

IT ATTENZIONE: leggere le istruzioni prima dell' utilizzo.
EN WARNING: read the instructions carefully before use.
FR ATTENTION: lire attentivement les instructions avant l' usage.
DE ACHTUNG: die anweisungen bitte vor gebrauch sorgfältig lesen.
ES ADVERTENCIA: leer atentamente las advertencias antes el uso de aparato.
NL LET OP: vóór gebruik de gebruiksaanwijzing aandachtig lezen.
EL ΠΡΟΣΟΧΗ: διαβάστε τις οδηγίες πριν τη χρήση.

PT ATENÇÃO: ler atentamente as instruções antes da utilização.
FI HUOMIO: lue ohjeet ennen käyttöä.
RU ВНИМАНИЕ: перед использованием прочитайте инструкцию по эксплуатации.
HR PAŽNJA: prije upotrebe pročitajte upute.
SL POZOR: pred uporabo preberite navodila.
BG Внимание: Прочетете внимателно инструкциите преди употреба



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NPX XP
LKX XP
LKX LP
SUNDEK 5
HYPER X LP
HYPER L LP
-
P86.0411

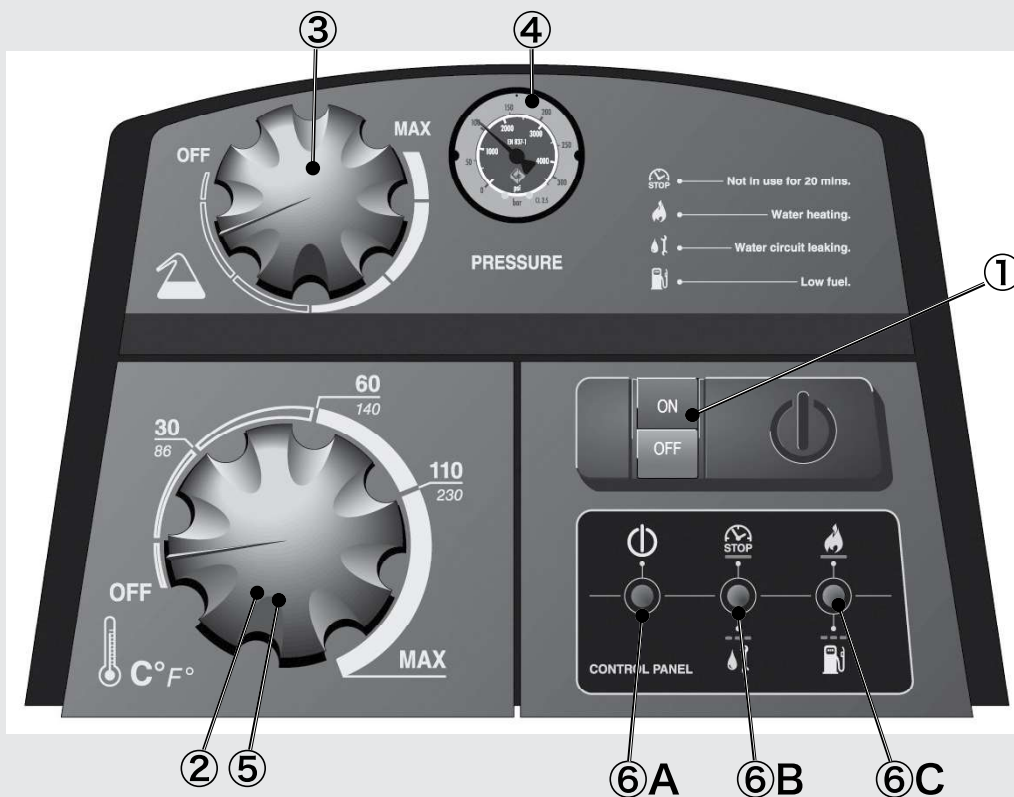
Technical data plate.-Placa dato técnicos.



IT > **PRINCIPALI ORGANI DI COMANDO • MAIN CONTROLS • PRINCIPAUX ORGANES**
EN **DE COMMANDE • HAUPTSCHALTER • PRINCIPALES ÓRGANOS DE CONTROL •**
FR **HOOFDSCHAKELAAR • KYPIA ОРΓΑΝΑ ΕΛΕΓΧΟΥ • PRINCIPAIS ÓRGÃOS DE COMANDO**
DE **• PÄÄOHJAUSLAITTEET • ОСНОВНЫЕ ОРГАНЫ УПРАВЛЕНИЯ • GLAVNI KOMANDNI**
ES **DIJELOVI • GLAVNI DELI ZA UPRAVLJANJE • ОСНОВНИ КОНТРОЛНИ КОМПОНЕНТИ**

NL
EL
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fig. A



IT In base al modello si possono verificare delle differenze nella fornitura. **EN** Depending on the model, there are differences in the scopes of delivery. **FR** Suivant le modèle, la fourniture peut varier. **DE** Je nach Modell gibt es Unterschiede im Lieferumfang. **ES** Según el modelos, hay diferencias en el contenido suministrado.

- > **PRINCIPALI ORGANI DI COMANDO • MAIN CONTROLS • PRINCIPAUX ORGANES DE COMMANDE • HAUPTSCHALTER • PRINCIPALES ÓRGANOS DE CONTROL • HOOFDSCHAKELAAR • ΚΥΡΙΑ ΟΡΓΑΝΑ ΕΛΕΓΧΟΥ • PRINCIPAIS ÓRGÃOS DE COMANDO • PÄÄOHJAUSLAITTEET • ОСНОВНЫЕ ОРГАНЫ УПРАВЛЕНИЯ • GLAVNI KOMANDNI DIJELOVI • GLAVNI DELI ZA UPRAVLJANJE • ОСНОВНИ КОНТРОЛНИ КОМПОНЕНТИ**

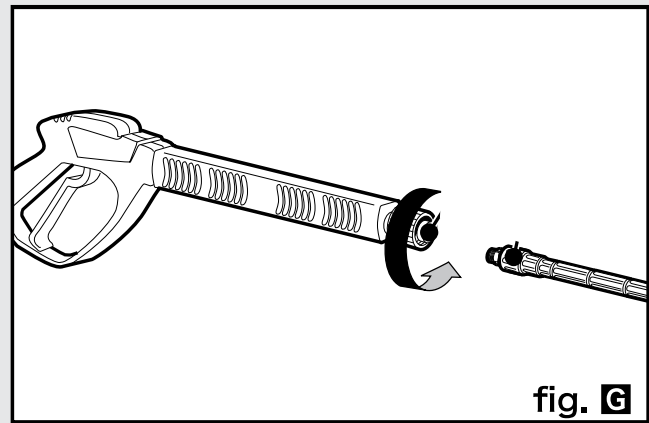
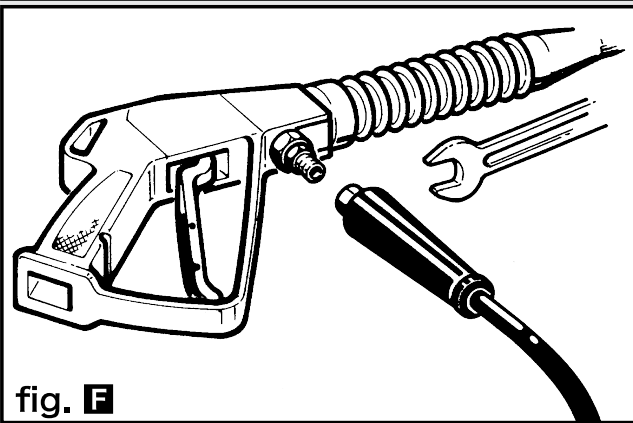
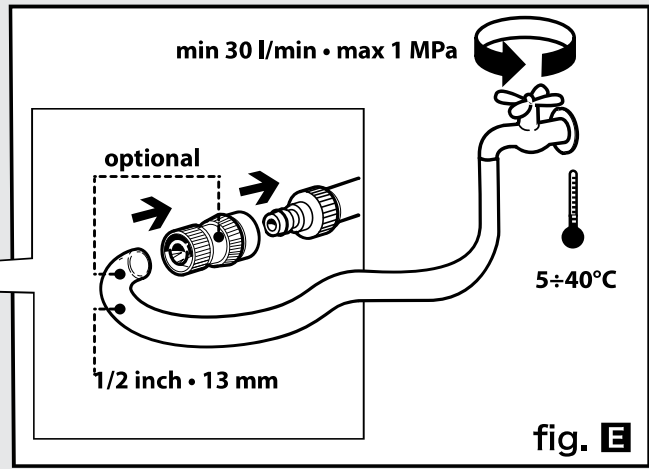
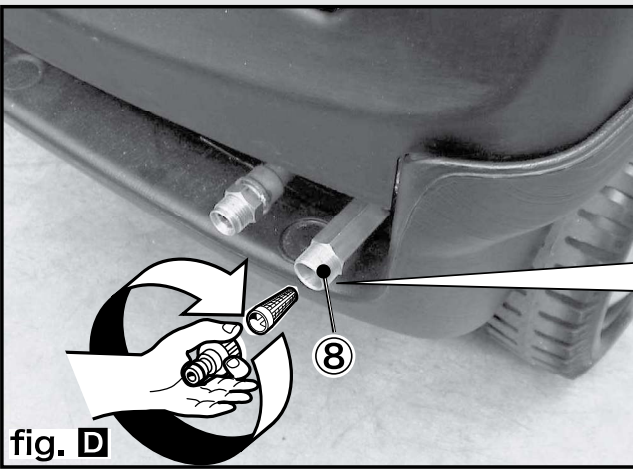
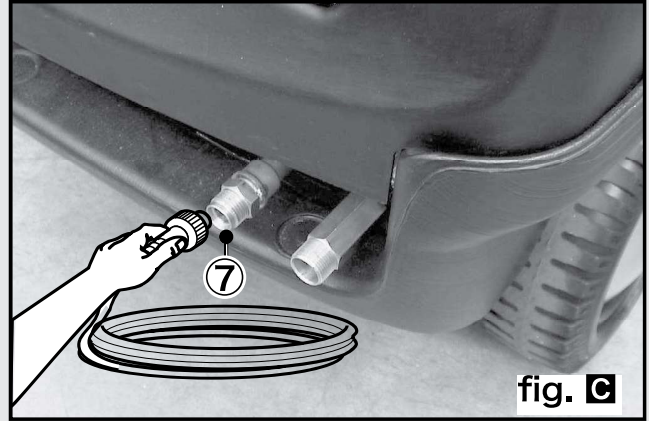
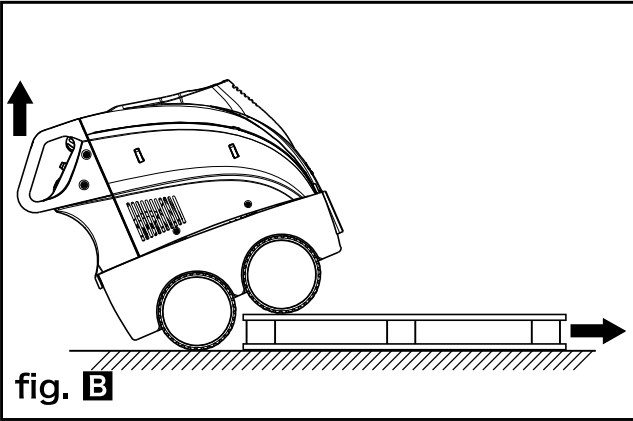
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PT Consoante o modelo, existem diferenças no volume de fornecimento. **FI** Mallien varustetaso vaihtelee, katso kuvaus laatikon kyljestä. **BG** В зависимост от модела има различни обхвати в доставката.

IT > **INSTALLAZIONE • INSTALLATION • MISE EN PLACE • INSTALLATION • INSTALACIÓN •**
EN **INSTALLATIE • ΕΓΚΑΤΑΣΤΑΣΗ • INSTALAÇÃO • ASENNUS • МОНТАЖ • INSTALACIJA •**
FR **MONTAŽA • ИНСТАЛИРАНЕ**

- DE
- ES
- NL
- EL
- PT
- FI
- RU
- HR
- SL
- BG



> **AVVIAMENTO • STARTING UP • DEMARRAGE • INBETRIEBNAHME • PUESTA EN MARCHA**
• INGEBRUIKNAME • ΘΕΣΗ ΣΕ ΛΕΙΤΟΥΡΓΙΑ • COLOCAÇÃO EM FUNCIONAMENTO •
ΚΑΥΤΤÖÖNOTTO • ПУСК • РОКРЕТАНЈЕ • ЗАГОН • СТАРТИРАНЕ

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fig. II

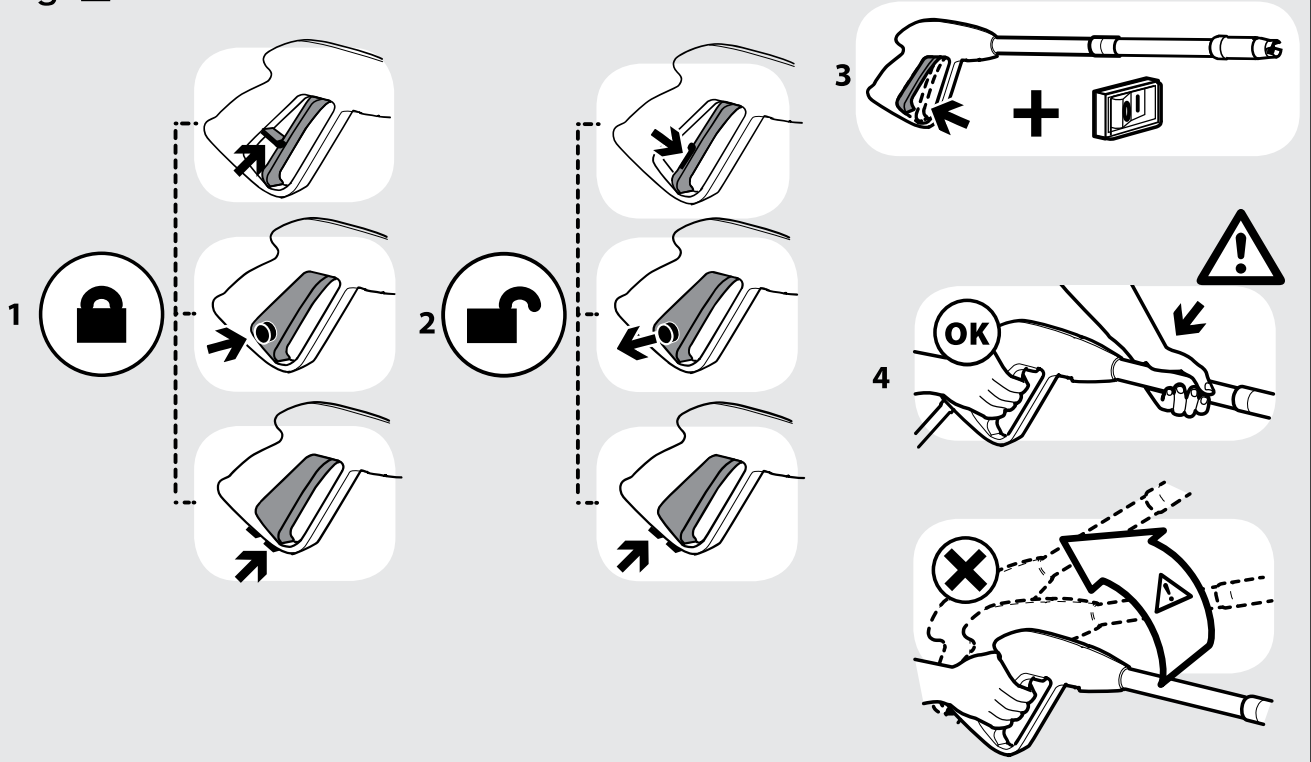
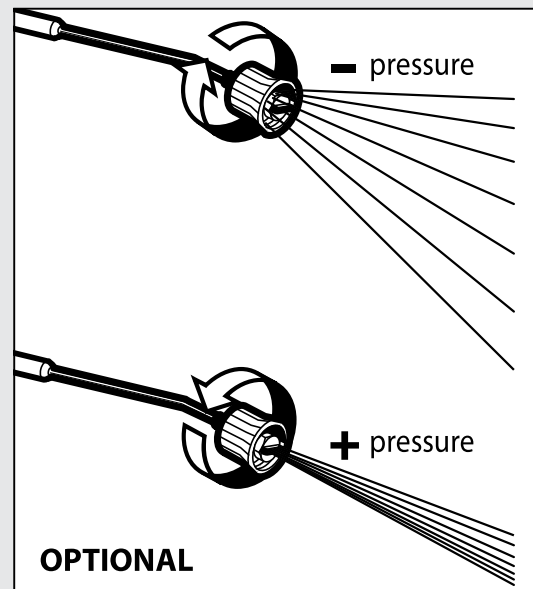


fig. III

IT getto spillo/ventaglio EN spread pattern/pencil jet FR jet variable DE vario Duese ES chorro regulable NL dunne straal/waaiervormige straal EL πιδακας καρφίτσα/βενταλια PT jato variavel FI pistemäinen/viuhkamainen suihku RU точечная/веерообразная струя. HR mlaznica-fini mlaz/raspršivač SL i glasti/pahljačasti curek vode BG Настройка на водната струя

IT alta/bassa pressione EN high/low pressure FR haute/basse pression DE Hoch/nieder-druck-lanze ES alta / baja presión NL hoge/lage druk PT alta/baixa pressao EL υψηλη/χαμηλη πιεση FI korkea/matalapaine RU высокое/низкое давление HR mlaznica-visoki/niski tlak SL vysokotlaková/nizkotlaková prúdnica BG Високо налягане/ Ниско налягане Препарат



IT getto ventaglio EN spread pattern FR jet d'eau en éventail DE großen Wasserstrahl ES chorro grandes NL waaiervormige straal PT jato grande CS vějířová tryska DA viftesprøjt EL πιδακας βενταλια FI viuhkamainen suihku NO vifteformet stråle PL strumień wachlarzowy RU веерообразная струя SL pahljačasti curek vode SV solfjädersformad stråle BG за ветрилообразна струя HR mlaznica raspršivač RO jet evantai TR jet fan BG Предпазител

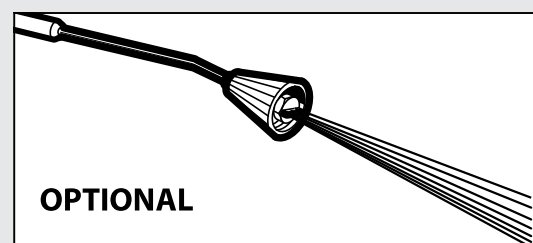
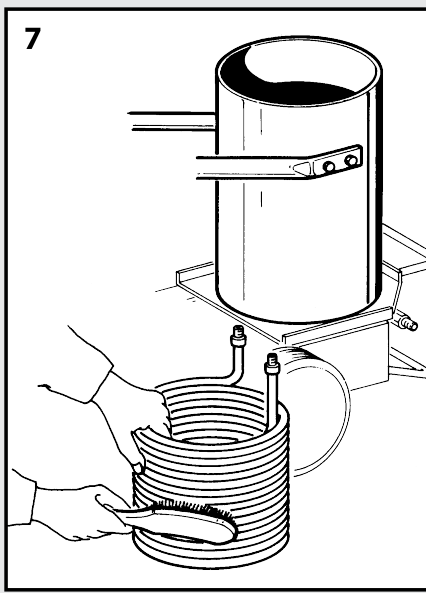
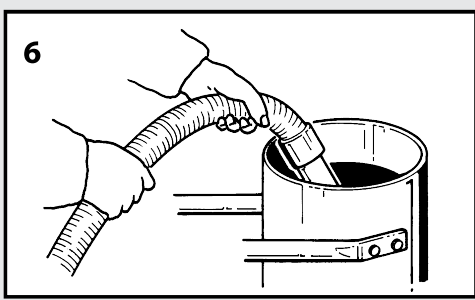
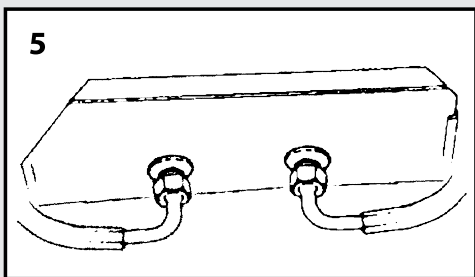
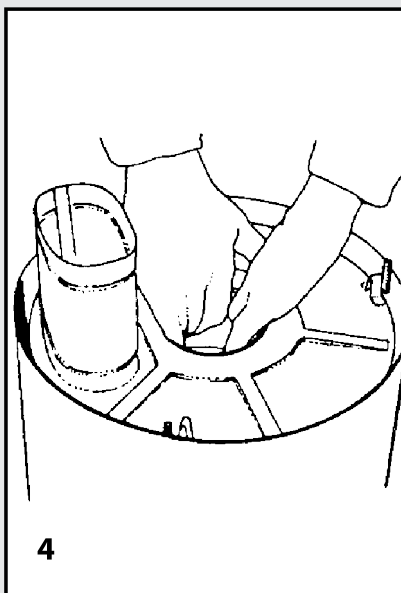
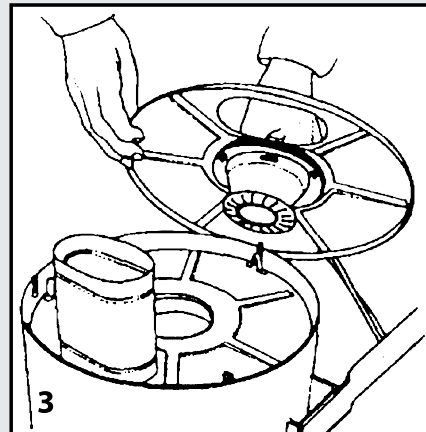
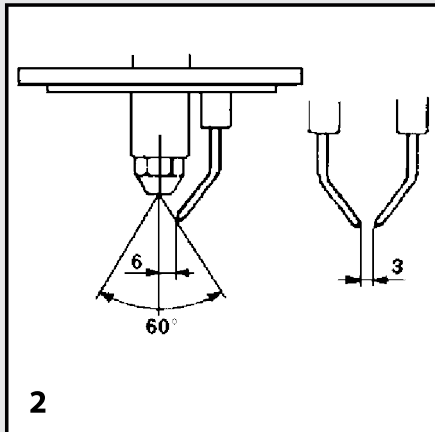
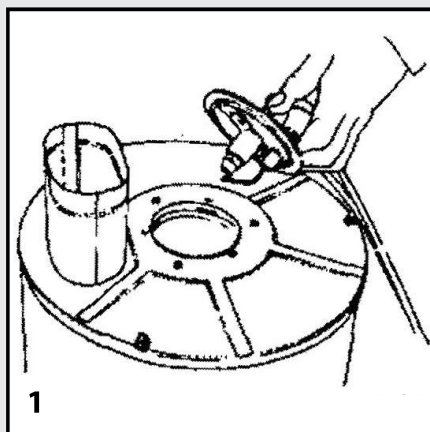
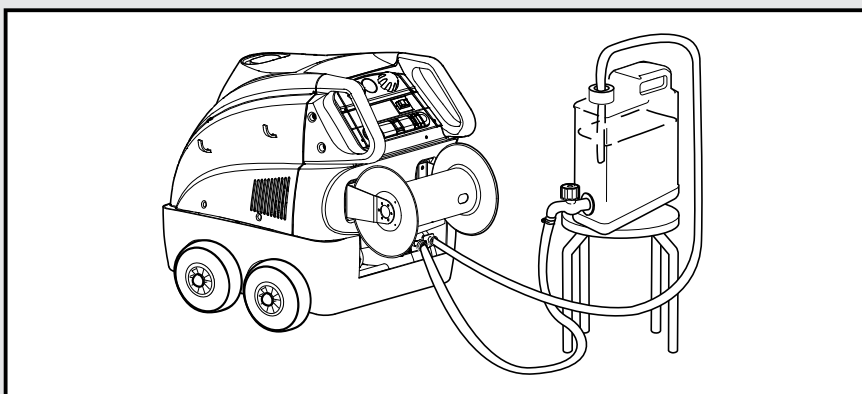
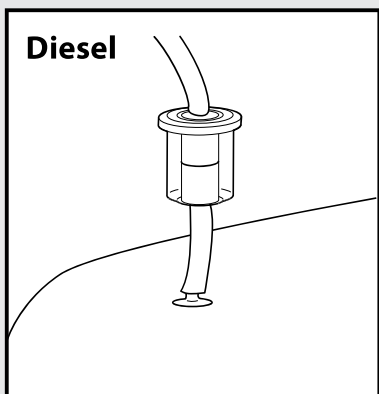
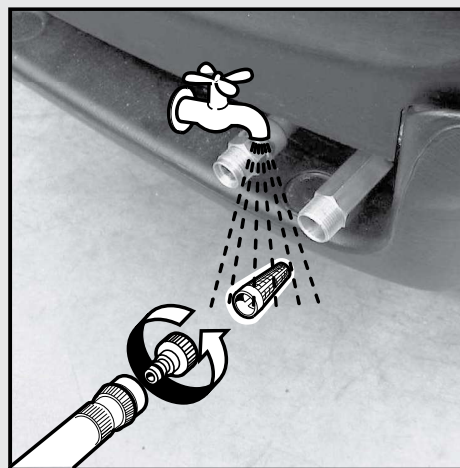
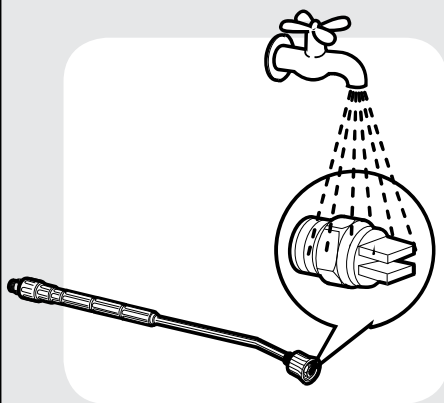
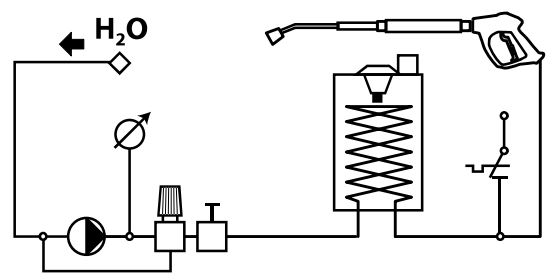


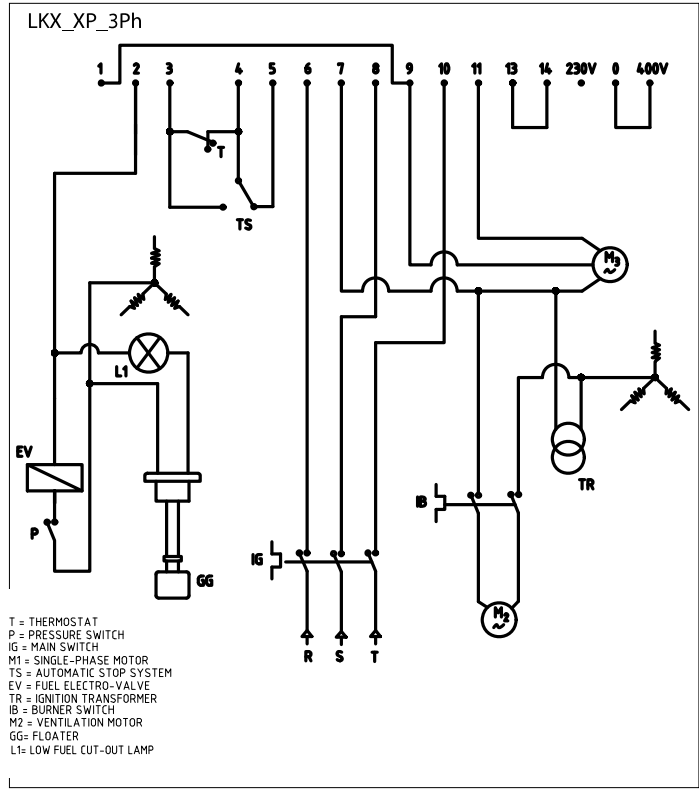
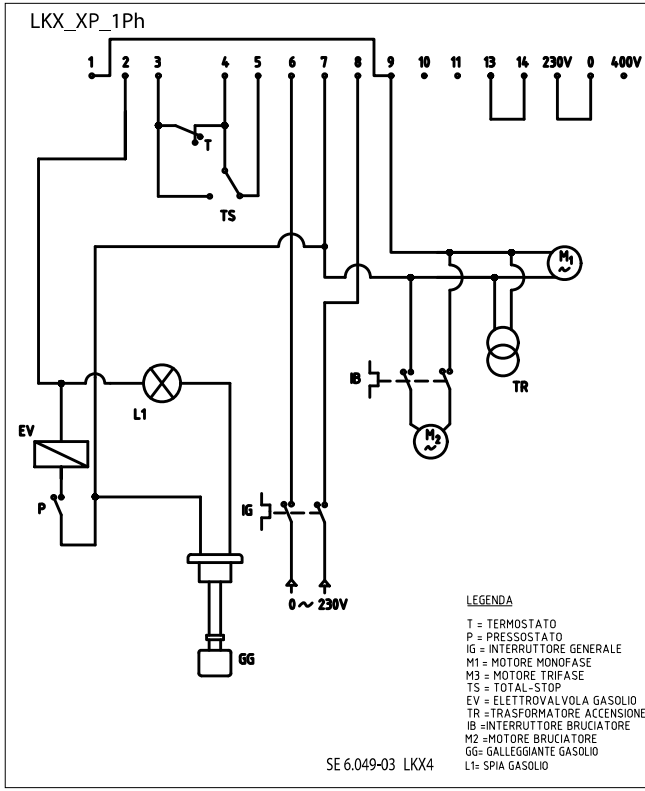
fig. L



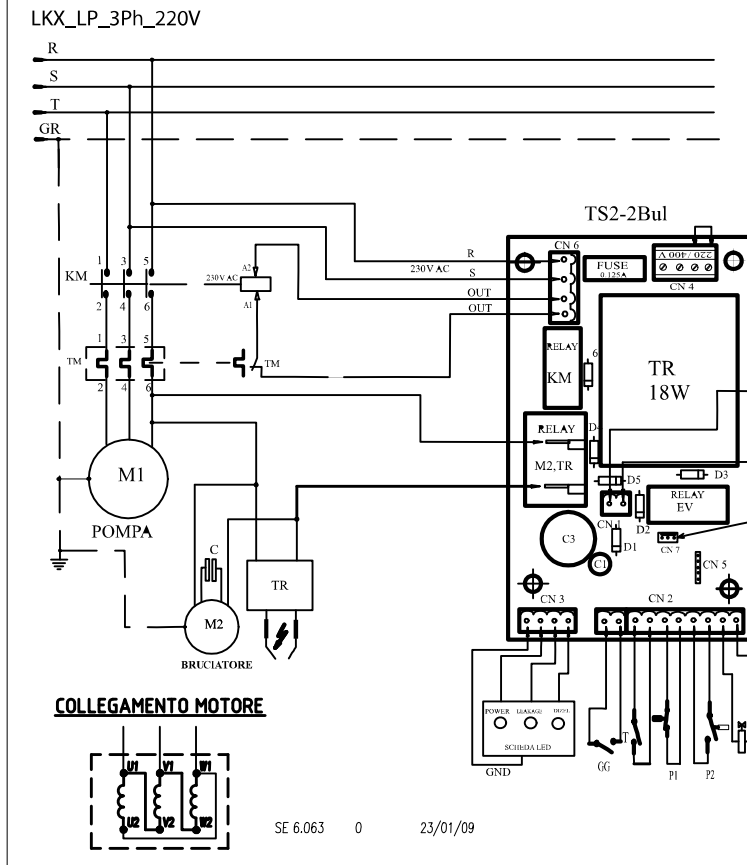
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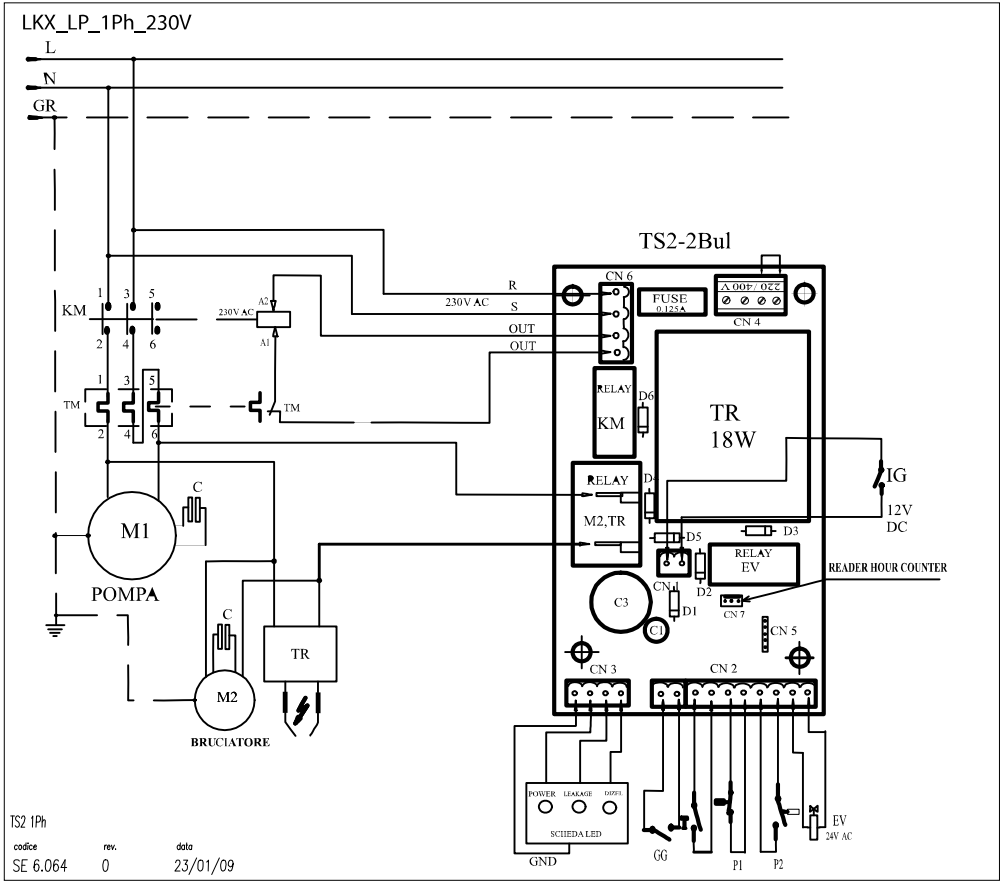
- LEGENDA**
- T = TERMOSTATO
P = PRESSOSTATO
IG = INTERRUTTORE GENERALE
M1 = MOTORE MONOFASE
M3 = MOTORE TRIFASE
TS = TOTAL-STOP
EV = ELETTROVALVOLA GASOLIO
TR = TRASFORMATORE ACCENSIONE
IB = INTERRUTTORE BRUCIATORE
M2 = MOTORE BRUCIATORE
GG = GALLEGIANTE GASOLIO
L1 = SPIA GASOLIO



- LEGENDA**
- KM = TELERUTTORE
T = TERMOSTATO
GG = GALLEGIANTE GASOLIO
P1 = PRESSOSTATO TS
P2 = PRESSOSTATO
EV = ELETTROVALVOLA
TM = TERMICO MOTORE
TR = TRASFORMATORE ACCENSIONE
IG = INTERRUTTORE ELETTROPOMPA
- KM = CONTACTOR
T = THERMOSTAT
GG = DIESEL FLOATER
P1 = PRESSURE SWITCH TS
P2 = PRESSURE SWITCH
EV = ELECTRO-VALVE
TM = MOTOR THERMAL SWITCH
TR = IGNITION TRANSFORMER
IG = ELECTRIC-PUMP SWITCH

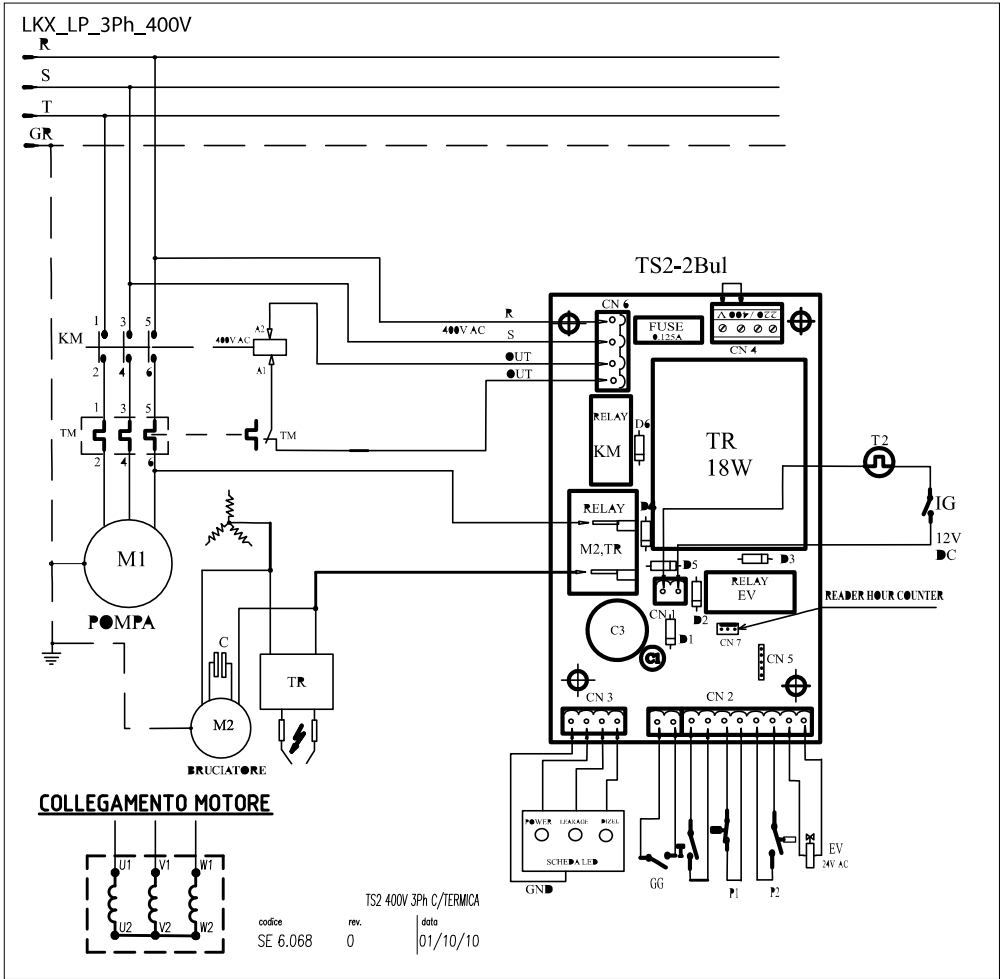
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- Легенда**
- T – термостат
P – пресостат
IG – главен ключ
M1 – мотор моно-фазен
M3 – мотор три-фазен
TS – автоматична стоп система / тотал стоп/
EV – горивен елекро- клапан
TR – трансформатор за запалване
IB – ключ за горелката
M2 – вентилаторен мотор
GG – поплавърк
L1 – ниско ниво гориво лампа



- LEGENDA**
- KM = TELERUTTORE
 - T = TERMOSTATO
 - GG = GALLEGGIANTE GASOLIO
 - P1 = PRESSOSTATO TS
 - P2 = PRESSOSTATO
 - EV = ELETTROVALVOLA
 - TM = TERMICO MOTORE
 - TR = TRASFORMATORE ACCENSIONE
 - IG = INTERRUTTORE ELETTROPOMPA

- KM = CONTACTOR
- T = THERMOSTAT
- GG = DIESEL FLOATER
- P1 = PRESSURE SWITCH TS
- P2 = PRESSURE SWITCH
- EV = ELECTRO-VALVE
- TM = MOTOR THERMAL SWITCH
- TR = IGNITION TRANSFORMER
- IG = ELECTRIC-PUMP SWITCH



- LEGENDA**
- KM = TELERUTTORE
 - T = TERMOSTATO
 - GG = GALLEGGIANTE GASOLIO
 - P1 = PRESSOSTATO TS
 - P2 = PRESSOSTATO
 - EV = ELETTROVALVOLA
 - TM = TERMICO MOTORE
 - TR = TRASFORMATORE ACCENSIONE
 - IG = INTERRUTTORE ELETTROPOMPA
 - T2 = TERMICA ESTERNA MOTORE

- KM = CONTACTOR
- T = THERMOSTAT
- GG = DIESEL FLOATER
- P1 = PRESSURE SWITCH TS
- P2 = PRESSURE SWITCH
- EV = ELECTRO-VALVE
- TM = MOTOR THERMAL SWITCH
- TR = IGNITION TRANSFORMER
- IG = ELECTRIC-PUMP SWITCH
- T2 = EXTERNAL MOTOR THERMAL SWITCH

GENERAL INFORMATION

- This appliance's performance and userfriendliness make it suitable for **PROFESSIONAL** use.
- The appliance can be used for washing surfaces outdoors, whenever pressurised water is required to remove dirt.
- With special optional accessories, it can be used for foaming and sandingblasting, and for washing with a rotary brush for application to the gun.

> TECHNICAL DATA

(see the technical data plate)

SYMBOLS



WARNING: It is important to be careful of the following items.



IMPORTANT



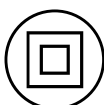
LOCKED



OPEN



IF PRESENT



Double insulated (IF PRESENT): supplementary insulation is applied to the basic insulation to protect against electric shock in the event of failure of the basic insulation.



warning do not touch



warning symbol : do not inhale

SAFETY PRECAUTIONS

> WARNINGS

- ⚠ **01WARNING:** This appliance is for outdoor use only.
- ⚠ **02WARNING:** Always disconnect the electricity and water supplies on completion

of every job.

- ⚠ **03WARNING:** Do not use the machine if a supply cord or important parts of the machine are damaged, e.g. safety devices, high pressure hoses, trigger gun.

- ⚠ **04WARNING:** This appliance has been designed for use with the detergent provided or the detergent specified by the manufacturer, such as a neutral shampoo based on biodegradable anionic surface active detergents. The use of other detergents or chemicals may put the appliance's safety at risk.

- ⚠ **05a WARNING:** Do not use the machine within range of persons unless they wear protective clothing.

05b - Do not allow other people or animals within a range of 5m when operating the machine.

05c - Always wear suitable protective clothing in order to protect yourself against ricocheting parts.

05d - Do not touch the plug and the appliance with wet hands or when barefoot.

05e - Wear safety goggles and non-slip rubber footwear.

- ⚠ **06WARNING:** Do not direct the nozzle toward mechanical parts containing lubricant grease, as the grease will dissolve and spread over the surrounding ground. Vehicle tyres/tyre valves may only be cleaned from a minimum distance of 30 cm, otherwise the vehicle tyre/tyre valve could be damaged by the high-pressure jet. The first indication of this is a discoloration of the tyre. Damaged vehicle tyres/tyre valves can be deadly dangerous.



07WARNING: High pressure jets can be dangerous if subject to misuse. The jet must not be directed at persons, animal, live electrical equipment or the machine itself.

- ⚠ **08WARNING:** High pressure hoses, fittings and couplings are important for the safety of the machine. Use only hoses, fittings and couplings recommended by the manufacturer. (it is extremely important to protect these components against damage by avoiding their improper use and protecting them against bending, knocks and scratches).

- ⚠ **09WARNING:** Appliances not equipped with

A.S.S. – Automatic Stop System: must not be left in operation for more than 2 minutes with the gun released. The recycled water heats up considerably, seriously damaging the pump.

⚠ A.S.S. AUTOMATIC STOP SYSTEM 10 WARNING :

Appliances equipped with A.S.S – Automatic Stop System: these appliances should not be left in standby for more than 5 minutes.

⚠ 11WARNING: Switch the appliance off completely (master switch on (0)OFF) whenever it is left unattended.

⚠ 12WARNING: Every machine is tested in its operating conditions, so it is normal for a few drops of water to be left inside it.

⚠ 13WARNING: Take care not damage the electric cable. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard

⚠ 14WARNING: Appliance with fluid under pressure. Keep a firm hold on the gun and be prepared to take the kickback pressure. Only use the high pressure nozzle provided with the appliance.

⚠ 16WARNING: This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

⚠ 17WARNING: Children should be supervised to ensure that they do not play with the appliance.

⚠ 18WARNING: Never start the high-pressure cleaner without first completely unwinding the high-pressure hose.

⚠ 19WARNING: When winding and unwinding the pipe take care not to cause the high-pressure cleaner to overturn.

⚠ 20WARNING: Before unwinding or winding the hose, switch the machine off and release the pressure in the hose itself (switching off).

⚠ 21WARNING: Risk of explosion — Do not spray flammable liquids.

⚠ 22WARNING: To ensure machine safety, use only original spare parts from the manufacturer or approved by the

manufacturer.

⚠ 23WARNING: Do not direct the jet against yourself or others in order to clean clothes or foot-wear.

⚠ 24WARNING: High pressure cleaners shall not be used by children or untrained personnel.

⚠ WARNING: Water that has flown through backflow preventers is considered to be non-potable.

⚠ XX WARNING: the machine shall be disconnected from its power source, by removing the plug from the socket-outlet, during cleaning or maintenance and when replacing spare parts

⚠ XJ WARNING: If an extension cord is used, the plug and socket must be of watertight construction.

⚠ XY WARNING: Inadequate extension cords can be dangerous.

⚠ WARNING: It is absolutely forbidden to use the machine in potentially explosive environments or areas.

⚠ WARNING:

- NEVER EVER TOUCH THE MACHINE WITH WET HANDS OR BARE FEET.
- NEVER PULL THE POWER SUPPLY CABLE OR MACHINE IN ORDER TO DISCONNECT THE PLUG FROM THE SOCKET.
- IF DURING FUNCTIONING THE POWER SUPPLY RUNS OUT, FOR SAFETY REASONS, TURN THE MACHINE OFF.

> SAFETY DEVICE

⚠ WARNING: the gun is fitted with a safety catch. Whenever use of the machine is interrupted it is important to operate the safety catch to prevent accidental activation of the jet.

- Safety features: gun equipped with safety locking device, appliance equipped with (Class I) overload cutout, pump equipped with by-pass valve or shutdown device.
- The safety button on the gun is not there to lock the lever during operation, but to prevent its accidental operation.

⚠ WARNING: The appliance is equipped with a motor protection device: in case of device intervention, wait some minutes or, in alternative, disconnect and re-connect the product to the electric system. In case this problem repeats again or if the product

does not start again, take the product to the nearest After Sales Service Point

> **STABILITY**

⚠ WARNING: The machine must be always kept on horizontal bases, in a safe and stable way.

> **WATER SUPPLY**

Water supply collection

Water supply from the water main

- Connect a supply hose (not included) to the water inlet of the unit and to the water supply.
- Open the water supply.



⚠ WARNING: (symbol) machine not suitable for connection to the potable water mains.

The cleaner can only be connected to the water mains if the water mains is separated by a backflow preventer. Make sure that the hose is at least Ø 13mm-1/2 inch and that it is reinforced.

⚠ WARNING: Water that has flown through backflow preventers is considered to be nonpotable.

👉 IMPORTANT: Only clean or filtered water should be used for intake. The delivery of the water intake tap should be equal to the double of the maximum pump range.

- Minimum delivery rate: 30 l/ min.
- Maximum intake water temperature: 40°C
- Max inlet water pressure: 1Mpa

Place the cleaner as close to the water supply system as possible.

Water supply from an open container

- Unscrew the coupling part for the water inlet.
- Screw the suction hose with filter (not included) onto the water connection of the unit.
- Hang the filter in the container.
- Vent the unit before operation.
- Unscrew the high-pressure line at the high-pressure outlet of the unit.
- Switch on the unit and let it run until water free of bubbles emerges at the high-pressure outlet.
- Switch off the unit and screw on the high-

pressure hose again.

Failure to comply with the above conditions causes serious mechanical damage to the pump and the loss of warranty cover.

> **ELECTRICITY SUPPLY**

- The appliance's electrical connection must comply with the IEC 60364-1 standard.

👉 IMPORTANT: Before connecting the appliance, make sure that the nameplate data are the same as those of the electrical mains and that the socket is protected by a differential security breaker with tripping sensitivity below 0.03 A - 30 ms.

- If the appliance's plug is not compatible with the socket, have the socket replaced with another of suitable type by professionally qualified staff.
- Never use the appliance in ambient temperatures below 0° C if it is equipped with a PVC (H VV-F) cable.

⚠ XY WARNING: Inadequate extension cords can be dangerous.

⚠ XJ WARNING: If an extension cord is used, the plug and socket must be of watertight construction.

Information for supply may also be obtained from the plug manufacturer.

230-240V	400-415V
3G 2,5 mm2	4G 2,5 mm2
max 20 m	max 30 m

USAGE

> **UNPACKING**

(see fig. **B**)

Take out the upper and the lower hooks, which fix the cardboard box to the pallet, take the cardboard box off, put two wheels of the machine on ground and take the pallet off.

> DESCRIPTION OF THE MACHINE

- ① Electropump switch
- ② Regulator burner
- ③ Detergent regulator
- ④ Pressure gauge
- ⑤ Burner switch
- ⑥ Pilot lights (OPTIONAL)
- ⑦ High pressure water outlet
- ⑧ Water inlet + filter
- ⑨ Gun
- ⑩ Lance
- ⑪ High pressure hose
- ⑫ Rubber hose fitting
- ⑬ Nozzle
- ⑭ Diesel tank
- ⑮ Detergent tank

> CONTROL COMPONENTS

CONTROL SWITCHES

- ① Motor pump switch
- ② Burner switch with regulator
- ③ Detergent regulator
- ⑤ Burner switch
- ⑥ Pilot lights: DIESEL shortage (OPTIONAL)
- ⑥ **A:** Motor pump ON green pilot light
- ⑥ **B:** Leak pilot light
 - flashes when the pistol lever is repeatedly operated in a short time or when a leak occurs in the high pressure circuit. Remove the leak, referring to an authorized service centre.
 - remains ON when the machine is left in stand-by for over 20 minutes.
 Switch on and off the motor pump switch.
- ⑥ **C:** Burner switch
 - flashes when the gasoil tank is empty; the burner is stopped. Refuel.
 - remains ON when the burner switches on.

A.S.S. AUTOMATIC
STOP
SYSTEM

(if fitted)

IMPORTANT: This water cleaner is equipped with the A.S.S. (Automatic Stop System), which stops the machine during the bypass phase.

To start the water cleaner, it is therefore necessary to set the switch on position "ON"; after that press the pistol trigger: the Automatic Stop System will start the machine and will stop it

automatically when the trigger is released. It is advisable to put on the safety of the pistol trigger whenever the machine is stopped, in order to avoid unintentional starting.

- Any automatic start of the machine without pressing the gun trigger is attributable to air bubbles in the water or other similar phenomena which do not imply the existence of any defects in the machine.
- Do not leave the appliance unattended during the standby for more than 5 minutes. Contrarily, for the safety of the appliance it is necessary to re-turn the switch into the OFF position.
- Please check that the coupling of the high pressure hose with the appliance and the gun supplied as standard equipments made correctly, that is to say without any water leak.

If the appliance is equipped with a **pressure regulator:**

- when the pressure is set to minimum the A.S.S. may not trigger. Therefore, do not allow the appliance to function in by-pass for more than 1 minute.
- do not act on the gun lever too frequently (this may cause a malfunction).

> INSTALLATION AND START-UP

(fig. **A**)

FILLING UP WITH FUEL

Fill the tank with the fuel indicated on the technical data plate (**Diesel**)

Avoid that the tank is empty when the machine is running in order not to damage the fuel pump.

⚠ WARNING: Incorrect fuel shall not used as they as provide hazard.

FILLING UP WITH DETERGENT

the detergent tank with the suggested products, suitable for the kind of washing to be carried out.

⚠ WARNING: Make use only of liquid detergent, do not absolutely use acid or too much alkaline products. We suggest you to make use of our products, which have been studied for the use with washer machines.

> INSTALLATION

(fig. **CDEF G**)

- Check that the master switch is turned to

“OFF” and that the water filter is fitted into the pump’s inlet pipe.

- Screw the snap connection into place by hand, without the aid of tools.
- Connect the water supply hose to the snap connection. The hose must have an inside diameter of at least 13 mm (1/2”).
- Connect the high pressure hose to the pump’s outlet pipe. Press the high pressure hose coupling fully down and then screw into place by hand without the aid of tools.
- Connect the high pressure hose to the gun.
- Turn the water tap fully on. The water temperature absolutely must be below 40°C.

✎ IMPORTANT: The washer machine has to operate with clean water in order to avoid any damages to the washer machine itself.

- Release the gun safety catch and keep the trigger pressed, allowing the water to flow until all the air has been expelled.
- Fit the lance into the gun.
- Fit the nozzle into the lance.
- Connect the plug to the power socket.

> 1ST START-UP

When starting up for the first time or after a long period out of use, connect the intake line only for a few minutes so that any dirt is vented from the delivery outlet

> START-UP

(fig. **H**)

- Whenever using the high-pressure cleaner, users are urged to hold the gun in the correct position, with one hand on the grip and the other on the spray rod.
- To start the machine, press the gun trigger and at the same time turn the master switch to “ON”

> TO WASH WITH HOT WATER

(fig. **A**)

turn the burner switch and select the desired temperature setting. To add detergent or disinfectant to the water jet, open the regulator to the setting for the quantity required as described in the “DETERGENT SUCTION” section.

⚠ WARNING: In case of operation indoors, adequate ventilation and gas venting must be

assured.

> THERMOSTAT SET ABOVE 100 ° C: USE WARNINGS.

When working with temperatures exceeding 100° C, follow these steps:

- The working pressure must not exceed the limit of 32 bar.
- Through the knob on the bypass valve of the pump, you can adjust the pressure.
- Assemble steam nozzle 3.749.0183 (optional)

> DETERGENT SUCTION

at low pressure (if included)

(see fig. **I**)

The adjusting head allow you to select water jet at low and high pressure. The pressure selection is carried out by rotating the adjusting head. To increase the pressure, rotate the adjusting head clockwise, to reduce the pressure rotate it anti-clockwise. The detergent suction is automatic when the adjusting head of the lance is rotate for low pressure operation (anti-clockwise).

> DETERGENT SUCTION

at hght pressure (if included)

(see fig. **I**)

When you start the machine, the mixing of the detergent with the water is automatic at the water passage. The quantity of sucked detergent depends on the quantity set with the detergent adjusting knob.

⚠ CAUTION: Make use only of liquid detergent, do not absolutely use acid or too much alkaline products.

We suggest you to make use of our products, which have been studied for the use with washer machines.

CARE AND MAINTENANCE

(vedi fig. **L**)

✎ IMPORTANT: Before doing any work on the cleaner, discharge the pressure and disconnect the electricity and water supplies.

CHECKING THE PUMP OIL LEVEL

Check the oil level periodically. The oil must be changed for the first time after 50 working hours, with subsequent changes every 500 hours. SAE 20/30 , 15W-40, 20W-40 oil is recommended .

CHECKING THE WATER INTAKE FILTER

Inspect and clean the water intake filter on the intake union periodically. This is important to prevent fouling which may impair operation of the pump.

CLEANING THE FUEL FILTER

Check the fuel filter periodically and replace if it has deteriorated or is excessively dirty.

DESCALING

The descaling procedure must be carried out periodically with specific products. The interval depends on the hardness of the water. Pour one litre of product for every 15 litres of water into a drum containing at least 30 litres of water. Disconnect the gun from the high pressure line and place its free end in the drum, in order to form a closed circuit, and draw the solution into the machine for at least 10 minutes. The delivery end of the line should discharge into a canvas or mesh bag so that the scale removed is not returned to the circuit. Then restore the normal connection and rinse with plenty of cold water. This operation should be carried out by our after-sales service, since the descaling product may cause wear of components. Comply with the regulations in force when disposing of the descaling agent.

Liquid softener tank integrated (Optional - if included)

The descaling procedure must be carried out periodically with specific products. The interval depends on the hardness of the water. This operation should be carried out by our after-sales service, since the descaling product may cause wear of components. Comply with the regulations in force when disposing of the descaling agent.

- Fill the softener tank with our products (in all cases, with non corrosive products). The dispensing rate is set at a medium value; the **After Sales Services** will be able to adapt the setting to local conditions.

BOILER CLEANING

⚠ WARNING: For all maintenance of the boiler, of the high pressure pump and of the machine, it is necessary to address to qualified personnel or to an authorized assistance center.

The boiler cleaning must be periodically executed every 180 ÷ 200 hours of working proceeding as follows:

- Carefully remove the nozzle holder flange and

the electrodes holder (boiler head).

- Clean with compressed air the nozzle filter and check the electrodes position.
- Remove the boiler cap, clean the deflector.
- Manually take away the interior cap.
- Unscrewing the locking nuts and take the boiler coil out.
- Clean the coil by an iron brush.
- Suck the residuums from the boiler.
- Replace every parts doing the operations in the inverse way.

⚠ WARNING: The general checking and combustion regulation must be periodically executed by specialized personnel as prescribed by the law.

ELECTRIC DIAGRAM

See illustrations, page 7-8.

WATER DIAGRAM

See illustrations, page 7-8.

TROUBLESHOOTING

Before doing any work on the machine, disconnect the electricity and water supplies and discharge the pressure. Proceed systematically to identify Faults following the chart below; if you are still unable to eliminate the problem, call in the **Authorized After-Sales Service**.

Fault	When the main switch is turned on the machine does not start
Cause	<ul style="list-style-type: none"> • Plug not properly connected. • Connection panel fuses are burnt out.
Repair	<ul style="list-style-type: none"> • Carefully check the plug and the electric cable. • Check them and replace them.
Fault	The motor hums but does not start
Cause	<ul style="list-style-type: none"> • A phase is missing (in three phase models). • Lows voltage. • High pressure pump is blocked.
Repair	<ul style="list-style-type: none"> • Contact an authorised service centre. • Contact an authorised service centre. • Contact an authorised service centre.
Fault	The motor stops suddenly or after a while
Cause	<ul style="list-style-type: none"> • The motor-protecting switch is on because of insufficient mains voltage.
Repair	<ul style="list-style-type: none"> • Check the value of the mains voltage. • Contact an authorised service centre.

Fault	When the lance is turned on pressure values decrease and increase	Cause	<ul style="list-style-type: none"> • Air suction. • The suction and/or delivery valve springs are broken or down. • Foreign matters in the suction and delivery valves. • The bearings are worn out. • Extreme liquid temperature.
Cause	<ul style="list-style-type: none"> • The nozzle is either clogged or deformed. • Either boiler coil or lance are clogged with limestone. 	Repair	<ul style="list-style-type: none"> • Check the suction pipes. • Replace the valve springs. • Check and clean the suction and delivery valves. • Replace the bearings. • Reduce the liquid temperature.
Repair	<ul style="list-style-type: none"> • Either clean it or replace it. • Descaling. 	Fault	Water is in the oil
Fault	To much vibrations at the delivery	Cause	<ul style="list-style-type: none"> • The O-ring casing is worn out. • High moisture in the air. • The seals are completely worn out.
Cause	<ul style="list-style-type: none"> • The pressure tank is run down. • The valve are worn out or dirty. 	Repair	<ul style="list-style-type: none"> • Check and/or replace the O-ring. • Replace the oil with double frequency in respect of the one suggested. • Replace the seals.
Repair	<ul style="list-style-type: none"> • Check the pressure in the tank. • Check and/or replace. 	Fault	Filtrations of water from the drains between casing and head
Fault	The pump does not reach the fixed pressures	Cause	<ul style="list-style-type: none"> • The seals are worn out. • The piston is worn out. • The O-ring of the piston cap is worn out.
Cause	<ul style="list-style-type: none"> • The pump sucks air. • The valves are worn out. • The setting valve area is worn out. • The nozzle is unsuitable or worn out. • The seals are worn out. 	Repair	<ul style="list-style-type: none"> • Replace the seals. • Replace the piston. • Replace the seal.
Repair	<ul style="list-style-type: none"> • Check the suction pipes. • Check and/or replace. • Contact an authorised service centre. • Contact an authorised service centre. 	Fault	Filtrations of oil from the drains between head and casing
Fault	Irregular pressure fluctuations	Cause	<ul style="list-style-type: none"> • O-ring seals of casing are worn out.
Cause	<ul style="list-style-type: none"> • The suction and/or delivery valves are worn out. • Presence of foreign matters in the valves, which generate bad functioning. • Air suction. • The seals are worn out. 	Repair	<ul style="list-style-type: none"> • Replace the seals.
Re-pair	<ul style="list-style-type: none"> • Check and/or replace. • Check and clean the replace. • Check the suction pipe. • Check and/or replace the seals. 	Fault	Turning on the burner switch the boiler does not start
Fault	Pressure leakage	Cause	<ul style="list-style-type: none"> • No fuel. • Fuel filter is clogged. • Fuel pump is either blocked or burnt out. • Damaged thermostat. • Ignition spark insufficient or totally lacking. • The space among the electrodes is not correct. • Burn out fuse.
Cause	<ul style="list-style-type: none"> • The nozzle is worn out. • The suction and/or delivery valves are broken or down. • Presence of foreign matters in the valves, which generate the valves bad functioning. • The setting valve area is worn out. • The seals are worn out. 	Repair	<ul style="list-style-type: none"> • Check the level in the tank and check whether the rigid suction pipe is clean. • Replace the line filter. • Replace it. • Replace it. • Contact an authorised service centre. • Check the positioning. • Replace it.
Repair	<ul style="list-style-type: none"> • Replace the nozzle. • Check and/or replace the valves. • Check and clean the valves. • Check and/or replace the setting valve area. • Replace the seals. 	Fault	Noisiness
Fault	Noisiness		

Fault	Water is not hot enough
Cause	<ul style="list-style-type: none"> • Poor boiler performance. • Boiler coil clogged with limestone.
Re-pair	<ul style="list-style-type: none"> • Clean burner nozzle filter. • Clean fuel filter. • Check diesel pump pressure. • Descaling.
Fault	Too much smoke from the chimney
Cause	<ul style="list-style-type: none"> • Combustion is not correct. • Impurities or water in the fuel.
Re-pair	<ul style="list-style-type: none"> • Clean fuel filter. • Clean the boiler. • Empty the tank and clean it carefully. • Clean fuel filter as well.
Fault	Insufficient detergent suction
Cause	<ul style="list-style-type: none"> • No detergent in the tank. • Incrusted injector. • Either coil or tube or lance are clogged.
Re-pair	<ul style="list-style-type: none"> • Fill the detergent tank. • Clean it. • Either cleaning or descaling.

> REPAIRS - SPARE PARTS

For any problems not mentioned in this manual, or if the machine breaks down, you are urged to contact an **Authorized After-Sales Service** for the relative repair or for any replacement of components with original spare parts. Use exclusively original replacement parts.

> WARRANTY CONDITIONS

All our machines are subjected to strict tests and are covered against manufacturing defects in accordance with applicable regulations (minimum 12 months). The warranty is effective from the date of purchase. If your high pressure washer or accessories are handed in for repair, a copy of the receipt must be enclosed.

Guarantee repairs are being made on the following conditions: - That defects are attributable to flaws or defects in materials or workmanship. - That the directions of this instruction manual have been thoroughly observed. - That repair has not been carried out or attempted by other than authorized service staff. - That only original accessories have been applied. - That the product has not been exposed to abuse such as knocks, bumps or frost. - That only water without any impurities has been used. - That the high pressure washer has not been used for rental nor used commercially in any other way.

The following are not included in the warranty: - Parts subject to normal wear. - The high-pressure tube and optional accessories. - Accidental damage, caused by transport, neglect or inadequate treatment, incorrect or improper use and installation failing to comply with the indications in the instruction manual. - The warranty shall not cover any cleaning operations to which the operative components may be subjected.

Repairs under this guarantee include replacement of defective parts, exclusive of packing and postage/carriage. The warranty shall not cover replacement of the machine or extension of the guarantee resulting from a breakdown. The manufacturer declines all responsibility for damage to persons or property caused by bad installation or incorrect use of the machine.

WARNING! Failures, such as clogged nozzles, valves and mechanism blocked due to limestones, damaged pressure cleaner accessories (like kinked high pressure hose) and/or appliances normally working without any defects ARE NOT COVERED BY THE WARRANTY.

> DISPOSAL



As the owner of electrical or electronic equipment, the law (in accordance with the EU Directive 2002/96/EC of 27 January 2003 on waste from electrical and electronic equipment and the national laws of the EU Member States that have implemented this Directive) prohibits you from disposing of this product or its electrical / electronic accessories as municipal solid waste and obliges you to make use of the appropriate waste collection facilities.

The product can be disposed of by returning it to the distributor when a new product is purchased. The new product must be equivalent to that being disposed of.

Disposing of the product in the environment can cause great harm to the environment itself and human health.

The symbol in the figure indicates the urban waste containers and it is strictly prohibited to dispose of the equipment in these containers. Non-compliance with the regulations stipulated in the Directive 2002/96/EC and the decrees implemented in the various EU Member States is administratively punishable.