

**HIZIR MOBILE  
Instruction and Maintenance Manual**

# Control Panel and Throttle



Figure 1: Control Panel and Throttle

## Engine Control Panel

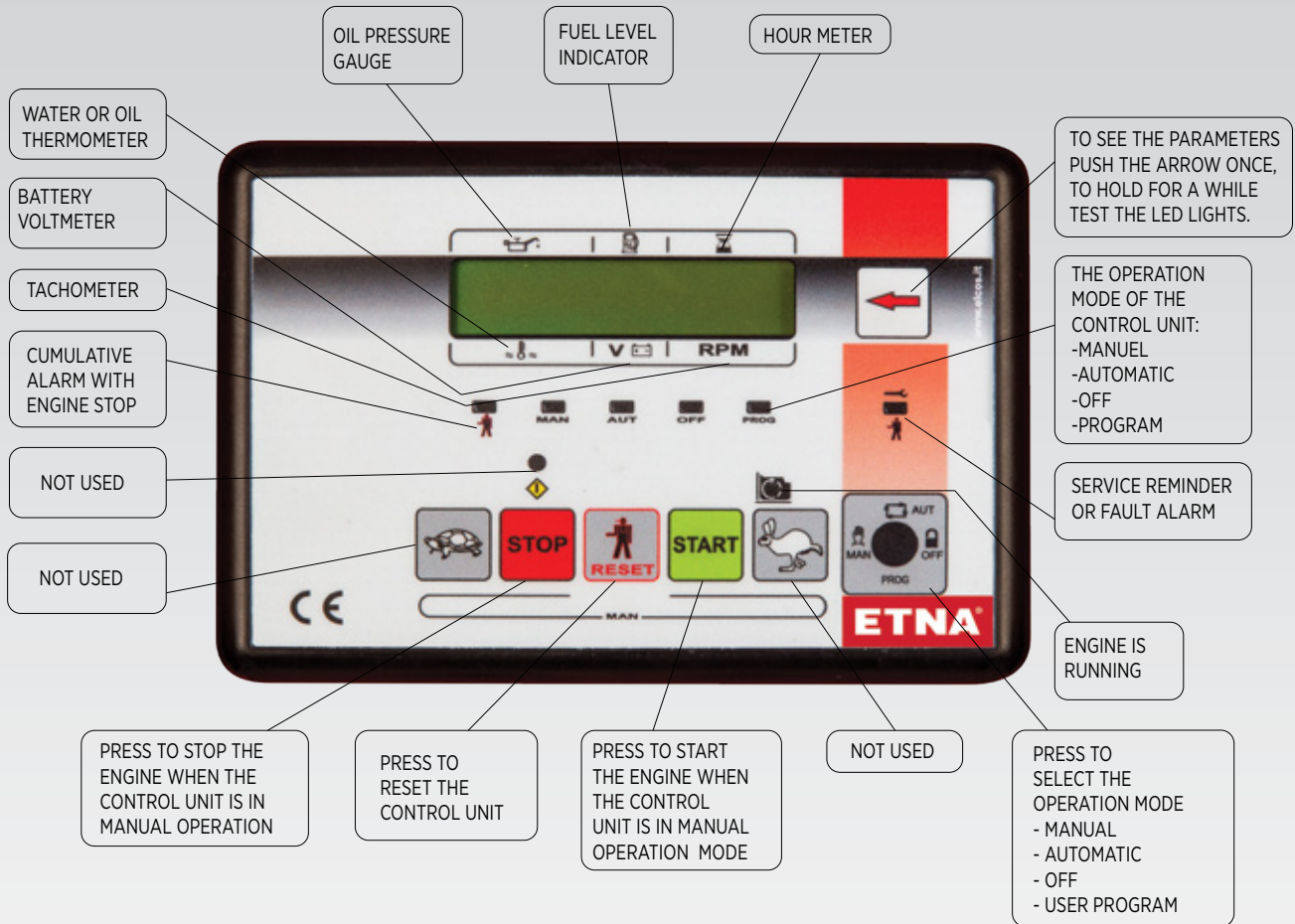
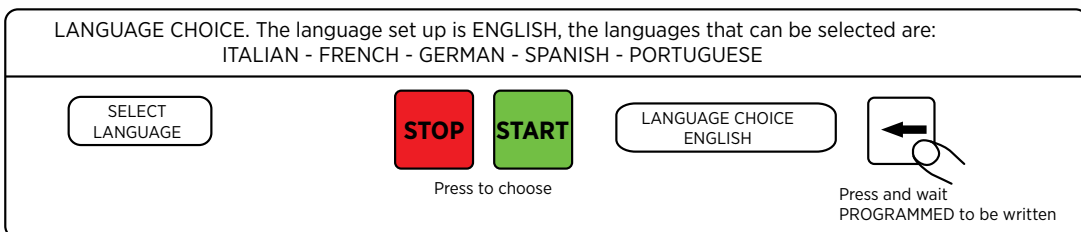
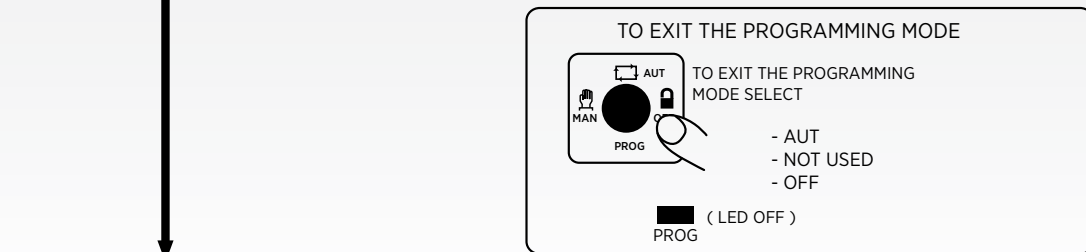
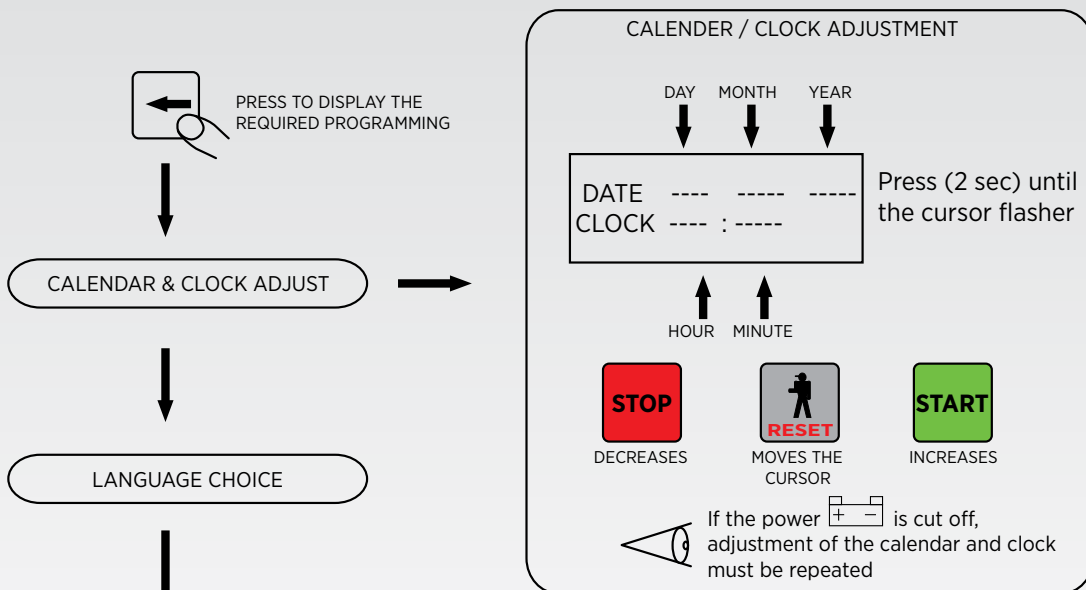
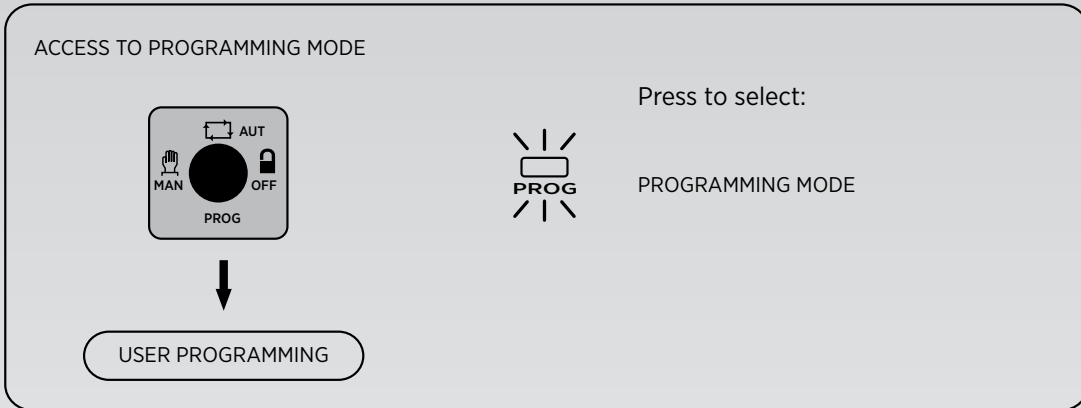


Figure 2: Engine Control Panel

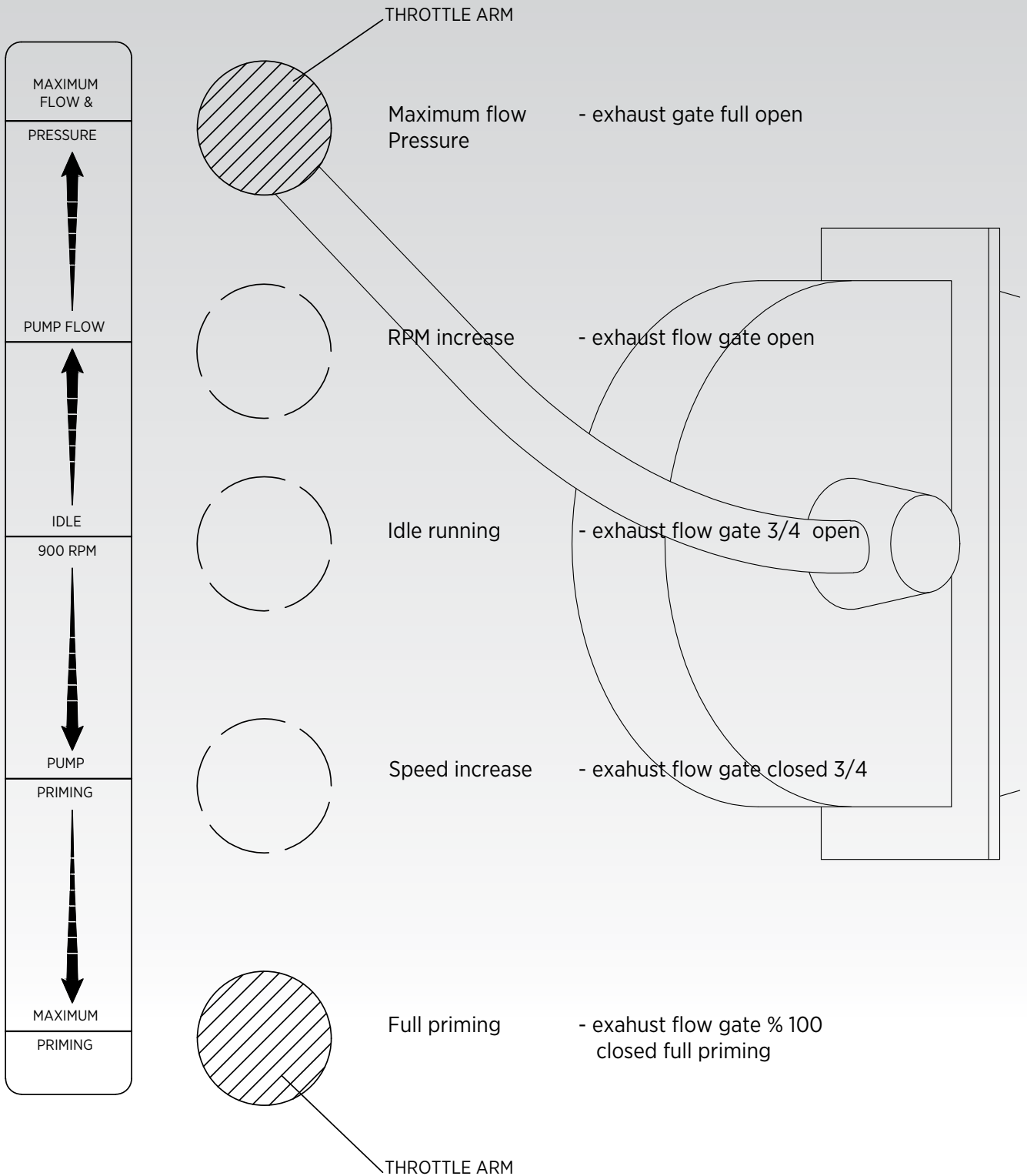
## Instruments

DURING THE ENGINE RUNNING ALL FAULT CAN BE FOLLOWED FROM THE DISPLAY OF THIS INSTRUMENT.	- FUEL LEVEL INDICATOR	Displays the percentage of fuel present in the tank
	- WATER OIL THERMOMETER OIL PRESSURE GAUGE	Displays the water and oil temperature of the engine up to 140°C (284 °F) Displays the oil pressure of the engine up to 9 bar (900 kPa)
	- BATTERY VOLTMETER	For voltages ranging between 9 and 38 Volt
	- TOTAL HOUR-METER	With five figures and a maximum reading of 59999 (hours and minutes).
	- PARTIAL HOUR-METER	With four digits up to 9999 shows the running hours
	- TACHOMETER	Displays the rpm of the engine up to 8500 rpm
	- STARTING COUNTER	Displays the number of startings up to 65535
	- STARTING FAILURE COUNTER	Displays the number of FAILURE STARTINGS up to 9999

# Technical Programming



## Throttle Arm Positions



## Starting & Priming the Pump

### Attention

- Before starting check the fuel level, engine oil level and coolant levels.
- Be sure the valve under the fuel tank is open.
- Tight the battery cables.
- Connect the suction and discharge hoses 1 or 2 pieces at the same time.
- Connect the spray lans to the discharge hoses.
- Submers the suction hoses into the water source (well, river, sea, tank etc.)
- Close pump draining valve completely.

### Starting the Engine

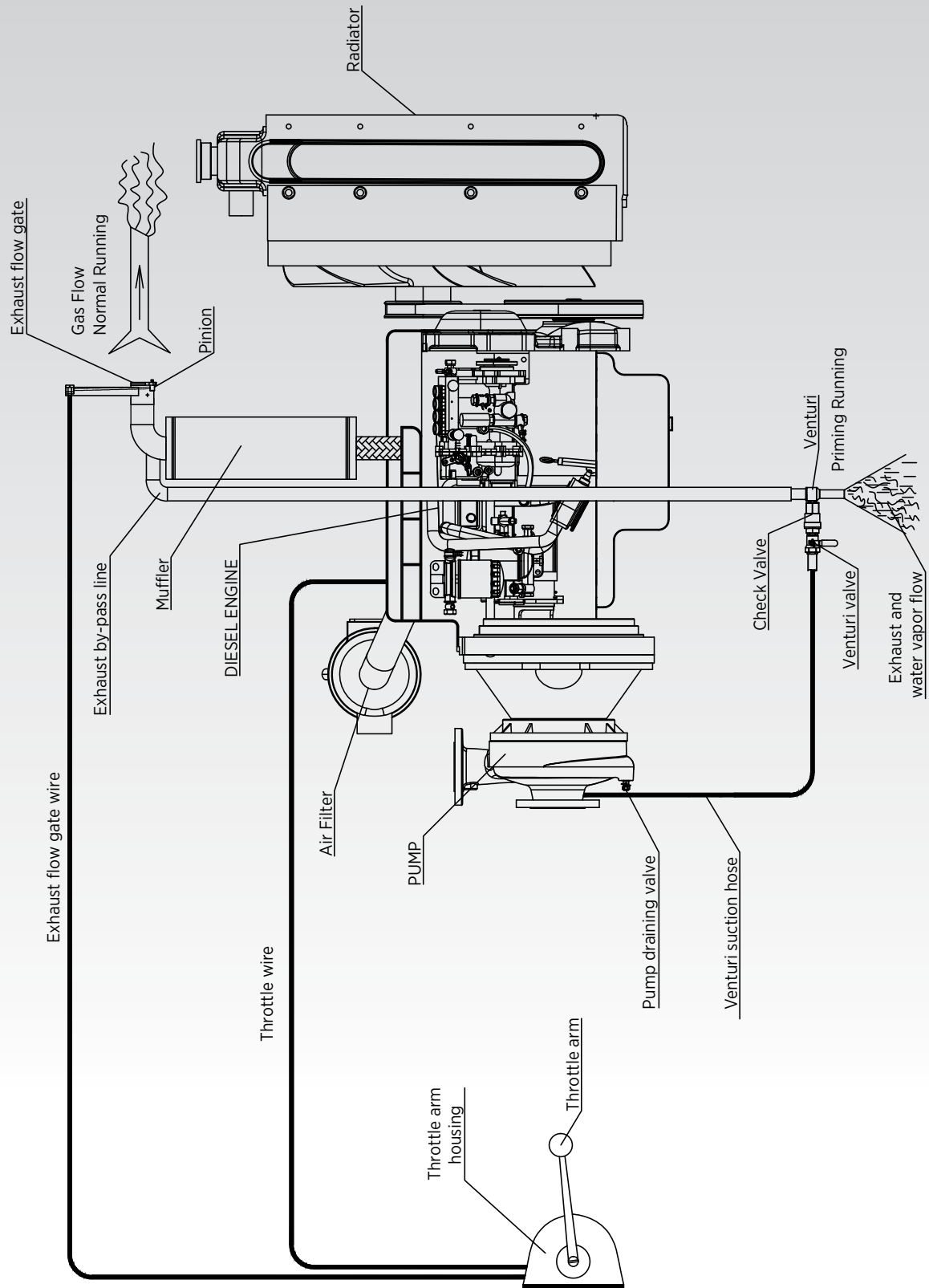
- Take the throttle arm to the idle position 900 rpm.
- Turn on the key switch on the panel.
- By pressing black **PROGRAM** button on the electronic panel choose the **(MAN)** position (the green led will lid).
- Start the engine by pushing the green **START BUTTON**.
- Wait for 60 second for engine worming up.

### Priming the Pump

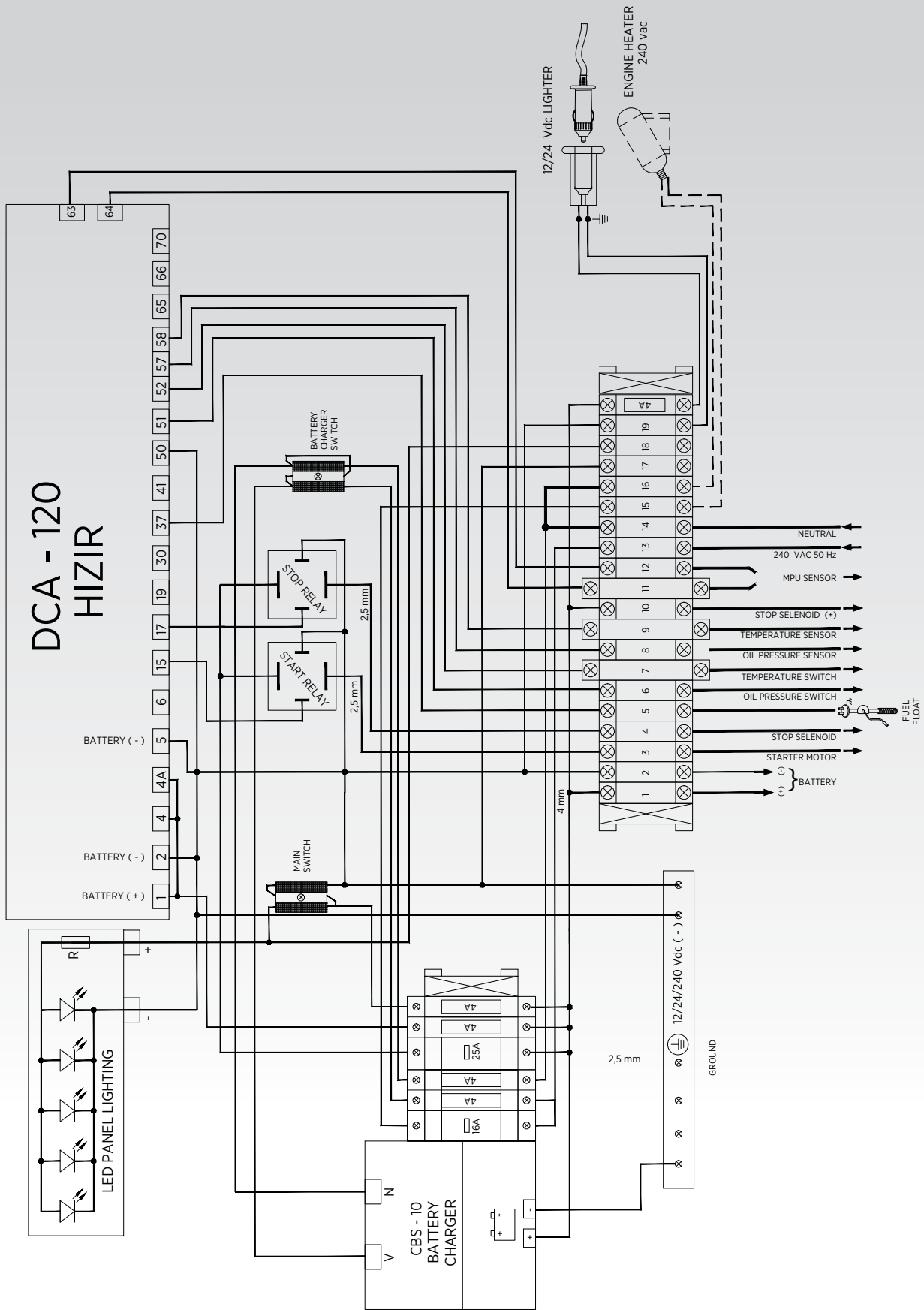
- Take the throttle arm to the **PUMP PRIMING** position and then increase the speed to **MAXIMUM PRIMING** watch the vacuum meter for 0,3 - 0,6 bar this means there is good suction.
- When the water starts to flash together with the exhaust gas from the muffler by pass line, take the throttle arm to the **IDLE / 900 RPM** position.
- Open the lans valves and take the throttle arm to **PUMP FLOW** position and then to the **MAXIMUM FLOW PRESSURE** position if the pump fails to prime do not run the engine more than 3 - 4 min. otherwise you damage the mechanical seal of the pump.
- Normally suction period is about 30 - 60 sec. To stop the engine take the throttle arm to the **IDLE /900 RPM** position wait for 30 sec. and push the red **STOP BUTTON**.
- Please charge the battery to provide the battery fully charged during the stand-by periods of the diesel-pump.
- Connect the power by the plug on the canopy to the city mains (250 VAC 50 Hz) after that switch on the battery charging switch to charge the battery.

PRIMING UNSUCCESSFUL	SOLUTION
<ul style="list-style-type: none"> <li>• Check the suction lines for leaking.</li> </ul>	<ul style="list-style-type: none"> <li>• If necessary tighten the loosen nuts and clamps</li> </ul>
<ul style="list-style-type: none"> <li>• Check the gaskets.</li> </ul>	<ul style="list-style-type: none"> <li>• Clean and replace</li> </ul>
<ul style="list-style-type: none"> <li>• Check the flap at the end of exhaust pipe should be closed %100.</li> </ul>	<ul style="list-style-type: none"> <li>• If not, adjust the exhaust flow-flap wire.</li> </ul>
<ul style="list-style-type: none"> <li>• Check the venturi suction hose is not obstructed</li> </ul>	<ul style="list-style-type: none"> <li>• Clean or replace, check the venturi orifice</li> </ul>
<ul style="list-style-type: none"> <li>• Check the discharge &amp; suction check valves</li> </ul>	<ul style="list-style-type: none"> <li>• If necessary replace</li> </ul>
<ul style="list-style-type: none"> <li>• Check the pump inlet suction for 0,3-0,6 bar. At maximum priming.</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust the throttle arm.</li> </ul>
<ul style="list-style-type: none"> <li>• Check the diesel engine for maximum throttle.</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust the throttle arm.</li> </ul>

# Schematic Diagram







## Technical Maintenance of the Diesel Engine

Periodic technical maintenance is an important content of using engine normally, in order to remain the engine in good technical condition and to prolong its service life; the technical maintenance procedure must be seriously followed as standard.

### **The maintenance of the engine is classified as follows;**

1. Working day maintenance (per 8 - 10h)
2. First grade technical maintenance (accumulative working hours; 50h;
3. Second grade technical maintenance (accumulative working hours; 250h;
4. Third grade technical maintenance (accumulative working hours; 1000h;
5. Technical maintenance on winter use.

### **1. Working day maintenance**

**1.1** Check the oil level in the oil sump, oil bath type air filter and the power output gear box, if the oil level is higher, find out the reason and eliminate it; if the oil is insufficient, refill it to the required amount!

**1.2** Check the cooling water level in the water tank, if insufficient, fill it up. If the ambient temperature will be under +5°C, then drain off the cooling water after stopping.

**1.3** Check and fasten the shown bolt and nut, eliminate the leak of oil, water and air.

**1.4** During working at the dusty place, use the compressed air to clean the air filter element.

**1.5** Clean the mud, dust and oil dirt on the surface of the engine.

**1.6** When the engine is working, listen to the voice, observe the smoke color and eliminate the trouble and abnormal appearance.

### **2. First grade technical maintenance**

**2.1** Perform the items on the "working day maintenance"

**2.2** Clean the oil filter element with unused diesel oil. Clean the centrifugal oil filter once on two - maintenance period.

**2.3** Clean the dust on the air filter element and inside the dust deposit set. Replace the oil inside the oil bath type air filter.

**2.4** Check and adjust the tension of the fan belt.

**2.5** Fill the lubricating grease into the water pump bearing.

**2.6** Check all parts of the engine, to do the necessary adjustment if needed.

**2.7** When the maintenance is finished, start the engine and test its working conditions, eliminate the trouble and abnormal appearance.

### **3. Second grade technical maintenance**

**3.1** Perform the items on the "first grade technical maintenance"

**3.2** Replace the oil; clean the oil sump and the oil strainer.

**3.3** Clean the oil filter, replace the element.

**3.4** Replace the oil.

**3.5** Clean the fuel tank; clean the fuel filter element unused diesel oil.

**3.6** If the engine is supercharged type, then clean the cave and impeller of the turbocharger and also test the moving and fixed parts.

### **4. Technical maintenance on winter using**

If the temperature maybe lower than 5°C, the engine must be maintained specially.

**4.1** Must be used winter oil. Note the damp in the fuel cause abnormal running of the engine.

**4.2** It's better to fill the antifreeze fluid to the cooling system, or must drain off the cooling water af ter its temperature is lower than -40°C.

## Troubleshooting

### 1. Start failures

Trouble cause and its feature	Remedy
1.1 Troubles in fuel system	
(1.1.1) Fuel system is blocked with dirt	(1.1.1) Dismantle and clean
(1.1.2) Air trapped in the fuel system	(1.1.2) Vent the air from the system with the fuel delivery pump, check whether there is leakage of fuel and air in the fuel pipes
(1.1.3) Fuel pump fails in delivering fuel or delivers continuously	(1.1.3) Check and repair
(1.1.4) Injector sprays abnormally	(1.1.4) Check and adjust or replace the injector
1.2 insufficient compress pressure	
(1.2.1) Piston ring and cylinder liner are worn out	(1.2.1) Check and replace the worn parts
(1.2.2) Piston ring is gummed	(1.2.2) Clear off gum
(1.2.3) Valve leak air	(1.2.3) Valve spring is broken or elasticity is weaken, valve lash is incorrect, valve seal is not good, eliminate the fault
(1.2.4) Temperature is low after end of	(1.2.4) Environmental temperature is low, use compression preheat starting method
1.3 Trouble in electric devices	
(1.3.1) Battery is insufficient	(1.3.1) Recharging the battery to the specified point
(1.3.2) Connecting of electric devices is not good	(1.3.2) Check the tighten of the connection
(1.3.3) Starting motor doesn't rotate or rotates insufficiently	(1.3.3) Check the starting motor
(1.3.4) Clutch of starting motor skids	(1.3.4) Check and repair the clutch of the starting motor
(1.3.5) Gear of starting motor can not inlay the flywheel gear-rim	(1.3.5) Find out the fault and eliminate it

## 2. Abnormal exhaust smoke

When the engine works normally, the smoke color is light grey, when the load is higher its color is only dark grey, when the exhaust smoke is blue, white or black, then the smoke color is abnormal. Blue means burning oil; white means fuel is not burned thoroughly inside the cylinder or water is trapped inside the cylinder; black means injecting fuel too much to burn thoroughly.

Trouble cause and its feature	Remedy
2.1 Blue smoke	
(2.1.1) Lubricating oil flees, piston ring is installed inversely, choked or worn out badly	(2.1.1) Check piston ring and eliminate the fault
2.2 White smoke	
(2.2.1) Fuel spray is not atomized well, fuel leaks	(2.2.1) Check the injection pressure and the seal of the mate, adjust and clean or replace
(2.2.2) Too much water is trapped in the fuel	(2.2.2) Test the fuel quality
(2.2.3) Water is trapped in the cylinder	(2.2.3) Inspect the seal of the cylinder gasket, check the water leakage of the cylinder head and cylinder liner, repair or replace
2.3 Black smoke	
(2.3.1) Engine is over - loaded	(2.3.1) Adjust to the stipulated load
(2.3.2) Fuel sprays too much	(2.3.2) Adjust the fuel delivery amount of the fuel injection pump

### 3. Insufficient oil pressure

Trouble cause and its feature	Remedy
(3.1) Oil pressure gauge is out of order or the connecting pipe is choked	(3.1) Replace the pressure gauge or check the oil pump
(3.2) Too little oil in the crankcase	(3.2) Fill oil to the stipulated level
(3.3) Strainer screen and oil filter element is blocked	(3.5) Clean or replace

### 4. Oil temperature is too high

Trouble cause and its feature	Remedy
(4.1) Engine is over - loaded	(4.1) Adjust the load
(4.2) Oil is insufficient or overmuch	(4.2) Add or reduce the oil according to the right level indicator

### 5. The temperature of cooling water is too high

Trouble cause and its feature	Remedy
(5.1) Water temperature gauge or inductor is in trouble	(5.1) Inspect and replace
(5.2) Cooling water is not enough	(5.2) Fill cooling water and get rid of the air from radiator and hoses
(5.3) Flow of cooling water is too small	
(5.3.1) The water flow from the pump is too low	(5.3.1) Check the lash of the pump impellers, adjust the tension of the fan belt
(5.3.2) Too much scale is deposited inside the engine	(5.3.2) Wipe off the scale deposit
(5.4) The efficiency of radiator is not sufficient	(5.4) Clean off the dirt and scale deposit
(5.5) Engine is over - loaded	(5.5) Adjust to the permissible load





Dudullu Organize Sanayi Bölgesi 2. Cadde No: 14  
34775 Ümraniye İstanbul / Turkey  
Tel : +90 216 561 47 74 (Pbx) • Fax : +90 216 561 47 50  
[www.etna.com.tr/en](http://www.etna.com.tr/en) • [info@etna.com.tr](mailto:info@etna.com.tr)



**ETNA®**

**0850 455 38 62**  
customer service