



ENERGY & LIGHTING

DIESEL GENERATORS



TEC D series Manual Installation

Please read this instruction manual carefully before installation and first use, and store it in a safe place. If you pass on the product to another person, hand over this instruction manual along with it.

Table of contents

1	Explanation of symbols	2
2	Safety and installation instructions	2
3	Target group for this manual	4
4	Scope of delivery	5
5	Accessories	6
6	Inside of circuit diagrams	7
7	Outside of circuit diagrams	9
8	Intend use	10
9	Labels	10
10	Technical description	10
11	Installation	11
12	Connecting the electrical power to the generator	19
13	Internal junction box	20
14	Overall electrical installation	21
15	Installation diagram	22
16	Disposal	30
17	Technical data	30

1 Explanation of symbols



DANGER!

Safety instruction: Failure to observe this instruction will cause fatal or serious injury.



WARNING!

Safety instruction: Failure to observe this instruction can cause fatal or serious injury.



CAUTION!

Safety instruction: Failure to observe this instruction can lead to injury. serious injury.



CAUTION!

Failure to observe this instruction can cause material damage and impair the function of the product.



NOTE!

Supplementary information for operating the product.

2 Safety and installation instructions

Please observe the prescribed safety instructions and stipulations from the vehicle manufacturer and service workshops.

The manufacturer accepts no liability for damage in the following cases:

- Faulty assembly or connection
- Damage to the product resulting from mechanical influences and excess voltage
- Alterations to the product without express permission from the manufacturer
- Use for purposes other than those described in the operating manual

Note the following basic safety information when using electrical devices to protect against:

- Electric shock
- Fire hazards
- Injury

2.1 Using the device



WARNING

- Installing and repairing the device may only be carried out by qualified personnel who are familiar with the risks involved and the relevant regulations. Inadequate repairs may cause serious hazards. For repair service, please contact the service centre in your country (addresses on the back page).
- **Electrical devices are not toys**
Keep electrical devices out of reach of children or infirm persons. Do not allow them to use electrical devices without supervision.
- People (including children) whose physical, sensory or mental capacities prevent them from using this device safely may not be allowed to operate it without the supervision of a responsible adult.
- Exhaust fumes contain carbon monoxide which is a highly toxic, odourless and colourless gas. Do not inhale any exhaust fumes. Do not leave the generator motor running in a closed garage or in a room without windows.



CAUTION!

- **Fire hazards**
Do not install the generator in a box or room without any openings, but in well-ventilated spaces instead.
- Only operate the generator if you are certain that the housing and the cables are undamaged.
- Install the generator on a stable surface.
- Do not tilt the generator more than 20° from the vertical position.



NOTICE!

- Only use the device as intended.
- The generator is not suitable for use in water vessels.
- Do not make any alterations or conversions to the device.
- If a welding operation has been done on the vehicle disconnect all generator cables, otherwise the electronics may be damaged.

2.2 Handling electrical cables



WARNING

- The electrical power supply may only be connected by a qualified electrician



CAUTION!

- Attach and lay the cables so that they cannot be tripped over or damaged.



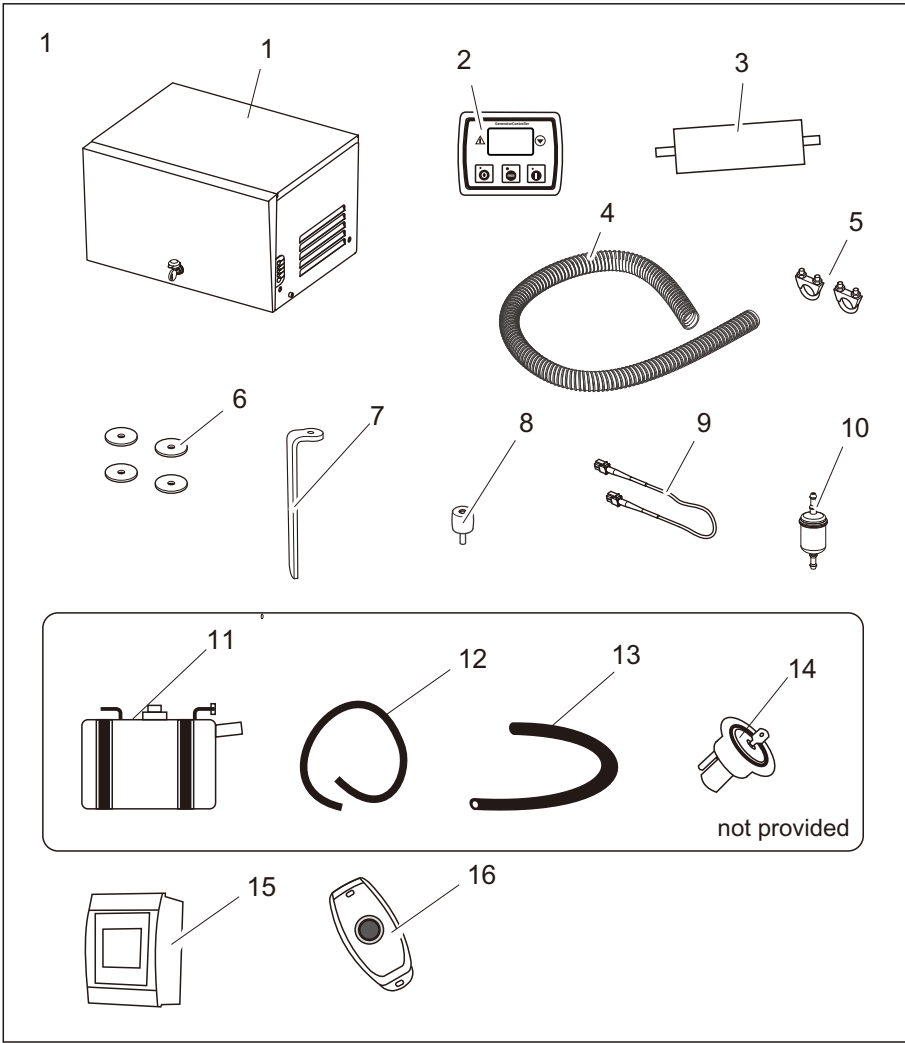
NOTICE!

- Use cable ducts to lay cables through walls with sharp edges.
- Do not lay loose or bent cables next to electrically conductive materials (metal).
- Do not pull on the cables.

3 Target group for this manual

The instructions in this manual are intended for qualified personnel at workshops who are familiar with the guidelines and safety precautions to be applied.

4 Scope of delivery



TEC Series generators

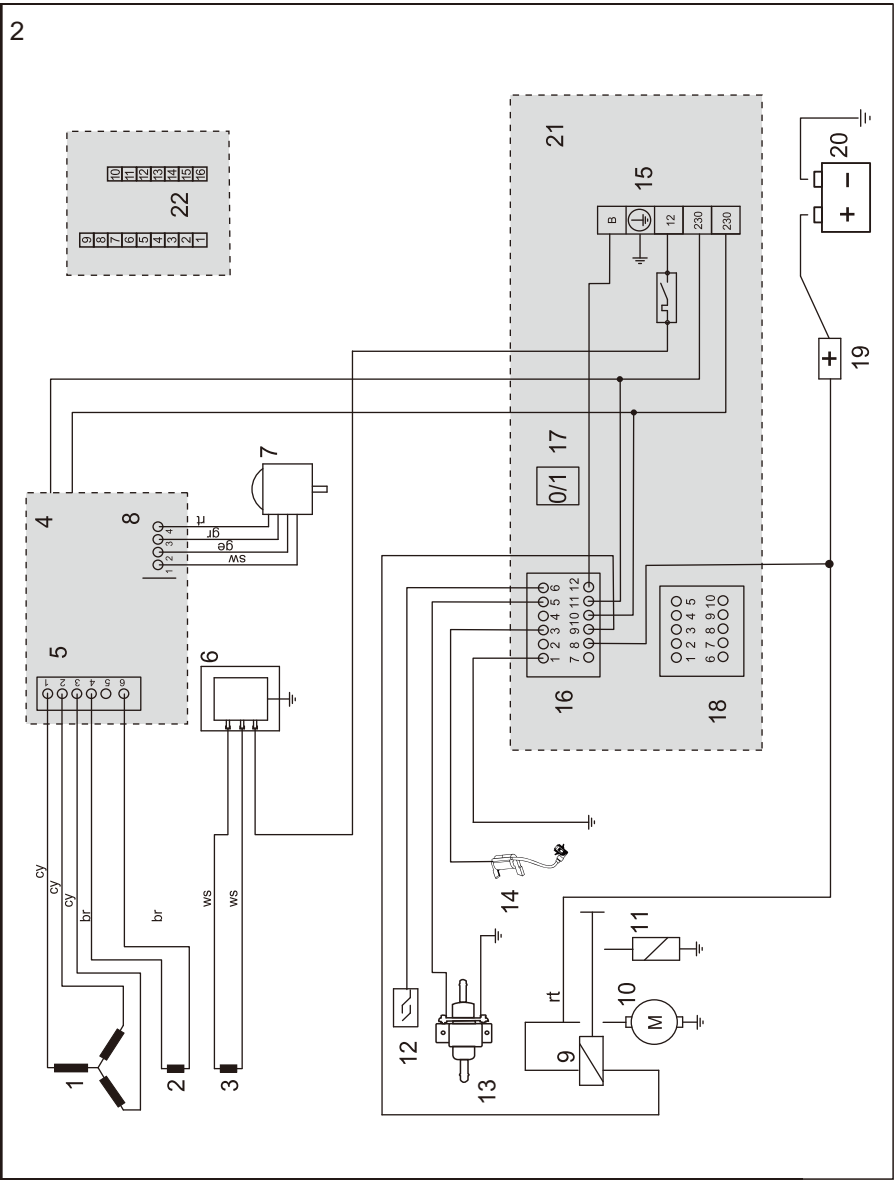
No.in fig.1, page 5	Number	Description
1	1	Generator
2	1	Remote control
3	1	Silencer
4	2	Exhaust pipe
5	2 set	Mounting brackets for silencer
6	2 set	Retaining brackets for external installation
7	2	Holders for internal installation
8	4	Spacers (Damping rubber feet)
9	1	Extension cable for remote control, 5 m
10	1	Fuel filter
11	1	Fuel tank (not provided)
12	1	Air pipe (10mm),1m (not provided)
13	1	Fuel injection pipe (38mm),1m(not provided)
14	1	Fuel filling port (not provided)
15	1	AG 102 (Auto exchange switch box) (not provided)
16	1	Wireless remote

5 Accessories

Available as accessories (not included in the scope of delivery):

Part designation	Item number
Tank 30L, stainless steel	91020210336
Secondary silencer, stainless steel	91020210328
Parallel cable	91020210323

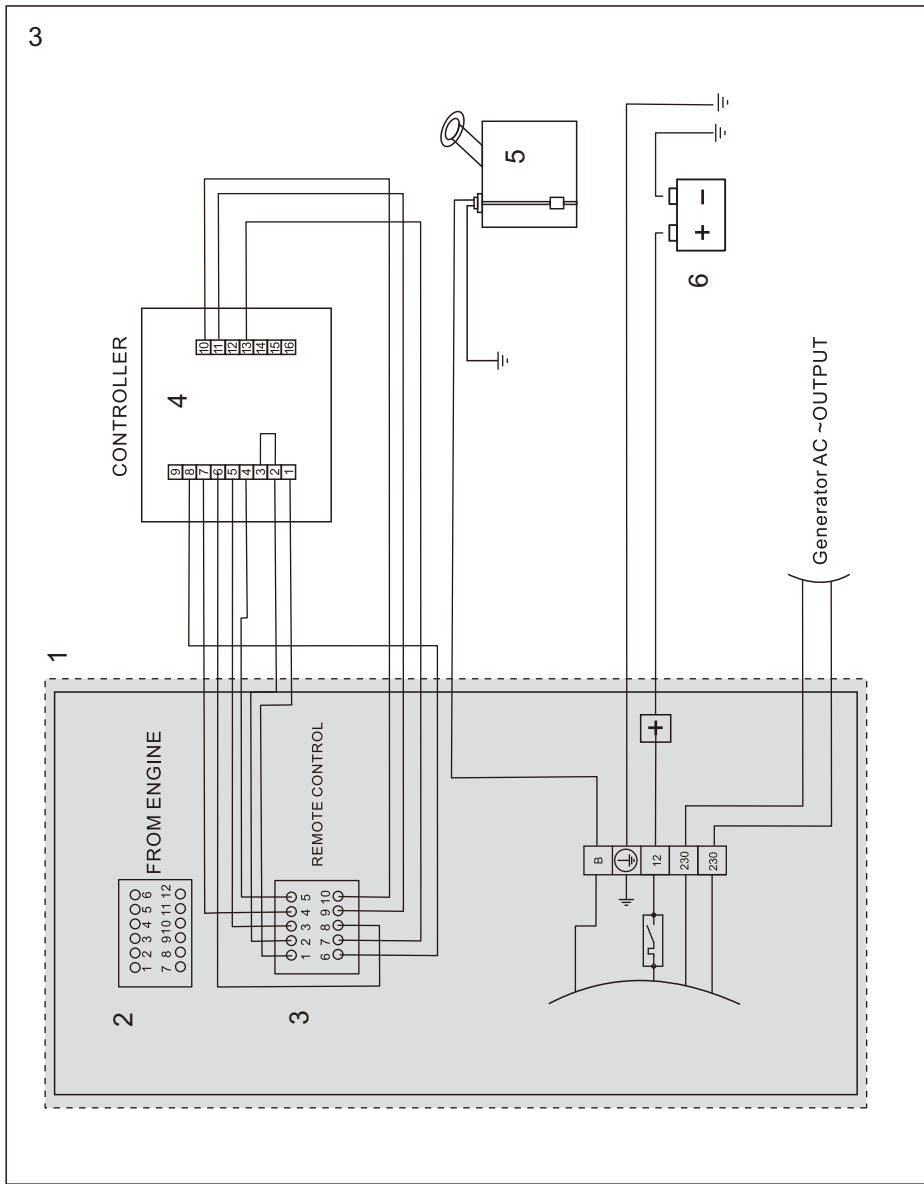
6 Inside of circuit diagrams



The inside circuit diagram can be found in fig. 2, page 7.

Item	Description
1	3-phase winding
2	Auxiliary winding
3	Auxiliary winding
4	Inverter
5	6-pin plug
6	Battery charger
7	Stepper motor
8	4-pin plug
9	Starter relay
10	Starter motor
11	Electromagnet for cold start
12	Oil level gauge
13	Fuel pump
14	Flame ignitor
15	Thermal disconnect
16	Engine Interface module
17	Emergency shutdown switch
18	10-pin mini-fit plug
19	Battery positive terminal
20	Battery
21	Internal control panel
22	Remote control

7 Outside of Circuit diagrams



The outside circuit diagram can be found in fig. 3, page 9.

Item	Description
1	Internal junction box
2	Engine lead line
3	Controller (Control panel)
4	Fuel tank
5	Battery
6	Battery charger

8 Intended use

The TEC series generators are designed for use in motor homes, camper vans and vehicles for commercial use.

The generator is **not** suitable for installation in water vessels.
The generator produces a pure sine wave voltage of 230 V/50 Hz which can be connected to the consumer with a total continuous load of 2800 W. The power quality is also suitable for sensitive consumers (such as PCs).

The generator can charge a 12 V battery.

9 Labels

A label is attached to the generator. This label provides the user and fitter with information on the device specifications.

10 Technical description

Installing the generator must be configured according to one of the following options:

- Automatic mode switch, see chapter "Configuring the automatic mode" on page 29.
- Priority circuit which prioritises the 230 V external voltage over the voltage produced by the generator, see chapter "Creating a priority circuit" on page 30.

11 Installation



CAUTION! Beware of injury

The generator may only be installed by qualified personnel from a specialist company. The following information is intended for technicians who are familiar with the guidelines and safety precautions to be applied.

11.1 Note on Installation

Read the installation manual carefully before you install the generator.

When installing the generator, note the following:



DANGER! Danger of electrocution

Disconnect all power supplies when working on the generator.



- Improper installation of the generator can result in irreparable damage to the device and put the safety of the user at risk.
- Always wear the recommended protective clothing (e.g. protective goggles, gloves).

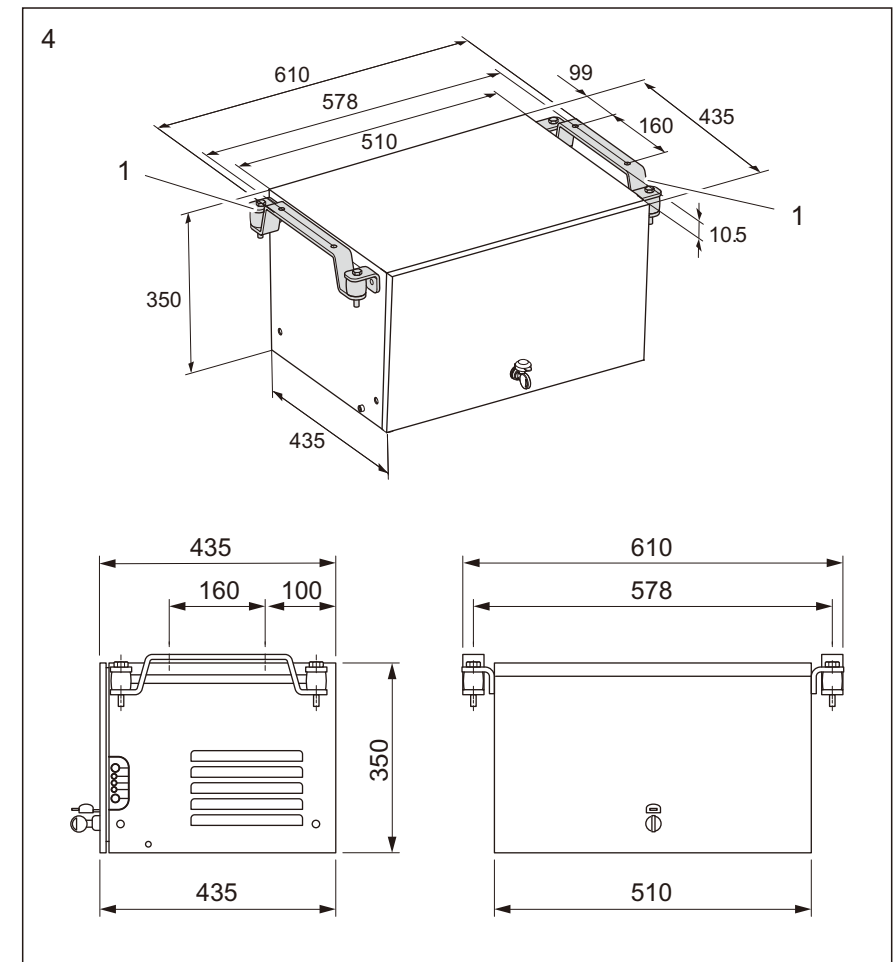
11.2 Securing the generator

Note on installation location

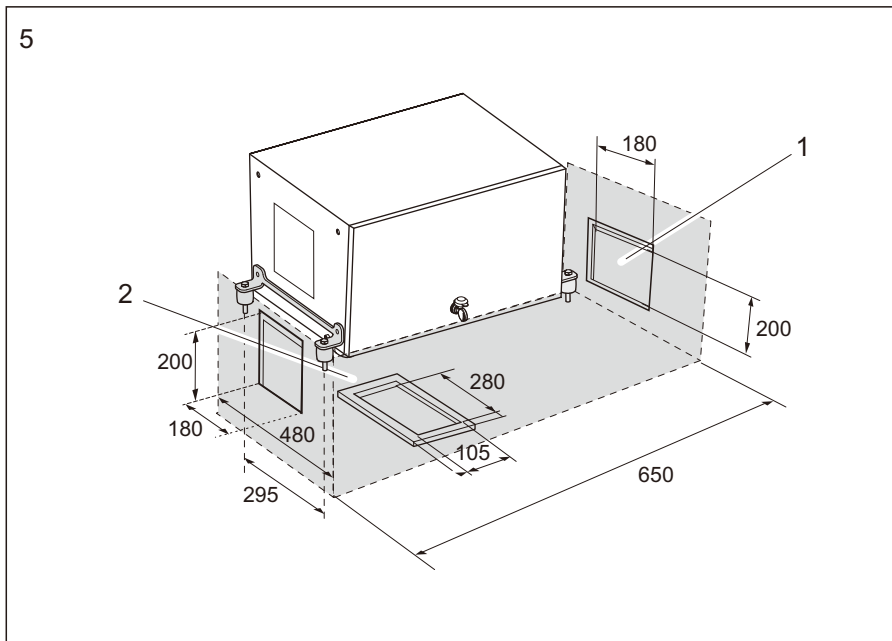
- Make sure that no combustible objects are stored or installed near the air outlet or the ventilation slots. A distance of at least 50 cm should be kept.
- For a correct ventilation keep a distance of at least 30 cm from the generator's air outlet.
- For safety reasons, note the location of existing wiring harnesses, wires and other components within the installation area, in particular those which are not visible, when installing the generator (when drilling or screwing etc.).

You can secure the generator with the holders supplied in two ways:

- External installation (fig. 4, page 12):
External installation has the following benefits: lower space requirement, fast installation, easy access for maintenance work.
 - To ensure the generator is attached securely, use the retaining bracket (fig. 4,5 , page 12) supplied.
 - If the air intake opening of the generator is located behind a vehicle wheel, you need to prevent the wheel from splashing any water into the generator interior when it rains (e.g. by using a splash guard).



- Internal installation (fig. 5, page 13):
For internal installation, you need to prepare a sealed compartment against the vehicle interior which can also be insulated against sound.
 - The depth of the opening on the bottom plate corresponding to the exhaust port of the generator is 260mm and the width is 135mm.
 - The depth of the hole on the side plate corresponding to the air inlet on the right side of the generator is 230mm and the height is 260mm.
 - Attach exhaust and air intake openings to the floor and in front of the generator cover. The air intake openings must have cross-section of at least 240 cm².
 - You must also fit a seal made of fire-retardant rubber with a thickness of at least 5 mm between the floor of the vehicle and the generator.
- Leave a space of at least 20 mm between the generator hood and surrounding parts so that sufficient space remains for cooling air to pass through.

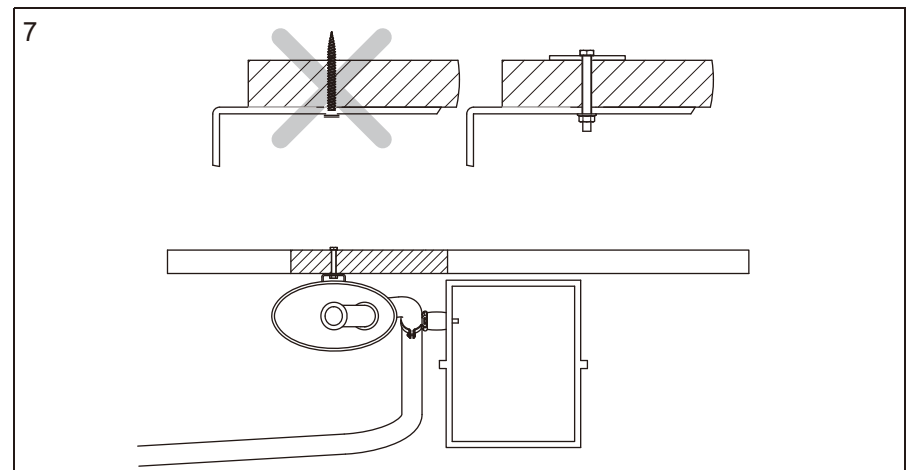
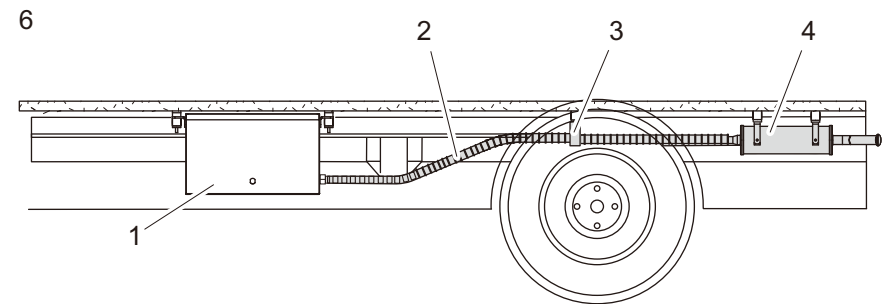


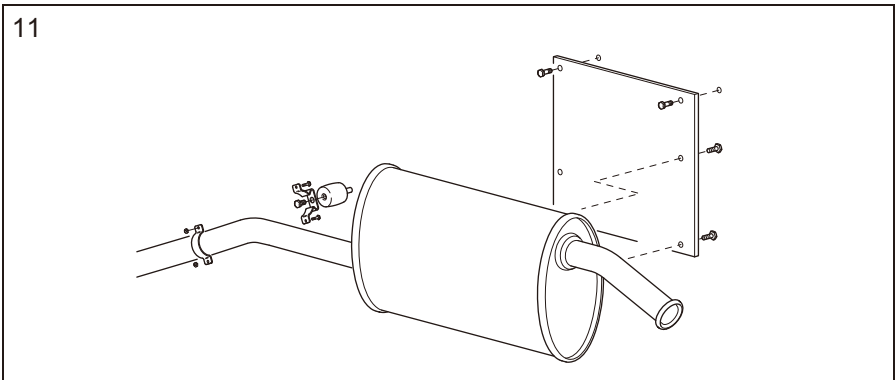
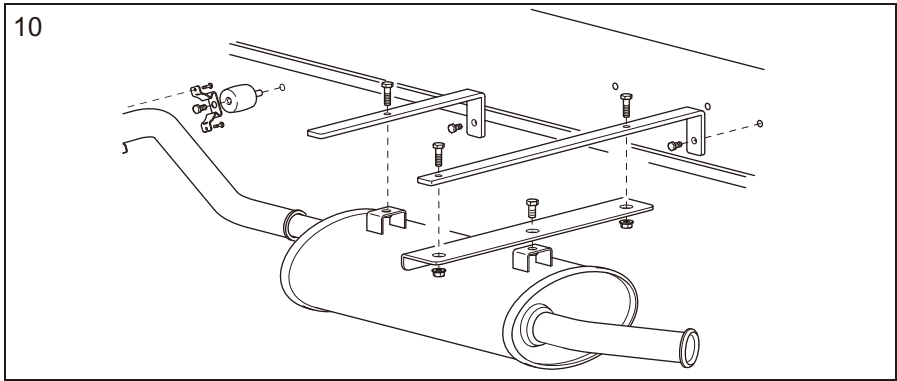
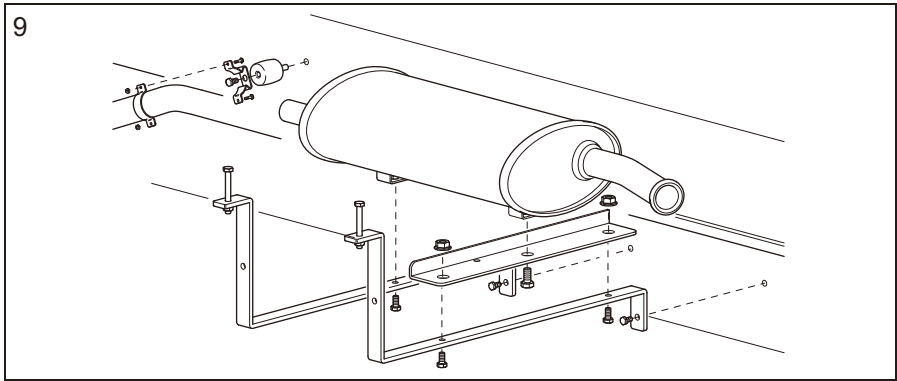
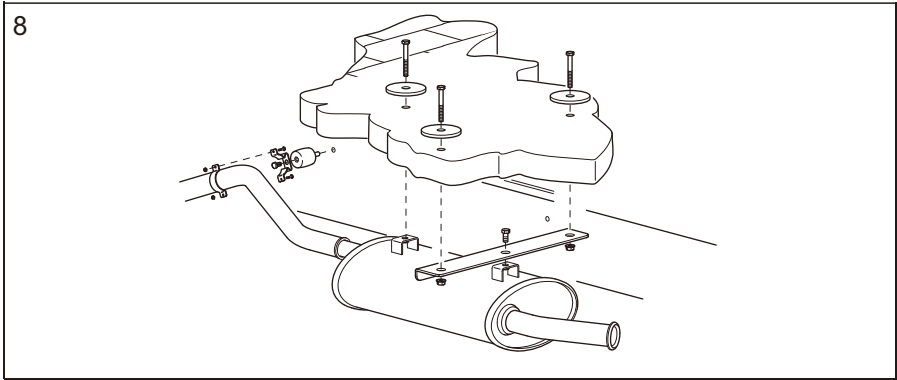
11.3 Securing the silencer

Observe the following instructions when installing the exhaust pipe:

- Do not create any sharp bends which will inhibit the flow of exhaust fumes.
- Align the manifold (fig. 6, page 14) along the housing to ensure greater damping of vibration.
- Use the exhaust pipe extension to extend the exhaust pipe (fig. 6, page 14) (see chapter "Accessories" on page 19).
Secure the extension to the vehicle floor (fig. 6, page 14).

- secure the silencer (fig. 7, page 14) as in one of the alternatives shown in fig. 8, page 14 to fig. 11, page 16.





11.5 Installing the tank and fuel supply line

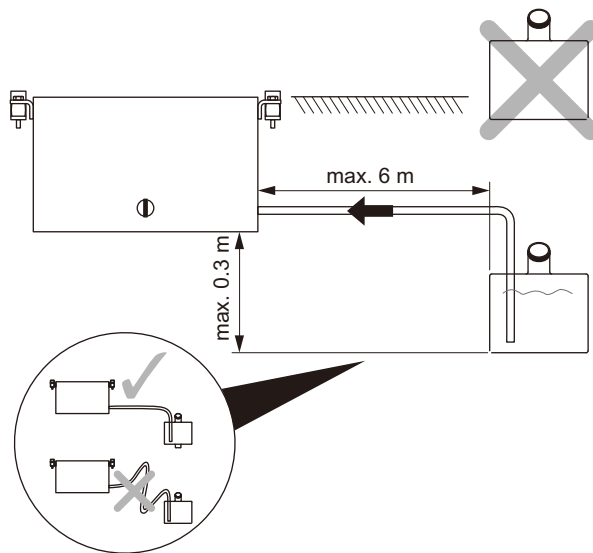


WARNING!

- Do not install the fuel tank higher than the generator.
- The fuel pipe should not exceed 6 meters from the generator to the oil stick. A fuel pipe longer than 6 meters may cause difficulty in oil delivery, and the generator cannot be started or stopped under load.

- The fuel tank installation must ensure that the fuel pipe is firmly fixed.
- Connect the gasoline line as shown in fig. 12, page 18.

12

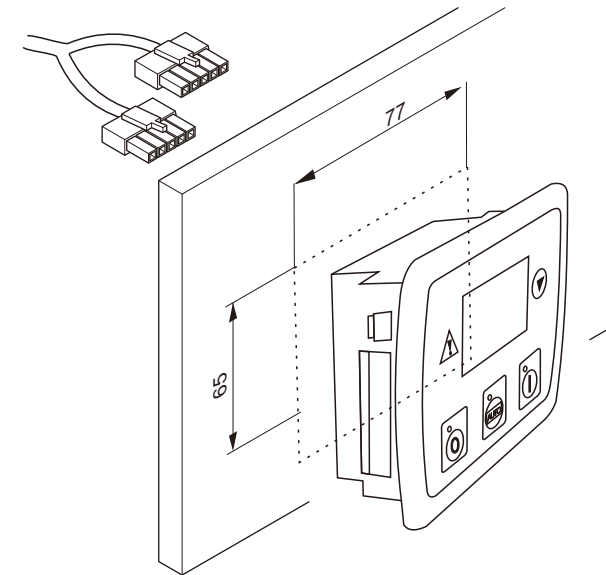


11.6 Mounting the remote control

Please observe the following instructions for the installation location:

- Observe the length of the extension cable from the remote control to the generator.
- Drill the holes as shown in fig. 13, page 19.
- Insert the plug into the remote control.
- Screw on the remote control.

13



12 Connecting the electrical power to the Generator



DANGER! Danger of electrocution

Make sure there is no voltage at electrically operated components before carrying out work on them!



NOTE

Observe the applicable guidelines in the country of the consumer.

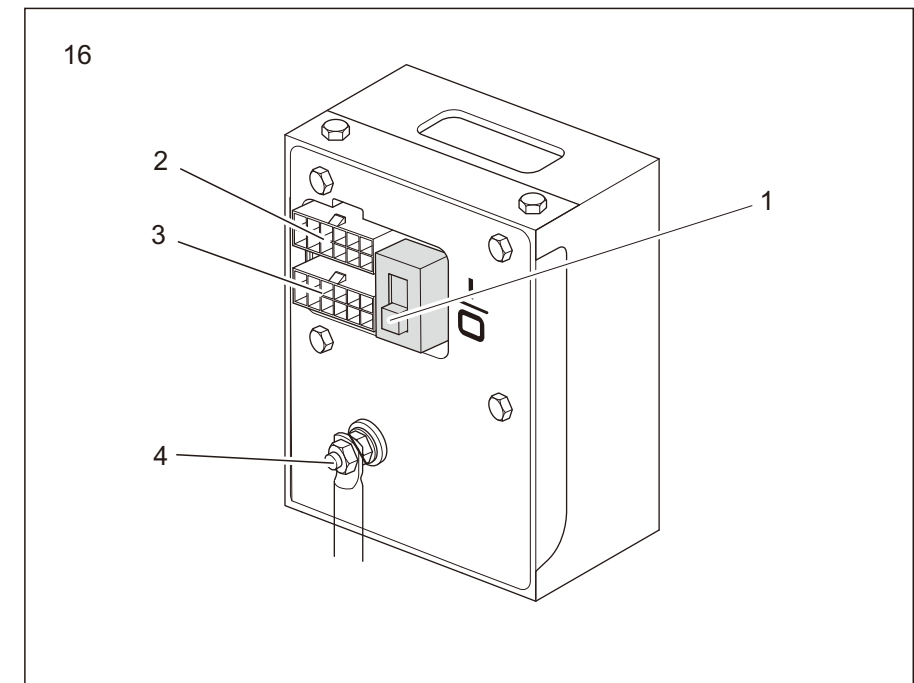
12.1 Important notes on the electrical connection

- Only a qualified electrician should connect the generator to the electrical power.
- Check that the voltage specification on the type plate is the same as that of the power supply.
- Do not lay the 230 Vw mains cable and the 12 Vg cable together in the same cable duct.
- Do not lay cables which are loose or bent next to electrically conductive material (metal).
- Connect the generator to a power circuit which can supply the necessary current (see chapter "Technical data" on page 32).
- Select the cross-section of the cable as follows:
 - 230 V: 2.5 mm²
 - 12V battery charger: 4.0mm²
 - Battery connection (length < 6 m): 6 mm²
 - Battery connection (length > 6 m): 10 mm²
- Install a manual main switch which can disconnect all the consumers from the generator with the exception of the battery.

13 Internal junction box

Internal junction box as shown in fig. 1, page 14 Operating manual.

Item	Description
1	Emergency shutdown switch
2	Motor connection
3	Remote control connection
4	Battery positive terminal
5	Fuel pump switch
6	Circuit Breaker Charge battery
7	Generator AC breaker



14 Overall electrical installation



NOTICE!

- Connect a relay or a switch to the vehicle's electrical system so that the generator is not damaged when the external mains is connected.
- Ensure that the electrical system is set up as follows:
 - TN network:
The neutral conductor must be linked to the PE conductor on the terminal via a jumper with a minimum diameter of 2.5 mm². To protect against automatic shutdown, make sure that a safety switch (FI switch, 30 mA) and an in all-pole overcurrent protection (e.g. circuit breaker, 13 A) are installed.
 - IT network:
Ensure that an insulation monitor and an in all-pole overcurrent protection (e.g. circuit breaker, 13 A) are installed.
- Connect the generator so that it takes priority over the power supply.



DANGER! Danger of electrocution

Make sure there is no voltage at electrically operated components before carrying out work on them!



WARNING!

Safety instruction: Failure to observe this instruction can cause fatal or serious injury.



CAUTION!

Safety instruction: Failure to observe this instruction can lead to injury, serious injury.



CAUTION!

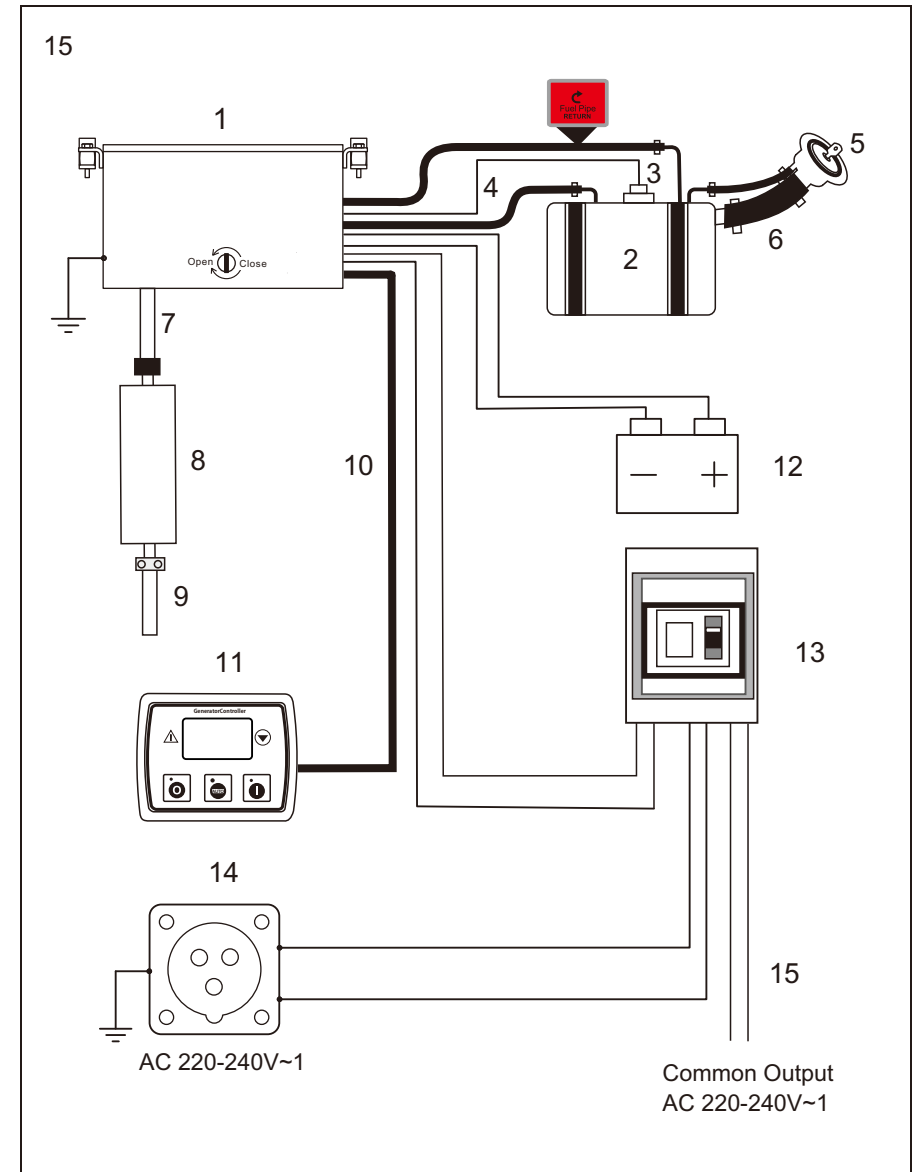
Failure to observe this instruction can cause material damage and impair the function of the product.



NOTE!

Supplementary information for operating the product.

15 Installation diagram



15.1 Accessories Group Antu

The Complete installation diagram as shown in fig. 17, page 24.

Item	Description
1	Generator
2	Fuel tank (not provided)
3	Fuel level sensor (not provided)
4	Fuel pipe (not provided)
5	Fuel injection port (not provided)
6	Oil filling hose (not provided)
7	Metal hose with joint
8	Cilencer
9	Exhaust pipe
10	10-pin mini-fit plug
11	Control panel
12	Battery
13	AG-102
14	City Electrical insert socket
15	Common Output cable

15.2 Installation Fuel tank



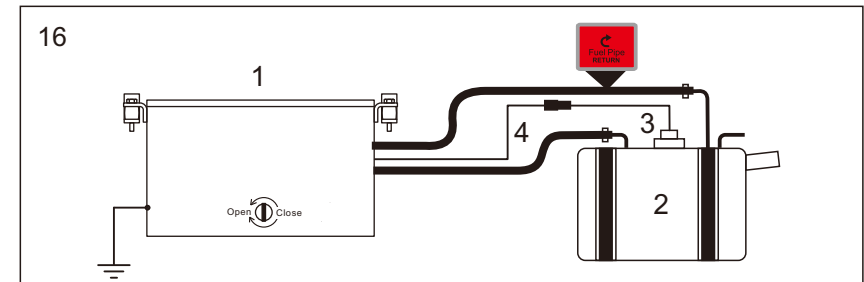
NOTE!

The installation does not need to be carried out in the order of the illustration, the order can be made according to the model and location

For installation of fuel tank, please refer to the installation diagram fig. 16, page 25.

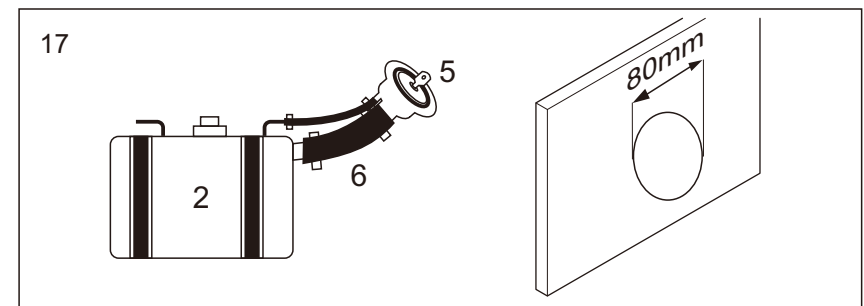
➤ Connect the fixed generator (1) with fuel tank (2)

- The length of the fuel pipe (4) from the fuel tank to the generator should not exceed 2 meters. If the length of the fuel pipe is too long, it will cause poor fuel delivery, and the generator will not operate stably or even start.
- Plug the two-core cable (3) fuel level sensor on the fuel tank and the two wires from the generator



➤ Fix the Fuel injection port on the vehicle plate show down in fig.17, page 25.

- Make an 80mm hole in the proper position of the car body, and fix the fuel injection port (5) with three self-tapping screws
- Connect the fuel pipe with an inner diameter of 38mm to the fuel tank (2) and the fuel injection port (5), and lock it with a pipe buckle
- Connect the vent with an inner diameter of 10mm to the fuel tank (2) and the fuel injection port (5) respectively



15.3 Installation silencer



WARNING!

Safety instruction: Failure to observe this instruction can cause fatal or serious injury.



CAUTION!

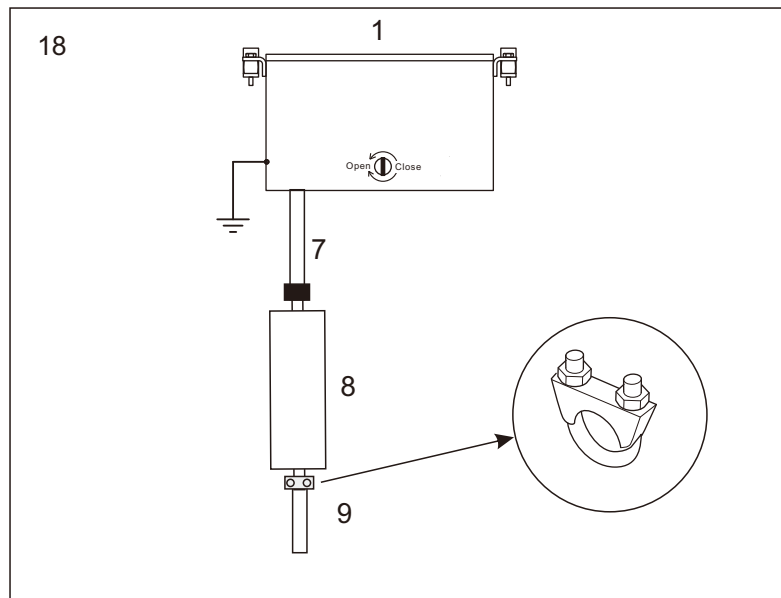
Safety instruction: Generator exhaust will emit carbon monoxide which is harmful to the body



CAUTION!

The generator exhaust emits heat, which can cause burns to the body. Pay attention to the installation and keep a safe distance.

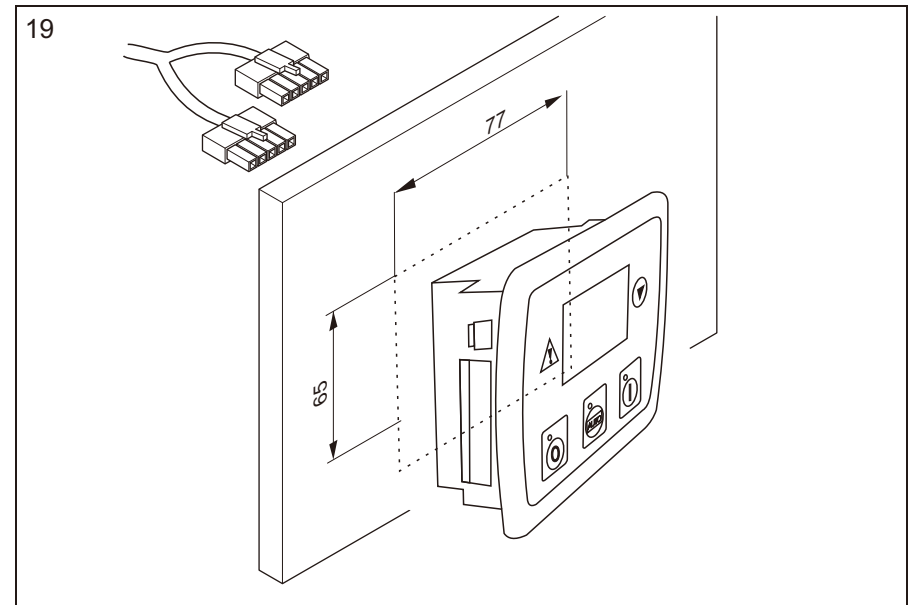
- Install external silencer show down in fig. 18, page 26.
 - The external silencer (8) is fixed within 1 meter from the generator, and fixed with a wrench with a joint hose (7) with internal threads.
 - Lock the extended threaded metal hose with a pipe buckle, and lead the other end of the hose to a suitable position for exhaust.



15.4 Installation control panel

Install the control panel in a suitable location show down in fig. 19, 20, page 26, 27.

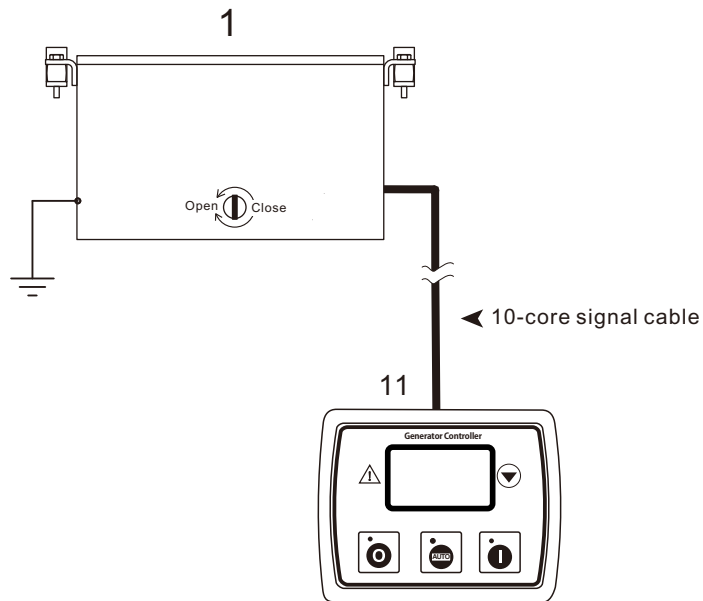
- The length of the 10-pin signal cable is 5m, and the installation position from the controller to the generator should not exceed 5m.
- The opening size is 77*65mm at a suitable position under the seat inside the vehicle
- Insert the wiring heads of the two rows into the corresponding sockets of the controller respectively, and make sure that they have been inserted tightly. Fix the control panel at the opening hole, stick it with glass glue, and make sure that it will not loosen.



**NOTE!**

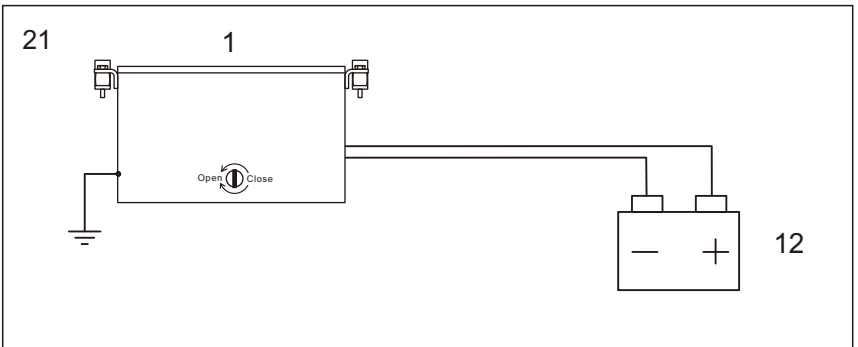
To install the controller, make sure that the two rows of connectors have been plugged into the socket of the controller, otherwise the generator will not start or it will stop immediately after it starts.

20

**15.5 Connect the battery**

Connect generator to battery cable show down in fig.21, page 28.

- 12V battery charger: 4.0mm²
- Battery connection (length < 6 m): 6 mm²
- Battery connection (length > 6 m): 10 mm²
- Make sure that the positive pole + of the red cable is connected to the positive pole of the battery, and that the negative pole - of the black cable is connected to the negative pole of the battery.
- Make sure that the cable connector connected to the battery has been tightened

**NOTE!**

Make sure that the cable connector connected to the battery has been tightened. Poor contact will cause the generator to fail start or turn off the fire.

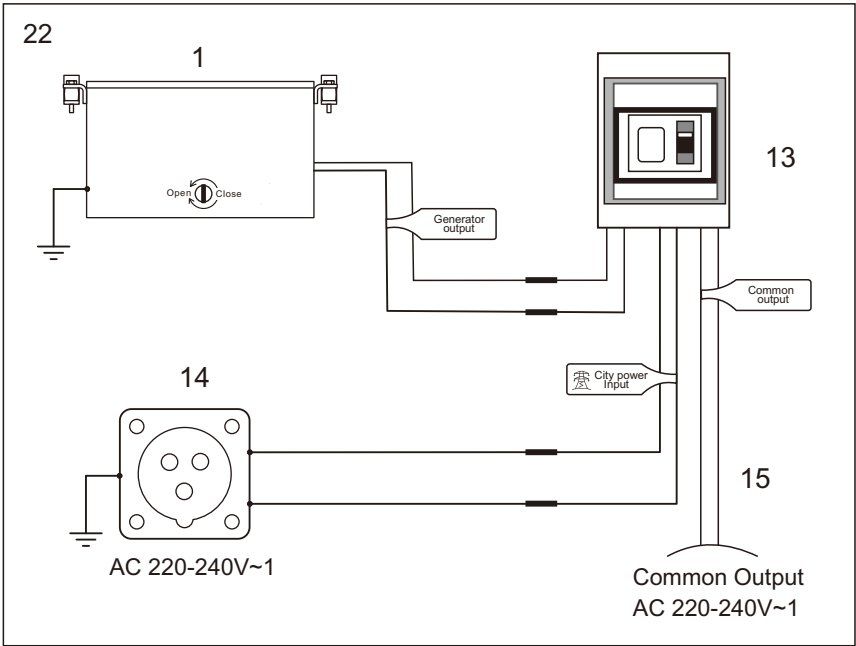
15.6 Connect the AG-102(Auto exchange switch box)



WARNING!

If the cable provided by the manufacturer is not long enough, please use a cable with a cross-section **more** than 2.5mm². When connecting the cable, make sure that the connection is strong. It is best to use an electric iron and solder to solder firmly, otherwise the power will not be smooth. Even cause a fire

- Installation of AG-102 (Automatic exchange city power and Generator) show down in fig.22,page 29.
- Fix the AG-102 in a suitable position in the car, preferably a position that can be touched by your hands.
 - Connect the cable with a cross-section more than 2.5mm² to the lead of AG-102 with text. Please confirm that the cable connection corresponding to the text on the label is correct.



16 Disposal

- Place the packaging material in the appropriate recycling waste bins wherever possible.
-  If you wish to finally dispose of the product, ask your local recycling centre or specialist dealer for details about how to do this in accordance with the applicable disposal regulations.

17 Technical data

	TEC30D
Rated output voltage:	220-240V~ / 50 -60Hz
Max. constant output (at 25°C at sea level):	2500 W
Battery charger output voltage	12V===
Battery charger max output Current:	10A
Operating temperature range:	-15°C to +50°C
Distortion factor:	1%
Engine:	Changchai
Model:	USR Diesel engine UD170
Fuel:	Diesel fuel according to EN 590
Consumption:	120 g/kWh max.0.8l/h
Motor output:	4.0kW (5.3PS)
Guaranteed Sound level:	80 dB(A)
Sound level at distance of 7 m:	53-65 dB(A)
Dimension:	510*435*350mm
Weight:	58kg
Inspection/certification:	

USR
Generator

ENERGY & LIGHTING
DIESEL GENERATORS



TEC D series Manual
Operating

Please read this instruction manual carefully before installation and first use, and store it in a safe place. If you pass on the product to another person, hand over this instruction manual along with it.

Table of contents

1	Explanation of symbols	2
2	Safety and instructions instructions	2
3	Operating the device safely	4
4	Scope of delivery	5
5	Accessories	6
6	Intended use	6
7	Description of the generator	7
8	Operating the generator	12
9	Inject engine oil	19
10	Inject gasoline fuel	21
11	Start and control the generator with the control panel	23
12	Use wireless remote control	25
13	Stopping the generator	27
14	Checking the oil level	28
15	Cleaning the generator	31
16	Servicing the air filter	32
17	Cleaning the air filter	33
18	Servicing the generator	34
19	Troubleshooting	36
20	Warranty	37
21	Disposal	38
21	Technical data	38

1 Explanation of symbols



WARNING!

Safety instruction: Failure to observe this instruction can cause fatal or serious injury.



CAUTION!

Safety instruction: Failure to observe this instruction can lead to injury, serious injury.



CAUTION!

Failure to observe this instruction can cause material damage and impair the function of the product.



NOTE!

Supplementary information for operating the product.

2 Safety and installation instructions

The manufacturer accepts no liability for damage in the following cases:

- Damage to the product resulting from mechanical influences and excess voltage
- Alterations to the product without express permission from the manufacturer
- Use for purposes other than those described in the operating manual

In particular, the manufacturer will not be liable for any consequential damage, especially consequential damage caused by failure of the generator.

Note the following basic safety information when using electrical devices to protect against:

- Electric shock
- Fire hazards
- Injury

2.1 General safety



WARNING!

- **Electrical devices are not toys**

- Keep electrical devices out of reach of children or infirm persons. Do not allow them to use electrical devices without supervision.
- People (including children) whose physical, sensory or mental capacities prevent them from using this device safely may not be allowed to operate it without the supervision of a responsible adult.
- Only use the device as intended.
- Do not make any alterations or conversions to the device.
- Installation, maintenance and repairs of the generator may only be carried out by qualified personnel who are familiar with the risks involved when handling generators as well as the relevant regulations. Inadequate repairs may cause serious hazards. For repair service, please contact the manufacturer's branch office in your country (addresses on the back page).
- Exhaust fumes contain carbon monoxide which is a highly toxic, odourless and colourless gas. Do not inhale any exhaust fumes. Do not leave the generator motor running in a closed garage or in a room without windows.



CAUTION!

- The generator may only be used with the front door closed.
- Remove all flammable materials such as petrol, paints, solvents, etc., from the vicinity of the generator.
- Ensure that hot parts of the generator do not come in contact with any flammable materials.
- Only refuel the generator when it is switched off and in a well-ventilated area. Petrol and liquid gas are highly flammable and can explode.
- Do not refuel the generator when the vehicle engine is running if the tank is in the vicinity of the generator.

2.2 Operating the device safely



WARNING

- Always disconnect the power supply when working on the device.



NOTICE!

- Only operate the device if you are certain that the housing and the cables are undamaged.

3 Operating the device safely

This operating manual is for the user of the generator.

4 Scope of delivery

TEC Series

Designation	Reference number
TEC generator	6587730278
Installation manual	
Operating manual	
Other	

5 Intended use

The generator is not suitable for installation in water vessels.

The generator produces a pure sine wave voltage of 120-240 V/50/60 Hz which can be connected to the consumer. The power quality is also suitable for sensitive consumers (such as PCs).

The generator can charge a 12 V battery.

6 Technical description

The combustion engine drives the alternator connected to it, which in turn generates AC voltage.

The inverter transforms this AC voltage into a stable voltage of 230 V and 50 Hz.

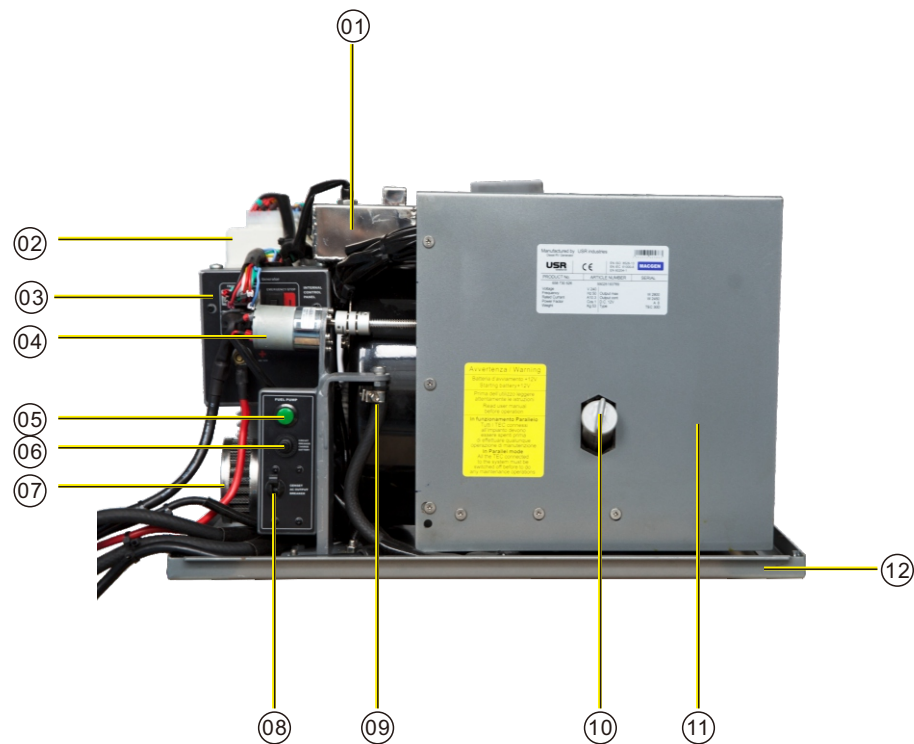
The terminals, the socket for the connection cable to the remote control and the main switch are installed in the internal control panel

The generator has the following features:

- Integrated battery charger for charging the connected battery
- Automatic mode for charging the connected battery automatically (must be configured accordingly when installed)

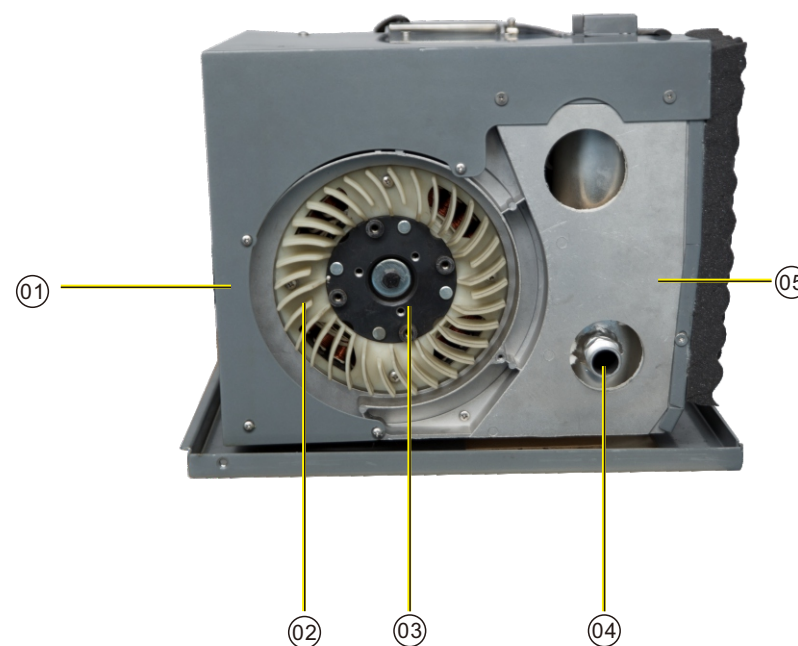
7 Description of the generator

7.1 Front view



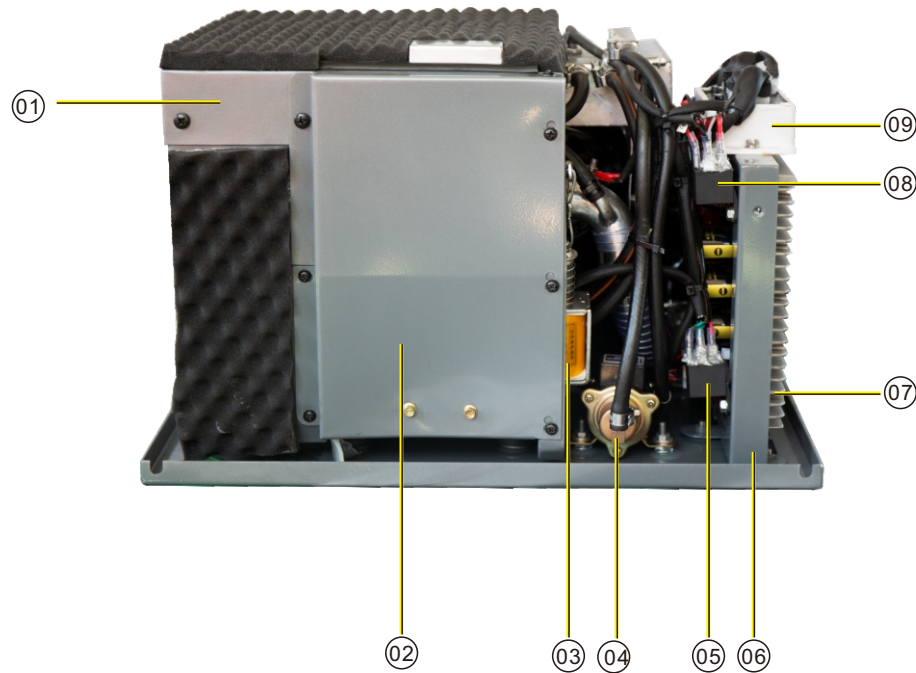
- 01 Excessive fuel tank
- 02 Speed control module
- 03 Junction box
- 04 Speed regulating motor
- 05 Fuel pump check
- 06 DC circuit breaker
- 07 Air filter
- 08 AC breaker
- 09 Oil drain Pipe
- 10 Oil filling hole plug
- 11 Engine wind shield
- 12 Generator shell chassis

7.2 right side view



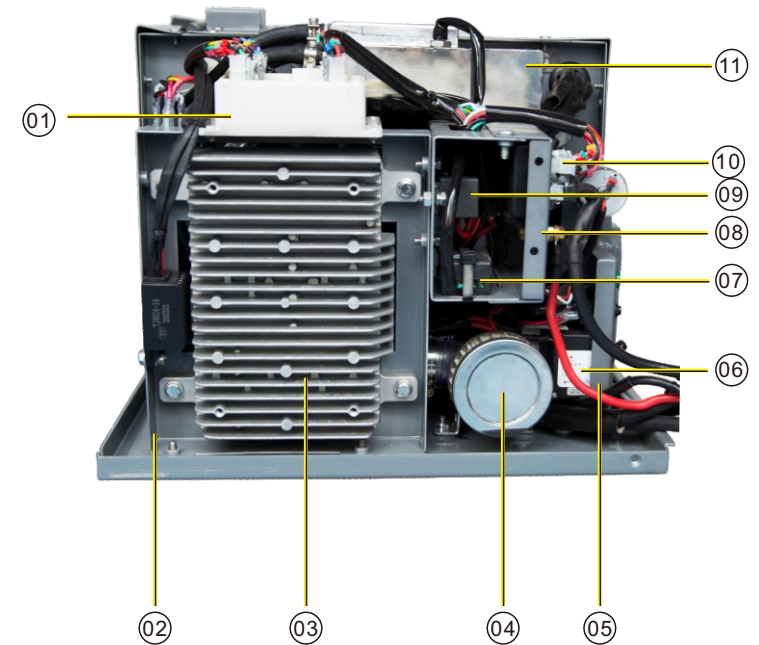
- 01 Engine wind shield
- 02 Engine wind shield
- 03 flywheel of alternator
- 04 Exhaust vent
- 05 Guide inner cover rear cover

7.3 Back view



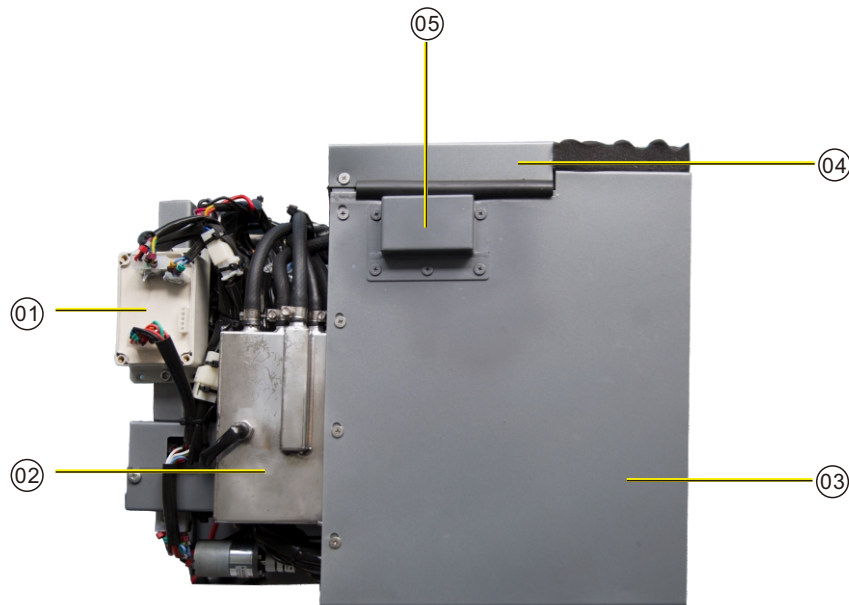
- 01 Engine wind shield
- 02 Guide inner cover rear cover
- 03 Throttle sliding solenoid
- 04 Fuel pump
- 05 Fuel pump relay
- 06 Inverter frame
- 07 Inverter
- 08 Start motor relay
- 09 Internal control board

7.4 Left side view



- 01 Speed control module
- 02 Inverter frame
- 03 Inverter
- 04 Air filter
- 05 Circuit breaker box
- 06 AC Circuit breaker
- 07 Wireless remote control receiver
- 08 Junction box
- 09 Throttle sliding solenoid relay
- 10 Engine wiring harness
- 11 Excessive fuel tank

7.5 View from Above



- 01 Speed control module
- 02 Excessive fuel tank
- 03 Engine wind shield
- 04 Guide inner cover rear cover
- 05 Fuel injector cover

8 Operating the generator



DANGER!

Safety instruction: Failure to observe this instruction will cause fatal or serious injury.



WARNING!

Safety instruction: Failure to observe this instruction can cause fatal or serious injury.



CAUTION!

Safety instruction: Failure to observe this instruction can lead to injury, serious injury.



CAUTION!

Failure to observe this instruction can cause material damage and impair the function of the product.



NOTE!

Supplementary information for operating the product.

8.1 Basic notes on operation



NOTICE!

Do not run the generator over 70% of the maximum constant output for the first 50 operating hours (run-in phase).



NOTE

Run the generator at a maximum of approx. 75% of the maximum continuous load after the run-in phase.
By doing this you can prolong the service life of the generator and maximise its efficiency.



CAUTION! Beware of injury

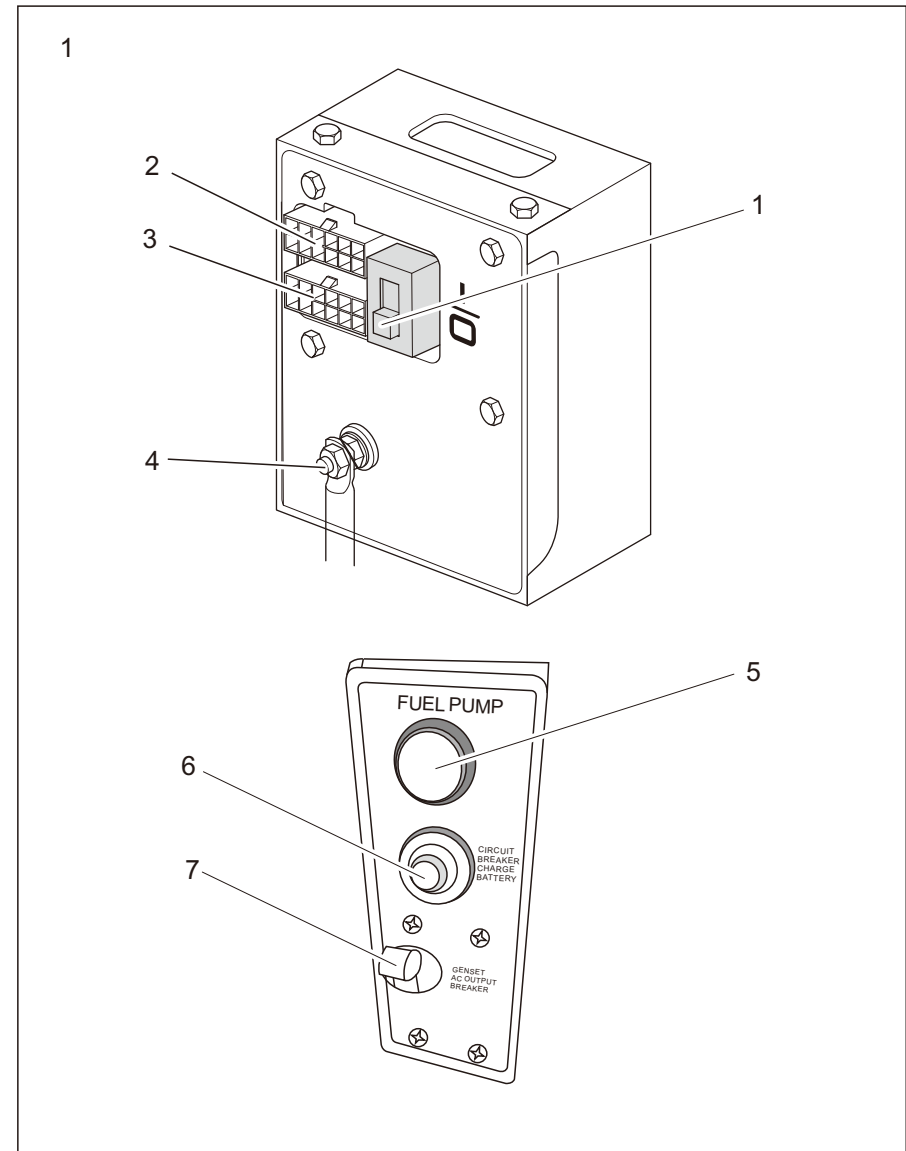
Do not insert your fingers or objects into the air nozzles or the intake grille.

Please note the following basic information:

- Always check the oil level before use (chapter "Checking the oil level" on page 21).
- TEC LPG only: Check there are no leaks from the gas supply using a leak detection spray before every use.
- Even small overloads in the long-run will cause the cut-out switch or the fuses to trigger.
- Leave the generator running for a few minutes after use without any consumers before stopping it.
- Abrupt braking, accelerating and driving round bends in the vehicle can cause problems in the generator's pump system and lead to unwanted shutdown.
- If you are not using your generator for a longer period of time, start it up at least every 30 days and leave it running for 15 minutes or more.

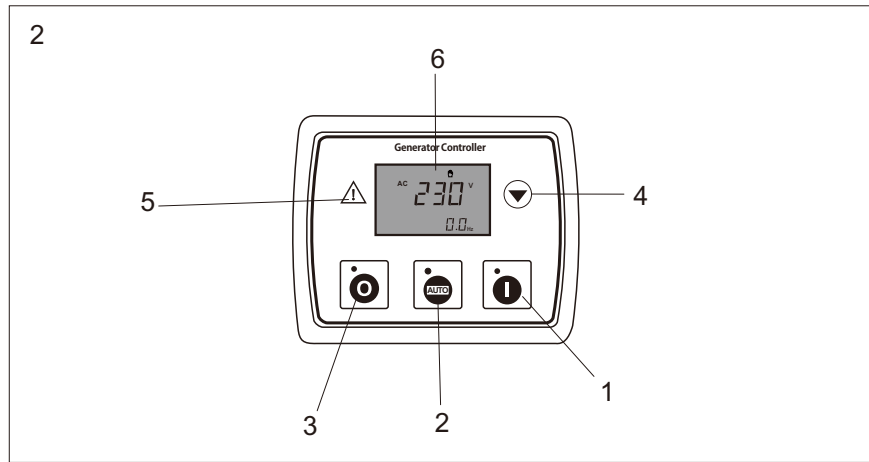
8.2 Switching the generator to standby or no function

The generator can be switched to standby or no function with the main switch (fig. 1, page 14) in the control panel.



8.3 Generator controller (control panel)

the control panel diagram show down in fig.2,page 15.



No.	Defined	Description
1	Manual start button	Push this button, generator will start, and the module comes into manual state
2	Auto state button	Push this button, Wireless remote control mode
3	Stop butttn	Push this button, generator will stop, and the module comes into stop state. In the standby mode, if long pressing the button for 3 seconds all LED lights
4	LCD page button / confirm button	Change the page display, used for LCD and can move the cursor in the parameter Settings and confirm set information
5	Alarm light	When an alarm occurs, exhibit of lanterns flicker
6	LCD Display	Show current content

8.3 Controller function

The meaning of each icon of the controller

Symbol	Defined	Symbol	Defined
	Low Oil Press		Stop state
	Over Speed		Manual states
	Under speed	AC	Generator voltage
	Emergency Stop	DC	Battery voltage
	High voltage	%	Amount of fuel
	Low voltage	RPM	Speed units (rpm/minute)
	Over Crank	kPa	Oil pressure unit
	Warning	V	Voltage unit
	Stop alert	A	Current unit
	Stop Failure	%	Fuel level units (Percentage)
	Rotation during normal operation	°C	Temperature unit
	flywheel tooth number	Hz	Frequency unit
	Battery voltage is abnormal	H	Total running time
	External alarm	SET	Parameter setup instructions
	Low fuel level	L1-L2	L1-L2 Line voltage

8.4 Display discription

Generate output voltage V,
Frequency Hz



Oil pressure



Battery voltage,
Engine speed



Fuel level %,
Total running time



8.4.1 Operation of Controller

Module has three states: stop state  AUTO state  Man start state 

8.4.2 Man start

Start by pressing the start button  on the control panel is a manual start.

At this time, a small hand  will be displayed on the LDC.

8.4.3 AUTO state

- The generator is in the state of wireless remote control when it leaves the factory, the AUTO light  is on.
- When the generator is under manual control, first press the stop button, then press the AUTO button , the generator is in the wireless remote control state, and the wireless remote control can be used to control the switch.

8.4.4 Stop state

- When the generator is in the AUTO state, it can be stopped by the wireless remote control, or it can be stopped by the stop button  on the control panel

- When in manual mode, press the stop button to stop 

In the case of troubleshooting, when the Alarm light  is flashing, you can use the stop button to cancel

8.4.5 Alarm light

Alarm light will flash in the following situations

- Low Oil Pressure: check after the safe delay, the duration of 5 seconds above, the module will alarm and stop engine.
- High Temperature : check after the safe delay, the duration of 10 seconds above, the module will alarm and stop engine.
- Low Fuel Level: When the fuel level is consistently below the preset value of 10 seconds, and issuing fuel level is too low signal, this value is only a warning will not stop.
- Over speed: check after the preheat delay, the duration of 2 seconds above, the module will alarm and stop engine.
- Under speed: check when engine run at full tilt, the duration of 15 seconds above, the module will alarm and stop engine.
- Over Crank: when engine crank fail over the times of configure, the module will alarm and stop engine.
- Stop Failure: when engine is stop fail, the module will warn.
- Battery over voltage: The DC supply has risen above the high volts setting level for the duration of the high battery volts 20 seconds.
- Battery under voltage: The DC supply has low above the under volts setting level for the duration of the low battery volts 20 seconds.
- Emergency Stop: When emergency stop input, ETS solenoid stop immediately output, and then fuel disconnect, preheat and start signal emit emergency stop alarm signal.
- Gen Over Voltage: When the continuous sampling voltage higher than the preset value, at the end of the abnormal delay, signal generator voltage is too high, outage alarm at the same time.
- Gen Under Voltage: When sampling the voltage is lower than the preset value continuously, at the end of the abnormal delay signal generator voltage is too low, outage alarm at the same time.

9 Inject engine oil, show following in fig.3,page 19



NOTICE!

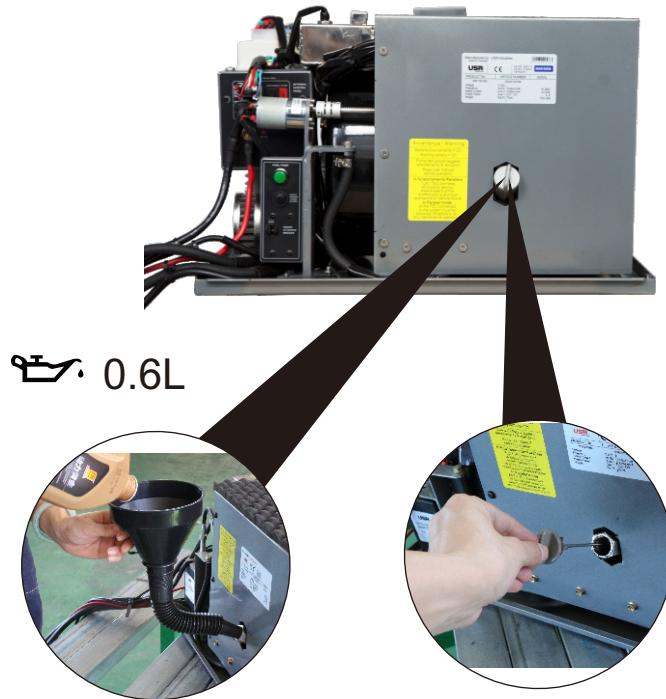
No oil is added to the generator when it leaves the factory.



NOTICE!

Inject 1.6L of engine oil labeled SAE 20W-50

3



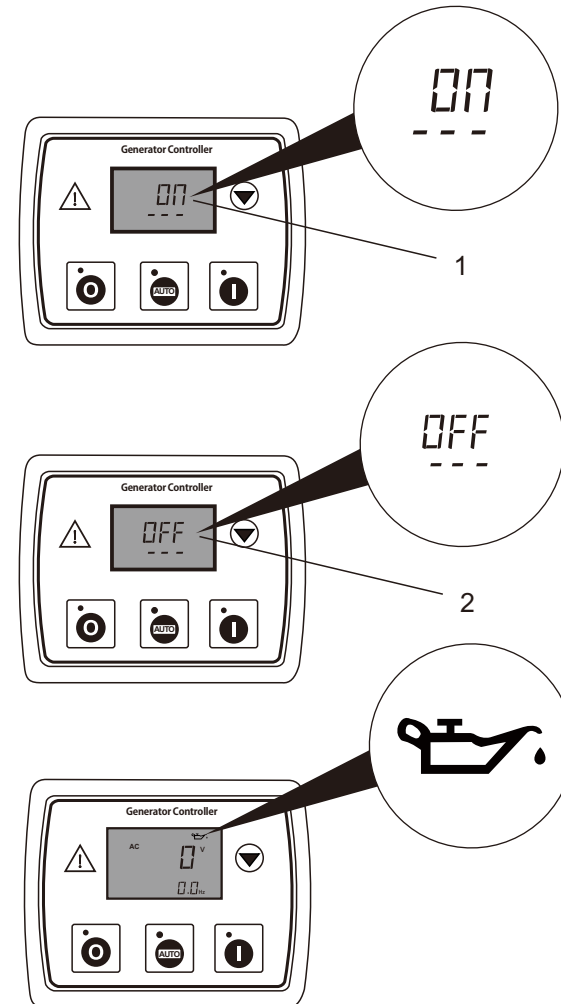
Please use SAE 20W-50 engine oil

- Open the generator door, find the oil injection port, and unscrew the oil dipstick.
- Inject **0.6L** of engine oil labeled SAE 20W-50, and add the oiler to the dipstick to the flat part.

Check whether the oil is also added show down in fig.4,page 20.

- Press the LCD page button (▼) to check whether the oil has been added, ON (1) will appear on the LCD screen after the oil has been added, and OFF (2) will appear if the oil has not been added.

4



10 Inject gasoline fuel, diagram in fig.7,8,9,page 21-22.



DANGER!

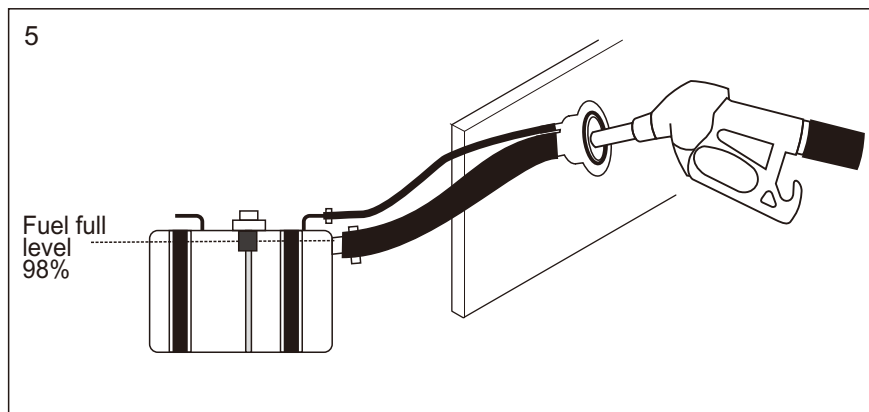
Safety instruction: Gasoline is a flammable and explosive dangerous product. Make sure there is no fire nearby when filling it.



WARNING!

Make sure that the fuel tank and the fuel pipe have been fixed.
Make sure that all tubing and pipe clamps are fastened.
Make sure that all pipes from the fuel tank to the generator are unblocked.

Inject Gasoline



- Please use unleaded gasoline above 92#
- The manufacturer provides a 20L fuel tank, Do not overfill when filling gasoline, and do not exceed 98%

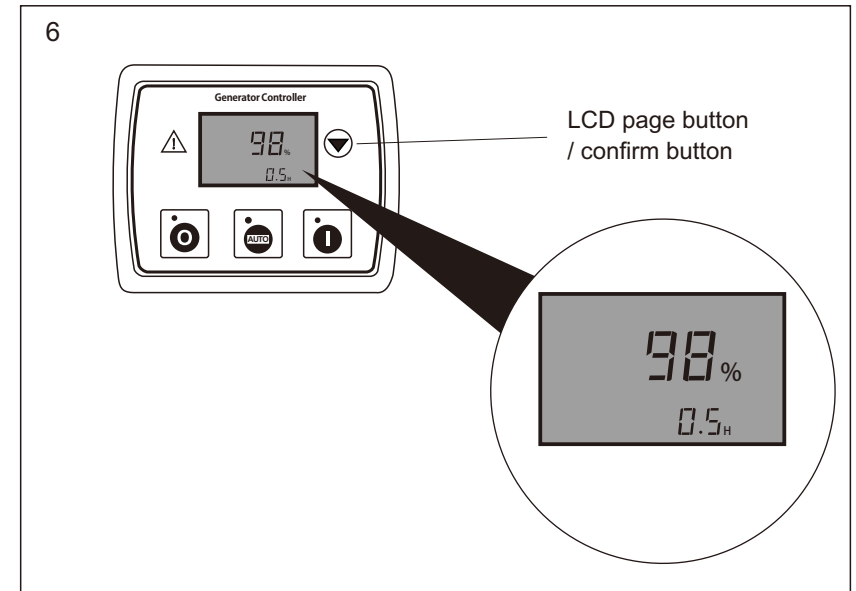
Check the fuel level on the control panel



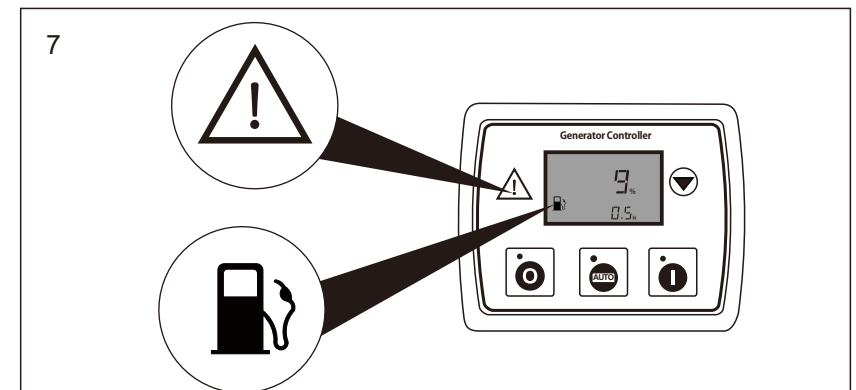
NOTICE!

The fuel level can only display the accurate fuel level when the fuel tank is completely stationary

Check the fuel level on the control panel



- Press the LCD page button, when the oil level is displayed as %, it means the current tank oil level
- When the fuel in the fuel tank is less than 10%, the Alarm light will flash and the low fuel level icon will appear on the LCD screen.



11 Start and control the generator with the control panel



WARNING!

Please check multiple times before starting the generator, the cable wiring is correct, the air intake is sufficient, the exhaust is smooth, and the oil pipeline is unobstructed



NOTICE!

It usually takes 5-9 times to start the generator for the first time, please be patient and wait

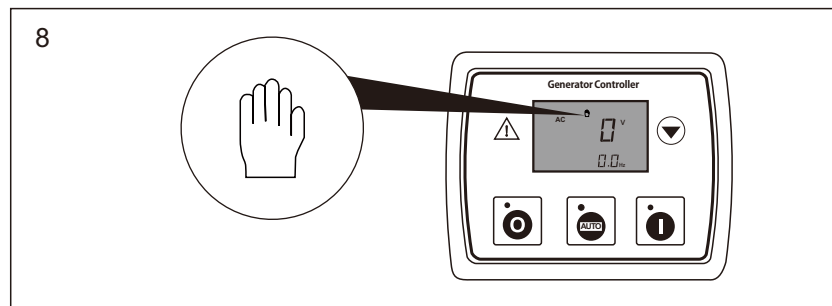
The generator controller is designed to start a group of 5 times, and it will start continuously 5 times until it starts.



DANGER!

Safety instruction: The generator is modulated to start a group of 5 times. During the start of the generator, it is forbidden to perform any operation on the generator. It is forbidden to open the generator cover or reach out to touch the flywheel of the generator, which may cause injury and electric shock.

Control panel button to start the generator: diagram show down in fig.8,page 23



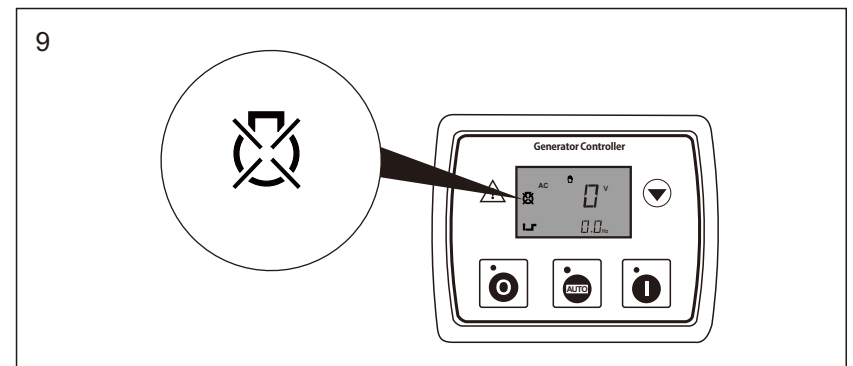
- The generator is in the state of wireless remote control when it leaves the factory, the AUTO light  is on.
- Start by pressing the start button  on the control panel is a manual start.
At this time, a small hand  will be displayed on the LDC.
- Press the start button  to start the generator, and you will hear the sound of the starter motor driving the rotor. The generator controller is designed to start a group of 5 times, and it will start continuously 5 times until it starts.



NOTICE!

The new generator needs to run-in with low power for about 20 hours, and the load power should be kept within 2000W

- When the generator is not started for the first 5 times, the control panel will display the start failure icon , then press the stop button  to clear the start failure icon, and then press the start button  to start 5 times until the generator is started, diagram as following fig.9,page24



- The new generator needs to run-in with low power for about 20 hours, and the load power should be kept within 2000W

Control panel button to stop the generator:

- Press the stop button  to stop the generator
- Press the stop button  and the generator will stop after 11 seconds, and press the generator again to stop immediately



NOTICE!

Press the stop button and the generator will stop after 11 seconds, and press the generator again to stop immediately

12 Use wireless remote control



NOTICE!

Due to export customs restrictions, there is usually no battery installed inside the wireless remote control

The wireless remote control can only start and stop, and has no other functions. If you need to use the wireless remote control, please install the battery in the wireless remote control.



NOTICE!

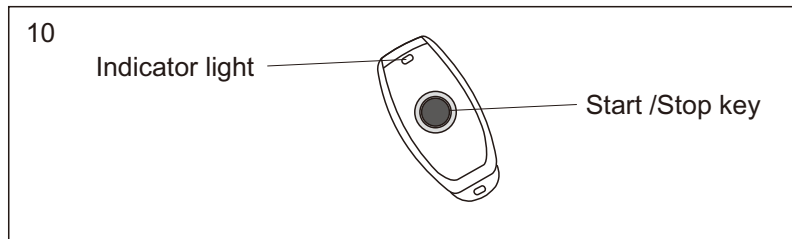
Press the AUTO button before using the wireless remote control



NOTE!

This is a self-locking wireless remote control. Just press it once and release it for an operation. Do not press for a long time or press continuously. This will cause the generator to be out of control.

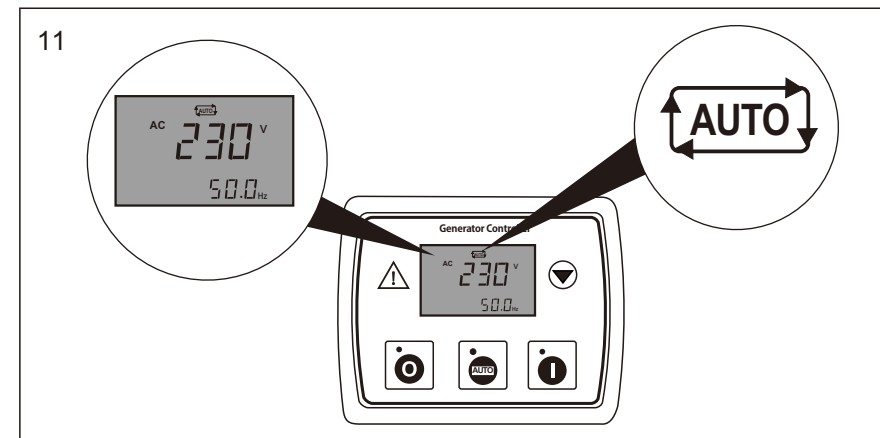
the wireless remote control show down in fig.10,page25.



- Before using the wireless remote control, first install the 3V battery in the wireless remote control
- Press the AUTO button  before using the wireless remote control, At this time, the generator is in the automatic wireless remote control state. The AUTO icon will appear on the LCD screen of the generator (automatic control mode can be used if necessary)
- This is a self-locking wireless remote control. Just press it once and release it for an operation. Do not press for a long time or press continuously. This will cause the generator to be out of control.

LCD screen show down in fig.11,page 26.

- When you press the Start/Stop key of the wireless remote control, the indicator light will light up. You can release it and wait for **10** seconds for the generator to start. When you press the Start/Stop key again, wait **35** seconds for the generator to stop. Please wait patiently. Don't press continuously, and don't press for a long time to relax
- When the generator starts normally, the LCD displays the voltage and frequency



8.3 Operating two generators in parallel (optional)



NOTICE!

The maximum power of two generators in parallel cannot exceed the sum of the rated powers of the two generators.

Without the parallel cable or with a damaged parallel cable the proper operation of the system is not guaranteed, especially in terms of load sharing.

You can independently turn each generator on and off. If the load is more than rated power, you can start both generators in parallel.

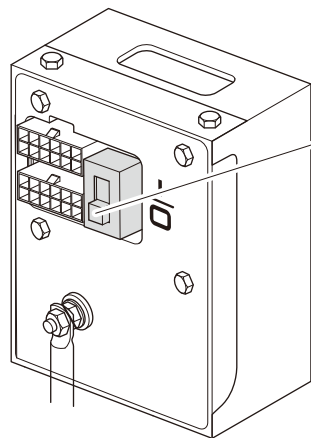
**In case both generators are turned on:
Disconnect the load before switching off the system.**

13 Stopping the generator

There are three modes of stopping the generator show down in fig. 12, page 27.

- When the generator is in the AUTO state, it can be stopped by the wireless remote control, or it can be stopped by the stop button  on the control panel
- When in manual mode, press the stop button to stop 
- You can also open the cover of the generator, and use the emergency stop on the junction box to turn off to stop.

12



Emergency stop switch

14 Checking the oil level



CAUTION

Hot oil can cause burns.
Only check the oil level when the generator is switched off.

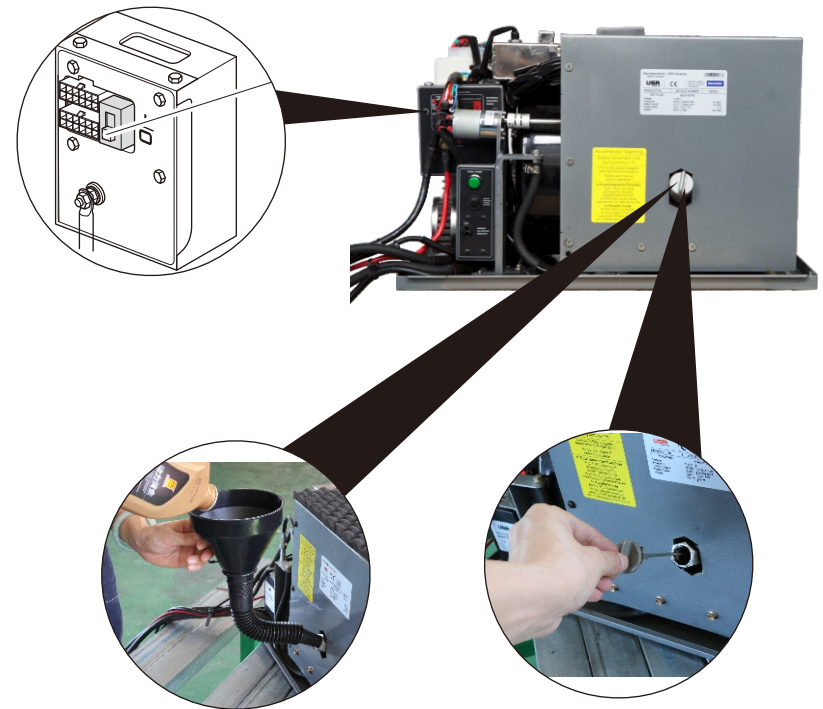


NOTE!

The generator must be level.

Always check the oil level before use. To do this, proceed as follows fig. 13, page 28:

3



- Open the generator front door.
- Turn the emergency switch on the junction box to the O position.
- Disconnect the positive terminal of the supply battery.
- Take the dipstick out of the filler neck .
- Clean the dipstick with a cloth.
- Put the dipstick back into the filler neck.
- Take the dipstick out of the filler neck.
- Check that the oil level is between the notch (maximum filling level) and the tip of the dipstick. If not, top up with more oil.
- Put the dipstick back into the filler neck .
- Check that the oil level is not above the maximum level.
- Connect the generator to the positive terminal of the supply battery.
- Turn the emergency switch on the junction box to the I position.
- Close the generator front door.

14.1 Changing the oil, diagram in fig.14,15,page 30.



CAUTION

Hot oil can cause burns.



NOTE!

Only dispose of used oil at a specialist recycling station and observe the local laws for environmental protection.

You may use the following oil:

- API SG or SF grade oil for four-stroke engines.
- SAE 10W-30 grade oil (can be used at any temperature).
- Oil with single grade oil viscosity.

Select the appropriate viscosity according to the average temperature on-site.

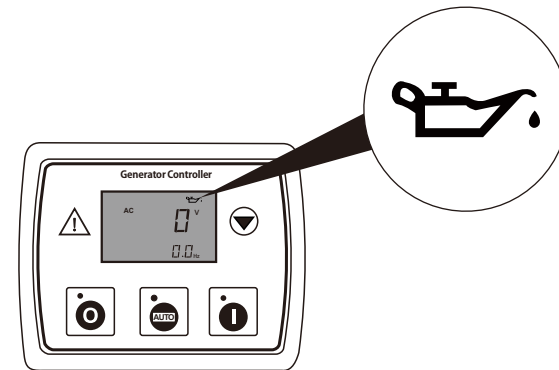
Change the oil as follows:

- Allow the generator to run until warm so that the oil can drain off faster and completely.
- Place a suitable receptacle under the drain plug (1).
- Take out the drain plug (1).

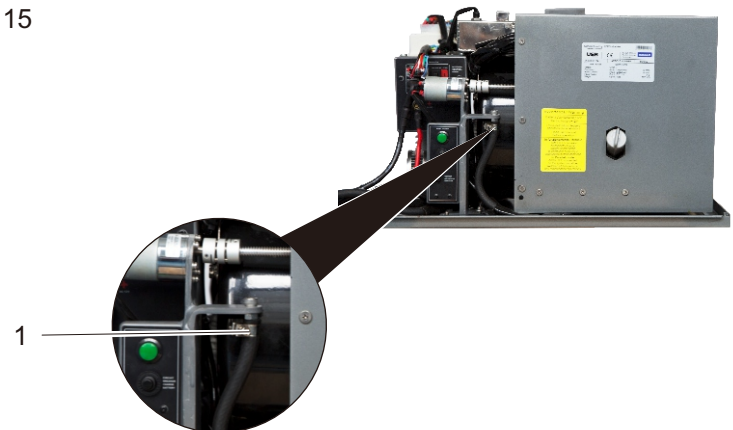
Low oil reminder and replacement:

- When there is no engine oil or insufficient engine oil, the Alarm light  will flash, and the Low oil Press icon  will appear in the upper right corner of the LCD screen.

14



15



- The oil drains off
- Pour fresh oil into the nozzle. The amount of oil is: **600ml**.

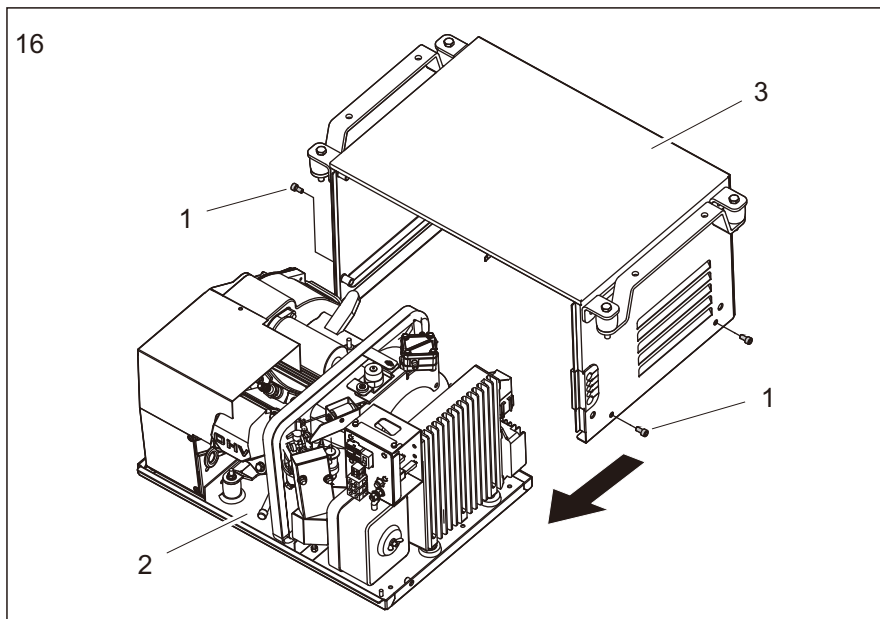
15 Cleaning the generator, diagram in fig.16,page 31.



OTICE! Beware of damage

- Do not clean the generator with a high-pressure cleaner. Exposure to water can damage the generator.
- Do not use sharp or hard objects or cleaning agents for cleaning as these may damage the generator.
- To clean the generator, use water with a gentle cleaning agent. Never use petrol, diesel or solvents.

- Loosen the screws (1) on both sides
- Hold the generator shell (3) and pull out the chassis(2) with the generator
- Clean the generator with a damp cloth from time to time.
- Remove any dirt from the air vents in the generator at regular intervals. Make sure you do not damage the grilles of the generator in the process.



16 Servicing the air filter



WARNING! Danger of explosions

Do not use diesel oil or solvents with low boiling points for cleaning the air filter. They could ignite or explode.



NOTICE!

Never leave the engine running without an air filter. Otherwise this quickly wears out the engine.



NOTE!

If the air filter is dirty, the air flow to the carburettor is reduced. Check the filter regularly so that the carburettor can function properly. Check this more frequently if the generator is being used in particularly dusty environments.

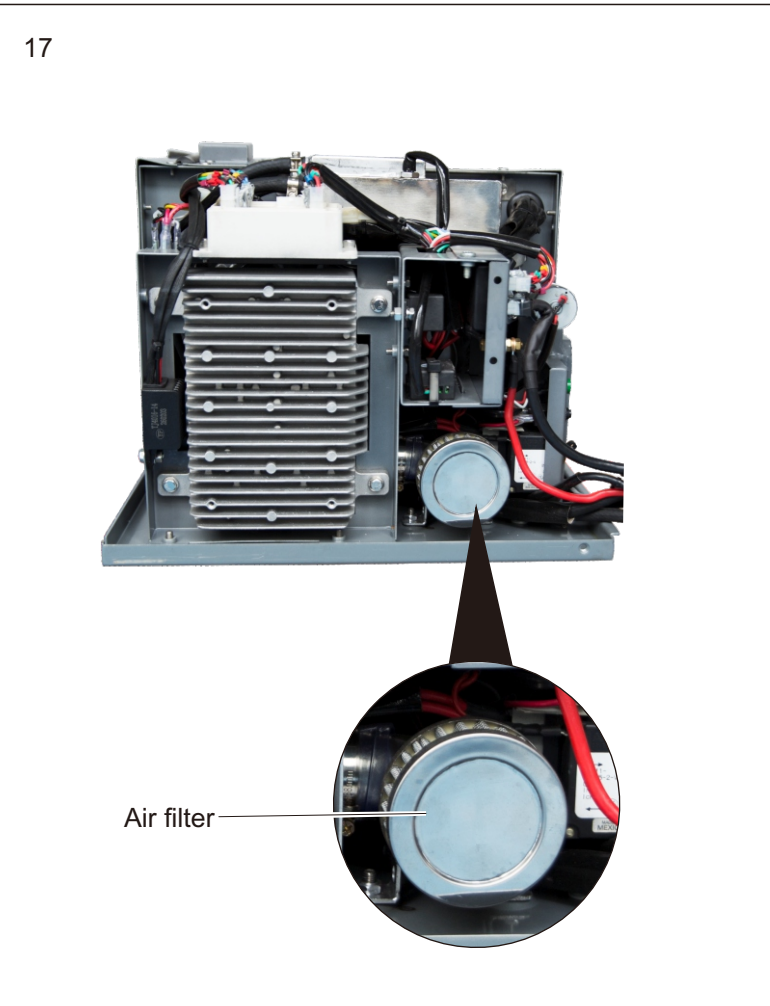
- Prepare the maintenance work and pull the generator out of the housing slightly: see chapter "Preparing maintenance work".
- Remove the butterfly nut and the filter cover.
- Remove the butterfly nut.
- Take out the air filter.
The air filter consists of two parts: a sponge filter and a paper filter.
- Check the condition of both parts of the filter carefully. Replace the damaged filter parts.
- Clean the undamaged filter parts; see the following section.
- Finish the maintenance work, see chapter "Finishing maintenance work".

Cleaning the sponge filter

- Wash the sponge with a neutral detergent solution and rinse it thoroughly.
- Leave the sponge to dry completely.
- Soak the sponge in fresh engine oil.
- Squeeze out the excess oil.

17 **Cleaning the air filter, diagram in fig.17,page 33.**

- Knock the dirt off the paper by banging it lightly on a hard surface or use compressed air to blow through the filter.
Do not brush the paper as this will push the dirt into the fibres of the paper filter.
- Change the paper filter if it is heavily soiled.



18 **Servicing the generator**



NOTE
Find your local agent
<http://www.usrgenerator.com>

18.1 **Maintenance table**



WARNING!
Only have maintenance work carried out by specialist personnel who are familiar with the relevant regulations. Inadequate maintenance may cause serious hazards.



NOTE
Have the following maintenance work performed at regular intervals or after the specified number of operating hours, whichever is sooner.

Interval	Inspection/maintenance
In the first month or after 20 hours	➤ Change the oil ➤ Check the air filter (chapter "Servicing the air filter")
Every 3 months or aer 50hours	➤ Check the airfilter (chapter "Servicing the air filter")
Every 6 months or aer 100hours	➤ Change the oil ➤ Check the spark plug (chapter "Servicing the spark plugs").
Once a year or every 300 hours	➤ Check the valves' adjustment. ➤ Check the fuel tank and fuel filter. ➤ Check the vibration damper (rubber feet).
Every two years	➤ TEC Check the petrol supply lines. ➤ LPG model Check the gas supply lines.

18.2 Preparing maintenance work



CAUTION!

Note the following for all maintenance work:

- The generator must not be running.
- All the parts must be cooled down.

- Switch the generator to no function with the main switch.
- Disconnect the positive terminal of the supply battery.
- Open the generator front door.

For maintenance work, you can take the generator out



WARNING!

The mounting plate with generator is very heavy (> 40 kg) and could fall out the housing if you take it out too far.

- Undo the fastening screws (1).
- Remove the mounting plate (2) with the generator from the housing (3).

18.3 Finishing maintenance work

- Connect the generator to the positive terminal of the supply battery.
- Switch the generator to standby with the main switch.
- Close the generator front door.

19 Troubleshooting

Fault	Cause	Remedy
The controller does not come on when the on/off switch is pressed.	Starter battery is flat.	➤ Charge the starter battery.
	Power cable is disconnected or the plug is removed.	➤ Contact an authorised workshop.
The starter does not work when the start button is pressed.	Generator earth cable is disconnected or the fuse (if available) is blown.	
	Starter battery is flat.	➤ Charge the starter battery.
	The main switch is at "0".	➤ Set the main switch to "I" or "1".
	Starter shaft is dirty.	➤ Clean the starter shaft.
	Too much oil in the engine.	➤ Drain the oil.
	Inverter is damaged.	➤ Contact an authorised workshop or agent.
	Power cable is disconnected or the plug is removed.	
	Generator earth cable is disconnected or the fuse (if available) is blown.	
The starter turns but the generator does not start.	Starter is not receiving any p	
	No petrol/LPG.	➤ Fill up with petrol/LPG.
	Spark plug is not receiving any power.	➤ Check the electric connections.
	Carburettor is not receiving any petrol.	➤ Clean the carburettor.
	Air intake is blocked.	➤ Check the air filter (see chapter "Servicing the air filter")
	The ambient temperature is below 0°C.	➤ Use pure propane gas.
	Inverter is damaged.	➤ Contact an authorised workshop.
	Power cable is disconnected or the plug is removed.	

Fault	Cause	Remedy
The generator tends to stall.	Too much oil in the engine.	➤ Drain the oil.
	Load is over Rated power.	➤ Reduce the consumers.
	Carburettor is not receiving any petrol.	➤ Clean the carburettor.
	Air intake is blocked.	➤ Check the air filter (see chapter "Servicing the air filter"
	Inverter is damaged.	➤ Contact an authorised workshop.
The generator is running but does not supply any voltage.	Electromagnet is blocked.	
	Air filter is dirty.	
	Inverter is damaged.	➤ Contact an authorised workshop.
	The stepper motor is faulty or the cable is disconnected	
	Electromagnet is blocked.	
The generator start up very fast and then the "GENERATOR ALERT" message appears.	The throttle valve is blocked.	
	Inverter damaged	➤ Contact an authorised workshop.
	The stepper motor is faulty or the cable is disconnected	
The generated voltage is unstable.	Inverter damaged	➤ Contact an authorised workshop.
	The stepper motor is faulty or the cable is disconnected	

20 Warranty

The statutory warranty period applies. If the product is defective, please contact the service partner in your country.

Our experts will be happy to help you and will discuss the warranty process with you in more detail.

21 Disposal

- Place the packaging material in the appropriate recycling waste bins wherever possible.



If you wish to finally dispose of the product, ask your local recycling centre or specialist dealer for details about how to do this in accordance with the applicable disposal regulations.

22 Technical data

	TEC30D
Rated output voltage:	220-240V~ / 50 -60Hz
Max. constant output (at 25°C at sea level):	2500 W
Battery charger output voltage	12V===
Battery charger max output Current:	10A
Operating temperature range:	-15°C to +50°C
Distortion factor:	1%
Engine:	Changchai
Model:	USR Diesel engine UD170
Fuel:	Diesel fuel according to EN 590
Consumption:	120 g/kWh max.0.8l/h
Motor output:	4.0kW (5.3PS)
Guaranteed Sound level:	80 dB(A)
Sound level at distance of 7 m:	53-65 dB(A)
Dimension:	510*435*350mm
Weight:	58kg
Inspection/certification:	CE