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Excalibur Liner

Street marking
With piston pump











EXCALIBUR LINER

Street marking with piston 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.

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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.

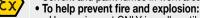


It indicates an accident risk or serious damage to equipment if this warning is not followed.



FIRE AND EXPLOSION HAZARD

• Solvent and paint fumes in work area can ignite or explode.



- 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 Iontano 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.

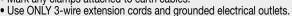


- Report any risk of chemical reaction or explosion if this warning has not been given.
- (IF PROVIDED) There is a risk of injury or serious lesion related to contact with the jet from the spray gun. If this should occur, IMME-DIATELY contact a doctor, indicating the type of product injected.
- (IF PROVIDED) 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.

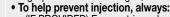


• It indicates important recommendations about disposal and recycling process of products in accordance with the environmental regulations.





- 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.



- (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.





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B WORKING PRINCIPLE

The LARIUS EXCALIBUR unit is defined "piston pump".

An piston pump is used for high pressure painting without air (from this process derives the term "airless").

The internal combustion engine, mounted upon the undercarriage, powers the alternative piston pump.

A cam shaft and a connecting rod allow to obtain the reciprocating motion necessary to the working of the "pumping group" piston. The piston movement produces a "vacuum".

The product is sucked, pushed towards the pump outlet and then sent to the gun through the flexible hose.

A electronic device, allows to adjust and control the pressure of the material coming out of the pump.

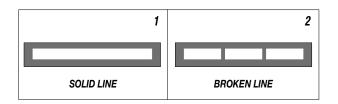
A safety valve avoiding overpressure, guarantees the total reliability of the equipment.

The control zone allows for the possibility of:

- · Activating the dispensing spray gun;
- Enabling or disabling the frontal steering wheel;
- Adjust the pressure of work;

This type of equipment is capable of painting one line at a time in a single color.

The line can be either solid or dotted, based on the working requirements.



EXCALIBUR LINER is ideal for medium marking and maintenance jobs.



Use water or non-refractive solvent filtered paint specifically designed for airless application.

EXCALIBUR LINER allows for the marking and maintaining of all types lines on highways, freeways, pedestrian crossings, parking lots and squares, as well as every horizontal marking required by the highway code.

Airless marking has numerous proven benefits with respect to line-markers with pressurised tanks, which have been rendered obsolete by airless-technology line markers.

Airless line-marking guarantees:

- Decreased Environmental Impact;
- Decreased drying time.

The paint dries quickly and the line is defined in a uniform manner with a single coat. The airless function requires the use of filtered paint which is specifically designed for airless application. This means that the paint is homogeneous, of a smooth and uniform consistency and will not form crusts, nor will it become gelatinous or thick. With this airless line-marker, the paint adheres firmly to all types of pavement, with optimal visibility, and is resistance to wear caused both by traffic as well as atmospheric agents.



Fig. 1B

In the *LARIUS* models, the paint canister can be loaded directly upon the undercarriage or else poured into the non-stick, 50 L tank. In every case, cleaning, maintenance and colour change operations are facilitated.



Fig. 2B

The line-marker is equipped with pivoting frontal wheel which even increases the agility of the larger models. High yield, high efficiency, high versatility.

This line-marker utilises non-premixed paints. This allows it to achieve about 30 % more yield with respect to standard line-markers. Every model is also an airless spray gun which can be used in the construction/decoration sector together with washable products, enamels, breathable paints and flooring resins.

A vast assortment of accessories is available to satisfy every customer demand.

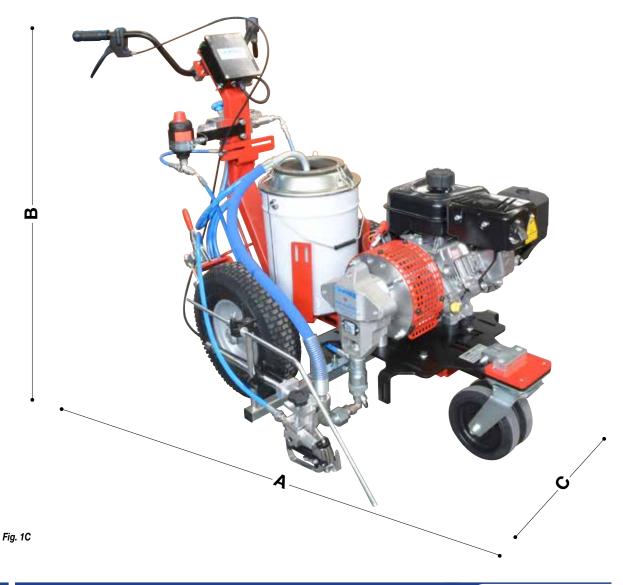
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C TECHNICAL DATA

EXCALIB	UR LINER
Internal combustion engine power	4 kW ÷ 5 kW (upon availability)
Max. Delivery	2 l/min
Max. pressure	210 bar
Airless spray-gun	AT 250
Sizes of the furnished nozzles	11x40 - 13x40 - 15x40
Tank	501 - 201
Colours	1
Manual line-marking	series
Applications	Medium road-marking and maintenance
Multi-use sprayer	series
Weight	105 kg
Lenght	(A) 160 cm
Height	(B) 110 cm
Width	(C) 90 cm
Vibrations	$L_{E0(8i)} = 1.8 \text{ m/s}^2$



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Dotazione standard	Accessori
N°1 Filter with pressure gauge	Ref. 4502
N°1 High pressure tube 3/16", 10 m Ref. 35017	Bead distributor for automatic
N°1 Recirculation tube	spray-guns
N°1 50 L gravity tank + closure valve and extractible filter	
N°1 Manual airless spray-gun AT250	Ref.4038
N°1 Super fast clean base	Laser pointer kit
N°1 Super fast clean nozzle 11-40	
N°1 Super fast clean nozzle 13-40	Ref. 4506
N°1 Super fast clean nozzle 15-40	Working spotlight
N°1 Tool pack	

SECTORS OF USE

- External or underground parking lots (schools, hotels, airports, supermarkets, train stations, subway stations, ports);
- External public areas;
- Industrial and exhibition building zones;
- Freeway service areas and service stations;
- Pedestrian median lines, intersections, bicycle tracks, reserved lanes;
- Internal and external logistic area markings;
- Playing fields.

NOZZLES POSITION TABLE

Nozzle height from ground	20-degree angle Line Width	40-degree angle Line Width	60-degree angle Line Width
10 cm	~ 3 cm	~ 5 cm	~ 10 cm
15 cm		~ 7 cm	~ 13 cm
20 cm	~ 6 cm	~ 8 cm	~ 16 cm
25 cm		~ 10 cm	~ 20 cm
30 cm	~ 10 cm	~ 12 cm	~ 23 cm
35 cm			~ 26 cm

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D DESCRIPTION OF THE EQUIPMENT

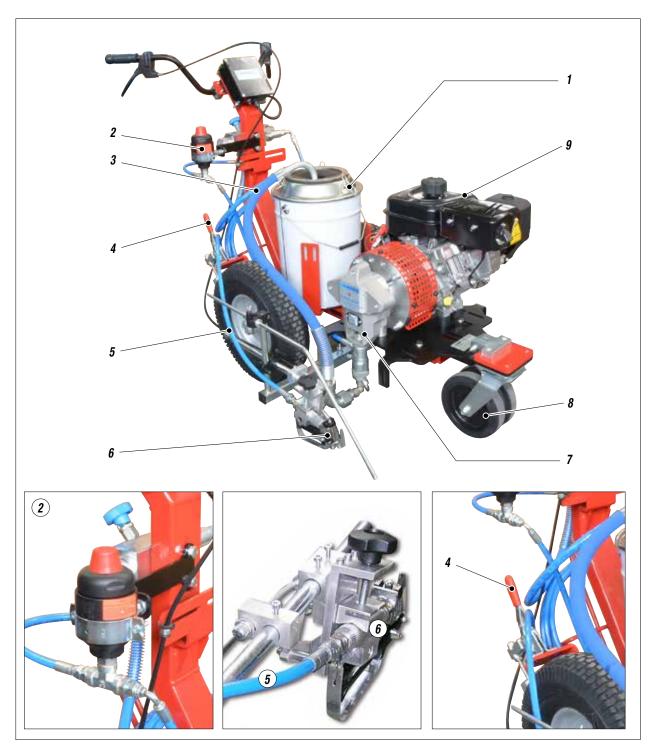


Fig. 1D

Pos.	Description
1	It. 20 tank
2	Flow compensator
3	Product suction pipe
4	Brake
5	Product supply tube

Pos.	Description	
6	Gun AT250	
7	Pumping group	
8	Pivoting wheel	
9	Gasoline tank	

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Fig. 2D

Pos.	Description
9	Potentiometer for adjusting the operating pressure
10	Directional wheel lock/release lever
11	Safety-recirculation valve
12	Manometer

Pos.	Description
13	P roduct recirculation tube
14	Plug
15	Gun operating lever
16	ON/OFF switch

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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 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 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 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

- THE EMPLOYER SHALL TRAIN ITS EMPLOYEES ABOUT ALL THOSE RISKS STEMMING FROM ACCIDENTS, ABOUT THE USE OF SAFETY DEVICES FOR THEIR OWN SAFE-TY 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.

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.

- 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 PRO-PERLY.
- 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.
- 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 PERFOR-MING ANY CHECK OR PART REPLACEMENT OF THE EQUIPMENT.
- NEVER MODIFY ANY PART IN THE EQUIPMENT. CHECK REGULARLY THE COMPONENTS OF THE SYSTEM. RE-PLACE THE PARTS DAMAGED OR WORN.
- TIGHTEN AND CHECK ALL THE FITTINGS FOR CONNEC-TION BETWEEN PUMP, FLEXIBLE HOSE AND SPRAY GUN

BEFORE USING THE EQUIPMENT.

- ALWAYS USE THE FLEXIBLE HOSE SUPPLIED WITH STAN-DARD 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 CARE-FULLY. DO NOT PULL THE FLEXIBLE HOSE TO MOVE THE EQUIPMENT. NEVER USE A DAMAGED OR A REPAIRED FLEXIBLE HOSE.
- NEVER SPRAY OVER FLAMMABLE PRODUCTS OR SOL-VENTS IN CLOSED PLACES.
- NEVERUSE THE TOOLING IN PRESENCE OF POTENTIALLY EXPLOSIVE GAS.



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 gun is earthed through the high pressure flexible hose.



All the conductors near the work area must be earthed.



Always check 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).

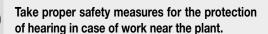


If these products come into contact with aluminium parts can provoke dangerous chemical reactions with risk of corrosion and explosion.



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





H TUBE CONNECTIONS

Flexible re-circulation tube connection

 Connect the flexible re-circulation tube (H1) to the connector (H2) ensuring to tighten the fittings (the use of two wrenches is suggested).

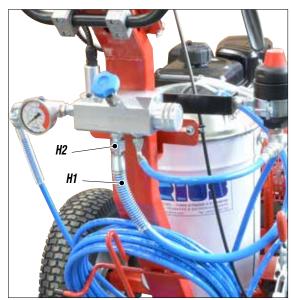


Fig. 1H

Pump unit flexible tube connection

 Connect the pump unit's flexible tube (H3) to the connector (H4) ensuring to tighten the fittings (the use of two wrenches is suggested).

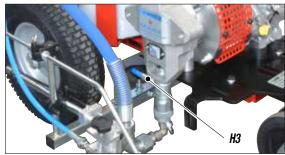


Fig. 2H

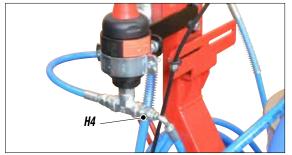


Fig. 3H

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Н6

Hose connection to the flow compensator

Connect the hose (H5) between the flow compensator (H6) to the recirculation group (H7)(the use of two wrenches is suggested).

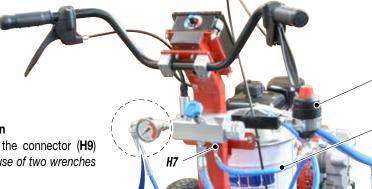


Fig. 4H

Flexible tube and spray gun connection

Connect the flexible tube (H8) to the connector (H9) ensuring to tighten the fittings (the use of two wrenches is suggested).



Fig. 6H

It is recommended to use the hose provided with the standard kit (ref. 18036).

NEVER use a damaged or a repaired flexible hose.

NEVER use sealants on fittings' threads.



Fig. 5H

STARTING THE MOTOR

In order to start the motor, proceed as follows:



ill the gasoline tank (11).

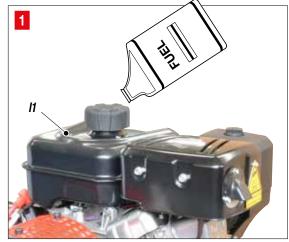


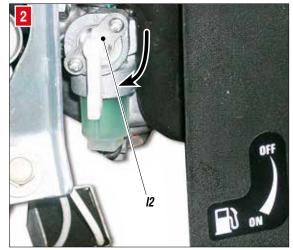
Fig. 11





2

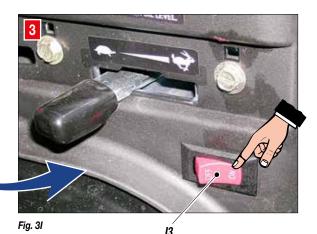
Open the fuel tap (I2) and position it to "ON".



3

Put the switch (13) ON (1) for the equipment.





4

Bring the accelerator lever (14) to about 1/2 of its run.



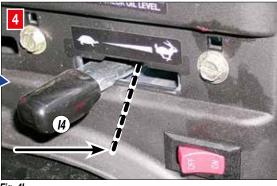


Fig. 4I

5

Pull the lever (I5) for the first cold start up (in position CHOKE).





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Pull the start up cord (16).

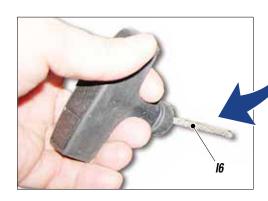




Fig. 6I

J WASHING OF THE NEW EQUIPMENT

- The equipment has already been adjusted at our factory with light mineral oil left inside the pumping group as protection.
 Therefore, wash with diluent before sucking the product.
- Lift the suction pipe and dip it into the solvent tank.
- Clean the inside of the tank with a brush.
- Ensure the gun (J1) is without nozzle.



Fig. 1J

• Open the recirculating-safety valve (J3).



Fig. 3J

- Start the motor following the indications provided in the chapter "STARTING THE MOTOR".
- Press the switch (J2) of the equipment "ON" (I).



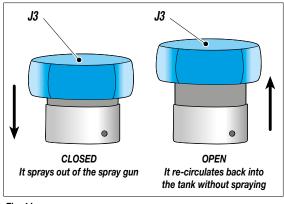


Fig. 4J

12

 Turn the pressure setting knob (J4) clockwise to the "CIR-CULATION & WASHING" position (drop symbol).

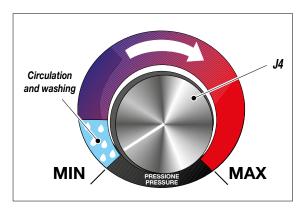




Fig. 5J

• Visually check that the wash fluid starts to re-circulate within the tank (**J5**).

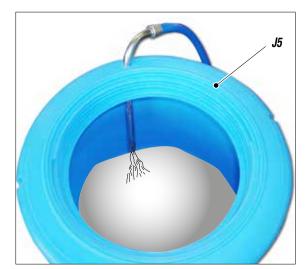


Fig. 6J

- Turn the pressure adjustment handle (**J4**) clockwise to stop the pump.
- Closed the recirculating-safety valve (J3).



Fig. 7J

 Turn pressure regulating knob (J4) clockwise a little so that the machine idles.

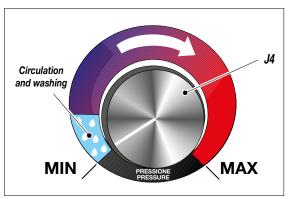


Fig. 8J

• Remove the gun (**J6**) from its support and point it into a container (**J7**). Hold the trigger down (to perform the cleaning) until clean solvent comes out, or else until all of the wash fluid has been expelled from the tank.

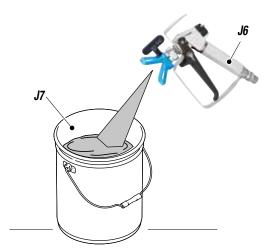


Fig. 9J

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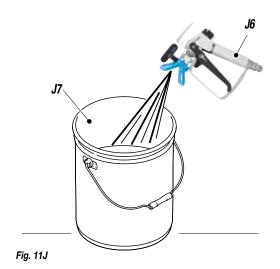


Repeat the same operations with clean solvent if necessary.

After having completed the wash operations, bring the handle to its MIN position (J4) and point the gun (J6) into a collection container (J7) and press the trigger to release the residual pressure. Release the trigger when finished.



Fig. 10J





Absolutely avoid to spray solvents indoors. In addition, it is recommended to keep away from the pump in order to avoid the contact between the solvent fumes and the motor.

- Shut off the equipment by turning the switch to its OFF position "(0)".
- Stop the combustion engine.
- At this point the machine is ready. If water-based paints are to be used, after the wash with solvent wash the tank again with soap and water, then rinse with clean water (repeating the previously described procedures).
- Insert the manual gun trigger lock and assemble the nozzle.

K PRODUCT PREPARATION



MAKE SURE THE PRODUCT IS SUITABLE TO BE **USED WITH A SPRAY GUN.**

Mix and filter the product before using it. For filtration use CLOSE-MESH (rif. 214) and LARGE-MESH (rif. 215) **LARIUS METEX** braids.



Make sure the product to be used is compatible with the materials employed for manufacturing the equipment (stainless steel and aluminium). Because of that, please contact the supplier of the product.

Never use products containing halogen hydrocarbons (as methylene chloride). If these products come into contact with aluminium parts of the equipment, can provoke dangerous chemical reactions with risk of explosion.

Fill the tank (K1) with the paint.



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Fig. 1K

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I REGULATIONS

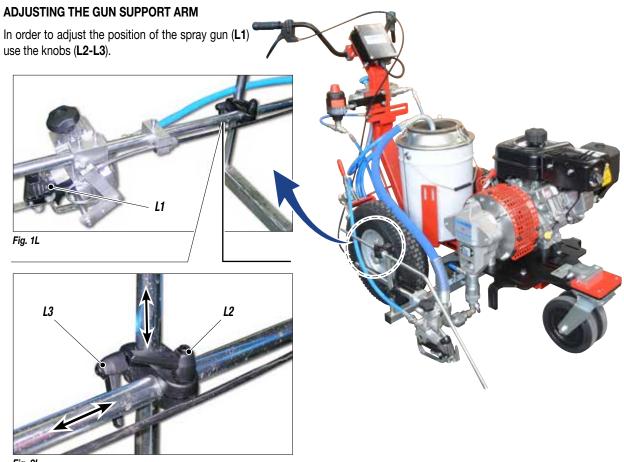


Fig. 2L

M WORKING

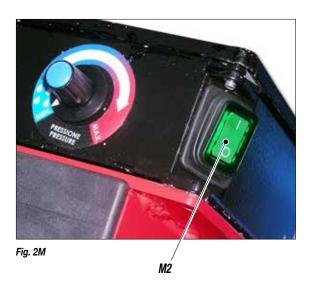
SETUP PROCEDURE

- Use the tooling after performing all the SETTING UP operations above described.
- Check that there is enough unleaded petrol.
- Start the motor following the indications provided in the chapter "STARTING THE MOTOR".
- Make sure that the re-circulation/safety valve (M1) is closed (spray enabled).



Fig. 1M

- Press the switch (M2) of the equipment "ON" (I).
- Turn the pressure adjustment handle clockwise until the desired setting has been reached.



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ADJUSTING PUMP UNIT SPEED

Move the motor acceleration lever (M3) gently to increase or decrease the speed of the pump.

During the painting operation it is normally recommended to maintain the position of the accelerator lever (M3) at about 3/4 of its maximum run.

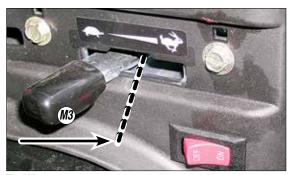


Fig. 3M

SPRAY ADJUSTMENT

- Slowly turn clockwise the pressure control knob to reach the pressure value in order to ensure a good atomization of the product.
- An irregular and marked spray on the sides indicates a low working pressure. On the contrary, a too high pressure causes a high fog ("overspray") and waste of product.
- Pull the lever on the right (M4) to activate the spray gun and begin working, advancing the machine in a continuous manner.



Fig. 4M



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.



Recirculating-safety valve: when working at the maximum pressure available, releasing the gun trigger sudden increases of pressure can occur. In this case, the recirculating-safety valve opens automatically eliminating part of the product from the recirculating tube.

Then it closes so as to go back to the first working conditions.

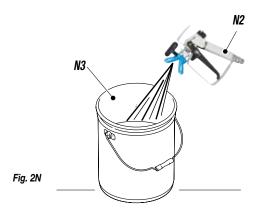
N CLEANING AT THE END WORK

Reduce pressure to the minimum (turn counterclockwise the pressure control knob (N1)).

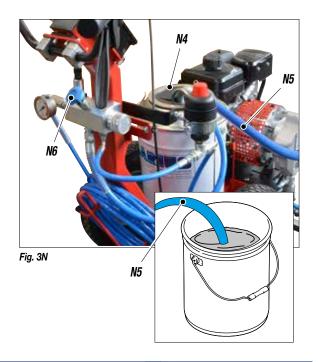


Fig. 1N

Release the residual pressure by holding down the trigger of the gun (N2) and pointing it into a container (N3).



- Eliminate the paint remaining within the tank (N4) by placing the re-circulation tube (N5) into a container.
- Open the recirculating-safety valve (N6).







- Turn the pressure adjustment (N1) handle slightly clockwise to make the machine function at minimum pressure (pump activated), until the tank has been completely emptied then shut off the pump by bringing the handle (N1) to its minimum position.
- Fill the tank (N4) with wash fluid.

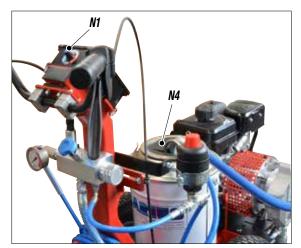


Fig. 4N

- Clean the walls of the tank with a brush.
- Turn the pressure adjustment (N1) handle slightly clockwise to make the machine function at minimum pressure (pump activated).



Fig. 5N

- Make sure the re-circulation tube (N5) is inserted into a container and wait for clean wash fluid to come out of it.
- Turn the pressure adjustment handle (N1) to minimum (pump stopped).
- Place the re-circulation tube back into the tank.
- Keep the gun's trigger pressed to release any residual pressure.
- Remove the nozzle from the gun and wash it separately.
- Closed the recirculating-safety valve
- Turn the pressure adjustment handle (N1) slightly clockwise to make the machine function at minimum pressure (pump activated).

 Point the manual gun (N7) into a container (N8), drain the residual paint and wait for the wash fluid to come out clean the entire spraying circuit.

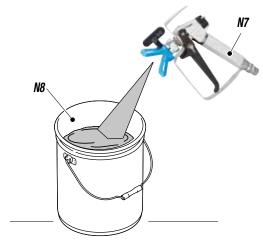


Fig. 6N

- Empty all of the wash fluid from the tank and turn off the equipment.
- Turn the pressure adjustment handle (**N1**) to minimum (*pump* stopped).
- Shut off the motor.

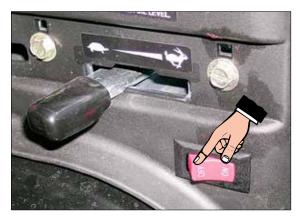


Fig. 7N

 In case of long storage, we recommend you to suck and to leave light mineral oil inside the pumping group and the flexible hose.



Follow the washing procedure before using again the equipment.

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O GENERAL MAINTENANCE



Discharge the pressure in the pump unit (open the discharge valve) before carrying out any maintenance.

DAILY

- Clean the filters;
- Clean the nozzles;
- Clean all the varnish circuit with a specific product;
- Check the fuel motor (see the maintenance table).

PERIODICALLY

- Check the pumping gaskets draft (if the product draws, replace
- Clean the mobile parts from the varnish deposits (spray guns,
- Check the gun cables tightening, the wheel block;
- Check that the tubes and all the fittings are correctly locked.

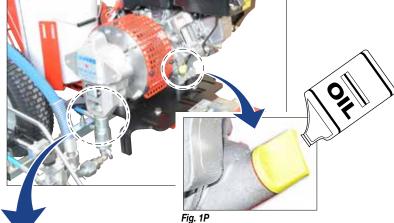
ROUTINE MAINTENANCE

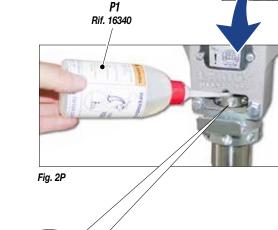


Always check that there is oil in the motor.

Check the motor oil every 100 working hours via the relevant measuring caps positioned on the bottom of the petrol motor.

Top up if necessary.





Oil ring

CHECK ON THE PACKING NUT

Daily check the packing nut is tight in order to avoid wastes but not excessively to prevent the piston from seizing and the gaskets from wearing.

Use the lubricant (P1) supplied (ref. 16340) to allow an easy sliding of the piston inside the gasket group.

Daily top up the packing nut.



At the start of each working day check that the ring nut is full of hydraulic oil (Ref. 16340). This oil makes it easier for the piston to slide and prevents any material that escapes via the seal gasket drying when the equipment is stopped.



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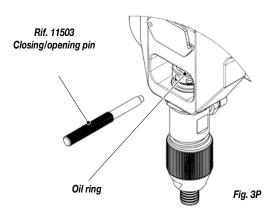




For tightening, use the wrench supplied (ref. 11503).



Check the packing nut is tight in order to avoid wastes but not excessively to prevent the piston from seizing and the gaskets from wearing.



CORRECT PROCEDURE OF DECOMPRESSION

Move the switch (Q1) to the OFF (0) position to stop the equipment.

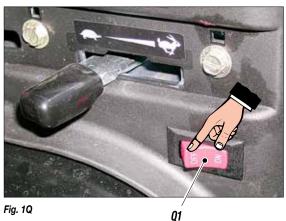


Fig. 1Q

Reduce pressure to the minimum (turn counterclockwise the pressure control knob (Q2)).



Fig. 2Q

Unlock the safety clamp (Q3).

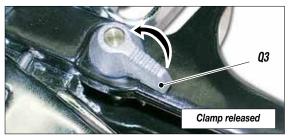
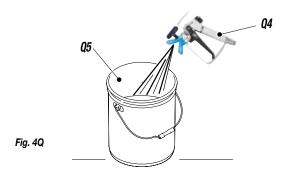


Fig. 3Q

Point the gun (Q4) at the receptacle (Q5) used to collect the product and press the trigger to release the pressure. When completed, activate the safety catch again.



Open the recirculating-safety valve(Q6) to release the remaining pressure.



Fig. 5Q

WARNING:

If the equipment is still under pressure after performing the operations above described because of the nozzle or the flexible hose clogged, proceed as follows:



- Loosen very slowly the gun nozzle.
- Release the clamp.
- Point the gun at the container of the product and press the trigger to release pressure.
- Loosen very slowly the fitting of connection from the flexible hose to the gun.
- Clean or replace the flexible hose and the nozzle.

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R REPLACEMENT OF THE PUMPING GROUP'S GASKETS

Each time you use the machine, check for material leaking from the top of the ring nut.

If any material leaks out when the pump is working at the set pressure, proceed as follows:

• Carry out this operation after cleaning the tooling.



Always disconnect the power supply and release pressure before going on with the operations (follow the "correct procedure of decompression). The gaskets are self-adjusting. If a leak occurs they must be replaced.

 Use a 19 mm spanner to unscrew the ring nut (R1) on the feed pipe in order to make the operation easier.



Fig. 1R

• Release the plastic covering (R2).

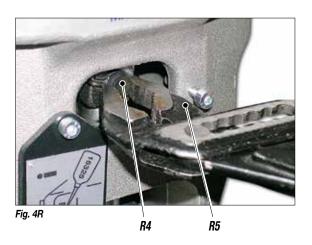


Fig. 2R

• Pull the ignition belt (R3) lightly until the piston rod has been brought to the lowest point of its stroke.



• Remove the locking pin (R4) using pliers (R5).

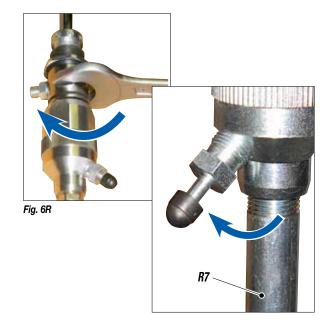


Unscrew the fixing ring nut (**R6**) to the end of the thread using a 45 mm spanner.



Fig. 5R

Unscrew the suction casing using a 32 mm spanner as illustrated. If necessary, remove the suction pipe (R7) before continuing with the other operations.



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- Disconnect the pumping group by unscrewing the fastening nut (wrench 45).
- Unscrew the pumping group from the housing.

You can now work easily as the pump casing has been freed.

Grip the complete pump unit (R9) in a vice (R8) (as shown).

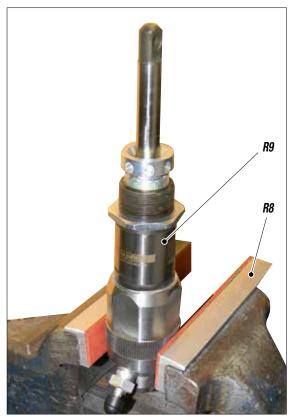


Fig. 7R

 Allentare la ghiera (N10) di due giri completi con l'apposito perno (N11) in dotazione.

Ruotare in senso antiorario come illustrato.

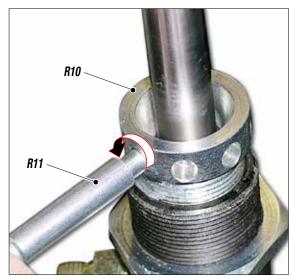


Fig. 5R

• Use a 36 mm spanner to unscrew the pump unit as shown.



Fig. 5R

• Remove the pump unit (R12) from the foot valve (R13) as shown.

Inspect the two parts separately.

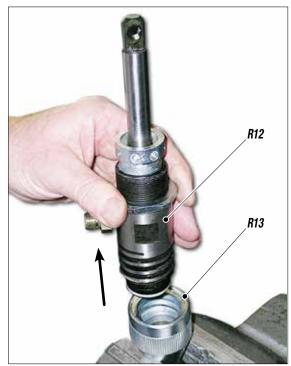


Fig. 7R

PIT STOP MAINTENANCE

Replacement of upper and lower gaskets 25 minutes.

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REPLACING THE FOOT VALVE SEALS

- Replace the PTFE gasket (R14) located under the ball seating (R15).
- Check that the surfaces of the ball seating (R15) and the ball (R16) are not damaged. If necessary, replace both of them.
- Fit them again using the component sequence shown.



REPLACING THE PUMP UNIT HOUSING UPPER GASKET

 Remove the piston stem (R17) from the pump unit housing (R18) as shown.



Unscrew the gasket compression ring nut (R19) completely.
 All the gaskets in the unit must be replaced at the same time to allow the machine to work properly.

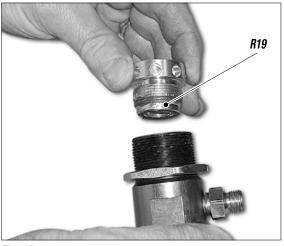
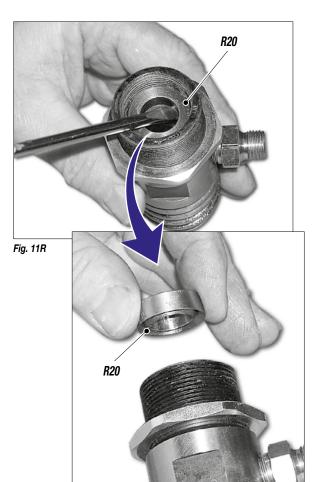


Fig. 10R

Remove the upper stainless steel female ring (R20) as shown

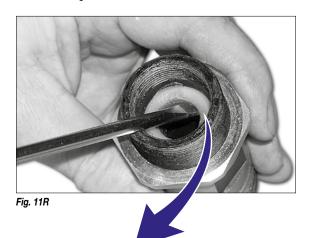


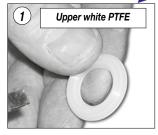
22





Remove the series of gaskets contained inside the pump unit housing, as shown.

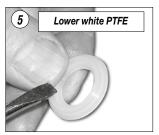








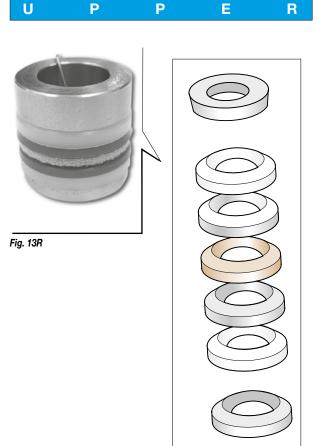




Remove the lower stainless steel male ring (R21) as shown.



Fit the new gasket kit according to the component sequence shown in the figure.



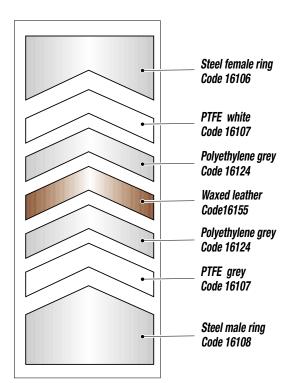


Fig. 14R

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Remove the PTFE O-ring (R22) and replace it with a new one



REPLACING THE PUMP UNIT STEM GASKET

Secure the stem (R18) in a vice as shown.

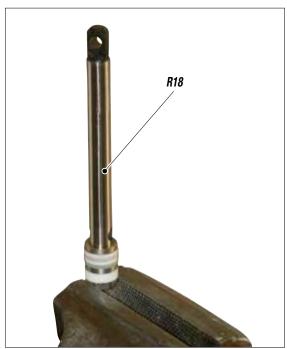


Fig. 16R

- Use a 10 mm spanner to unscrew and remove the stem (R19) as indicated.
- Remove the complete gasket kit (R24) from the stem (R18), as shown, in order to replace it.

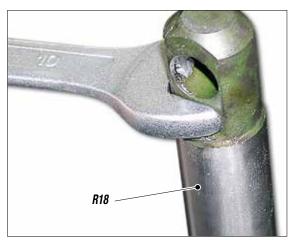


Fig. 17R



Fig. 17R

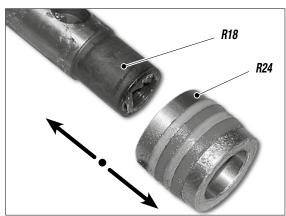


Fig. 18R

Fit the new gasket kit according to the component sequence shown in the figure.

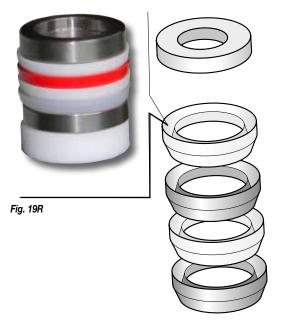
Check the scraper for wear (Ref. 18648).

Replace if necessary.

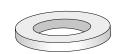


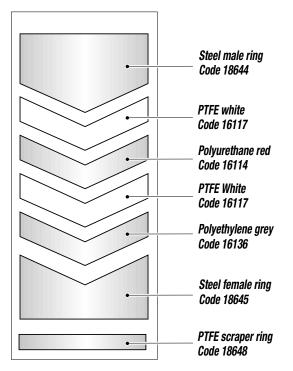






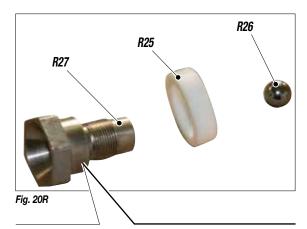






- Replace the grey polyethylene lipped gasket (**R25**) for the valve piston.
- Refit according to the assembly order and the alignment of the lip (as shown).

Check the surfaces of the ball (R26) and ball seating (R27), and replace both if damaged.





• Assemble the components as shown.

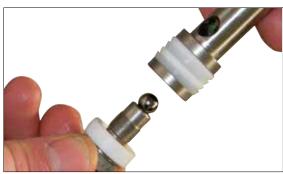


Fig. 21R

Lubricate the gaskets (R28) and the stem.
 Vaseline is recommended for this task.

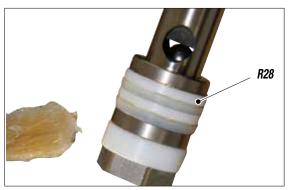


Fig. 21R

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Insert the stem (R18) into the housing (R17) rotating it as you do so in order to allow it to slide more easily and to avoid damaging the upper gaskets.

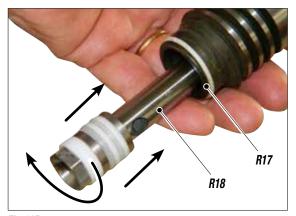


Fig. 22R

Lubricate the O-ring (R29) (Ref. 16126) with grease, as shown. Vaseline is recommended for this task.

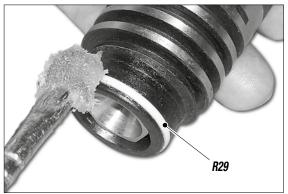


Fig. 23R

Put liquid PTFE on the first two turns (R30) and (R31) to avoid the two components coupled as shown from unscrewing.



Use a 36 mm spanner to screw on the pump unit (R9).

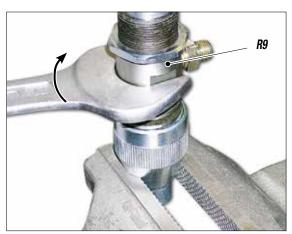


Fig. 25R

Make the piston stem (R18) fitted previously complete a full stroke as shown.

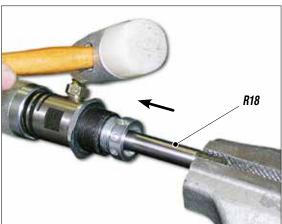


Fig. 26R

Use the pin (R11) supplied to tighten the gasket compression ring nut (R10). Close this until it is fully touching, without forcing.

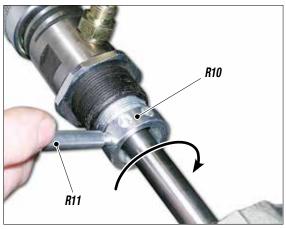


Fig. 27R





CORRECT POSITIONING OF THE PUMP UNIT

Once the unit has been refitted, proceed as follows:

- Check the position of the con rod, which should be positioned at its lower stopping point.
- Put the entire pump unit (R9) inside the reduction cover (R32) as shown.



- Screw the entire pump unit onto the front template, making sure that the end of the stem is centred in relation to the groove in the con rod (R33).
- Centre the two holes (conrod + stem) and insert the stopping pin (R34) inside the con rod (R33).
- Check that the closing spring (R35) in the con rod (R33) goes into the pin seating when closed (as shown).

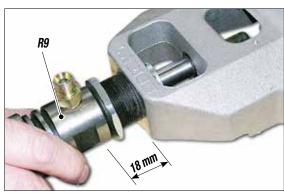


Fig. 27R

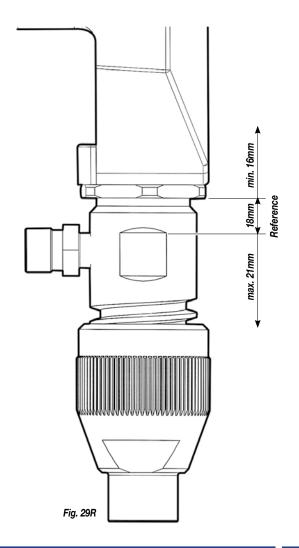
- Screw the entire pump unit (R9) inside the reduction cove.
- Use a gauge to measure the gap between the base of the template and the start of the tightening groove.



The reference value (see drawing) must be 18 mm. The maximum tolerance accepted for correct operation is 21 mm maximum and 16 mm minimum.



Fia. 28R



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Once the unit has been positioned correctly, tighten the lock nut (R36) hard against the front template. To tighten, use a 45 mm spanner.

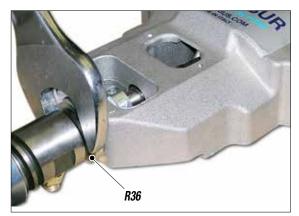


Fig. 30R

Close the inspection cover (R2) again.



Fig. 31R

Fit the suction pipe. Put PTFE tape or liquid PTFE over the threaded part (R37) before screwing it onto the foot valve.

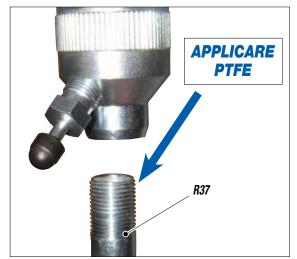


Fig. 32R



For correct reassembly, see the exploded diagram for the pump unit, and invert the order used for disassembly.

REPLACEMENT OF THE BALL RELEASE GROUP SEAL

In case there is a loss of material from the ball release group (R38), it is necessary to replace the gasket (R39) as shown.



Fig. 33R

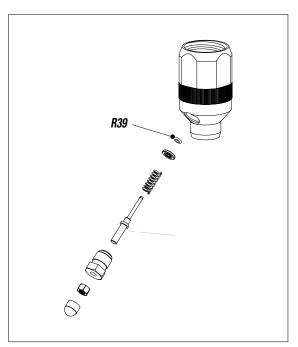


Fig. 31R





S PROBLEMS AND SOLUTIONS

Problem	Cause	Solution
The equipment does not start	On/Off switch disconnected;	Ensure the On/Off switch is on the "on" position and turn clockwise the pressure control knob;
	Lack of gasoline;	Add gasoline;
	Breakdown of motor electric control box;	Verify and replace it, if necessary;
	The line of material coming out of the pump is already under pressure;	Open the drain valve to release pressure in the circuit;
	The product is solidified inside the pump;	Open the drain valve to release pressure in the circuit and stop the machine. Disassemble the pumping group and the pressure transmitter and clean;
The equipment does not suck the product	Suction filter clogged;	Clean or replace it;
product	Suction ilter too fine;	Replace it with a larger-mesh filter (with very dense products, remove the filter);
	Product output valve closed;	Open the product output valve;
	The equipment sucks air;	Check the suction pipe;
The equipment sucks but does not reach the pressure desired	Lack of product;	Add the product;
reach the pressure desired	The equipment sucks air;	Check the suction pipe;
	The recirculating-safety valve is open;	Close the recirculating-safety valve;
	The gaskets of the pumping group are worn;	Replace the gaskets;
	Suction or delivery valve dirty;	Disassemble the pumping group;
When pressing the trigger, the pressure lowers considerably	Nozzle too big or worn;	Replace it with a smaller one;
Suic lowers considerably	The product is too dense;	Dilute the product, if possible;
	The filter of the gun-butt is too fine;	Replace it with a larger-mesh filter;
The pressure is normal but the product is not atomized	The nozzle is partially clogged;	Clean or replace it;
Leakage from the seal-tightening	The product is too dense;	Dilute the product, if possible;
screw	The filter of the gun-butt is too fine;	Replace it with a larger-mesh filter;
The atomization is imperfect	The nozzle is worn;	Replace it;
When releasing the trigger of the gun, the equipment does not stop	The gaskets of the pumping group are worn;	Replace the gaskets;
(the motor runs slowly and the piston rod keeps on going up and down)	Suction or delivery valve dirty;	Disassemble the pumping group and clean;
	Recirculating-safety valve defective.	Verify and replace it, if necessary.



Always close the air compressed supply and unload the plant pressure before performing any check or replacement of pump parts (see "correct procedure of decompression").

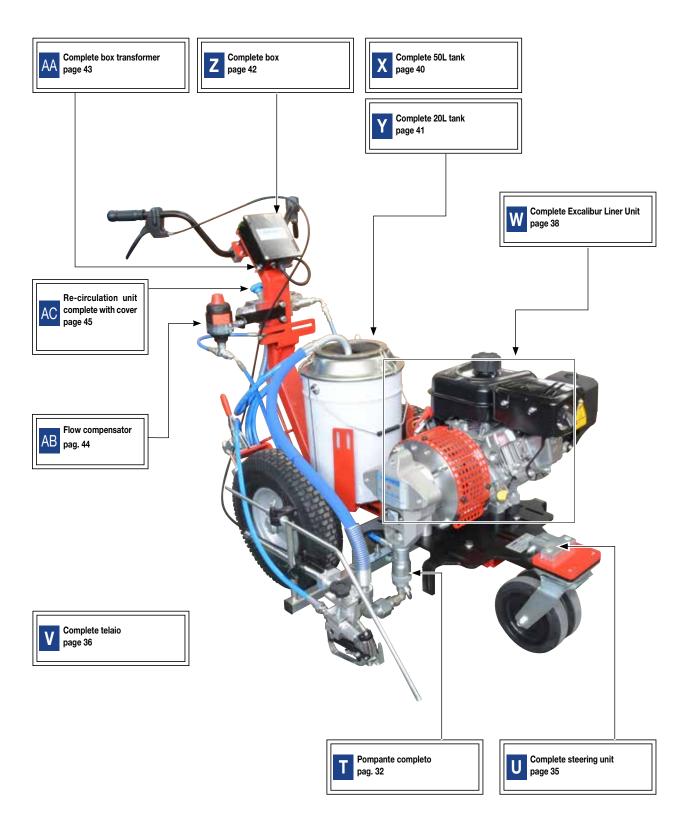
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SPARE PARTS



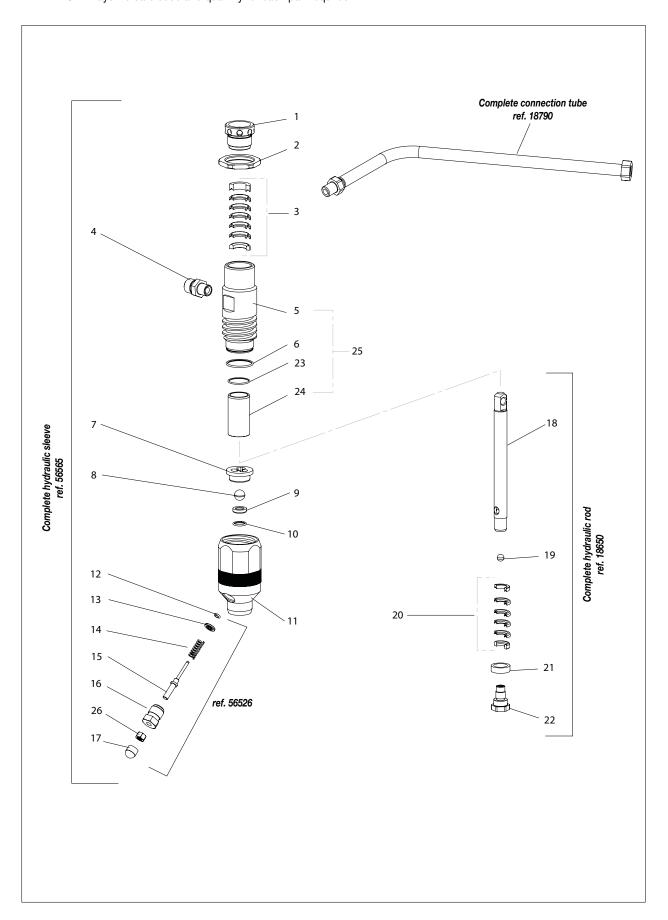
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TOMPLETE PUMPING GROUP REF. 56562

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



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Pos.	Code	Description
0	56562	Complete hydraulic group
1	16109	Ring packing
2	16127	Locking nut
3	16105	Upper gaskets kit
4	96208/1	Fitting
5	18640	Sleeve
6	16126	OR 2112
7	18642	Ball guide
8	33028	Ball
9	91018	Ball housing
10	18643	Seal
11	56536	Foot valve body

Pos.	Code	Description
12	18553	OR 2012
13	56540	Disk
14	9288	Spring
15	56547	Releasing rod
16	56538	Guiding bushing
17	56541	Rod rubber
18	18652	Piston rod
19	16130	Ball
20	18651	Lower gaskets kit
21	18648	Scraper ring
22	18655	Complete rod valve

40107: Complete pump repair kits

Pos.	Code	Description
3	16105	Upper gaskets kit
5	18640	Sleeve
6	16126	OR 2112
8	33028	Ball
10	18643	Seal

40106 : Pump maintenance kit

Pos.	Code	Description
3	16105	Upper gaskets kit
6	16126	OR 2112
8	33028	Ball
10	18643	Seal

18854 : Foot valve kit

Pos.	Code	Description
8	33028	Ball
9	91018	Ball housing
10	18643	Seal

18855 : Gasket kit lower + higher

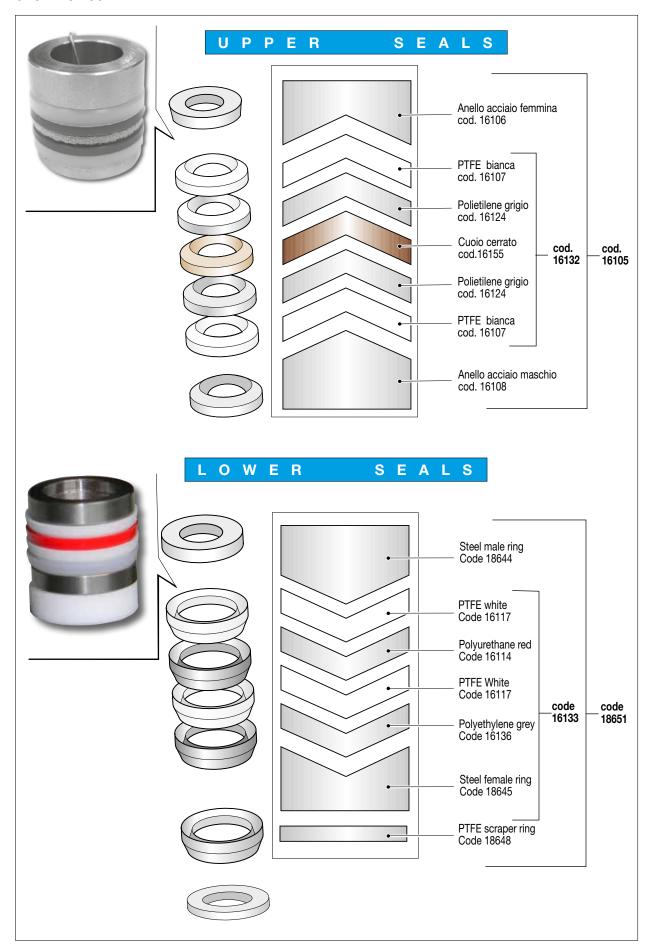
Pos.	Code	Description
3	16105	Upper gaskets kit
20	18651	Lower gaskets kit

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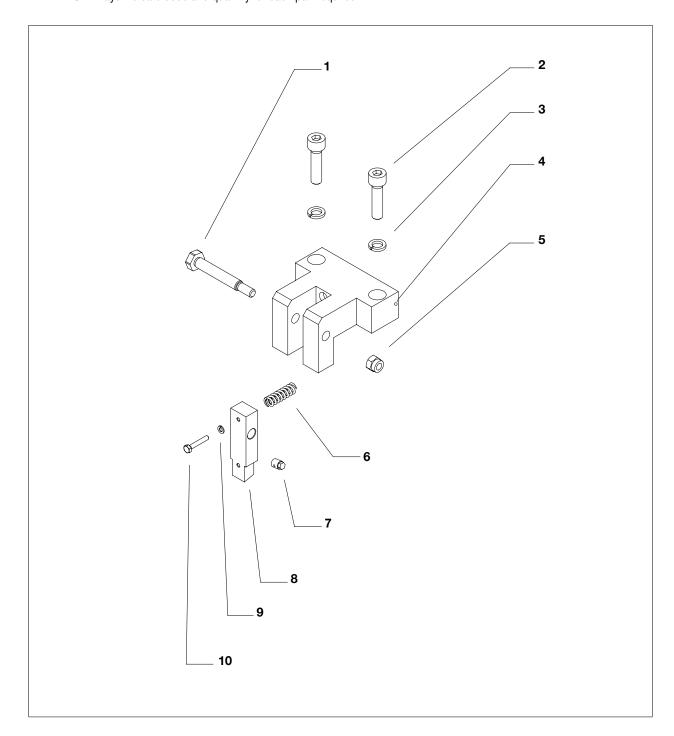
GASKETS ASSEMBLY



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U COMPLETE STEERING UNIT REF. 4876

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



Pos.	Code	Description
-	4876	Complete steering unit
1	4735	Screw
2	95068	Screw
3	330058	Washer
4	4737	Base
5	3637	Nut

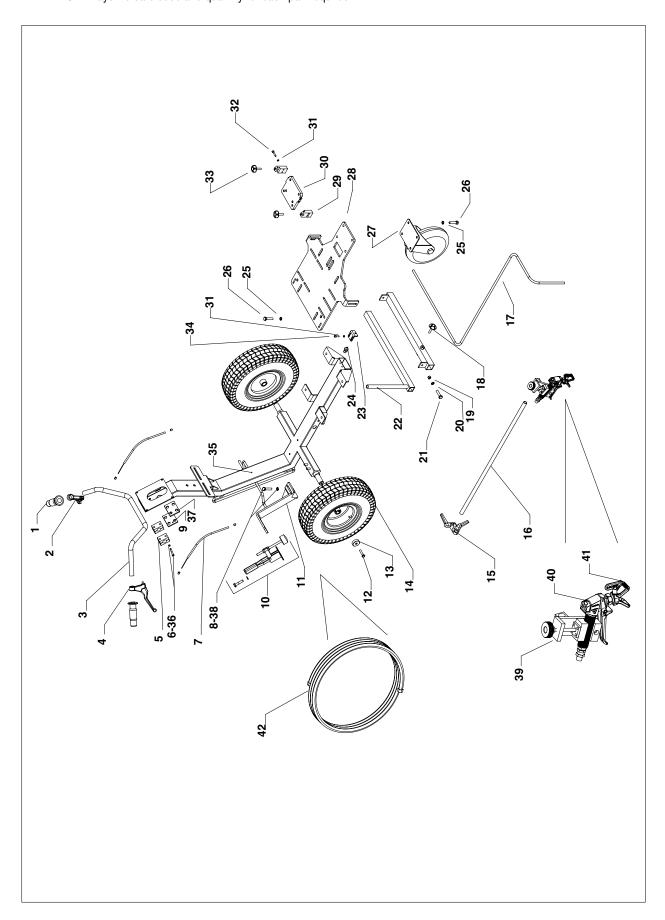
Pos.	Code	Description
6	11205/2	Spring
7	4253	Wire stopper
8	4875	Pin
9	5339	Washer
10	4739	Screw





V COMPLETE TELAIO REF. COD.4874

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







Pos.	Code	Description
-	4874	Full frame group
1	4256	Handle
2	4463	Lever
3	4865	Handlebar
4	4464	Right Lever
5	4866	Block
6	7043	Screw
7	4873	Complete cable
8	81032	Screw
9	4825	Plate
10	4868	Complete brake
11	4867	Brake support
12	8371	Screw
13	4492	Washer
14	4461	Wheel
15	4869	Block
16	4450	Rod
17	4447	Rod
18	4490	Block
19	3637	Nut
20	34009	Washer
21	81032	Screw

Pos.	Code	Description
22	4429	Gun support
23	4870	Plating
24	4265	Wire stopper
25	33005	Washer
26	95068	Screw
27	4260	Pivoting wheel
28	4871	Plate
29	4449	Support
30	4872	Plate
31	32005	Washer
32	3037	Screw
33	4255	Block
34	91062	Screw
35	4864	Frame
36	32005	Washer
37	4824	Plate
38	34009	Washer
39	4448	Complete spray gun support unit
40	11200	Complete spray gun AT250
41	4833	Fast Clean small Liner accessory
42	35018	Compensation tube 3/16 10m

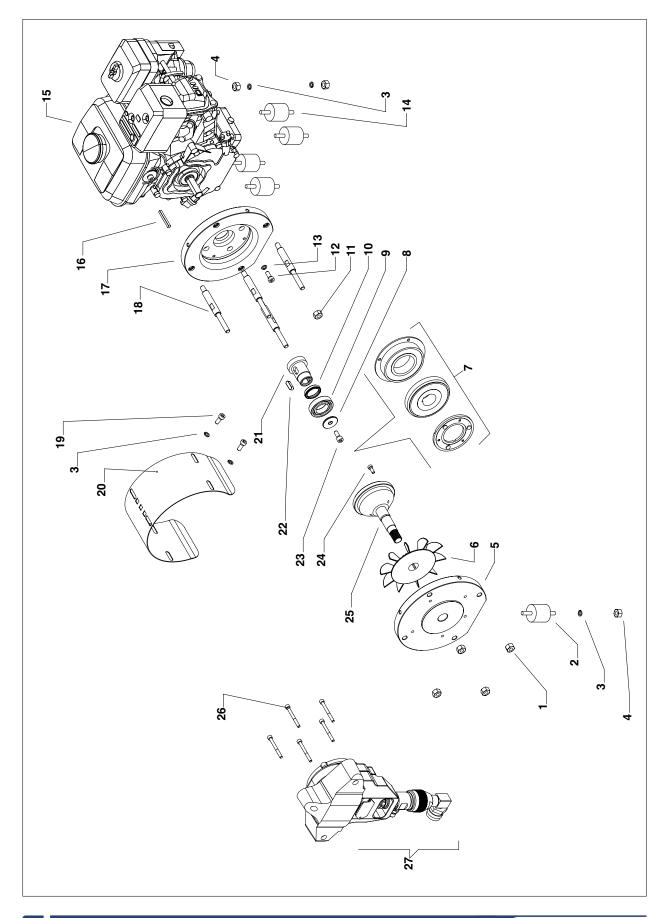
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W COMPLETE EXCALIBUR LINER UNIT REF. 4877

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









Pos.	Code	Description
-	4877	Complete Excalibur Liner unit
1	96080	Nut
2	700711	Vibration-damping pad
3	34009	Washer
4	3637	Nut
5	4879	Reduction flange
6	4880	Fan
7	4416	Complete clutch
8	4882	Washer
9	4883	Bearing
10	4884	Spacer
11	95158	Nut
12	54004	Screw
13	32005	Washer

Pos.	Code	Description
14	700150	Vibration-damping pad
15	4889	Motor
16	18188	Tab
17	4887	Flange
18	4886	Tightening rod
19	96031	Screw
20	4888	Cover
21	4885	Bush
22	30656	Tab
23	18192	Screw
24	54004	Screw
25	4881	Pinion
26	21556	Screw
27	4878	Excalibur Liner reduction unit

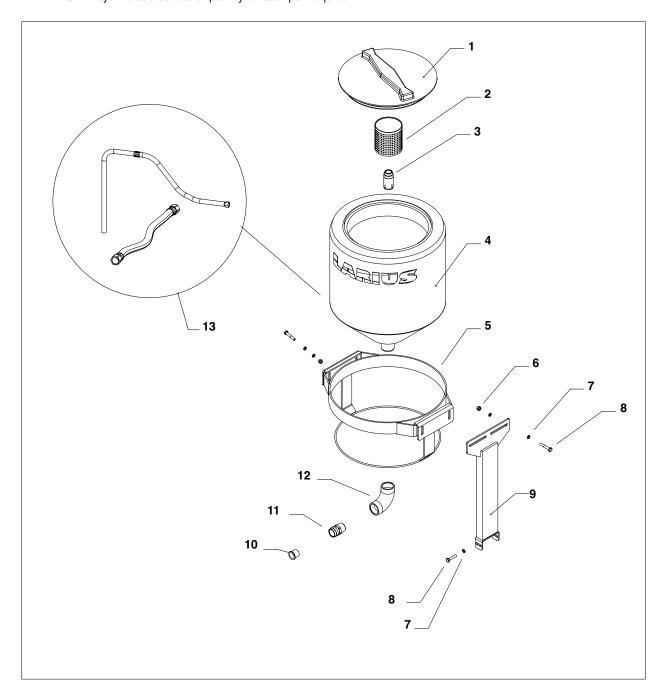
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X COMPLETE 50L TANK REF. 4895

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



Pos.	Code	Description
-	4895	Complete 50L Tank
1	18249/1	Cover
2	85014	Filter
3	18231	Support
4	18249	50L Tank
5	18246	Support
6	52017	Nut

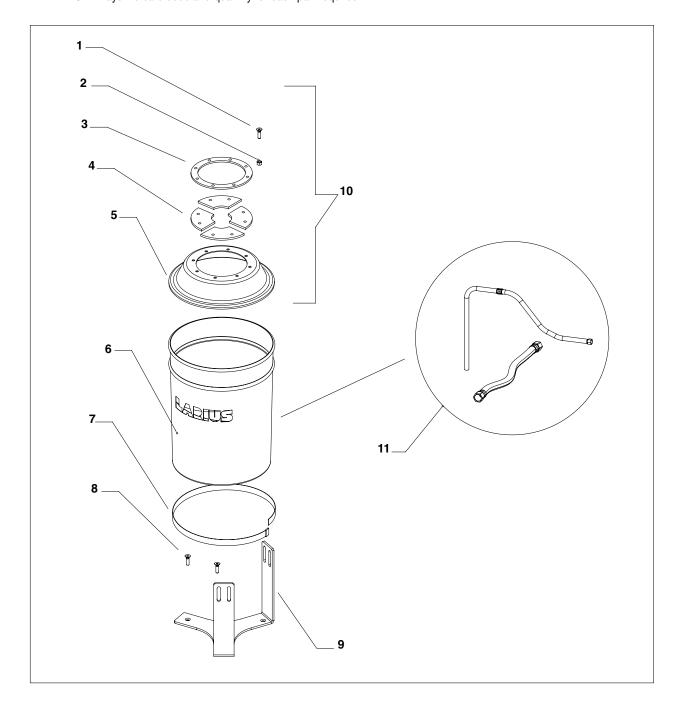
Pos.	Code	Description
7	34009	Washer
8	901568	Screw
9	4894	Support
10	96099	Seal
11	95032	Union
12	18215	Elbow
13	16676	Complete suction+output system

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Y COMPLETE 20L TANK REF. 4890

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



Pos.	Code	Description
-	4890	Complete 20L Tank
1	4314	Screw
2	52017	Nut
3	4308	Ring
4	4309	Rubber
5	4109	Cover

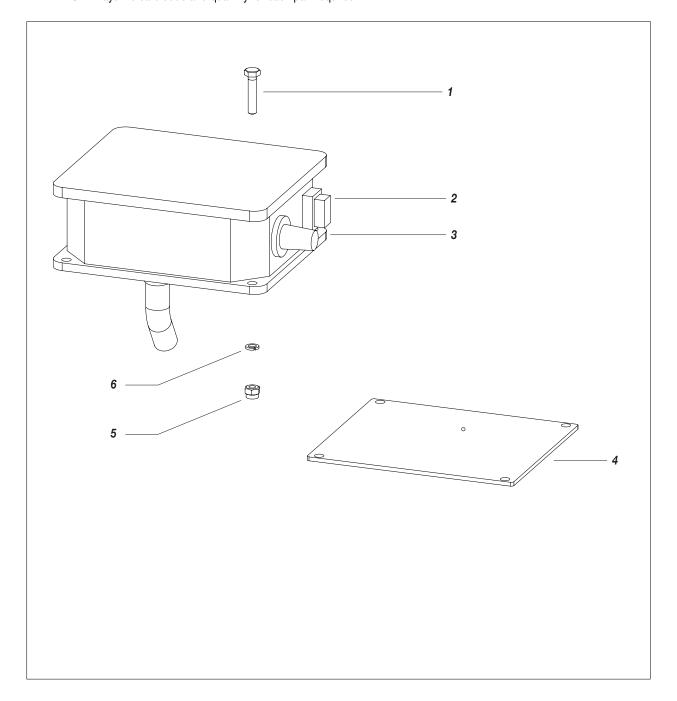
Pos.	Code	Description
6	4064	20l Tank
7	4274	Belt
8	69014	Screw
9	4250	Base
10	4111	Cover complet
11	16676	Complete suction+output system





Z COMPLETE BOX REF. 4896

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



Pos.	Code	Description
-	4896	Complete box
1	91062	Screw
2	5933	Switch ON/OFF
3	30549	Potentiometer

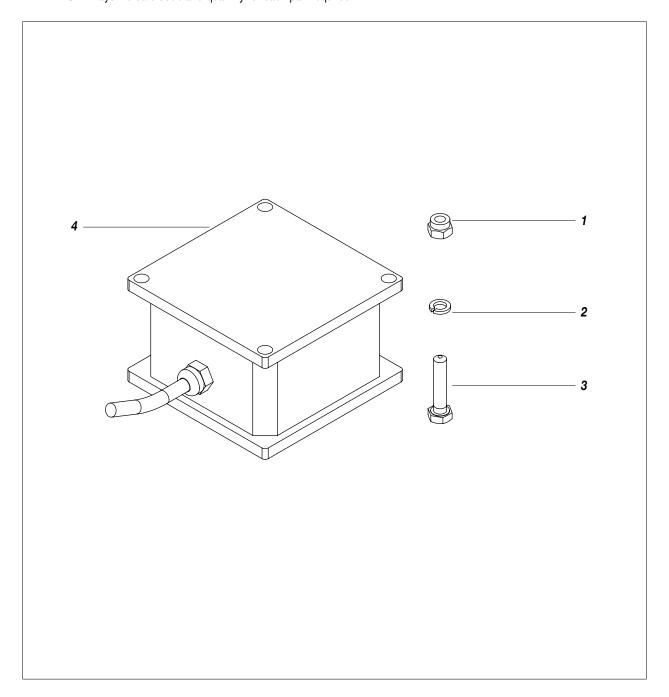
Pos.	Code	Description
4	4923	Closure plate
5	8042	Nut
6	32005	Washer
7	16850	Warning stickers

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M COMPLETE BOX TRASFORMER REF. 4845

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



Pos.	Code	Description
-	4845	Complete box transformer
1	8042	Nut
2	32005	Washer

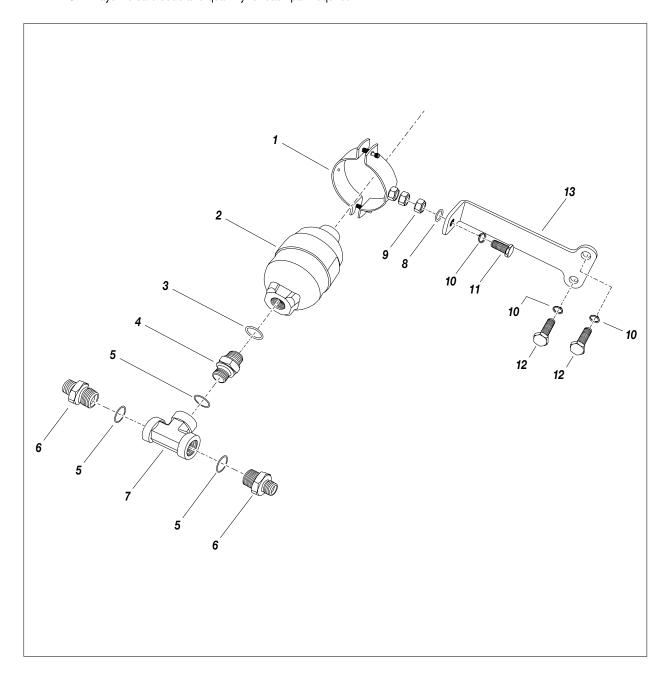
Pos.	Code	Description
3	91062	Screw
4	4846	Transformer box





AB FLOW COMPENSATOR

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



Pos.	Code	Description	Q. tà
1	4522	Collar	1
2	3372	Flow compensator	1
3	37180	Gasket	1
4	3283	Union	1
5	33010	Gasket	3
6	22022	Union	2
7	8078/1	T fitting	1

Pos.	Code	Description	Q. tà
8	81033	Washer	1
9	96080	Nut	1
10	95096	Washer (Typ Grower)	3
11	4407	Screw	1
12	20560	Screw	2
13	4847	Bracket	1

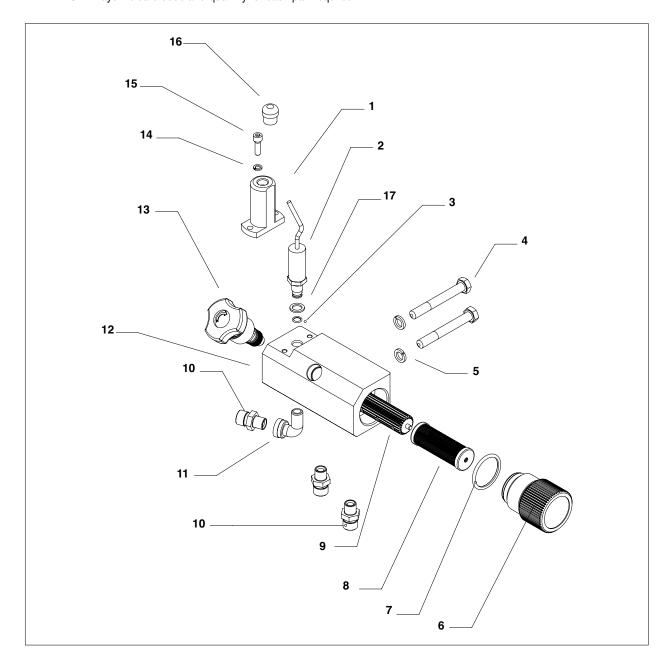
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RE-CIRCULATION UNIT COMPLETE WITH COVER RIF. 4893

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



Pos.	Code	Description
-	4893	Re-circulation unit complete with cover
1	4891	Cover
2	18692	Sensor
3	18689	Tenuta Or
4	33004	Screw
5	33005	Washer
6	18580	Plug
7	18622	Or Seal
8	16205	Filter
9	18627	Sieve

Pos.	Code	Description
10	96206	Union
11	18614	Union
12	4892	Base
13	56563	Valve
14	32005	Washer
15	91062	Screw
16	18871	Cable fastener
17	18684	Copper gasket
-	16854	Warning stickers





AD ACCESSORIES

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





Cod. 11250: AT 250 1/4" Cod. 11200: AT 250 M16x1,5



Code 16200: LINE FILTER



Code 270: FILTER 100 MESH Code 271: FILTER 60 MESH



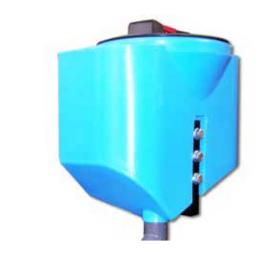
PISTON GUNSTOCK FILTERS

Code 11039: Green (30M) - Code 11038: White (60M) Code 11037: Yellow (100M) - Code 11019: Red (200M)





Code 16675: Suction system



Code 4405: PEARLIZED REFLECTING PAINT DISTRIBUTION KIT

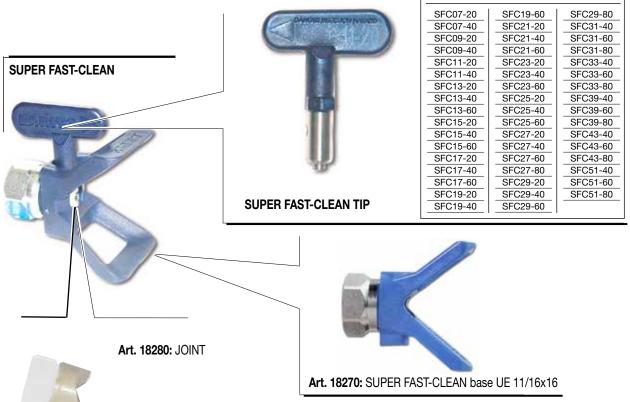


Code 16802: FILTER 30 MESH









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HIGH PRESSURE HOSE 3/8" -M16x1,5 pressure max. 425 bar

Art. 18063: 7,5 mt Art. 18064: 10 mt Art. 18065: 15 mt



ANTIPULSATIONS 1/4" - M16x1,5

pressure max. 250 bar

Art. 35013: 5 mt

Art. 35014: 7,5 mt Art. 35017: 10 mt

Art. 18026: 15 mt



ANTISTATIC HOSE 3/16" -

M16x1,5 pressure max. 210 bar

Art. 6164: 5 mt **Art. 55050:** 7,5 mt Art. 35018: 10 mt



GUN EXTENSION

Art. 153: cm 30 -Art. 153: cm 40

Art. 155: cm 60 - Art. 158: cm 80 - Art. 156: cm 100





PLA 1/4"

+ BASE SUPER FAST-CLEAN

Art. K11446-K11441-K11436: cm 240-180-130

PLA M16x1,5

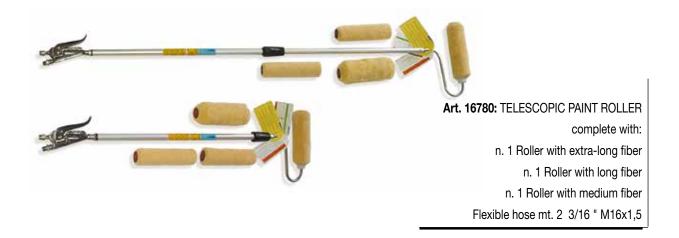
+ BASE SUPER FAST-CLEAN

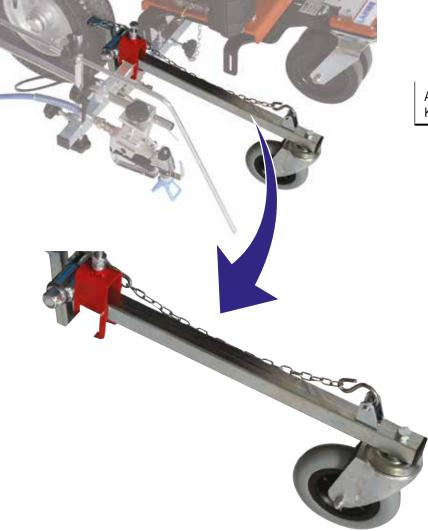
Art. K11445-K11440-K11435: cm 240-180-130

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Art. 4840 Kit stabilizer arm with wheel



LINE STRIPERS

















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CE DECLARATION OF CONFORMITY



Company



LARIUS sri

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:

EXCALIBUR LINER

Street marking with piston pump

complies with the directives:

- EC Directive 2006/42 Machinery Directive
- EU Directive 2014/30 Electromagnetic Compatibility (EMC)
- EU Directive 2014/35 Low Voltage (LVD)

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, 10 July 2020 Location / Date

Pierangelo Castagna Managing Director



LARIUS sri

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