Operation Manual

Reboot RBM1600 welding machines adopts the latest pulse width modulation (PWM) technology and insulated gate bipolar transistor (IGBT) power module, which can change work frequency to medium frequency so as to replace the traditional Transistor transformer with the medium frequency transformer. its characterized with portable, small size, light weight, low consumption and etc. It is also an intelligent and easy-to-operate multi-function welding machine with MMA, MIG GAS, MIG GASLESS and LIFT TIG. It has the characteristics of strong welding performance and diversified usage scenarios. It can be used in both gas and gasless conditions, and the welding effect is excellent. It is highly praised by welding enthusiasts. It is also very friendly to beginners in welding and can quickly get started.

Part 1: Machine Introduction

1. Current display meter
   The digital Ammeter is used to display the actual output current of the power source.
   It is also used to display Parameters in Programming Mode.
   Depending on the Programming Parameter selected, the status indictor adjacent to the Ammeter will illuminate to show the units of the programming parameter.
   When welding, the Ammeter will display actual welding current.
2. Voltage display meter
3. Choose the wire diameter and the choice of gas welding and gasless welding
4. MIG/MMA/LIFT TIG Function selection
5. Small range voltage adjustment and inductance adjustment
   It is recommended that the voltage does not need to be adjusted. The machine is a unified machine. The voltage, current and wire feeding speed are automatically matched. Only when the deviation is too large, it can be adjusted appropriately. Inductance adjustment: If the splash is too large or the welding pool is not deep enough, it can be adjusted to a larger value, otherwise it can be smaller.
6. Adjust the value knob

Clockwise rotate to enlarge the current, and anti-clockwise rotate to reduce the current.

7. MIG Welding torch connector
8. Positive Terminal

   Positive Terminal. Welding current flows from the power source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

9. Negative Terminal

   Negative Terminal. Welding current flows from the power source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

10. Polarity selection plug

    In MMA and LIFT TIG state, this plug does not need to be connected; in MIG gas welding state, this plug is connected to positive terminal 8; in MIG airless welding state, this plug is connected to negative terminal 9.

Part 2: Introduction to the product and configuration list

No.	Picture	Name	Qty	Remark
1		RBM1600	1	Please check outside of the whole machine no scratch and break , it can power on normally.
2		MB15 welding torch	1	3M, MB 15 MIG welding torch, European central plug.
3		Welding holder	1	2m 16MM2 cable, 300A copper American welding holder +10-25mm2 European quick plug.
4		Ground clamp	1	2m 16MM2 cable, 300A Ground clamp +10-25mm2 European quick plug.
5		Conversion line	1	Conversion line only suit for 220V to 110V dual-voltage input machines, if not dual-voltage machines no this line included.
6		Transparent hose	1	3m 8*12 transparent network hose.

7		Hose clamp	2	Used to fix the trachea to prevent air leakage.
8		Conductive tip0.8	3	Spare parts, need to be replaced frequently, please keep inventory.
9		Conductive tip1.0	3	Spare parts, need to be replaced frequently, please keep inventory.
10		Porcelain nozzle	3	For flux-cored welding wire,Spare parts need to be replaced frequently, please keep inventory.
11		Wire feed wheel	1	V-shaped wire feed wheel adapts to solid welding wire 0.8mm/1.0mm.
12		Wire feed wheel	1	The gear wire feed wheel is suitable for flux-cored welding wire diameter 0.8mm/1.0mm, installed on the machine.
13		Flux cored wire	1	1KG diameter 0.8mm 0,030", suitable for gasless MIG welding, consumables should be replaced in time, please keep in stock.
14		Manual	1	Normally provides manuals in English, if you need other language like French, German, Italian, Spanish, and Russian please contact us to get electronic version documents.
15		Warranty Card	1	If you have more questions for consultation, please contact us through the after-sales mailbox on the card.

Part 3: Simple test for powering on the machine

Reboot RBM1600 Welding machines will be subjected to strict various tests when they leave the factory to ensure that each welding machine that reaches the user is of high quality, because our machine has to go through tens of thousands of kilometers of long-distance transportation from the factory to the delivery to you. It's inevitable that some uncontrollable factors will cause some internal components of the machine to become loose or even damaged in the process. We recommend that you check the external device as soon as you get the welder, and turn on the power to check to ensure that you receive It is a qualified product.

Precautions for power-on inspection:

1、 Please make sure your power supply voltage is 220+-15%. Reboot RBM1600 supports 220V input voltage in North America and Japan, and supports 220V input voltage in the UK, EU and other regions; if you have a generator power supply, please ensure that the generator is not less than 4000w.
2、 It is recommended to choose 30A circuit breaker protection when input voltage is AC 220V.
3、 Please choose the power plug that suits your local electrical law requirements.
4、Extension cord: #12 AWG or larger; 25' (8m) or shorter.

Turn on the power switch of the machine and the fan on the back of the machine rotates, and the digital display on the panel indicates that the power is normal.

Note:

1) The digital display shows irregular changes at the beginning, and then returns to the digital display after 3 seconds, which is normal.
2) In order to reduce the working temperature of the machine, it is normal for the fan to continue to rotate for a few seconds after the power is turned off.
3) During high-strength continuous welding, machine protection may occur. After continuous heat dissipation, the machine will return to normal, which is normal.

Attached table: Self-examination of abnormal conditions without response when turning on the machine:

1. The machine's power switch is not turned on.
2. The power input voltage is wrong.
3. The power plug is loose.
4. The internal circuit is loose (due to long-distance transportation, bumps), you need to open the cover and check the internal connection line.

Part 4: Technical specifications

TYPE	RBM1600
Input power voltage (V)	1phase220V, 50/60Hz
Rated input current (A)	24.5
Rated power capacity (KVA)	3.2
Current adjustment range (A)	MIG:30-140 MMA:30-120
Welding thickness (mm)	>1.0
Voltage adjustment range (V)	15-23
No-load voltage (V)	55±5
Electrode diameter (mm)	0.8/1.0
Rated duty cycle	60%
Efficiency (%)	V
Power factor	0.7
Protection class	IP21S
Insulation class	F
Size (mm)	540*310*350
Weight (Kg)	12

Part 5: Machine operation guidance.

Tips:

1. Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching;
2. Wear approved safety glasses. Side shields recommended;
3. Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc;
4. Wear protective clothing made from durable, flame-resistant material(wool and leather) and foot protection;
5. Use approved ear plugs or ear muffs if noise level is high;
6. Never wear contact lenses while welding.

1. MMA mode

If you want to repair some broken fences or fix brackets, you like to use traditional welding rods for operation, you can use Reboot RBM1600 MMA mode for welding.

1、 Select “MMA” process.

2、 **Connect welding holder and ground clamp.**

3、To adjust the current, only the current can be adjusted.

Note:

1) The welding rod specification supported by Reboot RBM1600 is below 4.0(5/32in), usually 2.5(3/32in) and 3.2(1/8in). European style generally uses E6013, American style generally uses E7018, and stainless steel generally uses ER308.
2) It supports welding of 1-8mm(1/64-5/64in) carbon steel and 1-5mm(1/64-7/32in) stainless steel. Aluminum can not be welded. For carbon steel, please use carbon steel electrode. For stainless steel, please use stainless steel electrode.
3) Connect the ground clamp to clean bare metal. No rust, paint or other coatings, and ensure good electrical conductivity.
4) The ideal distance between the welding rod and the welding object is 1-2mm(1/64-5/64in), to ensure that the welding rod and the workpiece are in continuous and stable contact. The welding rod should not be too high or pressed too low to avoid arc breaking and adhesion.
5) It is normal for novices to have adhesion during the welding process, and you can try to friction arc to avoid adhesion.
6) Suitable for ordinary welding rods, such as 7018, 6013, etc., but not suitable for special welding rods, such as 7010, 7011.

Possible problems

1) There is no arc, check the ground wire to connect the workpiece to ensure that there is no rust, paint or other coatings on the workpiece.
2) There is no arc, check the direct distance between the welding rod and the welding object, the ideal distance is 1-2 mm; check whether the welding object has rust or oil stains, it is recommended to polish with sandpaper or a grinder.
3) When welding, the spatter is very big, and it feels very difficult to weld. Please try to change the polarity connection of the ground wire clamp and the welding clamp with the machine.
4) During the welding process, if the time exceeds 3 minutes, overcurrent protection may occur. You need to stop working for a few minutes, let the machine cool down for a period of time, and automatically recover. If the air cools for more than 10 minutes, the machine does not automatically recover, please shut down and restart.
5) If you have any problems that cannot be solved, please contact us at service@mirthtek.com .

2、MIG mode

Reboot RBM1600 provides two welding modes: gas shielded welding and self-shielded welding with fluxed wire. If you are working at home or in a studio, in order to ensure a better welding effect, it is recommended that you use the gas welding mode; if you need to go out to work, carry gas cylinders and other inconvenient situations, you can use the Self-protected welding method.

A）Gas shielded welding mode

1、 **Select “MIG ” process.**

2、 Set polarity for MIG Solid wire（gas）

RBM1600 excellent support for wires of 0.8mm and 1.0mm in diameter, automatically and intelligently match the best welding parameters according to different specifications of welding wires to achieve the best results.

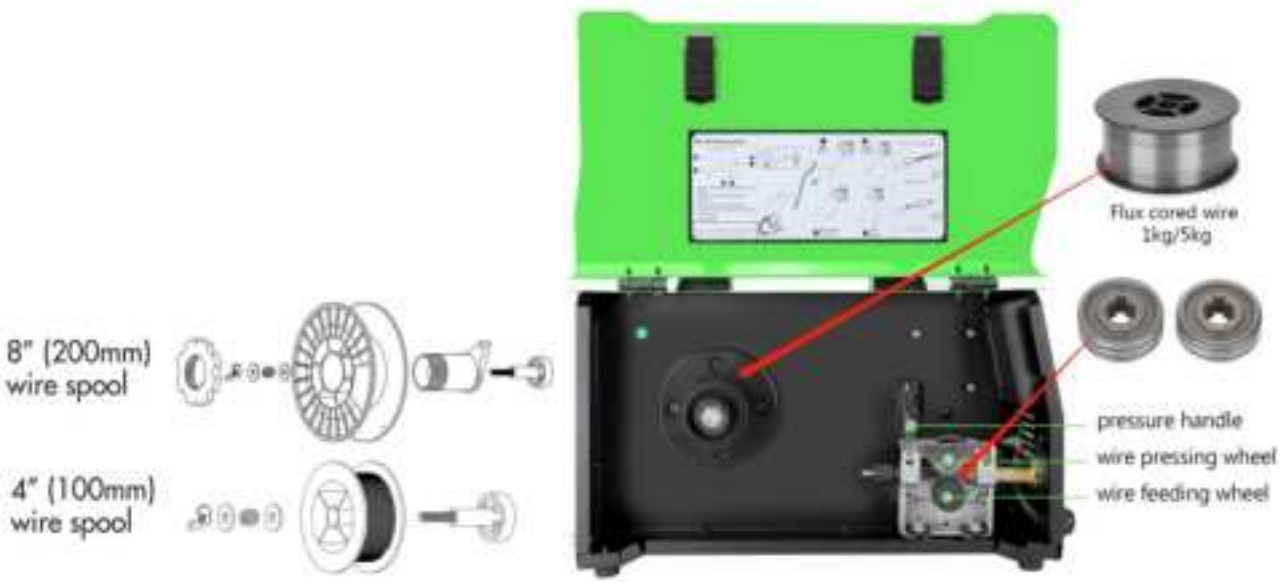
3、Connect MIG gun and ground clamp.

4、Install wire spool

0.030”(0.8mm)/0.040”(1.0mm)diameter

8”(200mm 5kg)wire spool

4”(100mm 1kg)wire spool



5、Set drive roll

Face the side marked 0.030” away from the machine.

Remarks:

1. There are two grooves on one wire feed wheel, one side is 0.030” (0.8mm) and the other side is 0.040” (1.0mm) to match the corresponding wire diameter.

2. Gas welding requires the use of V-type wire feed wheels, which are suitable for ordinary carbon steel welding wire and stainless steel welding wire, and need to use CO2 gas or CO2 and Argon gas mixture.

6、Feed wire and set pressure

The pressure should not be too loose, too loose will cause the welding wire to slip and the wire feeding is unstable, and too tight will cause the welding wire to slip and deform.

7、Connect to Input Power

Please refer to the digital sign on the rear panel of the machine for the input voltage, the wrong voltage will damage the machine.

8、Please connect CO2 gas：

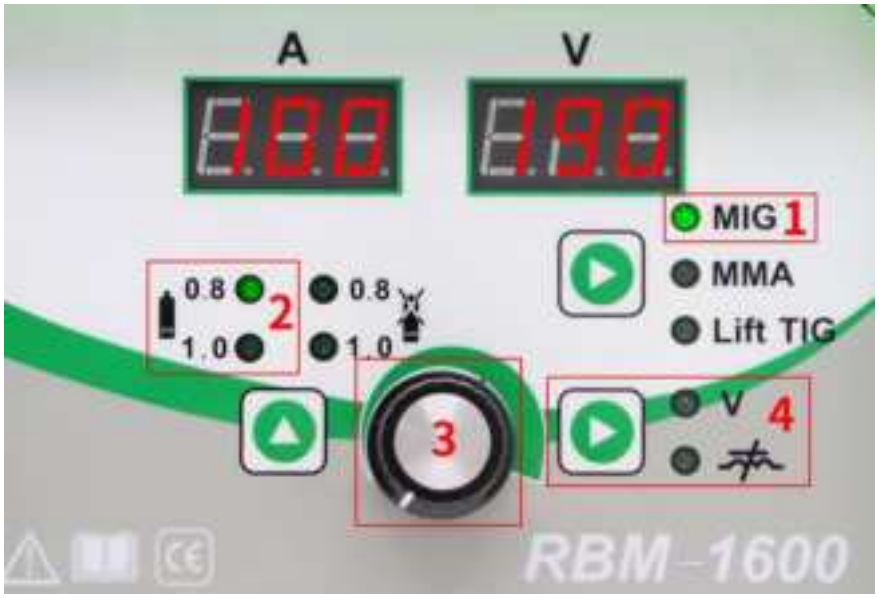
1. Attach gas hose to machine.
2. Attach hose and regulator to gas bottle.

9、Installation of welding torch.

The welding wire should be extended outside the European central socket, and then install the welding torch. The wire guide tube and contact tip of the welding torch need to match the welding wire. Press and hold the torch switch wrench for more than 3 seconds to not weld. This is fast wire feeding. Let the welding wire be quickly delivered to the gun head.

10、Remove consumables and depress trigger until wire comes out. Replace consumables.

11、Adjust wire feed speed, current and voltage.



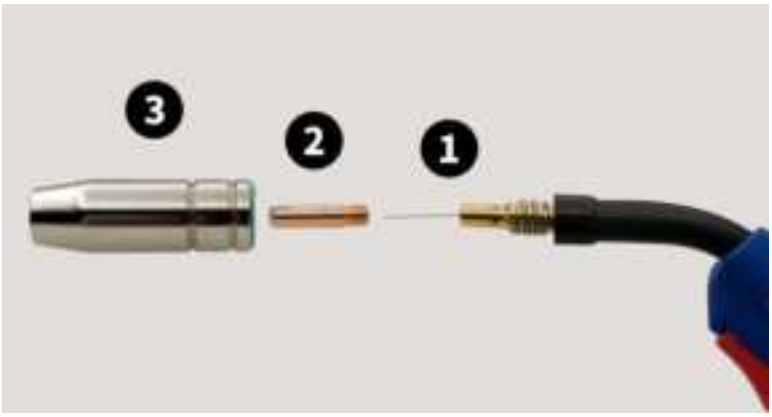
1. Choose MIG, MMA, LIFT-TIG working mode.
2. Choose welding wire diameter 0.8 or 1.0, choose solid wire welding.
3. The machine has a unified function, so just adjust this knob the the welding current, voltage and wire feeding speed are adjusted automatically at the same time.
4. “V”, If you are not satisfied with the automatic adjustment of the machine, you can fine-tune the voltage (when the current and wire feeding speed are unchanged), "inductance", during the welding process, it feels that the welding pool is not deep enough and the splash is too large, so you can adjust it appropriately .

13、With contact tip 1/4” from metal, depress trigger completely to initiate arc.

14、To replace the welding wire.

Use the cutting pliers to cut off the front section of the contact tip that is more than the welding wire, loosen the wire feed mechanism pinch wheel, rotate the welding wire reel clockwise, turn the welding wire back to the wire feed reel, pay attention to pinch the welding wire with your right hand to avoid the wire bounce.

15、Structure of welding gun



Note: 1. Nozzle, 2. Conductive nozzle. They are wearing parts and need to be replaced frequently, please keep inventory. 19. The guide wire tube, it is best to equip a spare part because it may damage the accessories.

Note:

1） Please strictly follow the picture instructions to connect, otherwise it will not be possible to solder.
2） Solid core welding wire supports 0.8mm, 1.0mm, 0.6mm(need to purchase welding wire, wire feed wheel and contact tip).
3） The machine can install 5kg(11lb) and 1kg(2.2lb) wire reels.
4） The machine comes with a 1kg(2.2lb) flux-cored welding wire. This mode is not used. Solid welding wire needs to be purchased separately.
5） Support welding material, carbon steel, stainless steel, aluminum can not be welded.
6） The diameter of the welding wire, the groove of the wire feed wheel and the aperture of the contact tip must match.
7） The pressure roller of the wire feeding structure should not be too tight or too loose, which will cause the wire feeding to be unstable.
8） The installation of the wire feeding reel should not be too loose or too tight, which will cause the welding wire of the wire reel to spring off and the wire feeding is too slow.

Possible problems

1) There is no response when turning on the power, please check the plug connection.
2) There is no response when turning on the power, please open the cover and check whether the internal connecting wires are loose.
3) The wire feeding is unstable. Please check the wire feeding reel and the wire feeding pressure roller, and the welding gun should not be wound. Pay attention that the diameter of the welding wire matches the wire feeding wheel groove and contact tip.
4) No wire feeding, please confirm that the working mode is MIG state, please confirm that the welding gun is connected well, press the gun switch or no wire feeding, please contact us.
5) During the welding process, if the time exceeds 3 minutes, over-current protection may occur. You need to stop working for a few minutes, let the machine cool for a period of time, and automatically recover. If the air cools for more than 10 minutes, the machine does not automatically recover, please shut down and restart.
6) If you have any questions, please contact us at service@mirthtek.com.

B) Self-protection mode of flux-cored welding wire.

1, Select "MIG" process.

2、Set polarity for MIG flux-cored(gasless).

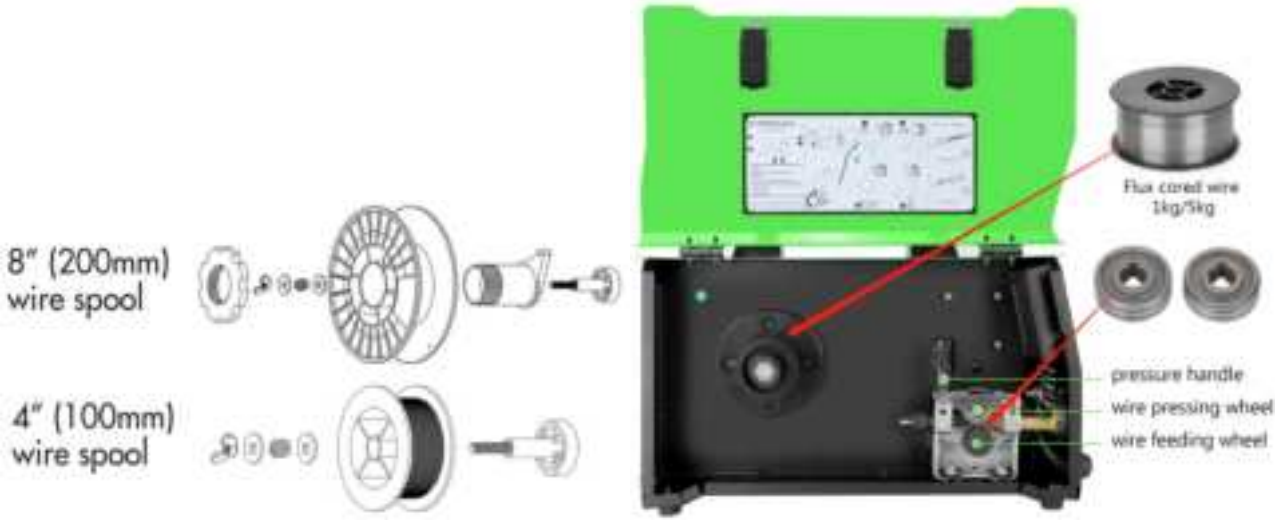
Reboot RBM1600 outstandingly supports 0.8mm and 1.0 mm diameter welding wires, and automatically and intelligently matches the best welding parameters according to different specifications of welding wires to achieve the best results.

4、Connect MIG gun and ground clamp.

Flux-cored wire **Note:** No need to use gas cylinder and gas meter

5、Install wire spool.

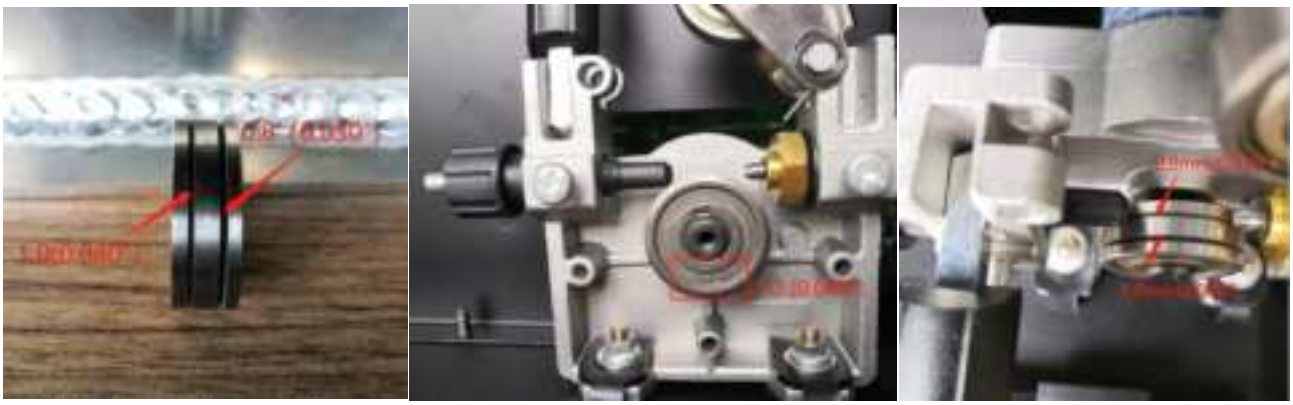
0.030”(0.8mm)/0.040”(1.0mm)diameter,
8”(200mm 5kg)wire spool,
4”(100mm 1kg)wire spool.



5、Set drive roll.

Face the side marked 0.030” away from the machine.

Remarks: 1. There are two grooves on one wire feed wheel, one side is 0.030” (0.8mm) and the other side is 0.040” (1.0mm) to match the corresponding wire diameter.



2. Gear wire feed wheel, gear wire feed wheel is suitable for flux-cored welding wire, our standard configuration has 1 piece of 1kg flux-cored welding wire, which can be directly installed and used.

6、Feed wire and set pressure.

7、Connect to Input Power.

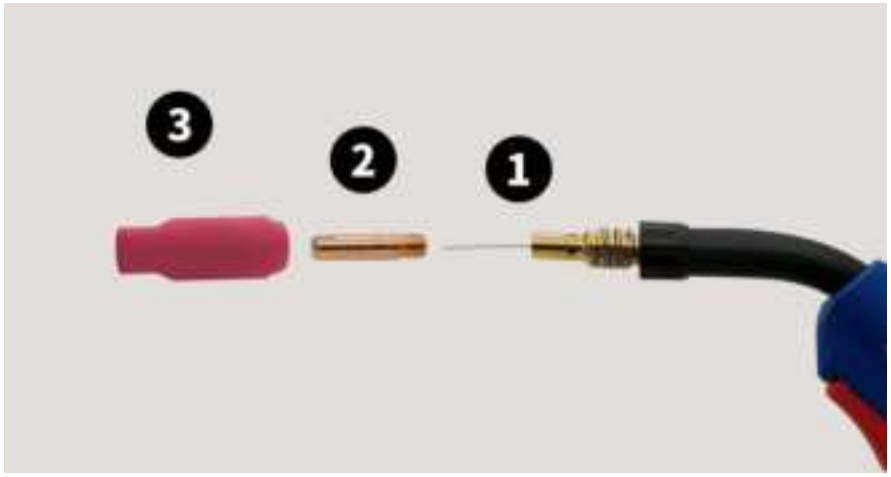
Please refer to the digital sign on the rear panel of the machine for input voltage. Connecting the wrong voltage will damage the machine.

8、Installation of welding torch.

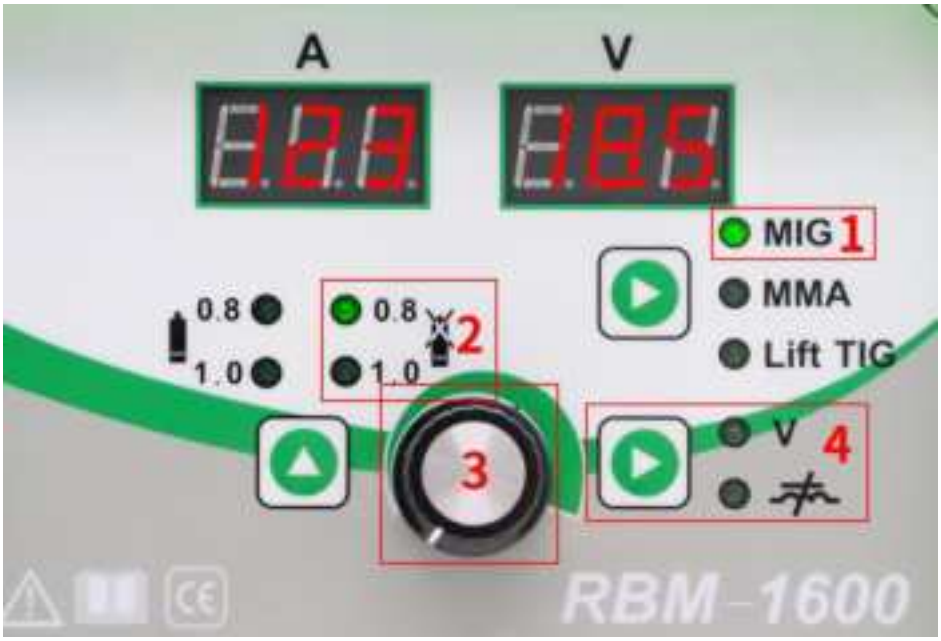
The welding wire should be extended outside the European central socket, and then install the welding torch. The wire guide tube and contact tip of the welding torch need to match the welding wire. Press and hold the torch switch wrench for more than 3 seconds to not weld. This is fast wire feeding. Let the welding wire be quickly delivered to the gun head.

9、 Remove consumables and depress trigger until wire comes out, Replace consumables.

10、Be sure to use porcelain nozzles.



11、Adjust wire feed speed , current and voltage.



1.Choose MIG, MMA, LIFT-TIG working mode.

2.Choose welding wire diameter 0.8mm/1.0mm, choose airless (Flux-cored wire).

3. The machine has a unified function, so just adjust this knob the the welding current, voltage and wire feeding speed are adjusted automatically at the same time.

4.“V”, If you are not satisfied with the automatic adjustment of the machine, you can fine-tune the voltage (when the current and wire feeding speed are unchanged), "inductance", during the welding process, it feels that the welding pool is not deep enough and the splash is too large, so you can adjust it appropriately .

12、With contact tip 1/4” from metal, depress trigger completely to initiate arc.

13、To replace the welding wire.

Use the cutting pliers to cut off the front section of the contact tip that is more than the welding wire, loosen the wire feed mechanism pinch wheel, rotate the welding wire reel clockwise, turn the welding wire back to the wire feed reel, pay attention to pinch the welding wire with your right hand to avoid the wire bounce.

14、Torch structure:

Note: 1. Nozzle, 2. Conductive nozzle. They are wearing parts and need to be replaced frequently, please keep inventory. 19. The guide wire tube, it is best to equip a spare part because it may damage the accessories.

Note：

1) Please strictly follow the picture instructions to connect, otherwise it will not be possible to solder.
2) The flux-cored welding wire supports 0.8mm, 1.0mm.
3) The machine can install 5kg(11lb) and 1kg(2.2lb) welding wire reels.
4) The machine is equipped with a 1kg(2.2lb) flux cored wire, which can be directly installed and used.
5) Support welding material, carbon steel, aluminum and stainless steel cannot be welded.
6) The diameter of the welding wire, the groove of the wire feed wheel and the aperture of the contact tip must match.
7) The pressure roller of the wire feeding structure should not be too tight or too loose, which will cause the wire feeding to be unstable.
8) The installation of the wire feed reel should not be too loose or too tight, which will cause the welding wire of the wire reel to spring off and the wire feeding too slow.

Possible problems

1) There is no response when turning on the power, please check the plug connection.
2) There is no response when turning on the power, please open the cover and check whether the internal connecting wires are loose.
3) The wire feeding is unstable. Please check the wire feeding reel and the wire feeding pressure roller, and the welding gun should not be wound. Pay attention that the diameter of the welding wire matches the wire feeding wheel groove and contact tip.
4) No wire feeding, please confirm that the working mode is MIG state, please confirm that the welding gun is connected well, press the gun switch or no wire feeding, please contact us.
5) During the welding process, if the time exceeds 3 minutes, over-current protection may occur. You need to stop working for a few minutes, let the machine cool for a period of time, and automatically recover. If the air cools for more than 10 minutes, the machine does not automatically recover, please shut down and restart.

6) If you have any questions, please contact us at service@mirthtek.com.

3、LIFT-TIG mode:

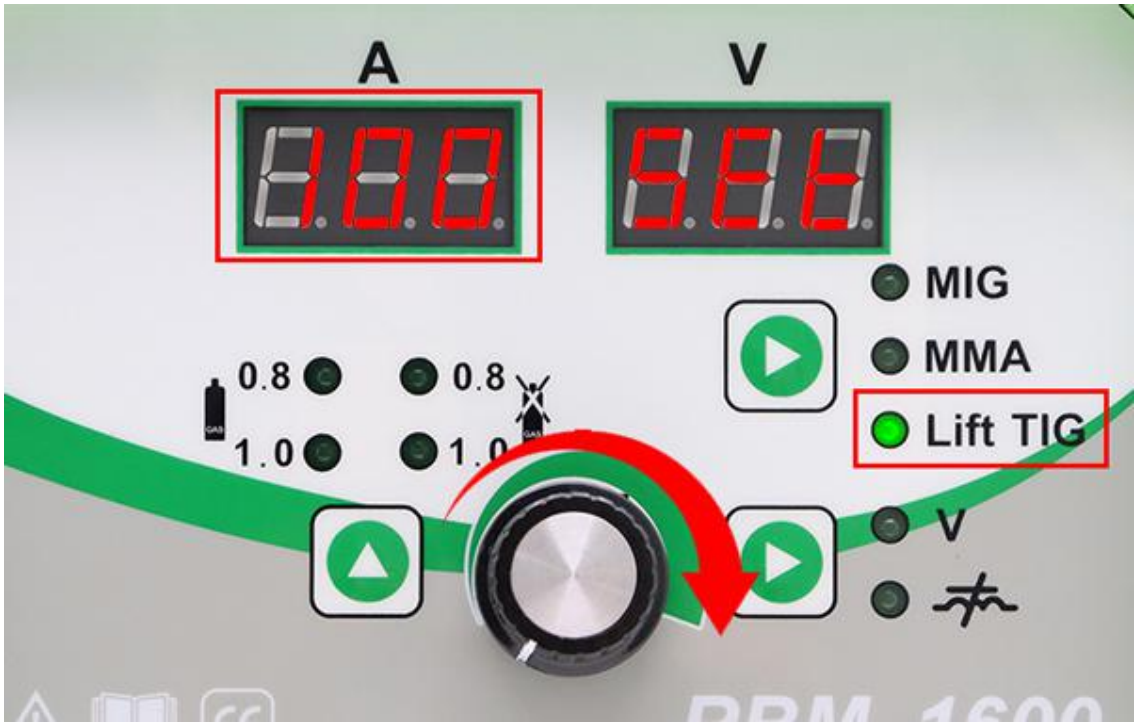
Reboot RBM1600 for thin plates with higher welding process requirements or welding with higher process requirements, especially for stainless steel welding, you can use the LIFT TIG mode, which requires the use of pure argon.

1、 Select “Lift TIG ” process.

2、 How to connect a tig torch

NOTE: Tig torch is not included

3、 Adjust the current, only the current can be adjusted.



4、 WP17V Structure of welding torch

NOTE: Tig torch and accessory are not included

Remark: 1. ceramic nozzel, 2 .tungsten collet, 3. tungsten collet body, 4 .short back cap, 5. long back cap.
The above structure is a wearing part, please keep it in stock.

Note：

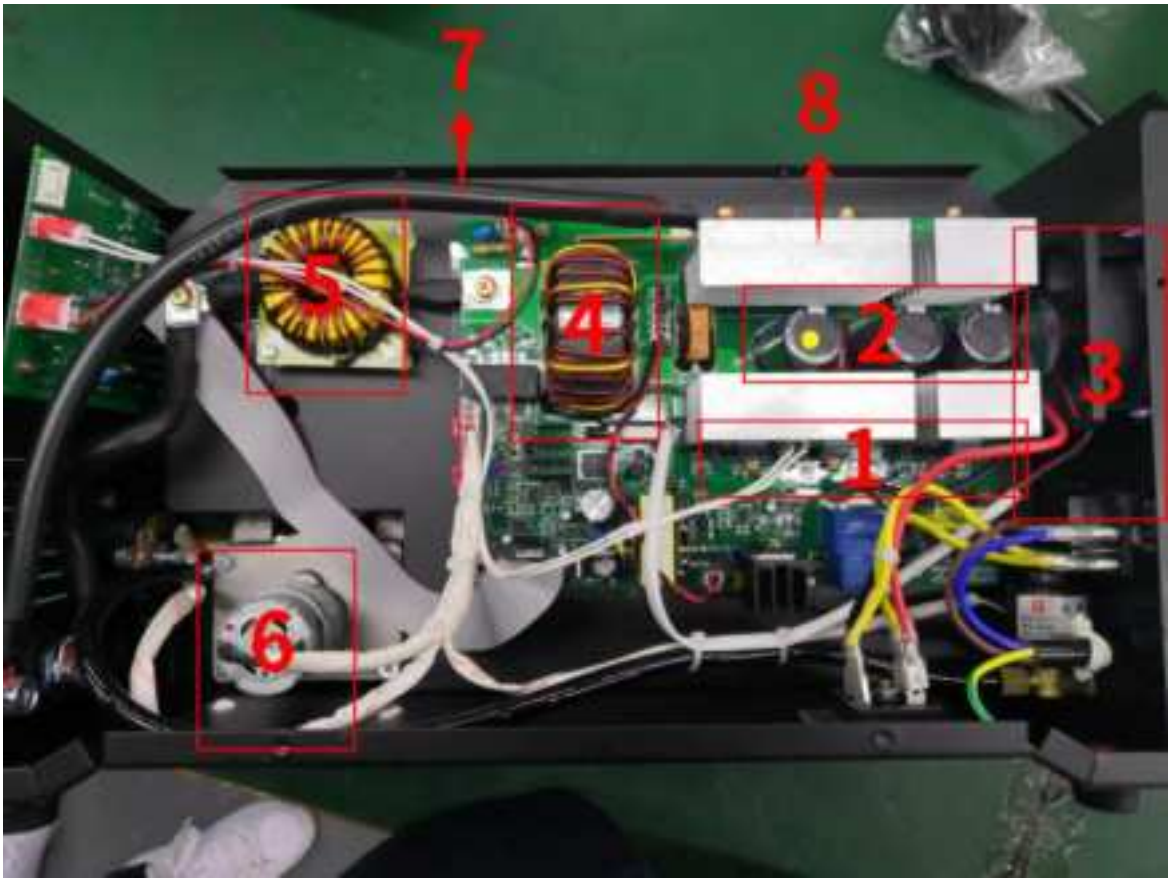
1) Please connect according to the picture, otherwise it cannot be welded
2) This machine is not a professional high-frequency arc starting argon arc welding machine, it is only a LIFT TIG contact arc starting or friction starting.

3) Need to use TIG, wp17v torch, this torch is not included, you need to buy it yourself
4) Support welding material, carbon steel, stainless steel, alloy steel, aluminum can not be welded.
5) This welding mode requires the use of tungsten needles, which need to be purchased separately, and the size of the tungsten needle must match the collet and collet body of the welding gun, otherwise it cannot be installed
6) In this mode, argon welding must be used.

possible problems

1) There is no response when starting up, please check the plug connection.
2) There is no response when booting up, please open the cover and check whether the internal connection wires are loose.
3) During the welding process, if the time exceeds 3 minutes, over-current protection may occur. You need to stop working for a few minutes, let the machine cool for a period of time, and automatically recover. If the air cools for more than 10 minutes, the machine does not automatically recover, please shut down and restart.
4) If you have any questions, please contact us at service@mirthtek.com.
5)Lift tig is different from professional high-frequency tig. Lift tig needs to be welded after contact with arcing. High-frequency tig does not require contact with arcing. Lift tig is not suitable for spot welding.

Part 6: Internal diagram of the machine



1. 7 imported transistors, stable and powerful current output.
2. 3 high-power large capacitors, the machine is more stable.
3. Cooling fans, greatly improving the machine load duration.

4. The main transformer of all copper is 18:3, the size of the magnetic core is: 56×28×28, the power is larger.
5. In addition, an output reactance is added, the output welding current is more stable, the welding shape is good, and there is less spatter.
6. Metal high-power wire feeding structure, strong wire feeding force and stable wire feeding.
7. The thick output connection wire of all copper, the welding effect is better.
8. Thicker radiator, better heat dissipation effect.

Part 7:Trouble Shooting

Observe all Safety Guidelines detailed throughout this manual	
PROBLEMS (SYMPTOMS)	**POSSIBLE CAUSE**
OUTPUT PROBLEMS	
Major physical or electrical damage is evident.	"Do not Plug in machine or turn it on". Contact your local Authorized Field Service Facility.
No wire feed, weld output or gas flow when gun trigger is pulled. Fan does NOT operate.	1. Make sure correct voltage is applied to the machine.
	2. Make certain that power switch is in the ON position.
	3. Make sure circuit breaker is reset.
No wire feed, weld output or gas flow when gun trigger is pulled. Fan operates normally.	1. The thermostat may be tripped due to overheating. Let machine cool. Weld at lower duty cycle.
	2. Check for obstructions in air flow. Check Gun Trigger connections. See Installation section.
	3. Gun trigger may be faulty.
FEEDING PROBLEMS	
No wire feed when gun trigger is pulled. Fan runs, gas flows and machine has correct open circuit voltage – weld output.	1. If the wire drive motor is running make sure that the correct drive rolls are installed in the machine.
	2. Check for clogged cable liner or contact tip.
	3. Check for proper size cable liner and contact tip.
	4. Check if the spool gun switch, located in the wire drive compartment, is set to the desired location.

Part 8: Welding Parameter Settings

RMB1600 machine welding parameters

Material	Wire Type	Shielding Gas 25-30 CFH	Polarity Setting	Wire Size	Settings	Material Thickness (GUY)				
						24 Ga. 0.6mm	20 Ga. 0.9mm	18 Ga. 1.2mm	16 Ga. 1.6mm	14 Ga. 2.0mm
Mild Steel	Solid Wire ER70S-6	C25 75% Ar 25% CO2	DCEP	0.025" 0.6mm	Wire speed Voltage Inductance	90 14 3-5	110 14.5 3-5	145 16.5 3-5	190 17 3-5	-
				0.030" 0.8mm	Wire speed Voltage Inductance	-	80 15 5-10	105 15.5 5-10	135 16 5-10	-
				0.040" 1.0mm	Wire speed Voltage Inductance	-	80 14 5-10	100 16 5-10	125 17 5-10	160 17.5 5-10
		C100 100% CO2	DCEP	0.025" 0.6mm	Wire speed Voltage Inductance	105 14 1-3	110 15 1-3	150 17.5 1-3	190 17 1-3	-
				0.030" 0.8mm	Wire speed Voltage Inductance	-	80 16 2-6	120 16.5 2-6	130 17.5 2-6	-
				0.040" 1.0mm	Wire speed Voltage Inductance	-	-	120 17 2-6	140 17.5 2-6	-
	Flux-Cored E71T-11	None	DCEN	0.030" 0.8mm	Wire speed Voltage Inductance	-	80 13 5-10	80 13.5 5-10	95 14.5 5-10	125 16 5-10
				0.040" 1.0mm	Wire speed Voltage Inductance	-	-	80 14 5-10	80 14.5 5-10	110 15.5 5-10
Stainless Steel	ER308L	Tri-Mix 90% He 7.5% Ar 2.5% CO2	DCEP	0.040" 1.0mm	Wire speed Voltage Inductance	-	90 18 5-10	100 18.5 5-10	120 18.5 5-10	145 19 5-10

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