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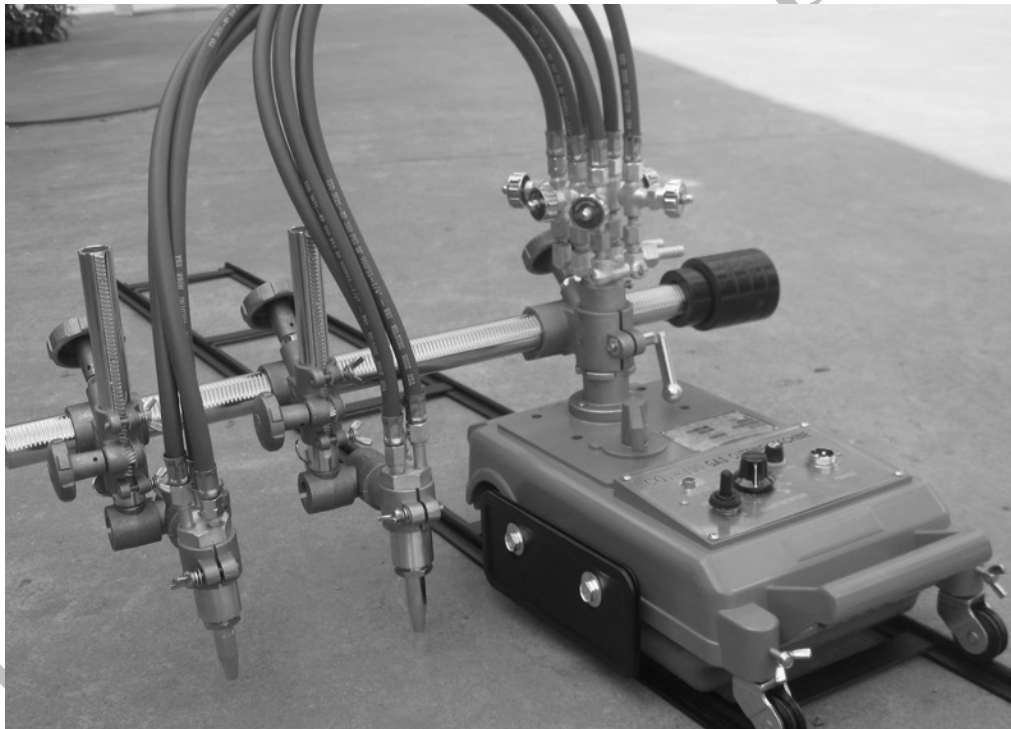
**1.0**

# **OPERATIONAL MANUAL**

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MODEL: **CG-100** DUEL CUTTING TRACK  
TORCH/BURNER MACHINE

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**by BLUEROCK® Tools**

**CG-100 TRACK TORCH BURNER MACHINE**

**UNPACKING THE ITEM**

Caution: This machine is packed together with items that may be sharp, oily and overly heavy objects. Remove the machine from the packaging in a safe manner. Check to ensure all accessories are included with the item while unpacking. If any parts are found to be missing, contact the retailer as soon as possible. Do not throw away the packaging until the item is out of the guarantee period. Dispose of the packaging in an environmentally responsible manner. Recycle if possible. Keep all plastic bags away from children due to risk of suffocation.



WEEE - Waste Electrical & Electronic Equipment. Note this machine should be disposed of as electrical & electronic waste.

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## Table of Contents

<b><u>SAFETY</u></b>	<b>1</b>
<i>PRE-OPERATIONAL SAFETY CHECKS</i>	1
<i>OPERATIONAL SAFETY CHECKS</i>	1
<b><u>SPECIFICATIONS</u></b>	<b>3</b>
<b><u>INCLUDED ACCESSORIES</u></b>	<b>3</b>
ADDITIONAL ACCESSORIES FOR THIS MACHINE CAN BE FOUND IN <b>BLUEROCK® TOOLS</b> ONLINE SHOP AT <a href="http://WWW.BLUEROCKTOOLS.COM">WWW.BLUEROCKTOOLS.COM</a> OR FROM YOUR LOCAL RETAILER.	4
<b><u>CUTTING TIP SPECIFICATIONS</u></b>	<b>4</b>
<b><u>OPERATIONS</u></b>	<b>5</b>
<i>PURPOSE</i>	5
<i>OPERATIONAL PRINCIPLES</i>	5
<i>MACHINE COMPONENTS</i>	5
<i>SETTING UP THE MACHINE</i>	7
<i>TRANSPORTING THE MACHINE</i>	8
<i>RUNNING THE MACHINE FOR STRAIGHT LINE CUTS</i>	9
<i>USING THE CIRCLE CUTTING ATTACHMENT</i>	10
<i>PROPER LIGHTING OF GAS TORCH</i>	11
<b><u>TROUBLESHOOTING</u></b>	<b>13</b>
<b><u>GENERAL MAINTENANCE</u></b>	<b>14</b>
<b><u>ELECTRICAL DIAGRAM</u></b>	<b>15</b>

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## Safety

**DO NOT USE THIS MACHINE UNLESS YOU HAVE READ THE OPERATING INSTRUCTIONS!**



Welding safety glasses must be worn at all times in work areas.



Long and loose hair must be contained.



Appropriate steel toe footwear must be worn.



Close fitting/protective leather clothing must be worn.



Leather safety gloves should be worn at all times and jewelry must not be worn.



Hearing protection should be worn when using this machine.



Hard-hat must be worn while using machine.



Dust/fume mask must be worn while using this machine.



Read operational manual prior to use.

### PRE-OPERATIONAL SAFETY CHECKS

- Examine the power cord and plug for damage. This tool is supplied with a ground plug and must always be used with the properly grounded circuit.
- Examine the body of the machine and inspect for damage or defects.
- Examine the cutting torch tips and torch barrel inside and out for damage and/or defect.

### OPERATIONAL SAFETY CHECKS

- ONLY to be operated by qualified personal who have read instructions.
  - NOTE: Failure to read and follow instructions could result in electrical shock, fire, property damage and/or serious injury!
- DO ensure all non-essential people are clear of the immediate work area.

**CG-100 TRACK TORCH BURNER MACHINE**

➤ <b>DO keep body parts, clothing &amp; power cords clear of turning/cutting pieces. Stay alert and use common sense when using this tool.</b>
➤ <b>DO unplug machine, and shut off gas while changing cutting tips so as not to accidentally turn machine on or cause gas related injuries.</b>
➤ <b>DO ensure all tightening points, brackets, wing-nuts, and lever-bolts are tight and stable prior to turning the machine on and/or starting the gas flame.</b>
➤ <b>DO tie a loop in any extension cord connections to prevent cords coming apart and a loss of power.</b>
➤ <b>DO guard against electric shock by preventing body contact with grounded surfaces such as pipes, radiators, ranges, refrigerators, etc.</b>
➤ <b>DO use a dust/fumes extraction system for cutting all materials. The operator should also wear a protective respiratory device in accordance with welding safety standards.</b>
➤ <b>DO NOT make adjustments to machine while the machine is running.</b>
➤ <b>DO NOT remove or modify grounding plug. Only to be used on a properly grounded circuit.</b>
➤ <b>DO NOT leave the machine running when not in use.</b>
➤ <b>DO NOT hold the work piece by hand or using body. Always mechanically clamp or secure work piece.</b>
➤ <b>DO NOT allow flame too close to the machine body. This can cause internal machine components to fail.</b>
➤ <b>DO NOT allow flame to come in contact with power cords.</b>
➤ <b>DO NOT operate machine outside of machine specifications.</b>
➤ <b>DO NOT touch moving parts or cutting flame while the machine is running as death or dismemberment could occur.</b>
➤ <b>DO NOT remove machine panel while machine is connected to a power source. Only to be removed for service by qualified personal and put back on the machine after service is complete.</b>
➤ <b>DO NOT allow children or untrained personal to operate machine.</b>
➤ <b>DO NOT use this machine in the rain or a wet environment. If using outdoors, make sure the adhering surface is clean and dry.</b>
➤ <b>DO NOT cut into steel that may contain a live electrical wire/circuit.</b>
➤ <b>DO NOT operate this machine on a lower voltage as it may result in the motor being at a reduced power level and the machine could become unreliable while cutting. This could also limit the motor life and control components.</b>
○ <b>NOTE: Use of long small gauge power extension cords can result in decreased voltage. As local voltages can vary, it may be a good idea to test the voltage at the end of the extension cord to ensure proper voltage requirements are met. You might also consult an electrician to make sure the length of cord matches up with the proper wire gauge for this size motor. Make sure to use outdoor cords when operating outdoors.</b>

## Specifications

<i>ELECTRICAL DATA</i>	
Voltage	110V, 60Hz
Power Connection	US Standard 3 Prong Type B Plug

<i>MECHANICAL DATA</i>	
Motor Forward or Reverse	Yes
Cone Disk Drive	Yes
Mechanical Start Stop	Yes
Cutting Tip Types	G02, G03 (similar to Airco Brand). Duel Cutting Assembly
Cutting Circle Diameter	8"-6.5' (200-2000mm)
Cutting Depth	3/16" – 4" Depth (8-100mm)
Cutting Speed	0"-30" Per Minute Variable Speed (0-750mm/min)
Straight Line Cut Length	Any

<i>SHIPPING DATA</i>	
2 Package Shipping Weights	1) 33 lbs 2) 21 lbs
2 Shipping Packages	1) 26" x 12" x 11" 2) 1" x 9" x 71"

## Included Accessories

<i>DESCRIPTION</i>	<i>QTY</i>
Instruction Manual	1
6' Cutting Track (with circle radius bar)	2
Power Cord	1
Main Spreader Bar	1
Large Troch Bracket Assembly	2
Main Beam Spreader Bar Holder	1
Radius Bar Spike for Circle Cutting	1
G03 Propane Cutting Tips	3
G02 Oxy-Acetylene Cutting Tips	3

### Note

**UPON RECEIPT, CHECK CAREFULLY TO ENSURE THAT THE MACHINE IS IN GOOD CONDITION AND HAS ALL ACCESSORIES LISTED ABOVE.**

Additional accessories for this machine can be found in BLUEROCK® Tools online shop at [www.bluerocktools.com](http://www.bluerocktools.com) or from your local retailer.

## Cutting Tip Specifications

Type	Model	Cutting Diameter (mm)	Cutting Thickness (mm)	Cutting Speed (mm)	Oxygen Pressure (Mpa)	Acetylene Pressure (Mpa)
<b>GO<sub>2</sub> Acetylene Cutting tip</b>	#00	0.8	5-10	600-450	0.2-0.3	>0.03
	#0	1	10-20	480-380	0.2-0.3	0.03
	#1	1.2	20-30	400-320	0.25-0.35	0.03
	#2	1.4	30-50	350-280	0.25-0.35	0.03
	#3	1.6	50-70	300-240	0.3-0.4	0.04
	#4	1.8	70-90	260-200	0.3-0.4	0.04
	#5	2	90-120	210-170	0.4-0.6	0.04
	#6	2.4	120-160	180-140	0.5-0.8	0.05
	#7	2.8	160-200	150-110	0.6-0.9	0.05
	#8	3.2	200-280	90-60	0.6-1.0	0.05
	#9	3.6	270-350	90-60	0.7-1.1	0.05
	#10	4	350-400	70-50	0.7-1.2	0.06
<b>G0<sub>3</sub> Propane Cutting tip</b>	#0	0.7	5-10	800-450	0.2-0.3	>0.03
	#1	0.9	10-20	480-300	0.2-0.3	0.03
	#2	1.2	20-35	400-320	0.3-0.4	0.03
	#3	1.5	35-60	350-280	0.3-0.4	0.03
	#4	1.8	60-90	300-240	0.4-0.6	0.04
	#5	2.1	90-130	260-200	0.4-0.6	0.04
	#6	2.5	130-180	220-180	0.4-0.6	0.04
	#7	2.7	180-250	200-160	0.5-0.7	0.05
	#8	3.1	250-330	180-140	0.5-0.7	0.05
	#9	3.5	330-380	130-90	0.6-0.8	0.05
	#10	4	380-450	90-50	0.6-0.8	0.05

## Operations

### WARNING

**DO NOT attempt to use this machine unless you are trained in its proper use as well as trained in the proper use of gas cutting equipment. THOROUGHLY READ THROUGH THE ENTIRE MANUAL BEFORE OPERATING THIS MACHINE!**

#### PURPOSE

- The purpose of the CG-100 is to cut steel using oxy-acetylene or propane gas flame cutting. The machine is designed to cut straight and bevel cuts. The torch holders can be adjusted  $\pm 15^\circ$ .
- These machines are designed to run along v-frame cutting tracks. This machines comes stock with 2 pcs of 6' track (12' total), but additional track can be used to cut longer runs.
- This machine is designed to make horizontal cuts. This machine can cut 1 or 2 straights lines at once.

#### OPERATIONAL PRINCIPLES

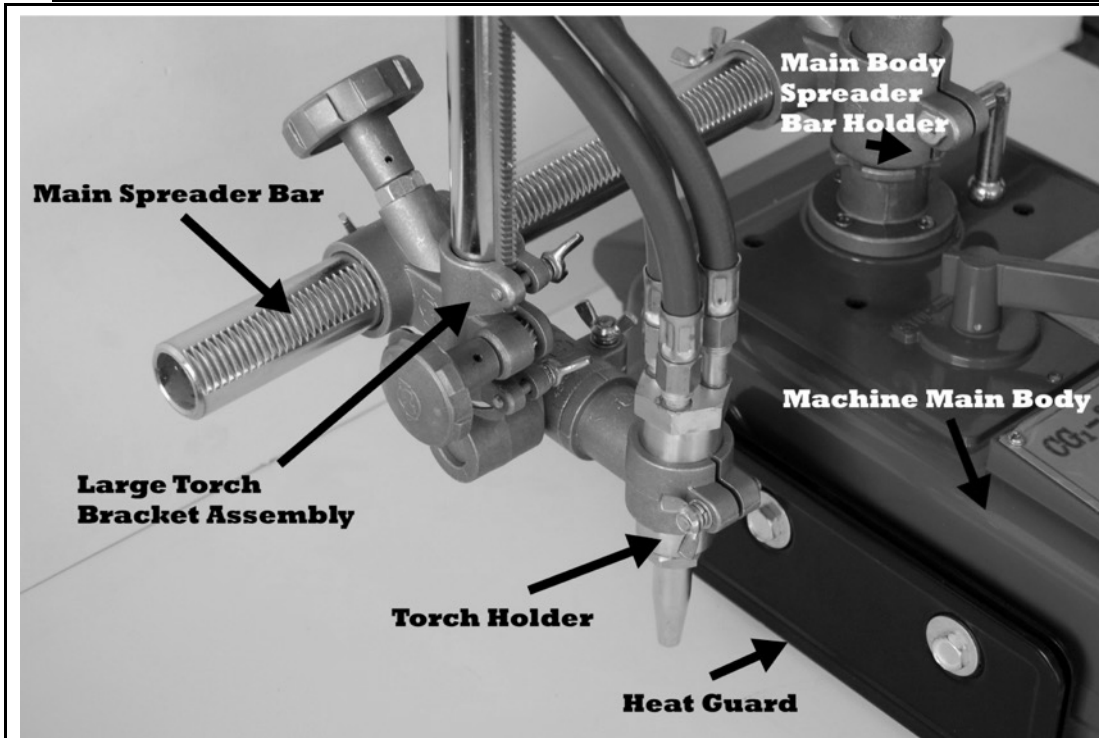
- When placed on the cutting tracks, the main machine wheels rotate in a forward or reverse direction. When engaged, the flame cuts into the steel. The machine speed can be increased or decreased using the variable speed switch. Using the adjusting knobs on the machine, the user can raise or lower the torch holders.
  - **WARNING: THE CG-100 is not designed to detect the end of the cutting track. Be careful not leave the machine cutting unattended as it may fall from the end of the elevated work piece.**

#### MACHINE COMPONENTS

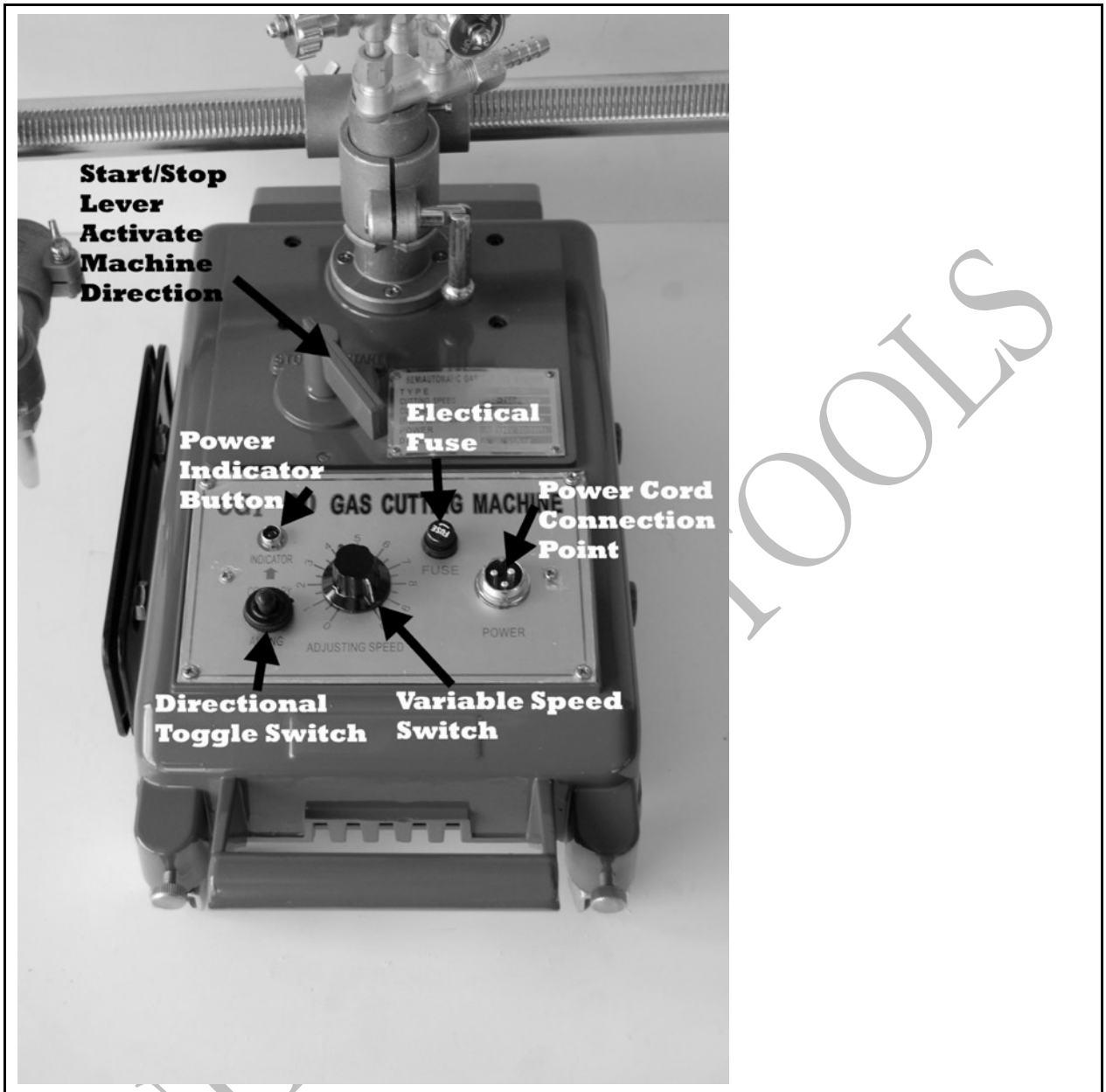
- The main components of the CG-100 are the large torch bracket assembly, 2 x torch holders, motor, electrical control panel, machine body and main spreader bar.
  - The electrical components must be not be removed except by a qualified technician. Power must be disconnected prior to any service.
- This machine has two primary adjusting knobs to position the torch holders.
  - These knobs are both located on the large torch bracket assembly (see figure below).



- The top knob will adjust the torch holder left to right.
- The side knob will adjust the torch holder up or down.

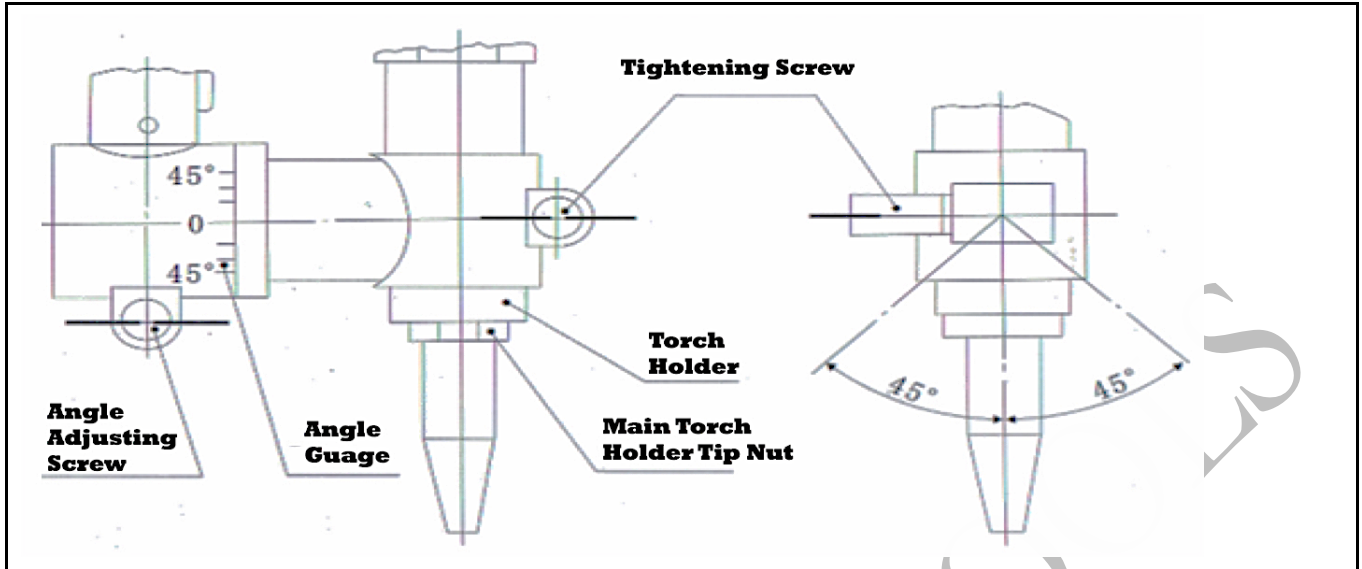


- There are 5 major components located on the machine control panel (see figure below -the white words indicate the control panel components).
- The power cord connection point is where the black power cord plugs in.
  - **NOTE:** Make sure to line up the half round notch in plug with the half round piece in the plug input.
- The machine has a forward/reverse switch located on the main control panel.
  - This directional toggle switch has arrows pointing in the direction the machine will travel.
  - **NOTE:** There is also a neutral position for this switch in between the positions.
- When the directional toggle has been activated, the start/stop lever will manually engage the gearing to start machine movement.
  - This lever should be in the “STOP” position if not moving. Turn the “START” position to engage the movement.
- The variable speed switch will increase or decrease the machine speed. 0 symbolizing no movement and 10 symbolizing fast movement.
- The electrical fuse contains a fuse controlling the control board.
  - **CAUTION:** Do not remove the fuse unless the machine is disconnected from power source.

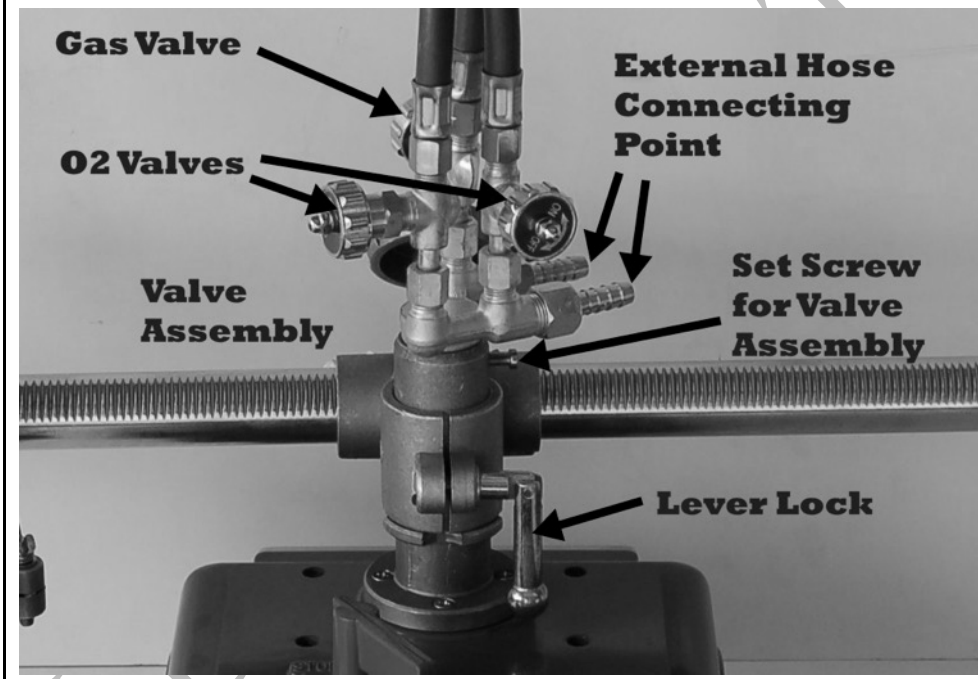


**SETTING UP THE MACHINE**

- Install the main spreader bar holder and the main spreader bar.
  - Tighten the lever lock.
- Install the main bracket torch holder assembly.
  - For straight cuts, ensure the torch holders are square (see figure below).



- Tighten the valve assembly side of the torch assembly above the main spreader bar assembly. Make sure to tighten the screw to lock in the valve assembly (see figure below for details).



- Install the torch holders.
  - Make certain the inside of the torch holder is clean and does not have any burrs. Also make certain any tips you use are free of burrs or defect. It is important the seats are tight.
- See section below on "proper lighting of gas torch"

**TRANSPORTING THE MACHINE**

- When transporting the machine, always use the carrying handles in the front and back of the machine.

- Ensure the torch tip is in a raised position so it will not get damaged when lifting up the machine or putting down the machine.
- If transporting inside a vehicle, it is recommended to transport it on its side so as to avoid the item falling over.
- DO NOT carry the machine by the cord.
- DO NOT allow the cord or plug to drag along the floor when transporting.

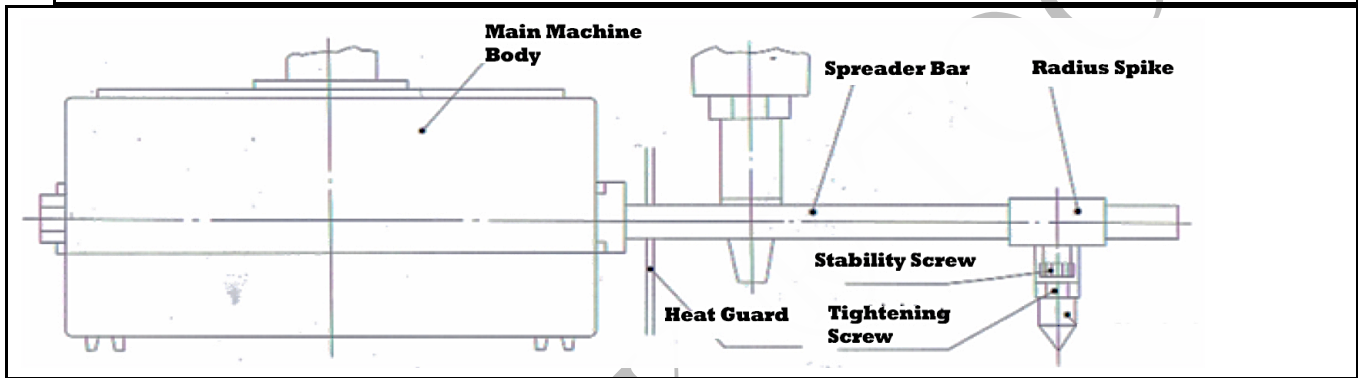
### **RUNNING THE MACHINE FOR STRAIGHT LINE CUTS**

- Do all pre-operational and operational safety checks from Chapter 1.
- Consider your security and stability as well as the orientation of the machine in the work area.
  - Consider the work surface material, condition, strength, density and rigidity. These factors directly affect the tools use.
  - Ensure the piece being cut will be stable after the cut has been made.
- Ensure the work surface and machine are free of debris, oil, etc.
- Set the start/stop lever in the stop position.
- Set up cutting tracks. Ensure they are straight.
  - NOTE: It may be necessary to mechanically clamp or secure the tracks by some method depending on the application.
- Place machine at the start of the cut ensuring the wheels of the machine are set in the V in the cutting tracks.
  - NOTE: Make certain the wheels are free and not in the lock position with the wheel "wing-nut" slightly loose.
- Select appropriate size torch tips for the application. Install tip.
- Connect applicable gas lines.
  - Make certain they are properly secured and there are no leaks. It is highly recommended that leak testing be performed on the system prior to using the machine.
  - Ensure the lines are long enough to complete the cut you are planning.
  - ALWAYS use gas tank cylinders with properly outfitted regulators/flowmeters.
- Select the neutral position in the machine directional toggle switch.
- Securely fasten the plug into the machine and lock in using the plug screw.
- Plug the cord into the external power source.
- Ensure the torch holder is not too close to the side of the heat guard. It should be set at least 4" away from the side of the heat guard.
- Adjust the side knobs to raise the torch tip to a suitable level for lighting.
- Light the torch flame (see section below on proper lighting of torch flame).
- Adjust the side knobs a suitable level for cutting through the material.

- Select the drive direction using the toggle switch.
- Select the proper speed of the cut using the variable speed switch.
- Activate the machine start/stop lever to the start position to engage the machine directionally.
- When the cut is complete, stop the machine using the start/stop lever.
- Shut off the torch flame.

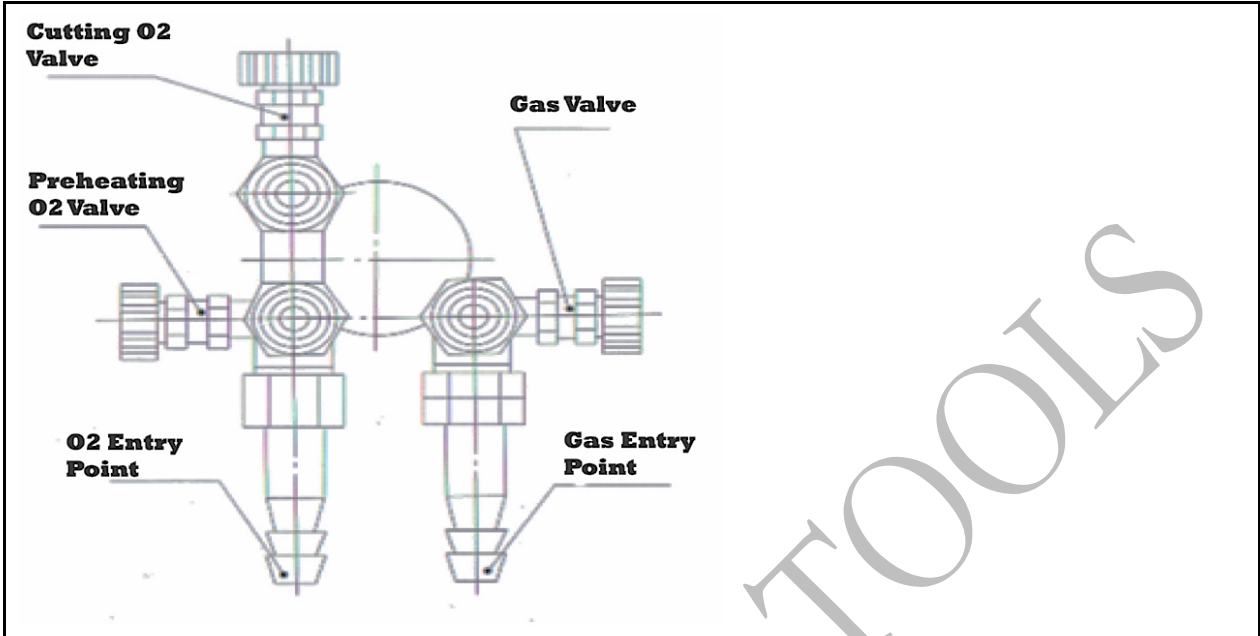
**USING THE CIRCLE CUTTING ATTACHMENT**

- Map out the circle on the surface of the steel.
- Drill a hole or use a punch to mark the center of the circle.



- Install the radius bar on the side main machine body.
  - If the radius is small, the bar should be placed on the same side of the torch.
  - If the radius is large, the bar and spike should be placed on the opposite side of the torch.
  - Put into the fixed holes and adjust the position of the fixing bar accordingly.
  - Fasten the nuts to tighten the radius bar.
- Install the radius bar spike on the end of the radius bar.
  - Tighten the spike.
- Loosen the wing-nut on the wheel so the back wheels can swivel.
- Use the procedure above to start the machine and make the cut.

**PROPER LIGHTING OF GAS TORCH**



➤ **Before attempting to light the torch tip follow this check list:**

- Verify the regulator pressure adjustment screws are backed out.
- Verify the torch valves are in the closed position.
- Position yourself away from the front side of the regulator.
- Slowly open the oxygen valve at the cylinder.
- Slowly open the acetylene valve at the cylinder.
- Adjust regulator pressure adjustment screws to the tip pressure.
- Open and close the torch valves at the machine separately and tune the regulator pressure settings on the regulator.

➤ **Lighting the torch:**

- Open gas valve 1/2 turn.
- Immediately ignite flame with striker.
  - **CAUTION:** Light flame immediately so gas does not enter machine body or general atmosphere around the machine.
  - Ensure proper ventilation around the work area.
- Increase gas flow until flame leaves end of tip and smoke is not present.
- Decrease until flame goes back to tip.
- Open pre-heating oxygen valve and adjust until neutral flame is achieved.
- When the temperature of the steel is suitable temperature for the steel plate, open the cutting oxygen valve.
- After adjustment of the flames efficiency, turn on the machine rotation.

- |   |
|---|
| ➤ After cutting is complete, close oxygen cutting valve.                                  |
| ➤ Next close pre-heating oxygen valve.  |
| ➤ Lastly, close the gas-cutting valve.  |
| ➤ If done using the machine, close oxygen and gas valves on the main cylinder regulators. |
| ○ Purge oxygen and gas lines.   |

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## Troubleshooting

### Note

**SERVICING SHOULD ONLY BE DONE BY A QUALIFIED TECHNICIAN.**

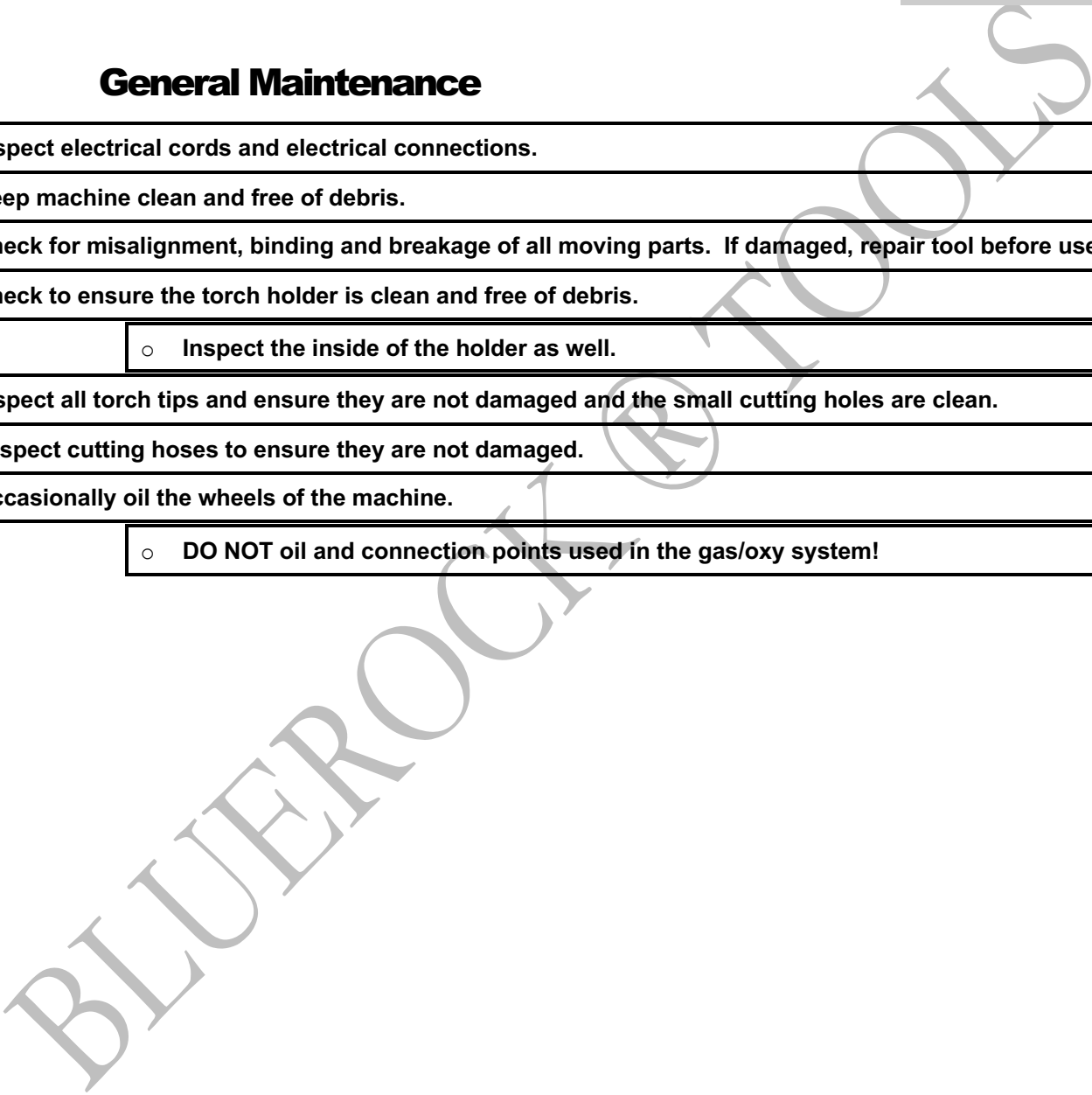
**DON'T FORGET TO UNPLUG POWER TO UNIT PRIOR TO SERVICE!**

No	Problem	Cause	Solution
1	No power to the machine	<ol style="list-style-type: none"> <li>1. Machine is not plugged in or issue with power.</li> <li>2. The fuse is burned.</li> <li>3. The wires in the control panel, plug or switch were disconnected or damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and repair the circuit.</li> <li>2. Change the fuse</li> <li>3. Fix the disconnected wire or replace control panel components.</li> </ol>
2	The machine speed can't be adjusted	<ol style="list-style-type: none"> <li>1. Variable speed switch defective.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair the variable speed piece</li> </ol>
3	Leak gas and/or flame in the joint of torch and torch cutting tip.	<ol style="list-style-type: none"> <li>1. The torch holder inlet is damaged.</li> <li>2. There is copper burr or materials on the surface of the torch tip.</li> </ol>	<ol style="list-style-type: none"> <li>1. Softly grind the torch cone with small sand paper to clean out the burr.</li> <li>2. Clean the material on the cutting tip. Softly grind the surface with small sand paper. Change the cutting tip if it is badly damaged.</li> </ol>
4	The flame goes out as soon as the oxygen valve is opened	<p>The cutting oxygen leaked into the preheating oxygen area.</p> <ol style="list-style-type: none"> <li>1. Copper stain or useless materials on the inner part of torch</li> <li>2. The smaller cone of torch cutting mouth was stuck with some with material or was damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Softly grind the most inner part of torch holder with sand paper to clean out the debris or damage.</li> <li>2. Softly grind the smaller surface of the cutting mouth. Change the cutting mouth if it is serious damaged.</li> </ol>
5	The steel plate can't be cut through	<ol style="list-style-type: none"> <li>1. The torch cutting-tip is too small.</li> <li>2. The flame frequency is not strong enough</li> <li>3. Low pressure for cutting oxygen</li> <li>4. The hole channel of cutting mouth may be jammed</li> <li>5. The cutting oxygen is not pure.</li> <li>6. The cutting oxygen was leaked into the preheating oxygen hole channel.</li> </ol>	<ol style="list-style-type: none"> <li>1. Choose the cutting tip spec according to the cutting thickness.</li> <li>2. Increase flame frequency properly.</li> <li>3. Properly increase the cutting oxygen to ensure the enough flow speed of cutting oxygen.</li> <li>4. Clean the useless materials in the torch cutting mouth with cutting pin.</li> <li>5. Use oxygen with more than 95% purity.</li> <li>6. Clean the useless materials on the cutting mouth and torch, repair the damaged surface and change cutting mouth if needed.</li> </ol>
6	The cutting is not straight enough.	<ol style="list-style-type: none"> <li>1. The steel plate was deformed.</li> <li>2. The flame line was not straight.</li> <li>3. Uneven guide channel</li> <li>4. The torch was poorly fixed and can be moved.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use flat steel plate and calibrate it before cutting.</li> <li>2. The torch should have an 90° angle with the steel plate and tightly fixed. Clean the useless materials in the torch cutting mouth with cutting pin.</li> <li>3. Calibrate the guide of the machine</li> <li>4. Tighten all connections.</li> </ol>

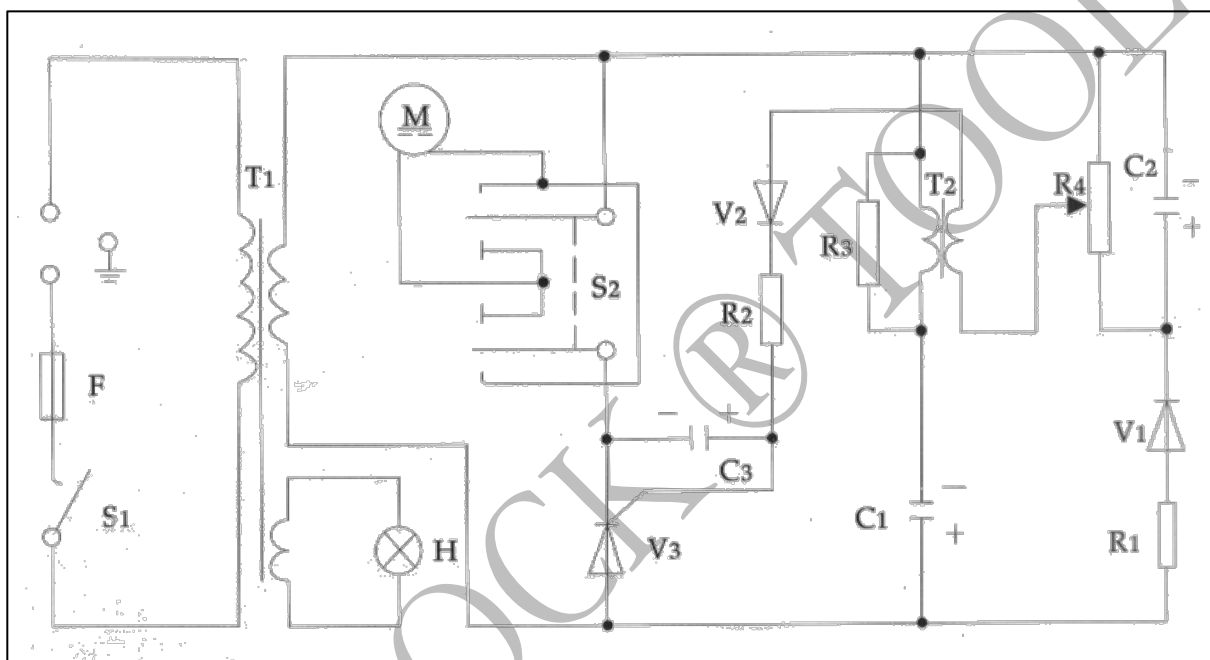


### General Maintenance

- Inspect electrical cords and electrical connections.
- Keep machine clean and free of debris.
- Check for misalignment, binding and breakage of all moving parts. If damaged, repair tool before use.
- Check to ensure the torch holder is clean and free of debris.
  - Inspect the inside of the holder as well.
- Inspect all torch tips and ensure they are not damaged and the small cutting holes are clean.
- Inspect cutting hoses to ensure they are not damaged.
- Occasionally oil the wheels of the machine.
  - DO NOT oil and connection points used in the gas/oxy system!



## Electrical Diagram

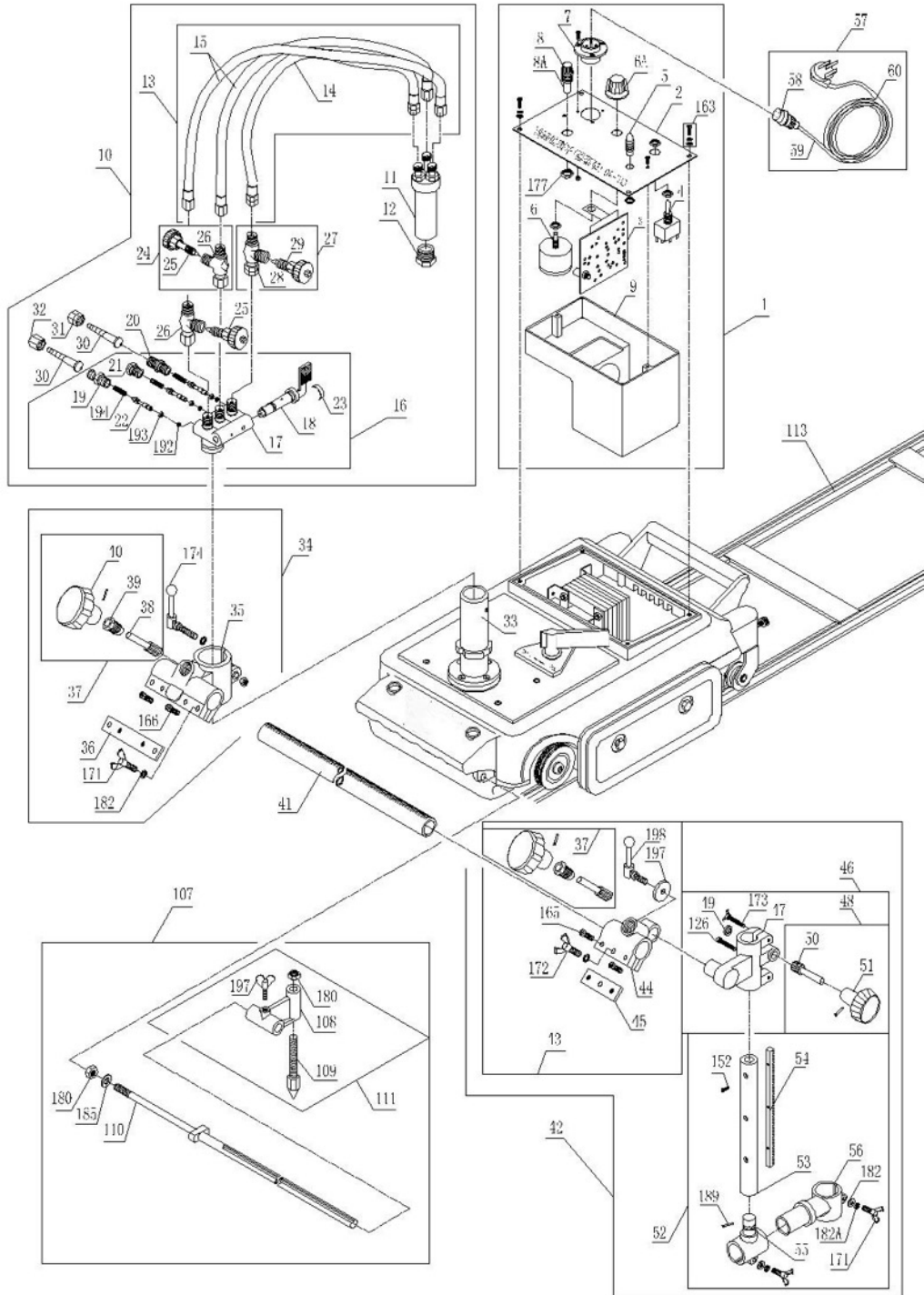


Code	Name	Specification	Qty
M	Permanent magnetic DC Motor	ZYT261 . 110V . 24W . 3600r/min	1
T1	Power transformer	110V/6.3V	1
T2	Pulse transformer	E193 Input voltage transformer	1
S1. S2	Knob switch	KN3 3A/250V	2
H	Indicator light	XDX1-H-6.3V	1
F	Fuse	RF1-20-2A	1
V1. V2	Silicon diode	1N4004 . 1A/400V	2
V3	Thyristor	KP5A/400V	1
C1	Capacitor	CJ30 1uf/500v	1
C2	Capacitor	CD15 10uf/400v	1
C3	Capacitor	CD11 33Uf/400v	1
R1	Resistor	RJ 12Ω/1W	1
R2	Resistor	RJ 1.5KΩ/0.5W	1
R3	Resistor	RJ 4.7KΩ/0.5W	1
R4	Resistor	WX-050 4.7KΩ/0.5W	1
	Power cord	YQ-3×0.5/10m, connector plugs CF44	1
	Knob	K18-1	1

## Parts List

Description	P/N	Description	P/N
Power cable kits	#57	Torch horizontal moving set	#43
Power cable plug	#60	Torch vertical moving set	#46
Power cable kits	#59	Torch clamber kits	#52
Power cable aviation plug	#58	Brass tooth bar	#54
Electrical box kits	#1	Circle cutting kits	#107
Adjusting switch panel	#2	Circle setting kits	#111
Three-way switch	#4	Circle set	#109
Potentiometer	#6	Track	#113
Potentiometer adjusting knob	#6A	Top cover	#68
Indicator lighter	#5	Bottom cover	#106
Fuse set	#8	Heating isolated panel	#61
Fuse	#8A	Universal wheel	#63
Electrical box	#9	Motor kits	#120
PCB	#3	Motor	#103
Transformer	#69	Motor worm	#102
Gas flow kits	#10	Motor carbon brush	#104
Oxygen hose	#15	Sector kits	#121
AC hose	#14	Clutch kits	#122
Torch kits	#11	Gear box	#70
Nut locker	#12	Reduction box kits	#71
Oxygen valve kits	#24	Secondary rotating kits	#82
AC valve kits	#27	Shaft	#83
Distributor	#16	Secondary worm	#84
Holding set	#33	Worm wheel	#86
Long bar horizontal moving set	#34	Driving shaft	#72
Long bar	#41	Brass worm	#73
Vertical moving kits	#42	Secondary worm	#75
		Driving wheel	#79

# Exploded View Diagram



CG-100 TRACK TORCH BURNER MACHINE

