

# 1. Control panel for AGT 2500/4000 V6

 <b>Fischer Panda</b>	<b>Art Nr.</b>	21.02.02.014P
 <b>Fischer Panda</b>	<b>Bez.</b>	Remote control panel AGT 2500/4000 Typ RE9513 Rev6

	Document	Hardware	Software
Actual:	R07	Rev.6	-----
Replace:	R06.1	Rev.6	

Fig. 1.0-1: RE9513 Rev.6



## 1.1 Safety instructions

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**Danger for Life. Improper handling, operation, installation and maintenance can result in severe personal injury and/or material damage.**

Electrical voltages above 48 volts (battery chargers greater than 36 volts) are always dangerous to life). The rules of the respective regional authority must be adhered to. Only an electrician may carry out installation of the electrical connections for safety reasons.

**Danger for life! - The generator can be equipped with a automatic start device. This means the generator can be started by an external signal.**

To avoid an unexpected starting of the generator, the starter battery must be disconnected before start working at the generator.

**Disconnect all load during the work at the generator to avoid damages at the load.**

**ATTENTION!: Danger to Life - High voltage**



**Warning!: Automatic start**



**Attention!: disconnect all load**



## 1.2 Connection of the remote control panel

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Please ensure that the remote control panel is installed in a protected, dry and easily accessible place.

Connection regarding to the generator wiring plan

### 1.3 Remote control panel for AGT-Generator for Battery systems 12/24/36/48 v

Fig. 1.3-1: Remote control panel front side

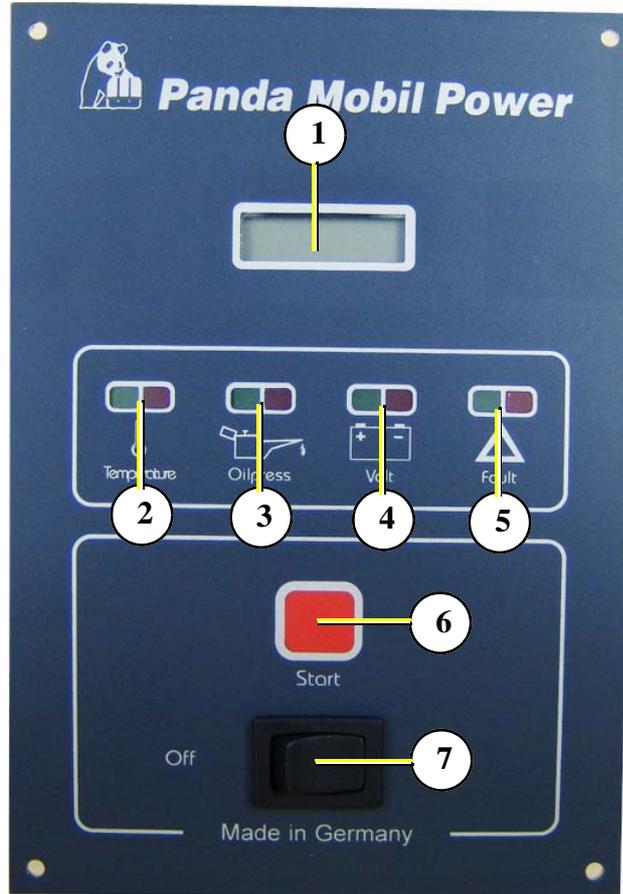
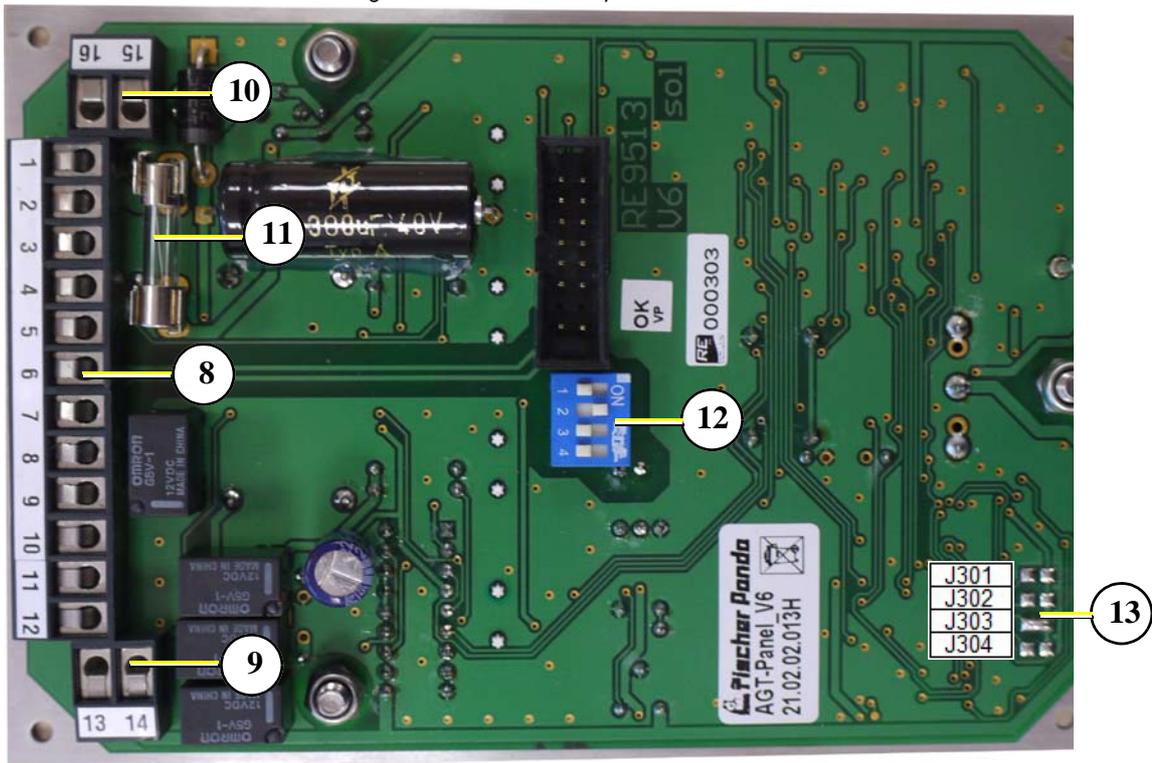


Fig. 1.3-2: Remote control panel back side





1. Display operating hours
2. Control light - temperature
3. Control light - oil pressure
4. Control light - charge control
5. Control light - operating status
  - red glowing - Generator is in „Stand-by“-mode
  - red blinking - Generator is started manually
  - red blinking for more than 20 seconds - Generator did not start when activated manually
  - green blinking - Generator runs in manual mode
  - green glowing - Generator runs in automatic mode
6. Switch for Manual Start:
  - Switch pressure in sleeping mode: Generator is started and the panel switches to manual mode, i.e. automatic cut off requirements are not carried out.
  - Switch pressure in manual mode: If the generator starts automatically, the generator continues to run and the panel switches to automatic mode, i.e. when the last automatic start cuts out, the generator stops and the panel goes into sleeping mode; If the generator is not started automatically, the generator stops and the panel goes into sleeping mode.
  - Switch pressure in automatic mode: The generator continues to run and the panel switches to manual mode.
7. Main switch:
  - If it is already in automatic mode when it is switches on, the generator starts and the panel switches to automatic mode; If it is not in automatic mode, the panel switches to sleeping mode; If the generator is switched off, the generator will stop in every case.

**Danger for life! - The generator can be equipped with a automatic start device. This means the generator can be started by an external signal.**

**Warning!: Automatic start**



To avoid an unexpected starting of the generator, the starter battery must be disconnected before start working at the generator.

#### 8. Main terminal clamp

*allocation:*

- Terminal 1: Battery plus (+)
- Terminal 2: Battery minus (-)
- Terminal 3: Input temperature failure
- Terminal 4: Input charge control
- Terminal 5: Input oil pressure failure
- Terminal 6: Input generator voltage 1
- Terminal 7: Input generator voltage 2
- Terminal 8: Output pre-glow
- Terminal 9: Output fuel pump
- Terminal 10: Output starter motor
- Terminal 11: Output VCS-ON (voltage control for VCS)
- Terminal 12: Output operating voltage, maximum permissible load: 0,2A

#### 9. Terminal clamp for battery monitor - allocation:

Terminal 13: Battery minus (-)

Terminal 14: Input for battery monitor

The potential-free contact of a battery monitor can be connected to these two terminals, the starting sequence occurs automatically if the contact closes.

10. Terminal clamp for external automatic start - allocation:

Terminal 15: Battery minus (-)

Terminal 16: Input for external start demand

The potential-free contact can be connected to these two terminal. The starting sequence occurs automatically if the contact closes.

11. Fuse 1,6A slow to blow

12. Switch for the starter motor cut-off voltage:

if the generator out reach the voltage, the generator is startet and the starter motor switch off

Switch 1: 12V - generator

Switch 2: 24V - generator

Switch 3: 36V - generator

Switch 4: 48V - generator

**Only one switch may remain switched „ON“, all others must be switched „OFF“, otherwise the complete generator could break down! An external voltage-cut-off-switch is necessary for voltages exceeding 48 Volts.**

**Attention!**



13. Soldering bridge for choice of pre-glow time

X= Soldering bridge closed

Fig. 1.3-3: Preglowtimet

Jumper	Preglowtime 5 s	Preglowtime 1 s	Preglowtime 20 s	Preglowtime40 s
J301		X		X
J302			X	X

**Never change the set up of the Soldering Bridge J303 and J304. Changes may destroy the generator**

**Attention!**



The panel must be mounted, that the voltage carrying points can not touched. This is also the case during testing.

**Danger for Life. Improper handling, operation, installation and maintenance can result in severe personal injury and/or material damage.**

**ATTENTION!: Danger to Life - High voltage**



Electrical voltages above 48 volts (battery chargers greater than 36 volts) are always dangerous to life). The rules of the respective regional authority must be adhered to. Only an electrician may carry out installation of the electrical connections for safety reasons.

## 1.4 Engine monitoring

1. Operating and starting the Generator will works with the Control Panel. This implementing the Main Switch (7) is



effected for. By switching 'On' the Main Switch the Generator will be at first in operator modus. After pressing the button 'Start' (7) the Generator (Motor) will be aglow and starting. Pay attention, the button (7) will only be hold down for a second to ignitiate the start procedure.

2. Therefore with the panel it is possible, monitoring the operation modus. Hereto are beeing placed four diodes ( LED), which are connected as a pair each other, so they have the possibility to light up in green or red.

These are:

- (3) for exhaust, cooling water temperature
- (4) Control unit meter - oil pressure
- (5) Control unit meter - operating status
- (6) Control unit meter - charge control

If (2), (3) or (4) is been illuminated red, this lights will indicate the precise cause. Illuminate constant green the genset is in operation modus.

In the starting sequence, (2) is been illuminte green, (3,4,5) red, is there no fault all diodes becomes green or green flashing when the generator runs.

If the external battery monitor is inbuilt to monitoring a battery-group, it will be advisable to switch it with an accessory (On/Off) switch. This battery monitor ensures that he will be activ while the voltage of the batteries is on the pre-set level. Therefore there is a time delay available the genset will run until he reached the upper level. More information see battery monitor.

## 1.5 Operation instruction

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### 1.5.1 Daily routine checks before starting the Generator (Forts.)

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1. Check engine oil level and top up to MAX.

The generator switches off automatically in the case of insufficient oil-pressure. Do not run the generator with the oil at the lowest level in the crankcase. (A smaller volume of oil will become contaminated considerably quicker than a larger volume and there is the possibility that small air bubbles will get in the oil.) Therefore daily oil-checks are required. The oil-level should always be refilled to MAX. Check oil level prior to starting motor or at least 5 minutes **after the motor has stopped.**

#### LOW OIL PRESSURE WARNING LIGHT!



*Engine oil should have properties of API classification CF grade or higher. Change the type of engine oil according to the ambient temperature. See Table F.2.1, "Engine oil specification," on Page 70. For Oil-Quantities see Table G.4, "Technical data engine," on Page 77.*

2. Check engine cooling system: coolant level in radiator, all hoses and hose connections for leaks or deterioration.
3. Check thermal switches and all cables and terminal connections
  - a. Thermo-switch pre-silencer
  - b. Thermo-switch engine

- c. Thermo-switch exhaust
- d. Oil pressure switch
- 4. Check tightness of all retaining and connection bolts on the engine & generator and generator base mount bolts.
- 5. Switch main battery switch "ON" (if installed).
- 6. Open fuel inlet valve (if installed).

### **1.5.2 Starting - Preliminary remarks**

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#### **Pre-heating the diesel motor**

The motor can be started for temperatures up to minus 20°C, as long as running conditions are suitable. The fuel must be suitable for such conditions, as conventional diesel fuel can produce a paraffin coating at temperatures lower than minus 8°C. so blocking all filters and pipes. It is normal in Europe to use an additive, obtainable from gas stations to ensure use at temperatures as low as minus 15°C. If a generator is to be used for temperatures below minus 8°C, then it must be ensured the fuel is suitable for winter. By use of extra additive, the fuel can also be used at lower temperatures. The appropriate regulations can be obtained from the fuel suppliers. The mineral oil trade have stocks of fuel, which are suitable for use for temperatures below minus 20°C.

#### **Starter Battery**

Adequate batteries are installed for extreme winter conditions. Unless the generator is being run frequently for extended (over 1 hour) periods, it is recommended that the starter battery is regularly charged by a suitable external battery-charging device, at least every 2 months. A correctly charged battery is essential for low temperature starts.

#### **Motor Oil Quality during extreme Winter Conditions**

Motor oil of the correct grade for the temperatures anticipated should be used. There is advice elsewhere in this handbook on the grades which are suitable for various environmental conditions.

### **1.5.3 Overloading of engine during longer operation**

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Please ensure that the genset is not overloaded. Overloading occurs when the electrical load (demand) induces a load torque in the generator which is higher than that which the diesel drive motor can provide. Overloading causes the engine to run rough, burn oil, creates excessive exhaust (environmentally unfriendly) and even to stall. Extra caution should be practised with multi-power units (single and 3-phase current generation) to avoid overloading the diesel drive engine.

The generator should only be loaded at the peak rated power for short periods only! A high peak current is required to start many electrical devices, especially electric motors and compressors (from a still stand state).

The height of the rated output (P) can taken from the identification plate attached on the engine.

In order to guarantee a long life span, the continuous load should not exceed 80% of the nominal load. By continuous output we understand the continuous operation of the generator over many hours. It is harmless for the engine to supply for 2-3 hours the full rated output.

The total conception of the Panda generator guarantees that the continuous load operation does not release superelevated temperatures of the engine also with extreme conditions. It is to be considered that the exhaust gas values in the full load operation become more unfavorable (soot formation).

### **1.5.4 Starting the Generator (in this respect, the battery bank is no load)**

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1. If necessary, open the fuel valve..
2. If necessary, close the main battery switch.
3. Check if all the load have been switched off.

The load is switched off, before the generator is switched off. The generator is not to be started with load

connected. If necessary, the main switch or fuse should be switched off or the load should be individually switched off.

4. Press „ON“ button.

If an automatic start is requested during the switching on process, the generator is started and the panel switches to automatic mode; if there is no automatic start request, the panel switches to delay mode.

5. Press „START“ button.

Press the "START"-button for a short period. The generator is started automatically. As soon as the motor turns over, the starter switches off automatically. It must be monitored every time it is started. The generator must be immediately switched off if the starter is still audible after the engine revs up.

The "START"-button fulfills several functions in the different operation modes of the panel:

If the panel is in **delay mode**, the generator is started and the panel switches to manual mode, that means the automatic stop functions are not carried out. If the "AGT"-generator is started manually, it must be stopped manually, too. In this case there is **no** automatic stop!

In the **manual mode**, the generator continues to run and the panel switches to automatic mode, that means if the last automatic start programm is dispensed with, the generator is stopped and the panel switches to delay mode; if there is no automatic start programm, the generator is stopped and the panel switches to delay mode.

6. Check coolant flow.

Immediately after starting it must be checked whether sufficient coolant flows out at the exhaust.

7. Check with voltmeter if electrical voltage is in the range of tolerance.

8. Switch on load.

**If the generator engine does not start immediately and further start attempts are necessary, then the sea valve MUST be closed (i.e. for ventilating the fuel lines etc.) The cooling water impeller pump turns automatically and draws cooling water as long as the motor is turning. If the diesel motor is running, the cooling water is blown out by the exhaust system gases. The cooling water cannot be pressed through the exhaust as long as the diesel motor does not run at sufficient speed. This leads to severe motor damage.**

**ATTENTION: If there is difficulty in starting - close the seacock ( Panda Marine Generators only)**



Open the sea valve as soon as the generator is started.

### **1.5.5 Stopping the Generator (in this respect, the battery bank is no load)**

1. Switch off load.

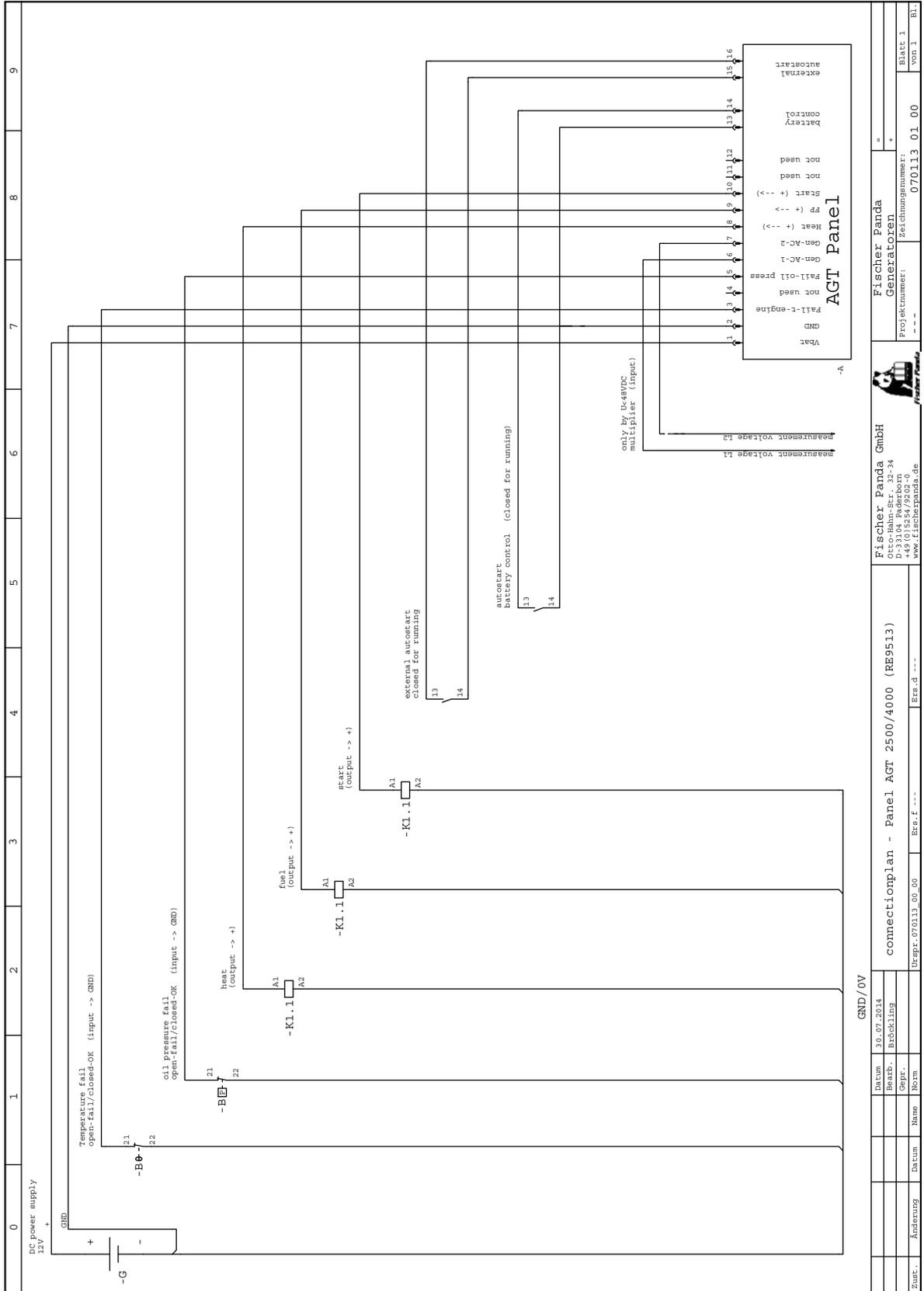
2. If the running load has been higher than 70% of the nominal load, then generator temperature should be stabilised by running the generator for at least 5 minutes after switching off the load.

At higher ambient temperatures (more than 25°C) the generator should always be run for at least 5 minutes without load, before it is switched off, regardless of the load.

3. Press „ON/OFF“ button and switch off the generator.
4. Activate additional switches (Battery switch, fuel stop valve etc.).

### 1.5.6 Wiring diagram

Fig. 1.5.6-1: Wiring diagram



GND / 0V

Zust.	Änderung	Datum	Name	Rev.	Erst. f. ---	Erf. d. ---	Projektnummer: 070113_01_00	Zusammenhangsnummer: +	Blatt 1 von 1 Bl.
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connectionplan - Panel AGT 2500/4000 (RE9513)									
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Beard. Bröckling									
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