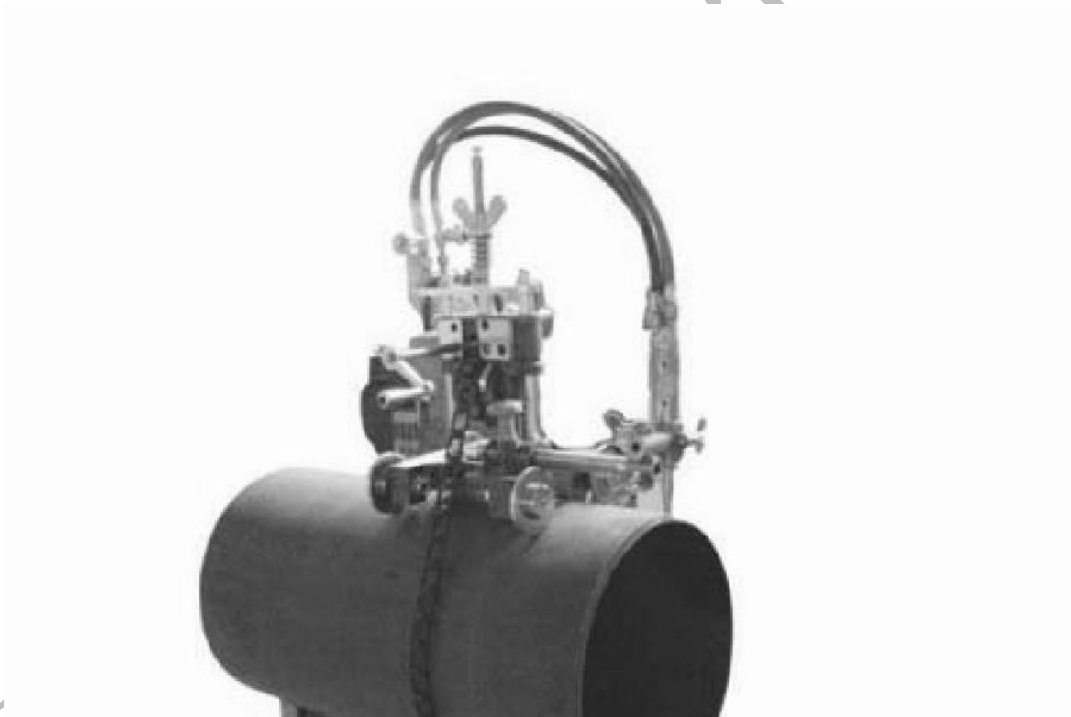


Volume

1.2

OPERATIONAL MANUAL

MODEL: **CG-211Y** PIPE TORCH/BURNER MACHINE



by BLUEROCK® Tools

CG-211Y 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.

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1033 Andover Park East, Tukwila WA 98188 USA
Phone 206.604.8363 • Fax 425.572.5167
www.bluerocktools.com

Table of Contents

<u>SAFETY</u>	1
<i>PRE-OPERATIONAL SAFETY CHECKS</i>	1
<i>OPERATIONAL SAFETY CHECKS</i>	1
<u>SPECIFICATIONS</u>	3
<u>INCLUDED ACCESSORIES</u>	3
ADDITIONAL ACCESSORIES FOR THIS MACHINE CAN BE FOUND IN BLUEROCK® TOOLS ONLINE SHOP AT WWW.BLUEROCKTOOLS.COM OR FROM YOUR LOCAL RETAILER.	3
<u>CUTTING TIP SPECIFICATIONS</u>	4
<u>OPERATIONS</u>	5
<i>PURPOSE</i>	5
<i>OPERATIONAL PRINCIPLES</i>	5
<i>MACHINE COMPONENTS</i>	5
<i>SETTING UP THE MACHINE</i>	6
<i>TRANSPORTING THE MACHINE</i>	7
<i>RUNNING THE MACHINE</i>	8
<i>PROPER LIGHTING OF GAS TORCH</i>	10
<u>TROUBLESHOOTING</u>	12
<u>GENERAL MAINTENANCE</u>	13

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 body of the machine and inspect for damage or defects.
- Examine the body and hoses of the cutting assembly.
- 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 fire, property damage and/or serious injury!
- DO ensure all non-essential people are clear of the immediate work area.
- DO keep body parts, clothing & power cords clear of turning/cutting pieces. Stay alert and use common sense when using this tool.

CG-211Y TORCH BURNER MACHINE

➤ DO shut off gas while changing cutting tips so as not to accidentally cause gas related injuries.
➤ 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.
➤ 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.
➤ DO NOT make adjustments to machine while the machine is running.
➤ DO NOT remove or modify grounding plug. Only to be used on a properly grounded circuit.
➤ DO NOT leave the flame running when not in use.
➤ DO NOT hold the work piece by hand or using body. Always mechanically clamp or secure.
➤ DO NOT allow flame too close to the machine body. This can cause machine components to fail.
➤ DO NOT allow flame to come in contact with power cords.
➤ DO NOT operate machine outside of machine specifications.
➤ DO NOT touch moving parts or cutting flame while the machine is running as death or dismemberment could occur.
➤ DO NOT stand under machine while running. The machine can fall and cause damage or harm to the user.
➤ DO NOT allow children or untrained personal to operate machine.
➤ DO NOT use this machine in the rain or a wet environment. If using outdoors, make sure the adhering surface is clean and dry.
➤ DO NOT cut into steel that may contain a live electrical wire/circuit.

Specifications

MECHANICAL DATA	
Forward or Reverse	Yes
Movement Type	Manual Hand Power
Wormwheel	Yes
Electricity Used	No
Cutting Tip Types	G02, G03 (similar to Airco Brand)
Minimum Pipe Cutting Diameter	4" (100mm) to 24" (600mm) with Chain Provided With additional chain there is no maximum pipe size.
Cutting Depth	Up to 2" Thick (5mm min to 50mm max)
Cutting Speed	Manual – Depends on user
Cutting Movement Precision	0.039" per 40" (1mm/1000mm)
Bevel Angle	0-45 Degrees
Machine Main Structure Material	Alloy-aluminum (Zl101)

SHIPPING DATA	
Shipping Weight	1) 32 lbs
Shipping Package Size	1) 13" x 13" x 17"

Included Accessories

DESCRIPTION	QTY
Instruction Manual	1
87" of Chain	1
Large Wheel (for smaller pipe)	2
Troch Bracket Assembly	1
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 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)
GO₂ Acetylene Cutting tip	#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
G0₃ Propane Cutting tip	#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

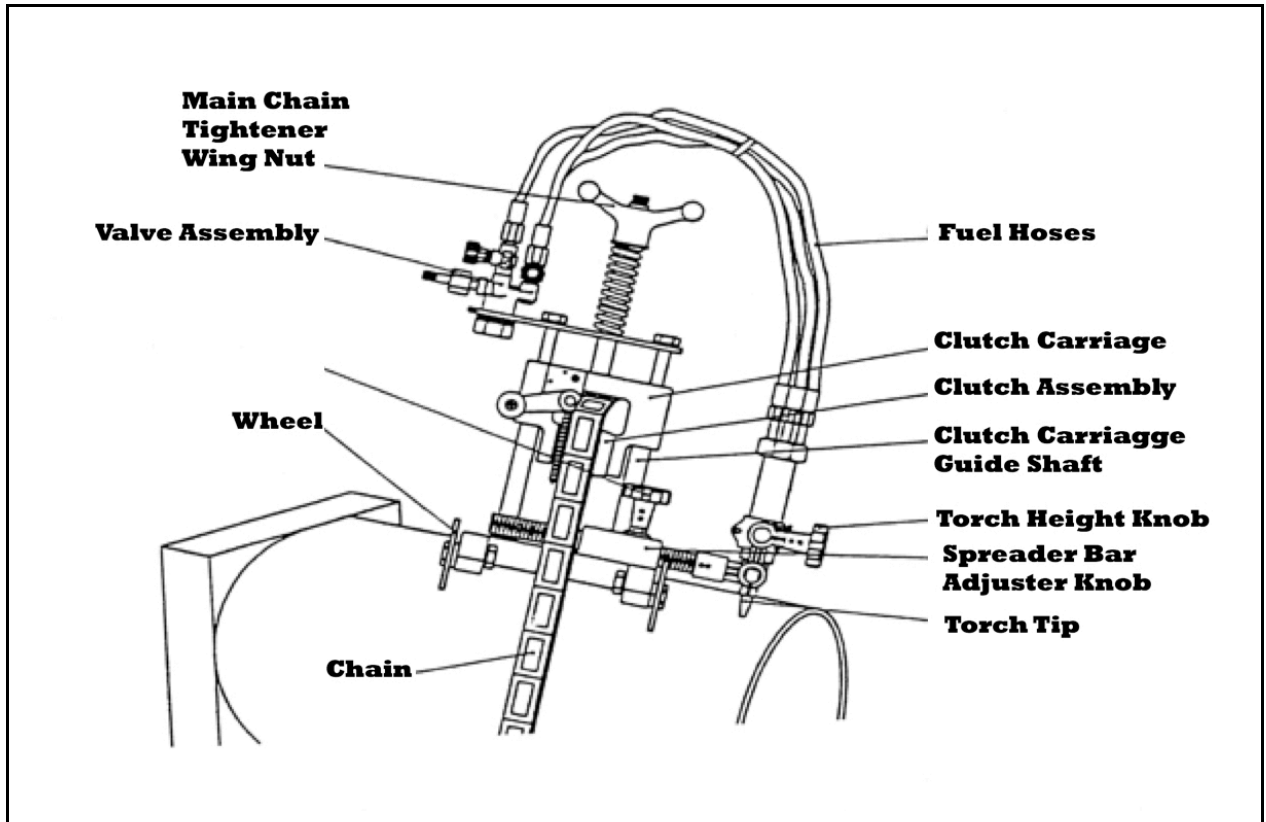
- The purpose of the CG-211Y is to cut steel pipe using oxy-acetylene or propane gas flame cutting. The machine is designed to cut straight and bevel cuts. This machine is used for seamless steel pipe cutting and beveling. It's suitable for work in outside areas where there is no electricity available.

OPERATIONAL PRINCIPLES

- When placed on pipe, 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 human power. Using the adjusting knobs on the machine, the user can raise or lower the torch holder.
 - **WARNING:** Be careful not leave the machine cutting unattended as it may fall from the end of the elevated work piece.

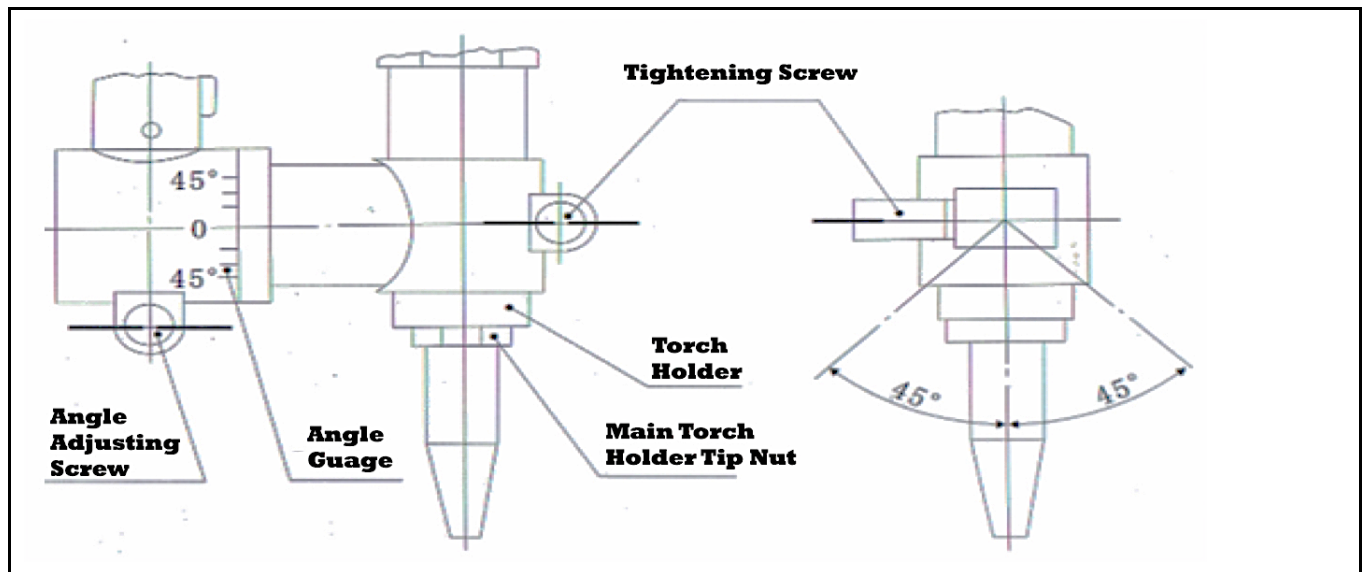
MACHINE COMPONENTS

- The main components of the CG-211Y are the clutch carriage, torch holder assembly, machine body, wheels and chain
- This machine has two primary adjusting knobs to position the torch holder.
 - These knobs are both located on the torch bracket assembly and main spreader bar (see figure below).
 - The spreader bar adjuster knob will adjust the torch holder left to right.
 - The side torch height knob will adjust the torch holder up or down.

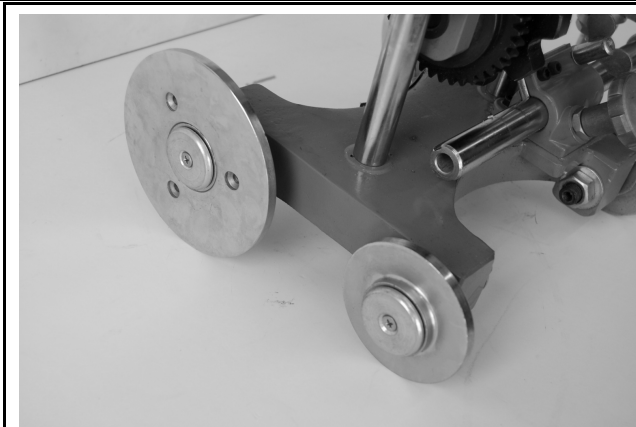


SETTING UP THE MACHINE

- Install the main spreader bar and the torch holder assembly.
 - Tighten the appropriate wing-nuts.
- Install the torch holder into the torch holder assembly.
 - 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”
 - For straight cuts, ensure the torch holder is square (see figure below).



- Tighten the valve assembly side onto the top of the flat steel bar left of the main chain tightener wing nut (see figure above). Ensure it is secured tightly.
- Install the large wheels if you are going to be cutting smaller pipe (see figure below).



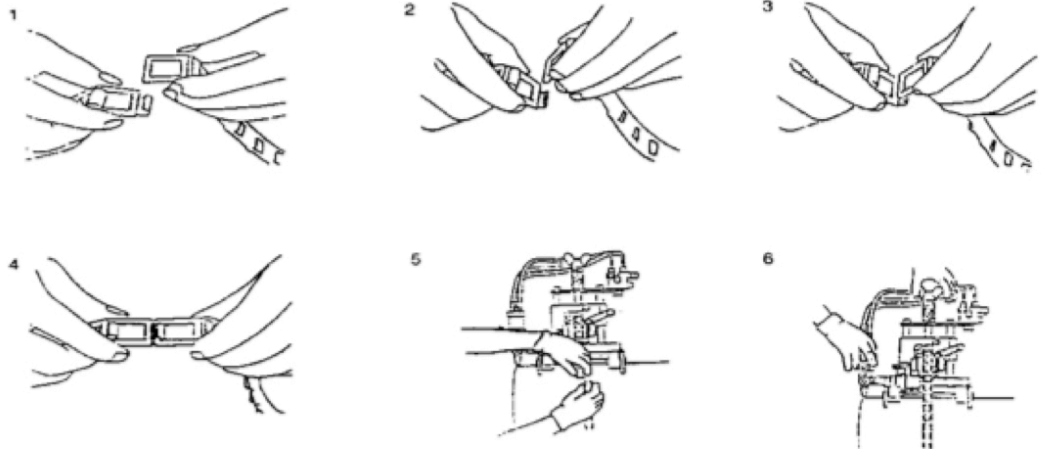
- **Note:** You do not want the middle of the machine to high center on smaller pipe, hence the need for the large wheels.

TRANSPORTING THE MACHINE

- When transporting the machine, always carry under the machine wheels.
- 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 on pipe.
- If transporting inside a vehicle, it is recommended to transport it on its side so as to avoid the item falling over. It is also recommended to protect the wheels from damage by placing on non-abrasive surface.
- **DO NOT** carry the machine by the hoses.

RUNNING THE MACHINE

- 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.
 - **WARNING:** 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.
 - **NOTE:** The machine will deviate from the cut if the material is not clean (bare) and seamless.
- Carefully place machine at the start of the cut ensuring the wheels gently make contact with the cutting surface. If cutting pipe, it is generally easiest to start at the top of the pipe.
- Adjust the main chain tightening wing-nut so that the clutch carriage assembly is in a low position.
- Loop the chain through the top of the clutch sprocket and around the pipe.
- Interlock the chain as in the illustration below.

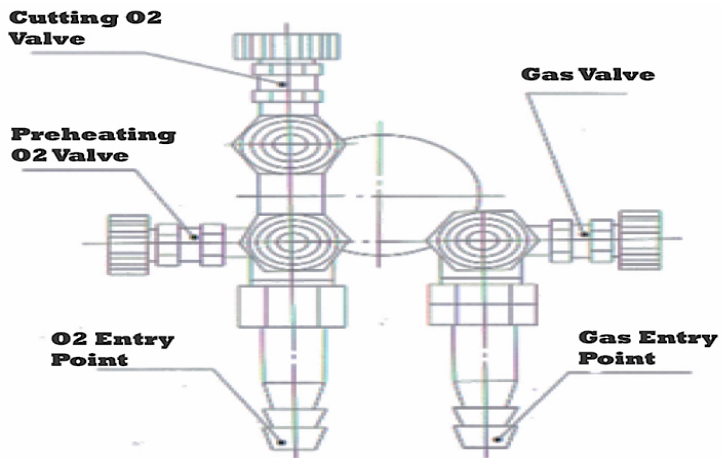


- Take out the appropriate number of chain lengths so the chain is moderately tight.
- A quick way to figure out the specific number of chain lengths to use can be found using the following equation:

$$D = d + 12$$

- D= The number of sections
- d= The diameter of pipe.

<ul style="list-style-type: none"> • 12= Constant 	
<ul style="list-style-type: none"> • Example: $d=299\text{mm}=29.9\text{cm}=30$ sections of chain. 	
	<ul style="list-style-type: none"> ○ $D=30+12=42$ Sections of Chain Total, So you would use 42 sections of chain for a pipe 299mm in diameter.
➤ Tighten up the main chain tightening wing-nut until the machine is adequately tight.	
	<ul style="list-style-type: none"> ○ Do not over-tighten wing-nut.
	<ul style="list-style-type: none"> ○ Ensure the chain is at a straight 90 degree to the pipe.
➤ Engage the clutch handle on the clutch carriage assembly. This should engage the worm-wheel and allow for activated movement when the handle is turned.	
	<ul style="list-style-type: none"> ○ Turn the handle to ensure movement
➤ Select appropriate size torch tips for the application. Install tip.	
➤ Select cutting angle.	
➤ Connect applicable gas lines.	
	<ul style="list-style-type: none"> ○ 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.
	<ul style="list-style-type: none"> ○ Ensure the lines are long enough to complete the cut you are planning.
	<ul style="list-style-type: none"> ○ ALWAYS use gas tank cylinders with properly outfitted regulators/flowmeters.
➤ Ensure the torch holder is not too close to the side of the machine body.	
➤ 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 though the material.	
➤ Cut material by rotating the worm-wheel handle.	
	<ul style="list-style-type: none"> ○ CAUTION: Make certain the user is clear of the flame when manually rotating the handle.
➤ When the cut is complete, stop the machine rotation.	
➤ Shut off the torch flame.	

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 and 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 $\frac{1}{2}$ 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.

Chapter

4

Troubleshooting

Note

SERVICING SHOULD ONLY BE DONE BY A QUALIFIED TECHNICIAN.

No	Problem	Cause	Solution
1	Leak gas and/or flame in the joint of torch and torch cutting tip.	1. The torch holder inlet is damaged. 2. There is copper burr or materials on the surface of the torch tip.	1. Softly grind the torch cone with small sand paper to clean out the burr. 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.
2	The flame goes out as soon as the oxygen valve is opened	The cutting oxygen leaked into the preheating oxygen area. 1. Copper stain or useless materials on the inner part of torch 2. The smaller cone of torch cutting mouth was stuck with some with material or was damaged.	1. Softly grind the most inner part of torch holder with sand paper to clean out the debris or damage. 2. Softly grind the smaller surface of the cutting mouth. Change the cutting mouth if it is serious damaged.
3	The steel can't be cut through	1. The torch cutting-tip is too small. 2. The flame frequency is not strong enough 3. Low pressure for cutting oxygen 4. The hole channel of cutting mouth may be jammed 5. The cutting oxygen is not pure. 6. The cutting oxygen was leaked into the preheating oxygen hole channel.	1. Choose the cutting tip spec according to the cutting thickness. 2. Increase flame frequency properly. 3. Properly increase the cutting oxygen to ensure the enough flow speed of cutting oxygen. 4. Clean the useless materials in the torch cutting mouth with cutting pin. 5. Use oxygen with more than 95% purity. 6. Clean the useless materials on the cutting mouth and torch, repair the damaged surface and change cutting mouth if needed.
4	The cutting is not straight enough.	1. The steel pipe was deformed. 2. The flame line was not straight. 3. Uneven pipe surface 4. The torch was poorly fixed and can be moved. 5. The chain is not straight	1. Use round steel and calibrate it before cutting. 2. The torch should have a 90° angle with the steel and tightly fixed. Clean the useless materials in the torch cutting mouth with cutting pin. 3. Fix surface irregularities. 4. Tighten all connections. 5. Straighten the chain.
5	The clutch will not engage.	1. The clutch carriage is damaged 2. The clutch is dirty	1. Repair or replace the carriage 2. Lubricate the clutch and ensure it moves freely

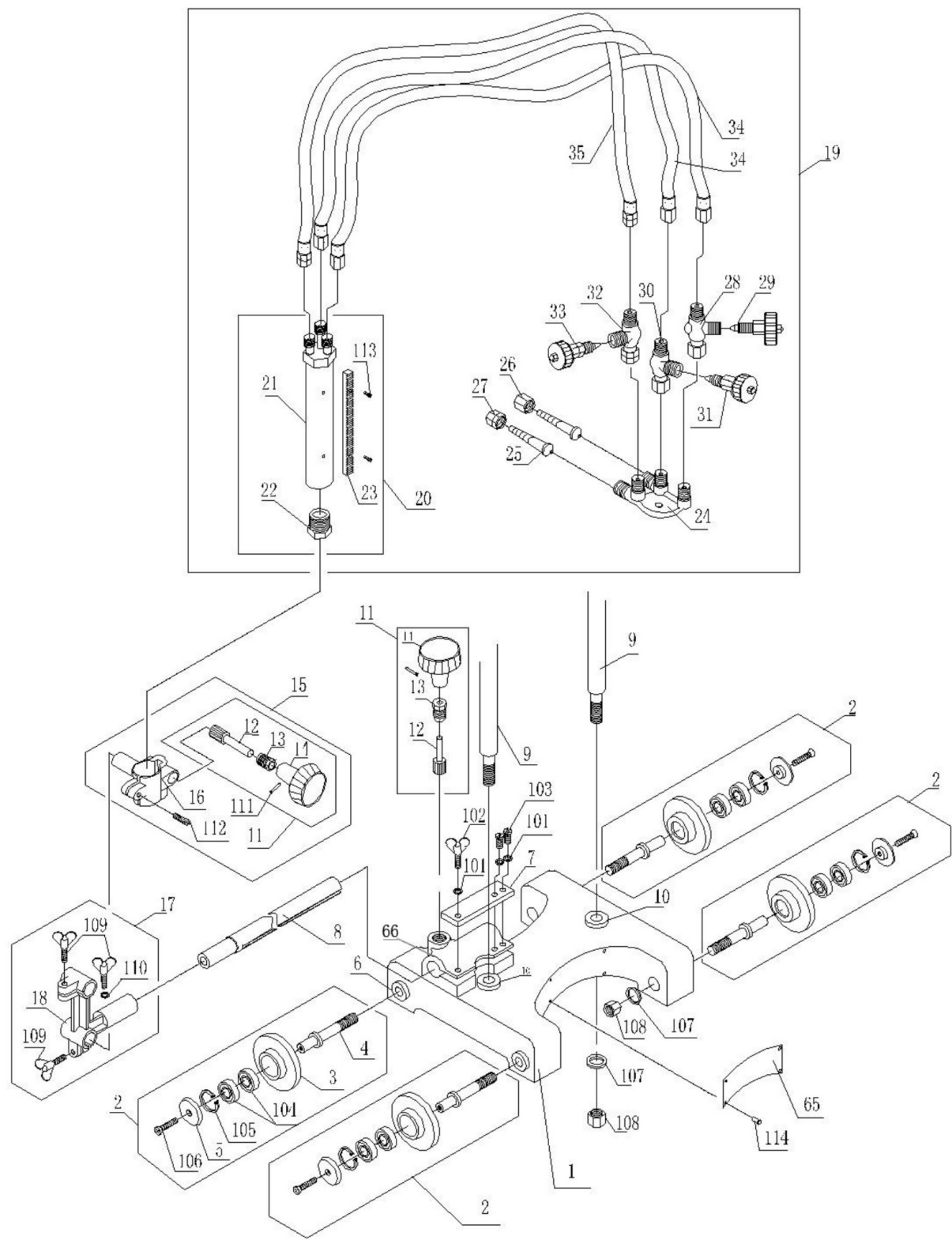
General Maintenance

➤	Inspect valve assembly connections.
➤	Lubricate all moving parts in the clutch assembly.
➤	Keep machine clean and free of debris.
	○ Make sure to frequently clean metal scraps from the roll wheels.
➤	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.
➤	DO NOT oil and connection points used in the gas/oxy system!

Parts List

Description	P/N	Description	P/N
Gas flow kits	#19	Torch clamber	#16
Torch kits	#20	Clamber holder	#17
Torch	#21	Horizontal moving bar	#8
Nut locker	#22	Horizontal moving handle kits	#11
Tooth bar	#23		#9
Oxygen hose	#34	Holder	#1
AC hose	#35	Running wheel kits	#2
AC hose	#32	Running wheel	#3
Oxygen valve	#28	Butterfly nut	#36
Oxygen valve adjusting handle	#29	Washer	#37
Oxygen valve	#30		#38
Oxygen valve adjusting handle	#31		#39
AC valve	#32	Hanging frame	#41
AC valve adjusting handle	#33	Rotating arm	#54
Distributor	#24	Rotating arm handle	#55
Nut+fitting	#25	Small cubic block	#52
Oxygen Nut	#26	Small cubic block	#53
AC Nut	#27	Clutch gear shaft	#63
Torch clamber kits	#15	Clutch kits	#56

Breakdown View



CG-211Y TORCH BURNER MACHINE

