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Inverter Welding Machine

MIG/MAG/MMA140/160

To Be Your Exclusive Helper



TEH



TECHNICAL SPECIFICATION

Model	MIG/MAG/MMA140	MIG/MAG/MMA160
Power voltage (V)	AC160V-270V	AC160V-270V
Frequency (Hz)	50/60Hz	50/60Hz
Rated input current (A)	21.8	26.2
No-load voltage (V)	35-50	35-50
Output current (A)	20-140	20-160
Rated output voltage (V)	15.6-21	15.6-22
Duty cycle (%)	60	60
No-load loss (W)	40	40
Efficiency (%)	80	80
Power factor	0.8	0.8
Insulation grade	F	F
Housing protection grade	IP21	IP21
Weldable Electrode (mm)	MMA: 1.6-3.2	MMA: 1.6-4.0
	0.8-1.0	0.8-1.0

SAFETY WARNING

WARNING ⚠

On the process of welding or cutting, there will be possibility of injury, so please take protection into consideration during operation. For more details please review the Operator Safety Guide, which complies with the preventive requirements of the manufacturer.

ELECTRIC SHOCK—MAY LEAD TO DEATH ! !

- Set the earth fitting according to applying standard.
- It is forbidden to touch the electric parts and electrode when the skin is naked, wearing wet gloves or clothes.
- Make sure you are insulated from the ground and the workshop.
- Make sure you are in safe position.

GASES AND FUMES—MAY BE HARMFUL TO HEALTH!

- Keep your head out of the gases and fumes.
- When arc welding, ventilators or air extractors should be used to avoid breathing gases.

ARC RAYS—HARMFUL TO YOUR EYES, BURN YOUR SKIN.

- Wear suitable protective mask, light filter and protective garment to protect eyes and body.
- Prepare suitable protective mask or curtain to protect looker-on.

FIRE

- Welding spark may cause fire, make sure there is no tinder stuff around the welding area.

NOISE—EXCESSIVE NOISES WILL BE HARMFUL TO HEARING .

- Use ear protector or others means to protect ear.
- Warn looker-on that noise is harmful to hearing.

MALFUNCTION—WHEN TROUBLE HAPPENS, CONTACT WITH AUTHORIZED PROFESSIONALS

- If trouble happens during installation and operation, please follow this manual instruction to check up.
- If you fail to fully understand the manual, or fail to solve the problem with the instruction, you should contact the suppliers or the service center for professional help.

WARNING ▲

Creepage-protecting switch should be added when using the machine! ! !

MACHINE DESCRIPTION

The welding machine is a rectifier adopting the most advanced inverter technology.

The development of inverter gas-shielded welding equipment profits from the development of the inverter power supply theory and components. Inverter gas-shielded welding power source utilizes high-power component MOSFET to transfer 50/60HZ frequency up to 100KHZ, then reduce the voltage and commutate, and output high-power voltage via PWM technology. Because of the great reduce of the main transformer ' s weight and volume; the efficiency increases by 30%. The appearance of inverter welding equipment is considered to be a revolution for welding industry.

Co2 shielded welding equipment adopts the most advanced inverter technology by Our. Inside of the machine is equipped with electronic reactor circuit which can accurately control the process of the electric short transition and blending transition and result excellent welding characteristic. Comparing with synergic welding machine and other machine, it has the following advantages: stable wire speed, compact, power saving, no electromagnetic noise. Continuous and stable operation with small current, especially suitable for welding sheet of low-carbon steel, alloyed steel and stainless steel. Automatic voltage pulsation compensation capability, small sparkle, good arcing, uniform welding pool, high duty cycle and so on.

Thanks for purchasing our product and hope for your precious advice. We will dedicate to produce the best products and offer the best service.

WARNING ▲

The machine is mainly used in industry. It will produce radio wave, so the worker should make fully preparation for protection.

INSTALLATION INSTRUCTION

The machine is equipped with power voltage compensation equipment. When the power voltage fluctuation is between $\pm 15\%$ of rated voltage, it still can work normally.

When the machine is used with long cables, in order to prevent voltage from going down, bigger section cable is suggested. If the cable is too long, it may affect the performance of the power system. So cables of configured length are suggested.

MIG140/160 INSTALLATION (DIAGRAM1、2) :

- 1) Connect the CO₂ cylinder with CO₂ decompression flow meter and the gas inlet behind the machine via a gas hose tightly, insert the power plug of the flow meter into the socket of the heater behind the machine.
- 2) Insert the fasten plug of the earth cable into the relevant fasten socket on the front panel, and tighten the torch on the output socket on the front panel.
- 3) Set the wire spool with wire on the spool axle, the wire spool hole should be matched with the spool fixer.
- 4) Wire spool should turn clockwise rotation to let out wire, to prevent wire from gliding, the wire is usually set to the fixed hole on the spool side. To prevent the bent wire from getting stuck, please cut off this part of wire.
- 5) Choose wire slot according to the wire size be used.
- 6) Put the wire into slot via wire-lead tube, insert the wire into the wire-lead steel tube, let the wire-pressing wheel presses the wire tightly; Tune the wire-pressing bar to fix the wire from sliding, but pressure should be suitable in case the wire distorted and affects wire sending.
- 7) Press the inching switch to let out the wire to the head of the torch.
- 8) This machine has the polarity conversion; There are positive ou put terminal and negative output terminal between wire feeder and wire spool; When use solid wire with gas protection, torch socket should be connected to the positive output terminal, earth cable should be connected to the negative output terminal; When use flux-cored wire, the two connected cable should be exchanged.

DIAGRAM 1 : MIG140/160 INSTALLATION

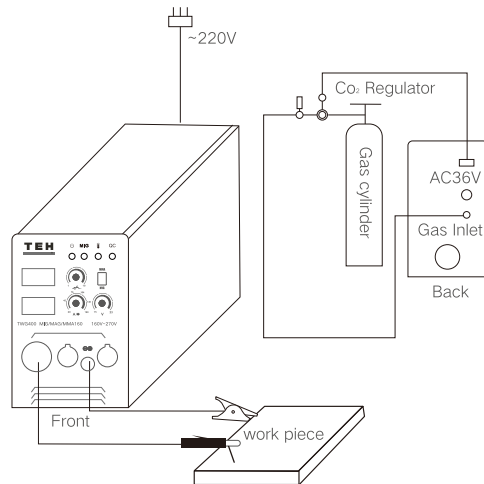
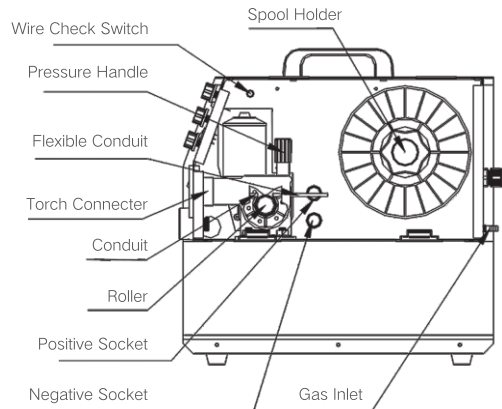


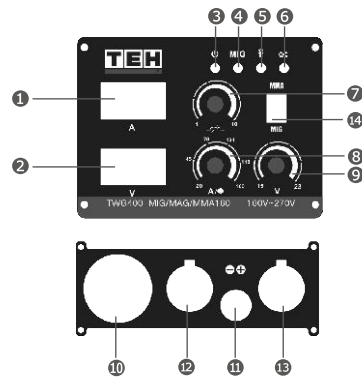
DIAGRAM 2: MIG140/160 WIRE FEEDING MACHINE INSTALLATION



PANEL FUNCTION INSTRUCTION

1. Set the power switch of welding machine at "ON" position; Open the valve of the gas cylinder, loose the wire-pressing bar, press the torch switch, and adjust the flow meter to required flow.
2. Choose the wire diameter switch according to wire size: when use $\varphi 0.6$ 、 $\varphi 0.8$ wire, set the wire diameter switch to "rabbit" position; when use $\varphi 1.0$ wire, set the wire diameter switch to "tortoise" position.

3. Select bore diameter of welding torch contact tube according to diameter of wire.
4. According to the thickness and processing techniques of workpiece under welding, adjust VOLTAGE turn button and SPEED turn button to required position.
5. The electric arc characteristic knob is used to adjust the softness and hardness level of the arc to achieve the best welding effect; When the current is small, the electric arc shall be hard to reduce arc interruption. When large current, the electric arc shall be soft so as to reduce spatter.
6. Connect the earth clamp to the work piece, then press the torch switch, the welding machine is working, loose torch switch, the welding machine is stop.



- 1 Current indicator
- 2 Voltage indicator
- 3 Power indicator
- 4 Mig function indicator
- 5 Temperature indicator
- 6 Abnormal indicator
- 7 Inductance adjustment
- 8 Current adjustment
- 9 Voltage adjustment
- 10 Torch switch
- 11 Clamp socket
- 12 Negative output terminal
- 13 Positive output terminal
- 14 MIG/MMA switch

NOTES OR PREVENTIVE MEASURES

1. ENVIRONMENT

- 1) The machine should be operated in dry environments with humidity levels of max 90%.
- 2) Ambient temperature should be between -10 to 40 degrees centigrade.
- 3) Avoid welding in sunshine or drippings. Do not let water infiltrate the machine.
- 4) Avoid welding in dust area or the environment with corrosive gas.
- 5) Avoid gas welding in the environment with strong airflow.

2. SAFETY NORMS

The welding machine is installed with protection circuit of over voltage, over current and over heat. When voltage, output current and temperature of machine exceed the required standard, welding machine will stop working automatically. However, overuse (such as over voltage) will still result in damage to the welding machine. To avoid this, the user must pay attention to the following.

- 1) The working area is adequately ventilated!

The welding machine is powerful machine, when it is being operated, it generated by high currents, and natural wind will not satisfy machine cool demands. So there is a fan in inner-machine to cool down machine. Make sure the intake is not in block or covered, it is 0.3 meter from welding machine to objects of environment. User should make sure the working area is adequately ventilated. It is important for the performance and the longevity of the machine.

- 2) Do not over load!

The operator should remember to watch the max duty current (Response to the selected duty cycle). Keep welding current is not exceed max duty cycle current. Over-load current will damage and burn up machine.

- 3) No over voltage!

Power voltage can be found in diagram of main technical data. Automatic compensation circuit of voltage will assure that welding current keeps in allowable range. If power voltage is exceeding allowable range limited, it will damage to components of machine. The operator should understand this situation and take preventive measures.

- 4) There is a grounding screw behind welding machine, with a grounding marker on it. Before operation, welding crust must be grounded reliable with cable which section is over 6 square millimeter, in order to prevent from static electricity, and accidents because of electricity leaking.

- 5) If welding time is exceeded duty cycle limited, welding machine will stop working for protection. Because machine is overheated, temperature control switch is on "ON" position and the indicator light is red. In this situation, you don't have to pull the plug, in order to let the fan cool the machine. When the indicator light is off, and the temperature goes down to the standard range, it can weld again.

FAQ AND SOLUTIONS

Fittings, welding materials, environment factor, supply powers maybe have something to do with welding. User must try to improve welding environment.

A. Arcing-striking is difficult and easy to pause :

- 1) Make sure the earth cable clincher connects the work piece well.
- 2) Check each connecting point connected or not.

B. Output current can not reach rated volume :

That supplied voltage is different from the rated will lead to unconformity of the output current and the adjusted current. When Supplied voltage lower than the rated, the max output current will be lower than the rated.

C. Current is not stabilizing when machine is been operating.

It has something with factors as following:

- 1) Electric wire net voltage has been changed ;
- 2) There is harmful interference from electric wire net or other equipment.

D. Welding gap has air hole.

- 1) Check the gas supply loop leaks or not.
- 2) Surface of mother material has oil, stain, rust, lacquer or other impurity.

MAINTENANCE

WARNING ▲

Before Maintenance and checking, power must be turned off, and before Opening the housing, make sure the power plug is pulled off.

1. Remove dust by dry and clean compressed air regularly, if welding machine is operating in environment where is polluted with smokes and pollution air, the machine need remove dust every month.
2. Pressure of compressed air must be inside the reasonable arrangement in order to prevent damaging to small components of inter-machine.
3. Check inter circuit of welding machine regularly and make sure the cable Circuit is connected correctly and connectors are connected tightly (especially insert connector and components). If scale and loose are found, please give a good polish to them, then connect them again tightly.

4. Avoid water and steam enter into inter-machine, if them enter into machine, please dry inter-machine then check insulation of machine.

5. If welding machine will not be operated long time, it must be put into packing box And store in dry environment.

6. Hen wire machine operates for every 300 hours, the electric carbon brush and armature rectifier should be polished, the reducer should be cleaned, and lubricator should be added to the turbo and bearing.

DAILY CHECKING

WELDING POWER SUPPLY

Position	Checking keys	Remarks
Control panel	1. switch condition of operation, transfer and installation. 2. test the power indicator	
Cooling fan	1. check if there is wind and the sound normal or not.	If abnormal noise and no wind, to check the inner.
Power part	1. when electrified, abnormal smell or not. 2. when electrified, abnormal vibration and buzz or not. 3. color changing and heating or not in appearance.	

Periphery	1. gas pipe broken, loosen or not. 2. housing and other fixed parts loosen or not.	
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WELDING TORCH

Position	Checking keys	Remarks
Nozzle	1. If installation fixed, the front distorted	Reason for air hole.
	2. Attach splash or not.	Reason for burning the torch. (can use splash-proof material)
Electric hole	Electric hole	Reason of torch screw thread damage
	2. Damage of its head and hole blocked or not	Reason of unstable arc and broken arc
Wire sending tube	1. Check the extended size of the pipe	Have to be changed when less than 6mm, when the extended part too small, the arc will be unstable.
	2. Wire diameter and the tube inner diameter match or not	Reason of unstable arc, please use the suitable tube.
	3. Partial winding and extended	Reason of poor wires sending and unstable arc, please change.
	4. Block caused by dirt in the tube, and the remains of the wire plating lay.	Reason of poor wire sending and unstable arc, (use kerosene to wipe or change new one.)
	5. Wire sending tube broken	Pyrocondensation tube broken, change new tube

Gas bypass	Forget to insert or the hole blocked, or different factory component.	May lead to vice (splash) because of poor gas shield, torch body get burned (arc in the torch), please handle.
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WIRE SENDING MACHINE

Position	Checking keys	Remarks
Pressing arm	If put the arm to the suitable indicating level.	Lead to unstable arc and wire sending.
Wire Lead Tube	1. If powder or residue store up in the mouth of the tube.	Clean the residue and check the reason and solve it.
	2. Wire diameter and the tube inner diameter match or not	If not match, lead to unstable arc and residue.
	3. If the tube mouth center matches the wire wheel slot center or not. (Eyeballing)	If unmatched, lead to unstable arc and residue.
Wire wheel	1. Wire diameter matches the wheel ' s requirement	1. Lead to unstable arc and residue, and block wire tube.
	2. If the wheel slot blocked	2. Change new one if necessary
Pressure wheel	Check the stability of its move, and wearing-out of pressed wire, the narrowing of its contact surface	Lead to unstable arc and wire sending.

CABLE

Position	Checking keys	Remarks
Torch cable	1. If torch cable over bended.	1. Cause poor wire sending
	2. If the metal connecting point of mobile plug loosen	2. Unstable arc if cable over bended.
Output cable	1. Wearing-out of the cable insulated material.	For life security and stable welding, adopt suitable method to check according to working place. <ul style="list-style-type: none"> • Simple check daily • Careful and in-depth check on fixed period
	2. Cable connecting head naked (insulation damage), or loosen (the end of power supply, and cable of main material connecting point.)	
Earth cable	If the earth cable that connects the main part is broken and connects tightly.	

TROUBLESHOOTING

WARNING ▲

If user wants to operate machine as following, the operator must be a personnel in a specific field of electricity and safety and hold the relevant certificate that proves their ability and knowledge. Before maintenance, contact with OUR for authorization is suggested.

MIG140/160

Fault symptom	Remedy
Power indicator is not lit, fan does not work and no welding output	<ol style="list-style-type: none"> 1. Make sure power switch is closed. 2. Check if the electric net is in work. 3. Some of heat-variable resistors(four) of power panel is Damaged, when it happen, general DC24V relay is open or Connectors are poor contact. 4. Power panel(bottom board) is damaged, DC310V voltage Cannot be output. <ol style="list-style-type: none"> (1). Silicon bridge is broken or connector of silicon bridge Poor contact. (2) Power panel has been burned up. (3) Check contact and insert cable from air switch to power Panel are poor contact, check contact and insert cable From power panel to MOS board are connected reliably. 5. Auxiliary power of control panel is in fault.
Power indicator is lit, fan works, no welding output	<ol style="list-style-type: none"> 1. Check if all kinds of cables of inter-machine are poor contact. 2. Output connector is cut off or poor contacted. 3. Control cable or switch of torch is broken. 4. Control circuit is broken.

Power indicator is lit, fan works, abnormal indicator is lit.

1. Maybe it is over current protection, please turn off machine first, then turn on the machine again after abnormal indicator is off.
2. Maybe it is overheated protection, wait for 2-3 minutes.
3. Maybe inverter circuit is in fault, please pull up the supply power plug of main transformer which is on MOS board (VH-07 insert which is near the fan) then open the machine again:
 - (1) If abnormal indicator is still lit, some of fieldistor of MOS board is damaged, find out and replace it with same model.
 - (2) If abnormal indicator is not lit:
 - a. Maybe transformer of middle board is damaged.
 - b. Maybe secondary rectifier tube of transformer is damaged, find out faults and replace rectifier tube with it.

If the machine fails to work normally after maintenance and check, please contact with the local distributor or OUR after-sale service center.

WARRANTY CARD

Dear customers, the warranty service for purchasing TEH products is as follows:

Under normal use, within two years from the date of purchase. It is guaranteed that the damage is caused by the quality of the tool.

The following conditions occur during the warranty period, not covered by the warranty:

- a. Any valid legal document (single ticket) certifying the date of purchase
- b. Any damage caused by natural wear and overload
- c. Any damage caused by the use of low-priced inferior accessories
- d. Any damage caused by improper carrying, transportation or storage
- e. Any product that has been opened, repaired, replaced, or modified by itself
- f. Any damage caused by misuse, beyond the scope of use of the tool, and failure to use and maintain in accordance with the instructions

ladies/gentlemen: _____ employer: _____

contact number: _____ fax number: _____

contact address: _____

warranty record: _____

post code: _____

IMPORTANT NOTE

1. The invoice and warranty card must be presented at the time of warranty.
2. The fuselage number on the invoice is the same as the fuselage number on the warranty card.
3. Once this warranty card is issued, if it is lost, it will not be reissued. Please keep it properly.

Note: The company reserves the right to amend the above provisions and has the final interpretation right in the case that the warranty service does not violate national laws.