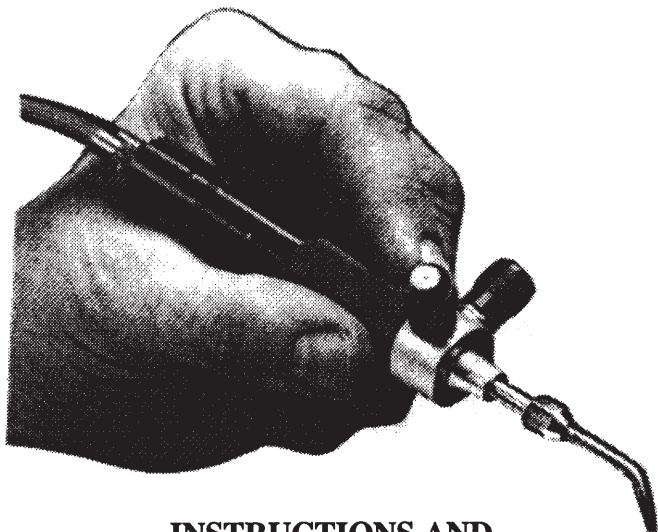


The Little Torch™



INSTRUCTIONS AND
OPERATIONS MANUAL
FOR
SOLDERING, WELDING & HEATING

SMITH
EQUIPMENT

IMPORTANT SAFETY INSTRUCTIONS INSIDE
READ AND FOLLOW ALL DIRECTIONS
BEFORE OPERATING EQUIPMENT

TABLE OF CONTENTS

SECTION 1

Introduction	1
Warranty	2
General Information	3

SECTION 2

Safety Information	5
Associated Hazards of Recompressing Pure Oxygen	7

SECTION 3, PART A: OXY-FUEL LITTLE TORCH EQUIPMENT EMPLOYING DISPOSABLE TYPE

CYLINDERS	8
Compressed Gas Cylinders	8
Equipment Setup	10

SECTION 3, PART B: OXY-FUEL LITTLE TORCH EQUIPMENT EMPLOYING HIGH PRESSURE

INDUSTRIAL CYLINDERS	14
Compressed Gas Cylinders	15
Equipment Setup	16

REGULATORS	23
------------------	----

TECHNICAL DATA	24
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ACCESSORIES

TIPS	25
TORCH HOLDER	25

SECTION 1 INTRODUCTION

This manual contains safety and operational information that is important for you to know and understand. This information relates to your safety and preventing equipment problems.

To help you recognize this information we use the following symbols: **DANGER, WARNING, CAUTION**. Please read the manual and follow all instructions.

DANGER: Danger is used to indicate the presence of a hazard which will cause severe personal injury, death or substantial property damage, if the warning is ignored.

WARNING: Warning is used to indicate the presence of a hazard which can cause severe personal injury, death or substantial property damage, if the warning is ignored.

CAUTION: Caution is used to indicate the presence of a hazard which will or can cause minor personal injury or property damage, if the warning is ignored.

Before operating any oxy-fuel equipment, read and follow the information in this booklet. Failure to do so can result in property damage, severe personal injury or death.

WARNING

Oxy-fuel welding, brazing, soldering and heating equipment should not be used without proper safety training by a qualified instructor.

SMITH EQUIPMENT WARRANTY

For one (1) year after the sale of a Smith Equipment product, Smith Equipment warrants to the Purchaser that its product is free from defects in materials and workmanship. SMITH EQUIPMENT MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE. During the warranty period, Smith Equipment agrees, at its option, to repair, replace or refund the purchase price of any product found defective upon inspection by Smith Equipment or its authorized distributors. THIS IS THE SOLE AND EXCLUSIVE REMEDY OF THE PURCHASER AND THE SOLE AND EXCLUSIVE LIABILITY OF SMITH EQUIPMENT, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY, IN NEGLIGENCE OR OTHERWISE. SMITH EQUIPMENT SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, INDIRECT OR OTHER DAMAGES, OR FOR LOSS OF USE, REVENUE OR PROFIT EVEN IF SMITH EQUIPMENT HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. The warranty and remedies provided herein shall not apply if a product is damaged by accident, abuse or misuse, if a product is modified in any way except by personnel authorized by Smith Equipment, or if anything except genuine Smith Equipment replacement parts and/or tips/consumables are used with the equipment.

A. WARRANTY RETURN GOODS PROCEDURE

1. Call Customer Service Department for a Return Authorization Number (RER).
2. Enclose the following information with the return:
 - a. RER number (obtained from Smith Equipment)
 - b. Date of sale
 - c. Reason for return

B. REPLACEMENT TO DISTRIBUTORS OR WHOLESALERS

Smith Equipment reserves the option to repair, replace or refund the purchase price of product found to be defective.

Product found not defective will be returned to the distributor or to the wholesalers.

GENERAL INFORMATION

This instruction booklet offers basic information regarding the "Little Torch." Given reasonable care, your torch will provide trouble-free use for many years.

TORCH

"The Little Torch" is designed to meet the requirements of industry for a small, light weight torch to fusion weld, braze, heat and solder materials ranging from 3/16" metal to ultra-fine wires. The six tips available provide a wide range of flame sizes allowing the versatility to perform many different tasks. Light weight construction and highly flexible hose provide pinpoint welding with maximum control.

GASES

"The Little Torch" can be used with most commonly available pressurized fuel gases: acetylene, hydrogen, propane, propylene, natural gas or mapp with oxygen. The two smallest tips, sizes 1 and 2, can only be used satisfactorily with acetylene and hydrogen fuel gases. **CAUTION:** When using natural gas, a minimum of 1 pound of pressure is required. Higher pressures are necessary for use with melting tips.

TIPS

There are six tips available for the "Little Torch". **SIZES 1, 2, AND 3 ARE FITTED WITH A SYNTHETIC SAPPHIRE** to assure accurate gas flow because of the extraordinary small orifice size. There are also two different heating tips available, one for use with all gases and another specially designed for propane or natural gas. Refer to the pressure recommendation chart provided in this booklet for tips being used.

REPAIRS/REPLACEMENT OF HOSE

"The Little Torch" hose is of a special material designed to be compatible with the various fuel gases. The maximum length of hose used should not exceed 12 feet.

For your protection, use only genuine Smith "Little Torch" hose and replacement parts.

Repairs and replacement parts are available through your authorized Smith Equipment distributor or Smith Equipment, 2601 Lockheed Avenue, Watertown, SD 57201-5636. Call toll-free 1-800-328-3363, or (605) 882-3200.

It is recommended that the "Little Torch" hoses be replaced at the first sign of any defects, flaws or damage. The hoses should otherwise be replaced every four years. Hoses should be inspected for damage or leaks before each operation and should never be allowed to come in contact with hot metal, molten solder or corrosive chemicals. Do not expose hoses to fluxing agents as they will deteriorate the hose materials and cause them to break down and leak.

SECTION 2 GENERAL SAFETY INFORMATION

EYE PROTECTION

Oxy-fuel flames produce hazardous rays of light (infrared/ultraviolet). An approved filter lens is required for eye protection when operating oxy-fuel equipment. Approved safety glasses are required in conjunction with a filtered eye protection device.

PROPER CLOTHING

Hazardous rays of light, molten metal, or sparks can cause severe burns to unprotected parts of the body. Appropriate protective clothing such as gloves, aprons, safety shoes, etc. are required when using oxy-fuel equipment.

WARNING

Keep all clothing and protective equipment free of oil and grease. These substances can ignite and will burn violently in the presence of pure oxygen.

VENTILATION

WARNING

Oxy fuel applications should be performed whenever possible in an open, well-ventilated area. Atmospheres in confined spaces must be tested for explosives and toxic gases prior to the use of oxy-fuel equipment. Respiratory protection may be required during certain applications of metals, coatings and gases. Refer to ANSI Standard Z49-1.

HOUSEKEEPING AND FIRE PROTECTION

The safety of any work area can be improved by following good

housekeeping practices.

WARNING

Never perform lighted torch operations on containers holding combustible vapors, flammable liquids or explosive dust. A torch flame in contact with a closed container can result in an explosion causing property damage, severe personal injury or death.

1. The work place must have a fireproof floor.
2. Work benches must have fireproof tops.
3. Nearby walls and unprotected flooring should be protected from sparks and hot metal by the use of heat resistant shields or other approved material.
4. An approved fire extinguisher must be kept and maintained (check regularly) in the work area.
5. The work site should be cleared of combustible materials. If such materials cannot be removed, they must be protected with fireproof covers and a fire watch should be established.

WARNING

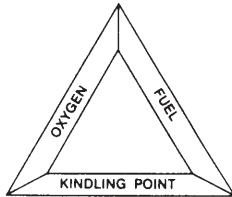
Pressurized oxygen must never be allowed to contact grease, oil or other petroleum based substances. These substances may become highly explosive, ignite, and burn violently in the presence of oxygen.

Keep all oxy-fuel equipment clean and absolutely free of grease, oil and other petroleum based substances.

ASSOCIATED HAZARDS OF RECOMPRESSING PURE OXYGEN

Recompressing high pressure oxygen in a low pressure cavity may create heat resulting in combustion.

The fire triangle below illustrates the components necessary for combustion to occur:



All of these components may be present when oxygen is recompressed into a regulator quickly.

OXYGEN

Oxygen is provided by the cylinder in very pure form. High purity oxygen affects combustion differently than does atmospheric air. High purity oxygen accelerates the rate of combustion, increases heat output, and lowers the combustible point at which various materials will burn. Important: Never use oxygen as a substitute for air.

FUEL

The fuel for combustion may be the regulator itself if enough heat is produced to reach the kindling temperature of the regulator's components.

KINDLING TEMPERATURES

Enough heat may be generated by the friction created when recompressing high pressure oxygen to ignite the regulator components. This heat is known as the Heat of Recompression.

WARNING

Opening an oxygen cylinder abruptly can cause a regulator explosion.

PREVENTIVE MEASURES

1. Before attaching the oxygen regulator to the cylinder, clear away debris from the cylinder outlet port. This may be accomplished by briefly cracking the cylinder valve and blowing any debris clear of the valve port.
2. Always make sure the regulator adjusting screw is in the full out and off position before opening the oxygen cylinder.
3. When opening an oxygen cylinder, crack the cylinder valve **slowly**, then open completely.

WARNING

In the event of an internal fire or flashback (identified by a whistling sound or an inverted flame):

1. Turn off the torch oxygen valve immediately.
 2. Turn off the torch fuel valve.
 3. Turn off the oxygen cylinder valve.
 4. Turn off the fuel gas cylinder valve.
- Do not relight the torch until the equipment has cooled to the touch and the flashback situation has been determined and corrected.

SECTION 3 - - PART A

OXY-FUEL LITTLE TORCH EQUIPMENT EMPLOYING DISPOSABLE TYPE CYLINDERS

COMPRESSED GAS CYLINDERS

Use only compressed gas cylinders that are approved by the Department of Transportation (DOT) with this equipment. The

"Little Torch" will operate on the throw-away disposable cylinders that are found in most hardware, retail, or welding outlets.

When using disposable cylinders, the following instructions will apply.

WARNING

Read and follow these instructions before installing or operating any oxy-fuel equipment. Failure to do so can result in fire, explosion, equipment damage, severe personal injury, or death.

Do not use regulators, hoses, cylinders, torches, or any oxy-fuel equipment if oil, grease, or similar contaminants are present.

Do not use regulators, hoses, cylinders, torches, or any oxy-fuel equipment that has been damaged.

Do not alter or attempt to repair any oxy-fuel equipment. Repairs should be performed only by a qualified repair center.

WARNING

Serious accidents can result from improper use and handling of compressed gas cylinders. Do not store unused cylinders in an enclosed area. When empty, dispose of the cylinder, per the manufacturer's recommendations. **DO NOT THROW IN FIRE.**

1. Cylinders should only be used when securely fastened and in an upright position.

2. Do not completely empty disposable cylinders. When the flame indicates a loss of pressure, immediately shut down the system and replace the cylinder.
3. Locate cylinders away from excessive heat and flames.
4. Use oxy-fuel equipment in well ventilated areas.
5. When cylinders are empty, remove regulators and dispose of them properly.
6. Never use compressed gas cylinders without an approved pressure reducing regulator attached to the outlet of the cylinder.
7. Keep disposable cylinders away from the torch flame.

WARNING

Never tamper with or attempt to repair disposable cylinders. If damaged, return the cylinder to your supplier. Always check the regulator cylinder connection for leaks.

EQUIPMENT SETUP

ATTACHING PRESET REGULATORS

(For use with disposable cylinders)

1. Prior to attaching the regulators to the disposable cylinders, be sure that the regulators and torch valves are in the "off" position.
2. Attach the oxygen preset regulator (identified by the word "OXYGEN" stamped on side of regulator) to the oxygen cylinder. **NOTICE:** The disposable oxygen cylinder and the oxygen preset regulator BOTH have LEFT HAND THREADS. By hand, turn COUNTERCLOCKWISE and tighten securely.
3. Attach the fuel gas preset regulator to the disposable fuel gas cylinder. The threads on the regulator and the cylinder are RIGHT HAND. By hand, turn CLOCKWISE and tighten

securely.

4. Check the regulator - cylinder connection for leaks.

HOSES

1. Use only the hoses that are supplied by Smith. These hoses transport low pressure gases from the regulator to the torch tips. The hoses are color coded (green) for oxygen and (red) for fuel gas.
2. Attach the green hose to the oxygen regulator (right hand thread) and tighten securely using an 11/16" wrench.
3. Attach the red hose to the fuel gas regulator (left hand thread) and tighten securely using an 11/16" wrench.
4. Close both the oxygen and fuel gas valves on torch body.

ACTIVATE THE SYSTEM

THE OUTLET PRESSURE FOR THE OXYGEN AND FUEL GAS REGULATORS IS PRESET . THE REGULATOR VALVES SHOULD BE OPENED COMPLETELY BY TURNING COUNTERCLOCKWISE. NOTICE THE ARROW ON TOP OF THE VALVE.

PURGING THE SYSTEM

WARNING

Before lighting the torch, purging of the system is necessary to reduce the possibility of a mixed gas condition in the system. A mixed gas can result in an explosion within the system. Purging should be done in a well ventilated area.

1. With the tip removed from the torch, open the oxygen torch valve for 2-3 seconds to purge line.
2. Close the oxygen torch valve.

3. Repeat 1 and 2 for the fuel gas.

TEST THE EQUIPMENT FOR LEAKS

1. Check the equipment for leaks using an approved oil free leak detection fluid. This fluid may be found at your local welding supply dealer.
2. With the system pressurized and the torch body valves closed, test all fittings for leaks as shown in FIGURE 1.
3. Do not use equipment if a leak is detected.

If the torch is not going to be in use for more than one half hour, it is recommended that the preset regulator valves be turned to the "off" position.

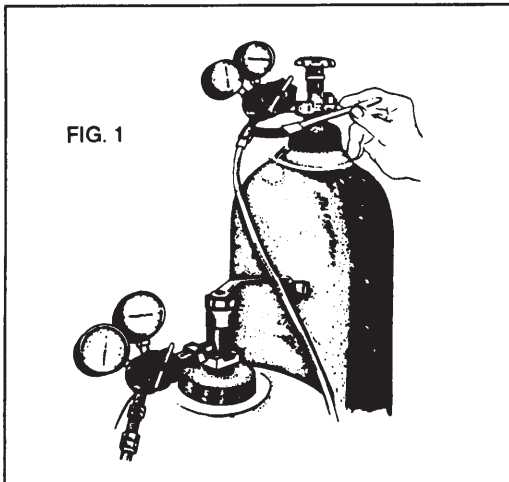


FIG. 1

SELECT AND INSTALL A TIP

1. The preset oxygen and fuel gas regulators should be in the open position (turned all the way open, counterclockwise).
2. It is recommended that tips #1 and #2 are NOT used for gases

other than acetylene or hydrogen. **Tips #1 and #2 require the use of open flame for ignition.**

3. Select the desired tip (refer to the tip chart). Install and tighten using a 5/16" wrench (do not over-tighten).
4. Tip sizes are represented by a number (1-7) stamped on the copper section.

LIGHTING PROCEDURES WHEN USING DISPOSABLE CYLINDERS

1. Open the fuel gas torch valve approximately 1/8 to 1/4 turn (counterclockwise).
2. Using an approved friction lighter or holding the tip over an approved Bunsen burner or candle, ignite the fuel gas.
3. Slowly open the oxygen torch valve (counterclockwise) until the flame is neutralized. This is accomplished by adding oxygen until the bright cone off the end of the tip just reaches its shortest length.
4. Increase the fuel gas another 1/8 turn.
5. Again, increase the oxygen until the flame is neutralized. If necessary, continue this procedure until the maximum volume of fuel and oxygen are being used and the desired flame is achieved.

EXTINGUISHING THE TORCH FLAME

1. Turn the fuel gas torch valve to the closed position (clockwise).
2. Turn the oxygen torch valve to the closed position (clockwise).

SHUT DOWN THE SYSTEM

1. Turn the oxygen preset regulator valve to the closed position (clockwise). Notice arrow on knob.
2. Turn the fuel gas preset regulator valve to the closed position (clockwise). Notice arrow on knob.

BLEED THE SYSTEM

1. Remove the tip being used.
2. Open the oxygen torch valve 1/2 turn until all pressure has been released from the hose and regulator, then close the oxygen torch valve.
3. Open the fuel gas torch valve 1/2 turn until all pressure has been released from the hose and regulator, then close the fuel gas torch valve.
4. Secure and store unused equipment away from possible damage.

SECTION 3 -- PART B
OXY-FUEL "LITTLE TORCH" EQUIPMENT
HIGH PRESSURE -- INDUSTRIAL CYLINDERS

When using high pressure industrial cylinders, the following instructions will apply:

WARNING

Read and follow these instructions before installing or operating any oxy-fuel equipment. Failure to do so can result in fire, explosion, damage to equipment, severe personal injury or substantial property damage.

Do not use regulators, hoses, cylinders, torches, or any oxy-fuel equipment if oil, grease, or similar contaminants are present.

Do not use regulators, hoses, cylinders, torches, or any oxy-fuel equipment that is damaged.

Do not alter or attempt to repair any oxy-fuel equipment. Repairs should be performed only by a competent, qualified repair center.

COMPRESSED GAS CYLINDERS

Use only compressed gas cylinders that are approved by the Department of Transportation (DOT) with this equipment. Your "Little Torch" will operate on cylinders that are available from Smith Equipment or from your local welding supply dealer.

WARNING

Serious accidents can result from improper use and handling of compressed gas cylinders. Always follow the instructions and safety procedures provided by your gas supplier.

1. Industrial oxygen cylinders are pressurized to approximately 2,250 P S I
2. Industrial hydrogen cylinders are pressurized to approximately 2,250 P S I
3. Industrial acetylene cylinders are pressurized to approximately 350 P S I
4. Cylinders should always be kept in a vertical position and secured from falling. (Refer to ANSI/ASC 249.1-88).
5. Keep cylinder valve protection cap (if supplied) on whenever cylinders are not being used.
6. A suitable hand truck or carrying case (depending upon the cylinder size) must be used for transporting or moving the cylinders.
7. Locate cylinders away from sparks, hot slag, and flames. Do not allow any electrical contact with cylinders.
8. Empty cylinders must be stored with valves closed, protective caps (if supplied) in place and separated from full cylinders.
9. Never use a compressed gas cylinder without an approved gas pressure reducing regulator attached to the outlet side of the cylinder.
10. All cylinder valves should be checked for leaks in the open

and closed positions after they are filled.

11. Check local fire protection codes for safe storage of oxygen and fuel gas cylinders.

WARNING

Never tamper with or attempt to repair compressed gas cylinders or valves. Leaking cylinders or cylinders with leaking valves should be placed outdoors, identified, and returned to your gas supplier.

EQUIPMENT SETUP

ATTACHING REGULATORS

1. Regulators must be used only with the gases and pressure for which they are designed.
2. Oxygen regulator is identified by (green) and has right hand thread for cylinder connection.
3. Fuel gas regulator is identified by (red) and has left hand thread for cylinder connection.
4. Securely fasten cylinders to prevent them from tipping or falling. (Refer to ANSI/ASC 249.1-88).

WARNING

When opening the oxygen and the fuel gas cylinder to clean the valve, be sure the area is well vented and direct the gas away from people, flames, and other sources of ignition. Fire and explosions can result from the rapidly escaping gas.

5. If provided, remove the oxygen cylinder protection cap from the cylinders.
6. Slightly open the oxygen cylinder valve, allowing gas to escape,

then close the valve quickly. This will clean the connection of any foreign material (FIGURE 2).

7. Attach the oxygen regulator to the oxygen cylinder and secure tightly using a proper fitting wrench (FIGURE 3). Connection has right hand threads, turn clockwise.

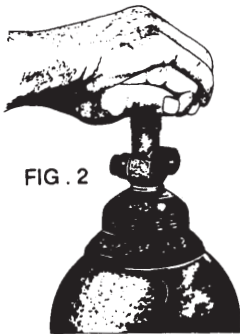


FIG. 2

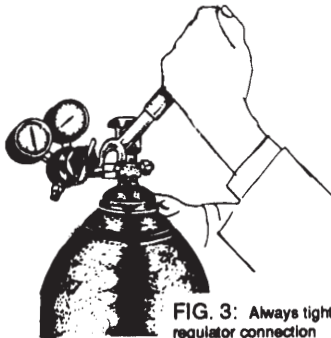


FIG. 3: Always tighten regulator connection nuts with a wrench.

8. Follow the same procedure for the fuel gas cylinder as described in Steps 1 through 4.
9. Attach the fuel gas regulator to the fuel gas cylinder and secure tightly using a proper wrench. Connection has left hand threads, turn counterclockwise.

WARNING

Do not position yourself in front of or behind the regulator when opening cylinder valve to clean out valve area. Place yourself with the cylinder between you and the regulator.

HOSES

1. Use only the hoses that are supplied by Smith. These hoses transport low pressure gases from the regulator to the torch tips. The hoses are color coded (green) for oxygen and (red) for fuel gas.
2. Attach the green hose to the oxygen regulator (right hand thread) and tighten securely using an 11/16" wrench.
3. Attach the red hose to the fuel gas regulator (left hand thread) and tighten securely using an 11/16" wrench.
4. Close both the oxygen and fuel gas valves on torch body.

ACTIVATE THE REGULATORS

WARNING

Do not activate the system with the regulator pressure adjusting screw turned in. This condition can allow high pressure gas to damage the internal parts of the regulator, which can result in an explosion, fire, or damage to equipment, personal injury, or property damage.

1. Turn the oxygen regulator pressure adjusting screw to the left (COUNTERCLOCKWISE) until there is an absence of spring pressure felt on the pressure adjusting screw.
2. Turn the fuel gas regulator pressure adjusting screw to the left (COUNTERCLOCKWISE) until there is an absence of spring pressure felt on the pressure adjusting screw.
3. With the oxygen cylinder between you and the regulator SLOWLY open the cylinder valve until the maximum cylinder pressure is indicated on the high pressure regulator gauge. Then open the oxygen cylinder valve all the way.
4. When using Acetylene as the fuel gas, open cylinder valve no more than one full turn.

5. When using a fuel gas OTHER than acetylene, open the cylinder valve completely.

CAUTION

Be sure to check local fire protection codes for safe storage and locations of fuel gas cylinders.

ADJUSTING REGULATOR PRESSURES AND PURGING THE HOSES

1. Check to be sure the oxygen and fuel gas valves on the torch body are in the closed (off) position.
2. Turn in (CLOCKWISE) the oxygen regulator pressure adjusting screw until the low pressure gauge indicates 5 PSI.

WARNING

Before lighting the torch, purging of the system is necessary to reduce the possibility of a mixed gas condition in the system. A mixed gas can result in an explosion or fire. Purging should be done in a well ventilated area that is free from open flames or other sources of ignition.

3. Without having a tip installed, open the torch body oxygen valve and allow oxygen to flow for three to four seconds. This will purge the oxygen side of the system
4. Repeat steps 2 and 3 for the fuel gas. This will purge the fuel gas side of the system.

TEST THE EQUIPMENT FOR LEAKS

1. Check the equipment for leaks using an approved oil free leak detection fluid. This fluid may be found at your local welding supply dealer.
2. With the system pressurized and the torch body valves closed,

- test all fittings for leaks as shown in FIGURE 1 on page 13.
3. Be sure to test all cylinder valves for leaks in the open and closed positions.
 4. Do not use equipment if a leak is detected.

NOTE: If the torch is not going to be in use for more than one half hour, it is recommended that the system be completely shut down. Please refer to the subsequent section "Shut Down the System" for proper instructions.

SELECT AND INSTALL TIP

1. It is recommended that tips #1 and #2 are NOT used for gas other than acetylene or hydrogen. **Tips #1 and #2 require the use of an open flame for ignition.**
2. Refer to the tip chart and select desired tip.
3. Install tip and snug using a 5/16" wrench. (DO NOT OVERTIGHTEN.)
4. Tip sizes are represented by a number (1-7) stamped on the copper section.

LIGHTING AND ADJUSTING THE "LITTLE TORCH" WHEN USING ACETYLENE OR HYDROGEN AS THE FUEL GAS

WARNING

Before lighting the "Little Torch" follow all personal and equipment safety regulations. Wear safety glasses and filtered protective eyewear to protect the eyes from hazardous rays of light produced by the flame.

The following instructions are adjustment procedures for the "Little Torch" when using acetylene or hydrogen fuel gases. This equipment is designed to operate at a set volume of gas for each

tip. Using less than the required volume may result in overheating of the tip or equipment and can lead to an internal fire or flashback.

1. Having followed the instructions contained in this manual pertaining to set up, leak testing, and purging, you are now ready to light the "Little Torch."

CAUTION

When lighting, keep the tip pointed away from people and combustibles.

2. When using hydrogen, tip sizes #1 and #2 will be difficult to see. Lighting and flame adjustment should be made in a dark area or in front of a dark background. Use of a cobalt goggle lens may increase flame visibility.
3. Open the fuel gas valve approximately 1/4 turn, using an approved friction lighter or holding tip over an approved Bunsen burner to ignite the gas.
4. Continue opening the fuel gas valve until the flame is about to leave the end of the tip.
5. Slowly, open the oxygen torch valve. Continue to open until the flame is in its neutral condition or the desired flame is achieved.

LIGHTING AND ADJUSTING THE "LITTLE TORCH" WHEN USING OXYGEN AND ALTERNATE FUEL GASES. (MAPP, Propane, Propylene, Natural Gas)

1. It is NOT recommended that tips #1 and #2 be used for alternate fuel gases.
2. Open the fuel gas valve approximately 1/4 turn. Using an approved friction lighter or holding tip over an approved Bunsen burner, ignite the fuel gas.
3. Adjust until the flame is about to leave the end of tip.

4. Slowly, open the oxygen torch valve until a neutral flame is obtained.
5. Further open the torch fuel valve 1/8 to 1/4 turn.
6. Again, open the oxygen torch valve until the flame is neutral.
7. If needed, continue this procedure until the maximum volume of fuel and oxygen are being used and desired flame is achieved.

NOTE: Tip #3 may be difficult to light when using natural gas as the fuel.

WARNING

When using alternate fuel gases such as propane, be sure to test the cylinder valve and all connections for leaks. This is especially important if the cylinders are to be used indoors. Leaking fuel gas may cause fire or explosions resulting in possible property damage, injury or death.

WARNING

When opening the torch valve to clear the system of gases, be sure the area is well vented. Direct the gases away from people, flames, or other sources of ignition. Fire and explosion can result from escaping gases.

EXTINGUISHING THE "LITTLE TORCH" FLAME AND SECURING EQUIPMENT

1. Turn the fuel gas torch valve to the closed position (clockwise).
2. Turn the oxygen torch valve to the closed position (clockwise).

SHUT DOWN THE SYSTEM

1. Turn the oxygen cylinder valve to the closed position (clock wise).
2. Turn the fuel gas cylinder valve to the closed position (clock wise).

BLEED THE SYSTEM OF GASES

1. Remove tip from torch body.
2. Open oxygen torch valve 1/2 turn.
3. Observe oxygen regulator. When low pressure gauge indicates "0", close the oxygen torch valve.
4. Turn the oxygen regulator pressure adjusting screw to the left (COUNTERCLOCKWISE) until there is an absence of spring pressure felt on the adjusting screw.
5. Repeat steps 2, 3, and 4 for the fuel gas.
6. Securely store equipment in a safe place until needed.

REGULATORS

The following regulators are recommended for use with "The Little Torch" because they provide the low regulated pressures and flows necessary for fine flame adjustment and stability.

Stock Number	Gas	Inlet Connection	Fits Cylinders
H1940G-540	Oxygen	CGA 540	All industrial oxygen
H1941E-520	Acetylene	CGA 520	Type B and Autolite
H1942E-300	Acetylene	CGA 300	Commercial acetylene
H1943F-350	Hydrogen	CGA 350	Hydrogen
H1944F-200	Acetylene	CGA 200	"MC" (10 cubic ft.)
H1945E-510	LP*	CGA 510	POL

* Propane Hook Up, Propylene, MAPP®, H.P.G.®, Flamex®

TECHNICAL DATA

TIPS

Recommended pressure settings and fuel gases for straight, curved or twin flame Little Torch tips sizes 2-6 and #7 curved tip:

Tip Size	Orifice Diameter	Gas Pressure (P.S.I.)		Consumption C.F.H. Each Gas*	Recommended Fuel Gas with Oxygen
		Oxygen	Fuel		
2	.006"	2	2	.074	Acetylene, Hydrogen
3	.011"	3	3	.173	Acetylene, Hydrogen
4	.020"	4	4	1.268	Propane, Propylene
5	.029"	6	6	2.307	Mapp®, Natural Gas
6	.037"	6	6	2.730	(City Gas)
7	.047"	8	8	3.310	

* Acetylene and Oxygen only.

Pressures above apply to all fuel gases.

Recommended pressure settings and fuel gases for Little Torch multi-orifice heating tips:

Model Number	Gas Pressure P.S.I.		Consumption C.F.H.		B.T.U Output	Recommended Fuel gases
	Oxygen	Fuel	Oxygen	Fuel		
13-662	14	10	4.9	5.5	8000	Acetylene, MAPP®, Hydrogen, Propylene
13717	14	10	5.4	2	5000	Propane
13717	7	5	3.6	2.2	2420	Natural Gas

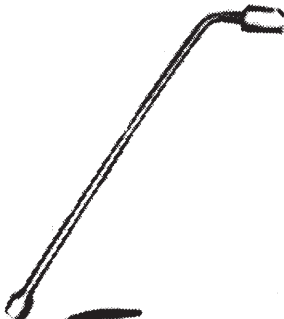
Little Torch™ ACCESSORIES

STRAIGHT TIP
Size 4
TWIN FLAME TIPS
Sizes 3-6

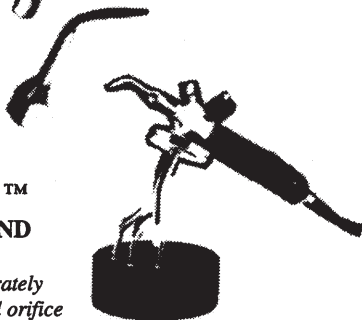


**PROPANE/NATURAL GAS
MELTING TIP**
Melts to 3 oz. silver

**ACETYLENE/HYDROGEN
MELTING TIP**
Melts to 3 oz. silver



CURVED TIPS
Sizes 2-7



**Little Torch™
MAGNETIC STAND**

Stock No. 14014
*Torch & tips sold separately
Size 1-3 tips have jeweled orifice*

**For more information call Smith Equipment
Toll Free at 1-800-328-3363**



2601 Lockheed Avenue
Watertown, SD 57201-5636
(605) 882-3200
Toll Free 1-800-328-3363