PIUSI®

Fluid Handling Innovation

SELF SERVICE

K44 • FM • MC



MADE IN ITALY

Installation, use and maintenance **EN**

BULLETIN M0194 B EN_00

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ENGLISH

BULLETIN M0194 B

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2 DECLARATION OF CONFORMITY

The undersigned: PIUSI S.p.A
Via Pacinotti c.m. z.i.Rangavino
46029 Suzzara - Mantova - Italy

HEREBY STATES under its own responsibility, that the equipment described below:
Description : Diesel fuel dispenser

Model :		
	SELF SERVICE 100 FM	SELF SERVICE TANK 100 FM
	SELF SERVICE 100 K44	SELF SERVICE TANK 100 K44
	SELF SERVICE 100 MC	SELF SERVICE TANK 100 MC
	SELF SERVICE 70 FM	SELF SERVICE TANK 70 FM
	SELF SERVICE 70 K44	SELF SERVICE TANK 70 K44
	SELF SERVICE 70 MC	SELF SERVICE TANK 70 MC

Serial number: refer to Lot Number shown on CE plate affixed to product
Year of manufacture: refer to the year of production shown on the CE plate affixed to the product
is in conformity with the legal provisions indicated in the directives :

- Machine Directive 2006/42/EC
- Low-Voltage Directive 2014/35/EU
- Electromagnetic Compatibility Directive 2014/30/EU
- ROHS II Directive 2011/65/EU

The documentation is at the disposal of the competent authority following motivated request at Piusi S.p.A. or following request sent to the email address: doc_tec@piusi.com
The person authorised to compile the technical file and draw up the declaration is Otto Varini as legal representative.

Suzzara, 01/11/2015

Otto Varini
legal representative.

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3 GENERAL WARNINGS

Important precautions

To ensure operator safety and to protect the pump from potential damage, workers must be fully acquainted with this instruction manual before performing any operation.

Symbols used in the manual

The following symbols will be used throughout the manual to highlight safety information and precautions of particular importance:



ATTENTION

This symbol indicates safe working practices for operators and/or potentially exposed persons.



WARNING

This symbol indicates that there is risk of damage to the equipment and/or its components.



NOTE

This symbol indicates useful information.

Manual preservation

This manual should be complete and legible throughout. It should remain available to end users and specialist installation and maintenance technicians for consultation at any time.

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4 SAFETY INSTRUCTIONS

Mains - preliminary checks before installation

Maintenance control

ATTENTION
You must avoid any contact between the electrical power supply and the fluid that needs to be FILTERED.

Before any checks or maintenance work are carried out, disconnect the power source.

FIRE AND EXPLOSION
When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode.

To help prevent fire and explosion:

Use equipment only in will ventilated area.

Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.

Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.

Ground all equipment in the work area.

Stop operation immediately if static sparking occurs or if you feel a shock. Do not use equipment until you identify and correct the problem.

Keep a working fire extinguisher in the work area.

ELECTRIC SHOCK

Electrocution or death

This equipment must be grounded. Improper grounding, setup or usage of the system can cause electric shock.

Turn off and disconnect power cord before servicing equipment.

Connect only to a grounded electrical outlets.

Use only 3 wire extension cords in accordance with local electrical codes. Extension cords should have a ground lead.

Ensure ground prongs are intact on power and extension cords.

Do not expose to rain. Store indoors.

Never touch the electric plug of socket with wet hands.

Do not turn the dispensing system on if the power connection cord or other important parts of the apparatus are damaged, such as the inlet outlet plumbing, dispensing nozzle or safety devices. Replace damaged components before operation.

Before each use check that the power connection cord and power plug are not damaged. If damaged, have power connection cord replaced before use by a qualified electrician.

The electrical connection between the plug and socket must be kept well away from water.

Unsuitable extension leads can be hazardous, in accordance with current regulations. only extension cords that are labelled for outdoor use and have a sufficient conduction path should be used outdoors.

For safety reasons, we recommend that, in principle, the equipment be used only with a earth-leakage circuit breaker (max 30 mA).

Electrical connections must use ground fault circuit interrupter (GFCI).

Installation operations are carried out with the box open and accessible electrical contacts. All these operations have to be done with the unit isolated from the power supply to prevent electrical shock!

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EQUIPMENT MISUSE ***Misuse can cause death or serious injury***		Do not operate the unit when fatigued or under the influence of drugs or alcohol.
		Do not leave the work area while equipment is energized or under pressure.
		Turn off all equipment when equipment is not in use.
		Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
		Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
		Do not kink or over bend hoses or use hoses to pull equipment.
		Keep children and animals away from work area.
		Comply with all applicable safety regulations.
		Do not exceed the maximum operating pressure or the temperature of the part with lower nominal value of the system. See Technical Data in all equipment manuals.
		Use fluids and solvents that are compatible with the wetted part of the system. See Technical Data in all equipment manuals. Read the manufacturer's instructions of the fluids and solvents. For more information on the material, request the safety data sheet (MSDS) from the distributor or dealer.
		Check the equipment every day. Immediately repair or replace worn or damaged parts only with original spare parts of the manufacturer.
		Make sure the equipment is classified and approved compliant with the standards of the environment where it is used.
		Use the equipment only for the intended use. Contact your distributor for more information.
		Keep hoses and cables far from traffic areas, sharp edges, moving parts and hot surfaces.
		Do not bend or overbend the hoses or use the hose to pull the equipment.
BURN HAZARD ***Equipment surfaces and fluid that is heated can become very hot during operation***		To avoid severe burns do not touch hot fluid or equipment.
TOXIC FLUID OR FUMES HAZARD		Read MSDS's to know the specific hazards of the fluids you are using.
		Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
		Prolonged contact with the treated product may cause skin irritation: always wear protective gloves during dispensing.

5 FIRST AID RULES

Contact with the product	In the event of problems developing following EYE/SKIN CONTACT, INHALATION or INGESTION of the treated product, please refer to the SAFETY DATA SHEET of the fluid handled.
Electrocution	disconnect the unit from the mains, or use a dry insulator as protection while moving the electrocuted person far from any conductor. Do not touch the electrocuted person with bare hands until he/she is far from any conductor. Ask qualified and trained people for help immediately
NOTE 	Please refer to the safety data sheet for the product
SMOKING PROHIBITED 	When operating the dispensing system and in particular during refuelling, do not smoke and do not use open flame.

6 GENERAL SAFETY RULES

Essential protective equipment characteristics	Wear protective equipment that is: suited to the operations that need to be performed; resistant to cleaning products.
Personal protective equipment that must be work 	Wear the following personal protective equipment during handling and installation: safety shoes;
	close-fitting clothing;
	protective gloves;
	safety goggles;
Other equipment 	instruction manual
Protective gloves 	Prolonged contact with the treated product may cause skin irritation; always wear protective gloves during dispensing.
WARNING 	***Never touch the electric plug or socket with wet hands.***
	Do not switch the dispensing system on if the network connection cable or important parts of the apparatus are damaged, such as the inlet/outlet pipe, nozzle or safety devices. Replace the damaged pipe immediately.
	Before each use, check that the network connection cable and power plug are not damaged. Have the network connection cable replaced immediately by a qualified electrician.
ATTENTION 	***The electrical connection between the plug and socket must be kept well away from water.***
	Unsuitable extension leads can be dangerous. In accordance with current regulations, only extension cords that are labelled for outdoor use and have a sufficient conduction path should be used outdoors.
	For safety reasons, we recommend that, in principle, the equipment be used only with a earth-leakage circuit breaker (max 30 mA).

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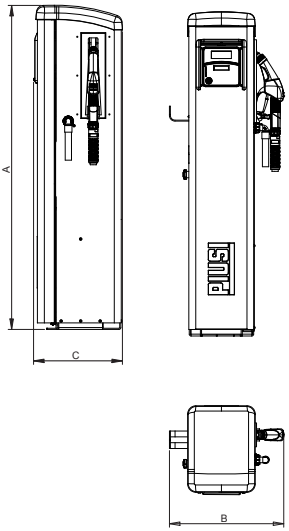
7 TRANSPORT, HANDLING AND UNPACKING

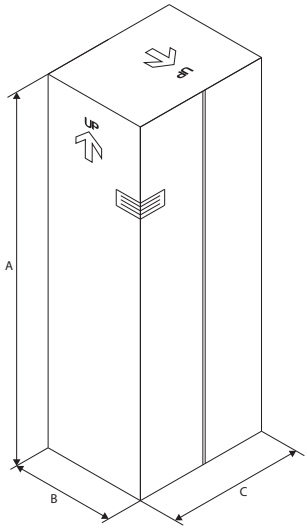
SELF SERVICE is supplied in non-stackable cardboard packing. Store and handle the unit paying attention to the indications supplied graphically on the packing. In case of lifting make sure that capacity of lifting means and accessories (bands, for example) are suitable. Handling and lifting equipment shall be used by authorized and properly trained personnel only. During standstill periods the unit , either in packed or unpacked conditions, shall be kept in a place sheltered from dust and weather (rain, humidity, sun, etc..). Remove the cardboard packing using scissors or a cutter. Operate carefully, to avoid damaging the unit.

The following indications are specified on the package:
- an arrow indicating the TOP side;
- a label containing all the information relating to the equipment (model, weight, etc.).

7.1 DIMENSIONS AND WEIGHTS

	STATION DIMENSIONS (mm)			*PACKAGING DIMENSIONS (mm)*			*WEIGHT STATION (Kg)*	*WEIGHT PACKAGED STATION (Kg)*
	A	***B***	***C***	***A***	***B***	***C***		
SELF SERVICE K44	1391	491	381	1478	400	480	61.3	65.9
SELF SERVICE MC	1391	491	381	1478	400	480	59.1	63.7
SELF SERVICE FM	1391	491	381	1478	400	480	56.6	61.2
SELF SERVICE TANK K44	994	491	381	1080	400	480	51.1	55.7
SELF SERVICE TANK MC	994	491	381	1080	400	480	48.7	53.3
SELF SERVICE TANK FM	994	491	381	1080	400	480	56.6	61.2





7.2 PACKAGE CONTENTS/PRE-INSPECTION

Premessa

Have the packing opened completely, two people must move the SELFSERVICE unit to a vertical position to facilitate reaching its final site.

NOTA

Once unpacked, the unit should always be kept in a vertical position. Put all packing elements (cardboard, wood, cellophane,polystyrene etc.) into the corresponding containers. Do not leave them in the environment or within children's reach as they are potentially dangerous. They should be disposed of according to the regulations in force in the country where the unit will be used.

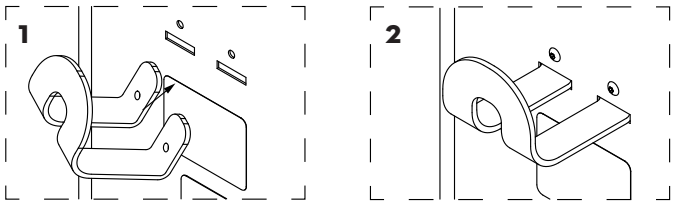
Check the conditions of the unit making sure that no part shows such damages as compromise safety and functionality. In case of doubt, do not install the machine and contact the manufacturer's Technical Service. Make sure that all accessories are available (see enclosure).

After unpacking, assemble the unit as follows:

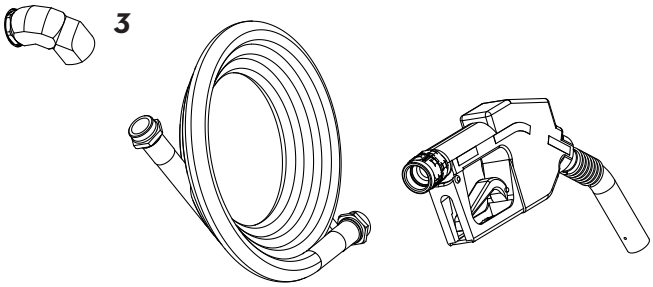
ATTENTION

1 - Fit the hose support into the relative slots (1)

2 - Tighten the screws and fix the hook in the desired position. (2).



3 - Before mounting nozzle and hose, apply a sealant paste on the threads as indicated in "Electrical Connection" paragraph.



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8 MACHINE AND MANUFACTURER IDENTIFICATION

The SELF SERVICE stations feature an identification plate that is attached to the shell showing
- Model
- Serial number / Year of manufacture
- Technical data
- EC mark
- Instruction manual code

ATTENTION

Before installing the unit, check that the model is right and suitable for currently available supply voltage and frequency

8.1 PLATES POSITIONS

The dispensing system is equipped with decals and/or plates to provide operators with the necessary important information. Make sure that these do not deteriorate or become detached over time.

NOTE

Should this situation arise, please contact our support department and arrange to have the damaged or missing plates sent back and replaced where necessary.

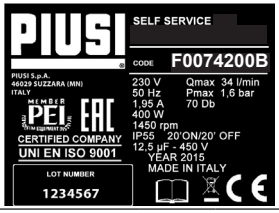
The decals present are as follows:



2 - label: use with diesel only



3
- Pump activation plate (K44 only)

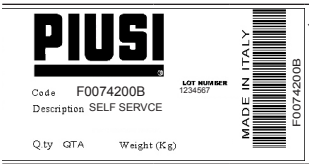


3 - CE plate with technical data

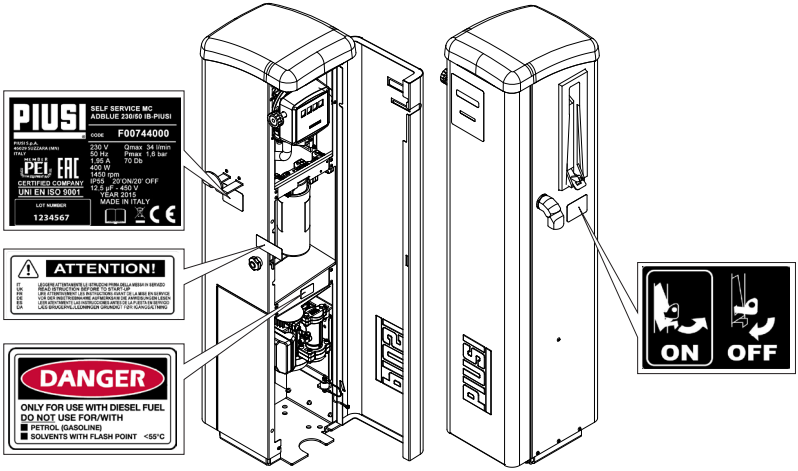


4 - "attention" plate
applied to the seal of the station door, with indications of reading of the instructions for use before use.

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5 corner label
to be applied on the box

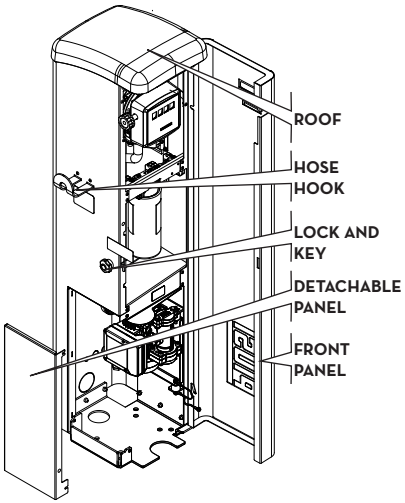


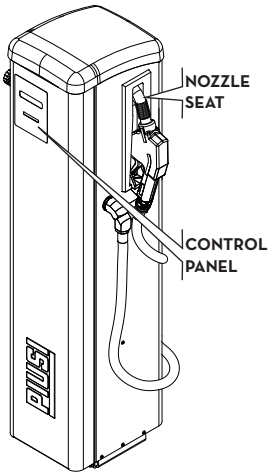
9 DESCRIPTION OF MAIN COMPONENTS

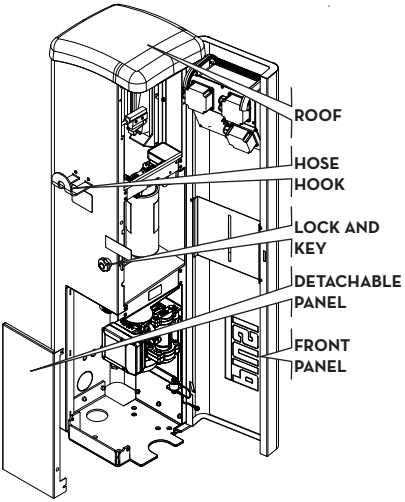
9.1 BODY

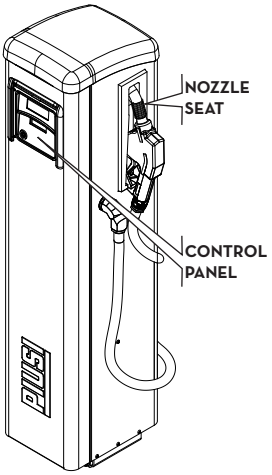
The SELF SERVICE body - all versions - consists of a strong treated-steel shell, closed on top by a plastic cap and a sturdy base for attaching it to the ground.
- The front panel is entirely hinged to provide easy access to the internal components of the station (pump, filter, meter) and closed by a lock . Moreover, depending on the version, it may house the control panel The right side panel can be easily detached to allow installation or maintenance operations.

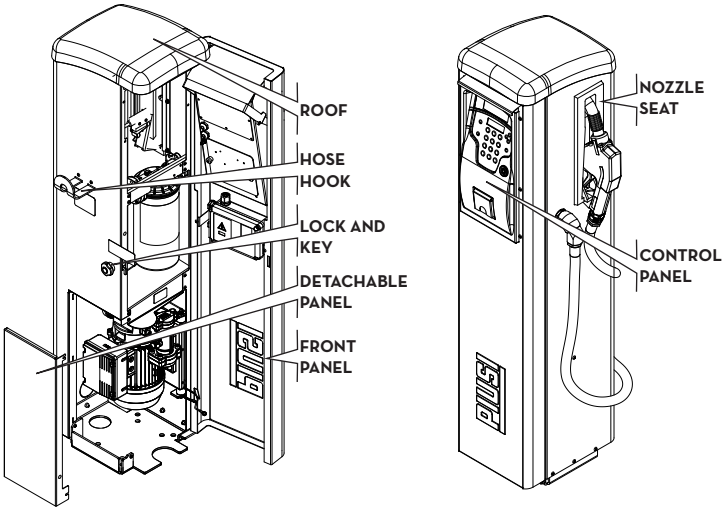
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ROOF
HOSE HOOK
LOCK AND KEY
DETACHABLE PANEL
FRONT PANEL


NOZZLE SEAT
CONTROL PANEL


ROOF
HOSE HOOK
LOCK AND KEY
DETACHABLE PANEL
FRONT PANEL


NOZZLE SEAT
CONTROL PANEL



9.2 PUMPING UNIT

Self-priming motor-driven vane pump, equipped with by-pass valve which allows the pump to continue operating for short periods of time when the delivery nozzle is closed.
Single-phase self-ventilated induction motor, enclosed type (1P 55, as per EN 60034-5-86 laws), directly flanged on the pump. An ANGULAR MESH FILTER is connected to the pump intake for easy cleaning. See Specific manual

9.3 FUEL METER

9.3.1 MECHANICAL METER

Nutating disk fuel meter with mechanical readout device, with wheels, indicating subtotals (which can be set to zero) and total (which can not be set to zero). Strong and reliable, the fuel meter can be set on site to achieve maximum precision levels. See Specific manual

9.3.2 ELETRONIC METER

The meter features a measurement system with high-precision oval gears designed for accurate fuel metering. It includes a strong drawn aluminium structure, a suction filter, and offers both easy maintenance and high reliability. See Specific manual

9.4 NOZZLE

SELF SERVICE is supplied with automatic nozzle, with delivery shutoff device operating when the tank is full.

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9.5 SYSTEM MANAGEMENT (FOR VERSIONS FM E MC)

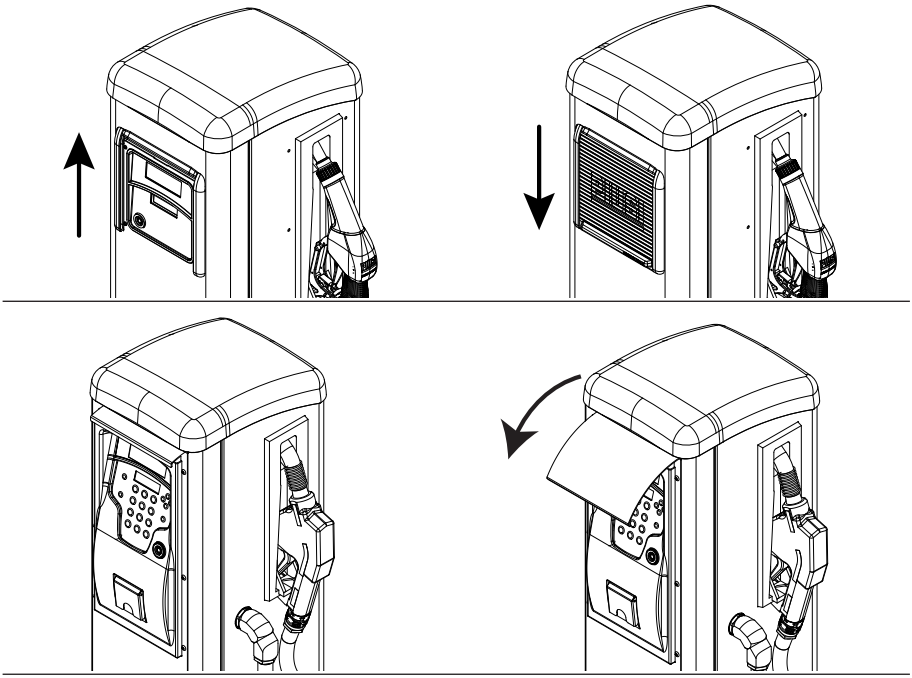
The electronic control system ensures the dispenser can only be used by authorised personnel. All the data relating to each dispensing operation are stored to be printed or transferred to a PC.

9.6 LEVEL INDICATOR (FOR VERSIONS FM E MC)

The efficient electronic indicator "OCIO" is integrated in the management system to check and measure fuel level in tanks.
Further information can be found in the corresponding manual, specified in paragraph E1 (Table), supplied with the FM SELF SERVICE units.

9.7 DISPLAY COVER (FOR VERSIONS FM E MC)

In order to guarantee a suitable protection and a proper display visibility to Self Service units, even in extremely lit conditions, a special extractable protection has been fitted under the top which can be lowered in case of need. We recommend to keep it always down when the sunlight is very strong and when the Self Service door has to be opened



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10 TECHNICAL FEATURES

10.1 POWER CONSUPTION

NOTE

SELF SERVICE stations shall be supplied with electric power having the same RATED VOLTAGE / FREQUENCY as shown on the DATA PLATE.
The following max. variations can be accepted:
- VOLTAGE +/- 5%
- FREQUENCY +/- 2%

ATTENTION

Power supply from lines with values that do not fall within the indicated limits could cause damage to the electrical components.

10.2 TECHNICAL DATA

MODEL	POWER				CURRENT	MAX FLOW RATE
	Current	Voltage	Frequency	Power	Maximum	
SELF SERVICE 70 MC	AC	230 V	50 HZ	900 W	4,2 A	68 l/min
SELF SERVICE 70 MC	AC	230 V	50 HZ	550 W	3,3 A	68 l/min
SELF SERVICE 70 K44	AC	230 V	60 HZ	500 W	3,9 A	70 l/min
SELF SERVICE 70 K44	AC	230 V	50 HZ	550 W	3,3 A	68 l/min
SELF SERVICE 70 FM	AC	230 V	50 Hz	900 W	4,2 A	68 l/min
SELF SERVICE 70 FM	AC	230 V	50 Hz	550 W	3,3 A	68 l/min
SELF SERVICE 100 MC	AC	230 V	50 Hz	1150 W	5,7 A	85 l/min
SELF SERVICE 100 K44 PUL	AC	230 V	50 Hz	1150 W	5,7 A	85 l/min
SELF SERVICE 100 K44 GAL	AC	230 V	60 HZ	1150 W	5,7 A	80 l/min
SELF SERVICE 100 K44	AC	230 V	50 Hz	1150 W	5,7 A	85 l/min
SELF SERVICE 100 FM	AC	230 V	50 Hz	1150 W	5,7 A	85 l/min
SELF SERVICE 100 FM	AC	120 V	60 Hz	1000 W	10 A	85 l/min
SELF SERVICE TANK 70 MC	AC	230 V	50 HZ	900 W	4,2 A	70 l/min
SELF SERVICE TANK 70 K44 PUL	AC	230 V	50 HZ	900 W	4,2 A	70 l/min
SELF SERVICE TANK 70 K44	AC	230 V	50 HZ	550 W	3,3 A	70 l/min
SELF SERVICE TANK 70 FM	AC	230 V	50 Hz	900 W	4,2 A	70 l/min
SELF SERV TANK 100 MC	AC	230 V	50 Hz	1150 W	5,7 A	90 l/min
SELF SERV TANK 100 K44	AC	230 V	50 Hz	1150 W	5,7 A	90 l/min
SELF SERV TANK 100 FM	AC	230 V	50 Hz	1150 W	5,7 A	90 l/min

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11 INTENDED USE

WARNING Flammable liquids and explosive atmosphere

The system was not designed for dispensing of diesel, petrol, flammable liquids with flash point <55°C/131°F, or for operation in environments with potentially explosive atmosphere. The use in the above mentioned conditions is forbidden.

ATTENTION Environmental conditions

The use of the system for purposes different from those specified in section «Intended use» is strictly forbidden. Do not operate the system for any purpose other than the purpose described within this manual; all other use is considered «IMPROPER» and will result in Piusi S.p.A. disclaiming any responsibility for damage to property, people, animals or to the system itself.

Fluid Permitted

DIESEL FUEL at a VISCOSITY from 2 to 5.35 cSt (at a temperature of 37.8° / 100°F C). Minimum Flash Point (PM): 55°C / 131°F

ATTENTION Environmental conditions

TEMPERATURE: min. -20° C / max +60° C
RELATIVE HUMIDITY: max. 90%
The temperature limits shown apply to the pump components and must be respected to avoid possible damage or malfunction.

12 INSTALLATION

WARNING Authorised installation personnel

All installations must be carried out by authorised and competent personnel only. Authorised persons must
- install the system in dry and well-ventilated place;
- ensure the correct installation of equipment required for the correct functioning of the pump;
- only use accessories that have been supplied with the system.

ATTENTION

The use of accessories that are unsuitable and were not provided with the system is strictly prohibited. Piusi S.p.A. accepts no responsibility for damage to persons, property or the environment caused by failure to comply with this requirement.

THE DISPENSING SYSTEM IS FOR PROFESSIONAL USE ONLY.

As per the current legislation, the dispensing system must be used n premises that are sufficiently well-lit.

The dispensing system has been specifically designed for use in a dry place. If installed outside, an adequate protective covering must be provided.

Motors are not explosion-proof. DO NOT install SELF SERVICE in places with danger of explosion.

12.1 POSITIONING

SELF SERVICE should be so positioned as to ensure
- an easy removal of detachable panels when access to internal components is required;
- compliance with max. distances and difference in height between station and tank;
- correct and safe fixing of the body to the ground on a horizontal plane.

Unit position results in the following parameters, characterizing each installation
- Hp: priming height
- Ls: total length of suction piping – from foot valve to station (in meters)

Correct operation of the units requires full respect of the following limits:
- Hp max: not exceeding 3 meters
- LS max: not exceeding 15 meters

ATTENTION

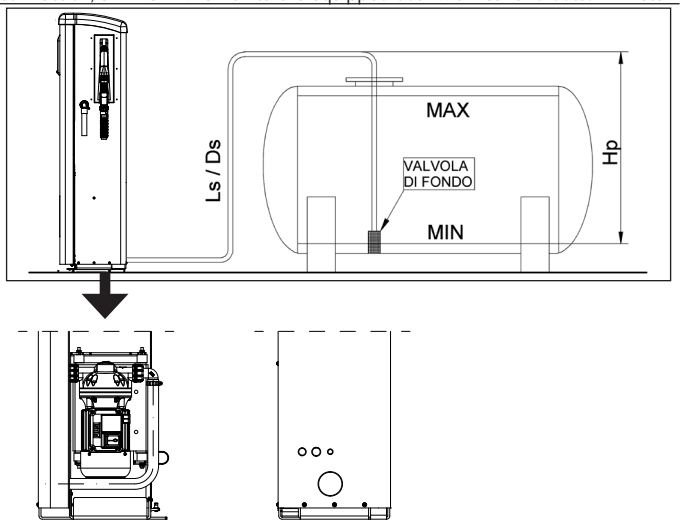
Place Self Service in a protected place.
In compliance with regulations in force, the dispensing system must be used in premises that are sufficiently well-lit.

12.2 FIXING

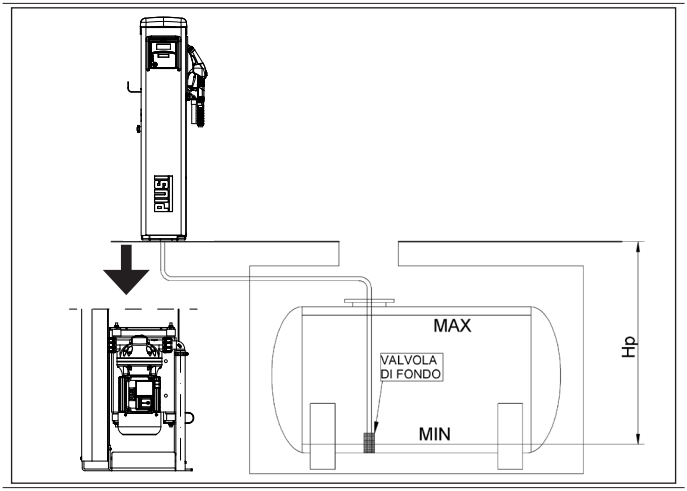
The station should be attached to the ground with screw anchors suitable for M12 screws, to be placed as indicated in the following pictures. The same figure also shows the two possible input positions (hose axis) of the suction hose, for the two types of connection to UNDERGROUND tank or ABOVE GROUND tank.
Before fixing the unit, make sure that the bearing area for station frame is flat and strong.
To facilitate SUCTION line connection, SELF SERVICE units are equipped both with rear and bottom inlets

ABOVE-GROUND

TANK



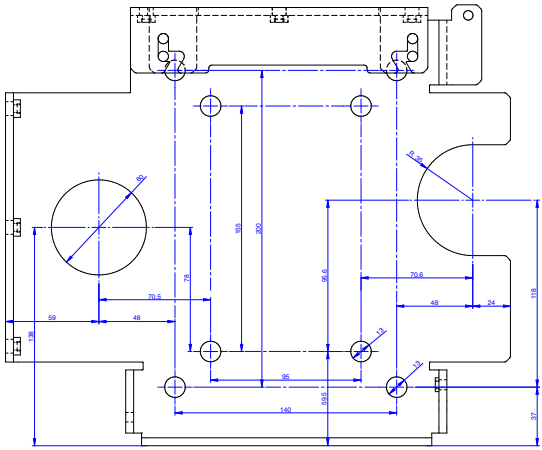
UNDERGROUND TANK



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DIAGRAM: FIXING

THE UNIT TO THE



GROUND

12.3 HYDRAULIC CONNECTIONS

ATTENTION

The use of accessories that are unsuitable and were not provided with the system is strictly prohibited. Piusi S.p.A. accepts no responsibility for damage to persons, property or the environment caused by failure to comply with this requirement.

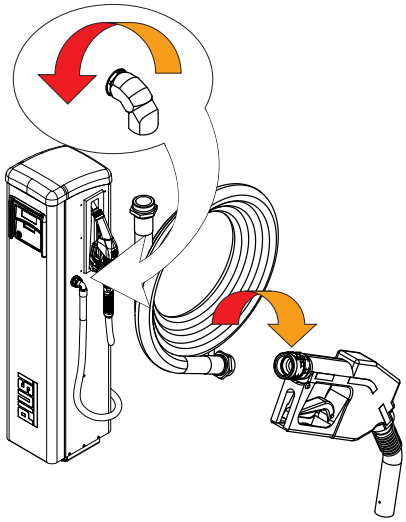
Always follow the below-listed instructions:
- Use pipes and joints suitable for operation in vacuum conditions.
- Use pipes and accessories suitable for treated fluid. Unsuitable materials can result in serious damage to the pump; they can also cause pollution.
- Do not use conical threaded connectors that could cause damage to the threaded connector on the pump filter if tightened excessively
- Use wide-radius bends so that pressure losses are reduced to minimum levels.
- Check that suction pipe is perfectly clean and free from scales.
- Install a FOOT VALVE equipped with FILTER at suction pipe end. Place the foot valve on tank bottom. Foot valve and pipe must have the SAME DIAMETER.
- Before starting installation, make sure that no packing material has been left in the pipes.

SUCTION LINE

The diameter of the suction line in the Self Service and Self Service Tank stations should not be lower than 1" 1/2 Gas.
The connector is 1" 1/2 female Gas.

DELIVERY

CONNECTION



DIAGRAM

12.4 ELECTRIC CONNECTIONS

ATTENTION

The installation operations are performed with door open and power contacts accessible. All these operations must be performed with the appliance isolated from the power mains to avoid any risk of electric shocks!

All the installation operations must be performed by qualified electrotechnical or electronic staff.

The sections of the cables must be appropriate to the current rates of the device

Electric connections shall be carried out by specialized personnel in a professional way. Full compliance with the regulations in force in the country where the unit is installed and with the wiring diagrams contained in this manual is required

SELF SERVICE is not equipped with safety switches. As a consequence, a power supply panel fitted with ground fault interrupter (suitable for the SELF SERVICE model involved) must be installed at supply side.

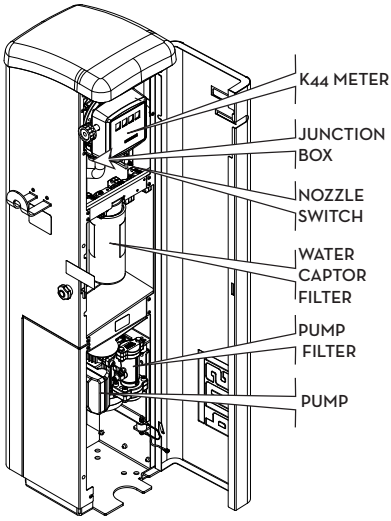
Self Service is provided with JUNCTION BOXES containing terminals for connection of:

- electric supply line
- data line RS 485 for PC connection (optional)
- level indicator contact (optional)

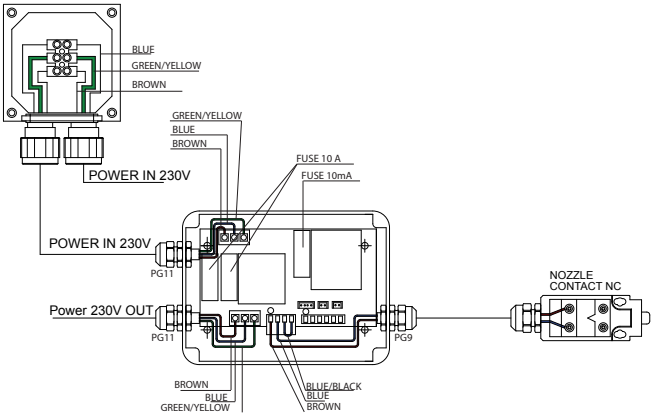
For Self Service K44 : The electric panel can be reached by opening the front panel. It is pre-wired for SELF SERVICE components, according to the following diagram

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SELF SERVICE
K44



ELECTRIC DIAGRAM SELF SERVICE K44



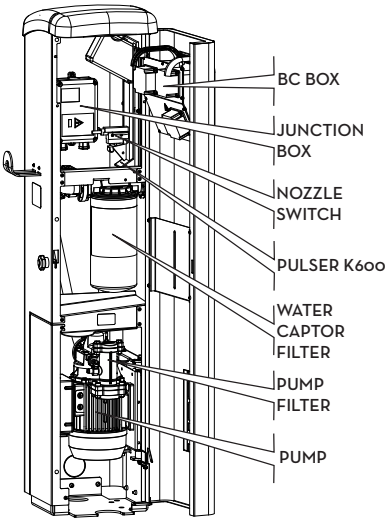
NOTE

Should a tank level alarm be connected, replace the jumper on J1 with the alarm contact. This contact must be of "normally closed" type, that is it will be open in case of level alarm.

FOREWORD

For Self Service FM e MC : SELF SERVICE is provided with JUNCTION BOXES containing terminals for connection of:
- electric supply line,
- data line RS 485 for PC connection (optional),
- level indicator contact (FM versions).

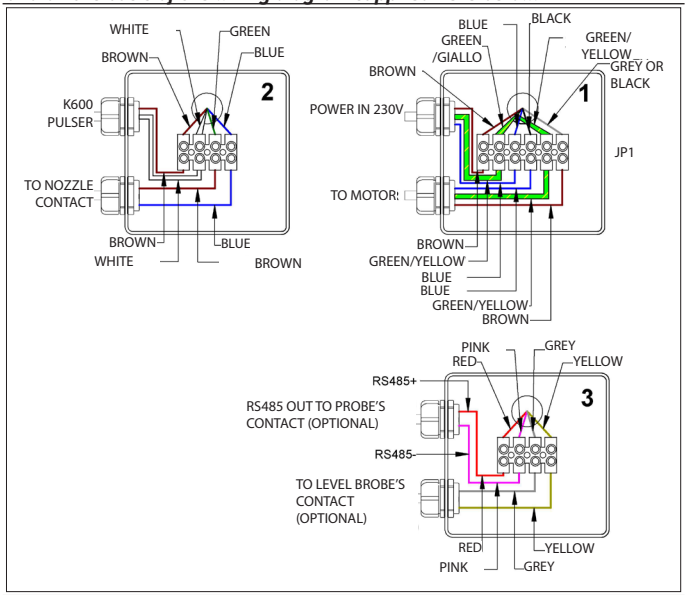
SELF SERVICE MC



NOTE

The junction boxes, which can be reached by opening the front panel, are pre-wired to SELF SERVICE components according to the model involved and on the basis of the wiring diagram supplied here below.

ELECTRIC DIAGRAM SELF SERVICE MC

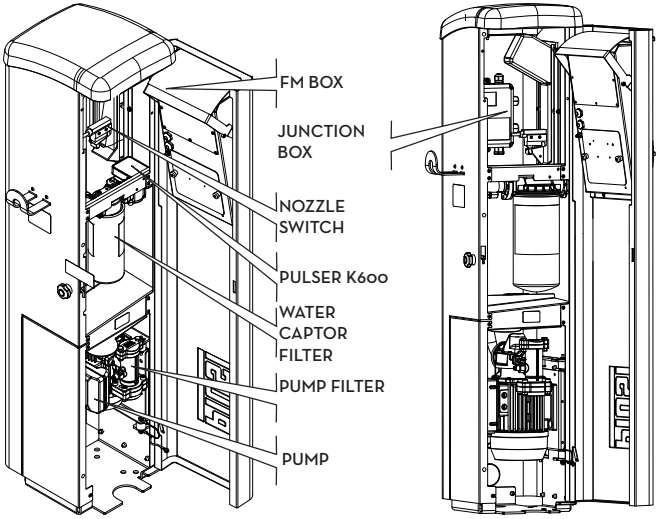


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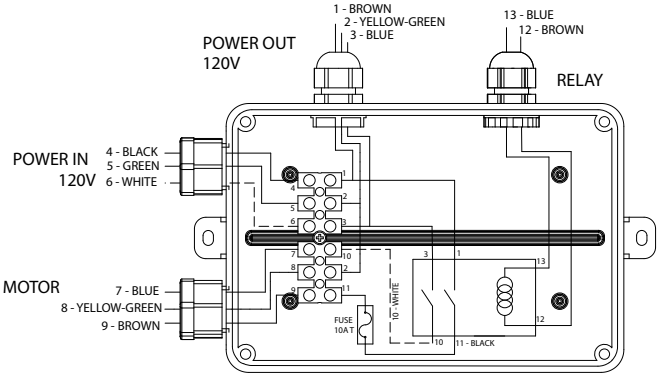
NOTE

NOTE: The customer will just carry out the connections indicated in the diagram:
- Power supply (230V)
- RS485 to PC
- Connection to Ocio Alarm (optional on MC models)

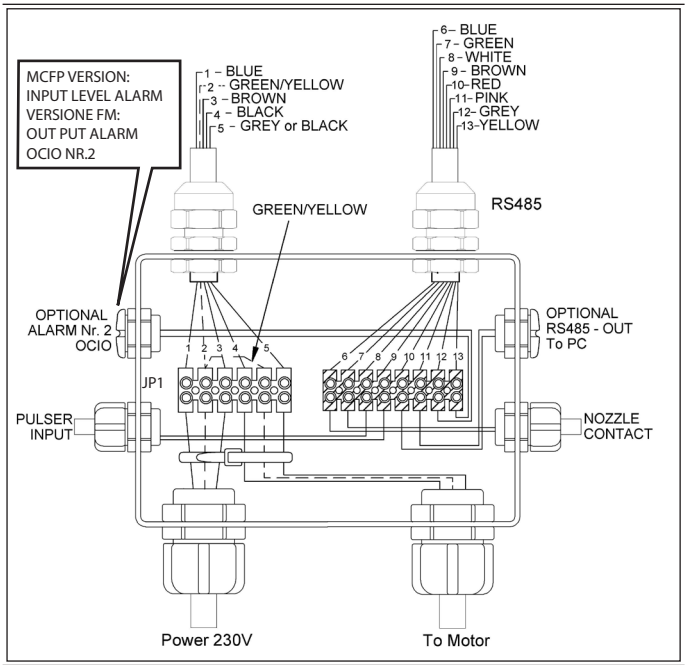
SELF SERVICE FM



ELECTRIC DIAGRAM SELF SERVICE FM 120/60



ELECTRIC DIAGRAM SELF SERVICE FM 230/50



NOTE

The customer will just carry out the connections indicated in the diagram:
- Power supply (230V)
- RS485 to PC
- Connection to Ocio Alarm (optional on MC models)

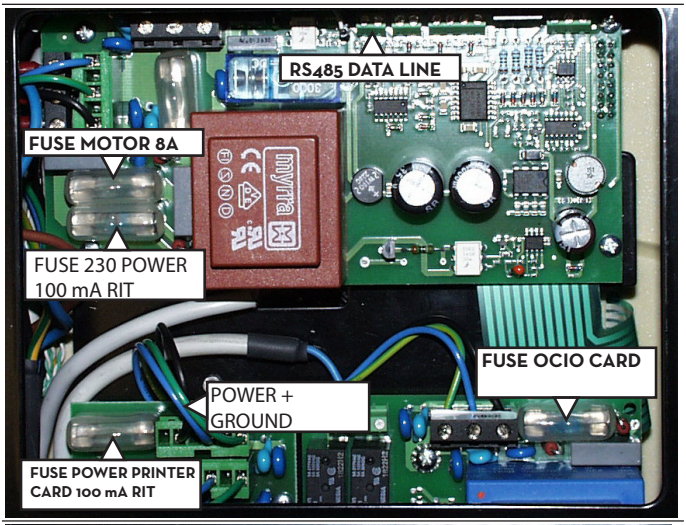
ATTENTION

For SELF SERVICE units no additional electric connections are necessary. All electronic components enclosed in FM/MC BOX are pre-wired and factory-tested. The installer and the station manager should NEVER open the FM/MC BOX, except when fuses in I/O, Ocio and Ocio printer cards have to be replaced.

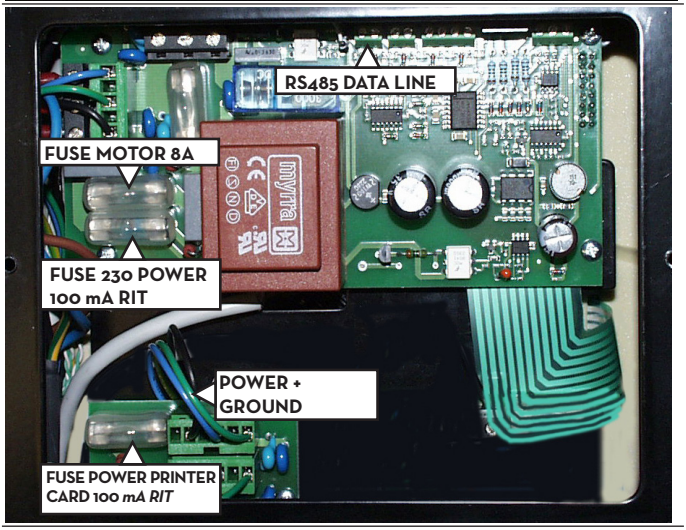
Following main connections shall be carried out and fuses replaced by qualified technicians only.

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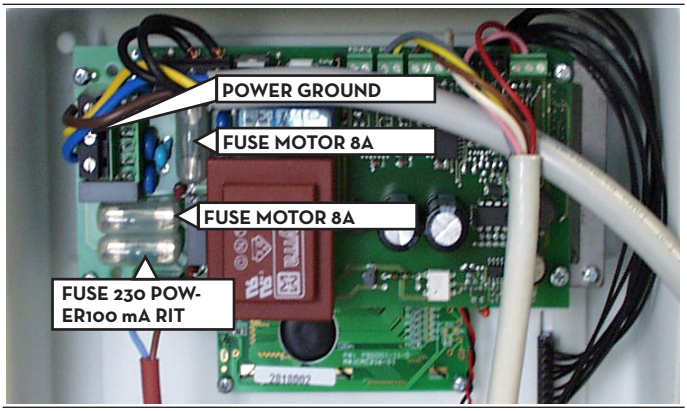
SELF SERVICE FM ELECTRONICS WITH FM BOX



SELF SERVICE MC ELECTRONICS WITH FM BOX



SELF SERVICE MC ELECTRONICS WITH MC BOX



12.5 CONNECTION OF SINGLE-PHASE SELF SERVICE

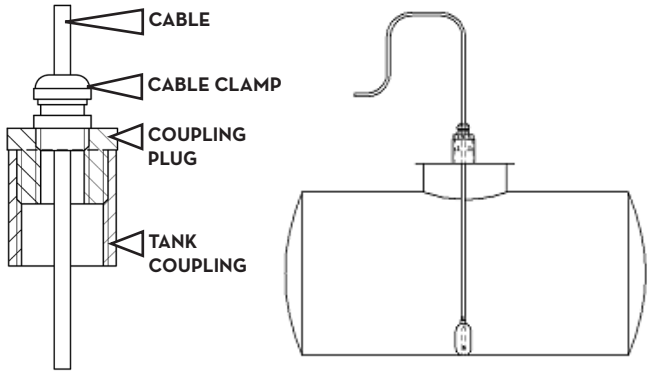
Connect the 230V-50/60Hz supply line to the box terminals JP1 in the junction boxes of FM and MCFP SELF SERVICE units. For MC version: in junction box "1" in MC box.
No polarity requirements shall be met for Phase and Neutral wires. Connect the ground wire to an earth plate perfectly complying with the standards in force.

12.6 PROBE OF LEVEL INDICATOR "OCIO"

FM Self Service units are equipped with a special level indicator (OCIO) in their standard version; this accessory is available as an optional for MC units.

NOTE

Probe of level indicator "Ocio" can follow the same path to the tank as station suction pipe. If possible, introduce OCIO probe into a tank coupling different from the one used for the intake pipe. Make sure that the probe is correctly placed on tank bottom (for further details, please refer to the handbook OCIO supplied with the Self Service FM-MC stations)



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13 STARTING

FOREWORD	To have SELF SERVICE correctly started, carry out the following operations in the indicated order.
ELECTRIC CONNECTIONS	After connecting the unit as described in paragraph H5, SELF SERVICE can be energized by means of the general switch placed by the installer on the line, before the unit.
INITIAL STARTING CONDITIONS	SELF SERVICE is equipped with self-priming pump, which makes initial starting easier: in fact the suction pipe does not need to be filled completely with Diesel fuel. However quick priming can only be achieved if the pump is wet, that is if a minimum quantity of Diesel fuel is available inside the rotor chamber (this is particularly true when the difference in height between station and tank is remarkable). The pump is supplied with this minimum quantity, ready for use. If the installer believes the pump to be completely dry for any reason (long storage, for example), he shall wet the pump following a procedure at his choice.

13.1 INITIAL PRIMING

SELF SERVICE K44

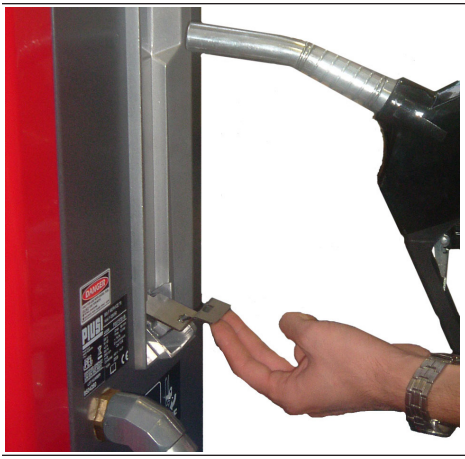
To prime the pump act as follows:

• Extract the nozzle from its seat.The pump does not start automatically.

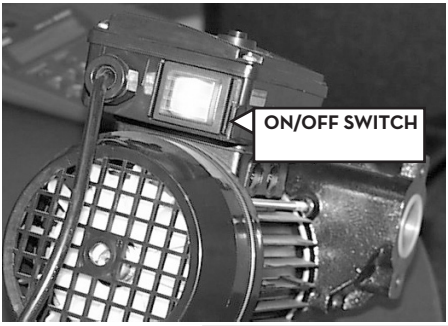


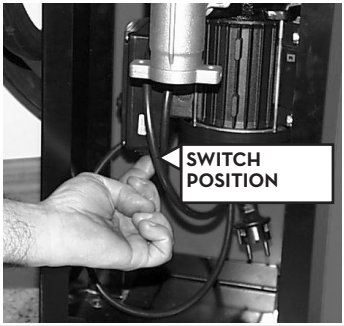
• Start the pump manually by moving the switch to ON (the switch can be operated only after extracting the nozzle).

The pump starts immediately and keeps operating until the switch is moved to OFF (manually or by putting the nozzle back in its seat.



ATTENTION ***Should the pump not start, check that the switch on pump junction box is ON***





Operate the nozzle lever keeping the spout in a suitable container or in the suction container. At first air will come out of the nozzle; then, after a certain time, Diesel oil will start flowing out.

ATTENTION ***Initial priming shall be carried out by qualified personnel, who will be present at all operations involved. If air comes out for over 2 minutes, STOP THE PUMP and make sure that:***

- ***pump is not operating in dry conditions, but that a minimum quantity of Diesel fuel is available ("wet conditions");***
- ***suction pipe does not let any air in and that it is completely submersed;***
- ***filters are unclogged;***
- ***suction and/or delivery lines are unclogged;***
- ***installation has been carried out respecting the limits set forth in paragraph H2 (difference in height, pipe diameter and length).***
- ***The release valve is closed.***

Continue dispensing fuel until a steady air-free flow is obtained.
Release the nozzle lever.
Put the nozzle back in its seat.
The pump stops.

13.2 CUT-OUT SYSTEM OF THE ELECTRONIC CONTROL SYSTEM FOR FIRST PRIMING ON SELF SERVICE FM AND MC VERSION

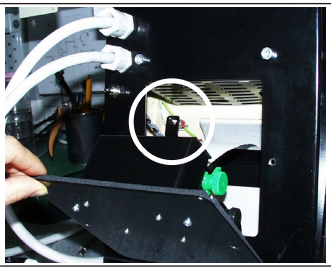
FOREWARD All SELF SERVICE functions are managed by a management system. This system, however, can be overridden during start up or maintenance operations requiring repeated pump starting. In these cases simplified starting procedures (no request for pin code and no record of delivery data) may be useful. To this purpose both FM and MC boxes are supplied with an AUTO/MAN system, to change from AUTOMATIC mode (request for pin code to access the delivery function) to MANUAL mode (no request for pin code).

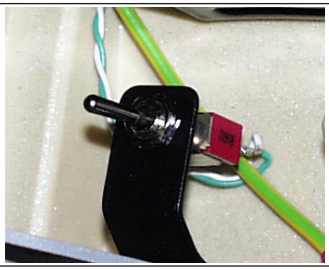
ATTENTION ***In manual mode the FM/MC management system does not record any delivery data. Before operating the AUTO/MAN switch, put the general switch in OFF position.***

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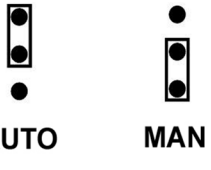
IN MANUAL MODE	LCD's can be off or continue showing the information displayed on changing mode (from AUTO to MAN);
	No PIN CODE is required to activate the pump; it will start as soon as the nozzle is extracted from its seat and stop when the nozzle is put back
	No indication of fuel quantity delivered by SELF SERVICE can be obtained.
ATTENTION	***Make sure that the fluid level in the suction tank is sufficient to ensure the priming of the fluid itself.***

By the side: the override system of the electronic management system in FM Box, triggered by operating the AUTO/MAN switch.

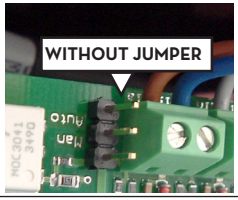


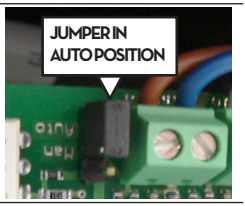


Below: the override system of the electronic management system in MC Box, triggered by moving a small jumper.









13.3 INITIAL PRIMING

TO PRIME THE PUMP	• Extract the nozzle from its seat. • The pump will start immediately and will continue operating until the nozzle is put back in its seat. Operate the nozzle lever keeping the spout in a suitable container or in the suction container. At first air will come out of the nozzle; then, after a certain time, Diesel oil will start flowing out.
	Operate the nozzle lever keeping the spout in a suitable container or in the suction container. At first air will come out of the nozzle; then, after a certain time, Diesel oil will start flowing out.

ATTENTION

Initial priming shall be carried out by qualified personnel, who will be present at all operations involved. If air comes out for over 2 minutes, STOP THE PUMP and make sure that:
•pump is not operating in dry conditions, but that a minimum quantity of Diesel fuel is available ("wet conditions");
• suction pipe does not let any air in and that it is completely submersed;
• filters are unclogged;
• suction and/or delivery lines are unclogged;
• installation has been carried out respecting the limits set forth in paragraph H4 (difference in height, pipe diameter and length).
• The release valve is closed.

Continue dispensing fuel until a steady air-free flow is obtained.
Release the nozzle lever.
Put the nozzle back in its seat.
The pump stops.
Move AUTO/MAN switch to AUTO.
The management system changes to "normal operation" mode (see Management System Software manual).

NOTE

Never start or stop the pump by turning on or off the power supply. Prolonged contact with some liquids can damage the skin. The use of goggles and gloves is recommended.

ATTENTION

Fluid leaks can damage objects and injure persons and cause pollution.

ATTENTION

During operation the motor may be hot: be careful.

WARNING

For the proper functioning of the system, allow a 20-minute stop for every 20 minutes of dispensing.

ATTENTION

Operation of the pump without dispensing is only admitted for periods of no longer than 3 minutes.

WARNING

We recommend that the pump remains switched off whenever the system is not in use.

ATTENTION

If ever the voltage is lagging, return the nozzle to its rest position
Should any sealants be used on the suction and delivery circuit of the pump, make sure that these products are not released inside the pump.
Foreign bodies in the suction and delivery circuit of the pump could cause malfunctioning and breakage of the pump components.
In case of prolonged dry-running of the pump, the suction circuit may be empty and suction may become difficult. If so, fill the suction circuit.

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14 STATION CONFIGURATION

Each SELF SERVICE station can be adjusted to the Manager's specific requirements by CONFIGURING the management system.

ATTENTION



Configuration of the management system is extremely important and should be carried out by specialised personnel.
Read the specific manual carefully and thoroughly before carrying out any configuration activities.

After configuration, USER PINS shall be assigned to SELF SERVICE users so that they can use the pump as described in the System Management manual.

15 FUEL METER CALIBRATION

15.1 SELF SERVICE K44

Before using SELF SERVICE station, METERING ACCURACY should be checked

Act as follows:

- Extract the nozzle and start the pump as described in the preceding paragraph.
- Use a graduated container.

ATTENTION



To carry out a correct accuracy test follow the below-listed instructions:
• Use a graduated precision container with a minimum capacity of 20 liters.
• Before starting the test, make sure that no air is left in the system: let fuel flow out until a full regular flow is obtained.
• Dispense fuel uninterruptedly at max. flow rate.
• Stop dispensing by closing the nozzle quickly.
• Fill the container up to the graduated area. Do not dispense at low flow rate for long times, but at max. flow rate for short periods of time.
• Wait for possible foam to disappear, then compare the indication on the container with the value shown by SELF SERVICE.

Should accuracy NOT be satisfactory, CALIBRATE the FUEL METER following the instructions supplied in manual M0033.

ATTENTION



Differences up to 0,2 liters in 20-liter deliveries fall within the accuracy ensured (+/- 1%).

15.2 SELF SERVICE FM E MC

Before using SELF SERVICE station, METERING ACCURACY should be checked.

Act as follows:

• Enter an enabled USER PIN.

• Use a graduated container.

ATTENTION

o carry out a correct accuracy test follow the below-listed instructions:

• Use a graduated precision container with a minimum capacity of 20 litres.

• Before starting the test, make sure that no air is left in the system: let fuel flow out until a full regular flow is obtained.

• Dispense fuel uninterruptedly at max. flow rate.

• Stop dispensing by closing the nozzle quickly.

• Fill the container up to the graduated area. Do not dispense at low flow rate for long times, but at max. flow rate for short periods of time.

• Wait for possible foam to disappear, then compare the indication on the container with the value shown by SELF SERVICE.

Should accuracy NOT be satisfactory, CALIBRATE the FUEL METER following the instructions supplied in the specific manual.

ATTENTION

Differences up to 1/10th of a litre on deliveries amounting to 20 litres fall within the ensured accuracy limits (+/- 0.5%).

16 DAILY USE

16.1 SELF SERVICE K44

ATTENTION

Fuel must be supplied EXCLUSIVELY in the user's presence and under his strict supervision.

DISPENSING OPERATIONS

1 Uncoil the hose on the hook and extract the nozzle from its seat.

2 Check that readout is set to zero or set it to zero by turning the corresponding knob.

3 Start the pump manually by moving the switch to ON (the switch can only be operated after extracting the nozzle). The pump will start immediately.

ATTENTION

Never operate the nozzle lever before introducing the nozzle into the container to be filled

4 Start delivery by operating the nozzle lever. SELF SERVICE shows the quantity supplied

ATTENTION

Delivery can be interrupted when desired. When delivery is interrupted by releasing the nozzle lever, the pump goes on operating and the fuel circulates inside the pump thanks to the by-pass valve. This operating condition shall not exceed some minutes. Should delivery be interrupted for longer times, stop the pump by operating the switch on the nozzle holder.

5 After delivery release the nozzle lever, coil the hose on the hook and put the nozzle back in its seat.

When the nozzle reaches its seat, the switch in the nozzle-holder is moved to OFF and the pump stops.

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16.2 SELF SERVICE FM E MC

FM/MC management system ensures that access to all SELF SERVICE models is limited to enabled users exclusively.
Enabled users can be identified by the management system in two ways:
- by entering a 4-figure PIN CODE, or
- by introducing an ELECTRONIC KEY.

ATTENTION ***All USERS provided with a PIN CODE should be suitably trained and at least informed on the contents of this paragraph.***
Configuration of the management system can also include the request for optional data to be entered by the user (vehicle registration number, odometer value, quantity to be supplied). Further details can be found in the management system manual.
Should these options not be selected, the management system will enable the pump and fuel dispensing as soon as an enabled PIN CODE is identified.

ATTENTION ***The pump does not start as soon as enabled. Pump starting is controlled by a switch placed in nozzle seat and operated by the nozzle itself.***

After being enabled the pump starts after being extracted from its seat; it will stop when it is put back correctly.
No additional manual operation is required to start or stop the pump.

16.2.1 FUEL DISPENSING

ATTENTION ***Fuel shall be ABSOLUTELY dispensed under the User's strict supervision.***
In case of simple configuration (no optional data to be entered), dispensing takes place as follows:

1 Enter PIN CODE
If the management system identifies an enabled pin code, the following messages are displayed and the pump is enabled.





2 Uncoil the hose from the hook and take the nozzle out of its seat.The management system starts the pump.

ATTENTION ***Never operate nozzle lever before putting the nozzle in the container to be filled.***

3 Operate nozzle lever to start dispensing fuel.
The management system displays quantity supplied.

ATTENTION ***Dispensing can be stopped when desired. In case of prolonged break (break time can be set by the Manager at Configuration stage), the pump is stopped and disabled. Repeat operations from point 1. to resume dispensing.***

4 After dispensing, coil the hose on the hook and put the nozzle back in its seat. The management system stops the pump

17 MAINTENANCE

17.1 ROUTINE MAINTENANCE

SELF SERVICE has been so designed and built as to require minimum maintenance.
However the following ORDINARY inspections and maintenance operations shall be carried out regularly to ensure safety and efficiency of the station,

17.2 STATION MAINTENANCE

Safety instructions

The dispensing system was designed and built to require a minimal amount of maintenance. Before carrying out any maintenance work, disconnect the dispensing system from any electrical and hydraulic power source. During maintenance, the use of personal protective equipment (PPE) is compulsory. In any case always bear in mind the following basic recommendations for a good functioning of the dispensing system

Authorised maintenance personnel

All maintenance must be performed by qualified personnel. Tampering can lead to performance degradation, danger to persons and/or property and may result in the warranty being voided.

ONCE A WEEK

- Check that the pipe connections are not loose to prevent any leaks;

ONCE A MONTH

- Check the pump body and keep it clean and free of any impurities;
- Check that the electrical supply cables are in good condition.

WARNING

The maintenance of the electrical parts can 'be done only by qualified installer electrical or electronic.

Before performing any maintenance make sure to unplug the device from the power supply to turn it off and isolate it from the mains.

If the device is sold without cable to provide periodic verification of the circuit grounding in accordance with current regulations

17.3 PUMP AND PIPES MAINTENANCE

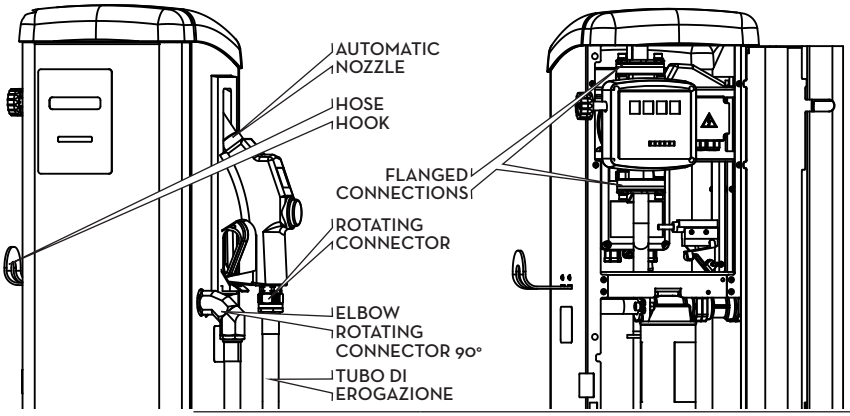
Inspect pump, pipes and the other internal components (filter and pulser). Keep them clean.
Check that no leakage is available on flanged or threaded connections and that flexible hoses do not show any damage.

17.4 DELIVERY AND NOZZLE MAINTENANCE

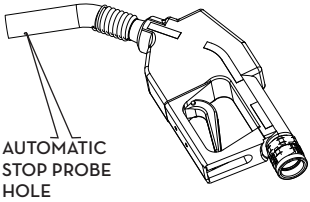
Keep delivery hose and nozzle clean. Make sure that:

1. Hose does not show any damage caused by vehicle transit.
2. Threaded connections are tightened and without any leakage.
3. Banjo unions (at station outlet and on nozzle) turn smoothly and show no leakage.

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4 Hole of automatic stop sensor at nozzle hose end (spout) is clean.



17.5 MANAGEMENT SYSTEM MAINTENANCE

FOREWARD

FM/MC management system does not require any maintenance except REPLACING PRINTER PAPER (only on models with printer) .
The printer, integrated in the system with FM box, operates with thermal paper.

Roll dimensions:
- external diameter: 50 mm
- internal diameter: 13 mm
- width: 57 mm

ATTENTION

Paper should be replaced when the printer shows a red stripe lengthwise.
To replace paper roll act as follows:

1 Open SELF SERVICE front panel to reach FM BOX back and extract the movable protective shield as indicated by the arrow.

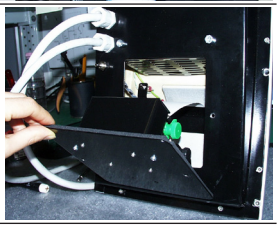




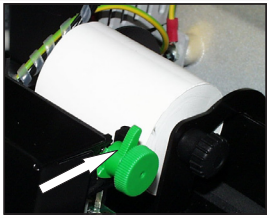
2 Unscrew the knobs and open the printer door.

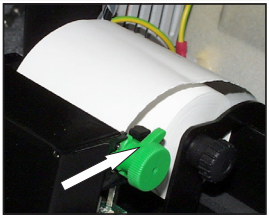
3 Open the door.





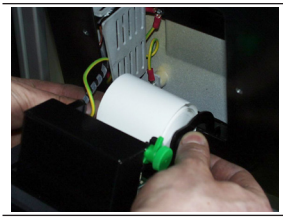
4 Lift the paper dragger acting on the lever indicated by the arrow, until position "4a" is reached.

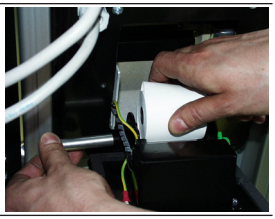




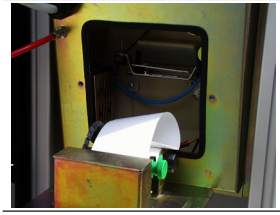
5 Using your left hand, seize the paper roll support pin and unscrew the knob to the right.

6 Remove the paper roll, place a new one, introduce the support pin and screw the knob on it.





7. Introduce the paper into the printing head having aligned it correctly. Close the retaining lever and act on the knurled wheel to let some paper go out of the cutter (on FM BOX front).



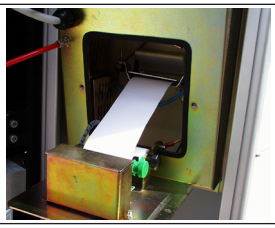


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8. Introduce the paper into the guide.

9. Close the printer door and turn the knobs.

10. Close Self Service door. Check that the paper has come out correctly.





ATTENTION ***Make sure that the paper does not roll up under the cutter door.***

11. Lift the cutter door, exert a certain pressure and pull off the ticket.







17.6 FILTERS MAINTENANCE

FOREWARD

SELF SERVICE is equipped with different filters performing different functions. Inspection and cleaning (or replacement) of each filter is extremely important to ensure:

- protection of station components (K44, pump, nozzle);
- lasting performance (max. flow rate);
- protection of engines using fuel supplied.

ATTENTION ***Dirty or partially obstructed filters can increase pressure losses in such a way as to cause a remarkable reduction of the max. flow rate of the pump . Dirty or partially obstructed filters in pump suction line can cause a strong increase in suction vacuum which, in turn, can result in higher noise levels of the pump.***

OPERATIONS PRECEDING FILTER DISASSEMBLY

To facilitate operations on filters (see below), SELF SERVICE stations are equipped with:

- PAN to collect possibly spilled liquids, placed under the delivery cartridge filter.
- RELEASE VALVE, installed on suction filter

The procedures described in this paragraph should always be followed before carrying out any operations on filters. They are absolutely required to ensure safety when working and to prevent any polluting effects.

1 Close the valve placed on suction line before SELF SERVICE inlet.





ATTENTION
This valve, which is usually not present in tank under ground installations, MUST BE USED in tank above ground installations. The valve, which is not supplied with the station, should be fitted by the installer

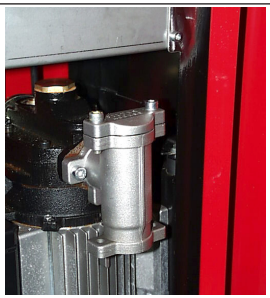
2) Put the small pipe connected with the RELEASE VALVE in a vessel and open the valve with a screwdriver.
BE CAREFUL: DIESEL FUEL LEAKING OUT!

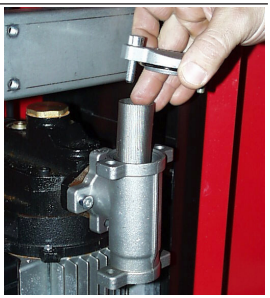
3	Start the pump and deliver fuel into a container with suitable capacity. The nozzle will start supplying fuel, but thanks to the release valve the flow will decrease progressively and finally stop.
4	Put the nozzle back in its seat; the pump will stop.
5	Close the RELEASE VALVE carefully moving the pipe (connected to it) and move back to a higher position.
6	Move the general switch of the station to OFF to prevent accidental starting during maintenance of filters.
7	Clean /replace filters as described in the following paragraphs.
8	Clean collecting PAN carefully, so that possible leakages can be identified more easily.
9	Move the general switch of the unit to ON.
10	Keeping the unit front door OPEN, start the pump and deliver fuel into a vessel until a CONTINUOUS AIR-FREE FLOW is obtained. Close the nozzle WITHOUT PUTTING IT BACK IN ITS SEAT: the pump will operate in bypass mode, producing the maximum delivery pressure.
11	During bypass operation CHECK THE ABSENCE OF LEAKAGES ARE AVAILABLE, then put the nozzle back in its seat.
12	Lock station door.

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17.6.1 SUCTION FILTER

It is placed just before the suction mouth of the pump. To inspect and clean it act as follows:
1 remove filter cover after unscrewing the two screws on same;
2 extract basket filter;
3 if necessary, clean it: wash and blow it;
4 put the basket filter back in the filter casing;
5 inspect and clean the O-ring. Put cover in position and tighten the screws.





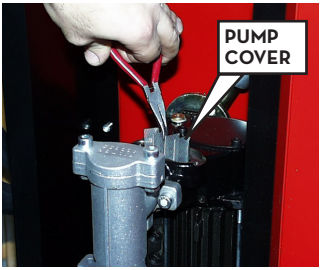
17.6.2 PUMP FILTER (available on models with PANTHER 72 only)

It is installed in pump body, as a standard accessory of PANTHER pump, just after the suction filter. As a consequence it will not require frequent cleaning.

To inspect and clean it act as follows:

1 remove filter cover after unscrewing the two screws on same;
2 extract net filter using pliers;
3 if necessary, clean it: wash and blow it through;
4 put the filter back in pump body making sure it does not stand out of cover seat;
5 inspect and clean the flat seal. Put cover in position and tighten the screws.





ATTENTION ***After a reasonable number of maintenance operations, replace the flat gasket of the cover filter.***

17.6.3 PULSER FILTER (only for FM-MC version)

The pulser filter is an additional protection which prevents foreign bodies from entering the oval gear pulser.
As it is installed after the suction filters, it does not require any regular checking and cleaning.
However, should the filter be cleaned for any reasons and/or in case of special maintenance operations, remove the pulser (if necessary) and proceed as described in PULSER MANUAL.

17.6.3 DELIVERY FILTER (only for high Self Service versions)

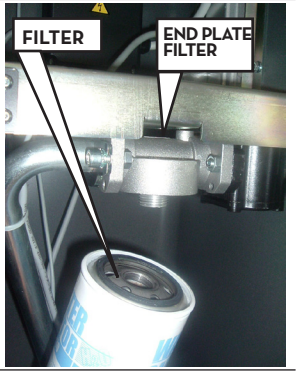
The delivery filter is provided with a WATER-ABSORBING CARTRIDGE. It represents a fundamental element for the protection of the engines using fuel delivered by the station.
This kind of filter separates and absorbs possible water available in fuel oil.
When water is absorbed, the filtering capacity is progressively reduced with a resulting increase in pressure loss (caused by the filter).
The filter CAN NOT BE CLEANED OR REGENERATED; after a certain operating time it must be replaced to restore station performances (max. flow rate).

ATTENTION ***Filter life is usually very long but it can vary remarkably depending on the quantity of water available in fuel. In case of a large quantity of water, the filter could get obstructed in a few minutes.***

To replace the filter act as follows:

1 loosen head filter by means of chain tongs;
2 unscrew and remove the filter from the head manually;
3 inspect and, if necessary, clean head thread and filter seal seat;
4 place a new filter (complete with seal) manually in position and screw as tightly as possible (wet the seal with Diesel fuel);
5 tighten the filter (not too much) using the chain tongs



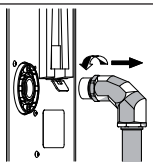
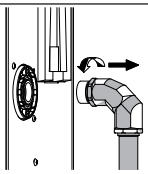
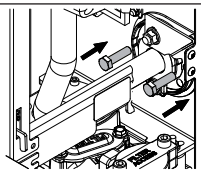
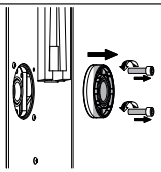
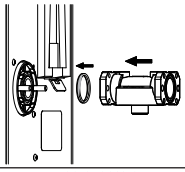
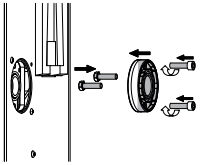
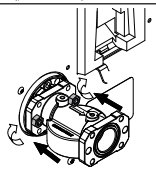
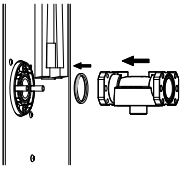
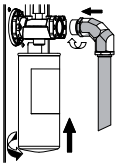
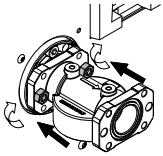
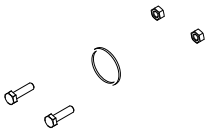
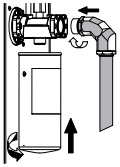


ATTENTION ***Some station models are equipped with DOUBLE-CARTRIDGE FILTER. Both cartridges operate simultaneously and must be replaced at the same time.***

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17.6.4 FITTING INSTRUCTIONS FOR EXTERNAL FILTER (Tank versions only)

Self Service Tank versions are fitted only with an external filter. A few operations are necessary for fitting: they are hereafter illustrated, both for the mechanical version (K44) and electronic versions (MC, FM).

SELF SERVICE TANK K44		*SELF SERVICE TANK MC - FM*	
1		*1*	
2		*2*	
3		*3*	
4		*4*	
5		*5*	
Kit with screws, nuts, seal for filter fitting is supplied with each Self Service Station. 		*6*	

17.7 SPECIAL MAINTENANCE

ATTENTION

All maintenance operations not described in this manual should be regarded as SPECIAL MAINTENANCE. As such they must by carried out by our specialized SERVICE technicians exclusively.

18 TROUBLESHOOTING

PROBLEM	*POSSIBLE CAUSES*	*POSSIBLE SOLUTIONS*
MOTOR NOT TURNING	No electric power	Turn the pump ON/OFF switch to the ON position. Recock the external residual current circuit breaker. Check the electrical connections.
	Fuses burned out	Replace the fuses in the electric panel
	Nozzle Lever control micro switch brocken.	Replace the microswitch
	Problems with the motor	If the rotor is jammed, dismount and check for damage and obstructions then ermount. Contact the service Department
MOTOR WIN'T START WITH NOZZLE CLOSED	Electric Voltage too low	Check the voltage is not more than 5% below the nominal voltage.
	Excessive suction pressure	Lower the Self Service with rispect to the tank or increase the diameter of the tubing.
LOW OR NO FLOW	High loss of head	Use shorting tubing or odf greater diameter
	Suction tube resting on the bottom of the tank	Raise the suction tube
	Lowlevel in the suction tank	Fill the tank
	Air entering the suction tube or in the pump	Check the seals connection in the tubing and the leevl of diesel fuel in the tank
	Low rotation speed	Check the voltage at the motor Regulate the voltage of the motor and/or use the larger diameter cables.
	Check valve blocked	Clean or replace
	Tank filter clogged	Clean the filter
	Pump filter clogged	Clean the filter
	Cim-tek filter plogged	Replace the filter
	Fluid Leaking	Check the connection seals and the condition of the rubber tubes
	Meter chamberv obstructed	Clean the Meter chamber
METER NOT ACCURATE ENOUGH	Air in the suction line	Clean the meter measuring chamber
	Insufficient calibration	Calibrate the meter (see M0033)
THE NOZZLE SHUT OFF TOO OFTEN	Probe hole automatic stop is obstructed	Clean probe hole of automatic stop spout
THE REMOTE PRINTER DOES NOT WORK	The printer has not been configured	The manager must configure the printer
	There is no paper	Add paper

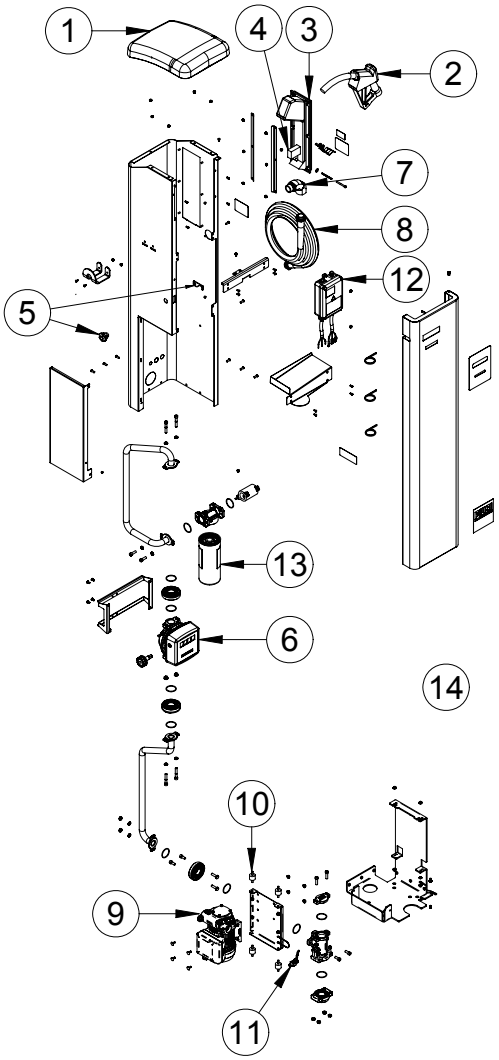
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19 DEMOLITION AND DISPOSAL

Foreword	If the system needs to be disposed, the parts which make it up must be delivered to companies that specialize in the recycling and disposal of industrial waste and, in particular:
Disposing of packing materials	The packaging consists of biodegradable cardboard which can be delivered to companies for normal recycling of cellulose.
Metal Parts Disposal	Metal parts, whether paint-finished or in stainless steel, can be consigned to scrap metal collectors.
Disposal of electric and electronic components	These must be disposed of by companies that specialize in the disposal of electronic components, in accordance with the indications of directive 2012/19/UE (see text of directive below).
Information regarding the environment for clients residing within the European Union 	European Directive 2012/19/UE requires that all equipment marked with this symbol on the product and/or packaging not be disposed of together with non-differentiated urban waste. The symbol indicates that this product must not be disposed of together with normal household waste. It is the responsibility of the owner to dispose of these products as well as other electric or electronic equipment by means of the specific refuse collection structures indicated by the government or the local governing authorities.
	Disposing of RAEE equipment as household wastes is strictly forbidden. Such wastes must be disposed of separately.
	Any hazardous substances in the electrical and electronic appliances and/or the misuse of such appliances can have potentially serious consequences for the environment and human health.
	In case of the unlawful disposal of said wastes, fines will be applicable as defined by the laws in force.
Miscellaneous parts disposal	Other components, such as pipes, rubber gaskets, plastic parts and wires, must be disposed of by companies specialising in the disposal of industrial waste.

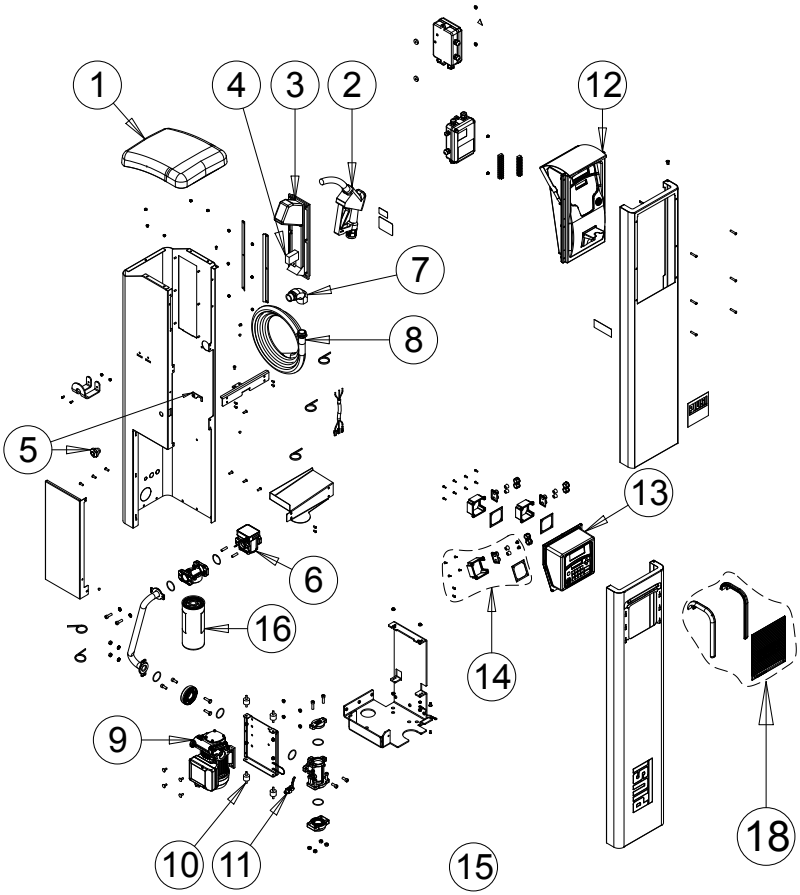
20 EXPLODED VIEWS

K44



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FM - MC



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