REV. 09 - 02/2024

Manuale Cod. 150170

INSTRUCTION MANUAL

SAMOA®

LEADING THROUGH INNOVATION

EN

www.larius.com

SIRIO 60:1

Pneumatic extrision pump

ATEX Ex II 2 G Ex IIB T6 Gb certified pump

IT	http://www.larius.org/manuali/SIRIO_60_1_I.pdf
EN	http://www.larius.org/manuali/SIRIO_60_1_UK.pdf
FR	http://www.larius.org/manuali/SIRIO_60_1_F.pdf

99503	SIRIO 60:1 Extrusion pump, long
99500	SIRIO 60:1 Extrusion pump, short

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 60:1

Pneumatic pump for extrusion

INDEX

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 **SAMOA** 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.

- 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.

- It indicates an accident risk or serious damage to equipment if this warning is not followed.

FIRE AND EXPLOSION HAZARD
- Solvent and paint fumes in work area can ignite or explode.
- **To help prevent fire and explosion:**
  - 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.

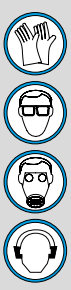
- It indicates wound and finger squashing risk due to movable parts in the equipment.
- Tenersi lontano dalle parti in movimento.
- Do not use the equipment without the proper protection.
- Before any inspection or maintenance of the equipment, carry out the decompression procedure explained in this manual, and prevent any risk of the equipment starting unexpectedly.

- 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.

- It indicates important recommendations about disposal and recycling process of products in accordance with the environmental regulations.

- 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:**
  - (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.



- 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.

ED. 09 - 02/2024 - Cod. 150170

B 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 the manufacturer 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 the manufacturer.

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.

C 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.

D 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.

Never spray over flammable products or solvents in closed places.

Never use the tooling in presence of potentially explosive gas.

Always check that the product is compatible with the materials composing the equipment (*pump, spray gun, flexible hose and accessories*) with which it can come into contact. Never use paints or solvents containing Halogen Hydrocarbons (*as the Methylene Chloride*). If these products come into contact with aluminium parts can provoke dangerous chemical reactions with risk of corrosion and explosion.

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.

If the product to be used is toxic, avoid inhalation and contact by using protection gloves, goggles and proper face shields.

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

E TYPICAL INSTALLATION

GHIBLI PUMP 60 :1 **(3)** is usually supplied complete with shovel plate **(2)** and fastened on a double post ram **(1)**. The double post ram **(1)** allows to suck the product directly from the drum and to replace the drum quickly. The shovel plate **(2)**, fastened at the base of the pump, compresses the material ensuring a constant flow of product. In addition, it protects the material not yet sucked in against powder and moisture and also against drying which is caused by the contact with air.

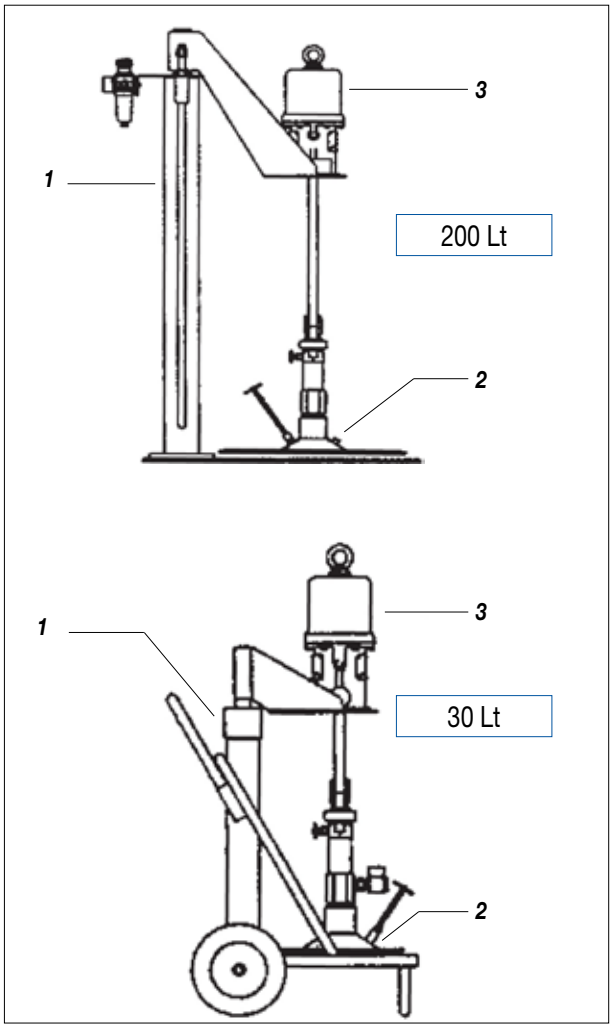


Fig. 1

ED. 09 - 02/2024 - Cod. 150170

F WORKING PRINCIPLE

The pneumatic transfer pumps work with a compressed air motor that moves the piston vertically from top to bottom and viceversa. The product is suctioned by the lower pump and carried to the exit. The structure of the ***"pumping unit"*** *(suction valve, pump piston, material seal gaskets)* permits the supply of material when the piston is in the ascending or descending phase.
The flow rate of a pneumatic piston pump depends on the quantity of material that it releases during each cycle and on the number of cycles that it completes *(the cycle is the full stroke of the piston in both direction).*
The ratio 60:1 means that the outlet pressure of material is 60 times higher than the pump feed air pressure.

FIELDS OF APPLICATION

- Lubrication
- Ink transfer
- Transfer and paint circulation
- Dosing of chemical products
- Protective coatings
- Fluid transfer
- Filling-emptying barrels
- Oil supply
- Graphic arts, printing, flexography
- Tanning
- Fluids evacuation
- Water and liquid waste removal
- Woodworking and plywood
- Supply ceramic pastes screen printing machines
- Power atomisation heads for wetting and humidifying
- Supply of machines for coating and laminating
- Electrical and Electronics for component isolation
- Woodworking and plywood
- Cosmetic, construction, mechanics,paper, shipbuilding, automobile industries
- Carpentry, Railways

MAIN APPLICABLE PRODUCTS

- Alcohol
- Sealants, Silicones, Greases
- Inks
- Mastics, Glues
- Lubricants
- Adhesives and self-adhesives
- Paints, Resins, Solvents
- Gear oils
- Motor oils
- Filler
- Materials for tanneries
- Waterproofing
- Dyes, Anti-noise
- Additives, Enamels, Acrylics
- Epoxy materials
- Soundproofing
- Insulators
- Detergents
- Removers
- Cleaners
- Composite and thermosetting materials
- Cosmetics

ADVANTAGES

- Excellent resistance to abrasion and corrosion
- Ability to handle applications ranging from the passage of corrosive fluids to cleaning fluids
- Constant balancing reduces the pressure drop during the run
- Starting point at minimal work pressure
- High transfer efficiency even with viscous fluids
- Low noise level
- Quick priming and immediate flow of product
- Any leakage of the product
- Reinforced Membranes for long life
- External corrosion and leak-resistant construction to ensure clean fluid parts
- Speed adjusting keeping high pressure
- The flow reduces the work cycles and wear
- Minimum maintenance

G TECHNICAL DATA

	SIRIO 60:1
Pump pressure ratio	60:1
Air pressure range	3-7 bar / 40-100 psi
Maximum fluid outlet pressure	420 bar / 6,090 psi
Delivery per cycle	60 cc
Air consumption at 60 cycles/min	3 bar - 760l/min 5 bar - 1,260 l/min 7 bar - 1,760 l/min
Air inlet thread	3/4" BSPP (F)
Fluid outlet thread	3/4" BSPP (F)
Lower pump material	Carbon steel
Plunger material	INOX 420B
Seals material	PTFE+PE 1000
Air motor piston diameter and stroke	Ø 6 1/2"-4" / Ø 162 - 100mm

Always observe these instructions carefully when evaluating the product compatibility and in case of disposal of some parts of the pump no more usable, in order to meet the environmental regulations on recycling process.

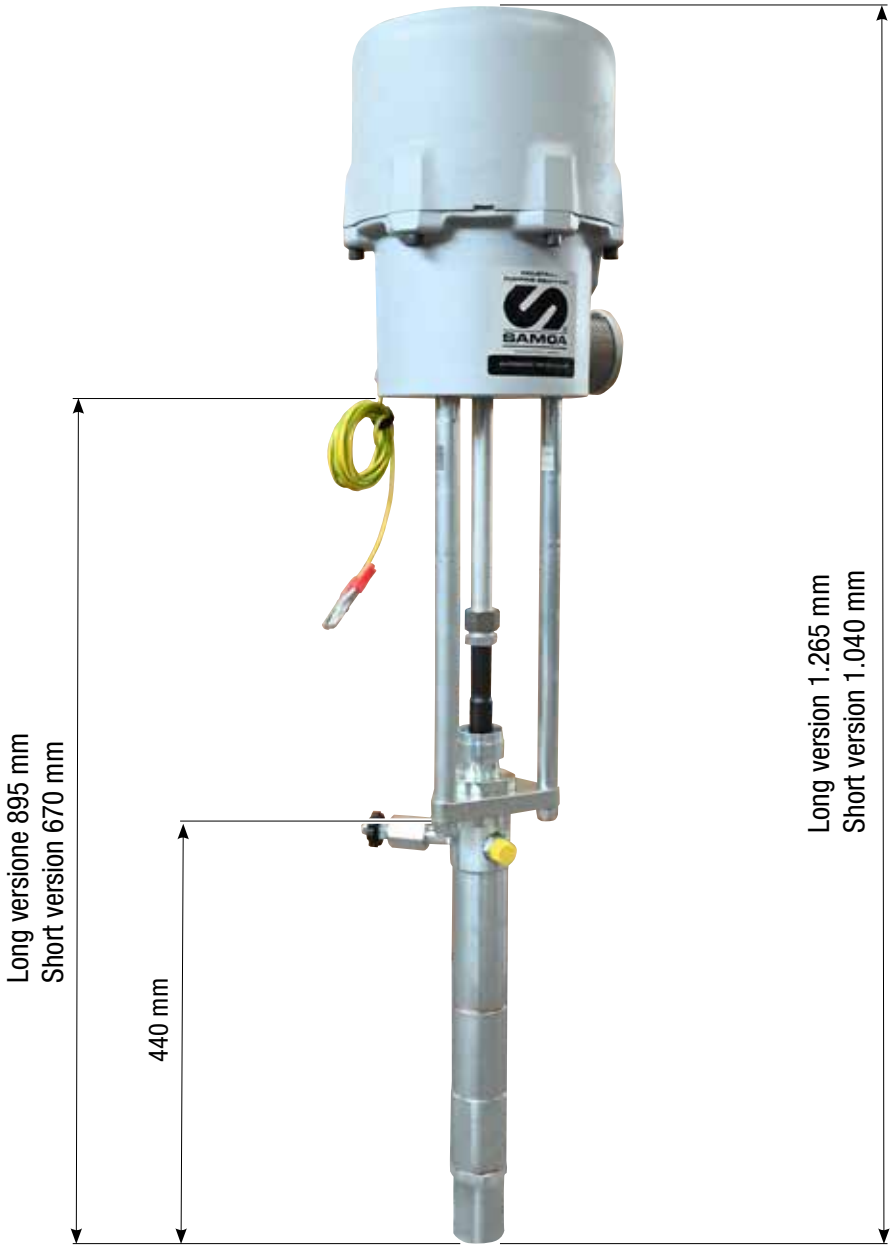


Fig. 1

ED. 09 - 02/2024 - Cod. 150170

H DESCRIPTION OF THE EQUIPMENT

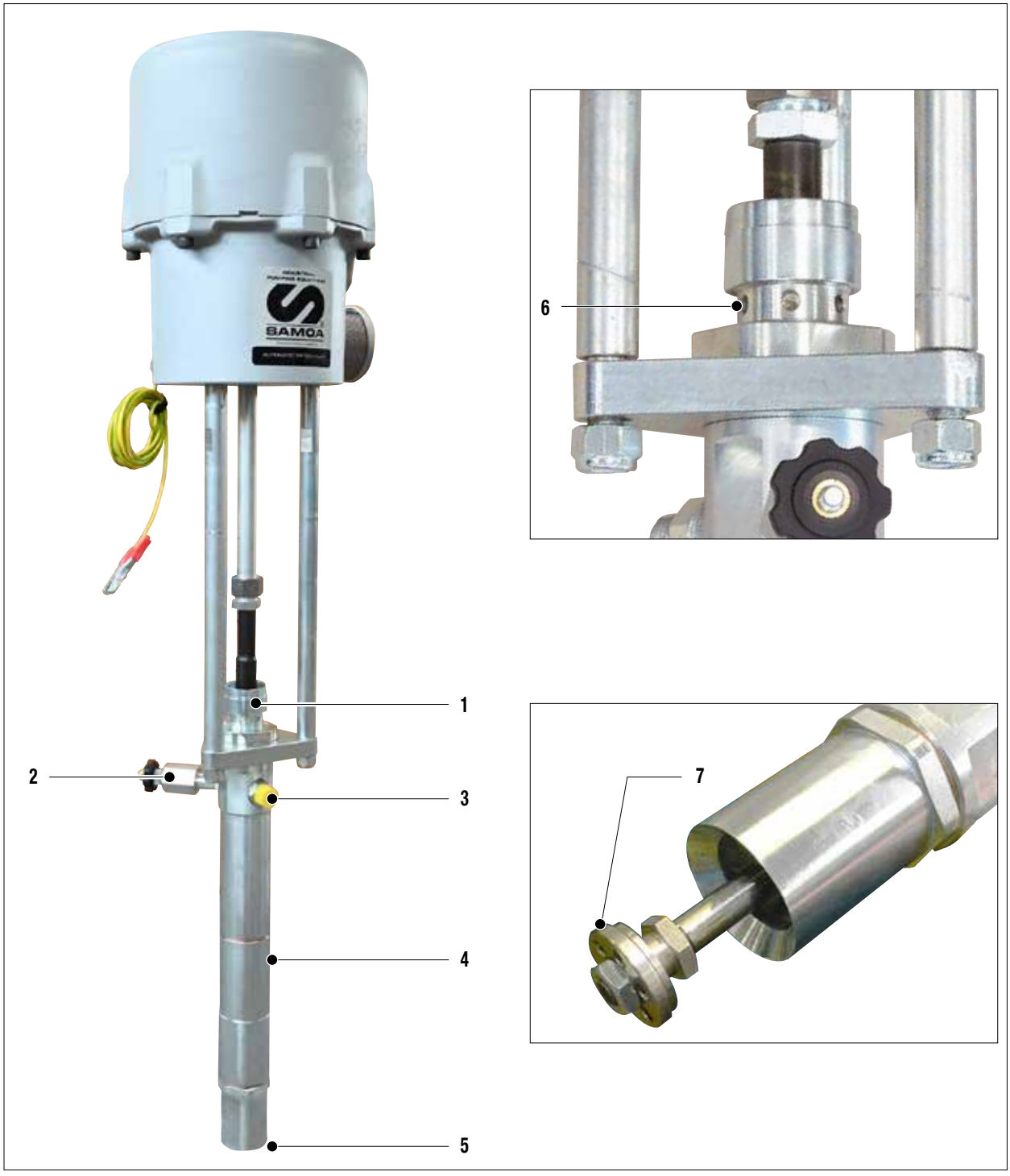


Fig. 1

Pos.	Description
1	Lubricant bucket
2	Bleed valve
3	Material outlet
4	Material pumping group

Pos.	Description
5	Material inlet
6	Nut to press seal
7	Follower plate

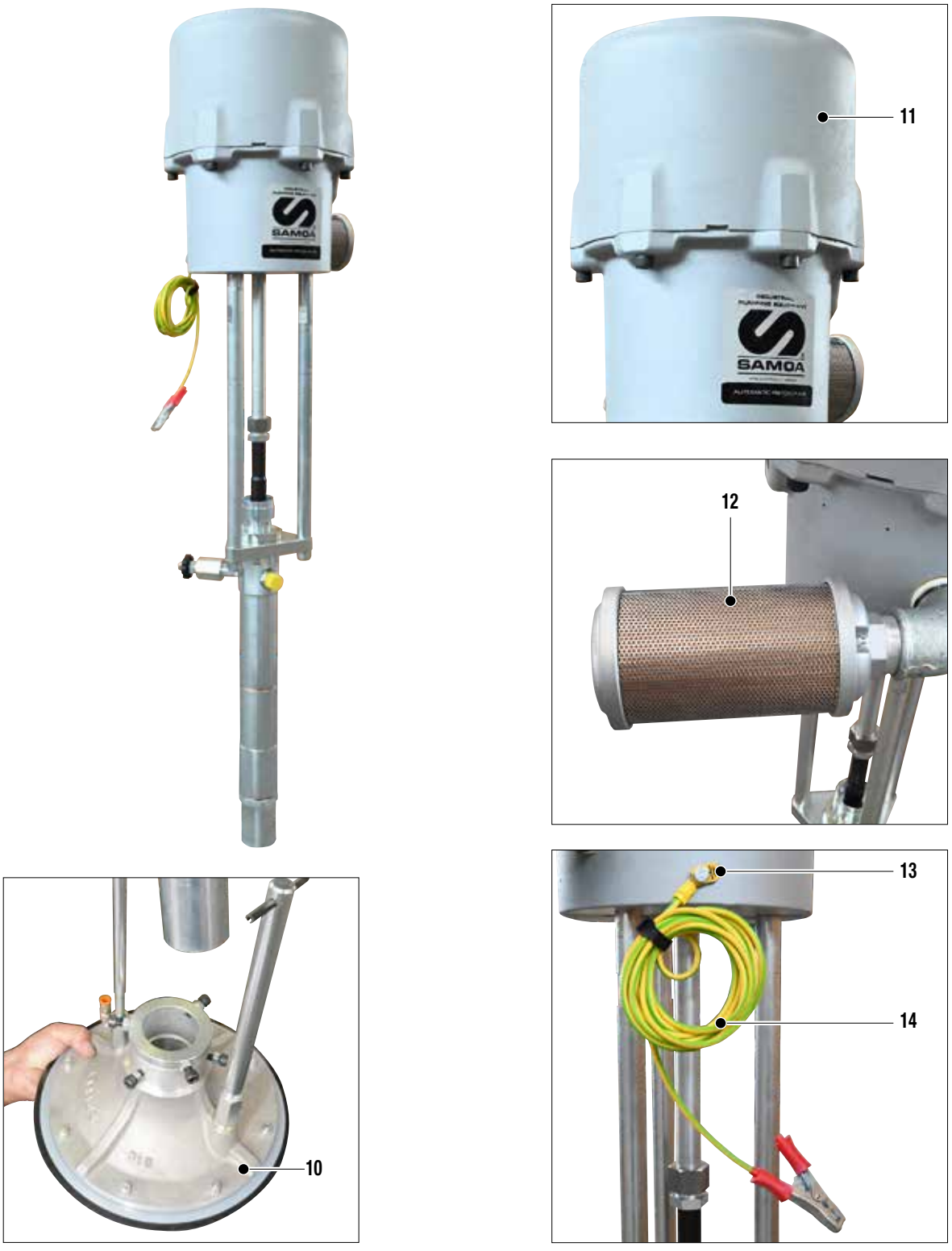


Fig. 2

Pos.	Description
10	Follower plate
11	Pneumatic motor
12	Sound absorbing filter

Pos.	Description
13	Earthing cable securing point
14	Cable grounding with gripper

ED. 09 - 02/2024 - Cod. 150170

I SETTING-UP

PUMP FASTENING ON THE RAM

For the correct fastening of the pump on the ram, use the holes placed on the base of the pneumatic motor.

CONNECTION TO THE FEED AIR

For pump feed use a hose with an internal diameter no lower than 10 mm.

Install at the pump inlet an air pressure regulator *(it is suggested complete with condensate filter and lubricator)*. The outlet pressure of the material is 60 times the inlet pressure of the pump feed air. Therefore, it is extremely important to adjust the value of the feed air pressure.

CONNECTION OF THE MATERIAL OUTLET HOSE

Connect the high pressure hose at the outlet of the pump.
It is recommended to tighten the fittings.

J WORKING

- Use the machine after carrying out all the setting-up operations described in the previous paragraph.

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

- Use the supplied lubricant **(1)** to facilitate the sliding of the piston inside the seal packing and to prevent any material which may have leaked out of the seals from drying once the equipment has been shut off.

- Dip the material pumping hose into the product tank *(if the pump is fixed on the double post ram, follow the procedure described in the manual of use and maintenance of the double post ram).*

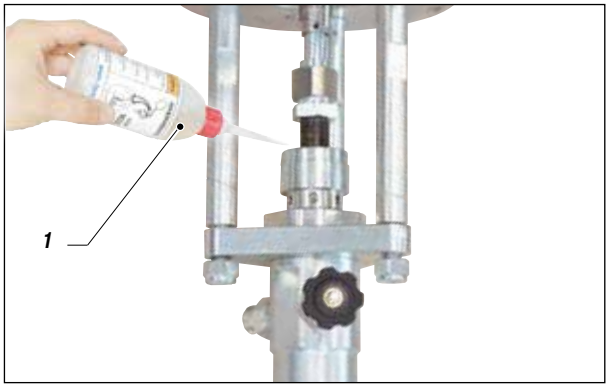


Fig. 1

At the start of each working day, make sure that the ring nut is filled with hydraulic oil (*ref. 16340*); the oil facilitates the sliding of the piston and prevents any material which may have leaked out of the seals from drying once the equipment has been shut off.

- 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 then will stop. Pump will start working again any time the trigger of the spray gun is pressed or the delivery valve is open.

- In case of difficult suction of the pump, slowly open the bleeder valve and close it when some material comes out.

Always avoid working the machine with the vacuum pump: this operation could damage the pneumatic motor and the seals.

- In case of long inactivity during the use with the plant *(for example, all night long at the end of the working day),* ensure the product you are using can be left inside the pump and the different pipes without drying.
In this case, it is enough to stop the air supply to the pump and drain the residual pressure in the circuit acting on the delivery valve or on the pump bleeder valve.

K CLEANING AT THE END OF THE WORK

By “cleaning at the end of the work” is meant the cleaning to carry out in case of use with a different product or if a long period of storage is foreseen.

- Stop the air supply to the pump.
- Dip the material pumping hose into the washing solvent tank *(check its chemical compatibility with the product being used)*.
- Make compressed air flow into the pump. It is advisable to adjust the air pressure to the minimum value necessary to its continuous working.
- Point the spray gun or the delivery valve at a container and drain all the product left inside the pump till a clean solvent comes out.
- Now, stop the air supply to the pump and drain the residual pressure.
- In case of long inactivity, the operations of sucking and leaving light mineral oil inside the pumping element are suggested.

Store possible dangerous fluids in proper containers. Their disposal must be performed in accordance with the regulations in force about the industrial waste goods.

L ROUTINE MAINTENANCE

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

- Check periodically *(and every time the pump is operated after a long storage)* the packing nut is not loosened, causing otherwise the coming out of the product.
- To tighten the packing nut **(1)** use wrench supplied **(2)** . The packing nut must be tightened so as to avoid wastes of product, but not excessively to avoid the seizure of the pumping piston and the wear of seals. In case of persistent coming out of product, replace the seals.
- To prevent the product from drying up on the piston rod, refill the packing nut **(3)** with lubricant.
- Check periodically the air supply to the pump. Ensure the air is always clean and lubricated.

At the start of each working day, make sure that the ring (3) nut is filled with hydraulic oil (L4); the oil facilitates the sliding of the piston and prevents any material which may have leaked out of the seals from drying once the equipment has been shut off.

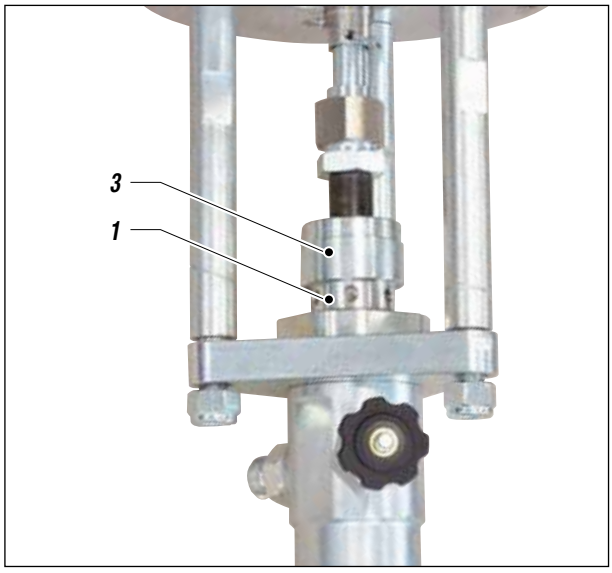


Fig. 1

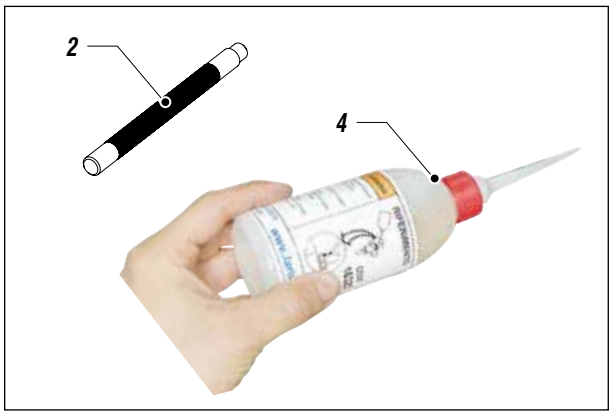


Fig. 2

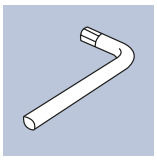
ED. 09 - 02/2024 - Cod. 150170

M DISMANTLING AND REASSEMBLING THE PUMPING UNIT

Always close the compressed air supply and release the pressure in the plant beforecarrying out the disassembly of the pumping group. In case the product being used is toxic, follow the procedure of cleaning described on page 8 to avoid the contact with the product during the disassembly of the pumping group.

1

Necessary tools and equipment



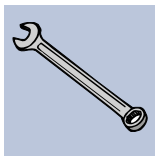
Procedure

1.1 Remove the shovel plate

Fig. 1

2

Necessary tools and equipment



Procedure

2.1 Disconnect the components (**2a**) of the pump (**2b**)

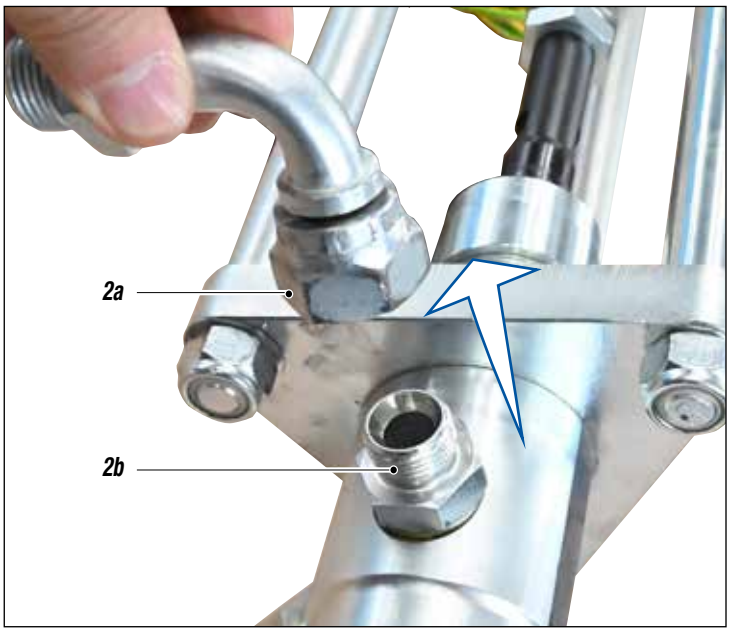
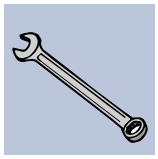


Fig. 2

3

Necessary tools and equipment



Procedure

3.1 Disconnect the pumping group (**3a**) from the motor (**3b**)

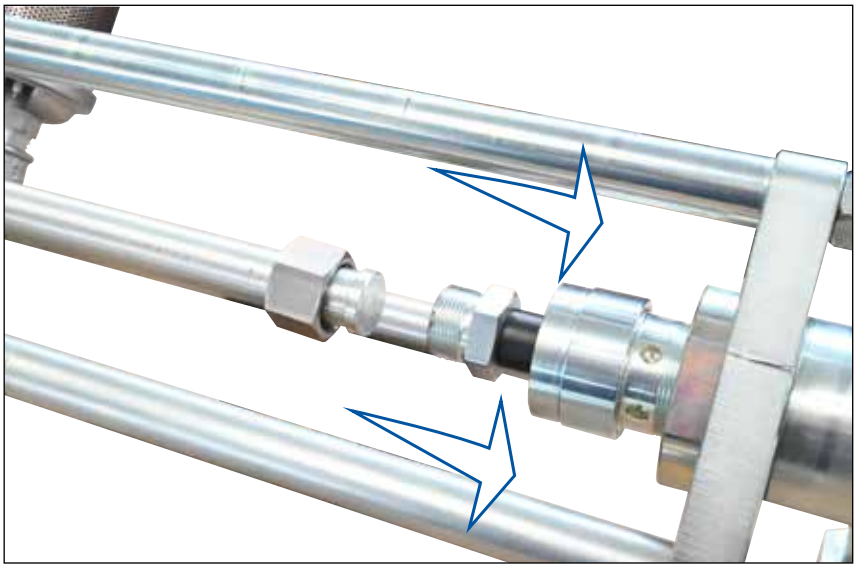
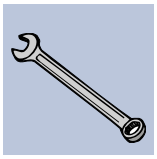
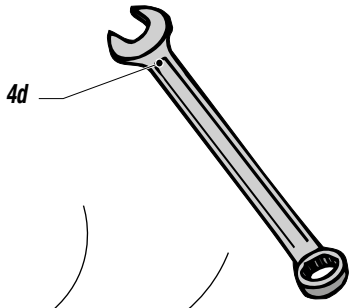


Fig. 3

ED. 09 - 02/2024 - Cod. 150170

4 Necessary tools and equipment





Procedure

4.1 Unscrew the three nuts (**4a**), (**4b**) and (**4c**) using a wrench (**4d**)

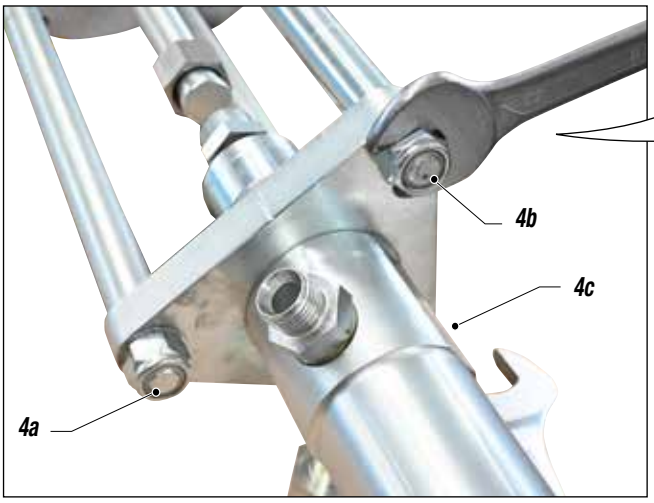
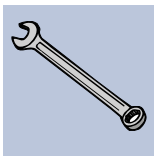


Fig.

5 Necessary tools and equipment



Procedure

5.1 Slide the complete pumping group

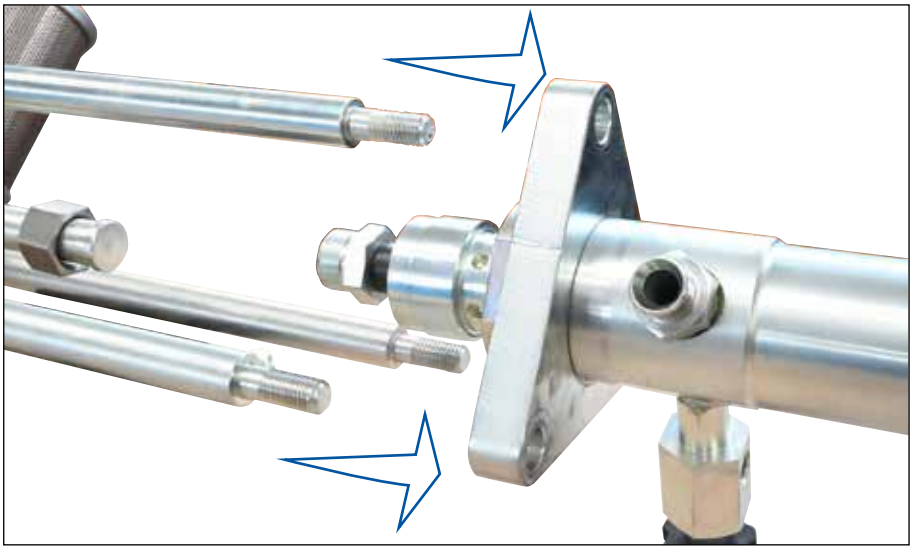
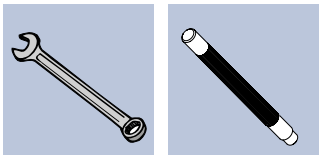


Fig. 5

6

Necessary tools and equipment



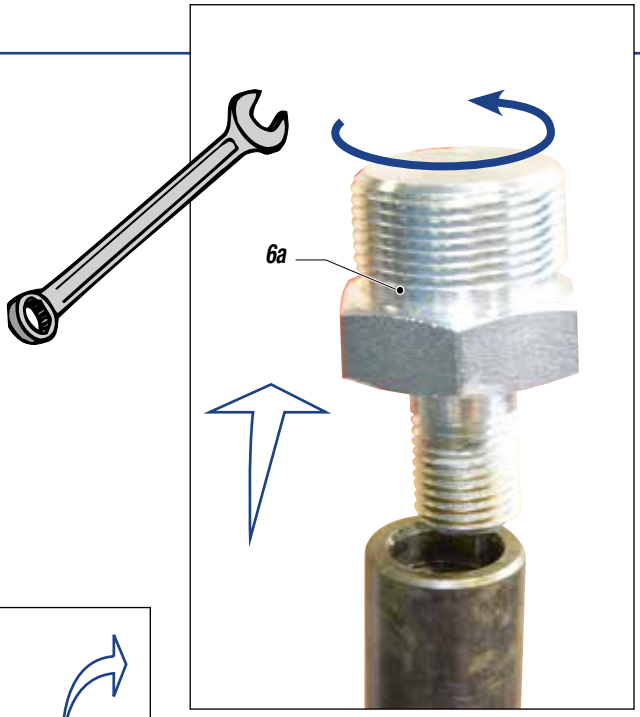
Procedure

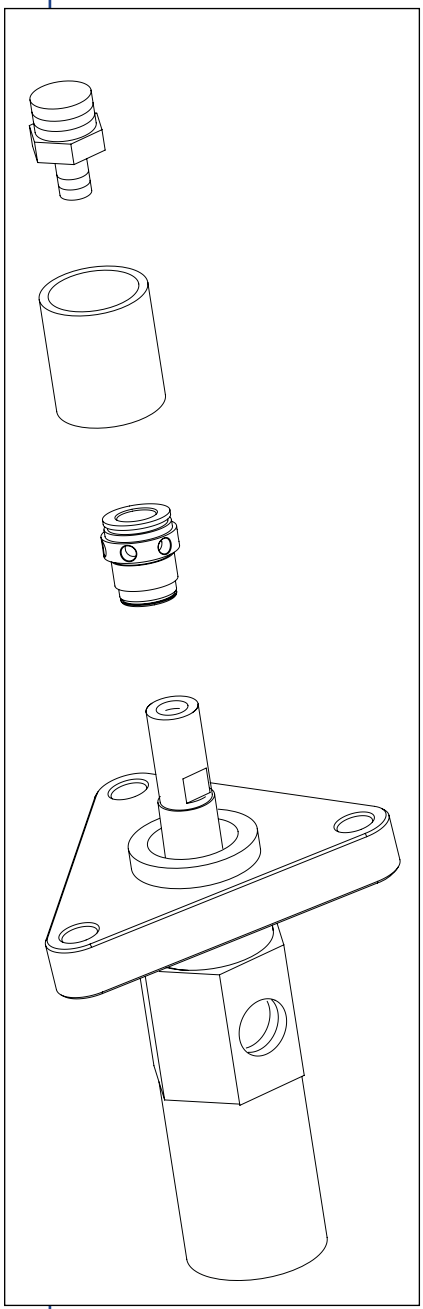
6.1 Remove the component (**6a**)

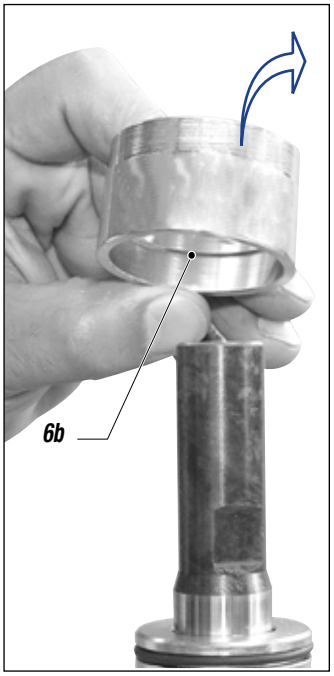
6.2 Slide off the component (**6b**)

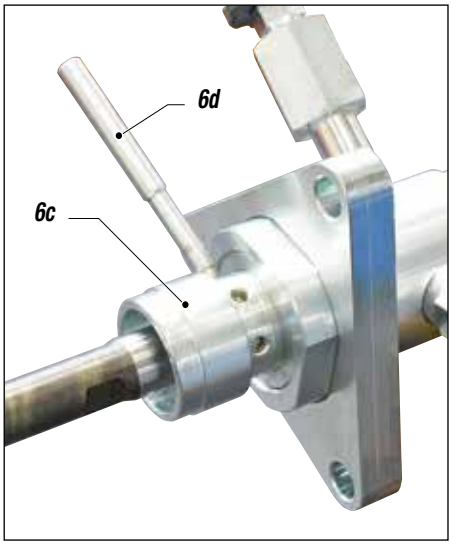
6.3 Loosen the ring nut (**6c**) with pin (**6d**)

6.4 Unscrew and remove the ring nut (**6e**)









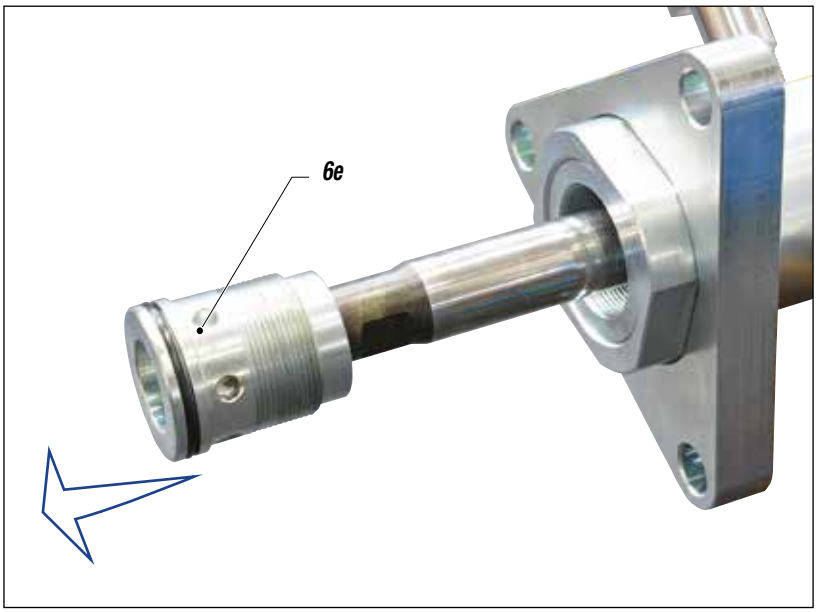
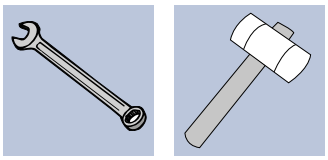


Fig. 6

ED. 09 - 02/2024 - Cod. 150170

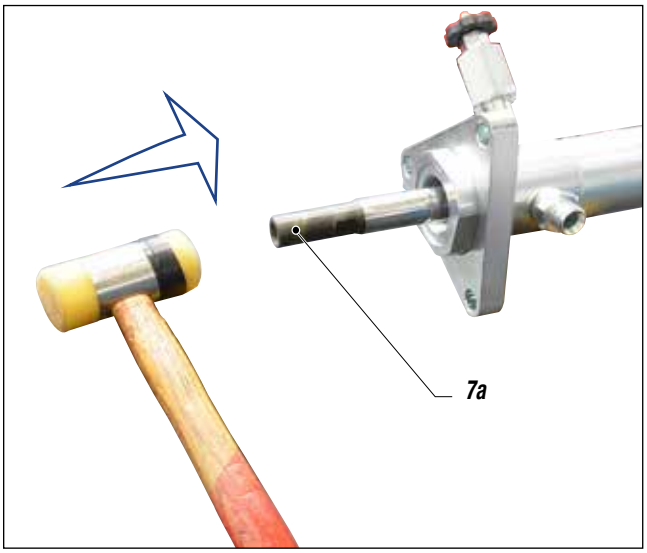
7

Necessary tools and equipment



Procedure

7.1 Push downwards the motor piston rod (**7a**) till the shovel plate comes out of the housing (**7b**)



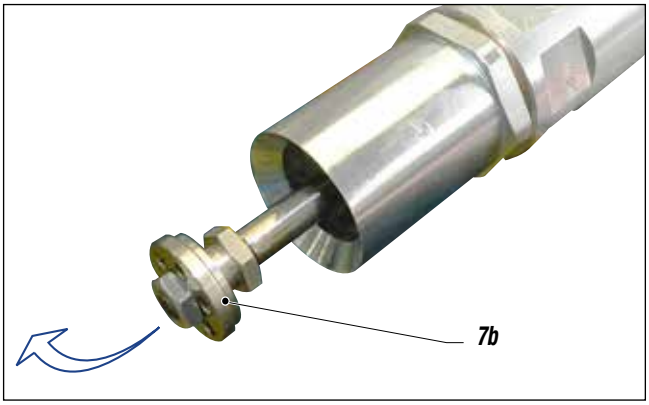
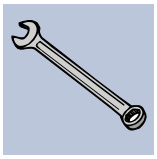


Fig. 7

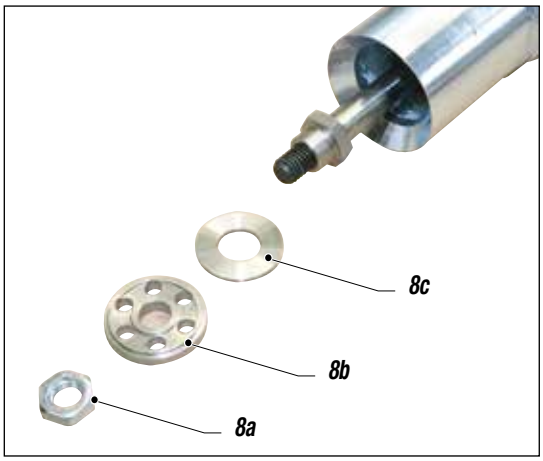
8

Necessary tools and equipment



Procedure

8.1 Unscrew and remove the components (**8a**), (**8b**) e (**8c**)



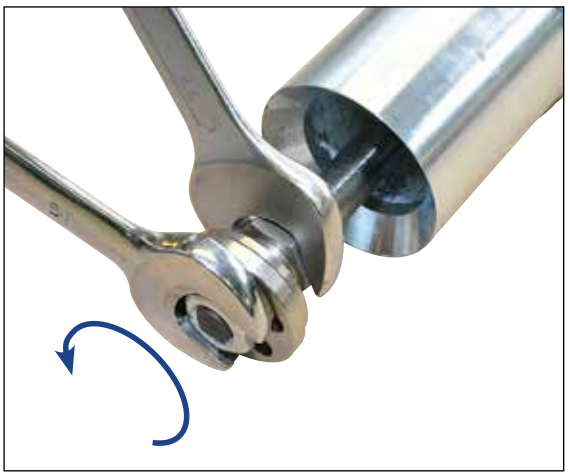
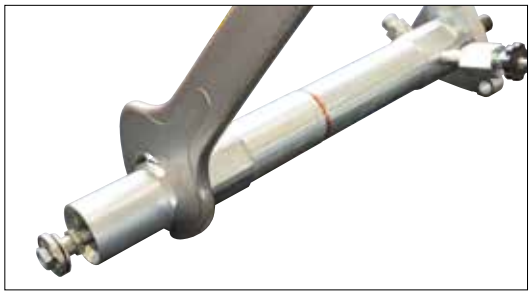


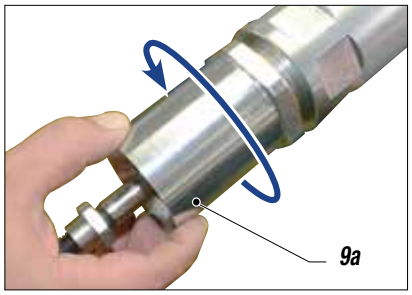
Fig. 8

9

Procedure

9.1 Unscrew the cylinder (**9a**), remove the **washer** (**9b**) and the shutter housing (**9c**)





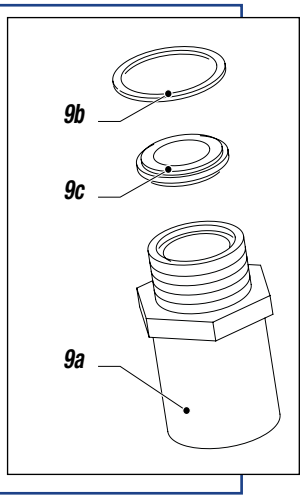
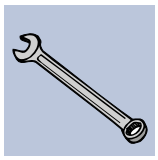


Fig. 9

10

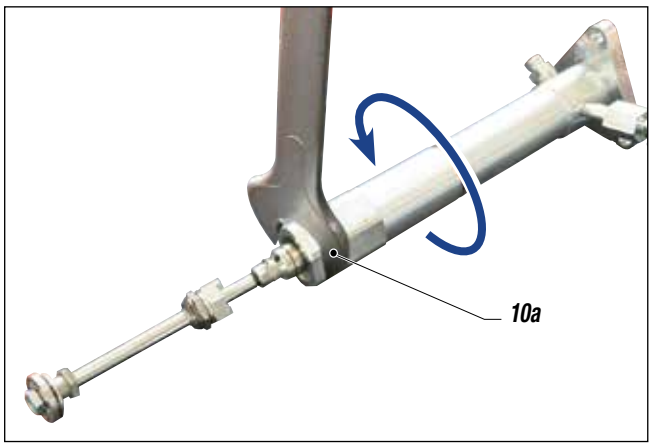
Necessary tools and equipment

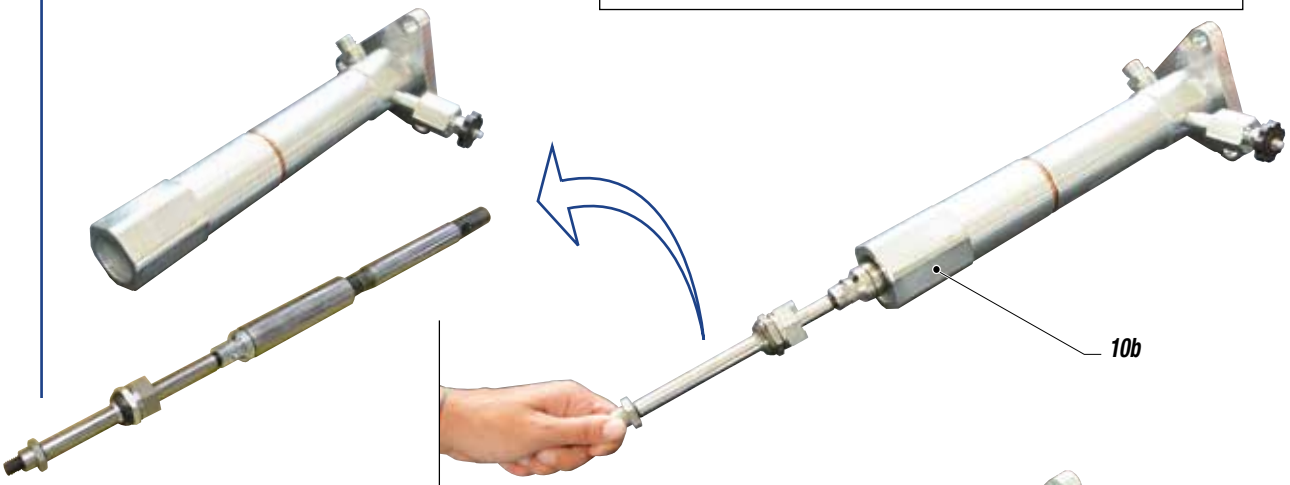


Procedure

10.1 Unscrew the component (**10a**) and slide the rod (**10b**)

10.2 Unscrew the component **10c**) and remove the copper rings (**10d**)





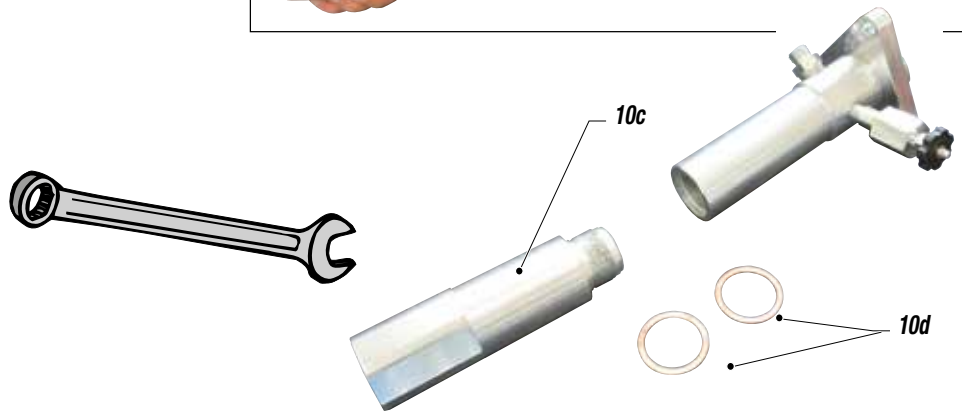


Fig. 10

ED. 09 - 02/2024 - Cod. 150170

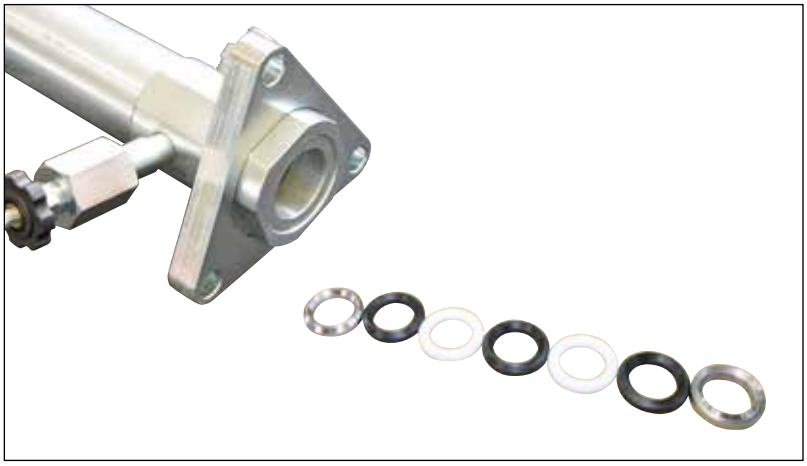
11

Necessary tools and equipment

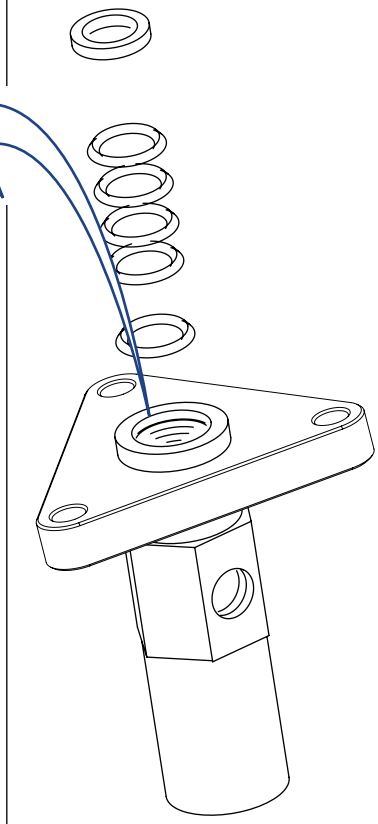
Procedure

11.1 Remove the superior seals

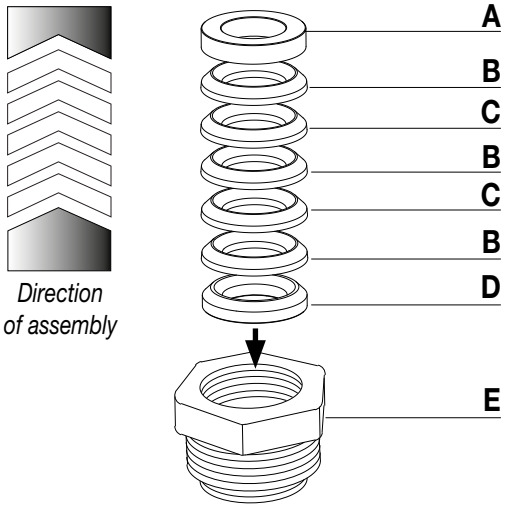
11.2 Clean and lubricate the gasket housing and replace it with the new spare parts (**11a**)



11a



SUPERIOR SEALS



Direction of assembly

NOTE

Follow the direction of rotation of gaskets

A: *Female STEEL ring cod. 96984*
B: *White gasket cod. 96982/1*
C: *Black gasket cod. 96982*
D: *Male STEEL ring cod. 96983*
E: *Gasket housing*

Fig. 11

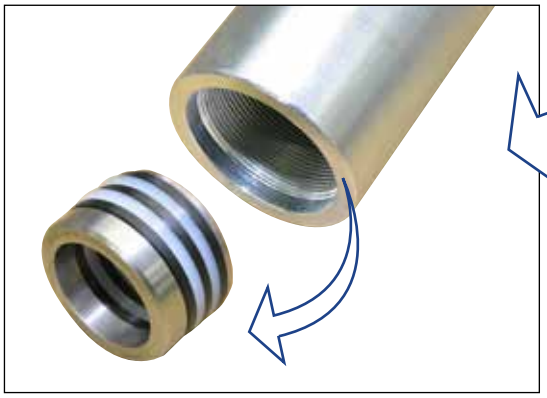
12

Necessary tools and equipment

Procedure

12.1 Remove the inferior seals

12.2 Clean and lubricate the gasket housing and replace it with the new spare parts (**12a**)



Direction of assembly

NOTE

Follow the direction of rotation of gaskets

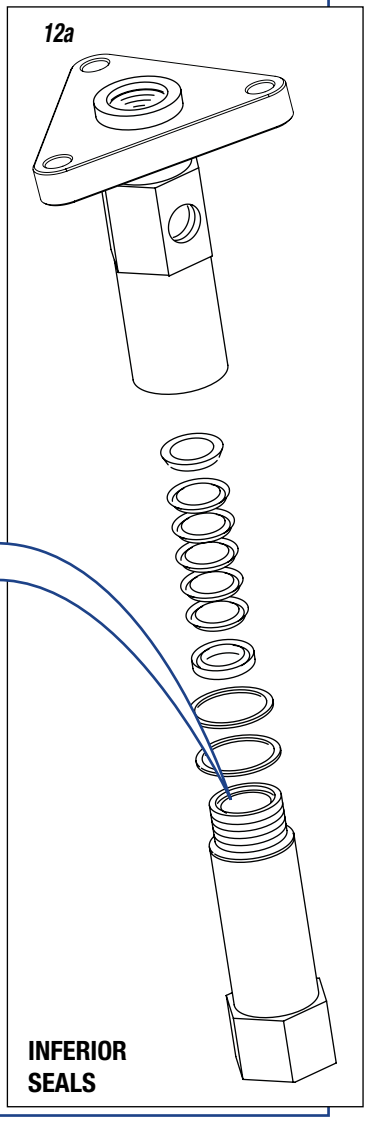
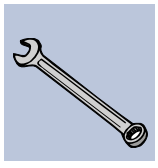


Fig. 12

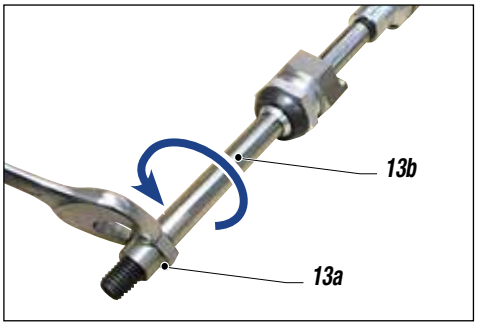
13

Necessary tools and equipment



Procedure

13.1 Unscrew the component (**13a**) and slide the rod (**13b**)



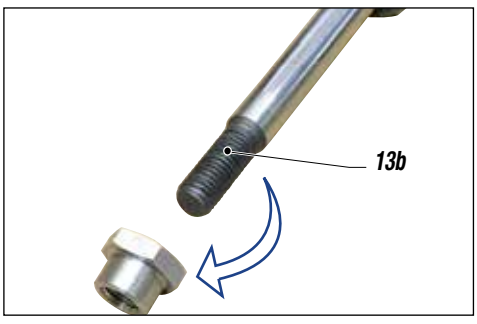
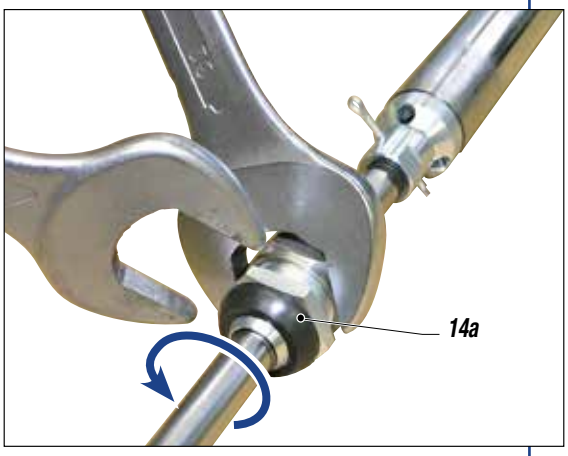


Fig. 13

ED. 09 - 02/2024 - Cod. 150170

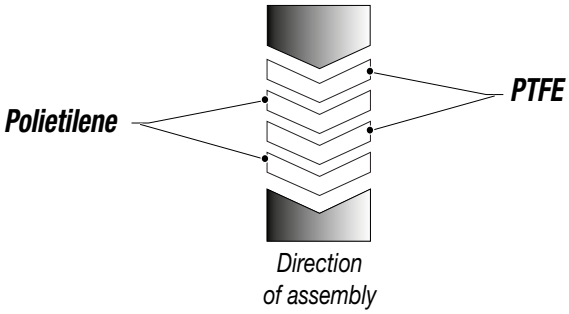
14 Necessary tools and equipment

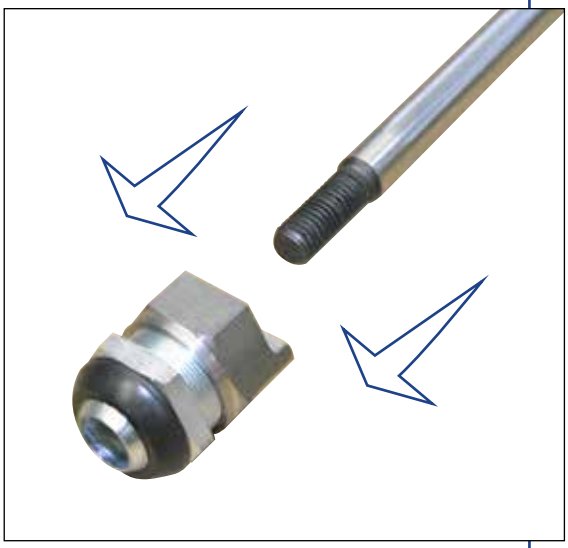


Procedure

14.1 Unscrew the component (**14a**) and slide the rod

14.2 Clean and lubricate the gasket housing and replace it with the new spare parts (**14b**)





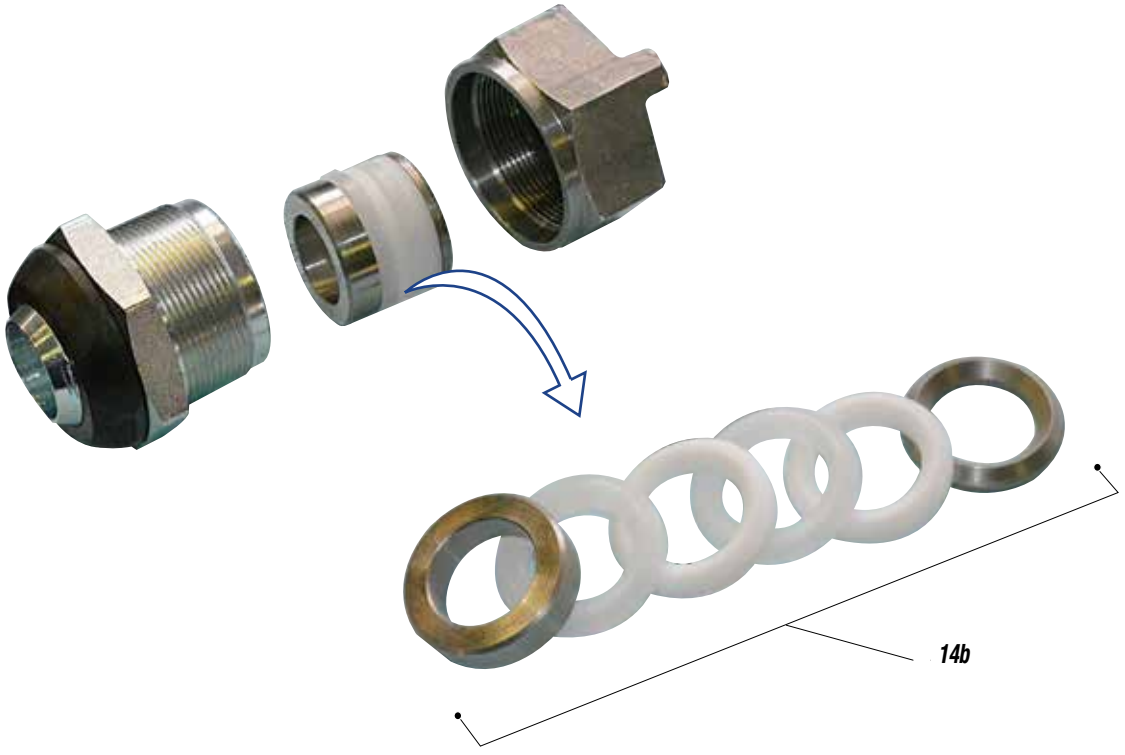


Fig. 14

15

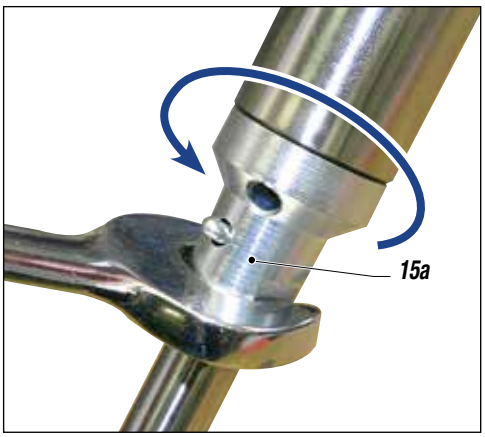
Necessary tools and equipment

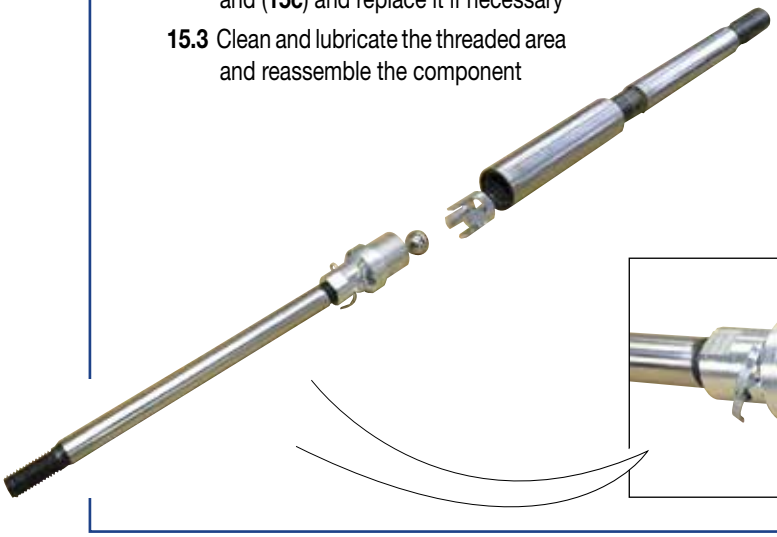
Procedure

15.1 Unscrew the component (**15a**) and slide the rod

15.2 Check the wear of components (**15b**) and (**15c**) and replace it if necessary

15.3 Clean and lubricate the threaded area and reassemble the component





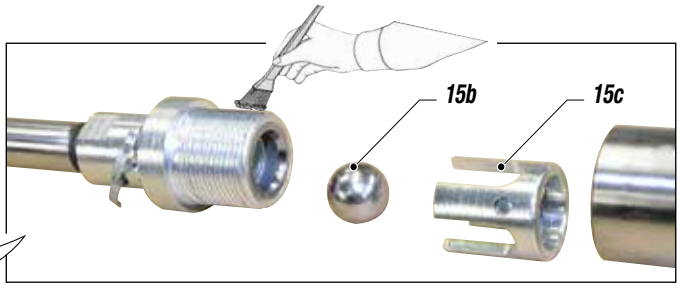
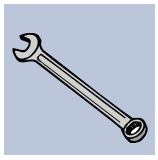


Fig. 15M

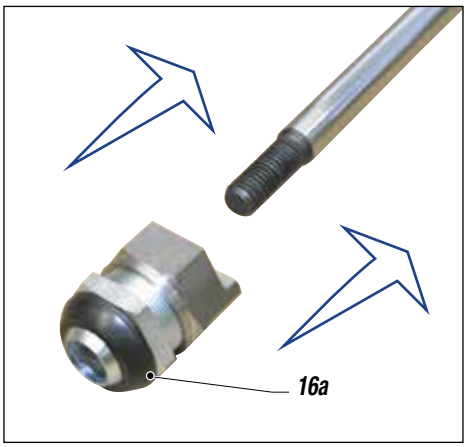
16

Necessary tools and equipment



Procedure

16.1 Insert the component (**16a**) and screw with the wrench



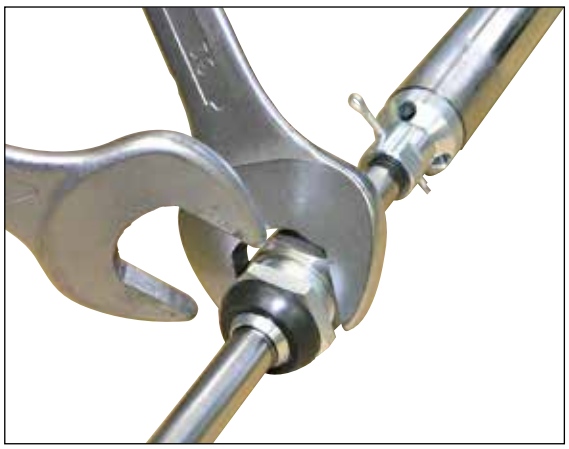
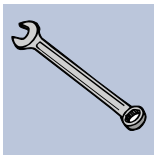
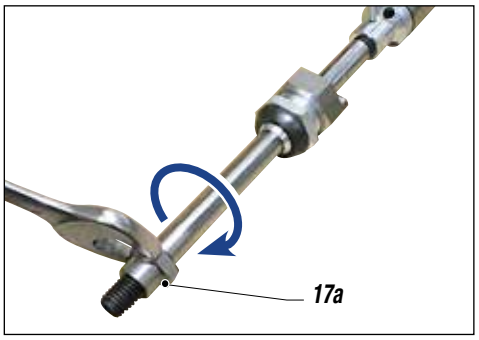


Fig. 16

ED. 09 - 02/2024 - Cod. 150170

17 Necessary tools and equipment



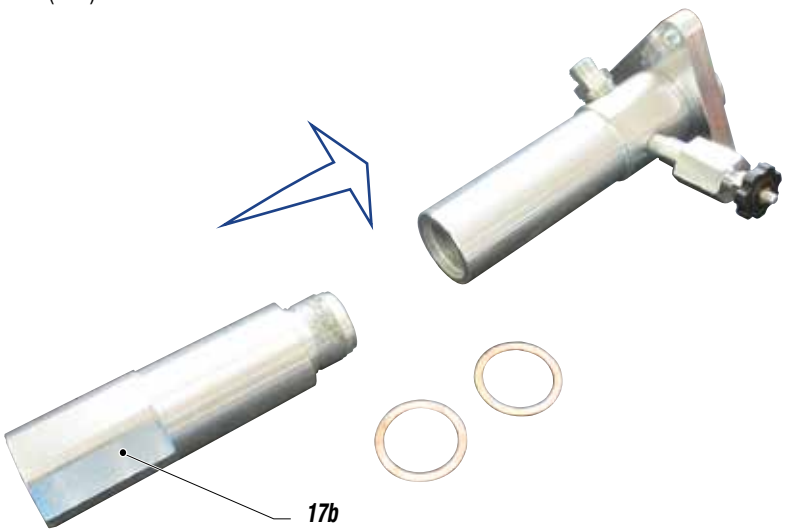


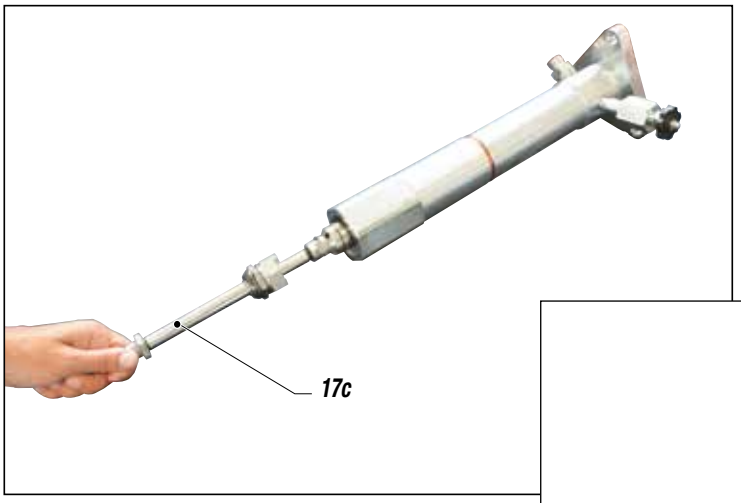
Procedure

17.1 Insert the component (**17a**) and screw the rod

17.2 Insert the copper rings , reassemble the component (**17b**) and insert the rod (**17c**)

17.3 Screw the component (**17d**)





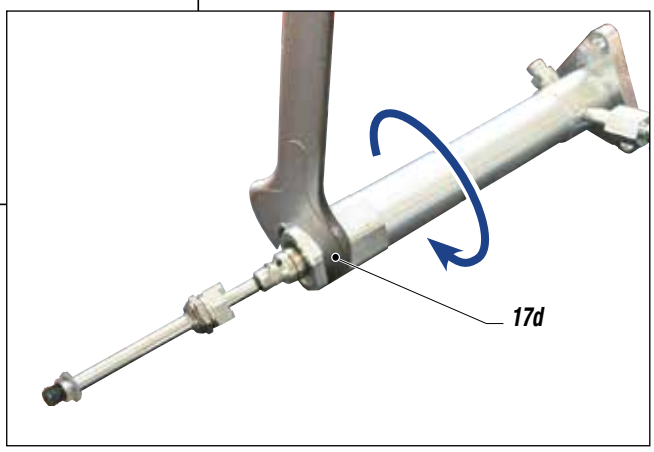
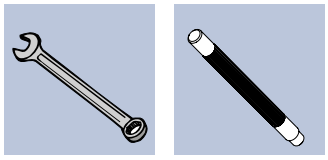


Fig. 17

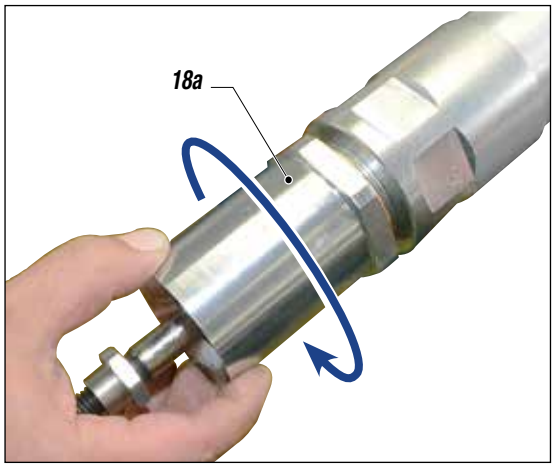
18 Necessary tools and equipment

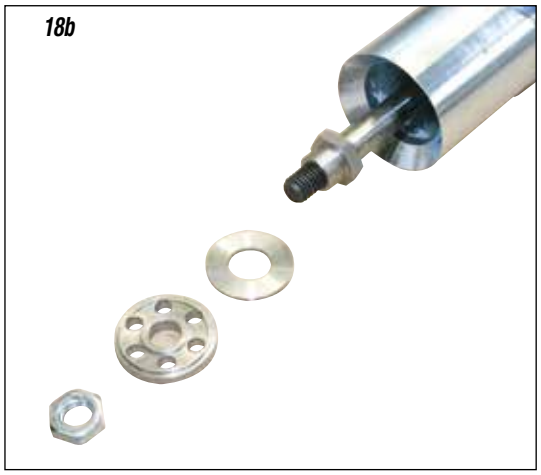


Procedure

18.1 Reassemble the **washer** and the shutter housing and screw the cylinder (**18a**)

18.2 Reassemble shovel plate (**18b**) and insert the motor piston





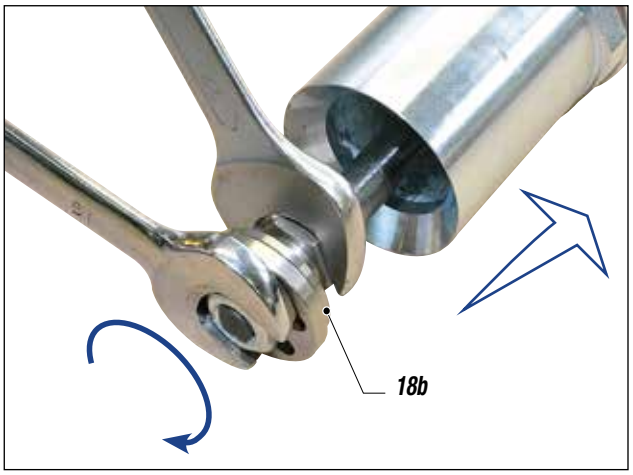
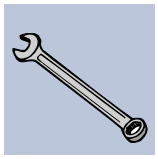


Fig. 18

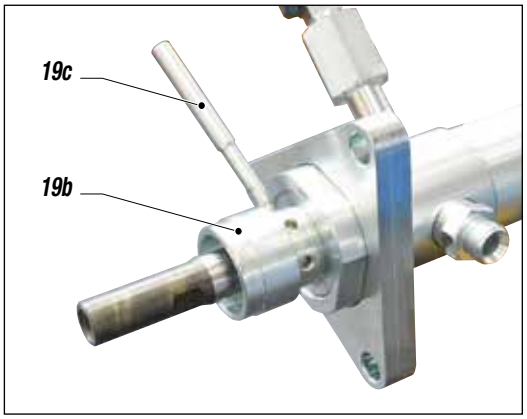
19 Necessary tools and equipment



Procedure

19.1 Insert e screw the ring nut (**19a**)

19.2 Fix the ring nut (**19b**) with the pin (**19c**)



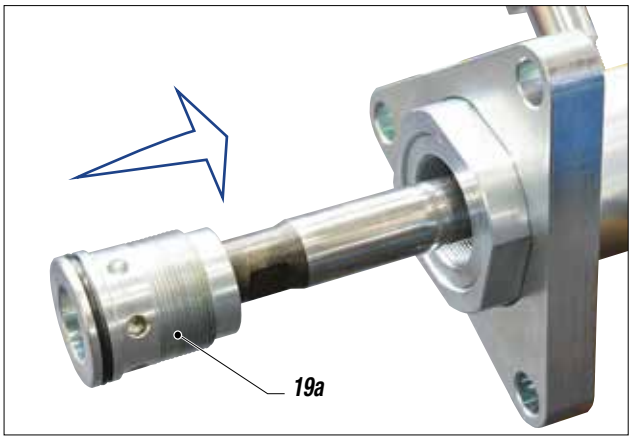
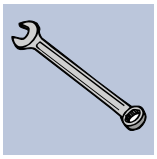


Fig. 19

ED. 09 - 02/2024 - Cod. 150170

20

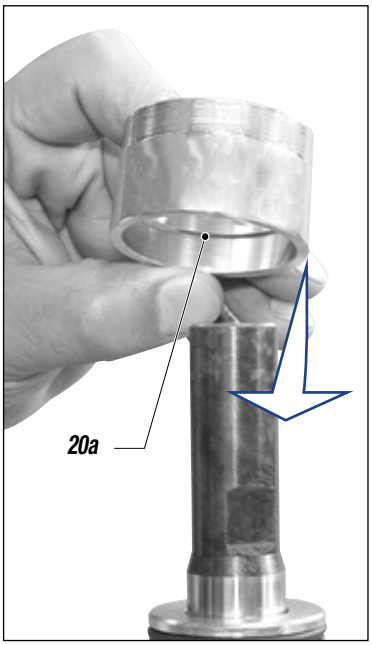
Necessary tools and equipment



Procedure

20.1 Insert the component (20a)

20.2 Insert the component (20b) and and screw with the wrench



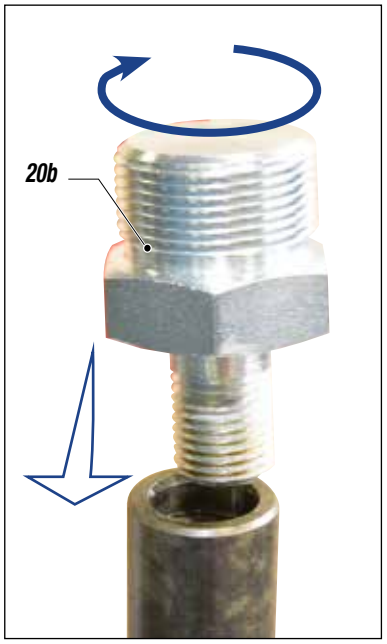
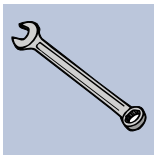


Fig. 20

21

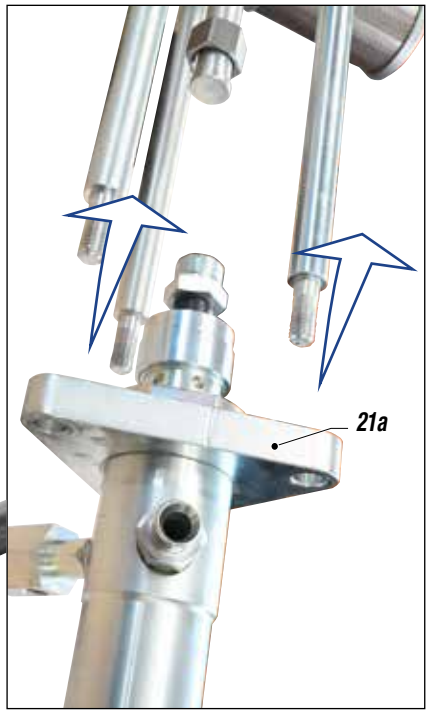
Necessary tools and equipment



Procedure

20.1 Insert the complete pumping group (**21a**)

20.2 Screw the three nuts using two wrench



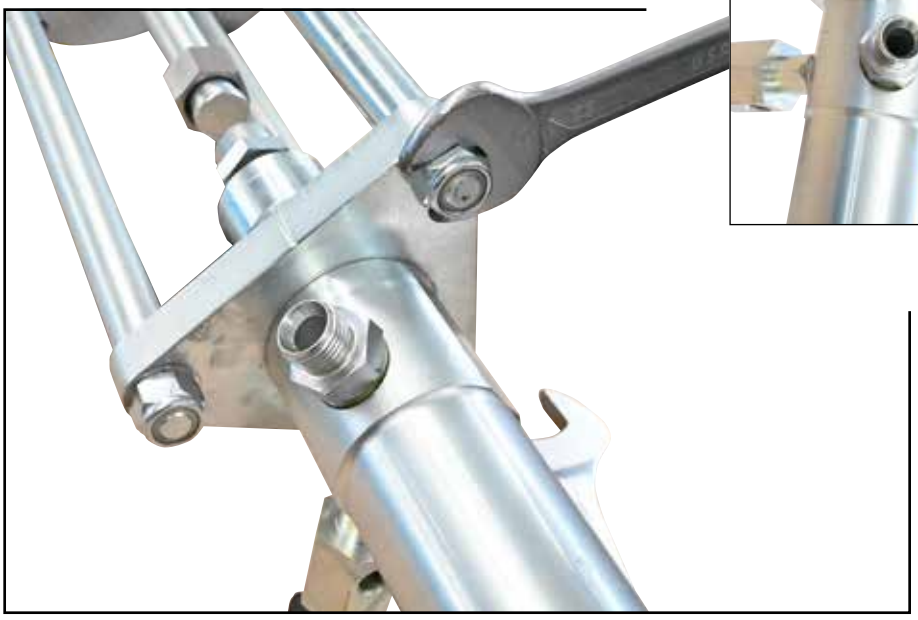
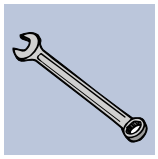


Fig. 21

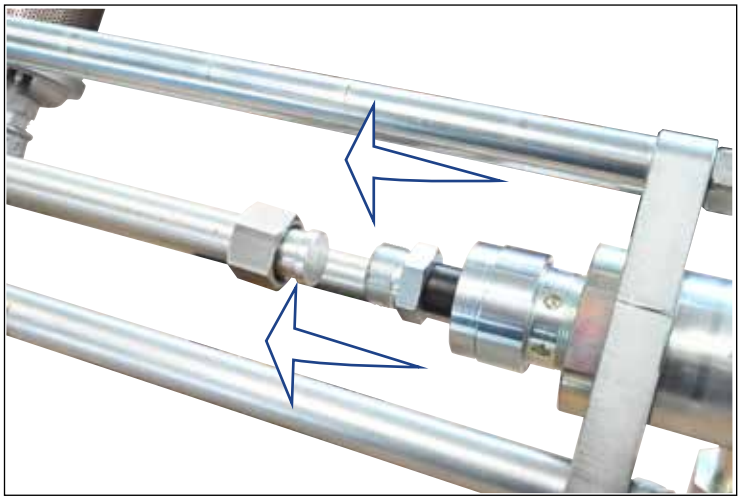
22

Necessary tools and equipment



Procedure

22.1 Connect the pumping group (**22a**) to motor (**22b**)



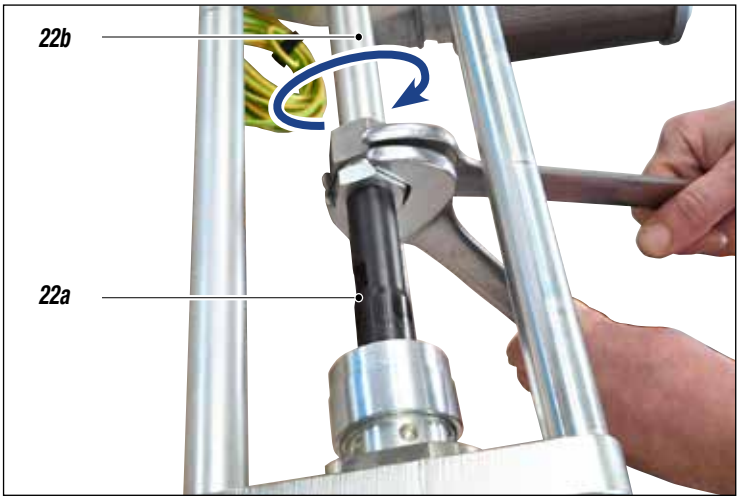
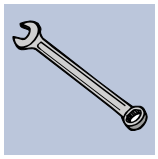


Fig. 22

23

Necessary tools and equipment



Procedure

23.1 Connect the component (**23a**) to pump (**23b**)

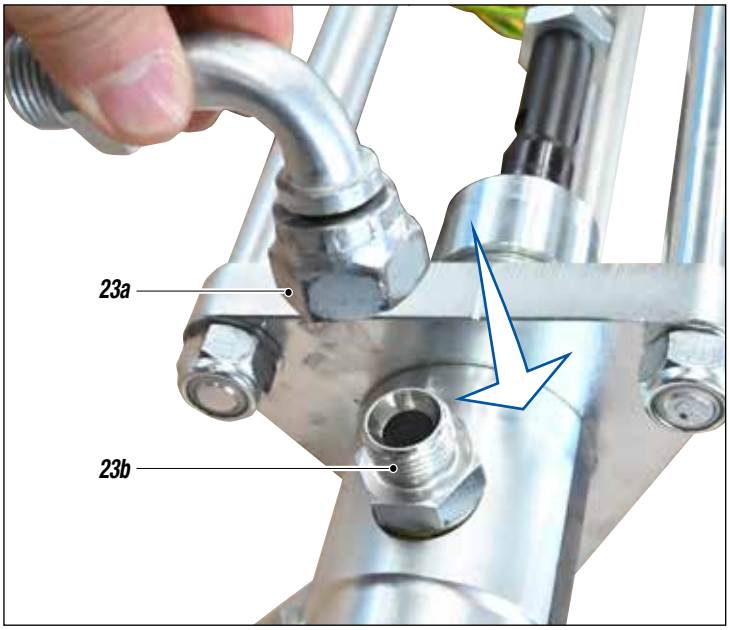
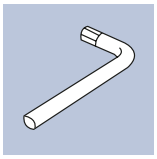


Fig. 23

ED. 09 - 02/2024 - Cod. 150170

24 Necessary tools and equipment



Procedure

24.1 Reassemble the shovel plate

Fig. 24

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 **(1)** and pull it upward along with the guide rod **(2)** so as to manually trigger the stroke inversion unit;

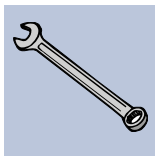
  - screw again the plug.

Fig. 1

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).**

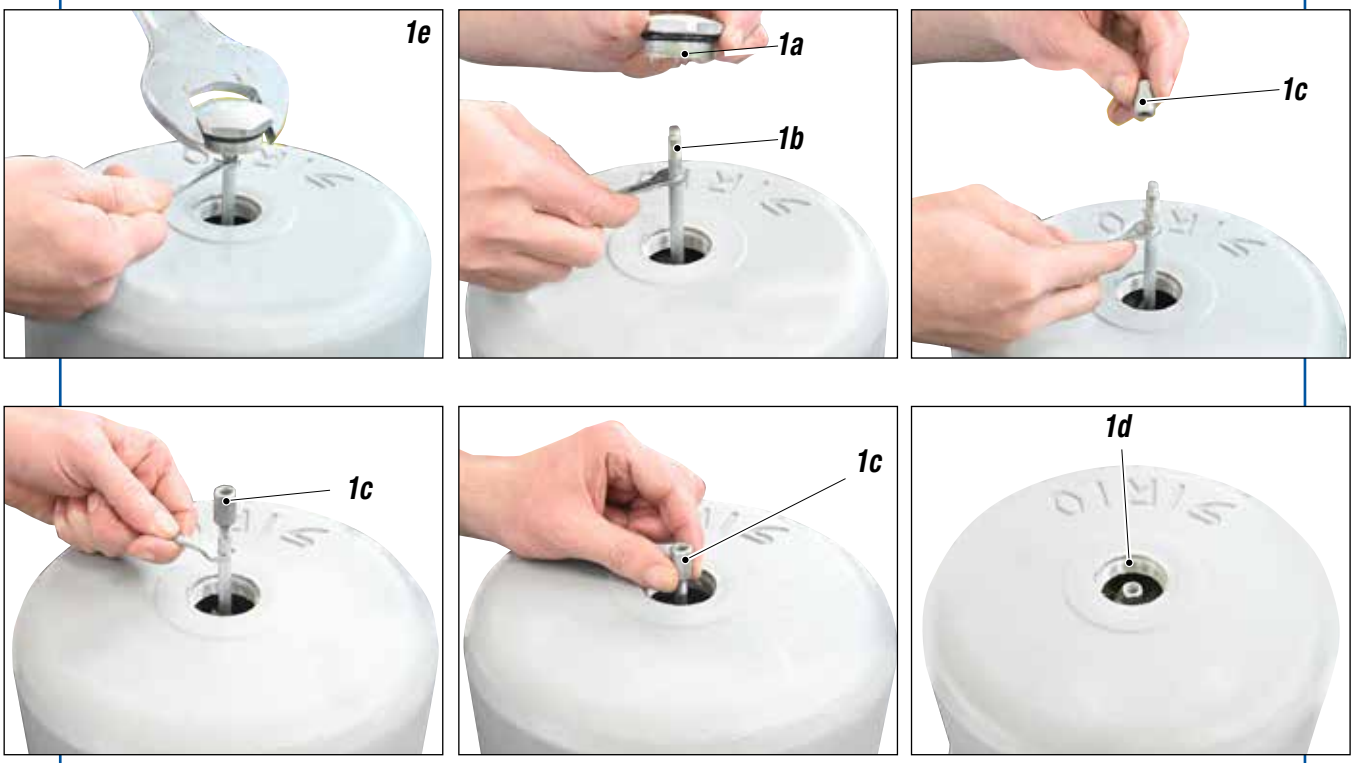
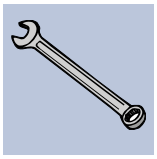


Fig. 1

ED. 09 - 02/2024 - Cod. 150170

2

Necessary tools and equipment



Procedure

2.1 Remove the screws and the washers. (**2a**)(**2b**)

2a

2b

Fig. 2

3

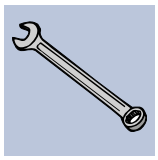
Procedure

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

Fig. 3

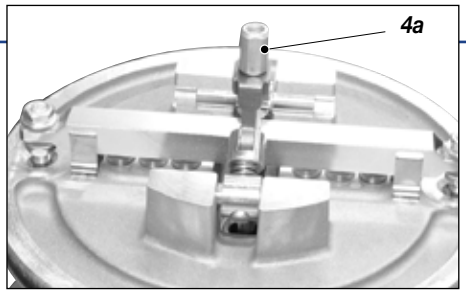
4

Necessary tools and equipment



Procedure

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



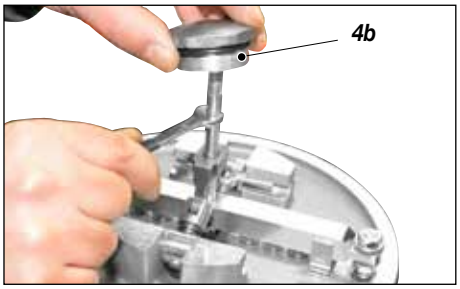
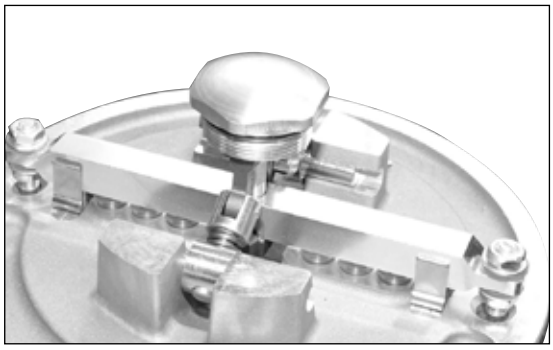


Fig. 4

5

Procedure

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



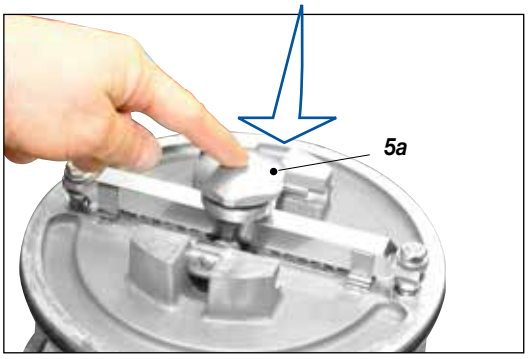
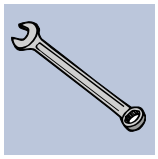


Fig. 5

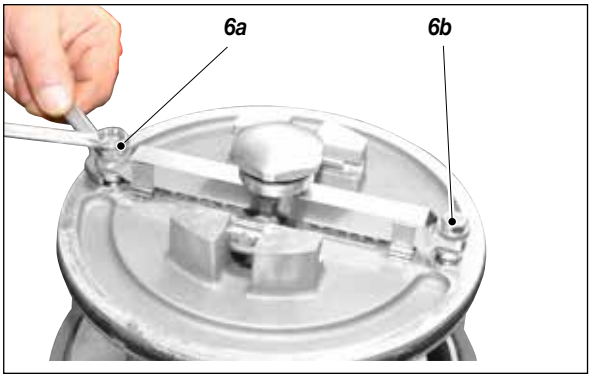
6

Necessary tools and equipment



Procedure

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



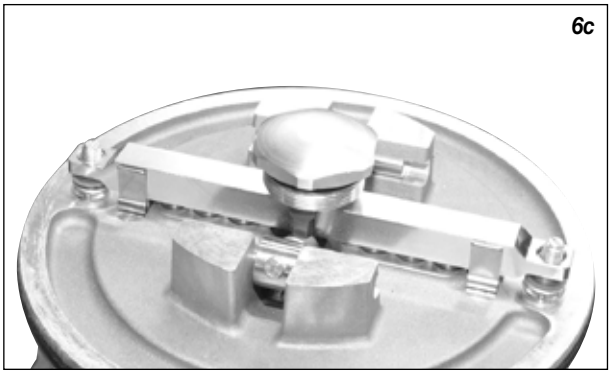
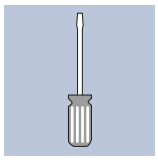


Fig. 6

ED. 09 - 02/2024 - Cod. 150170

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**)

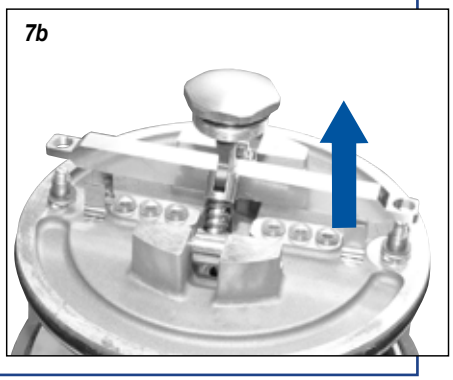
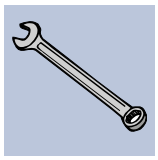


Fig. 7

8

Necessary tools and equipment



Procedure

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

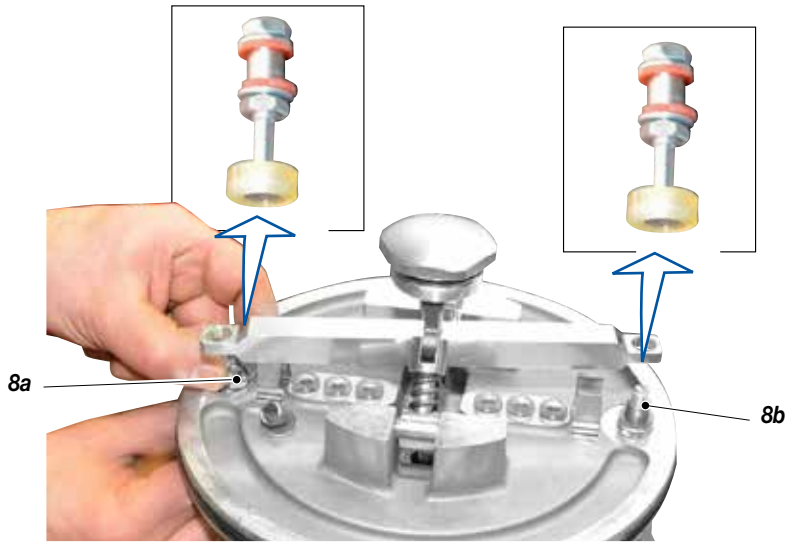


Fig. 8

9

Necessary tools and equipment

Procedure

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

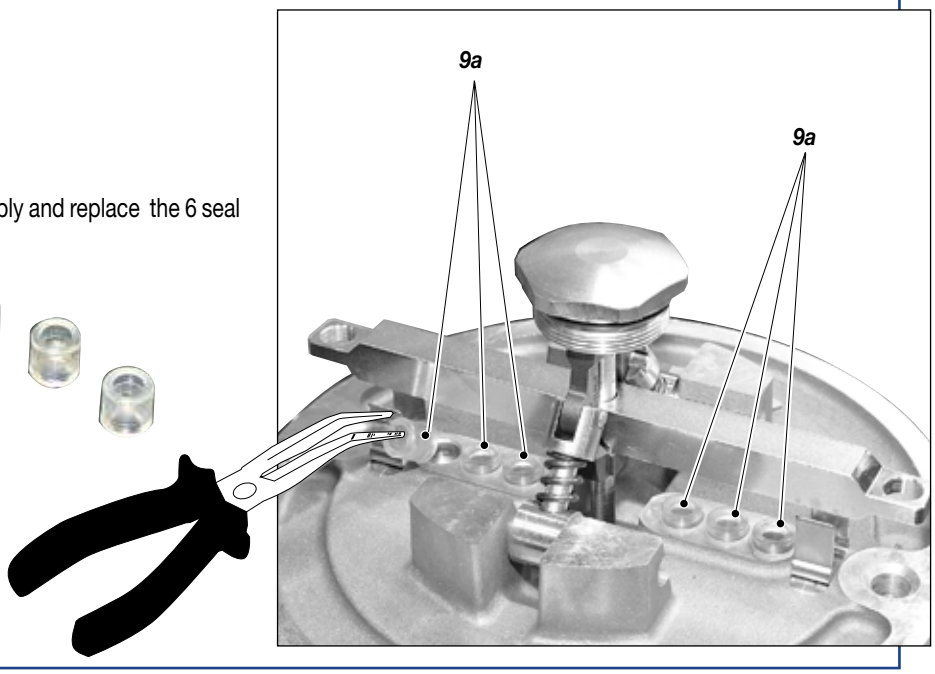


Fig. 9

10

Necessary tools and equipment

Procedure

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

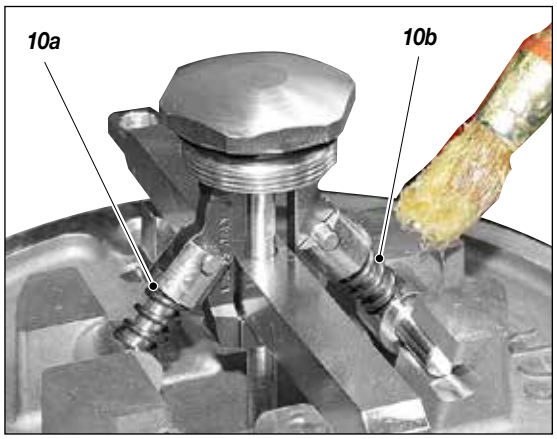


Fig. 10

11

Necessary tools and equipment

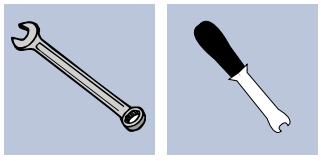
Procedure

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

Fig. 11

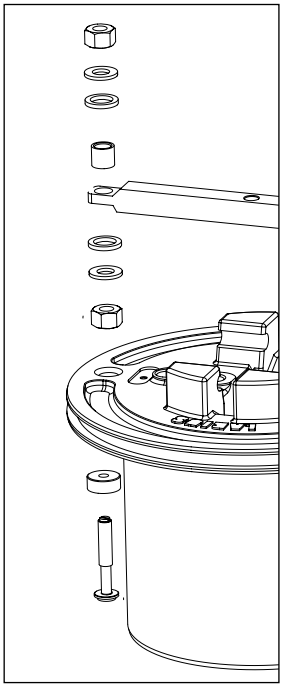
12

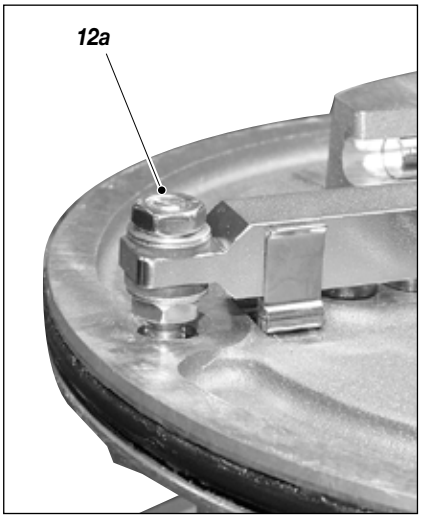
Necessary tools and equipment



Procedure

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

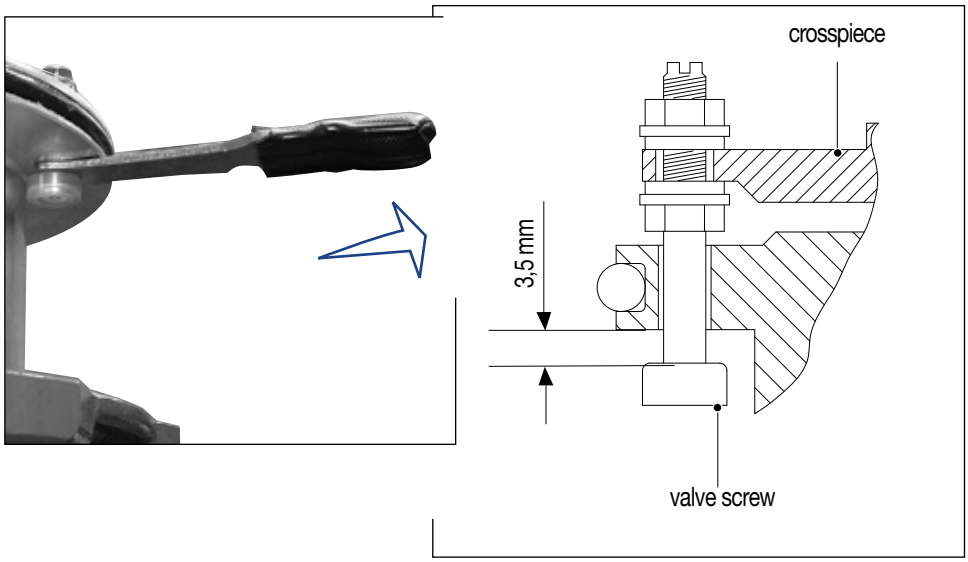




NOTE

Follow the direction of rotation of gaskets

ED. 09 - 02/2024 - Cod. 150170



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

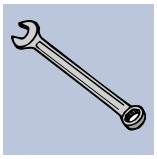
NOTE

Make adjustments in the same way on both valve screws

Fig. 12

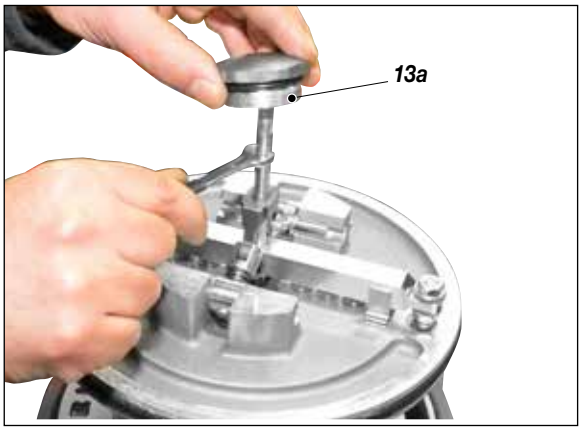
13

Necessary tools and equipment



Procedure

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



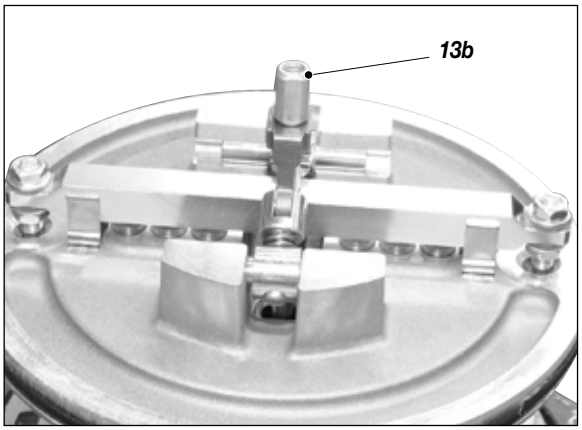


Fig. 13

14

Necessary tools and equipment

Procedure

14.1 Lubricate the gasket (**14a**)

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

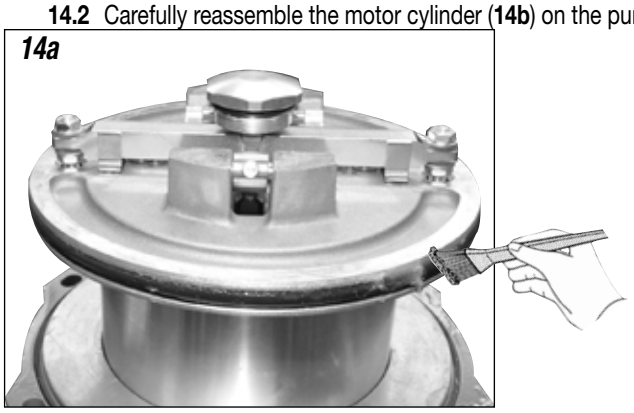
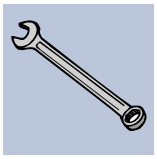


Fig. 14

15

Necessary tools and equipment



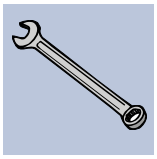
Procedure

15.1 Re-screw in the 6 screws and the washers. (**15a**), (**15b**)

Fig. 15

ED. 09 - 02/2024 - Cod. 150170

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**)

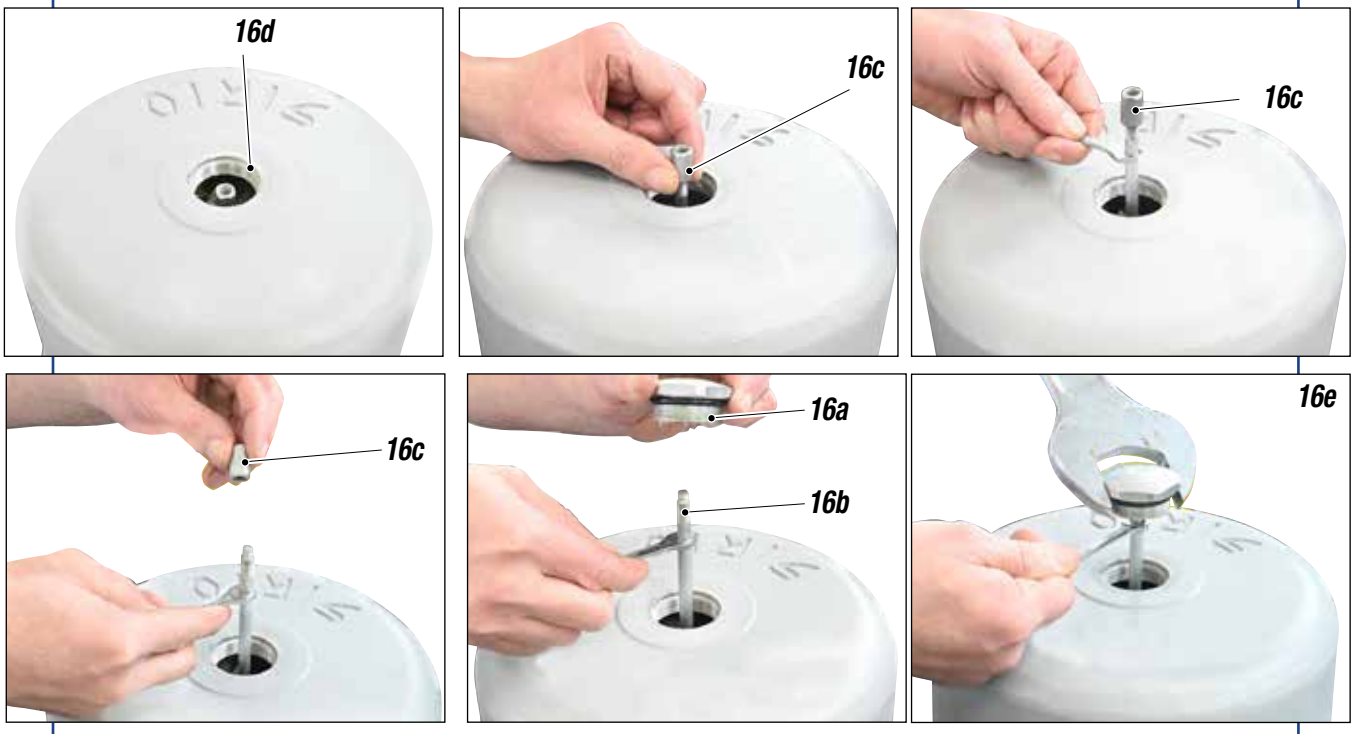


Fig. 16

P PROBLEMS AND SOLUTION

Problem	Possible cause	Solution
The pump does not start	Feed air not sufficient;	Check on the air supply line. Increase the diameter of the feed hose;
	Outlet product line clogged;	Open the recirculation tap to check whether the pump starts up. Unscrew the high pressure filter and clean/replace the filter sieve. Clean/replace the spray gun's filter.
	Clogged product intake line;	Clean the suction filter;
	Pneumatic motor blocked in the cycle reversal position;	Reduce feed air pressure;
		Disassemble the motor and verify;
	There is no product;	Add the product;
Accelerate working and no pressure of the pump	The pump sucks air;	Check the flexible suction tube;
	Gaskets of the pumping rod worn;	Replace the lower gaskets;
	Suction valve worn or partially clogged;	Disassemble the suction valve. Clean and/or replace, if possible, the parts worn;
	Suction filter clogged;	Clean/replace the suction filter's two disks;
	Suction filter too fine;	Remove the fine disk, leaving only the larger one inside;
	Gaskets of the pumping rod worn;	Replace the lower seals
The pump functions, but doesn't stop when the chamber is full (the pump continues slowly, increasing and/or decreasing)	Suction valve worn or partially clogged;	Disassemble the suction valve. Clean and/or replace, if possible, the parts worn;
	Delivery valve worn or partially obstructed;	Remove the delivery valve and clean/replace any worn parts;
	Upper gaskets worn.	Tighten the packing nut.
The pressure of the material is significantly reduced when the trigger is pressed	The spray gun's nozzle is too large or worn	Replace it with a smaller one
	The spray gun's filter and the material output filter's sieve are too fine	Replace them with filters of a larger mesh size

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

ED. 09 - 02/2024 - Cod. 150170

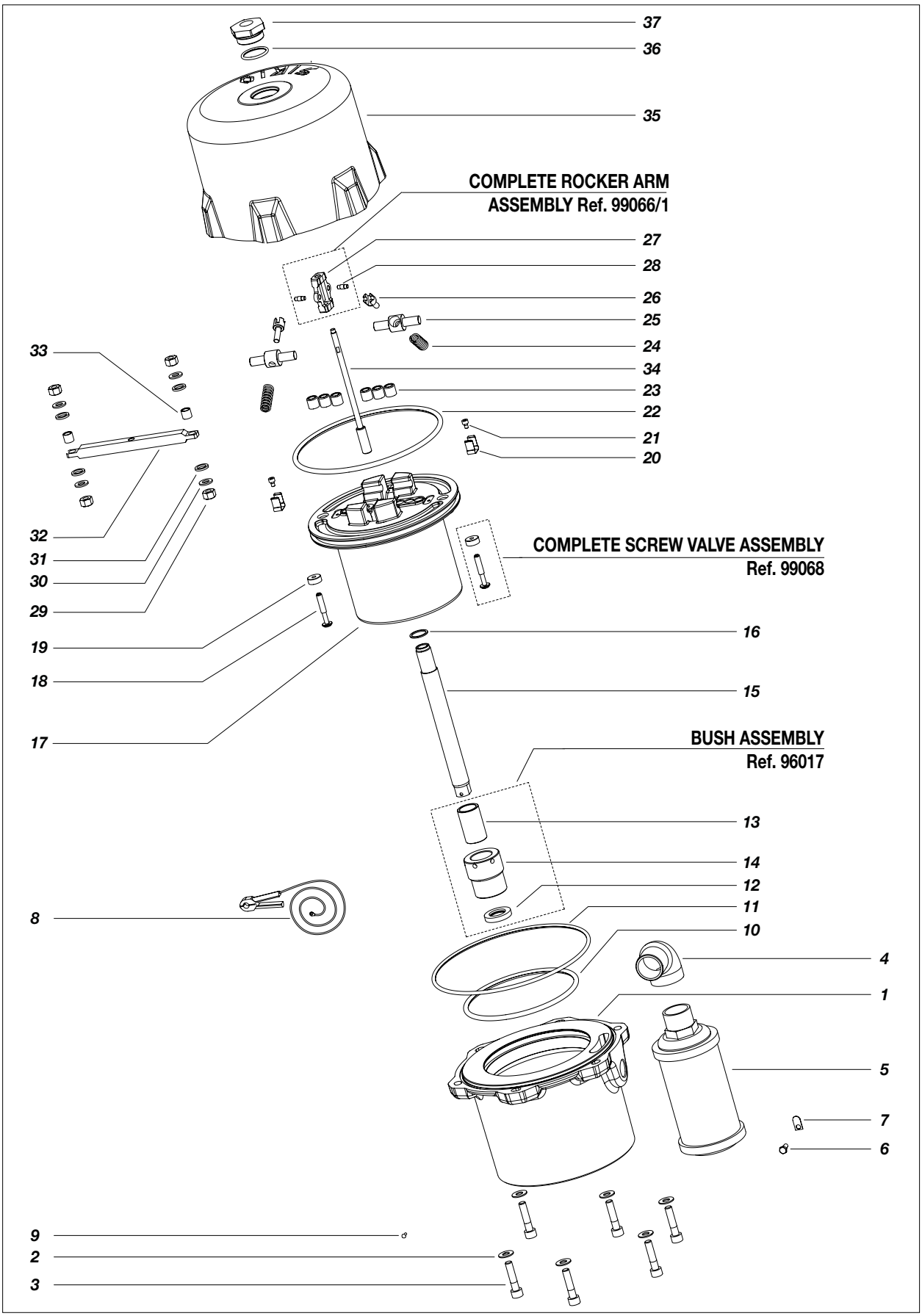
SPARE PARTS

Q Complete pneumatic motor
pag. 36

R Complete pump
pag. 38

Q COMPLETE PNEUMATIC MOTOR Ref. 99100

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



ED. 09 - 02/2024 - Cod. 150170

Pos.	Code	Description	Q.ty
	99100	**Complete motor**	-
1	99050	Motor base	1
2	33005	Washer Ø 10	6
3	16111	Screw	6
4	20172	Elbow Fitting	1
5	99054	Sound Absorbing Filter	1
6	96211	Screw Te	1
7	96210	Grounding Plate	1
8	5010	Grounding Cable	1
9	34021	Rivet Ø2.5x5	12
10	99056	O-ring	1
11	99055	O-ring	1
12	96019	Seal Ring	1
13	96017/1	Brass Bearing	1
14	96017/2	Guide Bushing	1
15	96016	Piston rod	1
16	33031	Washer	1
17	99051	Piston	1
18	99057	Valve Screw	2
19	99058	Valve Gasket	2

Pos.	Code	Description	Q.ty
20	96011	Guide Spring	2
21	96025	Screw Tce	2
22	99059	O-ring	1
23	96009	Seal Bushing	6
24	99061	Exchange Spring	2
25	99060	Roller	2
26	96007	Fork	2
27	96008/1	Rocker lever	1
28	96024	Fork pin	2
29	4108	Nut	4
30	32024	Washer Ø 8	4
31	96111	Gasket	4
32	99062	Crosspiece	1
33	96112	Guide Bushing	2
34	96010	Guide Rod	1
35	99053	Motor cylinder	1
36	95075	O-ring	1
37	96001	Cap	1

GASKETS KIT MOTOR - COD. 40094

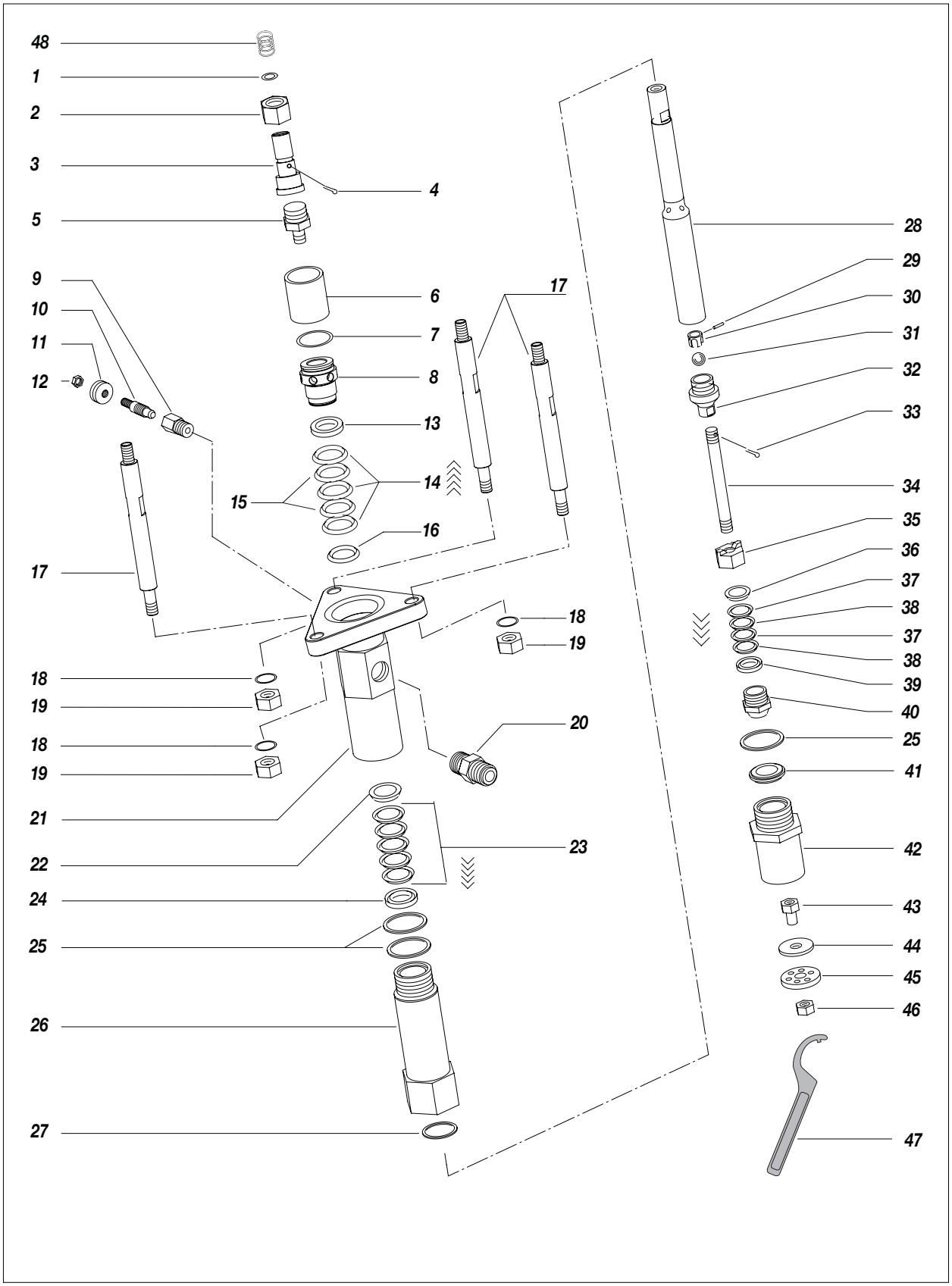
Pos.	Description	Q. ty
10	O-ring	1
11	O-ring	1
18	Valve Screw	2
19	Valve Gasket	2
23	Seal Bushing	6
30	Washer Ø 8	4
31	Gasket	4
36	O-ring	1

MOTOR MOVEMENT INVERSION DEVICE - COD. 40095

Pos.	Description	Q. ty
24	Exchange Spring	2
25	Roller	1
26	Fork	2
28	Fork pin	2

R EXPLODED VIEW OF PUMPING STANDARD GROUP 99550 - PUMPING LONG 99553

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



ED. 09 - 02/2024 - Cod. 150170

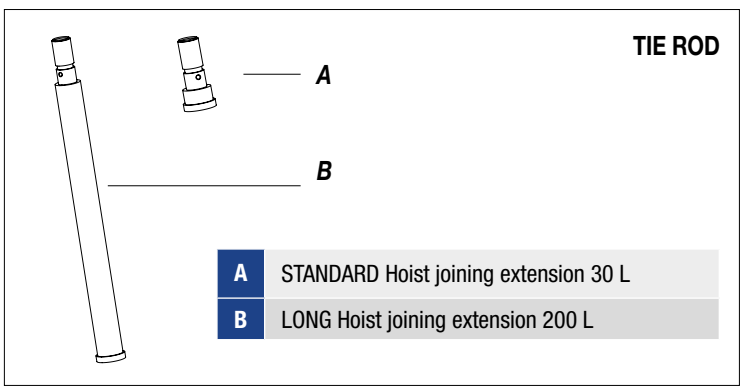
Pos.	Code	Description	Q. ty
1	96073	O-ring	1
2	96860	Connection sleeve	1
3	96712	Standard joining extension cable	1
	96803	Long joining extension cable	1
4	3323	Split pin	1
5	96820	Connection part for the motor	1
6	91001/1	Lubricant container cup	1
7	3429	O-Ring	1
8	96864	Packing nut	1
9	95721/2	Bushing for discharge cap	1
10	95721/1	Drainage plug	1
11	95721/4	Knob	1
12	53002/4	Nut M8	1
13	96984	Female ring for upper gaskets	1
14	96982	PTFE seals	3
15	96982/1	White seals	2
16	96983	Male ring for upper gaskets	1
17	99583	Tie-rod for hoist 30L	3
	99584	Tie-rod for hoist 200L	3
18	.....	Gaskets	3
19	.....	Nut	3
20	3144	Material outlet pipe fitting 1/2"	1
21	96895/1	Housing for upper gaskets	1
22	96876	Male ring for middle gaskets	1
23	96877	Package of middle gaskets	1

Pos.	Code	Description	Q. ty
24	96878	Female ring for middle gaskets	1
25	96883	Copper gaskets	3
26	96897	Housing for lower gaskets	1
27	96889	Seal	1
28	96988	Piston rod	1
29	96880	Ball clamp pin	1
30	96879	Ball guide	1
31	4060	Ball 5/8"	1
32	96045	Connector for suction valve	1
33	96882	Split pin	1
34	96885	Stem for material injection	1
35	96845/1	Gasket blocking nut	1
36	98460	Male ring	1
37	91022	PTFE gasket	2
38	91049	Polietilene gasket	2
39	98462	Female ring	1
40	96887	Suction valve	1
41	96853	Suction valve seat	1
42	96894	Material entry cylinder	1
43	95939	Follower plate guide bush	1
44	96891	Follower plate end stop	1
45	96892	Follower plate	1
46	96893	Closing nut	1
47	11503	Key	1
48	96023	Sprin	1

GASKET KIT - COD. 40274

Pos.	Description
13	Female ring for upper gaskets
14	PTFE seals
15	White seals
16	Male ring for upper gaskets
23	Package of middle gaskets
25	Copper gaskets

Pos.	Description
27	Seal
33	Split pin
36	Male ring
37	PTFE gasket
38	Polietilene gasket
39	Female ring



S ATEX CERTIFICATE

TECHNICKÁ INŠPEKCIA, a.s.

SLOVENSKÁ REPUBLIKA

CEOC INTERNATIONAL

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: (Ex) 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

TECHNICKÁ INŠPEKCIA SLOVENSKÁ REPUBLIKA TI NB 1354 - 5 -

On behalf of Technická inšpekcia, a.s.

Ing. Dušan Perniš
General Director

301087
PDOKA2-413

CE DECLARATION OF CONFORMITY

Company

LARIUS srl
Via Antonio Stoppani 21 - 23801 Calolziocorte (LC) ITALY
Tel: +39 0341 621152
Fax: +39 0341 621243
E-mail: larius@larius.com

Declares under his owns resonsibility that the product:

SIRIO 60:1
Pneumatic pump for extrusion

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 exclusevely 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

Calolziocorte, 26 February 2024
Location / Date

Pierangelo Castagna
Managing Director

SAMOA
LEADING THROUGH INNOVATION

SAMOA INDUSTRIAL, S.A. - HEADQUARTERS
SPAIN AND EXPORT MARKETS
POL. IND. PORCEYO, I-14 - CAMINO DEL FONTÁN, 831
E-33392 GIJÓN (ASTURIAS), SPAIN
TEL.: +34 985 381 488 - FAX: + 34 985 147 213

SAMOA S.A.R.L.
FRANCE
P.A.E.I. DU GIESSEN
3, RUE DE BRISCHBACH
67750 SCHERWILLER, FRANCE
TEL.: +33 3 88 82 79 62 - FAX: +33 3 88 82 77 88

SAMOA ITALIA - LARIUS
ITALY
VIA ANTONIO STOPPANI,21
23801 CALOLZIOCORTE (LC) ITALY
Tel.: +39 0341 621152 - Fax: + 39 0341 621242

SAMOA FLOWTECH GMBH
GERMANY, AUSTRIA, SWITZERLAND, THE NETHERLANDS AND GREECE
AM OBEREICHHOLZ 4
D - 97828 MARKTHEIDENFELD, GERMANY
TEL.: +49 9391 9826 0 - FAX: +49 9391 98 26 50

SAMOA LTD.
UNITED KINGDOM AND REP. OF IRELAND
ASTURIAS HOUSE - BARRS FOLD ROAD
WINGATES INDUSTRIAL PARK
WESTHOUGHTON, BL5 3XP, UK
TEL.: +44 1942 850600 - FAX: +44 1942 812160

SAMOA CORPORATION
USA AND CANADA
90 MONTICELLO ROAD
WEAVERVILLE, NC 28787, USA
TEL. +1 (828) 645-2290 - FAX: +1 (828) 658 0840

Contact us today!

Visit **www.samoaindustrial.com** for more information.

INSTRUCTION MANUAL AVAILABLE IN:		
	IT	http://www.larius.org/manuali/SIRIO_60_1_I.pdf
	EN	http://www.larius.org/manuali/SIRIO_60_1_UK.pdf
	FR	http://www.larius.org/manuali/SIRIO_60_1_F.pdf