



ECO Power Line Generators

TRANSLATION OF THE ORIGINAL OPERATING MANUAL



ESE 3000 BS

ESE 6000 BS

ESE 6000 DBS

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We reserve the right to make modifications in terms of ongoing technical development. This operating manual does not include technical modifications that occurred after printing.

The colours in this operating manual do not always comply completely with the actual designs due to technical printing reasons.

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1 Directories

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2 About this manual

We would like to explain to you the safe and correct use of your generator in the best possible way through this operating manual. To do this we have oriented ourselves to the new European standard DIN EN 82079-1 for preparing the user manuals.

It is absolutely essential for safe and appropriate use that you read through this manual very carefully and understand it before using the device for the first time.

Your observance of it creates the foundation for,

- avoiding dangers for yourself and others,
- reducing repair costs and downtimes as well as
- increasing the reliability and service life of the generator.

Not only this manual but also the laws, regulations, guidelines, and standards applicable in the country of use must be observed.

This document only describes the safe operation of the generator when used as a complete unit. The following also includes detailed technical operating instructions that are binding with regard to using the device's specific components.

This documentation and also the product described in it are subject to a continuous improvement process. In doing this we ensure that the full product is compliant with the current safety requirements and the current state-of-the-art. The respective most up to date language version of the operating manual and the original operating manual can be found on our website

www.endressparts.com

2.1 Constituent parts of the documentation

Apart from these operating instructions, the following documents are needed to ensure that you have the all of the documentation for your device:

- Operating and maintenance instructions for the engine
- Electric generator's documentation
- Starter battery handling instructions (electric start)
- EU Declaration of Conformity
- Generator's test report



NOTICE!

The complete documentation is an integral part of the device and you must adhere to it.

- ▶ All of the integral parts of the documentation must always be accessible to the operating personnel and they should be kept with the device.

2.2 Using this operating manual

In order to increase the legibility, comprehensibility and transparency of the document, certain information is highlighted or identified according a uniform system. The following particularly belong in this category:

signs warning about dangers to life and limb

Safety and warning notices are necessary at all locations where there is potential danger from the device which cannot be eliminated by design or operational measures. We restricted ourselves to the permitted minimum in order to place

the required distinctive warning notices at the correct point in time without impairing the legibility and comprehensibility of the operating manual. This is according to the regulations contained in the international standard DIN ISO 3864 describes a fixed rule for all safety and warning notices, as shown in the following example.

Examples:

Signal Word

 **DANGER!**

Hazard Type

Electrical voltage

Hazard Consequence

Risk of suffering potentially deadly electrocution by touching live parts

► Hazard Avoidance

- Only use undamaged connecting lines
- Avoid all damp / wetness when connecting consumers
- Never operate the power generator with an opened control panel

The standard mentioned classifies the safety risks according to different risk potentials. To understand and avoid dangers to one's health and even life, please be sure to read the explanations given in Chapter 4.1 .



Safety symbols

These warning notices are usually used in a safety symbol which also emphasises the type of danger; see next example. A list of the safety symbols used in this operating manual can be found in Chapter Fig. 3-1 . The safety symbols never stand alone.

Notices on avoidance of damage to the device

According to DIN ISO 3864, notices which warn against false operation and possible damage to the device or to the equipment used should be clearly distinguishable from previously named warning notices in as far there is no danger to health. An example of such a notice can be seen here:

Signal Word

NOTICE!

Type and Consequence of Improper Use

Use of wrong or outdated fuel damages or destroys the engine.

► Intended Use

- Only use released fuel.
- Observe the shelf life of the fuel according to the supplier.
- Observe the Operating manual from the engine manufacturer

Symbols and formattings in the text

In order to increase the legibility, comprehensibility and transparency of the document, various information and activities are awarded uniformly repeating bullets or formattings. The following example shows presentation of a sequence of actions with established work steps:

Example:

- ✓ Prerequisites which must be fulfilled before starting any sequence of actions
1. Action steps according to a fixed sequence.
 2. The action steps must be fully completed.
 3. The sequence must be observed.

Results of the action which should be achieved after performing the sequence of action.



Additional notices for operation or for function of a unit are marked with the adjacent symbol.



NOTICE!

The adjacent symbol is situated anywhere where the supplier documentation must be read and observed and refers to,

- ▶ appropriate information,
 - ▶ tasks or
 - ▶ action steps.
-

References to details and components in figures are made with blue bordered position numbers in the text such as the example of CE signs on the type plate demonstrates, see Fig. 3-1 .

3 Product identification

3.1 Welcome to ENDRESS!

We are pleased that you have made the decision to purchase a ENDRESS power generator. You have purchased a high-performance product into which we have embodied decades of our experience and have integrated many functions oriented on daily use. Through careful selection of high quality components and materials in combination with the proverbial Swabian engineering performance you have in your possession a device which will operate reliably for many years, also under the hardest of operating conditions.

3.2 Your product

Customer service

In order to precisely identify your device there is a type plate attached to the Generators (see Fig. 3-1), which includes details about the device designation and "S/N" serial number. If you have any questions about device details, functions or notices concerning operation, please contact our

Customer service: Tel. +49 (0)7123 9737-44

Email: service@endress-stromerzeuger.de

You will find competent contact persons there, also concerning original spare parts and wear parts. (see also Chapter 13)

Type plate

The type plate shown below is a representation of the adhesive label placed on the device. Please be prepared, when contacting our service team, to assist us in exactly identifying your device. Refer to your generator's operating instructions for further information about finding the type plate.

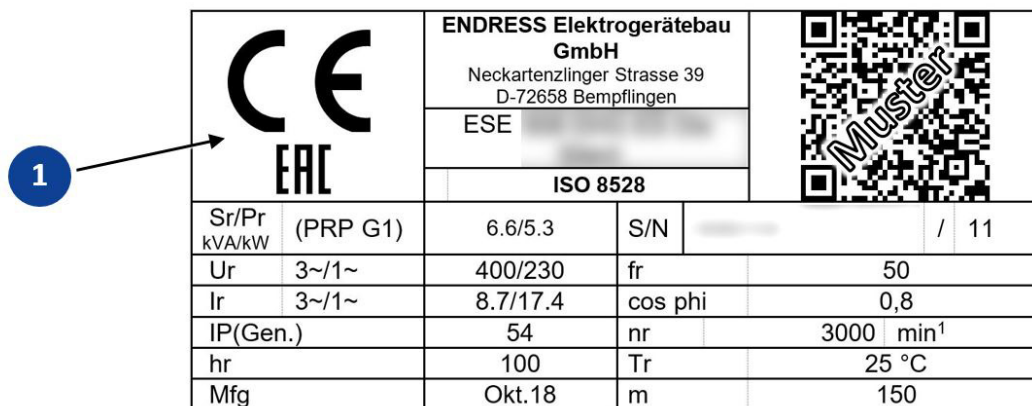


Fig. 3-1 Example of a type plate

3.2.1 A device description and intended use

Your power generator is a mobile source of power which makes electrical energy available to operate commercially available electrical devices (hereinafter referred to as power consuming equipment) with an AC voltage of 230 V.

The synchronous generator is firmly coupled to the drive engine. The assembly is installed in a stable frame and equipped with a flexible, low-vibration suspension.

The power generator is designed for manual or use with individual electrical power consuming equipment (according to VDE 100, Part 551). The protective conductor assumes the function of the potential equalisation line. A splash-proof protective contact socket with nominal voltage of 230 V / 50 Hz 1~ supplies the power (see Fig. 6-3).

The generator is not to be connected up to other energy distribution systems (e.g. public power supply) or to other energy generation systems (e.g. other generators, solar plant, etc.).

The generator is only to be used outdoors within the indicated voltage, output, and nominal rpm ranges (see type plate).

The generator is not to be used in explosion-prone environments.

The generator is not to be used in environments where there is a risk of fire.

The generator must be operated according to the specifications in the technical documentation.

Every inappropriate use or all activities on the generator which are not described in these instructions is forbidden misuse outside the legally defined limits of liability of the manufacturer.

3.2.2 Foreseeable misuse

Apart from the description of appropriate use, the lawmaker also requires concrete references to the results of “reasonably foreseeable misuse“. In a case of incorrect use or inappropriate handling of the generator the manufacturer's EC Declaration of Conformity, and automatically thereby also the operating licence, are nullified. For products with a manufacturer's warranty the manufacturer will reject any claims made under warranty for damages which were caused by misuse and its direct as well as indirect consequences.

As not authorised Misuse is particularly the case when:

- operation of the generator takes place without valid checks for
 - electrical safety
 - checking that the prescribed servicing and maintenance work has been done
- operation of the generator takes place without the protective equipment installed by the manufacturer
- constructional or electrical modifications of the generator were undertaken
- use of the generator by inadequately instructed operating personnel

Furthermore at all costs avoid the following Misuses:

- Never refuel the generator's own tank when the engine is running. The vibrations and strong exhaust streams during operation can lead to fuel spillage. This leads to an increased risk of explosion and fire and therefore danger to operating personnel, the environment and the device.
- Never refuel the generator's own tank when it is hot. Overflowing fuel and outflowing fuel vapours can ignite on hot parts of the device.
- The generator is never to be connected up to other energy distribution systems (e.g. public power supply) or to other energy generation systems (e.g. other generators, solar plant, etc.). To start with this is usually not permitted by the energy supply company. In both cases this will inevitably lead to severe damage and possibly also severe injury.
- Never place the generator in explosion-prone environments. The individual components of the generator are not designed EX-protected.

- Never operate the generator in rooms, narrow pits or vehicles. The combustion exhaust gases contain poisonous substances including the odourless but deadly gas carbon monoxide (CO) which, when breathed in, can accumulate in cases of poor air circulation to reach deadly concentrations. Also a lack of fresh air circulation leads to overheating and possible damage to the generator right through to destruction.
- For the same reasons of risk, never divert exhaust gases for the purposes of heating rooms or vehicles.
- Never clean the generator with the aid of a high pressure cleaner or a strong jet of water.
- Never allow water to find its way inside the generator. Never pour water over the generator and never clean it using a water hose or a high pressure cleaner.
- Never operate the generator in any area where it could be flooded by high water or any other events. The Protection Class of the device (see Chapter 12) allows operation for spray water, however not in the case of floods.

3.3 Scope of delivery of your generator

Apart from the technical documentation mentioned in Chapter 2.1 the following articles are Scope of delivery of your generator:



Fig. 3-2 included in delivery

Item	Name
1	Tool kit
2	Wheel set (optional for ESE 3000BS)

3.4 Labels on the generator

An important part of the operating manual is in the form of labelling and notices on your generator. This The label must not be removed and must always be maintained in a legible condition. In a case of damage to the Labels can be ordered from our customer service team. The following figures and tables show the prescribed attachment point and a short explanation about labels.



Fig. 3-3 Labels on the device

Item	Label	Significance
1		Warning of hot surfaces
2		Warning about easily inflammable liquids
3		Warning of hot surfaces
4		All safety and warning signs
5		Earthing sign
6		Note on fuel tap
7		Choke lever instruction
8		Reference to air filter maintenance
9		Type plate

Tab. 3-1 Labels on the device

4 For your safety

The following chapter describes basic Safety instructions for safe operation of your generator. Your device is a very high-performance electrical machine which is potentially dangerous when operated if it has not been installed, commissioned, used, serviced and repaired according to the operating manual. If necessary, the operating manual will also include different supplements that depend on the country of use, in addition to the present one.

Operation, use, servicing as well as any work with or on the generator is therefore only permitted by such persons who have read this chapter and have put its provisions into practice!

Concrete warning notices can also be found regarding basic safety instructions further on in this operating manual. These are always placed in an explanatory text immediately before the description of work steps which can be dangerous if the warning notice is not observed. Read the following sections for correct and rapid understanding of these safety and warning notices. They describe their systematic structure as well as the meaning of markings and symbols.

4.1 Safety symbols

The safety symbol indicates graphically that a source of danger exists. We use the internationally valid safety symbols from ISO 7010 for rapid and unique classification of the respective dangerous situation. In the following there is a description of the warning symbols used in this operating manual with an explanation about the respective dangerous situations.



Warning of a general hazard

This warning symbol indicates activities where several causes can lead to risks. The concrete danger must be respectively more clearly specified by further notices.



Warning of a dangerous electrical voltage

This warning symbol is indicates activities where the danger of electric shock exists, possibly with lethal consequences.



Warning of potentially explosive materials

This warning symbol indicates activities where the danger of an explosion exists, possibly with lethal consequences.



Warning of toxic substances

This warning symbol indicates activities where a risk of poisoning exists, possibly with lethal consequences.



Warning of corrosive substances

This warning symbol indicates activities where a risk of chemical burns to the environment as well as people exists, possibly with lethal consequences.



Warning of environmentally damaging substances

This warning symbol indicates activities where a risk of contaminating the environment exists, possibly with catastrophic consequences.



Warning of hot surfaces

This warning symbol indicates activities during which there is the danger of burns, possibly with lasting consequences.



Warning of a suspended load

This warning symbol indicates activities where the danger of falling loads exists, possibly with lethal consequences.



Warning of automatically starting machines

This warning symbol indicates activities where a danger of being injured by self-starting machines exists, possibly with lethal consequences.

4.2 General safety instructions

ENDRESS generators are designed to operate electrical equipment with appropriate power output requirements. Other uses can lead to severe injuries to operating personnel as well as persons nearby. There is also increased risk of damaging the generator as well as further damage to equipment.



DANGER!

Mortal danger due to an electric shock if live parts are touched.

- ▶ Never operate the device if it is in a damaged condition.
- ▶ Never operate the electrical consumers and connecting cable (power consuming equipment) in a damaged condition.
- ▶ Never feed directly into existing networks that are already connected to a power source (e.g. power supplier, solar plant, etc.).
- ▶ Never operate the device with wet hands.

The majority of injuries and damage to equipment can be avoided if all instructions given in this manual and all instructions attached to the device are followed.

The generator must not be modified in any way, also not temporarily. This can lead to a mortal risk to operating and deployed personnel and damage to the generator as well as the consumers being used.

Operating company and Operating personnel may only use the generator according to regulations contained in the whole technical documentation (hereinafter referred to as appropriate use).

Every instance of inappropriate use as well as all activities on the generator which are not described in these instructions are forbidden misuse outside the legally defined limits of liability of the manufacturer. In return all claims for damages and claims made under warranty to ENDRESS-Elektrogerätebau GmbH which are associated with misuse are null and void.

4.3 Residual risks

As a manufacturer of EU-compliant machines, ENDRESS make great efforts to create designs which already eliminate possible risk potentials at the design stage. If this is not possible without significantly impairing the functions of a device, we implement suitable protective measures protect the user from injury.

If there are still some residual risks associated with working with the device, we clearly advise the user about these sources of danger, possible consequences as well as measures to avoid such dangers.

The residual dangers were analyzed and Residual dangers identified during the development and design of your Generators by means of a danger analysis according to DIN EN 60204, DIN EN ISO 12100 and DIN EN ISO 8528-13.

References to general sources of danger can be found in chapters 4 and 5 . From Chapter 6 one can find concrete warning notices placed before every action step which represents a residual risk.

The exact structure and contents of warning notices are defined in the ISO 3864 series of standards and follow an established identification marking required to immediately be able to estimate the degree of the respective

danger. Exactly impress upon yourself the identification marking of the four different danger levels in order to be able to reliably assess the dangers associated with the individual operating states and action steps when reading the operating manual.

DANGER!

DANGER describes a danger which represents a high level of risk, which can lead to death or severe injuries, when not avoided.

- ▶ The individual points provide instructions and
- ▶ notices as aids to avoid the danger
- ▶ or to reduce the risk to an acceptable level.

WARNING!

WARNING describes a danger which represents a medium level of risk, which can lead to death or severe injuries, when not avoided.

- ▶ The individual points provide instructions and
- ▶ notices as aids to avoid the danger
- ▶ or to reduce the risk to an acceptable level.

CAUTION!

CAUTION describes a danger which represents a low level of risk, which can lead to minor or medium level injuries when not avoided.

- ▶ The individual points provide instructions and
- ▶ notices as aids to avoid the danger
- ▶ or to reduce the risk to an acceptable level.

NOTICE!

ATTENTION! describes a situation or action that might result in damage to equipment and/or malfunctions if it is not prevented.

- ▶ The individual points provide instructions and notices
- ▶ as an aid to avoid or prevent damage to equipment.



DANGER!

Mortal danger due to an electric shock if live parts are touched.

- ▶ Never operate the device if it is in a damaged condition.
- ▶ Never operate the electrical consumers and connecting cable (power consuming equipment) in a damaged condition.
- ▶ Never feed directly into existing networks that are already connected to a power source (e.g. power supplier, solar plant, etc.).
- ▶ Never operate the device with wet hands.



! DANGER!

Engine exhaust gases contain poisonous and partially invisible gases such as carbon monoxide (CO) and carbon dioxide (CO₂).

Risk of death due to poisoning or asphyxiation.

- ▶ Ensure that there is good ventilation during the whole period of operation.
- ▶ Only operate the generator in the open.
- ▶ Never direct the exhaust gases into rooms or pits.



! DANGER!

Danger of severe or mortal injuries being incurred from falling loads.

- ▶ Never stand under or close to a suspended load, also not to provide assistance.
- ▶ Ensure that there is no person in the area of swivel of the lifting device.
- ▶ Use all suitable measures to prevent the suspended load from swaying.



! DANGER!

Leaking engine oil and fuel can burn or explode.

A risk of suffering severe even deadly burns.

- ▶ Prevent engine oil or fuel from leaking out.
- ▶ Remove leaked operating fluids immediately and appropriately.
- ▶ Never use an additional start aid.
- ▶ Smoking, naked flames and sparks are forbidden.



! DANGER!

Hot parts can ignite flammable and explosive materials.

A risk of suffering severe even deadly burns.

- ▶ Never operate the generator in the vicinity of combustible or flammable materials.
- ▶ Never operate the generator in an environment prone to an explosion.



! WARNING!

There is a risk of explosion and fire in the case of inappropriate handling and spark development when working with the battery.

Danger from spraying sulphuric acid. Danger of suffering severe even deadly burns and chemical burns. Danger of being blinded.



- ▶ Never lay electrically conductive parts on the starter battery.
- ▶ Flames, sparks, an open light and smoking are prohibited.
- ▶ Avoid sparks when handling cables and electrical devices, as well as electrostatic discharge.
- ▶ Avoid short-circuits.
- ▶ Wear acid-resistant protective clothing.



WARNING!

Escaping corrosive acid fumes or sulphuric acid during and after the charging process. A risk of suffering severe or even deadly burns.

- ▶ Only work with acid-resistant protective equipment.
- ▶ Clean surfaces covered in acid immediately using adequate amounts of water.
- ▶ Only charge the starter battery in a well ventilated environment.



CAUTION!

Certain surfaces on the device can get very hot whilst it is running.

Risk of burns

- ▶ Never touch any engine parts (in particular the exhaust system) for a few minutes after ceasing operation.
- ▶ Always leave hot engine parts to cool down before touching them.



CAUTION!

A high device weight. Risk of crushing from improper handling during operation or transport.



- ▶ Only lift the generator with the aid of all handles provided or by using a suitable hoist.
- ▶ During transport on vehicles, ensure that there is the prescribed load securing in place.
- ▶ With it in a raised condition, never come close to or stand under the generator.

**NOTICE!**

Leaking engine oil and operating fluids can contaminate the soil and groundwater.

- ▶ Ensure that the generator is transported horizontally and mounted.
- ▶ Make all efforts, at all costs, to prevent escaping of operating fluids.
- ▶ Dispose of contaminated soil immediately and according to regulations.

**NOTICE!**

Use of wrong or outdated fuel damages or destroys the engine.

- ▶ Only use the fuel displayed on the sign (Tab. 3-1).
- ▶ Observe the possibly enclosed documentation for the fuel release of the engine manufacturer
- ▶ Observe the shelf life of the fuel according to the supplier.
- ▶ Observe the engine operating manual.

**NOTICE!**

Excessive heat or moisture can destroy the device.

- ▶ Always ensure that there is a good supply of air and heat removal.
- ▶ Never operate the generator in rooms or narrow pits.
- ▶ Never clean the device with the aid of a strong jet of water or high pressure cleaner.
- ▶ Never allow water to find its way inside the generator.

4.4 Authorised operating personnel – qualifications and obligations

Your Generators is a complex machine, the operation and maintenance of which requires exact knowledge of its functions and danger potentials. Therefore any work with or on the device, of any kind, may only be performed by authorised and instructed operating personnel.

Quite apart from the authorisation which the operating company of the device must issue, only such persons may operate or service the device who fulfil the following criteria. They are designated in this operating manual as operating personnel.

The authorised operating personnel must:

- be of age.
- be trained in First Aid and be able to provide it.
- be familiar with the accident prevention regulations and safety instructions relevant to the Generators and be able to apply them.
- have read Chapter 4 , have understood the contents and are able to use and implement them in practice.
- be trained and instructed according to the rules of conduct in the case of malfunctions.
- have the physical and mental abilities to carry out their responsibilities, tasks, and activities on the Generators.
- be trained and instructed in their responsibilities, tasks and activities on the Generators.
- have understood the entire technical documentation concerning their responsibilities, tasks and activities on the Generators and be able to implement these in practice.

4.5 Danger zones and work areas

In order to be able to consider all of a machine's safety aspects and to comply with the safety and health protection requirements of the applicable standards and EU directives, we have assessed the use of your Generators in all of the phases that it will go through during its product service life (product life cycle). The following zones were defined on the Generators for this purpose: The danger zones and work places (work areas) around the generator are determined by the activities to be undertaken within the various phases in individual life cycles:

- **Working zone:** In this zone on and around the Generators (approx. 1 metre radius) the trained operating personnel (see Chapter 4.4) may operate and inspect the device in compliance with all of the safety and operating instructions given in the technical documentation. All other people (especially minors and people with disabilities) must remain outside this working zone.
- **Danger zone:** This zone must be kept free of all personnel during all phases of use and service life of the device. Any work in this zone is only to be undertaken by specially trained specialists if it is essential for the fulfilling of the task and if all of the protective equipment (PPE) needed is used. You must always comply with the following limits:

Product's service life phase	Danger zone
Transport and installation	within a radius of 1m around or below the device
Operation	within the outer limits of the device
Service and maintenance	Within the outer limits of the device when switched on Generators

Tab. 4-1 Danger zone on Generators

5 Checking the electrical safety

Checking of electrical safety requires different measures to be taken which may only be undertaken by respectively authorised personnel. In doing so the respective, pertinent VDE provisions, EN and DIN standards, in their respectively valid versions, must be observed. You must abide by the DGUV Information 203-032 edition of May 2016 if it will be used in construction or assembly sites. It defines special protective measures and rules of conduct for the commissioning as well as a corresponding marking on the device.

In particular you must never use defective or damaged consumers, cable connections or plug connectors, etc., (power consuming equipment). Their correct conditions must be checked at regular intervals (see Tab. 8-1)

Earthing

Your Generators has been designed for manual or automatic operation (remote start) with one or more electrical consumers. To protect against electric shock (current flow through your body), the protective separation measure with equipotential bonding according to DIN VDE 0100-551: 2017-02 is used. The protective conductor system of the attached consumer equipment takes over the function of the potential equalisation device. The terminal (Fig. 6-2) is connected with this Potential equalization device connected. An Earthing is not necessary.

Your Generators corresponds to a Version A generator according to DGUV Information 032-203 issued in May 2016. A corresponding marking can be found on the device (see Fig. 3-3):



We strongly recommend that you also comply with the requirements of DGUV Information 203-032 for other purposes.



DANGER!

Dangerous electrical voltages will be present if several consumables are connected up without a working personal safety device.

Mortal danger from electrocution

- ▶ Never operate multiple consumables from the Generators without additional RCDs (residual current circuit breaker) for the second and each additional consumable.
- ▶ Check the personal protection according to the check intervals given in Tab. 8-1 .

6 Description of the device

6.1 Views

The following section provides an overview of the name and location of the most important components in your Generators. It is important that you become familiar with them in order to understand the functions and operating steps explained below and to be able to implement them safely. Severe or deadly personal injuries can result and/or damage to the generator as well the attached power consuming equipment if these instructions are ignored.

In order to be in a position to clearly re-find named operating controls and components in the following descriptions and instructions, the individual views of the generator are designated throughout in a way which can be taken from the following figure.



1	Engine side	2	Exhaust gas side
3	Alternator side	4	Control side

6.2 Generator and control side components



Fig. 6-1 Generator and control side components

1	Oil drain screw	2	Oil filling inlet
3	Control panel	4	Tank
5	extendable handle	6	Generator

6.3 Engine and tank side components

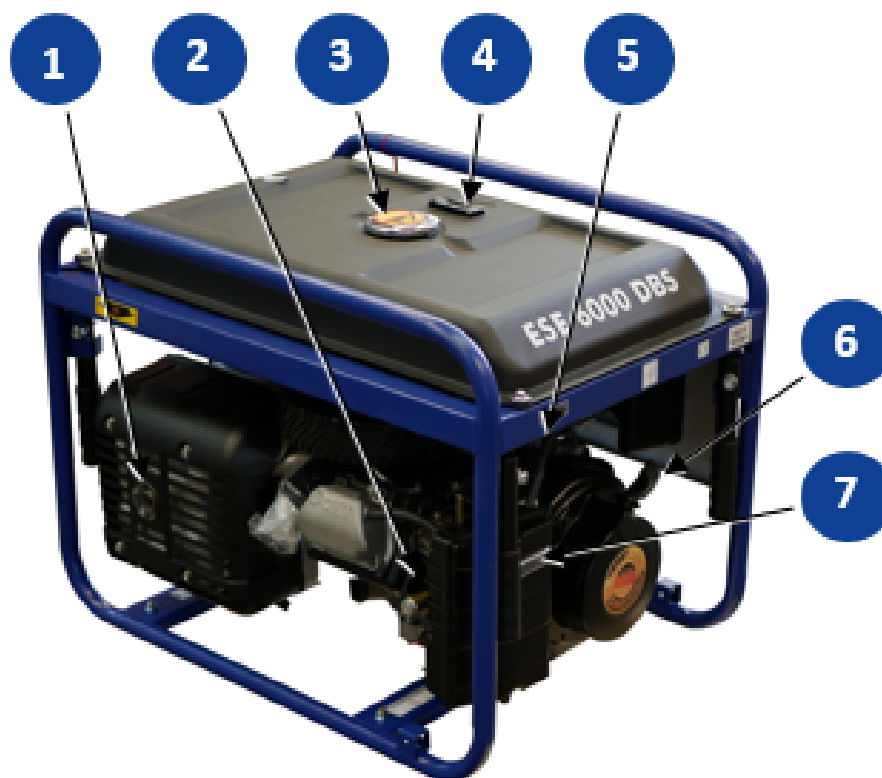


Fig. 6-2 Engine and tank side components

1	Exhaust	2	Carburettor
3	Filler neck	4	Filling level indicator
5	Choke lever	6	Cord grip for starting motor
7	Air filter		

6.4 Control panel components

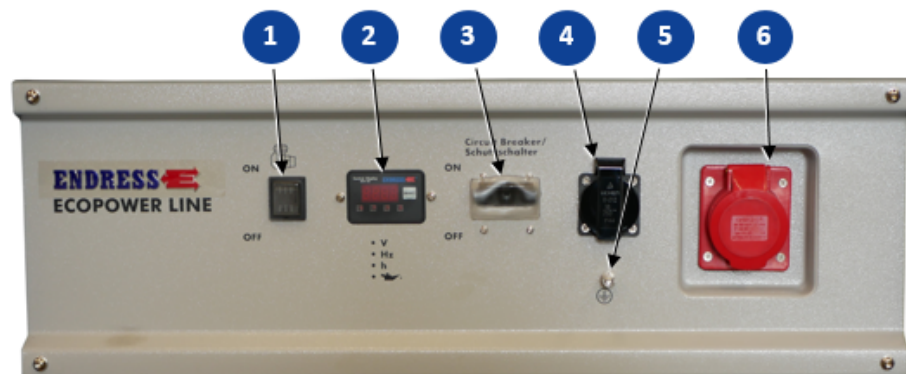


Fig. 6-3 Control panel components

1	On and Off switch	2	Operating hours counter
3	Line circuit breaker	4	Electrical safety socket
5	Earthing connection	6	CEE socket

7 Commissioning

The following chapter explains the basic procedure for initial or repeated generator start-ups in "Manual" mode. Follow the working steps described below when you put your generator into operation for the first time or re-start it again after transporting it.

7.1 Transporting and preparing your generator

The following requirements must be fulfilled before you can transport the generator:

Requirements:

- ✓ the ground at the installation site must be even and capable of taking the load
- ✓ the generator must be switched off
- ✓ the generator must be cooled down
- ✓ if fitted, the fuel valve must be in the "OFF" position
- ✓ if connected, the external refuelling device must be disconnected



NOTICE!

Leaking engine oil and operating fluids can contaminate the soil and groundwater.

- ▶ Ensure that the generator is transported horizontally and mounted.
- ▶ Make all efforts, at all costs, to prevent escaping of operating fluids.
- ▶ Dispose of contaminated soil immediately and according to regulations.

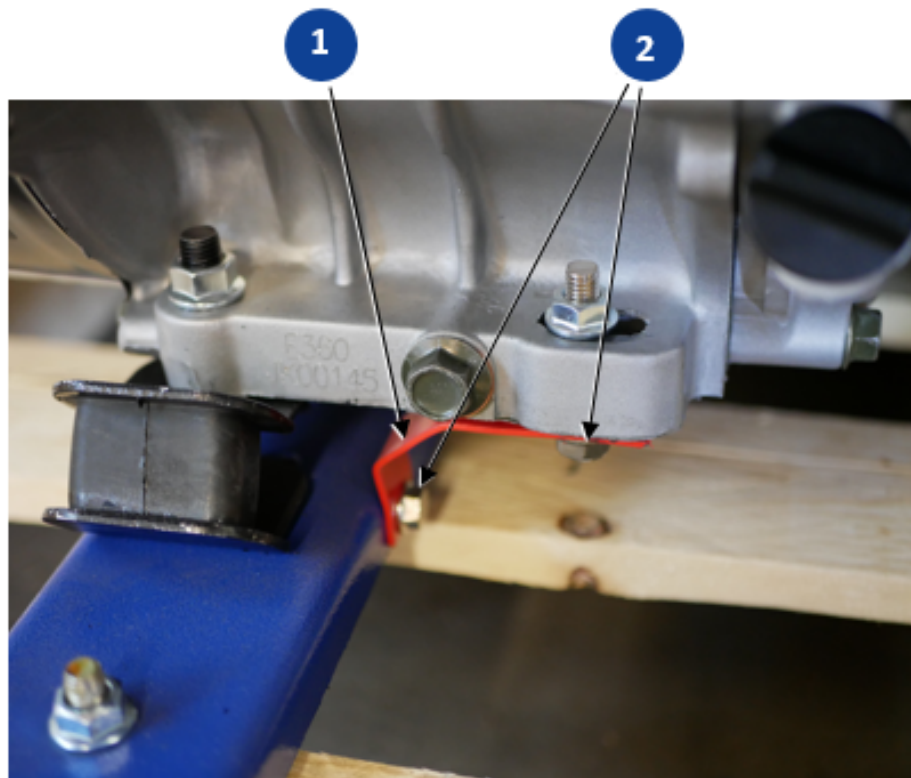
7.2 Removing the transport securing devices

Dismantling the transport securing devices affixed to your generator is described here.

Proceed as follows to disconnect the transport securing devices affixed to the generator:

Requirements:

- ✓ the generator must be fully unpacked
- ✓ the generator must have been placed on a level and solid surface
- ✓ there must be no motor oil or petrol inside it
- ✓ The generator is switched off.

**Removing the
transport securing
devices**

1. Undo the fastening screws ② on the red transport securing device ①.
2. Remove the transport securing device ①.
3. Also perform steps one and two on the opposite sides in order to remove the second transport securing device.

Dismantling the transport securing devices is now complete.

NOTICE!

Store both transport securing devices and their screws for possible reuse.

7.3 Fitting the wheel set

How to fit the wheel set on your generator is explained here. The wheel set enables you to transport the generator quicker and with less effort. Two people should be used to fit the wheel set and one of them should hold the device. Use the mounting elements supplied in the package to install the wheelset (see 3.3 Scope of delivery of your generator)



! DANGER!

Leaking engine oil and fuel can burn or explode.

A risk of suffering severe even deadly burns.

- ▶ Prevent engine oil or fuel from leaking out.
- ▶ Remove leaked operating fluids immediately and appropriately.
- ▶ Never use an additional start aid.
- ▶ Smoking, naked flames and sparks are forbidden.

! DANGER!

The device may cause severe injury if it falls or slides away.

- ▶ do not attempt to fit the wheel set by yourself
- ▶ take note of the generator's weight

Requirements:

Proceed as follows to fit the wheel set on the generator:

- ✓ The generator is switched off.
 - ✓ the generator has cooled down
 - ✓ there must be no motor oil or petrol inside it (see 8.3.2 Changing the engine oil)
 - ✓ The additional material supplied is ready for use (see Fig. 3-2 -1).
 - ✓ all power consuming equipment is disconnected or switched off
1. Attach the feet 3 to the rail supplied 4 on the generator using the prefabricated holes and the bolts and nuts supplied.
 2. Mount the rail 4 on the frame on the alternator side of the generator in the prefabricated holes 5.
 3. Mount the wheels 2 to the fastener using the long screws 1.
 4. Stand the device up on the wheels and the feet.

Wheels and feet are now affixed.

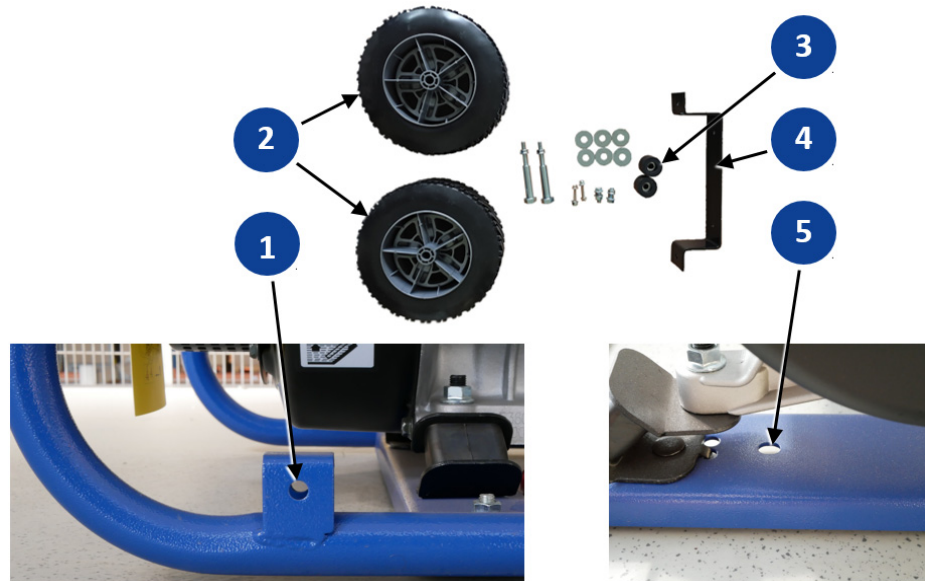


Fig. 7-1 Wheel set parts

7.4 Refuelling your generator

Proceed as follows to refill the generator's own tank: the generator.

Requirements:

- ✓ the generator must be turned off
- ✓ the generator has cooled down
- ✓ there must be an adequate air supply and air removal
- ✓ all power consuming equipment must be disconnected or switched off



DANGER!

Leaking engine oil and fuel can burn or explode.

A risk of suffering severe even deadly burns.

- ▶ Prevent engine oil or fuel from leaking out.
- ▶ Remove leaked operating fluids immediately and appropriately.
- ▶ Never use an additional start aid.
- ▶ Smoking, naked flames and sparks are forbidden.



NOTICE!

Leaking fuel can contaminate soil and groundwater.

- ▶ Take note of the residual quantity in the tank and its maximum filling capacity.
- ▶ Always bear in mind that the fuel gauge reacts only after a time delay.
- ▶ Fill the tank to a maximum of 95%.
- ▶ Always use a filling aid (e.g. funnel).



NOTICE!

Use of wrong or outdated fuel damages or destroys the engine.

- ▶ Only use the fuel displayed on the sign (Tab. 3-1).
- ▶ Observe the possibly enclosed documentation for the fuel release of the engine manufacturer
- ▶ Observe the shelf life of the fuel according to the supplier.
- ▶ Observe the engine operating manual.

Refuelling the generator

1. Unscrew the tank cover Fig. 6-2 .
2. Insert the filler nozzle into the filling opening.
3. Fill with fuel slowly and evenly.
4. Take note of the tank's fuel level indicator Fig. 6-2 as well as the fuel level at the filling opening to ensure that you do not overfill the tank.
5. Remove the filler nozzle.
6. Refit the tank cover.

The generator is now refuelled.

7.5 Starting the generator

Starting the generator for manual operation and with fuel supplied from its own tank is explained here.



⚠ DANGER!

Leaking engine oil and fuel can burn or explode.

A risk of suffering severe even deadly burns.

- ▶ Prevent engine oil or fuel from leaking out.
- ▶ Remove leaked operating fluids immediately and appropriately.
- ▶ Never use an additional start aid.
- ▶ Smoking, naked flames and sparks are forbidden.



⚠ DANGER!

Engine exhaust gases contain poisonous and partially invisible gases such as carbon monoxide (CO) and carbon dioxide (CO₂).

Risk of death due to poisoning or asphyxiation.

- ▶ Ensure that there is good ventilation during the whole period of operation.
- ▶ Only operate the generator in the open.
- ▶ Never direct the exhaust gases into rooms or pits.

NOTICE!

Frequent brief operations and/or long operating times without a load will have a negative effect on the operational readiness and the generator's service life.

- ▶ Try to avoid frequent brief operations, otherwise the starter battery will not be sufficiently charged and it might fail.
- ▶ Always ensure that the battery is well charged by prolonging the operating phase whenever necessary or by recharging externally.
- ▶ Avoid long operating times without a load.



Fig. 7-2 Starting the generator

Proceed as follows to start the generator manually directly from the device:

Requirements:

- ✓ electrical safety has been checked (see Chapter 5).
 - ✓ the fuel tank is sufficiently full.
 - ✓ transport securing devices have been removed (7.2 Removing the transport securing devices).
 - ✓ oil level is sufficient (fill with engine oil before initial use, see Chapter 8.3.1 and the engine operating and maintenance instructions).
 - ✓ there is an adequate air supply and air removal.
 - ✓ all power consuming equipment is disconnected or switched off.
1. Disconnect all loads from the output side
 2. Turn the fuel valve **2** into the "ON" position.
 3. Move the choke lever **1** into the "CLOSE" position

4. Switch the generator switch **4** into the "ON" position
5. Pull the cable pull starter **3** out until you feel some resistance and then pull it out vigorously.
The engine starts.
6. Move the choke lever **1** slowly back into the "OPEN" position after the engine has warmed up.
The engine has started.



NOTICE!

Do not apply load to the generator immediately after a cold start.

- ▶ Allow the generator engine to warm up for a few minutes before switching on a load when the generator has not been operating for more than eight hours (or for very low external temperatures).



NOTICE!

The automatic low-oil system will not let the engine start if the oil level is too low.

- ▶ First refill up to the engine oil level (see Chapter 8.3.1), before you restart the engine.
- ▶ The automatic low-oil system cannot stop the engine from being damaged due to a low oil level in all cases. Never start the engine without checking the oil level beforehand!

7.6 Turning off your power generator

Proceed as follows to switch off your generator:

Requirements:

- ✓ All of the connected consumers must be disconnected or switched off



CAUTION!

Certain surfaces on the device can get very hot whilst it is running.

Risk of burns

- ▶ Never touch any engine parts (in particular the exhaust system) for a few minutes after ceasing operation.
- ▶ Always leave hot engine parts to cool down before touching them.

Switching the generator off

1. Continue to run the engine without load for about two minutes.
2. Switch the generator switch **4** into the "OFF" position
3. Turn the fuel valve **2** into the "OFF" position
4. Allow the device to cool down.

The generator is switched off and secured.



! DANGER!

Explosion hazard due to escaping fuel or fuel vapours.

A risk of suffering severe even deadly burns.

- ▶ After stopping the generator, close the fuel valve (fuel feed) as soon as possible.
- ▶ Close the fuel valve (fuel feed) at the latest after ceasing to use the device. **BEFORE** transport.

7.7 Turn off your generator in the event of an EMERGENCY

You can use the on/off switch to switch the generator off in an emergency. It enables you to switch off the generator abruptly, but only in an emergency. It is located on the left at the top of the control panel (see Fig. 6-3 - ①).

Proceed as follows to switch off your generator in an EMERGENCY:



NOTICE!

Using this emergency function might result in the connected consumers malfunctioning.

- ▶ Switch off the Generators using emergency stop function only in an emergency.

Requirements:

Actuating the emergency stop function must always be possible without any pre-conditions. Ensure that the on/off button is easily accessible at all times.

EMERGENCY-STOP

1. Press the On/off button into the "OFF" position

The engine is stopped.

Before restarting the generator, you must ensure that all hazards have been eliminated and that all of the consumers have been disconnected from the generator. Proceed as follows and as described in 7.5 Starting the generator to restart the engine.

7.8 Connection of power consuming equipment



! DANGER!

Mortal danger due to an electric shock if live parts are touched.

- ▶ Never operate the device if it is in a damaged condition.
- ▶ Never operate the electrical consumers and connecting cable (power consuming equipment) in a damaged condition.
- ▶ Never feed directly into existing networks that are already connected to a power source (e.g. power supplier, solar plant, etc.).
- ▶ Never operate the device with wet hands.

Proceed as follows to connect up a consumer to your generator:

Requirements:

- ✓ The generator is started and brought up to operating temperature (see Chapter 7.5).
- ✓ All power consuming equipment is disconnected or switched off.

Connecting up the consumers

1. Use one hand to raise the splash guard cover at the relevant socket.
2. Use your other hand to insert the plug from the consumer that has to be connected up all the way into the socket until it stops.

The consumer is now to the generator and ready to use.

You can connect up consumers to the following sockets:

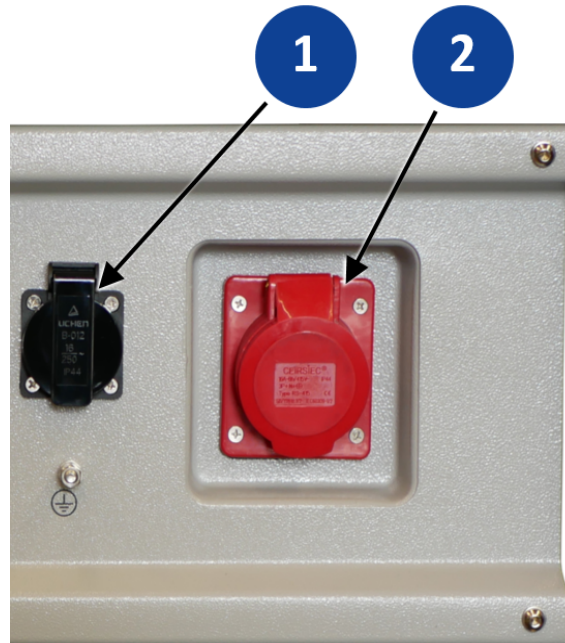


Fig. 7-3 Connecting up the consumers

1	Electrical safety socket
2	230 V / 16 A / 1~ CEE sockets

8 Maintenance

Generators maintenance is described in this section. It may only be performed by qualified specialist personnel.

Maintenance and repair which is neither described in this operating manual nor in the possibly also delivered operating and maintenance instructions may only be undertaken by authorized service personnel from the manufacturer.

8.1 Maintenance plan

Maintenance work on your generator must be performed periodically in order to secure its readiness to use and reliability over a long period. Only have this work performed by trained specialist personnel. Contact your dealer or our

service hotline at: +49 7123 9737-44

service@endress-stromerzeuger.de



NOTICE!

Please note that, in the case of a concluded warranty agreement, you will lose all rights to make claims if your generator is not serviced according to manufacturer regulations.

You can find an overview of the time plan and scope of the required maintenance work in the following maintenance schedule.

Item	Maintenance work	Maintenance interval according to time or operating hours [h]				
		Daily / 8h	After one month / 20h	After 3 months / 50h	After 6 months / 100h	Annually / 300h
Electrical safety	Check	X				
Engine oil	Check fill level	X				
	Change				X ³	
Air filter	Cleaning; change when necessary			X ¹		
Sediment bowl	Cleaning				X	
Spark plug	Check the electrode gap, clean; change when necessary				X	Replace
	Check / adjust					X ²
Cylinder cover	Cleaning					X ²
Carburettor	Check the choke function	X				
Maintenance work should be performed by your service partner.						

Maintenance work		Maintenance interval according to time or operating hours [h]				
Item	Maintenance step	Daily / 8h	After one month / 20h	After 3 months / 50h	After 6 months / 100h	Annually / 300h
Cable pull starter	Check the cable pull and function	X				
Fastening and threaded joints	Check for a fixed hold and damage; replace if necessary					X
Cylinder head and piston head	Remove any carbon residue			Every 125 hours ²		
Fuel tank and fuel filter	Cleaning; change when necessary			every 2 years ²		
Fuel lines	Check for cracks and damage; replace if necessary			every 2 years ²		
1) Maintain more frequently if used in a dusty environment.						
2) It should only be maintained in one of our authorised workshops.						
3) Initially after 20 operating hours						
Maintenance work should be performed by your service partner.						

Tab. 8-1 Generator maintenance plan

8.2 Maintenance work

Only authorised personnel are allowed to carry out maintenance tasks. Carry out all of the maintenance work listed in the maintenance plan according to the instructions given in the accompanying operating and maintenance instructions provided by the engine manufacturer. This operating manual merely describes the instructions that differ from or go beyond those instructions.



DANGER!

Mortal danger from unintentional generator start up.

Danger of burns and being caught by rotating parts.

- ▶ Before accessing the generator you must switch it off and secure it so that unintentional starting of the machine is prevented under all circumstances. (see Chapter 7.6 as well).



CAUTION!

Certain surfaces on the device can get very hot whilst it is running.

Risk of burns

- ▶ Never touch any engine parts (in particular the exhaust system) for a few minutes after ceasing operation.
- ▶ Always leave hot engine parts to cool down before touching them.



NOTICE!

Also always read about the checking and maintenance work which concerns the electrical safety of the generators in the chapter "Checking the electrical safety".

8.3 Engine oil

The drive motor for your generator, like every internal combustion engine, requires the required engine oil for cooling and inner cooling. It is also very important to use the correct engine oil, both for refilling and when changing the oil, and to adhere the stipulated maintenance intervals. Refer to the accompanying operating and maintenance instructions provided by the engine manufacturer for all necessary information.

Always use a commercially available multigrade oil with a viscosity of 10W-30 when refilling or when changing the oil. This applies for use of a generator in temperate climates. At very low or very high outside temperatures it may well be necessary to use an engine oil of another viscosity. More precise information can be found in the following info-graphic.

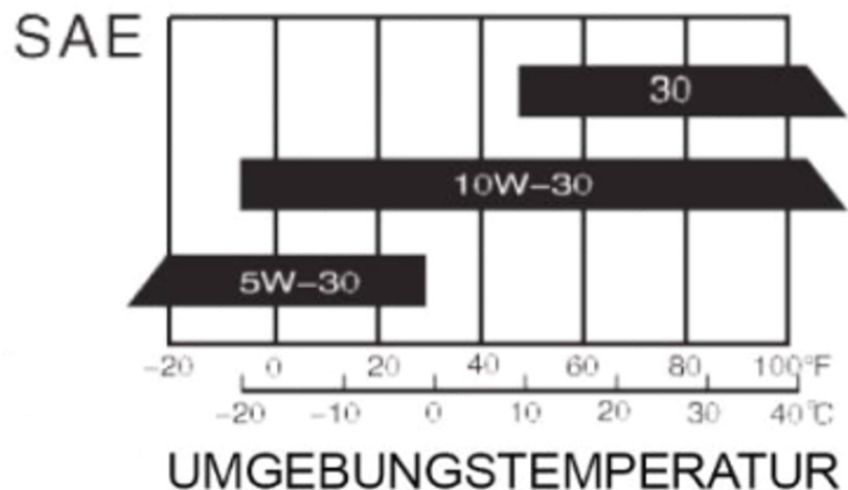


Fig. 8-1 Selection of the correct engine oil

8.3.1 Checking the oil level

Check the engine oil level before every start in order to avoid delays and interruptions during operation.

Requirements:

Ensure that the following prerequisites are met before you check:

- ✓ Ensure that the generator is mounted horizontally.

- ✓ Wait after previous operation for about five minutes before checking until the engine oil has gathered again in the oil sump to obtain a correct measurement.



CAUTION!

The engine and operating equipment on the generator can get very hot while running.

Risk of burns

- ▶ Never touch any engine parts (in particular the exhaust system) for a few minutes after ceasing operation.
- ▶ Allow the engine to cool off for at least five minutes before changing or checking the engine oil.

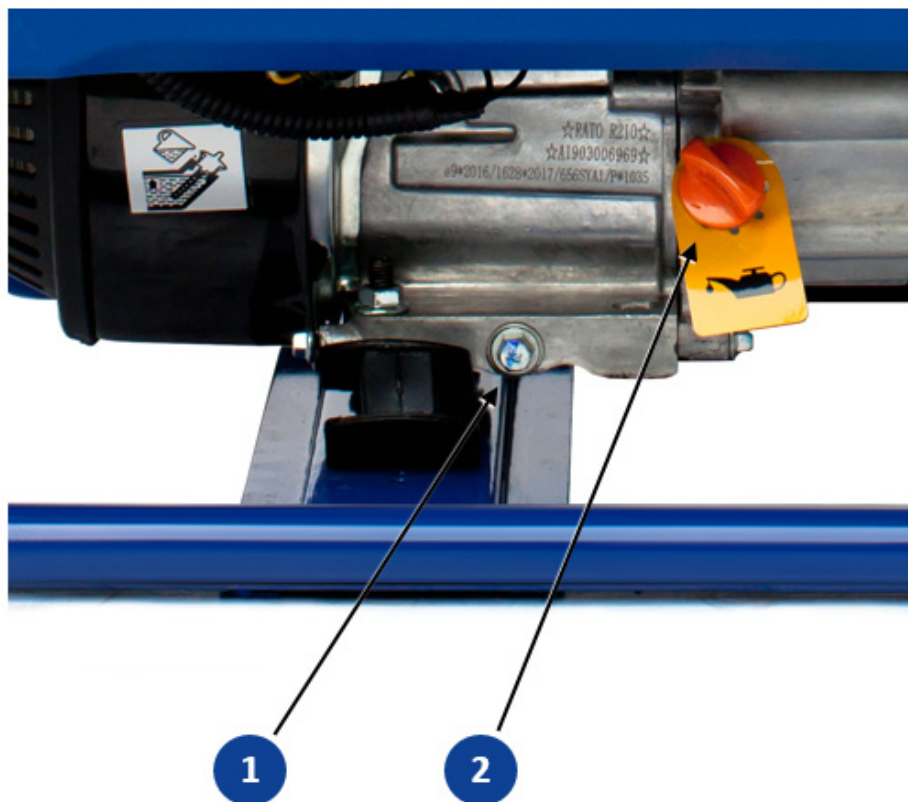


Fig. 8-2 Checking and changing engine oil

Checking the oil level

1. Undo the orange locking screw **2** and remove it from the filling opening. CAUTION: The oil dipstick attached to the screw is wetted with oil.
2. Use a lint-free cloth to remove the oil from the dipstick.
3. Screw the clean dipstick completely back in and then immediately back out.
4. Read off the oil level on the dipstick. It should not be lower than the middle in-between the “L” and “H” markings and never above the “H” marking (see Image Fig. 8-3 Oil dipstick).

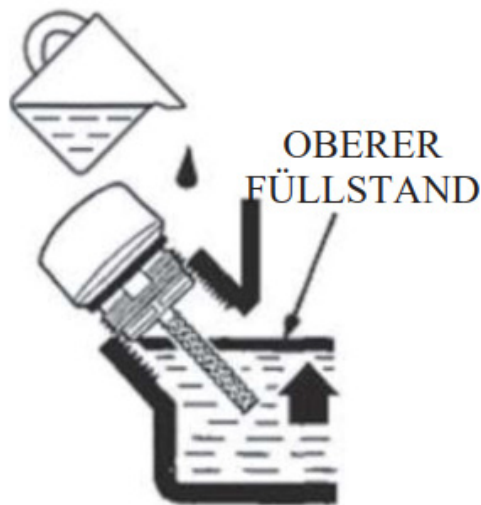



Fig. 8-3 Oil dipstick

Refilling with engine oil

If the oil level is too low, instigate the next steps to correct the level.

1. Make ready the engine oil to top up with.
2. Put the filling funnel into the engine's previously opened filling opening  Fig. 8-2 Checking and changing engine oil.
3. Just put a small amount of engine oil in the funnel and wait until the oil has drained down completely.
4. Remove the filling funnel.
5. Compare the oil level against the image Fig. 8-3 Oil dipstick (at the bottom right) and repeat steps 2 to 4 until the engine oil has reached the top of the filling opening.
6. Clean the oil dipstick using a lint-free cloth and turn it clockwise in the filling opening and up to the stop.

The oil level has been checked and topped up.

8.3.2 Changing the engine oil

Your generator's drive motor needs the engine oil and the oil filter to be changed at regular intervals. The first oil change is due after 20 hours and then every 100 hours under normal operating conditions (see Chapter 8.1). The maintenance intervals must be shortened accordingly if used in difficult operating conditions (e.g. dusty environment, extreme ambient conditions, etc.). All of the necessary information and the steps are described in detail in the maintenance and operating instructions supplied by the engine manufacturer.



NOTICE!

Leaking engine oil contaminates the soil and groundwater.

- ▶ Use a suitable oil catching receptacle.
- ▶ Old oil is a special waste and may only be disposed of over suitably qualified collection points.



CAUTION!

The engine and operating equipment on the generator can get very hot while running.

Risk of burns

- ▶ Never touch any engine parts (in particular the exhaust system) for a few minutes after ceasing operation.
- ▶ Allow the engine to cool off for at least five minutes before changing or checking the engine oil.

Draining the engine oil

Proceed as follows to drain off the old oil after implementing the preceding steps in accordance with the engine manufacturer's maintenance instructions:

Requirements:

- ✓ The generator is switched off
 - ✓ When it is still hot: Wait until the engine oil has cooled down to approx. 30°C – 50°C.
 - ✓ When it is cold: Run the engine until it has heated up accordingly.
1. Place a suitable oil collection container under the generator.
 2. Open the oil filling opening for better venting **2**.
 3. Unscrew the oil drainage screw **1** by using the supplied tool (3.3 Scope of delivery of your generator - **1**).
 4. The oil will drain out after it has been unscrewed.
Tip the device slightly to ensure that all of the oil drains out. You must also ensure that no petrol can escape from the carburettor.
 5. Use a lint-free cloth to wipe away any remaining oil.
 6. Screw the locking screw **2** and the oil drainage screw **1** back in.
The engine's old oil has now been drained off.



NOTICE!

The other procedures for changing the engine oil correspond with the details given in the engine's operating and maintenance instructions. Take note of the other maintenance and disposal of operating equipment instructions that can be found there.

Refilling with fresh engine oil

- ✓ The old engine oil has to be fully drained off.
 - ✓ The oil drainage screw **1** must be screwed back in.
1. Proceed as described in Chapter 8.3.1 Checking the oil level to refill with fresh engine oil. Abide by the instructions covering the selection of a suitable oil. The oil fill amount for ESE 3000BS is 0.55 l and for ESE 6000 BS and ESE 6000 DBS 1.1 l.
 2. Use the locking screw to relock the filling opening **2**.
- The engine oil has been changed and the generator is now ready for use again.*

8.4 Air filter

The air filter insert must be cleaned every 50 operating hours and also changed if necessary. Operation with a dirty filter increases fuel consumption, pollutant emissions and engine wear. A damaged or missing air filter can destroy the engine.

Proceed as follows to service the air filter.

Requirements:

- ✓ The generator is switched off.
- ✓ The engine is cooled down sufficiently.
- ✓ A new air filter insert is ready to use.



Fig. 8-4 Cleaning the air filter

Change the air filter insert

1. Loosen both screws ① on the air filter to allow you to remove ② the cover.
2. Carefully remove the air filter insert - ③ and decide after the assessment:
 - a) in a case of minor soiling remove loose dirt particles from the air filter insert.
 - b) in a case of strong soiling use a new air filter insert.
3. Clean the air filter housing and cover, especially the intake opening, using a lint-free, slightly damp cloth.
4. Apply a few drops of new engine oil to the cleaned or new air filter insert.
Protect your hands from contact with engine oil.
5. Knead the air filter insert in order to distribute the oil evenly into the foam.
6. Press out the air filter insert strongly afterwards to remove any excessive oil.
7. Insert the air filter insert into the air filter housing.
8. Carefully place the air filter cover on the air filter housing and then use the clamps to secure it in place ①.
9. Dispose of a soiled air filter insert according to regulations.

Maintenance of the air filter is complete.

8.5 Spark plug

The spark plug must be checked every 100 operating hours, at least however once a year, and replaced if necessary. Wrong adjusted, soiled or worn spark plugs can have a negative effect on the starting behaviour, engine running, fuel consumption and pollutant emissions.



NOTICE!

When replacing the spark plug, only use the following types:

- ▶ TORCH F6TC
- ▶ NGK BPR6HS

Proceed as follows to perform spark plug servicing.

Requirements:

- ✓ The generator is switched off

**One has the re-
quired tool**

- ✓ The engine is cooled down sufficiently
- ✓ A new spark plug is ready to use
- A spark plug wrench (in the scope of delivery)
- Setting gauge for the electrode gap

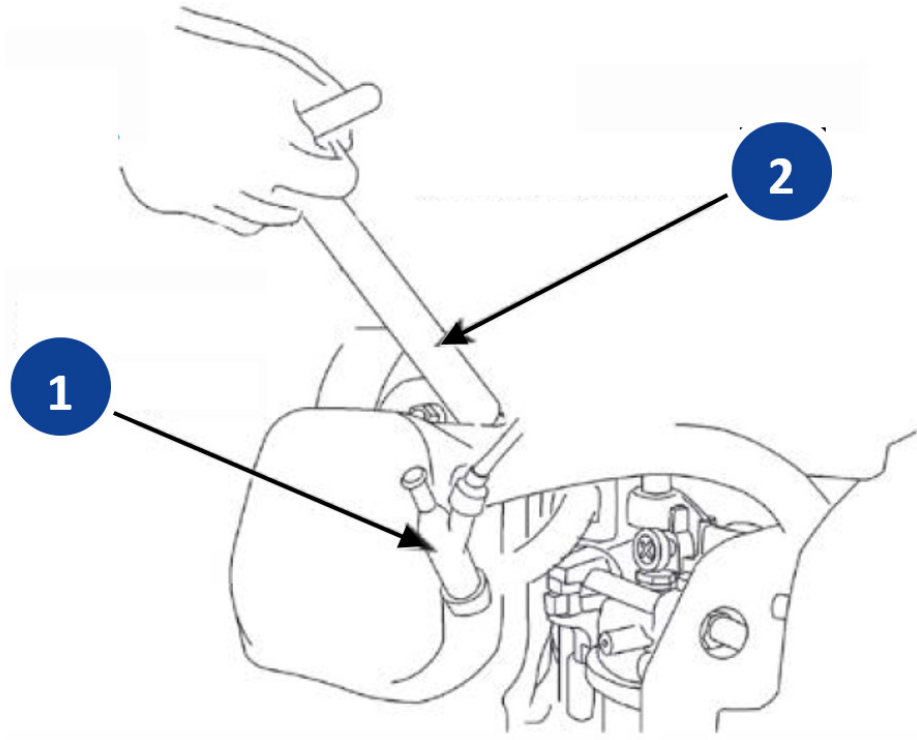


Fig. 8-5 Remove spark plug

Remove spark plug

1. Pull the spark plug connector Fig. 8-5 - **1** of the spark plug. To do this always pull directly on the plug, never on the ignition cable!
2. Place the spark plug wrench on the spark plug Fig. 8-5 - **2** and loosen this by turning anti-clockwise.

The spark plug is removed and must now be assessed.

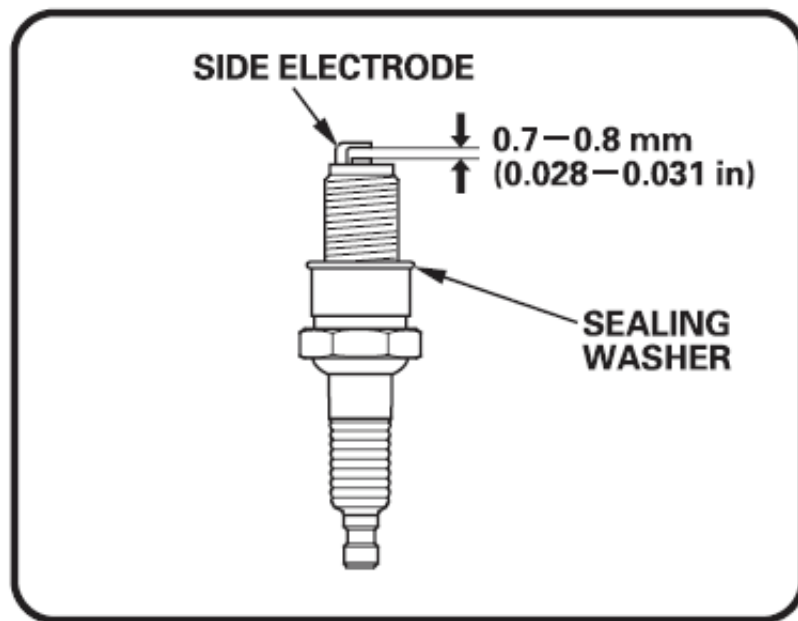


Fig. 8-6 Checking the spark plug

Checking the spark plug

1. Check the spark plug for damage and clean it using a suitable brush, if it can be used again.
2. Check the condition and gap of the electrodes, also when using a new spark plug. Adjust the gap to the correct value if necessary (see Fig. 8-6 Checking the spark plug).

The spark plug is ready to be installed.

Installing the spark plug

1. Turn the checked spark plug clockwise **by hand** in the spark plug thread in the engine Fig. 8-5 . Ensure that the spark plug is inserted without it tilting, so that the thread is not damaged.
2. Tighten the spark plug using the spark plug wrench supplied.
3. Press the spark plug connector firmly onto the spark plug.

The spark plug has been serviced in an orderly manner.

The generator is ready to use.

9 Storage

It is important to store the device at a suitable storage location as soon as your generator is no longer being used.

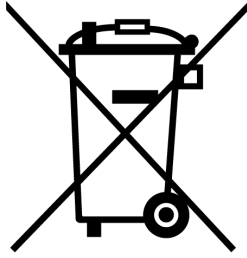
- The storage location must be roofed and must not be subjected to standing water, aggressive vapours or soiling as well as major accumulation of dust.
- Protect your device with a cover made out of breathable material.
- Ensure that the storage temperature and air humidity lie within the specified limits (see Technical data).



NOTICE!

Due to the limited shelf life of the different operating fluids, it is important for decommissioning for more than one month that additional measures for storage are taken. While doing this observe the instructions given in the attached operating and maintenance instructions from the engine manufacturer.

10 Disposal



Your device, which is an electrical or electronic device, is subject to European Directive 2012/19/EU (“WEEE directive”) which is implemented in Germany in national law through the decree regulating the use of dangerous substances in electrical and electronic equipment (ElektroStoffV). This regulates disposal and use of recycling waste electrical equipment. The adjacent icon with a crossed-out wastebasket on your device states that it must not be disposed of in the household waste at the end of its service life.

As a private end-user (a so-called b2c customer) there are free collecting points (recycling centre) near you for electrical equipment as well as possible also other collection points available for reuse of devices. The addresses can be obtained from your city or communal authority. In as far as the old electrical and electronic equipment contains personal data, you are responsible yourself for its deletion before giving it back.

Pure b2b devices (devices which, for appropriate use, or exclusively are only used the commercial area) must not be disposed of over public collecting points in Germany and further EU countries. Speak to your authorised ENDRESS generator dealer about handing back your recycling waste electrical equipment. The dealer is also your point of contact for any differing regulations on the respective country of deployment. There are also possible agreements in the purchase contract to observe.

Please observe the pertinent environmental protection regulations when disposing of the old oil. We recommend bringing the oil in a closed container to an old oil collection centre for disposal. Never put used engine oil in the domestic waste. Storage or introduction of old oil into nature is associated with very high fines.

An inappropriately disposed of battery can greatly damage the environment. Give back your old battery directly free of charge to your dealer when purchasing a new one.

Always observe the valid local regulations and laws concerning correct disposal of all old parts and operating materials. Please contact your ENDRESS service partner for a replacement.

11 Troubleshooting

The following table is an aid for you to use in a case where faults arise during use. Based on experience a number of malfunctions can already be removed by operating personnel or the possible causes limited. In all other cases contact your service partner as described in the table. The same applies for faults which are not listed in the table.

If a fault cannot be rectified using the measures described here, you must shut down your Generators and secure it against further use. Contact your service partner and give him an explanation, not only of the symptoms but also the possible causes which you can already exclude based upon the table. The fault can often be identified over the telephone or through a written exchange with our specialists.



NOTICE!

The following table does not make any claims to completeness and does not mention any faults which can be caused by operating error.

- ▶ In order to avoid operating errors, please exactly follow the instructions in the existing and delivered documentation.
- ▶ See the event and error lists in the Appendix.

Malfunction	Possible cause	Correction
The engine turns but does not start (electrical start).	The controller is being operated incorrectly.	Look at the operating instructions.
	Maintenance of the engine was inadequate.	Look at the engine maintenance instructions.
	The oil level monitor actuates.	Check oil level and refill if necessary.
	Too little fuel in the tank.	Refuel
	The fuel filter is clogged.	Replace the fuel filter.
	Bad fuel in the tank.	Replace the fuel, change the fuel filter and clean out the fuel tank if necessary
	The EMERGENCY-STOP button is still locked in place	Unlock the EMERGENCY-STOP button.
The engine turns but does not start (manual start).	The battery connecting cables are unclamped.	Clamp or screw on the battery connecting cables.
	Starter battery is discharged	Recharge the starter battery
The engine starts briefly and then shuts down.	Too little fuel in the tank.	Refuel:
	Tank ventilation is blocked.	Contact your service partner.
	The oil level is too low.	Add oil.
	The fuel filter is clogged.	Replace the fuel filter.

Malfunction	Possible cause	Correction
The engine does not rotate	The starter battery is discharged or defective (only for electrical starting)	Clean the battery poles, check the starter battery and recharge or replace, check the recharging circuit
	Starter defective	Replace the starter
	Engine is mechanically blocked	Contact your service partner
No or insufficient voltage available during idling without a load.	The rotational speed of the engine was adjusted afterwards.	Contact your service partner.
	The electronic controller has been altered.	Contact your service partner.
	The electronic controller is defective.	Contact your service partner.
Strong voltage fluctuations occur.	The engine runs irregularly.	Contact your service partner.
	Speed controller working erratically or insufficiently.	Contact your service partner.
The engine smokes.	Too much oil in the engine.	Drain off an excess oil.
	Paper element of the air filter is dirty or oil-soaked.	Clean paper element or replace if necessary.
	Foam element of the air filter is dirty or dry.	Clean foam element and if necessary moisten.
The power output remains significantly below the nominal output	Operation under extreme climatic conditions	Adapt the usage for the climatic conditions or terminate it
	The generator has been poorly serviced	Perform maintenance work
	The generator has reached its wear limit.	Contact your service partner
Generator is not running smoothly.	The generator is loaded beyond its nominal output load.	Reduce power draw.
The oil pressure is too low.	Insufficient engine oil in the engine.	Refill with engine oil.
Generator does not start automatically.	Remote start connection is faulty or connection has not been made	Remake the remote start connection

Tab. 11-1 Troubleshooting

Please contact our customer service for further fault diagnosis as well as procurement of original spare parts and wear parts at

Customer service: Tel. +49 7123 973744

Email: service@endress-stromerzeuger.de

Have the item and serial number of your device ready for identification. You will find these details on the type plate (see Fig. 3-1).

12 Technical data

You can find the relevant technical data for your generator in the following table.

Name	Value			Unit
	ESE 3000 BS	ESE 6000 BS	ESE 6000 DBS	
Continuous power output [PRP] 3~ ¹⁾			6.9 / 5.5	[kVA / kW]
Continuous power output [PRP] 1~ ¹⁾	2.5 / 2.5	--- / 3.3	6.25 / 5	[kVA / kW]
Nominal output factor ~3 / 1~	1	1	1	[cosφ]
Nominal frequency	50	50	50	[Hz]
Nominal speed	3000	3000	3000	[min ⁻¹]
Nominal voltage 3~ / 1~	230	230	230 / 400	[V]
Nominal current [PRP] 3~ / 1~	10.9	21.7	14.3	[A]
Empty weight (approx.)	52	91	97	[kg]
EngineOil quantity (including oil filter)	0.6	1.1	1.1	[l]
Own tank content	20	30	30	[l]
Fuel consumption (at a 75% load) ²⁾	1.33	2.6	2.6	[l/h]
Running time (at 75% load) about ²⁾	15	11.5	11.5	[h]
Length	640	786	786	[mm]
Width	475	570	570	[mm]
Height	526	600	600	[mm]
Noise pressure level at the workplace L _{pA} ³⁾				[db (A)]
Sound pressure level at a distance of 7m L _{pA} ⁴⁾				[db (A)]
Sound power level L _{WA} ³⁾	95	95	95	[db (A)]
Protection Class for the generator	IP23	IP23	IP23	
¹⁾ Measured under standard reference conditions				
²⁾ Average value; deviations might occur in specific cases, therefore they are non-binding				
³⁾ Measured at a distance of 1 m and a height of 1.6 m in accordance with ISO 3744 (Part 10)				
⁴⁾ Measured in accordance with ISO 3744 (Part 10)				

Tab. 12-1 Generator technical data

The information given in the table applies to the following operating conditions (standard reference conditions):

standard reference conditions

Name	Value	Unit
Setting up height above sea level	100	[m]
Ambient temperature	25	[°C]
Relative Air humidity	30	[%]

The usable power output can deviate from the nominal values depending on the actual operating conditions. The following table provides guide points:

Power reduction

Reference value	Power output reduction	for each additional
Setting up height above sea level	1%	100 m
Ambient temperature	4%	10 °C

The following table shows you the applicable Operating conditions for running the generator:

Ambient conditions

Name	Value	Unit
Setting up height above sea level	max. 2,000	[m]
Ambient temperature	-20 to +40	[°C]
Relative air humidity	max. 95, not condensing	[%]
Tilt angle	max. 20	[°]

13 Replacement parts

Maintenance and replacement parts can be obtained quickly and easily from your responsible ENDRESS service partner or ENDRESS dealer. You can alternatively obtain support from our central customer service

by telephone: +49 (0) 71239737-44

by email: service@endress-stromerzeuger.de

Have the item and serial number of your device ready for identification.

As a registered user you can obtain rapid and uncomplicated access to a range of services over our home page to obtain suitable original spare parts for maintenance and repair work. Using your internet browser please go to

<https://endressparts.com>

and click on the area “Documentation and replacement parts“.

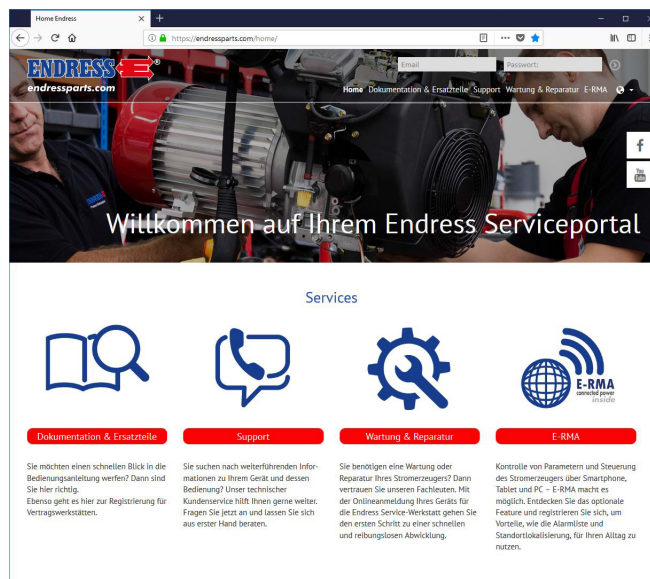
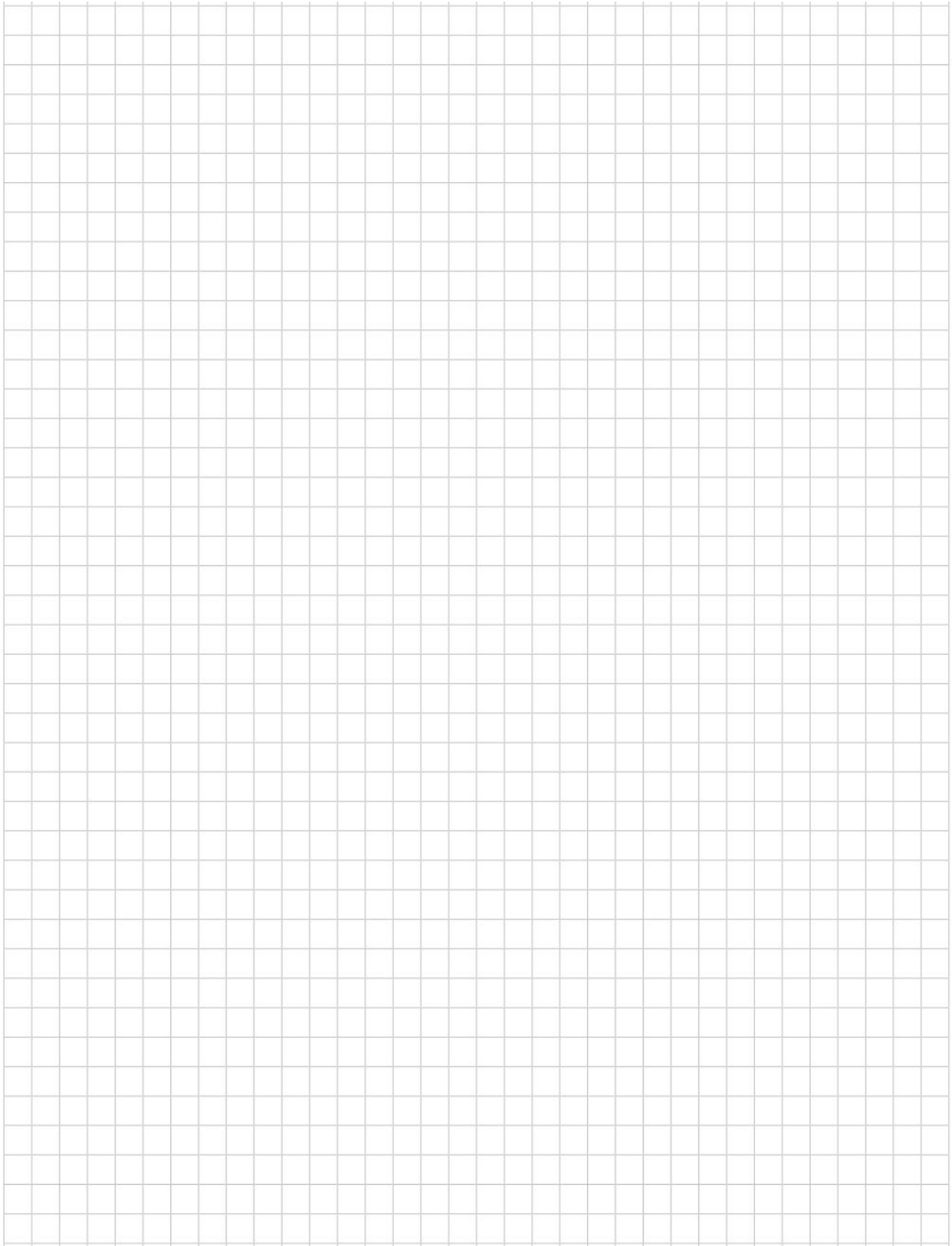
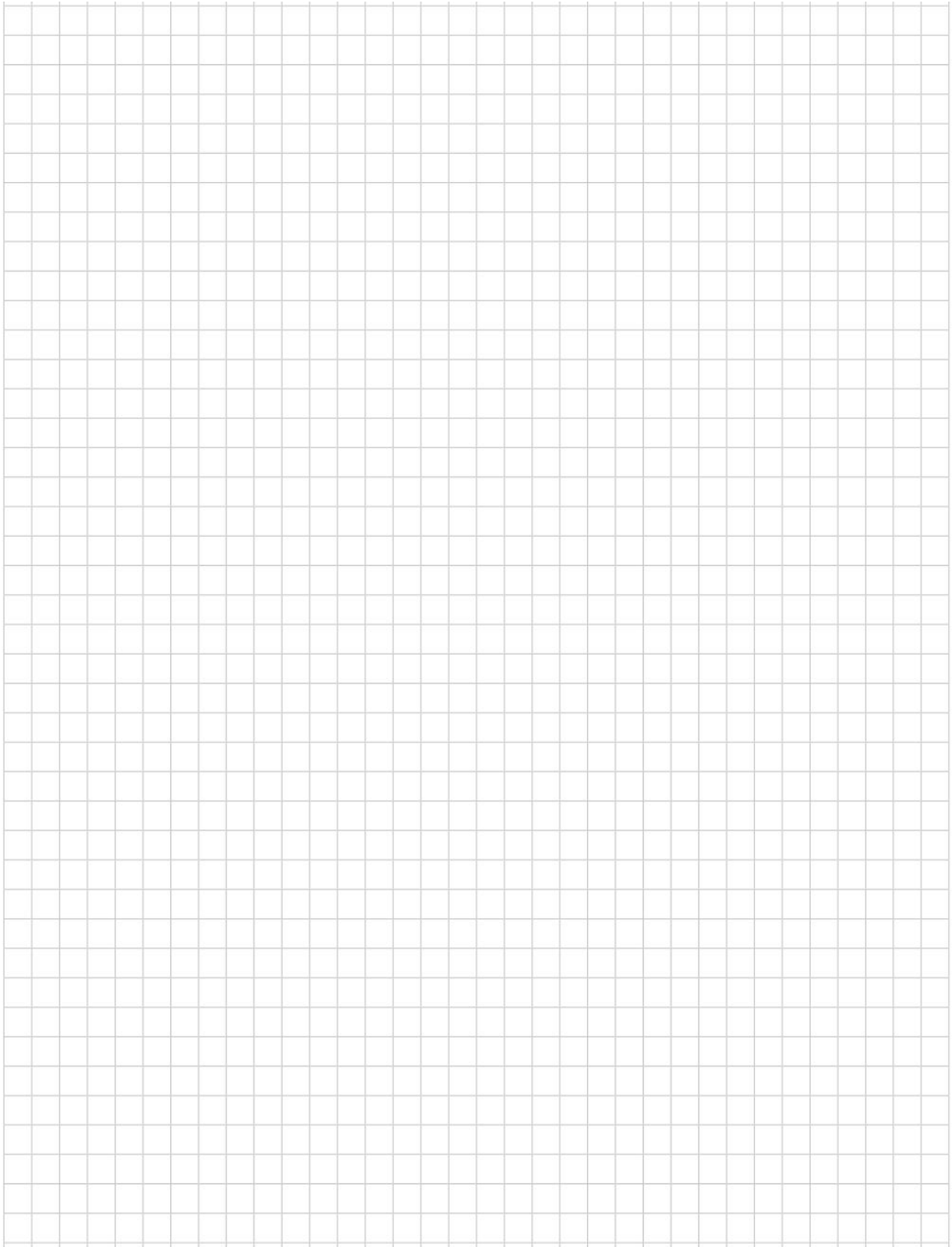


Fig. 13-1 Spare parts over endressparts.com

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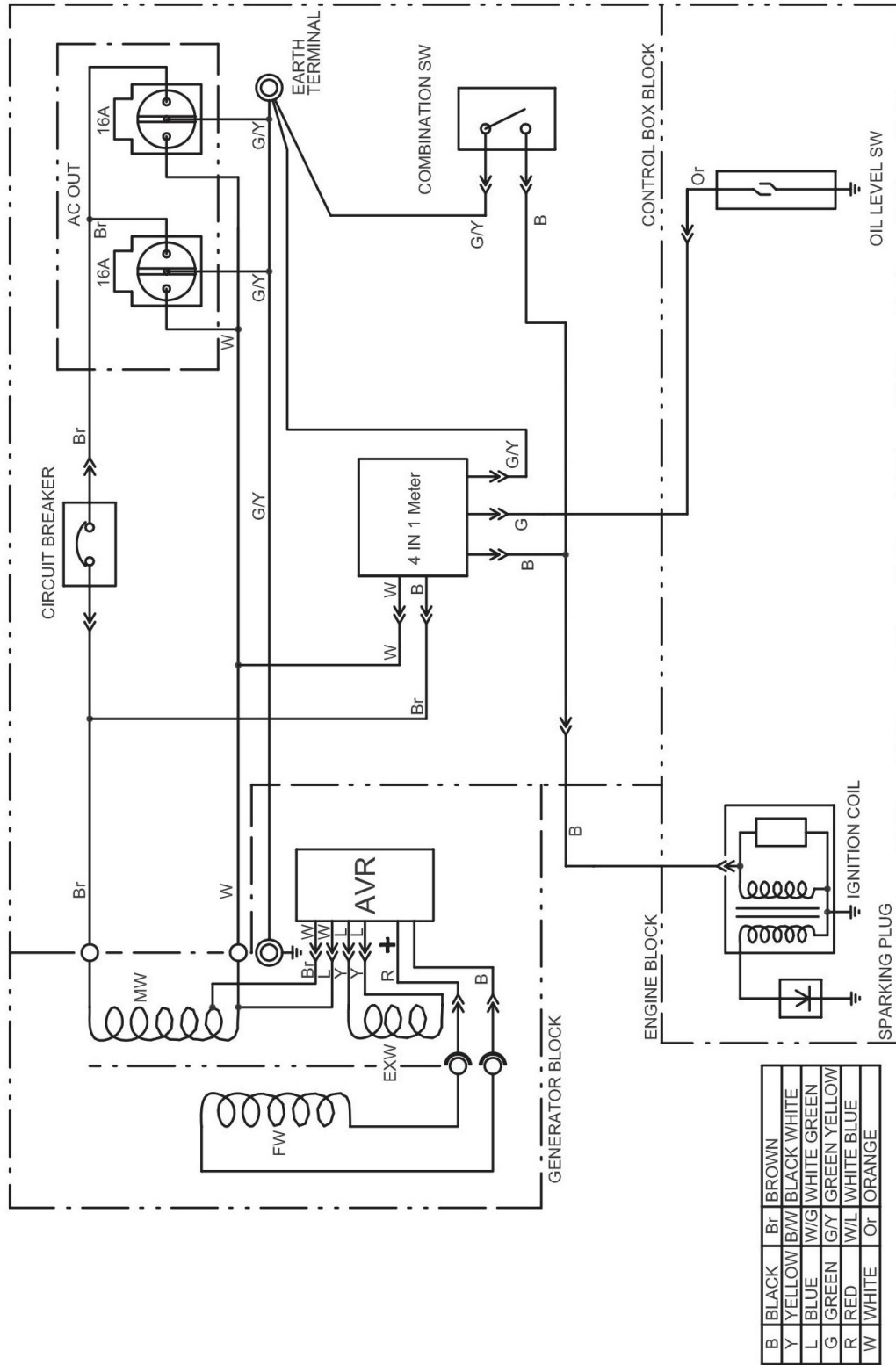


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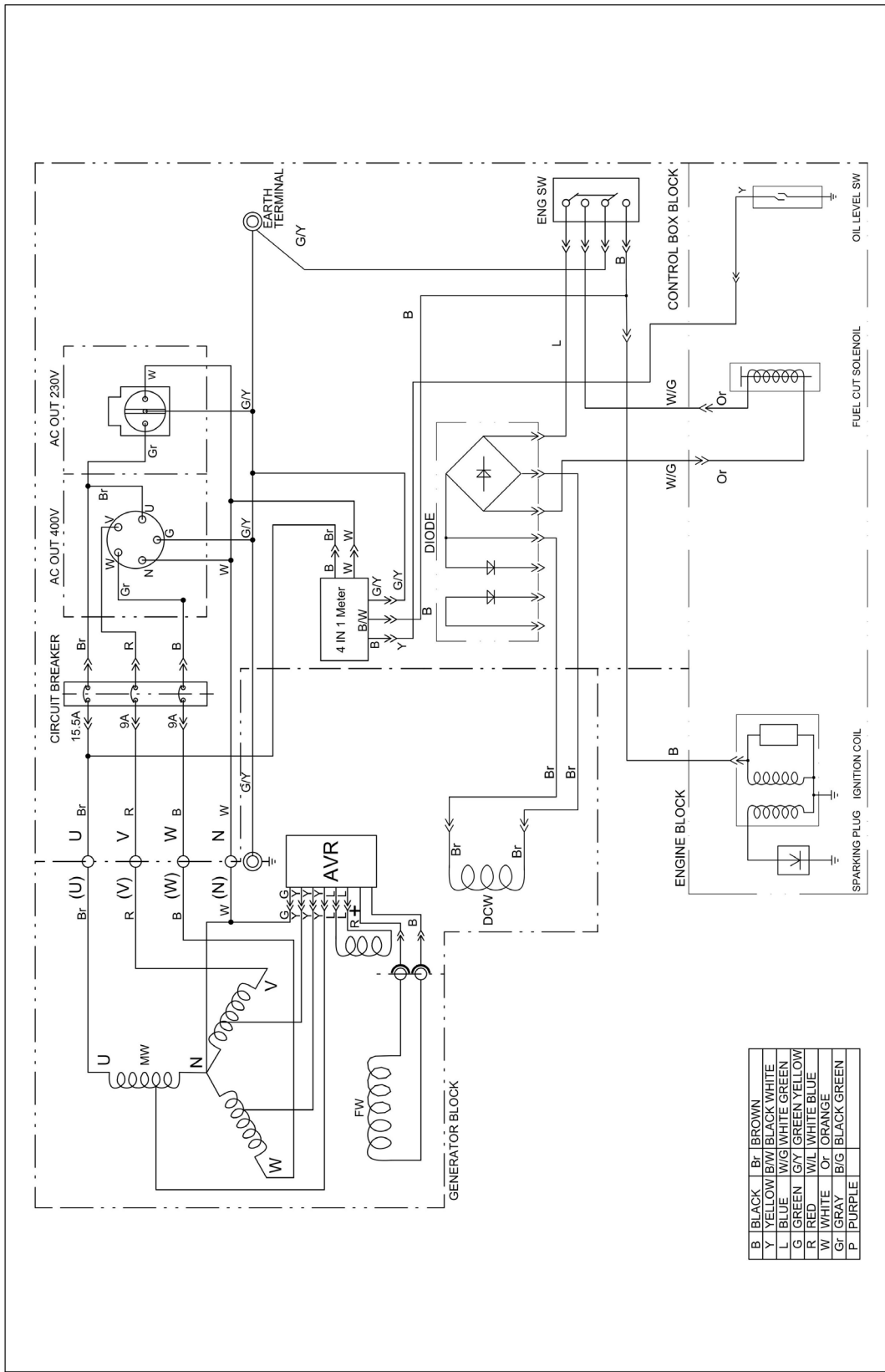
14 Wiring diagram

ESE 3000 BS 325000172



Wiring Diagram

Model ESE 6000 DBS



B	BLACK	Br	BROWN
Y	YELLOW	B/W	BLACK WHITE
L	BLUE	W/G	WHITE GREEN
G	GREEN	GY	GREEN YELLOW
R	RED	WL	WHITE BLUE
W	WHITE	Or	ORANGE
Gr	GRAY	B/G	BLACK GREEN
P	PURPLE		

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