

CIGWELD

AN ESAB BRAND

OPERATING MANUAL



COMET

Platecutter

WE APPRECIATE YOUR BUSINESS!

Congratulations on your new CIGWELD product. We are proud to have you as our customer and will strive to provide you with the best service and reliability in the industry. This product is backed by our extensive warranty and accredited service network. To locate your nearest distributor or service provider call 1300-654-674, or visit us on the web at **www.cigweld.com.au**.

This Operating Manual has been designed to instruct you on the correct use and operation of your CIGWELD product. Your satisfaction with this product and its safe operation is our ultimate concern. Therefore please take the time to read the entire manual, especially the Safety Precautions. They will help you to avoid potential hazards that may exist when working with this product.

YOU ARE IN GOOD COMPANY

The Brand of Choice for Contractors and Fabricators. CIGWELD is a Market Leading Brand of Arc and Gas Cutting & Welding Products for ESAB.

We are a mainline supplier to major gas cutting & welding industry sectors in the Asia Pacific and emerging global markets including; Manufacturing, Construction, Mining, Automotive, Engineering, Rural and DIY.

We distinguish ourselves from our competition through market leading dependable brands that have stood the test of time, technical innovation, competitive prices, excellent delivery, superior customer service and technical support, together with excellence in sales and marketing expertise.

We are committed to develop technologically advanced products to achieve a safer working environment for industry operators.



WARNINGS

Read and understand this entire Manual and your employer's safety practices before installing, operating, or servicing this product.

While the information contained in this Manual represents the Manufacturer's best judgement, the Manufacturer assumes no liability for its use.

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Comet Platecutter

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Record the following information for Warranty purposes:

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SECTION 1: GAS EQUIPMENT SAFETY INSTRUCTIONS AND WARNINGS

The information shown under this note must be followed carefully to avoid injuring the operator or anyone in the operating area.

When an accident does occur with gas equipment, it's usually due to the operator having become careless through over-familiarity. Remember, the safest of equipment, if wrongly handled, can cease to be safe. For safe welding and cutting check and re-check the points in this article. Each point is there for a purpose.



1.01 Personal Safety

Be neat and clean about your work. Maintain your equipment in good condition. Wear goggles with the correct shade filter when using gas equipment. Goggles protect your eyes against sparks and injurious rays. It is essential that the goggles and filters are of a type intended for cutting work. Quite apart from safety, they help you see your work better. Wear suitable gloves, aprons, shoes and protective clothing. Watch for sparks in sleeves, cuffs and open pockets. Never use oxygen to dust clothes or work. Use a flint lighter or pilot light to light blowpipe. Never use matches. Keep flame, sparks or metal away from cylinders and tubing. When working with lead, lead bearing materials, steel coated with lead paints, cadmium-coated materials or any objects containing metals giving off toxic fumes, always use a suitable respirator.



1.02 Cylinders – General

Industrial gas cylinders are made to rigid specifications and are inspected each time they are refilled by your supplier. They are safe – if properly handled. All Government and insurance regulations relating to the storage of oxygen, acetylene and LPG cylinders should be closely observed. Keep all cylinders, empty or full, away from radiators, furnaces and other sources of heat. Also avoid contact with electrical circuits. **Keep oil and grease away from cylinders.** Cylinders standing in the open should be screened against direct rays of the sun. Protect cylinders valves from bumps and falling objects. Keep the valves clean, free from oil, grease and all foreign materials. Close cylinder valves when not in use, when empty, or when moving cylinders. Always remove regulators when moving cylinders. Be sure the cylinder valve is tightly closed before removing regulators. Never allow anyone to strike an arc or tap an electrode against any cylinder. Never try to fill a cylinder or mix gases in a cylinder. Never tamper with or alter cylinder numbers or markings. Never use cylinders as supports or rollers. When transporting cylinders using a crane, do not use slings- use a cylinder cradle. Never draw gas from cylinders except through properly attached pressure regulators or equipment designed for the purpose. If damaged, send the regulator to the supplier or appointed agent for repairs. If unable to make a gas-tight seal between the cylinder valve and a regulator spigot, first check whether the spigot nut is tight. If so check the regulator spigot. If the cylinder valve is damaged notify the gas supplier. Never insert washers of lead or other material between the regulator and the cylinder valve. Never use oil or grease on these connections. Use only standard cylinder keys to open cylinder valves, never extend the length of these keys under any circumstances. If valves cannot be opened by hand, do not use a hammer or wrench; notify the supplier. Open all cylinder valves slowly. Leave cylinder key in position when fuel gas cylinder valves are open.



1.03 Oxygen Cylinders

Oxygen cylinders are steel shells of ample strength for their purpose. Besides routine inspections, they periodically undergo a searching examination, which includes a hydraulic pressure test. Always call oxygen “Oxygen” not “Air”. Never use oxygen in pneumatic tools, in oil pre-heating burners, to start engines, to blow out pipelines or to freshen the atmosphere in confined spaces.

In short, under no circumstances use oxygen as a substitute for compressed air or other gases.



1.04 Acetylene Cylinders

Acetylene cylinders contain porous material, which is impregnated with acetone. The acetylene is dissolved under pressure in this acetone. All acetylene cylinders are fitted with fusible plugs. These are designed to vent the cylinder contents in the event of an unsafe condition arising in the cylinder due to any cause such as overheating or decomposition arising from either incorrect operating technique, faulty equipment alone, or in conjunction with excessive temperature. In the event of a safety device functioning, always notify the supplier. The reason for the device operating always warrants special investigation. Always call acetylene “acetylene” not Gas. Always keep acetylene cylinders upright, whether in use or in store, full or empty. Always keep acetylene cool, store them upright in a well protected, well ventilated dry location, away from highly combustible materials and oxygen cylinders. Should an acetylene valve leak around the spindle, close the valve and tighten the gland. If this fails, or if the fusible plug is leaking, remove cylinder to open air. Keep the cylinder well away from anything which could possibly set the escaping acetylene on fire. Tag the cylinder to explain the trouble. Notify suppliers at once. If acetylene, escaping from a leaking cylinder valve gland or from an improperly seated regulator spigot ignites, immediately close the cylinder valve. If this is impossible, treat from point two below. If an acetylene cylinder is heated accidentally or becomes hot through severe flashback, or other cause, action should be taken promptly in the following manner:

- Shut the cylinder valve
 - Clear all personal from the area
 - Cool the cylinder with a copious supply of water and notify the fire brigade
- NOTE:** The person directing the fire hose should be protected behind some suitable shelter. If the safety device functions and the issuing gas ignites, cool the cylinder as above, but avoid extinguishing the flames. If the escaping gas does not ignite, care must be taken to avoid an air/acetylene explosion. No source of ignition must be permitted to enter the area. Existing sources of ignition should be rendered safe.
- Continue cooling the cylinder with copious quantities of water until it is quite cool. This maybe determined by removing the cooling water at intervals and watching whether the water on the cylinder fries off, or whether the cylinder remains wet.
 - Notify the supplier
 - In cases where the supplier’s representative is unavailable or cannot reach the scene of the incident within half an hour, the cylinder may after this period be removed carefully to an open space away from buildings and any source of ignition provided it remains cool and wet.
 - The cylinder valve should then be opened until the cylinder is empty. During this period a copious quantity of water should be poured on the cylinder.
 - When the cylinder is empty check whether the cylinder is cool, if so, close the valve.



1.05 LPG Cylinders

LPG cylinders are provided with relief valves or fusible plugs to discharge their contents and keep the cylinder pressure within safe limits should the cylinder be overheated by a fire. LPG cylinders should be used and stored upright in the open, away from combustible material. Do not store LPG cylinders with oxygen cylinders. Do not store LPG cylinders closer than 1.5 m horizontally from any opening into a building. If LPG cylinder valve leaks around the spindle, or if the relieve valve or fusible plug is leaking, remove the cylinder to open air away from buildings and sources of ignition; tag the cylinder to explain the trouble; notify the supplier as soon as possible. If LPG escapes from a leaking cylinder valve gland or from a regulator spigot ignites, immediately close the cylinder valve. If LPG escaping from a fusible plug ignites, direct a fine water spray at the cylinder and surrounding equipment. On no account should the flame be extinguished, since escaping unburned gas in a confined space may re-ignite and cause an explosion. LPG is not toxic and is odourless, but an odorant is added to give a distinctive smell. If the distinctive odour is detected an immediate check should be made for leaks. Soapy water is recommended for this purpose. As soon as the leak is located, turn off the LPG cylinder valve and tighten or repair the equipment. If LPG is leaking do not strike matches or operate any electrical appliance in the vicinity. Remove all sources of ignition and open all doors and windows. Do not attempt to relight LPG until all traces of LPG odour have disappeared. Remember, LPG is heavier than air and will remain in open containers, cellars and confined spaces for a considerable time.



1.06 Regulators

Do not work with damaged equipment. Have leaking or damaged equipment repaired by an authorized repair agent. Give your gas equipment the care you would give any other dependable tool. Do not use oil or grease on any regulator. Do not handle equipment with an oil rag, oily gloves or hands. Keep your equipment clean. Never use regulators for purposes other than that for which they were intended. Inspect connections and all seating surfaces on regulators before use. Damaged connections can cause leaking or flashbacks. Never hang a blowpipe or tubing on a regulator or cylinder valve. Crack cylinder valves before attaching regulators. Cracking means to open the valve a little, then immediately close, to blow out dust or foreign matter. Cracking should always be done gently. Never crack a fuel gas valve near other welding works, sparks or open flame. **Never crack a Hydrogen cylinder as this can cause the gas to self-ignite.** Never force connections. Be sure all connections are tight. Never test for leaks with a flame. Never try to connect a regulator to a cylinder containing gas other than that for which the regulator is meant. Never subject the regulator to inlet pressures greater than its rated inlet pressure, as shown on regulator body and associated literature. If a regulator shows excessive creep (pressure build-up when blowpipe valves are closed), close cylinder valve and have regulator repaired at once. Quite apart from risks, creeping regulators lead to poor work. Pressure build-up in excess of 35 kPa is to be regarded as excessive and call for immediate attention. Periodically, have pressure gauges on regulators tested for accuracy. Ensure before using that regulators have both a cylinder pressure and a delivery pressure gauge in working order. Before opening cylinder valves always fully release regulator adjusting knob (turn fully anticlockwise). A sudden pressure rise in a regulator whose adjusting knob is screwed in puts a heavy strain on the mechanism and may cause damage. Never release the regulator adjusting knob while there is pressure in the tubing. If the pressure gauge indicator fails to return to the stop when pressure is released, have the gauge checked.

Always take care to keep the regulators free of oil and grease. Oil and grease should be removed chemically by a qualified repair technician. Never use oil or grease on the regulator, cylinder or manifold connections. Do not change the inlet connection on a regulator in an attempt to use the regulator for a different gas service.

Gasguard™ safety device (where fitted to selected regulators)

Gasguard™ is a non-return valve that completely seals off the gas should the regulator break from the cylinder. In order for this to operate correctly it must be used in conjunction with the extended nut provided with the regulator. Failure to do so could result in the Gasguard feature not operating in line with its intended design function.



1.07 Flashback Arrestors

A flashback occurs when mixed gases within a cutting and welding blowpipe system ignite and, due to several possible reasons burn back through the system against the flow of gas. The consequences of a flashback range from sooting of the hose, to serious equipment fires and possible explosion. Low operating pressures, inadequate gas supply, damaged equipment or poorly maintained equipment substantially increase the likelihood of flashbacks occurring. Flashback arrestors correctly used virtually eliminate the possibility of a flashback causing harmful damage.

CIGWELD's market leading range of COMET flashback arrestors conform to national and international standards (AS4603, EN 730, ISO 5175 - Connection fittings to AS4267) and are manufactured under an ISO9001 accredited quality management system. This comprehensive range includes products suitable for all applications.

CIGWELD's COMET flashback arrestors have been designed with state of the art technology to provide the ultimate protection and virtually eliminate flashbacks because it is impossible to either predict or completely eliminate the potential hazard of a flashback.

Standards

Australian Standard AS 4267 - 1995 Pressure Regulators for use with Industrial Compressed Gas Cylinders recommends flashback arrestors be used in Oxy-fuel gas applications. Australian Standard AS 4289 - 1995 Oxygen and Acetylene Gas Reticulation Systems, specifies the use of flashback arrestors in Oxy-fuel applications. AS4603 is a new standard for flashback arrestors only. Make sure the flashback arrestors you use now have this labelled on them.

Testing

AS 4289-1995 states flashback arrestors shall be tested annually, this can be done by one of CIGWELD's extensive network of accredited service agents. Flashback arrestors should also be tested if they have been subjected to backfiring and flashbacks. Contact your nearest distributor for advice on the correct type of flashback arrestors that should be fitted to cater for your application(s)

NOTE: In Western Australia the Occupational Safety and Health Regulations 1996 (Reference 3.98) requires flashback arrestors to be fitted at the outlet side of each regulator or gas discharge of a manifolded cylinder pack; and at the blowpipe. This is also supported by Australian Standard AS 4839 that recommends the use of flashback arrestors and list 3 options in order of preference for their fitment. CIGWELD recommends fitting flashback arrestors to both the regulator outlet and blowpipe inlet connections, providing the ultimate protection for the operator.



1.08 Gas Welding Hose

Gas welding hose is an essential yet vulnerable link in the system that provides flexibility and freedom of movement for the operator. Quality hoses, such as CIGWELD's COMET hoses, which comply to Australian Standards, are designed and manufactured to safely withstand high pressures, crushing, contact with certain chemical compounds, contaminants, ignition as well as burning, and environmental abuse. Hoses however are the weakest point of the Oxy-fuel system and provide potentially the greatest source of gas leaks. As a result, only quality hose which complies to AS 1335 - 1995 should be used (in conjunction with compatible hose fittings), so as to maximise the safety and durability of this part of the system. Welding hoses which comply to Australian Standards are colour coded to the gas for which they are to be used (Red-Acetylene, Blue-Oxygen, Orange-LPG, and Black-Inert).

Hose assemblies should be checked regularly for gas leaks, signs of external damage, perishing and for fit up to the hose fittings. If required the necessary repairs or replacement should be made immediately. For large flow applications and long lengths of hose 10mm or 13mm bore hose should be used.

Pressure Drop

Pressure drop simply means that for gas to flow through the hose, for a given pressure at the beginning of the hose (eg. at the regulator), the pressure at the other end of the hose (eg. at the blowpipe) will be less. For a given flow and length of hose, the pressure drop in a small bore hose, will be greater than in a larger bore hose. This means, that wherever possible, hose lengths should be kept to a minimum and hose bore diameters kept to a maximum. Doing so will reduce the amount of pressure drop, therefore minimising the chance of affecting the performance or stability of the process flame. Minimising hose lengths also provides greater protection to the hose against damage. Excessive pressure drops can starve a tip or nozzle of an adequate gas supply, which in turn can lead to reduced flame intensity, backfiring or flashbacks.

Hose Fittings

The design of the hose connection must provide high mechanical strength and resistance to leakage under a wide range of conditions. Further, non-interchangeability of hose fittings is maintained by using a right hand (RH) thread for Oxygen and a left hand (LH) thread for fuel. CIGWELD's COMET hose fittings fulfil all of these important requirements. Dimensions for hose fitting connector nuts and nipples are given in AS 4267.

**1.09 Electrical System**

Ensure that the supply voltage does not vary more than $\pm 10\%$ of the rated voltage, as this may cause a breakdown.

Ensure the power cable machine connection is fully screw on and tight.

Stop operation and turn off the power in the following cases, and have a qualified electrician to repair the machine.

- Broken or abraded cable.
- When the machine has been in contact with water, or in case of liquid damage to machine.
- Abnormal machine operation despite operating the machine according to this operating manual.
- Poor performance or machine breakdown.

SECTION 2: INTRODUCTION

2.01 BOX CONTENTS

The Comet Platecutter Box comes complete with the components listed below. Ensure when unpacking the box that all components are present.

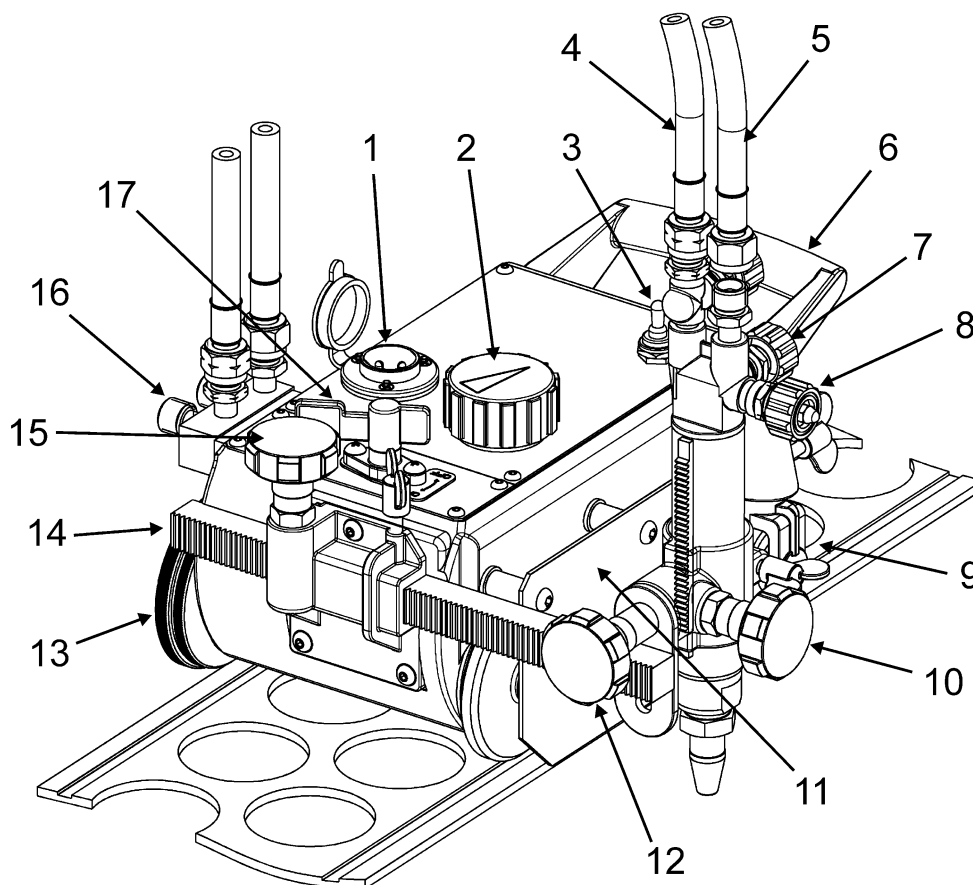
- 1 x Comet Platecutter
- 1 x Operating Manual
- 1 x Torch Holder with Rack
- 1 x Torch
- 1 x Gas Distributor
- 1 x Twin Hose 600 mm
- 1 x Power Cord
- 1 x Nozzle Type 41 Size 8
- 2 x Rail 1.8 m
- 2 x Hose End Fittings
- 2 x Spanner
- 1 x Tip Cleaner
- 1 x Hex Key

2.02 GAS REQUIREMENTS

This Comet Platecutter is suitable for use with oxygen/acetylene gases only. Cylinders of these gases are available in various sizes dependent upon your usage requirements. Your local gas distributor will be able to assist in obtaining the suitable grades of gases and cylinder sizes required for this Platecutter.

SECTION 3: INSTALLATION AND USE

3.01 PRE-OPERATION HANDLING PRECAUTIONS



1	Power input socket	10	Torch up/down handle
2	Speed adjustment knob	11	Heat shield
3	Switch stop/forward/reverse	12	Holder fixing handle
4	Fuel hose (red/orange)	13	Drive wheel
5	Oxygen hose (blue)	14	Rack bar
6	Handle	15	Cross feed handle
7	Preheat oxygen valve	16	Gas distributor
8	Cutting oxygen valve	17	Clutch
9	Idle wheel		

Specifications

Machine Size	370 x 140 x 165
Wheel distance	160 mm
Cutting thickness	Up to 100 mm
Cutting shape	Square and bevel (up to 45°)
Power source	240 VAC \pm 10%
Reduction gear	Single cone system
Motor speed	1500 rpm
Nozzle	Type 41

- The machine case is made mainly from aluminium alloy for lightness, so can be damaged by shocks and impacts. Therefore, take care not to let heavy objects fall on the machine and do not drop the machine when moving it.
- Have the motor turning when adjusting the speed.
- Always keep the rail surface clean to prevent knocking. Pay special attention to places along which the wheels pass. Also, be careful not to damage the drive wheel or idle wheel.
- Take care that the path of the machine is not hindered by the hoses running from the regulator to the distributor connection.
- Always make sure the cutting tip is fastened tightly to the torch. Be careful when handling the cutting tip not to damage the tapered section.
- **WARNING** – Never use the machine outdoors in wet weather. This may cause electric shock and damage the machine.
- Never move the machine when the pre-heat flame is on
- When moving the rail, be sure to take down the machine body off the rail.

3.02 TESTING FOR LEAKS BEFORE USE

After assembly and before use, it is recommended that the following procedure be adopted to check for leaks.

- Before opening the cylinder valve, turn the Regulator adjusting knob fully anti-clockwise until there is no pressure on the internal adjusting spring and the knob turns freely.
- Ensure all valves on downstream connected equipment are closed.
- Stand to the side of the cylinder opposite the Regulator adjusting knob before opening the cylinder valve. Keep the cylinder valve between you and the Regulator.
- Open the cylinder valve slowly - if opened quickly, a sudden pressure surge may damage internal Regulator parts. Set the Regulator to show approximately 100 kPa on the delivery gauge, by turning the adjusting control knob clockwise.
- Close the cylinder valve.
- Turn the adjusting knob anti-clockwise one turn:
 - a) If the high pressure (cylinder contents) gauge reading drops, there is a leak in the cylinder valve, inlet fitting, or high pressure gauge.
 - b) If the low pressure (delivery) gauge drops, there is a leak in the downstream equipment, hose, hose fitting, outlet fitting, or low pressure gauge. Check for leaks using a suitable leak detection solution.
 - c) If the high pressure gauge drops and the low pressure gauge increases at the same time, there is a leak in the internal Regulator seat.
 - d) If the Regulator requires service or repair, refer to Section 5.
- If there are no leaks found, then the system is ready for use.
- Repeat test for the second gas system (where applicable)

**IMPORTANT:**

This test should be done quickly, and it is important that there are no sources of ignition present during this process, as a certain amount of gas will be released to the atmosphere. If no leaks are detected, the system is ready for use. In an Oxy/Fuel system, particular care needs to be taken to ensure that gases are not mixed, as this may lead to flashback upon lighting up. If leaks are detected in the system, then the joint should be re-tightened and re-tested, or the leaking item replaced. If any leaks are detected from a torch, it should be returned to the distributor from which it was purchased.

3.03 AFTER COMPLETION OF USE (SHUT-DOWN)

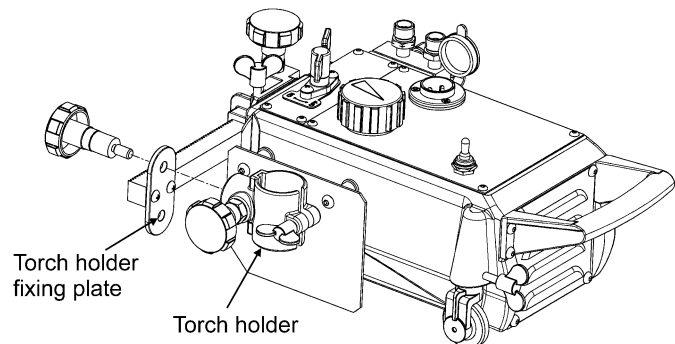
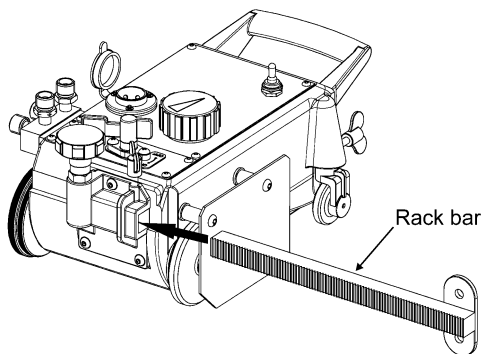
- Close the cylinder valve whenever the Regulator is not in use. To shut down for extended periods (more than 30 minutes):
 - a) Close the cylinder or upstream valve tightly.
 - b) Open the downstream equipment valves to release all gas pressure from the system. Bleed gas into a well ventilated area and away from any ignition source.
 - c) After gas is drained completely, turn the Regulator adjusting knob anti-clockwise until there is no pressure on the internal adjusting spring and the knob turns freely.
 - d) Close the downstream equipment valve.

SECTION 4: CUTTING OPERATION

4.01 ONE TORCH SET

Follow the instructions below to prepare your machine for operation:

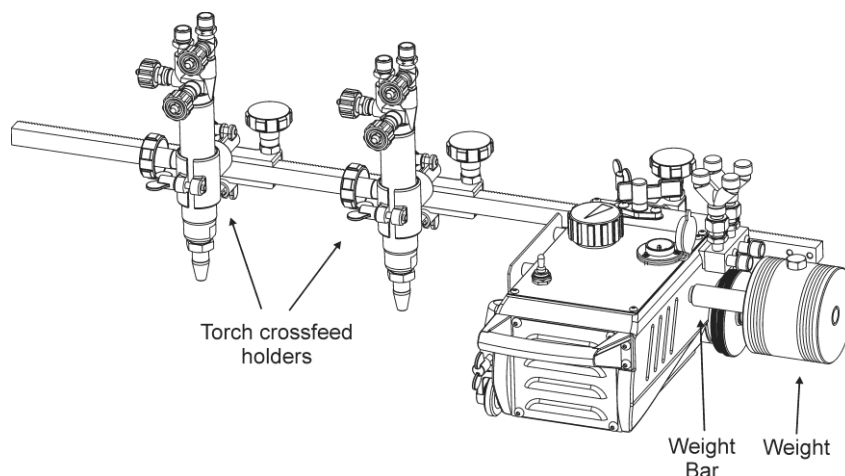
1. Gently remove the machine from its case and set it on the rail.
2. Assemble the torch set parts in the following order;
 - a. Insert the rack bar into the main unit in the direction of the arrow.



- b. Fit the torch holder onto the rack bar as shown.
 - c. Fit the torch into the torch holder and adjust the torch up/down setting.
 - d. Fit the hoses between the torch and gas distributor connection. (The blue hose has a right-hand thread, and the fuel hose has a left-hand thread).
 - e. When the torch stroke is insufficient to cut the plate beneath the rail when carrying out lower-edge preparation, change the torch holder to the position indicated by the arrow.
3. Refer to the Cutting Data (see page 19) to select the right cutting nozzle for the thickness of steel plate to be cut.
4. Always use two spanners to tighten the nozzle on the torch. This is to avoid damaging the torch.

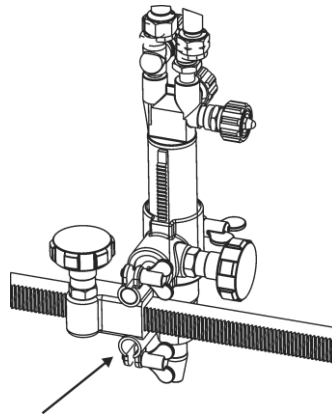
4.02 TWO TORCH SET

1. Insert the rack bar into the main unit in the direction of the arrow.



2. Fit the two cross-feed torch holders onto the rack bar.
3. Position and fix the torch holders into the cross-feed holders, then fit the torches.

4. Fit the gas Y-pieces onto the main unit and connect the 600 mm (24") and 900 mm (36") hoses from the distributor to the two torches.
5. Fix the weight bar and weight.
6. When the torch stroke is insufficient to cut the plate beneath the rail when carrying out lower-edge preparation, change the torch holders to the position indicated by the arrow.



4.03 PREPARATION FOR OPERATION

1. After fixing the nozzle to the torch, adjust the gas pressure to the standard settings shown in the Cutting Data (see page 19). (Confirm first that all torch valves are closed.)
2. Ensure the switch on the machine is **OFF** and connect the power cord to the body and power supply.
3. Refer to the Cutting Data to find the correct cutting speed.

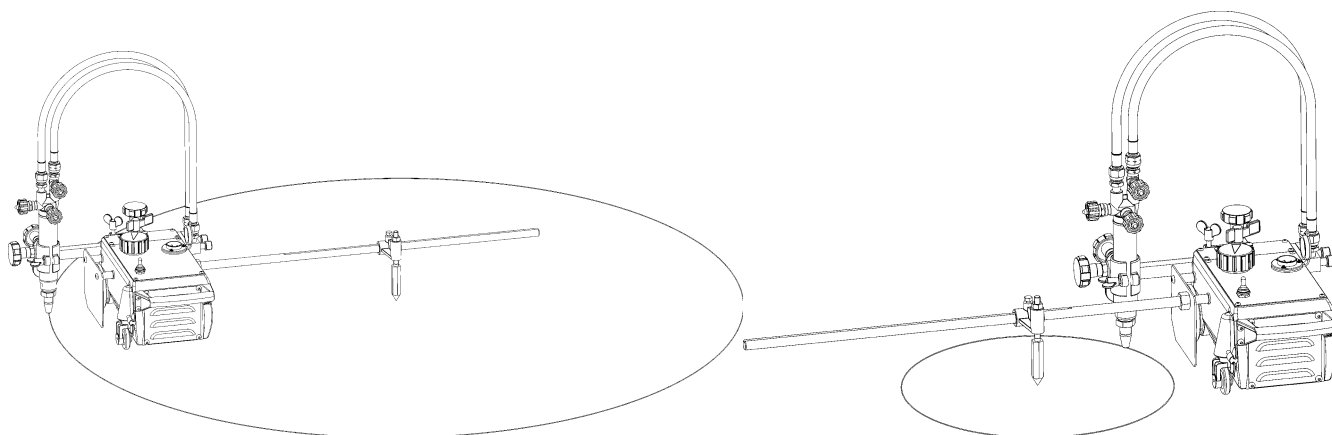
4.04 OPERATION

1. Align the nozzle with the scribed cutting line.
2. Open the fuel gas valve, slightly open the preheat oxygen valve and ignite the torch with the lighter. Next, fully open the gas valve and adjust the preheat oxygen valve to obtain a neutral flame.
3. Adjust the distance between the nozzle and plate. (This distance should be ~2-3 mm from the white tip of the flame.)
4. Engage the clutch, and after sufficiently preheating the plate, open the cutting oxygen valve and put the direction switch forward or reverse to start cutting.
5. After cutting has started, observe the condition of the cut carefully and adjust the cutting speed to the optimum level.
6. When cutting has finished, close the cutting oxygen valve, turn off the direction switch, close the fuel gas valve, then the preheat oxygen valve and return the clutch to the "stop" position.

Note: Check that the flow of cutting oxygen is at right-angles to the plate. For a proper cut, base gas pressures in accordance with the settings given in the Cutting Data (see page 19). However, carry out pressure corrections in accordance with the cutting conditions.

4.04 CIRCLE CUTTING ATTACHMENT

1. Attach radius bar and pivot for cutting large or small circles as shown.



2. Adjust the height of centre pivot pin so that the drive wheel at the centre side is 1.0mm above the work piece.
3. Align the pivot pin with the centre of the circle.
4. Loosen the butterfly screw and fix the idle wheel to an angle suitable to the cutting radius.

SECTION 5: MAINTENANCE AND INSPECTION

5.1 Daily Inspection

1. Wipe the exterior of the machine with a clean cloth.
2. Lubricate the shaft of the idle wheel with machine oil.
3. Clean the outer surface of the drive wheel with an oily cloth.

5.2 Monthly Inspection

1. Lubricate the cross-feed handle shaft and the clutch lever.
2. Measure the insulation resistance between the machine body and the power plug by tilting the switch toward either "Forward" or "Reverse. It must read over 5K Ω .
3. Remove the operation panel and clean the electrical parts inside.

5.3 3-Month (2000-hour) Inspection

1. Remove the motor and speed change cone and replace the old grease inside the gear box with new grease.
2. Completely remove oil, if any, from the motor disc and speed change cone with thinners, etc.

SECTION 6: TROUBLE-SHOOTING

Backfire and Flashback

The most basic problems involve backfire and flashback. While the two terms are often confused, strictly speaking backfire is when the flame ignites momentarily inside the torch and then goes out, or goes out and re-lights (punching backfire), whereas flashback refers to the flame burning continuously inside the torch (sustained flashback).

1. Backfire – causes

- a) Incorrectly adjusted gas pressures.
- b) Overheated nozzle.
- c) Slag sticking to nozzle.
- d) Tapered seat of nozzle or torch are damaged.

Should backfire occur, find the cause and take appropriate action before using the machine again.

2. Sustained Flashback

If the flame disappears back into the torch and burns there (making a soft, hissing sound), shut the valves off in the following order immediately.

Preheat Oxygen \longrightarrow Fuel Gas \longrightarrow Cutting Oxygen

As with backfire, find the cause and take appropriate action before using the machine again.

1. Carriage does not move. (Motor does not run).

	Possible cause	Procedure	Remedy
1	No electrical power	Check power source and connections.	
2	Broken power cord	Use a circuit tester to check the cord. If the tester shows ∞ , the power cord is broken.	Repair or replace the broken cord.
3	Faulty plug	Check the wire soldering.	Resolder the wire.
4	Faulty switch	Remove the mode terminal and test the switch.	Replace faulty switch.
5	Faulty condenser	Check the condenser with a tester. If the tester handle slightly vibrates and shows ∞ immediately, the condenser is normal.	Replace faulty condenser.
6	Faulty connection	Check soldering.	Resolder faulty connection.
7	Broken lead wire	Test each lead wire.	

8	Faulty motor windings	A faulty motor is indicated if all the above tests results are normal.	Repair or replace the motor.
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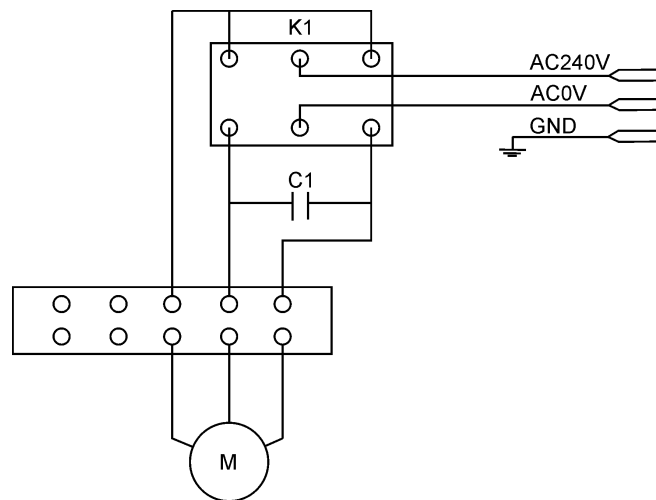
2. Carriage does not move. (Motor runs).

	Possible cause	Procedure	Remedy
1	Faulty clutch	Remove the clutch and check the inside mechanism.	
2	Cone friction slips	Check the spring or greasy friction face.	Replace the spring or clean surface with thinners, etc.

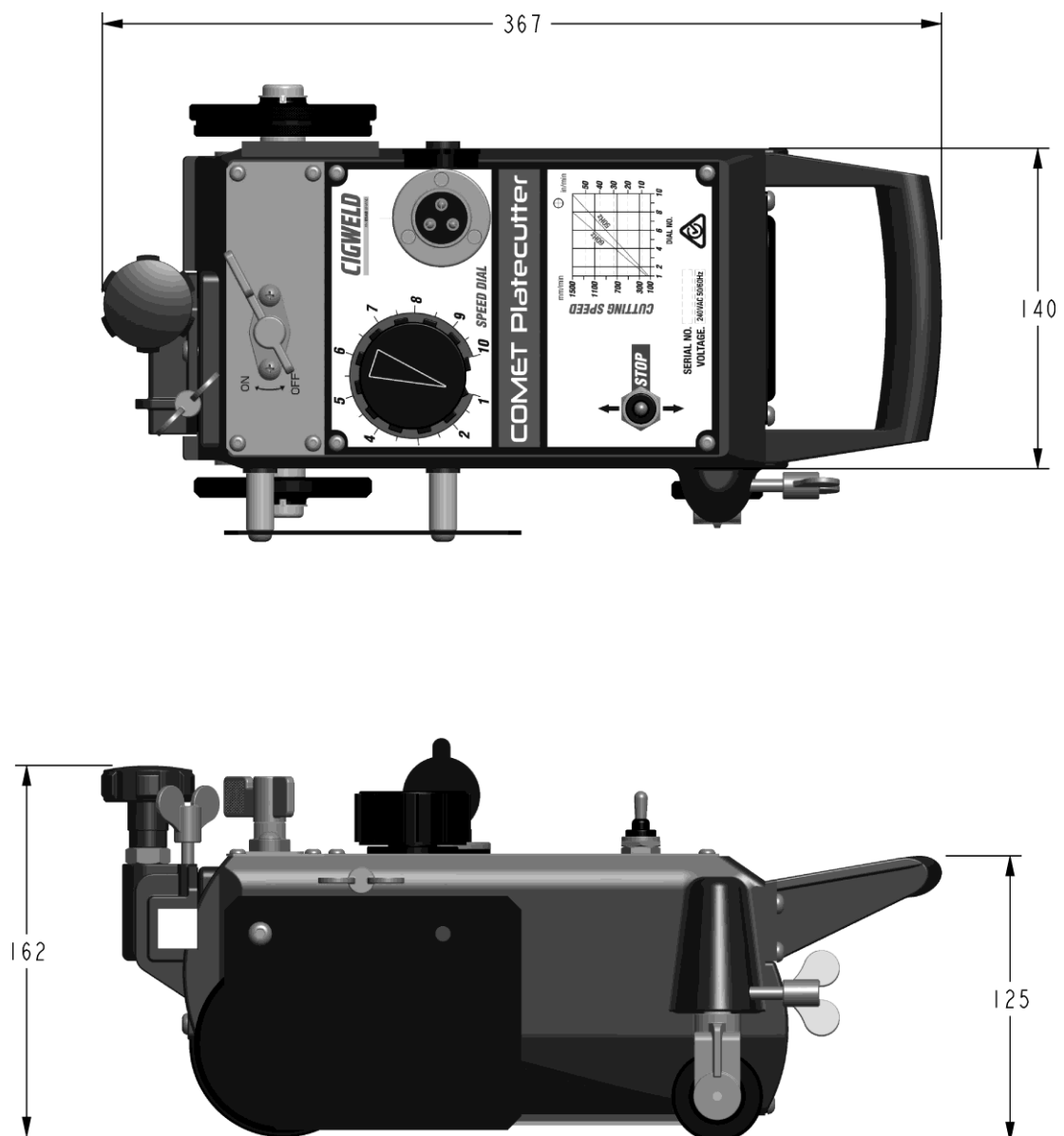
3. Abnormal Carriage.

	Possible cause	Procedure	Remedy
1	Severe vibration and noise	a.) Foreign matter caught in gear. b.) Gear worn. c.) Motor faulty. d.) Cone worn or damaged.	Repair or replace. Replace. Repair or replace. Replace.
2	Clutch not disengaging	Snap ring of the clutch pin is off.	Replace.
3	Knocks	a.) Gear worn. b.) Faulty clutch pin. c.) Clutch key worn. d.) Loose shaft or drive wheel. e.) Worn or damaged cone. f.) Heat shield touches the work surface or rail. g.) Damaged rail or foreign objects on rail. h.) Hoses or power cord interferes with carriage movement. i.) Faulty idle wheel. j.) Foreign matter is attached to drive wheel, or wheel is damaged.	Replace worn gear. Replace faulty pin. Repair or replace worn key. Repair or replace. Replace. Exercise caution. Repair or clean. Exercise caution during operation. Repair or replace. Repair or replace.

SECTION 7: WIRING DIAGRAM



SECTION 8: ASSEMBLY DIMENSIONS



SECTION 9: CUTTING DATA

Type 41 Oxy / Acetylene

Part Number	Size	Plate Thickness	Fuel Gas Flow l/min @ 100 kPa	Total Oxygen Flow & Pressure l/min @ kPa	Cutting Speed mm/min [†]
306069	6HS	6-8	6.0	31 (650)	700
306070	8HS	8-20	6.0	50 (650)	700-550
306071	12HS	25-75	10.0	107 (650)	500-300
306072	15HS	75-150	12.0	158 (650)	300-200
306073	20HS	150-250	13.0	250 (650)	200-100
306074	24HS	250-300	18.0	320 (650)	90

NOTE: Preheat oxygen pressure for all hi-speed nozzles = 200 kPa

Type 44 Oxy / LPG or Natural Gas

Part Number	Size	Plate Thickness	Fuel Gas Flow l/min @ 100 kPa	Total Oxygen Flow & Pressure l/min @ kPa	Cutting Speed mm/min [†]
306018	6HS	6-8	5.0	45 (650)	550
306019	8HS	8-20	5.0	64 (650)	550-500
306021	12HS	25-75	6.5	122 (650)	500-300
306022	15HS	75-150	7.0	173 (650)	300-200
306023	20HS	150-250	8.0	267 (650)	200-100
306024	24HS	250-300	12.0	350 (650)	90

NOTE: Preheat oxygen pressure for all hi-speed nozzles = 200 kPa

[†] Cutting speeds are average values for drop cuts on clean plate with nozzles in good condition – variations could be expected due to actual working conditions.

NB Cutting nozzles can operate over a range of gas flows (hence plate thicknesses). The values are typical operating conditions and can be increased or decreased to suit particular applications.

SECTION 10: ACCESSORIES & SPARE PARTS

Part Number	Description
338543	Rail 1.8m long
338545	Circle cutting attachment
338546	Two torch set
338547	Torch (single)
338548	Twin hose assembly (oxygen/acetylene)
338549	Gas torch holder
338550	Plasma torch holder
338554	Power cable
338555	Drive motor
338556	Torch nozzle nut
338558	Gas torch to suit 3 seat nozzles

SECTION 11: WARRANTY

LIMITED WARRANTY: CIGWELD Pty Ltd, An ESAB Brand, hereafter, "CIGWELD" warrants to customers of its authorized distributors hereafter "Purchaser" that its products will be free of defects in workmanship or material. Should any failure to conform to this warranty appear within the time period applicable to the CIGWELD products as stated below, CIGWELD shall, upon notification thereof and substantiation that the product has been stored, installed, operated, and maintained in accordance with CIGWELD's specifications, instructions, recommendations and recognized standard industry practice, and not subject to misuse, repair, neglect, alteration, or accident, correct such defects by suitable repair or replacement, at CIGWELD's sole option, of any components or parts of the product determined by CIGWELD to be defective.

CIGWELD MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHERS, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

LIMITATION OF LIABILITY: CIGWELD SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, SUCH AS, BUT NOT LIMITED TO, LOST PROFITS AND BUSINESS INTERRUPTION. The remedies of the Purchaser set forth herein are exclusive and the liability of CIGWELD with respect to any contract, or anything done in connection therewith such as the performance or breach thereof, or from the manufacture, sale, delivery, resale, or use of any goods covered by or furnished by CIGWELD whether arising out of contract, negligence, strict tort, or under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the goods upon which such liability is based. No employee, agent, or representative of CIGWELD is authorized to change this warranty in any way or grant any other warranty.

PURCHASER'S RIGHTS UNDER THIS WARRANTY ARE VOID IF REPLACEMENT PARTS OR ACCESSORIES ARE USED WHICH IN CIGWELD'S SOLE JUDGEMENT MAY IMPAIR THE SAFETY OR PERFORMANCE OF ANY CIGWELD PRODUCT. PURCHASER'S RIGHTS UNDER THIS WARRANTY ARE VOID IF THE PRODUCT IS SOLD TO PURCHASER BY NON-AUTHORIZED PERSONS.

The warranty is effective for the time stated below beginning on the date that the authorized distributor delivers the products to the Purchaser. Notwithstanding the foregoing, in no event shall the warranty period extend more than the time stated plus one year from the date CIGWELD delivered the product to the authorized distributor.

Any claim under this warranty must be made within the warranty period which commences on the date of purchase of the product. To make a claim under the warranty, take the product (with proof of purchase from a Cigweld Accredited Seller) to the store where you purchased the product or contact Cigweld Customer Care 1300 654 674 for advice on your nearest Service Provider. CIGWELD reserves the right to request documented evidence of date of purchase. CIGWELD or our Accredited Distributor must be notified in writing of its claim within seven (7) days of becoming aware of the basis thereof, and at its own expense returning the goods which are the subject of the claim to CIGWELD or nominated Accredited Distributor/Accredited Service Provider.

This warranty is given.
Cigweld Pty Ltd
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Victoria, Australia, 3072
Phone: 1300 654 674
Email: enquiries@cigweld.com.au
Website: www.cigweld.com.au

This warranty is provided in addition to other rights and remedies you have under law: Our goods come with guarantees which cannot be excluded under the Australian Consumer Law. You are entitled to replacement or refund for a major failure and to compensation for other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Warranty period: 12 months.

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