



# Telair

**GENERATORS**



## **ENERGY 2510B**

***USER'S OPERATING INSTRUCTION***

***AND INSTALLATION MANUAL***



v. 002 – April 2015

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***When the generator remains idle for at least three weeks, old unleaded petrol sediments could build up inside the carburettor. These sediments can seriously damage the engine and it is therefore **COMPULSORY** that the carburettor be completely emptied prior to a long period of non-use: do this by turning off the fuel tap and running the generator set until it stops.***

***It is also essential that you never use old unleaded petrol, as it can undergo chemical modifications and seriously damage the engine.***

***Failure to observe these instructions automatically renders the **WARRANTY NULL AND VOID.*****

Via E. Majorana , 49 48022 Lugo (RA) ITALY

**"CE" COMPLIANCE STATEMENT**  
Under Machine Directive 2006/42/CE, attachment II A



We hereby represent that the generator-set, the data concerning which appear below, has been designed and built to correspond to the essential safety and health requirements laid down by the European Directive on Machine Safety.

This statement shall not be valid any longer if any changes are made on the machine without our written approval.

Machine: GENERATING SET  
Model: ENERGY 2510 B  
Maximum power: 2,5 KW @ 3000 r.p.m  
Serial number: .....

Directive of reference:  
Machine Directive 2006/42/CE.  
Low Voltage Directive 2006/95/CE.  
Electro-magnetic Compatibility 2004/108/CE.  
Harmonised standards applied: EN 60204-1.  
Directives noise emission in the environment 2005/88/CE, 2000/14/CE (Attachment VI, procedure 1),  
DLGS 262/2002.

Measured noise power LWA : 84 dB  
Guaranteed noise power level LWA: 86 dB

Certificate issued by: ECO Certificazioni S.p.a.  
via Mengolina 33; 48018 Faenza (RA) Italy  
Organismo notificato n° 0714

Technical documentation manager: Raul Fabbri, engineer

Lugo, 13/03/2015

THE PRESIDENT  
Raul Fabbri

## 1 FOREWORD



### MANUAL

**Refer carefully to this manual before performing any operation on the power generator set.**

### 1.1 Purpose and scope of this manual

This manual has been drawn up by the Manufacturer in order to provide basic information and instructions for performing every operation for servicing and using the generating set in a proper and safe manner.

It is an integral part of the generating set equipment, must be kept with care throughout the life of the same, and must be protected against any agent which could damage it.

It must follow the generating set if this is installed on a new vehicle, or if its ownership changes hands.

The information in this manual is addressed to the personnel in charge of installing the generating set, and to all those involved in its maintenance and use.

This manual sets out the purpose the machine was designed for, and contains all the information required to guarantee that it is used in a safe and proper manner.

Constant compliance with the instructions laid down here will guarantee the safety of the user, operating economy and longer life of the machine.

To facilitate reference, this manual has been subdivided into chapters specifying the main notions contained therein; for quick consultation, refer to the table of contents.

The most important parts of the text are in bold letters and preceded by symbols described here below.

It is strongly recommended that you read the contents of this manual and the reference documents carefully; doing so is essential to the correct long-term performance and reliability of the generator set and the prevention of injury and/or damage.

**Note:** *The information contained in this publication was correct at the time it went to print, but may be modified without advance notice.*

### 1.2 Symbols and Definitions

"Graphic safety symbols" have been employed in this booklet to identify different levels of danger or important information.



#### DANGER

This means that you must pay attention to avoid serious consequences which might lead to serious accidents or damage the health of the operators.



#### WARNING

This means a potentially hazardous situation which could lead to accidents or damage to property.



#### INFORMATION

This calls the user's attention to a potentially dangerous situation which could cause malfunction or damage the machine.

The drawings are only provided by way of example.

Even though the machine you actually have may differ from the illustrations contained in this manual, safety and information about the same are guaranteed.

The manufacturer, as part of his policy of constant product development and updating, may introduce changes without giving any notice.

### 1.3 General Information

The **ENERGY** generating set has been designed for installation on vehicles. It can deliver power at a voltage of 230 VAC 50 Hz.

The **ENERGY 2510 B** model must be fed lead-free petrol.

In order to achieve a low noise level, the **ENERGY** series generating sets are provided with internally insulated sound-proofing cases.

They can be accessed easily in order to perform maintenance work, and are provided with a remote control panel which can be installed inside the vehicle.

The generating sets can be connected to the tank of the vehicle as long as the fuel type is compatible. Otherwise, install a special tank which can be supplied as an option.

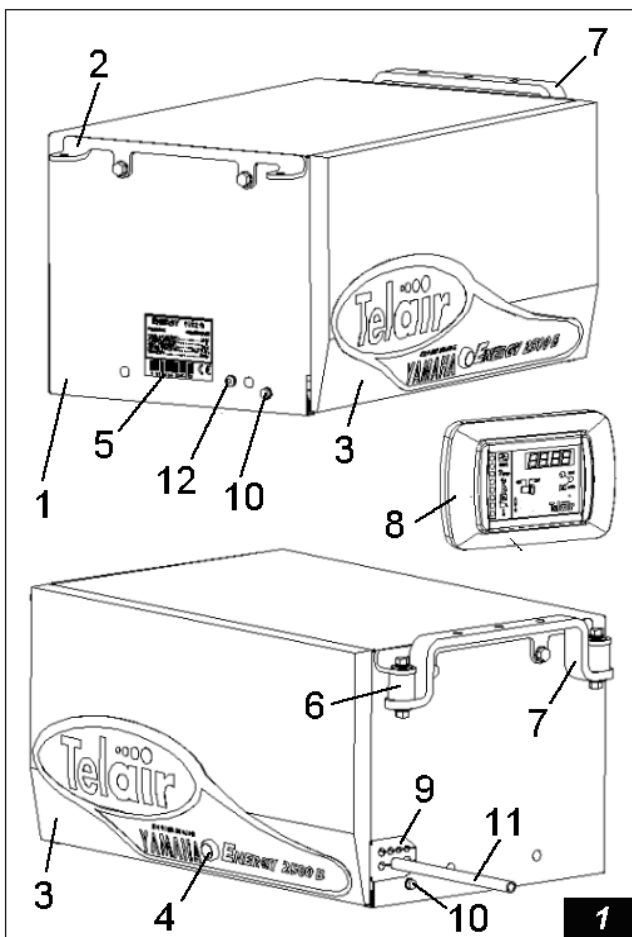
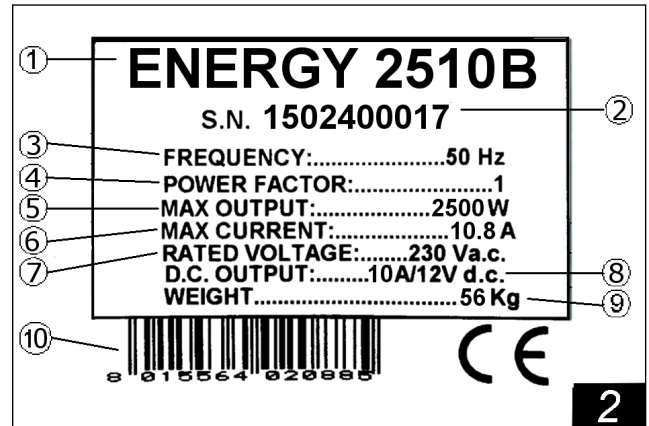


## 2 GENERATING SET IDENTIFICATION DATA

- 7 Rated voltage 230V AC
- 8 Current delivered at 12V/DC
- 9 Weight
- 10 Bar code

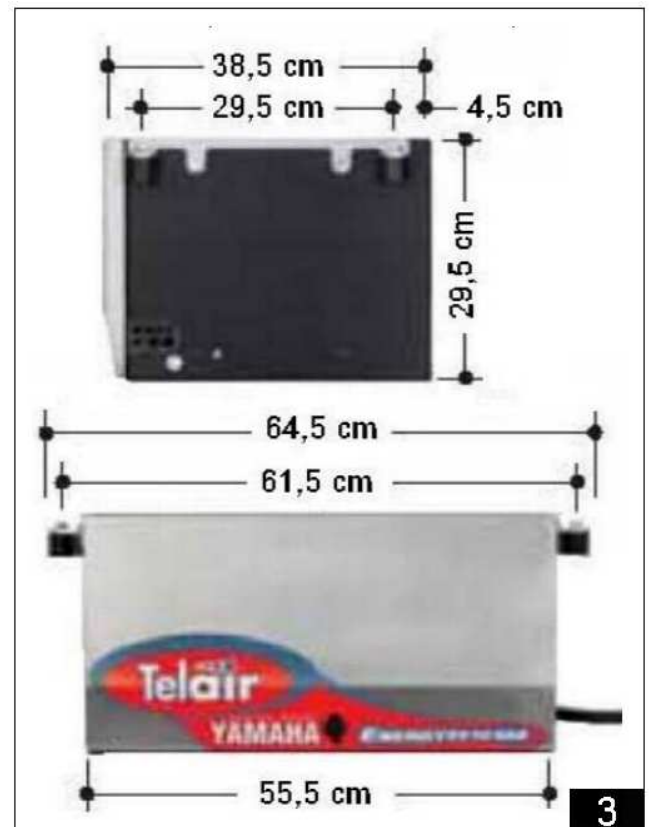
### 2.1 Components (Fig. 1)

- 1 Sound-proofing casing
- 2 Supporting brackets
- 3 Access door
- 4 Access door closure
- 5 Technical features sticker
- 6 Anti-vibration support
- 7 Anchoring bracket
- 8 Electronic control panel
- 9 Gas pipe and cable outlet block
- 10 Sliding surface locking screw
- 11 Fuel pipe
- 12 Sliding surface all out locking screw



### 2.3 Overall dimensions

Figure 3 shows the dimensions of the generating sets.



### 2.2 Identification plate (Fig. 2)

- 1 Generating set model
- 2 Serial number
- 3 Frequency
- 4 Power factor
- 5 Maximum electric power
- 6 Maximum current



## 2.4 Technical specifications

<b>ENGINE</b>		<b>ENERGY</b>
		<b>2510 B</b>
Type		Single cylinder, 4 stroke petrol, overhead valves, air cooling
Engine		Yamaha MZ 175
Displacement	cm <sup>3</sup>	171
Bore x Stroke	mm	66 x 50
Max Fuel Consumption		1.2 l/h
Fuel supply		Lead-free petrol
Ignition system		Electronic
Spark plug		BPR4ES
Oil sump capacity	litres	0.6
Speed governor		Automatic with centrifugal weights
<b>ALTERNATOR</b>		<b>2510 B</b>
Type		Synchronous, single phase, self-adjusting, two poles, brushless
Max power	kW	2.5
Continuous power	kW	2,2
Voltage/ Frequency	V/Hz	230 / 50
Continuous current output	A / Vdc	10 / 12
Rotor insulation class		H
Stator insulation class		F
Cooling		Centrifugal fan
<b>GENERATOR</b>		<b>2510 B</b>
Overall weight	kg	56
Dimensions (L X W X H)	mm	555 x 385 x 295
Starting		Electrical / Manual
Fuel pump		Negative pressure fuel pump
Noise level		61 dBA @ 7 m
Operation Hours	h	7

## 3 SHIPPING, HANDLING, STORAGE

### 3.1 Storage

The generating set is protected during transport by suitable carton packaging and a wooden base. It must be stored horizontally, in a covered, dry and ventilated area.

**INFORMATION** Do not turn the package upside down. The correct position is the one shown by the symbol printed on the package (↑).

### 3.2 Weight

Total weight of **ENERGY 2510 B**, packing including: 63 kg.

### 3.3 Handling

The generating sets, complete with their packaging, can be handled using common lifting and transport vehicles.

The boxes are provided with spacers in order to allow for the introduction of pallet truck forks.

**⚠ DANGER** *During lifting and transport, comply with accident prevention and safety regulations. Use lifting and transport equipment with a capacity greater than the load to be lifted.*

## 4 INSTALLATION

### 4.1 Preliminary information

**📖 MANUAL** *Before installing the generator set, it is absolutely necessary to read these instructions to prevent any installation errors.*

**⚠ WARNING** *The generator must be installed so as to prevent water seeping directly into the alternator through the air inlets; it must therefore be protected. Incorrect installation of generating sets can cause irreparable damage to the equipment and endanger the safety of users.*

Should the generating sets be installed not in compliance with the instructions in this manual, the Manufacturer shall not be held responsible for malfunctioning or for the safety of the generating set, by the terms of the Law Decree 2006/42/EEC. The Manufacturer shall also not be liable for any injury or damage to people or property.

**⚠ DANGER** *Installation must be performed by qualified and adequately trained personnel only.*

### 4.2 Instructions for fastening the generating set

The **ENERGY 2510 B** generating sets are provided with anchoring brackets with extra vibration

dampers and a fuel filter to be fitted along the generator feeding pipe. The brackets allow for hanging and floor assembly.

This kind of assembly provides the following advantages: less room taken up, quick installation, easy access for routine and unscheduled maintenance.

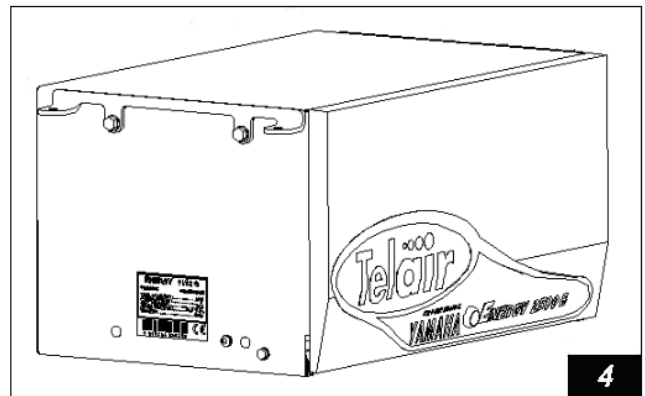
Make sure that there is enough room around the hood of the generating set to let cooling air through; also leave 10 cm free room between the hood and the surrounding parts.

Should the generating set air intake be behind a wheel of the vehicle, **care should be taken to prevent water from being sprayed into the generating set by the wheel when raining.**

**⚠ WARNING** *Ensure that, when the door is open, the engine sliding surface can be taken out (Fig. 6).*

#### 4.2.1 Hanging assembly

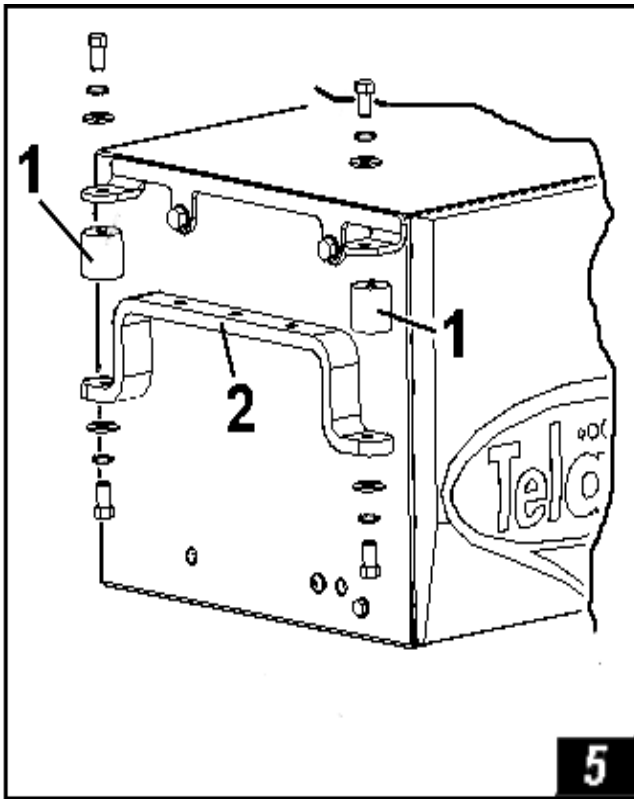
The generator, when sticking out of the package, is preset for hanging assembly, as shown in fig. 4.



The package also contains 4 vibration-damping cylinders (fig. 5 ref.1) and 2 brackets for hanging assembly (fig. 5 ref. 2).

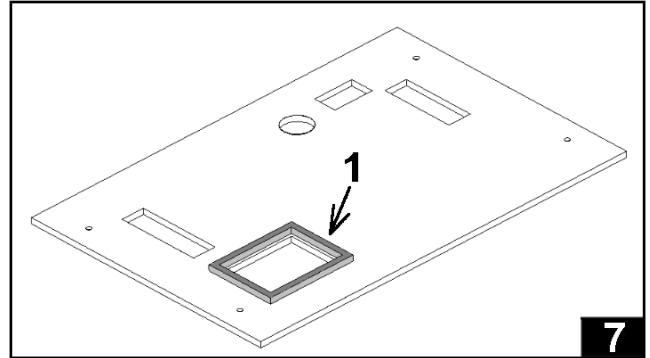
**⚠ DANGER** *The vibration-damping cylinders must imperatively be fitted as shown in fig. 5. They must be pressed, and NOT extended (as shown in fig. 6) by the generator weight.*



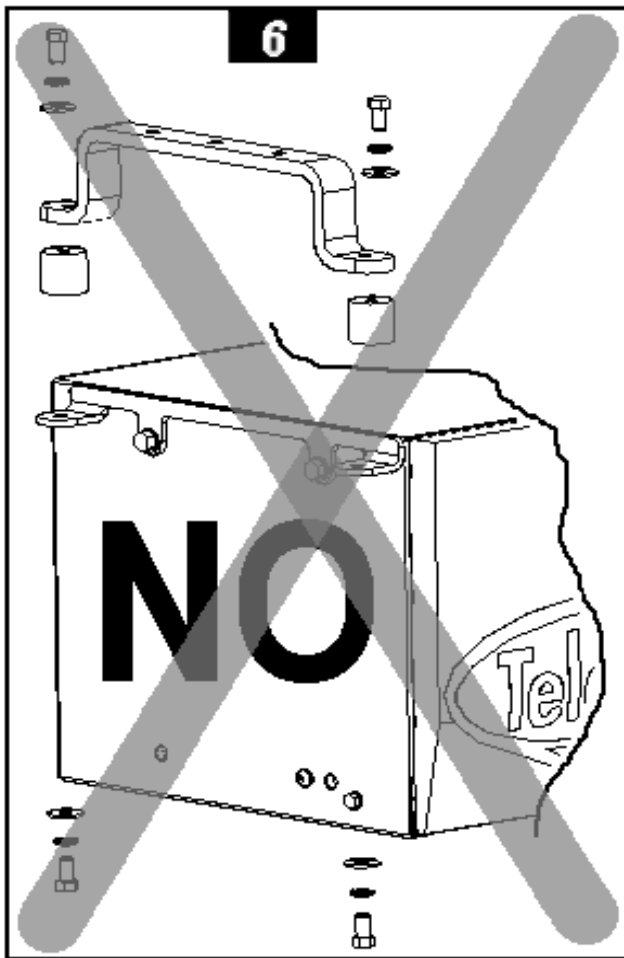


#### 4.2.2 Floor fastening

The package contains a drilling jig, which allows the generator bearing surface to be prepared quickly, fig. 7.

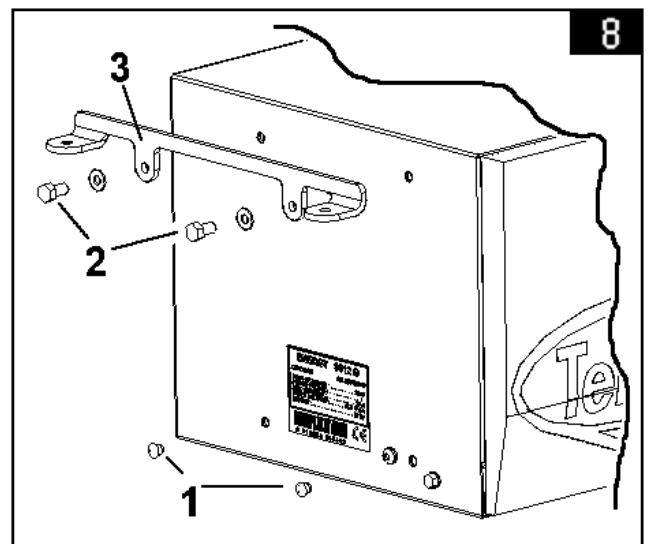


**INFORMATION** Place a spongy, heat-resistant gasket around the outlet opening of the exhaust pipe. The gasket height must reach the bottom of the generator and has the purpose of preventing hot air from spreading inside the generator compartment.

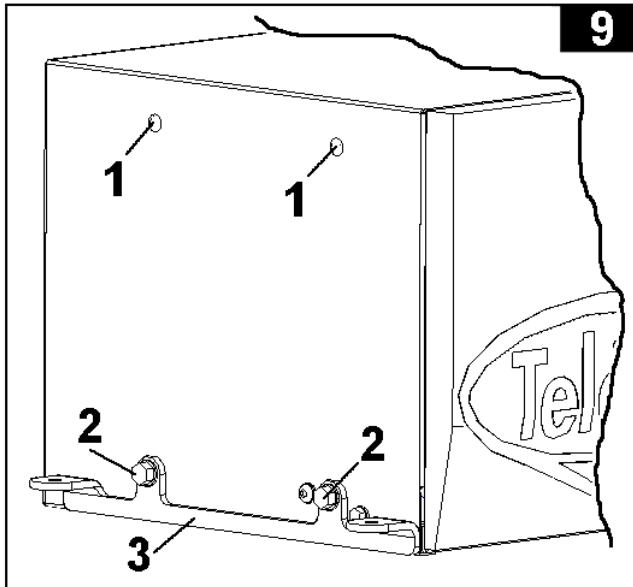


The brackets of the generator must be moved in order to fasten the **Energy 2510B** on the bearing surface.

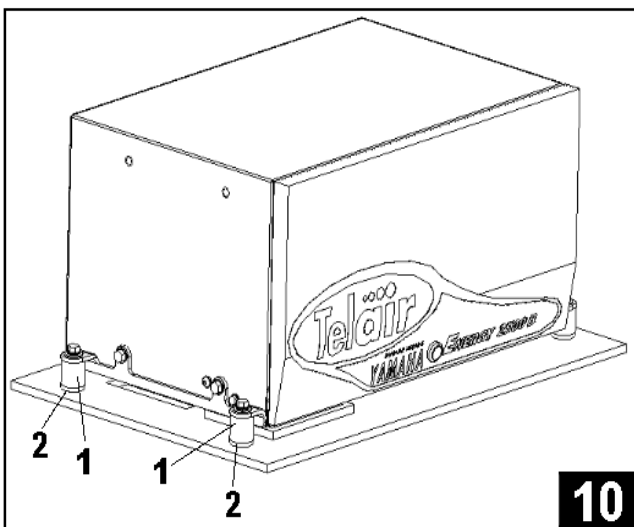
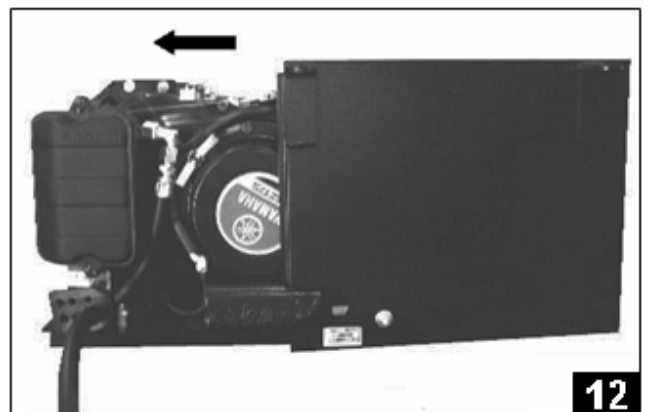
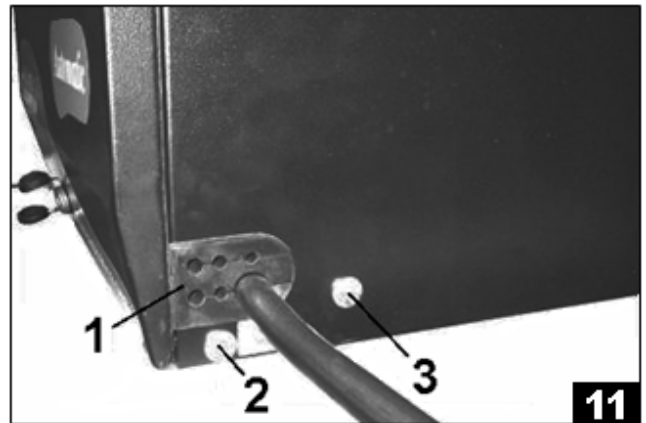
On both sides, remove the hole plugs (fig. 8 ref. 1) and screw out the screws (fig. 8 ref. 2) in order to remove the bracket (fig. 8 ref. 3).



Place the bracket (fig. 9 ref. 3) on the 4 holes which were previously covered by the plugs using the same screws (fig. 9 ref. 2) and apply the hole plugs (fig. 9 ref. 1) in the seats which previously housed the screws.



The generator can now be located on the previously drilled surface (fig.7) using the suitable vibration-damping cylinders (fig. 10 ref. 1) and spacers (fig. 10 rif.2)



### 4.3 Wiring connection instructions

By using the special key to open the lock, remove the front door.

Then remove the bottom surface locking screws (Fig. 11 Ref. 2) on both sides.

Take out the bottom surface with the engine all the way to the mechanical stop (Fig. 12).

If you wish to completely remove the engine surface, screw out the locking screws (Fig. 11 Ref. 3), too.

### 4.4 Battery connection

To start up the generating set, connection to the battery of the vehicle must be provided using a sheathed power cable up to current standards, with the cross-section shown in Table 1.

To this end, the generating set is provided with two special terminals (Fig.13 Ref.2) used to connect the positive and negative poles of the battery.

Connect the cable of the positive pole (red cable) to the terminal already having a red cable and the cable of the negative pole (black pole) to the terminal already having a black cable. The cable of the negative pole must be of the same cross-section as the positive cable, and must be connected both to the negative pole of the battery and to the vehicle chassis.

Make sure there is good contact; remove any paint or rust from the contact surface, and protect the connection by applying grease.

The capacity of the battery to be used for starting up must not be less than **100 A/h**.

The soundproofing box is equipped with two cable outlets used to let through the battery connection cables (Fig. 11 Ref. 1).

The cable presser block is used to prevent water seeping into the power generating set.

**INFORMATION** Always fit a 100 A fuse onto the positive cable connecting the generating set to the positive pole of the battery.

**4.5 Electric Load connection**

To connect loads to the power generating set, use a three-pole cable up to the applicable standards in force. The correct cross section is shown in Table 1.

**Table 1**

Model	Sect. mm <sup>2</sup> line 230 V	Cable leng. Lgth < 6 m	Cable leng Lgth. > 6 m
2510B	2.5	10	16
LINE CONNECTION 230 V		BATTERY CONNECTION	

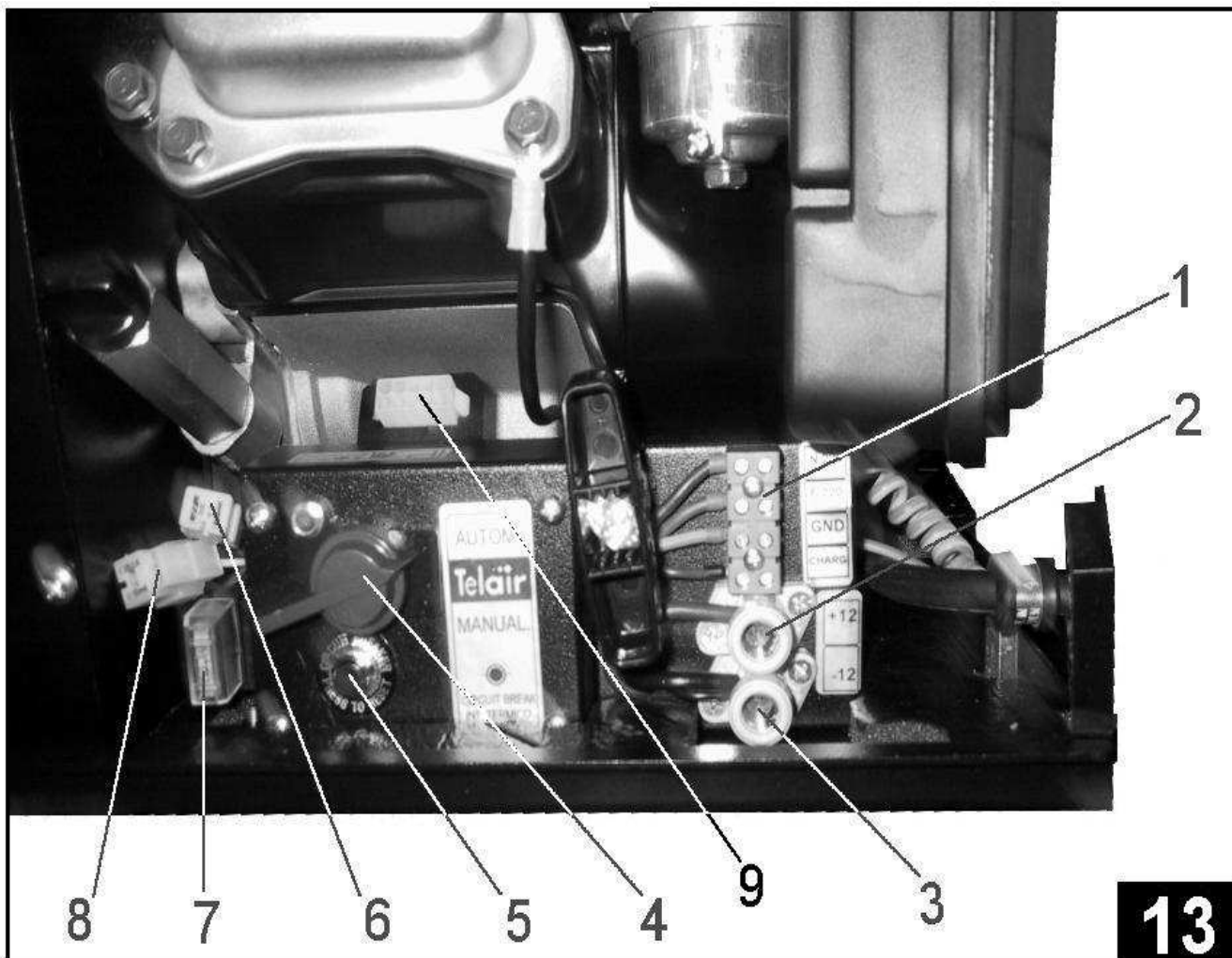
For connection to the 230V input line, the generating set is equipped with a special terminal strip (Fig.13 Ref.1) to which the cables must be connected.

Use the special cable outlet (Fig.11 Ref.1) to prevent water seeping into the generating set.

Although the generating set is equipped with a special internal thermal cut-out to cut power delivery in the event of overload or short circuits (Fig.13 Ref.5), it is advisable to install (in the vehicle control panel) a thermomagnetic cut-out switch, suitably set to stop power delivery to the various users when current absorption exceeds **10.5 Amp**.

If the generating set thermal cut-out switch has been operated, press the button (Fig. 13 Ref. 5) to restore closed circuit and power delivery conditions.

**⚠ DANGER** Carefully check the position of the line connection for picking up 230 Volt current. Wrong connection could damage the generating set irreparably or create dangerous short circuits.



#### 4.6 Auxiliary electric cable connection

All 3 auxiliary cables to connect are equipped with a polarized connector.

One cable is necessary for generator operation, while the other 2 are optional cables.

- Cable from the generating set to the control panel (mandatory). It is included in the standard supply and is 5 metres long. Check that its length is sufficient to cover the chosen route between the generating set and the control panel. Optional cables in longer sizes are also available.

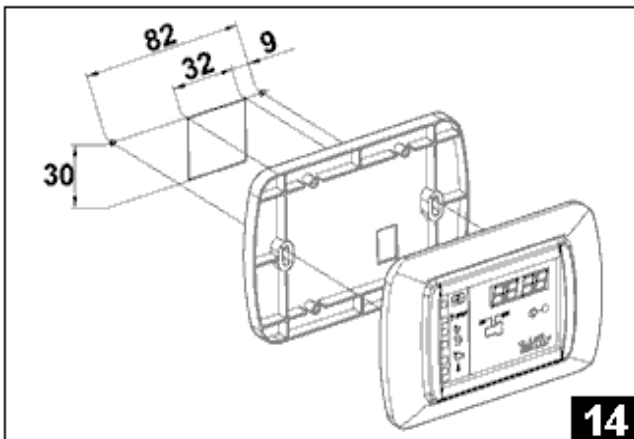
After leading the cable through the cable outlet block (Fig.11 Ref.1) connect the white connector to the fixed connector (Fig.13 Ref. 9) provided inside the generating set, checking that the plugging direction is correct.

- Cable from the generating set to the auxiliary fuel pump and fuel tank reserve (optional). From the three-pole connector (Fig.13 Ref.8) it is possible to take two cables to supply electric input to an auxiliary fuel pump; **also see paragraph 4.8.**

From the same connector (Fig.13 Ref.8) it is also possible to take the signal for tank fuel warning; **also see paragraph 4.10.**

- Cable from the generating set to the auxiliary battery charger (optional). From the bipolar connector (Fig.13 Ref.6) it is possible to derive supply for an RCB battery charge regulator via two 4 mm<sup>2</sup> cables; **also see paragraph 4.11.1.**

#### 4.7 Electronic control panel connection

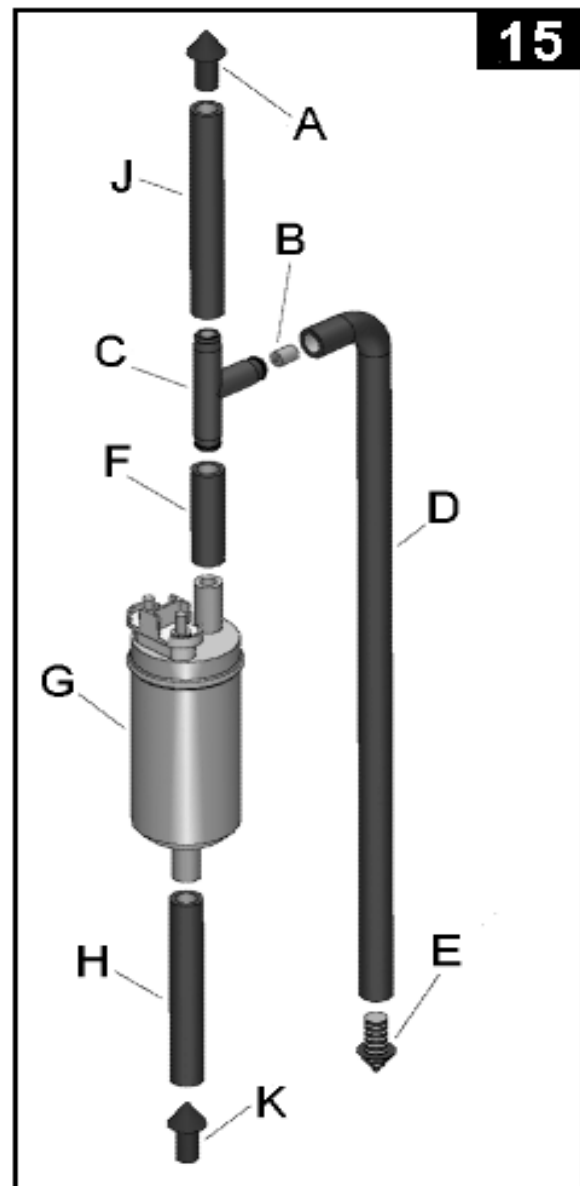


Choose your required position for the control panel inside the vehicle and drill a 30 x 32 mm rectangular hole. After letting out of the hole the connecting cable coming from the generating set (paragraph 4.6) connect the cable black connec-

tor on the back of the electronic control panel. Fix the electronic control panel (Fig.14) by using 3 x 20 mm self-tapping screws, making sure that the rear part does not interfere with other surfaces. Apply light pressure to fix the plastic frame, until the anchoring tabs click in.

#### 4.8 Auxiliary (optional) fuel pump connection

If the distance that fuel must cover between the fuel tank and the generating set is too long or the tank is installed at a lower level than the generating set, the fuel pump installed inside the generating set may find it difficult to take fuel in from the tank by suction. In this case, an auxiliary optional fuel pump (code 00507) should be installed as close as possible to the tank for easy priming.



As is shown in the figure, fuel coming from a tank **K** fitting is taken in by suction by the pump **G** via a hose **H** and then fed to the joint **C** via the hose **F**.

The amount of fuel necessary for generating set operation will be fed through the hose **J** to the generator unit **A**; while any excess fuel will return to the tank via the return fitting **E**.

Inside the joint **C**, a flow rate reducer **B** should be installed consisting in a fit-in cylinder with a 2.5 mm ID. Each pipe coupling must be secured with a special clamp.

On the generating set front is a three-pole connector (Fig.13 Ref.8). Checking the wiring diagram, identify the two auxiliary fuel pump control poles (+12 and GND ). Two cables with minimum cross sections of 1 mm<sup>2</sup> must be connected to those two Faston terminals with special connectors to reach the auxiliary pump poles. (Fig.15 Ref. G)

#### 4.9 (Optional) tank installation instructions

The fuel tank installation position (Fig. 10) must be chosen so as to ensure that the fuel hose length is reduced to a minimum.

Also ensure that the hose cross-section is not reduced due to choking, bending or crushing. We

advise the install the tank at the same height as the generating set; in any case, the installation height difference should never exceed 20 cm (Fig. 16).

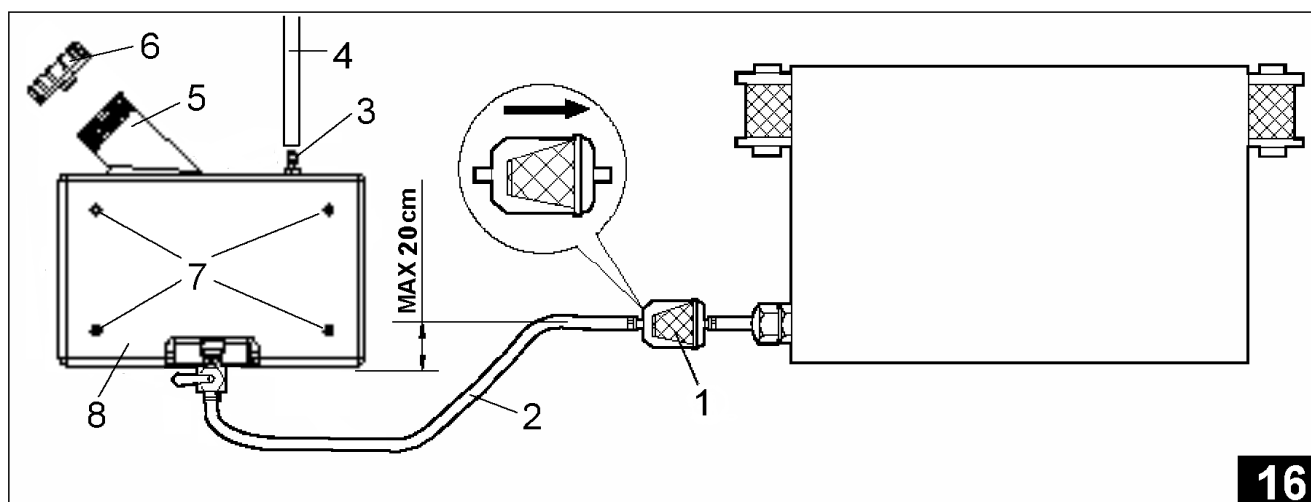
Should it not be possible to observe the maximum permitted level difference requirements, an electric fuel pump can be installed (available as an optional part, code 00507) which can easily overcome over 1 metre level differences between the fuel tank and the generating set.

See paragraph 4.8

**⚠ DANGER** Do not install the fuel tank next to sources of heat; the tank should be protected from the risk of outside water seeping.

Carry out the fuel tank-to-generating set connection by using a rubber hose (Fig.16 Ref. 2) suitable for unleaded fuel with an ID of 5 mm interposing a fuel filter (Fig.16 Ref. 1).

The tank requires an outlet and a special hose is connected to the special hose connector to this end (Fig.16 Ref.3). Make sure that the outlet hose path is upwards (Fig.16 Ref.4) and straight-lined without any elbows.



16

Dealers can supply two different fuel tank models to meet any installation requirements.

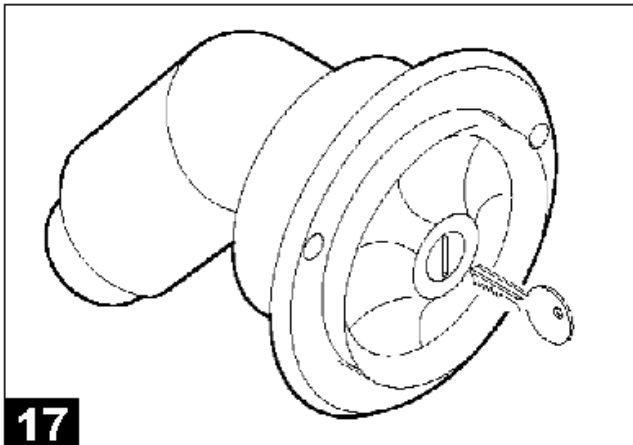
- For standard vehicle installation, use the optional tank code 05472 (Fig.16 Ref.8) with a capacity of 15 litres; the filler (Fig.16 Ref.5) is supplied complete with a closing plug. (Fig.16 Ref. 6)
- The optional tank code 05466 (Fig. 18) with a capacity of 15 litres has been designed for installation at different positions to make the

most of the available vehicle space and to enable filler (Fig. 17) connection at two different locations (Fig.18 Ref. 1 and 2). This enables the installer to choose the most suitable solution each time according to the type of installation.

The fuel cut-off tap (Fig. 18 Ref. 3) can also be screwed onto two different threaded pipe fittings (Fig.18 Ref. 4) according to different installation positions.



For tank anchoring to the vehicle, special threaded inserts (Fig.18 Ref. 5 ) and (Fig.16 Ref. 7) should be used according to requirements.



#### 4.10 Fuel reserve

Both fuel tank models are provided with a tap with fuel warning (Fig.18 Ref.3). To electrically connect this component, ground the wire screwed on the tap body then connect the other tap wire to the special three-pole connector Faston terminal via an electric lead (Fig.13 Ref. 8); to identify the correct Faston lead, check the wiring diagram.

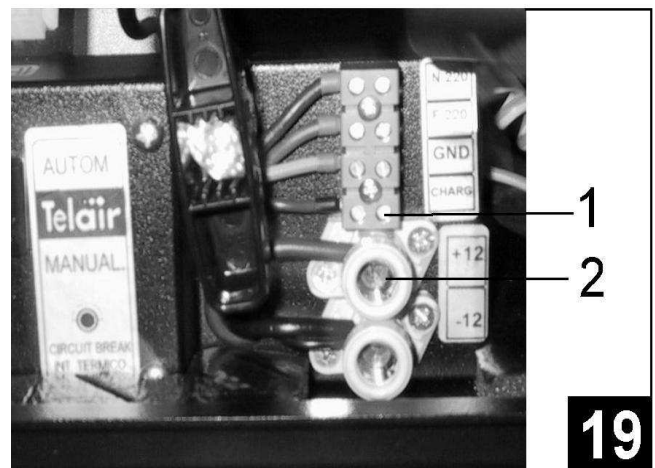
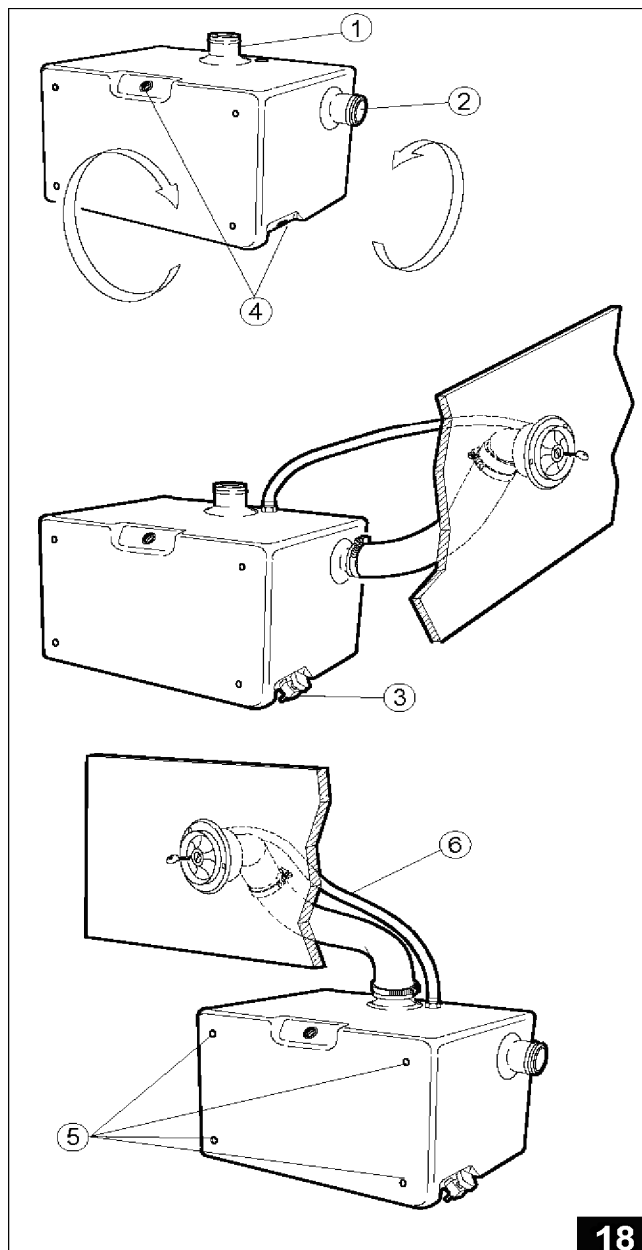
The fuel reserve available in both tanks is approximately 4 litres.

A special fuel warning light (Fig.30 Ref.8) will light up to show that the fuel level inside the tank has gone below the safe reserve level.

#### 4.11 Battery charger

**ENERGY 2510 B** generating sets are equipped with a battery charger which can deliver current of approximately 10 Amp at 12 V. It can be used to recharge the generating set start-up battery.

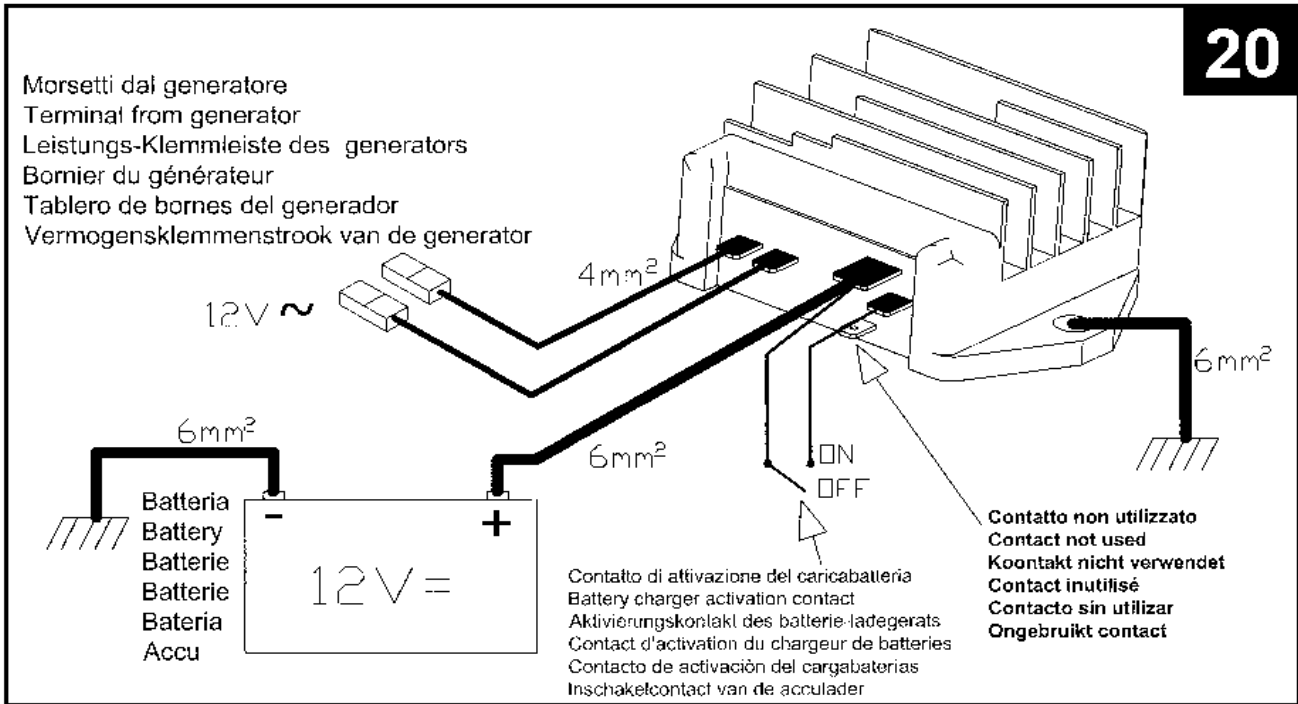
To obtain this function, use a 2,5 mm<sup>2</sup> cross-section cable to connect the terminal identified by CHARG (Fig.19 Ref. 1) to the positive pole (red cable) of the generating set (Fig. 19 Ref. 2).



##### 4.11.1 Auxiliary Battery Charger

If you wish to recharge a different battery or do not wish to use the CHARG terminal, it is possible to use the 12 Volt alternating current output provided on the bipolar connector shown in Fig. 13 Ref. 6. To these two Faston terminals, 4 mm<sup>2</sup> cross-section cables should be connected to obtain interfacing to an optional RCB regulator (code 05424) as shown in Fig. 20.



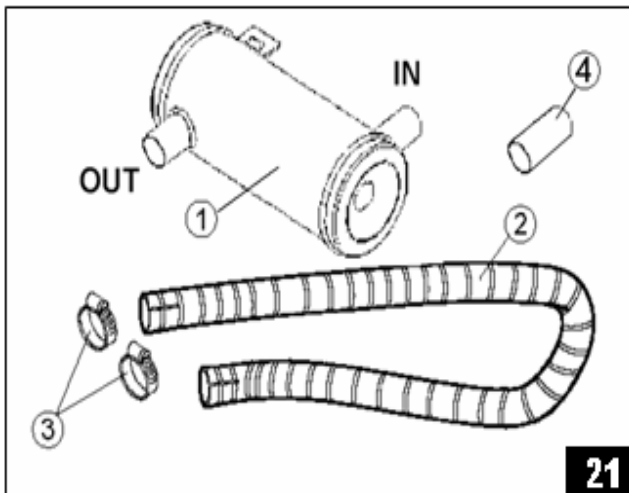


**INFORMATION** *The generating set will not autonomously recharge the battery used for starting-up unless this is connected to a battery charger or the CHARG terminal this is connected (see paragraph 4.11).*

- A one-metre long section of flexible steel tubing code 00443 (Fig.21 Ref.2).
- Two connection fastening clamps code 00543 (Fig.21 Ref.3).
- One hose coupling code 03645 (Fig.21 Ref. 4).

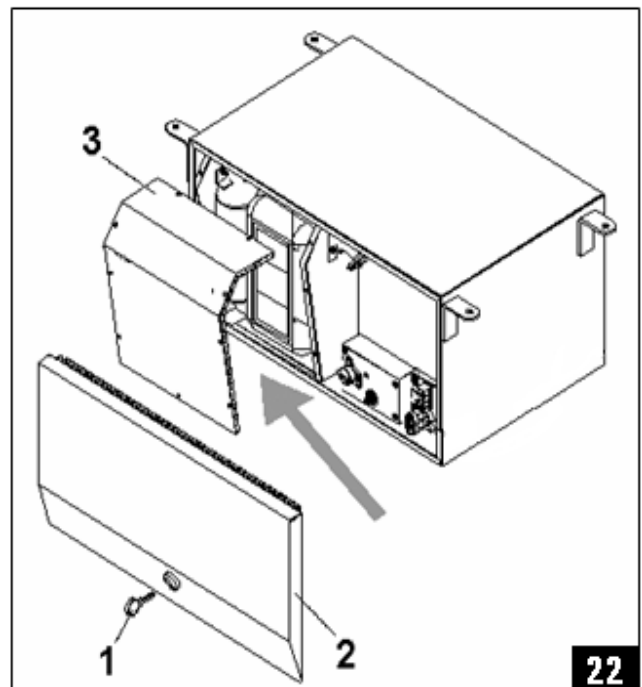
**4.12 Connecting an additional silencer**

To further reduce the generating set operating noise, an (optional) additional silencer can be installed externally.

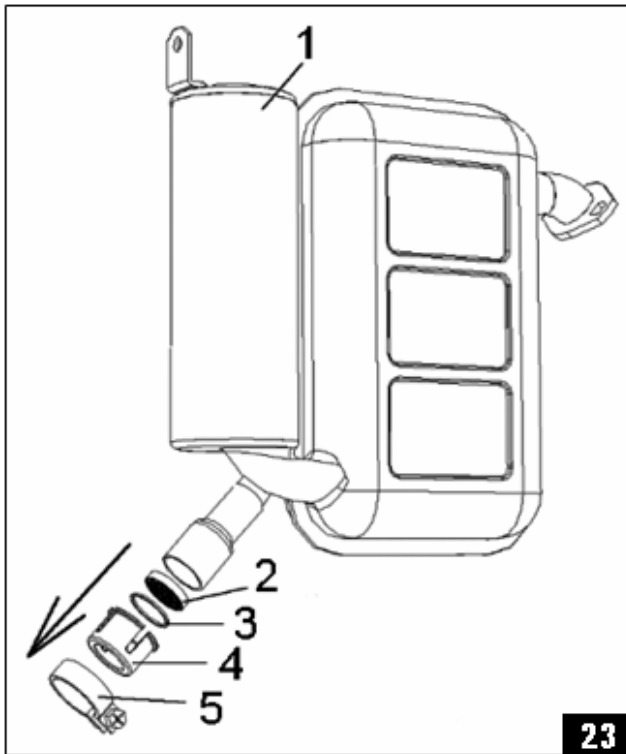


The additional silencer kit code 02482 consists of:

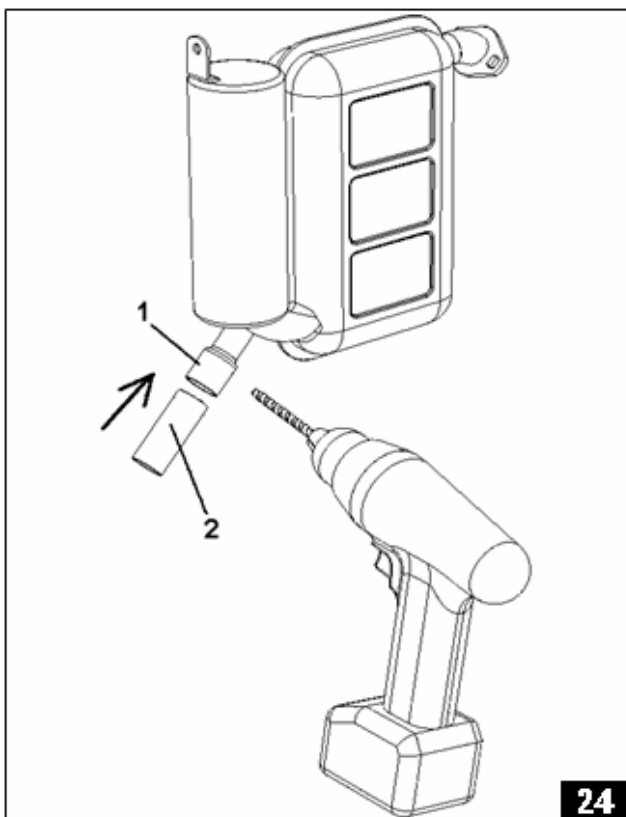
- A silencer code 02019 (Fig.21 Ref.1).



To connect the silencer to the generating set, first of all remove the door (Fig.22 Ref.2) by using the special key (Fig.22 Ref.1) and the muffler guard (Fig.22 Ref.3).

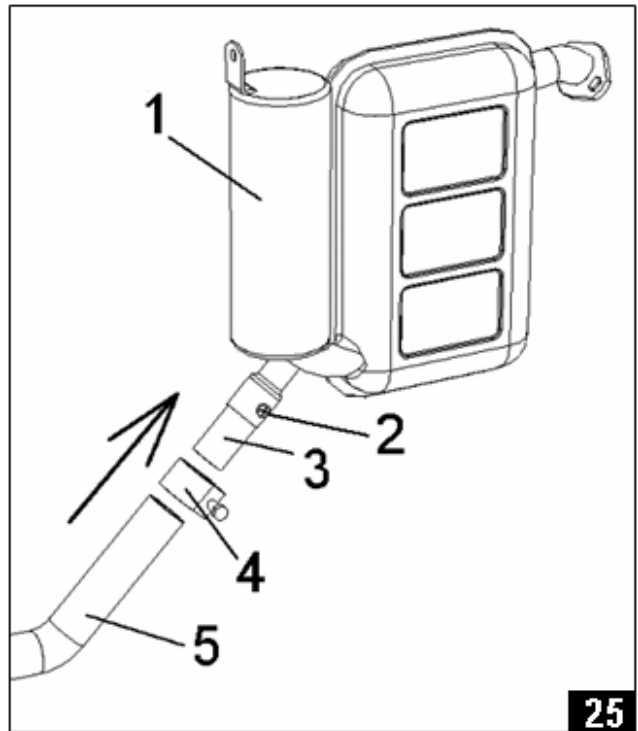


Now remove all the flame trap parts (Fig.23 Ref. 2 – 3 – 4 – 5) from the muffler (Fig.23 Ref. 1).

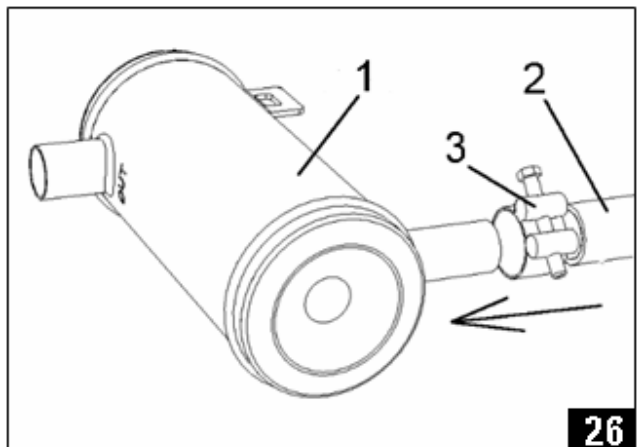


After introducing the coupling code 03645 (Fig. 24 Ref. 2) into the muffler terminal (Fig.24 Ref. 1), drill a small hole in the muffler terminal large

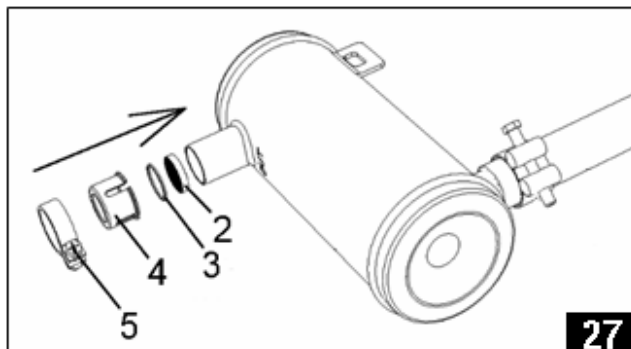
enough to accept a self-tapping screw to lock the muffler terminal (Fig.25 Ref. 2). Now insert the hose code 00443 (Fig.25 Ref. 5) on the coupling (Fig.25 Ref. 3). Lock the hose with the clamp code 00543 (Fig. 25 Ref. 4).



Fix the flexible hose (Fig.26 Ref.2) to the silencer terminal on the inlet side (Fig.26 Ref.1) by using the other supplied clamp (Fig.26 Ref.3).



Replace the flame trap parts (Fig.27 Ref. 2 – 3 – 4 – 5) on the silencer terminal and, by using the bracket welded on the silencer, fix it at a position where it is not likely to hinder electric cables or fuel pipes.

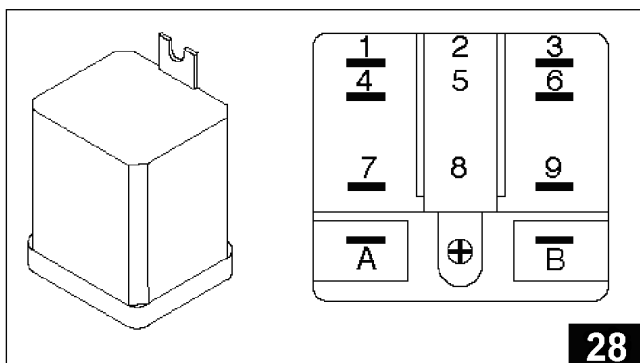


27

**WARNING** Do not use silencers not supplied by TELAIR. Silencers that have not been specially sized may damage the motor.

#### 4.13 Connecting an External Network Relay

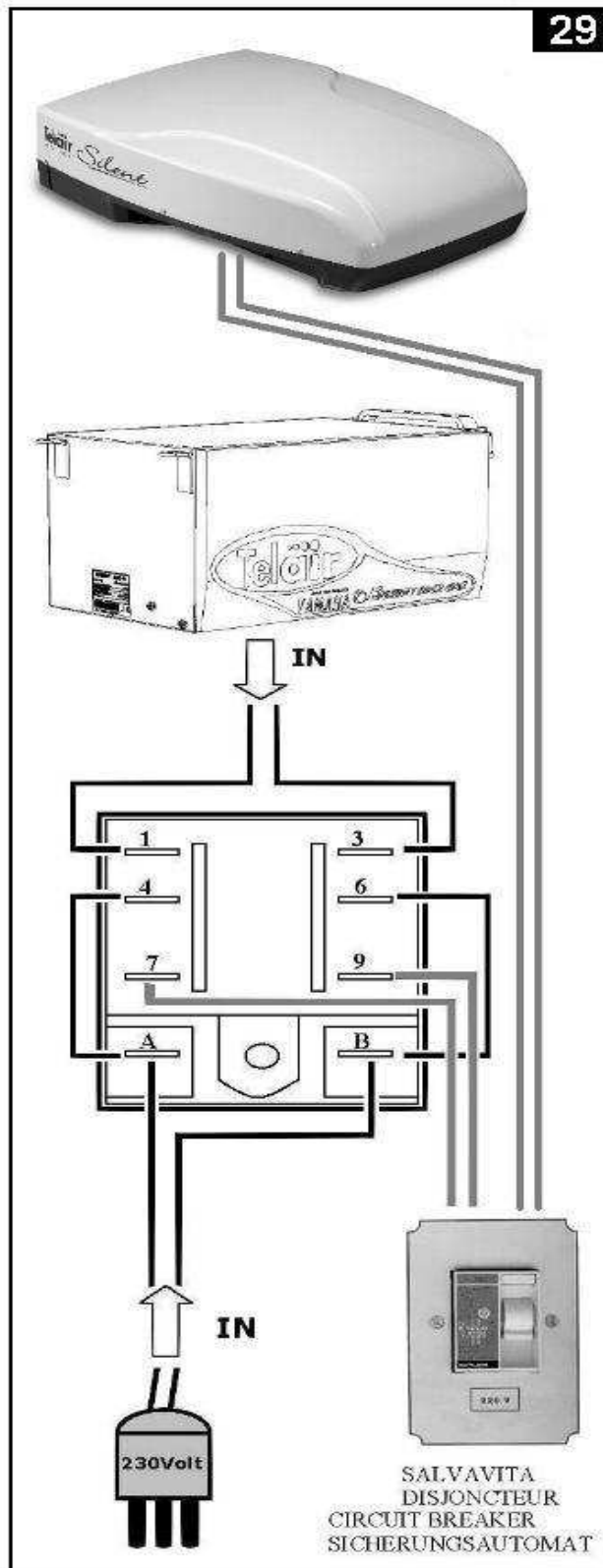
An (optional) relay or change-over switch code 05423 (Fig.28) should be fitted to the vehicle wiring system. Its purpose is to insulate the generating set when the vehicle is connected to an external electric input network.



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Connect the relay (Fig.29) according to the following instructions:

- Connect the two wires of the 230 V line of the generating set to the PINS 1 - 3.
- Connect the user line to the PINS 7 - 9.
- Connect the outside line to the PINS 6 - 4.
- Jumper the PINS 4 - A.
- Jumper the PINS 6 - B.
- Connect all the grounding cables together



29

**DANGER** Electric connections to the generating set should be carried out by skilled electricians only.

## 5 OPERATING INSTRUCTIONS

**WARNING** *The generating set is delivered without engine oil. Use oil for multigrade 4-stroke petrol engines, having SAE viscosity suitable for the operating climate and in the amount indicated (see table and detailed indications on the user and maintenance manual of the engine).*

The **ENERGY 2510 B** series generators consist of petrol internal combustion engines connected to an alternator that can produce alternating electrical current. The generating sets are assembled inside a steel plate casing, insulated and sound-proofed using special sound absorbing materials. Fuel is fed to the internal combustion engine via a pump fitted to the generating set as part of the standard supply.

### 5.1 Machine safety

The generating sets come with perfectly sealed casings, so there is no danger of contact with any moving or high temperature parts or with live cables.

The doors open with a lock and key. The keys must not be left within the reach of children or inexperienced persons.

**DANGER** *The generating sets must only and exclusively be used with their doors shut.*

*Remove any flammable substance (for example: petrol, paints, solvents, etc.) from near the generating sets.*

*Make sure that any hot parts of the generating sets are not in contact with any flammable material.*

*Never fill up the fuel tank while the engine is running.*

*Never touch the generating sets or the wiring connections with wet hands.*

*Never replace the fuses or the cut-out switches with others having higher amperage.*

*Should any electrical part need checking, this must only be done with the engine turned off and by specialised personnel.*

The generating sets have been built in compliance with the safety standards listed in the EEC statement of compliance.

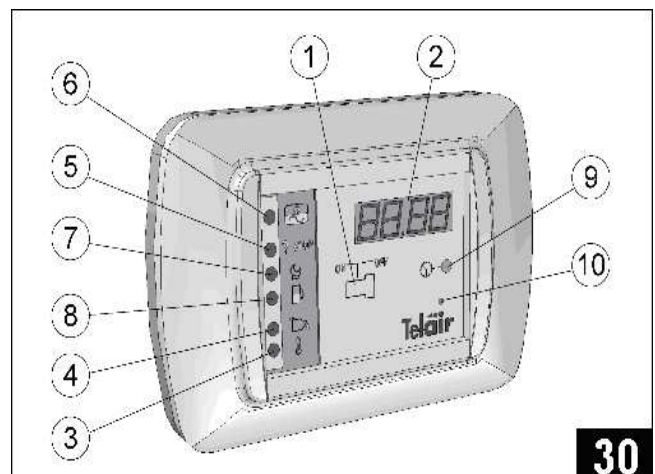
## 6 USING THE GENERATING SET

### 6.1 Starting up the generating set

The generating sets are provided with an electronic remote control panel (Fig. 30) which allows you to perform starting up / turning off operations and to check their running conditions.

The panel controls are:

- 1 ON/OFF switch
- 2 Display unit
- 3 High temperature indicator
- 4 Engine minimum oil level indicator
- 5 Startup failed
- 6 Generator running (flashing)
- 7 Engine oil change indicator
- 8 Fuel warning light
- 9 Display time changeover switch
- 10 Reset



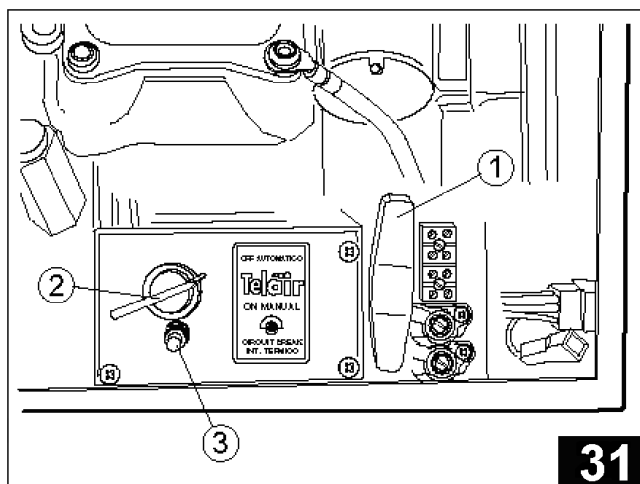
Set the startup switch (Fig.30 Ref.1) to its "ON" position. The message "WAIT" will be displayed for 8 seconds. After this time, the electronic control panel will start the first automatic procedure for starting up the generating set. If the engine starts up at the end of this phase, the "generator running" indicator light (Fig.30 Ref.6) will start to flash.

Should the engine not start up, this automatic procedure will be repeated up to 4 times.

If, at the end of a complete cycle, the engine has not yet started up, the "startup failed" indicator (Fig.30 Ref.5) will light up to signify that the generating set has failed to start up.

If the "startup failed" indicator (Fig.30 Ref.5) light only stays lit, you can repeat the procedure several times. If the generating set has not started up after several attempts, contact the manufacturer's After-sales service.

Should the battery be flat, you can start the generating set **Energy 2510 B** by hand, using the handle of the engine coil winding (Fig.31 Ref.1) after setting the selector switch to "ON" (Fig.31 Ref. 2) and the electronic control panel to "ON". Once you have started up the engine manually, put the selector switch back to "OFF" (Fig.31 Ref. 2). The start-up battery should never be disconnected, as there would be no input to the electronic control panel which would prevent the generating set from working.



### 6.2 Turning the generating sets off

To stop the generating set, set the switch 1 to its "OFF" position (Fig.30 Ref.1).

**DANGER** *The fuel employed is highly flammable. The exhaust gases are conveyed under the casing; their temperature, inevitably, is high even though they are mixed with cooling air. Do not touch the casing areas near the exhaust, and do not put your hands or any objects inside the casing.*

### 6.3 Information on not recommended uses

**DANGER** *These generating sets must be installed and used by qualified and authorised personnel only, according to the manufacturer's instructions. These generating sets must only and exclusively be used to produce electrical power on vehicles provided with an electrical system built to standards and according to the quantity of power delivered.*

### 6.4 Useful tips

To prevent malfunctioning of any of the generating set-powered users, it is necessary to:

- Before starting the generating set, ensure all user loads are disconnected (e.g. via the thermomagnetic switch provided between the generating set and the system - as described elsewhere in this document) until the generating set has started and reached steady state.
- Before stopping the generating set, disconnect or at least, turn off the connected users.

To make the best use of the generating sets, remember that even minor overloads - if they last long enough - will operate the thermal cut-out switches (Fig.31 Ref.3).

During the first 50 hours of operation (run-in time), it is important not to submit the generating set to a working load exceeding 75% of its rated load.

### 6.5 Control and alarm functions (Fig. 30)

**2 Display:** when the generating set has started up, the total running hours will be displayed. Press the key provided below the control panel display unit (Fig.30 Ref.9) to display the number of generating set operation hours since the latest engine oil change.

**3 High temperature indicator:** this warning light will light up when the temperature of the generating set goes over its safety value; the engine will stop at the same time.

**4 Engine oil minimum level indicator:** this warning light will light up to indicate that oil in the engine has gone below the minimum level. A safety system will kill the engine automatically to prevent failures.

**5 Engine startup failed:** this warning light will light up to indicate that the generating set has not started up, after all four start-up attempts.

**7 Change oil:** this warning light will light up when the engine has reached 100 running hours since the latest oil change. Every time the oil is changed, the After-sales service staff must reset the timer to zero.

**8 Fuel warning:** this warning light will light up when the fuel level inside the extra tank has gone below its reserve level (about 4 litres)

**9 Display time changeover switch:** press this switch to display the running hours since the latest engine oil change.

**10 Reset:** this key (not visible) is used to reset the panel (operation to be done only if the panel



has inexplicable behavior or the display shows characters without any logic).

## 6.6 Control panel alarm causes and resetting

During generating set use, alarm signals may be displayed referring to engine oil checks. After checking the engine oil, the control panel must be reset in the following way:

**Alarm:** the red 'service' light is flashing.

**Cause:** 50 hours have elapsed since the latest engine oil change and oil level should be checked.

**How to reset the alarm:** with panel turned off, press the partial counter key (Fig.30 Ref.9) and while holding it down, turn the panel on and release the push-button when the unit has started up

**Alarm:** the red 'service' light is lit.

**Cause:** 100 hours have elapsed since the latest engine oil change and engine oil should be changed.

**How to reset the alarm:** turn on the panel and wait for the generating set to start. Now press the button hidden under the small hole in the bottom left corner (Fig.30 Ref.10) and release it immediately thereafter. Wait a couple of minutes before turning the generating set off.

**Alarm:** the display unit shows random characters.

**Cause:** malfunctioning due to low voltage during start-up (low battery, cable cross-section too small). In this case, just turn Off and On the control panel.

In certain situations, data of internal microprocessor of the panel may be subject to permanent alterations and prevent running of generating set. In this case, to restore the functionality of panel is necessary to completely re-initialize (contact the Service).

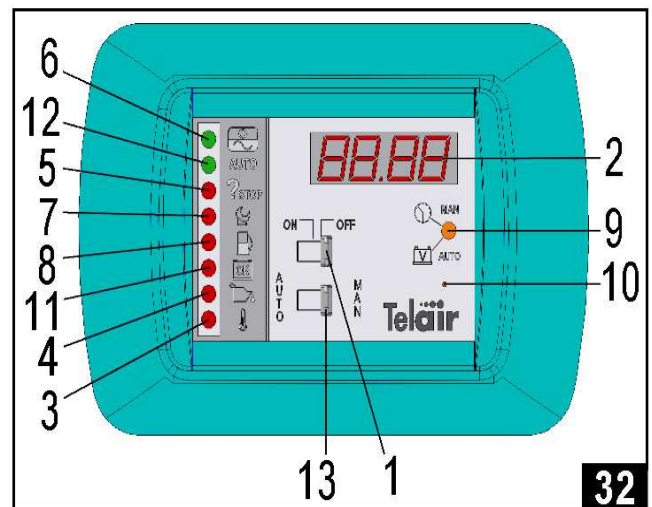
## 6.7 Automatic Version (optional)

If you wish the start-up batteries to be recharged automatically in the **En 2510 B** generating sets, it is possible to install the **ASP** (optional) automatic control panel (fig.32) instead of the manual control panel.

The elements making it up are:

- 1 ON/OFF switch for the start-up and switch-off function
- 2 Display

- 3 High temperature indicator
- 4 Minimum oil level indicator
- 5 Start-up failed indicator
- 6 Generator running indicator (flashing)
- 7 Maintenance request indicator
- 8 Fuel reserve indicator
- 9 Hour or voltmetric changeover switch button
- 10 Reset
- 11 Battery charged indicator
- 12 Automatic function indicator
- 13 AUTO/MAN switch for the automatic or manual function



## 6.8 MANUAL operation

See section 6.1

## 6.9 AUTOMATIC operation

Turn the AUTO/MAN switch (Fig.32 Ref.13) to the AUTO position and set the start-up switch (Fig. 32 Ref. 1) to ON position.

The automatic function indicator (Fig.32 Ref.12) will light up.

When the voltage at the ends of the 12V DC terminals of the generating set is lower than 11.5 Volts, the generating set will begin the start-up procedure (similar to that of the manual operation).

During the operation in automatic mode, the display (Fig.32 Ref.2) will show the total running hours of the generating set. Press the hour or voltmetric changeover switch button (Fig.32 Ref.9) to display the voltage at the ends of the 12V DC terminals, i.e. at the ends of the battery.

When the battery is charged, and anyway after at least 15 minutes' running, the battery charged hours indicator (Fig.32 Ref.11) will light up and



the electronic control panel will turn off the generating set.

**INFORMATION** To select automatic or manual mode is necessary to position the AUTO / MAN switch before turning on the panel with the ON / OFF switch.

Remember that the time which is taken by the generating set in automatic mode to recharge the battery may vary according to the battery status, the amount of connected batteries and the ambient temperature.

Generally, the lower the temperature the less the time required to charge the battery.

**WARNING** Applying any load higher than the energy just then available in the battery will prevent the generating set from turning on due to insufficient voltage.

## 7 MAINTENANCE INSTRUCTIONS

**INFORMATION** Only use original spare parts. Using poorer quality spare parts may damage your generating set. Routine checks and adjustments are of the essence in preserving a high level of performance. Routine maintenance also ensures long generating set life.

**DANGER** Before performing any check or maintenance operation on the generating set, turn the selector switch (Fig. 31 Ref.2) to the position 1 "manual" in order to avoid accidentally starting up the generating set.

### 7.1 Service check list

See table at the bottom of page 24.

### 7.2 Maintenance not requiring specialised personnel

To perform this kind of service, it will be necessary to open the generating set door. The following precautions must therefore be taken:

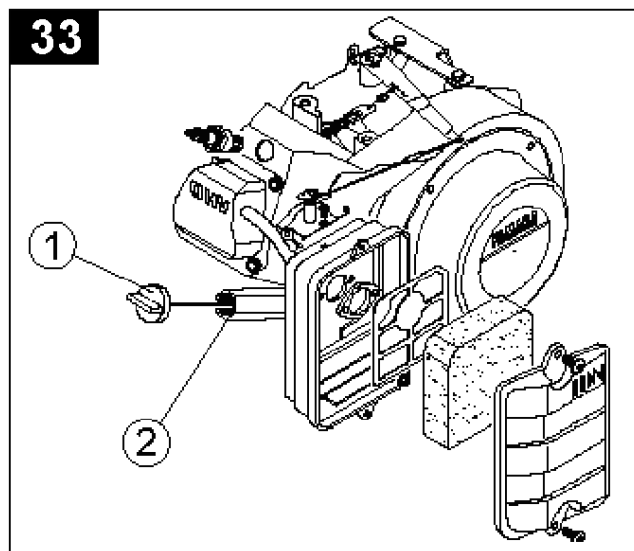
- 1 The generating set must not be in operation, and all its parts must be cold
- 2 Turn the selector switch to the position "ON" (manual) (Fig.31 Ref.2)

**N.B. Remember to switch the selector switch to "OFF" (automatic) after completing the required checks.**

### 7.3 Checking the engine oil level

**INFORMATION** All engine oil level checking operations must be performed with the generating set in a perfectly horizontal position.

- Unscrew the engine oil filler cap and clean the dipstick (Fig.33 Ref.1).
- Put the dipstick back in without screwing.
- Take the dipstick out again, and make sure that the engine oil level is between the two (min and max) notches. Should the oil level be below the minimum notch, restore the oil level using the recommended type of engine oil (refer to the engine user and maintenance manual).
- Put the dipstick and filler cap back on and screw tightly.



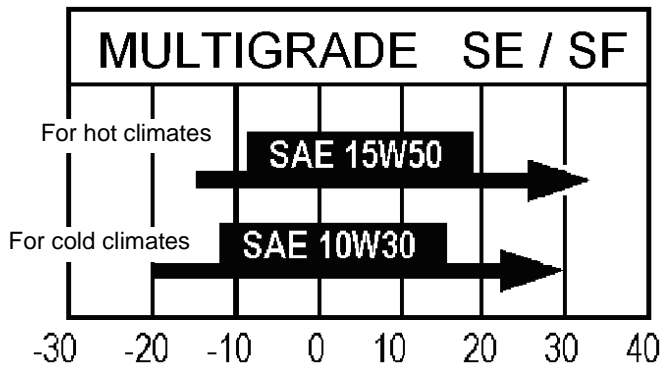
**WARNING** Do not fill to exceed the maximum level, as this could cause malfunctioning of the fuel pump and hence of the generating set.

**7.4 Maintenance operations to be carried out by qualified personnel**

To carry out certain servicing operations, it is possible to extract the engine-alternator assembly from the front. (See paragraph 4.3.). This will make it easier to obtain access to all the inside parts of the generating set for unscheduled maintenance or repair operations.

**7.4.1 Engine oil replacement**

Use multigrade oil for four-stroke petrol engines having a SAE viscosity degree suited to the climate the generating set is working in (see table and detailed instructions in the engine use and maintenance manual).



To make it easier to drain the spent engine oil, it is advisable to let the engine run for 3 - 5 minutes; in this way, the oil will be more fluid and emptying will be quicker and more thorough. Undo the special cap on the soil sump (Fig.34 Ref.1) which can be reached through a special hole under the sound-proofing case (Fig.35 Ref. 2) and allow all the contained oil to be drained to a collecting tank. After doing this, screw the cap back on and restore the oil level inside the oil sump, using the filler hole (Fig.33 Ref. 2). Check the following table for the right amount of oil to pour in the sump (Table 2).

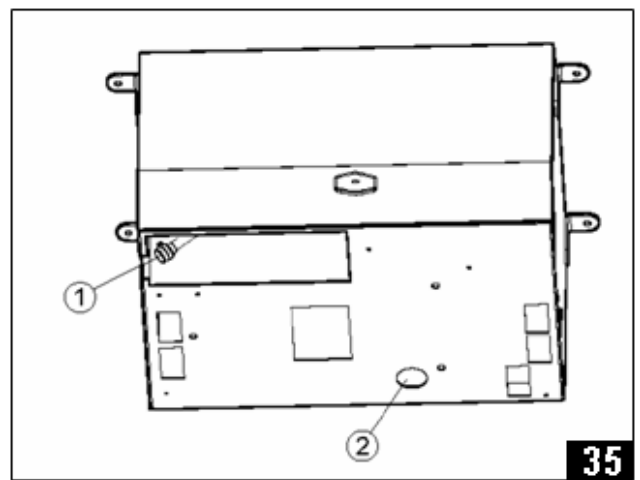
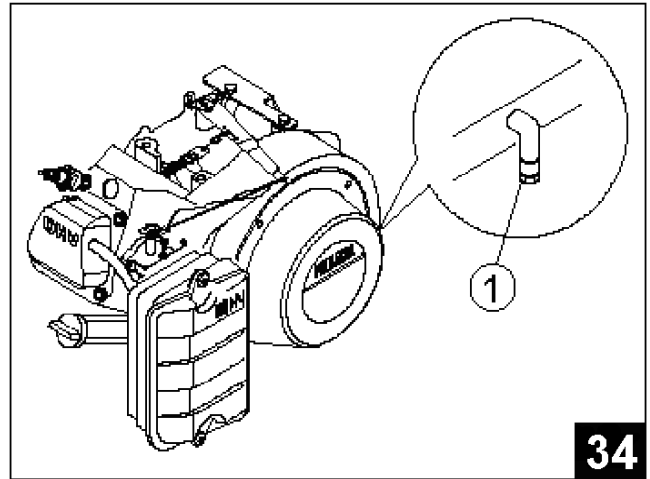


Table 2

MODEL	Oil quantity (litres)
Energy 2510 B	0.6

**⚠ DANGER**

- Hot oil can scald.
- Causing the engine to run when the oil level is too low can seriously damage it.
- Check the oil level when the engine has been turned off.

**ℹ INFORMATION**

Spent oil should not be disposed freely in the environment but taken to special disposal centres carrying out disposal and/or recycling in compliance with the applicable law provisions in force in the country of use.

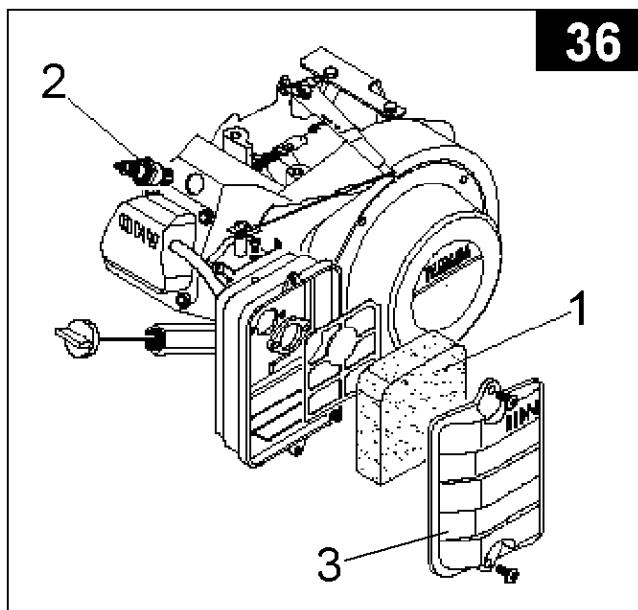
### 7.4.2 Air filter maintenance

**INFORMATION** *A clogged air filter will reduce air flow to the carburettor. To prevent carburettor malfunction, check the air filter regularly. If the engine is used in a heavily dusty environment, we suggest checking the air filter every time before starting up the engine.*

**! DANGER** *Never use Diesel oil or solvents with a low evaporation point for cleaning the air filter cartridge, as this could cause fires or explosions.*

Never operate the engine without an air filter; the engine would wear down quickly due to air-borne dust.

To access the filter cartridge, remove the air filter closing lid (Fig.36 Ref.3) after having unscrewed both screws that fix it to the air filter box.



Take out the cartridge (Fig.36 Ref.1) and wash it in mild detergent and water then rinse thoroughly. Let the filter cartridge dry out completely, then dip it in clean engine oil. Squeeze out carefully any excess oil. Replace the cartridge only if visibly worn out.

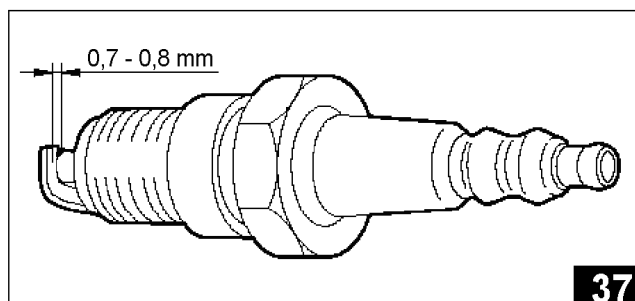
### 7.4.3 Spark plug maintenance

Use spark plug models BP4ES, BPR4ES (NGK), W20EP-U, W20EPR-U (ND) or else spark plugs

made by other manufacturers but compatible with the above.

Never use spark plugs with a different temperature degree from those listed above.

- Take the cap off the spark plug (Fig.36 Ref.2) and using the special wrench take out the plug.
- Perform a visual inspection. Replace in case of obvious wear or if the insulator is broken or cracked.
- Use a steel brush to clean the spark plug, if it can be used again.
- Use a thickness gauge to measure the distance between the electrodes. The right distance should be between 0.7 and 0.8 mm (Fig. 37).



- Correct the distance if necessary, bending the side electrode.
- Make sure that the spark plug washer is in good condition and then screw back on by hand to make sure that it is correctly put back in place. Finally, tighten to the right torque using the special wrench (see instructions in the engine user and maintenance manual).

**INFORMATION** *When assembling a new spark plug, tighten by 1/2 turn after the spark plug has compressed the sealing washer. If you put back the old plug after having removed it, tighten it by 1/4 turn after it has compressed the sealing washer.*

**! WARNING** *The spark plug must be tightened firmly. A badly positioned spark plug may become very hot and damage the engine.*

## 7.4.4 Output voltage adjustment

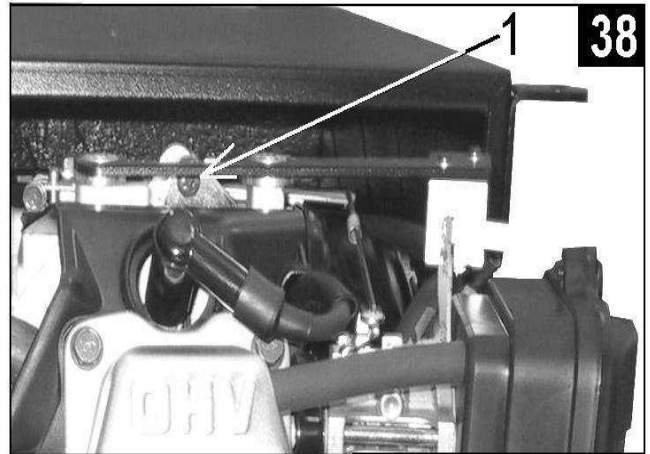
Adjust the voltage when the engine is hot without any applied load and the generating set is running.

Check the voltage of the generating set using a voltmeter via a 230 V vehicle socket. The voltage must be between 230 V and 245 V without any connected user.

If different values are measured, it will be necessary to set the right values by working on the engine rpm adjustment screw (Fig.38 Ref.1).

Turn the screw clockwise to increase the engine rpm and consequently, the voltage.

Turn the screw counter-clockwise to decrease the engine rpm and consequently, the voltage.



## 8 ROUTINE MAINTENANCE SCHEDULE

<b>ROUTINE MAINTENANCE SCHEDULE</b> To be performed after the period of time or the number of running hours listed here, whichever the earlier.		Every use	First Month or 20 hours	Every 3 Months or 50 hours	Every 6 Months or 100 hrs	Every 12 Mths or 300 hrs
Engine Oil	Level check	■				
	Replacement		■ (2)		■ (2)	
Air Filter	Clean and replace if necessary		(1)■(2)			
Fuel Filter and Tank	Clean and replace if necessary					■ (2)
Spark plug	Clean and replace if necessary				■ (2)	
Valve Adjustment	Check - Adjust					■ (2)
Fuel Pipe	Check for leaks or cracks					■ (2)
Muffler	Check for leaks or cracks					■ (2)
	Clean and replace spark screen if necessary		■ (2)		■ (2)	
Air Choke Valve	Check correct operation				■ (2)	
Engine rpm or Frequency	Check - Adjust				■ (2)	
Vibration Damper Suspension Points	Check – Replace if necessary					■ (2)

NOTES: (1) Clean more frequently if you use it in a very dusty environment.  
(2) These operations must be performed by specialised personnel only.

## 9 PROLONGED INACTIVITY

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***When the generator remains idle for at least three weeks, old unleaded petrol sediments could build up inside the carburettor. These sediments can seriously damage the engine and it is therefore **COMPULSORY** that the carburettor be completely emptied prior to a long period of non-use: do this by turning off the fuel tap and running the generator set until it stops.***

***It is also essential that you never use old unleaded petrol, as it can undergo chemical modifications and seriously damage the engine.***

***Failure to observe these instructions automatically renders the **WARRANTY NULL AND VOID**.***

## 10 DISMANTLING

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Should you have to dismantle the generating set, contact specialised companies.



## 11 RECOMMENDED FIRE-FIGHTING EQUIPMENT

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In case of fire, never open the generating set casing and use only approved type fire extinguishers.

 **DANGER** *Never use water to put out flames in the generating set.*

## GENERAL WARRANTY TERMS

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**TELAIR** guarantees its products against any construction material and/or manufacturing faults and defects.

***The right to warranty cover for new products is valid for a period of 24 months from the time of handing over to the end user, or for a maximum of 1000 operating hours, whichever limit is reached first. In all cases the warranty period shall end no later than 26 months (28 months if delivered outside of Europe) after ex factory delivery.***

***For electric and hydraulic components, pipes, belts, sealing elements, injection nozzles, clutches, drives, the warranty term is 12 months from the time of handing over to the end user, or a maximum of 1000 operating hours, whichever limit is reached first. In all cases the warranty period shall end no later than 14 months (16 months if delivered outside of Europe) after ex factory delivery.***

In any case, the costs of lubricants and consumables shall be charged. Any transport expenses shall have to be covered by the purchaser; the same applies to any expenses connected with inspections requested by the customer and accepted by **TELAIR**.

The manufacturer's warranty shall only be valid if:

- the customer has carried out all routine maintenance according to the recommended schedule and has promptly visited the nearest after-sale centre if required.
- the customer can produce a document showing the date of sale (invoice or receipt).

Such document will have to be kept with care and be intact when produced to the **TELAIR** After-Sales centre on requesting service.

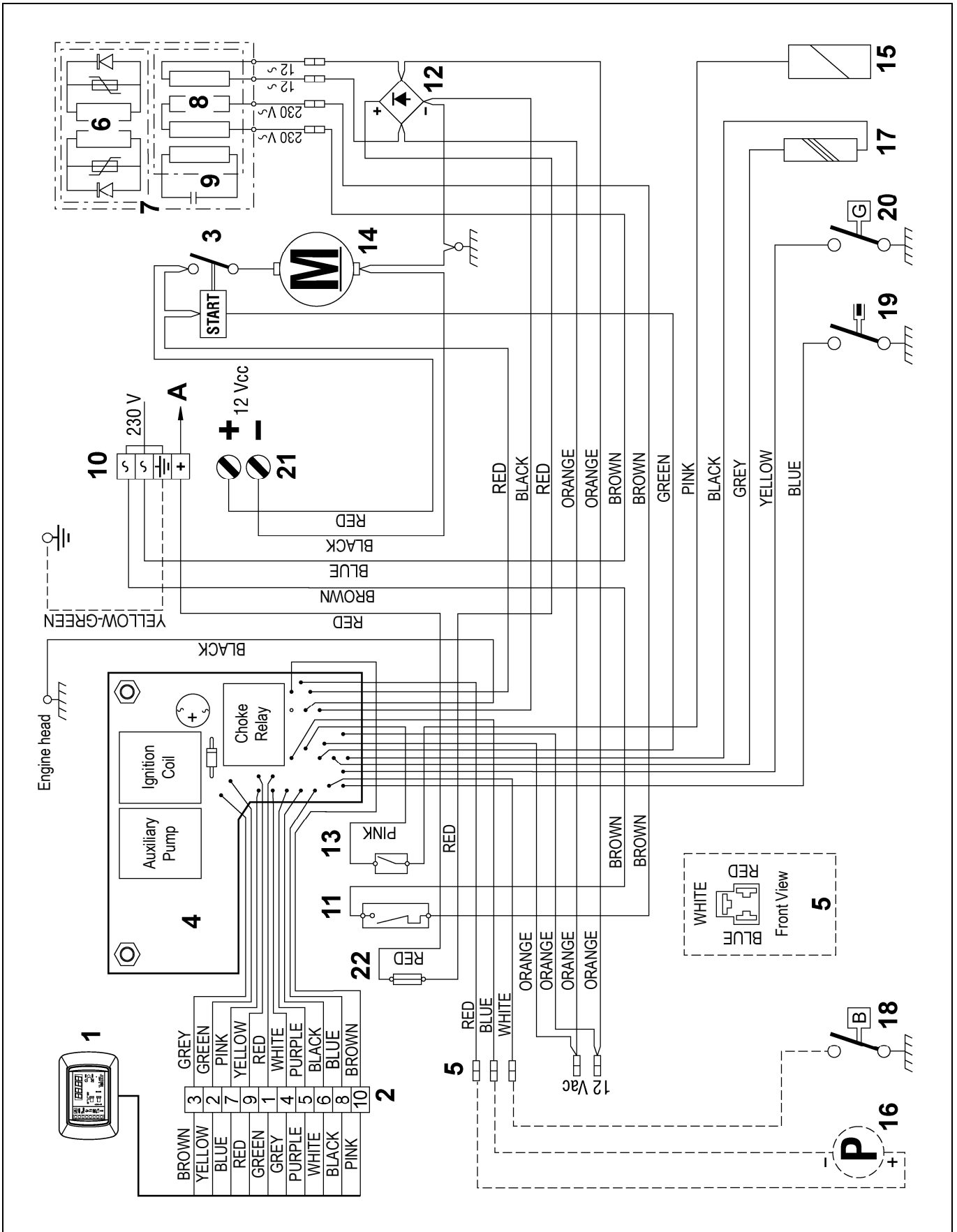
In any case, the purchaser shall not be entitled to:

- terminate the contract;
- claim damages to persons or property;
- ask that the warranty be extended in the event of product defects or malfunctioning.



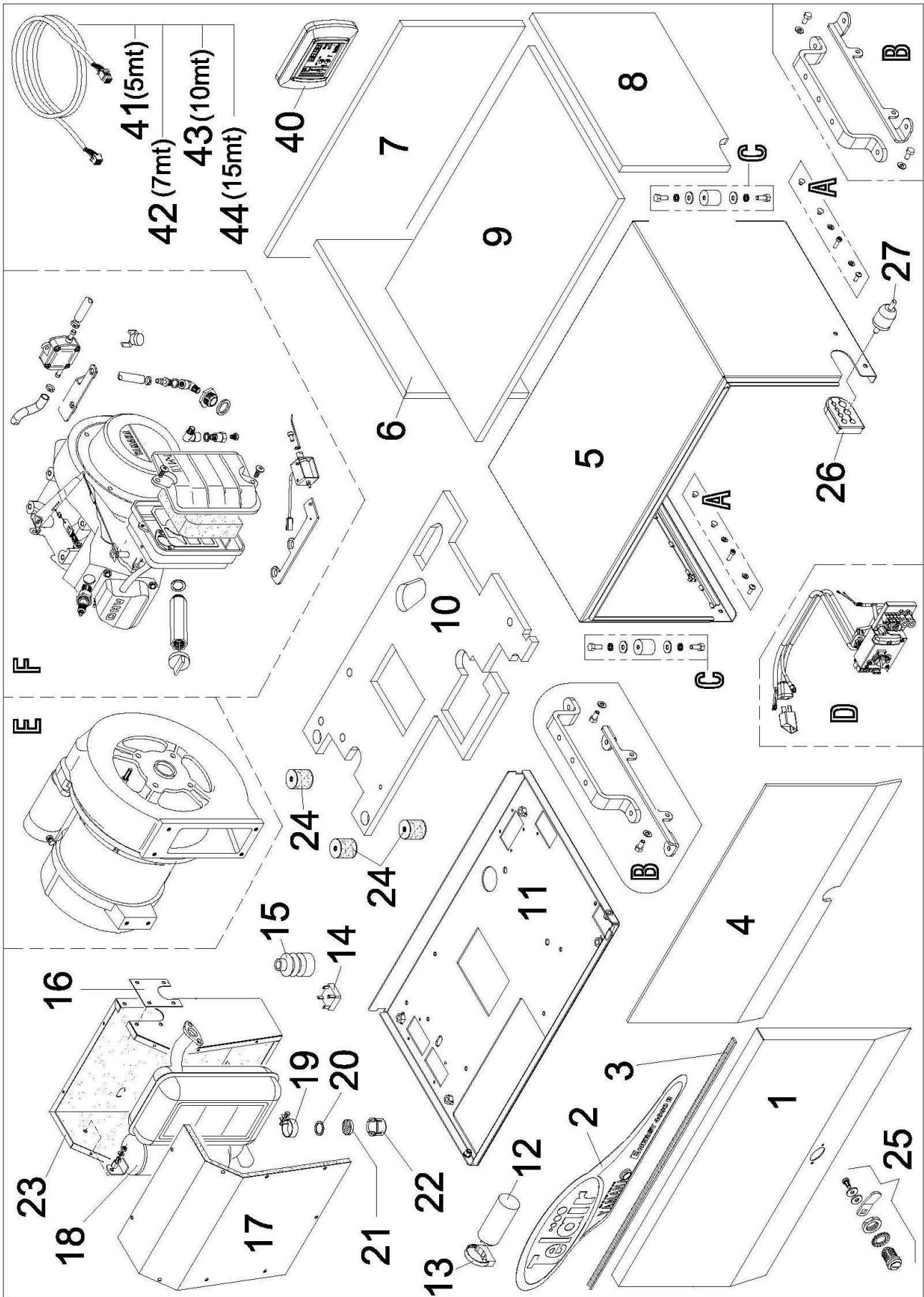


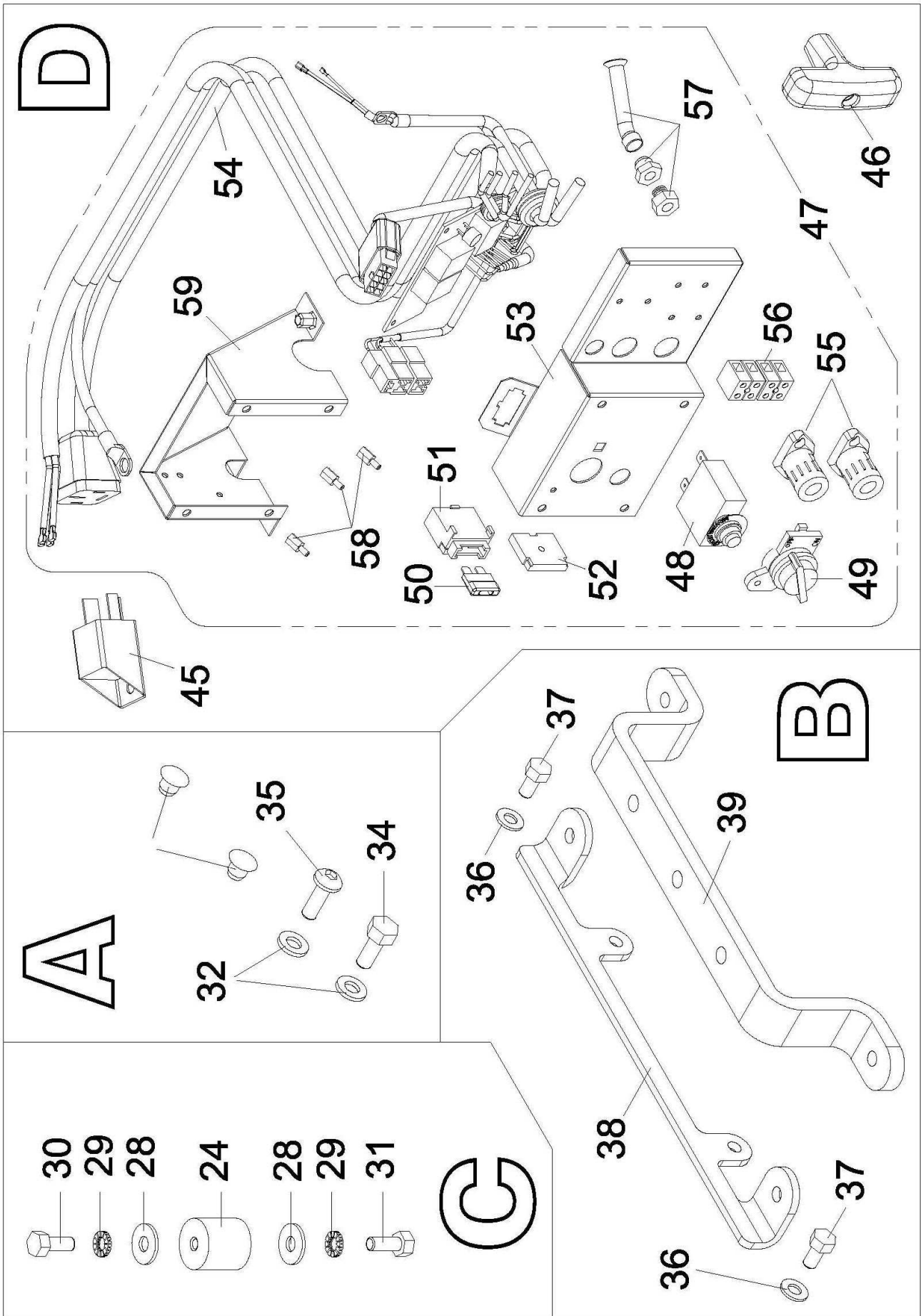
WIRING DIAGRAM ENERGY 2510 B



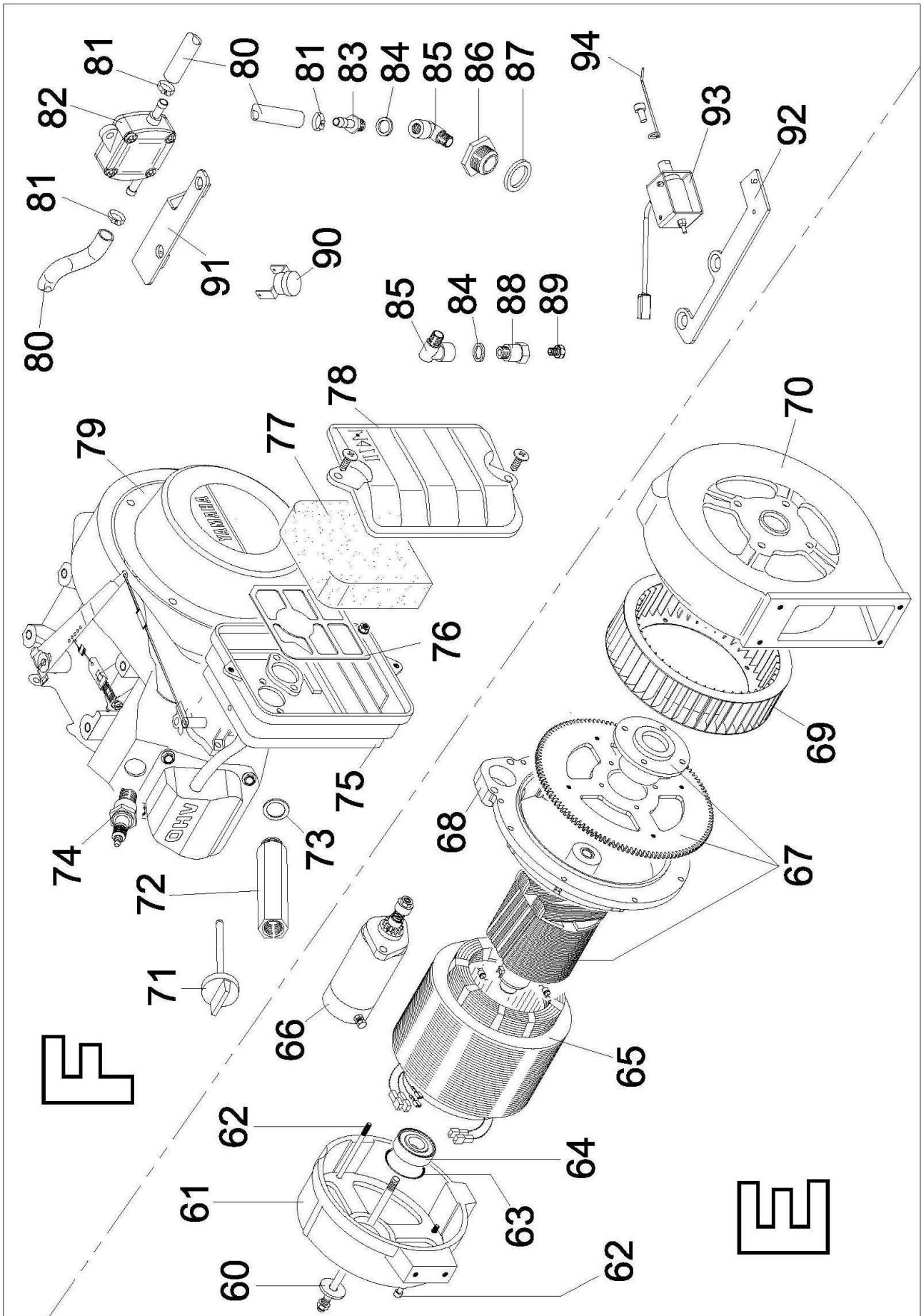
Pos.	Description	Pos.	Description
1	Electronic control panel	13	"Manual/Automatic" switch
2	Electronic control panel connector	14	Starter
3	Startup relay	15	Ignition coil
4	Electronic control board	16	Fuel pump (optional)
5	Optional connector	17	Automatic air electromagnet
6	Rotor	18	Fuel reserve
7	Alternator	19	Engine temperature thermostat
8	Stator	20	Low oil level float
9	Condenser	21	Startup battery connection terminals
10	Power connection terminal board	22	Diode bridge protection fuse
11	Thermal switch	A	Battery charger terminal
12	Diode bridge		

DRAWING FOR SPARE PARTS LIST ENERGY 2510 B











Pos.	Code	Q.tà	Descrizione - Description	Désignation - Bezeichnung	Beschrijving - Descripcion
1	04697	N. 1	Sportello	Tôle de fermeture de porte	Afdekplaat deurtje
			Door closing plate	Türblech	Chapa cierre puerta
2	04761	N. 1	Adesivo Sportello	Image adhésive de porte du boîtier	Zelfklevend beeld van geval-deur
			Adhesive image of case door	Anhaftendes Bild der Falltür	Imagen adhesiva de la puerta
3	01258	1 mt	Guarnizione Sportello	Joint de porte du boîtier	Afdichting van deur van
			Gasket of case door	Dichtung der Tür	Junta de puerta
4	02126	N. 1	Isolante alto Sportello	Isulation de porte du boîtier	Isulation van deur van
			Isulation of case door	Isulation der Tür	Isulation de puerta
5	04545	N. 1	Cofano superiore	Capot supérieur	Bovenste kap
			Upper hood	Obere Haube	Capó superior
6	03906	N. 1	Isolante Sinistro Cofano	Isolation Gauche Capot	Isolatie links voor kap
			Left hood insulation	Isolierung links für Haube	Aislante Izquierdo Capó
7	03907	N. 1	Isolante Posteriore Cofano	Isolation Arrière Capot	Isolatie achter voor kap
			Rear hood insulation	Isolierung hinten für Haube	Aislante Trasero Capó
8	03905	N. 1	Isolante Destro Cofano	Isolation Droite Capot	Isolatie rechts voor kap
			Right hood insulation	Isolierung rechts für Haube	Aislante Derecho Capó
9	03904	N. 1	Isolante Superiore Cofano	Isolation Supérieure Capot	Isolatie boven voor kap
			Upper hood insulation	Isolierung für obere Haube	Aislante Superior Capó
10	03903	N. 1	Isolante Basamento	Isolation Base	Isolatie voor onderstel
			Base insulation	Isolierung für Grundrahmen	Aislante Base
11	04546	N. 1	Basamento cassa	Base de la caisse	Onderstel kast
			Case base	Kasten-Grundrahmen	Base caja
12	00524	N. 1	Condensatore 13uF 450V	Condensateur 13uF 450V	Condensator 13uF 450V
			Condenser 13uF 450V	Kondensator 13uF 450V	Condensador 13uF 450V
13	00653	N. 1	Collare per tubo 25/60	Collier pour tuyau 25/60	Kraagring voor pijp 25/60
			Collar for pipe 25/60	Schelle für 25/60 Rohr	Collar para tubo 25/60
14	04958	N. 1	Diodo ponte raddrizzatore	Diode redresseur en pont	Diode gelijkrichterbrug
			Bridge rectifier diode	Gleichrichterbrückendiode	Diodo puente rectificador
15	02046	N. 1	Gommino protezione ponte di Diodi	Protection en caoutchouc du pont de diodes	Beschermrubbertje gelijkrichterbrug
			Diode bridge protection grommet	Gummitteil zum Schutz der Diodenbrücke	Proteccion de caucho puente de diodos



Pos.	Code	Q.tà	Descrizione - Description	Désignation - Bezeichnung	Beschrijving - Descripcion
16	01833	N. 1	Piastrina di scarico	Plaquette d'échappement	Uitlaatplaatje
			Exhaust plate	Auslassplatte	Chapa de descarga
17	01827	N. 1	Chiusura convogliamento marmitta	Fermeture du convoyeur pot d'échappement	Afdekking geleider knaldemper
			Muffler conveyance closure	Verschluss des Auspufftopf-Leitblechs	Cierre transportador silenciador escape
18	01061	N. 1	Marmitta	Pot d'échappement	Knaldemper
			Muffler	Auspufftopf	Silenciador de escape
19	01178	N. 1	Fascetta	Collier	Bandje
			Clamp	Schelle	Abrazadera
20	02058	N. 2	Rondella piana	Rondelle plate	Platte onderlegging
			Plain washer	Flachscheibe	Arandela plana
21	02057	N. 1	Rete metallica	Grille métallique	Metalen rooster
			Wire netting	Metallgitter	Red de alambre
22	01177	N. 1	Terminale di scarico	Partie terminale pot d'échapp.	Uiteinde uitlaat
			Muffler end pipe	Auspuff-Endrohr	Tubo de descarga
23	01830	N. 1	Convogliatore marmitta	Convoyeur pot d'échappement	Geleider knaldemper
			Muffler conveyor	Auspufftopf-Leitblech	Transportador silenciador escape
24	00632	N. 7	Antivibrante	Antivibratoire	Trillingsdemper
			Vibration damper	Schwingungsdämpfendes Element	Anti-vibrador
25	01224	N. 1	Serratura	Serrure	Slot
			Lock	Schloss	Cerradura
26	03804	N. 1	Tassello Portacavi Carburante	Serre-câbles Carburant	Kabeldoorvoer Brandstof
			Fuel Cable Holder	Kabelschelle Kraftstoff	Taco Portacables Carburante
27	00163	N. 1	Filtro benzina	Filtre essence	Benzinefilter
			Fuel filter	Filter	Filtro
28	00374	N. 8	Rondella 8 x 24 UNI 6593	Rondelle 8 x 24 UNI 6593	Onderlegging 8 x 24 UNI 6593
			Washer 8 x 24 UNI 6593	Scheibe 8 x 24 UNI 6593	Arandela 8 x 24 UNI 6593
29	02586	N. 8	Rondella 8 UNI 8842A	Rondelle 8 UNI 8842A	Onderlegging 8 UNI 8842A
			Washer 8 UNI 8842A	Scheibe 8 UNI 8842A	Arandela 8 UNI 8842A

Pos.	Code	Q.tà	Descrizione - Description	Désignation - Bezeichnung	Beschrijving - Descripcion
30	00578	N. 4	Vite M8x16 TE	Vis M8 x 16 TE	Schroef M8 x 16 TE
			Screw M8 x 16 TE	Schraube M8 x 16 TE	Tornillo M8 x 16 TE
31	00854	N. 4	Vite M8x20 TE	Vis M8 x 20 TE	Schroef M8 x 20 TE
			Screw M8 x 20 TE	Schraube M8 x 20 TE	Tornillo M8 x 20 TE
32	00967	N. 4	Rondella 6 UNI 6592	Rondelle 6 UNI 6592	Onderlegging 6 UNI 6592
			Washer 6 UNI 6592	Scheibe 6 UNI 6592	Arandela 6 UNI 6592
33	04255	N. 4	Tappo in Gomma M8	Taquet en caoutchouc M8	Kurk in rubber M8
			Stopper in rubber M8	Stopper im Gummi M8	Tapón en caucho M8
34	02316	N. 2	Vite M6x12 TE	Vis M6 x 12 TE	Schroef M6 x 12 TE
			Screw M6 x 12 TE	Schraube M6 x 12 TE	Tornillo M6 x 12 TE
35	01772	N. 2	Vite M6x16 TBCE	Vis M6 x 16 TBCE	Schroef M6 x 16 TBCE
			Screw M6 x 16 TBCE	Schraube M6 x 16 TBCE	Tornillo M6 x 16 TBCE
36	02644	N. 4	Rondella 8 x 18 DIN 6796	Rondelle 8 x 18 DIN 6796	Onderlegging 8 x 18 DIN 6796
			Washer 8 x 18 DIN 6796	Scheibe 8 x 18 DIN 6796	Arandela 8 x 18 DIN 6796
37	03103	N. 4	Vite M8x14 TE	Vis M8 x 14 TE	Schroef M8 x 14 TE
			Screw M8 x 14 TE	Schraube M8 x 14 TE	Tornillo M8 x 14 TE
38	04465	N. 2	Staffa Fissaggio Generatore	Étrier Fixation du Générateur	De Inplanting van de stijgbeugel van de Generator
			Bracket Implantation of the Generator	Steigbügel-Einpflanzung des Generators	Implantación del estribo del generador
39	04547	N. 2	Staffa ancoraggio 2009	Bride de fixation 2009	Verankeringsbeugel 2009
			Anchor clamp 2009	Befestigungsbügel 2009	Estribo de anclaje 2009
40	03789	N. 1	Pannello di controllo ENERGY	Tableau/contrôle ENERGY	Schakelpaneel ENERGY
			ENERGY control panel	Bedienpanel ENERGY	Panel de control ENERGY
41	03796	N. 1	Cavo 5 mt da generatore a Pannello di controllo	Câble 5 m du Générateur au Panneau de Contrôle	5 m kabel van generator naar bedieningspaneel
			5 m cable from generating set to control panel	5 m Kabel von Generator zu Bedienpanel	Cable 5 m. de generador a panel de control
42	03797	optional	Cavo 7 mt da generatore a Pannello di controllo	Câble 7 m du générateur au Panneau de Contrôle	7 m kabel van generator naar bedieningspaneel
			7 m cable from generating set to control panel	7 m Kabel vom Generator zum Bedienpanel	Cable 7 m. de generador a panel de control
43	03798	optional	Cavo 10 mt da generatore a Pannello di controllo	Câble 10 m du générateur au Panneau de Contrôle	10 m kabel van generator naar bedieningspaneel
			10 m cable from generating set to control panel	10 m Kabel vom Generator zum Bedienpanel	Cable 10 m. de generador a panel de control



Pos.	Code	Q.tà	Descrizione - Description	Désignation - Bezeichnung	Beschrijving - Descripción
44	03799	optional	Cavo 15 mt da generatore a Pannello di controllo	Câble 15 m du générateur au Panneau de contrôle	15 m kabel van generator naar bedieningspaneel
			15 m cable from generating set to control panel	15 m Kabel vom Generator zum Bedienpanel	Cable 15 m. de generator a panel de control
45	00093	N. 1	Relè 12 V 70 A	Relais 12 V 70 A	Relais 12V 70A
			12 V 70 A Relay	Relais 12 V 70 A	Rele 12 V 70 A
46	02045	N. 1	Maniglia Avviamento a strappo	Poignée Démarrage par Lanceur	Trekstarthandgreep
			Recoil starting handle	Seilzugstartergriff	Asa de Arranque de tiro
47	03975	N. 1	Cablaggio completo En2508B	Accomplissez le câblage En2510B	Volledige bedrading En2510B
			Complete wiring En2510B	Schließen Sie Verdrahtung ab En2510B	Termine el cableado En2510B
48	01584	N. 1	Protezione termica	Protection thermique	Thermische beveiliging
			Thermal protection	Thermoschutz	Protección térmica
49	01407	N. 1	Interruttore Manuale/Autom.	Interrupteur Manuel/Automatique	Schakelaar handb./autom.
			Manual/Automatic Switch	Schalter Hand/Auto	Interruptor Manual/Autom.
50	01607	N. 1	Fusibile 15A	Fusible 15A	Zekering 15A
			15A fuse	15A Sicherung	Fusible 15A
51	01605	N. 1	Potafusibile	Tableau des fusibles	Zekeringhouder
			Fuse carrier	Sicherungshalter	Portafusible
52	01603	N. 1	Piastra fissaggio Potafusibile	Plaque de fixation tableau des fusibles	Bevestigingsplaat zekeringhouder
			Fastening plate for fuse carrier	Befestigungsplatte Sicherungshalter	Placa fijación Portafusible
53	03854	N. 1	Scatola di Comando	Boîtier de Commande	Besturingskast
			Control box	Steuerbox	Caja de Mando
54	04159	N. 1	Cablaggio con scheda elettronica	Câblage avec carte électronique	Bedrading met elektronische kaart
			Wiring with electronic board	Verkabelung mit elektronischer Platine	Cableado con tarjeta electrónica
55	03779	N. 2	Morsetto Legrand 25mmq	Borne LEGRAND 25 mm2	Aansluitklem LEGRAND 25mmq
			Terminal Legrand 25sq.mm	Klemme LEGRAND 25mmq	Borne LEGRAND 25mmq
56	01139	N. 1	Morsetto Muller 3/12	Borne Muller 3/12	Aansluitklem Muller 3/12
			Terminal Muller 3/12	Klemme Muller 3/12	Mordaza Muller 3/12

Pos.	Code	Q.tà	Descrizione - Description	Désignation - Bezeichnung	Beschrijving - Descripción
57	04160	N. 1	Kit Guida corda avviamento a strappo	Kit Guide câble de démarrage par lanceur	Geleiderset trekstartkoord
			Rope guide kit for recoil starting system	Kit Führung für Seilzugstarter-Seil	Kit Guía cuerda de arranque de tiro
58	03440	N. 3	Distanziale Esagonale M3x8	Entretoise Hexagonale M3x8	Zeskantafstandshouder M3x8
			Hexagonal M3x8 spacer	Distanzstück Sechskant M3x8	Separador Hexagonal M3x8
59	03853	N. 1	Fondo Scatola di Comando	Base Boîtier de Commande	Bodem besturingskast
			Control box bottom	Boden der Steuerbox	Fondo escala de Mando
60	02049	N. 1	Vite fissaggio alternatore	Vis de fixation de l'alternateur	Bevestigingsschroef dynamo
			Alternator fastening screw	"Befestigungsschraube der Lichtmaschine"	Tornillo fijación alternador
61	03714	N. 1	FUSIONE 2501/A2	MOULAGE 2501/A2	GIETWERK 2501/A2
			CASTING 2501/A2	GUSSTEIL 2501/A2	FUNDICION 2501/A2
62	01091	N. 4	Vite UNI5931	Vis UNI5931	Schroef UNI5931
			UNI5931 screw	Schraube UNI5931	Tornillo UNI5931
63	02050	N. 1	Rondella alternatore	Rondelle de l'alternateur	Onderlegging dynamo
			Alternator washer	Scheibe der Lichtmaschine	Arandela alternador
64	02051	N. 1	Cuscinetto alternatore	Palier de l'alternateur	Lager dynamo
			Alternator bearing	Lager der Lichtmaschine	Cojinete alternador
65	06171	N. 1	Statore alternatore	Stator de l'alternateur	Stator dynamo
			Alternator stator	Stator der Lichtmaschine	Estator alternador
66	00299	N. 1	Motore EL. 12 V 0,30 kW	Moteur él. 12 V 0,30 kW	El. motor 12 V 0,30 kW
			El. Motor 12 V 0.30 kW	Elektromotor 12 V 0,30 kW	Motor el. 12 V 0,30 kW
67	06173	N. 1	Rotore alternatore + Corona + Mozzo con Flangia	Rotor alternateur + Couronne + Moyeu avec bride	Rotor wisselstroomdynamo + Krans + Naaf met flens
			Alternator rotor + Crown + Hub with flange	Rotor alternator + Ring zahnrad + Nabe mit Flansch	Rotor del alternador + corona dentada + empalme con brida
68	03729	N. 1	Fusione ATR 2503/B1	Moulage ATR 2503/B1	Gietwerk ATR 2503/B1
			Casting ATR 2503/B1	Gussteil ATR 2503/B1	Fusión ATR 2503/B1
69	01023	N. 1	Ventola	Ventilateur	Ventilator
			Fan	Lüfterrad	Ventilador
70	01431	N. 1	Fusione ATR 2503/C1	Moulage ATR 2503/C1	Gietwerk ATR 2503/C1
			Casting ATR 2503/C1	Gussteil ATR 2503/C1	Fusión ATR 2503/C1
71	01432	N. 1	Tappo olio	Bouchon de l'huile	Oliedop
			Oil plug	Ölschraube	Tapón aceite





Pos.	Code	Q.tà	Descrizione - Description	Désignation - Bezeichnung	Beschrijving - Descripcion
72	00980	N. 1	Raccordo olio mot. YAMAHA	Raccord huile moteur YAMAHA	Oliekoppeling YAMAHA motor
			YAMAHA motor oil fitting	Ölanschluss für YAMAHA-Motor	Empalme aceite mot. YAMAHA
73	02115	N. 1	Guarniz. 14X20X1.5 ALLUMINIO	Joint 14X20X1.5 ALUMINIUM	Afdichting 14X20X1.5 ALUMINIUM
			Gasket 14X20X1.5 ALUMINUM	Dichtung 14X20X1.5 ALUMINIUM	Junta 14X20X1.5 ALUMINIO
74	02743	N. 1	Candela	Bougie	Bougie
			Plug	Zündkerze	Bujía
75	01409	N. 1	Scatola filtro aria	Boîtier du filtre à air	Behuizing luchtfilter
			Air cleaner box	Luftfiltergehäuse	Caja filtro aire
76	02812	N. 1	Rete porta filtro	Filet porte-filtre	Filterhoudernet
			Filter holding net	Filtertragnetz	Red porta-filtro
77	02060	N. 1	Filtro aria	Filtre à air	Luchtfilter
			Air cleaner	Luftfilter	Filtro aire
78	02271	N. 1	Coperchio filtro aria	Couvercle du filtre à air	Kap luchfilter
			Air cleaner lid	Luftfilterdeckel	Tapa filtro aire
79	00974	N. 1	Motore YAMAHA	Moteur YAMAHA	YAMAHA motor
			YAMAHA motor	Motor YAMAHA	Motor YAMAHA
80	01442	0,7mt	Tubo	Tuyau	Pijp
			Pipe	Rohr	Tubo
81	00633	N. 4	Fascetta stringitubo 10-12	Collier serre-tube 10-12	Pijpklmbandje 10-12
			Hose clamp 10-12	Schlauchschelle 10-12	Abrazadera para tubo 10-12
82	00958	N. 1	Pompa a depressione	Pompè à dépression	Vacuümpomp
			Vacuum pump	Vakuumpumpe	Bomba de vacio
83	01132	N. 1	Resca Union	Raccord pour tuyau à dépression	Koppeling voor vacuümpijp
			Union for vacuum pipe	Schlauchanschluss	Union para tubo depresion bomba gasolina
84	00931	N. 2	Rondella in alluminio	Rondelle en aluminium	Onderlegging van aluminium
			Aluminium washer	Alu-Scheibe	Arandela aluminio
85	00478	N. 2	Raccordo 90° 1/8 MF	Raccord 90° 1/8 MF	Koppeling 90° 1/8 MF
			1/8 MF union elbow	Anschlussstück 90° 1/8 MF	Empalme 90° 1/8 MF

Pos.	Code	Q.tà	Descrizione - Description	Désignation - Bezeichnung	Beschrijving - Descripción
86	00981	N. 1	Raccordo tappo olio motore YAMAHA	Raccord bouchon huile mot. YAMAHA	Koppeling oliedop YAMAHA motor
			YAMAHA motor oil cap union	Anschluss der Ölschraube des YAMAHA-Motors	Unión tapón aceite mot. YA- MAHA
87	02198	N. 1	Guarnizione 20X26X1.5 AL- LUMINIO	Joint 20X26X1.5 ALUMINIUM	Afdichting 20X26X1.5 ALUMI- NIUM
			Gasket 20X26X1.5 ALUMINUM	Dichtung 20X26X1.5 ALUMI- NIUM	Junta 20X26X1.5 ALUMINIO
88	01936	N. 1	Prolunga	Rallonge	Verlengstuk
			Extension	Verlängerung	Extensión
89	00810	N. 1	Tappo	Bouchon	Dop
			Cap	Kappe	Tapón
90	01128	N. 1	Termostato 90°	Thermostat 90°	Thermostaat 90°
			Thermostat 90°	Thermostat 90°	Termostato 90°
91	01834	N. 1	Staffa supp. pompa carburante	Bride de support pompe à car- burant	Steunbeugel brandstofpomp
			Fuel pump bearing bracket	Befestigungsbügel der Kraf- tstoffpumpe	Estribo soporte bomba carbu- rante
92	03812	N. 1	Staffa supporto choke	Bride de support bobine	Steunbeugel choke
			Choke bearing bracket	Choke-Befestigungsbügel	Estribo soporte bobina
93	03785	N. 1	Bobina	Bobine	Bobine
			Coil	Spule	Bobina
94	01114	N. 1	Molla comando choke	Ressort de commande bobine	Bedieningsveer choke
			Choke pushing spring	Choke-Betätigungsfeder	Resorte accionamiento bobina





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