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Tempest PPB480/160 Bowser Pressure Washer



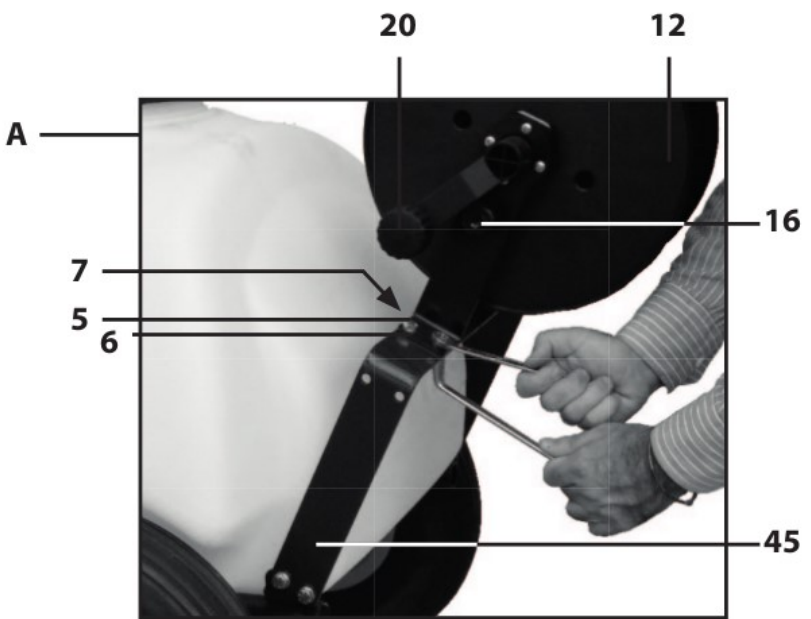
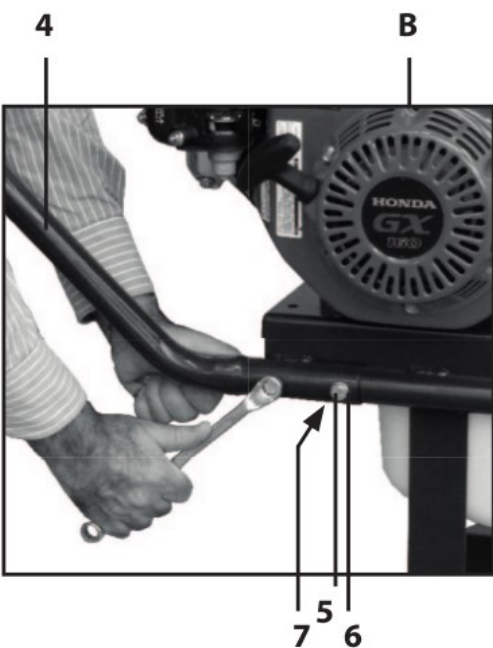
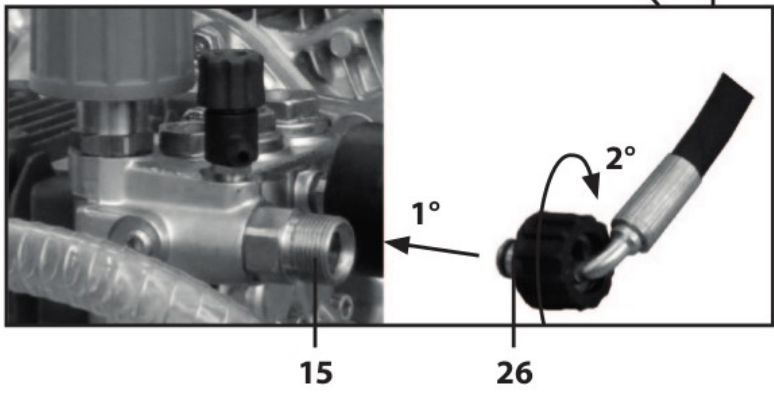
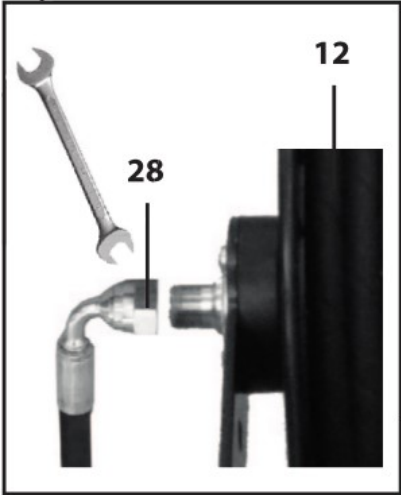
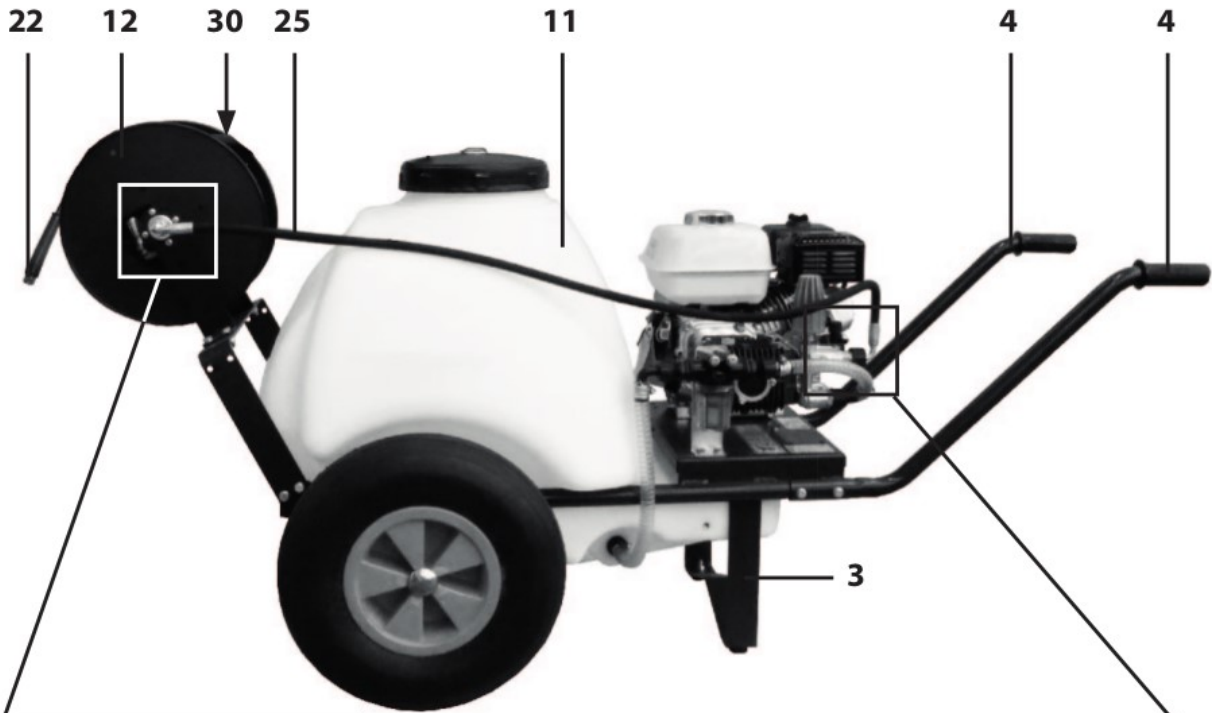
EN • Wheeled engine cold water high pressure jet cleaners

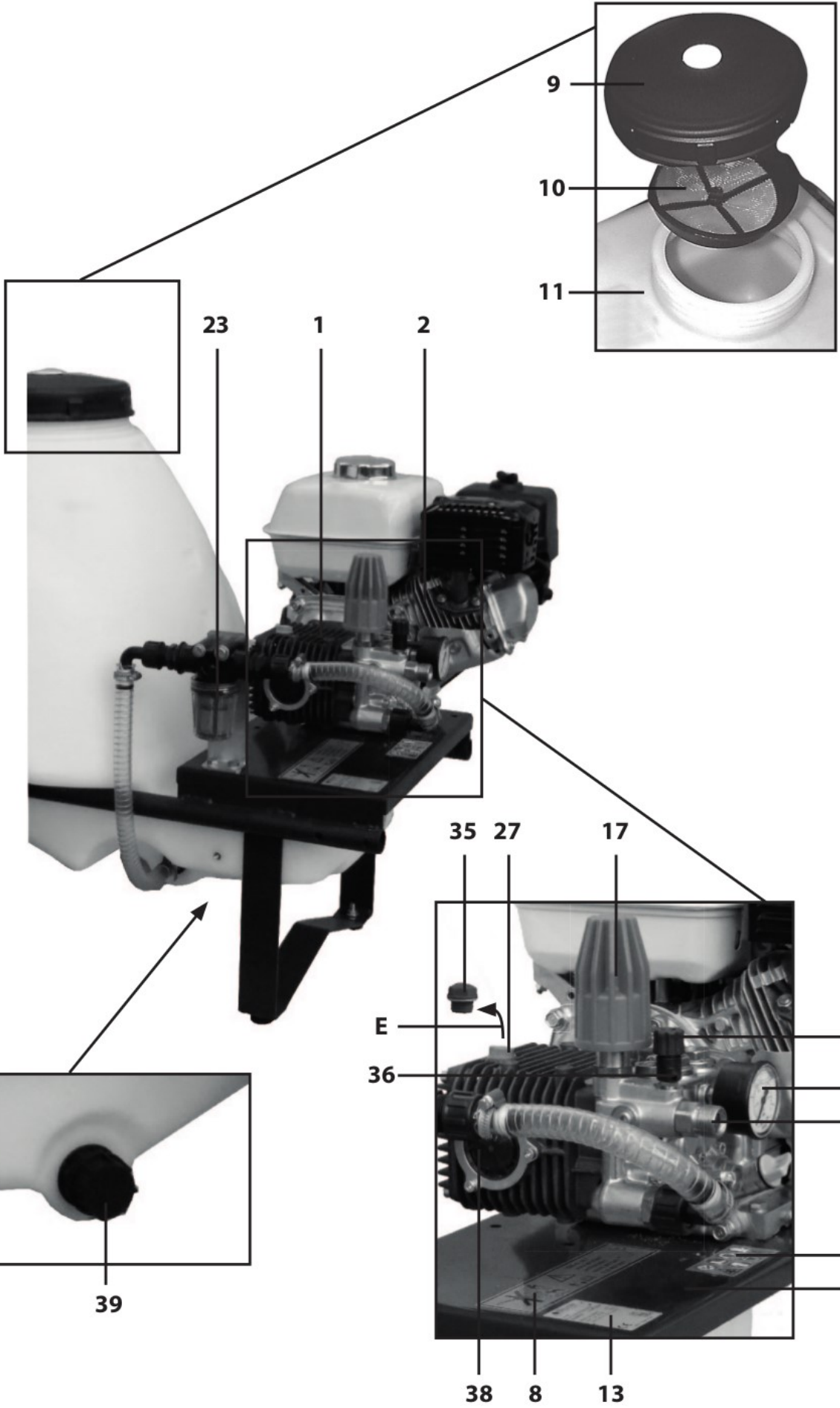
Instruction manual - Use and Maintenance

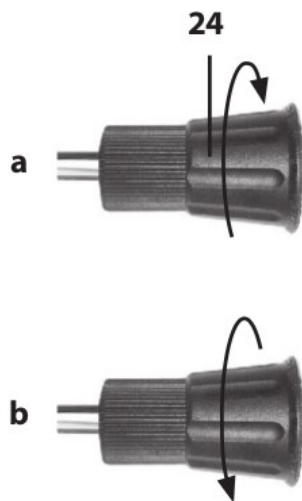
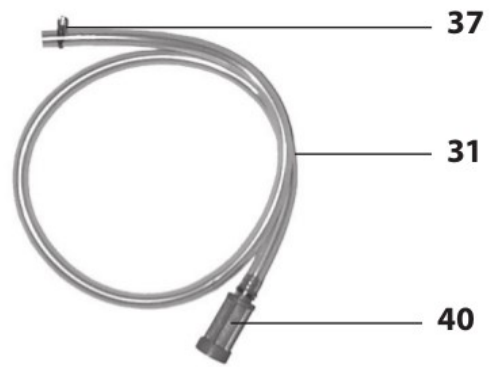


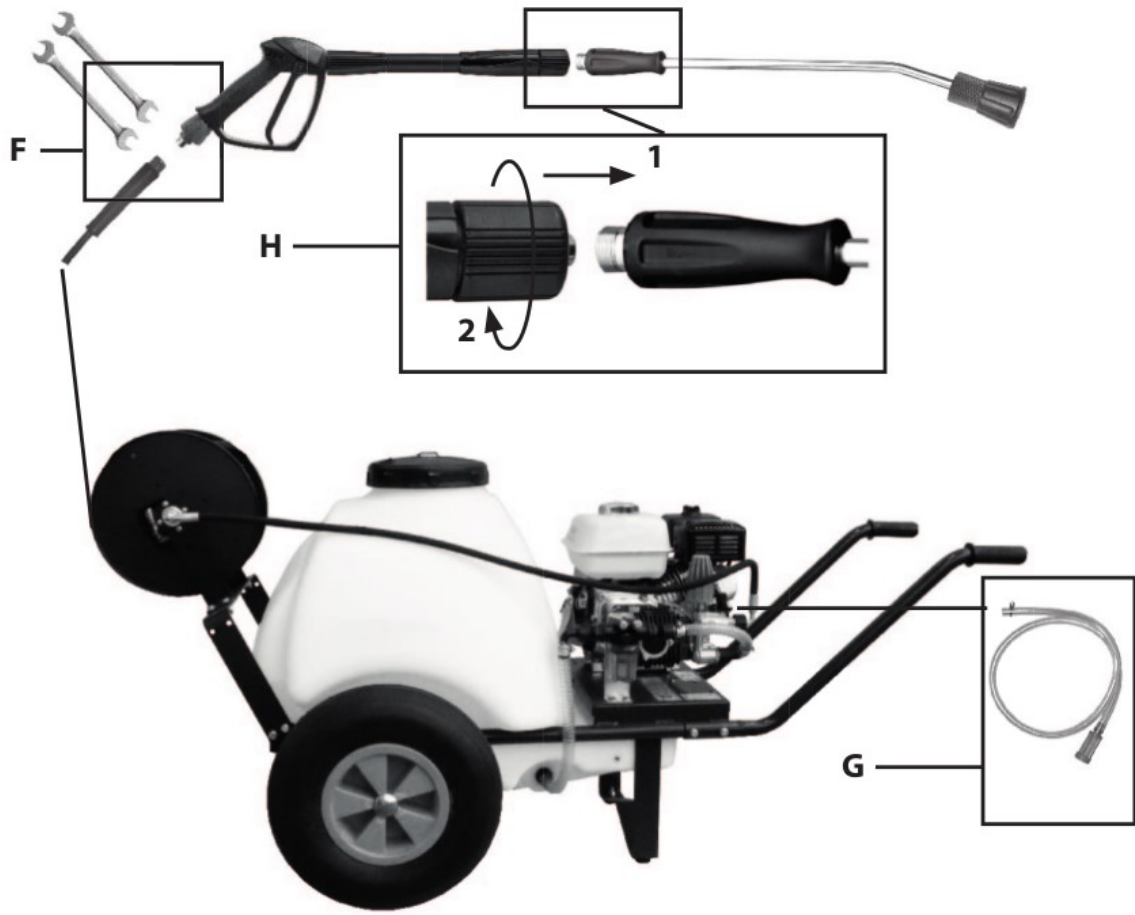
EN • WARNING. Read the instructions before using the machine

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SPECIFICATIONS AND TECHNICAL DATA

These high pressure jet cleaners consist of: a supporting steel tubular frame fitted on two wheels, a polyethylene tank, a high pressure hose reel, a high pressure lance and a motor-pump complete with combustion motor and high pressure pump.

They can be used wherever a power socket and water supply point are not available.

CAUTION

- For the engine to reach its maximum power it needs at least 10 hours running-in at a load 15 to 20% lower than the machine's maximum performance.
- The engine's maximum power diminishes as the altitude and ambient temperature at which it is working increases (there is a drop of about: 3.5% every 305 m/1000 ft above sea level and 1% every 5.6°C/42°F above 16°C/61°F). If the high pressure water cleaner is used at a high altitude or with high ambient temperature please refer to the engine's operating and maintenance manual to see if any precautions need to be taken.
- The declared performance refers to an atmospheric pressure of 1013 hPa at sea level and an ambient temperature of 16°C/61°F.
- The specifications and technical data are approximate. The manufacturer reserves the right to make all changes to the machine it deems appropriate.

MOTORISATION		
Fuel		Petrol
Power	(kW - HP)	4,1 - 5,5
Nominal rotation speed - maximum	(RPM)	3400 - 3600
HYDRAULIC CIRCUIT		
Maximum supply water temperature	(°C - °F)	60 - 140
Minimum supply water temperature	(°C - °F)	5 - 41
Minimum supply water flow rate	(l/min - USgpm)	55 - 14,5
Maximum supply water pressure	(bar - psi)	8 - 116
Maximum priming depth	(m - ft)	0,5 - 1,7
PERFORMANCE		
Maximum flow rate	(l/min - USgpm)	8 - 2,1
Nominal flow rate	(l/min - USgpm)	7,5 - 2,0
Maximum pressure	(bar - psi)	160 - 2320
Nominal pressure	(bar - psi)	150 - 2175
Maximum reaction force on the spray gun	(N)	20
Sound pressure level - Uncertainty	(dB(A))	92,8 - 0,7 ⁽¹⁾
Sound power level	(dB(A))	106,8 ⁽¹⁾
Operator hand-arm vibration - Uncertainty	(m/s ²)	1,1 - 0,24 ⁽¹⁾
PUMP OIL		AGIP ROTRA MULTI TH1 ⁽²⁾
TANK CAPACITY		120 - 31,7
WEIGHT AND DIMENSIONS		
Length x width x height (mm - in)	(mm - in)	1200x800x1100 - 47,2x31,5x43,3
Weight	(kg - lb)	70 - 154,3

⁽¹⁾ Measurements in agreement with EN 60335-2-79.

⁽²⁾ Also see the corresponding oils table.

AGIP ROTRA MULTI THT corresponding oils:

U.T.T.O. (Universal Tractor Transmission Oil)	API GL-4	John Deere J20A
Massey-Ferguson M-1135	Ford M2C - 86 B	Esso Torque Fluid 62
Mobil Mobilfluid 422	Ford M2C - 134 B/C	Shell Donax TD

WARNING

- As far as engine lubricants are concerned, refer to the relative operating and maintenance manuals.

IDENTIFICATION OF COMPONENTS

EN

Refer to figures 1 to 3.

1 Pump	24 nozzle holder head
2 Petrol/gasoline engines	25 High pressure connection hose
3 Frame	26 High pressure connection hose quick coupling
4 Handle	27 Oil plug with vent
5 Securing screws	28 High pressure connection hose fitting
6 Securing washers	29 Nozzle cleaning needle
7 Securing nuts	30 High pressure hose
8 Warning plate	31 Detergent suction hose
9 Cover	32 Spray gun lever safety stop
10 Filling filter	33 Spray gun lever
11 Tank	34 High pressure hose quickfit coupling
12 Hose reel	35 Oil plug without vent
13 ID plate	36 Detergent suction fitting
14 Base	37 Detergent suction hose clamp
15 Water outlet fitting	38 Pump oil level indicator
16 Hose reel lock knob	39 Tank emptying cap
17 Pressure regulating knob	40 Detergent suction filter
18 Pressure indicator	41 water inlet filter cartridge
19 Spray gun	42 Detergent suction adjustment knob
20 Hose reel crank handle	43 water inlet filter cup
21 lance hose	44 Water inlet filter body
22 High pressure hose fitting	45 Hose reel support
23 water inlet filter	

SAFETY DEVICES

• Pressure unloader/regulation valve

Valve, suitably calibrated by the Manufacturer, for regulating work pressure by means of a knob (17) and that allows the pumped fluid to return to pump suction thus preventing the onset of dangerous pressures when closing the spray gun or when trying to set a pressure that is above the maximum permitted values.

• Spray gun lever lock device.

Safety stop (32) for locking the spray gun (19) lever (33) in the closed position so it cannot be started accidentally (Fig. 3, position S).

STANDARD FITTING

Make sure the following are inside the pack of the product you have purchased:

- wheeled high pressure jet cleaner;
- hose reel;
- handles;

- bolts and screws;
- high pressure connection hose;
- spray gun;
- lance hose;
- bag of accessories with:
 - instruction manual – safety precautions;
 - this instruction - use and maintenance manual;
 - the engine operating and maintenance manual;
 - the declaration of conformity;
 - the booklet giving the assistance centres;
 - the warranty certificate;
 - detergent suction hose kit including filter and clamp;
 - nozzle cleaning needle;
 - oil plug with vent.

In case of any problems please contact your Dealer or a **SPECIALIZED TECHNICIAN**.

OPTIONAL ACCESSORIES

You can add the following range of accessories to the standard ones supplied with your high pressure cleaner:

- sandblasting lance: designed to smooth surfaces, removing rust, paint, encrustations, etc.;
- drain cleaning kit: designed to unclog pipes and ducts;
- different types of lances and nozzles;
- rotating brush: designed for cleaning fragile surfaces;
- rotating nozzle: designed for removing stubborn dirt;
- foam lance: designed for a more efficient distribution of the detergent;

INSTALLATION - ASSEMBLING THE ACCESSORIES AND FILLING THE ENGINE CRANKCASE WITH OIL

- Replace the pump oil plug without vent (35) with the oil plug with vent (27) provided. **OPERATION E** in Fig. 2.
- Fasten the hose reel (12) to the hose reel support (45) using the kit provided: screws (5), washers (6) and nuts (7) (using two 13 mm/0.5 in fixed spanners not provided). **OPERATION A** in Fig. 1.
- Fasten the handles (4) to the frame (3) using the kit provided: screws (5), washers (6) and nuts (7) (using two 13 mm/0.5 in fixed spanners not provided). **OPERATION B** in Fig. 1.
- Connect the high pressure hose (25) to the hose reel (12) using a 22 mm/0.9 in fixed spanner (not provided). **OPERATION C** in Fig. 1.
- Connect the quick coupling (26) of the high pressure hose (25) to the water outlet fitting (15). **OPERATION D** in Fig. 1.
- Tighten the fitting (22) of the high pressure hose (30) to the thread of spray gun (19) and tighten well using two 22 mm/0.9 in fixed spanners (not provided). **OPERATION F** in Fig. 4.
- Clamp (37) the free end of the detergent suction hose (31) to the detergent suction fitting (36). **OPERATION G** in Fig. 4.
- Fill the engine crankcase with oil, following the instructions given in the relevant operating and maintenance manual.

OPERATION – PRELIMINARY ACTIVITIES

- Do the preliminary activities described in the operating and maintenance manual of the engine mounted on the high pressure cleaner. In particular remember to fill with fuel and check the level of engine oil.
- When the engine is off and the machine is completely cold, check the level of pump oil by way of the level indicator (38).

When topping up is needed please refer to the lubricant types given in the “**SPECIFICATIONS AND TECHNICAL DATA**” paragraph.

- Check that the inlet water filter (23) and the detergent suction filter (40) are clean (please refer to the “**ROUTINE MAINTENANCE**” paragraph).
- Turn the cover (9) anticlockwise and check that the opening in its centre is not clogged.
- Check that the fill-up filter (10) and the inside of the tank (11) are clean.
- Fill the tank with clean water without adding detergent. Be careful this does not overflow.

WARNING

- *Only put water in the tank using free falling water pipes or indirectly (jugs, cans, etc.). If a pipe is used to fill up it must never touch the liquid that is in the tank. Do not connect directly to the drinking water mains.*
- Reclose, turning the cover (9) clockwise without forcing.
- Move the high pressure jet cleaner to operating position using the handles (4).
- Release the hose reel turning the knob (16) and fully unwind the high pressure hose (30); lock the hose reel back in position, always using the knob (16).
- Start the engine, referring to the relevant operating and maintenance manual.
- Press the spray gun lever (33) and wait for a continuous jet of water to come through which means the pump is priming correctly.
- Stop the engine, referring to the relevant operating and maintenance manual.
- Press the spray gun lever (33) to discharge all residual pressure.
- Connect the lance hose (21) to the spray gun (19). **OPERATION H** in Fig. 4.

STANDARD OPERATION (HIGH PRESSURE)

- Ensure that the nozzle holder head (24) is not in the detergent dispensing position (see also the “**OPERATION WITH DETERGENT**” paragraph).
- Start the engine, referring to the relevant operating and maintenance manual.
- Press the spray gun lever (33) checking that the nozzle spray is uniform and there are no drips.
- If necessary regulate the pressure by way of the pressure regulating knob (17). Turn it clockwise to increase pressure, anticlockwise to reduce it. You can see the pressure on the pressure indicator (18).

CAUTION

- Before expecting maximum performance of the high pressure cleaner it is good practice to warm the engine up for a couple of minutes.

OPERATION WITH DETERGENT

The recommended detergents are more than 90% biodegradable. On how to use the detergent please refer to the instructions given on the detergent label.

- Put the hose (31) in the external tank which has already been prepared with detergent to the strength required: follow the indications given for the dosage on the detergent pack label.
- Turn the nozzle holder head (24) as schematized in Fig. 3-a and then operate the spray gun lever (33) and start dispensing detergent. The suctioned quantity can be adjusted by means of the knob (42): turn it clockwise to reduce the quantity of suctioned detergent; anticlockwise to increase it.
- Release the lever (33) and turn the nozzle holder head (24) as schematized in Fig. 3-b to stop dispensing detergent and return to high pressure operation.

STOPPING OPERATION

- When the spray gun lever (33) is released it stops the high pressure jet and the machine goes to the bypass mode.
- Pressing the spray gun lever (33) again the high pressure jet starts again.

WARNING

- If you have to interrupt the high pressure jet and put the spray gun down, without stopping the machine, you have to insert the safety stop (32). **OPERATIONS** in Fig. 3.

CAUTION

- Do not leave the high pressure cleaner for more than three minutes in bypass (spray gun closed).

STOP

- Empty the tank by unscrewing the cap (39).
- Drain the water from the high pressure cleaner, working it for a few seconds with the spray gun lever (33) pressed.
- Carry out the stop operations, explained in the engine operating and maintenance manual and disconnect the spark plug contact.
- Discharge any residual pressure from the high pressure hose (30), keeping the spray gun lever (33) pressed for a few seconds.
- Wait for the high pressure cleaner to cool down.

DECOMMISSIONING

- Clean and rinse the inside of the tank.
- Screw the emptying cap (39) back on and tighten well.
- Release the hose reel by means of the knob (16) and carefully rewind the high pressure hose (30), without bending it. Lock the hose reel again, always by means of the knob (16).
- Follow the instructions for decommissioning as given in the engine operating and maintenance manual.
- The high pressure cleaner must be kept in a dry, clean place.

NOTE: after a prolonged period of non-use you could find a few drops of water under the pump. This dripping normally disappears after a few hours of use. If it does persist however, contact a **SPECIALIZED TECHNICIAN**.

ROUTINE MAINTENANCE

Do the operations described in the “**STOP**” paragraph and follow the instructions given in the following table.

Also remember to carry out the routine maintenance jobs given in the engine operating and maintenance manual, especially as regards to checking engine oil, the air filter and the spark plug.

MAINTENANCE SCHEDULE	JOB
Every time it is used	<ul style="list-style-type: none">• Checking the high pressure hoses, fittings, spray gun and lance hose. If one or more parts are found to be damaged do not, under any circumstances, use the high pressure cleaner and contact a SPECIALIZED TECHNICIAN.• Check pump oil level.• Remove all dirt and debris from the cooling fins on the engine, from the air inlet grids, from the mechanisms and rev regulator springs (refer to the engine operating and maintenance manual).
Weekly	<ul style="list-style-type: none">• Clean the water inlet filter (23).• Turn the cup (43) anticlockwise until it is completely unscrewed; take out the filter cartridge (41) and clean under a jet of flowing water, or by blowing on it with compressed air. In case of any hard to remove dirt, use an anti-scale product or replace the cartridge. This spare part must be obtained from a SPECIALIZED TECHNICIAN. Reposition the cartridge and close the filter by fully turning the cup (43) clockwise.

(continues on the next page)

MAINTENANCE SCHEDULE	JOB
Monthly	<ul style="list-style-type: none"> • Cleaning the filling filter (10). Turn the cover (9) anticlockwise and remove it. Take out the filter and clean it; in case of any hard to remove dirt, replace the filter (16x20 mesh). This spare part must be obtained from a SPECIALIZED TECHNICIAN. Reposition the filter and close again by turning the cover (9) clockwise without forcing it. • Clean the detergent suction filter (40). It is normally enough to put the filter under running water or blow it with compressed air to clean it. In the most difficult cases, use a scale remover or replace it. This spare part must be obtained from a SPECIALIZED TECHNICIAN. • Clean the nozzle. It is normally enough to put the needle (29) supplied through the hole of the nozzle to clean it. If results are not up to par, replace the nozzle. This spare part must be obtained from a SPECIALIZED TECHNICIAN. The professional fixed fan nozzle can be replaced using a 14 mm/0.6 in tube wrench (not provided). This spare part must be obtained from a SPECIALIZED TECHNICIAN. • Oil or grease the rotating or sliding parts the operator is able to reach (refer also to the engine operating and maintenance manual). • Check soundness of the water inlet and outlet circuits. • Check tyre integrity. • Check clamping of the pump to the engine and the engine to the frame. If clamping is found to be insecure do not, under any circumstances, use the high pressure cleaner and contact a SPECIALIZED TECHNICIAN.

CAUTION

- When working, the high pressure cleaner should not be too noisy and there should be no obvious drips of water or oil underneath it. If this is the case have the machine checked by a **SPECIALIZED TECHNICIAN**.

SPECIAL MAINTENANCE

Special maintenance must only be done by a **SPECIALIZED TECHNICIAN**, complying with the following table.

Also remember to carry out the special maintenance jobs listed in the engine operating and maintenance manual.

MAINTENANCE SCHEDULE	JOB
After the first 50 hours of operation	<ul style="list-style-type: none"> • Change pump oil.
Every 200 hours	<ul style="list-style-type: none"> • Check the pump's hydraulic circuit. • Check pump and engine clamping.
Every 500 hours	<ul style="list-style-type: none"> • Change pump oil. • Check the pump suction/delivery valves. • Check tightness of pump screws. • Check the pump regulation valve. • Check the safety devices.

CAUTION

- The data given in the table are approximate. It might be necessary to carry out maintenance more frequently in the case of particularly heavy work.

TROUBLESHOOTING

PROBLEMS	CAUSES	REMEDIES
The engine does not start or there is a malfunction with it or it stops while working.	Refer to the engine operating and maintenance manual.	Refer to the engine operating and maintenance manual after having made sure there is fuel in the tank.
The high pressure cleaner is vibrating a lot and is noisy.	The water inlet filter (23) is dirty.	Follow the instructions given in the " ROUTINE MAINTENANCE " paragraph.
	Air suction.	Check soundness of the suction circuit.
	Tank nearly empty.	Fill tank.
The high pressure cleaner fails to reach maximum pressure.	The regulation valve is set for a pressure lower than the maximum one.	Turn the pressure regulating knob (17) clockwise.
	The nozzle holder head (24) is in the low pressure position (Fig. 3 - Position a).	Proceed as explained in Fig. 3 - Position b.
	The water inlet filter (23) is dirty.	Follow the instructions given in the " ROUTINE MAINTENANCE " paragraph.
	The nozzle is worn.	Replace the nozzle as explained in the " ROUTINE MAINTENANCE " paragraph.
	Tank nearly empty.	Fill tank.
Poor detergent suction	The nozzle holder head (24) is not in the low pressure position (Fig. 3 - Position b).	Proceed as explained in Fig. 3 - Position a.
	The detergent suction adjustment knob (42) is not correctly set.	Proceed as explained in the " OPERATION WITH DETERGENT " paragraph.
	Detergent suction filter (40) clogged.	Follow the instructions given in the " ROUTINE MAINTENANCE " paragraph.
	The detergent being used is too viscous.	Use a detergent recommended by the manufacturer and follow the diluting instructions on the label.
No water coming through the nozzle.	Empty tank.	Fill tank.
	Water nozzle clogged.	Clean and/or replace the nozzle as explained in the " ROUTINE MAINTENANCE " paragraph.