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OPERATING INSTRUCTIONS

MODEL: **Picote Generator 400V**



Danger
400 Volts

! WARNING

These instructions are for your personal safety. Always ensure that you have read and understood these instructions before using the machinery. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

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To watch practical demonstration videos, or to download an electronic copy of these Instructions, please visit www.picotesolutions.com. Please note that videos are not intended as a replacement or alternative to this operating and safety manual, but only as an additional learning tool.

SAFETY INFORMATION

WARNING

This section contains important safety information. Failure to comply could result in serious injury or death.

Safety Symbols

Safety symbols are used throughout this manual to draw attention to potential hazards.



Danger
400 Volts

Danger risk of serious injury or death by electrocution, follow instructions.



Danger
Electric shock risk

Danger risk of serious injury or death by electrocution, follow instructions.



Danger risk of serious injury, follow instructions.



Danger risk of serious injury from rotating parts, follow instructions.



DANGER
Highly
flammable

Danger of setting fire, follow instructions.



WARNING
Hot surface
Contact may
cause burn
Do not touch

Danger risk of serious injury from hot parts, follow instructions.

Personal Protective Equipment (PPE)

Always use Personal Protective Equipment when using the Picote Generator including suitable overalls / protective clothing & footwear and the following:



Always wear suitable ear protection when using the Picote Generator 400V to prevent any hearing loss.



Always wear suitable cut-resistant gloves when using the Maxi Miller Power+ to prevent any hand injuries. Any open injuries or skin irritations should be covered at all times to avoid contact with sewage, chemicals or dust.

Always remember



Before assembly, use, replacement of parts or maintenance, turn off the Picote Generator.



Danger
400 Volts

High voltage. Failure to comply may lead to serious injury including electric shock or injury from rotating parts!

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

SAFETY REQUIREMENTS

WARNING

This section contains important safety information. Failure to comply could result in serious injury.



Always read all safety warnings and instructions. Failure to follow warnings and instructions may result in electric shock, fire and/or serious injury.

1. **Always use ear protection as well as protective gloves.** Other personal protective equipment, such as respirator mask, protective glasses and overalls should be worn when necessary. Exhaust gasses produced when operating are dangerous to your health. Always wear appropriate protective equipment and ventilate the working area properly.
2. When in use, it is very important that the generator is stable and on an even surface at all times. Working position is horizontal and lying flat. When generator is tilted, fuel spillage may result. When in use, the generator needs to be placed at least 1m away from buildings and other equipment.



DANGER
Highly
flammable

3. Diesel is extremely flammable and explosive under certain conditions. Refuel only in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area where the engine is refuelled or where diesel is stored. Wipe up spilled fuel at once. Avoid repeated or prolonged contact with skin or breathing of vapour.

4. Use automotive diesel (diesel number 2 according to EN590) with cetane number of 40 or higher with max. Sulphur level of 0.5%.

5. **Always ensure that the generator is fully turned off and unplugged before inspection, maintenance, or installing any accessories to the generator. Always follow the instructions in the Picote Solutions manual.**

6. **Never leave the generator running unattended.**



7. **Never touch rotating parts.** Do not stand on the generator. Do not wear loose clothes near the generator.

8. It is allowed to use the generating set in the rain (according to EN60529—protection class IP23). This means that the generating set can support water in the form of rain till max. 60° in respect of the perpendicular line. Do not use the generating set in the snow. Only use it in spaces where there is no explosion hazard.



Danger
400 Volts

9. **The generator is a potential source of electrical shocks when misused.** Do not operate the generator with wet hands.

10. Connections for standby power to a building's electrical system must be made by a qualified electrician and must comply with all applicable laws and electrical codes. Never connect the generating set to the public mains or any other electrical power source! Improper connections can allow electrical current from the generator to back feed into the utility lines. Such back feed may electrocute utility company workers, and when utility power is restored, the generator may explode, burn or cause fires in the building's electrical system.



11. The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is still hot. Let the engine cool down before storing the generator indoors. To prevent burn injuries, pay attention to the warning marks attached to the generator.



12. **Make sure the generator is operated only outdoors.** In case of insufficient cooling and/or ventilation severe damage can occur. Exhaust gases also contain poisonous carbon monoxide.

13. Never use the generator when the cover plates are removed from the engine or alternator.



14. **Maintenance should be carried out by trained technicians only.** Never work on the generator while it is still running.

15. Never connect appliances that need more power than the generator can provide. This could seriously damage the generator.

16. Do not use the generator to power up a welding machine as this might damage the alternator.

17. Do not use the generator to power up electronic devices such as computer, TV, radio, plastic welder. Such appliances might not work or even break down in combination with some alternators.

18. **Never let the diesel engine run for a long time (= more than 30 min.) at no load or at a very low load (<15%). This can severely damage the engine!**







SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

SAFETY REQUIREMENTS

WARNING

This section contains important safety information. Failure to comply could result in serious injury.

Symbols on the Generator

Symbol	Explanation
	Here you can fill the tank with diesel. Remove the fuel filler cap and check the fuel level. Refuel carefully to avoid fuel spillage. Do not fill the tank to the top. You might have to lower the fuel level, depending on operating conditions. After refuelling, reinstall the fuel filler cap and tighten it securely. Spilled fuel causes environmental damage. Wipe up spilled diesel at once.
	Diesel drain plug. By loosening this plug you can drain the fuel tank if necessary. Spilled diesel causes environmental damage. Wipe up spilled diesel at once. If you will not use the drained diesel again, you have to get rid of it in a correct and environmentally friendly way. Respect the local regulations. Do not pour diesel into the ground or down the drain.
	Show the location where you can fill the oil by loosening the oil filler cap or dipstick. Fill carefully to avoid oil spillage. Spilled oil should be wiped up immediately in a correct and environmentally friendly way. Respect the local regulations. Do not pour oil onto the ground or down the drain. Look at the oil recommendations from page 18.
	After removing the hatch, you can refill the radiator. Warning: risk of burns! Stop the generating set and let it cool down before removing the pressure cap. Loosen the pressure cap to release the pressure. Do not refill the radiator when the engine has just run and is still warm. Wait until the engine cooled down and then refill the radiator. Look at coolant recommendations from page 18.
	WARNING! – Electric shock hazard.
	Never connect the generator to an installation which is also connected to a public mains. Improper connections can allow electrical current from the generator to back feed into the utility lines. Such back feed may electrocute utility company workers, and when utility power is restored, the generator may explode, burn or cause fires in the building's electrical systems.

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

SAFETY REQUIREMENTS

⚠ WARNING

This section contains important safety information. Failure to comply could result in serious injury.

Symbols on the Generator

Symbol	Explanation
	Here an earth pin can be connected. Follow the instructions in this manual concerning the use of an earth pin.
	WARNING! – Hot surface. Can cause burns. Hot engine and hot exhaust system can cause serious and even lethal injuries. Never work on the generating set before it has sufficiently cooled down.
	Do not smoke nor allow sparks or flames near the generating set, the fuel pipe, the fuel filter, the fuel pump or other possible sources of spilled fuel or fuel vapours.
	Fuel is highly flammable and explosive and you can be burnt or seriously injured when refuelling. Turn the engine off and let it cool down before refuelling.
	The engine's exhaust gases contain poisonous carbon monoxide. You can be killed or seriously hurt. Do not run the engine in a closed environment. The exhaust system should be leak-tight and it should be inspected regularly.
	Rotating parts can cause serious and even deathly injuries. Do not let the engine run unless all protection covers, shields and grids are in place. Make sure the incoming and outgoing air flow is not obstructed.



SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

SAFETY REQUIREMENTS

! WARNING

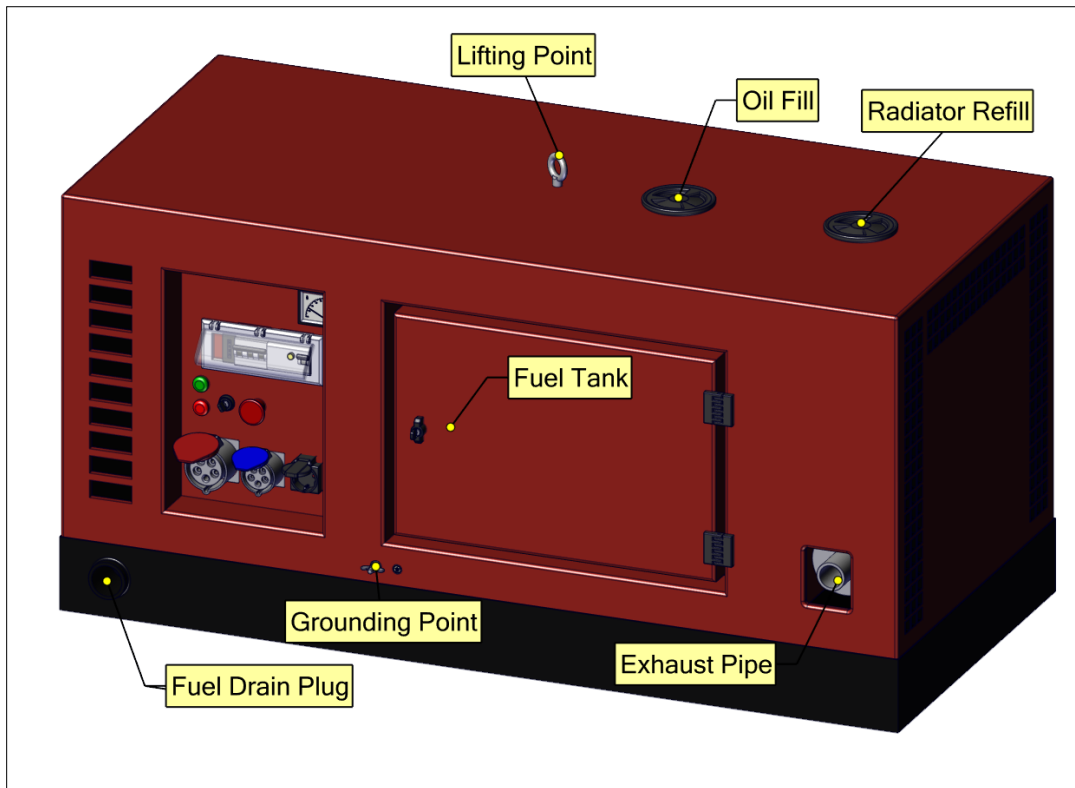
This section contains important safety information. Failure to comply could result in serious injury.

Symbols on the Generator

Symbol	Explanation
	<p>Only use a hoist according to local safety regulations.</p> <p>Never allow sharp bends in lifting cables and chains.</p> <p>It is strictly forbidden to dwell or stay in the risk zone under a lifted load. Never lift the unit over people or residential areas. Never leave a load hanging on a hoist. Lifting acceleration and retardation shall be kept within safe limits.</p> <p>To lift heavy parts, a hoist of ample capacity, tested and approved according to local safety regulations, shall be used.</p> <p>Lifting hooks, eyes, shackles, etc. shall never be bent and shall only have stress in line with their design load axis. The capacity of a lifting device diminishes when the lifting force is applied at an angle to its load axis.</p> <p>For maximum safety and efficiency of the lifting apparatus all lifting members shall be applied as near to perpendicular as possible. A hoist has to be installed in such a way that the object will be lifted perpendicular.</p> <p>If that is not possible, the necessary precautions must be taken to prevent load-swinging, e.g. by using two hoists, each at approximately the same angle not exceeding 30° from the vertical.</p>
	<p>WARNING! – Consult the instruction and maintenance manual of the engine and the alternator before carrying out maintenance. Improper maintenance, or failure to correct a problem before operation, can cause a malfunction in which you can be seriously hurt or killed.</p> <p>Always follow the inspection and maintenance recommendations and schedules mentioned in the instruction and maintenance manual of the engine and the alternator.</p>

Picote Generator 400V

GENERAL INFORMATION



⚠ CAUTION

When in use, always lay the generator down horizontally on the floor as shown above.

TECHNICAL DATA

Size (cm/inches)	Outlet	Power (kVA)	Engine size (cm ³)	Max. Rotation speed (rpm)	Fuel Tank (l)	Weight (kg/lb)	IP Class
138 x 64 x 66	3 x 400V	400V : 13.5	3-cylinder	3000	25	360 / 793	23
55 x 25 x 26	1 x 230V	230V : 4.5	893				

PICOTE GENERATOR 400V

MAIN COMPONENTS

Type of the generator: New Boy EPS133TDE

Alternator: Sincro FT2MES (with brushes)
Mecc Alte ECP3-3S/2 (brushless, with AVR)

Engine: KUBOTA D902

The main components of the generating set are: the water-cooled Kubota diesel engine (3000rpm), the alternator, the control panel, the silenced canopy and the chassis.

For engine and alternator specifications we refer to the engine and alternator manual supplied with each generating set.

Specifications for the control panel can be found in chapter "Description of The Control Panel".

The chassis of the generating set also serves as fuel tank and contains the filler cap, the mechanical fuel gauge, the fuel drain plug (for cleaning the fuel tank), 4 fixation holes (for fixed mounting of the genset), the battery support and the support for the (manual) oil drain pump. In the bottom of the chassis there is an extra inspection hole for oil drain.

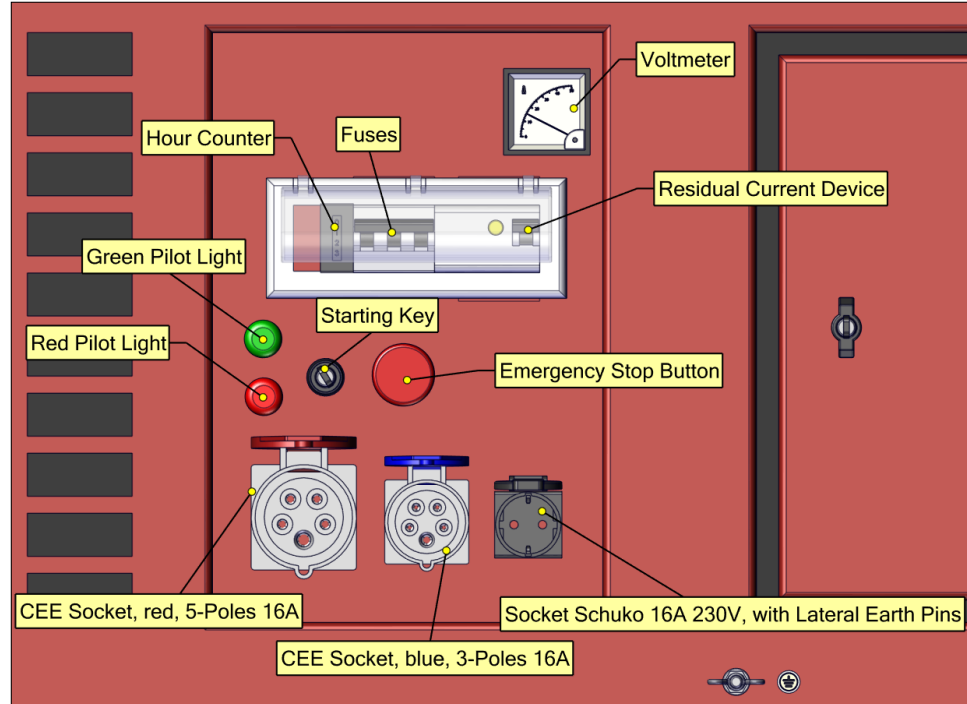
The sound-proof canopy of the genset contains: one central lifting eye, 2 plastic inspection hatches for oil fill and radiator fill, two doors with key (for normal maintenance), the control panel, the battery inspection hatch, one grid that sucks in cold air and one grid that emits hot air.

The exhaust on the Picote Generator is separated from the hot air outlet.

DESCRIPTION OF THE CONTROL PANEL

The control panel of the Picote Generator contains:

- **Starting Key** (off / on / glow / start)
- **Pilot Lamp Green** (contact on / off), lamp lights up when contact on
- **Pilot Lamp Red** (battery charging), lamp lights up when battery not charged
- **Emergency Stop**
- **Hour Counter**
- **Residual Current Device**
- **Earth Leakage Protection** (earth pin included)
- **Voltmeter**
- **3 sockets**



At the back side of the control panel you will find:

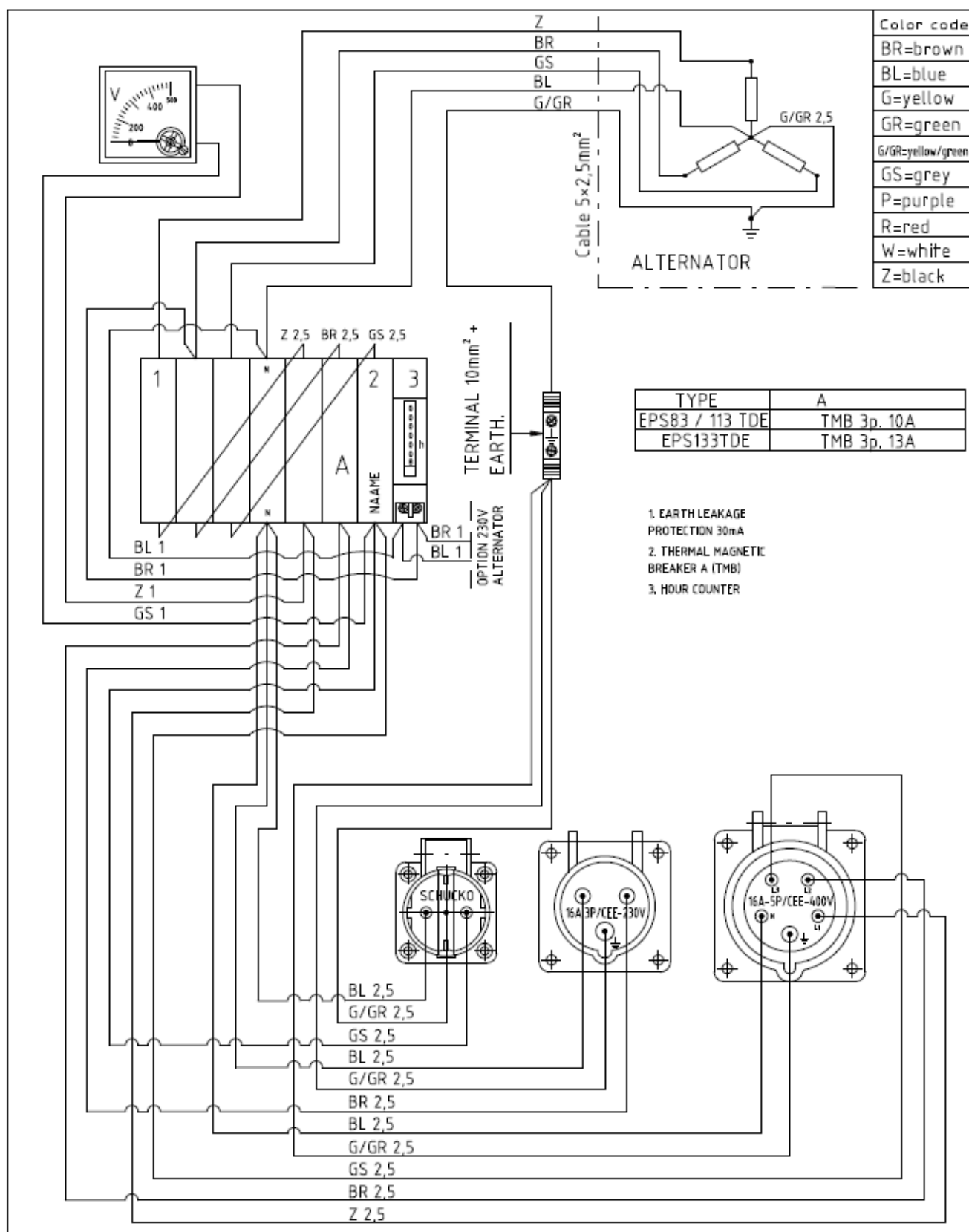
- **The Battery Charging Regulator**
- **The Timer-Relay for the Stop Solenoid**
- **1 Relay 12V/30A for Oil Pressure and Cooling Water Temperature Protection** (engine stops when oil pressure too low or cooling water temperature too high)

Further, there is free space on the control panel for following options:

- frequency meter
- 3 amp.meters
- insulation protection relay (instead of earth leakage protection)
- connector for remote control or automatic start/stop panel (AMF)

Other options (as star-delta switch) cannot be added afterwards.

ELECTRICAL DIAGRAM



NOISE LEVEL & EMISSIONS

WARNING

This section contains important safety information. Failure to comply could result in serious injury or loss of hearing.

The typical A-weighted noise level determined according to **EN60745**:



WEAR EAR PROTECTION

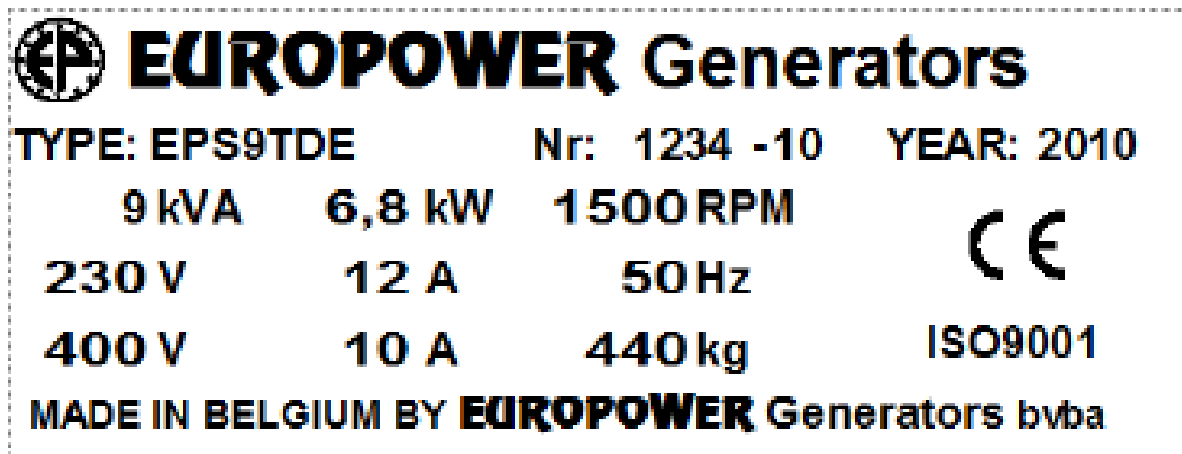
Sound power level (LWA): 95 dB (A)

WARNING

The engine's exhaust gases contain poisonous carbon monoxide. **You can be killed or seriously hurt.** Do not run the engine in a closed environment. The exhaust system should be leak-tight and it should be inspected regularly.

CE DECLARATION OF CONFORMITY

CE-marking: here is example of a EUROPOWER type indication plate. The type indication plate can be found on every generator. More information on this can be found in the EUROPOWER documentation or on our web site www.europowergenerators.com.



STARTING & USING THE GENERATOR

⚠ WARNING

This section contains important safety information. Failure to comply could result in serious injury.

Main elements on the Picote Generator 400V are: 3 sockets with thermal-magnetic protection, earth leakage protection, voltmeter, hour counter, pilot lamp for contact ON/OFF, pilot lamp for battery charging, starting key, emergency stop and fuel level gauge.

ATTENTION! The generating sets are equipped with a 12V electrical fuel pump. This pump may not run “dry”. If the engine stops because of fuel deficiency, turn contact key “OFF”.

Starting the engine:

- Check Oil Level
- Open Fuel Cock (on fuel filter)
- Check The Fuel Level
- Check The Radiator Coolant Level: Filled up to the filler cap, check also the coolant level in the expansion tank: the coolant has to reach up to 1cm below the level mark “FULL”. If necessary fill it up. The mixture consists of 50% water and 50% antifreeze (working temperature mixture up to -30°C)



Open



Closed

- Connect Earth Pin
- Preheat During +/- 10 sec.
- Start The Engine with The Starting Key
- Let The Engine Warm Up for a Few Minutes Before Charging.
- Connect The Users.



CHARGING THE GENERATOR SET

- On the type identification plate you can find the maximum charging current of the generating set.
- In case of overload, the thermal-magnetic protection in the control panel will switch off after some time. Check the load, reduce it if necessary and switch on the thermal-magnetic protection again.
- In case of short-circuit, the thermal-magnetic protection will switch off immediately! Check the cause of the short-circuit and then switch on the protection again.
- **Never let the diesel engine run for a long time (= more than 30 min.) at no load or at a very low load (<15%). This can severely damage the engine.**

⚠ WARNING

This section contains important safety information. Failure to comply could result in serious injury.

STOPPING THE GENERATOR SET

- Let the generating set cool down at no load for a few minutes before stopping the engine. Stop the engine with the key.

COOLING

- **Make sure there are no obstructions at the fresh air intake grid** where the cooling air for engine and alternator comes in.
- Make sure the hot air that comes from cooling the engine and alternator can leave easily through the grid, as well as the exhaust gases.
- **Never let the generator run in an inappropriately ventilated room!**

PROTECTIONS

- **Engine:** low oil pressure and high cooling-water temperature protection.
- **Alternator:** thermal-magnetic protection and earth leakage protection (with earth pin).

RESIDUAL CURRENT DEVICE

Residual current device of the Generator is type A and residual current permission is **30 mA**.

USER SAFETY

The Picote Generator is equipped with earth leakage protection and earth pin, connected following the TN-S electrical scheme.

Note: Always use the earth pin.

For connection of charges class 1 (charges with earthing) and charges class 2 (charges with double insulation, to be recognized by the “double square” pictogram on the generator) an unlimited number of charges can be connected to the genset at the same time.



The working of the earth leakage protection can only be guaranteed if the added earth pin with 4 metres of earthing cable is connected to the generating set (see symbol ‘earthing’ on the generating set). The earth pin has to be drawn into the soil completely to guarantee a good functioning.

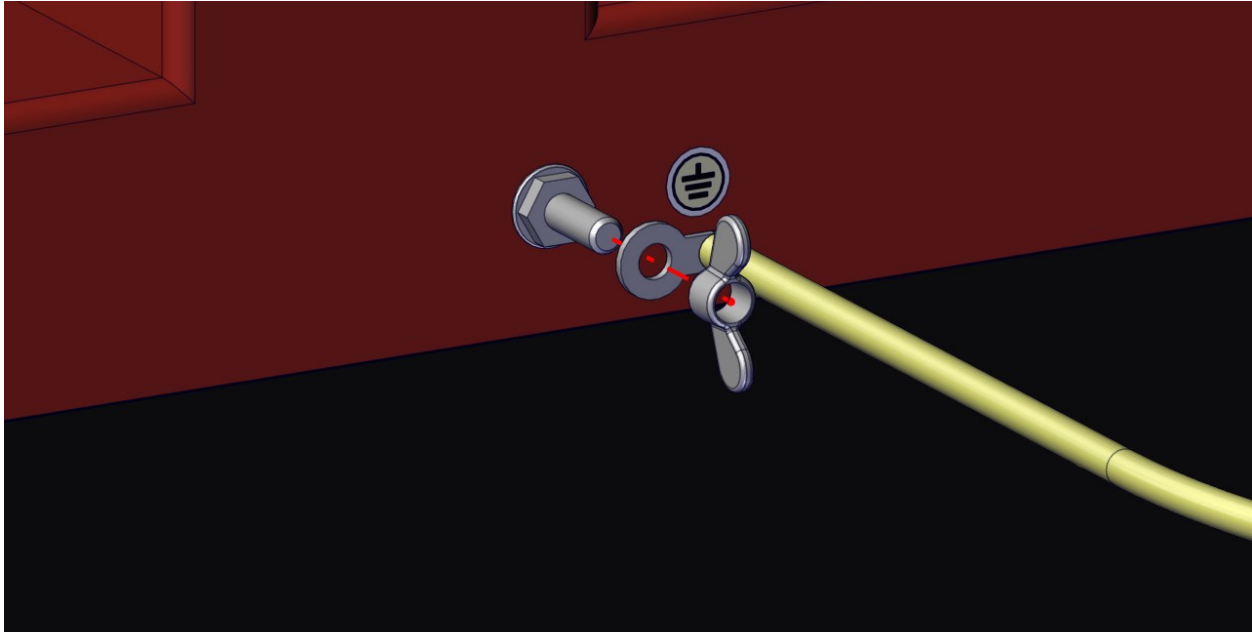
The spreading resistance of the earth electrode has to be measured by a recognized organisation.

⚠ WARNING

This section contains important safety information. Failure to comply could result in serious injury.

CONNECTING THE EARTH PIN

Step 1. Connect the Earth Pole to the Picote Generator.



Step2. The earth pin has to be drawn into the soil completely to guarantee a good functioning.



ELECTRICAL CABLES

Table: Recommendation of minimum cable section (in mm²) and maximum cable length (in m) in function of the current (in A):

	Cable length	Cable length	Cable length
Current [A]	0 to 50m (0 to 160ft)	50 to 100m (160 to 330ft)	100 to 150m (330 to 500ft)
6	1.5mm ²	1.5mm ²	2.5mm ²
8	1.5mm ²	2.5mm ²	4mm ²
10	2.5mm ²	4mm ²	6mm ²
12	2.5mm ²	6mm ²	10mm ²
16	2.5mm ²	10mm ²	10mm ²
18	4mm ²	10mm ²	10mm ²

SPARE PARTS

This spare parts list is valid for Picote Generator.

Please contact your dealer for info on parts for these options.

130000016	Fuel filter (fuel hose type) dia. 8mm
217990074	Brush holder with brushes
398010482	Air cleaner element
398110722	Fuel filter element
398210902	Oil filter
A10902001	Valve cover seal
A10902002	Fan belt

MAINTENANCE

All maintenance points (air cleaner, oil drain pump, oil fill cap, oil filter, fuel filters, radiator filling cap) easily accessible. For normal maintenance activities, consult the engine manual. In case of engine or alternator failure, contact your reseller or nearest Picote Service Center.

Alternator:

All single phase (1*230V) alternators are free of maintenance. A periodic check of the alternator is not necessary. A visual control of the different alternator parts at every general generator maintenance will do.

All types of 3-phases alternators are free of maintenance.

Please check the rotor shaft bearing of the alternator at every visual control.

MAINTENANCE CONT.

Engine:

See engine manual for maintenance intervals.

- In the factory, the engine has been filled with coolant for usage down to -30°C (-22 F).

The specification of this coolant is BS6580/92 – SAE J1034. Only use coolant with this specification!

- In the factory, the engine has been filled with **15W40 oil** (for temperatures down to -10°C (14 F)). **The minimum specification of this oil has to be API SJ/CF-4.**

- **If the ambient temperature is lower, 10W40 oil** (up to -20°C) or **5W40 oil** (down to -30°C (-22 F)) should be used. Here the **minimum specification also has to be API SJ/CF-4.**

In case there is problem that you cannot solve using this manual, please consult your reseller or the manufacturer!

TRANSPORT & STORAGE

To prevent fuel spillage when transporting or during temporary storage, the generator should be secured upright in its normal operating position, with the engine switch in position “OFF”.

When transporting the generators:

- Close the fuel cock
- Do not overfill the tank (there may not be any fuel in the filler neck).
- Do not use the generator while it is placed in a vehicle.
- Take the generator off the vehicle and use it in a well-ventilated place.

Before storing the unit for an extended period (> 2 months):

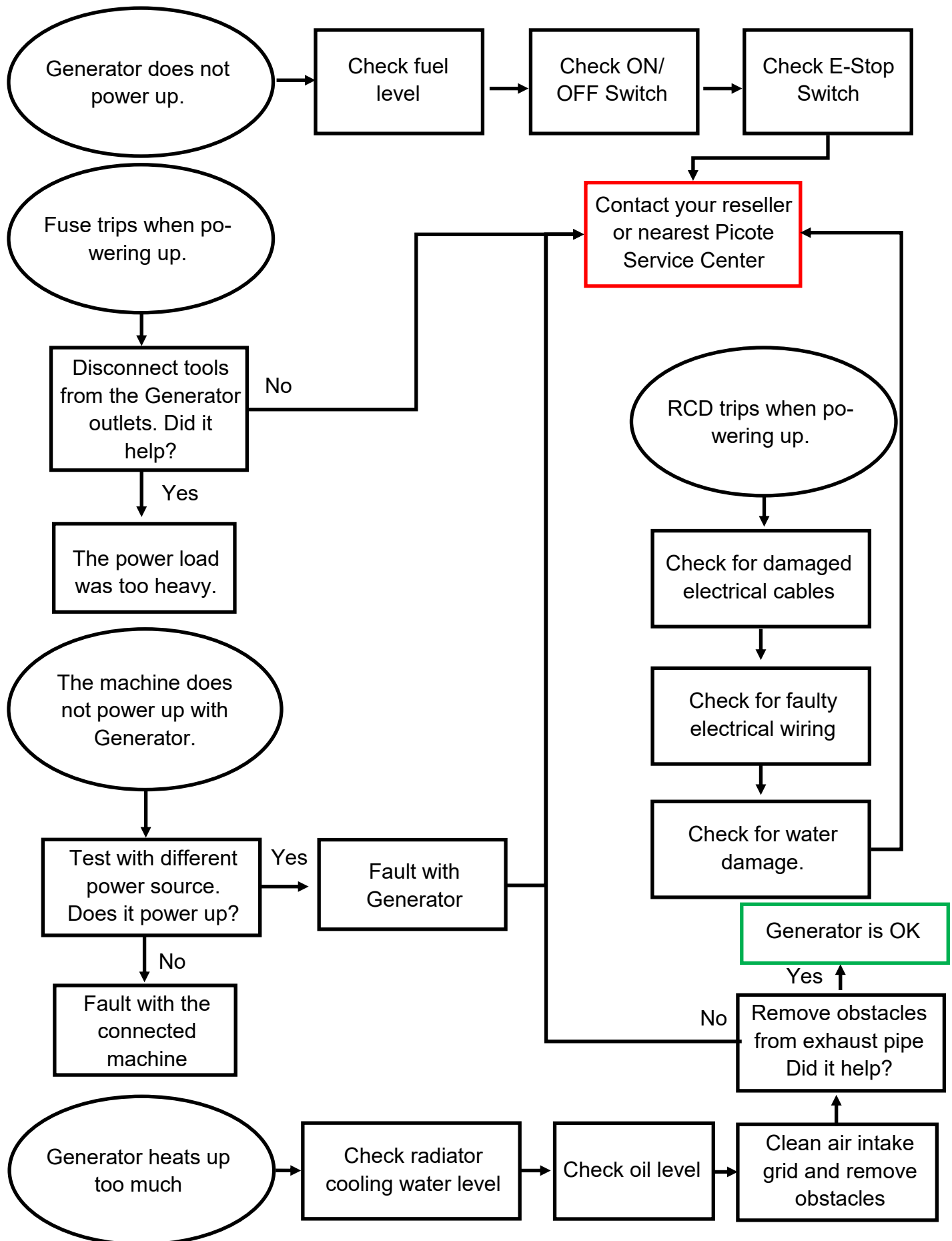
- Make sure the storage area is free of excessive humidity and dust.
- For diesel generating sets it is better to fill the tank completely before storing the generating set for a long time. In this way you can avoid condensation and corrosion in the diesel tank.
- Refresh the engine oil.
- Remove the battery and connect it to a battery charger. This way you will increase the life span of the battery.

DISPOSAL

Empty the fuel and oil tank. Separate the battery. Dispose them separately from the generator unit.

Always follow the local waste handling rules and regulation.

TROUBLESHOOTING FLOWCHART



Limited Warranty:

Picote warrants to the original End User that the Product purchased by such End User will operate in accordance with and substantially conform to their published specifications when shipped or otherwise delivered to the End User and for a period of one (1) year, except electric motors for which the warranty period shall be six (6) months, provided, however, that Picote does not warrant any claim or damage under this

Warranty if such claim or damage results from:

1. Consumable parts or normal wear and tear resulting from use of the Products,
2. Product overload or overheated motor,
3. Regular periodic maintenance of Products,
4. Misuse, neglect, or improper installation or maintenance of the Products, or use of Products not for their intended purpose,
5. Products that have been altered, modified, repaired, opened or tampered with by anyone other than Picote or an authorized Picote Service Centre, or unsuitable or unauthorized spare parts, accessories or third party products when using the Products or;
6. the use of the Products not in compliance with their respective Documentation, user manuals, safety and maintenance instructions, and any usage restrictions contained therein, or
7. accident, fire, power failure, power surge, or other hazard.

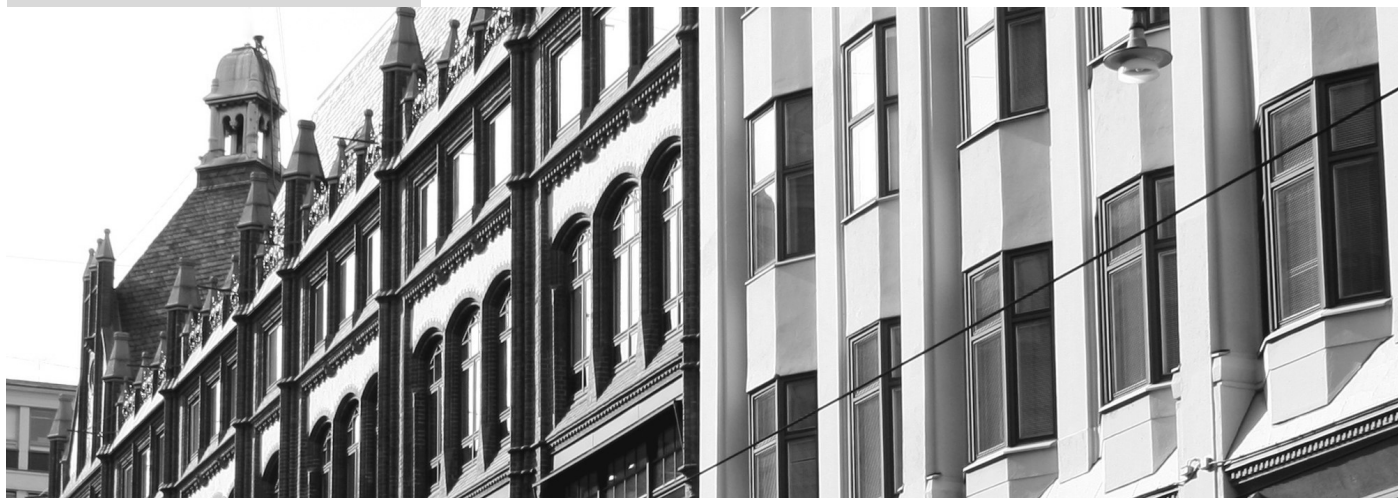
Otherwise, the Products are sold AS IS. End User is responsible for using the Products within their specifications and instructions as contained in the Documentation.

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