

Kicking Horse

OPERATION MANUAL

M185 MIG/flux wire feeder welder

Serial Number: _____

Where Purchase: _____

Date of purchased: _____

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1. Safety



- ❖ Welding may damage your body or others, so please take protection measure in operation
- ❖ Only ones who are trained professionally can install , debug, operate, maintain and repair the equipment.

- ❖ Do not maintain and repair the machine when the machine is connected with power.



Electric shock can kill

- ❖ Never touch electrical parts.
- ❖ Wear dry, hole-free gloves and clothes to insulate yourself.
- ❖ Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.
- ❖ Ensure to install the equipment correctly and ground the work or metal to be welded to a good electrical (earth) ground according the operation manual.
- ❖ Ensure to operate the equipment in safe position.



Fumes and gasses can be dangerous

- ❖ Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out the fume.
- ❖ Using enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone.



Welding sparks can cause fire or explosion

- ❖ Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and not materials from welding can easily go through small cracks and openings to adjacent areas.



Do not weld enclosed tanks or containers

- ❖ Prohibit to use welder to unfrozen.
- ❖ Have a fire extinguisher readily available.



Hot parts can lead to burn

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- ❖ Do not touch the hot parts.
- ❖ Please use the torch after cooling or use the welding blow lamp.
- ❖ The people with heart-pacemaker should be away from the welding arc.



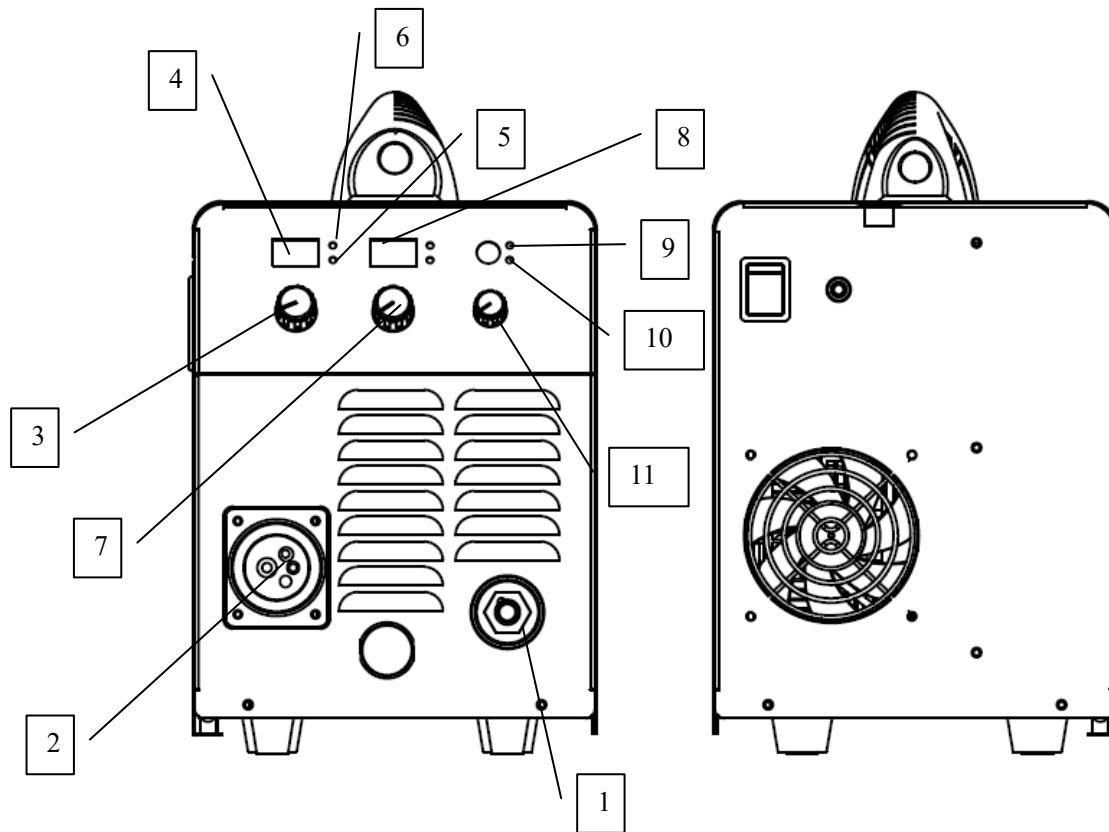
Rotating parts may be dangerous

- ❖ Far away from rotating parts. (like fan)
- ❖ Keep the parts of machine in the safe position.

3. Specifications

Parameters \ Models	M185
Input Current (A)	208V/230V/±10% single phase 60Hz
Input Current (A)	24
Input Power (KW)	3.5
No-load Voltage (V)	72
Duty cycle (40°C)	30%@140A, 21V 60%@100A, 19V 100%@80A, 18V
Welding Current Range (A)	40-180
Welding Voltage Range (V)	12-21
Wire Diameter(mm)	0.6、0.8、0.9 (steel /stainless steel/flux-cored)
Protection class	IP23
Insulation class	H
Dimensions (mm)	471*213*400
Weight (Kg)	11

4. Front and rear panel diagram



1. **Negative output:** connect to work piece.
2. **Euro MIG torch connection:** connect to NT1 MIG torch.
3. **Welding voltage adjustment knob:** preset and adjust welding voltage.
4. **Digital voltage meter:** display preset voltage when arc-off, display actual welding voltage when arc-on.
5. **Over-current, over-temperature protection light:** when over-heat, over-current, the light will turn on and machine will stop .
6. **Power light:** will illuminate when machine is turned on.
7. **Wire speed/ current adjustment knob:** adjust wire feed speed when arc-off, adjust welding current when arc-on.
8. **Digital Wire speed/ current meter** display preset wire feeding speed when arc-off, display actual welding current when arc-on.
9. **Indication light wire feed speed:** indicate the meter displaying wire feeding speed.
10. **Indication light current:** indicate the meter displaying welding current.
11. **Inductance adjustment knob:** Set the Arc control (inductance) knob to a start value according

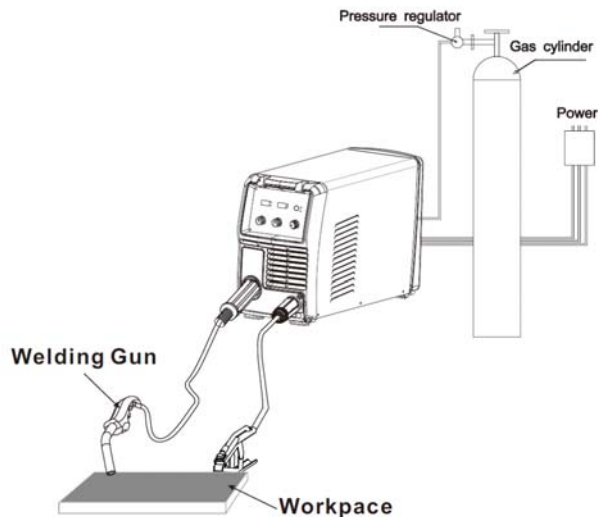
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to the voltage/wire feeding speed selection chart and you can adjust the knob during welding to obtain best result. Inductance is the rate of current response to a change in current. What this means is that when MIG welding with a short arc you can adjust how fast current is applied to the shorts. The less inductance you have the crisper the arc will appear and the wires will start easier. This will also make the bead taller and narrower. More inductance will make the arc appear "softer" with a flatter wider appearance and if too much is used, wires will stumble during starts. Typically when short arcing steel only a little inductance is used in order to get a crisp arc. Low thermal conductivity materials such as stainless need more inductance to get acceptable wetting when short arcing.

5. Installation & Operation

Electrical connection operation must be shut after power distribution box power switch!

The equipment protection level is IP23. Do not use in the rain!



5.1. Electric service guide

Input voltage(V)	208	230
Frequency(Hz)	60	60
Input Amperes at rated output(A)	27	24
Max recommended standard fuse Rating in Amp		
Circuit breaker, time delay	40	40
Normal operation	50	50
Min input conductor size in AWG	14	14

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Min Grounding conductor Size in AWG	10	10
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5.2. Installation

- Welding machine should be installed in a stable position and with good ventilation. Avoid direct sun outdoors or rain. Place at a distance of 12” (300mm) or more from walls or similar that could restrict natural air flow for cooling. Avoid transport in invert or side position.
- Tightly connect the power cable to electrical socket outlet (refer to “technology parameters” for the input voltage)
- connect the compress air hose to the air supply equipment and the earth cable to the workpiece.
- Switch the ON/OFF Switch (located on the rear panel) to OFF.
- Connect NT1 MIG torch euro connection and earth cable to negative connection. Connect the control plug to the control receptacle at machine.
- Connect the gas to the gas inlet locate on rear penal.
- Install wire spool.
- Commission the machine after the machine is installed and tested:
- Release the pressure roller in the wire feeder, press the torch switch, and adjust voltage switch from low to high, Open circuit voltage should rise.
- Evenly adjust the current knob, the wire feed speed should increase evenly.
- Check the connection of work piece, earth cable, welding torch, gas cylinder, regulator and hose, make sure they are firm and reliable. Attach earth clamp as close as possible to the cutting portion. Do not attach earth cable to the portion that will fall away.

5.3. Recommended welding parameters

M185 PARAMETER SELECTION CHART									
-: setting not recommended. The setting in the following chart is just for start only and can be fine tune during welding. Wire feed speed \varnothing \rightarrow 200/19 \leftarrow Voltage "V" S									
MIG/MAG WELDING					Polarity setting: DCRP(wire positive); Shield gas for steel: 80% Ar, 20%CO ₂ . Stainless steel and Al: 100% Ar.				
Material	Steel				Stainless steel			Aluminum	
Wire type	Solid ER70S-6		Flux core E71T-1		ER308,ER308L,ER 308LSi			ER4043	
Wire size (in) (mm)	0.023" 0.6	0.035" 0.9	0.030" 0.8	0.035" 0.9	0.023" 0.6	0.030" 0.8	0.035" 0.9	0.030" 0.8	0.035" 0.9
1/4" (6.4mm)	-	420/22	300/21	350/21	-	450/22.5	420/22	420/20	400/19.5
3/16" (4.8mm)	350/22	350/21.5	250/20	300/20	320/21	370/20.5	360/20	380/19	360/18.5
1/8" (3.2mm)	310/20.5	280/20	230/19.5	280/19	260/20	350/19.5	330/19	350/18.5	330/18
14ga. (2.0mm)	200/19.5	170/19	120/18.5	120/18.5	170/19	230/18.5	220/18	240/17.5	220/17
16ga. (1.6mm)	120/18.5	100/18	80/17	80/17.5	120/18	180/17.5	160/17	-	-
18ga. (1.2mm)	80/16.5	70/16	50/17	50/17.5	100/16	120/16	110/16	-	-
20ga. (0.9mm)	50/15	40/15	-	-	80/15	70/15	-	-	-
22ga. (0.8mm)	40/14.5	35/14.5	-	-	55/14.5	-	-	-	-

6. Safety precaution

6.1. Installation precaution

- (1) Welding environmental temperature should be between -10°C to 40°C.
- (2) The air humidity of not more than 90%.
- (3) Avoid environment containing dust or corrosive gas.
- (4) Avoid sunlight or rain; do not let water into the welding machine.
- (5) Avoid the strong wind environment.

6.2. Safety

Refer to the American National Standard Z49.1 entitled: SAFETY IN WELDING AND CUTTING.
ALL INSTALLATION, OPERATION, MAINTENANCE, AND REPAIR WORK MUST BE PERFORMED BY QUALIFIED PERSONAL.

- (1) Welders must be equipped with welding mask, gloves and tie the sleeves and collar properly.

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Use Table 6.4 to choose proper glass shade, also can reference to ANSI Z49.1 listed in Safety Standards. There should be an arc shield around welding field to protect others from arc shock.

- (2) Do not weld near flammable, explosive materials or gases.
- (3) Keep finger, hair and clothing away from the rotating fan.
- (4) The power source must be grounded when welding.
- (5) When protection light is enlightened during welding, it is indicating that the welder is over current or over heat, and automatic protection will be triggered. Stop welding immediately and wait until welder cool down.
- (6) Welding machine should not work in a flammable and toxic environment, avoid moisture, rain, and do not directly expose to sun.
- (7) Do not switch off the welder during welding!
- (8) Periodically maintain the machine and clean the dust inside.

7. Maintenance

Periodic maintenance is necessary for keeping the machine work properly.



WARNING

There are extremely dangerous voltage and power levels present inside this unit. Do not attempt to diagnose or repair unless you have had training in power electronics measurement and troubleshooting techniques. DISCONNECT POWER INPUT AND SWITCH OFF THE MAIN POWER SWITCH BEFORE START OF MAINTENANCE.

Regular Check and Inspection	6 Month Routine Maintenance
<ul style="list-style-type: none"> • Replace unreadable labels. • Clean spatter inside the nozzle when continuously use the machine • Check and change broken parts in the torch to avoid damage to the torch and machine. • Check the function of all switches. • Check if the fan rotates properly and if there is air venting out from back of the machine. • Pay Attention to the abnormal vibration, noise, 	<ul style="list-style-type: none"> • Blow out with dry clean pressure air or vacuum inside machine, especially transformer coil and power component. • Check the electric connection of input/output bar to avoid bad contact caused by loose or rusted screw. • Check the contactors and relays in the machine or on the PCB work properly. • Calibrate the current meter. • Check the resistance between machine case and

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<p>smell and gas leakage during operation.</p> <ul style="list-style-type: none"> • Check if the welding cables are over heated. • Check if the cable connections are over heated. • Check if the cable is connected firmly and properly, if it is broken and cause bad insulation. • Check the cover grounded properly. 	<p>main circuit, if the value is smaller than $1M\Omega$, sent the machine to an authorized warranty depot to inspect and repair immediately.</p>
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8. Troubleshooting & Service

The following operations require the operator has sufficient electrical expertise and comprehensive safety knowledge, the operator can demonstrate its capacity to be held valid qualifications and knowledge Documents.

Common Faults and exclusion method:

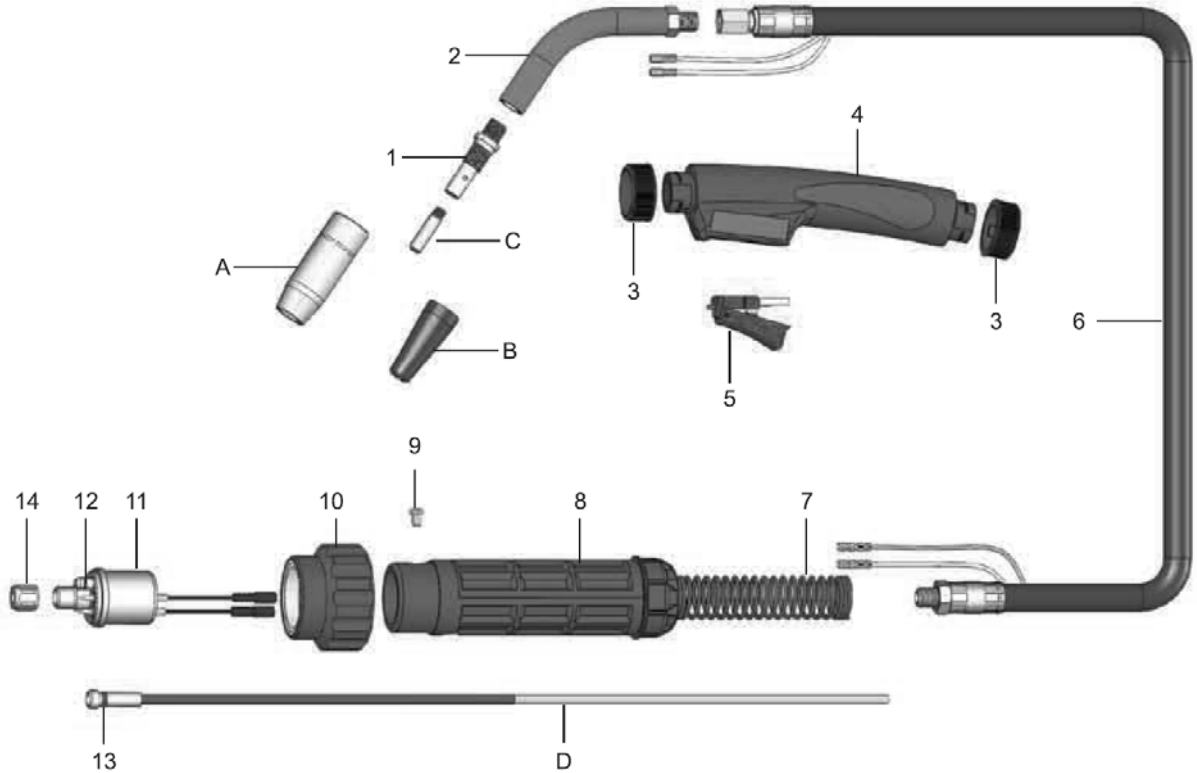
NO.	Troubles		Reasons	Solution
1	Close the breaker, but the power light isn't on		Breaker damaged	Change it
			Fuse damaged	Change it
			Power damaged	Change it
2	After welding machine is over-heat, the fan doesn't work		Fan damaged	Change it
			The cable is loosen	Screw the cable tightly
3	Press the gun switch, no output shielded gas	No output gas when test gas	No gas in the gas cylinder	Change it
			Gas pipe leaks gas	Change it
			Electromagnetic valve damaged	Change it
	Output gas when test gas	Control switch damaged	Repair the switch	
		Control circuit damaged	Check the board	
4	Wire-feeder doesn't work	Wire reel doesn't work	Motor damaged	Check and change it
			Control circuit damaged	Check the board
	Wire reel works	Wire reel works	The press wheel is loosen or weld wire skids	Press it tightly again
			The wheel doesn't fit with the diameter of weld wire	Change the wheel

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			Wire reel damaged	Change it
			Wire feed pipe is jammed	Repair or change it
			Tip is jammed because of splash	Repair or change it
5	No striking arc and no output voltage		Output cable is connected mistakenly, or loosen	Screw it down or change it
			Control circuit damaged	Check the circuit
6	Welding stops, and alarm light is on		Machine has self-protection	Check over-voltage, over-current, over-temperature, lower-voltage and over-temperature, and solve it
7	Welding current is run away and can be not controlled		The potentiometer damaged	Check or change it
			The control circuit damaged	Check the circuit
8	The crater current can be not adjusted		The PCB damaged	Check it
9	No post-gas		The PCB damaged	Check it

9. Torch Part Breakdown

KickingHorse™ NT1-3E, Order No. KAM31003



Nozzles

Item	Description	Order No.	
1	Nozzle Self Insulated	21-37	A
2	Nozzle Self Insulated	21-50*	A
3	Nozzle Self Insulated	21-62	A
4	Nozzle Self Insulated	21-37F	A
5	Nozzle Self Insulated	21-50F	A
6	Nozzle Self Insulated	21-62F	A
7	Nozzle Self Shielding	LA8201	B

Contact Tips

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Item	Description	Order No.	
1	Contact Tip 0.023"/0.6mm Ecu	11-23	C
2	Contact Tip 0.030"/0.8mm Ecu	11-30	C
3	Contact Tip 0.035"/0.9mm Ecu	11-35*	C
4	Contact Tip 0.040"/1.0mm Ecu	11-40	C
5	Contact Tip 0.045"/1.2mm Ecu	11-45	C

Liners

ITEM	DESCRIPTION	ORDER NO.	
1	Steel Liner 0.030"-0.035"/0.8-0.9mm X15ft	42-3035-15*	D
2	Teflon Liner 0.035"-0.045"/0.9-1.2mm X15ft	42T-3545-15	D

* Default

Component

ITEM	DESCRIPTION	PART No.
1	Gas Diffuser	51
2	Goose neck(45°)	61-45
	Goose neck(55°)	61-55
3	Handle locking Nut	EH1111
4	Gun Handle (Front)	EH1101
5	Trigger Assembly	EJ0003
6	Gun & Cable Assembly 3M	TEL1030
7	Rear spring cable support	ES2201
8	Gun plug housing	EH2201
9	Screw(M4X6)	EH2211
10	Rear lock nut	EP2001
11	Euro connector(Tweco)	ETU001
12	O ring 4x1	Q504010
13	O ring 4x8	Q504018
14	Nut M11X1	TEU1011

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NOTES

M185 MIG/flux wire feeder welder

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