
GENERAL SAFETY RULES

WARNING!**Read all instructions**

Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury. The term "power tool" in all of the warnings listed below refers to your mains operated (corded) power tool or battery operated (cordless) power tool.

SAVE THESE INSTRUCTIONS**1) Work area****a) Keep work area clean and well lit.**

Cluttered and dark areas invite accidents.

b) Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.

Power tools create sparks which may ignite the dust of fumes.

c) Keep children and bystanders away while operating a power tool.

Distractions can cause you to lose control.

2) Electrical safety**a) Power tool plugs must match the outlet. Never modify the plug in any way.**

Do not use any adapter plugs with earthed (grounded) power tools.

Unmodified plugs and matching outlets will reduce risk of electric shock.

b) Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.

There is an increased risk of electric shock if your body is earthed or grounded.

c) Do not expose power tools to rain or wet conditions.

Water entering a power tool will increase the risk of electric shock.

d) Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.

Damaged or entangled cords increase the risk of electric shock.

e) When operating a power tool outdoors, use an extension cord suitable for outdoor use.

Use of a cord suitable for outdoor use reduces the risk of electric shock

3) Personal safety**a) Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.**

A moment of inattention while operating power tools may result in serious personal injury.

b) Use safety equipment. Always wear eye protection.

Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

c) Avoid accidental starting. Ensure the switch is in the off position before plugging in.

Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.

d) Remove any adjusting key or wrench before turning the power tool on.

A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

e) Do not overreach. Keep proper footing and balance at all times.

This enables better control of the power tool in unexpected situations.

f) Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.

Loose clothes, jewellery or long hair can be caught in moving parts.

g) If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.

Use of these devices can reduce dust related hazards.

4) Power tool use and care**a) Do not force the power tool. Use the correct power tool for your application.**

The correct power tool will do the job better and safer at the rate for which it was designed.

b) Do not use the power tool if the switch does not turn it on and off.

Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

c) Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.

Such preventive safety measures reduce the risk of starting the power tool accidentally.

d) Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.

Power tools are dangerous in the hands of untrained users.

e) Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation.

If damaged, have the power tool repaired before use.

Many accidents are caused by poorly maintained power tools.

f) Keep cutting tools sharp and clean.

Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

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- g) Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.**

Use of the power tool for operations different from intended could result in a hazardous situation.

5) Service

- a) Have your power tool serviced by a qualified repair person using only identical replacement parts.**

This will ensure that the safety of the power tool is maintained.

PRECAUTION

Keep children and infirm persons away.

When not in use, tools should be stored out of reach of children and infirm persons.

Safety Warning



Warning : Please read the follow safety warning before operation.



All to defend and other --- Ear cap shall be put on when welding, and very operation is also important during welding. So:

1. The welding helmet, face shield and protective goggles shall be prepared, when in the working area at any time.
2. The appropriate face shield with filter and skin face shall be used to protect eyes, face, neck, and ears from electrical spark and arc ray. And the spectator should not watch the arc and keep rain sack away from the arc ray and splash.
3. The appropriate protective clothing, shoes and helmet shall be worn to protect from arc ray, sparing and splattering.
4. All the buttons shall be done up to avoid the sparking and splattering.
5. The nonflammable partition and door curtain shall be used protect the other workers from electric ray and sparking.
6. The protective goggles shall be used when cleaning welding spatter.



Fire and Burse –The heat of frame and arc can cause fire. So:

1. Keep the flammable materials including wooden, cloth, wet fuel and gas fuel and so on away from the welding working area.
2. All the walls and floor in the working area should be untracked to avoid the smoldering and fire.
3. Ensure that all the working pieces are cleared before doing welding, and do not do weld on the sealed container to avoid burst.
4. The fire-fighting equipment shall be prepared near the welding working area.
5. Do not use the equipments overloading.
6. The fire monitor shall be used after welding.



Electric shock----Please do not use the welding source in the wet area to avoid any injure or death. So:

1. To ensure the source underpan and earthing system of input source are connected.
2. To ensure the working pieces and good electric are connected.
3. To ensure the working cable and working piece are connected.
4. To change the damaged or abrasion cable in time.
5. Keep dry, including cloth, working area, wire, welding torch, soldering turret and power supply.
6. Keep the body insulated from the work piece and ground.
7. The operator shall stand on a dry wooden board or insulating platform of rubble shoes when working in a sealed on moist area.
8. The dry and sealed glove shall be wore before turning on the power.
9. The power should be turned off before taking off the glove.

Safety Warning



Electromagnetic field---- It can bring dangerous. So:

1. The worker that the heart pacemaker imbedded shall do some consultation with the doctor before doing welding; because the electromagnetic field may disturb the normal work of have pacemaker.
2. The electromagnetic is unhealthful.
3. The worker shall take the following measures to down times. exposing himself to the electromagnetic field:
 - (1) Put the electrode cause and work cable together, and also the tape can used if possible.
 - (2) Do not wind the welding torch cable and work cable round yourself.
 - (3) Put the welding torch cable and work cable on one side of yourself.
 - (4) Connect the work cable to the work piece and make it to the welding area as nearly as possible.
 - (5) Make yourself away from welding source and cable as much as possible.



Fog and gas – The welding fog and gas can make the worker uncomfortable, on hunted, especially in the limited icescape, so do not breathe the fog and gas. So:

1. The aerator natural on mechanical shall be prepared in the working area. Do not do welding on the following metals (galvanized, seed, stainless steel, copper, zinc, read, beryllium or calcium), and also do not breathe the welding fog and gas in.
2. Does not welding near the degreasing or spraying operation to avoid the poisonous gas phosgene or other imitates gas.
3. If you feel little imitate to the eyes, nose or throat. You shall stop welding and perfect the aerator. And you should stop welding at once if feeling comfortlessness.



Equipment maintenance – The wrong or inappropriate equipment maintenance can cause injury or death. So:

1. The licensed people can do assembly, maintenance and some other operation.
2. The power source shall be turned off when any maintenance work in the power source needed.
3. Ensure that the cable, earth wire, connector, main lead and power supply are in the normal work.
4. Do not abuse equipments and firing.
5. Keep the safe equipment and cabinet dos shall in peace and good condition.
6. Do not change any equipment.



The sign used in the manual means: take care! On guard! Involve your personal safety.



Means sudden danger. It can get people injured or dead if it is inevitable.



Warning

Means potential danger, it also get people injured or dead.



Cautions

Means danger, it can get people injured.

1.1 Produce application

MIG series welding machine adopt special tapped transformer adjusting style. It is an industrial product, it have wire-feed system, small volume, easy to shift and simple operation, it apply to welding low-carbon steel, low-alloy steel and so on.

1.2 Model unit

Model	MIG-200	
Item		
Rated input voltage	400V	
Frequency	50Hz	
Phase	two phase	
Input power	6,1kW	
No-load voltage	19~36V DC	
Rated output current	90A	180A
Rated output voltage	18,5V	22V
Duty cycle	60%	15%
Insulation grade	H	
Weight	37KG	
Dimension (LxWxH)	645×370×485 mm	

1.3 Voltage characteristic and current characteristic of welding power source

The curve (as diagram1-1) means "V-A" external static characteristic of welding power, gradient of curve named slope, normal means "drop off voltage per 100A". The curve shows the output voltage we can get in any preset output current because the "V-A" slope is fixed.

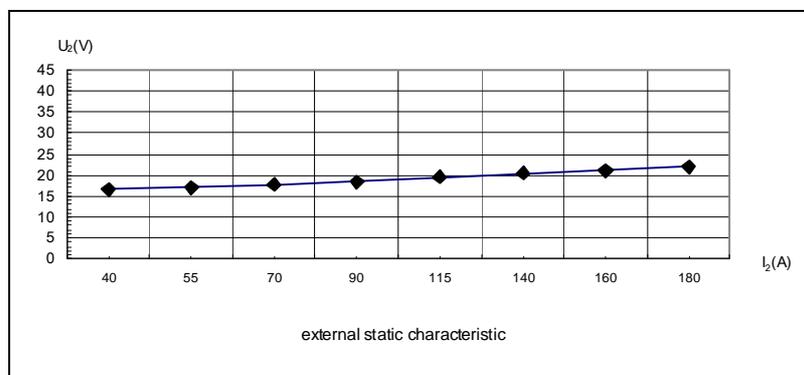


Diagram 1-1 External static characteristic

Chapter 1: Product description

1.4 Equipment condition

- a) Surrounding temperature range
During welding: -10°C ~ +40°C
During transit and storage: -25°C ~ 55°C
- b) Opposite humidity
when 40°C < 50%
when 20°C < 90%
- c) Dust acid active gas or object in surrounding air can't exceed normal content, except these objects that be brought by welding course.
- d) Altitude height must \leq 1000m
- e) Gradient of welding power \leq 15°

1.5 Noise announce

When the machine is working, it maybe have noise, but the noise can't exceed 75 decibel.

1.6 Safety

Before operating the equipment, you must read the safety directions to avoid the hurt that because of misapply and impropriety in stalling.

1.7 Accessories

1.7.1 Hammer brush

In order to operate the machine confidently, our company will give you one hammer and one brush as present.

1.7.2 Mask (with welding screening black glass)

When welding, the mask will protect your eyes and face.

1.7.3 Contact tip

Contact tip is the spare parts of welding torch when the contact tip damaged, you can replace it conveniently. We give a contact tips as present.

1.7.4 Welding wire

In order to operate conveniently, we provide one spool of \varnothing 0,8mm welding wire.

1.7.5 MIG Torch

We provide one MIG Torch.

1.7.6 Earth Clamp

In order to operate conveniently, we provide one earth clamp.

1.8 Specific packing please sees the packing list (the last page of the manual).

Chapter 2: Assembly

2.1 The requirement of installing ground

Equal ground is very necessary to the machine, the ground must be have good ventilation system, and can't be exposed in dust, dirt, wet and active steam, the minimum distance between back board and it's nearest bar also $\geq 46\text{cm}$.

2.2 Check, discharged and placed

- (1) After receiving the equipment, you should check if the equipment has been damaged during traffic. If damaged, you should notify the conveyance, if lack spare parts, please notify the dealer at once.
- (2) Take the spare parts out from packing box, remove the packing material and check if any cast in packing box.
- (3) Check every airway in the shell and make sure packing box can't block air circulating.
- (4) Choose roomy ground to placed spare parts in order to installing conveniently.

2.3 Installing

Connect frame of welding machine as diagram 2-1.



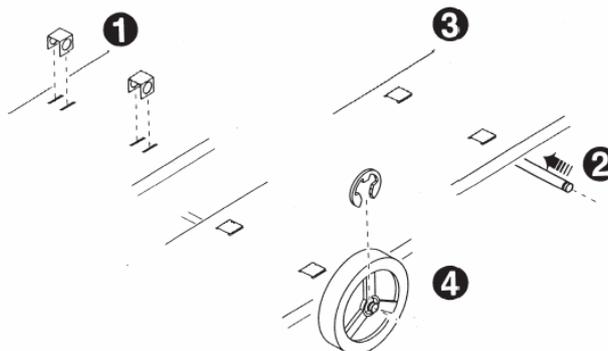
Diagram 2-1

2.3.1 Installing the kickstand

Block the plastic kickstand into slot that on the front of chassis of machine, and use tapping screws to firm.

2.3.2 Installing the wheel as diagram 2-2

Wheel and Axle Assembly Drawing



2.3.3 Installing the handle as diagram 2-3



1. Fix handle-1



2. Fix handle-2



3. Fix brace

Diagram 2-3

2.3.4 Fixing the wire reel

Notice: Wire type: flux-core wire (E71-GS), steel wire
 Wire diameter: 0.8mm or 1.0mm
 Wire spool size: 20mm diameter
 Maximum of wire Spool weight (include wire): 5Kg
 Rated wire speed: 1.8m/min ~ 11m/min

Step 1: Open the right sideboard, and strip the wing nut from wire-feed spool axle.

Step 2: Hold the spring and wire spool into wire-feed spool axle successively, and then hold the wing nut (as diagram 2-3).

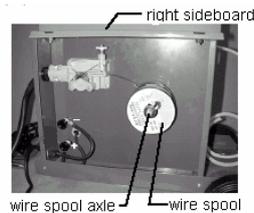
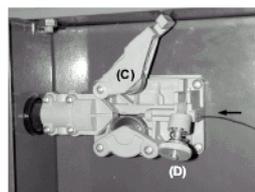


Diagram 2-3

Step 3: Open the wire-feed impaction equipment (C), let the terminal of wire through godet tube, wire-feed wheel, and import the godet tube of welding torch, then close the equipment(c), adjust the impaction nut of wire-feed wheel (as diagram 2-4).



wire feed mechanism

Diagram 2-4

Step 4: Close the right sideboard

2.3.5 Gas cylinder installation

The welder has a platform on the rear of the machine to support a gas cylinder. See diagram 2-5 for reference. If you plan on moving your welder about the shop, use only small cylinders (outside Diameter=140mm, 320mm≤height≤500mm, weight≤10kg, service pressure≤20Mpa) for transport safety. Large cylinders (outside diameter>140mm or height>500mm or weight>10Kg, service pressure≤20Mpa) should be secured in a permanent location or to a separate cart, not to the welder. Scure the small size cylinder with the gallus supplied with the welder. Small cylinders can be easily secured in place using the top rack "A".

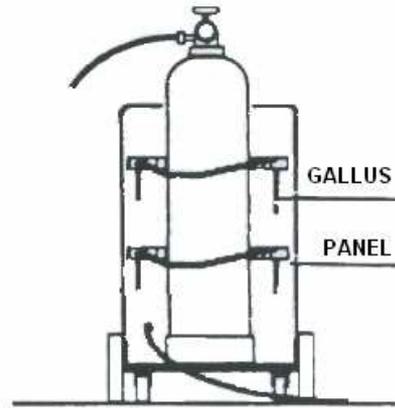


Diagram 2-5

2.3.6 Connection welder to gas cylinder

Clean the threads of the gas cylinder valve. Also open the gas valve for a few seconds to blow out any dirt or particulates which may have gotten into the orifice in order to prevent them from entering the regulator. Check your regulator (outlet flow meter: 0-25L/Min, inlet gauge: 0-25Mpa, pressure range for safe outpouring: 0-0.35Mpa) to make sure that it was supplied with a gasket.

Tighten the regulator coupling to the cylinder gas valve. Now connect the welder gas line to the hose barb outlet on your regulator; a stainless steel hose clamp can be used to insure a leak-proof connection. (See diagram 2-6)

Check all connections for leaks by opening the regulator and cylinder gas valves.

When the machine is not in use, always shut off the regulator and cylinder gas valves.

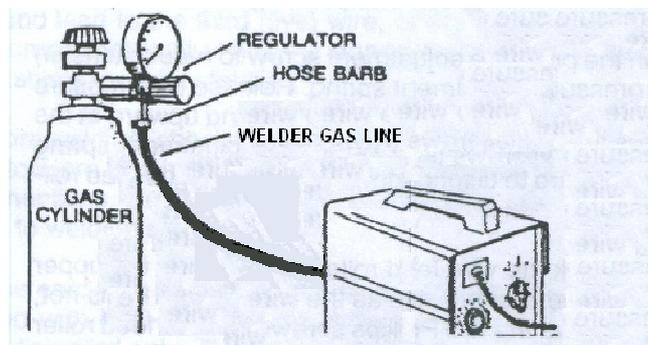


Diagram 2-6

2.3.7 Fixing the face shield (as diagram 2-7)

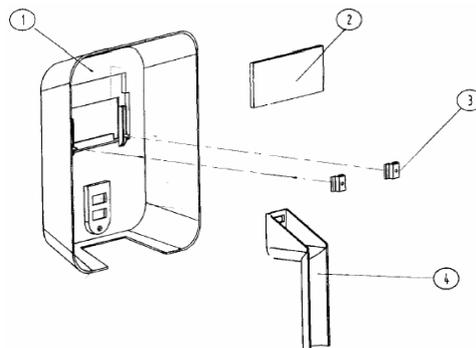


Diagram 2-7



Cautions

Do not operate the machine when the shell has been opened, improper cooling can damage the parts, make sure the sideboard have been closed. When welding, you must wear helmet, glove and other guards.

3.1 Layout drawing of control panel (diagram 3-1)

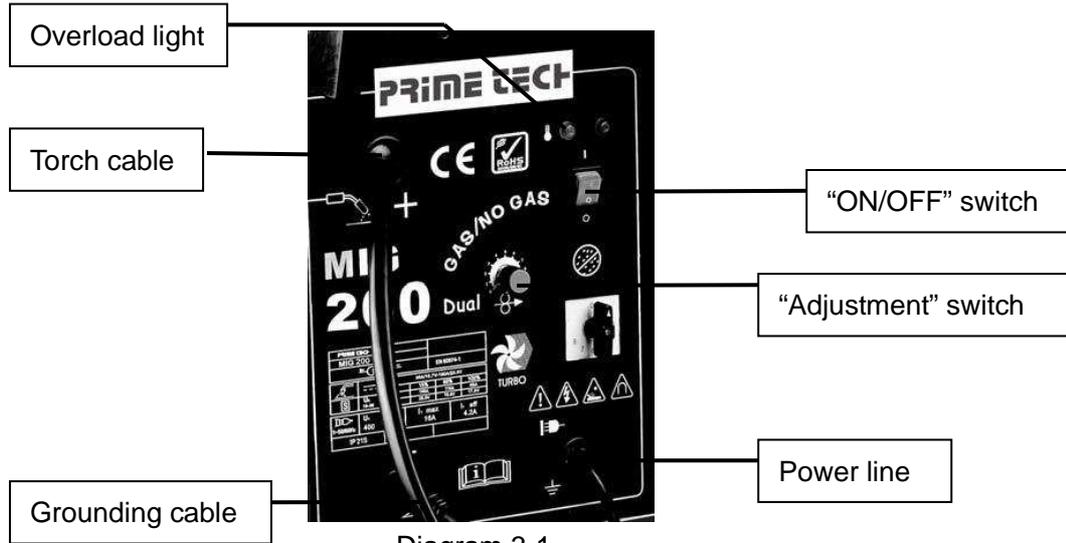


Diagram 3-1

3.1.1 "ON/OFF" switch

When the switch on "OFF" position means power has been closed, when the switch on "ON" position means supply power for the main transformer and control circuit.

3.1.2 Adjustment switch

Adjustment switch is at the face panel of the machine, each has eight steps. Set the desired welding current for the type of metal being welded using four steps. Refer to the power setting table 3-1. Thinner metals use lower current. Heavier metals use higher current.

MIG-200 Comparison table of output adjusting switch position and output current

Adjustment step	Welding Current in A
1	40A
2	55A
3	70A
4	90A
5	115A
6	140A
7	160A
8	180A

Table 3-1

3.1.3 Overload light

If welding with large current for a long time and exceed the duty cycle, the overload lamp will light (yellow), the machine will stop working until looking to the stated temperature. When the overload lamp lights you must turn the switch to "OFF" position and wait about 15 minutes, then you can continue.

3.2 Graphic symbols and technical data

$U_0.....V$	This symbol shows the secondary no-load voltage (in volts).
X	This symbol shows the rated duty cycle.
$I_2.....A$	This symbol shows the welding current in AMPS.
$U_2.....V$	This symbol shows the welding voltage in VOLTS.
U_1	This symbol shows the rated supply voltage.
$I_{1max}...A$	This symbol shows the welding unit's maximum absorbed current in AMP.
$I_{1eff}...A$	This symbol shows the welding unit's maximum absorbed current in AMP.
IP21S	This symbol shows the welding unit's protection class.
	This symbol shows that the welding unit is suitable for use in environments where there is a high risk of electric shocks.
	This symbol shows read the operating instructions carefully before operation.
	This symbol shows the welding unit is a single phased D.C. welder.
	This symbol shows the supply power phase and line frequency in Hertz.
	This symbol shows the welding unit is a MIG/MAG welder.

3.3 Operation process

If use solid wire, need gas to protect, connect mixed gas windpipe of argon/CO₂ to the tie-in that on the back of the machine, and tighten it avoid leaking. If use flux wire, you need not these process, connection of output cable can be changed according to wire types. When use solid wire, as diagram 3-2A, grounding cable connect the "-," another cable (welding torch cable) connect "+"; When use flux wire, as diagram 3-2B, grounding cable connect "+" terminal, another cable (welding torch cable) connect "-" terminal.

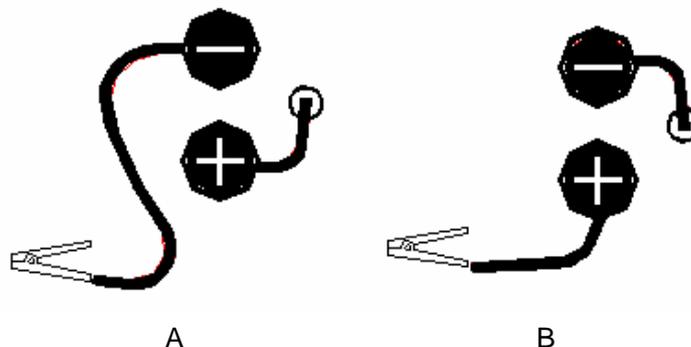


Diagram 3-2

- Step 1: Use ground clamp to connect the grounding cable and work piece or connect the metal carriages (as work table) make sure the clamp has been contacted fully with work piece and clear the rust and paint.
- Step 2: According to metal specification, adjust the position of "MIN/MAX" and "1/2 " switch.
- Step 3: Check the position of power switch, position must be on "OFF", then insert the inlet wire to the socket (voltage is 230VAC, rated current of socket \leq 15A).
- Step 4: Discharge the nozzle cover and contact tip at the head of welding torch, pull the soft pipe.
- Step 5: The welding tongs that clamp the rod can't be contacted with any grounding objects then turn the conversion switch to voltage position (the same with input voltage) the power lamp (green) will light.
- Step 6: Press (and hold) the torch button until distance between wire and welding torch is 30mm loosen torch button.
- Step 7: Close the power; fix the contact tip and nozzle cover onto the welding torch. (wire must through the contact tip and nozzle cover)
- Step 8: Open the power, press the switch spasmodically, adjust the speed by turning the adjusting wire feed speed knob.
- Step 9: Orient yourself on the area to be welded, and then place the Face Shield over your eyes.
- Step 10: Press (and hold) the torch button and stroke the area to be welded with the electrode wire to ignite the arc.
- Step 11: Once the arc is ignited, tilt the electrode wire forward at an angle of approximately 35°. (as diagram 3-3)

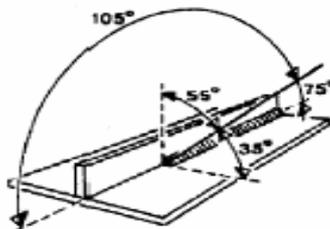


Diagram 3-3

- Step 12: When the weld is complete, lift the electrode wire clearly away from any grounded object, set the Face Shield down and turn the Power Switch to the "OFF" position.
- Step 13: Unplug the Power Cord from the electrical outlet.



Cautions

If welding with large current for a long time and exceed the duty cycle, the overload lamp will light (yellow), the machine will stop working until looking to the stated temperature. When the overload lamp lights you must turn the switch to "OFF" position and wait about 15 minutes, then you can continue.

4.1 Summarize



Cautions

If the equipment can't work normally, you should stop working at once and check trouble reason. You must use career man to maintenance; forbid somebody that without training to check clear or repair equipment, when repairing, you'd better to use commendatory spare parts.



Warning

Before any maintenance, make sure the main switch has been cut or remove the fuse.

4.2 Cleanness

Take the shell and sideboard trimly, and use cleanly and dry low-pressure air to blow dust and dirt on air alleyway and inner parts. Clear the dirt, dregs and begrime on the head of welding tongs trimly. Make sure the clean frequency according to the circumstance.

In order to enough circulating and supply proper cooling, it's necessary to keep the alleyway cleanness.

After cleaning by low-pressure, check if any hard ware has flexible, if been flexible, you must firm them, include all electric contactor. Check if insulation of cable has been frayed, if the cable has been frayed, you must replace it.



Warning

If you replace the cable improperly, the bare cable may contact the grounding objects, the arc can hurt your eyes or bring bad fire. If body contact the have cable linker or lead; you may be burned or dead.

4.3 Check and maintenance

Keep the power dry, remove grease and make sure the power can't be damaged by flaming metal and spark.

4.3.1 Transformer

Transformer needn't any maintenance except clear the dust and dirt trimly. Use low-pressure air to let it clean and dry.

4.3.2 Replacing the wire reel

When the wire on the feed reel is used up, you will need to replace it as the Chapter 2.3.2.

4.3.3 Cable

Place cable at a clean and dry place.

5.1 Summarize

**Warning**

Before repairing, you must cut the main switch or breaker.

If the machine can't work normally, use following information, you can find the reason. Check trouble and collate symptom, as table 5-1. If the problem can't be found at once, you should open the power to see ass parts and wire.

**Warning**

Electric repairing must be made by career man.

Table5-1 Diagnose and remove

TROUBLE	REASON	SHOOTING
Without output	<ol style="list-style-type: none"> 1. Without voltage in input terminal 2. Improper fuse or breaker 3. Overload protective setting 	<ol style="list-style-type: none"> 1. Check the fuse or breaker 2. Replace fuse or breaker 3. After cooling then try to continue
Bad wire-feed	<ol style="list-style-type: none"> 1. Have not enough pressure 2. Wing hat is too loose 3. Wire has been oxide 	<ol style="list-style-type: none"> 1. Tighten the impaction nut 2. Tighten wing nut 3. Replace wire spool
Current is too poor	<ol style="list-style-type: none"> 1. Input voltage is too poor 2. Bad connection 3. One or more commute element have been damaged 	<ol style="list-style-type: none"> 1. Check that if input voltage is the same with rated voltage 2. Check grounding cable and make sure have well connection 3. Replace by career
The welder line is like sponge	<ol style="list-style-type: none"> 1. No gas or little gas 2. The hole has been blocked. 3. Haitian valve has been blocked 4. Bad gas and wire 	<ol style="list-style-type: none"> 1. Check all gas 2. Use compress air to clear spoil 3. Open the welding torch and check 4. Gas must be dry, use another type wire
When Pressing switch the machine can not working	<ol style="list-style-type: none"> 1. Control wire broke off 2. Circuit plate damaged 	<ol style="list-style-type: none"> 1. Check by career 2. Replace circuit plate

Packing list

No	Name	Specification	Qty	Remark
1	Operating manual		1	
2	Hand-hold mask		1	
3	Screening glass		1	With hand-hold mask
4	Hammer/Brush		1	
5	Weld wire	Ø 0,8mm 0,5KG	1	
6	Earth clamp	300A	1	With 1,8m earth cable
7	Contact tip	0,8mm	2	
8	MIG torch	300A	1	