKING PRESSURE INDICATED.
- (IF PROVIDED) **NEVER** POINT THE SPRAY GUN AT YOURSELVES OR AT OTHER PEOPLE. THE CONTACT WITH THE CASTING CAN CAUSE SERIOUS INJURIES.
- IN CASE OF INJURIES CAUSED BY THE GUN CASTING, SEEK IMMEDIATE MEDICAL ADVICE SPECIFYING THE TYPE OF THE PRODUCT INJECTED. **NEVER** UNDERVALUE A WOUND CAUSED BY THE INJECTION OF A FLUID.
- ALWAYS DISCONNECT THE SUPPLY AND RELEASE THE PRESSURE IN THE CIRCUIT BEFORE PERFORMING ANY CHECK OR PART REPLACEMENT OF THE EQUIPMENT.
- NEVER MODIFY ANY PART IN THE EQUIPMENT. CHECK REGULARLY THE COMPONENTS OF THE SYSTEM.
REPLACE THE PARTS DAMAGED OR WORN.
- (IF PROVIDED) TIGHTEN AND CHECK ALL THE FITTINGS FOR CONNECTION BETWEEN PUMP, FLEXIBLE HOSE AND



SPRAY GUN BEFORE USING THE EQUIPMENT.

- ALWAYS USE THE FLEXIBLE HOSE SUPPLIED WITH STANDARD KIT.
- THE USE OF ANY ACCESSORIES OR TOOLING OTHER THAN THOSE RECOMMENDED IN THIS MANUAL, MAY CAUSE DAMAGE OR INJURE THE OPERATOR.
- THE FLUID CONTAINED IN THE FLEXIBLE HOSE CAN BE VERY DANGEROUS. HANDLE THE FLEXIBLE HOSE CAREFULLY. DO NOT PULL THE FLEXIBLE HOSE TO MOVE THE EQUIPMENT. NEVER USE A DAMAGED OR A REPAIRED FLEXIBLE HOSE.



The high speed of travel of the product in the hose can create static electricity through discharges and sparks. It is suggested to earth the equipment. The pump is earthed through the earth cable of the supply. The gun is earthed through the high pressure flexible hose. All the conductors near the work area must be earthed.



Take proper safety measures for the protection of hearing in case of work near the plant.



Avoid approaching too much to the pump piston rod when the pump is working or under pressure. A sudden movement of the piston rod can cause wounds or finger squashing.



Avoid getting too close to the pump piston rod when it is running or under pressure. Sudden or sudden movement of the piston rod can cause injury or crushing of the fingers.

H GROUNDING

- When using volatile cleaning products, the equipment must be grounded thereby reducing the risk of static and electric shocks and providing an escape route for electrical current.
- For cleaning in closed areas, locate the pump away from any storage tanks and provide adequate ventilation.
- If flammable materials are placed in the cleaning area, take appropriate precautions to avoid sparks.

AIR AND FLUID HOSES

- use only electrically conductive hoses

SPRAYING NOZZLE/DISPENSE VALVE

- Ground through connection to a properly grounded fluid hose and pump

SOLVENT PAILS USED WHEN FLUSHING

- Use only metal pails
- Place the pail only on grounded surface

- Don't place the pail on a non-conductive surface, such as paper or cardboard, which interrupts grounding continuity

GROUNDING PUMP

- Use supplied grounding wire (H1) and clamp (H2)
- Connect the other end of the wire to a true earth ground (H3)

MAINTAINING GROUNDING CONTINUITY DURING FLUSHING OR PRESSURE RELIEF

- Firmly hold the metal part of the spraying nozzle / dispense valve on the side of a grounded metal pail, then activate the spraying nozzle / dispense valve

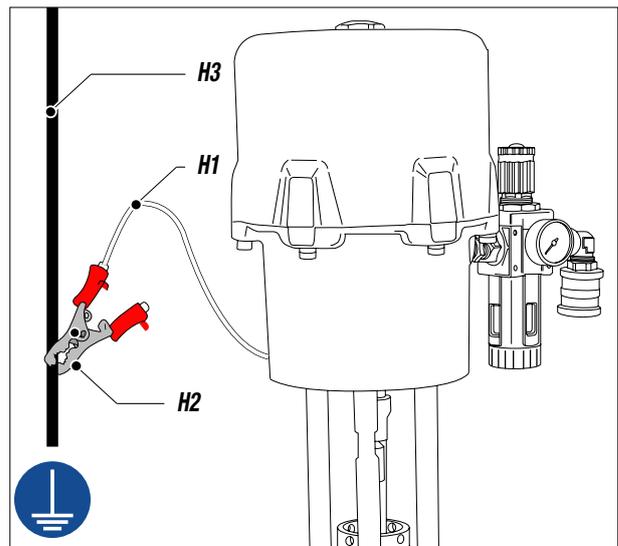


Fig. 1H

I WORKING



Check all the fittings for connection of the different components (pump, flexible hose, spraying nozzle, etc.) before using the equipment.

- Allow the water to flow to the previously connected inlet hose.
- Make the compressed air flow into the pump. It is advisable to adjust air pressure to minimum necessary for its continuous working.
- When the product chamber is full, pump will start working and stopping. Pump will start working again any time the trigger of the spraying nozzle is pressed or the delivery valve is open.
- Check that the gasket pressing ring nut has not loosened causing liquid to escape from the upper part of the pump. To tighten the ring nut, follow the instructions given in the "Routine maintenance" paragraph.



Always avoid pump idling: this operation could damage the pneumatic motor and the seals.



J TUNING AND CONNECTIONS

CONNECTION OF THE AIR SUPPLY HOSE TO THE PUMP

- Connect the air supply hose (J1) to the fitting (J2) at the pump inlet

CONNECTION OF THE WATER INLET PIPE

- Connect the suction hose (J3) to the inlet of the suction valve (J4) of the pump

CONNECTION OF THE WATER OUTLET PIPE

- Connect the spraying tube (J5) to the pump outlet (J6)
- Connect the spraying nozzle (J7) to the hose fitting (J8)

WASHING THE NEW EQUIPMENT

The pump was factory tested with light mineral oil which remained inside the lower for protection. If the fluid to be pumped is not compatible with the one used for testing, wash the pump with a suitable solution.



Install at the pump inlet an air pressure regulator (it is suggested complete with condensate filter and lubricator). The outlet pressure of the water is 32 times the inlet pressure of the pump feed air. Therefore, it is extremely important to adjust the value of the feed air pressure.

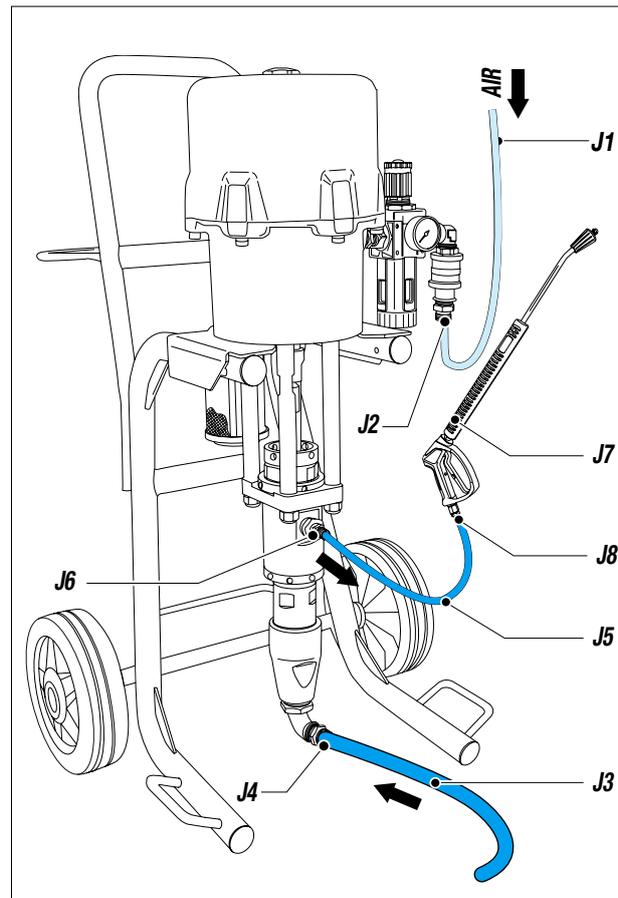


Fig.1J

K CLEANING AT THE END OF THE WORK

- Close the water supply (K1)
- Drain the water from the pumping circuit by pressing the spraying nozzle (K2)
- Shut off the compressed air supply to the pump (K3)
- Discharge the residual pressure present inside the pump.
- In case of long activity, the operations of sucking and leaving light mineral oil inside the pumping element are suggested.

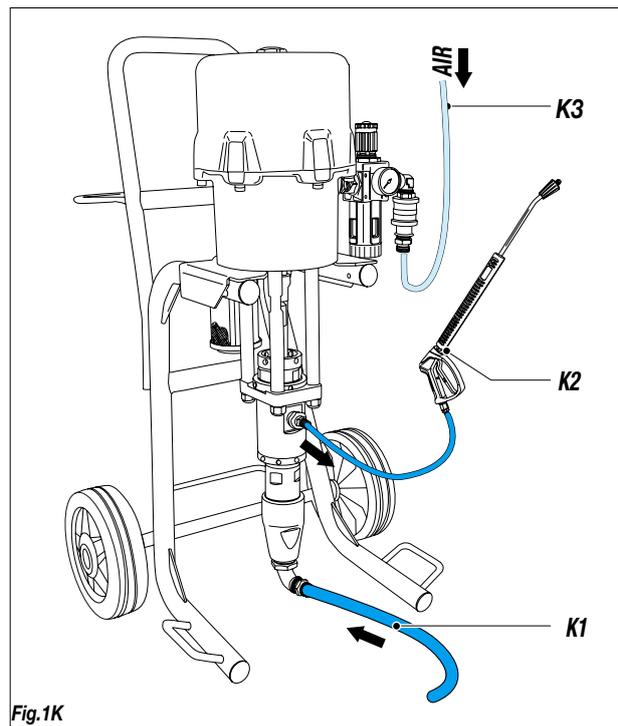


Fig.1K

L ROUTINE MAINTENANCE

- Daily check (and every time the pump is operated after a long storage) the packing nut (**L1**) is not loosened, causing otherwise the coming out of the product.
To tighten the packing nut use a metal rod (**L2**) with a diameter of 6 mm (see the illustration). The packing nut must be tightened so as to avoid the seizure of the pumping piston and the excessive wear of sealing gaskets.
In case of persistent coming out of product, provide for the replacement of the upper sealing gaskets (see on page 14).
- Keep the cup (**L3**) that covers the packing ring nut filled with lubricating liquid in order to prevent the product from drying on the piston rod.
- Check periodically the air supply to the pump. Ensure the air is always clean and lubricated.



Always close the compressed air supply and release the pressure in the plant before performing any check or maintenance of the pump.

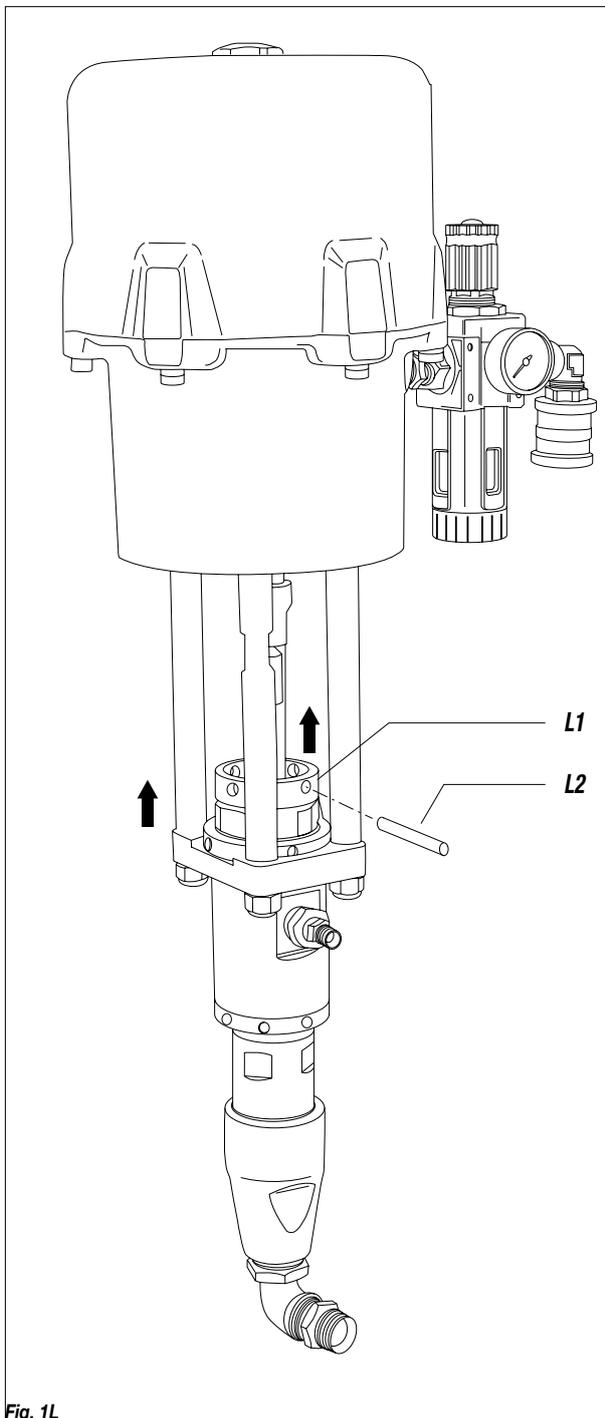


Fig. 1L

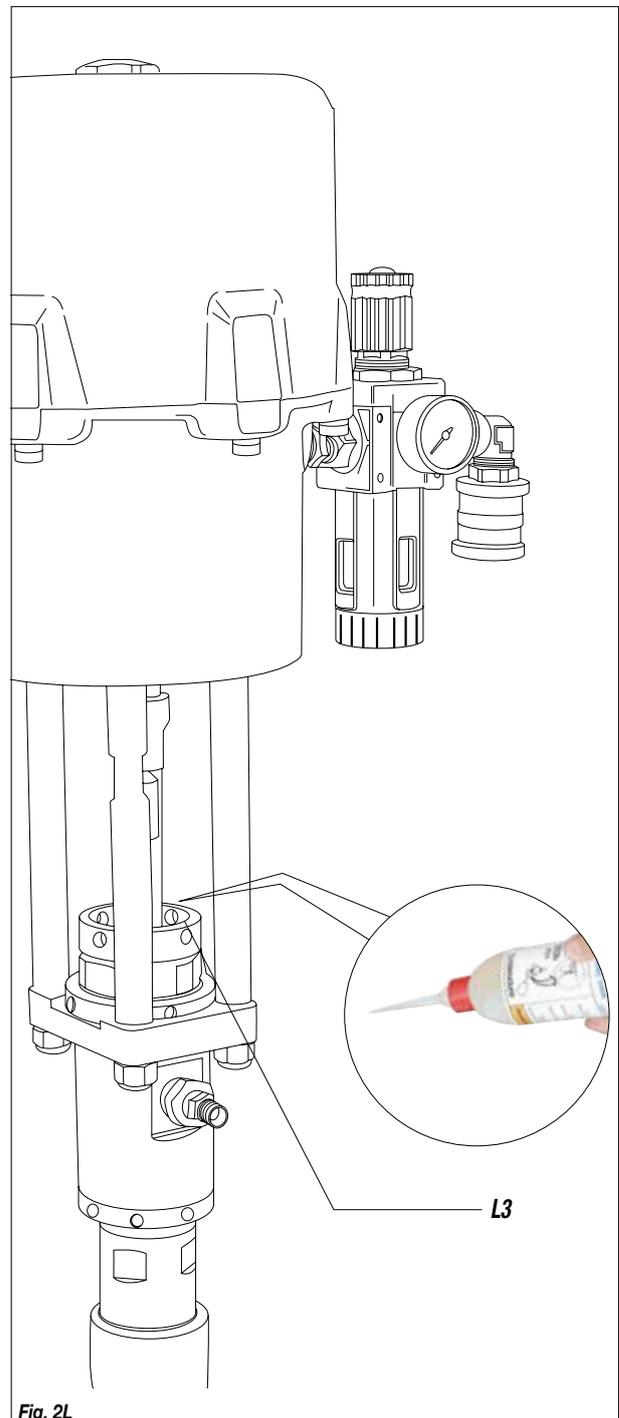
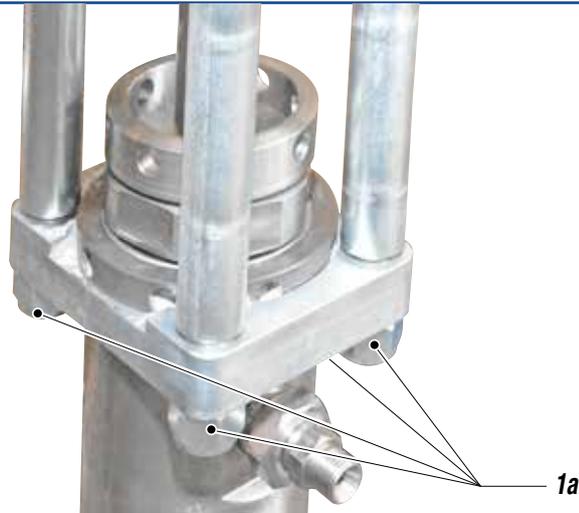
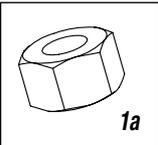
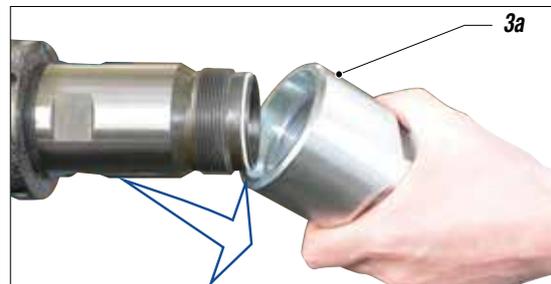
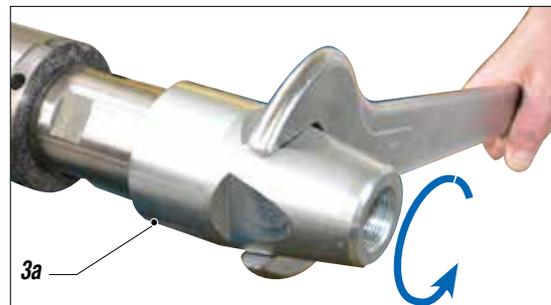
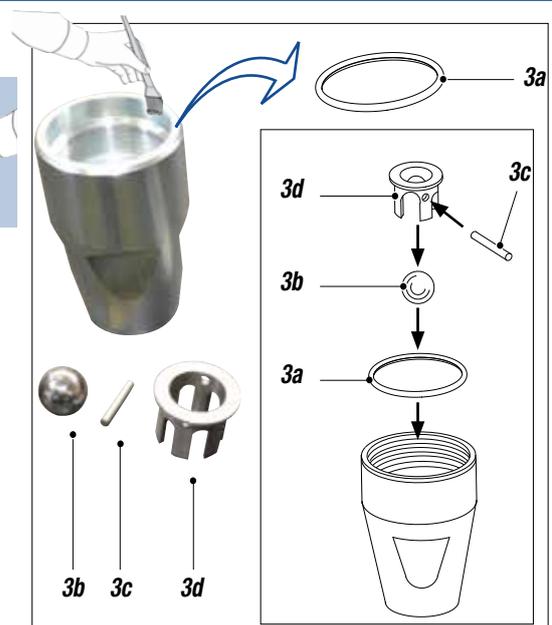


Fig. 2L

M DISMANTLING AND REASSEMBLING THE PUMPING UNIT

1Necessary tools and equipmentProcedure**1.1 Remove nuts (1a)****2**Necessary tools and equipmentProcedure**2.1 Unscrew and remove the bottom valve body (2a)****3**Necessary tools and equipmentProcedure**3.1 Remove the gasket (3a)****3.2 Remove the components (3b, 3c, 3d)****3.3 Clean and lubricate the gasket housing and replace it with a spare part****3.4 Reassemble the components (3a, 3b, 3c, 3d)**



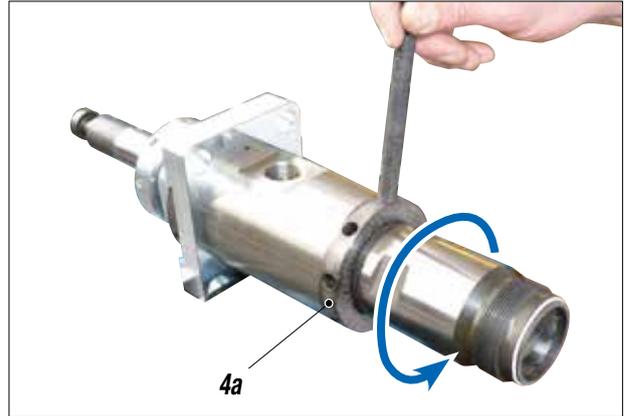
4

Necessary tools and equipment



Procedure

4.1 Loosen the ring nut (4a) without removing it



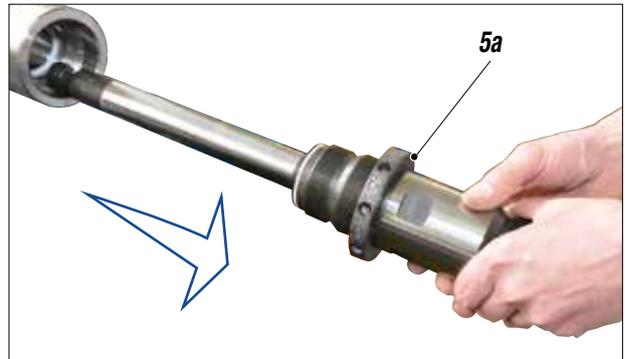
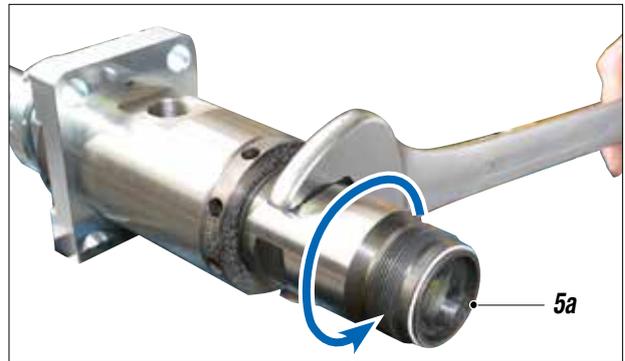
5

Necessary tools and equipment



Procedure

5.1 Unscrew and remove the component (5a)



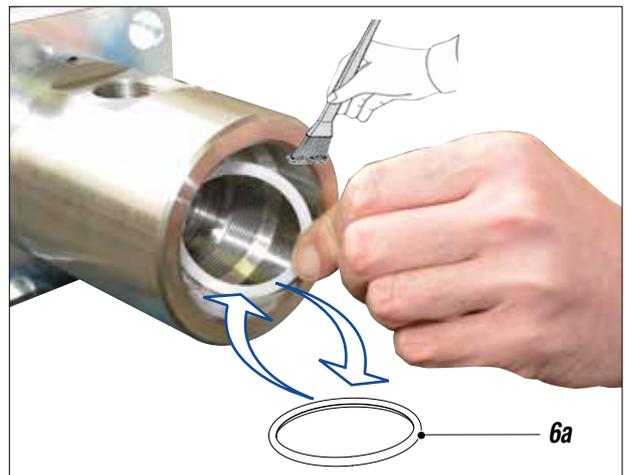
6

Necessary tools and equipment



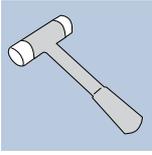
Procedure

- 6.1 Remove the gasket (6a)
- 6.2 Clean and lubricate the gasket housing
- 6.3 Replace the gasket with a spare part

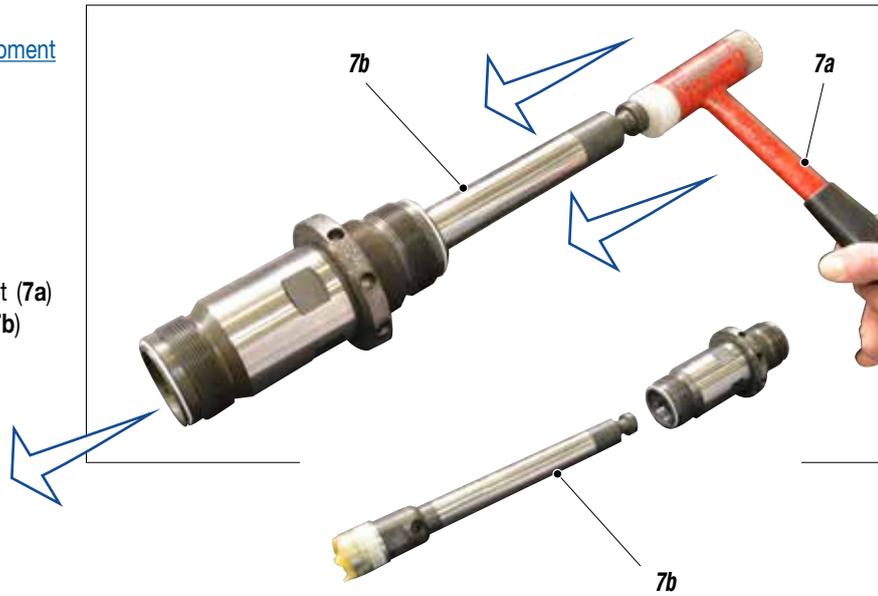


7

Necessary tools and equipment



7.1 Using a rubber mallet (7a) slide off the component (7b)



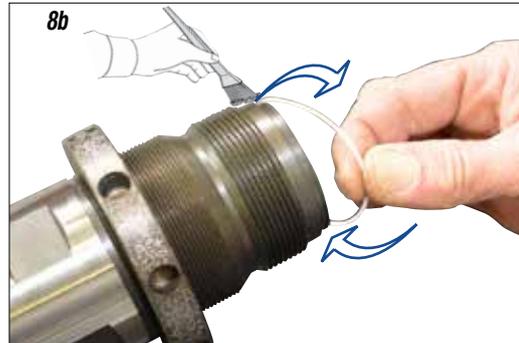
8

Necessary tools and equipment



Procedure

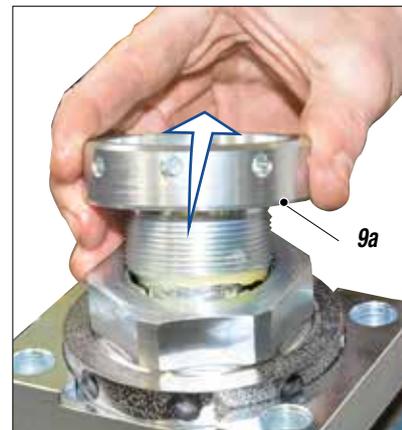
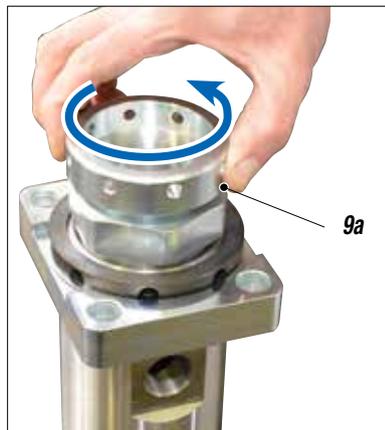
8.1 Remove the gaskets (8a, 8b), clean and lubricate the gasket housing and replace them with new spare parts



9

Procedure

9.1 Unscrew and remove the component (9a)



10

Necessary tools and equipment



Procedure

10.1 Remove the complete gasket pack (11a)



11

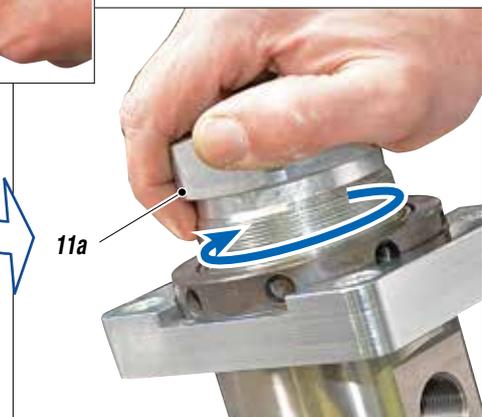
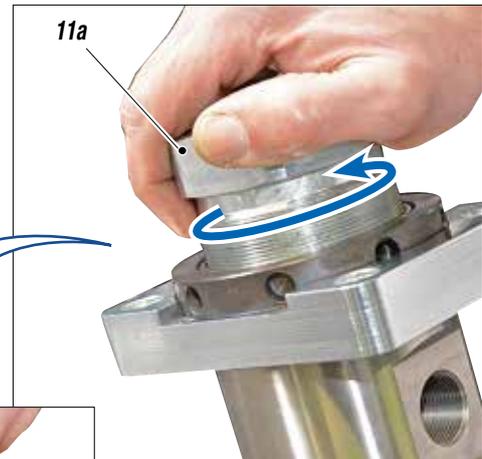


Procedure

11.1 Remove the component (11a)

11.2 Clean and lubricate the gasket housing and replace it with the new one (11b)

11.3 Reassemble the component (11a)



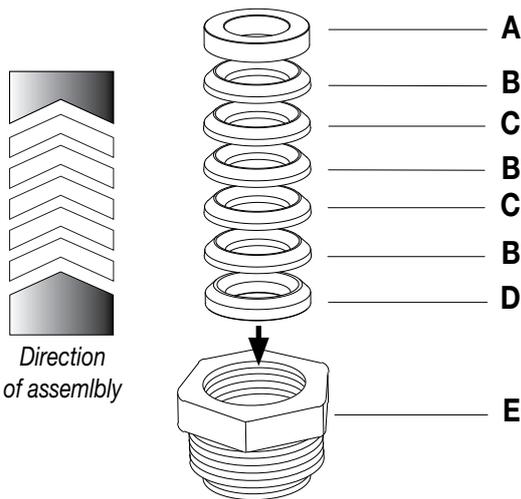
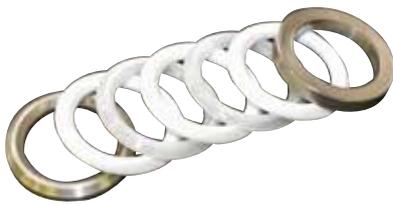
12

Necessary tools and equipment



Procedure

12.1 Clean and lubricate the gasket housings and replace them with new spare part (12a)



NOTE

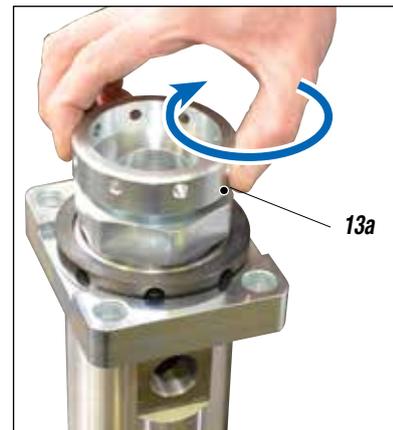
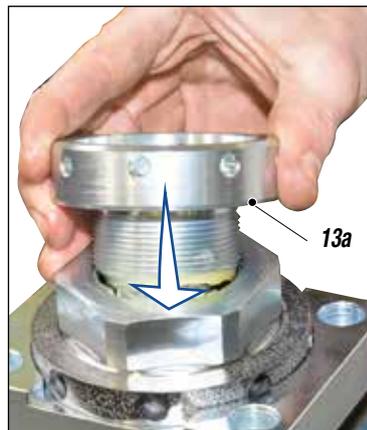
Follow the rotation direction of the gaskets

- A:** Female STEEL ring Cod. 155012
- B:** Gasket Cod. 155007/1
- C:** Gasket Cod. 155007/3
- D:** Male steel ring Cod. 155006
- E:** Gasket housing Cod. 155013

13

Procedure

13.1 Reassemble the component (13a)





14

Necessary tools and equipment



Procedure

14.1 Using a 36mm wrench, unscrew and remove the component (14a)



15

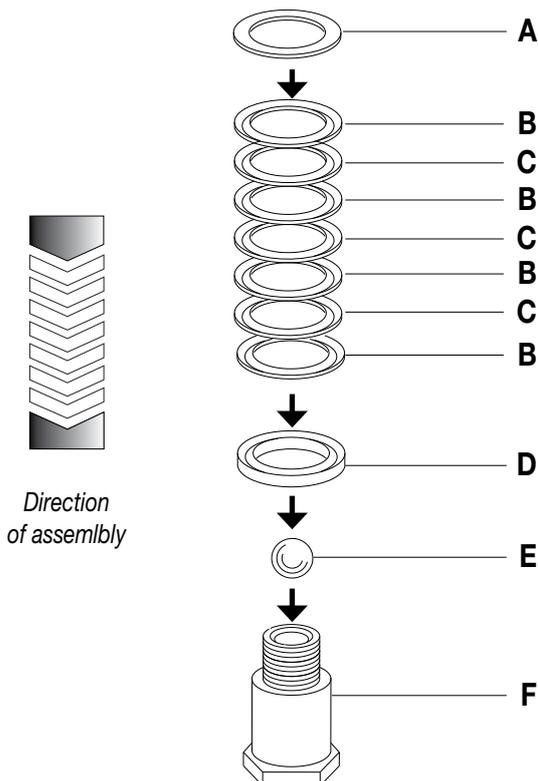
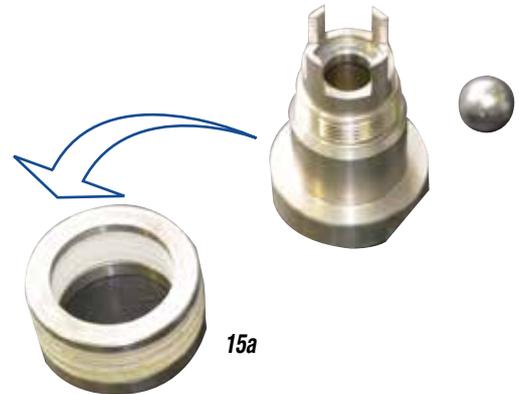
Necessary tools and equipment



Procedure

15.1 Remove the complete gasket pack (15a)

15.2 Clean and lubricate the gasket housings and replace them with new spare part



- A:** Male steel ring Cod. 155006
- B:** Gasket Cod. 155007/1
- C:** Gasket Cod. 155007/3
- D:** Female STEEL ring Cod. 155012
- E:** Ball Cod. 91641
- F:** Piston valve Cod. 155010

NOTE

Follow the rotation direction of the gaskets



16

Necessary tools and equipment



Procedure

16.1 Clean and lubricate the threaded area

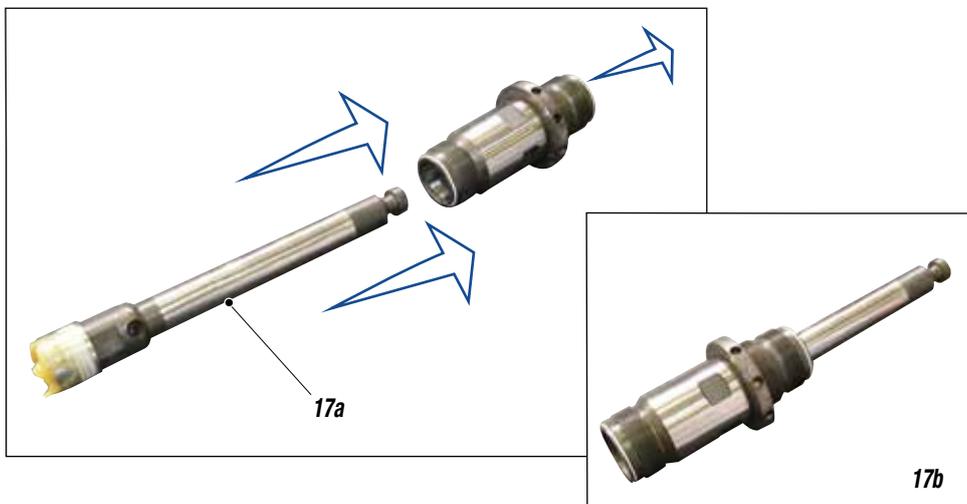
16.2 Using a 36mm wrench, reassemble the component (**16a**)



17

Procedure

17.1 Reassemble the component (**17a**) as shown in the figure (**17b**).





18

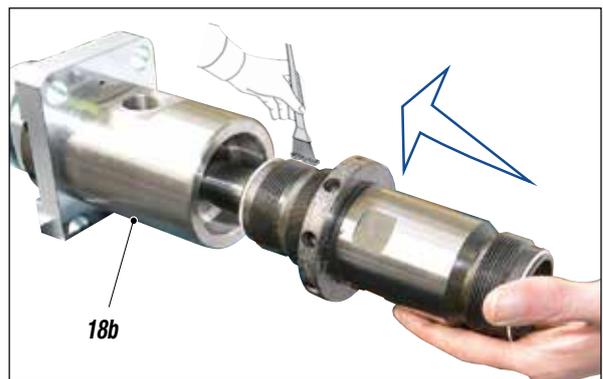
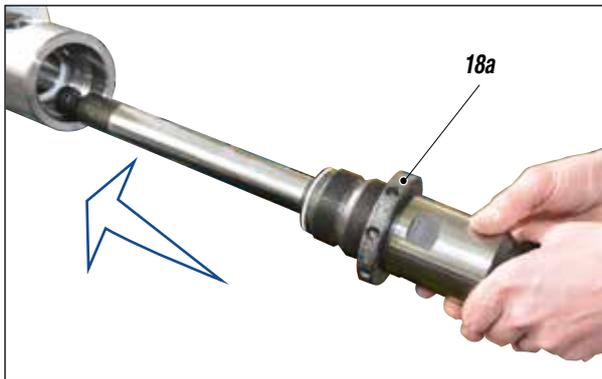
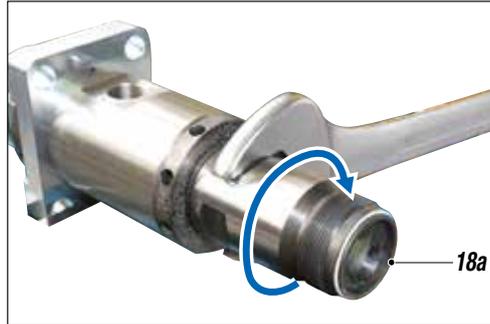
Necessary tools and equipment



Procedure

18.1 Insert the component (18a) inside the component (18b)

18.1 Using a wrench, screw in the component (18a)



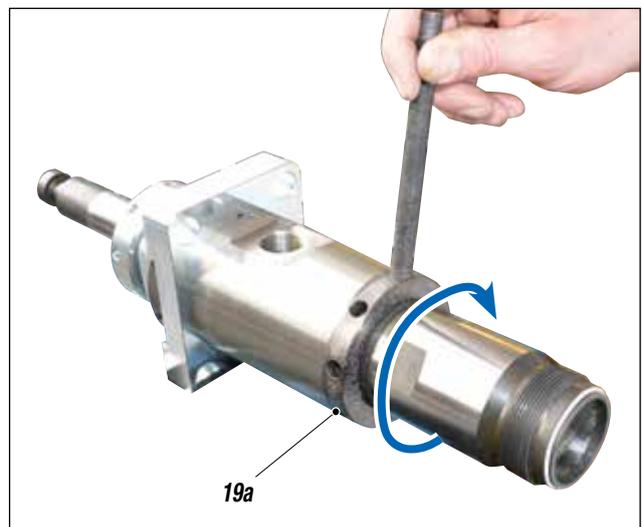
19

Necessary tools and equipment



Procedure

19.1 Tighten the ring nut (19a)



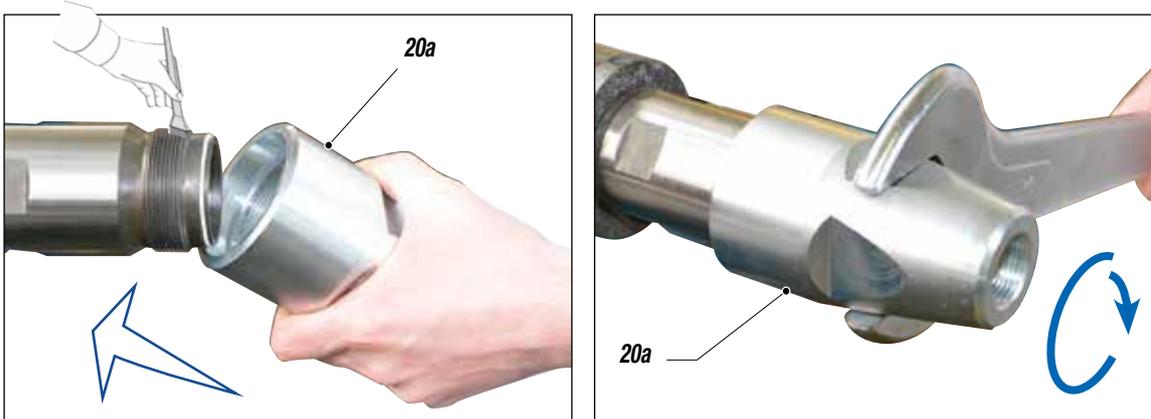
20

Necessary tools and equipment



Procedure

20.1 Reassemble the bottom valve body (20a)



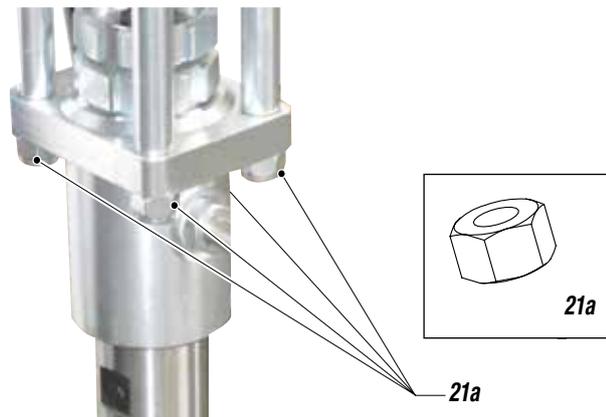
21

Necessary tools and equipment



Procedure

21.1 Reassemble the nuts (21a)



N MANUAL RESET OF THE PNEUMATIC MOTOR

- The feed air pressure of the pump must never be higher than the maximum value indicated in the technical data. Exceed this value can block the valves of the pneumatic motor in the intermediate position of the cycle reversal.
- To start again a blocked motor, close the air supply and release pressure in the plant. This operation should allow the recovery of the valves.
- In case the motor is blocked, proceed as follows:
 - Close the air supply to the pump and release the residual pressure in the plant;
 - unscrew the motor cap (K1) and pull it upward along with the guide rod (K2) so as to manually trigger the stroke inversion unit;
 - screw again the plug.

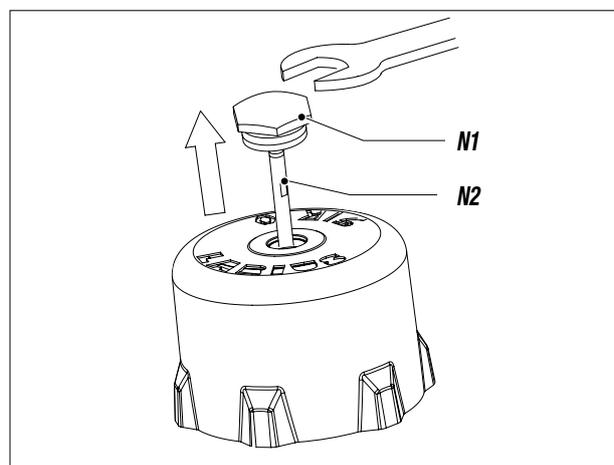


Fig. 1N



0 DISMANTLING AND REASSEMBLING THE PNEUMATIC MOTOR

1

Necessary tools and equipment

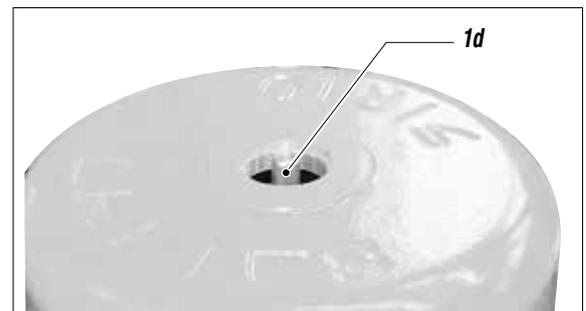
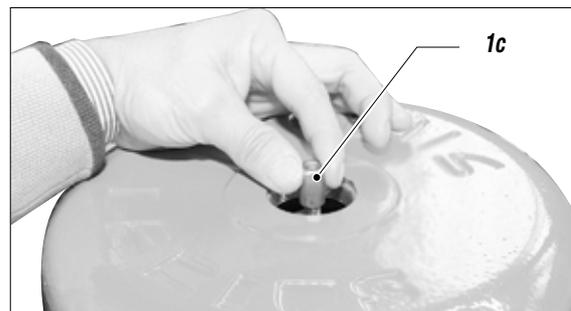
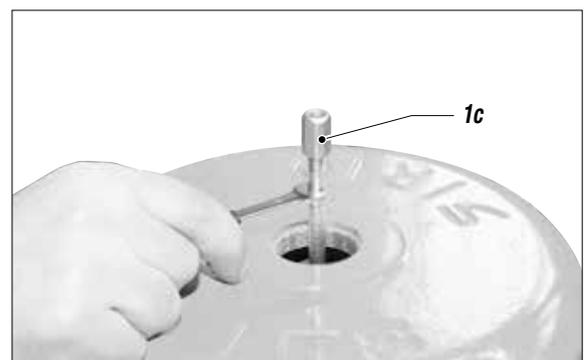
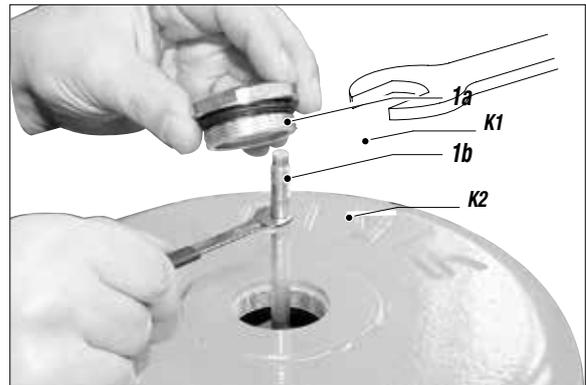
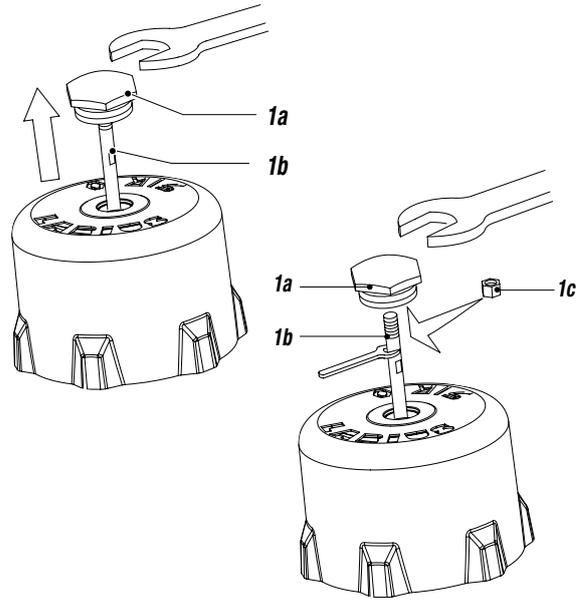


Procedure

- 1.1 Close the compressed air supply to the pump and release the residual pressure in the plant.
- 1.2 Unscrew the motor cap (1a) and pull it upwards together with the guide rod (1b) (1e)
- 1.3 Hold the guide rod (1b) and remove the plug (1a) (using two wrenches).



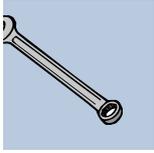
- 1.4 Replace immediately the plug with a usual M8 (1c) nut before the guide rod (1b) slides into the cylinder (1d).





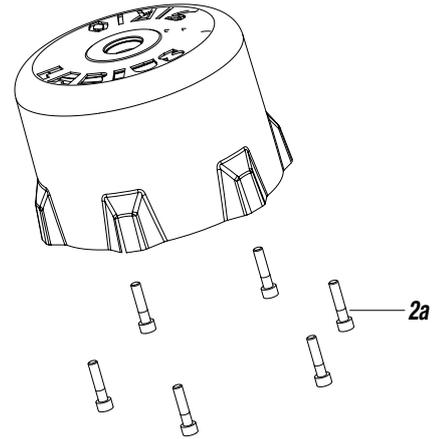
2

Necessary tools and equipment



Procedure

2.1 Remove the screws (2a) as shown in figures 2b e 2c.



2b



2c

3

Procedure

3.1 Carefully extract the motor cylinder (3a) from the pump.



3a



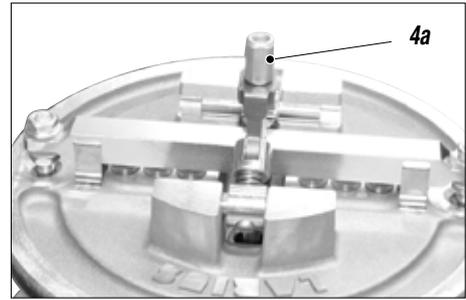
4

Necessary tools and equipment



Procedure

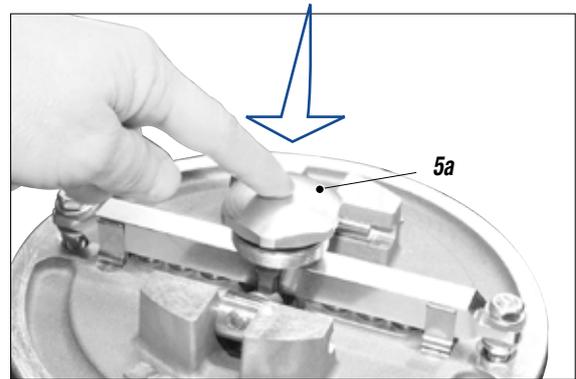
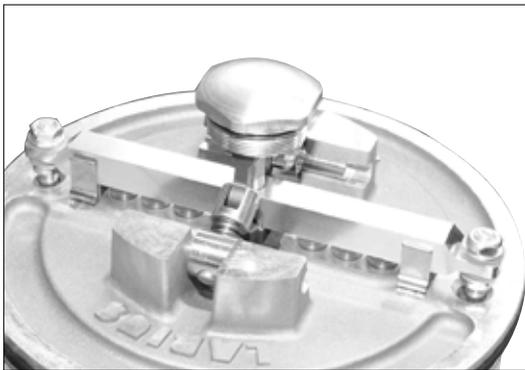
4.1 Unscrew the nut (**4a**) tholding the guide rod with a 7mm wrench. Then reassemble the cap (**4b**).



5

Procedure

5.1 Press at the point (**5a**) to snap inside the rocker arm stud screw.



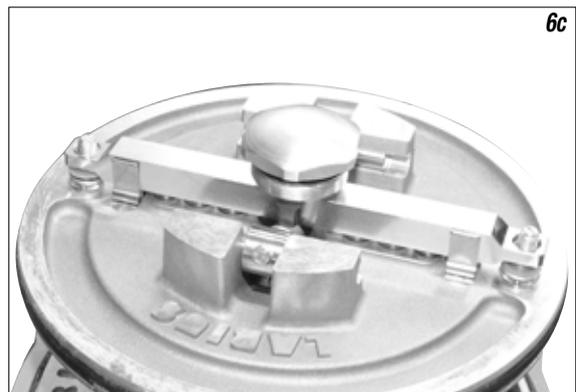
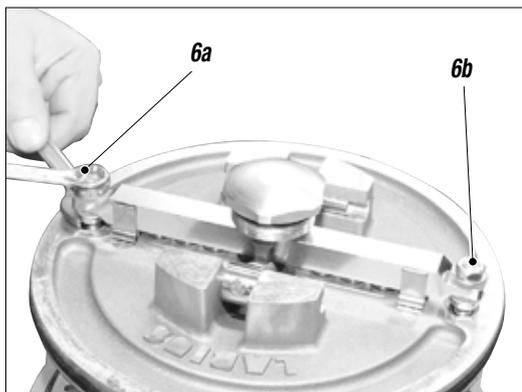
6

Necessary tools and equipment



Procedure

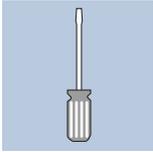
6.1 Unscrew and remove the two screws (**6a**, **6b**) with 2 13mm wrenches as shown in figure **6c**





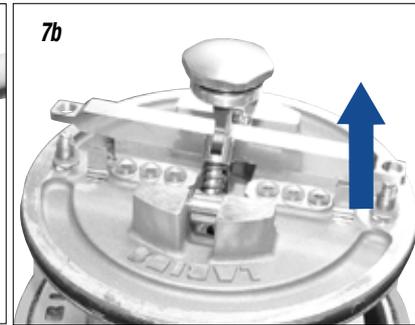
7

Necessary tools and equipment



Procedure

7.1 Use a screwdriver to lever the lower part of the stud screw (7a) keeping a hand over the cap to accompany it. (7b)



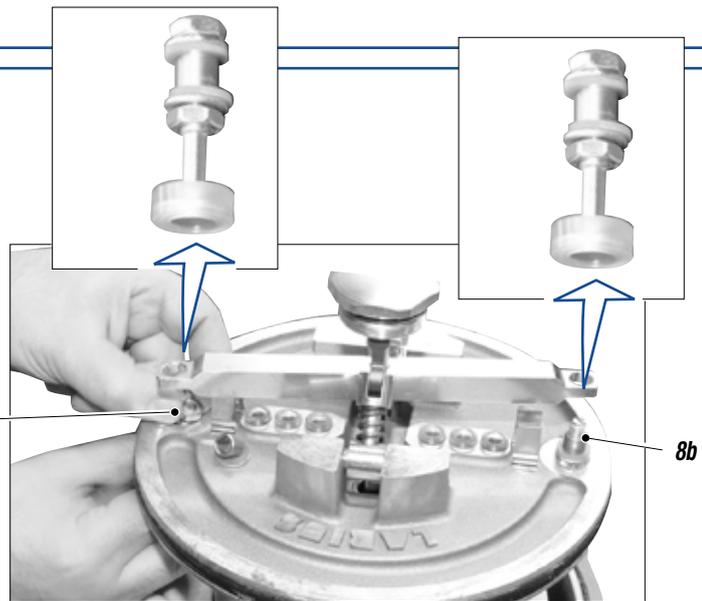
8

Necessary tools and equipment



Procedure

8.1 Remove the two valve screws (8a, 8b)



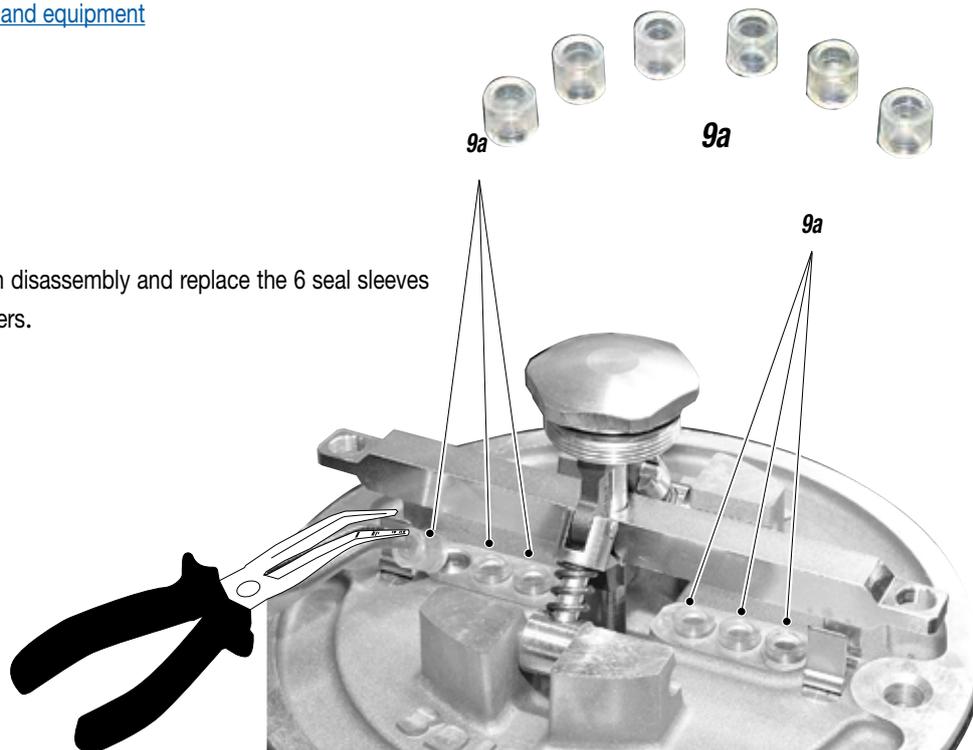
9

Necessary tools and equipment



Procedure

9.1 Proceed with disassembly and replace the 6 seal sleeves (9a) with pliers.



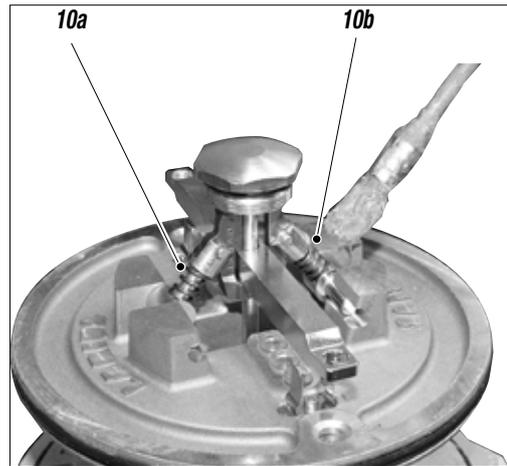
10

Necessary tools and equipment



Procedure

10.1 Lubricate the springs (10a, 10b).



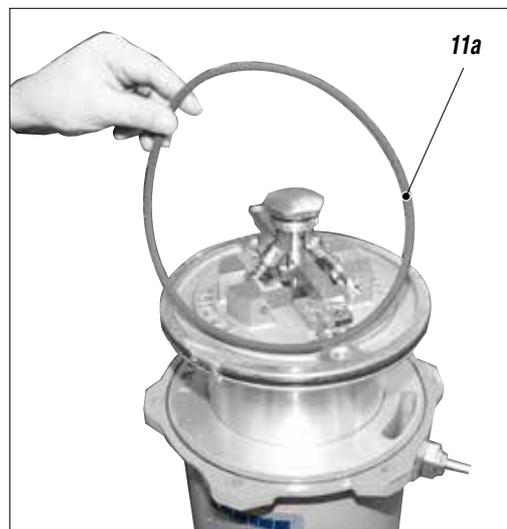
11

Necessary tools and equipment



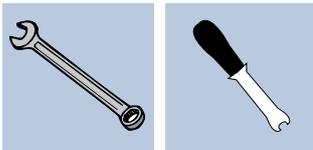
Procedure

11.1 Remove the OR gasket (11a) and replace it if necessary with a spare part.



12

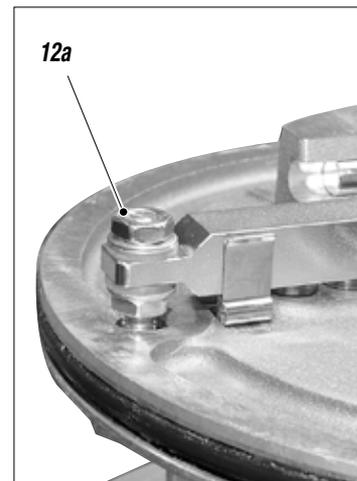
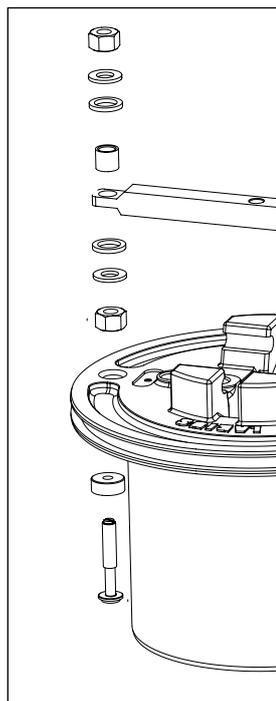
Necessary tools and equipment



Procedure

12.1 Reassemble the two valve screws (12a) as shown in the drawing.

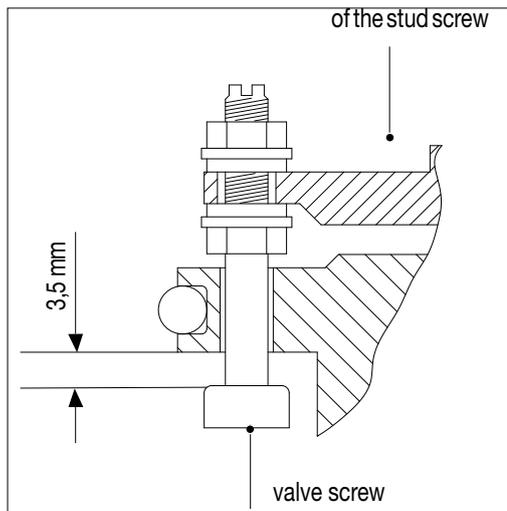
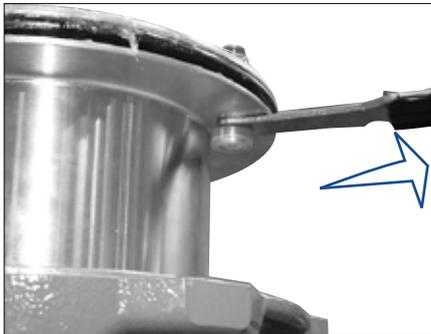
NOTA
Follow the rotation direction of the gaskets





Procedure

12.2 Reassemble the two valve screws, inserting a 3.5 mm thickness gauge as shown in the drawing and adjusting the exact position of the stud screw as shown in the drawing, keeping a tolerance distance of 3.5 mm



NOTE

Make adjustments in the same way on both valve screws



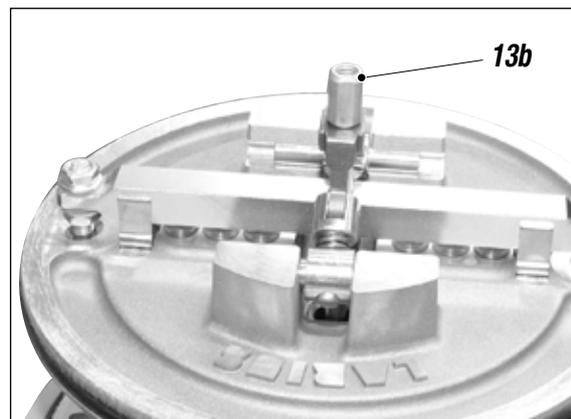
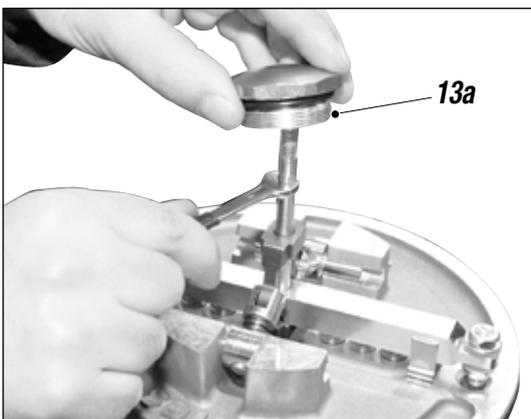
13

Necessary tools and equipment



Procedure

13.1 Unscrew the cap (13a), holding the guide rod with a 7mm wrench. Then reassemble the nut (13b).





14

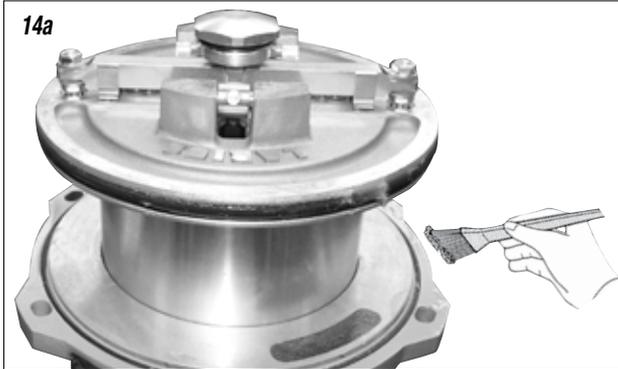
Necessary tools and equipment



Procedure

14.1 Lubricate the gasket (14a)

14.2 Carefully reassemble the motor cylinder (14b) on the pump.



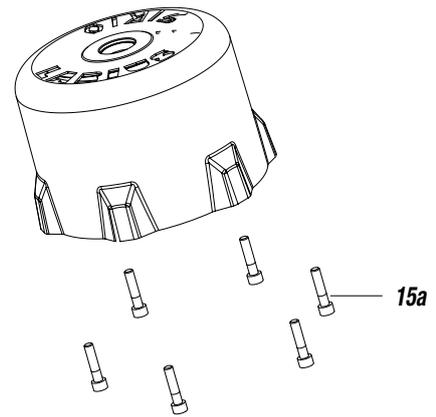
15

Necessary tools and equipment



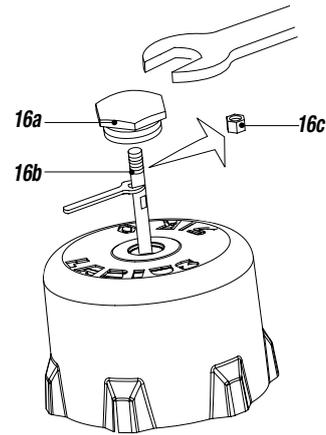
Procedure

15.1 Re-screw in the 6 screws (15a) as shown in the figures (15b) and (15c)

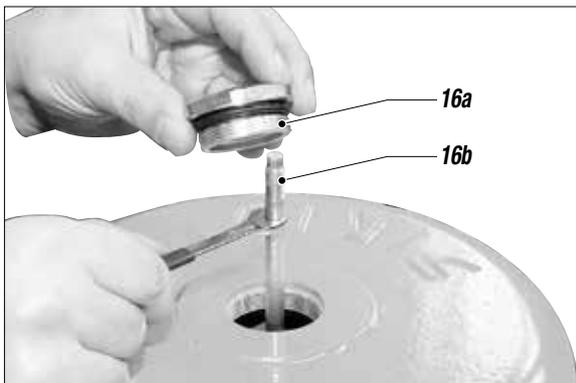
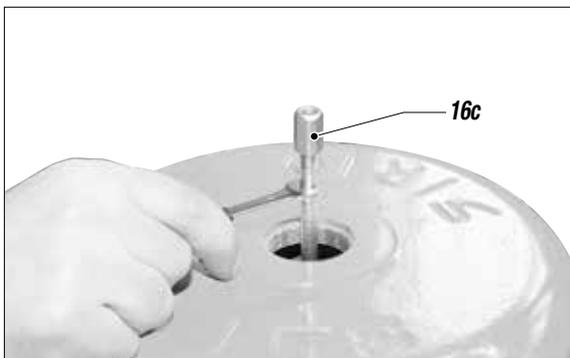
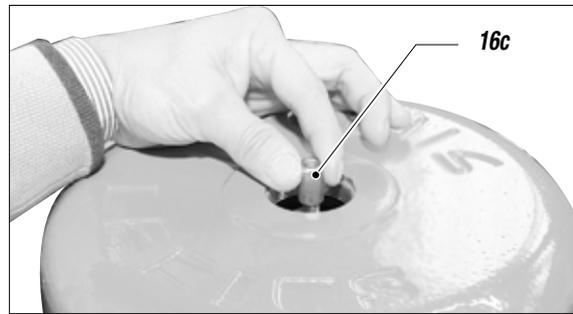
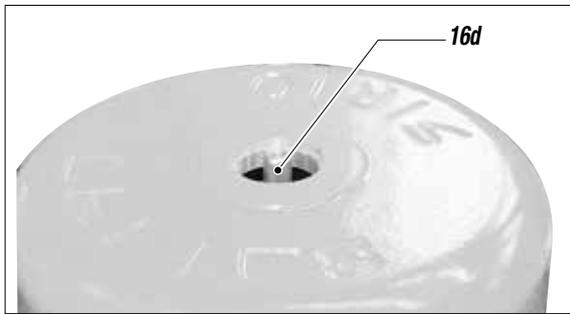


16

Necessary tools and equipment

Procedure

- 16.1** Raise the central guide rod (16b) from inside the cylinder (16d)
- 16.2** Remove the nut (16c)
- 16.3** Re-screw the cap (16a) onto the rod using 2 wrenches and re-screw in the cap on the cover (16e)





P PROBLEMS AND SOLUTION

Problem	Possible cause	Solution
The pump does not start	Feeding air is not enough	Check the air supply. Increase the diameter of the feeding hose
	Outlet water line clogged	Clean. Disconnect the outlet liquid pipe. Feed pump at minimum pressure and check if the pump starts without the outlet pipe
	Inlet water line clogged	Clean the suction pipe
	Pneumatic motor blocked at the upper or lower stroke end (Dead Center)	Reduce feed pressure and manually reset the pneumatic motor (see on page 11)
	Parts failure of the pneumatic motor	Disassemble the motor and check
Accelerated working and no pressure of the pump	There is no water	Add water
	The pump sucks air	Open the exhausting valve. For the version on air hoist, follow the instructions in the relevant manual
	Suction valve worn or partially clogged	Disassemble the suction valve. Clean and/or replace if necessary the worn parts
	Outlet valve worn or partially clogged	Disassemble the outlet valve. Clean and/or replace if necessary the worn parts
	Gaskets of the pumping rod worn	Replace the lower gaskets (see on page 13)
	The ball of the suction valve does not perfectly "close"	Disassemble the suction valve and clean (see on page 12)
The pump works, but the product is not flowing enough	Suction valve worn or partially clogged	Disassemble the suction valve. Clean and/or replace the worn parts
	Outlet water line clogged	Clean. Disconnect the outlet liquid pipe. Feed pump at minimum pressure and check if delivery increases without the outlet pipe
	The feed air pressure is too low	Increase air pressure
	Gaskets of the pumping rod worn	Replace the lower gaskets (see on page 13).
	Inlet water line clogged	Clean the suction pipe
	The ball of the suction valve does not perfectly "close"	Disassemble the suction valve and clean (see on page 12)
Leakage of water from the lubricating cup	Upper gaskets worn	Tighten the packing nut. In case of persistent waste of product, replace the upper gaskets of the pumping unit

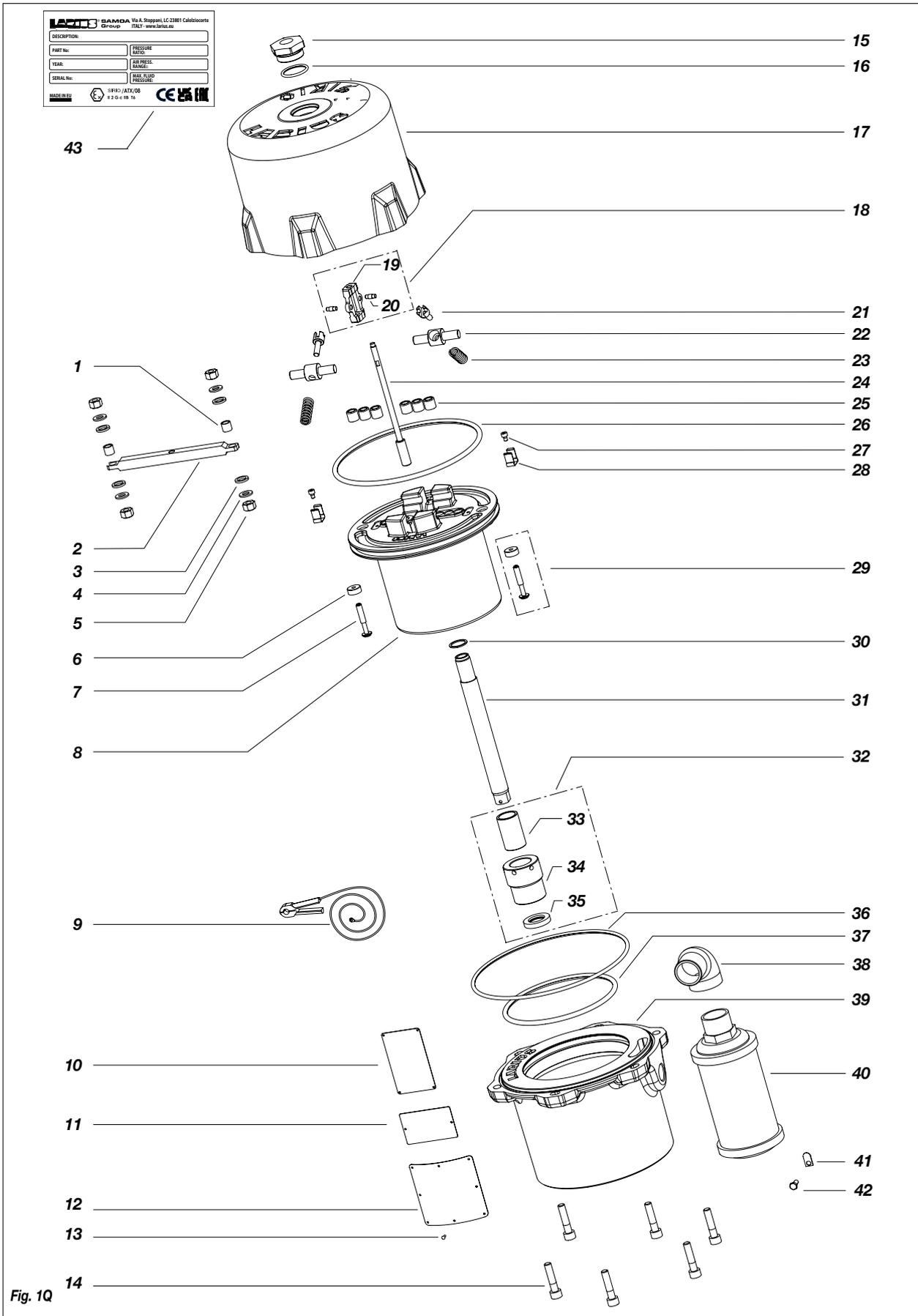


Always close the compressed air supply and release the pressure in the plant before performing any check or replacement of parts of the pump.



Q COMPLETE PNEUMATIC MOTOR

WARNING: always indicate code and quantity for every part required.





Pos.	Code	Description	Q. ty
	99100	Complete motor	
1	96112	Guide Bushing	2
2	99062	Crosspiece	1
3	96111	Gasket	4
4	32024	Washer Ø 8	4
5	4108	Nut	4
6	99058	Valve Gasket	2
7	99057	Valve Screw	2
8	99051	Piston	1
9	5010	Grounding Cable	1
10	99069	Shearing Plate	1
11	99064	T. Sirio 32:1 Technical Data Plate	1
12	99052	Machine Plate	1
13	34021	Rivet	12
14	16111	Screw M10x45	6
15	96001	Cap	1
16	95075	O-ring	1
17	99053	Motor cylinder	1
18	99066/1	Complete rocker arm	1
19	96008/1	Rocker lever	1
20	96024	Fork pin	2
21	96007	Fork	2

Pos.	Code	Description	Q. ty
22	99060	Seal Bushing	2
23	99061	Exchange Spring	2
24	96010	Guide	1
25	96009	Seal Bushing	6
26	99059	O-ring	1
27	96025	TCE Screw	2
28	96011	Guide Spring	2
29	99068	Complete screw valve	2
30	33031	Washer	1
31	96016	Piston rod	1
32	96017	Complete bush	1
33	96017/2	Guide Bush	1
34	96017/1	Brass Bearing	1
35	96019	Seal Ring	1
36	99056	O Ring 226	1
37	99055	O Ring 3900	1
38	20172	Elbow Fitting	1
39	99050	Motor base	1
40	99054	Sound Absorbing Filter	1
41	96210	Grounding Plate	1
42	96211	TE screw	1
43	99041	ATEX plate	1

R PNEUMATIC REGULATOR UNIT ASSEMBLY

WARNING: always indicate code and quantity for every part required.

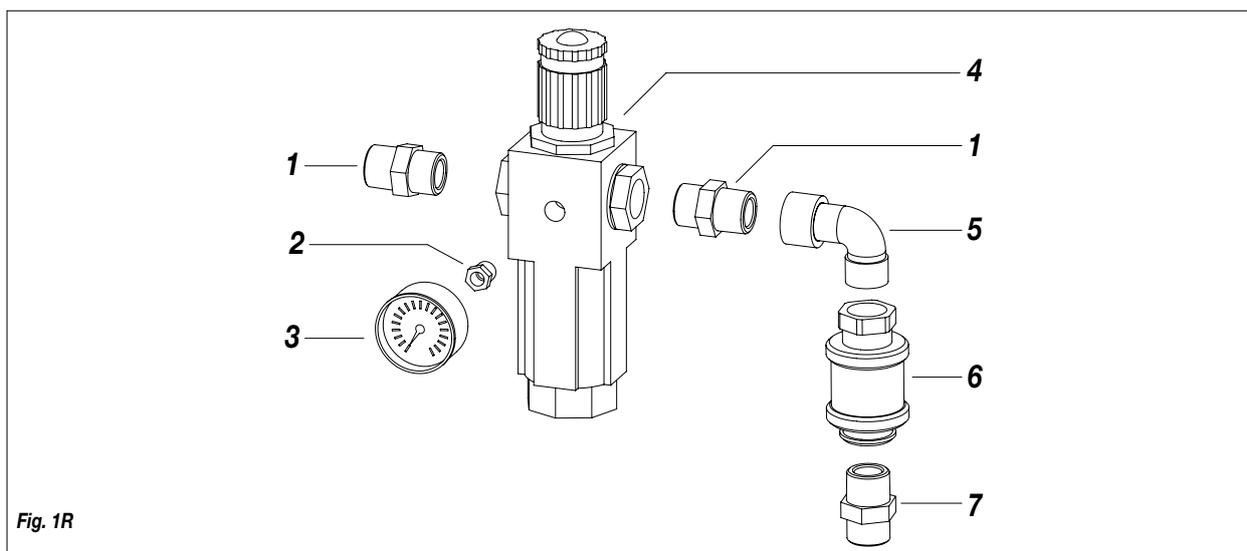


Fig. 1R

Pos.	Code	Description	Q. ty
1	20823	Nipple	2
2	22020	Joint	1
3	96259	Manometer	1
4	99290	Pneumatic regulator	1

Pos.	Code	Description	Q. ty
5	20824	Elbow	1
6	ZZ11	Slide valve	1
7	95090	Nipple	1



S COMPLETE PUMPING GROUP

WARNING: always indicate code and quantity for every part required.

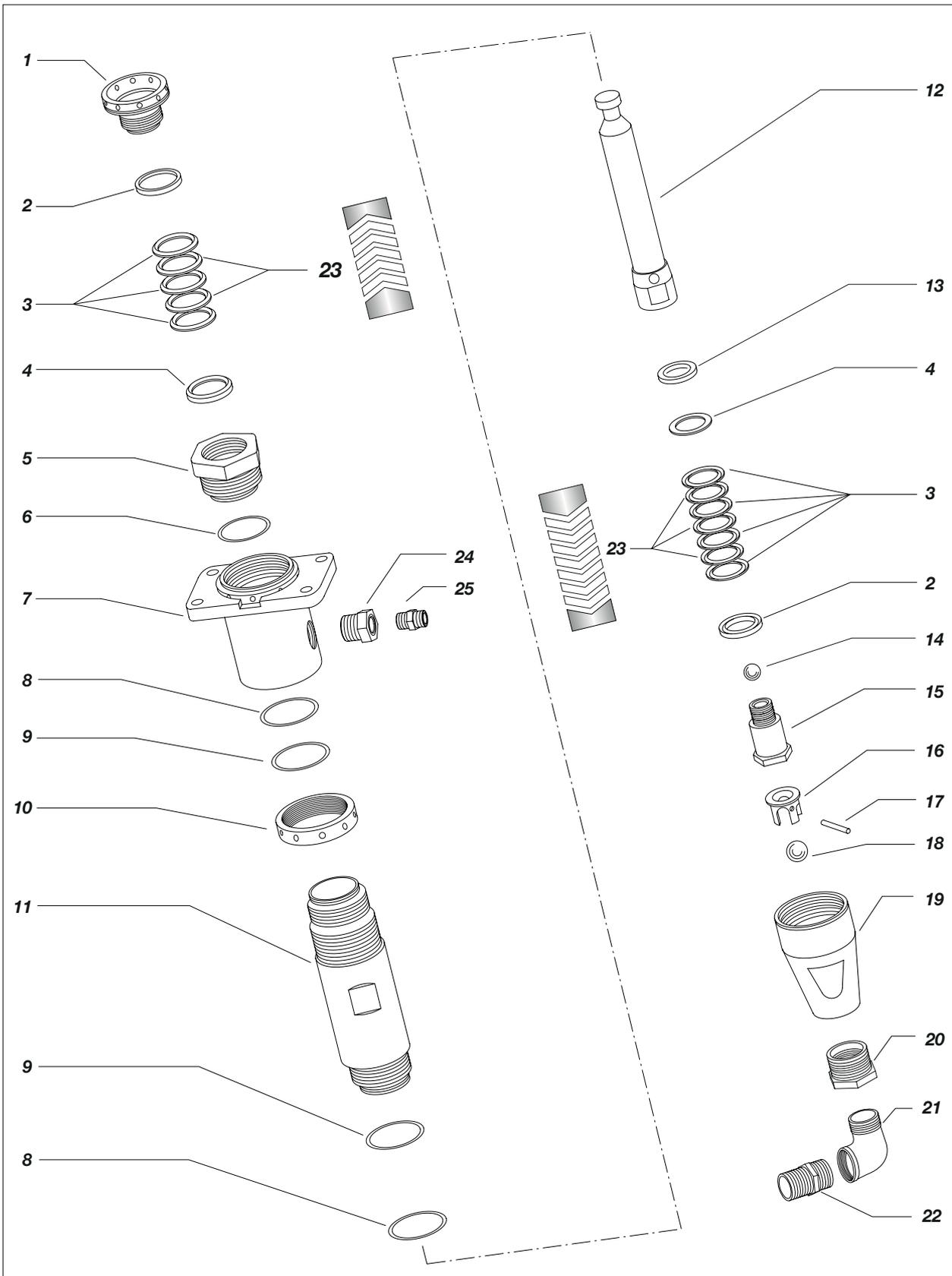


Fig. 1S



Pos.	Code	Description	Q. ty
_	155050	Complete pumping roup	-
1	155011	Gaskets ring nut	1
2	155012	Female ring	2
3	155007/1	Gasket PTFE V	7
4	155006	Male ring	2
5	155013	Upper gasket holder	1
6	155014	O Ring	1
7	155015	Upper housing	1
8	155016	O Ring PTFE	2
9	155024	O Ring PTFE	2
10	155022	Locking ring nut	1
11	155017	Sleeve	
12	155001	Piston rod	1

Pos.	Code	Description	Q. ty
13	155005	Pumping washer	1
14	91641	Ball \varnothing 3/4"	1
15	155010	Pumping piston	1
16	155019	Lower ball guide	1
17	155018	Ball locking pin	1
18	95027	Ball \varnothing 1" 1/4	1
19	155021	Bottom valve body	1
20	65184/1	Reduction M/F 1/4-1"	1
21	98231	Elbow M/F 1"	1
22	8373/2	Nipple	1
23	155007/3	Gasket	5
24	3558/1	Joint M3/4 F 3/8	1
25	6149	Nipple	1

Pos.	Code	Description	Q. ty
26	16135	Perno di regolazione	1
27	16340	Flacone olio	1

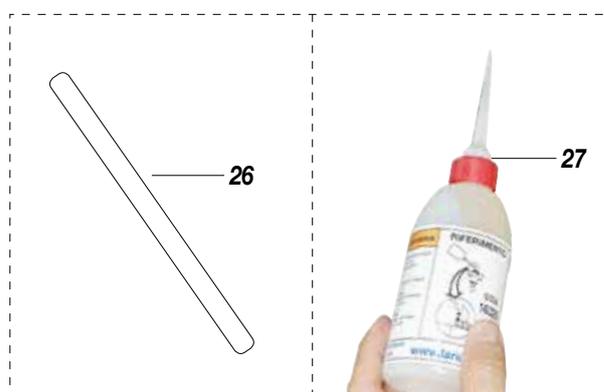


Fig. 27

40091 GASKETS KIT
40091/1 GASKETS KIT PNEUMATIC WASHING PUMP VERSION



T STANDARD COMPLETE TROLLEY

WARNING: always indicate code and quantity for each part required.

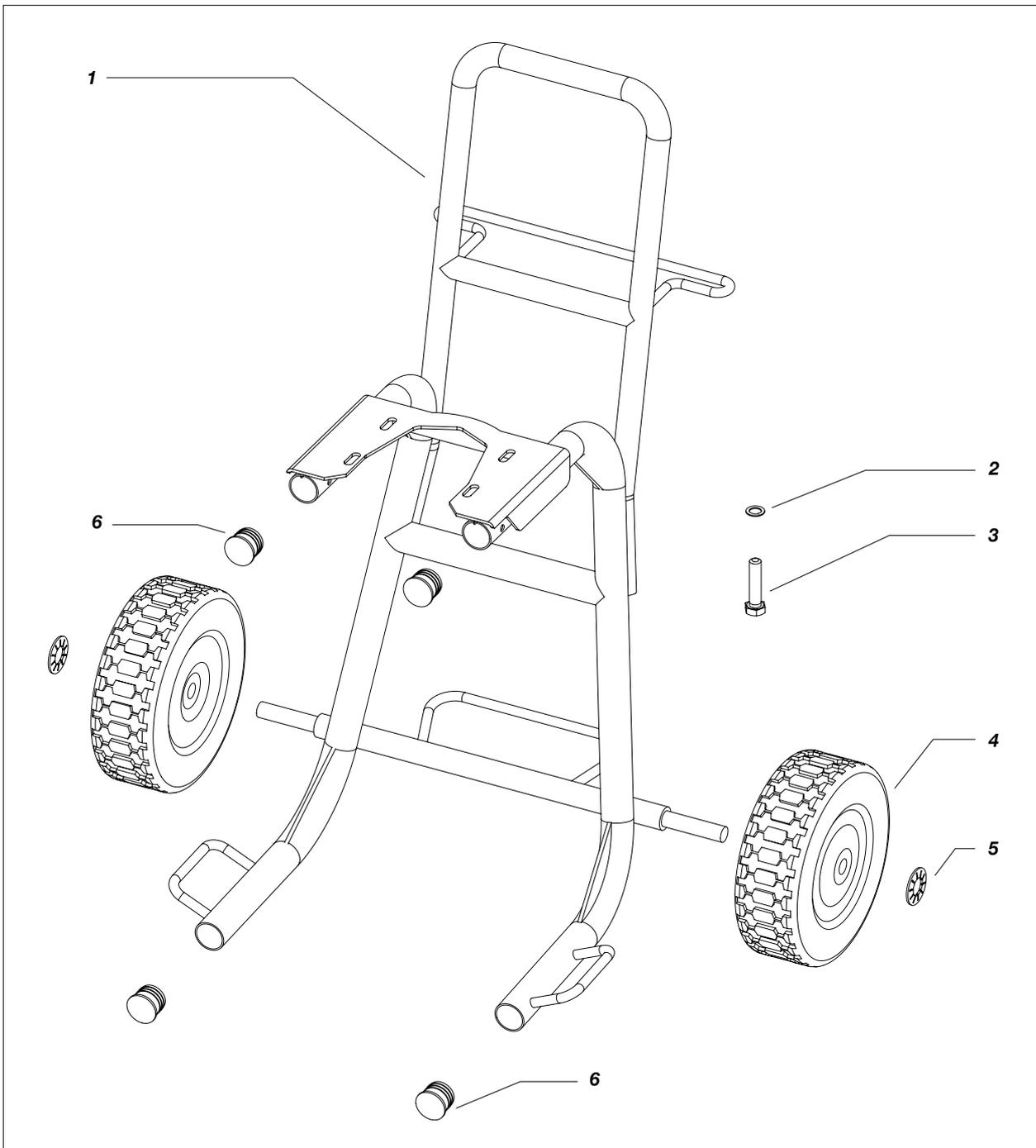


Fig. 1T

Pos.	Code	Description	Q. ty
-	99150/1	Standard complete trolley	-
1	99153/1	Base Trolley	
2	81033	Washer Ø 10	4
3	98109	Screw Te	4

Pos.	Code	Description	Q. ty
4	37238	Wheel	2
5	20305	Wheel Stop Washer	2
6	95229	Ø 40 Tube Cap	4



U PUMPING UNIT COUPLING KIT

WARNING: always indicate code and quantity for each part required.

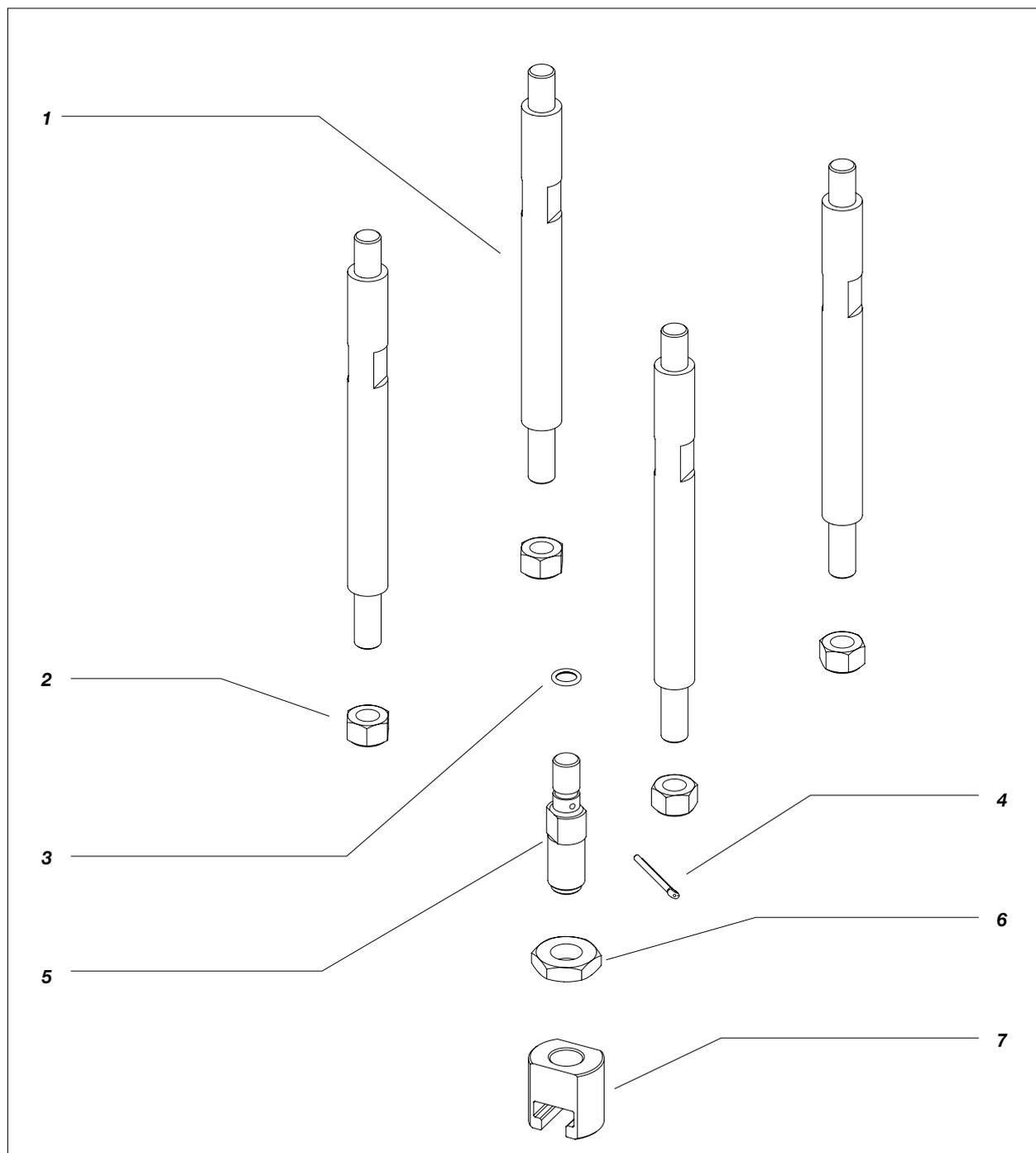


Fig. 1U

Pos.	Code	Description	Q. ty
	99280	Complete kit	-
1	99281	Tie rod	
2	95013	Nut	4
3	96073	O Ring 3050	1

Pos.	Code	Description	Q. ty
4	3323	Split pin	1
5	99282	Joint sleeve	1
6	99284	Nut	1
7	99283	Pumping shaft connection	1



V ACCESSORIES

Code	Description
70008	Gun with 170 cm extension with fitting BSPP 3/8"
18072/1	Hose 15 mt with fitting BSPP 1"
70150	Stainless steel suction filter 200 lt with fitting BSPP 1"
6149/2	Nipple MM with fitting BSPP 3/8"
65016	Double outlet kit with fitting BSPP 3/8"
98245	Suction tube for tank 30 lt with fitting BSPP 1"
98246	Suction tube for tank 1000 lt with fitting BSPP 1"

W ATEX CERTIFICATE

These safety instructions refer to the installation, use and maintenance of **LARIUS SIRIO** series pneumatic piston transfer pumps in high risk environments where potentially explosive gasses or vapours are present.



These instructions, along with the indications provided in the user and maintenance manual, must be fully respected.



LARIUS SIRIO series pneumatic piston pumps are group ii mechanical devices for use in areas where gasses classified as iib (category 2 g) are present. They are designed and built in accordance with the 94/9/ec atex directive, based on the following european standards: en 1127-1, en 13463-1ed en 13463-5.

MARKINGS

CE II 2 G c IIB T6 T_{amb}: -20°C ÷ + 60°C T_{max. fluid}: 90°C Tech. File: SIRIO/ATX/08

II =	Group II (surfaces)
2 =	Category 2 (zone 1)
G =	Explosive atmosphere containing gasses, vapours or mists
c =	Design safety "c"
T6 =	Temperature class T6
- 20°C ÷ + 60°C	Room temperature
90°C	Maximum process fluid temperature
xxxx/AA	Serial number or lot number (xxxxx = PROGRESSIVE / year = AA)

NOTE

*** Fluid temperature can be 90° maximum only with water or water based products**

Correspondence between hazardous areas, substances and categories

HAZARDOUS AREAS		CATEGORIES ACCORDING TO THE 94/9/CE DIRECTIVE
Gasses, vapours or mists	Zone 0	1G
Gasses, vapours or mists	Zone 1	2G or 1G
Gasses, vapours or mists	Zone 2	3G, 2G or 1G



SAFETY INSTRUCTIONS FOR INSTALLATION IN HAZARDOUS AREAS



Read the indications provided in the user and maintenance manual carefully prior to installation. All of the maintenance operations must be performed according to the indications provided in the manual.

- The grounding wire for the pumps indicated above must be grounded using an appropriate anti-loosening connection.
- The tubes used to connect the delivery and suction lines must be either metallic, plastic with metallic braid, or plastic with fabric braid and a suitable grounding conductor.
- The pumps must be installed on properly grounded metallic or antistatic drums.
- The gases or vapours of any flammable liquids present must belong to group IIB.
- Based on the type of use and the substances employed, the user must periodically check for any encrustations and must verify the cleanliness, the wear status and the correct functionality of the pump on a regular basis.
- The user must periodically clean the suction filter in order to prevent any solid materials from entering the pump. The air used to power the pump must be filtered and must come from a SAFE AREA.



SIRIO series pneumatic piston transfer pump cannot work without material.
All of the installation and maintenance operations must be performed by qualified personnel.

DECLARATION OF CONFORMITY

We Larius S.r.l.
Via Stoppani, 21
23801 Calolziocorte (LC)

declare under our sole responsibility that the product:

SIRIO series pneumatic piston transfer pump.

to which this declaration relates complies with the following directives:

- Directive 94/9/EC (ATEX)

The conformity are under observance of the following standards or standards documents:

- EN 1127-1 - EN 13463-5
- EN 13463-1

Markings

CE  II 2 G c IIB T6 Tamb.: - 20°C ÷ 60°C Tmax. fluido (acqua): 90°C*

Tech. File: **SIRIO/ATX/08**

Technical dossier kept on file c/o: **INERIS (0080)**

Calolziocorte- LC, 15/12/2008

Signature (LARIUS)

* *water or water based product*



TECHNICKÁ INŠPEKCIA, a.s.



SLOVENSKÁ REPUBLIKA

ACKNOWLEDGEMENT OF RECEIPT

no. 1775/5/2016

Technická inšpekcia, a. s.,

Trnavská cesta 56, 821 01 Bratislava

Notified body: 1354,

confirms, that Technical File Documentation

prepared by

Larius s.r.l.

Via Antonio Stoppani, 21

23801 CALOLZIOCORTE (LC) - ITALY

has been received and stored according to the Article 13.1(b) (ii) of Directive 2014/34/EU on equipment and protective systems intended for use in potentially explosive atmospheres

Scope of Ex Equipment:

HIGH PRESSURE PAINT SPRAYING AUTOMATIC AND MANUAL GUNS WITH AIR-LESS TECHNOLOGY Series: AUTOMATIC PAINT SPRAY GUNS LA95 and MAUNUAL PAINT SPRAYING GUNS AT250-AT300 - L91X

PAINT SPRAYING AUTOMATIC AND MANUAL GUNS WITH MIST-LESS TECHNOLOGY Series: AUTOMATIC PAINT SPRAY GUNS L200 and MAUNUAL PAINT SRAYING GUNS L400

LOW PRESSURE AUTOMATIC PAINT SPRAYING GUNS Series: L100 - MA98

PAINT SPRAYING PNEUMATIC PUMP Series: SIRIO

Marking: II 2 G Ex h IIB T6 Gb

Technical File Documentation according to the Annex VIII Article 2 of Directive 2014/34/EU

Doc. no.	Issue
Fascicolo tecnico Secondo la direttiva 2014/34/EU	Data 24/11/2016 Rev. 0

Technical documentation will be stored for 10 years until December 12th, 2026.

Bratislava, December 12th, 2016



On behalf of Technická inšpekcia, a.s.

Ing. Dušan Perniš
General Director

301087
PDOKA2-413



CE DECLARATION OF CONFORMITY



Company



LARIUS srl
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Fax: +39 0341 621243
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Declares under his owns responsibility that the product:

SIRO 32:1 PNEUMATIC WASHING PUMP Pneumatic airless pump

complies with the directives: | - EC Directive 2006/42 Machinery Directive

furthermore to the
harmonized standards: | - UNI EN ISO 12100-1/-2
Machinery safety, basic concepts, general principles of design. Basic terminology, methodology. Technical principles.

This declaration relates exclusively to the product in the state in which it was placed on the market, and excludes components or modifications which are added or carried out subsequently by end user.

Signature

Pierangelo Castagna
Managing Director

Calolziocorte,
Location / Date



LARIUS srl

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