WELDING AND CUTTING TOTAL SOLUTION

OWNER'S MANUAL

MIG/STICK WD SERIES

⚠ WARNING:

Read carefully and understand all **ASSEMBLY AND OPERATION INSTRUCTIONS** before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

2015VERSION

CATALOGUE

GENERAL SAFETY RULES

 **WARNING: Read and understand all instructions.** Failure to follow all instructions listed below may result in serious injury.

 **CAUTION: Do not allow persons to operate or assemble this MIG/STICK WD SERIES until they have read this manual and have developed a thorough understanding of how the MIG/STICK WD SERIES works.**

 **WARNING: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur.** It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY CONSIDERATIONS

1.1 Your Welding Environment

-Keep the environment you will be welding in free from flammable materials.

-Always keep a fire extinguisher accessible to your welding environment.

-Always have a qualified person install and operate this equipment.

-Make sure the area is clean, dry and ventilated. Do not operate the welder in humid, wet or poorly ventilated areas.

-Always have your welder maintained by a qualified technician in accordance with local, state and national codes.

-Always be aware of your work environment. Be sure to keep other people, especially children, away from you while welding.

-Keep harmful arc rays shielded from the view of others.

-Mount the welder on a secure bench
or cart that will keep the welder secure and prevent it from tipping over or falling.

1.2 Your Welder's Condition

-Check ground cable, power cord and welding cable to be sure the insulation is not damaged. Always replace or repair damaged components before using the welder.

-Check all components to ensure they are clean and in good operating condition before use.

1.3 Use of Your Welder

⚠ CAUTION

Do not operate the welder if the output cable, electrode, torch, wire or wire feed system is wet. Do not immerse them in water. These components and the welder must be completely dry before attempting to

use them.
-Follow the instructions in this manual.
-Keep welder in the off position when not in use.
-Connect ground lead as close to the area being welded as possible to ensure a good ground.
-Do not allow any body part to come in contact with the welding wire if you are in contact with the material being welded, ground or electrode from another welder.
-Do not weld if you are in an awkward position. Always have a secure stance while welding to prevent accidents. Wear a safety harness if working above ground.
-Do not drape cables over or around your body.
-Wear a full coverage helmet with appropriate shade (see ANSI Z87.1 safety standard) and safety glasses while welding.
-Wear proper gloves and protective clothing to prevent your skin from being exposed to hot metals, UV and IR rays.
-Do not overuse or overheat your welder. Allow proper cooling time between duty cycles.
-Keep hands and fingers away from moving parts and stay away from the drive rolls.
-Do not point torch at any body part of yourself or anyone else.
-Always use this welder in the rated duty cycle to prevent excessive heat and failure.

1.4 Specific Areas of Danger, Caution or Warning

Electrical Shock

⚠WARNING

Electric arc welders can produce a shock that can cause injury or death. Touching electrically live parts can cause fatal shocks and severe burns. While welding, all metal components connected to the wire are electrically hot. Poor ground connections are a hazard, so secure the ground lead before welding.
-Wear dry protective apparel: coat, shirt, gloves and insulated footwear.
-Insulate yourself from the work piece. Avoid contacting the work piece or ground.
- Do not attempt to repair or maintain the welder while the power is on.
-Inspect all cables and cords for any exposed wire and replace immediately if found.
-Use only recommended replacement cables and cords.
-Always attach ground clamp to the work piece or work table as close to the weld area as possible.
-Do not touch the welding wire and the ground or grounded work piece at the same time.
-Do not use a welder to thaw frozen pipes.

Fumes and Gases

⚠WARNING

-Fumes emitted from the welding process displace clean air and can result in injury or death.
-Do not breathe in fumes emitted by the welding process. Make sure your breathing air is clean and safe.
-Work only in a well-ventilated area or use a ventilation device to remove welding fumes from the environment where you will be working.
-Do not weld on coated materials (galvanized, cadmium plated or containing zinc, mercury or barium). They will emit harmful fumes that are dangerous to breathe. If necessary use a ventilator, respirator with air supply or remove the coating from the material in the weld area.
-The fumes emitted from some metals when heated are extremely toxic. Refer to the material safety data sheet for the manufacturer’s instructions.
-Do not weld near materials that will emit toxic fumes when heated. Vapors from cleaners, sprays and degreasers can be highly toxic when heated.

UV and IR Arc Rays

⚠ DANGER

The welding arc produces ultraviolet (UV) and infrared (IR) rays that can cause injury to your eyes and skin. Do not look at the welding arc without proper eye protection.

-Always use a helmet that covers your full face from the neck to top of head and to the back of each ear.

-Use a lens that meets ANSI standards and safety glasses. For welders under 160 Amps output, use a shade 10 lens; for above 160 Amps, use a shade 12. Refer to the ANSI standard Z87.1 for more information.

-Cover all bare skin areas exposed to the arc with protective clothing and shoes. Flame-retardant cloth or leather shirts, coats, pants or coveralls are available for protection.

-Use screens or other barriers to protect other people from the arc rays emitted from your welding.

-Warn people in your welding area when you are going to strike an arc so they can protect themselves.

Fire Hazards

⚠WARNING

Do not weld on containers or pipes that contain or have had flammable, gaseous or liquid combustibles in them. Welding creates sparks and heat that can ignite flammable and explosive materials.

-Do not operate any electric arc welder in areas where flammable or explosive materials are present.

-Remove all flammable materials within 35 feet of the welding arc. If removal is not possible, tightly cover them with fireproof covers.

-Take precautions to ensure that flying sparks do not cause fires or explosions in hidden areas, cracks or areas you cannot see.

-Keep a fire extinguisher close in the case of fire.

-Wear garments that are oil-free with no pockets or cuffs that will collect sparks.

-Do not have on your person any items that are combustible, such as lighters or matches.

-Keep work lead connected as close to the weld area as possible to prevent any unknown, unintended paths of electrical current from causing electrical shock and fire hazards.

-To prevent any unintended arcs, cut wire back to ¼" stick out after welding.

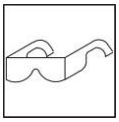
Hot Materials

⚠ CAUTION

Welded materials are hot and can cause severe burns if handled improperly.

-Do not touch welded materials with bare hands.

-Do not touch MIG gun nozzle after welding until it has had time to cool down.



Sparks/Flying Debris

⚠ CAUTION

Welding creates hot sparks that can cause injury. Chipping slag off welds creates flying debris.

-Wear protective apparel at all times: ANSI-approved safety glasses or shield, welder's hat and ear plugs to keep sparks out of ears and hair.

Electromagnetic Field

⚠ CAUTION

-Electromagnetic fields can interfere with various electrical and electronic devices such as pacemakers.

-Consult your doctor before using any electric arc welder or cutting device

-Keep people with pacemakers away from your welding area when welding.
-Do not wrap cable around your body while welding.
-Wrap MIG gun and ground cable together whenever possible.
-Keep MIG gun and ground cables on the same side of your body.

Shielding Gas Cylinders Can Explode

⚠WARNING

High pressure cylinders can explode if damaged, so treat them carefully.

-Never expose cylinders to high heat, sparks, open flames, mechanical shocks or arcs.

-Do not touch cylinder with MIG gun.
-Do not weld on the cylinder
-Always secure cylinder upright to a cart or stationary object.
-Keep cylinders away from welding or electrical circuits.
-Use the proper regulators, gas hose and fittings for the specific application.
-Do not look into the valve when opening it.
-Use protective cylinder cap whenever possible

1.5 Proper Care, Maintenance and Repair

⚠ DANGER

-Always have power disconnected when working on internal components.
- Do not touch or handle PC board without being properly grounded with a wrist strap. Put PC board in static proof bag to move or ship.
-Do not put hands or fingers near moving parts such as drive rolls of fan

MIG/STICK WD SERIES USE AND CARE

- **Do not modify the MIG/STICK WD SERIES in any way.** Unauthorized modification may impair the function and/or safety and could affect the life of the equipment. There are specific applications for which the **MIG/STICK WD SERIES** was designed.
- **Always check of damaged or worn out parts before using the MIG/STICK WD SERIES.** Broken parts will affect the **MIG/STICK WD SERIES** operation. Replace or repair damaged or worn parts immediately.
- **Store idle MIG/STICK WD SERIES.** When **MIG/STICK WD SERIES** is not in use, store it in a secure place out of the reach of children. Inspect it for good working condition prior to storage and before re-use.

Product Description

MIG/STICK WD series——MIG/STICK WD （MMA/MIG/MAG） series IGBT inverter welding-type semi-automatic welding machine is an inverter DC semi-automatic welding machine, which is widely used in automation, metal furniture manufacturing, shipyard, pressure container manufacturing and steel construction industries. This machine employs IGBT module and fast recovery diode as main parts for power transition and transfer. MIG/STICK WD can according set value of the welding current Automatic adjustment the welding voltage and also can according to different wire diameter at the same time complementary with the corresponding waveform control circuit. it is characterized by little spatter, good welding surface, higher efficiency, the even adjustment of welding current, welding voltage and dynamic characteristic, and the protection circuit for overheat, over current, over voltage, less voltage, phase lack, can ensure the good adaptability and reliability of welding technique. The higher ability of power supply compensation (not less than 15%) can give the quick response to the change of power supply, work piece, electrode, and operation.

The feature of MIG/STICK WD series:

IGBT inverter technology, inverter frequency is up to 20KHz.

Close loop feedback control, stable output voltage, strong ability of power supply compensation(15%)

Continuous welding voltage adjustment, accurate match to the different welding current, Unified mode according to the welding current automatic matching of the corresponding welding voltage

Specially designed dynamic characteristic control circuit, little spatter, good welding surface, higher efficiency

Arc ending, Welding droplet clearing, soft wire feeding

Applicable to CO2 and MAG or MIG welding

Applicable to ф0.8 ～ф1.6 HO8Mn2Si、HO8MnSi、HO4MnSiAlTiA、H18CrMnSiA、HO8CrMn2SiMo、H10MnSiMo、H10MnSiMoTi and so on

Low weight, small volume and high efficiency

Safety Operation

2.1 Operator’s Self- protection

* Please always follow the rules that conform to safety and hygiene. Wear protective garments to avoid injuries to eyes and skins.

* Use the welding helmet to cover your head while working with the welding machine. Only by viewing through the filter lens on the welding helmet can you watch your operation.

* Prevent the sparks and spatter from harming your body.

* Under no circumstance can you allow any part of your body to touch the welder’s output bipolarity.

* Do not operate under water or more humid place.

* Fumes and gases produced when welding are hazardous to health. Make sure to work in places where there are exhaust or ventilation facilities to keep fumes or emissions away from the breathing zone.

* Please remember to keep arc rays away from the other nearby people when welding. This is only due to the interference from arc rays.

2.2 Attention

* The knob on the panel can't change or adjust with a rush otherwise it will be damaged.
* Check the connection to see if the welder input and output cables are well connected, whether the earth (ground) connection is reliable, etc.
* Never allow anybody else other than the operator himself to dislocate or modulate the welding machine.
* Welders have strong electromagnetism and frequency interference, so keep away people with heart pace or the articles which can be interfered by electromagnetism and frequency.
* No using the way of knocking the torch head to remove slag.
* The torch cable cannot be pressed and its folding angle cannot be too small. The liner radius cannot less than 150mm, or it may damage the inner cable and lead to accident.
* Never allow anybody else other than the operator himself to access the job site.
* No switching when welding.
* No touching on the electrified parts such as output interface etc. when welding.
* No touching on any other electrified parts while turning on power. Power must be cut off after finishing job or leaving the site temporarily.

2.3 Safety protection for installation

* Precaution must be taken to keep the operator and the machine from the foreign materials falling from up above.
* The dust, acid and erodible dirt in the air at the job site can not exceed the amount required by the mode (excluding the emission from the welder).
* Inflammable or explosive materials are prohibited to access the job site.
* The welder must be installed in the place where it can not be exposed to sun and rain. Also it must be stored in less humid place with the temperature range at －10 ～ 40℃.
* There should be 50 ㎝ space about for the welding machine to have good ventilation.
* Make sure that there is no metal-like foreign body to enter the welding machine.
* No violent vibration in the welder's surrounding area.
* Make sure that there is no interference with the surrounding area at the installation site.

2.4 Safety Checking

Each item listed below must be carefully checked before operation:

* Make sure that the welding machine has reliable earth connection.
* Make sure that there is always sound output and input wire connection instead of exposing it outside.

Regular check needs to be conducted by the qualified personnel after the welder has been installed over a period of six months, which involves as follows:

* Routine cleaning needs to be done to make sure that there is no abmodeal loose parts happening in the welding machine.
* The parts installed on the panel must guarantee that the welder works properly.
* Check the welding cable to see if it can continue to be used before it is worn out.
* Replace the welder's input cable as soon as it is found to be broken or damaged.
* Make sure whether there is enough power supply to make the welding machine work properly and the input power must load the safety protection device.

Notice: Cut off the power supply before opening the case to check.

Please do not hesitate to contact us for technical assistance whenever you come across the problems you can not work out or you may deem difficult to fix.

Technical Specifications

3.1 Working Environment

* The surrounding temperature range: when welding: water cooling: -10 ～ + 40℃,
During transport or in storage: - 25 ～ + 55℃.
* Relative humidity: when at 40℃: ≤50%, when at 20℃: ≤90%.
* The dust, acid and erodible materials in the air can not exceed the amount required by the mode (apart from the emissions from the welder). No violent vibration at the job site.
* Altitude no more than 1,000m.
* Keep from raining when it is used outdoor.
* The wind speed should no more than 1m/s around the operation places.

3.2 Requirement for Main Supply

* The voltage oscillogram should display actual sine wave,.
* The oscillation of the supplied voltage should not exceed ±15％ of the rated value.

3.3 Principle

The machine receive 3~XXXV AC through air switch (SW1), rectify the current by 3 phases rectifier(BR1), get DC through input reactor (inductance) and capacitance C5 & C9, the current will be transited to 20KHz AC by IGBT (IGBT 1, IGBT 2), then go to middle frequency transformer (T1) , fast recovery diode (D1, D12), and output reactor (L0). Finally the machine will have stable DC output for welding.

3.4 Main construction

MIG/STICK WD series IGBT welder adopts movable case structure: the upper part of front panel includes digital current meter, voltage meter, arc ending welding current adjusting knob, arc ending welding voltage adjusting knob, inductance control adjusting knob, welding function selector press-button,gas ending arc mode selector press-button, wire diameter adjusting knob, protectd gas selector press-button, Auto Unified function selector press-button, gas checking press-button,power indicating light, protection indicating light, working light, The lower part of front panel includes “+” socket, “-” socket, socket of connecting cable of wire feeder. The back panel includes power cable, ground bolt, and socket of gas heater, Power swith,Fan.There are four wheels on the bottom of machine, and host ring and handle on the top of machine.

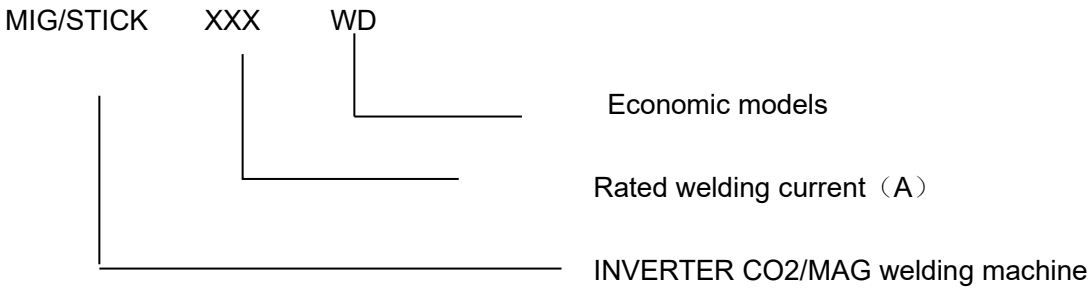
For the inside of machine, the upper part includes control transformer, 4pcs bcboard.3phase rectifier bridge,2 IGBT, below have main transformer, the lower part includes secondary fast recovery diode,radiator and electric reactor,The have power component of radiator is installed in the middle of machine.

The wire feeder includes motor, speed reducer, wire feeder roll, spool, gas valve, cable connector, gas hose, welding current potentiometer, welding voltage potentiometer, spot welding switch, etc.

Air torch

3.5 Model and Coding

* Combination of the Chinese mandarin spelling and the Arabic numerals.
* Implication of Coding:



3.6 Technical data

ITEM		MIG/STICK 300WD			MIG/STICK 350WD		
Power voltage	V	3～380	3～400	3-415	3～380	3～400	3-415
Frequency	Hz	50/60					
Rate input current	A	16.8			25.5		
Rate input capacity	KVA	11.1			16.8		
OCV	V	70	73	75	70	73	75
Current range	A	40-300			40-350		
Voltage range	V	16-29			16-31.5		
Duty cycle	%	40					
Wire diameter	mm	0.8-1.2					
Efficiency	η	85%					
Power factor	CosΦ	0.92					
Insulation class		IP21S					
Cooling		Air					
Dimension (L*W*H)	mm	907*467*728					
Weight	kg	53					

3.7 Applied standard

The duty cycle is under the 40 degree;

3.8 Indicating light

Only Green light on: the machine have input the power.

The red light on: the machine on the welding.

Green light on, yellow light on: The machine is overheated. The machine will go back to working condition, if the inner temperature of machine returns to the allowed level.

3.9 Arc ending

Usually there is a crater at the end of welding. It is due to the arc pressure and condensing shrinkage of melted metal. The higher arc, the more crater. the arc ending function will fill up the crater by arc ending current (less than 40%-70% of welding current) and improve the welding quality.

3.10 Soft wire feeding

In order to get the satisfying welding quality, the machine feed the wire at preset low speed before wire touch the work piece. The speed will reach the normal level after striking arc. It means striking arc fail if the current is not detected during this stage. This kind of striking arc mode can improve the success of striking arc and ensure the reliable and stable arc.

3.11 Burn back time

When the trigger of torch is switched off, the wire feeding will continue because of inertia. So the wire will go out to the top end of torch after the welding. It will cause the stick of wire to the work piece, thus bring the difficulty to the next welding. The burn back is set in the machine to solve this problem. The machine will keep output voltage during certain time to keep wire burning.

3.12 Waveform control

It means electronic reactor. It can adjust wire burning power by changing the current changing speed, and reduce the spatter.

3.13 Welding droplet clearing

Usually there is a big droplet at the end of wire after welding. And slag will stick on the low surface of the droplet. It will cause difficulty of striking arc. The ball cutting circuit is designed to cut the droplet automatically after welding.

3.14 Post-gas

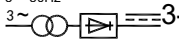
3 seconds post-gas time is set to protect the welding area after welding.

3.15 Remark & sign


Ground


MIG/MAG Welding

AC 3-phase Power Supply, the Rated Frequency is 50Hz.



3-phase Transformer—Rectifier

Direct Current

+ : Current output positive pole

- : Current output negative pole

X: Duty Cycle

I1max...A: Rated Maximum Input Current

I1eff...A: Maximum Virtual Input Current

I2: Rated Welding Current

U0 ...V: Rated No-load Voltage

U1 ...V: Rated Input Voltage

U2: Conventional load voltage

~50/60Hz: AC, Rated Frequency = 50Hz，Can use frequency 60Hz.

...V: Voltage Unit (Volt)

...A: Current Unit (Ampere)
...KVA: Power Unit (KVA)
...%: Duty Cycle Unit
...A/...V~...A/...V: Output Range. Rated minimum and maximum welding current and related load voltage.
IP21S: Case Protection Class. 'IP' is the code of International Protection. '2' mean preventing user's finger from the dangerous parts; preventing the solid material with the diameter no less than 12.5mm into the box. '1' means preventing water dropping vertically which is harmless. 'S' means water proof test is conducting while the movable parts are standstill.
H: H Insulating Grade.

Installation and commissioning

ATTENTION: The protection class of MIG/STICK WD series semi-automatic gas shielded welder is IP21S. It is forbidden to put in a finger or insert a round bar less than 12.5mm (metal bar in particular) into the welder. No heavy force can be employed on the welder.
Warning! The welder must be grounded before using. No disassembling earth cable if welding is not end, otherwise, it will do harm to human body. When several welders or with other electrical appliances are using a common grounding device, they must be parallel connection, series connection is forbidden. The welder's ground cable sectional area should not be less than that of input power cable.

4.1. Connection to power supply

* The welder must be loaded in the place where is less dust, no chemical, erodible, inflammable or explosive gas and goods around the welding site.
* The welder should be installed in the place where it can not be exposed to sun and rain. Also it must be stored in less humid place with the temperature range －10 ～＋40℃mm.
* There should be at least 50cm space for the welding machine.
* Apparatus to exclude wind and smoke should be equipped if the inside aeration is not sound.
The power supply for single unit:

	MIG/STICK 300WD	MIG/STICK 350WD
Air switch (A)	≥40	≥40
Fuse (rated working current) (A)	40	40
Knife switch (A)	≥60	≥60
Power cable (mm2)	≥2.5	≥2.5

Remark: the fusing current shall be 2 times to rated working current.

4.2 Installation and connection of wire feeder

* Open the spool cover and put the wire on the spool. The wire shall turn counter-clockwise. There is a damp adjusting device in the wire spool. During rough adjustment, the wire can be pulled by hand. Please adjust damp bolt counter-clockwise, if the resistance is too strong, and vice versa.
* Please check the wire feeder roll carefully and make sure the correct roll is used.
* Feed wire to guiding liner of wire feeder, go through roll, the insert wire in brass socket, then press down the roll to tight.

4.3 Connection gas supply

* Gas regulator in the attached accessories is installed and screwed firmly on the bottle to prevent air leak.
* Connect and firmly screw the two core plug of heater cable on the gas regulator to “Heater Socket” on the rear board of welder.
* Connect the one end of gas hose in the attached accessories with the outlet of gas regulator and firmly hold with hoop also in the attached accessories, the other end to “Gas Inlet” (gas valve joint) on the back of wire feeder device.

4.4 Connection work piece

Connect quick connector (male) of earth cable to the “-“ socket on the front panel of welding machine, and twist the quick connector (male) clockwise to ensure the tight connection. The other end clamps work piece.

4.5 Connection of cables

* For solid wire, connect wire feeder to the “+” output of machine, connect earth cable to “-“output of machine.
* For flux core wire, connect wire feeder to the “-“output of machine, connect earth cable to “+” output of machine.

4.6 Commissioning

* Check all connections and make sure all connections and earth are correct before switching on machine.

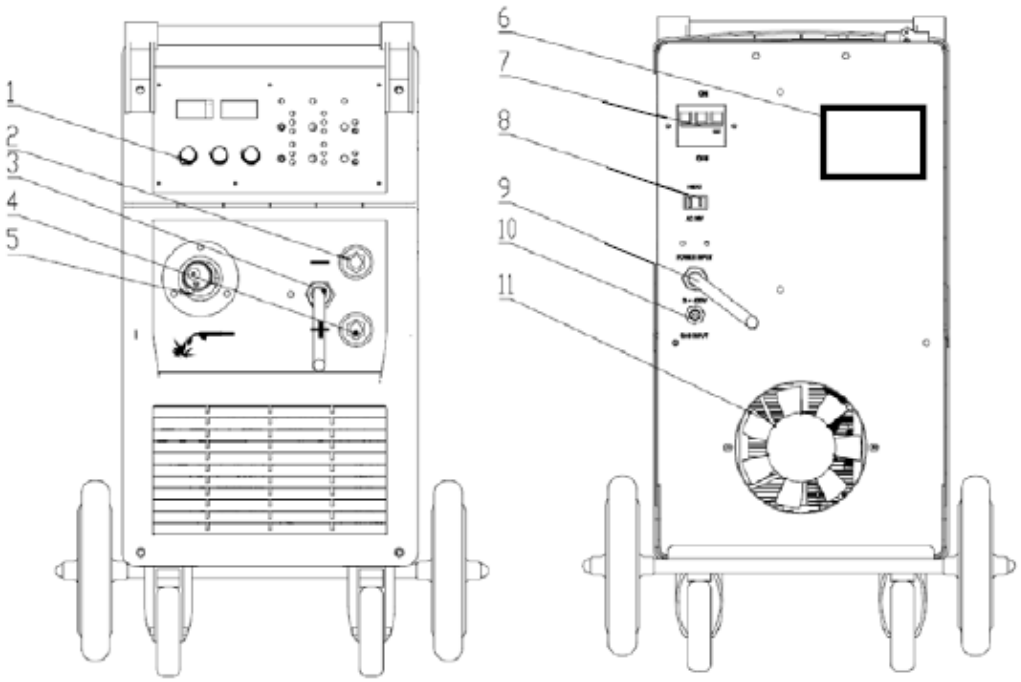
Switch on machine, set gas checking switch to “Gas checking”, adjust gas regulator to get required gas flow, then put gas checking switch to “Welding”.

* Press inching switch on the wire feeder or torch trigger, feed the wire the top end of torch.
* Test welding, adjust the knobs to set welding current adjustment, welding voltage adjustment knob, arc ending current adjustment, arc ending voltage adjustment knob.

Waning: iron plate and other bad conductor can not be used to connect machine to work piece.

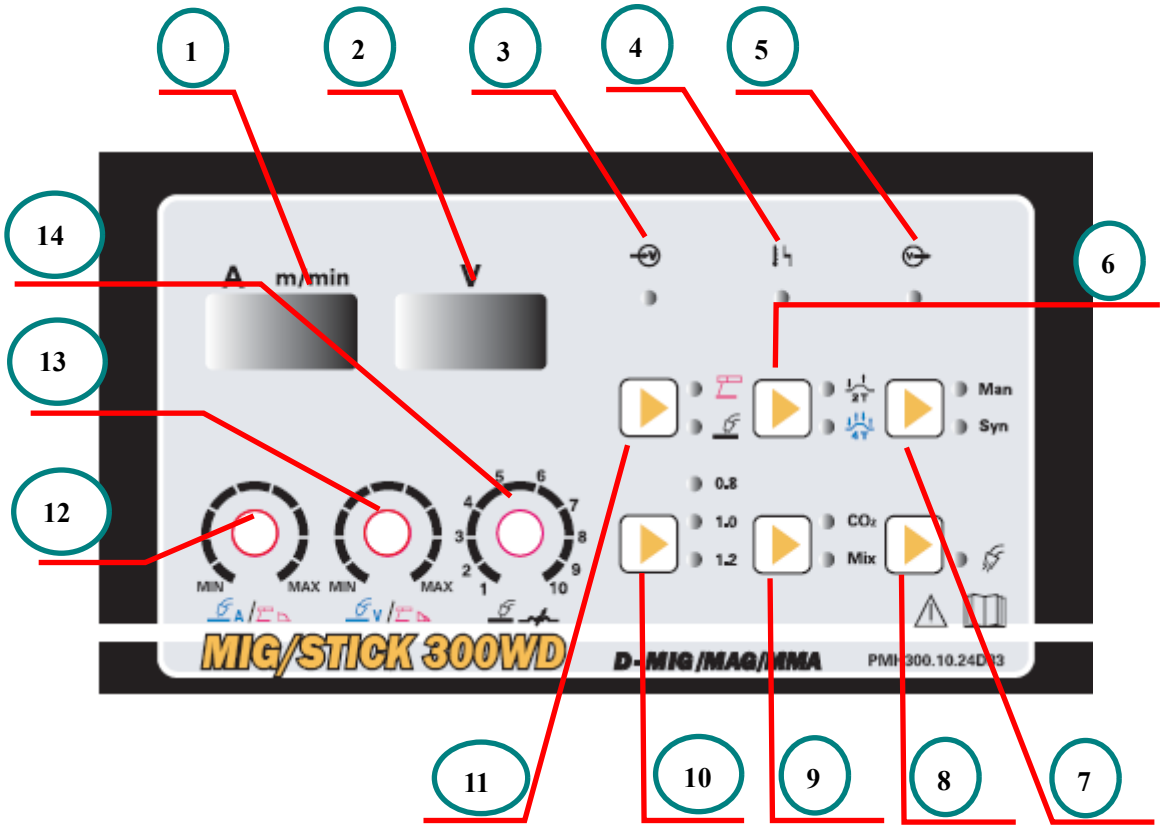
Operation

5.1.Front and back panel



1. Control Panel GUI:　Status display, function selection and welding parameters, when welding the actual current and voltage display, and so on
2. Socket　(-): Connecting earth cable to work-piece.
3. Polar conversion cable
4. Socket　（＋）: Connecting earth cable to work-piece.
5. Socket: Connecting MIG torch.
6. Nameplate
7. Air auto switch: When the machine overload or power off suddenly, it is can protect the machine
8. Heat power socket（AC36V）:connecting heater coil of CO2 gas regulator
9. Input power cable
10. Input gas Connector
11. Fan

5.2 Control Panel GUI



1. Current indication
2. Voltage indication
3. Main power indicator (Green)
4. Protection indicator （Red）
5. Working indicator (red)
6. MIG mode selection button (2T/4T)
7. MIG parameter adjustment selection button: Man is manual. syn is unified, user can adjust welding currents and the voltage will matching automatic in unified mode, then adjust welding-volts on font panel to preset arc length, the arc length is from -30 to 30, and 0 is recommend.
8. Gas checking
9. Protective gas option button: CO2 or MIX
10.Wire diameter button:φ0.8/φ1.0/φ1.2
11. Welding function button: MMA, MIG/MAG
12.Welding-Current adjustment knob: Under MMA is used for adjustment welding current, under MIG/MAG is used for welding current (wire speed).
13. Welding-volts adjustment knob: Under MMA is used for adjustment arc force, under MIG/MAG is used for welding voltage.
14. Gas shielded welding electronic reactance adjustment knob

5.3Arc ending

Set arc ending mode switch to “ON”.

The operator shall adjust and set welding current, arc ending current, welding voltage, and arc ending voltage. (Usually the arc ending current is less then welding current, the valve shall be set according to the crater.). The procedure is: press torch trigger under high OCV condition for inching feeding, striking

arc, release the trigger and the wire will keep burning (the values on the current meter and voltage meter is welding current and welding voltage), press the trigger again after welding, then the machine is under arc ending condition (the values on the current meter and voltage meter is arc ending current and arc ending voltage), release the trigger after the crater is filled up, then arc stop.
Set arc ending mode switch to “OFF”.
The operator shall adjust and set welding current and welding voltage. The procedure is: press torch trigger under high OCV condition for inching feeding, striking arc, wire will keep burning (the values on the current meter and voltage meter is welding current and welding voltage), release the trigger after welding, then arc stop.

5.4 Waveform control

After setting welding current and welding voltage, please adjust electronic reactance adjustment knob adjusting knob to reduce the spatter, if the spatter is too big.
ATTENTION:
The outer circle of indicating value of welding voltage and arc ending voltage are not value of voltage. It is adjusting direction.
The “ON’ and ‘OFF” of arc ending can be used under integrative adjustment and independent adjustment.
The adjusting indication of waveform is not quantitative value, it is adjusting direction.

5.5 MMA function

When choose the MMA function that can do MMA. Under this model need adjust the welding current and arc force.

5.6 Maintenance and service

* As a Hi-Tech machine, the MIG/STICK WD series welding machine employs many advanced electronic parts. Proper operation & maintenance conducted by qualified personnel can assure it of good performance and prolong its operating life. Only the qualified personnel are allowed to be in charge of repairing. It is strongly recommended customers contact with our company or agent for technical, repairing, accessories supply and service back-up when they feel unable to work out the technical hitch or problems.
* Maintenance job should be conducted by the trained personnel. It is never allowable to have hot line job.
* The newly installed welder or it not in use for some time needs to be surveyed the insulation resistances between each winding and every winding to case with multimeter, which can not be less than 2.5MΩ.
* Keep from rain, snow and long term exposing to sunlight when welder is used outdoor.
* If the welder is not in use either for a long time or temporarily, it should be kept dry and have good ventilation to free it from moisture, eroded or toxic gas. The tolerable temperature ranges from －25 ～ ＋55℃, and the relative humidity can not be more than 90%.
* Dust removal

The professional maintenance personnel should use dry compressed air (use air compressor or bellows) to remove the dust inside the machine. The part adhering to grease must be cleaned with cloth while make sure there are no loosing parts existed in the tightened places and connected cable. Usually the machine should be cleaned once a year if the dust accumulation problem is not very serious, while it needs cleaning once or even twice every quarter if the dust accumulation problem is serious.

* Regularly check the input & output cables of welder to guarantee them right and firmly connected and avoid them being exposed. Check should be taken once every month when fixed using and every check taken when removing.
* Regularly check the seal performance of gas system, whether the fan and feeder motor having abmodeal sound and whether every joint being loose.
* Keep torch cable direct when welding.
* Regularly clean the splash of nozzle (cannot use the way similar to knocking the torch head) and stick to using splash ointment. Don't remove the feeder device by means of pulling the torch cable.
* Use qualified wire, no using inferior or rusty wire.
* Clean the dust of liner with compressed air after the welder using some time (the dust is accumulated by friction between wire and liner) to assure of even wire feeding.
* Please replace the feed roll if find it wear and tear to prevent wire uneven feeding. The pressed roll can not be pressed too firm to guarantee smooth wire feeding. (It will lead to wire deformation, adding the feeding resistance and accelerating the friction of gear if pressed over firmly.)

ATTENTION:

* The welder voltage is always higher, so the safety precaution should be taken before repair to avoid Accidental shock. Under no circumstance can anyone except the professionally trained personnel open the case of the machine.
* Switch off the power source each time when removing dust.
* No touching inside cable or work piece while removing dust.

Trouble Shooting

* The defects of welding bead

Welding bead defects	Reason	Solution
Air hole	There is too much oil, rust or water on wire or work-piece	Clean the wire and work-piece
	Poor CO2 gas protection(less gas flow, gas is not pure, nozzles is blocked, gas leakage, too much wind	Improve the gas connection
	The silicon and manganese in wire is not enough	Change to suitable wire
Crack	The current and voltage doesn't match	Adjust the welding data
	too much water in the gas	change the gas flow
	there is too much oil, rust and water on wire or work-piece	clean the wire and work piece
Under cut	arc length is too small, and welding speed is too fast	increase the arc length and slow the welding speed
	torch location is not good and welding current is too small	adjust the torch location, and increase the welding current

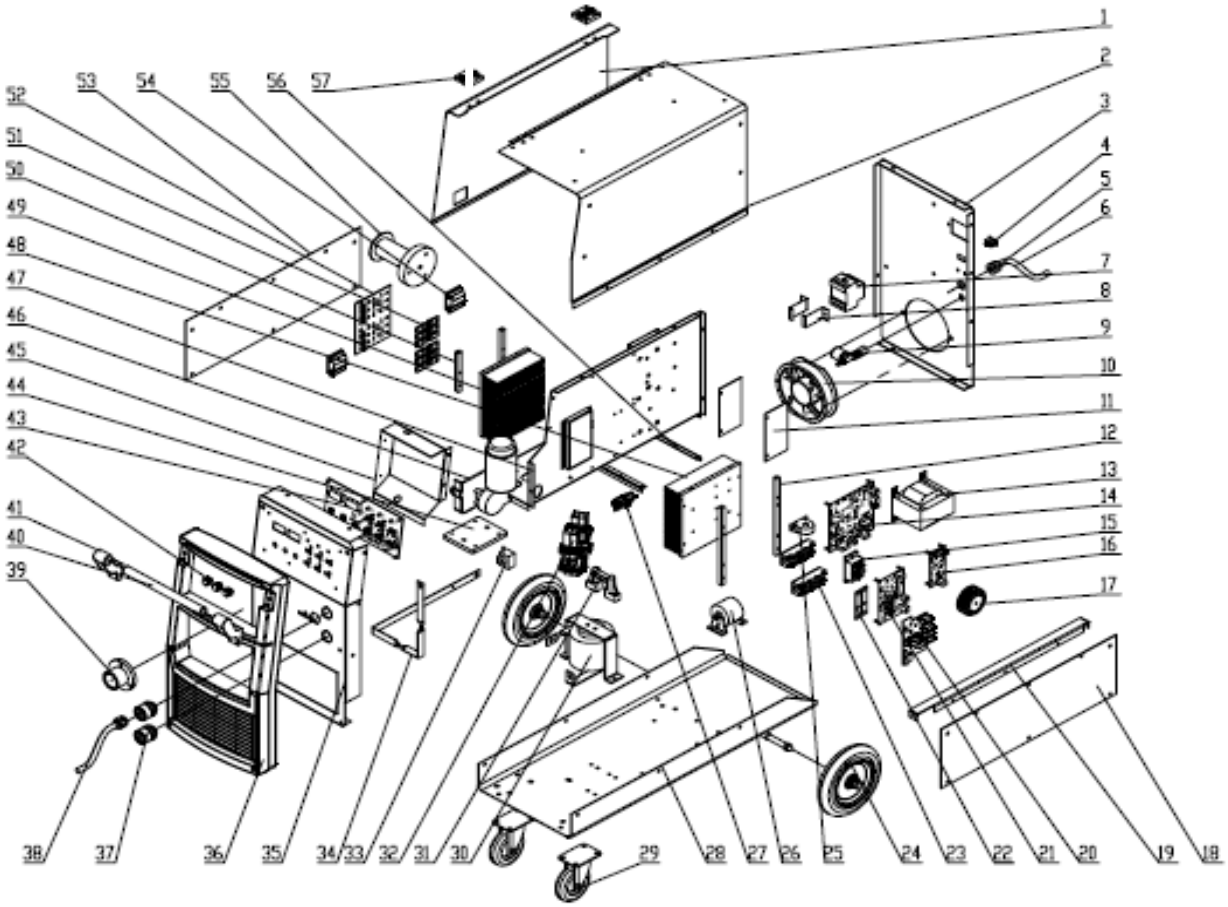
	base plate groove is too deep	change the shallow plate groove
Slag Inclusion	the former molten slag of welding bead is not cleaned	remove molten slag
	small current, too much weld slowly deposition, to much swing during welding	increase the current and reduce the swing during welding
Big spatter	welding current and voltage doesn't match	Adjust the welding data
	There is too much oil, rust or water on wire or work-piece	clean the wire and work piece
	wire is streching too long outside the nozzle	press the torch closer to work-piece
	too big diameter of the nozzle	Change to suitable nozzle
Penetration is not enough	welding current is too small	Increase welding current
	wire is streching too long outside the nozzle	press the torch closer to work-piece
	groove is not good，too small angle，too small gap	change the welding technology process

* Common Failure of welding machines and solution

No.	Failure	Failure reason	Solution
F1	Fan is not running	Fan is broken	Change the fan
		Loose connection	Check where is the loss connection and tighten it
		other	Contact the seller
F2	Protection LED is on	overheat of the internal machine	Wait till the temperature is coming down and light is off
		Thermal relay is broken	Change thermal relay
		other	Contact the seller
F3	Current and voltage no display	Current and voltage display is broken	Change the display
		Loose connection	Check where is the loss connection and tighten it
		Main control board is broken	Change the main control board
		Other	Contact the seller
F4	When press the torch button, the torch is not on	Torch switch is broken	Change the torch switch
		Cable connection is not connected	Contact the cable
		Control board is broken	Change or repair the control board
F5	No gas	Gas hose is blocked	Connect the gas
		Gas hose is press	Check the gas flow

		Electropneumatic value is broken	Repair or change the Electropneumatic value
		Control board is broken	Change or repair the control board
F6	Function is ok, but no wire feeding	Cable connection is not good	Connect the cable
		Motor is broken	Repair or change the motor
		Control board is broken	Change or repair the control board
F7	current button can not work	connection is not good or broken	Connect the cable
		Current button is broken	Change the button
		Other	Contact seller
F8	Fan is not turning or turning slowly	Input power lose phase	Check and get the normal input power
		Power switch is broken	Change the power switch
		Fan is broken	Change or repair the fan
		Connection cable is broken or lose	Check and repair
F9	No OCV	Overheat of internal machine	Change F2
		Power switch is broken	Change the power switch
F10	Machine or cable is over heating “+”、“-”socket is overheating	Torch power is too small	Change the bigger power torch
		Cable is too small on diameter	Change the suitable cable
		Socket is loose	Remove the scale cinder and connect the socket
F11	Power supply is triping	power is off (more than 2 days)and get power on at first time	It is not failure, main curicut get power and triping, shall close the switch
		During welding operation	Contact seller

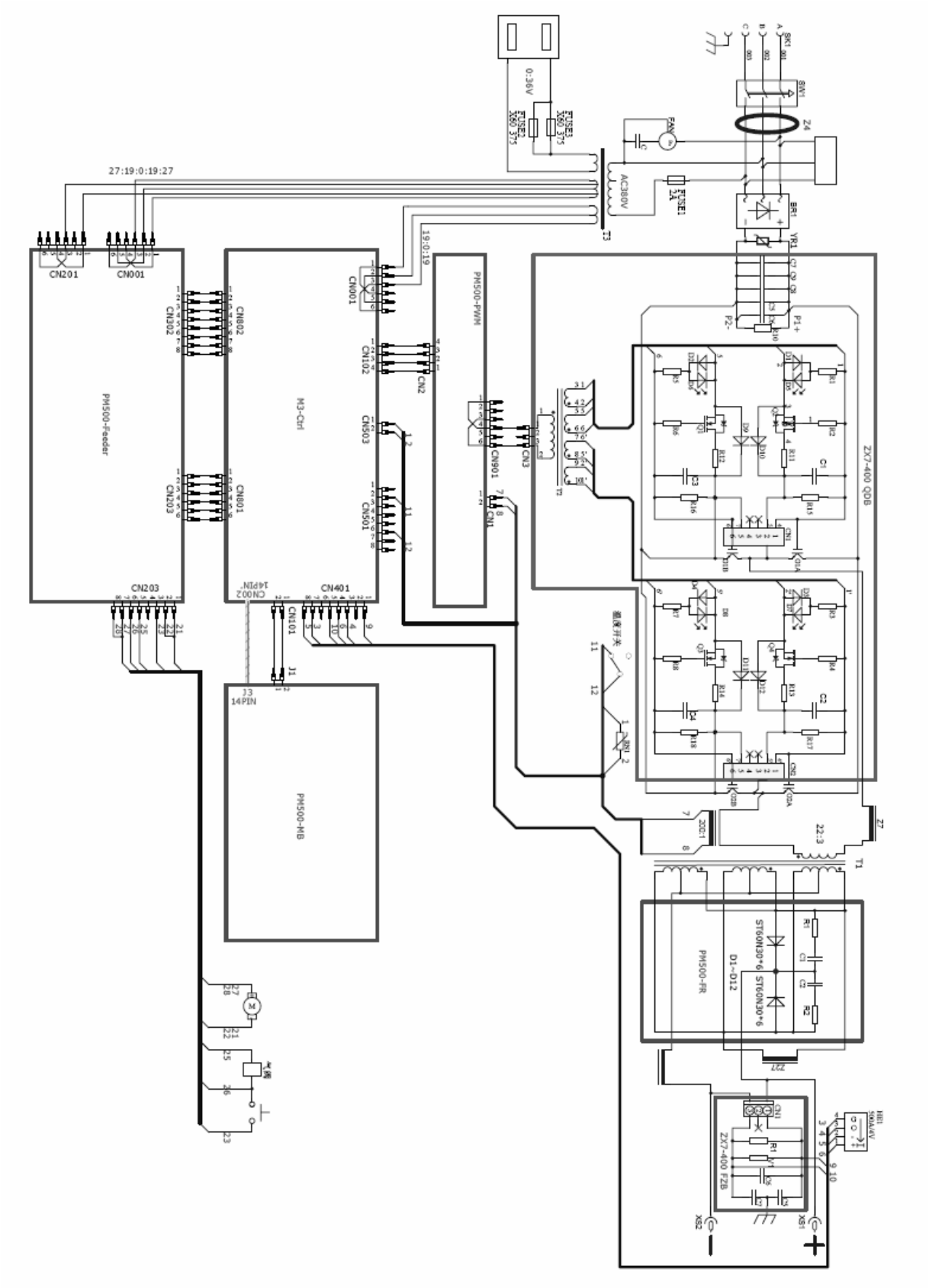
List of Spare Parts



No	ERP CODE	English name	Spec	unit	Qty
1	1.1.01.02.8765	moveable side panel	ECONOMIG251.7.1	PCS	1
2	1.1.01.02.8777	Fixed side panel(I)	ECONOMIG251.3	PCS	1
3	1.1.01.03.1796	Rear panel assem	INVERMIG 300E.Y3-8	PCS	1
4	2.07.57.755	2 pin socket	DCZ-02	PCS	1
5	2.04.30.104	Cable connector	EG-21(PG21)	PCS	1
6	1.2.07.01.2952	power cord	INVERMIG 300E	PCS	1
7	2.07.80.413	leakage protection switch	DZ47-40A-D/3P	PCS	1
8	1.1.02.01.1492	switch support	8HG.125.044	PCS	2
9	1.2.07.02.3992	solenoid valve	INVERMIG 300E	PCS	1
10	2.07.89.875	Axial Fan	145FZY6-S	PCS	1
11	1.1.02.01.8188	radiator wind screen	HG2ZX7400G.6-4	PCS	2
12	2.05.05.215	radiator support bar II	INVERMIG 350E	PCS	2
13	2.07.25.123	power transformer	INVERMIG 300E	PCS	1
14	1.1.05.02.0648	Main pcboard	INVERMIG 300E	PCS	1
15	2.07.37.462	3 Phase rectifier bridge	MDS75-14 75A/1400V	PCS	1
16	1.1.05.11.0048	Pulse width modulation board	NB-350E	PCS	1
17	2.03.30.1450	Common mode choke	INVERMIG 300E	PCS	1
18	1.1.01.02.8764	Fixed side panel(III)	ECONOMIG251-2	PCS	1

19	1.1.01.05.2791	beam	ECONOMIG251-1	PCS	1
20	1.1.05.03.0145	driver PCboard	PM500.10.24D33.3.8 V2.0	PCS	1
21	1.1.05.11.0047	wire feed board	NB-500E	PCS	1
22	1.1.03.01.1523	IGBT busbar (I)	NB350G.4-3	PCS	1
23	2.07.33.615	IGBT	GD50HFU120C1S	PCS	2
24	2.05.07.818	Rubber wheel	13B-200×50	PCS	2
25	1.1.12.27.0006	mutual inductor	PM500.10.24D33.3.4.1	PCS	1
26	2.07.23.018	filter capacitor	DMJ-MT	PCS	1
27	1.1.05.11.0008	output load small plate	PMD400	PCS	1
28	1.1.01.04.1445	bottom assem	INVERMIG 300E.Y3-4	PCS	1
29	2.05.07.308	caster	WP12B-75×30	PCS	2
30	1.1.02.04.8474	Output Reactor assembly	PM500.10.24D33.8.2	PCS	1
31	2.05.05.089	filter inductance holder	ZX7400E.6-1	PCS	2
32	2.07.25.058	Main transformer	INVERMIG 300E	PCS	1
33	2.03.30.687	Hall	PM500.10.24D33.7 V3.0	PCS	1
34	1.1.02.01.9170	output busbar	INVERMIG 300E.Y3-3	PCS	1
35	1.1.01.03.1795	Front panel assem	INVERMIG 300E.Y3-1	PCS	1
36	2.05.05.956	Front plastic frame	HGMIG255	PCS	1
37	2.07.57.960	Europe type quick socket	DKJ35-70	PCS	2
38	1.2.07.03.1150	Polar conversion cable	INVERMIG 300E	PCS	1
39	2.05.05.081	nsulating flange		PCS	1
40	1.1.02.02.0501	handle bar	HGMIG251A-2	PCS	1
41	2.01.31.504/505	left/ right support		PCS	1
42	2.07.11.022	Potentiometer knob	KYZ25-16-6J	PCS	3
43	1.1.05.07.0181	control panel	PM500.10.24D33.1.2	PCS	1
44	1.1.02.01.9171	wire feeder base plate	INVERMIG 300E.Y3-10	PCS	1
45	1.1.02.01.8675	shielding box	ECONOMIG251-5	PCS	1
46	1.1.02.01.7908	Wire reel install panel	HGMIG251A-3	PCS	1
47	1.1.01.05.3146	Install panel Assem	INVERMIG 300E.Y3-6	PCS	1
48	2.07.43.969	IGBT radiator	INVERMIG 300E	PCS	1
49	2.07.43.970	Fast Recovery Diode radiator	INVERMIG 300E	PCS	1
50	2.05.05.214	radiator support bar I	INVERMIG 350E	PCS	2
51	2.07.28.979	Fast Recovery Diode	STTH6003CW 60A/300V	PCS	12
52	1.1.05.11.0024	utput rectifier board	PM500.10.24D33.8.3.1.1	PCS	1
53	1.1.01.02.8762	Fixed side panel(II)	ECONOMIG251-4	PCS	1
54	2.08.07.001	Lock	DK603-9B	PCS	2
55	2.05.05.969	No.5 Wire reel		PCS	1
56	1.1.02.01.9110	fulcrum bar	POWERMIG 250K.Y3-8	PCS	2
57	2.05.17.012	plastic hinge		PCS	2

Schematic Circuit Diagram



Complete Set Specifications

1）MIG/STICK WD machine power source 1 pc

2）wire feeder 1pc

Accessories list

Description	MIG/STICK 300WD		MIG/STICK 350WD	
	Specification	Quantity	Specification	Quantity
Torch	300A	1pc	350A	1pc
Roller	0.8-1.0	1pc	0.8-1.0	1pc
Contact tips	Φ1.0、Φ1.2	Each type 1pc	Φ10、Φ1.2	Each type 1pc
Gas regulator	36VAC	1pc	36VAC	1pc
Gas hoop	9-16	1pc	9-16	1pc
Manual		1 copy		1 copy
Quality card		1pc		1pc
Warranty card		1pc		1pc

The torch is with nozzles, liner. The wire feeder is with roller and liner

Description	MIG/STICK 300WD	MIG/STICK 350WD
Torch with nozzle	Φ1.0	Φ1.0
Torch with liner	1.2×1.8（black color）	1.2×1.8（black color）
Wire feeder with roller	0.8-1.0	0.8-1.0

Remark：earth cable and gas hose can be made according to customer’s requirements.

3）Consumables parts description：

Torches, wire feeder liner, rollers, and carbon brushes are consumables parts and not covered by warranty terms.

Transport & Storage

* The machine shall used indoor, and during transportation, the machine shall be protected from rain and snow. During transportation, the handling shall performed according to warning. The warehouse shall be kept, dry, and with gas ventilation, and be proof from dust and corrosive gas. T he temperature shall be －20～＋55℃. And the humidity shall be less than 90%.

* When the machine carton is opened and the machine shall be stocker, the machine shall be packed with original carton (before storage, the machine shall be cleaned, and be packed with plastic bag)

* The users shall keep the carton and foam of the package. And it can be used during long distance transportation. If the delivery need transfer, the machine shall be packed with wood case. And the wood case shall be add the label of “up-ward”””Rain-proof” 。

Quality Commitment

The users shall use the machine according to manual. And follow the rules of installation, storage, usage, operation and service. From 12months of production date. if the machine is with quality problem, and the machine is broken on some parts or can not work. The manufacturer will opper the service for users.