

TURBO SET 1000



Instructions for use and maintenance

HOW TO GAS WELD WITH TURBO SET 1000

With gas welding always work methodically : before starting a weld ensure that the parent metal in the weld area is cleaned and free from grease, oil, paint, rust and scale. Ensure you've a good supply of gases and filler materials and flux's suitable for the job.

Before applying heat to the parts, make sure they are properly-positioned and braced to remain in proper alignment. Once you've complete your joint, it will need to be cleaned, as Flux residues are chemically corrosive and may weaken the joint if not completely removed.

The power of the flame is governed by the size of tip used and these vary according to thickness, melting points and heat conductivity. The **TURBO SET 1000** has five size nozzles available.

The power is measured by the number of litres per minute of fuel gas that is consumable with a perfect flame. Too lower pressure gives too short cone, which may cause a lack of weld penetration and fusion, it can also cause frequent back firing. On the other hand too higher pressure can give a long cone and cause overheating and a lack of control of the molten metal.

Three different types of flame can be made via varying proportions of gas:

THE CARBURIZING FLAME

This is a flame in which an excess of fuel gas is burning, i.e. combustion is incomplete and unconsumed carbon is present. This kind of flame is generally not good for welding steel as the unconsumed carbon could be introduced to the weld and create a hard embrittled weld.

THE NEUTRAL FLAME

As the supply of oxygen to the torch is increased, the flame contacts and the white cone become more clearly defined, assuming a definite rounded shape. At this stage approx equal quantities of fuel gas and oxygen are being used and combustion is complete. The flame is now neutral and this type of flame is the one most extensively used for welding.

THE OXIDISING FLAME

A further increase in oxygen will produce the oxidising flame, in which there is more oxygen than is required for complete combustion. In this case excessive sparking will occur.

A **BACK FIRE** can often occur if :

- the gas pressure is too low
- touching the plate or weld pool
- loose nozzle
- over heating
- a metal particle gets into the nozzle.

The fault can normally be rectified with no damage.

CAUTIONS

Read the following instructions carefully before using the TURBO SET 1000 and keep them for future reference. The instructions supply all the information necessary for correct use of the appliance to avoid danger and damage.

ADVANCED ENGINEERING Ltd. is not responsible for any damage occuring due to incorrect use of the appliance, or to modifications made to it.

PARTS LIST

TURBO SET 1000

1. Oxygen cylinder 1 lt 110 bar M12x1 right
2. Maxy Gas cartridge
3. Trolley for bottles
4. Pressure reducer Mignon with safety valve and HP gauge
5. Gas valve 7/16 with safety valve
6. Torch with safety valves incorporated
7. Adjusting knob for oxygen on the torch
8. Adjusting knob for gas on the torch
9. Seal gaskets

- 10a. Oxygen hose with connections
- 10b. Gas hose with connections
- 11. 80lt nozzle
- 12. Lance
- 13. Lighter
- 14. Multipurpose wrench
- 15. Star with 4 nozzles
- 16. Brass welding rods
- 17. Goggles

TECHNICAL DATA

TURBO SET 1000

Max. operating temperature **3000°C**

Gas consumption

(normal regulation with a 80 lt nozzle): 92 g/h

End. of the oxygen cylinder 0,30 h

End. of the Maxy Gas cartridge 3,30 h

1. GAS SUPPLY

The TURBO SET 1000 is fuelled with an oxygen cylinder (T-PED approval π 0036) and with a 7/16" Maxy Gas cartridge (complying with EN 417: 2003) cartridge.

We recommend using the **OXYTURBO** cylinders and cartridges.

ATTENTION: the oxygen cylinders and the gas cartridges of TURBO SET 1000 are not rechargeable.

CAUTIONS

- **The use of other cylinders or cartridges may be dangerous**
- **Do not connect cylinders or cartridges before you have read the instruction on them.**

2. PUTTING INTO SERVICE

2.1 INSERTING OR CHANGING CYLINDERS OR CARTRIDGES

- Insert the cylinders into their housing passing the valves through the hole of the trolley.
- Make sure that the adjusting knobs on the pressure reducer Mignon and on the gas valve (4 and 5) and on the torch (7 and 8) are closed (for Mignon : clockwise = open, anticlockwise = close; for gas tap : clockwise = close, anticlockwise = open).
- Screw the oxygen pressure reducer and the gas valve on the relevant cylinder and cartridge, paying attention that there are no leaks (see 5.2).
- **The threads are diversified to avoid mistakes in coupling cylinder to pressure reducer Mignon and cartridge to gas valve.**

CAUTIONS

- **Changing or inserting cylinders or cartridges must be performed in a well ventilated area, preferably outdoors and away from inflammable materials or substances, from glowing sources of heat (such as naked flames, lit cigarettes, electrical rings, etc.) and far away from persons and animals.**
- **Make sure the cylinder or the cartridge is empty before changing it. Do not let you be deceived by the weight of the oxygen cylinder, because it is the same also when the cylinder is empty.**
- **Do not use the TURBO SET 1000 if the gaskets (9) are damaged or missing.**
- **Control that the oxygen and gas hoses with connections (10a and 10b) are not damaged.**
- **To protect the environment, dispose of the cylinder and of the cartridge in a safe place and preferably in a recycling bin.**

3. INSTRUCTION FOR USE

Place before using lance and nozzle as in fig.1 and make sure the nut is blocked.

3.1 SWITCHING ON

- Make sure the adjusting knobs of the torch are closed (7 and 8).

- Open the pressure reducer Mignon (4) and the gas valve (5).
- Open the adjusting knob for gas on the torch (8).
- Kindle using the special lighter (13) paying attention to keep the flame stucked to the soldering nozzle. If the flame tends to come off the nozzle, close a little the gas valve.
- Open the adjusting knob for oxygen on the torch (7) to obtain a sparkling flame.
- Adjust the flame operating on the adjusting knobs to have a dart with shape and dimensions like those of picture 2.

3.2 SWITCHING OFF

- Close first the gas valve of the cartridge (5).
- Close the oxygen pressure reducer (4).
- Let the flame estinguish till the hoses are empty.
- Close the knobs of the nozzle (7 and 8).

CAUTIONS

- **Always use the kit with cylinder and cartridge in vertical position or the gas liquid phase could damage the hoses.**
- **Do not work in a narrow place.**
- **The TURBO SET 1000 must be used in a well-ventilated area, away from inflammable materials or substances. Fire hazard!**
- **It is absolutely prohibited to grease any part of the kit.**
- **Do not leave the TURBO SET 1000 unattended when lit.**
- **Do not put down the lit torch.**
- **Work on a non-inflammable base.**
- **During welding works wear goggles (17) and gauntlets.**
- **Do not use grease or oil on the parts in contact with oxygen.**
- **Wear clothes suitable to the type of work to be accomplished and do and do not wear clothes dirty with grease.**
- **Attention! Avoid breathing welding fumes.**
- **Replace immediatly the hoses with connections (11a and 11b) in case of abrasions, deterioration or other imperfections.**
- **Avoid torsions, tears and overheatings of the hoses (10a and 10b).**
- **During use, parts of the TURBO SET 1000 can reach high temperatures. After the switching off let the hoses empty and let the kit become cool before putting it away.**
- **It is dangerous to use damaged or incorrectly functioning equipment.**
- **In case of gas delivery problems, check if there is gas in the cylinder and in the cartridge (1 and 2). If so, the problem could be resolved by cleaning the nozzle (see 5.4).**
- **It is absolutely prohibited to make any mechanical intervention on any component of the equipment**

4. STORAGE

- In case the TURBO SET 1000 should not be used for a long time or in case of transport by a motor vehicle, unscrew the cylinders and the cartridges from the respective pressure reducer and gas valve. This will let you have the greatest guarantee to find the content of the cylinder and of the cartridges intact even much time later, avoiding the possibility of little and almost imperceptible leaks, even though all their valves are provided with guaranteed seal.
- Put away the TURBO SET 1000 in a protective packaging (if possible in the original one) and keep it in a cool, dry and well ventilated place.

CAUTIONS

For TURBO SETS with cylinders and cartridges inserted :

- **Make the storage and the transport with the cylinders and the cartridges in vertical position, NEVER lying.**
- **Protect from sunlight.**
- **Do not expose to temperatures higher than 50°C.**
- **Keep out of the reach of children.**

5. MAINTENANCE

- **Do not carry out maintenance or repairs, other than the following.**

- **Use only original spare parts and accessories.**
- **Spare parts are available from your retailer.**
- **In case of failures which cannot be repaired following these instructions, take your TURBO SET 1000 back to the retailer.**

5.1 GAS LEAKS

- If your appliance leaks gas (gas smell) take it outdoors immediately to a well ventilated area, away from inflammable sources where the seal can be checked (see 5.2).

5.2 CHECKING THE SEAL

- To check the seal of the TURBO SET 1000, work outdoors and do not use a flame: use special detectors or soapy water.
- Spray the detector on the area to be checked.
- Gas leaks are detected by the formation of bubbles or foam.

5.3 CHANGING THE GASKET

- Remove the worn gasket from its seat (9).
- Insert the new gasket into the seat by pushing its edges down with a flat screwdriver, paying attention not to damage it.

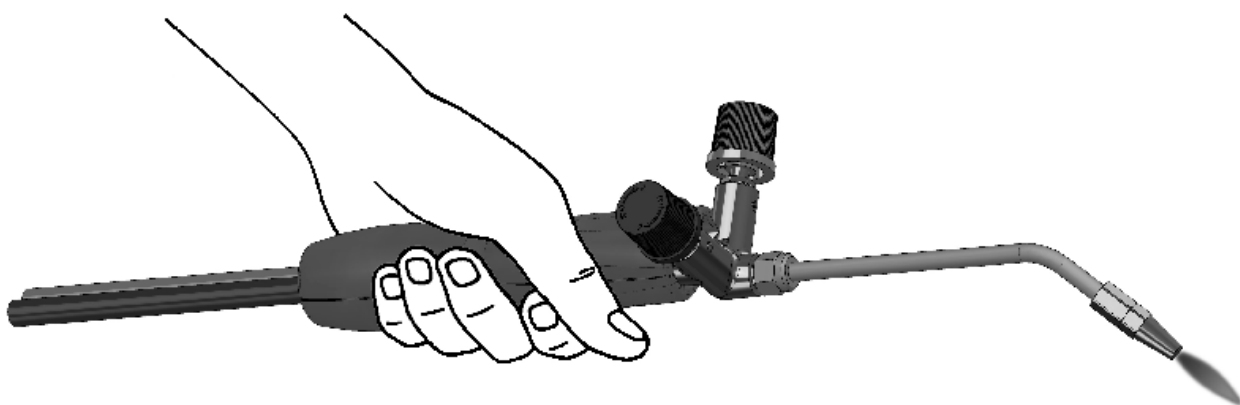
5.4 NOZZLE CHANGING AND CLEANING.

- Unscrew the nozzle (11) with the special wrench (14).
- Clean the nozzle blowing into the hole with compressed air.
- Screw the chosen nozzle (15) on the lance (12).
- Check the seal (see 5.2).

CAUTIONS

- **Execute this intervention when the nozzle is cold.**
- **Do not use needles or pins to clean the nozzle, because any damage you may cause to the appliance could make the TURBO SET 1000 dangerous.**
- **If the blockage cannot be removed, substitute the nozzle.**

FIG. 1



oxyturbo[®]



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