



ARC250i

**INVERTER MMA
Welding Power Source**

Instruction manual



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INVERTER MMA WELDING POWER SOURCE



Instruction manual
For
Installation, Operation & General maintenance

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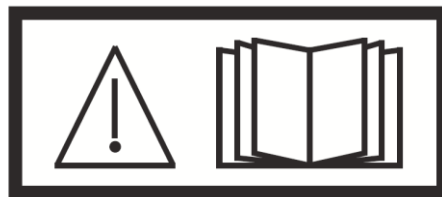
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SAFETY

Users of ESAB welding equipment have the ultimate responsibility for ensuring that anyone who works on or near the equipment observes all the relevant safety precautions. Safety precautions must meet the requirements that apply to this type of welding equipment. The following recommendations should be observed in addition to the standard regulations that apply to the workplace.

Trained personnel well acquainted with the operation of the welding equipment must carry out all the work. Incorrect operation of the equipment may lead to hazardous situations, which can result in injury to the operator and damage to the equipment.

1. Anyone who uses the welding equipment must be familiar with:
 - its operation
 - location of emergency stops
 - its function
 - relevant safety precautions
 - welding
2. The operator must ensure that:
 - no unauthorized person is stationed within the working area of the equipment when it is started up.
 - no one is unprotected when the arc is struck
3. The workplace must:
 - be suitable for the purpose
 - be free from drafts
4. Personal safety equipment
 - Always wear recommended personal safety equipment, such as safety glasses, flameproof clothing, and safety gloves.
 - Do not wear loose—fitting items, such as scarves, bracelets, rings, etc., which could become trapped or cause burns.
5. General precautions
 - Make sure the return cable is connected securely.
 - Only a qualified electrician may carry out work on high voltage equipment.
 - Appropriate fire extinguishing equipment must be clearly marked and close at hand.
 - Lubrication and maintenance must not be carried out on the equipment during operation.



Read and understand the instruction manual before installing or operating.
ESAB can provide you with all necessary welding protection and accessories.



WARNING

Arc welding and cutting can be injurious to yourself and others. Take precautions when welding. Ask for your employer's safety practices which should be based on manufacturers' hazard data.

	<p>ELECTRIC SHOCK – Can kill</p> <ul style="list-style-type: none"> • Install and earth the welding unit in accordance with applicable standards. • Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing. • Insulate yourself from earth and the workpiece. • Ensure your working stance is safe.
	<p>FUMES AND GASES – Can be dangerous to health</p> <ul style="list-style-type: none"> • Keep your head out of the fumes. • Use ventilation, extraction at the arc, or both, to take fumes and gases away from your breathing zone and the general area.
	<p>ARC RAYS – Can injure eyes and burn skin.</p> <ul style="list-style-type: none"> • Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing. • Protect bystanders with suitable screens or curtains.
	<p>FIRE HAZARD</p> <ul style="list-style-type: none"> • Sparks (spatter) can cause fire. Make sure therefore that there are no inflammable materials nearby.
	<p>NOISE – Excessive noise can damage hearing</p> <ul style="list-style-type: none"> • Protect your ears. Use earmuffs or other hearing protection. • Warn bystanders of the risk.
<p>MALFUNCTION – Call for expert assistance in the event of malfunction. PROTECT YOURSELF AND OTHERS!</p>	
	<p>CAUTION! <i>This product is solely intended for arc welding</i></p>

	<p>Do not dispose of electrical equipment together with normal waste! In accordance with national law, electrical equipment that has reached the end of its life must be collected separately and returned to an environmentally compatible recycling facility. As the owner of the equipment, you should get information on approved collection systems from the local representative. By applying this Directive you will improve the environment and human health</p>
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RATING

RATING OF ARC250i INVERTER WELDING POWER SOURCE

CHARACTERISTICS	CONSTANT CURRENT TYPE
Input:	
SUPPLY VOLTAGE, PHASE & FREQUENCY	230V± 15%, 1Phase, 50 Hz, AC
MAXIMUM INPUT CURRENT	48 A
MAXIMUM RATING	11.02 KVA
Output:	
OUTPUT CURRENT RANGE	DC 30-250A
OPEN CIRCUIT VOLTAGE	80 V DC
TYPE OF WELDING CURRENT CONTROL	STEPLESS
CLASS OF INSULATION	'H'
COOLING	FORCED AIR COOLED
APPROX DIMENSION (LxWxH) IN MM	435 x 170 x 330
WEIGHT (APPROX)	10.7 KG.

INSTALLATION

The complete installation should consist the following items:

	Description	Type	Quantity
1.	Welding Power Source	ARC250i	1
2.	Welding Cable with Holder		1
3	Earth cable with Clamp		1

CAUTIONS FOR INSTALLATION

- Provide a Switch Box for every Welding Power Source, and use designated fuse
- Tolerance of Power Voltage Variation is $\pm 10\%$ of rated input voltage.

a) Installation place

- Install in the place where less moisture and dust exist. Avoid direct sunlight and rain, and maintain ambient temperature within -10° to $+45^{\circ}$ C as much as possible.
- Keep the welding power source at least 20 cm. away from the wall (if any).
- In case of installation of more two units side by side, a distance of more than 20 cm is recommended between the two power sources.
- Use a shield to protect the welding arc in case of excessive air draft.

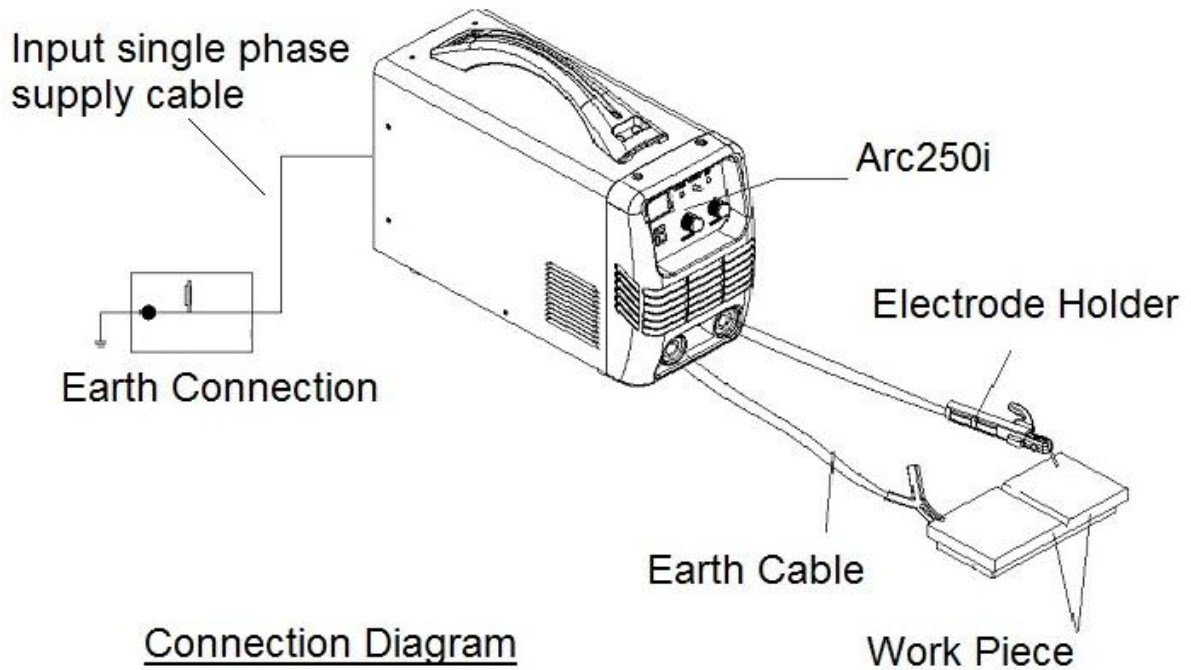
b) Ventilation

Adequate ventilation is recommended at the place of installation. For example the following guideline should be followed:

- a) In case of the area being more than 300 square meters (per unit), no ventilation is required, provided the room is not completely airtight.
- b) In case of the area being less than 300 square meters and the welding is continuously performed, adequate ventilation is recommended with the help of vent fan or exhaust duct.
- c) While performing the grounding work, it is recommended that a skilled electrician does the work.

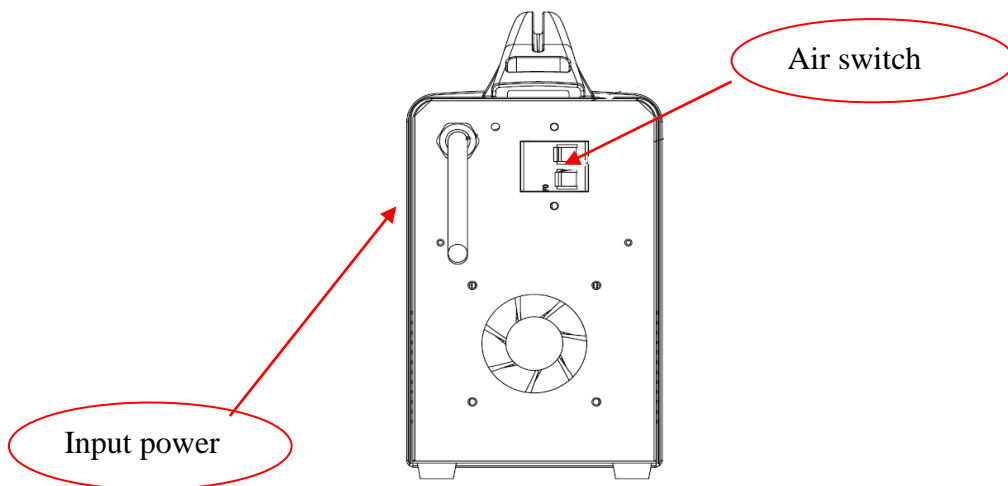
Connections

1. Welder's Placement



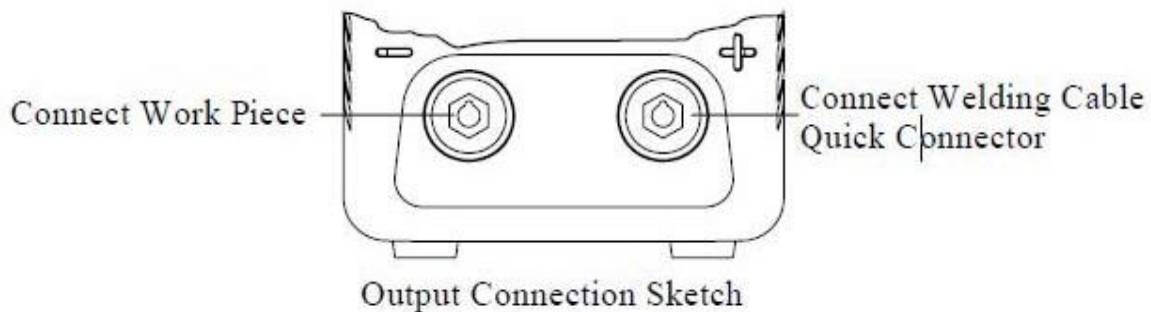
Connection between Welder and Power Source

Notice: Input Power supply earth connection is not power supply neutral.



Connection between Welder and Electrode Holder (Output Connection diagram)

Insert the OKC connector of the welding cable on the electrode holder into current output “+” electrode adaptor on the lower half of the front panel and then rotate down clockwise.



The earth clamp is connected with work piece.



Notice: Do not use steel plate or the materials alike which are poor conductor, to connect between welder and work piece.

2. EXTENSION CORD - We do not recommend an extension cord because of the voltage drop they produce. This drop in voltage can affect the performance of the welder. If you need to use an extension cord, we recommend you check with a qualified electrician and your local electrical codes for your specific area. Do not use an extension cord over 25 ft. in length.

3. INSTALLATION OF OPTIONAL TIG TORCH

3.1 Remove the ground cable and the electrode holder from the weld output connections. Install the ground cable to the Positive (+) weld output connection.

3.2 Secure the ground clamp to the work piece

3.3 Connect a regulator to a cylinder of ARGON gas. Then connect the gas connection from the TIG torch to the regulator.

3.4 Connect the TIG torch weld cable to the Negative (-) weld output connection.

3.5 Set desired amperage on the amperage control knob on the front panel of the welder.

3.6 Turn on the input power switch on the welder.

▲ CAUTION

Be aware that the TIG torch will be electrically energise when the Input Power Switch on the welder is turned on.

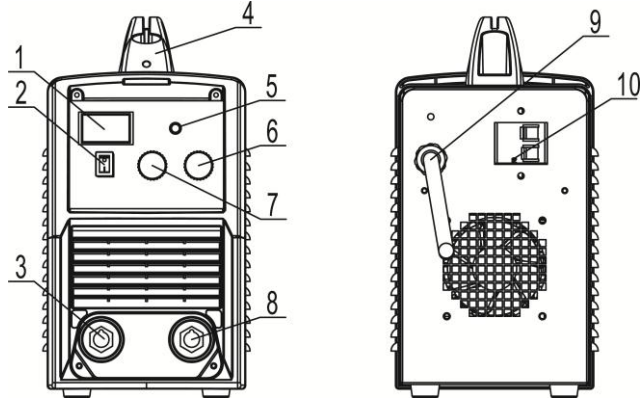
3.7 Turn on the regulator on the cylinder of shielding gas and adjust the regulator to approximately 20 CFH. Then open the shielding gas valve on the torch to start the flow of shielding gas.

3.8 Touch the tungsten that is installed in the TIG torch, to the work piece and quickly pull away approximately 1/4" to create an arc.

WELDING OPERATION

▲WARNING

High voltage danger from power source! Consult a qualified electrician for proper installation of receptacle at the power source. This welder must be grounded while in use to protect the operator from electrical shock. If you are not sure if your outlet is properly grounded, have it checked by a qualified electrician. Do not cut off the grounding wire or alter the plug in any way and do not use any adapter between the welder's power cord and the power source receptacle. Make sure the POWER switch is OFF then connect your welder's power cord to a properly grounded 230 VAC, 50 HZ, single phase, 50 amp power source.

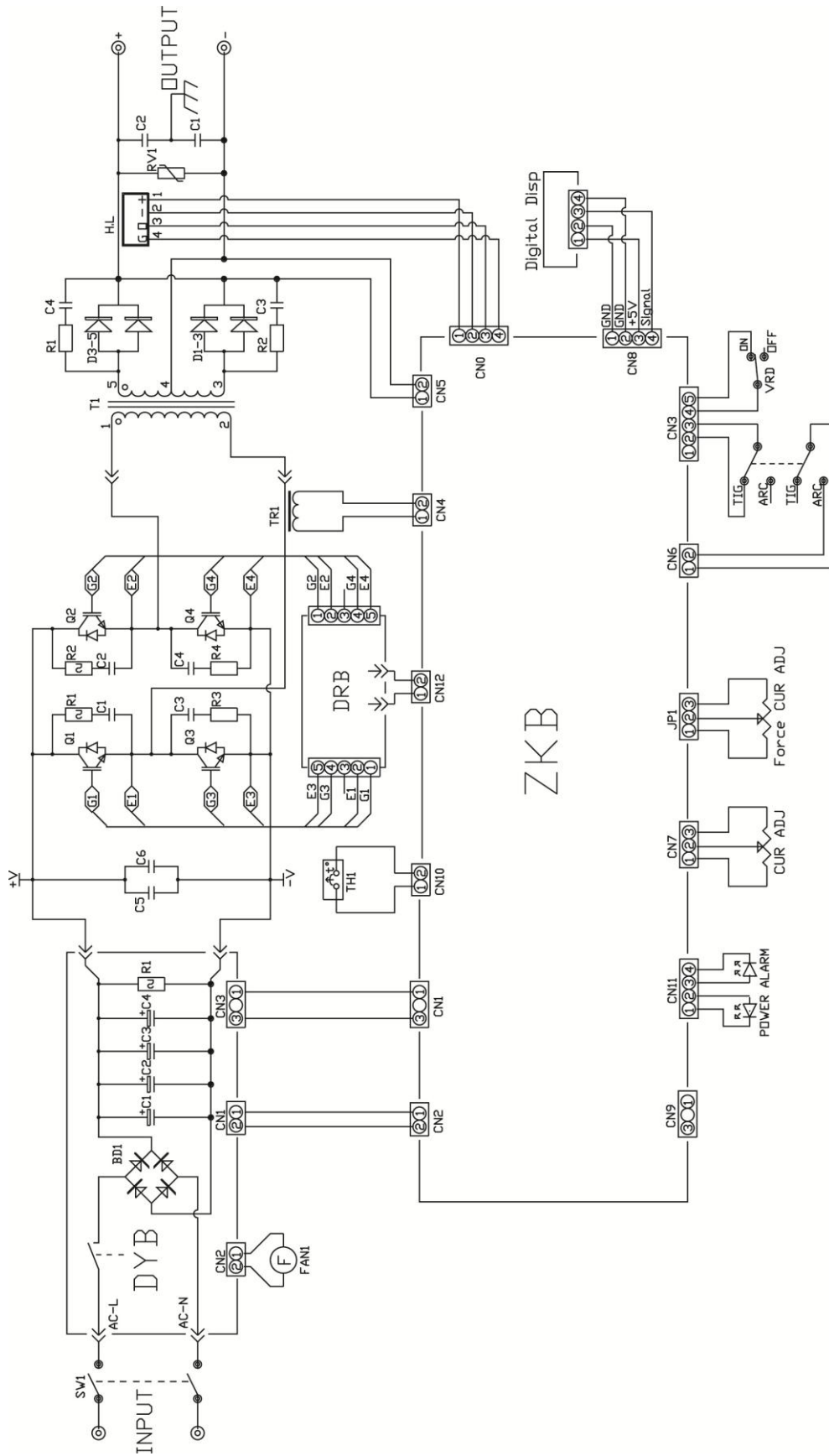


1 Current display	2MMA/Lifttig switch	3 Current Output “-” Electrode OKC Connector Socket	4 welder’s handle
5 Alarm Indicator	6 ARC force	7Welding Current Adjustment Knob	8 Current Output “+” Electrode OKC Connector Socket
9 Power Input Wire	10. Air switch		

Once the installation of the equipment is completed, connect the work Cable to the negative output terminal and the cable end of the electrode holder to the Positive output terminal. These cable connections should be tightened properly to avoid electrical heating due to loose connections. Put the main Switch box in ‘ON’. Turn on “Power ON/OFF switch” on the rear panel. The Display on the panel of the Power Source will glow and the fan will start rotating. Now the equipment is ready. Connect an Electrode with the Electrode Holder. The welding current can be controlled by the current control potentiometer mounted on the front panel of the Power.

Welding Current Adjustment

Put the MMA/ TIG switch to ‘MMA’ mode. Now set the DC output current as required with the help of the current control potentiometer and ignite an experimental Arc. For the fine-tuning of the required current, set the parameters using the Ammeter mounted on the front panel of the power source.



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WIRING DIAGRAM OF ARC250I

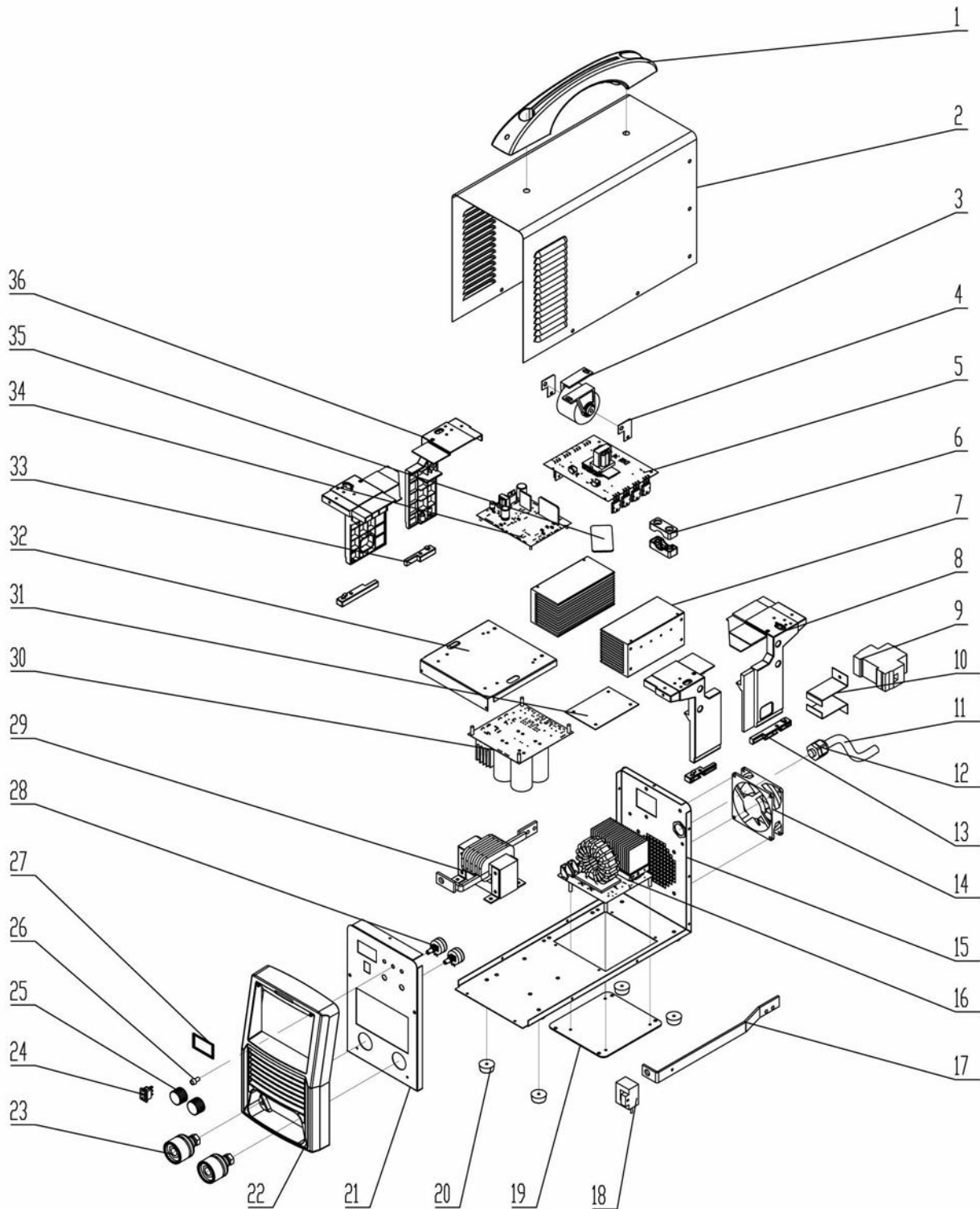
TROUBLESHOOTING

No.	Breakdown	Analysis	Solutions
1	Yellow Indicator is on	Bad power ventilation lead to over-heat protection	Improve the ventilation condition.
		Circumstance temperature is too high	It will automatically recover when the temperature low down.
		Using over the rated duty-cycle	It will automatically recover when the temperature low down.
2	The adjustment knob on the front panel didn't work	Potentiometer defective (current regulation)	Replace the potentiometer.
3	Cooling Fan not working or turning very slowly	Scarcity of phase	Recover the phase
		Switch defective	Replace the switch
		Fan defective	Replace or repair the fan
		Wire broken or falling off	Check the connection
4	No no-load voltage	Over temperature Trip	See No. 1
		Switch defective	Replace the switch
5	Electrode Holder and Cable getting hot; "+" "-" polar sockets becoming hot	Electrode Holder's capacity is too small;	Replace it with a bigger capacity one
		Cable is of small size	Replace it with another one in conformity with the requirement
		Replace it with another one in conformity with the requirement	Remove the oxide skin and tighten it
		Bigger resistance between the electrode holder and the cable	
6	Power source tripping	Resume power over a long period of time (more than two days)	Not failure. Trip caused by the main power filter's capacity charging. Switch on the main power source.
		In the process of welding	Contact us
7	Others		Contact us

Parts List and Exploded view

No.	Part No	Description	QTY
1	0800550001	handle	1
2	0800550002	cover	1
3	0800550003	filter capacitor	1
4	0800550004	capacitor busbar	2
5	0800550005	inverter PCB board	1
6	0800550006	pressure plate	2
7	0800550007	Heat sink	2
8	0800550008	right upper fixed board	2
9	0800550009	block switch	1
10	0800550010	switch support	2
11	0800550011	power cord	1
12	0800550012	cable fixed head	1
13	0800550013	right bottom fixed board	2
14	0800550014	fan	1
15	0800550015	back bottom panel	1
16	0800550016	rectifier PCB board	1
17	0800550017	positive busbar	1
18	0800550018	protection ear	1
19	0800550019	rectifier board fixed plate	1
20	0800550020	foot	4
21	0800550021	Front plate	1
22	0800550022	Front plastic panel	1
23	0800550023	Euro type quick connector	2
24	0800550024	welding mode select switch	1
25	0800550025	potentiometer knob	2
26	0800550026	overheat indicate light	1
27	0800550027	digital display	1
28	0800550028	potentiometer	1
29	0800550029	reactor	1
30	0800550030	power PCB board	1
31	0800550031	radiator connection plate	1
32	0800550032	mounting panel	1
33	0800550033	left bottom fixed board	2
34	0800550034	main control PCB board	1

35	0800550035	Insulation plate	1
36	0800550036	left upper fixed plate	2



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