

Clemas & Co Ltd

**Industrial Cleaning Equipment
Sales – Hire - Service**

PF190-22CA Pressure Washer Operator Manual



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English

Congratulations! We wish to thank you

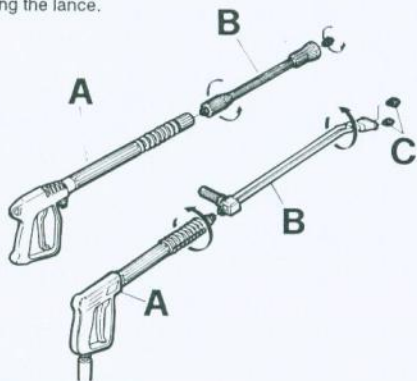
for buying this cleaner. You have shown that you do not accept compromises: *you want the best*. We have prepared this manual to enable to fully appreciate the qualities and high performance that this cleaner can offer you. Please read it completely before using the machine. The CE mark on your cleaner shows that it has been constructed in compliance with the European Standards on safety.

We can also offer you a wide range of cleaning machines such as: **VACUUM CLEANERS, FLOOR CLEANERS, FLOOR SWEEPERS** and a complete range of **ACCESSORIES, CHEMICALS** and **DETERGENTS** suitable for cleaning all kinds of surfaces. Ask your Dealer for the complete catalogue of our products.

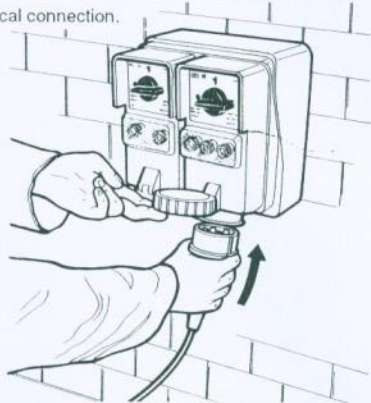
The text has been carefully checked, however any misprints should be notified to the manufacturer. The manufacturer also reserves the right to alter and update this publication without prior notice for the sake of product improvement. All reproductions of this manual, in whole or in part, are forbidden without the manufacturer's authorization.

PREPARING THE CLEANER

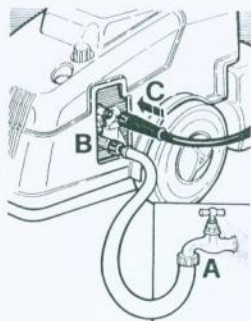
Fitting the lance.



Electrical connection.



Water circuit connection.



Continue reading this manual without connecting the cleaner to the power mains and the water supply.

DESCRIPTION OF SYMBOLS ON THE CLEANER



DO NOT DIRECT THE JET AGAINST PEOPLE, ANIMALS, POWER SOCKETS OR THE MACHINE ITSELF.



SWITCHING OF THE PUMP MOTOR



ATTENTION: RISK OF ELECTRIC SHOCK



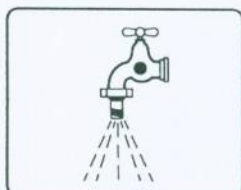
FUEL (PETROL)



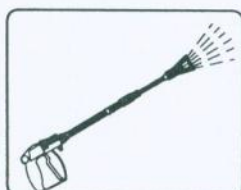
EARTH



CHEMICALS (DETERGENT)



WATER INPUT



WATER OUTPUT

The most important instructions are marked with the symbol:



INTRODUCTION

⚠ This manual must be read before installing, setting up and using the cleaner. The manual is an integral part of the product. It is composed of two parts, one of which is yellow. Read the warnings and instructions in this manual carefully as they provide important indications as to **SAFETY IN USE and MAINTENANCE**, paying special attention to the general rules for safety listed in the yellow booklet.

KEEP THIS MANUAL CAREFULLY FOR FUTURE CONSULTATION.

⚠ The person using the cleaner must be aware of this manual and its contents.

INTENDED USE

This appliance is intended exclusively for cleaning machines, vehicles, buildings and general surfaces suitable for treatment with a high pressure jet of detergent solution between 25 and 250 bar (360 - 3600 PSI).

This appliance has been designed for use with the detergents supplied or recommended by the manufacturer. The use of other detergents or chemicals may influence the safety of the appliance.

This appliance must be used only for the purpose for which it was specifically designed.

All other uses are to be considered incorrect and therefore unreasonable.

Examples of unreasonable use:

- Washing surfaces not suitable for cleaning with a high pressure jet.
- Washing people, animals, electric equipment or the machine itself.
- Using unsuitable detergents or chemicals.
- Blocking the trigger (lever) of the lance in delivery position.

The manufacturer cannot be held responsible for any damage due to improper, incorrect or unreasonable use. As far as safety rules are concerned, the cleaners are manufactured according to the European Standard EN 60 335-1 (General standard) and EN 600335 2 79 (Specific standard).

PRELIMINARY OPERATIONS

UNPACKING

After unpacking, ensure that the cleaner is undamaged. If in doubt, do not use the machine. Contact your dealer.

The packing material (bags, boxes, nails, etc.) must not be left within the reach of children as they are potential sources of danger.

FITTING THE SEPARATE PARTS OF THE MACHINE

All the fundamental parts and safety devices of the machine are assembled by the manufacturer.

For reasons of packing and transport, some secondary cleaner parts are supplied separately.

The user must fit these parts as explained in the instructions supplied in each assembly kit.

DATA PLATE:


The data plate bearing the main technical characteristics of your cleaner is located on the trolley and is always visible.

⚠ When buying your cleaner, ensure that it has an identification plate. If there is no plate, inform the manufacturer and/or the dealer immediately. Machines without a plate must not be used and the manufacturer declines all responsibility for them. Products without a plate must be considered anonymous and potentially dangerous.

English

FILLING THE FUEL TANK

Fill the tank with fuel for
Petrol motors (fig. 1).

 Only on autonomous
cleaners.

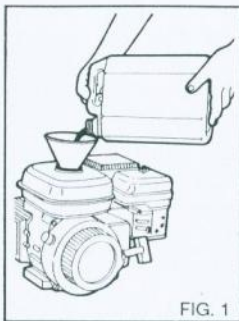



FIG. 1

 Do not use different fuel from that indicated on the
identification plate.

 For use and maintenance of the motor, see the motor
instructions manual, supplied with the cleaner.

FILLING THE DETERGENT TANK

From the range of
recommended products,
choose the one most suited to
the washing job to be done
(fig. 2) and dilute it with water
according to the instructions
on the pack.

Fill the detergent tank with
the diluted product (fig. 3).

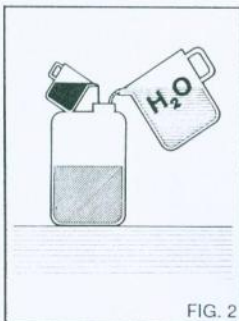


FIG. 2

Ask your dealer for the
catalogue of the detergents
that can be used depending on
the type of washing job to be
done and the type of surface to
be treated.

After using a detergent, the
detergent intake circuit must
be flushed out with clean
water.

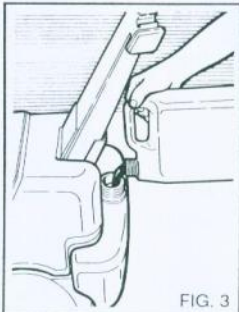


FIG. 3

COMMAND AND CONTROL DEVICES

Before connecting the machine to the water supply and to
power mains, it is essential to know the function of the cleaner
command and control devices.

WATER CIRCUIT CONNECTION

Connect the feed hose to the
mains (fig. 4A) and to the
hose tail on the cleaner (fig.
4B).

Check that the pressure and
quantity of the water supplied
by the mains are sufficient for
the cleaner to work properly: 2
to 8 BAR (29 to 116 PSI).
Maximum temperature of
feeding water 60°C (140°F).

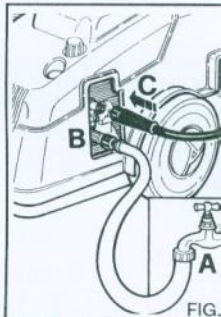


FIG. 4

Connect the high pressure
hose to the cleaner (fig. 4C)
and to the lance (fig. 5).

IMPORTANT.

The cleaner must operate
with clean water. Dirty or
sandy water, corrosive
chemicals and solvents
can cause severe damage
to the cleaner.

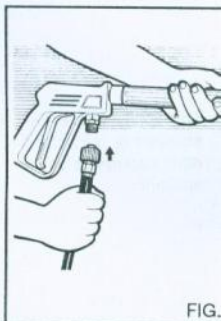


FIG. 5

ELECTRICAL CONNECTION

Connection of the cleaner to the mains must be carried out
skilled technicians able to ensure that all regulations in force are
complied with.

Ensure that the mains voltage available is the same as the
voltage at which the cleaner is supposed to work; this
indicated on the identification plate.

GENERAL WARNINGS ABOUT INSTALLATION AND USE

⚠ The use of any electric appliance requires the respect of some basic rules:

- Do not touch the appliance with wet or damp hands or feet.
- Do not use the appliance bare-footed or with unsuitable clothing.
- Do not pull the supply cable or the appliance itself in order to disconnect the plug from the electric supply.

⚠ The H.P. cleaner must not be used by children, teen-agers or incapable persons (under the influence of alcohol, etc.)

⚠ Use only original accessories that can allow safe working of the appliance.

⚠ The flexible hose connecting the lance to the H.P. cleaner must not be damaged. In case of damage, replace it immediately.

⚠ Hoses, connections and fittings for high pressure systems are very important to guarantee the safety of the H.P. cleaner. Use only original spare parts which have the manufacturer's approval.

⚠ Do not use the H.P. cleaner when persons or animals are in its of action field.

⚠ High pressure jets may be dangerous if not properly used. The jet must never be directed at persons or animals, electric appliances or at the appliance itself.

⚠ The high pressure water jet causes a reaction power on the lance. Hold the lance grip vigorously.



⚠ The use of the H.P. cleaner must be considered according to the kind of washing which must be performed. Protect yourself against the ejection of solid materials or corrosive substances by means of adequate protective clothing

⚠ The use of the H.P. cleaner must be considered according to the place where the washing is performed (for example: food plants, pharmaceutical plants, etc.) Pertinent rules and safety conditions must be followed.

⚠ Do not direct water jets at your own or other people's body in order to clean clothes or shoes.

⚠ While working it is forbidden, to stop the trigger (lever) of the lance in delivery position.

⚠ Before starting any cleaning or maintenance operation, disconnect the machine from the electric and water supply networks.

⚠ Periodically, at least once a year, have the safety devices checked by one of our service centres.

⚠ Do not use the machine if the supply cable is damaged. For the replacement of the damaged cable apply exclusively to one of our technical service centres. The supply cable of this appliance must not be replaced by the user.

⚠ In case of damage or malfunction, switch off the appliance (disconnecting it from the electric and water supply networks) without tampering with it. Apply to one of our technical service centres.

⚠ Failure to observe the above warning frees the manufacturer from all responsibility and constitutes negligent use of the product.

USING THE CLEANER

CONTROL PANEL

- A** - On/off switch
B - Detergent control tap (if available).

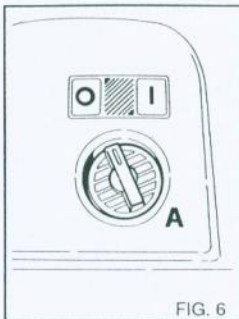


FIG. 6

STARTING THE CLEANER

- 1) Turn on the water supply tap (fig. 3A).
- 2) Turn on the power to the cleaner by switching on the omnipolar switch to which it is connected.
- 3) Start the cleaner by turning the selector switch to pos. 1 (fig. 6A).
- 4) Press the trigger on the gun and begin washing.

IMPORTANT!

To eliminate any impurities or air bubbles from the water circuit we advise starting the cleaner for the first time without the lance and letting the water run out for a few seconds. Impurities could block the nozzle and cause malfunction (Fig. 7).

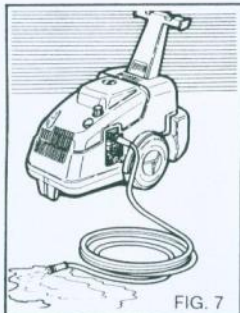


FIG. 7

STOPPING THE CLEANER

- 1) After using with detergent, flush out the intake circuit; place the detergent suction hose (fig. 8) in a tank of clean water and let the pump run for 1 minute with the dosing tap turned fully on and the lance in detergent delivery condition.
- 2) Stop the cleaner by turning the selector switch to pos. "0" (fig. 6A).
- 3) Discharge the pressure from the H.P. hose by pressing the trigger on the gun (fig. 5A).
- 4) Disconnect the power supply to the cleaner by switching off the omnipolar switch to which it is connected.
- 5) Turn off the water supply tap (fig. 3A).

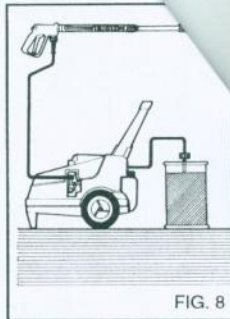


FIG. 8

USING THE MULTIREG ADJUSTABLE NOZZLE (fig. 9)

Pressure must be selected with the gun switched off.

Washing at low pressure

Shift the nozzle towards the gun.

Washing at high pressure

Shift the nozzle outwards.

Washing at high pressure with a concentrated jet of water

Turn the nozzle in a clockwise direction.

Washing at high pressure with a fan-shaped jet of water

Turn the nozzle in an anti-clockwise direction.

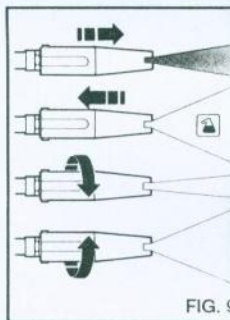


FIG. 9

USE OF THE DOUBLE LANCE OR ADJUSTABLE HEAD (fig. 10)

The double lance or adjustable head allows the operator to select a low or high pressure jet. The pressure is selected with the gun in pos. 1. High pressure: pos. 2. Low pressure and detergent intake: pos. 3.

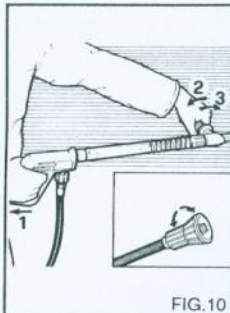


FIG. 10

REGULATING PRESSURE

This chapter concerns only those models provided with the "pressure regulating" device. The pressure regulator, fig. 11, allows the operator to adjust the working pressure. When knob C is turned in an anti-clockwise direction (B), the flow pressure is reduced.

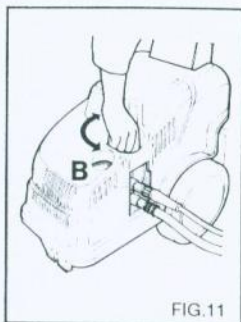


FIG.11

OPERATING PHASES FOR CORRECT CLEANING WITH DETERGENTS

- 1) Prepare the solution of detergent at the concentration most suitable for the type of dirt and the surface that is to be washed.
- 2) Start the cleaner, turn on the detergent tap (if present), switch on the detergent suction control on the lance and spray the dirty surface with the diluted product, working from bottom to top.
Let it react for a few minutes.
- 3) Rinse the whole surface well from top to bottom with hot or cold water at high pressure.
- 4) After using with detergent, flush out the intake circuit; place the detergent suction hose (fig. 8) in a tank of clean water and let the pump run for 1 minute with the dosing tap turned fully on and the lance in detergent delivery condition.

MAINTENANCE

ONLY THE OPERATIONS AUTHORIZED IN THIS INSTRUCTIONS MANUAL MAY BE CARRIED OUT BY THE USER.

ALL OTHER OPERATIONS ARE FORBIDDEN.

⚠ For maintenance of the high pressure pump, the electrical parts and all parts with a safety function, you must apply to our Technical service centre.

⚠ Disconnect the machine from the power and water supply before carrying out any maintenance jobs. Once maintenance has been completed, ensure that the closing panels have been correctly reassembled and anchored with the screws provided before reconnecting the cleaner to the mains.

Failure to do so may cause a risk of electric shock.

ADVICE ON USING DETERGENTS

This cleaner has been designed for use with the detergents supplied or recommended by the manufacturer.

The use of other detergents or chemicals may influence the safety of the cleaner.

- 1) To protect the environment, we recommend a reasonable use of detergents, according to the instructions on the pack.
- 2) From the range of recommended products, choose the one most suited to the washing job to be done and dilute it with water according to the instructions on the pack or in the catalogue of the detergents most suited for the type of hot or cold water cleaner.
- 3) Ask your dealer for the detergents catalogue.

RECAUTIONS AGAINST FROST

The cleaner must not be exposed to frost.

If the cleaner is left in premises where it is exposed to frost, when work is over or for storage, antifreeze must be used to prevent serious damage to the hydraulic circuit.

OPERATIONS FOR USING ANTIFREEZE (fig. 12)

- 1) Turn off the water supply (tap), disconnect the hose and run the cleaner until it is completely empty.
- 2) Disconnect the electric power to the cleaner by switching off the omnipolar switch.
- 3) Prepare a container with the solution of antifreeze.
- 4) Switch on the omnipolar switch and restore power to the cleaner.
- 5) Start the cleaner and let it run until antifreeze comes out through the lance.
- 6) Suck up antifreeze with the detergent intake system too.
- 7) Switch off the cleaner and disconnect the electric power by switching off the omnipolar switch.

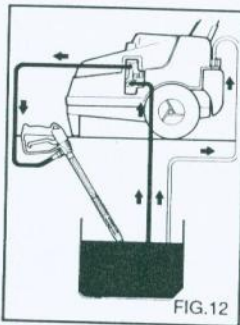


FIG.12

CLEANING THE WATER FILTER

Clean the water intake filter regularly and free it from any impurities (fig. 15).

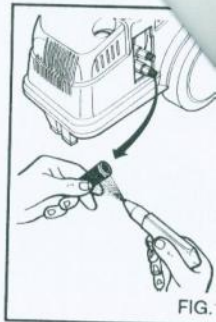


FIG.

⚠ CHANGING THE NOZZLE

The high pressure nozzle fitted on the lance must be changed from time to time, as this component is subject to normal wear during use. Wear may generally be detected by a drop in the working pressure of the cleaner. To replace it, consult your supplier and/or dealer for instructions.

CHECKING PUMP OIL LEVEL AND OIL CHANGE

From time to time check the oil level in the high pressure pump by means of the sight glass (fig. 13A) or the dipstick (fig. 13B).

If the oil has a milky appearance, call the technical service centre immediately.

Change the oil after the first 50 hours' work and subsequently every 500 hours or once a year.

Proceed as follows:

- 1) Unscrew the drain cap situated under the pump (fig. 13 C).
- 2) Unscrew the cap with the dipstick (fig. 13).
- 3) Let all the oil drain off into a container and deliver it to an authorized oil collection and disposal centre.
- 4) Replace the drain screw and pour fresh oil in through the filling cap on top (fig. 14A) until it reaches the level indicated on the sight glass (fig. 14B).

Use only SAE 20 W/30 oil.

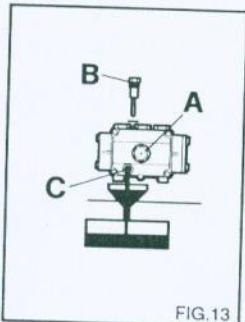


FIG.13

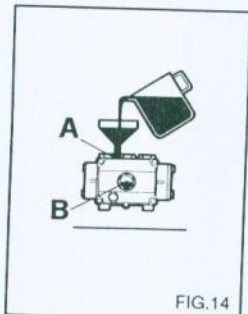


FIG.14

English

TABLE OF ROUTINE MAINTENANCE TO BE PERFORMED BY THE USER

Description of operations:

Check power cable - pipes - high pressure connectors	Each use
1st oil change in H.P. pump	After 50 hours
Subsequent changes in H.P. pump	Every 500 hours
Clean water filter	Every 50 hours

TABLE OF ROUTINE MAINTENANCE TO BE PERFORMED BY THE TECHNICAL SERVICE CENTRE

Description of operations:

Change seals on H.P. pump	Every 500 hours
Change lance nozzle	Every 200 hours
Calibrate and check the safety devices	Once a year

IMPORTANT:

These intervals refer to normal working conditions. For heavy duty use decrease the interval for each job. **For maintenance and/or repairs, use only original spare parts which offer the greatest characteristics of quality and reliability. Failure to use original spare parts frees the manufacturer from all responsibility.**

PERIODS OF INACTIVITY

If the machine is to remain inactive for a long period, disconnect the supply sources, drain the tank(s) of all the operating fluids and protect any parts that could be damaged by the accumulation of dust. Grease the parts that could be damaged by drying out, such as the supply hoses. When bringing back into use, ensure that there are no cracks or cuts in the water supply hoses.

SCRAPPING

If you decide that the cleaner is no longer to be used, render it inoperative by removing the electric power cable. Ensure that all parts of the cleaner that could be a source of danger are made harmless, especially for children who might use the old cleaner for play. As the cleaner is considered special waste, dismantle it and divide the material according to type, then dispose of them as required by the legislation in force.

Do not use parts dismantled for scrap as spare parts.

TROUBLE-SHOOTING



Before carrying out any operations, disconnect the cleaner from the power and water supply.

FAULTS	CAUSES	REMEDIES
When the switch is turned the cleaner does not start.	Faulty electric connection. Thermal protection has tripped.	Check the mains voltage. Reset (if it trips again, apply to the technical service centre).
No jet delivered.	Faulty water circuit connection. Clogged water filter. Mains tap turned off. Detergent tap turned on.	Check it. Clean it. Turn it on. Turn it off.
The pump turns but does not reach the rated pressure.	Water intake filter blocked. Faulty water circuit connection. Pressure regulation valve is set at minimum. Lance nozzle is worn. Detergent intake device on the lance is turned on.	Clean it. Check it. Regulate it. Apply to our technical service centre. Turn it off.
When the lance is turned on the pressure falls and rises.	The nozzle is clogged or deformed. Insufficient supply.	Clean or consult our technical service centre Check it.
Insufficient detergent suction.	Tap turned off. No detergent in the tank. Control on the lance not switched on.	Turn it on. Fill the detergent tank. Set the control on the lance.

IMPORTANT:

For maintenance and/or repairs, use only original spare parts which offer the greatest characteristics of quality and reliability. Failure to use original spare parts frees the manufacturer from all responsibility.