

CONTROL UNITS FOR IRRIGATION MOTOR PUMPS AND PUMP WATER PRESSURE CONTROL

- TYPE • CIM-137/4G (EUROPEAN NETWORK COVERAGE)
• CIM-137/4GW (WORLDWIDE NETWORK COVERAGE)

COMPLETE OF 2G/3G/4G TELEPHONE WARNING DEVICE AND COMMAND

- Notifies via SMS message when the motor pump is in alarm condition.
- Programming pages of telephone numbers to be dialled when the motor pump is in alarm condition.
- Possibility of displaying the status of the motor pump.
- Possibility of switching off the protection of the pump.
- Setting of the minutes of work.
- Setting of the working pressure.
- Possibility of starting or stopping with SMS commands.
- Possibility to restore all the intervened protection devices and the general alarm.



INSTRUCTION AND USER MANUAL

- Operates the engine accelerator to keep the pressure of the system constant. (accelerator with 2 wires connected to the control unit)
- Controls the flow of water in the pipe.
- Electronic pressure switch to control the pump water pressure.
- Digital pump water pressure gauge.
- Clock for programming the starting and stopping of the motor pump.

- Delayed acceleration after starting.
- Delayed deceleration before stopping.
- Assembly also on the machine and in the open air.
- CANBus SAE J1939 connection.
- Frost protection.
- Pressure boost function.

PROTECT

motor pump sets by stopping them in the event of:

- low oil pressure
 - over-temperature
 - belt breakage
 - low coolant level
 - low pump water pressure
 - pump water overpressure
 - overspeed
 - A1
 - A2
- } available

MADE TO:

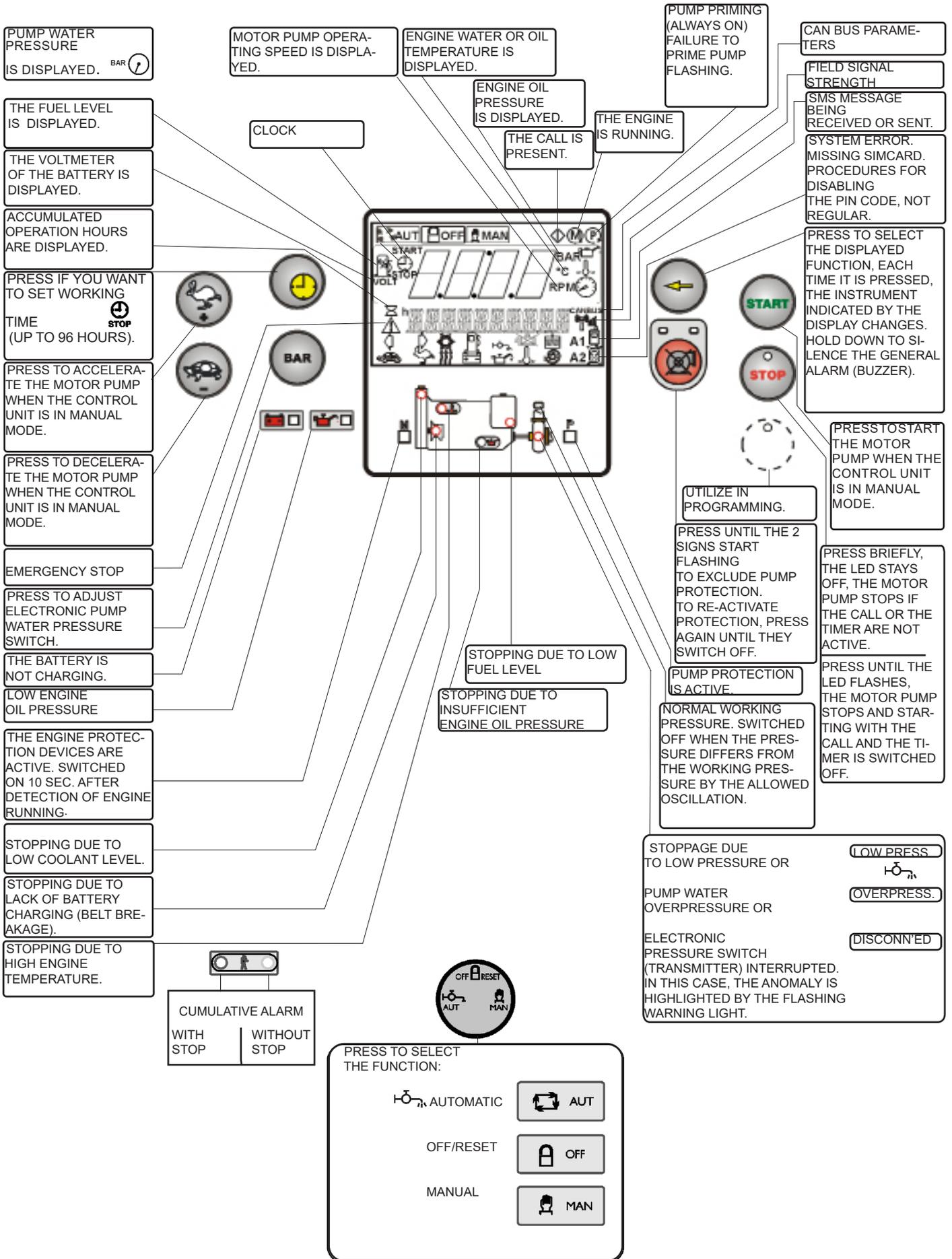
DISPLAY

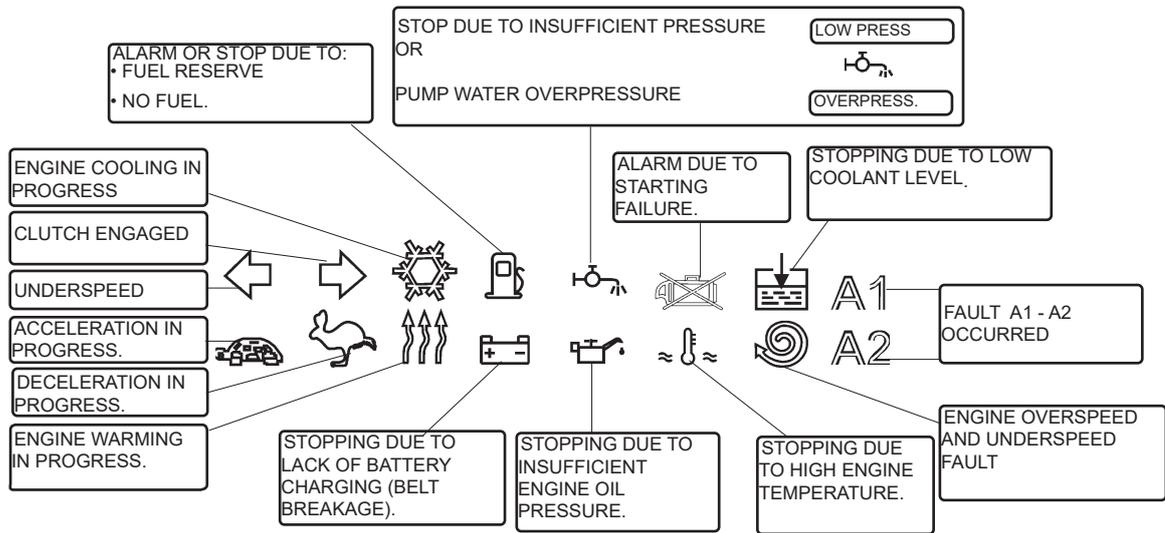
on the panel the functions of:

- hour-meter
- oil pressure gauge
- water or oil thermometer
- tachometer
- pump water pressure gauge
- timer
- fuel level gauge
- battery voltmeter
- pump protection exclusion
- battery and oil lights
- protections intervention
- emergency stop

BRIEF INSTRUCTIONS

After starting, the motor pump protects itself automatically.





PUSH-BUTTON PANEL LOCK see page 18.

SWITCHING OFF OF PUMP PROTECTION DEVICES



Button switches off the pump protection devices:

- failure to prime main pump
- failure to fill pipes
- insufficient pump water pressure
- pump water overpressure
- abnormal acceleration
- adjustment error
- switching off is obtained by holding it down for at least 3 consecutive seconds; the function is indicated by the two intermittent indicators.
- this switching off is deleted by pressing the button again.

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WORKING PRESSURE CONTROL



Select the MANUAL operating mode, start the motor pump with button **START**.

Factory Setting

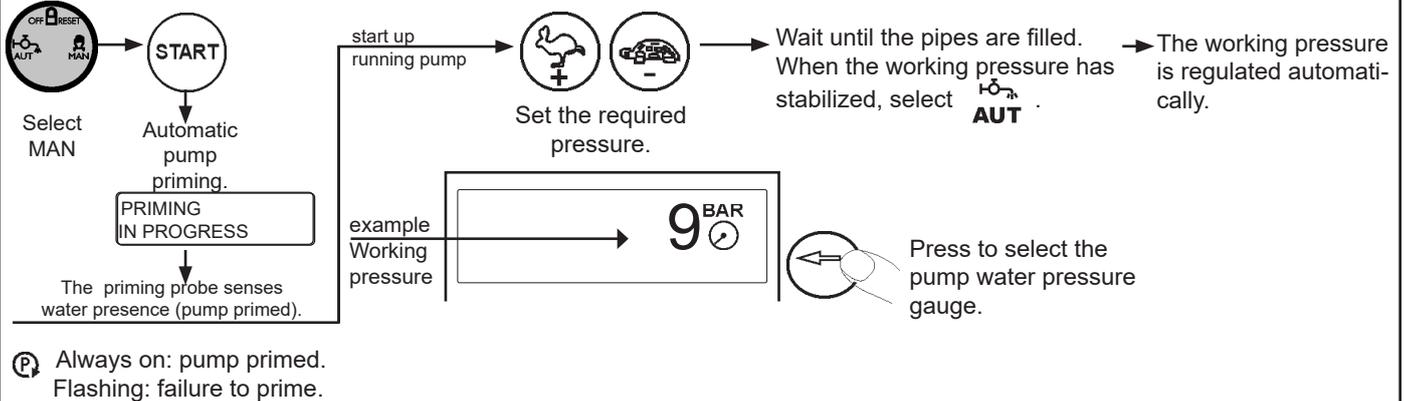
The motor pump starts up if the motor pump is primed.

Set the required pressure with buttons  after 10 seconds **BAR STORED** is displayed.

Wait until the pipes are filled and the pressure has stabilized at the chosen value. After finishing setting, SELECT OPERATING MODE **AUT**, the pressure of the system will remain set at the chosen pressure.

The chosen pressure value can be corrected with the system under pressure, by pressing buttons . The working pressure setting is deleted, when the engine is stopped by selecting operating mode OFF/RESET.

SEQUENCE OF OPERATIONS



PUMP PROTECTION

NO ADJUSTING IS REQUIRED.

The pump protection is enabled when warning lights PUMP PROTECTION ACTIVE  and water pressure normal  come on after the water pressure has remained stable for 2 consecutive minutes, in any case 10 minutes after the engine started.

Intervention of the protection (5 seconds after the pressure goes up or down by **two bars**) stops the engine and is shown on the display: .

However it is possible to change the **two bars** of pressure

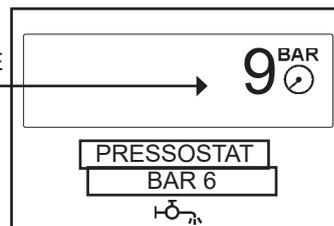
lowering (subpressure), by pressing button .

This change is deleted, when the engine is stopped, by selecting the OFF/RESET operating mode.

OVERPRESSURE remains set to two bars, this value is added to the working pressure (for example, working pressure 9 bars overpressure 11 bars)

WORKING PRESSURE

Press to set the sub-pressure value (PRESSURE SWITCH) 



Press to select the pump water pressure gauge 

FAILURE TO FILL PIPES FAULT

The acceleration starts with the engine running, with pump primed.

The motor pump reaches the redefined WORKING PRESSURE (see **BAR STORED**) within the TIME OF FAILURE TO FILL PIPES, set to 120 seconds. If air is present in the pipes, the acceleration will be alternated with pauses (of 15 seconds), if the pressure remains steady for 5 seconds. This situation will be repeated several times until the WORKING PRESSURE is reached. If the pressure is not reached within the FAILURE TO FILL PIPES time (120 sec.), FAILURE TO FILL PIPES is displayed on the display and the engine stops.

ABNORMAL ACCELERATION

(Pipe leakage controlled within the limits of the system).

As a result of a leakage, the engine tends to increase the revolutions to bring it back to WORKING PRESSURE. If the revolutions increase by 10% for a time longer than 120 seconds, ABNORMAL ACCELERATION is displayed on the display and the engine stops.

OPERATION



To activate the control unit press the button.

FUNCTIONS SELECTION



The function selected with the key is shown by the associated warning light.



- AUT Automatic pressure control.
- OFF The engine cannot be started and if running it is stopped.
- MAN Operation without automatic pressure control.

GLOW PLUGS PREHEATING ACTIVATED BEFORE STARTING (GLOW PLUG IS SHOWN ON THE DISPLAY)

The duration of the preheating action can be set, the preheating action ceases before the beginning of the starting process. The preheating control is disabled at the factory since it has been programmed to zero seconds.

THE STARTING OF THE MOTOR PUMP CAN BE OBTAINED IN FOUR WAYS:

- CALL
- TIMER
- SMS

The starting procedures are similar to each other.

Factory Setting

The motor pump starts up if the motor pump is primed.

- KEY

STARTING WITH CALL

When the call contact closes and the DELAY AFTER CALL CLOSED has elapsed, the control unit controls the glow plugs (if preset) and then the starting. If preset, the motor pump stays on idle for the whole ENGINE WARMING time, when this time has elapsed the motor pump reaches and maintains the preset working pressure. When the call contact opens once the STOP DELAY after CALL OPENING has elapsed, if preset the motor pump slowly decelerates, when the motor pump is on idle the ENGINE COOLING time starts.

When this time has elapsed the motor pump stops. During its operation the motor pump is protected from the faults controlled by the probes connected to the control unit.

STARTING WITH START BUTTON

To start, a pulse on the button is sufficient.

STARTING

This takes place on closing of the CALL contact, or with Timer or SMS. Before beginning the starting process, a buzzer is activated for 8 seconds, and after a 3-second pause the starting process begins. To facilitate startup, a special circuit emits a series of four, 5-second pulses, with a 5-second delay between each pulse.

STARTING FAILURE

Blocks the startup cycle if the pump has not started up after the fourth pulse.

DETECTION OF ENGINE RUNNING

It is obtained with measurement of the voltage and frequency of the battery charging alternator. Disables the starter motor.

AUTOMATIC PUMP PRIMING (ALWAYS ON)

The priming pump starts; when the priming probe senses the presence of water, the pump stops and after 15 seconds the engine starting begins.

PUMP PRIMING FAILURE (FLASHING)

The priming probe does not sense the presence of water and a time higher than 240 seconds has elapsed.

OPERATION

CLUTCH

This is engaged on reaching a certain engine speed. This clutch disengages when the engine speed drops below the set value.

ENGINE WARMING

(factory-excluded)

After closing of the call contact or TIMER or SMS pump priming takes place, the engine stays on idle for the time necessary to allow warming of the engine. After this time has elapsed the engine slowly reaches the working pressure. During heating the protection devices are active.

ENGINE COOLING

On opening of the call contact or TIMER or SMS i the engine slowly decelerates. When the engine is on idle the COOLING TIME starts, and after this time has elapsed the engine stops.

Stopping is obtained:

STOP

- Through intervention of the protection devices.
- Through end of work of the clock and of the timer .
- By pressing the emergency button (to be fitted externally).
- On opening of the call contact.
- At end of work through intervention of the underspeed or the flow switch.
- Through the SMS command .

- On pressing buttons   , the engine stops after slow deceleration.

Stopping can be obtained in two ways:

- With electromagnet de-energized with engine running and energized with it stopped, remaining in this condition for 15 sec. after detection of engine stopped.
On pressing button  the stopping electromagnet stays energized for 60 seconds.
- With electromagnet or electro-valve activated while the engine is running and deactivated when stopped. This condition is maintained even when the engine is stationary.

EMERGENCY STOP

This can be obtained in any operating condition, by installing one or more (latching) buttons. This is indicated by the optical indicator .

STOPPING WITH THE STOP AND OFF-RESET BUTTONS



• On pressing briefly, the led stays off, the motor pump stops if the call or the timer are not active.

• On pressing (3 seconds) until the LED flashes, the motor pump stops and starting by call and by timer are disabled, with the engine stopped the warning light remains flashing. The deletion of this switching off occurs on pressing the stop button (3 seconds) until the flashing warning light goes out.



Press until switching on of .

The engine cannot be started in any way and if it is running it is stopped. Reactivates the protection devices and all the locked functions.

STOPPING FAILURE

This intervenes if the running engine signal is detected 60 seconds after the stop command.

 will be read on the display.

BUZZER

The control unit has its own buzzer. Before starting automatically the motor pump activates the buzzer intermittently for 8 seconds, followed by a pause of 3 seconds (this function can be switched off). This buzzer also operates for the intervention of the protection devices listed on page 8-9. It is possible to place a buzzer externally to be connected to the relevant output.

OPERATION

TIMER

Always enabled, allows if necessary the motor pump to be operated for a settable time (maximum 96 hours), at the end of which it is stopped and on the display the end of work time indicator  comes on.

The work time is set by pressing the push-button  ( lights up) until the desired value appears on the DISPLAY .

On releasing the push-button, the timer automatically starts working, continuously displaying the remaining work time.

CANCELLING THE SET TIME

To zeroing the set time, keep the push-button  pressed until it reaches zero.

OIL AND BATTERY WARNING LIGHTS



Switched on with the automatic or manual function these switch off with the engine running with oil pressure and battery recharging system normal. Control unit in Stand by, warning light pulses .



END OF WORK

(Flow stopped)

When the engine revolutions fall by 10% and the WORKING PRESSURE stays constant for 120 seconds END OF WORK is displayed on the display and the engine stops.

If there is not this condition, a flow switch must be installed (End of work with flow switch see on page 9).

INSTRUMENTS

The control unit incorporates seven instruments that can be selected in sequence by pressing button .

 HOUR-METER - total hours of operation with the engine running the signal  pulsates, to indicate the correct functioning of the HOUR-METER).

 PRESSURE GAUGE - Engine oil pressure

 THERMOMETER - Engine oil and water temperature

 TACHOMETER - Speed of motor pump

 PRESSURE GAUGE - Engine water pressure

 INDICATOR - Fuel level percentage

 VOLTMETER - Battery voltage

TRANSMITTERS MOUNTED ON THE ENGINE
ON REQUEST

MESSAGES AND CAN Bus INSTRUMENTS

Sent (SAE J1939 protocol Bus) from the engine equipped with control unit for electronic control of the injection system.

ANOMALY MESSAGES

The anomaly messages managed by the injection control unit are indicated on the display CAN Bus.

Problems of connection CAN Bus to the CAN Bus.

CAN Bus INSTRUMENTS

TACHOMETER - OIL PRESSURE GAUGE - THERMOMETER

CUMULATIVE ALARMS

-  LED (red) STEADY LIGHT: anomaly managed by the injection control unit **will cause the engine to stop.**
 -  LED (red) FLASHING LIGHT: anomaly managed by the control unit CIM-137 **will cause the engine to stop.**
 -  LED (yellow) STEADY LIGHT: anomaly managed by the injection control unit **will NOT cause the engine to stop.**
 -  LED (yellow) FLASHING LIGHT: anomaly managed by the control unit CIM-137 **will NOT cause the engine to stop**, or indicates a preventive maintenance operation.
- LED OFF ALL OK.**

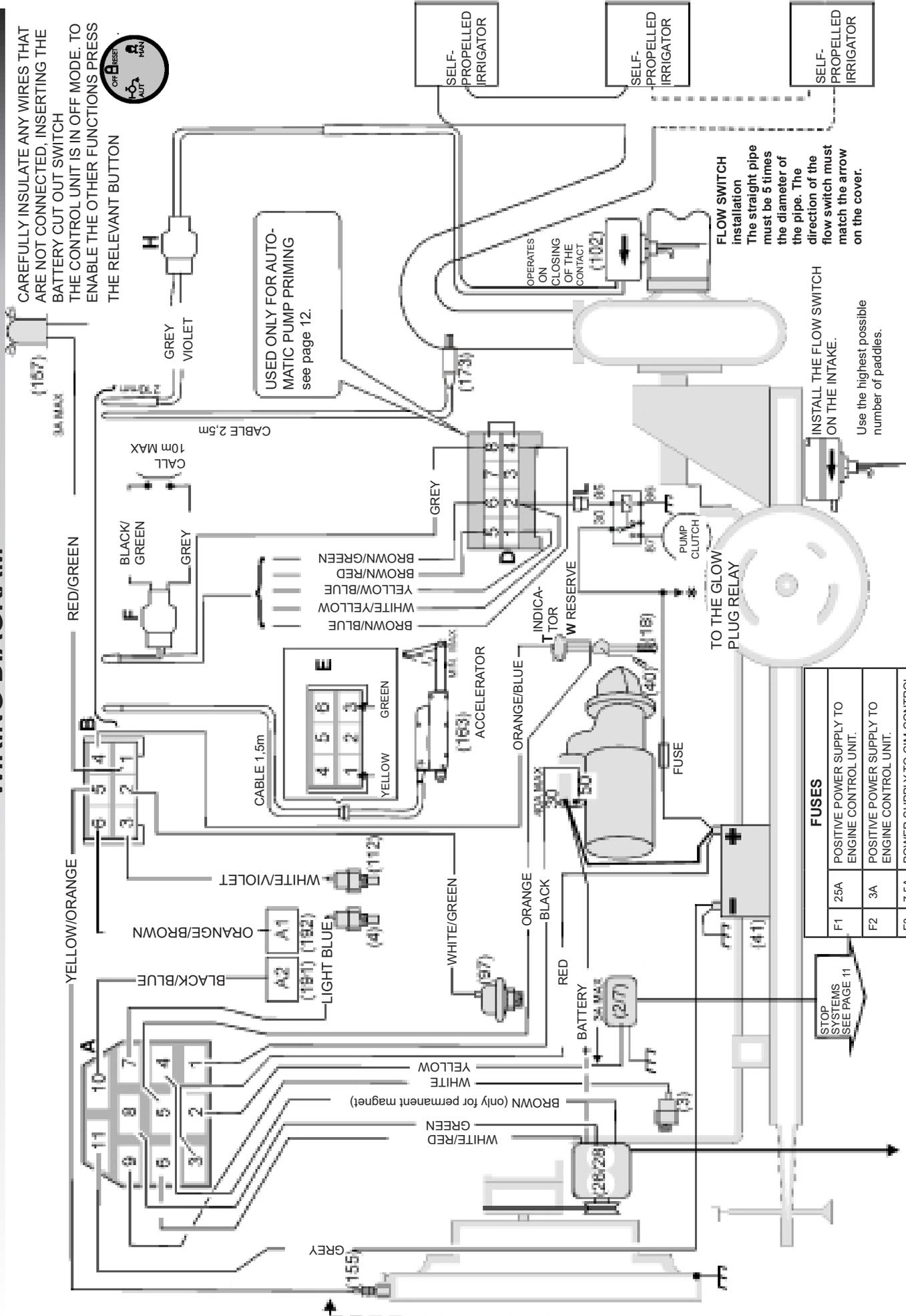
ENGINE AND PUMP PROTECTION DEVICES

The ENGINE PROTECTION DEVICES are enabled when indicator  comes on (10 seconds after detection of engine running ). The PUMP PROTECTION is enabled when  comes on after 2 consecutive minutes of sufficient water pressure, indicated by NORMAL PRESSURE indicator  and in any case 10 minutes after the pump started. Intervention due to a fault enables the GENERAL ALARM.

DESCRIPTION OF FAULTS OR FUNCTIONS	INDICATION ON THE FRONT PANEL	MOTOR PUMP PROBE	INSTANT OF ACTIVATION (seconds)	INTERVENTION DELAY (seconds)	PROGRAMMED THRESHOLD (FACTORY SETTING)	STORES THE FUNCTION	DECELERATION	ENGINE COOLING	STOP	INTERVENTION OCCURS WHEN:
BATTERY UNDER-VOLTAGE	BATTERY 1-1 UNDER-VOLTAGE	BATTERY	Always active	2	11 (12V) 22 (24V)	NOT	-	NOT	DOES NOT STOP	Battery voltage remains lower than the programmed threshold for the whole of the intervention delay time.
BATTERY OVER-VOLTAGE	BATTERY OVER-VOLTAGE	BATTERY	Always active	5	16 (12V) 32 (24V)	YES	SLOW	NOT	DOES NOT STOP	Battery voltage exceeds the programmed threshold for the whole of the intervention time.
OVER-HEATING DETECTED BY THERMOSTATIC SWITCH	OVER-HEATING 	THERMOSTATIC SWITCH	With running engine	2	=	YES	SLOW	YES	WITH STOP	The temperature detected by the transmitter exceeds the set threshold.
FUEL RESERVE	FUEL RESERVE  	FUEL FLOAT TERMINAL T		5	10%	NOT	-	NOT	DOES NOT STOP	
NO FUEL	NO FUEL  	FUEL FLOAT TERMINAL W	Always active	5	1%	YES	SLOW	YES	WITH STOP	The fuel level remains lower than the threshold for the whole of the intervention delay time.
LOW OIL PRESSURE	LOW OIL PRESSURE 	OIL PRESSURE SWITCH	10 after detection of running engine	2	=	YES	QUICK	NOT	WITH STOP	The pressure is lower than the threshold set by the pressure switch.
STOPPING FAILURE	STOPPING FAILURE 	ELECTRO-VALVE OR ELECTRO-MAGNET	After the stop command	60	=	YES	-	NOT	DOES NOT STOP	The engine running signal is detected after the stop command and the intervention delay time has elapsed.
LOW RADIATOR FLUID LEVEL	LOW RADIATOR FLUID LEVEL 	LEVEL PROBE	Always active	5	=	YES	SLOW	NOT	WITH STOP	The coolant falls below the electrode and the intervention delay has elapsed.
CHARGING ALTERNATOR FAULT (BELT BREAKAGE)	CHARGING ALTERNATOR FAULT 	ALTERNATOR	10 after detection of running engine	5	=	YES	SLOW	NOT	WITH STOP	Alternator does not recharge the battery and the intervention delay time has elapsed.
STARTING FAILURE	STARTING FAILURE 	BATTERY -Starting Motor	Always active	=	=	YES	QUICK	NOT	WITH STOP	The whole series of starting attempts is unable to start the engine.

DESCRIPTION OF FAULTS OR FUNCTIONS	INDICATION ON THE FRONT PANEL	MOTOR PUMP PROBE	INSTANT OF ACTIVATION (seconds)	INTERVENTION DELAY (seconds)	PROGRAMMED THRESHOLD (FACTORY SETTING)	STORES THE FUNCTION	DECELERATION	ENGINE COOLING	STOP	INTERVENTION OCCURS WHEN:
THE END OF WORK FUNCTION DUE TO FLOW SWITCH INTERVENTION	END OF WORK FLOW SWITCH	FLOW SWITCH	When the pump protection active warning light comes on	20	=	NOT	SLOW	YES	WITH STOP	There is no water flow and the intervention delay has elapsed.
AVAILABLE FAULT INPUT A1	A1	=	Always active	5	=	YES	SLOW	YES	WITH STOP	The input is negative (-) and the intervention delay has elapsed.
AVAILABLE FAULT INPUT A2	A2		With running engine							
FAILURE TO PRIME MAIN PUMP	FAILURE TO PRIME (P) (flashing)	PUMP PRIMING LEVEL PROBE	With running engine	240	=	YES	=	NOT	WITH STOP	The priming probe does not sense water presence and the intervention delay has elapsed.
FAILURE TO FILL PIPES	FAILURE TO FILL	ELECTRONIC PRESSURE SWITCH	With running engine	120	=	YES	SLOW	NOT	WITH STOP	The working pressure is not reached and the intervention delay has elapsed.
OVERSPEED	OVER-SPEED	ALTERNATOR TERMINAL W	Always active	2	4000 RPM	YES	-	NOT	WITH STOP	The speed remains higher than the programmed threshold for the entire duration of the intervention delay.
INSUFFICIENT PUMP WATER PRESSURE	INSUFFICIENT WATER PRESSURE	ELECTRONIC PRESSURE SWITCH	After detection of working pressure and in any case 600" after the pump started	5	=	YES	SLOW	YES	WITH STOP	The pump water pressure remains lower for the entire duration of the intervention delay.
PUMP WATER OVERPRESSURE	PUMP OVER-PRESSURE									
ABNORMAL ACCELERATION	ABNORMAL ACCELERATION	ALTERNATOR TERMINAL W	With running engine	60	Allowed deceleration percentage 20%	YES	SLOW	NOT	WITH STOP	The speed remains higher than the programmed threshold for the entire duration of the intervention delay.
END OF WORK DUE TO UNDER-SPEED INTERVENTION	UNDERSPEED END OF WORK									
EMERGENCY STOP	EMERGENCY STOP	EMERGENCY BUTTON	Always active	=	=	YES	-	NOT	WITH STOP	Emergency button is pressed.
ADJUSTMENT ERROR	ADJUSTMENT ERROR	ALTERNATOR TERMINAL W	With running engine	120	=	YES	-	NOT	WITH STOP	The rotation speed of the engine has not changed after 120 seconds.
PUMP WATER PRESSURE TRANSMITTER	TPA DISCONNECTED	ELECTRONIC PRESSURE SWITCH	ALWAYS ACTIVE	60	-	YES	SLOW	NOT	WITH STOP	The pressure transmitter circuit is disconnected.

WIRING DIAGRAM



CAREFULLY INSULATE ANY WIRES THAT ARE NOT CONNECTED, INSERTING THE BATTERY CUT OUT SWITCH. TO THE CONTROL UNIT IS IN OFF MODE. TO ENABLE THE OTHER FUNCTIONS PRESS THE RELEVANT BUTTON



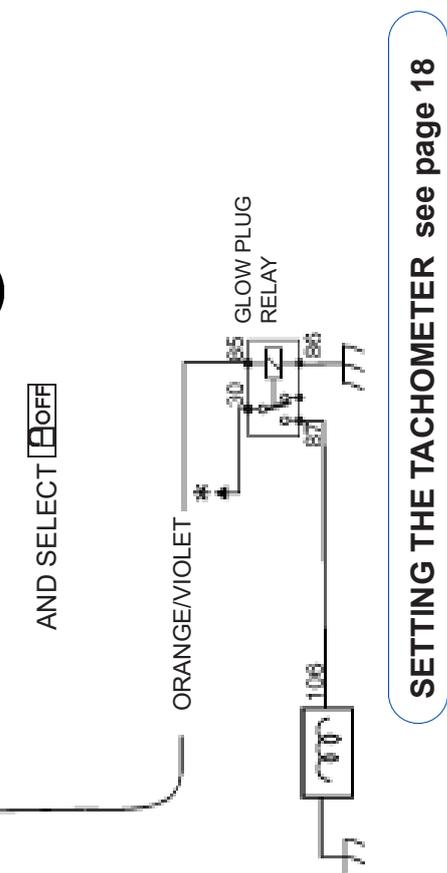
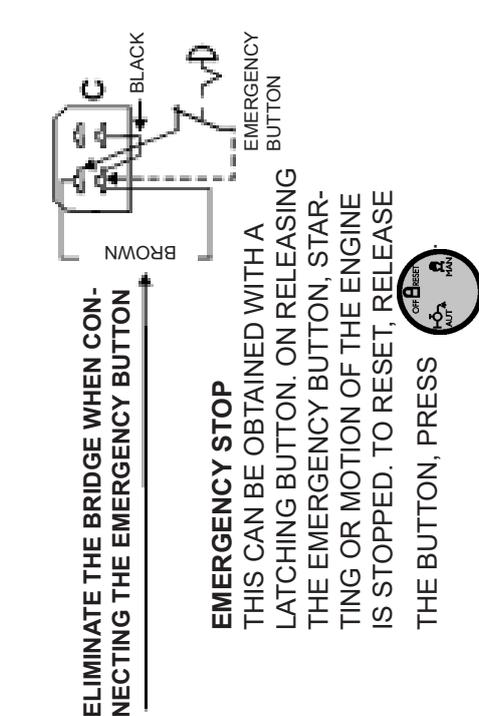
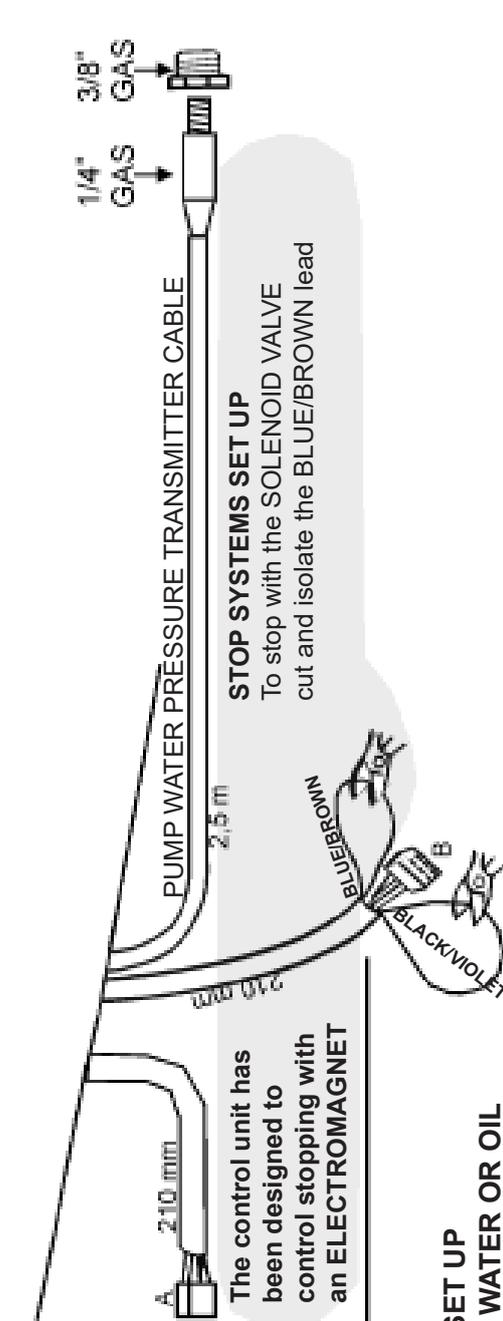
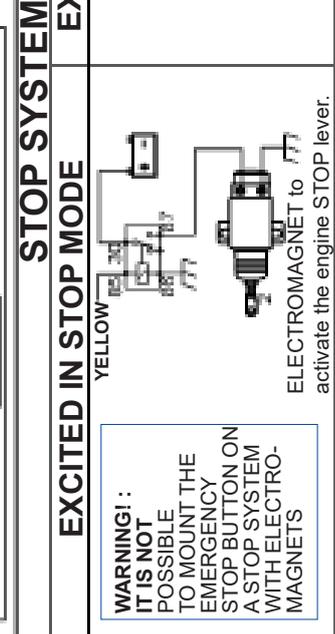
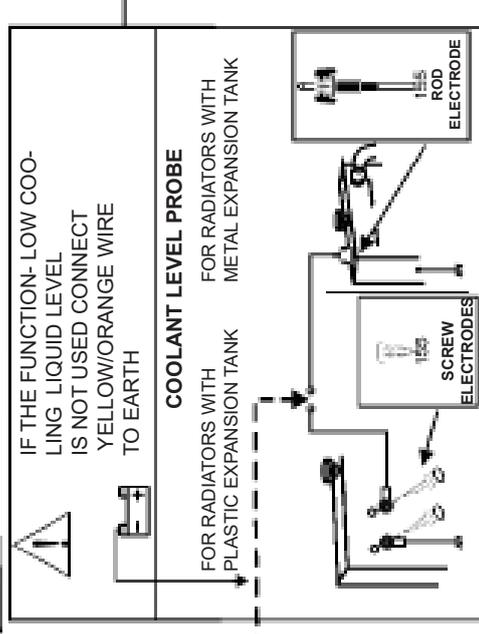
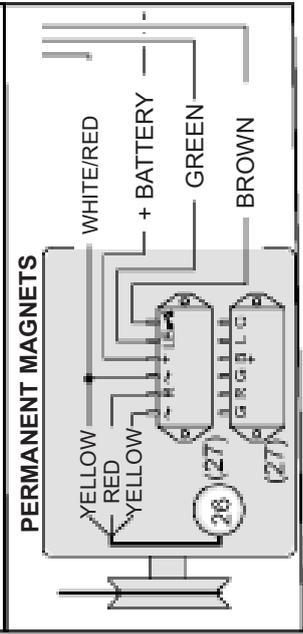
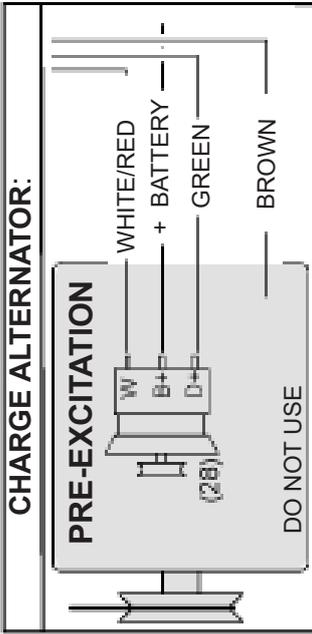
USED ONLY FOR AUTO-MATIC PUMP PRIMING see page 12.

FLOW SWITCH installation
The straight pipe must be 5 times the diameter of the pipe. The direction of the flow switch must match the arrow on the cover.

INSTALL THE FLOW SWITCH ON THE INTAKE.
Use the highest possible number of paddles.

FUSES	
F1	25A POSITIVE POWER SUPPLY TO ENGINE CONTROL UNIT.
F2	3A POSITIVE POWER SUPPLY TO ENGINE CONTROL UNIT.
F3	7.5A POWER SUPPLY TO CIM CONTROL UNIT...
TO CHANGE THE FUSES REMOVE THE RELEVANT COVER OF THE CONTROL UNIT	

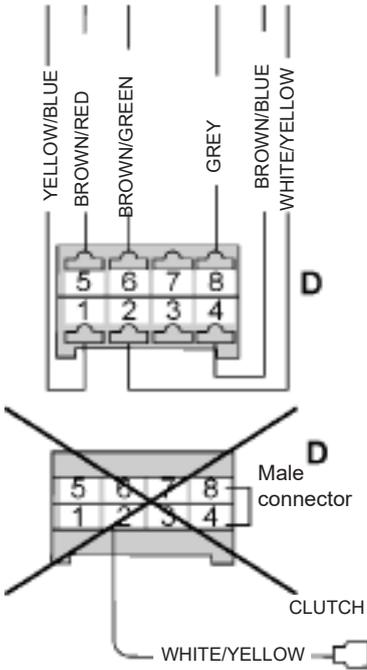
STOP SYSTEMS SEE PAGE 11



SETTING THE TACHOMETER see page 18

AUTOMATIC PUMP PRIMING CONNECTIONS

FEMALE CONNECTOR



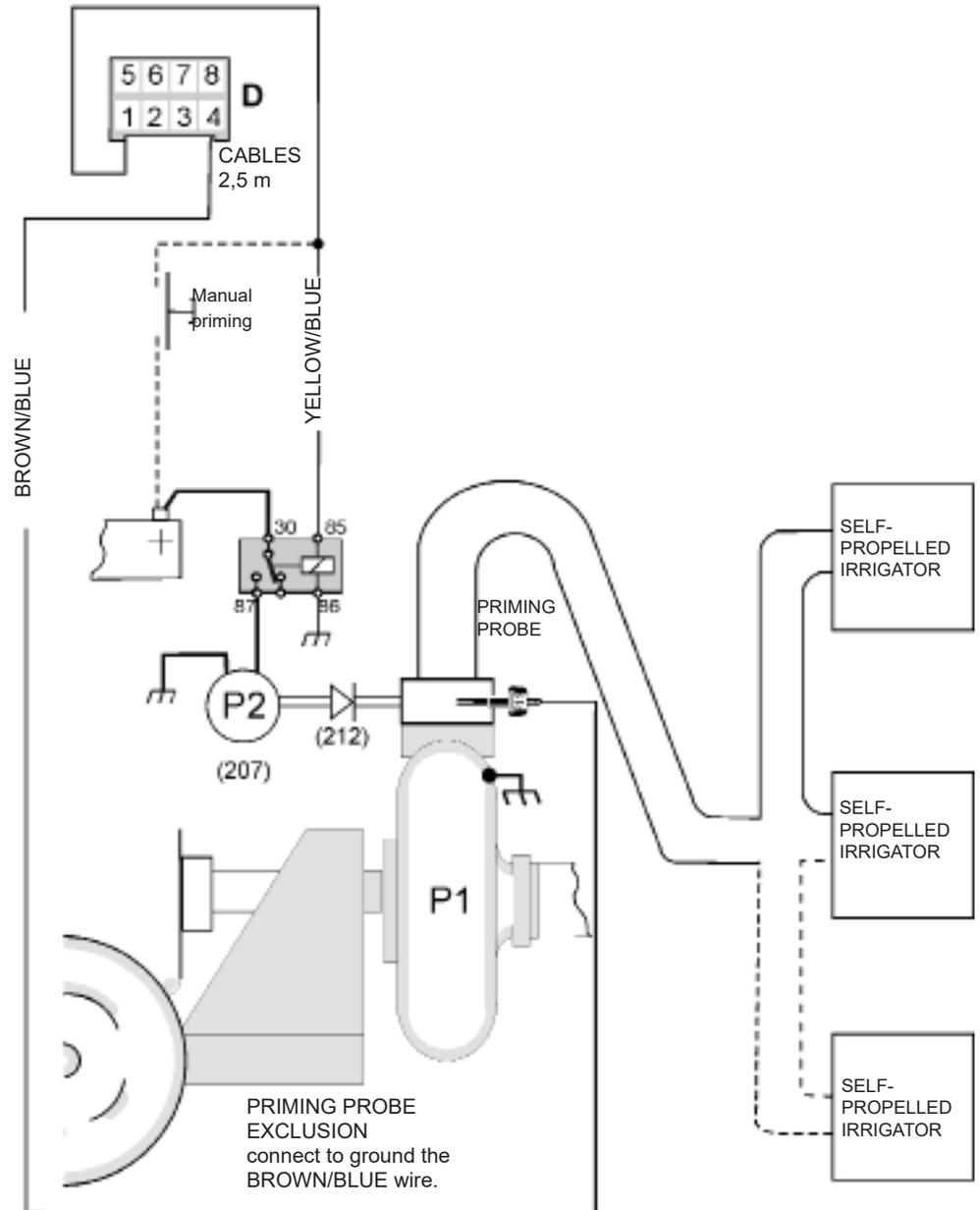
To connect PUMP PRIMING, remove the male connector, insert the connector with the wires brown/blue yellow/blue.

OPERATION AUTOMATIC PRIMING

The priming pump (P2) starts, when the water reaches the priming probe, the pump stops.

PRIMING FAILURE

The pump is stopped if the priming probe does not sense the presence of water within 240 sec..



PRIMING PROBE EXCLUSION connect to ground the BROWN/BLUE wire.

ACCESSORIES

ON REQUEST

- (2/7) ELECTROMAGNET OR ELECTRO-VALVE
- (3) OIL PRESSURE SWITCH
- (4) THERMOSTATIC SWITCH
- (18) FUEL FLOAT FOR INDICATOR AND RESERVE
- (97) OIL PRESSURE TRANSMITTER
- (102) WATER FLOW SWITCH
- (112) TEMPERATURE TRANSMITTER
- (155) RADIATOR LIQUID LEVEL PROBE
- (163) SPEED VARIATOR
- (173) PUMP WATER PRESSURE TRANSMITTER (SUPPLIED)

- (26) PERMANENT MAGNETS CHARGE ALTERNATOR
- (27) ALTERNATOR REGULATOR
- (28) PRE-EXCITATION CHARGE ALTERNATOR
- (40) STARTING MOTOR
- (41) BATTERY
- (106) GLOW PLUGS
- (157) VISUAL INDICATOR (GENERAL ALARM)
- (191) A1 AVAILABLE FOR PROTECTION PROBE
- (192) A2 AVAILABLE FOR PROTECTION PROBE
- (207) PRIMING PUMP
- (212) NON-RETURN PRIMING VALVE.

GSM TELEPHONE WARNING DEVICE AND COMMAND SYSTEM

(MODEM INTEGRATED INTO CONTROL UNIT)

FUNCTIONS AND PROGRAMMING

- Notifies via SMS message when the motor pump is in alarm condition.
- Programming pages of telephone numbers to be dialed when the motor pump is in alarm condition.
- Possibility of displaying the status of the motor pump.
- Possibility of switching off the protection of the pump.
- Setting of the minutes of work.
- Possibility of starting or stopping with SMS commands.

To insert the SIM CARD and program the telephone warning device remove the cover



TO AVOID DAMAGING THE CONTROL UNIT PUT THE COVER BACK ON CAREFULLY



Insert the SIM Card only when the two green LEDs present in the SIM compartment are off.

TELEPHONE NUMBER

The telephone number is supplied by the provider once the contract has been signed. This is the number you should dial from your cell phone when you want to interact with the modem of the control unit.

PROCEDURE FOR DISABLING THE PIN CODE

Once the SIM card has been purchased from a telephone provider on any contract, the PIN needs to be disabled.

To do this, it is necessary to insert the SIM in a normal private-use cell phone, then enter the PIN supplied by the provider. Browse through the cell phone menu to locate the procedure for disabling the PIN. Carry out the disabling procedure and check that, on turning the phone on again, the PIN is not requested.

Turn off the phone and take out the SIM card. Ensure that the motor pump is not running, then insert the SIM in the slot provided.

ACTIVATION

To ensure that the area around the unit is being reached by the field signal, check the graphical indicator on the display .

If necessary, position the unit's internal antenna outside the unit, at the point where the signal is strongest. The programmings, the controls and the display of motor pump status are active with the control unit in automatic or manual mode.

PRECAUTIONS

- Position the antenna vertically using its magnetic base.
- Do not connect an extension cable to the antenna cable.

Notifies via SMS message when the motor pump is in alarm condition

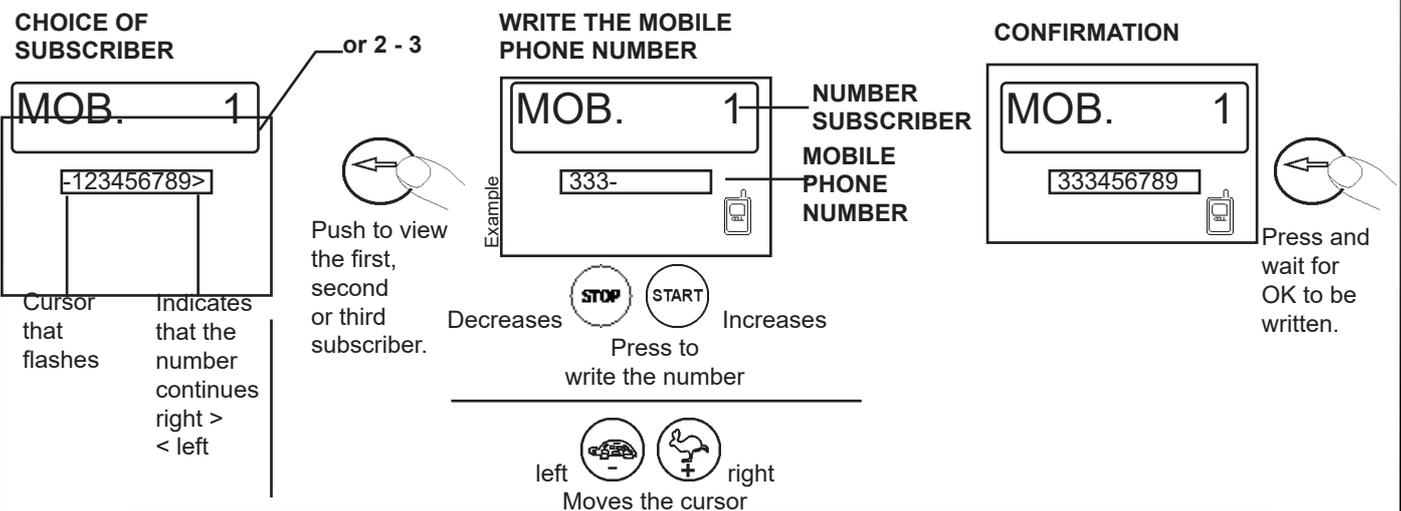
Should the unit indicate there is a problem with the motor pump, a message is sent to the first number. If there is no answer, 10 minutes later a message is sent to the second number, and so on. Three numbers can be set in total. The process continues for 4 times if none of the 3 users contacted sends an SMS reply to the unit using the phrase OK. Any subsequent problems with the pump result in the SMS notification process being started again.

N.B.: It is possible that, once one of the 3 users has sent an OK message to the unit, another error message may be sent to the second user. This is due to delays caused by traffic on the telephone network and is outwith the control of the unit.

When the SMS TO ALL PHONES INCLUDED function is used (factory setting, see page 20 of the technical programming manual) the SMS fault messages are sent only to the telephones programmed in the list of telephone numbers of the control unit. For example: an operator who starts the motor pump from their mobile phone, and does not have their telephone number programmed in the list of telephone numbers, will NOT receive the SMS message in the event of a fault. But it will be received by the telephone with its number programmed in the CIM control unit following the procedure described later.

Programming the cell phone numbers of the users who are to be notified when the motor pump is in alarm condition

- PROGRAM TELEPH.GSM see USER PROGRAMMING on page 18.



IMPORTANT NOTE

In order for a command sent via SMS to be interpreted correctly, it is important to programme the telephone number exactly as it is given by the mobile telephone network, and therefore inclusive of international dialling code and without the first zero of the dialling code (if there is one) of the telephone company.

Ex1: Italian number = 348123456
programme → + 39348123456

Ex2: English number = 0797123456 (leave out the 1st zero)
programme → + 44797123456

In any case, refer to the national numbering system.

TO CONFIRM RECEPTION OF THE SMS WARNING MESSAGE AND STOP THE SENDING OF SUBSEQUENT MESSAGES, SEND A MESSAGE FROM YOUR CELL PHONE USING THE PHRASE OK.

After confirmation,
the display will show



HOW TO VIEW THE STATUS OF THE MOTOR PUMP

To request an update on the status of the motor pump, enter the code 001 into your cell phone and send it by SMS to the unit.

On your cell phone, it is possible to view:

- hour-meter
- oil pressure gauge
- water or oil thermometer
- tachometer
- pump water pressure gauge
- fuel level
- battery voltmeter
- timer
(displays the working time remaining before the motor pump is set to stop)
- pump protection exclusion

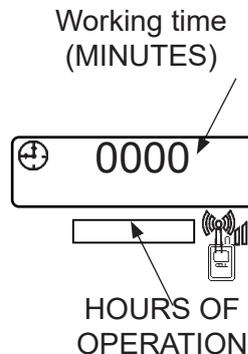
POSSIBILITY OF SWITCHING OFF THE PUMP PROTECTION

<p>To switch off the pump protection, key in 010 on the mobile phone.</p>	<p>After the switch off command, the following is displayed:</p> <p style="text-align: center;">INTERMITTENT SIGNALS</p> 	<p>Reply message from control unit to mobile phone:</p> <p style="text-align: center;">PUMP PROTECTION EXCLUDED</p>
<p>To delete this switching off, key in 011 on the mobile phone.</p>	<p>After the command to delete switching off, the following is displayed:</p> <p style="text-align: center;">SIGNALS OFF</p> 	<p>PUMP PROTECTION EXCLUDED ACTIVE PUMP PROTECTION</p> <p>WATER PRESSURE 6,8 Bar PRESSURE SWITCH 4,5 Bar TIMER 10:15</p> <p style="text-align: right;">} Example</p>

SETTING OF THE MINUTES OF WORK (TIMER)

To set the minutes (minimum 1' max 1440') of work of the motor pump key in on the mobile phone:
500#
Minutes of work
example=
500#120
(2 hours of work)
Wrong examples
500 space = 120
spaces 500 # 120
500 or 120
500 # 1441

After the command the following is displayed.



Reply message from control unit to mobile phone:
OK, timer set to ...h...min

if the setting is correct.

ERROR, timer setting not correct.

SETTING OF THE WORKING PRESSURE

The working pressure can be set through an SMS command. The engine must be running. To set the working pressure write on the mobile, for example:
600#6.1
The control unit will automatically set the pressure of the motor pump to 6.1 Bar. The lowest settable value is 1 Bar while the highest value is 21 Bar. The control unit accepts these types of SMS:
600#6,1
600#6
600#6,11
Other types of SMS will not be accepted.

After the command the following is displayed.



Reply message from control unit to mobile phone:
"OK, pressure set to 6.1 Bar"
if the setting is correct

"ERROR pressure setting not correct."
If the setting is not correct.

RESET

Possibility to restore all the intervened protection devices and the general alarm.
To restore all the protections of the engine of the pump, key in RESET on the mobile phone

Reply message from control unit to mobile phone → reset command carried out

FUEL FAULT

The fuel fault depends on any change in the fuel level in the motor pump tank when the engine is stopped. The check-up is enabled after receiving the text message "PROT ON" (or "040") and after the engine has been switched off for 5 minutes. A negative change in the fuel level generates the fault which is signalled by the activation of the alarm output and the sending of a "FUEL FAULT" text message. The fault is triggered if the percentage drops by 10% when the level is between 100% and 80%, whereas it must drop by 5% if the level is between 79% and 1%. The fault is delayed by 5 seconds and is stored. The fault threshold is updated by resetting the fault itself and after 5 minutes are up. When the tank is topped up, the threshold is automatically updated. A further text message ("OFF Status") is sent when the operator switches the control unit OFF.

The check-up is disabled by sending the text message "PROT OFF" (or "041") or by disconnecting the battery supply from the control unit.

NOTICES

Only for starting and surveillance of the diesel motor pump and stops it if there are anomalies in the parts controlled by probes.

It has been designed to be installed also on the machine.



Warning:

adhere closely to the following advice

- Connect always following the wiring diagram shown on page 10-11.
- Each technical operation must take place on the motor pump unit with the engine stopped and with terminal 50 of the starter motor disconnected.
- Check that the line loading and the consumption of the connected equipment are compatible with the described technical characteristics.
- Install in such a way that there is always adequate heat disposal.
- Always install under other equipment which produces or spreads heat.
- Make sure that no copper conductor cuttings or other waste material fall inside the control unit.
- Never disconnect the battery terminals with the engine running.
- Never use a battery charger for the emergency start-up, this could damage the control unit.
- To protect the safety of persons and the equipment, before connecting an external battery charger, disconnect the electrical plant terminals from the battery poles.

THIS CONTROL UNIT IS NOT SUITABLE FOR OPERATING IN THE FOLLOWING CONDITIONS:

- Where the environmental temperature is outside the limits indicated in the Technical Data.
- Where the air pressure and temperature variations are so rapid as to produce exceptional condensation.
- Where there are high levels of pollution caused by dust, smoke, vapour, salts and corrosive or radioactive particles.
- Where there are high levels or heat from radiation caused by the sun, ovens or the like.
- Where attacks from mould or small animals are possible.
- Where there is the risk of fire or explosions.
- Where the control unit can receive strong vibrations or knocks.

ELECTROMAGNETIC COMPATIBILITY

This control unit functions correctly only if inserted in plants which conform with the CE marking standards; it meets the exemption requirements of the standard EN61326-1 but it cannot be excluded that malfunctions could occur in extreme cases due to particular situations.

The installer has the task of checking that the disturbance levels are within the requirements of the standards.

CONDUCTION AND MAINTENANCE

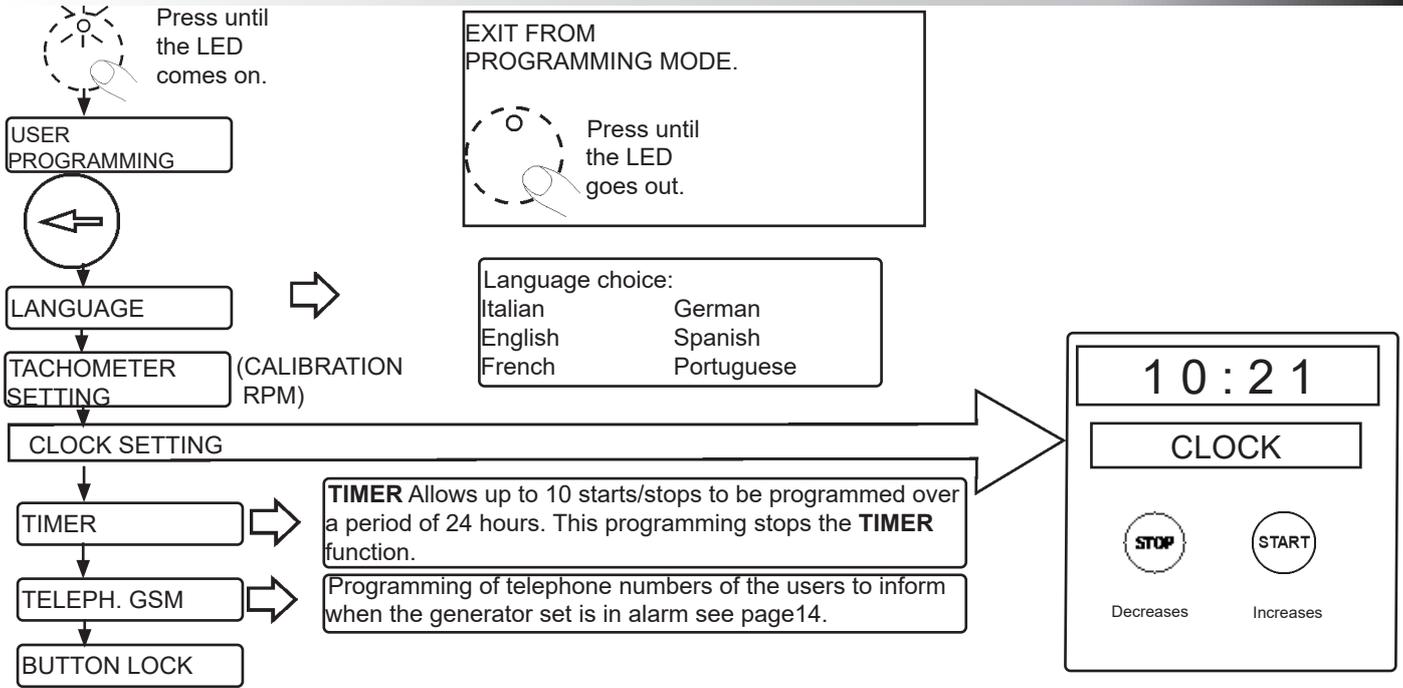
The following maintenance operations should be performed every week:

- check that the indicators function;
- check the batteries;
- check that the conductors are tight, check the condition of the terminals.

UNLESS WE MAKE A WRITTEN DECLARATION STATING THE CONTRARY, THIS CONTROL UNIT IS NOT SUITABLE FOR USE AS A CRITICAL COMPONENT IN EQUIPMENT OR PLANTS RESPONSIBLE FOR KEEPING PERSONS OR OTHER LIVING BEINGS ALIVE.

YOUR ELECTRICAL TECHNICIAN CAN ASK US ANYTHING ABOUT THIS CONTROL UNIT BY TELEPHONING ONE OF OUR TECHNICIANS

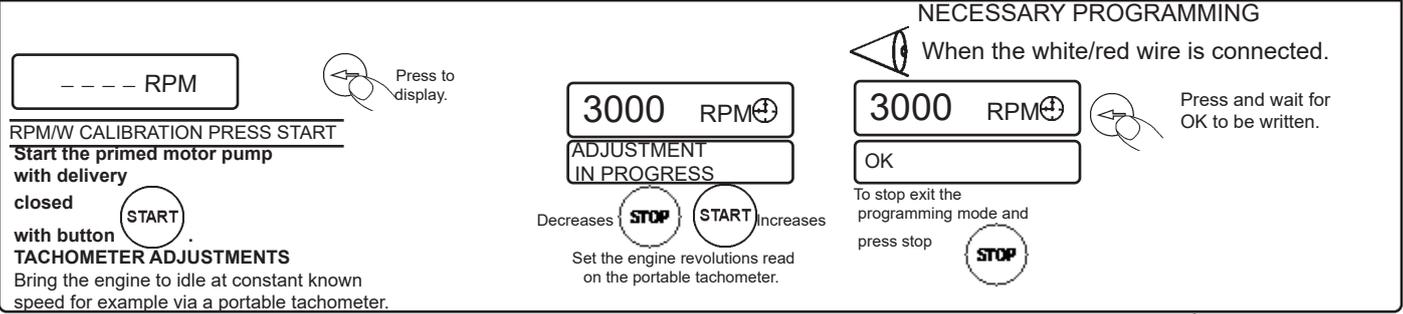
USER PROGRAMMING



LANGUAGE CHOICE. The language set up is ITALIAN; the languages that can be selected are: ENGLISH - FRENCH - GERMAN - SPANISH - PORTUGUESE.

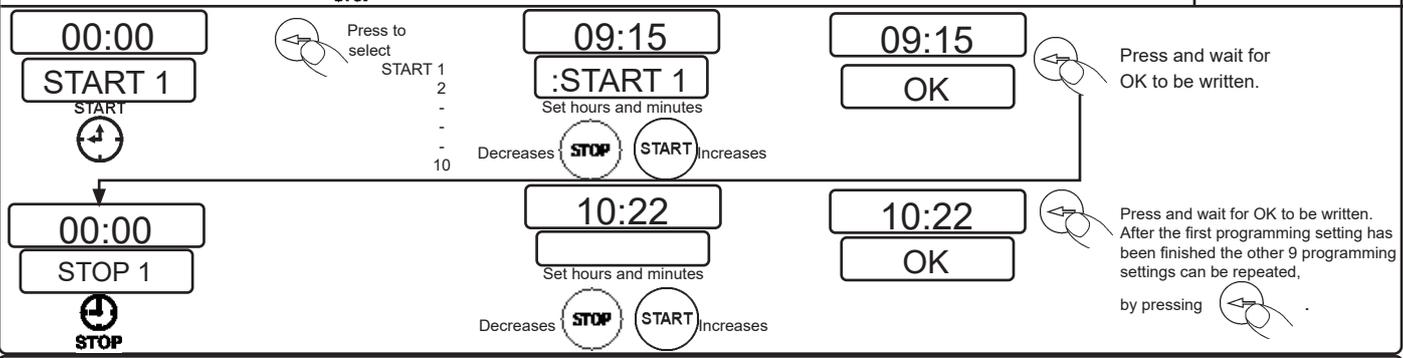


TACHOMETER ADJUSTMENT WITH CHARGING ALTERNATOR FREQUENCY W.

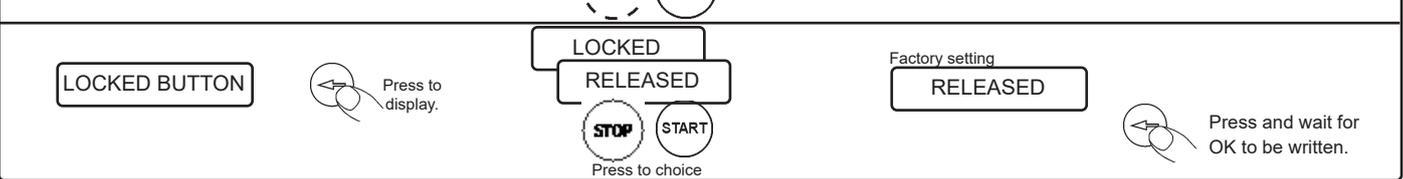


CLOCK allows up to 10 STARTS/STOPS to be programmed over a period of 24 hours. Carry out setting operations with the engine stopped. The control unit accepts only complete programming settings: START 1 → STOP 1
START 2 → STOP 2 and so on

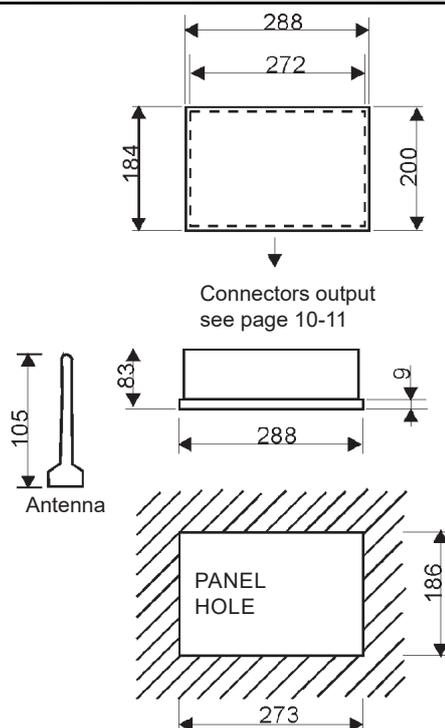
If a start is programmed, but a stop is not programmed, **ERROR** is written on the display. While running with the engine started by clock, indicator stays on. During stopping by clock, indicator comes on and stays on until the next start.



BUTTON LOCK. With the push-button panel locked, buttons remain active.



DIMENSIONS



TECHNICAL DATA

Battery power supply	12 Vdc 24 Vdc
Supply voltage	8÷ 32V
Consumption in standby	100mA at 12V
	60mA at 24V
Consumption with engine stationary	350mA at 12V
	200mA at 24V
Max. Consumption	900mA at 12V
	600mA at 24V
Max load of the output:	
• (stopping) yellow	3A
• (starting motor) black	40A
• (general alarm) red/green	3A
• (auxiliary) brown	3A
• priming pump yellow/blue	3A
• pump clutch white/yellow	3A
Temperature range	-10 ÷ +60 °C
MODEM B1/B3/B5/B7/B8/B20/@FDD LTE B1/B5/B8@WCDMA B3/B8@GSM	
Hour-meter	4 digits
Engine oil pressure gauge	0 ÷ 9 bar
Pump water pressure transmitter:	
• allowed max. pressure	21 bar
Engine water and oil thermometers	+20 ÷ +145°C
Tachometer	4000 rpm
Timer	1' ÷ 24 h
Serial communication parameters	9600 baud, 8 bit data, 1 bit stop, even parity
Rechargeable batteries	2x1,2V type AAA
Installation conditions	for external use
Degree of protection box/rear/connector	IP54/IP23/IP20
Control unit weight	2,2 kg
Weight with control unit mounted on the support	4,6 kg

ORDERING DATA

Type CIM-137/4G	CODE 00211143
CIM-137/4GW	CODE 00211151

ACCESSORIES SUPPLIED

- PRE-WIRED CONNECTOR CIM-130/1/6/7	CODE 70804397
- TRANSMITTER TYPE TPA-200	CODE 70500255
NIPPLE F1/4" GAS -M3/8"GAS	CODE 70190241
- MAGNETIC ANTENNA WITH CABLE	CODE 70070163
- NUTS KIT	CODE 40179906

ACCESSORIES ON REQUEST

Type	Code
- Support KIT CRU-CIM	40493383
- Speed variator VAR-140 12V	00571543
- Flow switch FAP-200	00500312



BASE FITTING