BROMIC
PLUMBING & GAS

Product Number: 1811162

BROMIC PRO OXYSET 2.2L BRAZING SYSTEM

OPERATOR'S MANUAL

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09/2021 - V1

ATTENTION - THIS PRODUCT IS FOR INDUSTRIAL USE

The following instructions must be read carefully and adhere to before using the OXYSET 1811162 (which will henceforth be referred to as 'kit') and keep the manual for future reference. These instructions are not intended to be a complete training material for welding. BROMIC is not responsible for any damages occurring due to incorrect use or modification of the appliance. Do not use the Oxyset unless you are trained or under appropriate supervision.

WARNINGS

- Do not use in confined spaces
- Never grease or oil any part of this kit (Oxyset)
- Never leave the kit unattended
- Do not set down the torch while lit
- Do not inhale fumes produced by brazing or soldering
- Intentional misuse by deliberate concentrated inhalation of gases may cause injury or death
- Keep out of reach from children
- Never use the kit if hose(s) show signs of abrasions, deterioration or other imperfections. Replace the hoses immediately from Authorized distributor.
- Never use damaged or malfunctioning equipment. Consult qualified personnel if you have concerns
- Do not tamper with or modify any components of the kit
- Do not use damaged equipment
- Never allow the cylinders to be close to sparks, flames or other heat sources
- Do not use on containers, which may cause explosions, fires, or the release of toxic vapors or fumes
- Do not operate while intoxicated, drowsy or distracted
- Never smoke or use any form of e-cigarettes during use or handling of the kit
- Never heat the cylinders or hoses, or put them close to any form of heat sources
- Never use components that are not included with the kit or replace any components with those from unauthorized suppliers
- Always use the kit in a well-ventilated area, away from flammable materials or substances
- Always work on a non-flammable base
- Always wear goggles, welding gloves and other appropriate protective equipment during operation
- Always wear clothes suitable to the type of work to be accomplished. Never wear clothes dirty with grease
- Always allow the kit to cool completely (to room temperature) prior to storage
- Always keep the cylinders in an upright position
- Always ensure the torch flame is fully extinguished when turning the equipment off
- Always rest the cylinders on a steady surface
- Always check for loose connections prior to using the equipment
- Always shut off the oxygen cylinder first and then the fuel cylinder (refer to section Switching Off from this manual) in case of fire and use appropriate & available Fire Extinguishers.
- Always shut off the oxygen cylinder first and then the fuel cylinder (refer to section Switching off from this manual) in case of leakage, move to well ventilated area and check where the appliance is leaking and implement appropriate corrective action
- Always ensure all the knobs of the kit are closed before connecting during setup
- Always work in a clean place, far from combustible or greased materials

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Hazard Prevention

- Always guard against flammable substances, burns, fluxes, filler metals, gases, and fumes.
- Never use oxygen or fuel gas to blow off work, equipment, or clothing. Pure oxygen encourages combustion, and gas is flammable.
- Keep out of reach from children and disabled people.
- Be aware of your welding hoses. Do not let welding hoses touch torch flame, sparks or hot sur face. Welding hoses are a tripping hazard.
- Never perform welding, cutting, or heating operations on a container that has held toxic or combustible liquids or vapors.
- Never perform welding, cutting, or heating operations in an area containing combustible vapors, flammable liquids, or explosive dust.
- Never perform welding, cutting, or heating operations on a closed container or vessel, which may explode when heated.
- All Government and insurance regulations relating to the storage of oxygen and LPG cylinders must be closely observed.
- Always comply with Federal, State, and Local laws, and keep updated with industry regulations, practices, and standards.
- Exercise caution when using the torch near pipes and vents as suction from pipes and vents may be present.
- Always know what is or was inside your work piece
- Always disconnect equipment from fuel source and close valves after each use.
- Operators must remove all food (including coffee, soft drinks, and other beverages) from the work area in which brazing filler metals, solder alloys, and fluxes are being handled.
- Casual contact between the hands, face, nose, or mouth shall be avoided when handling filler metals, solder, fluxes, or base materials.
- The material safety data sheets for brazing fluxes and filler metals shall be consulted before these substances are used.
- Operators must dispose of all cleaning solutions in accordance with environmental regulations and corporate procedures.

Personal Protective Equipment

- Personnel includes workers and their immediate supervisors. Refer to appropriate local standards/regulations on protective clothing and equipment.
- Welding equipment, machines, cable, and other apparatus must be located so that it does not present a hazard to personnel.
- Signs must be posted designating welding areas and indicating that eye protection and other applicable protective devices shall be worn.
- Eye and face protection must comply with ANSI Z87.1, Occupational and Educational Personal Eye and Face Protection Devices. Persons with special eye conditions should consult their physician for specific information on protective equipment.
- Appropriate protective clothing for any welding and cutting operation will vary with the size, nature, and location of the work to be performed. Clothing must be kept clean, as oil and grease can reduce its protective qualities.
- Suitable eye, face, and body protection must be worn by operators when cleaning assemblies with any solvent, including tap water.
- Gloves must be worn to prevent injury from acidic or caustic residues generated in the cleaning agent as well as the possible ingestion of metals rubbed off joints and base material.
- Gloves made of leather, rubber, or other suitable materials are recommended. Insulating linings should be used to protect areas exposed to high radiant energy.

Ventilation

- Adequate ventilation must be provided for all welding, cutting, brazing, and related operations.
- Adequate ventilation must be enough such that any hazardous concentrations of airborne contaminants exposed to personnel are maintained below the allowable limits specified by the authority having jurisdiction. Respiratory protective equipment must be used when adequate ventilation is not practical.
- Always obtain Material Safety Data Sheets (MSDS) for the materials affected when welding or cutting.
- Some fluxes and metals that are coated with substances like Cadmium or Nickel can be very toxic.
- Ventilation in confined spaces must be sufficient to assure adequate oxygen for life support, to prevent accumulation of asphyxiants or flammable or explosive mixtures, to prevent oxygen-enriched atmospheres, and to keep airborne contaminants in breathing atmospheres below allowable limits.
- Operators must take precautions to avoid breathing the fume directly
- If natural ventilation is not sufficient to maintain contaminants below the allowable limits referenced by local regulations, mechanical ventilation or respirator must be used.
- Avoid operating the equipment in rooms with sprinkler systems unless there is sufficient ventilation to keep the area cool. Insufficient ventilation can cause the false activation of fire suppression systems.

Fire Prevention

- No welding or cutting can be done unless the atmosphere is non-flammable and unless combustibles are moved away or protected from fire hazards.
- Where it is not practical to move the work, all movable nearby fire hazards must be relocated to a safe location.
- Where the work and fire hazards are not movable, safeguards must be used to protect the immovable fire hazards and nearby personnel from the heat, sparks, and slag.
- Appropriate fire extinguishing equipment must be ready for use where welding and cutting work is being done.
- Inspect it regularly to ensure that it is in proper working order. Know how to use the fire extinguisher.
- When work is complete, inspect the area for possible fires or smoldering materials.
- Always check your work area for hidden hot spots that may cause fire. Cool down any questionable areas and do not leave the area until you are certain that there is no danger of fire.
- Persons assigned to watch for fires (called Fire Watchers) resulting from welding must be posted whenever there are combustible materials within 11 metres of the welding operation.
- Always ensure that the torch flame is completely extinguished after turning off equipment. In the occurrence of flashback or backfire, follow below procedures in order:
  1. Close torch's oxygen flow valve (turning the knob CLOCKWISE)
  2. Close torch's gas flow valve (turning the knob CLOCKWISE)
  3. Close cylinder's oxygen regulator valve (turning the knob ANTI CLOCKWISE)
  4. Close cylinder's gas regulator valve (turning the knob ANTI CLOCKWISE)
  5. Do not operate any oxy-fuel equipment until the exact cause of the flashback or backfire is fully investigated.
  6. Take corrective measures to eliminate the cause of flashback or backfire.
- Inspection and authorization by a designated management representative is required before welding or cutting operations commences in a location not designed for such purposes.

Supervision

This section pertains the commercial use of the product. Management refers to people responsible for welding operations, while supervisors refer to people responsible for the supervision of welding.

Responsibilities

Operators and management are both responsible for safety in welding and cutting.

Training

Welders and their supervisors must be trained in the safe operation of their equipment and emergency procedures. Management is responsible for this.

Workers must understand the potential hazards and safety precautions before starting work. Management is responsible for this.

Contractors

Contractors who are selected for welding purposes should be trained and qualified, who know the risks involved. Management is responsible for this.

Contractors must be advised of any hazardous conditions (eg. flammable materials, lack of ventilation) of which they may not be aware. Management is responsible for this.

Supervisors must ensure that flammable or combustible materials are not exposed to ignition by taking one or more of the following actions:

(1) Relocate the work to a location without combustibles and away from hazardous areas.

(2) Relocate the combustibles moved a safe distance from the work or properly shield them against ignition if the work cannot readily be moved.

(3) Schedule welding and cutting so that such materials are not exposed during welding and cutting operations.

Operators

Operators must understand the hazard of the operation to be performed and the procedures being used to control hazardous conditions.

Operators must handle the equipment safely as per this manual and use it so as not to endanger lives and property.

Operators must be trained so they understand the hazards involved in welding.

Operators must never use this equipment if they are unsure of safe operation.

Operators must never work alone under hazardous conditions, such as potential for electric shock hazards or where ventilation is poor.

List of components

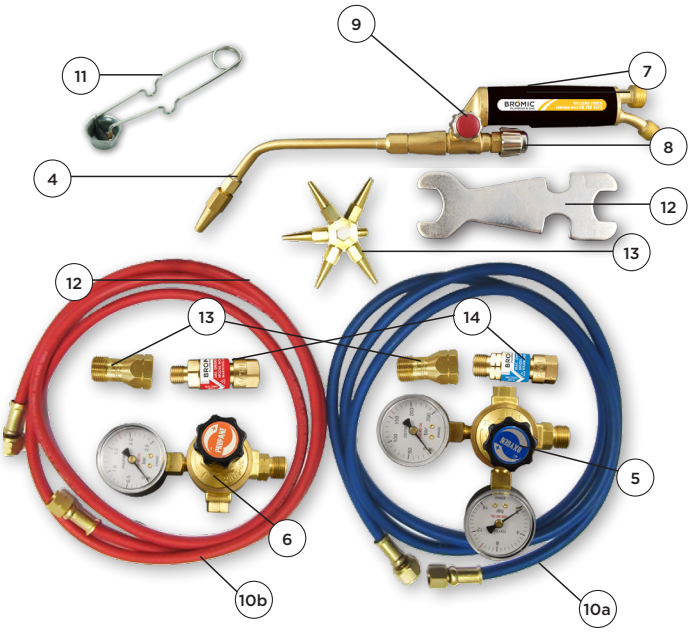
- 1 x Blue oxygen regulator with 2 gauges (inlet thread is M12x1, outlet thread is G3/8" RH)
- 1 x Orange MAP//Pro (Propylene) regulator with 1 gauge (inlet thread is CGA600, outlet thread is G3/8" LH)
- 2 x Torch flashback regulators (one blue & one red)
- 1 x Blue oxygen hose (2m length, 3.2mm ID, G3/8" RH thread)
- 1 x Orange gas hose (2m length, 3.2mm ID, G3/8" LH thread)
- 2 x Check valves
- 1 x Welding torch
- 1 x Welding nozzle ring with 5 welding tips
- 1 x Fitting wrench
- 1 x Flint sparker
- 1 x Cylinder rack
- 1 x Goggles

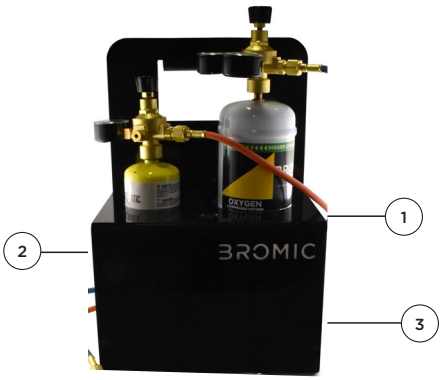
Introduction

The PRO OXYSET 1811162 is fuelled by disposable oxygen cylinder (T-PED approval number 0036) and a disposable MAP//Pro cylinder (complying with DOT39). We recommend using Bromic oxygen cylinders (P/N 1811322) and Bernzomatic MAP//Pro cylinders (P/N 1811120).

ATTENTION: The BROMIC OXYSET 1811162 is for use with disposable oxygen and MAP//PRO cylinders only. These cylinders are not refillable. Use of other cylinders may be dangerous. Do not connect cylinders before reading all relevant instructions.

Putting into service





1. Ensure that the seals/connections, hoses and general appliance are damage free
2. Ensure that the adjustment knobs on the pressure regulators (5&6) are closed by turning the regulator knobs **ANTI CLOCKWISE**.
3. Ensure that the adjustment knobs and on the torch (8&9) are closed by turning the torch knobs **CLOCKWISE**.
4. Screw the oxygen and gas pressure regulators on to their relevant cylinders, ensuring that there are no leaks. Pressure regulator threads are diversified to avoid mistakes in coupling cylinders to their relevant pressure regulator.
5. Connect the 2 check valves (13) to corresponding regulator fittings.
6. Connect the 2 flashback arrestors (14) to corresponding torch fittings
7. Connect the hoses between corresponding check valves and flashback arrestors.
8. Tighten all fittings and conduct leak test.

WARNINGS:

- **The OXYSET 1811162 is for use with disposable oxygen and MAP//Pro cylinders only. These cylinders are not refillable. Use of other cylinders may be dangerous. Do not connect cylinders before reading all relevant instructions.**
- **Connection or disconnection of cylinders must be performed in a well-ventilated area, preferably outdoors, and away from persons and/or animals. Intentional misuse by deliberate concentrated inhalation may cause injury or death. Keep away from inflammable materials or substances and glowing sources of heat, such as naked flames, lit cigarettes, electrical devices etc.**
- **The weight of cylinders can be deceiving so it is important to confirm that a cylinder is empty before replacing it. To protect the environment, dispose of the cylinders in a safe place according to local regulations and preferably in a recycling centre.**

How to gas weld

WARNINGS:

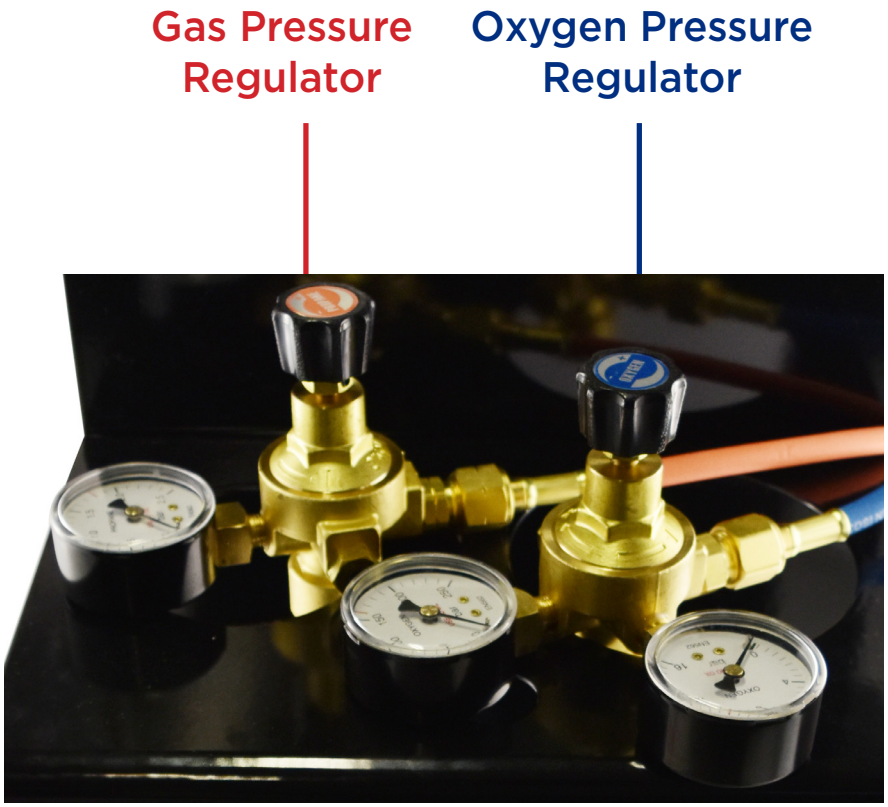
a) We recommend to preset regulators' output pressure to minimum 0.5 bar for gas pressure regulator; and 4 bar for oxygen pressure regulator.

b) The maximum working pressure should NEVER exceed 0.9 bar for gas pressure regulator; and 6 bar for oxygen pressure regulator.

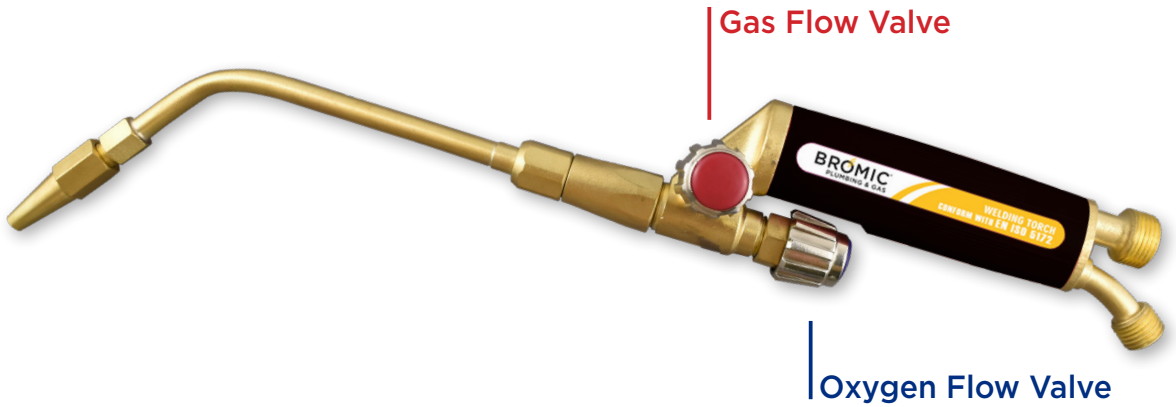
*Actual pressure regulation depend on application and user experience, consult qualified personnel if uncertain prior to operation.

Switching on

1. To begin, ensure the torch valves (8 & 9) are closed by turning the torch knobs **CLOCKWISE**.
2. Next, slowly open the pressure regulator knobs (5 & 6) by turning **CLOCKWISE** to engage the cylinders.

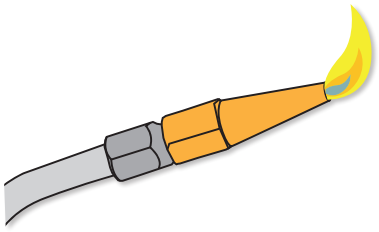


3. Slowly open the fuel gas regulation knob of the torch (9) by turning the knob **ANTI CLOCKWISE,** about a quarter turn, allowing gas to flow freely for a couple of seconds to clear any air from the system.

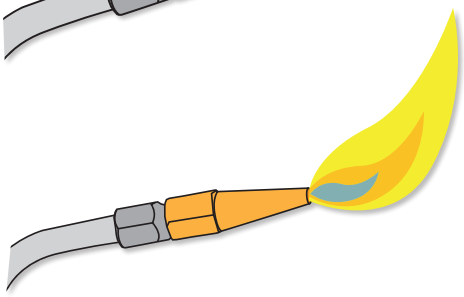


Light the torch

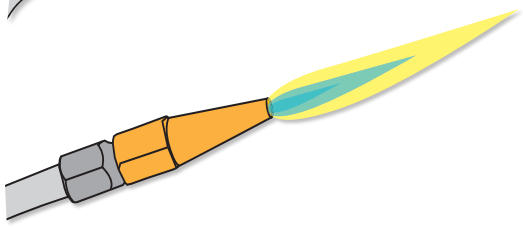
Ignite using a spark lighter (11), paying attention to keep the flame stuck to the soldering nozzle until you achieve a flame as shown. If the flame comes away from the nozzle and blows out, close the gas knob slightly to slow supply.



Adjust the flame with the control tap until the smoke just disappears.



Turn on the oxygen regulation knob (8) **ANTI CLOCKWISE** and increase until the white inner cone (dart) is clearly defined.



WARNINGS: FLASHBACK AND BACKFIRE

Flashback occurs when the flame travels back into the torch. This can cause explosion, resulting in serious injury or property damage. Flashback can be caused by using incorrect regulator pressures, incorrect balance of fuel/oxygen flow or if the fuel is prematurely ignited.

Backfire occurs during the backward flow of gases at the torch tip, causing the flame to go out. This is often caused by touching the torch tip against the work piece.

If flashback or backfire occurs, IMMEDIATELY:

1. **Close the torch's oxygen flow valve (turn the knob CLOCKWISE)**
2. **Close the torch's gas flow valve (turn the knob CLOCKWISE)**
3. **Close the oxygen regulator valve (turn the knob ANTI CLOCKWISE)**
4. **Close the gas regulator valve (turn the knob ANTI CLOCKWISE)**

DO NOT operate the Oxyset until the cause of flashback or backfire is fully resolved.

Switching off

Complete the following steps in order.

1. Close the torch's oxygen flow valve by turning the knob **CLOCKWISE**
2. Close the torch's gas flow valve by turning the knob **CLOCKWISE**
3. Close the oxygen regulator valve by turning the knob **ANTI CLOCKWISE**
4. Close the gas regulator valve by turning the knob **ANTI CLOCKWISE**
5. Purge the system of all remaining gas and let the torch cool down.

CAUTION: PURGING

Purging a system is the act of flushing out all residue fuel gas and oxygen from the torch, hose, and regulators after operation.

NEVER purge the system near any ignition sources.

WARNINGS:

- **Do not use in confined spaces**
- **The OXYSET 1811162 must be used in a well-ventilated area, away from inflammable materials or substances**
- **It is absolutely prohibited to grease or oil any part of this kit**
- **Do not leave the OXYSET 1811162 unattended when lit**
- **Do not set down the torch while lit**
- **Work on a non-flammable base**
- **During welding, wear goggles and welding gloves.**
- **Wear clothes suitable to the type of work to be accomplished and do not wear clothes dirty with grease**
- **Do not inhale fumes produced by brazing or soldering**
- **Intentional misuse by deliberate concentrated inhalation of gases may cause injury or death**
- **Immediately replace hoses (11a and 11b) in case of abrasions, deterioration or other imperfections**
- **Avoid torsions and overheating of the hoses (11a and 11b).**
- **During use, parts of the OXYSET 1811162 can reach high temperatures and must be allowed to cool completely prior to storage**
- **It is dangerous to use damaged or malfunctioning equipment**
- **Do not tamper with or modify any components of the kit**
- **If a flashback occurs when lighting, it may be due to incorrect pressures set at regulators or a light being applied before the fuel gas is flowing properly or incorrect balance of fuel/oxygen flow.**
- **Assembly & adjustment made in the factory shall not be modified. It can be dangerous to try to modify the adjustment or the construction of the appliance, to dismantle some parts or use components other than those recommended.**
- **Close the taps of the appliance before connection**
- **Do not smoke when changing containers (cylinders)**
- **Do not use grease or oil with parts in contact with oxygen**
- **Be careful not to heat the containers (cylinders) or burn the hose**
- **Work in a clean place, far from combustible or greased material**

Storage

If the OXYSET is not in use, disconnect all components from each other and allow all the system to drain. This will avoid cylinder discharge as a result of imperceptible leaks.

Place the OXYSET in its original packaging or another protective case and store in a cool, dry and well-ventilated place.

- Do not store or transport the OXYSET with cylinders connected.
- Ensure the unit remains in a vertical position
- Protect from sunlight
- Do not expose to temperatures greater than 50°C
- Keep out of reach of children

Maintenance

Maintenance and/or repairs should be carried out with genuine OXYSET spare parts and accessories only, available from your retailer. Maintenance should only be carried out by trained professionals. In case of failure in a manner that cannot be repaired, stop using the appliance return your OXYSET to the point of purchase.

In case of fire

In the event of a fire, if it is safe to do so, turn off the oxygen supply and thus extinguish the flame. If safe, also turn off the fuel gas supply and remove the appliance from the area.

If it is safe, extinguish the fire with the appropriate equipment.

If it is unsafe to turn off the gas supply or extinguish the fire, evacuate the area, warn all people in the area and call emergency services.

Gas leak and checking the seal

If your appliance leaks gas or begins to smell of gas, take it outdoors immediately. Check seals in a well-ventilated area away from ignition sources.

To check the seal of the OXYSET, use soapy water or a leak detector product, such as LA-CO Visu Glow. After applying the detector to a suspected leak area, inspect for the formation of bubbles or foam caused by escaping gases.

Nozzle cleaning

Unscrew the nozzle with the fitting wrench (12) and clean by blowing air into the hole. Firmly screw the nozzle back into the torch and once tightened, check the seal.

WARNINGS:

- **Only conduct cleaning when the nozzle is cold**
- **Do not use needles or pins to clean the nozzle, as potential damage could make the OXYSET dangerous to use**
- **If the blockage cannot be removed, DO NOT use the nozzle**
- **Never use oxygen or fuel gas to blow off work, equipment, or clothing**

NOTE : Some of the details in the illustrations may differ from those of the appliance supplied. BROMIC Pty Ltd reserves the right to modify the product without prior warning.

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