

# USER CARD

USER NO: \_\_\_\_\_

MODEL: \_\_\_\_\_

WELDER NO: \_\_\_\_\_

BUY TIME: \_\_\_\_\_

UNIT: \_\_\_\_\_

BUYER NAME: \_\_\_\_\_

PHONE: \_\_\_\_\_

ADD: \_\_\_\_\_

POST CODE: \_\_\_\_\_

## Main features of ARC series(DC Inverter MMA Welder)

are as follows:

1. Advanced Inverter technology and V-MOSFET design
2. PWM control technology, current constant and precise in current control.
3. High efficiency, low no-load consumption and saving energy.
4. With the perfect automatic protect functions of over power, over pressure, over heat, lack of pressure, over load and etc, safe and reliable.
5. Super compact and portable, best for outdoor movable working and high altitude working.
6. Advance arc force and arc-starting function can resist interference.
7. Stable arc make splash small.
8. Be able to weld stainless steel, carbon steel, and other low alloy steel.
9. Suitable for vehicle manufacturing, shipbuilding, chemical, boiler, food, medical, kitchen, environment protection and decoration industry and etc.
10. Energy saving up to 50%.
11. Replacing of welding machine ZX5&BX series.
12. Be able to weld cellulose rod and all kinds of basic welding rod.

### ACCESSORIES LIST

WELDER	1UNIT
CABLE CONNECTOR	2UNITS
INNER HEXAGON SPANN	1UNIT
USEER MANUAL	1UNIT



Please check if all the spareparts are supplied after case opened and if they match the welder. If not, please contact with us immediately.

# CHAPTER 1 NOTICE BEFORE OPERATION

## 1. Notice on Safety

To ensure the safety, please keep to the followings:

### WARNING: BE CAREFUL TO PREVENT FROM GRAVE FATAL ACCIDENT

Grounding of the welder

To keep from electric shock, please get specialist to finish the grounding of the welder according to related standard.

### Work Clothes and Safety Appliances Required

To prevent eyes and skin from burn, please keep to safety and put on safety appliance.

### Ventilation

To prevent from poisonous gas intoxication or choke (welding soot and CO can do harm to human), we should abide by the rules about dust invasion in labor safety law and install the gas exhausted or use valid breathing protection appliance.

### NOTICE: PREVENT WELDER BURNED AND FIRE ACCIDENT

#### Prevent fire from overheating and burning loss

Please keep the electrical source more than 20cm away from the wall and more than 1000cm from the flammable object.

#### Prevent fire and burning loss from spark

Don't splash the spark to the flammable object and let spark in from suction port or any opening.

#### No using electrical source for pipe thawing

#### Prevent the damage from falling of the welder

While installing welder at table or laying it on slant plane, for safety and avoiding welders' sliding down, please fix it with holding down bolt.

#### All the manuals are requested to be read carefully

Besides manual of the welder, the manuals for welding torch, gas regulator and others are requested to be read too.

#### The way of moving welder

In short distance and flat pavement, the welder can be pulled by handle directly. But in long-distance move, please make it by fork with safety considered to prevent collision, press for protecting the welder.

# CHAPTER 6 PROBLEMS SHOOTS

## 1. Early Diagnosis of the Problems

If some problems occur in operation, please refer to the following countermeasures:

Malfunction	Reason	Solution
Fail to switch "open"	Damage of MOSFET	Replace MOSFET and check the second rectifier pushing box filter capacity, resistance and control panel
	Damage of the first rectifier	Replace, check filter capacitor
	Damage of filter capacitor	Replace and check first rectifier
	Damage of Power Source	Replace
Switch to "open" but light is off	Bad contact of wire of power input	Replace wire
	Switch of Power Source	Replace
	Transformer	Replace
	Control Panel	Replace
	Indicator Light	Replace
	No power source in control box	Check the electric circuit connect
Started but fan doesn't work	Damage of control panel	Replace
	Damage of cooling fan	Replace
Protective light lights	Under voltage	Check whether tri-phase input voltage is balance or not or single voltage is under 340V
	Over heat	Check whether work condition is over 40°C. Power on and lights after 5 minutes, then it is over heat protection or main board damaged
Current cannot be adjusted when welding	Current potentiometer damaged	Replace it
	Control plate damaged	Replace it
No current when welding	Main control plate damaged	Replace it
	Having voltage on display	Replace the second power cord
	Having no voltage on display	Replace main control plate

## Dust removal of interior of power source

Demount the over of the machine and blow off the splash and dust with compressed air(dry)

Method of disassembly is as above illustration.

### Overhauling of the welding power source and periphery

Check the smell, discoloring, heating and inner joints, especially the parts not overhauled during operating maintenance.

### Cable

Based on operating maintenance, the further check is required.

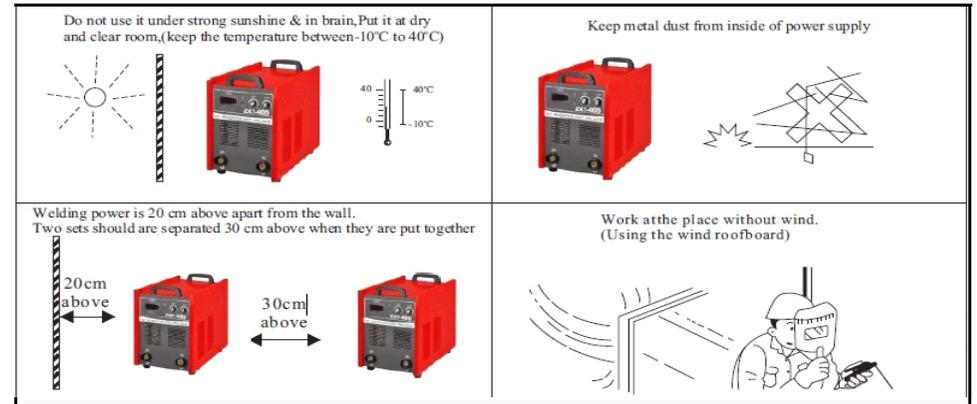
### Overhauling and maintenance of consumables

The bad spare parts are required to be repaired during annual maintenance. The bad spare parts had better be replaced at once for ensuring the good performance of the machine.

### NOTICE

**Above periodic maintenance can reduce the malfunction of the machine. Although it needs cost, it can prolong the machine's life and increase the efficiency.**

## 2.Installation Site



## 3. Power Equipment

### ZX7 WELDER POWER EQUIPMENT (unit set)

Model	ARC120	ARC160	ARC200	ARC250	ARC315	ARC400	ARC500
Output (V)	220V±15%			380V±15%			
Frequency (HZ)	50/60			50/60			
Phase	Single	Single	Single	Three	Three	Three	Three
Capacity (KVA)	3.8	5.3	7	9.4	12.8	18	25
Breaker /Fuse	400V,40A	400V,40A	400V,40A	400V, 63A	400V, 63A	400V, 63A	400V, 63A

**While operating at moist site or at iron plate and frame, please install leakage protector**

### NOTICE

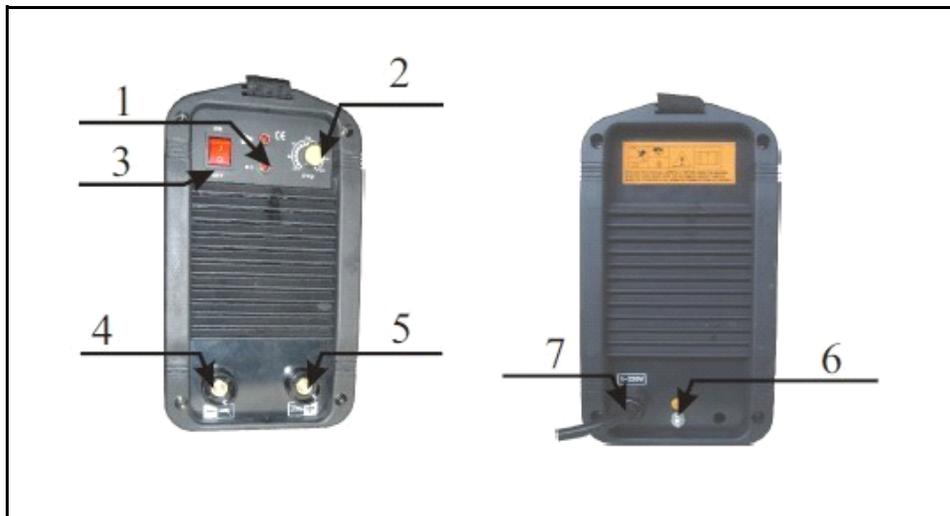
To avoid damage of accessories, unstable arc and any damage to welder, please abide by the following instructions:

Use of breaker/fuse: please use the breaker with the same specs and types as above. E.G. Breaker (D247 D63 (400V) can be mounted to ZX7-500.

Use of generator: Please use the compensating coil generator with the capacity more than double rated input capacity of the welding power source.

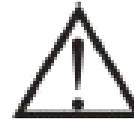
Operate the welder with appointed accessories.

## 4. Machine Composition & Function



NO.	Name
1	Indicator Light of protection
2	Current Adjustment Potentiometer
3	Input-wire of power supply
4	Quick jack of negative output
5	Quick jack of positive output
6	Earth wire
7	Electric source power input

## 2. Periodic Maintenance



### Safety Warning

**Unless specially required, all the power should be switched off to ensure the safety. If above instruction not kept to, the grave accident such as electric shock and burns might happen.**

To preserve the performance for perennial use, only operating maintenance is not enough.

Periodic maintenance is to overhaul the interior of the welder carefully, including the examination and cleaning of the interior of the power source.

Usually, the splash and oil dust can be stacked in half year. In bad working environment, the welder had better be cleaned every three months.



# CHAPTER 5 MAINTENANCE

## 1. Operating Maintenance



**CAUTION! Unless specially required, all the power should be switched off to ensure the safety. If above instruction not kept to, the grave accident such as electric shock and burns might happen.**

To give full play of the machine, it requires periodic maintenance. During overhauling, we should focus on welding torch and examine the following parts one by one. If necessary, you can clean or replace some spare parts. Change of the spare parts is for keeping original performance of the welder and please do use the same type of spare parts with the machine.

Maintenance List		
Part	Possible Problem	Solutions
Operation Panel	Power Light/on or off	
Fan	Blow or not; Sound of wind	If no sound of fan working, inside check is required
Power Source	Exceptional vibration, buzz or peculiar smell (power-on)	
Power Source	Joint's loosened or not; Skin or other part is loose or not	
Mainframe	Bolt is fixed or not, crust and other firm parts is loosen or not	
Earth clamp and Electrode holder	It was installed fixed or not	It is difficult to arc if doesn't connect well
Electrode holder and earth wire clamp	Whether the cable is too long	It won't be stable of arcing if cable is too long
Cable	Joint and isolations (loosened or peeled off)	
Earth Wire	Circuit broken or not, fastness of the joint	Daily checking is required for preventing electric leakage
Case of the Machine	Open it to clean interior with air pump	Operate at power-off

# DETAILS FOR FRONT PLATE

Current Adjustment knob: adjust welding output current and see the actual welding current by display.

Protective light is bright when weld under the condition of over current, over heat, and disjunction of electric net.

Display of current voltage: it display the welding current and voltage according to needs.

Selector switch of current voltage: it select to display to the welding current or voltage according to your needs.

Thrust Modulation knob: it can adjust the anti-ticking of welding. According to different electrodes and welding requirements, it can adjust the current from the small to the big and the smallest to zero; when increasing, its current increases bigger while stick the electrode; when no-load, it will display nothing while you adjust the Thrust Modulation knob.

Arcing Current knob: it can adjust the dynamic property of machine. According to different electrodes and welding requirements, it can adjust the current from the small to the big and the smallest to zero; it is easy to arc when increasing; when no-load, it will display nothing while you adjust the Thrust Modulation knob.

Quick jack of positive output: it connect electrode holder (DC positive connection) or connect work piece (DC negative connection) when manual welding.

Quick jack of negative output: it connect work piece (DC positive connection) or connect electrode holder (DC negative connection) when manual welding.

AC (3 phase 380V) input switch(7): it is the input switch of AC.

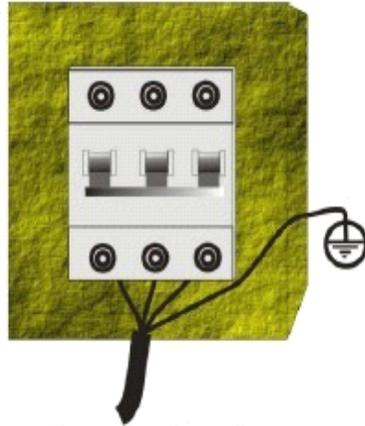
## CHAPTER 2 INSTALLATION

### 1. Connect Power and Electric Switch Box

As a result of big power, the plug socket is not applied. The cable should be connected to electric switch box or control box directly.



(For single phase)



(For tri-phase)

### Caution

**To avoid fire as result of overheat of the cable, damage to welder and unstable arc,**

Please select the cable above the given specification

Please put heavy on cable and don't touch the welding part

Please try to make a good compression joint.

### 2. ARC Welding Connection

Accessories Required:

Welding machine; electrode holder; earth clamp; electrodes.

## CHAPTER 4 TECHNICAL PARAMETER

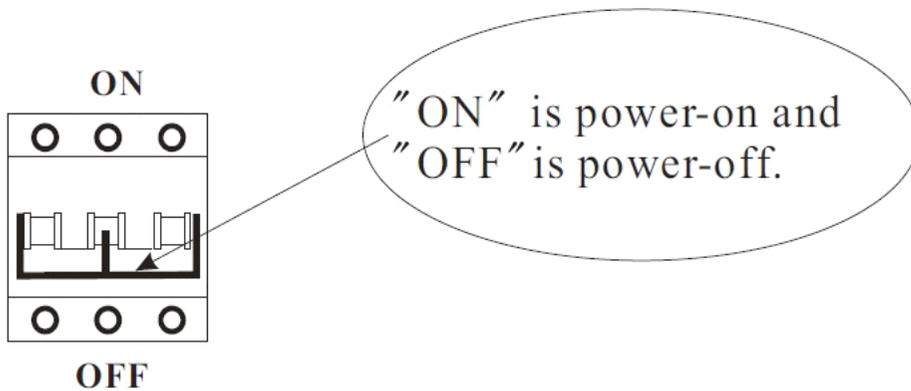
### 1. Basic Parameter

Main Specification	ITEM NO.					
	ZX7-160	ZX7-200	ZX7-270	ZX7-315	ZX7-400	ZX7-500
Power Supply	AC220V single phase	AC220V single phase	AC 380V THREE PHASE	AC 380V THREE PHASE	AC 380V THREE PHASE	AC 380V THREE PHASE
Rate input power capacity(KVA)	5.3	7	12	13	18	26
No-load Voltage(V)	56	58	70	72	72	76
Rate output voltage(V)	26.4	28	30	32.6	36	40
Rate duty cycle	60%					
Rank of Insulation	F					
Rank of Protection	Ip21					
No-load loss(w)	40	40	60	60	80	100
Efficiency(%)	80	80	85	85	85	85

## Reference for Lucifuge Glass Choosing

TYPE	WELDING CURRENT
NO.5 NO.6	less than 30A
NO.7 NO.8	30-75A
NO.9 NO.10	75-200A
NO.11 NO.12	200-400A
NO.13	400-5000A

2. Preparation for Welding  
Switch, as figure shows



**CAUTION!**

**Before turning it on, please make sure the out cables are connected correctly!**

## 3 Welding

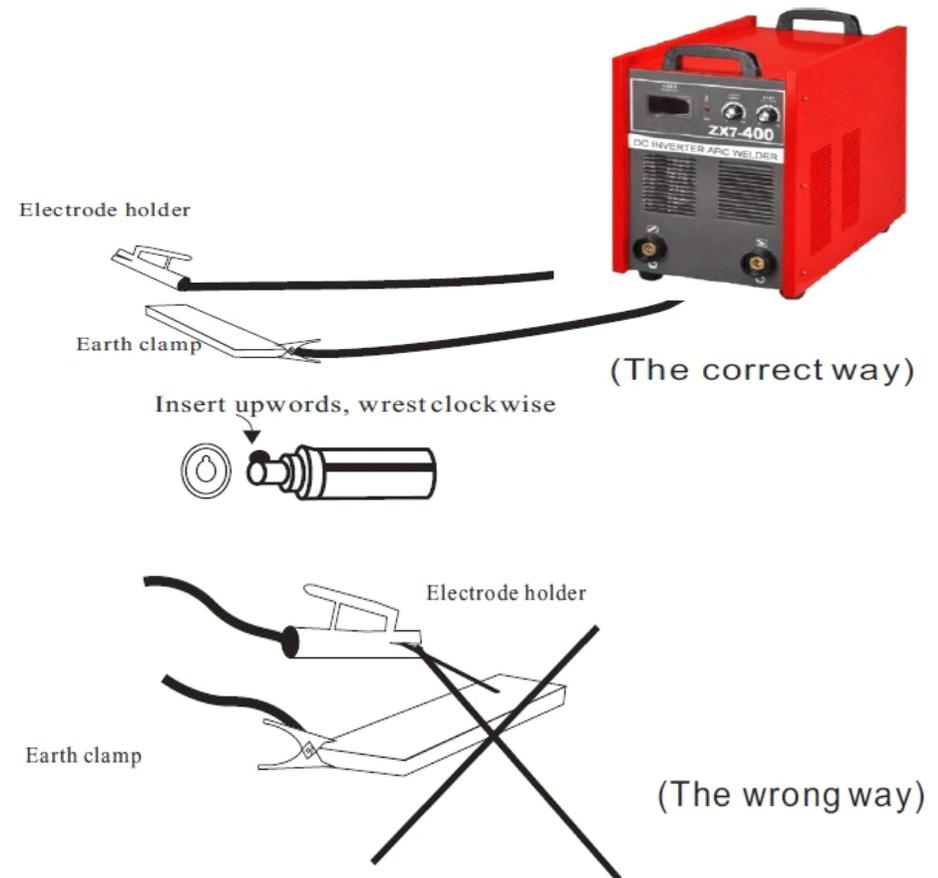
Its duty cycle is 60% and its current should be under 77% of the rated current if it works lastly, or it will be over load (then the yellow protective light on front plate is bright).

The duty cycle will decrease evidently when the fan do not work for it is air-cooling.

## 3. Notice for Welding

**Recommended to lay the welder on cement floor and Not lay the welder on moist and muddy ground or metal plates to prevent inductive electric-leakage. Please don't put any flammable wares near the welders. The protection from the wind must be set while operating the machine at the worksite with strong wind blowing. All the joints should be fastened and the screws should be tightened to ensure good electric conduction. Or, unnecessary power will be consumed. The earth wire must be set to avoid inductive electric-leakage.**

**CAUTION: Operating without earth wire is strictly prohibited!**





**CAUTION: STRICTLY PROHIBITED TO CONNECT WHILE PUTTING THE WELDING TORCH AND EARTH CLAMP ON THE SAME WORKPIECE.**

**Make Direct Connection or Reverse Connection according to Different Welding Rods**

**Positive Connection: Connect the welding torch to cathode output and connect the earth clamp to anode output.**

**Negative Connection: Connect the welding torch to anode output and connect the earth clamp to cathode output.**



## CHAPTER 3 OPERATION MANUAL

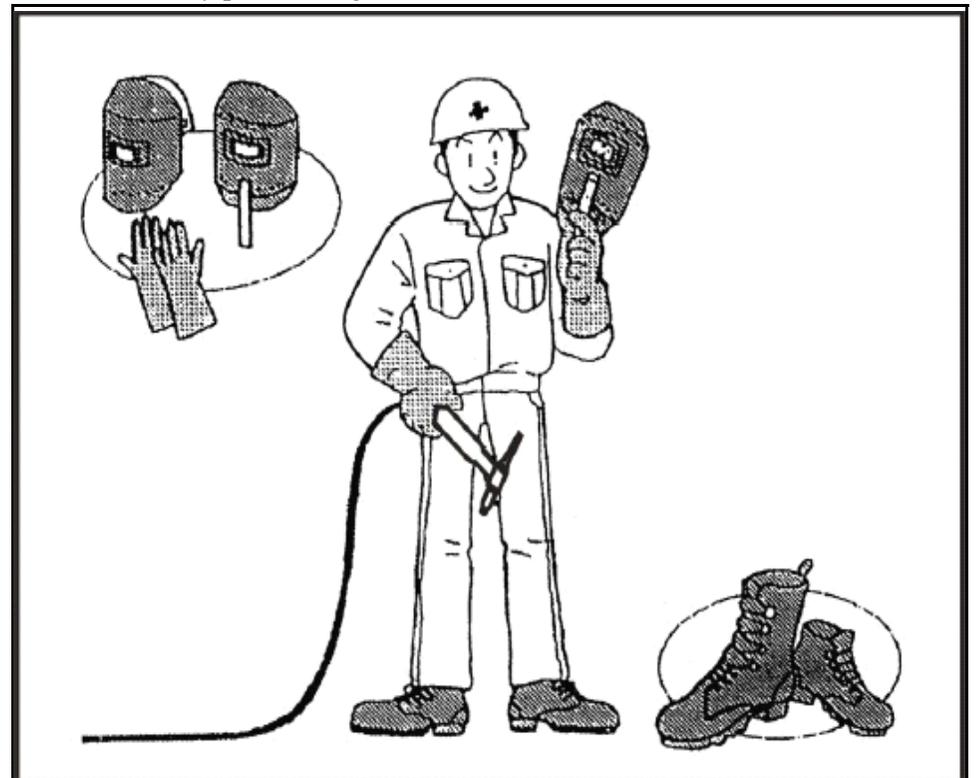
### 1. Confirmation and Preparation before Operation

Please use double frequency type electric leakage switch if some powers devices are mounted with electric leakage switch. Most electric leakage switches can be shut off by the high double frequency.

As a result of the strong radiation during arc welding, leather gloves, safety shoes and helmet with lucifuge glass (light-repelled) must be worn.

Regarding lucifuge glass Please refer to the types of the following page for better choosing.

While operating in small place, please keep air-circulation to avoid inhalation of any poisonous gas.



# **DC INVERTER MMA WELDERS ZX7 SERIES**

# **USER MANUAL**