



Workshop Technical manuals

车间内部技术手册

Gasoline vehicle generator TEC series
suitable for TEC30, TEC40, TEC60, TEC80



福安市优盛科技有限公司
USR INDUSTRIES CO.,LTD



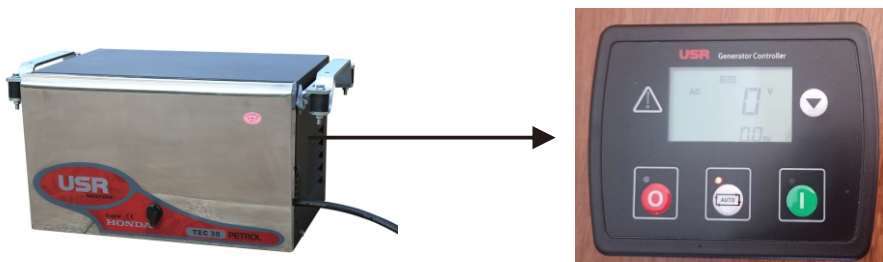
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When a generator cannot be used normally, the first step is to check the controller

当发电机不能正常使用时，首先要检查控制器



Look at the control, there are two possibilities, one screen is not powered on, the other screen is powered on and there is a display
看控制上有两种可能，一种屏幕没有通电，另一种屏幕通电有显示

①



The screen is not powered,
屏幕没有通电

②



The screen is powered on
and there is a display
屏幕通电有显示

① The screen is not power 屏幕没有通电

The screen is not powered,
屏幕没有通电

①



1.1



1.2



Check whether the two rows of plugs behind the controller are disconnected, please plug them in firmly, if the screen still does not display, go to the next step
检查插在控制器后面的两排插头是否的脱落，请用力插紧，如果屏幕仍然不会显示，执行下一步

检查插在控制器后面的两排插头是否的脱落，请用力插紧，如果屏幕仍然不会显示，执行下一步



Use the DC gear of the multimeter to detect whether the battery has a voltage above 12V

用万表直流档检测电瓶是否有12V以上的电压

YES,



Use the short-circuit alarm file of the multimeter to detect the 1-pin and 2-pin of the 10-core cable, and connect them to the negative and positive electrodes of the battery until they are connected, and confirm that there is 12V

用万表短路报警档检测10芯电缆线的1脚和2脚，通到电瓶的负极和正极，直至连通，并确认有12V.

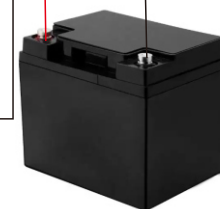
Use the DC gear of the multimeter to check whether 1- B- and 2- B+ on the corresponding controller have 12V. If there is 12V, and the two sets of cables are plugged in tightly again, the controller is broken, please replace the controller.

If 1- B- and 2- B+ do not have 12V, go to next step

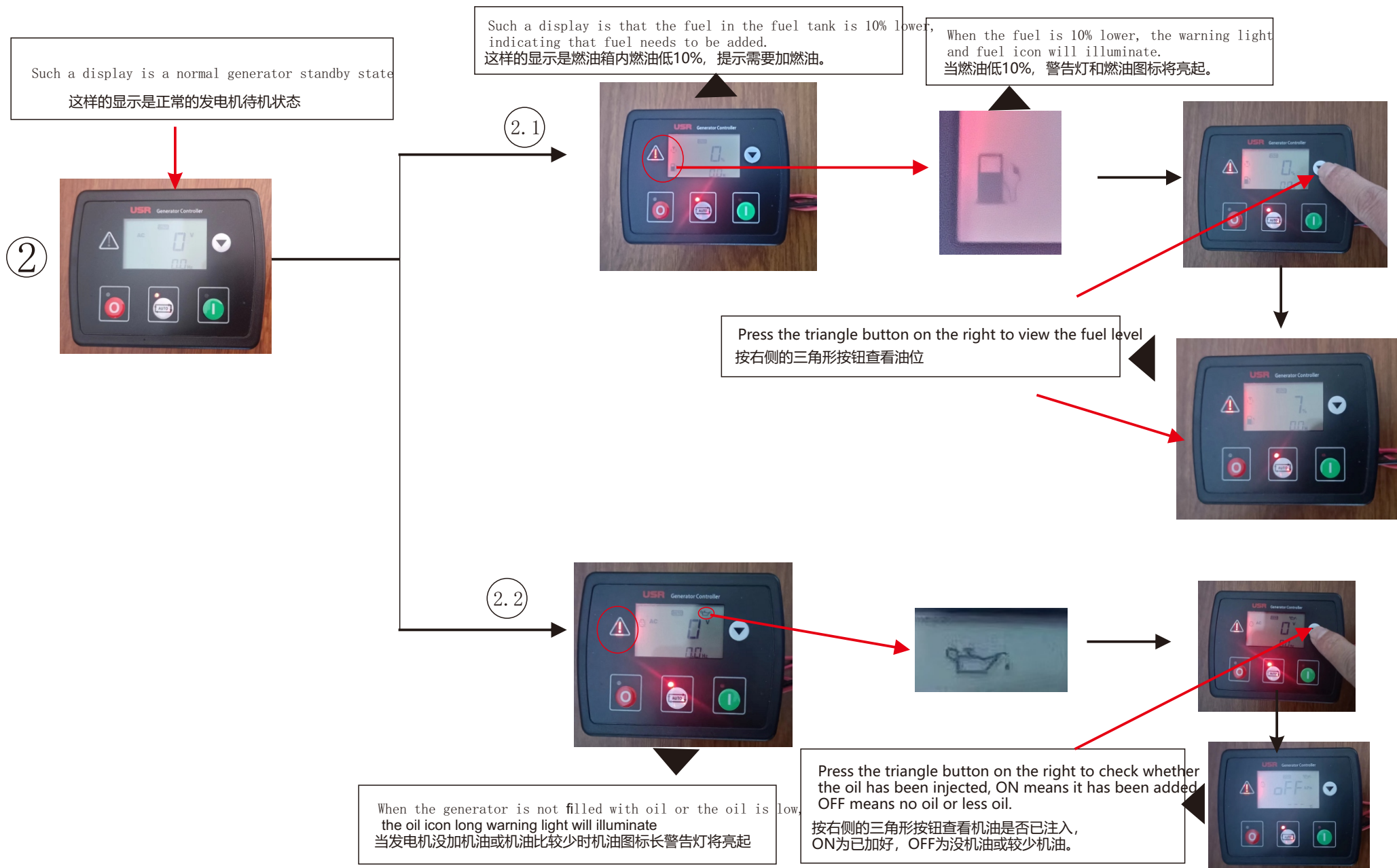
用万表直流档检测对应的控制器上的1- B-和2- B+，是否有12V，如果有12V，两组排线又插紧了，那控制器坏了，请更换控制器。如果1- B-和2- B+没有12V，执行下一步



YES,



② Such a display is a normal generator standby state 显示是正常的发电机待机状态



2.2 Maintenance: Change the oil 保养：更换机油

Maintenance: Change the oil
保养：更换机油

Turn the knob on the generator door cover
clockwise to open the door cover.

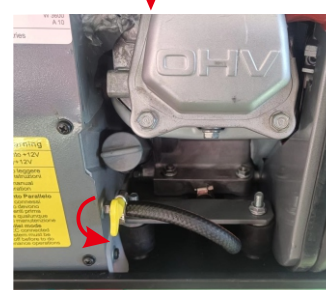
顺时针旋转发电机门盖上的旋钮，打开发电机门盖。

Rotate the butterfly tube buckle counterclockwise
and remove the oil discharge tube.

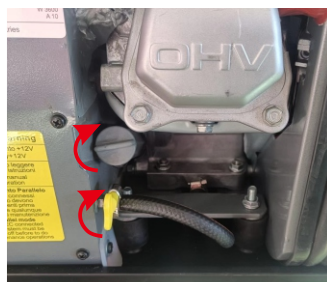
逆时针旋转蝴蝶管扣，并取下卸油管。

Rotate the dipstick counterclockwise and remove
it to vent to allow the oil to flow out as quickly
as possible.

逆时针旋转机油尺，并取出以便通气使机油尽快流出



When the generator is not filled with oil or the oil is low,
the oil icon long warning light will illuminate
当发电机没加机油或机油比较少时机油图标警告灯将亮起



Close the generator door cover and
tighten the knob counterclockwise.

盖上发电机门盖，逆时针方向拧紧旋钮。

After filling the oil, tighten the butterfly pipe buckle
clockwise, Tighten the oil dipstick clockwise again.

加注好机油后，顺时针拧紧蝴蝶管扣，再顺时针拧紧
机油尺。

Use the funnel provided with the machine to inject
550ml of oil, oil grade: 15W-40

使用随机器所配的漏斗注入550ml的机油，
机油牌号：15W-40

Remove the oil discharge pipe and place it in a low
place to release the oil in the engine.

取下卸油管并放置低处，将发动机内的机油释放干净



Generator can't start 发电机不能启动



DANGER!
WARNING!
危险
警告

The generator will start 5 times in a row, and the 12V power supply on the battery must be disconnected during maintenance, otherwise the generator will start suddenly and cause injury.

发电机将会连续启动5次，在维修时必须断开电瓶上的12V电源，否则发电机突然启动导致受伤。

When a generator cannot be used normally, the first step is to check the controller

当发电机不能正常使用时，首先要检查控制器



Normal standby control surface display
正常待机的控制面显示



③

There is a sound of the starter motor
有启动马达响声

④

No starter motor sound
无启动马达响声

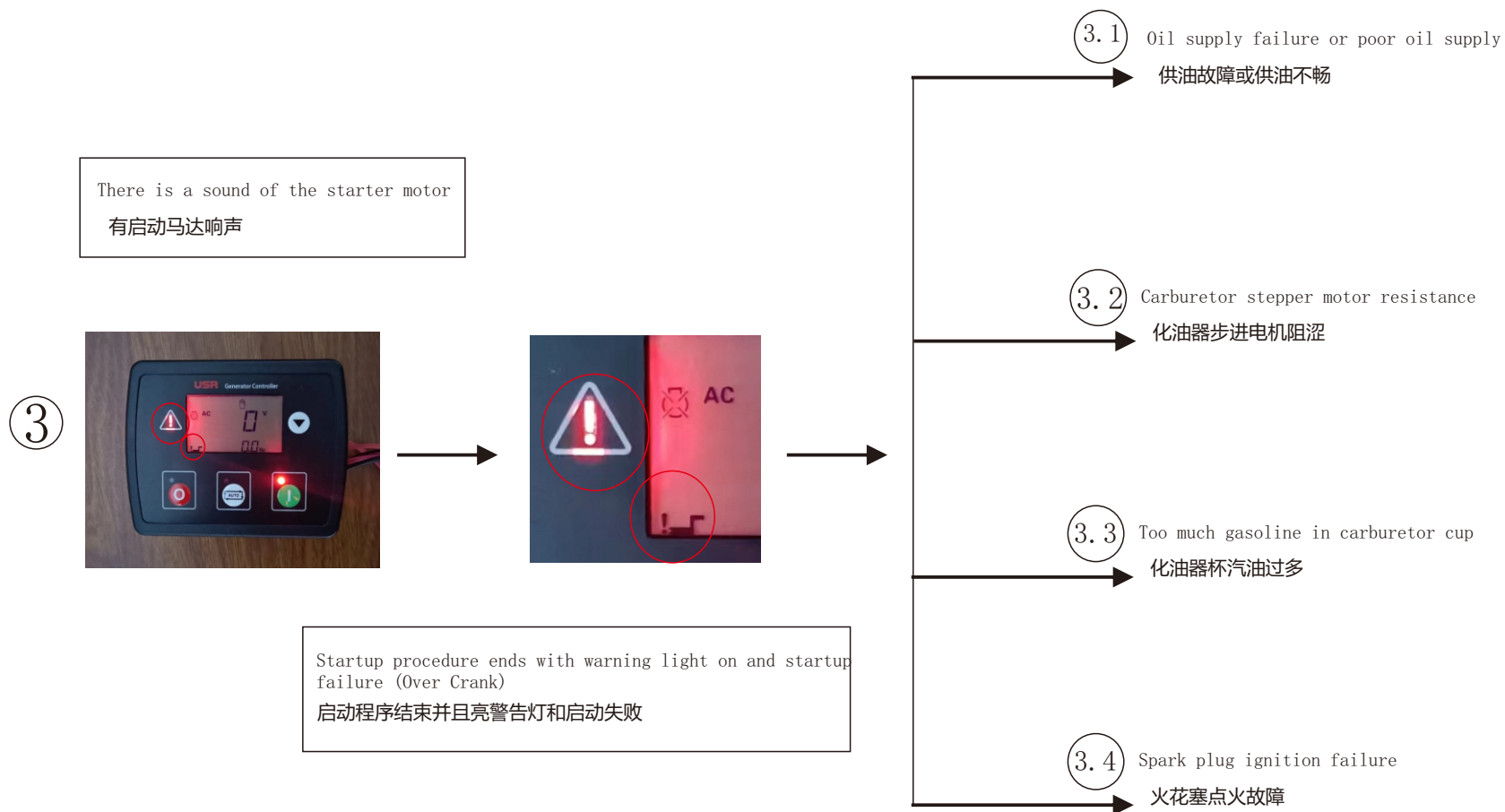
When the green I key is pressed, the generator starts to start. If the generator does not start successfully, it will start 5 times. This is the factory setting, or it can be set according to the customer's instructions.

当按下绿色的I键后发电机开始启动，如果发电机没有启动成功，则会启动5次，这是出厂设置，也可以按客户的要求设置。

If the generator starts normally, the two groups will start successfully and run normally. After the two groups started still cannot be running which indicates that the generator has a fault.

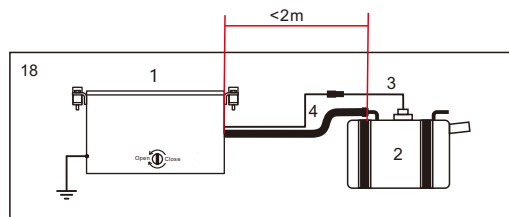
发电机正常启动两组就会成功启动，并正常运行。两组启动过后，发电机不能启动，这说明发电机已经有故障。

③ Fault with starter motor sound 有启动马达响声的故障

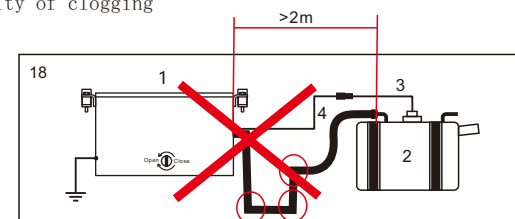


3.1 Oil supply failure or poor oil supply
供油故障或供油不畅,

3.1.1 The fuel tank is more than two meters away from the generator
油箱离发电机距离超过两米



3.1.2 Excessive bending of the fuel lines and the possibility of clogging
燃油管弯曲过多，并有可能阻塞



3.1.3 Excessive fuel filter dirt blocks the fuel line
燃油过滤过多脏物阻塞燃油管道



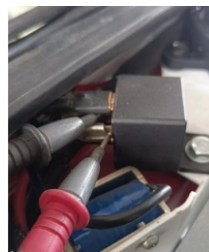
3.1.4 Dirt clogged in carburetor
化油器内有脏物阻塞



④ Fault without starter motor sound 没有启动马达响声的故障

④ No starter motor sound
无启动马达响声

4.1 Start circuit failure
启动电路故障



Check if these two pins of the relay are 12.8V,
If you proceed with section 4.2 below,
If the wiring is not checked

4.1.1

检测继电器的这两个脚是否是12.8v,
如果有进行下面4.2,
如果没有检查线路

4.2 Starter motor relay Damaged
启动马达继电器损坏



Replace relay
更换继电器

TEC30-40 relay



TEC60-80 relay



JEC relay

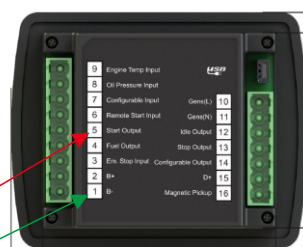


When the normal relay is engaged, it will make a noise
正常的继电器吸合时会发出响声

4.3 Starter motor Damaged
启动马达损坏



DC12V



When pressing the start button, there is dc12v between the 5th and 1st pins

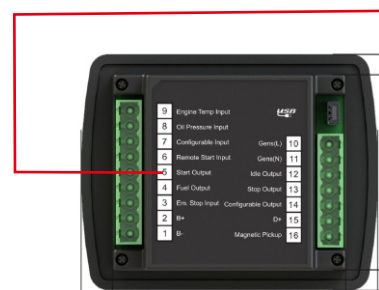
If not, the controller is broken.

If there is any progress to the next step.

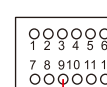
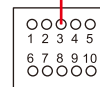
当按下启动键时第5脚 和第1脚之间有dc12v
如果没有则控制器坏了。
如果有进行下一步。

Follow the circuit diagram below to identify where the connector or cable is disconnected and connect it properly.

按以下电路图找出哪里接头或电缆断开，并接好。



3



12v Realy

12v +

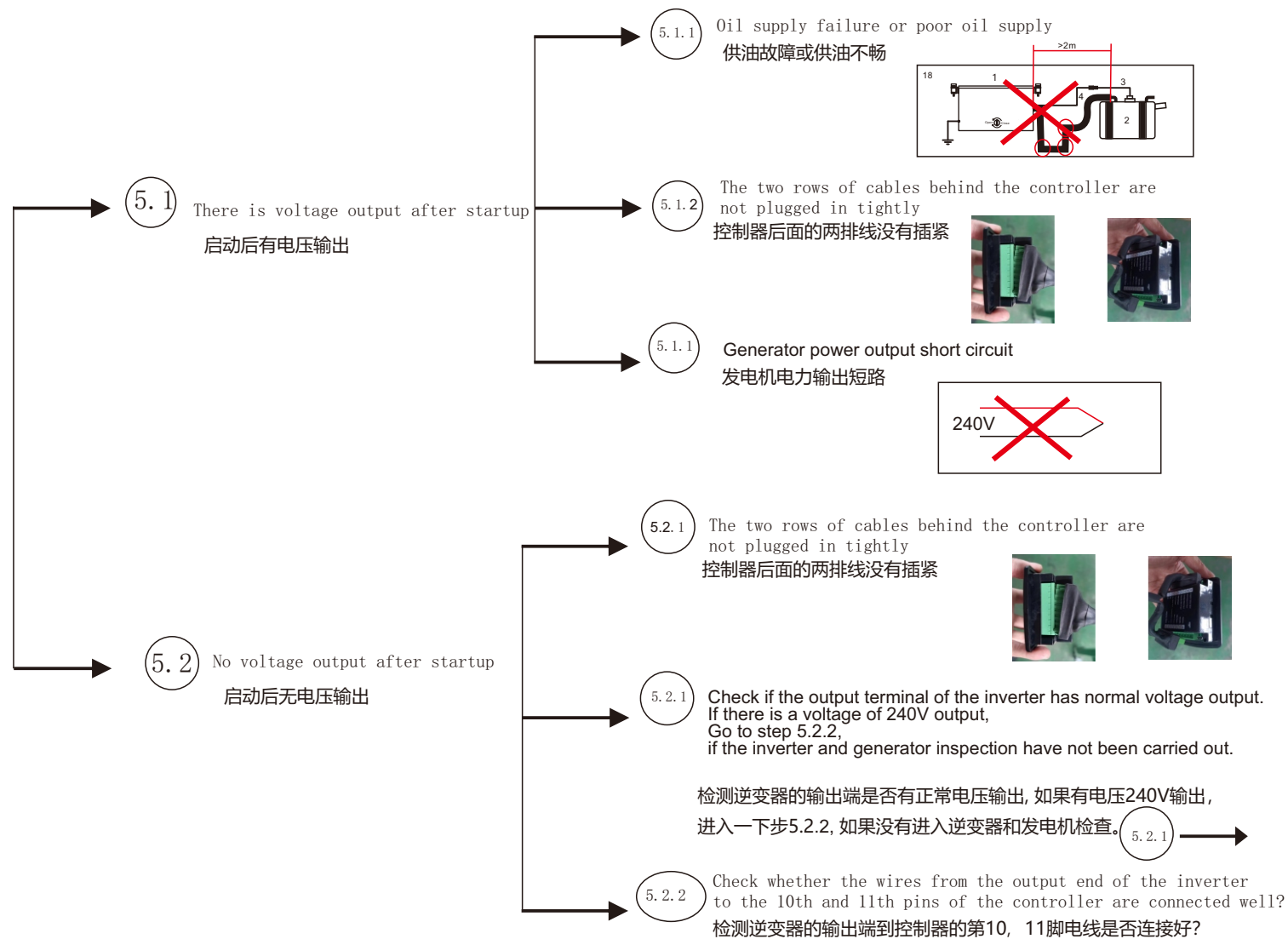


5

The generator stops immediately after starting
发电机启动后立即停机

5

The generator stops immediately after starting
发电机启动后立即停机



5.2. 2

Inverter and Alternator inspection
逆变器 and 发电机检查

5.2. 2.1

After the generator starts, immediately check the alternator to see if there are three-phase AC290-450V outputs on the three wires, If there is, the alternator is normal.

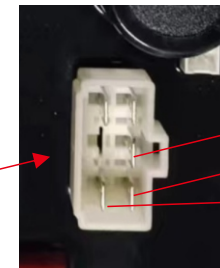
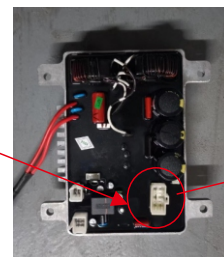
If it is not confirmed that the three-phase alternator is damaged, it needs to be replaced

当发电机启后立即检查交流发电机，三条线是否有三相AC290-450V输出，

如果有则交流发电机正常。

如果交流发电机没电压输出，或电压低于200V输出则是交流发电机已损坏，需要更交流发电机

5.2. 2.1



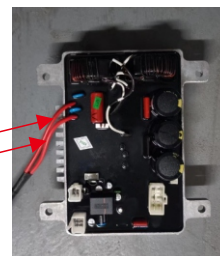
3phase AC290-450V input

5.2. 2.1

When the alternator has a three-phase voltage of 290-415V and the inverter does not output 240V, it is determined that the inverter is faulty.

交流发电机有三相电压290-415V转出时，逆变器如果没有240V输出，那确定逆变器已坏。

Single phase 240v Output



How to judge whether the inverter is damaged

如何判断逆变器是否损坏

5.2. 2.1 Alternator replacement 更交流发电机

5.2. 2.1 Alternator replacement 更交流发电机

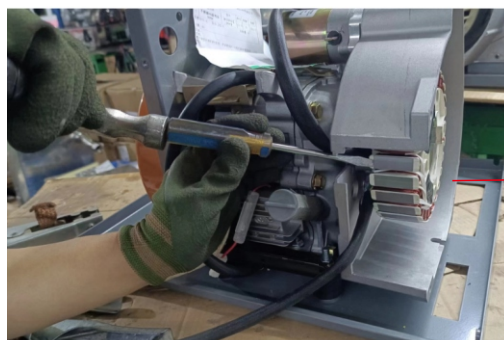
5.2. 2.1.1

The alternator flywheel is removed with a special pulling tool.
交流发电机的飞轮用专用拉拔工具拆下。



5.2. 2.1.2

Remove the stator of the alternator from the base as shown in the figure below.
交流发电机的定子从机座上取下，用以下图示方法。

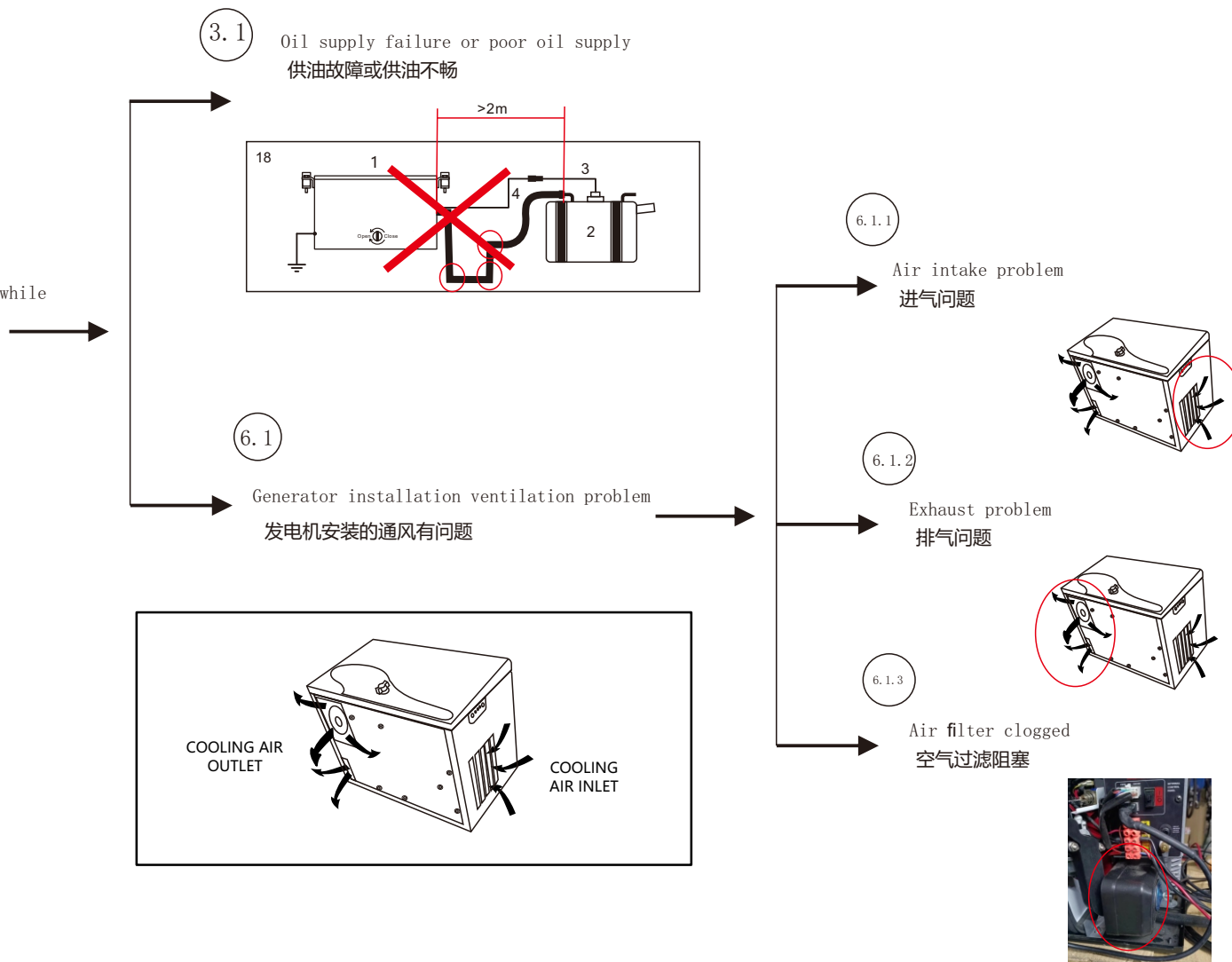


⑥

The generator starts normally, stops after 5-30 minutes of operation
发电机启动正常，运行5-30分钟后停机

⑥

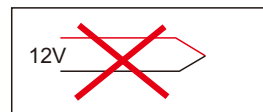
The generator starts normally, stops after 5-30 minutes of operation, restarts after a while, but stops after a while
发电机启动正常，运行5-30分钟后停机，等一会儿又能启动，但过一会儿又停机



7 After the generator starts, the starter motor will not retract, and the sound of the motor being driven by the engine is heard, hum. hum. hum.....
发电机启动后，启动马达不会缩回，并听到马达被发动机带动的声音，嗡嗡.嗡嗡.....



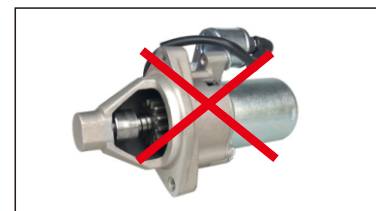
7.1 Faulty or short circuit in the circuit controlling the starter motor
控制启动马达的电路错误或短路



4.2 Starter motor relay Damaged
启动马达继电器损坏



4.3 Starter motor Damaged
启动马达损坏



7.2 Controller is damaged
控制器损坏



8

Stator damage - after the generator starts,
the engine spins and the speed loses control
定子损坏-发电机启动后，发动机飞车，转速失控

8. 1

The stator is damaged - the 7.6V output of the power supply winding is not present, or the enameled wire is damaged.

定子损坏-供电绕组7.6V 输出没有，或漆包线损毁。

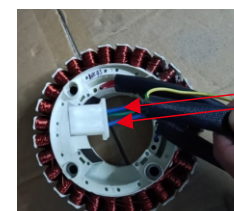


AC7.6V

8. 2

Affected by DC charging of 12.8V, the inverter supply voltage AC7.6V decreased, causing the engine to lose control. If this only disconnects DC12V charging, the generator will function normally.

受直流充电DC12.8V影响,逆变器供电电压AC7.6V下降,使得发动机失控。
如果这样只能断开DC12V充电,发电机就正常了。



AC18V → DC12V

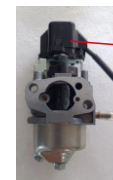
8. 3

Damaged carburetor
化油器损坏



8. 2

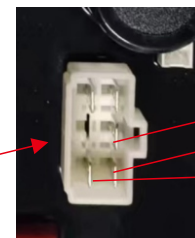
The stepper motor inside the carburetor is damaged
化油器内的步进电机损坏



9.1

Confirm that there must be three-phase 290V-415V input

确认要有三相290V-415V输入



3phase AC290-450V input

9.2

Confirm that there is AC7.6V inverter working voltage input

确认有AC7.6V逆变器工作电压输入



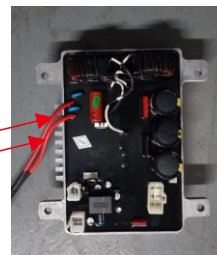
AC7.6V

9.2

When the above two conditions are met and there is no AC 240V,
it can be determined that the inverter is damaged.

同上满足以上两个条件时，没有交流电240V时，可确定逆变器已损坏。

Single phase 240v Output



Because the document may not be complete and comprehensive in a hurry, if you find any errors, please raise them.

因为匆忙文件可能不是很完整和全面，如果大家发现还有错误问题请提出。

thank you all!