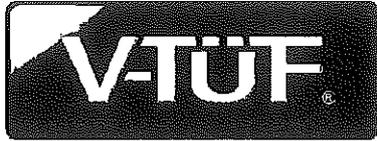
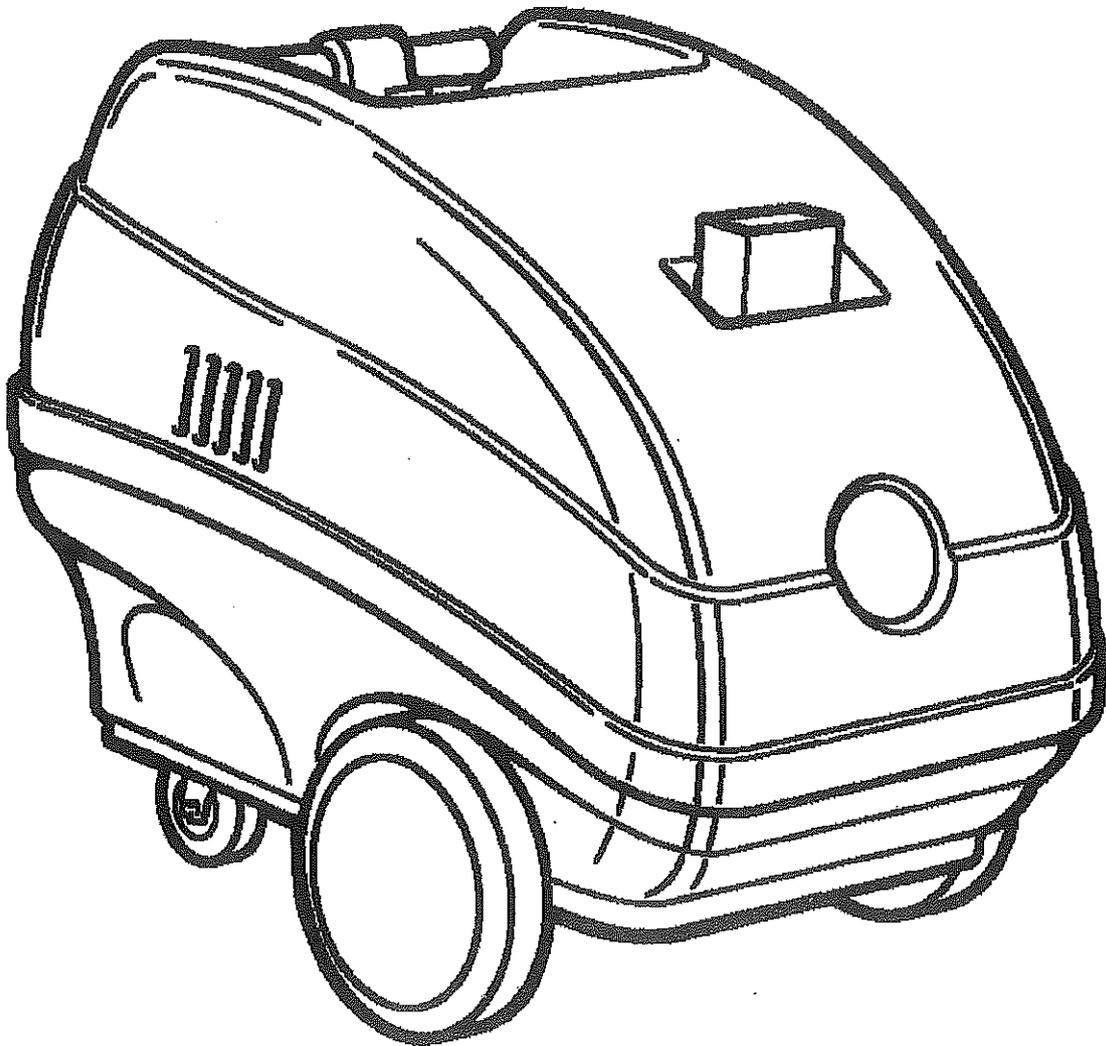


Hot water cleaner

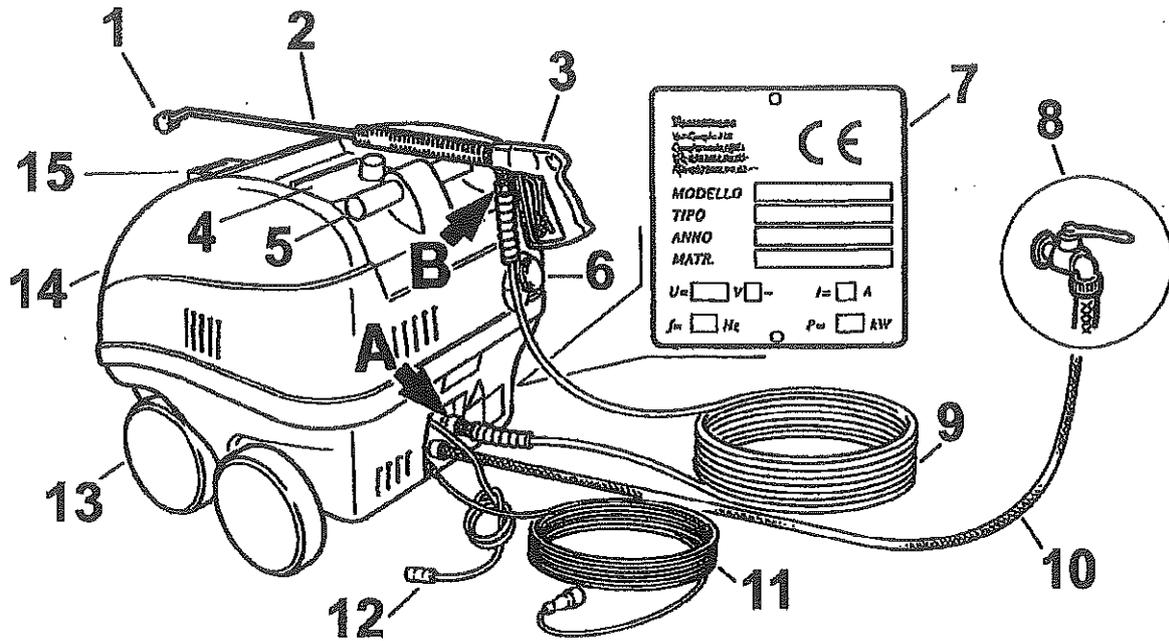


XHD 765 HOT

Operating and Maintenance Manual



IMPORTANT: Read this booklet carefully



GENERAL VIEW

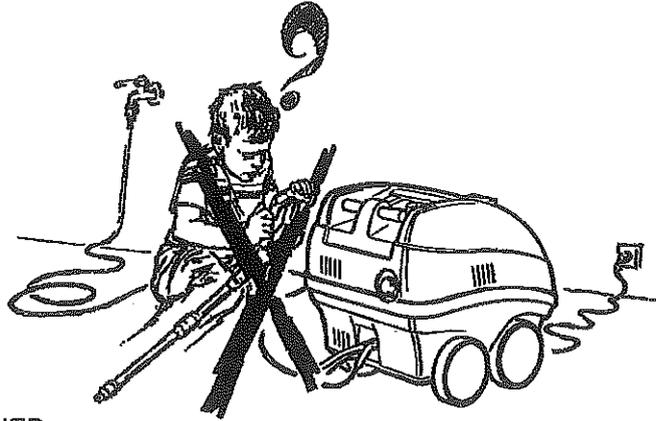
- 1 - Nozzle
- 2 - Lance handgrip
- 3 - Gun
- 4 - General switch and water temperature regulation
- 5 - Handles
- 6 - Fuel tank
- 7 - Features plate
- 8 - Feeding cock
- 9 - High pressure hose
- 10 - Water supply pipe (not supplied)
- 11 - Electric cable
- 12 - Detergent feeding
- 13 - Rotating wheel
- 14 - Cover
- 15 - Exhaust smoke device

- A - High pressure hose connection to the machine
- B - High pressure hose connection to the lance

IMPROPER USE

Improper use of our machines is understood to be using them in operations they were not made for. Improper uses therefore comprise:

- USE IN ROOMS WHERE THERE IS DANGER OF EXPLOSION OR IN WHICH THERE IS A FIRE HAZZARD (e.g. paint stores, near petrol pumps, in deposit of material such as wood, straw, etc.)
- USE IN CLOSED ROOMS NOT PROPERLY AIRED
- USE IN CLOSED ROOMS WITHOUT A CONNECTION WITH AN EXHAUST DEVICE
- USE IN THE RAIN OR THUNDERSTORMS
- USE TO CLEAN ANIMALS
- USE BY PEOPLE WHO ARE NOT ADULTS
- WASHING ANY OBJECT UNDER VOLTAGE POWERED BY ELECTRICITY
- WASHING TYRES AT A SPRAYING DISTANCE OF UNDER 30 cm (tyres can get damaged, even internally, by a pressurized water jet, causing them to explode).
- USE WITH OTHER PEOPLE NEARBY WHO COULD GET HIT BY THE DIRT OR PARTS DETACHED FROM THE OBJECT WASHED



ERRONEOUS USE

Erroneous use of our machines is understood to be using them without complying with the use and maintenance instructions (see also § "Prohibited Operations"). Failure to comply with these instructions may risk injuring the operator and damaging the machine. We shall now give some examples of erroneous use:

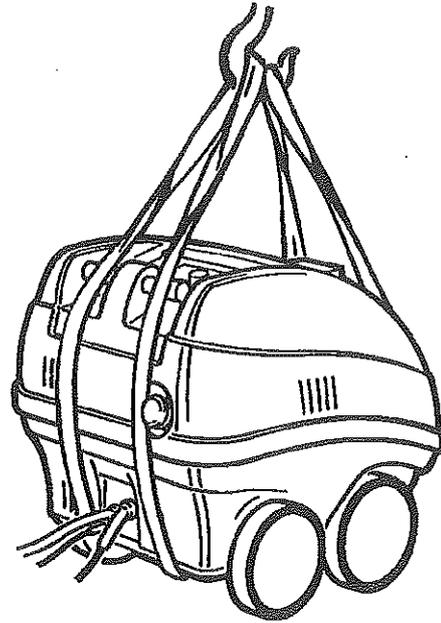
- WRONG CONNECTION/USE OF THE ACCESSORIES SUPPLIED
- WRONG SEQUENCE OF STEPS FOR COMMISSIONING
- FAILURE TO USE GENUINE SPARE PARTS
- USE OF FUEL DIFFERENT FROM GAS-OIL
- STARTING THE MACHINE WITH GAS-OIL TANK ON EMPTY
- MAINTENANCE WORK BY UNQUALIFIED PERSONNEL
- USES THE MACHINE HAS NOT BEEN MADE FOR (see improper use)
- MAINTENANCE WORK NOT CARRIED OUT

PACKING - TRANSPORTATION

The machine is fixed to a wooden pallet and covered by a corrugated board packaging which is fastened with a high resistance plastic ribbon. The machine packed in this way can be lifted also by a lift truck with forks.

The materials used for packing are particularly sensitive to atmospheric agents such as rain, fog, sunshine, etc.

The packed machine can be lifted by a lift truck or a transpallet with the capacity of at least 150 Kg.



WARNING: check that the capacity of the lifting equipment is suitable

In the case of the necessity for transportation, when you are not able to restore the original packing, the machine must be immobilized so as to prevent any movement inside the vehicle.

Park the machine on level floors. During periods when it is not used, keep your high-pressure cleaner in a place protected against atmospheric agents.

COMMISSIONING

Commissioning must take place in suitable places from the point of view of cleaning and lighting. For references to the machine parts, see page 4 "General view" of this handbook.

1 - After removing the packing, check the integrity of the appliance. In the event of any doubt, do not use the appliance and call your supplier's technical service. The packing elements (cardboard, wood, etc.) must be put away in special containers and not left within reach of children as they are a potential source of hazard.

2 - Put the cleaner on a properly arranged place, in any case on a smooth surface, acting on the brake pedal of the rotating wheel (FIG. 13) block up the machine.

The work station must be equipped with:

- a current tap 400V/16A 3+PH three-phase or 230V/16A single-phase 2PH+T according to the models (see technical features on the label - see paragraph "Marking and identification")
- a water plug 1/2", pressure 0.3 Mpa, with an on-off valve
- a connection to the drainage system for the treatment of the waste water.

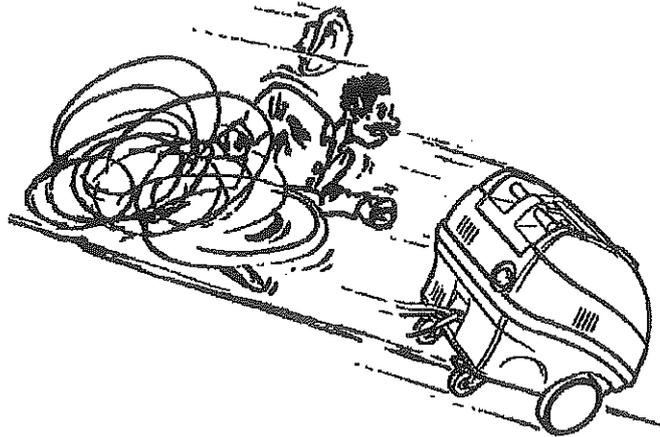
- Prearrange a device for the elimination of exhaust gas as gas released in closed rooms is dangerous, and properly air the room.

3 - Make the hydraulic connection between the machine intake and a water supply cock; this connection must be made with an adequate hose which must be as short as possible to avoid the risk of tripping.

4 - After having unscrewed the plug (Fig. 16) fill the tank with diesel. It is necessary to use clean fuel, filter it if necessary.

5 - Connect the lance to the high pressure hose (Fig. B)) by means of a 17mm key. Connect this one to the fitting (Fig. A).

6 - Connect the water feeding to the quick connection (Fig. 9) fixing it with a hose clamp. The feeding hose must be perfectly clean inside, use a filter upstream if necessary.





7 - **CAUTION!** - Before making the electrical connections turn the main switch (Fig. 4) onto OFF and make sure the rating plate data (Fig. 7) correspond to those of the electricity mains. Installation must be carried out by qualified personnel in compliance with IEC 364 standards and current national and local regulations.



8 - **CAUTION!** - Verify that the cross-section of the system cables, their state of repair and their capacity are suitable for the power absorbed by the appliance, indicated on the rating plate.
If the appliance has no rating plate it cannot be activated.
Protect the supply line by using thermo-magnetic devices co-ordinated with the machine protection device. The data can be seen on the device itself.



9 - **CAUTION!** - Connection to the electricity mains must be made with sockets in conformity with IEC 309 standards and preferably without any extensions.

10 - The electrical safety of this appliance is only achieved when it is correctly connected to an efficient earthing system and there is an automatic power supply cut-off device with such features as to ensure contact voltage no greater than 25V. It is necessary for a differential switch with sensitivity ≤ 30 mA in class A to be installed above the machine's electrical connection socket.



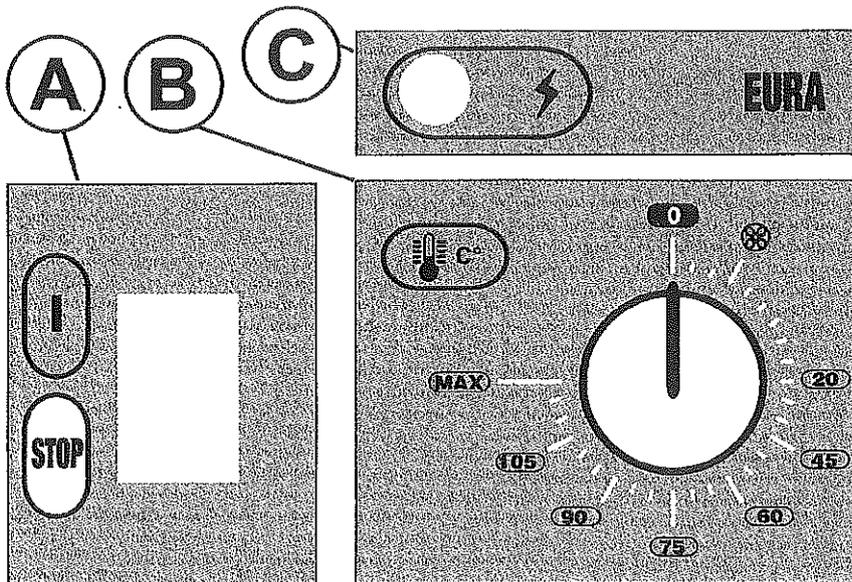
CAUTION! When there is no power the machine stops. If it is not disconnected from the electric current, when the power supply is restored it switches back on automatically

11 - Signal all the forbidden operations contained in this paragraph using the right warnings
The execution of these operations is fundamental for the regular working of the machine.

USE

Controls and indicators

- A - On/Off general switch
- B - Starting knob/burner temperature
- C - Electrical connection warning light



BEGINNING OF EACH WORKING SHIFT

- Verify that the supply cable, the plug and the water hose are in good condition. If they are damaged, do not connect the machine to the electrical network and contact an after-sales service center for the replacement.
- Check that the machine does not have plain damage
- Verify the efficiency of the main switch
- Verify the presence of the fuel inside the tank (to avoid damages to the gas-oil pump, never use the machine on empty)
- If the electric features of your plant correspond to those of the label of the machine, you can insert the pin



Caution: Your new machine needs a short running-in period for the motor/pump unit. Running in consists of operating the machine for no longer than 1 hour and waiting for 1 hour for it to cool; this should be done for 4 or 5 times



CAUTION !

High-pressure water jet.
Always hold the gun with both hands.
Never direct the jet against people or animals.

Starting phases:

1) STARTING STAGES:

- A) Turn on the water.
- B) Press the starting switch ON/I (Fig. A).



CAUTION: Grip the lance and the gun firmly with both hands.
The pressure developed by the machine causes a slight recoil on opening the gun, it is therefore necessary to grip it firmly, to have a safe and stable position and to avoid climbing onto unstable supports when using the appliance.

- C) Open the gun and keep it open for a few seconds so the air in the pipes will come out.
- D) After eliminating the air, proceed normally, choosing the working pressure you wish by turning the pressure adjustment knob of the gun clockwise (if installed).
- E) Select the temperature of the water by turning the starting knob of the burner (FIG. B).
In position 0 the burner is OFF and water is cold

2) USE:

The machine can suck and mix detergents or other liquid chemicals (not corrosive) thanks to an automatic device.

The machine is equipped with an external suction hose with filter:
It is enough to insert the hose (Fig. 12 page 4) in an external can (not supplied) full of detergent; the quantity of detergent can be regulated by turning the lance head.

We suggest proceeding in the following way:

- distribute the detergent on the surface to be cleaned
- stop the delivery and wait 3-4 minutes
- start the hot jet of water

To avoid chemical deposits building up we suggest to clean the chemical suction kit by sucking water for a few seconds.

Always clean surfaces in little parts, if the detergent get dry, it can damage the painted surfaces.

3) STOPPING PHASES:

When finished using the machine act as follows:

- A) Shut off the gun
- B) Turn the knob (FIG. B) up to 0 (burner OFF)
- C) Open the spray gun and let water flow for about one minute (until the temperature lowers and cold water comes out).

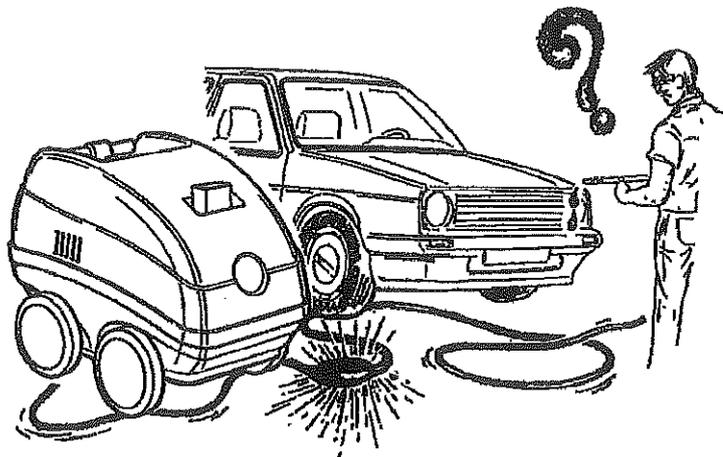


CAUTION: be sure that water is cold before stopping the machine

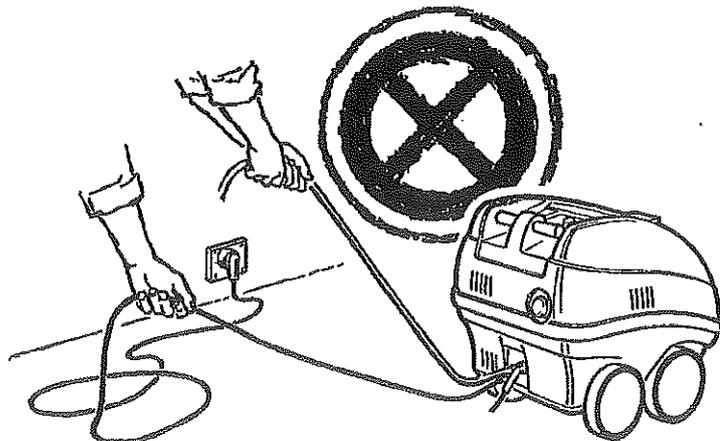
- D) Press the main switch (Fig. A) in OFF position.
- E) Turn off the water tap.
- F) Open the spray gun for a few seconds to allow the water to come out of the hoses
- G) When finished using the machine disconnect electrical and water mains and put the machine away in a closed room.

PROHIBITED OPERATIONS SAFETY RULES

- Do not obstruct the high-pressure outlet pipe. This may cause the pipe to burst which is dangerous for the operator.
- During use, do not remove the protective casing of the internal equipment.
- When machine is running, it generates heat, so touch it only when it cools down.
Do not touch the exhaust device until it is completely cool.



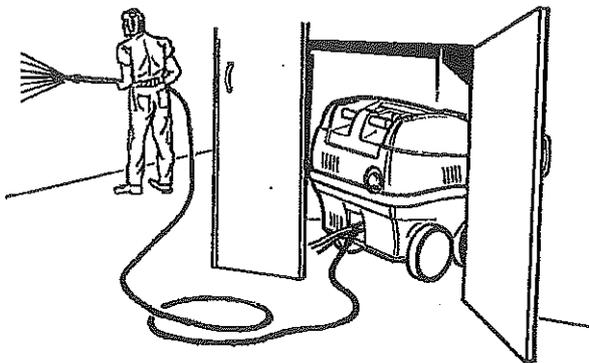
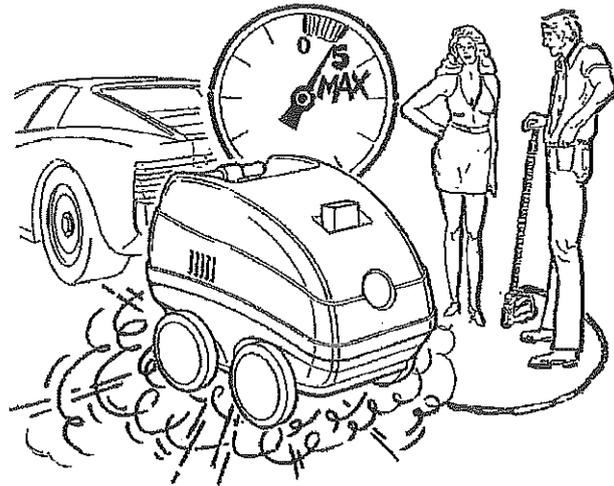
- Do not use the supply cable or the connecting cables to move the machine.
- Do not use the power plug for switching on and off.
- Do not use the machine on sloping surfaces.
- Do not use the machine when barefoot.
- Always wear rubber boots and protective glasses when using the machine



- To protect yourself against rebounding debris, it is necessary to wear protective clothing (for example, when descaling or hydro-sandblasting, etc.).

- Never drink the water coming out from the machine, it has not to be used like drinkable water.
- The machine must be used in rooms or in hours such to assure a sufficient lighting.
- The machine must never be left unattended in operation. In the case of an extended or final stoppage in work you must switch it off.
- When using the machine in dangerous areas (eg. fuel service pumps) keep to the relevant safety regulations.

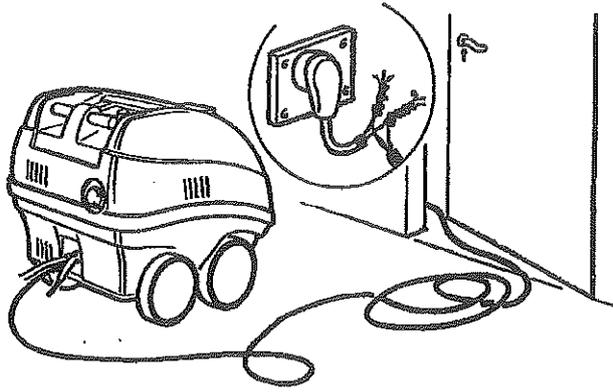
- The machine equipped with "Total Stop" automatically stops if it is inactive for more than one minute, thanks to a safety device to avoid damages to the seals. To use it again it is enough to open the spray gun. If your machine has not the total stop, in case it runs for more than 4-5 minutes with the gun closed, it is necessary to switch it off.



- Do not store the unit in closed rooms or in places with insufficient ventilation. The machine must have the possibility to blow off gas exhaust and to restore air.

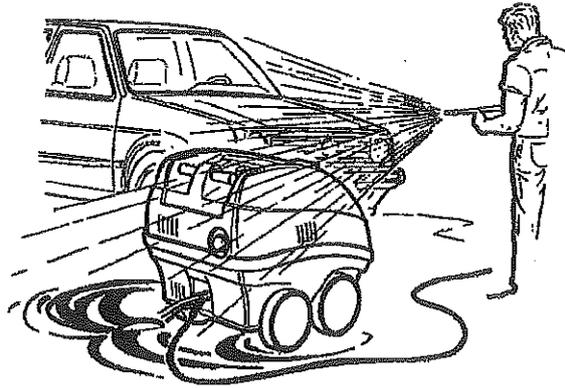
- It is prohibited to do any repair work on the pump in operation or when it is plugged in.





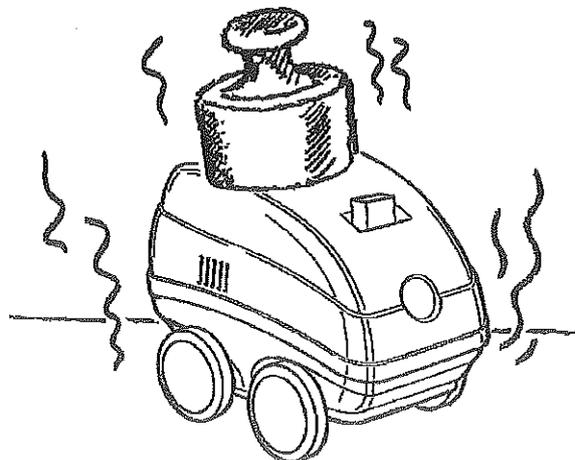
- It is prohibited to carry out makeshift repairs on the electrical cable: prevent it from getting damaged. In the case of damage, the entire cable must be replaced by a technical service centre.

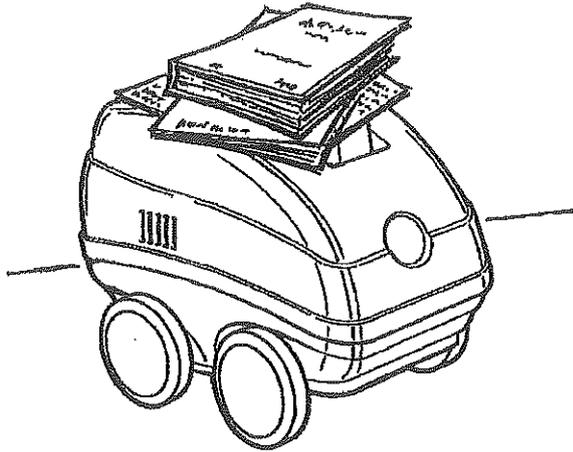
- It is prohibited to turn the jet of water against the machine or anyhow against any other part under electrical power (cable, plugs, etc.). This can cause electrical damage and danger for the operator.



- Avoid using the pump under the rain or in thunderstorms and whenever water or other liquids can come into contact with the pump appliance. All parts conducting current must be protected against water splashes to avoid short-circuiting.

- Do not place heavy objects on the cover of the machine. It could be damaged.





- Do not obstruct the exhaust device

- Avoid using the pump without water; it could damage the internal parts of the pump.

PRECAUTIONS WHEN USING THE HIGH-PRESSURE HOSE



The high-pressure pipe supplied has undergone rigid safety checks. Damage to the pipe can easily be avoided by observing the following precautions:

- Lay out the pipe before starting work.
- Do not pull on knots that may form, lay the pipe out.
- Do not crush or bend the pipe with any means.
- Do not move the appliance by pulling the pipe.

In addition, avoid using the pipe in the case of the outer covering swelling or getting damaged. Never try to repair the pipe and in the event of trouble, replace it with a new one.

WARNING FOR USING ACCESSORIES

In the case of using accessories not included in the standard kit, keep meticulously to the instructions enclosed with them.

Always check that the accessories used are compatible with the characteristics of the high-pressure cleaner they are to be applied to.

The manufacturer disclaims all responsibility for the use of non-genuine spare parts that could damage the machine or cause physical damage to the operator.

TIPS FOR ROUTINE MAINTENANCE



WARNING

If the machine is out of order or in the case of bad operation, immediately switch off the machine by means of the main switch, and advise the qualified personnel. Switch off the machine and disconnect the water and electrical mains and do not effect any repair. Immediately contact qualified personnel. The repairs must be done by the manufacturer or by an authorised after-sales center, always using original spare parts.

The following operations should be carried out in order to avoid damage to the mechanical parts subject to a greater work load and to keep the performance of your high-pressure cleaner efficient. For all maintenance work on the high-pressure pump and the machine in general, it is necessary to call in professionally specialized personnel or one of our authorized technical service centres.

Before doing any maintenance work on the machine:

- 1 - Switch off the appliance (switch on OFF/0 position).
- 2 - Cut off the machine from the mains current (unplug it from the socket).
- 3 - Shut off the water supply cock.
- 4 - Discharge the remaining pressure (pull the lever of the gun).



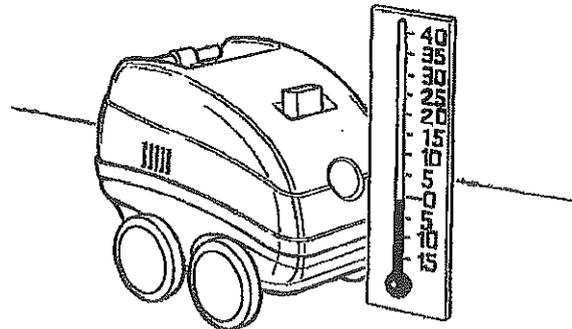
WARNING: The cleaner cannot be opened without the authorization of the after-sales service.

SAFETY DANGER - LOSS OF WARRANTY

- 1) Check that the oil level is always over the dipstick cut Change the oil after 50 working hours, and successively every 500 hours; use oil type SAE 20/30. To check the oil level, unscrew the handles (Fig. 5) of the machine, and the cap of the gas-oil tank (Fig. 6) then lift the cover from low to high.

Now check that the oil level inside the high pressure pump covers at least half of the oil window of the pump (or unscrew the oil cap and verify that the oil covers the lower cut). If the quantity of oil is not enough, do not start the machine.

- 2) Do not leave the pump exposed to very low temperatures due to the dangers of frost; stopping the machine at temperatures below 0°C can cause damage or breakage to the pump and pipes, it is therefore advisable to drain them completely and intake a small quantity of antifreeze. On the other hand, temperatures that are too high can cause the motor to overheat when the machine is in operation.



DAMAGES CAUSED BY FREEZE ARE NOT COVERED BY WARRANTY

- 3) Extended stoppage of the pump can cause scale to form that may make instant start of the electric motor difficult. In this case, to avoid anomalous current absorption with consequent falls in voltage, before starting the motor we advise moving the driving shaft by using a screwdriver (**Important:** this must be done when the machine is not connected to the electric current). This will let you check the cause of the jam (if caused by frost, scale, or other factors) and therefore proceed as a result.
- 4) Never intake corrosive liquids (paints, acids solvents, oily or very thick liquids) which could permanently damage the pump. To avoid chemical deposits building up we suggest cleaning the chemical suction kit by sucking water for a few seconds.
- 5) The cleaning of the boiler must be done each 200 working hours as follows:
- disassemble the nozzle and the electrodes holder flange (burner head)
 - clean the nozzle filter using compressed air and check the position of the electrodes
 - take away the boiler cover and clean the baffle
 - slip the inside cover off
 - unscrew the locking nuts of the coil and take it off from boiler
 - clean the coil using a wire brush
 - suck the residue from the boiler
 - assemble again all the parts doing the operations on the contrary
 - periodically the total check and the combustion regulation must be done by specialized personnel as prescribed by laws
- 6) The descaling treatment must be periodically done by using specific products according to the water hardness.
- In a water can of about 15 litres pour one litre of a descaling product type "TM KAL" or "TM COILS" following the instructions written on the packing.
- Use a can with tap, connect the tap to the cleaner water feeding (Fig. 10).
- Keep the can in such a way that the descaling product enter by drop.
- Take the gun off from the high pressure hose, immerse the other end of the hose inside the can, in a way to create a closed circuit and to let the cleaner intake the descaling product for at least 10 minutes.
- It is advisable that the delivery hose discharge inside a small cloth bag to avoid to re-cycle the limestone taken away. Restore the normal connection and rinse with cold water.
- It's advisable to get the operation executed by personnel of the after-sales service center because the descaling product could damage the components.
- For the elimination of the descaling product follow the local laws.



CAUTION: the descaling liquid contains acid substances which could damage the objects to be cleaned: be sure to have correctly rinsed them.

- 7) From time to time check the wear of electrodes, the right distance from one end to the other is 3 mm.
- 8) Replace the high-pressure water hose after every 2 years' activity of the machine. A new pipe must have clearly marked on it both the maximum admitted pressure and the manufacturer's name or a suitable symbol. Before use, check the pressure values of the new pipe that must correspond to those of the appliance.

- 9) In case the water filter is dirt or clogged, the water quantity is reduced and this could damage the pump. A lightly damaged filter do not carry on its work causing damages to the pump. Periodically (at least each 500 working hours) take the filter away and clean it to eliminate dirt. In case of doubt replace the filter to avoid that foreign matters come into the pump.
- 10) The clogging of the lance nozzle caused by limestone incrustation or other cause an excessive increase of the pump pressure, and damage it. It is necessary to clean periodically the nozzle.
- 11) Periodically check the gas oil filter and in case it is too dirt or damaged, replace it.
- 12) In case the electric cable is damaged, replace it by a special cable H07RNF, according to the electric diagram. The replacement must be done by a specialized electrician

CLOGGED NOZZLE - BY-PASS VALVE

IMPORTANT! In case the nozzle is clogged, the cleaner is equipped with a by-pass valve to automatically control the excess of pressure.

The by-pass valve immediately reduce the pressure, to protect the mechanical parts of the pump and the motor.

IN CASE THE BY-PASS VALVE IS TAMPERED, THE MOTOR AND THE PUMP COULD BE PERMANENTLY DAMAGED!

THE BY-PASS VALVE CAN BE REGULATED, CLEANED, REPAIRED OR REPLACED ONLY BY THE AFTER-SALES CENTER SERVICE.

TROUBLESHOOTING

In the event of anomalous operation, refer to the following table. Should trouble persist, refer to an expert technician authorized.



CAUTION: Before taking any action, cut off the machine from the electric current.

FAULT	CAUSE	REMEDY
Pump running normally but pressure does not achieve rated values	Pump sucking air	Operate the pump with open lance
	Valves worn or dirty	Clean or replace
	Nozzle incorrect or worn	Check and replace
	Worn piston packing	Check and replace
	Cloggy suction filter	Clean or replace
	Unloader pin valve	Clean or replace
Fluctuating pressure	Valves worn, dirty or stuck	Check, clean or replace
	Pump sucking air	Check that hoses and fittings are air tight
	Worn piston packing	Check and/or replace
Pressure drops	Nozzle worn	Replace
	Valves dirty	Check, clean or replace
	Unloader valve pin worn or locked	Check and/or replace
	Worn piston packing	Check and/or replace
Pump noisy	Pump sucking air	Check that hose and fittings are air tight
	Valves dirty, worn or locked	Check, clean or replace
	Worn bearings	Check and/or replace
Presence of water in oil	Piston packing and oil seal worn	Check and/or replace
Water dripping from pump head	Piston packing worn	Replace
	The O rings of piston guide or retainer worn	Replace
Oil dripping	Oil seal worn	Replace
The motor does not start	Plug not well connected	Check plug, cable and switch
	Lack of power supply	Check plug, cable and switch
The motor hums but does not start	The main voltage is insufficient, lower than the minimum required	Check that the mains power supply is adequate
	The pump is locked or frozen	Check by turning the motor manually (see ADVICE)
	Incorrect extension cable	See table INSTALLATION
The motor stops suddenly	Tripped thermal overload due to over heating	Check that the main voltage correspond to the specifications. Switch off the motor and let it cool for a few minutes
The burner does not start	Lack of gas-oil	Check the gas-oil level and the float
	Electrodes worn	Check (see MAINTENANCE)
	Electrodes damaged	Replace
	Gas-oil filter obstructed	Replace
	Gas-oil nozzle obstructed	Clean the burner nozzle
	Fuse of the motor burner and transformer damaged	Replace

The operations marked with the black square must be done only by qualified personnel

DEMOLISHING THE MACHINE

When you decide to scrap the machine, you are recommended to make it inoperative by:

- cutting off the machine from the supply mains;
 - cutting the external supply cable;
 - cutting the motor supply cable;
 - removing the wheels;
- after fully draining the various internal tanks of the liquids they contain.

INFORMATION OF AN ECOLOGICAL NATURE

It is necessary to observe the current local regulations on connection to the watersupply. In accordance with regulations concerning pollution, the appliance cannot be connected directly to the public drinking water supply system in order to prevent chemical substances from entering the waterworks. The Water Board does however allow connection to the public watersupply for a short time only if a check valve is fitted in the piping. This must be fitted directly on the water cock.

Disposal of the machine's packing, dust drawn up, parts replaced, the machine altogether, and the various liquids must be done in an environmentally friendly manner, without polluting earth, air and water, and in any case complying with the current regulations on the subject.

INSTRUCTIONS FOR SUITABLE WASTE TREATMENT:

Instructions for suitable waste treatment:

- Ferrous materials, aluminium, copper: recyclable materials to be given to an authorized collection centre.
 - Plastic materials: materials to be taken to a landfill, incinerator or a special recycling centre.
 - Used oils: give these to an authorized collection centre
-

STANDARD SINGLE-PHASE WIRING DIAGRAM

