7830 - 7850 - 7870



	Read carefully the present use and maintenance manual in every part before proceeding to use. The following machine has been examined according to the Directive Machines 2006/42, 2004/108, 2006/95 and following changes and integrations.

	Annovi Reverberi S.p.A SERVICE Dept. Via Aldo Moro, 40/42 41030 Bomporto (MO) – Italy supporth@annovireverberi.it	**USE AND MAINTENANCE HANDBOOK** **Code XXXXX - XX**

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1. GENERAL INSTRUCTIONS

Congratulation for your choice on the purchase of your new cleaner; it means that you have keep technical knowledge and good taste for the nice design. Technological innovation, high preformances and strenght are the main features of the machine **7830** / **7850** / **7870**.
This manual is an integral part of the washer and it must be found easily by the personnel responsible about the maintenance and by the user.
The users, the qualified individuals must know the contents of this manual.
In case of troubles, doubts as to understand this manual, please contact the Company **ANNOVI REVERBERI** - Via Aldo Moro, 40/42 - 41030 Bomporto (MO) Italy, supporth@annovireverberi.it.

Descriptions and images contained in this manual are not binding, therefore, the Company, reserves the right to make chenges at any time and without prior notice.



IMPORTANT !
For a proper and safe operation of the machine, read this manual carefully before connecting the machine o the power supply and bifore setting it a work.

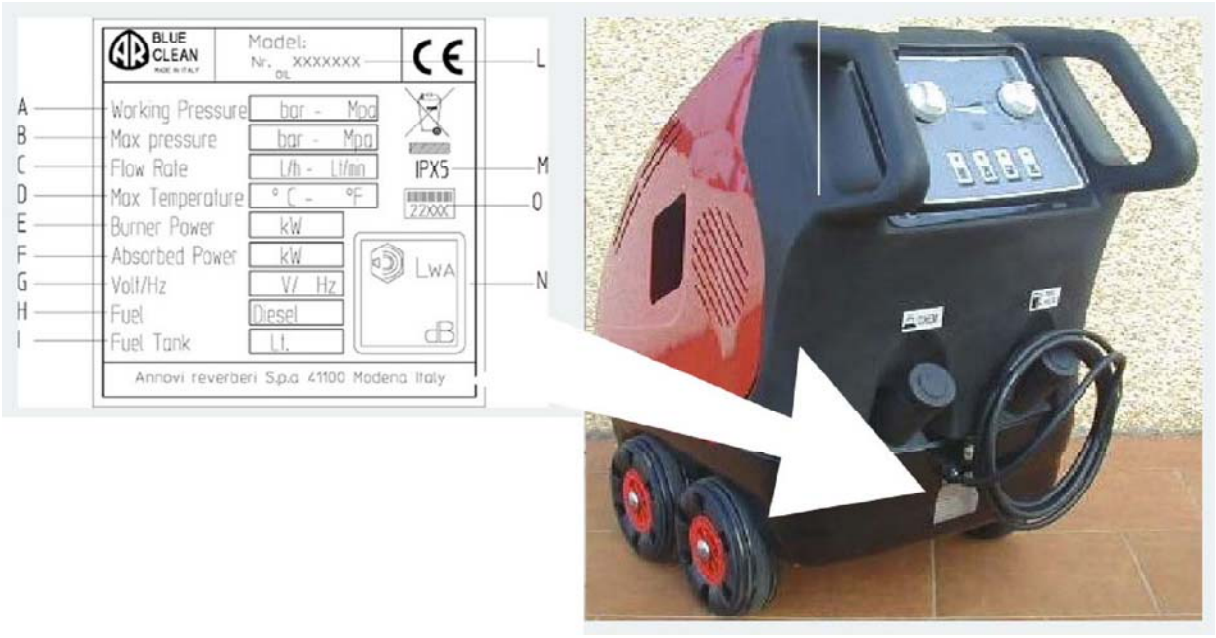
The machine has been designed to clean or wash, with hot or cold water, objects or surfaces which can stand the mechanical treatment of the water jet under high pressure and by the action of the chemicals products (detergents).
Before starting, be sure that it is supplied with the relevant identification rating plate; otherwise you must contact your dealer immediately and don't use the machine (see fig. 1). Never leave an operating cleaner unattended in the work place.
After a working day we suggest to place the machine in a dry place and protected from the bad whether conditions.

The machine must be used only for the purposes for which it has been designed.

Never use the machine if the safety conditions are uncertain.
In case of demolition, please follow the law in force in your Country.

2. MACHINE IDENTIFICATION

Fig. 1 below indicates where the identification plate is fixed.



A = WORKING PRESSURE
B = MAX PRESSURE
C = FLOW RATE
D = WATER MAX TEMPERATURE - INPUT
E = BURNER POWER
F = ABSORBED POWER
G = VOLT/HZ
H = FUEL TYPE
I = FUEL TANK CAPACITY
L = SERIAL NUMBER
M = PROTECTION DEGREE
N = NOISE VALUE
O = PRODUCT CODE

The data on the plate must not be erased for any reason.

3. TECHNICAL FEATURES

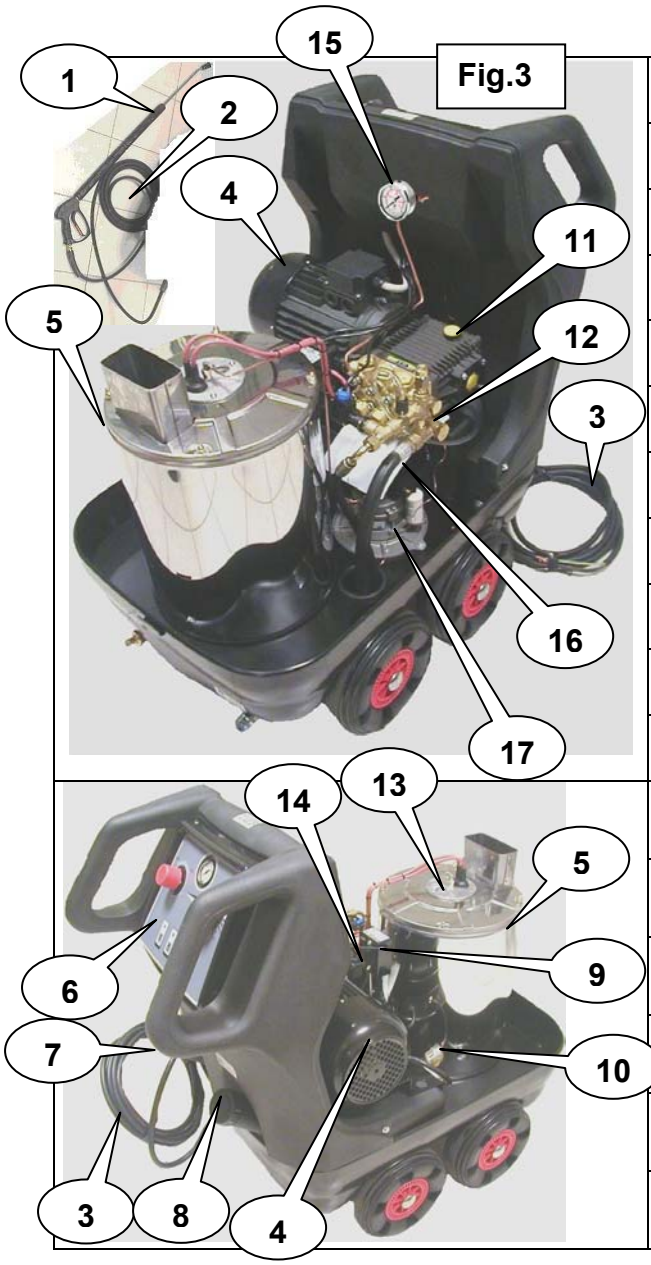
MODEL		7830	7850	7870
Pressure	BAR	130	150	200
	P.S.I.	1900	2200	2900
Power	KW (OUTPUT)	2,2	4	5,5
	KW (INPUT)	5,3	5	7,4
	RPM	1750	1750	1750
Voltage	V/Hz	400-60Hz 3 ~	400-60Hz 3 ~	400-60Hz 3 ~
Max capacity	L/H	600	900	900
	Gal/h	159	238	238
Temperature °Δ T	°C	75	55	50
Fuel tank	Liters	15	15	15
Detergent tank	Liters	5	5	5
Dimensions	H	920	920	920
	W	590	590	590
	L	980	980	980
Lpa (EN 60704-1)	Db (A)	78,8	80,7	82
Lwa (EN 60704-1)	Db (A)	87	89	90
Machine vibrations	M/s^2	1,45	1,45	1,45
Weight	kg	92	94	98

4. MACHINE DIMENSIONS

Fig. 2



5. MAIN PARTS



1	LANCE
2	HIGH PRESSURE HOSE
3	ELECTRIC CABLE
4	ELECTRIC MOTOR
5	BOILER
6	ELECTRIC SYSTEM
7	DETERGENT TANK
8	FUEL TANK
9	TRANSFORMER
10	FUEL FILTER
11	HIGH PRESSURE PUMP
12	PRESSURE VALVE
13	COMBUSTION HEAD
14	PRESSURE SWITCH
15	PRESSURE GAUGE
16	FUEL PUMP
17	BURNER MOTOR

6. SAFETY REGULATIONS

- Make sure that the machine is constantly supplied with water. Dry working would cause serious damages to the machine seal system.
- Electrical connections must be carried out by skilled/trained personnel only.
- Never pull the power cord to disconnect the plug nor pull the hose to move the machine.
- Don't leave the machine in a low temperature place and protect it from frost and general bad weather conditions.
- Avoid vehicles transit on the high pressure hose.
- While the machine is running do not cover it and avoid placing it where there's low air supply.
- If you are working indoors, it's compulsory to install a fan to discharge the exhaust gases outside.
- The fan terminal must not be obstructed. Don't leave the lance or any other object near the exhaust outlet.
- The nature of the gases as well as the high temperature are to be considered very dangerous, the operator must thus be adequately informed in order to avoid being scalded.
- Don't leave the machine outside when it rains or when the weather conditions are bad. The operators must wear protection clothes while using the machine.
- Do not leave the machine for more than 15 minutes working with the gun closed, the water temperature would increase rapidly causing serious damages to the seal system.
- Each time the machine has to be switched off blow off the hose residual pressure by using the gun.
- Don't put the hands in front of the lance.
- Do not use different fuels other than the ones recommended by the manufacturer.



WARNING !

- Don't carry out any operation on the machine before having unplugged it.
- Don't carry out any unwary operation on the electric cable and make sure the same is not damaged.
- Never direct the high pressure water jet towards people, animals, electrical installations or the machine itself.
- Use always only clean water. Dirty water and chemical corrosive products are harmful for the machine.

- The machine is equipped with idle wheels; it it thus recommendable to avoid placing the machine on ramps or slanted floors. Do not tilt the machine by more than 20 °C (with full tank).
- It is forbidden to use plug extensions if the work enviroment is subject to water/humidity presence which could cut the isolating conditions of the system. Always check the isolation of the electric cable as well as the equipment's integrity.
- In case an extension is required, be sure that plugs and sockets have a protection type IP65 and that the power cord complies with the table reported here below.

VOLTAGE V	EXTENSION LENGTH	CABLE SECTION
380 - 415	0 mt UP TO 25 mt	4x2,5 mm^2
380 - 415	25 mt UP TO 50 mt	4x4 mm^2

7. MACHINE INSTALLATION

The machine you are about to use will give you the best performances if you install itself following our instructions. Before setting the machine at work, make sure that the machine lies perfectly on a horizontal surface.
Connect the high pressure hose **A** to the gun **B** and with the other side of the cable to the intake fitting, fixing tightly the fastening nut **C** (see fig. 4).
Connect the lance **B1** to the gun **B**.

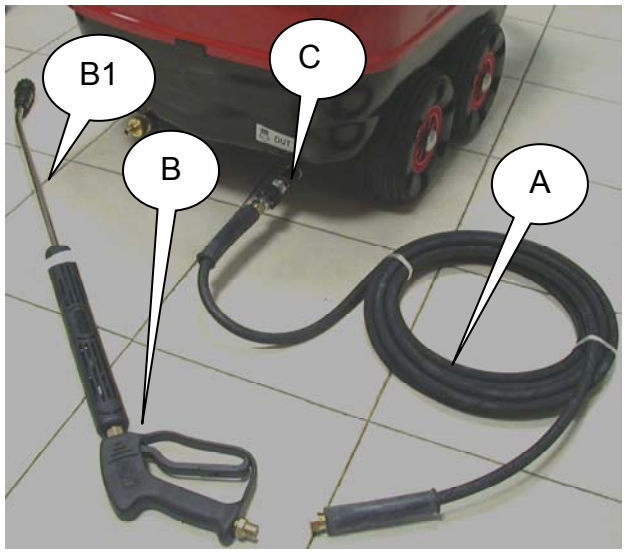


Fig.4

Connect the water supply hose **D** to the infeed fitting **E** (see fig. 5). It is recommended to use a reinforced hose having an inner diameter of at least 10 mm. The water intake must be of at least 15 l/min and have a max inlet temperature of 60 °C.

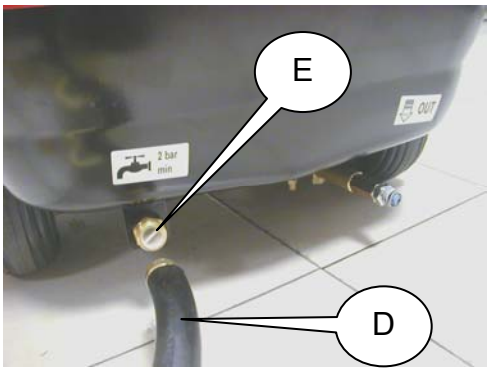


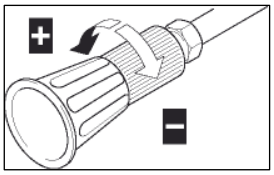
Fig.5

Fill the fuel tank **F** (see fig. 6) with gasoil (Diesel).
Fill the detergent tank **G** (see fig. 6) with a biodegradable product.



Fig.6

Make sure that the electrical tension and amperage are suitable for the machine. The cleaner must be connected to a suitable feeding point equipped with an efficient contact to earth and controlled by an overload cut out switch.



The detergent is applied by opening the intake device of the lance (on the position - see figure) and then operating with the gun lever.

8. MACHINE START-UP

After having installed the machine, in order to operate it, open the water supply faucet **H** fig.6.

The control panel has been designed to run the operations easily. The knob **A** has three main functions:

Pos.1	OFF indicates that the machine is turned off.	Pos.2	The second position indicates that the motor pump is on.	Pos.3	The third position ON indicates that the boiler is on.

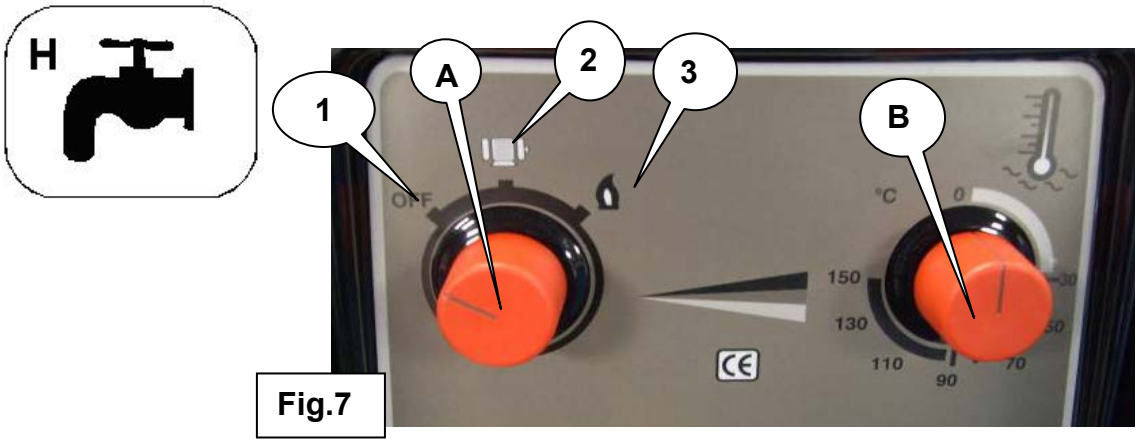


Fig.7

IMPORTANT! Make sure the pressure never exceeds the pressure indicated on the pump plate.

The hydraulic system is equipped with a safety valve that works whenever the pressures is higher than the calibration.

9. REGULATION OF THE OPERATING PRESSURE

On this machine It is possible to regulate the operating pressure. Move to near the machine cover, in the valve access window, see fig. **8**. Grip the valve knob, if provided, or use a wrench, if provided, in pos. **1**, and rotating clockwise (fig. **9** pos**. 1)** the pressure increases; rotating the knob (fig. **9** pos. **2)** anti-clockwise the pressure decreases.

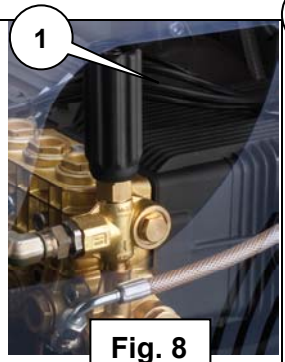


Fig. 8

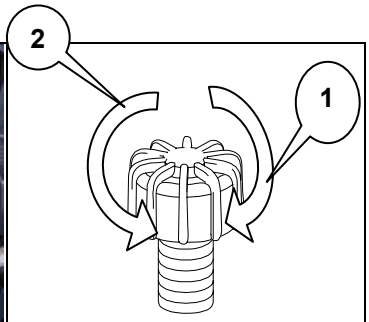


Fig. 9

IMPORTANT! Make sure that the operating pressure never exceeds the pressure indicated on the pump's plate.

10. MACHINE SHELTER

Once finished working after having discharged the remaining pressure in the hose and after having inserted the safety catch on the gun picture **4** pos. **1** and **2**, wind-up the electrical hose and the high pressure hose in order not to damage them. Place the high pressure cleaner in a sheltered away from the possibility of non authorized people to use it.

11. STANDARD EQUIPMENT

We suggest to check the cleaner when it is delivered. It must be complete in all the parts and be supplied with: a **thermal lance**, a **10 m high pressure hose** and a **nozzle** suitable for the model you have purchased.

12. OPTIONALS

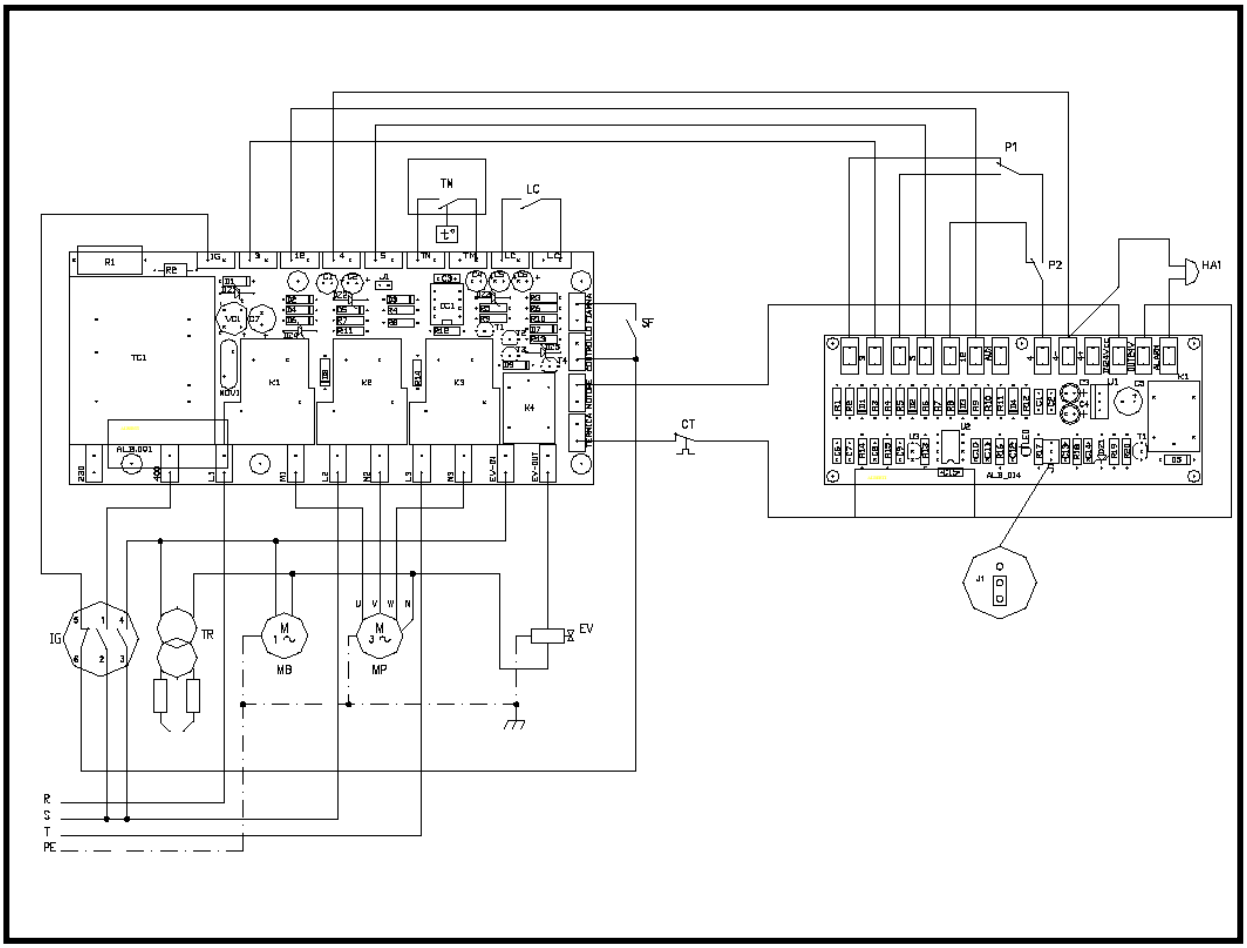
ANNOVI REVERBERI supplies a **rotary jet nozzle** on request which allows to remove the hardest dirt from any surfaces you want to clean and wash.

13. DETERGENTS

It is advisable to use detergents with liquid base and **not with dusts**. Use biodegradabile detergents, observating the relative regulations in force.

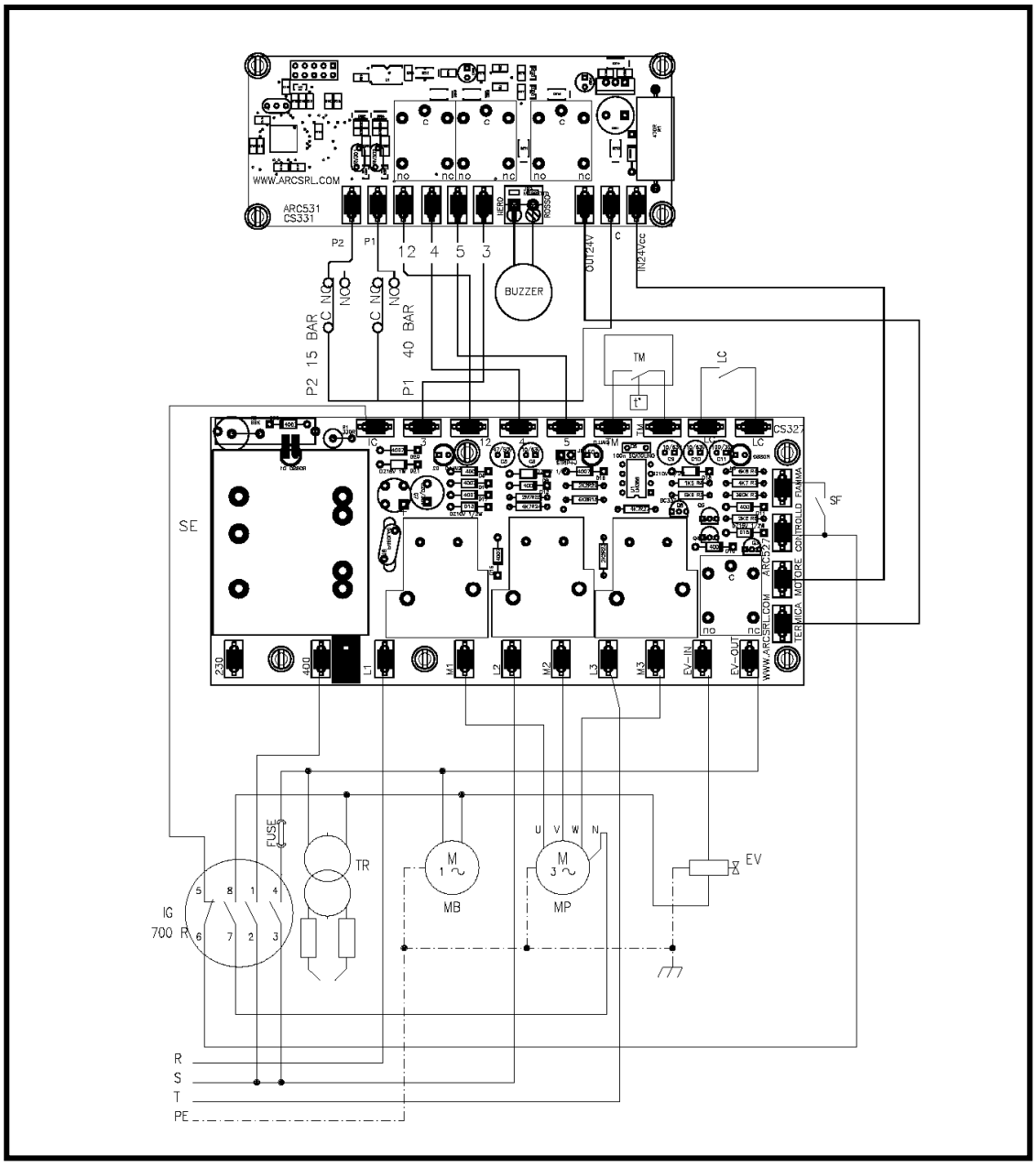
14. ELECTRIC WIRING DIAGRAM

4 MODE PRINT BOARD ALB001 WITH MICROLEAKAGES PRINT BOARD ALB014



IG	GENERAL ON-OFF SWITCH	P2	PRESSURE SWITCH 15 BAR
CT	THERMAL PROTECTOR	P1	PRESSURE SWITCH 40 BAR
LC	FUEL LEVEL SENSOR	SF	FLAME SENSOR (if provided)
TR	BURNER TRASFORMER	EV	FUEL ELECTROVALVE
TM	THERMOSTAT	MP	PUMP MOTOR
SE	ELECTRONIC PRINT BOARD	MB	BURNER MOTOR
HA1	MICROLEAKAGES ACUSTIC ALARM		

4 MODE PRINT BOARD ALB527 WITH MICROLEAKAGES PRINT BOARD ALB531



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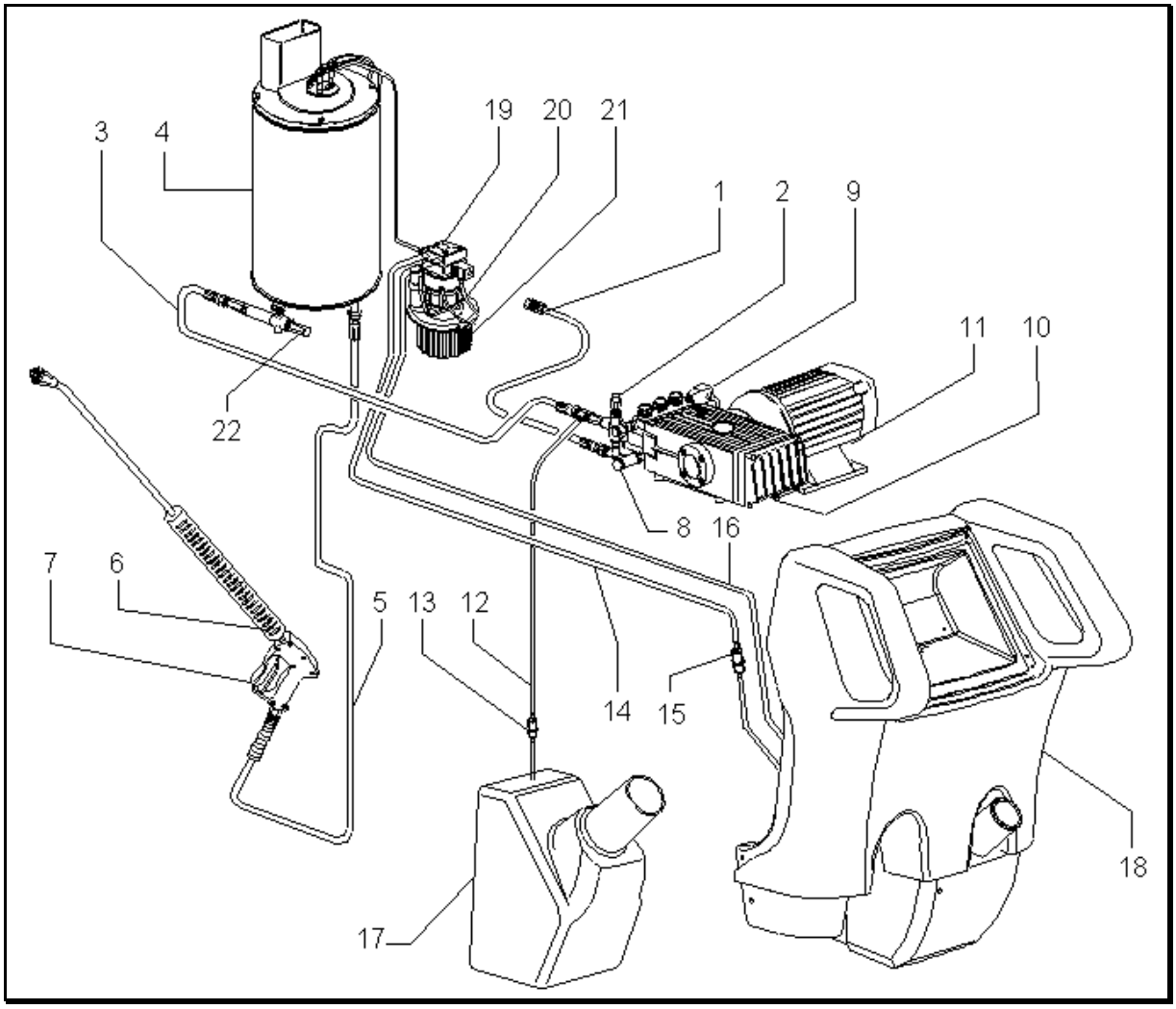
CT	THERMAL PROTECTOR	P1	PRESSURE SWITCH 40 BAR
LC	FUEL LEVEL SENSOR	SF	FLAME SENSOR (if provided)
TR	BURNER TRASFORMER	EV	FUEL ELECTROVALVE
TM	THERMOSTAT	MP	PUMP MOTOR
SE	ELECTRONIC PRINT BOARD	MB	BURNER MOTOR
BUZZER	MICROLEAKAGES ACUSTIC ALARM		

15. HYDRAULIC SYSTEM



SYSTEM DESCRIPTION	
1 – Water intake pipe	12 – Detergent ejector
2 – Udjustable pressure valve	13 – Detergent filter
3 – Intake pipe to boiler	14 – Fuel intake pipe
4 – Boiler	15 – Fuel filter
5 – High pressure hose	16 – Fuel outlet pipe
6 – Lance	17 – Detergent tank
7 – Gun	18 – Fuel tank
8 – By-pass valve	19 – Fuel pump
9 – Pressure switch	20 – Motor-fan
10 – Pump	21 – Fan
11 – Electric motor	22 – Safety valve

16. LABELS



1 – Lance delivery	5 – Warning! Do not direct the high pressure jet towards people, animals or objects
2 – Water feeeding	6 – Warning! Gases at high temperature - outlet
3 – Detergent tank	7 – Type of machine
4 – Fuel tank	8 –TOTAL-STOP / BY-PASS model

WARNING!
Make sure that the stickers/labels are present on the machine and that they are readable; if they are missing or erased, please attach or replace them. Ask for them from the licensed dealers.

17. MAINTENANCE

WARNING !

- All the fixing and maintenance operations must be carried out by authorized personnel.
- All maintenance operations must be carried out keeping the machine on an even floor. The machine must be disconnected from the main power and from the water supply.
- A correct use and maintenance are necessary to guarantee the machine's reliability and it's best performances.
- In order to ensure regular and constant performances it is recommended to use original spare parts only.
- The machine you have bought has undergone a factory test which ensures correct running at standard conditions.
- Beware! In case the cleaner has been kept inoperative for a long time, run some water through the coil until it comes out before using it again. Besides preliminary controls, the cleaner needs constant checks that are to be carried out according to following time schedules:

Daily

Check the oil level of the pump, after having removed the cover. Unscrew the cap fig. **10** pos. **A**, check the level which should be between the max and the min., fig. **10** pos. **B** and if necessary add some**.** After having checked the level place back the cap and the cover. It is recommended to use oil type SAE 15W/40. The first oil top up should be carried out after one week work.

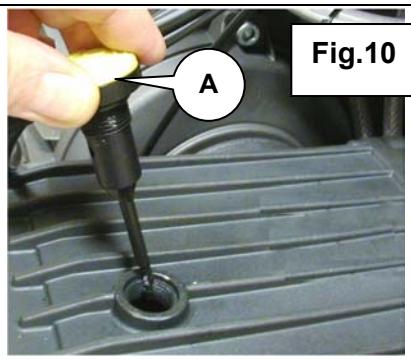
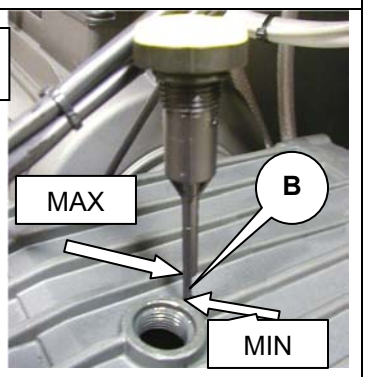


Fig.10



Check the working condition of the feeding hose and the extension cable.

EVERY 2 WEEKS AND AFTER 50 HOURS WORKING SHIFT

Clean the water filter placed in the water inlet (fig. 5, pos. E).

Replacing the fuel filter.
Remove the cover from the machine (check the filter cleaning). If dirty, replace it with a new filter.

Fig.11



Every month or after 100 hours of work

Clean the combustion head and check the electrodes. Remove the cover, unscrew the three screws fig. **12** pos. **A,** extract the combustion head group pos. **B**.

Clean with an air jet the head and check the glow plug pos. **C.** The distance between the electrodes must be of 3 mm. If the distance must be adjusted, unscrew glow plug screw pos. **E**, remove the glow plug, adjust the distance to acheive the 3 mm distance. Reassemble the glow plug while checking it is fixed correctly. Place the combustion back in place using the three screws pos. **A**.
This maintenance operation must be carried our by skilled personnel.

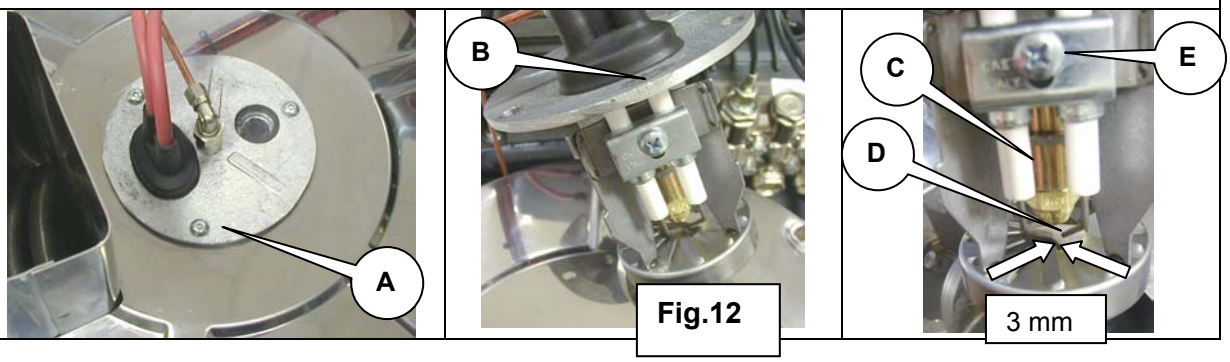


Fig.12

EVERY MONTH O AFTER 200 HOURS OF WORK
Carry out the first topping up of the pump oil.

Clean the combustion pump filter.
Remove the cover.
Near the pump picture **13** pos. **A** on the side of the filter symbol, extract the plastic filter using a 4 mm socked head screw. Clean the filter with a light air jet an place it place back. If necessary replace it.

This maintenance operation must be carried our by skilled personnel.

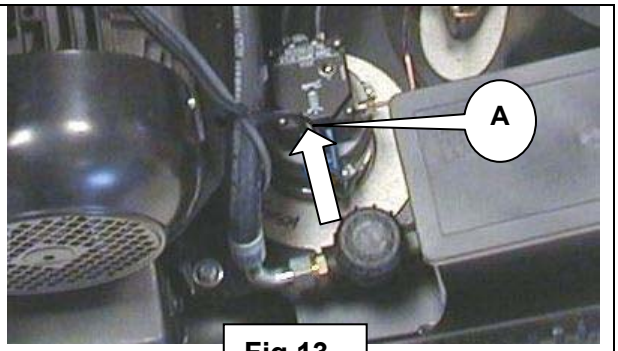


Fig.13

18. COOLING COIL INTERNAL CLEANING

Contact an Authorized Service Centre.

19. MACHINE DEMOLITION

If you want to junk your machine, please comply to the laws in force in your Country. The machine is manufactured with parts containing recyclable metals and plastics.

The oil found inside the pump is highly dangerous and pollutant and **must not** be wasted in the environment or poured into civic drains. **For further informations, please contact your local commitee for exhaust oil drainage.**

20. WARRANTY

For as much as the machine's warranty is concerned apply to **WARRANTY CONDITIONS** and **WARRANTY CERTIFICATE** given with the machine.

21. DRAWBACKS, CAUSES AND SOLUTIONS

PROBLEM	POSSIBLE CAUSES	SOLUTION
WATER DOES NOT COME OUT	Dirty water filter Blocked infeed valves Clogged lance nozzle	Clean or replace Check Clean

INSUFFICIENT OR IRREGULAR PRESSURE	The detergent valve is open and takes in air Insufficient water supply The pump intakes air Worn out valve Worn out/not suitable nozzle Worn out gaskets Exceeding water temperature Encrusted coil	Check Check the capacity Check Replace Replace Replace Check Scale
THE BURNER DOES NOT TURN ON	Excessive air intake Dirty fuel filter Dirty fuel pump filter Dirty burner nozzle Faulty thermostat Broken/blocked electrovalve Insufficient electrodes spark Defected flowmeter and/or pressure switch Worn out motor pump joint Absent/insufficient voltage	Check Replace Clean or replace Replace Replace Replace Replace Replace Replace Check
NOISY MACHINE	Air intake Worn out/dirty/blocked valves	Check the intake pumps
WATER PRESENCE IN THE OIL	Worn out water/oil rings High percentage of humidity in the air	Replace Check
OIL LEAKAGE FROM THE HEAD	Worn out O-rings of the seal system	Replace
MOTOR DOES NOT START WHEN PRESSING THE SWITCH	The plug is not working due to overheating	Check the plug, the cable and the ON/OFF switch
SUDDEN MOTOR STOP	The thermal protection is not working due to overheating	Make sure that the tension is suitable

22. DECLARATION OF CONFORMITY

CE

DECLARATION OF CONFORMITY

Declares taking full responsability that
the product is in accordance with the following regulations
and relative documents

**EN 60335-1 - EN 60335-2-79; EN 55014-1; EN 55014-2;
EN 61000-3-2; EN 61000-3-3; EN 61000-3-11; EN 60704-1**

on the basis of the directives prescriptions

2006/42/CE

2006/95/CE, 2002/95/CE, 2002/96/CE, 2004/108CE, 2000/14/CE

Date: 29/12/2009
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Stefano REVERBERI
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