PANEL FOR CONTROL AND PROTECTION OF IRRIGATION MOTOR PUMPSET

туре СЕМ-380-10

Complete with electronic transmitter (electronic pressure switch) and digital pressure gauge for pump water pressure.



It is equipped with display to the following functions:

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

Assembly on the machine and in the open air.

INSTRUCTION AND USER MANUAL

PROTECTS THE MOTOR PUMP GROUP SET BY THEM IN THE EVENT OF:

- low oil pressure
- over-temperature
- belt breakage
- minimum fuel level
- available A1
- A2 (low diesel pressure)
- low coolant level
- insufficient pump water pressure
- pump water overpressure





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	CHRONOLOGY OF MANUAL REVISIONS							
Date	Date Revision Description							
15/10/2024	1.00	First release						
1								



OPERATION

(±: □)
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OIL AND BATTERY INDICATOR LIGHTS

Lit up with key on "AUT", they switch of f with the engine running and regular oil pressure and battery charge system.

SETTING ELECTRONIC PRESSURE SWITCH ADJUSTMENT (TRANSMITTER) WATER PUMP

PUMP PROTECTION No adjusting is required.							
The pump protection is enabled when warning lights PUMP PROTECTION ACTIVE come on after the water pressure has remained stable for 2 consecutive programmable 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:							
OVERPRESSURE However it is possible to change the two bar of pressure PUMP WATER lowering (subpressure), by pressing button BAR							
	This change is deleted, when the e	ngine is stopped. vo bars, this value is add	ed to				
WATER PRESSURE	the working pressure (for example, working pressure 9 Press to set the	bars overpressure 11 ba	ars)	Press to select			
Press to set the SUBPRESSURE value.	SUBPRESSURE value	SUBPRESSURE	08	the WORKING PRESSURE.			

TIMER

Enabled with key on "AUT", it makes it possible, if necessary, to have the motor pump work for an adjustable length of time (maximum 96					
hours), at the end of which it stops and the WORK TIME OVER $\scriptstyle \scriptstyle $					
The work time is set by pressing the push-button \bigoplus lights up until the desired $\stackrel{\oplus}{\Box}$ value appears on the DISPLAY.					
On releasing the push-button, the timer automatically starts working, continously displaying the remaining work time.					
CANCELLING THE SET TIME					
To zeroing the set time there are two methods: -keep the push-button pressed until it reaches zero or - by turning the starter key onto "ZERO" (the engine pump will stop).					
PUMP PROTECTION EXCLUSION					

POMP PROTECTION EXCLOSION	
(ENABLED ONLY WITH ENGINE RUNNING)	
The push-button excludes pump protection: exclusion is obtained by keeping it pressed for at least 3 consecutive seconds; the function is indicated by the two intermittent lights.	
This exclusion is cancelled by pressing the push-button again \checkmark or by turning the start key onto "ZERO".	

ENGINE PROTECTIONS

The engine protections are enabled when the ENGINE PROTECTIONS ACTIVE light $\stackrel{\text{M}}{\Box}$, comes on, (20 seconds after the end of starting impulse and however 1 minute after positioning the key on "AUT").

Interventions of the protection probes (fitted on the engine), indicated by the relevant lights, stop the engine, they are memorised and can be split into two groups:

Immediate for:	Delayed by 5 seconds for:	
- OIL PRESSURE SWITCH	OL - A1	
- OVERTEMPERATURE SWITCH	 A2 (LOW FUEL PRESSURE) BATTERY CHARGING ALTERNATOR (BELT BREAKAGE) FUEL LEVEL SWITCH flashing signal: 20% fuel reserve (T) (WITHOUT ENGINE STOP) Signal always on: stop for minimum 	fuel level (W)
	- PROBE FOR COOLANT LEVEL	Ĺ

CONTROLLING THE CONNECTION OF THE PUMP WATER ELECTRONIC PRESSURE GAUGE (Transmitter)



PUMP PROTECTION

The pump protection is enabled with the switching on of the ACTIVE PUMP PROTECTION (after 2 consecutive minutes of stable water pressure, indicated by the visual signal REGULAR PUMP PRESSURE and in any case, 10 minutes after the start of the motor pump). The intervention of the protection (5 seconds after the increase or decrease of the pressure) stops the engine and is indicated by the visual signal regulated by the visual signal REGULAR PUMP PRESSURE and in any case, 10 minutes after the start of the motor pump).

LOW PUMP WATERPRESSURE or WATERPUMPOVERPRESSURE .

RESET : is obtained by turning the start key onto "ZERO".

STOPPING THE ENGINE PUMP

The control unit shut down the engine in three conditions:

- turning the starter key onto "ZERO".
- protection intervention.
- timer intervention at the end of the work period.
- The unit adapts to two different stop system:
- by working the ELECTROMAGNET for 20 seconds which pulls the STOP lever.
- by cutting off power to the SOLENOIDVALVEshutting off the flow of fuel.

signal for

EMERGENCY STOP

The emergency stop can be actived in all working conditions, by mounting one or more click-down push-button.

EMERGENCY	
STOP	

On the display it's reporte.

GLOW PLUGS PREHEATING								
FACTORY- EXCLUDED								
Is activated with key in AUT 😿 the display shows the phi	GLOW F PREHEA	DW PLUGS HEATING						
The duration of the preheating action can be set. Is indicated on the display when the action has ceased	ENGINE STARTING							

GENERAL ALARM

This can be obtained by fitting on the outside an optical and/or acoustic signaller to be connected to the RED/GREEN wire. It is activated on protection intervention.

INSTRUMENT

The control unit comprises five instruments selectables in sequence by pressing the 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	- Pressure water pump.						
TACHOMETER	- Speed of motor pump.						
FUEL LEVEL INDICATOR	- Fuel level percentage.						
VOLTMETER	- Battery voltage.						
ENGINE THERMOMETER	- Engine temperature.						
ENGINE PRESSURE GAUGE	- Engine oil pressure.						



USER PROGRAMMING AND TACHOMETER SETTING

ACCESS TO PROGRAMMING MODE

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Turn the key to

DO NOT SET IN RUNNING

Press (5") at the same tme to DISPLAY

USER PROGRAMMING

Re-position the key to zero

EXIT FROM PROGRAMMING MODE



USER PROGRAMMING				
	PRESS TO DISPLAY THE REQUIRED PROGRAMMING	ì		
	LANGUAGE CHOICE. The I that can be selected are:	anguage set up in ENGLISH - FRENCH -	the factory is ITALIA GERMAN - SPANISH a	N; the languages and PORTUGUESE.
LANGUAGE CHOICE	LANGUAGE CHOICE ENGLISH		LANGUAGE CHOICE ENGLISH	
		Press to select language.		Press and wait for PROGRAMMED to be written.
TACHOMETER SETTING	Start with the ignition key and bring the engine to idle at constant known speed for example via a portable tachometer.	Dispalyed on the Example 700 RPM	dispalay	Press and wait for
		Œ		PROGRAMMED to be written.

Press until you get the right indication on the display

CEM-380-10 ΕN Rel. 1.0











CHOICE OF MOTOR PRESSURE TRANSDUCER TYPE

Pressu	re transmitte	r tables.								
TIPO	OBAR	1BAR	2BAR	3BAR	4BAR	5BAR	6BAR	7BAR	8BAR	9BAR
TPO/403	270 ohm	251 ohm	203 ohm	157 ohm	114 ohm	79 ohm	47 ohm	32 ohm	23 ohm	1 ohm
VDO	10 ohm		50 ohm		85 ohm		119 ohm		152 ohm	
VDO 29/10	9 ohm	38 ohm	57 ohm	77 ohm	99 ohm	114 ohm	134 ohm	149 ohm	164 ohm	180 ohm
LOMBARDINI	10 ohm	31 ohm	52 ohm	71 ohm	90 ohm	107 ohm	124 ohm	140 ohm	156 ohm	170 ohm
[10-180] ohm	10 ohm	27 ohm	44 ohm	61 ohm	78 ohm	95 ohm	112 ohm	129 ohm	146 ohm	163 ohm
[240-33,5] ohm	240 ohm	219 ohm	199 ohm	178 ohm	157 ohm	137 ohm	116 ohm	95 ohm	75 ohm	54 ohm
DD6E	7 ohm	39 ohm	72 ohm	104 ohm	132 ohm	159 ohm	187 ohm	215 ohm	242 ohm	270 ohm
VSG40030	259 ohm	215 ohm	172 ohm	139 ohm	106 ohm	83 ohm	60 ohm	46 ohm	32 ohm	21 ohm

MOTOR PRESSURE TRANSDUCER



Factory Settings

TPO/403



Press and wait for PROGRAMMED to be written.

CHOICE OF MOTOR TEMPERATURE TRANSMITTER TYPE

The control unit has already recorded some values of temperature, pressure and fuel float.

Temperature transmitter tables.										
TIPO	25°C	50°C	70°C	80°C	85°C	90°C	95°C	100°C	120°C	130°C
TTAO/402	896 ohm	365 ohm	196 ohm	145 ohm	127 ohm	110 ohm	97 ohm	85 ohm	53 ohm	30 ohm
VDO/120	544 ohm	197 ohm	97 ohm	70 ohm	60 ohm	51 ohm	44 ohm	38 ohm	22 ohm	17 ohm
VDO/150	909 ohm	324 ohm	157 ohm	113 ohm	97 ohm	83 ohm	72 ohm	62 ohm	37 ohm	29 ohm
BERU	4036 ohm	1259 ohm	560 ohm	387 ohm	324 ohm	273 ohm	231 ohm	196 ohm	106 ohm	80 ohm
VEGLIA		708 ohm	399 ohm	245 ohm	210 ohm	175 ohm	153 ohm	130 ohm	75 ohm	59 ohm
JCB/1707	503 ohm	200 ohm	105 ohm	78 ohm	67 ohm	59 ohm	51 ohm	45 ohm		9
LOMBARDINI	927 ohm	322 ohm	155 ohm	112 ohm	96 ohm	83 ohm	71 ohm	62 ohm	36 ohm	29 ohm
F16173	2130 ohm	834 ohm	435 ohm	323 ohm	280 ohm	243 ohm	213 ohm	186 ohm	114 ohm	91 ohm
VSG40028	1896 ohm	813 ohm	387 ohm	275 ohm	234 ohm	199 ohm	171 ohm	145 ohm	80 ohm	64 ohm
DUTG	1232 ohm	579 ohm	294 ohm	159 ohm	142 ohm	126 ohm	109 ohm	92 ohm	56 ohm	35 ohm
DAEWOOD	446 ohm	153 ohm	73 ohm	52 ohm	44 ohm	38 ohm	32 ohm	28 ohm	16 ohm	12 ohm





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



- Install in such a way that there is always adequate heat disposal.
- Always follow the Wiring Diagram on page 7 when making connections.
- All technical interventions must be performed with the engine stationary and 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 described on page 15.
- Always install under other equipment which produces or spreads heat.
- Never use a battery charger for the emergency start-up, the control unit could be damaged.
- In order to safeguard people and equipment, before connecting an external battery charger, disconnect the electrical system terminals from the battery poles.
- Never disconnect the battery terminals with the motor pump running.

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 there are high levels or heat from radiation caused by the sun, ovens or the like.
- 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 or UKCA 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.

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

ELCOS - Parma - Italy

TECHNICAL DATA					
Battery voltage supply	12 Vdc 24 Vdc				
Voltage supply	8 ÷ 32V				
Circuit loading with key at zero	0mA				
Tachometer	Max 4000 RPM precision ± 10 RPM				
Timer	1 ÷ 96h				
Instruments precision: battery voltmeter, fuel level gauge	2%				
Hour-meter	5 digit				
Max load of the outputs:					
starting motor (black)	40A				
stopping (yellow)	3A				
preheating (white/brown)	3A				
lighthouse (brown)	3A				
general alarm (red/green	3A				
Pump water pressure gauge	0÷21 bar				
Pump water pressure transmitter:					
Maximum permissible pressure	21 bar				
• With pressure 4 ÷ 14 bar	differential 2 bar				
• With pressure 1 ÷ 4 bar	differential 1 bar				
Degree of protection:					
Box front	IP54				
Rear	IP23				
Connector	IP20				
Installation conditions	for external use				
Temperature range	-20 ÷ +60°C				
Weight	1000 g				

DIMENSIONS



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Fixing system With two or three clamps



ORDERING DATA

Туре СЕМ-380-10 Code 00210734

ACCESSORIES ON REQUEST					
Туре	Code				
PRE-WIRED FEMALE CONNECTOR TYPE CEM-380-10	70804450				
KIT RODS CEP/CEM	40804362				
PUMP WATER PRESSURE TRANSMITTER TYPE TPA-200	70500255				
NIPPLE F1/4" GAS – M3/8" GAS	70190241				

ACCESSORIES ON REQUEST				
Туре	Code			
ROD ELECTRODE (complete with: rivet connection, bolt, nut, washer, seal and female connector)	e			
type AST-015/00	40241012			
SCREW ELECTRODE	40190115			
(complete with lugs)				
type E-25				

SUPPORT FOR INSTLLATION ON BASE

Type CRU-003



Code

CONFORMITY