



MANUAL BOOK

FARC200

INVERTER DC MMA

WELDING MACHINE



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SAFETY PRECAUTIONS

Follow these precautions carefully. Improper use of any welder can result in injury or death.

1. ONLY CONNECT WELDER TO A POWER SOURCE FOR WHICH IT WAS DESIGNED. The specification plate on the welder lists this information. When welding outdoors only use an extension cord intended for such use.
2. ONLY OPERATE WELDER IN DRY LOCATIONS and on cement or masonry floor. Keep area clean and uncluttered.
3. KEEP ALL COMBUSTIBLES AWAY FROM WORK SITE.
4. DO NOT WEAR CLOTHING THAT HAS BEEN CONTAMINATED with grease or oil.
5. KEEP CABLES DRY AND FREE FROM OIL AND GREASE and never coil around shoulders.
6. SECURE WORK WITH CLAMPS or other means; don't overreach when working.
7. NEVER STRIKE AN ARC ON A COMPRESSED GAS CYLINDER
8. DON'T ALLOW THE INSULATED PORTION OF THE ELECTRODE HOLDER TO TOUCH THE WELDING GROUND WHILE CURRENT IS FLOWING.
9. SHUT OFF POWER AND UNPLUG MACHINE WHEN REPAIRING OR ADJUSTING. Inspect before every use. Only use identical replacement parts.
10. FOLLOW ALL MANUFACTURER'S RULES on operating switches and making adjustments.
11. ALWAYS WEAR PROTECTIVE CLOTHING when welding . This includes: long sleeved shirt(leather sleeves), protective apron without pockets, long protective pants and boots. When handling hot materials, wear asbestos gloves.
12. ALWAYS WEAR A WELDER'S HELMET WITH PROTECTIVE EYE PIECE when welding. Arcs may cause blindness. Wear a protective cap underneath the helmet.
13. WHEN WELDING OVERHEAD, BEWARE OF HOT METAL DROPPINGS. Always protect the head, hand, feet and body.
14. KEEP A FIRE EXTINGUISHER CLOSE BY AT ALL TIMES.
15. DO NOT EXCEED THE DUTY CYCLE OF THE MACHINE. The rated cycle of a welding machine is the percentage of a ten minute period that the machine can operate safely at a given output setting.
16. KEEP ALL CHILDREN AWAY FROM WORK AREA. When storing equipment, make sure it is out of reach of children.
17. GUARD AGAINST ELECTRIC SHOCK. DO not work when tired. Do not let body come in contact with grounded surfaces.

INVERTER DC ARC MACHINE COMPONENT LISTS

NO	Mark	Description	Code OR Model				QTY						Remark		
			FARC130	ARC130	FARC160	ARC160	ARC200	FARC200	FARC130	ARC130	FARC160	ARC160	ARC200	FARC200	
1	T1	Invert transformer	ARC130-20		ARC160-20		ARC200-20		1		1		1		
2	T2	Output reactor	ARC130-24		ARC160-24		ARC200-24		1		1		1		
3	T4	Mutual inductance	ARC160261				1								
4	T5	Control transformer	ARC16021				1						9V (0.5A)+17V(1A)		
5	T7	Primary inductance	TIG160P27				1								
6	V1,V3	zener Diode	1N4746				1								
7	V2,V4	zener Diode	1N4738				1								
8	V9,V10	MOSFET	IRFP460(30N60UF)				3(2)		4(2)		4(3)				
9	V13-V14	Fast resume Diode	FMS33S				3		4		5				
10	V16-V17	Fast resume Diode	MUR1560				1								
11	V20	Bridge Rectifier	KBPC3510		KBPC3510		KBPC3510		1		2		2		
12	R1,R2	Resistance	15/0.5W				3		4		4				
13	R4	Resistance	MYG 20K431				1		1		1				
14	R5,R6	Resistance	51K4W				1								
15	R7	Resistance	RX21-8-100				2								
16	R8	Resistance	2W-1K Q				1								
17	R9	Resistance	2W10 Q				1								
18	C1-C4	Electrolytical Capacitance	470u/450V		470u/450V		560u/450V		1		1		1		
19	C5,C6	Capacitance	X2-MPX 1.0uF 280VAC				1								
20	C8	Fan startup Capacitance	FRD1.0UF400VAC				1								
21	C7,C9,C10	Capacitance	472/250VAC Y1,400VAC Y2				5								
22	K1	Soft start Relay	GPF112DMFDC12V				1		2						
23	K2	Power switch	KCD11		DZ47-C40/2P		DZ47-C40/2P		1		1				
25	K6	Temperature Relay	JUF6F80°C		JUF6F85°C		JUF6F80°C		1						
26	FAN	Cool Fan	145FZY6-D-220V												
27	FUSE	FUSE	20A				1		2		2				
28	RP1	current reg.	WX14-22K				1								
29	LED1	power(green)	BT203-1				1								
30	LED2	warning(red)	BT203-2				1								
31	Control PCB	control pcb	MINI160				1 SET								
32	PCB2	INPUT EMS PCB	TIGR.QD				1SET								
33	PCB3	OUTPUT EMS PCB	TIGOUT				1SET								

1. MAIN USAGE AND THE RANGE OF USAGE(APPLICATIONS):

FARC160,200 inverse argon arc welder produced with international advanced technology is a new variety of welding machine. It has performance and high efficiency that the traditional welder can not be compared with. The welding current is infinitely and independently adjustable. All ferrous metal, copper and stainless steel material can be omnibearing welding in all position. The welding current is stable. The welding seam is nice, few spatters and low noise occurs during welding. The welder has outstanding feature of minimum current. The minimum current can be up to 10A. Protection measures of the welder are perfect. The welder is reliable, light in weight and easy to use. It is particularly suitable for enterprise of plant and mine, build, decoration and maintenance sectors.

2. OPERATING CONDITION AND WORK SURROUNDING

1. Operating condition:

Voltage of power source: single phase, AC 220/230V \pm 10%

Frequency: 50/60Hz

Reliable grounding protection

2. Work surrounding

(1) relative humidity: \leq 90% (average monthly temperature \leq 20°C)

(2) ambient temperature: -10°C - 40°C

(3) The welding site should have no harmful gas, chemicals, molds and inflammable matter, explosive and corrosive medium, no big vibration and bump to the welder.

(4) Avoiding rain water. Operating in rain is not allowed.

3. MAIN TECHNICAL SPECIFICATIONS

Model		FARC160	FARC200
Power Supply Voltage		AC 220/230V (Single phase), 50/60Hz	
MMA	No-load Voltage	60-80V	
	Welding Cur. Adjusting Range	10-160A	10-200A
	Rated Output Current	160A	200A
	Rated Duty Cycle	60%	
Mass		17kg	18kg
Protection Class of enclosure		IP21	
outline Dimensions (mm)		390*190*290	390*190*290

4. DESCRIPTION OF THE ERECTION

a. Before welding, the operator should read the operation instructions and uses the welder correctly according to the process specification.

b. Checking the welder appearance for deformation and damage.

c. For the safety of the equipment and the persons, the customer must correctly make grounding or protecting according to the power supply system: using 4 mm² lead to connect the protection grounding of the welder.

d. Welding operation should be carried out in dry and good ventilating area. The surrounding objects should be not less than 0.5m away from the welder.

e. Checking the welder output connector for tightness.

f. The welder can not be moved or the cover can not be opened during the power is on and welding operation is carried out.

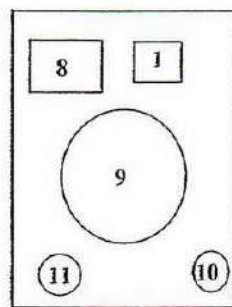
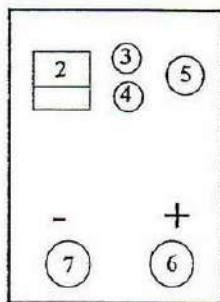
g. The welder should be cared, used and managed by specialized person.

h. Confirming that the power source is single phase and 220/230V \pm 10%. Current of the distribution board: 8KVA(160A type and 200A type). It can not be connected with 380V power absolutely.

5. SKETCH OF THE PANEL FUNCTION

FARC160 FRONT PANEL

FARC160 BACK PANEL



- | | | |
|--------------------------------|----------------------------------|------------------------------|
| 1. power switch | 2. indication of welding current | 3. indicating light of power |
| 4. warning indicating light | 5. current regulator | 6. output "+" |
| 7. output "-" | 8. data plate | 9. fan |
| 10. incoming line of the power | 11. safety earthing column | |

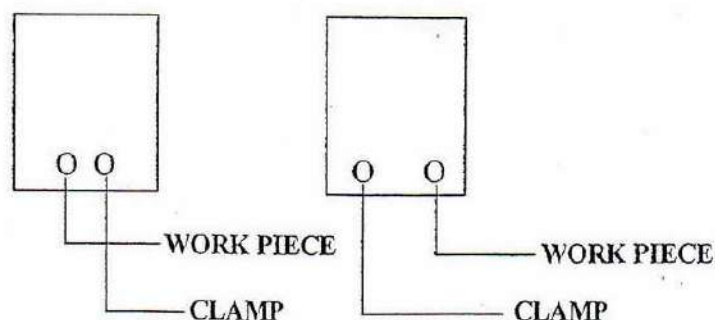
6. METHOD OF THE OPERATION

6-1. hand welding with electrode(MMA)

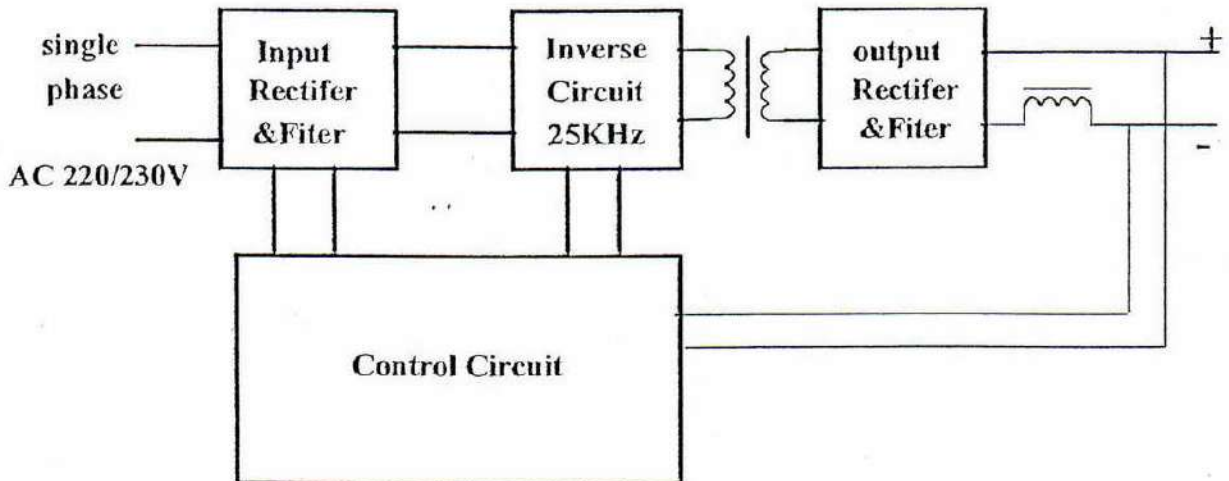
Selecting empiric formula: $I=40*d$, d is dia. of the electrode.

6-2. Notice positive and negative connection during welding.

- A positive connection B negative connection



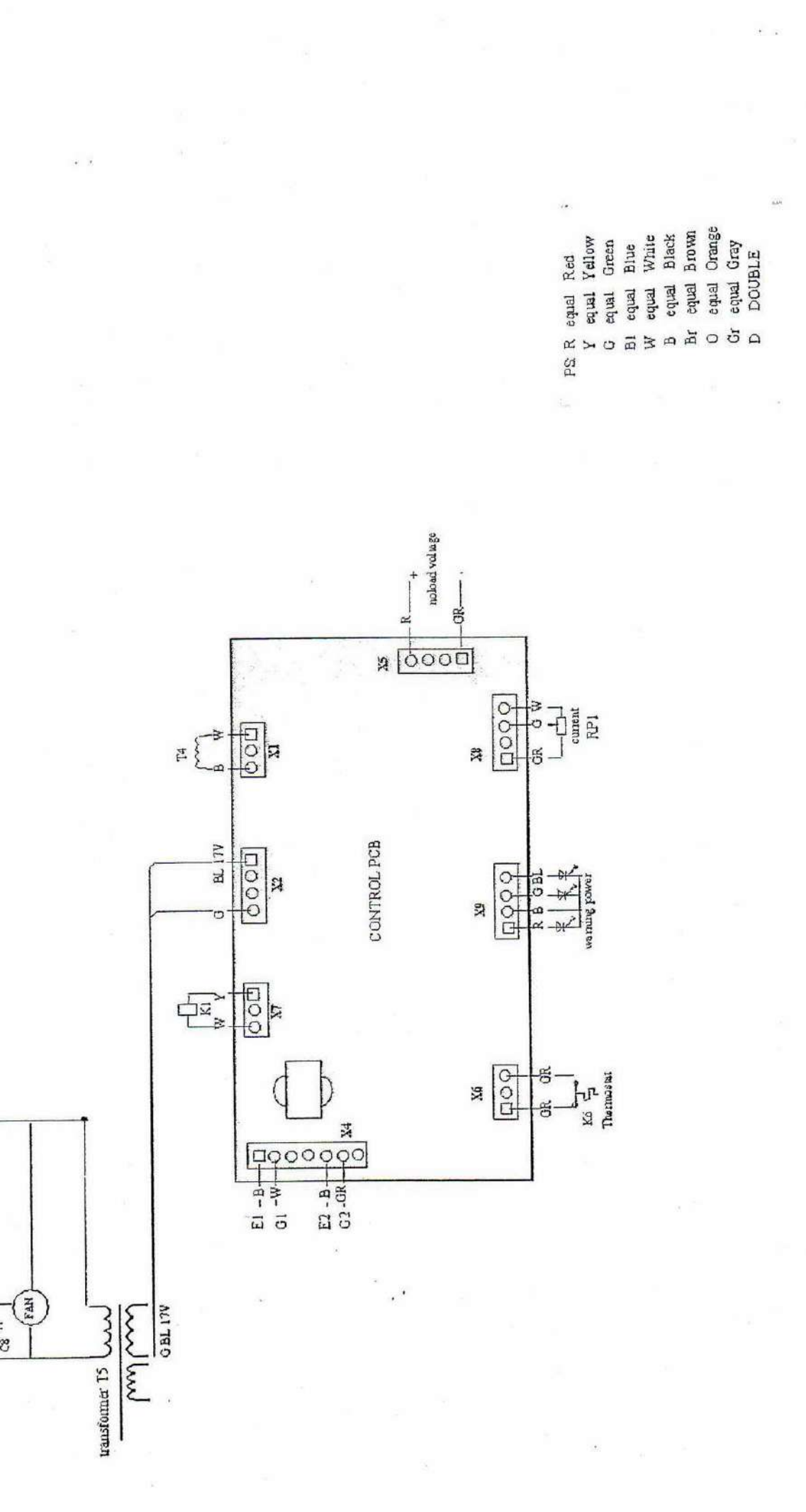
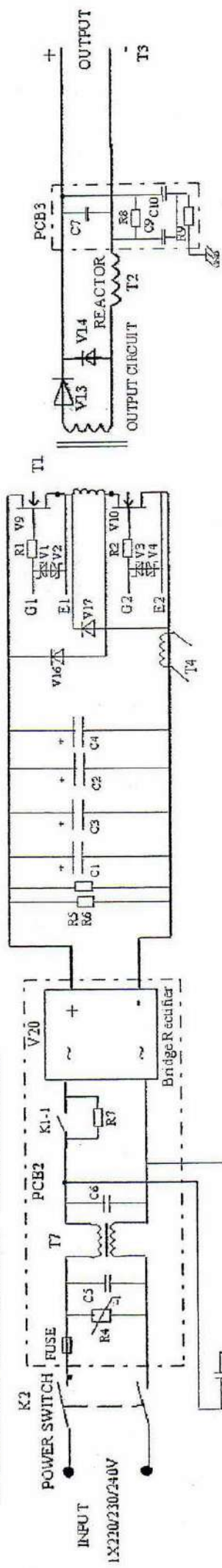
7. SYSTEMATIC BLOCK DIAGRAM



8. TROUBLES AND PROBLEM SOLVING

trouble	causes	problem solving
power lamp is not lit	<ol style="list-style-type: none"> 1. No electricity at input 2. switch of welder power fails 	<ol style="list-style-type: none"> 1. Checking incoming line 2. Replace the switch
Fan not rotating	<ol style="list-style-type: none"> 1. Fan power line is off 2. Enclosure blocks the fan due to deformation 3. The fan fails 	<ol style="list-style-type: none"> 1. Reconnect the line 2. reform the enclosure 3. replace
Warning lamp lights No output of welder	<ol style="list-style-type: none"> 1. Overheat protection 2. Short interval of welder switching on and off 3. Welder fails 	<ol style="list-style-type: none"> 1. Welding after cools 2. Extending on-off time 3. Maintenance in manufacturer or service center
Output current decreased	<ol style="list-style-type: none"> 1. Input voltage is low 2. Input line is too thin 	<ol style="list-style-type: none"> 1. AC voltage stabilizer(over 8KVA) 2. Power line is thickened
Current can not be regulated	<ol style="list-style-type: none"> 1. Connecting line of the potentiometer is off 2. Potentiometer for current regulation fails 	<ol style="list-style-type: none"> 1. Reconnecting the line 2. Replace potentiometer

DC INVERTER MMA MACHINE WIRING DIAGRAM



- PS, R equal Red
- Y equal Yellow
- G equal Green
- Bl equal Blue
- W equal White
- B equal Black
- Br equal Brown
- O equal Orange
- Gr equal Gray
- D DOUBLE