

varisco®

a solid name in fluids

UNI 9490 FIREFIGHTING UNITS

Instructions for use and
maintenance



COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV

== ISO 9001 ==

**VARISCO S.p.A.
Servicing Department**

UNI 9490 Firefighting units

**Instructions for installation
and maintenance**

varisco[®]
a solid name in fluids

Before putting the unit into operation, read the instructions herein carefully.

The unit has been thoroughly tested, for several hours, prior to delivery; performance has been checked and relevant requirements met, within the acceptable tolerance limits.

If the instructions for use and maintenance are observed, the unit will give full performance for a long time. This manual also contains information for the prevention and elimination of most common operating problems.

Contents:

- 1 Identification
- 2 Warranty
- 3 General instructions
- 4 Safety rules and accident prevention
- 5 In case of emergency
- 6 Handling and transport
- 7 Storage
- 8 Plumbing
- 9 Wiring
- 10 First startup and pressure switch settings
- 11 Regular operation
- 12 Periodic testing and maintenance
- 13 System diagrams
- 14 Electrically driven pump control panel diagram
- 15 Electrically driven jockey pump control panel diagram
- 16 UNI 9490 engine-driven pump control panel diagram
- 17 List of spare parts
- 18 Engine-driven pump control panel diagram
- 19 Overall dimensions

1 IDENTIFICATION

1.1 Manufacturer

VARISCO S.p.A. Zona Industriale Nord - Terza Strada, 9 - 35129 Padova - Italy

1.2 Type

Firefighting unit

1.3 Model

The model is given on the pump's nameplate

1.4 Year of manufacture

The year of manufacture is given on the pump's nameplate

1.5 Instruction book identification

Compiled: May 2003

Edition: 04

Rev.: 01

Date of Revision:

1.6 Ratings

varisco® a solid name in fluids	
GRUPPO AUTOMATICO ANTINCENDIO AUTOMATIC FIREFIGHTING UNIT	
Anno / Year	Peso / Weight
<input type="text"/>	<input type="text"/> kg
Matricola / Serial No.	
<input type="text"/>	
VARISCO S.p.A. - PADOVA - ITALY - 049 82 94 111	

TYPE				
MATR.	ITEM			
m ³ /h (max)	m (max)	kW	RPM (max)	kg

Ratings refer to testing with water at 20°C and with a density of 1,000 kg/m³

Type : indicates the model of the pump and unit (pump/gearbox/engine/motor).

Serial No. : this is the pump's serial number

Item : this is the number with which the pump is associated in the agreement documents (not always indicated).

m³/h (max) : this is the pump's maximum flow rate, measured at top speed (rpm).

m (max) : this is the pump's maximum working pressure, measured at top speed (rpm).

kW : it is the maximum power applicable to the pump at the maximum rpm

RPM (max) : this is the pump's maximum operating speed. The pump must never be allowed to exceed this speed.

kg : it is the weight of the unit (pump and trailer) not including the weight of the water in the pump casing and that of the fuel in the tank.

1.7 Field of application

Firefighting Unit suitable for pumping soft water not containing solids in suspension used to supply water to an automatic firefighting system.

1.8 In case of breakdown

Call the following number:

+39 049 82 94 111

2 WARRANTY

- VARISCO POMPE warrants that only top-quality materials are used in the construction of their pumps and that machining and assembly are carried out to high standards.
- The company also warrants units supplied, in conformity with general terms of sale, against defective materials or faulty workmanship for a period of 12 months from the date said units are put into operation, and under no circumstances for more than 18 months from the material's date of delivery.
- **The warranty is not valid if the unit has been tampered with by third parties.**
- Replacement of parts or of the whole unit can only be carried out after careful examination by our technical personnel.
- The warranty includes the supply of parts acknowledged as being defective by the manufacturer, and does not cover labour and transport costs, where applicable.
- This warranty does not cover materials subject to deterioration or normal wear and tear (seals, diaphragms, pressure and vacuum gauges, rubber or plastic items, etc.) or damage caused by misuse or improper handling of the unit by the end user.
- Materials replaced under warranty become the property of VARISCO POMPE.

3 GENERAL INSTRUCTIONS

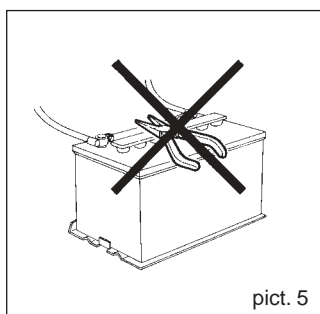
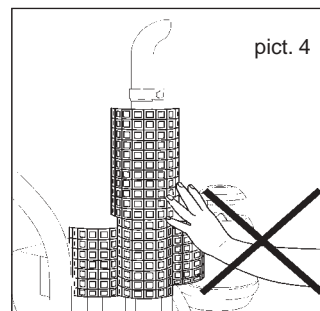
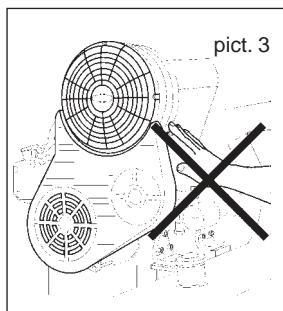
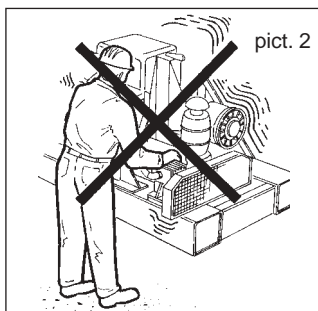
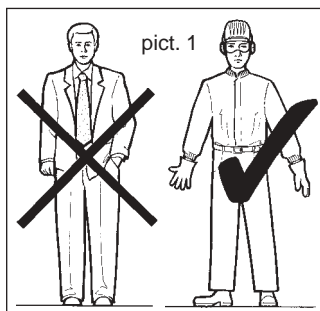
The goods must be examined on arrival to ascertain any damage, particularly that incurred in transit. Also check that the goods correspond exactly to the description on the shipping documents. Report any differences or damage to the forwarding agent straight away, and inform the Padua office or local distributor within 48 hours (see list attached, or look under "Pumps - Production" in the Yellow Pages). Always quote the pump type printed on the relevant nameplate, or the serial number.

The Firefighting Unit must be used only for applications for which the Manufacturer has specified:

- construction materials
- operating conditions (pressure, speed, temperature, etc.)
- fields of application

For any applications not contemplated by the Manufacturer, contact VARISCO POMPE's Servicing Department.

4 SAFETY RULES AND ACCIDENT PREVENTION



When working near the Firefighting Unit, dress appropriately, avoiding baggy clothes with loose items (ties, scarves, etc.), which could get caught in moving parts. Use overalls made according to safety regulations, gloves, insulating shoes, safety glasses, safety earmuffs and hard hat. **(fig. 1)**

Do not carry out maintenance on the engine while it is running (fig. 2).

Keep hands away from moving parts (e.g. belts, couplings, etc.) (fig. 3).

Keep hands away from parts of the engine that get hot (fig. 4).

Do not climb on top of the Firefighting Unit to perform work of any kind.

Do not rest metal tools on the battery (fig. 5).

5 IN CASE OF EMERGENCY

Switch off motors/engines via the relevant control panels.
Notify the person responsible for running the plant.

6 HANDLINGS AND TRANSPORT

6.1 Method of transport

The unit must be transported horizontally and safely.
Do not linger within the Firefighting Unit's range during its handling.

6.2. Installation

During installation and maintenance, all components used must be handled securely using suitable slings. Handling must be carried out by specialized personnel to avoid damage to the Unit and injury of personnel. Only use the lifting rings the Firefighting Unit comes with
Maximum lifting speed: $V_{max} = 0.5 \text{ m/s}$

7 STORAGE

Protected from the elements and away from aggressive atmospheres.

8 PLUMBING

8.1 Suction piping (Ref. diagrams on page 10)

Where possible, the unit should be installed with flooded suction.

If the unit is installed above the water supply, with the suction ports higher than the water's minimum level, a priming tank must be installed for each pump, complete with accessories provided for by UNI 9490 standards. Each pump will also be fitted with its own nonreturn valve (part 6). Each pump will have an independent suction pipe, with relevant isolating gate valve (parts 8 - 9) so that the pump can be serviced (for instance: the pump disassembled or the relevant nonreturn valve cleaned) without having to empty the storage tank.

The electrically driven jockey pump, where applicable, will also have an independent suction pipe. Warning: ALWAYS install the nonreturn valve on the actual pump's suction port, complete with three-way fitting so that it can be serviced.

This valve is required even if the pump is a self-priming model as, without it, the pressure vessel used for storage would empty through the actual pump as soon as it stops.

If you have to install a single suction manifold, consult our Technical Department for sizing.

Suction pipes must have the same diameter as the relevant pump's suction port, or larger still if piping is particularly long or flow resistance high (bends, elbows etc.).

It is always essential you fit a flanged length of pipe or vibration damping coupling, in addition to the isolating gate valve, so that each pump can be disassembled.

8.2 Delivery piping

The discharge manifold has two flanges to simplify connections when dealing with ring main systems. If just one flange is used, the free one can be used for recirculating purposes (see section below).

8.3 Recirculation piping for periodic tests (Ref. diagrams on page 10)

To simplify periodic testing of operation, it is best to connect the discharge manifold to the storage tank with a ball valve and a $\frac{1}{2}$ " or 1" pipe, depending on the size of the unit (part 13).

The resulting recirculation allows you to simulate a pressure drop and hence automatic starting, without turning on hydrants or sprinklers and without using water.

Each pump comes with a flange with gate valve (part 8) fitted to measure the capacity of the actual unit. Where fitted, the flow meter (part 15) must be installed in a straight length of piping at least ten times the diameter of the pipe, both before and after the meter in question. (Example: DN100 pipe; $100 \times 10 = 1000$; requires a stretch of pipe at least 1 metre long, before and after the meter.

8.4 Automatic recirculation piping (Ref. diagrams on page 10)

To avoid pumps working too long with zero flow when the installation site is not always manned, it is advisable to install an automatic recirculation system. Units start automatically but are stopped manually, meaning they may remain in operation for a long time before they are stopped, resulting in the danger of water in the pumps

overheating, generating steam, causing the pump casing to break and destroying the seal as a result. Each main pump features a fitting for the recirculation pipe (part 9A) at the base of the delivery flange, where there is a tee for the pressure gauge, a 1" fitting (part 17) (provided for connecting the priming tank when a flooded suction system is not used) and a ball valve downline to which a device (calibrated diaphragm or cock) must be connected to set the recirculation capacity. (part 14).

For this purpose, balancing valves (10 or 20 turns) such as those used in heating systems (1/2" or 3/8" Cazzaniga or Giacomini models) can be used. At this point, with the pump stopped, the only pressure will be the static pressure due to the head of the water supply. When the pump starts running, the flow circulated as a result of the delivery pressure will be in proportion to the opening of the balancing valve, and the pressure switch (part 7) will indicate that the relevant pump is running. A capacity of 10-20 litres/minute is sufficient to avoid damaging the pumps.

8.5 Packed glands leak discharge piping

Each main pump features a cast tray to collect water leaking from the packed gland. (It is located between the rear of the pump and the bearing housing). These trays have tapped holes to accommodate pipes conveying the waste water outside.

Warning: The room the unit is to be installed in must be kept at a minimum temperature of 5-6 °C to avoid the danger of freezing, and must feature a ventilation system so that the diesel engine is kept cool.



Warning, danger of death by asphyxiation! The diesel engine exhaust must always be ducted outside.

A length of hose must be fitted between the end of the diesel engine exhaust silencer and the pipe conveying exhaust fumes outside to isolate vibrations between the engine and the pipe fixed rigidly to the building.

9 WIRING

Each pump has its own control box. If setting up a power supply line to each control box is a problem, a connector box can be installed in the pump room to power the various control boxes.

9.1 Engine-driven pump only

A single-phase 220 V 50 Hz supply is sufficient. Required power 700 VA. In special cases, with engines over 200 HP, water-cooled engines etc., more power may be required. In such cases, consult the Technical Department.

9.2 Electrically driven pump or unit with more than one electrically driven pump and engine-driven pump

A three-phase line, with neutral, is required, with enough power to meet the total rated power of the electrically driven pumps. Unless otherwise requested, a 3x380 V, 50 Hz power supply will be taken as standard.

The cross-section of the neutral wire should be calculated for the power of the engine-driven pump plus that required by auxiliary equipment in the pump room (lights, sockets, electric heater if fitted).

Control boxes feature an earth terminal, which must be connected by the unit's user to the earth wire. (Italian presidential decree (D.P.R.) 547 for prevention of accidents in the workplace). Star/delta starters are used for electrically driven pumps with a power over 7.5 kW (10 HP). Consequently, the circuit breaker protecting the unit's supply line must have a magnetic trip designed to carry at least 2.5 times the rated current of the electrically driven pump, or the sum of the rated current of each electrically driven pump if there is more than one. Phase sequence can be checked to ensure that phases have been connected correctly without having to start the electrically driven pumps, by checking the mains phase sequence control device in the electrically driven pump control box: when the box is powered, the red LED on the actual device should light. If this is not the case, swap two of the phase wires over in the input terminal box in the control box without touching the wiring of the individual motors.

Next, check direction of rotation by starting each electrically driven pump for a moment using the relevant manual control: motors should turn CLOCKWISE looking from the fan end.

10 FIRST STARTUP AND PRESSURE SWITCH SETTINGS

10.1 Jockey pump testing

If there is a jockey pump, bleed the air out of its casing through the plug provided. Check the pressure vessel's pressure setting: recommended value 2.5-3.5 bar depending on the system's working pressure. Start the pump by turning the selector to "AUTOMATIC". The pump should prime and fill the system. The working pressure is given on the pressure gauge located on the discharge manifold (part 5), or on the one located on the pressure vessel. The next step is to bleed the ring main, opening the gate valves of the fire hydrants or outlets. When the recirculation line or a hydrant is opened, the jockey pump starts working. It is controlled by

Warning: If there is a power failure or mains power is switched off because of work on the line, any pressure drop in the system will cause the engine-driven pump to start automatically.

12 PERIODIC TESTING AND MAINTENANCE (Ref. diagrams on page 10)

- 12.1** The unit should be tested at least every 15 days to assure lasting reliability. To carry out the test, one pump at a time should be switched off by setting the relevant selector to 0, and a fire hydrant or the recirculation valve (part 13) on the discharge manifold then opened to check whether the other pump starts automatically.
- 12.1.1 Electrically driven pump test**
Check the ammeter reading to make sure that current absorbed by the electrically driven pump does not exceed the electric motor's rated current demand.
Make sure there are no vibrations or unusual noises, which might be the result of worn rubber dowels in the flexible coupling, or the motor or pump bearings.
- 12.2** Check the pump glands: they should drip slightly (about one drop every 20 seconds).
- 12.3 Engine driven pump test**
Start the engine-driven pump in both automatic and manual mode. Make sure there are no vibrations or unusual noises, which might be the result of worn rubber dowels in the flexible coupling, or the pump bearings. Check for oil or diesel fuel leaks. Check the pump's packed gland: it should drip slightly.
- 12.3.1** Check the level of battery liquid, adding distilled water only if required. Check the instruments on the control panel (voltmeters and ammeters) to ascertain the battery charge.
- 12.3.2** Check diesel fuel and lubricating oil levels for the engine and pump mounts.
- 12.3.3** Check the engine oil preheat system (touch the sump before the engine is started: its temperature should be about 60° C).
- 12.3.4** Change diesel engine oil at least once a year. Continual preheating causes oil to deteriorate even if the engine only actually runs for a few hours altogether.
- 12.4** Check the pressure vessel's pressure setting every year. This check should be carried out after draining water from the pressure vessel through the cock (part 9), otherwise the pressure reading on the filler valve will not be reliable.
- 12.5** Check that the warning lights on the electrically driven pump control boxes are operating: since there are two of each, operation can be checked immediately. If in any doubt as to the plumbing or wiring of units, or their operation, and if you need to request service, contact our Servicing Department at this address:

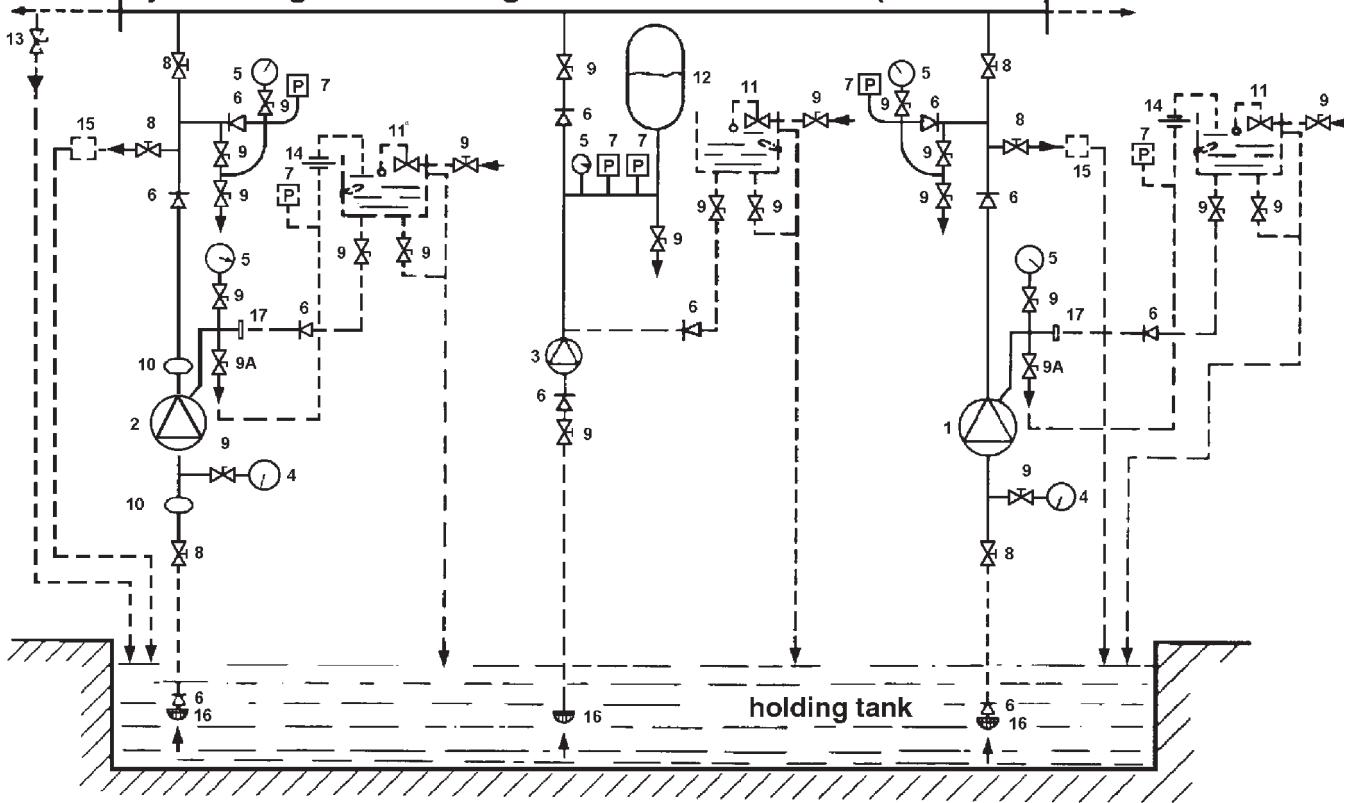
VARISCO S.p.A.

Zona Industriale Nord Terza Strada, 9 35129 PADOVA

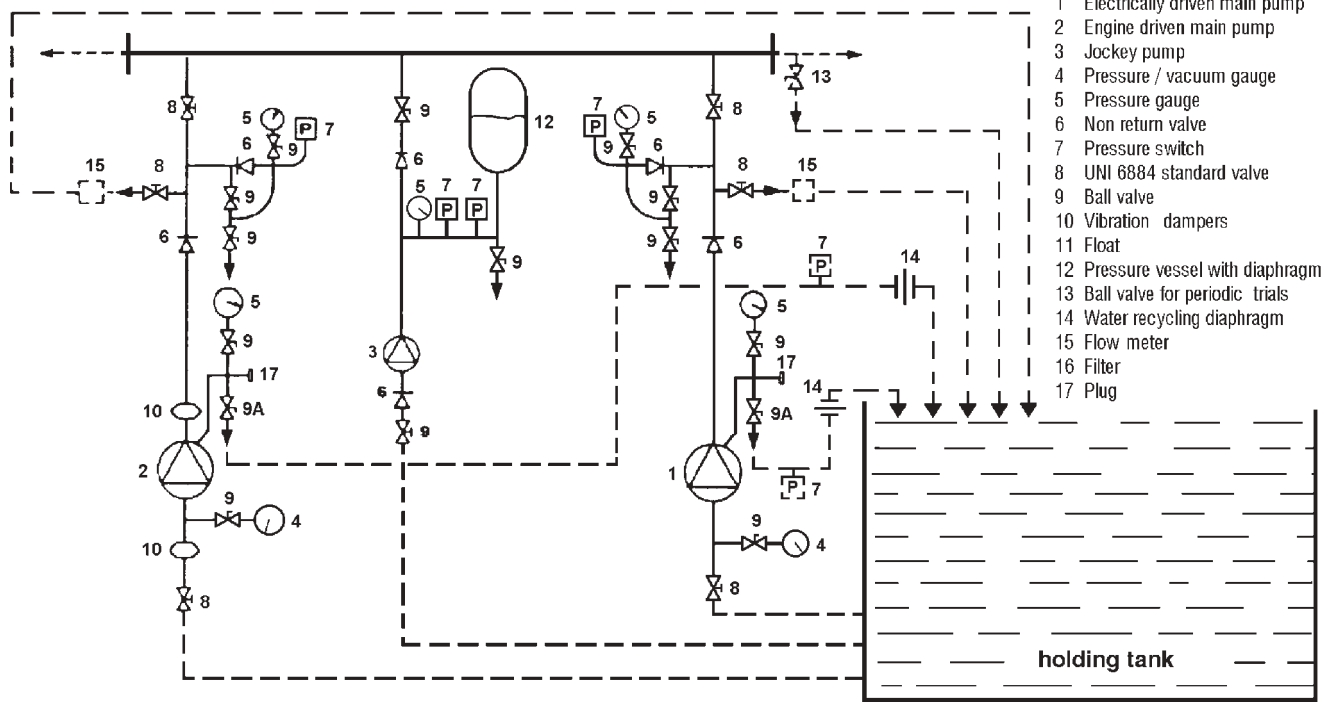
Phone: + 39 049 8294111 - Fax + 39 049 8076762

13 SYSTEM DIAGRAMS

System diagram according to UNI 9490 standards (suction lift)

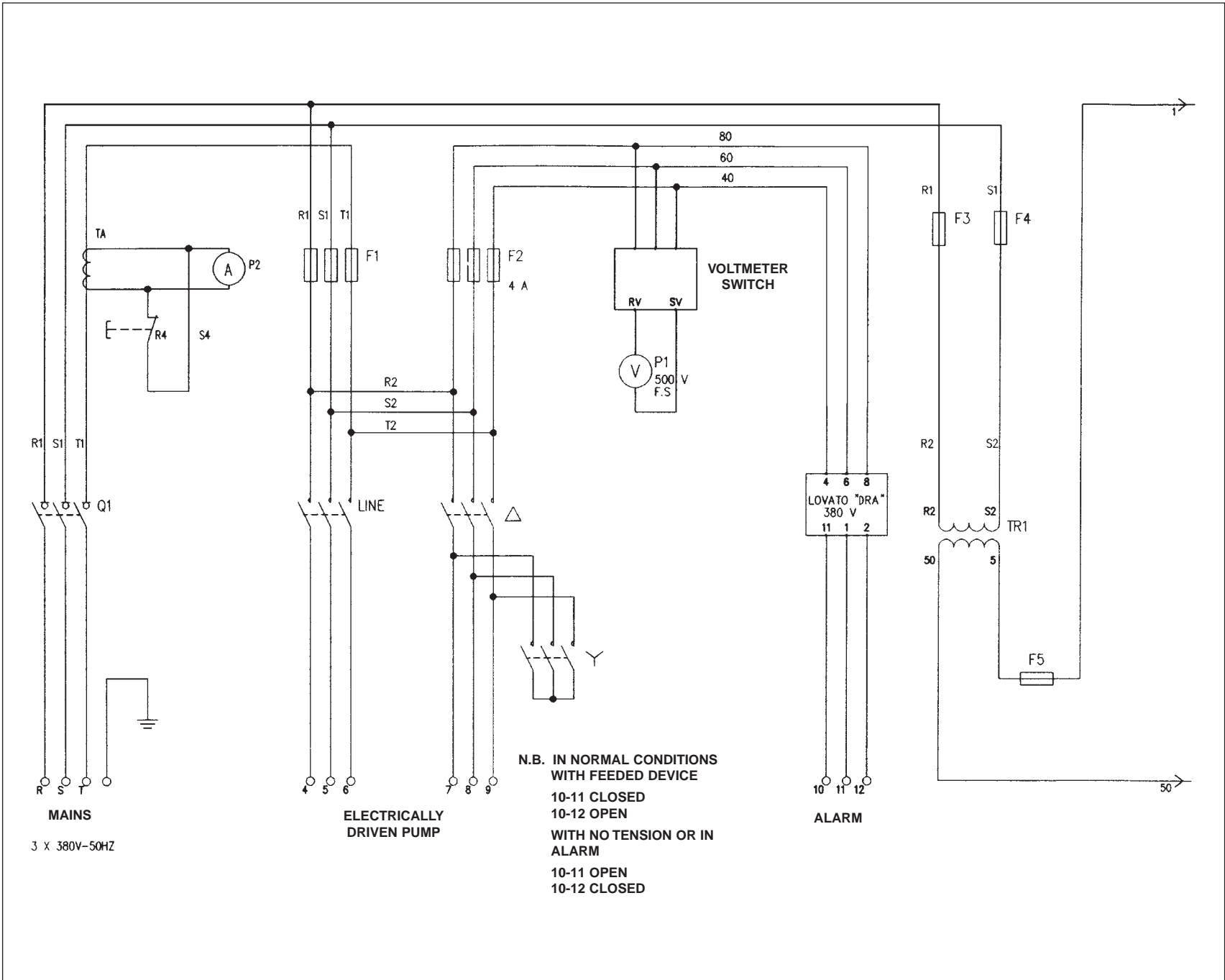


System diagram according to UNI 9490 standards flooded (suction)

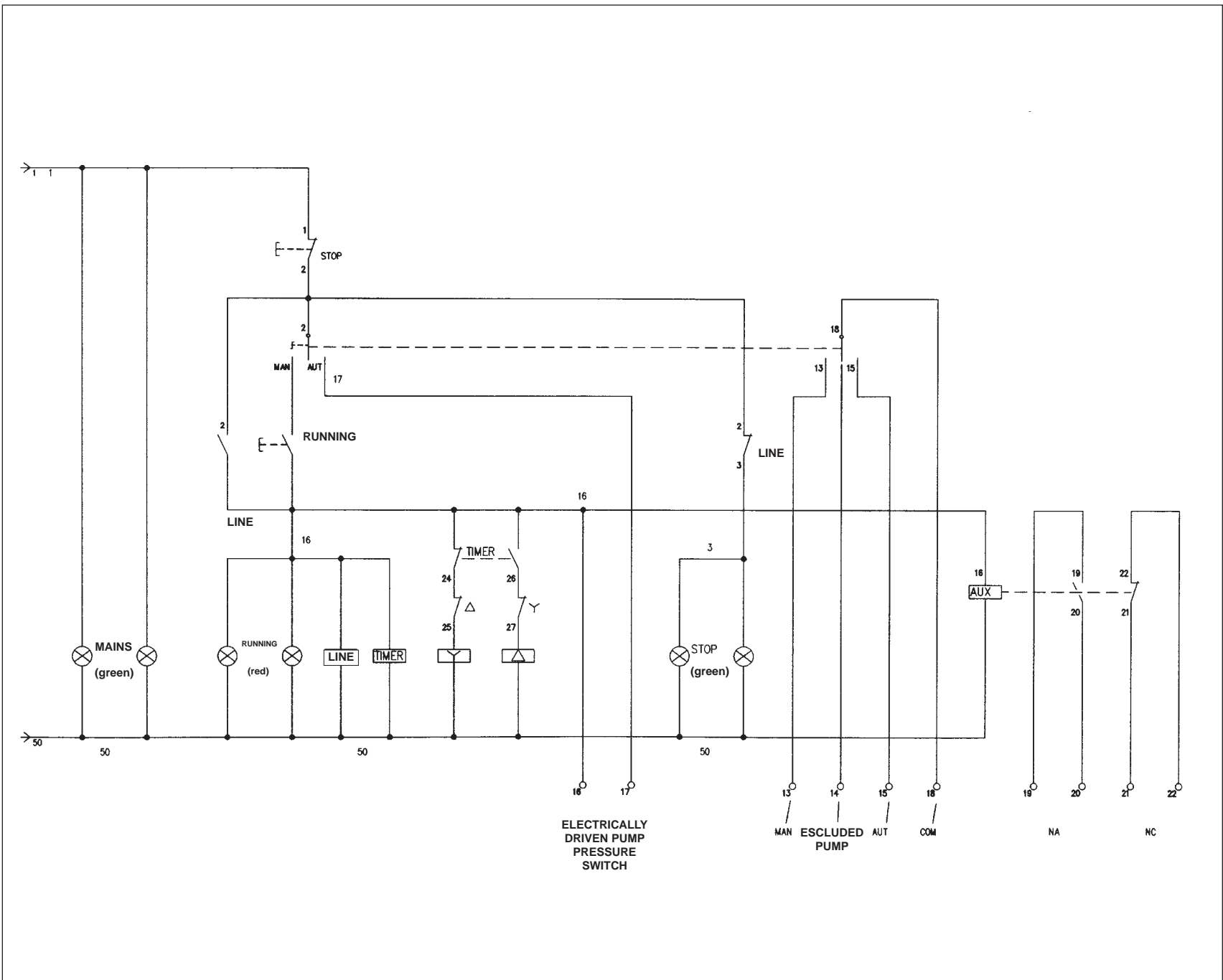


- Legend**
- 1 Electrically driven main pump
 - 2 Engine driven main pump
 - 3 Jockey pump
 - 4 Pressure / vacuum gauge
 - 5 Pressure gauge
 - 6 Non return valve
 - 7 Pressure switch
 - 8 UNI 6884 standard valve
 - 9 Ball valve
 - 10 Vibration dampers
 - 11 Float
 - 12 Pressure vessel with diaphragm
 - 13 Ball valve for periodic trials
 - 14 Water recycling diaphragm
 - 15 Flow meter
 - 16 Filter
 - 17 Plug

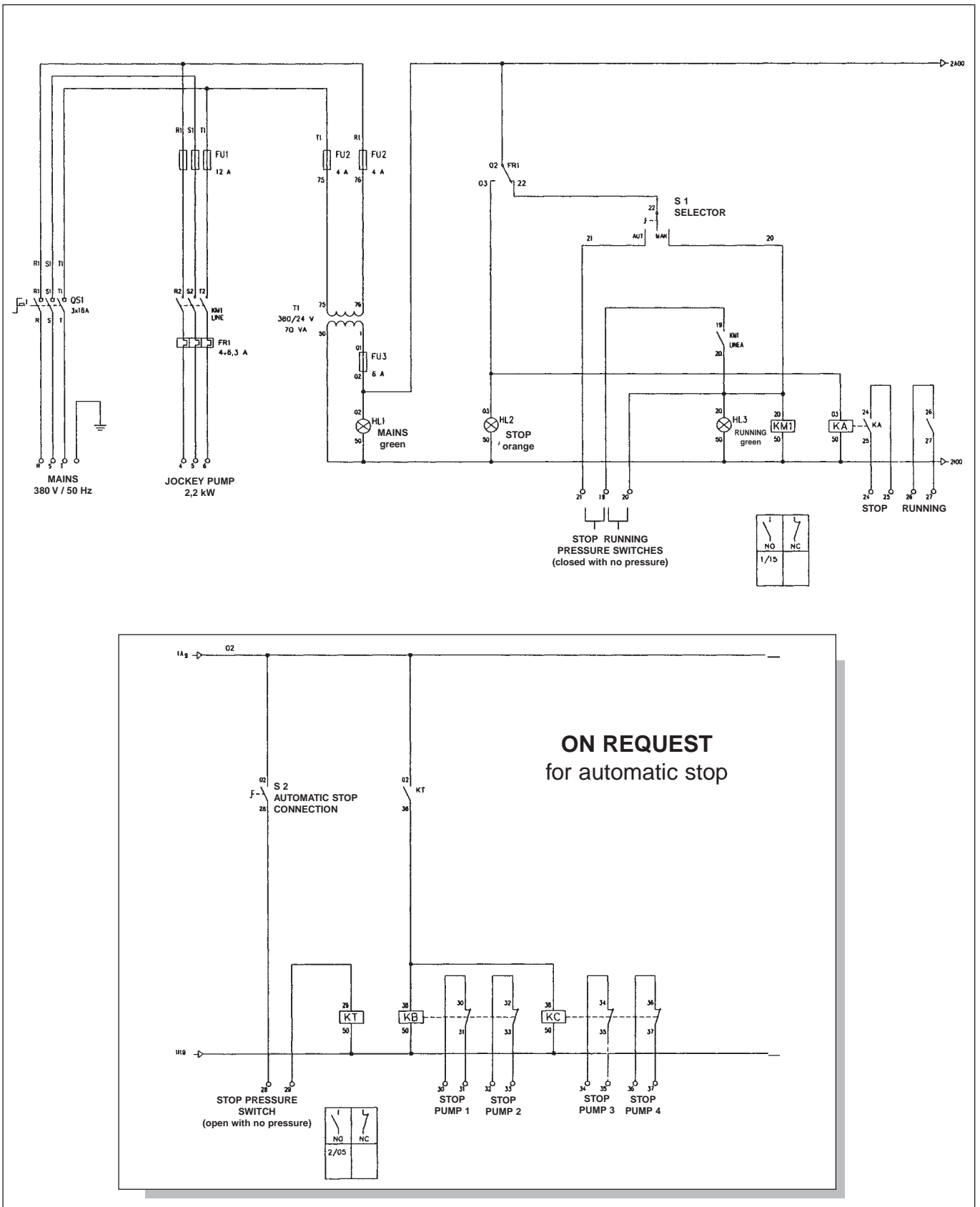
--- Not standard (supplied upon request)



14 ELECTRICALLY DRIVEN PUMP CONTROL PANEL DIAGRAM (2 of 2)



15 ELECTRICALLY DRIVEN JOCKEY PUMP CONTROL PANEL DIAGRAM WITH MAIN ELECTRICALLY DRIVEN PUMP AUTOMATIC STOP (UNI 10779)



16 UNI 9490 ENGINE DRIVEN PUMP CONTROL PANEL

Description

The panel is used to manage an engine-driven pump automatically or in manual mode meeting standards **UNI9490 - UNI10779**.

It is made up of:

- 1 electronic circuit board with display
- 2 battery charger ammeters
- 1 “**automatic,manual,open**” selector with key removable when set to automatic only
- 2 battery chargers
- 1 double-pole thermomagnetic circuit breaker for mains input
- 1 thermomagnetic circuit breaker for engine preheating
- 2 forced start buttons

Description of Electronic Control Unit with Display

The control unit is made up of:

- 1 LED indicating selector set to OPEN
- 1 LED indicating selector set to AUTOMATIC
- 1 LED indicating selector set to MANUAL
- 1 **STOP** button
- 1 **START** button
- 1 **RESET** button
- 1 **OK** button (**TO SELECT READINGS/SETTINGS PAGES ON DISPLAY**)
- 2 buttons (., = next and . back) for programming the board
- 1 display for viewing:



Operating mode

- Selector set to **AUTOMATIC**
- Selector set to **MANUAL**
- Selector set to **OPEN**

Parameter values:

- Engine rev counter
- Voltage of battery-1
- Voltage of battery-2
- Maintenance hours
- Hours of operation
- Number of starts battery-1
- Number of starts battery-2
- Number of failed starts battery-1
- Number of failed starts battery-2

Alarms:

- Oil pressure
- Voltage battery-1
- Voltage battery-2
- Charger fault battery-1
- Charger fault battery-2
- No mains power
- Engine battery charger alternator

Button functions:

RESET: resets alarms

SELECT READINGS/SETTINGS PAGES ON DISPLAY (OK):

scrolls through the display's various values or alarms displayed

STOP: stops the engine with selector set to manual

START: starts the engine with selector set to manual

↑ : next (during programming)

↓ : back (during programming)

16.1 VALUES ON DISPLAY

in standby condition

HOURS	BAT 1	BAT 2
0000	12.0	12.0

Notes: press the **RESET** key to view the selector's setting

During operation, four pages can be viewed on the display giving readings and values of settings. To move from one page to the next, press OK

A)

RPM	V. BAT 1	V. BAT 2
0000	12.0	12.0

B)

HOURS/MAIN	REV COUNTER
0000	0000

C)

AV.BAT1	AV.BAT2
0000	0000

D)

AF.BAT1	AF.BAT2
0000	0000

16.2 AUTOMATIC mode

Set the selector to **“Automatic”**

The message **AUTOMATIC MODE** appears on the display and the relevant LED lights.

The engine starts automatically following a drop in system pressure downline, reported by the contact of one of the pressure switches closing. If one of the batteries is insufficient, the control unit automatically switches starting onto the other battery. In either case, there will be 10 attempts to start. The engine can be stopped manually by turning the selector to **OPEN** or **MANUAL**



WARNING!!!!

When working as a **UNI10779**-compliant unit (where activated), operating logic is identical to the above, the only difference being that the engine-driven pump stops automatically once pressure has remained constantly above the actual pump's starting pressure for at least 30 minutes running.

16.3 MANUAL mode

Set the selector to **“Manual”**.

The message **MANUAL MODE** appears on the display and the relevant LED lights.

To start the engine, hold the **START** button down until you see that the engine has started (the display reads **“ENGINE STARTED”**).

To stop the engine, press **STOP**

16.4 OPEN mode

Set the selector to “Open”

The message **OPEN STATUS** appears on the display and the relevant LED lights.

With the selector in this position, no operation can be performed other than programming the board.

16.5 FORCED START mode

Whatever the selector's setting, the engine's forced start can be carried out by pressing one of the two buttons on the panel and also selecting which battery is to be used. To stop the engine: press the **STOP**

button near the forced starting buttons or intervene mechanically on the engine.

With this kind of starting, the board does not run any check on engine parameters

16.6 ALARMS mode

If there is an alarm, the control unit sends a relevant warning up on the display.

16.7 SETTING THE REV COUNTER (RPM)

Only perform the first time the unit is put into service. Proceed as follows:

- 1 **START THE ENGINE:** set the selector to **MANUAL** and press **START**
- 2 **PRESS KEYS . and STOP** at the same time, holding them down for at least 4 seconds
- 3 **THE DISPLAY READS:**

RPM ADAPT.x 10	
DF=	NEW=

The number next to **NEW** flashes

- 4 **PRESS OK** (the number stops flashing)
 - 5 **PRESS** **↑** to increase or **↓** to decrease. The number set must match the actual number of engine rpm multiplied by 10. (For instance, if the engine runs at 580 rpm, set 0058)
 - 6 **PRESS OK TO CONFIRM.** The number starts to flash again and also appears next to **DF**
- THE REV COUNTER IS SET**
- 7 **PRESS STOP**

16.8 OPTIONS menu description (RESET+OK)

Via this part of the program, the user can edit a number of functions. This must be performed with the engine stopped

To call up the menu, proceed as follows:

1 Press **RESET**

2 Press **OK** (for 3 seconds)

THE FIRST MESSAGE APPEARS:

ALTERN.STARTS?	
DF=	NEW=

DF indicates the value set

NEW, which is flashing, is the position where the new value will be entered

PRESS: . ↑ to move on to the next message
 ↓ to move back to the last message

Once you have chosen the parameter, follow the procedure to edit its value.

Press OK: the value next to **NEW** stops flashing

Press ↑ to increase or ↓ to decrease the value.

Press OK to confirm: the value starts flashing again.

The entry is now saved: press ↑ or ↓ again to move to another parameter, or press **RESET** to exit the **OPTIONS** menu

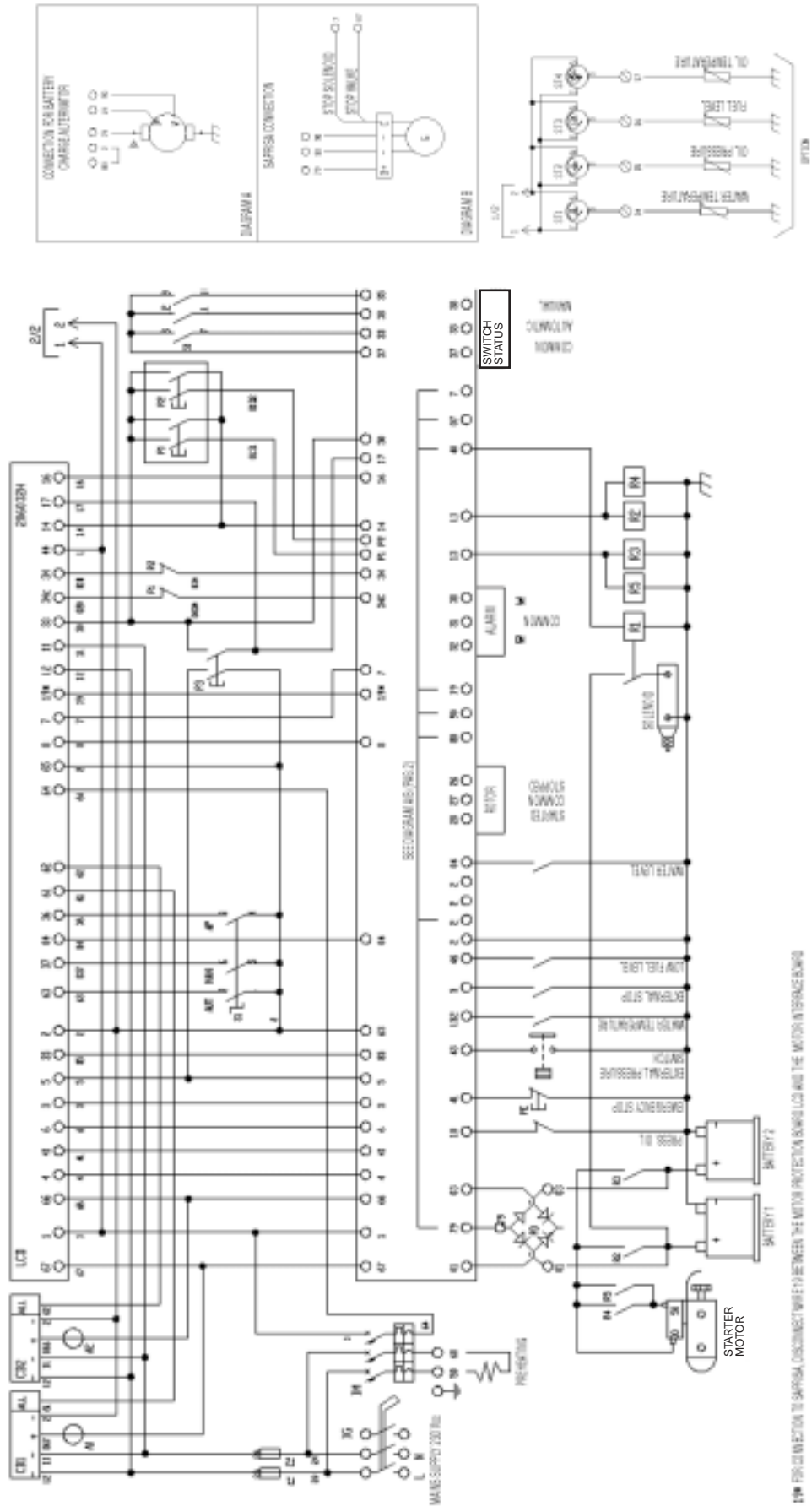
16.8.1 List of OPTIONS menu parameters (RESET + OK)

1	If there is a failed start, via this parameter you can decide whether to perform the next attempt on the other battery, alternating between the two until the maximum number of attempts is reached (YES), or whether to perform all attempts on one battery first and only then switch to the other (NO). Whatever the case, if one battery is too low, the cycle skips it	ALTERN. STARTS?	YES		NO
2	Total number of starts	NO.AUTOM.START	0020	0000	0040
3	Time between two consecutive starting attempts	START TIMER	0007		
4	Time between starting attempts in automatic mode	TIME BETW.AUT.STA	0005		
5	Engine stop phase time	STOP TIME	0010	0000	0250
6	Length of audible signal before start	PRESTART SOUND	0002		
7	Length of audible alarm warning	ALARM SOUND TIME	0020	0000	0250
8	Alarm log display ALARM LOG	ALARM LOG			

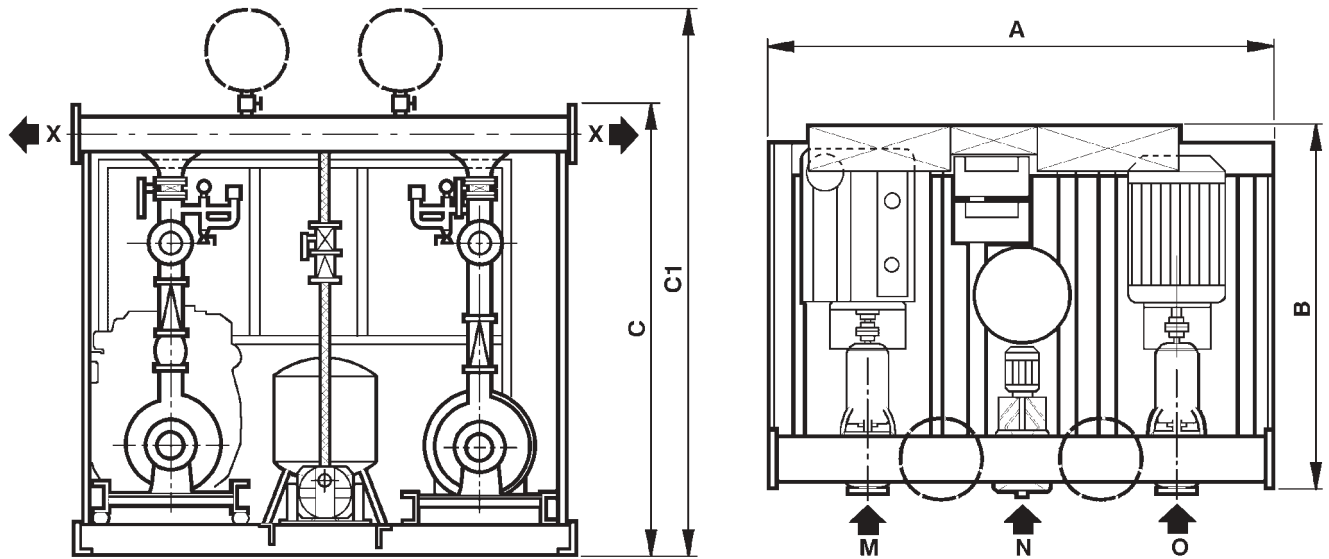
17 LIST OF SPARE PARTS

N.	Component	Manufacturer	Reference-item
1	Box	ZANARDO	404
2	Battery charger	LOVATO	LBC0312
3	UNI 9490 board	TECNO ELETTRA	206032H
4	Ammeters	RS	244834
5	Buttons	LOVATO	82003
6	Terminals	PHOENIX	
7	Switches	MOELLER/AEG	
8	Selector	LOVATO	SF30

18 ENGINE-DRIVEN PUMP WIRING DIAGRAM



19 OVERALL DIMENSIONS



Unit type	A	B	C1	C	M - O	N	X	kg
A2-40C/6LD 435/Mc 752/JET kW2	1500	1500	1800		DN50 PN10	1 1/4"	DN80 PN16	750
A2-40 A/7LD 665/Mc 1002/JET kW2	1500	1500	1800		DN50 PN10	1 1/4"	DN80 PN16	800
HMU 40 2-2/7LD 665/Mc 1002/JET kW2	1500	1500	1800		DN65 PN10	1 1/4"	DN80 PN16	800
A2-50C/7LD 665/Mc 1002/JET kW2	1500	1500	1900		DN65 PN10	1 1/4"	DN80 PN16	800
A2-50A/MD 190/Mc 1502/JET kW2	1500	1500	1900		DN65 PN10	1 1/4"	DN80 PN16	800
A3-50 D/9LD 561-2/Mc 2002/JET kW2	1500	1500	1900		DN65 PN10	1 1/4"	DN80 PN16	880
A3-50 B/9LD 625-2/Mc 2502/JET kW2	1500	1500	1900		DN65 PN10	1 1/4"	DN80 PN16	880
A3-50 A/5LD 825-2/Mc 3002-3/JET kW2	1500	1500	1900		DN65 PN10	1 1/4"	DN80 PN16	900
A2-65 C/9LD 561-2/Mc 2002-3/JET kW2	1500	1500	1900		DN80 PN10	1 1/4"	DN80 PN16	900
A2-65 A/9LD 625-2/Mc 2502/JET kW2	1500	1500	1900		DN80 PN10	1 1/4"	DN80 PN16	900
A3-65 D/5LD 825-2/Mc 3002/JET kW2	1500	1500	2000		DN80 PN10	1 1/4"	DN80 PN16	1100
A3-65 B/5LD 824-3B/Mc 4002/JET kW2	2000	1800		1600	DN80 PN10	1 1/4"	DN125 PN16	1150
A2-80 C/5LD 825-2/Mc 3002-3/JET kW2	1500	1500	2000		DN100 PN10	1 1/4"	DN80 PN16	1050
A2-80 A/5LD 824-3B/Mc 4002/JET kW2	2000	1800		1800	DN100 PN10	1 1/4"	DN125 PN16	1200
A3-80 E/5LD 824-3B/Mc 4002/JET kW2	2000	1800		1800	DN100 PN10	1 1/4"	DN125 PN16	1200
A3-80 C/MSM 1000.3A/Mc 6002-3/JET kW2	2000	1800		1800	DN100 PN10	1 1/4"	DN125 PN16	1650
A3-80 B/MSM 1000.3A/Mc 6002-3/JET kW2	2000	1800		1800	DN100 PN10	1 1/4"	DN125 PN16	1650
A3-80 A/MSM 1000.4A/Mc 7502-3/JET kW2	2300	2000		1800	DN100 PN10	1 1/4"	DN150 PN16	1800
A004-80 D/MSM 1000.4A/Mc 7502-3/JET kW2	2300	2000		1800	DN100 PN10	1 1/4"	DN150 PN16	1800
A2-100 A/MSM 1000.3A/Mc 6002-3/JET kW2	2000	1800		1800	DN125 PN10	1 1/4"	DN125 PN16	1700
A3-100 D/MSM 1000.4A/Mc 7502-3/JET kW2	2300	2000		1900	DN125 PN10	1 1/4"	DN150 PN16	1900
A3-100 C/MSM 1000.4A/Mc 7502-3/JET kW2	2300	2000		1900	DN125 PN10	1 1/4"	DN150 PN16	1900
AZH4-100 D/A3-100 B/VM 4105T/Mc 10002/JET kW2	2600	2300		2000	DN125 PN10	1 1/4"	DN150 PN16	2100
AZH4-100 C/A3-100A/VM 4105T/Mc 10002/JET kW2	2600	2300		2000	DN125 PN10	1 1/4"	DN150 PN16	2100
AZRBH3-125 E/AZRBH2-125 C/VM 6105T/Mc 12502/JET kW2	2600	2300		2000	DN150 PN10	1 1/4"	DN200 PN16	2700
AZRBH3-125 B/AZRBH2-125 A/VM 6105 I/Mc 15002/JET kW2	2600	2300		2000	DN150 PN10	1 1/4"	DN200 PN16	3000

varisco[®]
a solid name in fluids

VARISCO S.p.A.

Zona Industriale Nord - Terza Strada, 9 - 35129 PADOVA - Italy

Tel. +39 049 82 94 111 - Fax +39 049 80 76 762 - e-mail: export@variscopspa.com

Web site : www.variscopspa.com