

MV510series Medium-Voltage Inverter

MV510 系列中压变频器

Maintenance Manual

维护手册

Taian Technology (Wuxi) Co., Ltd.

(TECO Group)

Rev 02

Chapter I Safety Precautions

第一章安全注意事项

Safety Precautions: 安全注意事项

- 1.1 Please read this manual carefully prior to use of the product.
使用本产品前请仔细阅读本说明书。
- 1.2 Be sure to follow instructions in this manual during use of the medium-voltage equipment with medium-voltage AC power inside that may lead to personal injury.
使用内部装有中压交流电源的中压设备时，请务必按照本手册的说明操作，以免造成人身伤害。
- 1.3 Please abide by instructions for various models during transportation or operation. Otherwise, personal injury may be caused.
各型号在运输或使用时应遵守使用说明。否则可能造成人身伤害。



- 1.4 Protect the VFD or its outer package from seawater or rainwater during transportation or storage. Otherwise, seawater or rainwater may enter the VFD and lead to damage.
VFD 或其外包装在运输或储存过程中不受海水或雨水侵蚀。否则，海水或雨水可能会进入 VFD 造成损坏。



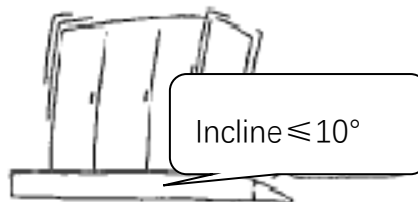
- 1.5 Check the marked weight of this VFD and select a proper crane for suspension and movement of this VFD. Please follow the operating instructions to avoid personal injury.
检查该变频器的标记重量，并选择合适的起重机进行悬挂和移动。请按照操作说明操作，避免人身伤害。

害。



- 1.6 Do not incline this VFD forward or backward by over 10 degrees during installation. Otherwise, the VFD may slide down and lead to injury.

在安装过程中不要将 VFD 向前或向后倾斜超过 10 度。否则，VFD 可能会下滑而导致损伤。



- 1.7 Keep balance under instruction of the work supervisor during transportation with roller. Otherwise, the VFD may slide down and lead to injury.

在辊子运输过程中，在工作主管的指导下保持平衡。否则，VFD 可能会下滑而导致损伤。



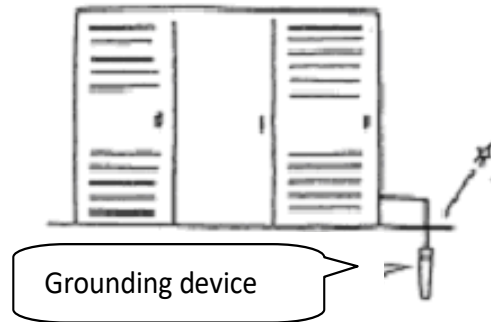
- 1.8 The user is not allowed to modify or move this VFD without permission. Except professionals, others modifying or moving the VFD may lead to electric shock, injury or fault.

用户不允许在未经允许的情况下修改或移动该 VFD。除专业人员外，其他人修改或移动变频器可能导致电击、伤害或故障。



- 1.9 Ensure the VFD is earthed. Otherwise, the decreased insulating capacity may lead to electric leakage or shock.

确保变频器接地。否则，降低的绝缘效力可能会导致漏电或触电。



1.10 The system parameters must be correctly set by the qualified personnel, as the system may be overloaded and damaged if the wrong parameters are set.

系统参数必须由专业人员正确设置，否则可能导致系统过载和损坏。



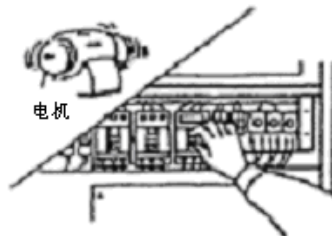
1.11 Only the qualified and trained personnel with proper safety measures are allowed to operate this VFD. Electric shock, injury or fault may be caused if it is operated by any person not qualified or trained.

只允许有资格和受过适当安全措施培训的人员操作本变频器。由未经培训的人员操作，可能会造成电击、伤害或故障。



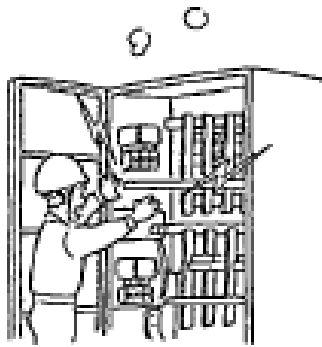
1.12 It is prohibited to switch off the main power and control power supply during operation of the drive and normal operation of the motor. Otherwise, the drive may break down.

变频器运行和电机正常运行时，禁止切断主电源和控制电源。否则，可能会导致变频器故障。



1.13 Do not open the cabinet door when the VFD is charged or has residual voltage.

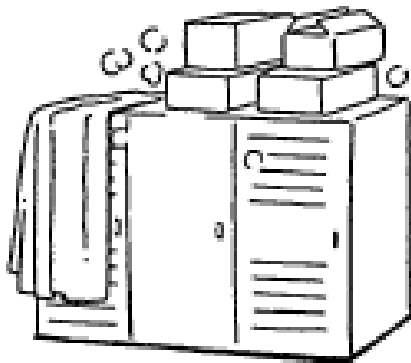
VFD 带电或有剩余电压时，请勿打开柜门。



- 1.14 In case of fire, please turn the circuit breaker of medium-voltage power and control power to the OFF position immediately, and do not attempt to use the VFD. Otherwise, fire may be caused.
如发生火灾，请立即将中压电源断路器和控制电源开关置于 OFF 位置，不要尝试使用变频器。否则可能引起火灾。



- 1.15 Do not block the air vents in the front, on the top and by the side of the equipment. Otherwise, internal temperature of the equipment may increase and lead to fault.
禁止堵塞设备前面、顶部和侧面的通风口。否则，可能会导致设备内部温度升高，导致设备故障。

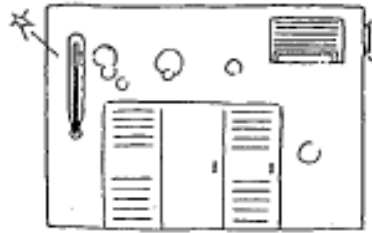


- 1.16 Please read the warning sign on the drive prior to operation. Otherwise, electric shock or injury may be caused.
操作前请阅读驱动器上的警告标志。否则可能导致电击或人身伤害。



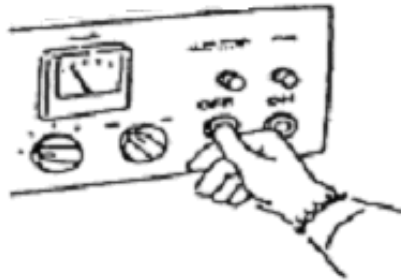
1.17 Do not stop air conditioner in the VFD room during operation. Otherwise, the room temperature may raise and lead to failure of the drive.

VFD 室内空调运行时，请勿关闭。否则，可能会导致室温升高，导致变频器故障。



1.18 Turn the circuit breaker of medium-voltage power and control power to the OFF position prior to cleaning or inspection.

清洁或检查前，先将中压电源断路器和控制电源开关置于 OFF 位置。



1.19 Do not touch the rotating cooling fan, or injury may be caused.

请勿触摸旋转的冷却风扇，否则可能造成伤害。



1.20 Do not take out any module rapidly from the rack, or apply excessive force to any side of the module after it is pulled out. Otherwise, the module may fall from the rack, leading to deformation, injury or failure.

请勿将功率单元快速从机架上拔出，也不要再拔出后对单元的任意一侧用力过大。否则可能导致单元

从机架上掉下，导致变形、损坏或失效。



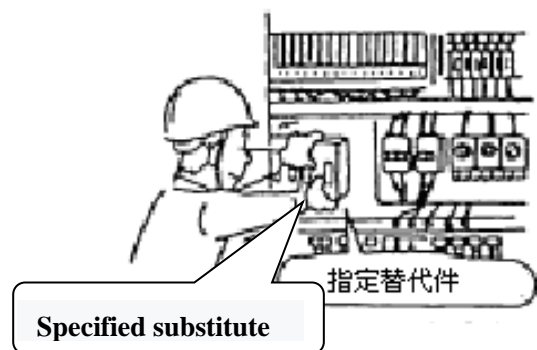
1.21 Please contact us timely in case of faults of operation. We will provide remote assistance or assign maintenance engineers to your site for solving the problem.

如发生操作故障，请及时与我们联系。我们将提供远程协助或指派维护工程师到您的现场解决问题。



1.22 Please use the replacement parts specified by us. Otherwise, burning, electric shock, injury or failure may be caused.

请使用我们指定的更换部件。否则可能导致烧伤、触电、损伤或故障。



Note: Please strictly follow the above safety specifications for operation. Otherwise, VFD damage and personal injury may be caused.

注:请严格按照以上安全规范操作。否则可能造成 VFD 损坏和人

Chapter II Equipment maintenance

第二章 设备维护

MV510 series medium voltage VFD generally consists of various cabinets as listed below (from left to right):

MV510 系列中压变频器一般由以下各种机柜组成(从左至右):

- Transformer cabinet (变压柜)
- Power cell cabinet (功率单元柜)
- Control cabinet (控制柜)

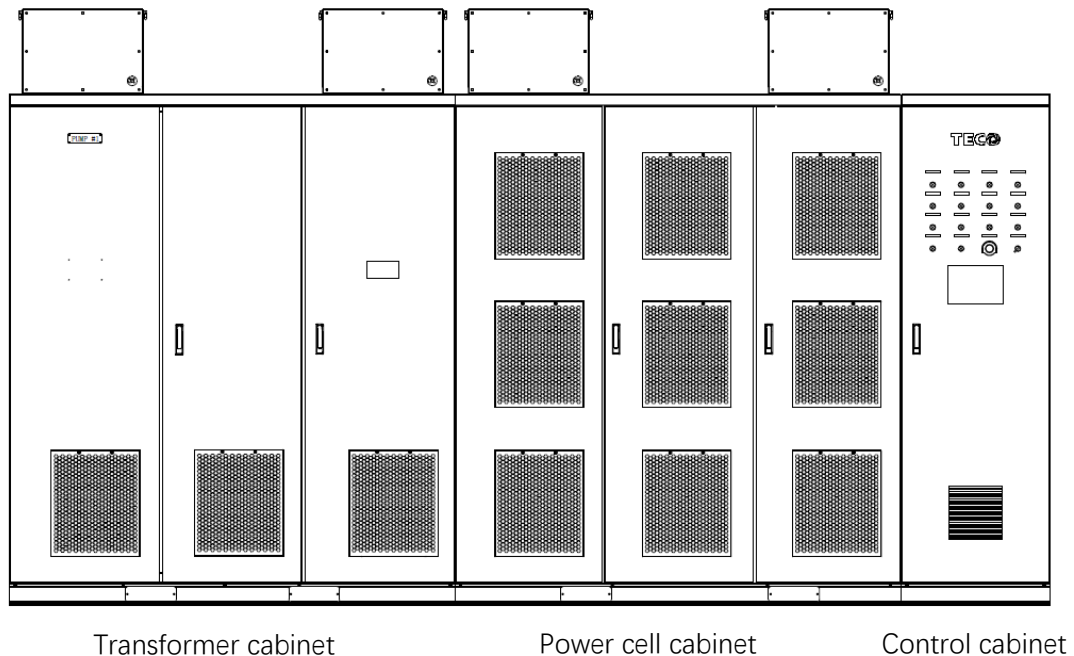


Diagram 1-1

Note:

This diagram is only the external dimensions of the company's product selection MV510-F66/200-S00 (6.6kV 2250kVA). Due to the different capacity of the inverter, the cabinet size will change accordingly. Please refer to the random size for detailed dimensions. Equipped with outline drawing.

注：此图仅为本公司产品选型 MV510-F66/200-S00 (6.6kV 2250kVA) 的外观尺寸。由于变压器的容量不同，机柜的大小也会相应变化。详细尺寸请参考随机外形图。

Electronic equipment cannot be used permanently, even in normal working conditions, if it exceeds the service life, it will produce characteristic changes or malfunction. In order to prevent such failures, preventive maintenance such as daily inspections, periodic inspections and deep inspections must be performed.

电子设备不能永久使用，即使在正常工作条件下，如果超过使用寿命，就会产生特性变化或故障。为了防止此类故障，必须进行预防性维护，如日常检查、定期检查和深度检查。

The medium-voltage inverter is composed of IGBT (Insulated Gate Bipolar Transistor), semiconductor components such as IC, electronic components such as capacitors and resistors, and various components such as fans and relays. If all of these components do not function properly, you will not be able to perform the functions your product should have.

中压变频器由 IGBT(绝缘栅双极晶体管)、IC 等半导体元件、电容、电阻等电子元件以及风扇、继电器等各种元器件组成。如果所有这些组件都不能正常工作，您将无法完成您的产品应有的功能。

Please follow the checklists in this section to perform regular inspections.

请按照本章列出的检查清单进行定期检查。

Note: When installing the medium-voltage inverter in the following environment, shorten the periodic inspection cycle as compared with the normal case.

注:在以下环境中安装中压变频器时，应缩短定期检查周期。

•High temperature environment

•高温环境

•Frequent start and stop environment

•频繁的启停环境

•Frequent power on and off environment

•频繁电源开关环境

•Environment with AC power or load fluctuations

•交流电源或负载波动环境

•An environment with excessive vibration or shock

•振动或冲击过大的环境

•Environment with dust, metal dust, salt, sulfuric acid and chlorine

•粉尘、金属粉尘、盐、硫酸、氯等环境

•Storage in a poor environment

•储存环境恶劣

◆ 2.1 Daily inspection 日常检查

The daily inspection of our medium-voltage inverter is shown in Table 2.1. In order to avoid malfunction of the medium-voltage inverter and product damage, please confirm the following items every day.

中压变频器的日常检查如表 2.1 所示。为了避免中压变频器故障和产品损坏,请每天确认以下事项。

Table 2.1 Daily Checklist (Overall)

表 2.1 日常检查表(总体)

Check item	Inspection matters	Check bar
Surroundings 环境	Is the ambient temperature normal?(0-40°C) 室温是否正常? (0-40°C)	
	Is the humidity normal?(<90%,No condensation) 湿度是否正常,有无冷凝现象?(<90%)	
	Are there any harmful gases? 有有害气体吗?	
	Are dust, oil mist, etc. attached? 有灰尘、油雾附着吗?	
Overall device 总体外观	Are there any abnormal sounds and vibrations? 有什么异常的声音和振动吗?	
	Is there any smell? 有什么异味吗?	
Transformer 变压器	Is the transformer temperature normal? 变压器温度是否正常?	
HMI 人机操作界面	The touch screen displays whether it is clear and whether characters are missing? 触摸屏显示是否清晰,字符是否缺失?	
	Are the parameters displayed normal? 显示的各项参数是否正常?	
	Is the unit temperature normal? 单元温度是否正常?	
Circuit 电回路	Is there any abnormality between the protection circuit and the display circuit? 保护电路和显示电路是否有异常?	
	Whether the main circuit voltage and the control voltage are normal (Measured by meter or unit operating voltage displayed through HMI)? 主回路电压和控制电压是否正常(用仪表或通过 HMI 显示的单元工作电压测量判断)?	
Indicator light 指示灯	Is the display normal? 显示是否正常?	
LV Control component 低压控制元件	Are the electronic components working properly? 各电子元器件是否正常工作?	

◆ 2.2 Periodic inspection 定期检查

The periodic inspection of our medium-voltage inverter is shown in Table 2.2. Under normal circumstances, it is recommended to conduct regular inspections every 6 to 12 months, but please determine the actual inspection frequency in combination with the actual use and working environment of each inverter. Regular inspections help prevent medium-voltage inverters from functioning and product damage.

中压变频器的定期检修如表 2.2 所示。一般情况下，建议每 6-12 个月定期检查一次，但实际检查频率请结合各变频器的实际使用情况和工作环境确定。定期检查有助于防止中压变频器运行和产品损坏。

➤ Regular maintenance inspection general steps

定期维护检查一般步骤

(1) Cut off all power supplies of the medium-voltage inverter: cut off the main power and control power of the medium-voltage inverter, UPS power off;

切断中压变频器所有电源:切断中压变频器主电源和控制电源，关闭 UPS 电源；

(2) Wait for more than 15 minutes, confirm the implementation of item (1), and confirm the discharge of the power cell;

等待 15 分钟以上，确认执行第(1)项，确认功率单元放电完成；

(3) Confirm that the switch has been reliably disconnected and grounded;

确认开关断开并可靠接地；

(4) Open the medium-voltage inverter cabinet door and check the inspection item list item by item (refer to the periodic inspection table);

打开中压变频柜门，逐项检查检查项目清单(参考定期检查表)；

(5) Confirm maintenance inspection work;

确认维修检查工作；

(6) Confirm that the maintenance work is completed;

确认维修工作已完成；

(7) Confirm that the power supply is connected correctly and reliably;

确认电源连接正确可靠；

(8) Confirm that the tools are not in the cabinet;

确认工具不在机柜内；

(9) Close and lock the door, re-power on, and confirm the maintenance;

关闭门锁，重新上电，确认维修；

(10) Fill in the maintenance inspection report and file it.

填写检修报告并存档。



Danger: To prevent electric shock

危险:防止触电

Do not perform inspections while the main circuit power supply and control power are on. Otherwise there is a danger of electric shock.

不要在主电路电源和控制电源接通时进行检查。否则有触电的危险。

Please turn off the power of all devices before checking. Even if the main circuit power supply is cut off, there is residual voltage in the capacitor inside the medium

voltage inverter. **Wait for more than 15 minutes after turning off the power.**

检查前请关闭所有设备的电源。即使切断主电路电源，中压逆变器内部的电容器内仍有残余电压。关闭电源后，请等待 15 分钟以上。

Table 2.2 Periodic inspection table

表 2.2 定期检查表

Check parts	Check item	Inspection matters	Inspection methods and criteria	Check bar
Overall 总体		Are there any water stains inside the cabinet? 柜体内部有无水渍?	Visual/Instrument inspection: no damage, no pollution, no abnormalities. 目视/仪器检验: 没有伤害, 没有污染, 没有异常	
		Are bolts、nuts and all the parts loose? 螺栓、螺母和各零件是否松动?		
		Is there any damage or discoloration of parts caused by overheating or aging? 零件因过热或老化有什么损伤, 变色?		
		Are sundries and dust attached? 有杂物还有灰尘附着吗?		
Transformer & Power cell 变压器和 功率单元	Transformer 变压器	Check for anything abnormal in the external appearance. 检查外观是否异常。	Visual/Instrument inspection: no damage, no pollution, no abnormalities. 目视/仪器检验: 没有伤害, 没有污染, 没有异常	
		Is the coil part and insulation paper damaged? 线圈和绝缘纸损坏了吗?		
		Is the coil deformed? Does the insulation layer change color? 线圈是否变形? 绝缘层是否变色?		
		Is there any dust or foreign matter on the coil part? 线圈部分是否有灰尘或异物?		
	Power cell 功率单元	Is the series copper bar and fixing screw loose? 串联铜排和螺丝松动了嘛?		
		Is the signal transmission fiber loose? And replug it. 信号传输光纤是否松动?并重新插拔。		
		Is the optical fiber flush with the optical fiber head?		

		光纤与光纤头是否平齐?		
		Is there any dirt or dust on the heatsink? 散热片上有灰尘吗?		
	Wire 线缆	Is the wire insulating layer damaged or aged? 电线绝缘层是否损坏或老化?		
Control section 控制部分	Relay 继电器	Is there any high frequency vibration when moving? 运转时是否有高频振动?	Visual inspection: no damage, no pollution, no abnormalities. 目视/仪器检验: 没有伤害, 没有污染, 没有异常。	
		Is the timer's operating time normal? 计时器的工作时间是否正常?		
		Is the contact loose? 接触是否松动?		
	Circuit board 电路板	Is the buckle in good condition? Is the label complete? 卡扣是否完好? 标签是否完整?		
		Is there any smell or discoloration? 有什么气味或变色吗?		
		Is the power supply normal? 电源是否正常?		
	Switch 开关	Are the resistors and plugs loose? 这些电阻和插头松动吗?		
Is the switch action normal? 开关动作正常?				
Cabinet Door 柜门	Door strainer 柜门滤网	Is it dirty or clogged? 脏或是堵塞?	Visual inspection: no damage, no pollution, no abnormalities. 目视/仪器检验: 没有伤害, 没有污染, 没有异常。	
	Door 柜门	Is there deformation damage? 有无变形损伤?		
		Is the grounding wire of the cabinet door intact? And secure? 柜门接地线是否完好? 并固定牢靠?		

◆ 2.3 Deep inspection 深度检查

The periodic inspection of our medium-voltage inverter is shown in Table 2.2. Under normal circumstances, it is recommended to conduct deep inspections every 2~3 years, but please determine the actual inspection frequency in combination with the actual use and working environment of each inverter. Regular inspections help prevent medium-voltage inverters from functioning and product damage.

中压变频器的深度检修如表 2.3 所示。一般情况下，建议每 2-3 年定期检查一次，但实际检查频率请结合各变频器的实际使用情况和工作环境确定。定期检查有助于防止中压变频器运行和产品损坏。

➤ Deep maintenance inspection general steps

深度维护检查一般步骤

(1) Cut off all power supplies of the medium-voltage inverter: cut off the main power and control power of the medium-voltage inverter, cut off the UPS power;

切断中压逆变器所有电源: 切断中压逆变器主电源和控制电源，关闭 UPS 电源；

(2) Wait for more than 15 minutes, confirm the implementation of item (1), and confirm the discharge of the power cell;

等待 15 分钟以上，确认执行第(1)项，确认电池放电；

(3) Confirm that the switch has been reliably disconnected and grounded;

确认开关已可靠断开接地；

(4) Open the medium-voltage inverter cabinet door and check the inspection item list item by item (refer to the periodic inspection table);

打开中压逆变柜门，逐项检查检查项目清单(参考定期检查表)；

(5) Confirm maintenance inspection work;

确认维修检查工作；

(6) Confirm that the maintenance work is completed;

确认维修工作已完成；

(7) Confirm that the power supply is connected correctly and reliably;

确认电源连接正确可靠；

(8) Confirm that the tools are not in the cabinet;

确认工具不在机柜内；

(9) Close and lock the door, re-power on, and confirm the maintenance;

关闭门锁，重新上电，确认维修；

(10) Fill in the maintenance inspection report and file it.

填写检修报告并存档。



Danger: To prevent electric shock
危险: 防止触电

Do not perform inspections while the main circuit power supply and control power are on. Otherwise there is a danger of electric shock.

不要在主电路电源和控制电源接通时进行检查。否则有触电的危险。

Please turn off the power of all devices before checking. Even if the main circuit power supply is cut off, there is residual voltage in the capacitor inside the medium voltage inverter. **Wait for more than 15 minutes after turning off the power.**

检查前请关闭所有设备的电源。即使切断主电路电源，中压逆变器内部的电容器内仍有残余电压。关闭电源后，请等待 15 分钟以上。

Table 2.3 Deep inspection table

表 2.3 深度检查表

Check parts	Check item	Inspection matters	Inspection methods and criteria	Check bar
Transformer & Power cell 变压器和功率单元	Overall 总体	Check with megger (between main circuit terminal and ground terminal) 用兆欧表检查(在主回路和接地端子之间)	Visual/Instrument inspection: no damage, no pollution, no abnormalities. 目视/仪器检验: 没有伤害, 没有污染, 没有异常。	
	Power cell 功率单元	Does the capacitor leak liquid? 电容是否漏液?		
		Is the safety valve of the capacitor extended? 电容的安全阀是否打开?		
		Does the capacitor expand? 电容会膨胀吗?		
		Is the main circuit fuse and the control fuse on the board normal? 主板上的主电路保险丝和控制保险丝是否正常?		
Cooling system 冷却系统	Cooling fan 冷却风扇	Is the bearing normal? Is there shaking in manual rotation? 轴承正常吗? 手动转动是否有晃动?	Visual inspection: no damage, no pollution, no abnormalities. 目视/仪器检验: 没有伤害, 没有污染, 没有异常。	

Please perform deep inspection as follows.

请进行如下定期检查。

■ Inspection with megohmmeter (insulation measurement)

用兆欧表检查(绝缘测量)

Please use a 2500V megohmmeter. The acceptance criteria are 2500 MΩ or more. The steps are as follows:

请使用 2500V 兆欧表。验收标准是 2500 MΩ 或更多。步骤如下:

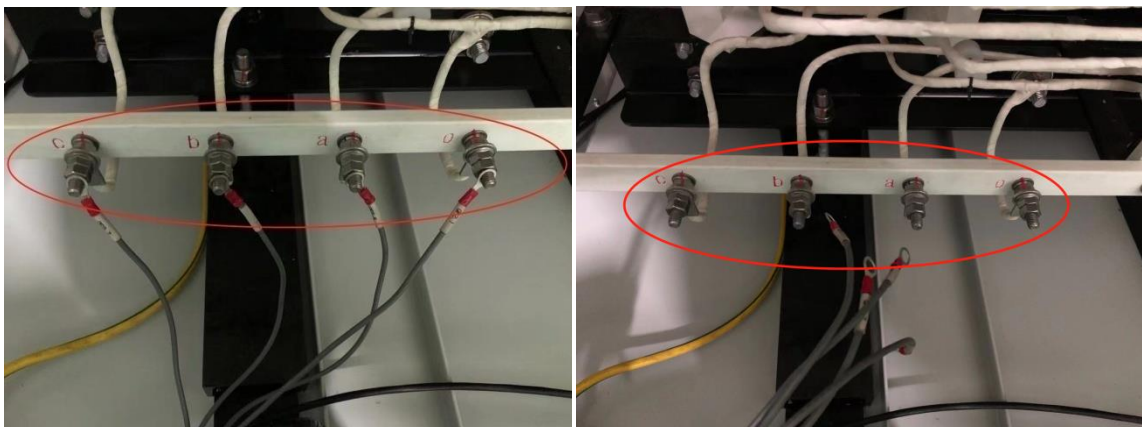
Step 1: Remove the following cables 拆除如下线缆

- VFD Input/output voltage detection cable; 输入/输出电压检测线
- Transformer auxiliary winding cable; 变压器辅助绕组线
- Power cell input(R,S,T) cable; 单元输入(R、S、T)线
- Lightning arrester cable; 避雷器线
- Temperature controller; 温控仪线
- PT100; 温度检测探头
- Transformer core; 变压器铁芯



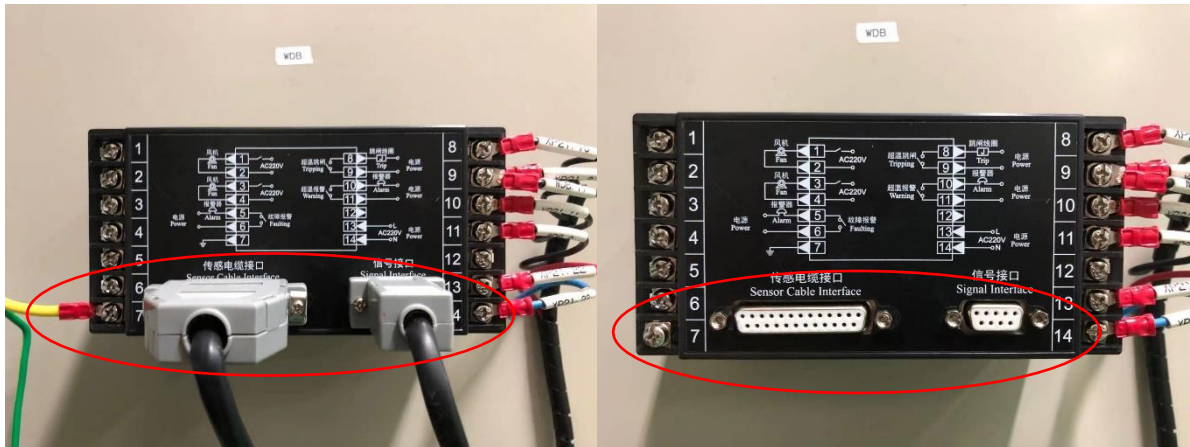
(Step1: Power cell Input terminal)

(单元输入端)



(Step1: Transformer auxiliary winding)

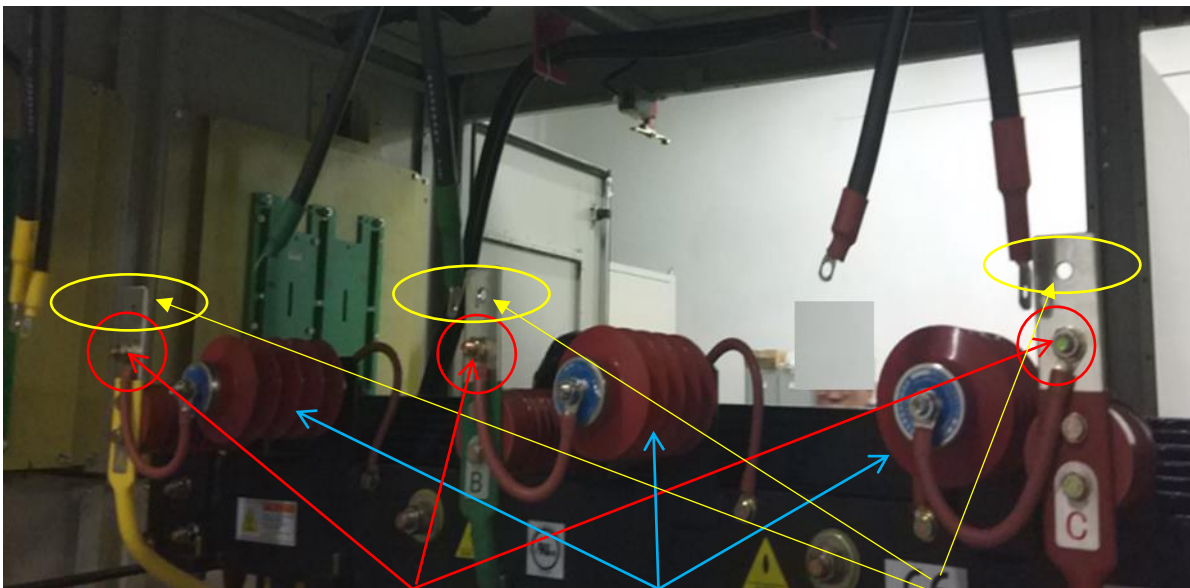
(变压器辅助绕组)



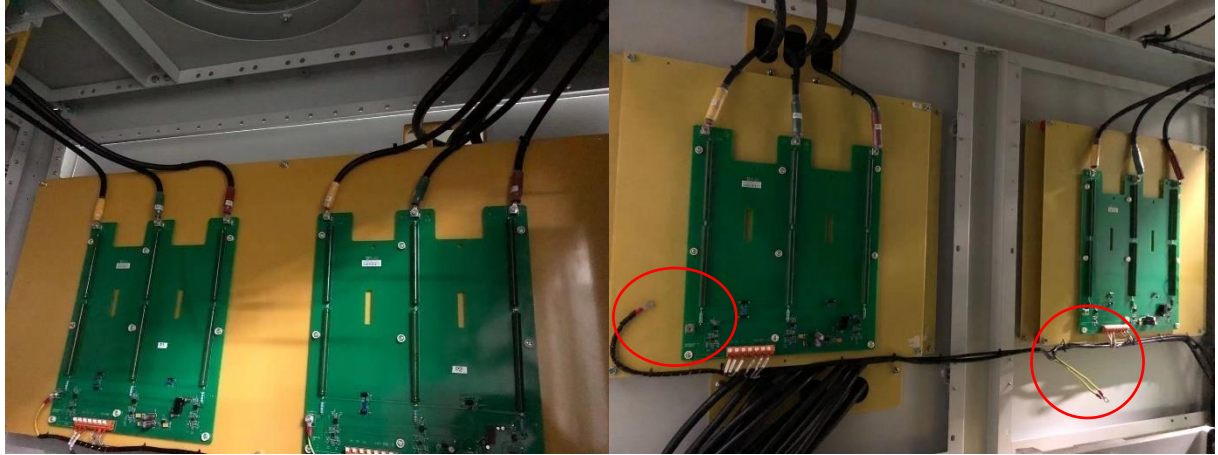
(Step1: Temperature controller)
(温控仪)



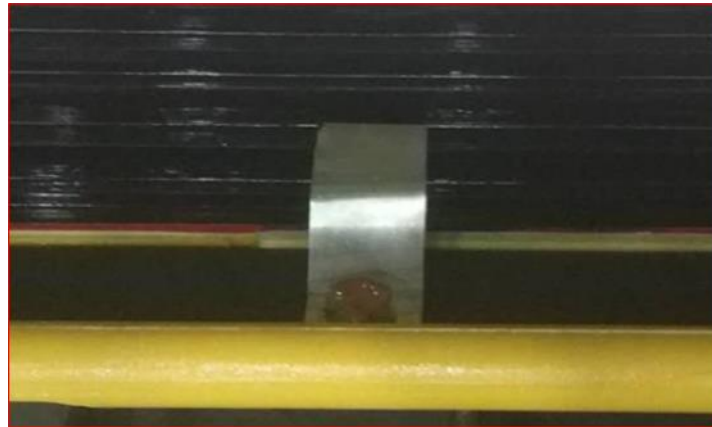
(Step1: PT100)



(Step1: Wire of Lightning Arrester 避雷器接线 Lightning arrester 避雷器 TR Input cable) 变压器输入线



(Step1:Voltage detection board)
(电压采样板)



(Step1:Transformer core)
(变压器铁芯)

- Step 2: High voltage to LV, auxiliary winding and Ground.
高压对低压、辅助和地

Short connect the input of TR with copper wire (+), and then short all output LV terminals, auxiliary winding and ground together (-).

用铜丝将变压器三相输入短接 (+), 再将所有低压端子、变压器副边和地短接在一起 (-)。

Please refer to the pictures shown in Figure 2-3-1.
如图 2-3-1 所示。



2-3-1

➤ Step 3: LV to auxiliary winding and GND

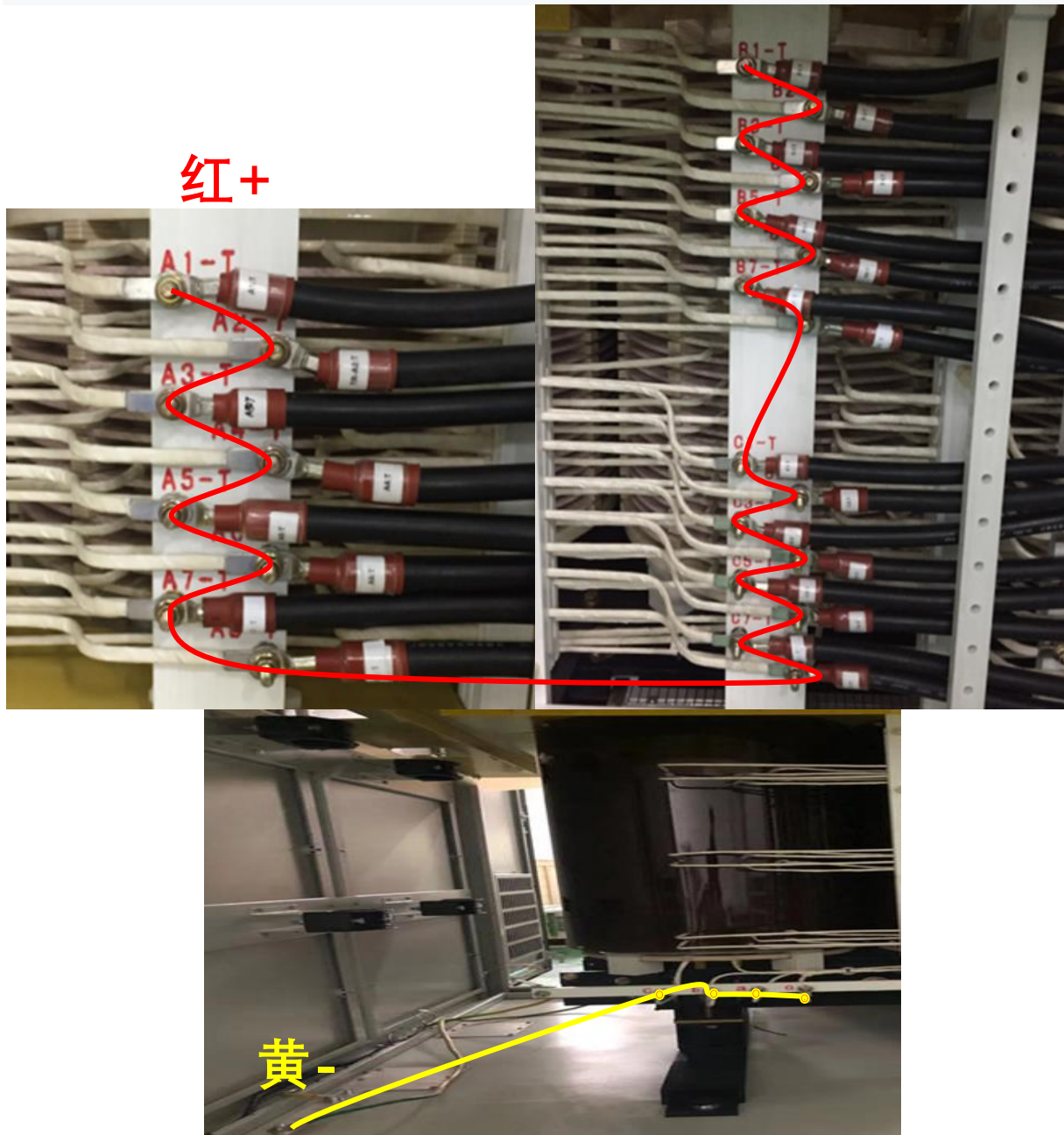
低压对辅助、地

Short all LV terminals (+) . Short auxiliary winding and GND (-) .

将所有低压端口用铜丝短接 (+)，变压器副边和地短接 (-)。

Please refer to the pictures shown in Figure 2-3-2.

如图 2-3-2 所示。



2-3-2

➤ Step 4: Auxiliary winding to GND

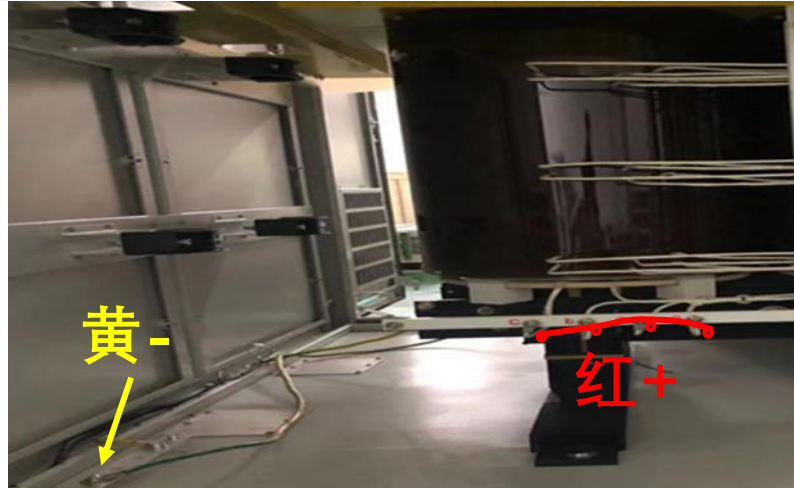
辅助绕组对地

Short all auxiliary windings. Connect insulation test device with auxiliary winding (+) and GND (-) .

将变压器副边（辅助绕组）用铜丝短接，再用绝缘测试仪两端探头分别接到变压器副边 (+) 与接地端 (-) .

Please refer to the pictures shown in Figure 2-3-3.

如图 2-3-3 所示。



2-3-3

➤ Step 5: Core to GND

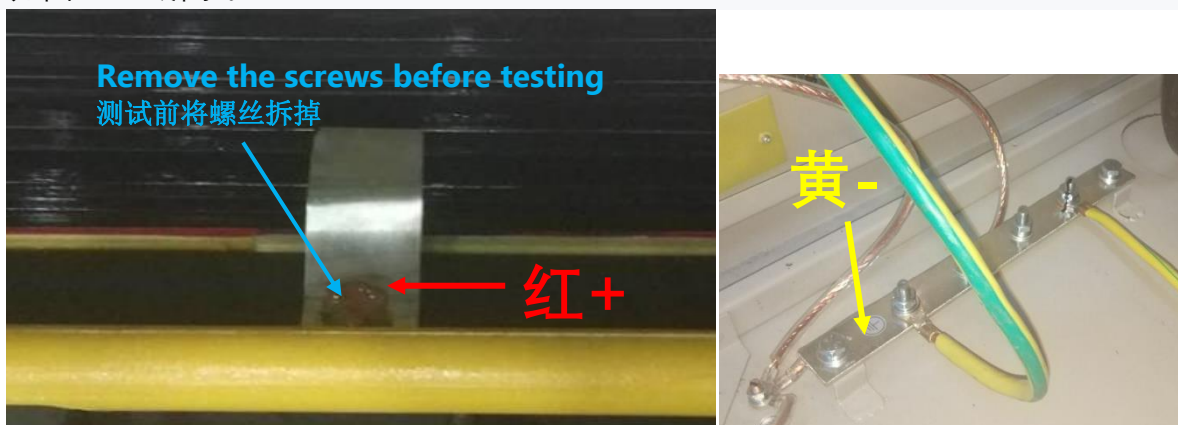
铁心对地

Connect insulation test device with Core (+) and GND (-) .

用测试仪两端探头分别接到铁心端 (+) 与地端 (-) .

Please refer to the pictures shown in Figure 2-3-4.

如图 2-3-4 所示。



Take good care of screws and nuts after removal.

拆除后保管好螺丝和螺母。

2-3-4

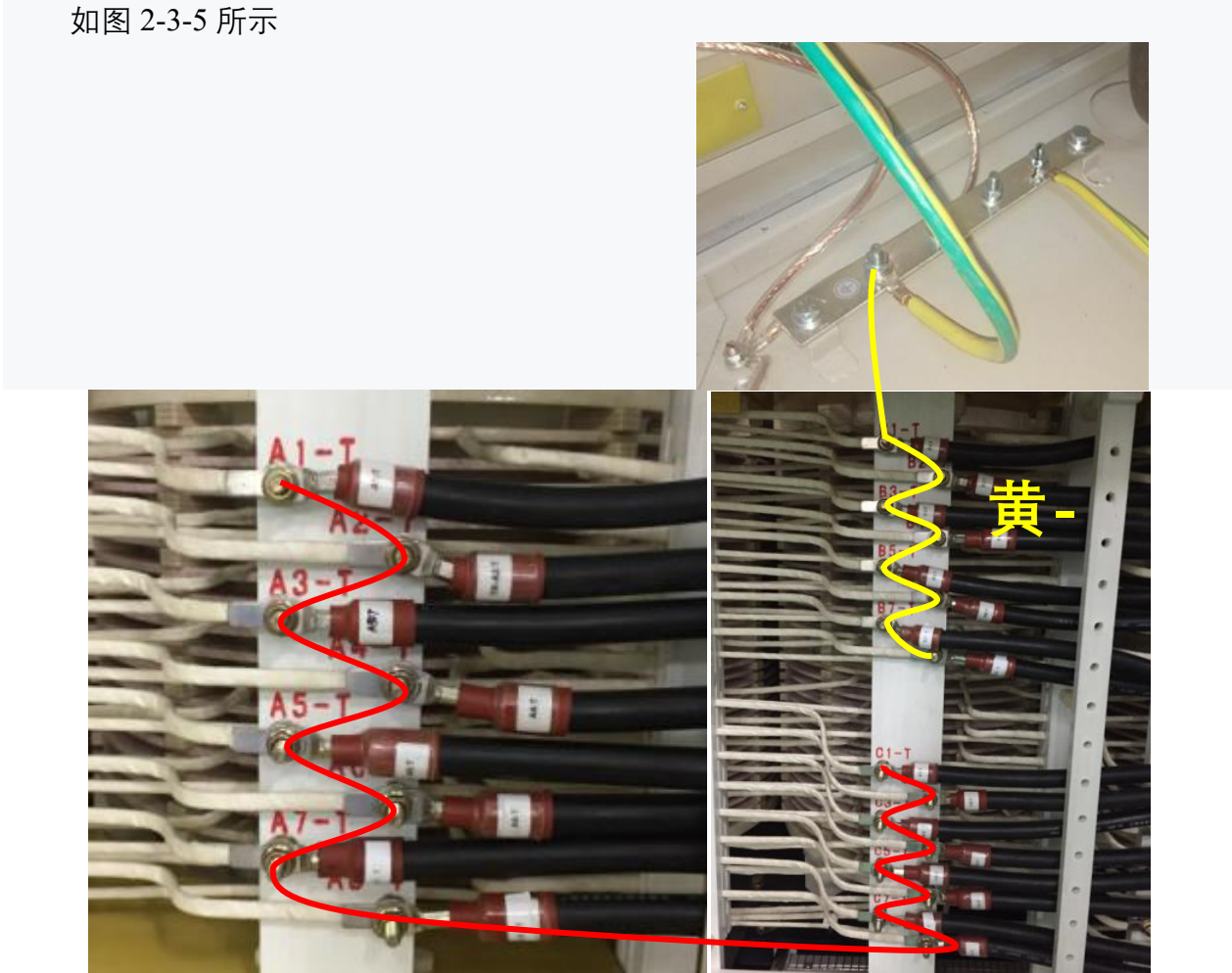
➤ Step 6: LV among phases
 低压饼间

Short all terminals of Phase A and Phase C (+) . Short all terminals of Phase B and GND (-) .

将 A 和 C 两相所有接线端子用铜丝短接一起 (+), B 相所有接线端子和接地铜排用铜丝短接 (-) .

As shown in Figure 2-3-5

如图 2-3-5 所示



2-3-5

红+

■Screws, bolts and connectors 螺钉、螺栓、连接器

If the connection of the main circuit wires is loose, it may cause a fire due to overheating of the wire connections. When performing regular inspections, be sure to tighten the screws and bolts again

如果主电路电线的连接是松散的，它可能引起火灾，由于电线连接过热。定期检查时，一定要重新拧紧螺钉和螺栓

Tightening torque(拧紧力矩):

M5 bolts: 2.5 to 3.5 N·m

M6 bolts: 4.4 to 6.6 N·m

M8 bolts: 8.9 to 10.8 N·m

M10 bolts: 18 to 23 N·m

M12 bolts: 31.5 to 39.5 N·m

M16 bolts: 78.5 to 98 N·m

Check the following areas 请检查以下部位:

·Inverter input terminal, Inverter output terminal

逆变输入端、逆变输出端

·Input voltage detection circuit (option), output voltage detection circuit

输入电压检测电路(选配)，输出电压检测电路

·Transformer primary terminal, primary voltage tap terminal

变压器一次端子，一次电压抽头端子

·Transformer secondary terminal

变压器二次端子

·Power cell input and output terminals, fiber optic cable connectors

电池输入和输出端子，光纤电缆连接器

·Power cell screws, bolts and connectors

功率单元螺钉、螺栓和连接器

·Control power input terminal

控制电源输入端子

·Control transformer input terminal and output terminal (optional)

控制变压器输入端和输出端(可选)

·Power relay input and output terminal for cooling fan

冷却风扇的电源继电器输入输出端子

·Various control circuit board screws, bolts and connectors

各种控制电路板螺丝、螺栓和连接器

·Control input terminal, output terminal

控制输入端、输出端

◆ 2.4 Component replacement 组件更换

In order to maintain the normal operation of the inverter for a long time, it is necessary to check and replace the parts according to the durability of the consumables. The approximate standard for periodic inspection varies depending on the setting environment and usage of the inverter. Please refer to Table 2.2 for regular maintenance.

为了保持变频器长时间的正常运行，需要根据耗材的耐用性对部件进行检查和更换。定期检查的近似标准根据逆变器的设置环境和使用情况而不同。定期维护请参见表 2.2。

- For replacement of the cooling fan, refer to “User manual”.

更换冷却风扇，请参考“用户手册”。

- For the replacement of the power cell, refer to “User manual”.

更换功率单元，请参考“用户手册”。

For the replacement of following other parts, you need to consult with the company's agent or sales person who purchased this medium-voltage inverter.

如需更换以下其他部件，请咨询购买该中压变频器的公司代理或销售人员。

- Cooling fan 冷却风扇
- Contactor for cooling fan 冷却风扇接触器
- Power cell capacitor 功率单元电容
- Rectifier 整流器
- IGBT
- Fuse 保险丝
- PCB board PCB 板
- UPS 不间断电源
- Breaker 断路器
- Relay class 继电器

Component replacement recommended time 组件更换推荐时间

The standard replacement period for periodic replacement parts is shown in Table 2.4. When replacing, please use our replacement parts that match the model and version of the medium-voltage inverter used.

定期更换部件的标准更换周期如表 2.4 所示。更换时，请使用与中压变频器型号和版本相匹配的替换件。

Table 2.4 Recommended replacement period

Device name 设备名称	Standard replacement years 标准更换周期
Cooling fan 冷却风扇	Run time 40000 hours(小时)
Electrolytic capacitor 电解质电容	5 years(年)
UPS 不间断电源	5 years(年)

A printed circuit board 印刷电路板	8 years(年)
Fuse 保险丝	10 years(年)
DC power supply 直流电源	10 years(年)

NOTICE: The standard replacement period is based on the conditions listed below. The times stated are for guidance, and the lives of the parts are not guaranteed for these times. Some parts may require more frequent replacement due to poor environments or rigorous use.

Usage conditions for standard replacement period:

- **Ambient temperature: Yearly average of 30°C.**
- **Load factor: 80% maximum.**
- **Operation time: 12 hours or fewer a day.**

注意: 标准的更换期限是基于以下条件。所述的时间是为指导，不保证零件的实际使用寿命。由于恶劣的环境或严格的使用，一些部件可能需要更频繁的更换。

标准更换期使用条件:

- 环境温度: 年平均 30°C
- 负载系数: 最大 80%
- 运行时间: 每天不超过 12 小时

Note: This manual is applicable to the MV510 series high-voltage inverter produced by Taian Technology (Wuxi) Co., Ltd. Thank you for reading again. Please call our engineering and technical personnel for any questions, we will be happy to help you!

注: 本手册适用于台安科技(无锡)有限公司生产的 MV510 系列高压变频器。再次感谢您的阅读。如有任何疑问，请致电我们的工程技术人员，我们将竭诚为您服务!



ATT: Test method for fan rotation direction 风机转向测试方法

1. 变频器上高压电，风机正常运转后，断开 QF3, 绕行至变频器背面，观察风机转向（从左至右）；若旋转方向错误，则更改客户端 380Vac 控制电相序（XT11 1/2/3）。

When the high voltage is on the VFD and the fan is in normal operation, disconnect QF3, circle to the back of the VFD, and observe the turning of the fan (from left to right); If the rotation direction is wrong, change the client 380VAC control electrical phase sequence (XT11 1/2/3).

2. 变频器上高压电，风机正常运转后，断开 QF3、QF1, 待风机静止后重新闭合 QF3, 风机运转 2S 后，断开 QF3, 绕行至变频器背面，观察风机转向（从左至右）；若旋转方向错误，则更改 QF2 上端 380Vac 低压电相序（QF2 1/3/5）。

When the high voltage is on the VFD and the fan is in normal operation, disconnect QF3 and QF1, and close QF3 again after the fan stop running. After 2s operation of the fan, disconnect QF3, and go around to the back of the VFD to observe the turning of the fan (from left to right). If the rotation direction is wrong, change the 380VAC low voltage phase sequence (QF2 1/3/5).

Tips:

若绕行至变频器背后无法确认风机旋转方向，可用一张纸贴近柜门进风口，观察是否吸附。

If the rotation direction of the fan cannot be confirmed after winding to the back of the VFD, a piece of paper can be used to close to the air inlet of the cabinet door to observe whether it is attached.

