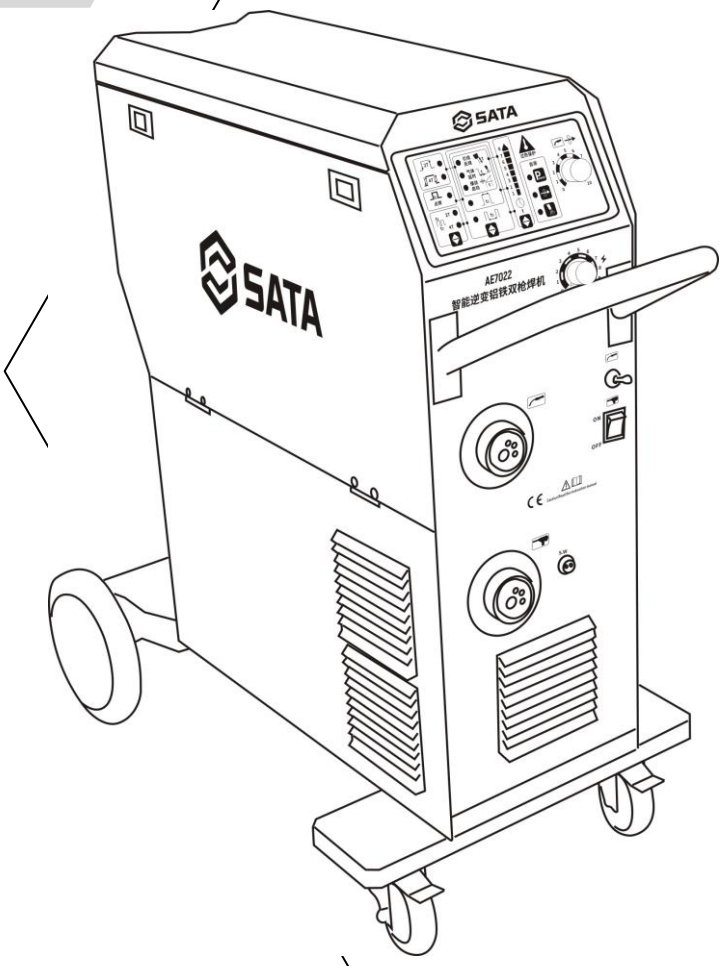
智能逆变铝铁双枪焊机
说明书



适用型号：

AE7022

版 本 号：

V-AR-7022-1903-01

www.satatools.com
400-820-3885 800-820-3885

请在操作此设备前仔细阅读本手册

目录

一、 功能简介：

1. 一机双枪，铁铝车兼修，焊铁焊铝一指切换，免换焊丝；
2. 变频式电源，焊接性能优异，高速点焊，飞溅少，汽修薄板利器；
3. 方便实用的焊枪支架，焊枪摆放整齐，美观大方；
4. 焊铁使用德国宾采尔 15AK 焊枪，可搭配 300mm 送丝盘，焊铝使用新款拉丝枪，送丝距离短，稳定可靠，枪上可调速。

二、 安全说明

提醒: 重要安全信息！你的行为关系到你的安全！

所有人在安装、使用与维修之前都要阅读以下条规与说明，并且根据它们进行操作。如果对这些说明不了解，请与供货商联系。如果违章操作后果自负。操作员必须熟悉和遵守关于电焊机的安全规章。

1．电击

警告：电击是危险及潜在至命因素的!

◆确定电源线良好接地。

◆避免接触与抓把带电部分。

◆穿戴绝缘手套和衣服隔绝工件与地面。

◆保持外衣（手套，鞋，帽，衣服）和躯体干燥。

◆不要在潮湿的场地工作。

◆不要用没有盖子的机器。

◆如果你感觉到哪怕是轻微的电击也要立即停止焊接，直到问题解决了才能工作。

◆在换电源线或拆机维修之前，务必使电源线脱离电源。

◆使小孩远离焊接场地。

◆只能用正规的备用配件更换损坏的部件。

◆不要去掉电机的安全标志。

◆只能由了解机器安全的资深人员维修机器。

2．火灾

◆移开所有在三十尺内的易燃物。

◆不要在含高浓度易燃蒸汽、气体和尘埃的场地焊接。

◆避免由于火花、飞溅物及高温金属引起火灾。

◆在焊接场地预备灭火器。

◆不要在包含易燃物质的密封型场所焊接。

◆不要在你的口袋放打火机、火柴等易引火的物质。

◆不要穿戴有油垢的衣服以免由火星引起火灾。

3．爆炸

◆不要在高压容器瓶附近焊接。

◆不要在包含易爆的尘埃、气体的场所焊接。当机器用自动焊接时，以下气体或气体混合物：二氧化碳、氩气、氩氮混合气要有气体保护设施。

4．烧伤

◆ 穿戴防火衣服以免由以下的原因引起烧伤：电弧、火花、火星、熔渣。防护衣服包括：手套、帽

子、高套鞋等。你的衣领和口袋要扣紧。穿窄口的裤子以避免火生飞溅物烧伤。

◆ 戴有适当镜片的头盔。在焊接和切割时这对保护你的眼睛以免电弧中的紫外线辐射很必要的。当镜片破裂或其上有过多熔渣时及时更换适当的镜片。

◆不要穿戴有油垢的衣服以免由火星引起火灾

◆没戴手套的情况下不要接触热金属、电极、工件。

◆急救设备和急救人员到随时准备处理眼睛或皮肤烧伤，除非附近有急救中心。

◆当在头顶上方作业时要戴耳塞和硬的帽子。

◆在工件冷却前不要触摸。

5. 光的防护：

记住：弧光能使眼花或损坏眼睛。在 15 米之内对人眼都是有害的。不要以裸眼看弧光。弧光中的紫外光线可能伤害你的眼睛或烧坏你的皮肤。所以：

◆穿戴适当的衣服和头盔。

◆用面具或带遮光镜片的头盔设备，更换已损坏的设备。

◆在焊接场所不要有反光物，以减少紫外光线的辐射。

◆当阁下准备焊接时，给周围的人发出焊接警告。

6.毒气

警告：不要使用氧气作为流通气体。

在焊接作业过程中能产生危害身体的有害气体和金属尘埃。所以：

◆保持焊接场所良好通风。

◆在封闭场所要安装抽风系统。

◆如果通风系统不适宜，请装上吸尘器。

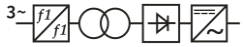
◆在焊接之前，请清洁工件的表面，因为表面的物质能在焊接过程中产生的害气体。

◆电弧能产生臭氧，不要长时间暴露在高浓度的臭氧中。

◆常检查气管避免气管漏气。

三、 技术参数

本公司有权对技术进行不定期修改．恕不另行通知，请以实物为准．相关参数一般在机器铭牌上标示，请仔细查看！

型号	AE7022	智能逆变铝铁双枪焊机	
	三相变压器		直流输出
	MIG 焊		适合一般工作环境
U0	额定空载电压	42V	
X	负载持续率	20%	100%
I2	额定焊接电流	200A	90A
U2	约定负载电压	24V	19V
U1	额定输入电压	220V	
I1max	额定最大输入电流	37.5A	
I1eff	最大有效值输入电流	29A	
防护等级		IP21S	

四、 安装与连接

使用环境

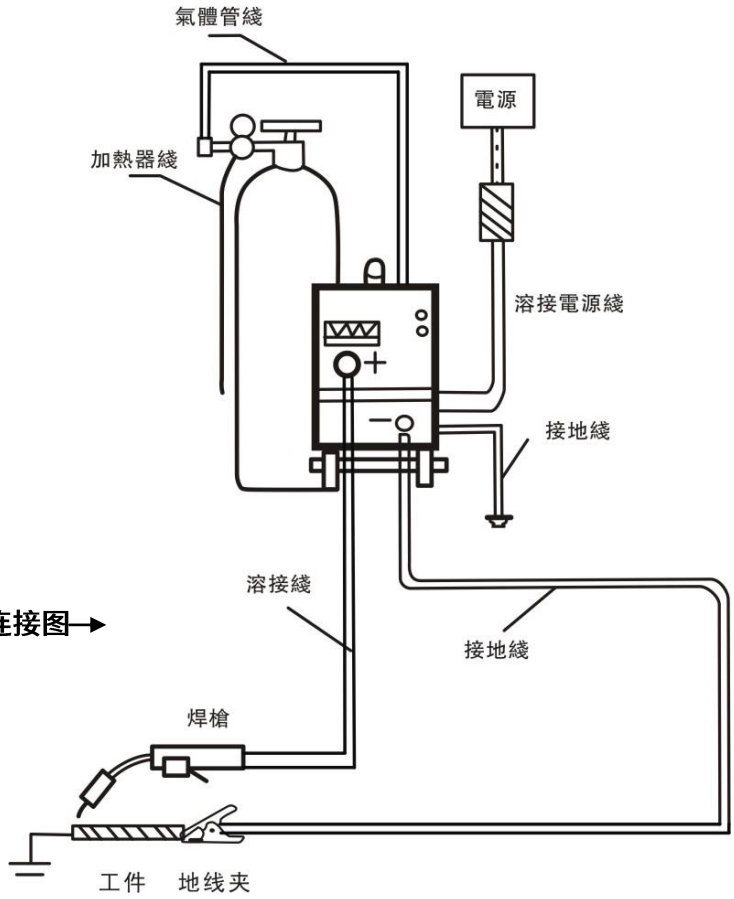
- ◆ 相对湿度小于 90%，无雨淋
- ◆ 周围无粉尘、无易燃、易爆及腐蚀性气体.
- ◆ 环境温度低于 40°C
- ◆ 海拔高度低于 1000m

供电要求

- ◆ 按照电焊机的技术参数，允许波动±10%
- ◆ 输入电源导线截面积≥3mm²

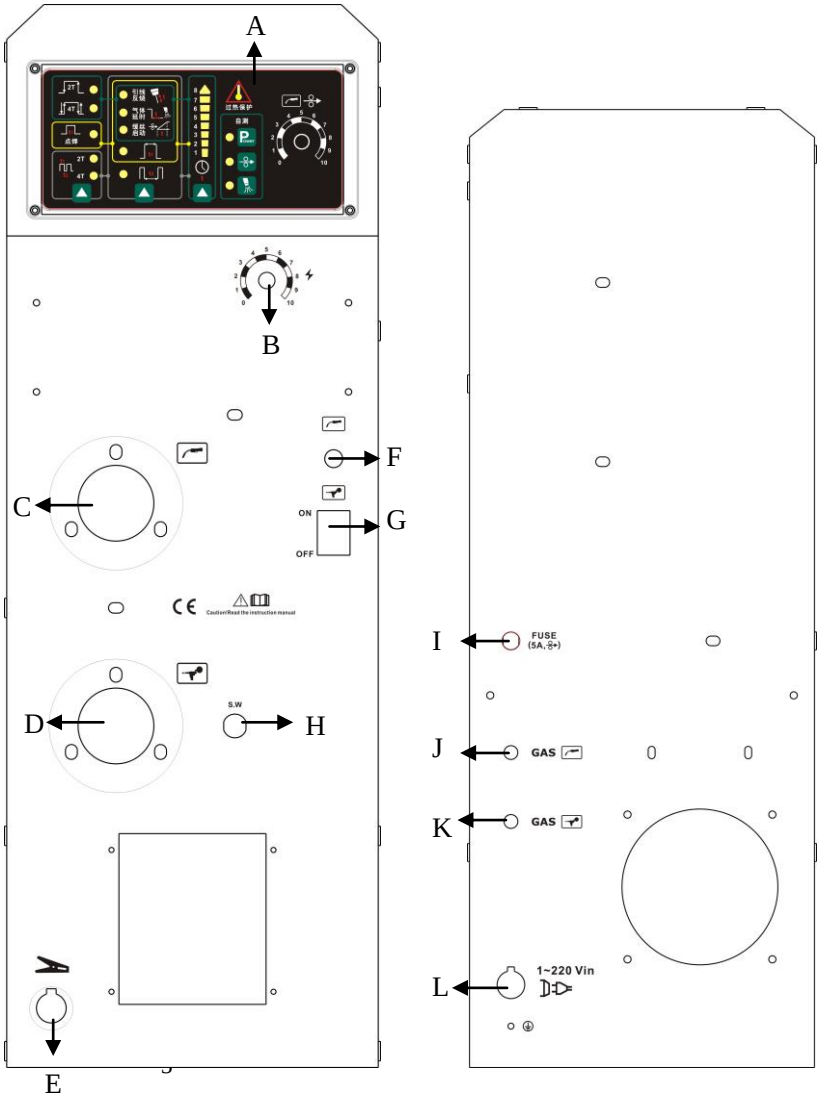
根据机器或门刀开关，配合适的保险丝.

电气连接图→

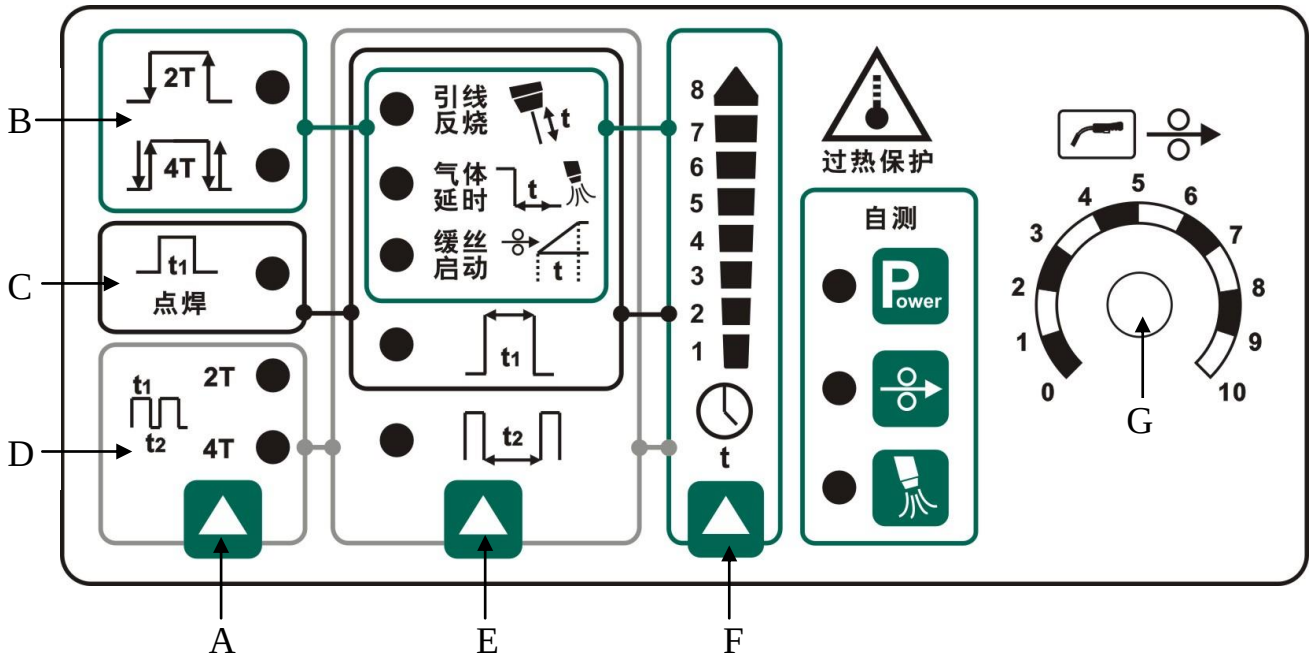


五、 面板功能介绍

A--- CPU 数位控制面板
B---输出电压调整（调整焊接电压）
C---枪头插座（接焊枪）
D---枪头插座（接拉丝枪）
E---地线接头（连接地线）
F---普通焊枪和拉丝枪选择开关
（可切换普通焊枪或拉丝枪）
G---电源开关
H---拉丝枪马达电源接头
I---保险丝
J---气体输入（焊枪）
K---气体输入（拉丝枪）
L---输入电缆（使用前请确认电源电压）



CPU 数位控制版本描述



A---功能选择

有三种模式：

B---一般焊接模式： 

---一般焊接 2T 模式， 

---一般焊接 4T 模式

C---点焊模式

D---缝焊模式： 

---缝焊模式 2T 模式， 

---缝焊模式 4T 模式

E---参数调整

一般焊接模式中 

---图示表示返烧， 

---图示表示气体后流， 

---图示表示缓起动送丝；

点焊模式中 t1 表示点焊时间/缝焊、烧焊时间；缝焊模式中 t2 表示缝焊间歇时间

F---焊接时间设定

数字越大，焊接时间越长

---图示，表示过热保护指示灯

---图示，表示送电检验


---图示，表示送丝检验/快送丝


---图示，表示送气检验

G---送丝速度调整（调整位数越大，送丝速度越快）

六、 注意事项

- 用者需定期检查地线夹螺丝销紧程度与导电铜片铜块的使用情况。
- 定期检查火口，清理火口内的焊渣。焊渣容易造成火口电极之间短路。
- 定期检查焊枪。

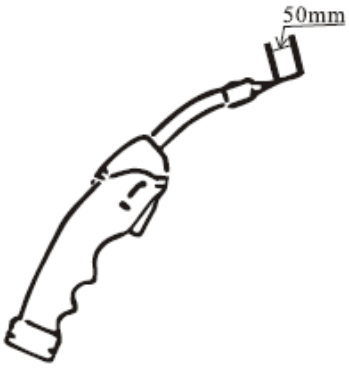
  焊枪检查方法：焊枪接到机器上，装上焊丝。启动送丝功能，等焊丝伸出焊枪火口一段距离后，停止送丝，松开马达的压紧手柄和滚轮。将焊枪电缆拉直，用手拉动从火口伸出的焊丝。拉动一段距离，如感觉拉动焊丝不顺畅，阻力很大，请检查焊枪损坏。如焊枪送丝不顺，阻力大，容易导致送丝马达损坏。
- 机器外部供电电路需要符合机器用电需求。必须连接工业电路，相关的断路器，空气开关等设施必须符合工业用电标准。禁止使用一般家用电路。由于使用不当的供电电路，供电设备导致机器故障或安全事故，机器生产商和经销商，不需承担相关责任。

七、 操作指南

- 当一切准备就序后，合上相电源总闸，给焊机送电；
- 打开电源控制开关，指示灯亮，风扇转动；
- 按动焊枪开关送丝，送丝速度可以通过电位器来调节，直到焊丝送出焊枪嘴部。

  注意：在送丝出枪口时，请尽量把枪线拉直，且要把焊枪导电嘴摘下，

  等焊丝送出后再装上，如图所示：

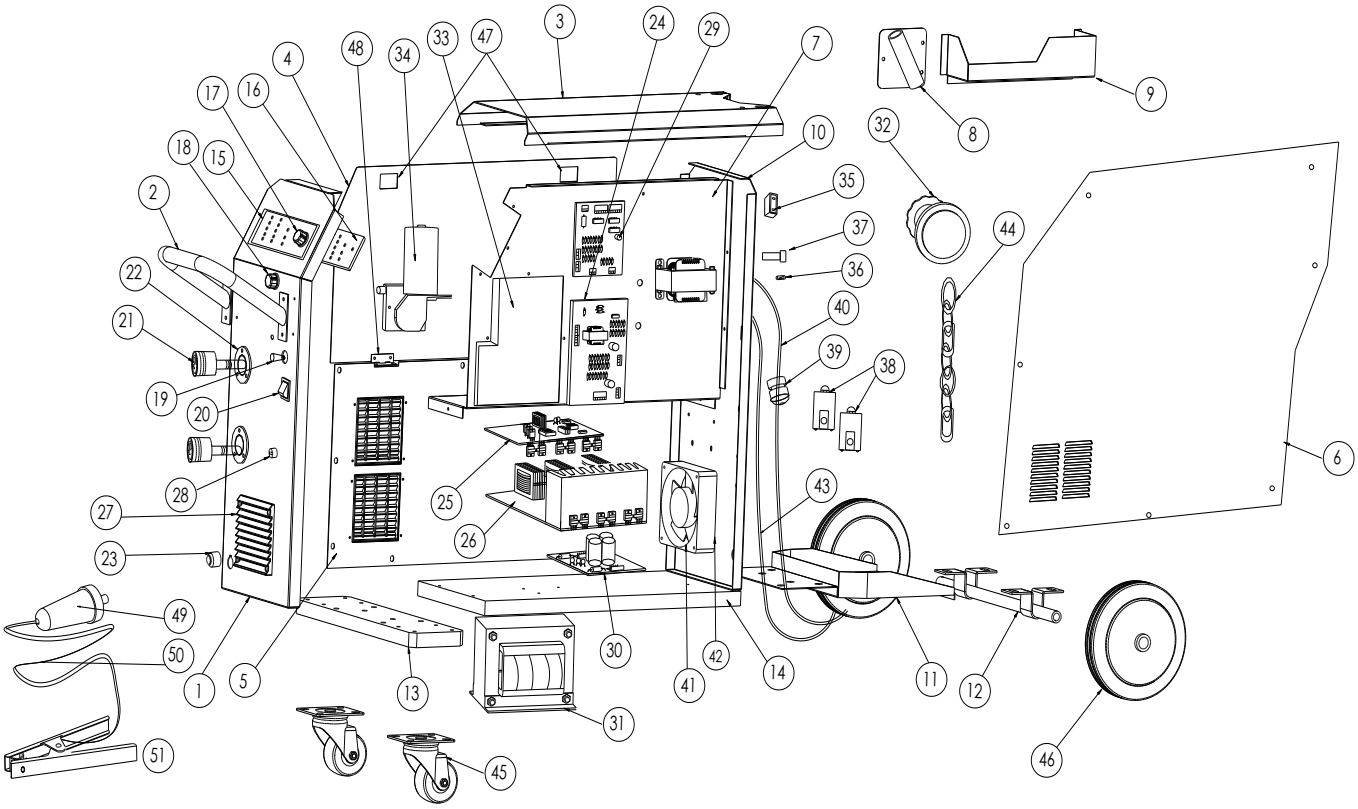


- 打开气瓶，按动焊枪开关，检查有无气流，且调好气流量；
- 根据工件的大小和焊丝的直径等，调节送丝速度旋钮和电压文件位在适当的位置；
- 把地线连于工件上，按动焊枪开关，起弧；
- 正常焊接；
- 松开焊枪开关，结束焊接过程。
- 当焊接工作完成，应关掉电源和气瓶。

八、常见故障

故障现象	故障原因	排除方法
送丝不稳定	（1）压丝太紧或太松	◆调节送丝轮与焊丝是否配套
	（2）送丝软管阻力太大，软管铜粉及藏东西太多	◆更换送丝软管
	（3）送丝盘太紧	◆将送丝盘轴阻尼螺柱调松
	（4）焊丝生锈、乱线、不均匀	◆改用品质好的焊丝
焊枪按下开关而无焊	（1）焊枪开关或控制线损坏	◆解下焊枪，将焊枪插座（在焊机板面上）
	（2）保险丝烧坏	◆请检查及更换，若换后亦不能正常工作请与供货商联络处理
	（3）线路板损坏	◆请与供货商联络
电流输出减少	（1）地线夹接触不良	◆地线钳接触部分尽量清洁或更换
	（2）焊枪没有拧紧	◆请将焊枪适当地拧紧
	（3）供电缺相或三相严重不平衡	◆请立刻停机及检查阁下厂房之供电是否出现毛病，请尽早排除。若继续使用将有可能损坏主变压器或减短其使用寿命，致使焊接效果不良。
工件扭歪	（1）工件定位不好	◆在焊接前，可沿界面处点焊定位 ◆采用束持器，将工件固定
	（2）热量输入过大	◆选用较低电压或减低送丝速度 ◆提高焊接速度 ◆分段焊接致使焊道分段冷却
太多飞溅物	（1）送丝速度太快	◆选用较低送丝速度
	（2）电流、电压太高	◆选用较低焊接电流、电压
	（3）焊丝太长	◆焊丝改为较短距离
	（4）工件脏	◆将工件上的油渍、水、油漆及保护层清除
	（5）保护气不足	◆提高保护气流量防止进风影响电弧
	（6）焊丝不洁	◆采用清洁及干燥焊丝，确保焊丝在送丝时不沾水及油
穿孔	（1）热量输入过大	◆选用较低电压及送丝速度◆提高焊枪移动速度或保持稳定
焊道歪斜	（1）焊丝出线太长	◆确保焊丝不超过 2mm
	（2）手不稳定	◆依靠对象作固定或采用双手持枪
焊接有气孔	（1）缺少保护气体	◆检查气瓶是否压力不足及流量不足，流量应为 8-15L/MIN
	（2）保护气体不足	◆消除喷咀飞溅物，检查气喉是否漏气，避免大风，喷咀距离工件 7 至 13mm，焊枪接近熔池，直至熔池凝固
	（3）焊接现场风太大	◆请加屏风
	（4）焊枪喷咀内飞溅物太多	◆清除飞溅物，选用防飞溅膏或喷济，以便排除飞溅，若喷咀出现残缺，请尽快更换
	（5）气管穿孔漏气	◆检查 CO_2 气表输出至 CO_2 焊枪位置，排除故障
	（6）气阀不动作	◆请找资深合格的电工检查或更换
	（7）气体太差或焊丝太差	◆请找供货商

九、爆炸图及配件


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51

序号	世达配件编号	维修配件名称	序号	世达配件编号	维修配件名称
1	PAE7022-1	前板	27	PAE7022-27	塑料散热网
2	PAE7022-2	握把	28	PAE7022-28	5P 控制插座
3	PAE7022-3	顶板	29	PAE7022-29	送丝板
4	PAE7022-4	门板	30	PAE7022-30	电源板
5	PAE7022-5	左侧板	31	PAE7022-31	电抗器
6	PAE7022-6	右板	32	PAE7022-32	送丝轴
7	PAE7022-7	中隔板	33	PAE7022-33	马达盖
8	PAE7022-8	普通焊枪支架	34	PAE7022-34	送丝马达
9	PAE7022-9	拉丝焊枪支架	35	PAE7022-35	加热插座
10	PAE7022-10	后板	36	PAE7022-36	保险丝 5A
11	PAE7022-11	气瓶底板	37	PAE7022-37	保险丝座
12	PAE7022-12	脚轮轴	38	PAE7022-38	气阀 DC24V
13	PAE7022-13	前脚轮底板	39	PAE7022-39	电源线扣
14	PAE7022-14	底板	40	PAE7022-40	电源线
15	PAE7022-15	塑料面板贴纸	41	PAE7022-41	风扇
16	PAE7022-16	CPU 控制板	42	PAE7022-42	风扇网
17	PAE7022-17	旋钮	43	PAE7022-43	气管
18	PAE7022-18	4.7k 2w 电位器	44	PAE7022-44	铁链
19	PAE7022-19	摇头开关	45	PAE7022-45	活动脚轮
20	PAE7022-20	电源开关	46	PAE7022-46	固定脚轮
21	PAE7022-21	枪头接触器	47	PAE7022-47	门锁
22	PAE7022-22	枪头接触器胶壳	48	PAE7022-48	合页
23	PAE7022-23	欧式快插-插座	49	PAE7022-49	欧式快插-插头
24	PAE7022-24	主控板	50	PAE7022-50	地线电缆线
25	PAE7022-25	上板	51	PAE7022-51	地线夹
26	PAE7022-26	中板	52	PAE7022-52	控变

十、耗材配件及选配配件：

世达配件编号	耗材/选配配件名称	世达配件编号	耗材/选配配件名称
PAE7022-53	15AK 宾采尔焊枪	PAE7022-55	CO2 气表
PAE7022-54	单功能带丝枪	PAE7022-56	浮球式 AR 表

IMPORTANT: BEFORE STARTING THE EQUIPMENT, READ THE CONTENTS OF THIS MANUAL, WHICH MUST BE STORED IN A PLACE FAMILIAR TO ALL USERS FOR THE ENTIRE OPERATIVE LIFE-SPAN OF THE MACHINE. THIS EQUIPMENT MUST BE USED SOLELY FOR WELDING OPERATIONS.

1.Product Features

1. 1 Dual Torch For Steel & Aluminum Car Body Repair.
1. 2 BOSJOB Made Spool Gun for Aluminum: high cost-performance ratio. ABICOR BINZEL 15AK Gun.
1. 3 Specialized Welding Gun Support: Easy take out & Easy put in.
1. 4 High efficiency inverter power source, quick ignition, less spatter, good for car body repair.
1. 5 Good price / quality ratio

2. SAFETY PRECAUTIONS

WELDING AND ARC CUTTING CAN BE HARMFUL TO YOURSELF AND OTHERS. The user must therefore be educated against the hazards, summarized below, deriving from welding operations. For more detailed information, order the manual.

ELECTRIC SHOCK - May be fatal.

Install and earth the welding machine according to the applicable regulations.

Do not touch live electrical parts or electrodes with bare skin, gloves or wet clothing.

Isolate yourselves from both the earth and the workpiece.

Make sure your working position is safe.

FUMES AND GASES - May be hazardous to your health.

Keep your head away from fumes.

Work in the presence of adequate ventilation, and use ventilators around the arc to prevent gases from forming in the work area.

ARC RAYS - May injure the eyes and burn the skin.

Protect your eyes with welding masks fitted with filtered lenses, and protect your body with appropriate safety garments.

Protect others by installing adequate shields or curtains.

RISK OF FIRE AND BURNS

Sparks (sprays) may cause fires and burn the skin; you should therefore make sure there are no flammable materials in the area, and wear appropriate protective garments.

NOISE

This machine does not directly produce noise exceeding 80dB. The plasma cutting/welding procedure may produce noise levels beyond said limit; users must therefore implement all precautions required by law.

PACEMAKERS

The magnetic fields created by high currents may affect the operation of pacemakers. Wearers of vital electronic equipment (pacemakers) should consult their physician before beginning any arc welding, cutting, gouging or spot welding operations.

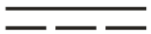
EXPLOSIONS

Do not weld in the vicinity of containers under pressure, or in the presence of explosive dust, gases or fumes. . All cylinders and pressure regulators used in welding operations should be handled with care.

ELECTROMAGNETIC COMPATIBILITY

This machine is manufactured in compliance with the instructions contained in the harmonized standard，and must be used solely for professional purposes in an industrial environment. There may be potential difficulties in ensuring electromagnetic compatibility in non- industrial environments.
IN CASE OF MALFUNCTIONS, REQUEST ASSISTANCE FROM QUALIFIED PERSONNEL.

3. DESCRIPTION OF TECHNICAL SPECIFICATIONS

Model	AE7022		
	Three-phase transformer-rectifier		DC output
	Metal inert gas welding		Suitable for general working environment
U0	Secondary no-load voltage (peak value)	42V	
X	Duty-Cycle Percentage	20%	100%
I_2	Output welding current	200A	90A
U_2	Secondary voltage with welding current I2	24V	19V
U_1	Nominal supply voltage	220V	
I_{1max}	Rated maximum input current	37.5A	
I_{1eff}	Maximum input current	29A	
Protection level		IP21S	

4. INSTALLATION

4.1 SETUP

Place the machine in a ventilated area.
Dust, dirt, or any other foreign material that might enter the machine may restrict the ventilation which could affect the machine's performance. Fasten the rotating support to the machine top and fix the handle, the wheeles, the bottle support and, if any, the cooling unit.

4.2 INPUT POWER CONNECTIONS

All sections concerning the installation of this machine must be read carefully.
This machine must be installed by skilled personnel.
Make sure that the input power plug has been disconnected before inspecting, maintaining, or servicing.
Connect the yellow-green wire to a good electrical ground.
Do not use water pipes as earth conductor.
After a final inspection, the machine should be connected to the input supply voltage marked on the input power cord.
If you wish to change the input supply voltage, remove the right side panel , locate the voltage-changing terminal board and arrange the connections as shown in ILLUSTRATION OF WORKING PRINCIPLE.

After having changed the supply voltage, re-place the upper cover.
This machine must never be used without the top and side covers. This is both for obvious safety reasons and to avoid interference with the machine's internal cooling system. The warranty is to be considered null and void it this machine is used without the protection of its top and side covers.
Mount a plug on the power supply cable that corresponds to the input power drawn by the machine.

4.3 OUTPUT CONNECTIONS

4.3.1 Wire feeder connection
This power source is compatible with the wire feeders. To connect the power source to the wire feeder units use the extension art. Performances and operating features of the wire feeder are described in the operating manuals supplied with the wire feeder itself.
4.3.2 Connecting the work return lead clamp.
Some versions have one impedance socket only.
Connect the male end of the work return lead to one of the impedance taps on the front panel of the machine. The impedance tap  designated by the provides the maximum amount of impedance which will produce nicely filleted we[illegible]s. This tap is recommended when welding aluminium, stainless steel, and carbon steels of binary or ternary composition. The impedance tap designated by the provides the least amount of impedance and is recommended when using carbon dio[illegible]e as a shielding gas to weld carbon steels, in the upwards vertical position, of binary or ternary composition.
It is generally advisable to use low impedance values for small diameter wires and high values for big diameter wires.
After having selected the proper impedance tap, attach the work return clamp to the work to be welded.
Make sure that the ground clamp is tightly fastened to the work return cable and periodically check that this connection remains well tightened. A loose connection can cause weld current drops or overheating of the work return lead and clamp which, in turn, creates the risk of burns from accidental contact with the work return lead. The weld circuit must not be placed deliberately in direct or indirect contact with the ground conductor if it is not in the work to be welded.
If the work to be welded is attached deliberately to the ground by a protection lead, then the connection must be the most direct possible and it must be done using a lead that has a cross section that is at least equal to the cross section of the work return lead being used for the weld circuit. The protection lead must also be attached to the work at the same spot as the work return lead. To do so, a second ground clamp, fitted to the protection lead, must be attached next to the ground clamp of the work return lead.

4.3.3 Connecting the gas hose.
Keep the cylinders in an upright position by chaining them to their support.
Keep the cylinders in a place where they cannot be damaged.
Do not lift the machine with the cylinder on its support.
Keep the cylinder away from the welding area and uninsulated electric circuits.
Cylinders containing inert gas have to be equipped with a pressure reducer and a flowmeter.
After having positioned the cylinder, connect the gas hose that comes out from the rear of machine to the pressure reducer output.
Regulate the gas flow to 8-10 L/min.

4.4 WELDING

4.4.1 INSTALLATION AND STARTER
Machine installation must be done by a competent staff. All connections must correspond to the rules in

force and must respect laws concerning accidents.
Check that the wire diameter corresponds to that indicated on the roll and mount the wire coil.
Connect the pipe coming out of the extension with the cylinder flowmeter.
Position the welding machine so as to allow free air circulation inside it and avoid that metal or any other.

4.4.2 THE MACHINE IS READY TO WELD

Connect the ground terminal to the part to be welded.

Turn the machine on.

Extract the conic gas nozzle by rotating it clockwise.

Unscrew the current nozzle.

Press the torch trigger to feed the wire until it comes out from the torch.

WARNING: Keep your face away from the terminal nozzle while the wire comes out.
Screw the current nozzle again, making sure that the hole diameter be the same as that the wire used.
Insert the welding conic gas nozzle by rotating it clockwise. Open the gas cylinder and adjust flowmeter at 8-10L/min.
WARNING: Check that the gas used is compatible with the material to be welded.

4.4.3 WELDING CARBON STEELS.

To weld carbon steels the following things are necessary:
1) The use of a binary shielding gas which is most commonly Argon and Carbon dioxide, in a ratio of 75-80 % Argon and 25-20% Carbon dioxide. Some applications, however, may require a mix of three gases: Argon, Carbon dioxide (CO_2), and dioxide (O_2). These gas mixtures generate heat during welding and as a result the weld bead will be well filleted and neat in appearance. The penetration, however, will not be deep.
The use of Carbon dioxide as the shield gas results in a narrow weld bead with deep penetration but the ionization of the gas will have an influence on arc stability.
2) The use of a filler wire of the same quality as the steel to be welded. It is recommended that high quality wires be used and that welding with rusted wires be avoided because they can give rise to defects in the weld bead. Generally, the current range within which a wire can be used is calculated in the following manner:
Ø of wire x 100= minimum number of Amperes.
Ø of wire x 200= maximum number of Amperes.
Practical example: 1.20 Ø wire= 120 Amps minimum and 240 Amps maximum. These amperages are based on the use of an Argon/CO2mixture as the shield gas and welding in the Short Arc transfer mode.
3) Avoid welding on rusted work pieces or work having spots of oil and grease present on the surface.
4) The use of a welding torch suitable to the welding currents that are going to be used.
5) Periodically check that the two handles making up the ground clamp are not damaged and that the welding cables (torch cable and the work return lead) do not have any cuts or burn marks that would reduce their efficiency.

4.4.4 WELDING STAINLESS STEEL

Welding stainless steels in the 300 series (the austenitic series) must be done using a shield gas mixture of predominantly Argon with a small percentage of O2 added to stabilize the arc. The recommended mixture is AR/O2 in the ratio of 98/2. Do not use CO2 or AR/CO2mixtures as the shield gas.

Do not touch the welding wire with your bare hands.

The filler metal (the wire) must be of a higher quality than the work to be welded and the weld area must be clean.

4.4.5 WELDING ALUMINIUM

The following is required for aluminium welding:

1) 100% Argon as welding protection gas.

2) A torch wire of composition suitable for the basic material to be welded.

For ALUMAN welding wire 3.5% silicon.

For ANTICORODAL welding wire 3.5% silicon.

For PERALUMAN welding wire 5% magnesium.

For ERGAL welding wire 5% magnesium.

3) A torch prepared for aluminium welding.

If you only have a torch for steel wires, the same shall be modified in the following way:

- Make sure that length of torch cable does not exceed 118 inches (it is advisable not to use longer torches).
- Remove the brass sheath-holding nut, the gas and the current nozzles, then slip the sheath off.
- Insert the teflon sheath for aluminium and ensure it protrudes from both ends.
- Screw the current nozzle so that the sheath adheres to it.
- Insert the sheath holding nipple, the O-Ring in the free end of the sheath and secure with the nut without tightening too much.
- Slip the brass tube on the sheath and insert both into the adapter (after removing the iron tube which was fitted inside the adaptor).
- Cut the sheath diagonally so that it stays as close as possible to the wire slide roller.

4) Use drive rolls that are suitable for aluminium wire. The drive rolls, when being installed, must be tightened as tight as possible.

5) Use contact tips that are suitable for aluminium wire and make sure that the diameter of the contact tip hole corresponds to the wire diameter that is going to be used.

6) Use abrasive grinders and tool brushes specifically designed for aluminium. Never use these tools on other materials. REMEMBER that cleanliness equals quality.

The wire spools must be stored in plastic bags with a dehumidifier.

4.5 WELDING DEFECTS

1- DEFECT- Porosity (in, or on the surface of the weld bead)

CAUSES Bad wire (rust on the surface).

Insufficient gas shielding due to:

- Inadequate gas flow due to a block in the gas line.
- Defective flowmeter.
- Gas regulator covered with frost because a gas heater was not used to heat the CO_2 shielding gas.
- Failure of gas valve solenoid.
- Gas nozzle plugged up with spatter.
- Gas flow holes plugged up.
- Air drafts in the welding area.

2- DEFECT- Shrinkage Cracks

CAUSES Welding wire or work to be welded dirty or rusty.

Weld bead too small.

Weld bead too concave.

Too much weld bead penetration.

3- DEFECT- Lateral cracking

CAUSES Welding speed too fast.

Low current and high arc voltages.

4- DEFECT- Too much Spatter

CAUSES Voltage too high

Insufficient impedance

No gas heater used for CO2 shielding gas.

5. DESCRIPTION OF CONTROLS

A--- CPU design digital control system

B--- Voltage adjustment

Adjust the weld voltage range

C--- Torch connector

D--- Torch connector (spool gun)

E--- Earth connector

This is where the welding torch is to be connected

F--- Normal torch or spool gun selection

Select the normal torch or spool gun for welding

G--- Main switch

H--- Motor Control connector for spool gun

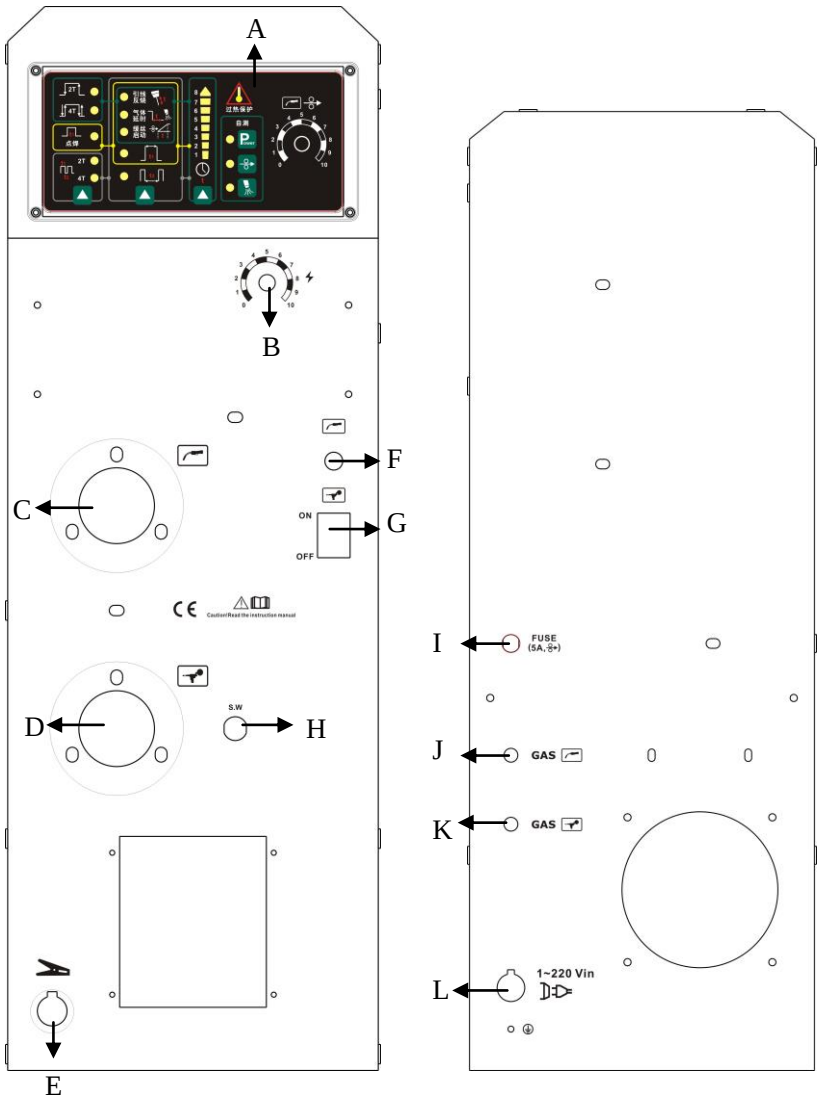
I---Fuse

J--- Gas input (torch)

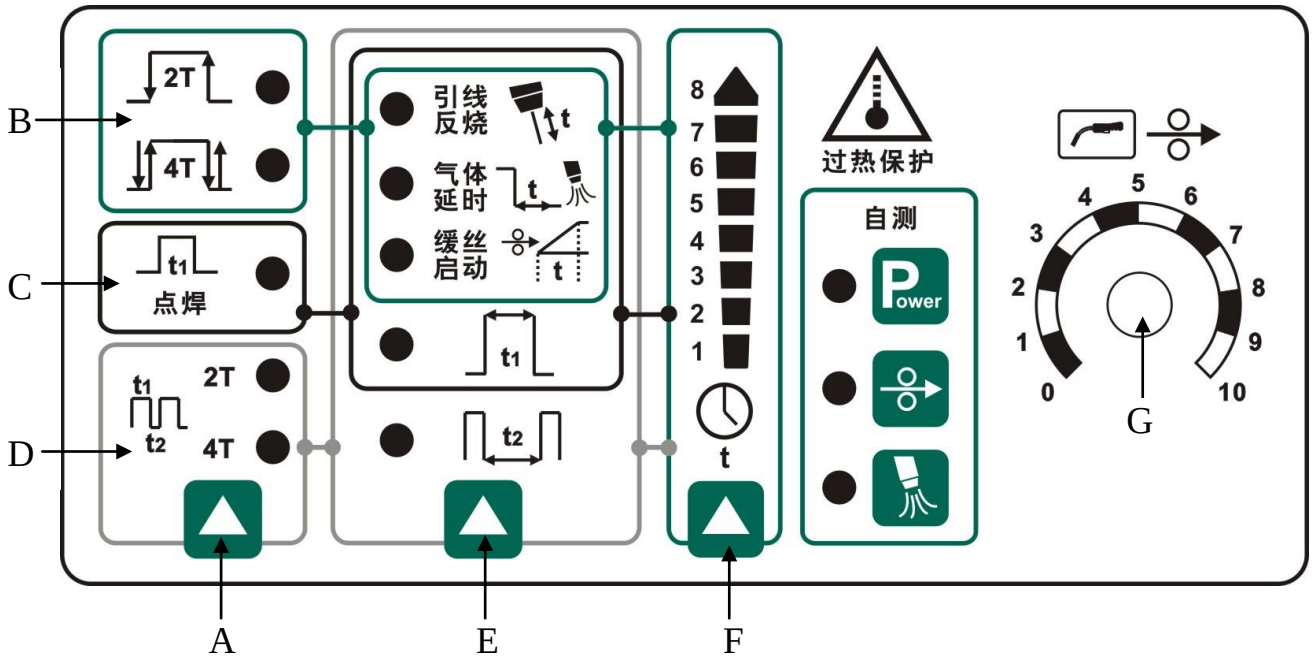
K--- Gas input (spool gun)

L--- Input power cable

(Confirm the power voltage before use)



CPU design digital control system



A---Trigger Function Selection: Three modes to select

B---Normal welding mode: 2T ---normal welding 2T mode (non-latching)

4T ---normal welding 4Tmode (latching)

C---Spot welding mode

D---Stitch welding mode: 2T ○ ---Stitch welding 2Tmode

4T ○ ---Stitch welding 4Tmode

E---Parameter setting

Please note the wire frame on the panel:

RED frame for normal MIG welding modes

BLACK frame for Spot welding modes

GREEN frame for Stitch welding modes

---burn back，---gas after flow，Wire start ---wire start

t1---Welding time for "spot" or "stitch ON" operation.

t2---Welding time for "stitch OFF" operation.

F---Welding time setting

The higher the number, the longer the time for function selected.

Overheat ---Overheat warning. Machine will auto-reset after cooling period and light will go off.

Power ---Power test. Confirms machine is wired correctly to line power supply.

---Fast wire feeding test. Confirms wire feed motor is functional and used for set-up.

---Gas test. Confirms shield gas input system is functional.

6 MACHINE MAINTENANCE

Gas nozzle . Periodically clean the nozzle of all weld spatter that may have accumulated during welding operations If the nozzle should become distorted or oval in shape then it must be replaced.
Contact tip . A good contact between the contact tip and the wire ensures a stable arc and optimal current output. Therefore, following steps must be followed:
A) The contact tip hole must be kept free of dirt or oxidation.
B) After lengthy welds, spatter can easily accumulate on the contact tip and prevent the wire from being fed. The contact tip must be cleaned regularly and if necessary it must be replaced.
C) The contact tip must always be screwed tightly on to the body of the torch. The thermal cycles which the torch undergoes during operation may loosen the contact tip which, in turn, may cause the torch body and nozzle to overheat or cause unsteady wire feed.
The Wire Liner is an important part that must often be checked since, during normal operations, the wire can deposit copper dust or tiny metal shavings in the lining. Periodically clean the liner and the gas line with a jet of dry, compressed air. Wire liners are exposed to continual wear and therefore they must be replaced after a certain period of time.
Wire feed motor. Periodically clean the wire feed assembly and the drive rolls from any rust or metal shavings due to the feeding of the wire. A periodic check of all the components of the wire feed assembly, spool holder, drive rolls, wire liner and the contact tip is recommended.

7 TROUBLESHOOTING

TROUBLE	PROBABLE CAUSE	REMEDY
Limited electric output	A phase missing	Check the phase of the feed line and/or the remove control switch contacts
	A line fuse is burnt	Replace it
	Wrong connection on the voltage changer terminal board	Check the terminal board connections by following the plate scheme
	The rectifier diode are burnt	Replace the rectifier
	Loosened torch or ground connections	Tighten all connections
	Welding regulation commutator has an uncertain contact	Replace the commutator
	Transformer wire interrupted on the commutator	Unscrew the commutator contact remove the wire insulation and put it under the contact
Welding with a lot of metal spatter	Wrong adjustment of the welding parameters	Select the correct parameters through the welding voltage switch and the wire-speed adjustment potentiometer
	Wire advancing unproperly	Uncorrected sheath diam.
	Insufficient grounding	Check grounding connections
Wire not advancing or	Wire roller with too wide groove	Replace roller
advancing unproperly	Obstructed or clogged liner	Extract it and clean
	Loose wire pressing roller.	Tighten it
	Coil reel friction too tight	Loosen and adjust it
	Current nozzle clogged	Replace it

The wire jams or entangles between the drive rolls and the torch infeed wire guide	Wrong current nozzle diameter	Replace it
	wrong roller groove alignment	Align it
	Obstructed or clogged sheath	Remove and clean

Note: All repair work must be done by qualified personnel.
Disconnect the power input cable from the mains supply before replacing cables or before removing the unit covers. The machine is equipped with a thermostat that shuts the machine down when the power source overheats. After the thermostat intervenes, let the power source cool down for several minutes before resuming welding operations.
The troubleshooting table lists troubles, causes and remedies for those troubles that occur most commonly.

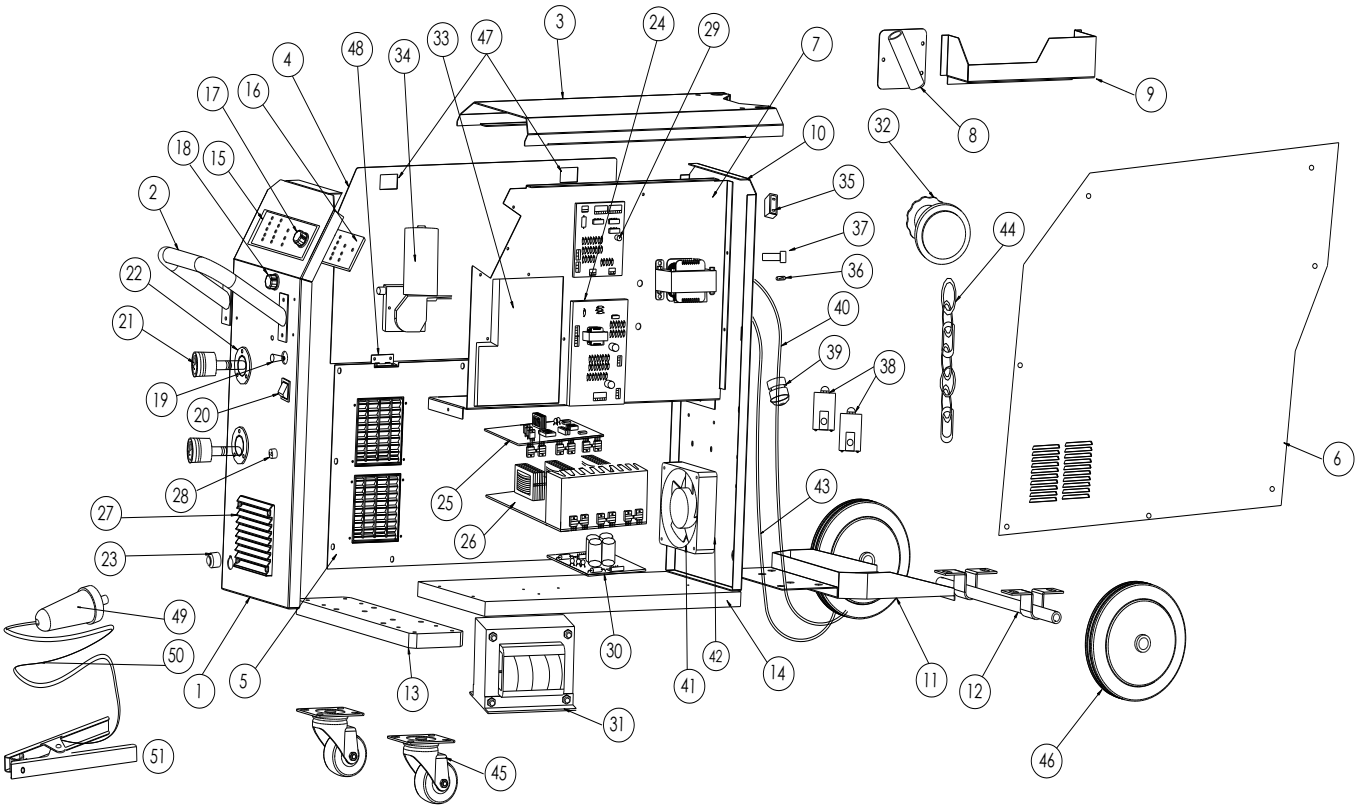
8 WELDING MACHINE SERVICING

Experience has shown that many fatal accidents originated from servicing improperly executed. For this reason, a careful and thorough inspection on a serviced welding machine is just as important as one carried out on a new welding machine.
Furthermore, in this way producers can be protected from being held responsible for defects stemming from repairs not carried out by the manufacturer.

8.1 Prescriptions to follow for servicing

After rewinding the transformer or the inductance, the welding machine must pass the applied-voltage test in accordance with indications of the international standard.
If the servicing is not done by the manufacturers, the repaired welding machines which underwent replacements or modifications of any component shall be marked in a way such that the identity of the person having serviced it is clear.
After making repairs, take care to re-order the cables so that there is sure to be insulation between the primary and secondary sides of the machine. Make sure that the wires cannot come into contact with moving parts or parts that heat during operation. Replace all clamps in their original positions on the machine, to prevent a connection between the primary and secondary circuits if a conductor accidentally breaks or disconnects.

9. AE7022


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51

NO.	Code	Description	NO.	Code	Description
1	PAE7022-1	front panel	27	PAE7022-27	Plastic heat sink net
2	PAE7022-2	handle	28	PAE7022-28	control plug
3	PAE7022-3	top tray	29	PAE7022-29	Wire feeder board
4	PAE7022-4	door panel	30	PAE7022-30	Power Supply Board
5	PAE7022-5	small side panel (left)	31	PAE7022-31	Reactance
6	PAE7022-6	big side panel (right)	32	PAE7022-32	wire feeder reel
7	PAE7022-7	inside baffle	33	PAE7022-33	Plastic cover motor
8	PAE7022-8	Torch holder	34	PAE7022-34	Wire feeder
9	PAE7022-9	Torch holder (spool gun)	35	PAE7022-35	heating socket
10	PAE7022-10	back panel	36	PAE7022-36	Fuse 5A
11	PAE7022-11	Cylinder bottom plate	37	PAE7022-37	fuse-holder
12	PAE7022-12	axle	38	PAE7022-38	Gas valve(DC24V)
13	PAE7022-13	Front caster base plate	39	PAE7022-39	cable holder
14	PAE7022-14	bottom board	40	PAE7022-40	power cord
15	PAE7022-15	Plastic panel stickers	41	PAE7022-41	fan
16	PAE7022-16	CPU control board	42	PAE7022-42	Fan net
17	PAE7022-17	knob	43	PAE7022-43	gas pipe
18	PAE7022-18	potentiometer	44	PAE7022-44	Iron chain
19	PAE7022-19	Toggle Switch	45	PAE7022-45	front swivel caster
20	PAE7022-20	power switch	46	PAE7022-46	back fixed wheel
21	PAE7022-21	torch connector	47	PAE7022-47	closing
22	PAE7022-22	torch connector plastic case	48	PAE7022-48	Hinge
23	PAE7022-23	socket	49	PAE7022-49	ground plug
24	PAE7022-24	Main control board	50	PAE7022-50	Ground cable
25	PAE7022-25	Upper circuit board	51	PAE7022-51	earth clamp
26	PAE7022-26	Middle circuit board	52	PAE7022-52	control transformer

10. Accessories

Code	Description	Code	Description
PAE7022-53	15AK complete set torch 3M	PAE7022-53	Regulator with heater for co2/MIX gas
PAE7022-54	Spool gun(adjusting the speed)	PAE7022-54	Regulator for AR/MIX gas

智能逆变铝铁双枪焊机
说明书

适用型号：AE7022

版 本 号：V-AR-7022-1903-01

世达汽车科技（上海）有限公司
客户服务：上海市嘉定区南翔镇静塘路988号5-12幢
邮　　编：201802
电　　话：（86 21）6061 1919
传　　真：（86 21）6061 1918
www.satatools.com