IN TIG 200 PULSE
WELDING MACHINE

INSTRUCTION MANUAL

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TECHNICAL PARAMETERS

TYPE PARAMETERS	**IN TIG-200 PULSE**
Input Voltage	220V±15 %, 50/60 HZ
Input Current (A)	20
Rated Output Voltage (V)	18
No-Load Voltage (V)	42
Arc-Leading	HF Vibration
Duty Cycle	60 %
Valley-Down Current (A)	20-180
Weight	9
Size (L X W X H) mm	423 X 205 X 357

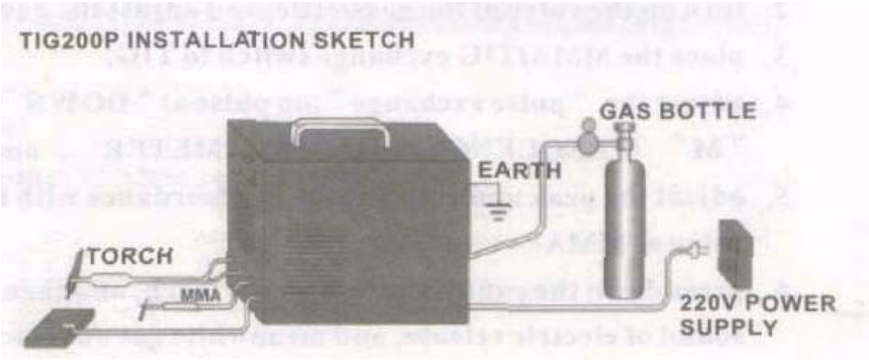
INSTALLATION

1. Connect the Protective gas the gas supply includes the gas hose, and the connectors should be fixed with hose clamp or other things to avoid air-in.

2. The case is firmly connected to earth with cables whose section not less than 6m2.

3. Connect the TIG torch or clamp first.
MMA: make sure the cable and clamp and air socket are well-connected, and connect the fast plug to the " - " of the socket on the panel board, and wind it in clock wise direction.
TIG: connect the gas connector to panel board, and span it in clock wise direction with a spanner, and connect the air plug on the torch to the corresponding place on the panel board, tighten the connecting screw, the cable air plug to the " + " of the socket on the panel board. and wind it in clock wise direction, while the earth clamp at the other end is connected to the work piece.

4. Plug the power plug to corresponding socket, and make sure the voltage is 220V.RE: the input voltage of TIG315P is 380V, all above done, the installation is finished, and you can begin to work.



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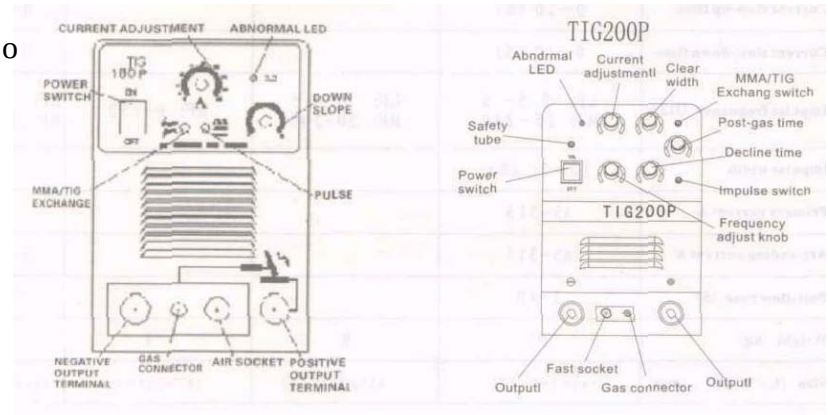

OPERATION INSTRUCTIONS

TIG

1. Turn on the power switch on the panel board, and then the power LED is on, and the fan works.
2. Turn on the valve of the gas bottle, and adjust the gas volume to the needed value.
3. Place the MM A/TIG exchange switch to TIG.
4. adjust the " pulse exchange " ,no pulse at " DOWN " , and medium pulse frequency at "M" (FREQUENCY see the PARAMETER) , and low pulse frequency at " UP "
5. Adjust the peak and volley value in accordance with the work piece, (no peak or volley value at MMA)
6. press down the control button on the torch, and then the electric valve works, there are sound of electric release, and meanwhile gas out from the nozzle.

MMA INSTRUCTIONS

1. turn an the power switch on the panel board, and the power LED is on, and the fan begin to work.
2. Place the MMA/TIG button downwards to MMA, and then the pulse exchange and “down-slope “are both useless.
3. Fix corresponding welding current according to the thickness of the work piece.

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D. PROBLEMS YOU MAY ENCOUNTER DURING WELDING

The phenomena here may have something to do with the spare parts, gas, environment and power supply, so please improve the welding environment to avoid such circumstances.

A. BLACK WELDING POINT

—that means the welding point is not well-protected and oxidized; you can check it as follows:

1. make sure the valve of the gas bottle has been turned on, and has enough pressure; if the pressure is lower than 0.5MPa, it's necessary to refill the bottle.
2. Check whether the gas volume is on and has enough volume. To save gas, you can choose different volume according to different welding current, but too small current may cause the protective gas is not enough to cover the whole welding point. We suggest you use the volume no less than 5L/min.
3. The easiest way to check whether there is gas is to feel it with hand, and see whether the hose is blocked or not. if the gas hose is not well sealed, or the gas is not pure , it may cause bad welding.
4. *If* the air circulation is too strong, it may also cause bad welding efficiency.
5. The clean width adjustment is too low.

B. HARD TO START THE ARC, AND EASY TO BE OFF

1. make sure the tungsten you are using is of good quantity, because that of poor quantity may be weak in electricity releasing.
2. The tungsten whose terminal has not been peaked is not easy to start the arc, and cause the arc unstable.

C. THE WELDING CURRENT IS UNSTABLE DURING WORKING:

The cause may be as follows:

1. the voltage of the electric net changes;
2. Disturbance from the electric net or other electric equipment**.**

E. CAUTIONS & PRECAUTIONS

1. WORKING ENVIRONMENT

1) Under comparative dry environment, the moisture < 80 %;
2) The environment temperature should be between -10C and + 40C;
3) avoid working in the sun or rain
4) avoid working in the environment where there is much dust or corrosive gas.
5) Avoid working in the environment where the air circulation is too strong.

2. SAFETY TIPS

1) Good air circulation

This machine is little in volume, tight in structure, and big in current output, so the natural air circulation can not satisfy its need, and we add special fans in it for cooling.

Re: Cautions; make sure the two terminals and shutter of the cutter are not blocked and covered, and the machine should be placed 0.3m away from the surroundings; please always improve the circulating condition, because it's very important for the normal working of the welding machine.

2) No over-load working

Over-loading is forbidden, or the cutter may stop suddenly during the cutting course. That's, the inner thermal parts works under over-load condition. Under this circumstance, no need to cut off the power switch, leave the Tan whirl to speed up the temperature-lowering .If the temperature drops to the given range, the work will recover.

3) No over-voltage

The power voltage range of the machine see the " Main parameter " table, under this circumstance, the inner voltage will complement all by itself, and guarantee the welding current nut surpass (he allowed value. Please be more careful if the parts are damaged because of over-voltage.

4) Each machine has a screw for earth connecting, the mark is earth signal, please choose a 10mm cable to connect the case of the machine to earth to avoid breakdown caused by static electricity or electricity-leaking.

5) Do not touch the output terminal when working or it may cause electric shock.

F. MAINTENANCE

1). Clear the dust at regular intervals with clean and dry compressed air; if the working condition have heavy smoke and pollution .the welding machine should be cleaned once a month.

2). The compressed air should be reduced to the required pressure lest the little parts in the welding machine he damaged.

3). Check whether the inner gas-electricity connection is well (esp. the plugs) and tighten the loose connection; if there is oxidization, remove it with sand paper and then re-connect.

4). To a void water and rain. if there is, dry it in time, and check the insulation with mega meter < including that between the connection and that between the case and the connection) .Only when there is no abnormal phenomena can the welding continue.

5). If the machine is not used for long time, put it into the original packing in dry condition.

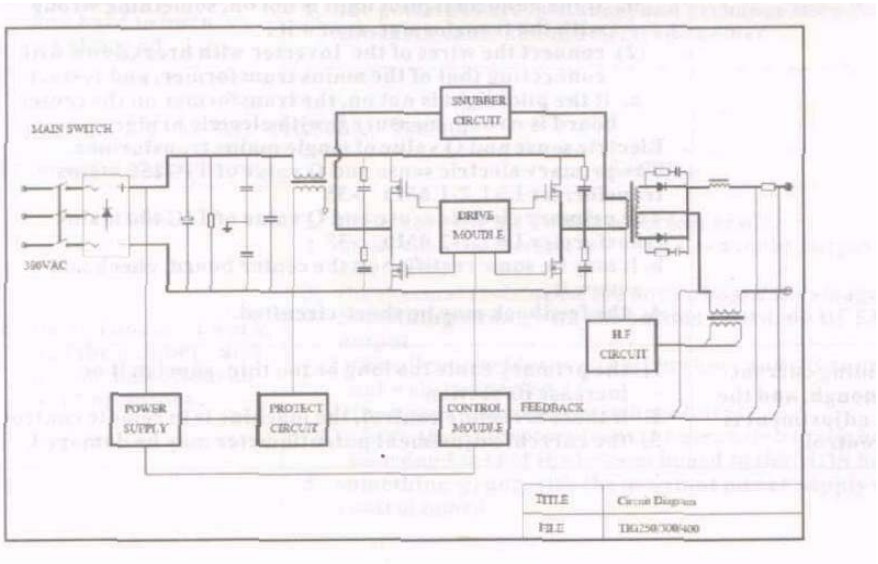
G, BREAKDOWN-CHECKING

1. During the maintenance period, any intentional wrong repair on the machines is forbidden, or the free maintenance provided by the manufacture will be lost.
2. the operator must have special knowledge and common sense of safety, and they are supposed to have certificates of welding.

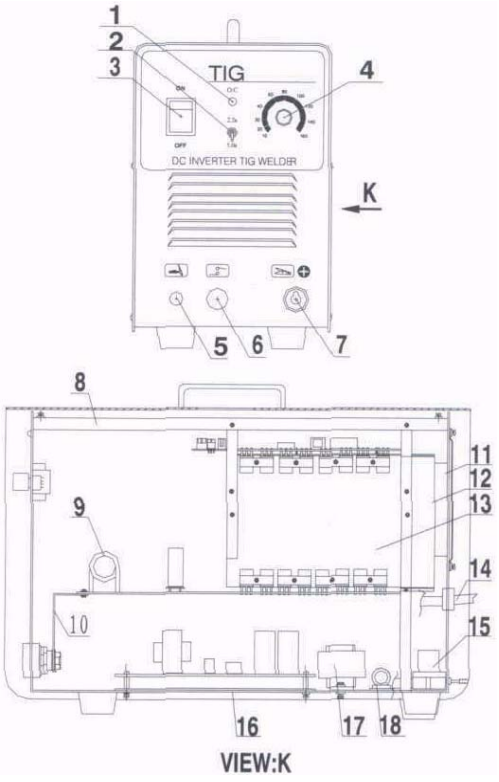
Breakdown Phenomenon	Solution
1. The power pilot light is not on, and the fan doesn't work, and no welding output.	1. The power switch is broken. 2. Whether the electric net connected to the input cable has electricity. 3. whether the input cable is short-circuited.
2. the power pilot light is on, the fan doesn't work , and no welding output	1. It may be mistakenly connected to 380V, and cause over-voltage protection; re-connect it to 220V, and restart it. the 220V power supply is not stable (the input cable is too thin) or the input cable is connected to the electric net, thus causing over-voltage protection. Please add the net input cable or tighten the connectors. 3. the power switch is turned on and off continuously in a short time ,and cause over-voltage protection, turn off the machine for 2 or 3 min and restart it . 4. The connectors from the switch to the bottom board is loose, please tighten it. 5. The 24V relay on the bottom board is somewhere damaged, check it and renew it if necessary.
3. The fan works and the abnormal LED is not on, no electricity releasing, and no arc-starting even by rubbing.	The voltage from the bottom board to the MOS board near VH-07 should be DC380V on the multimeter. Whether it is short-circuited, or the silicons bridge connections are well-connected. (2) Some of the four big capacitors may be broken. (470UF/450V) 2. There is a green light on the assistant power supply of the MOS board, if the light is not on, please try find out the cause or contact the merchandisers. 3. check all the connections inside the machine. 4. something wrong with the control circuit, find the cause or contact the merchandisers. 5. The control cable on the torch is broken.
4. the abnormal LED is not on, and there is HF electricity releasing, no welding output	1. the torch cable is broken. 2. the earth cable is broken or not connected to the work piece. 3. the connector of the positive output terminal or the torch gas connector to the machine is loose.
5. The abnormal LED is not on no electric releasing, and can start the arc by rubbing.	1. The primary cable of the arc-starting transformer is not well-connected, please tighten it. 2. The discharge nozzle is oxidized or faraway, and please deal with the oxidization coating or adjusts the discharging distance to 1 mm or so. 3. the exchange switch for MM A/TIG is broken, please renew it. 4. some parts of the HF arc-starting circuit is broken, please renew it

6. the abnormal LED is on ,and there is on output	1. it may be over-current protection, please turn off the machine and do not restart until the abnormal led goes off. 2. it may be over-voltage protection, wait for 2or 3min, and it can recover itself. (TIG only machine has no over-heat protection) 3. It may be something wrong with the inverter circuit, please plug off the power plug on the MOS board, and restart the machine. I somewhere near the VH-07) (1) if the abnormal LED is still on. and turn off the plug of the HF arc-starting power (near the fan VH-03) and restart. a. if the abnormal light is on, the MOS is broken, check and renew it. b. if the abnormal light is not on, the step-up transformer on the bottom board is wrong, renew it. (2) the abnormal LED is not on: a. the transformer on the center board is broken, measure the sensing value and Q value L=0.9-1.6mH Q>35 if both are small, then renew it. b. the secondary rectifier of the transformer is broken, renew it. 4. The feedback circuit is break circuit.
7.the abnormal LED is on .and there is on output	1. The IK potentiometer is easily broken, please change it. 2. Check all the connectors, esp. Insertions
8. big splash for MMA and hard to burn alkaline rod.	1. The polarities are mistaken, and exchange the polarity of the earth cable and the electrode holder.

CIRCUIT DIAGRAM



INSTALLATION&OPERATION



PART ONE.
The front-panel indication
1 .Protecting indication
2 .Welding exchange
3 .Power switch
4 .Current adjust knob
5."-"output connector
6. MMA switch
7."+" output connector
8 .Cross beam
9. Pilot arc coil

PART TWO
Inner components:
10. Copper connector
11. Fan net
12. Fan
13. Inverter
14. Power cable
15. Magnet valve
16. Bottom board
17. Electric reactor
18. EMC filter plate

SPARE PART LIST OF INTIG 200 PULSE	
DESCRIPTION	**PART CODE**
TOP PCB	PCB-PTIG200T
MIDDLE PCB	PCB-PTIG200M
BOTTOM PCB	PCB-PTIG200B
CONTROL CARD	PCB-PTIG200C
ON/OFF SWITCH	PSW003
POTENTIOMETER FOR CURRENT SETTING (1K)	POT003
KNOB FOR POT003	KNOB003
OUT PUT CONNECTOR CABLE SIDE	FASTPLUG001-CM
OUT PUT CONNECTOR MACHINE SIDE	FASTPLUG001
FAN	FAN006
SOLONAID VALVE 24V	SV101
CAPACITOR	CAP-ELE-01
OUT PUT FAST DIODE	FAST DIODE-02
MAIN TRANSFORMER	MTRAX-MOS-01
MOSFET	MOSFET-01
MOV	MOVS20K275
INPUT BRIDGE MODULE	IBDG005