SMITH EQUIPMENT

OM-263687B
2015–01

Processes

Oxy-Fuel
Soldering
Heating

Handi-Heet®
Silver Smith®
Acetylene/Atmospheric Air Torch Systems

OWNERS MANUAL

File: Accessory

Form 4248 Rev 2015-01

TABLE OF CONTENTS

SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

Protect yourself and others from injury — read, follow, and save these important safety precautions and operating instructions.

1-1. Symbol Usage

DANGER! – Indicates a hazardous situation which, if not avoided, will result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

Indicates a hazardous situation which, if not avoided, could result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

NOTICE *– Indicates statements not related to personal injury.*

☞ *Indicates special instructions.*

This group of symbols means Warning! Watch Out! ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.

1-2. Welding, Cutting, Brazing, Heating Hazards

The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-4. Read and follow all Safety Standards.

Only qualified persons should install, operate, maintain, and repair this equipment.

During operation, keep everybody, especially children, away.

Do not use this equipment unless you are trained in its proper use or are under competent supervision. Follow the procedures described in this booklet every time you use the equipment. Failure to follow these instructions may cause fire, explosion, asphyxiation, property damage, or personal injury. This equipment must be used in accordance with all Federal, State, and local regulations as well as DOT (Department of Transportation) and CGA (Compressed Gas Association) regulations. Contact your gas supplier for more information on the proper use of compressed gases.

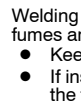
☞ *In this document, the phrase "welding and cutting" also refers to other oxy-fuel operations like brazing and heating.*

READ INSTRUCTIONS.

- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing equipment. Read the safety information at the beginning of the manual and in each section.
- Use only genuine replacement parts from the manufacturer.
- Perform maintenance and service according to the Owner's Manuals, industry standards, and national, state, and local codes.

HOT PARTS can burn.

- Do not touch hot parts bare handed.
- Allow cooling period before working on equipment.
- To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.



FUMES AND GASES can be hazardous.

Welding and cutting produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use local forced ventilation at the flame to remove welding and cutting fumes and gases. Some gases (natural gas and acetylene) are lighter than air and will collect in high areas. Other gases (propane and butane) are heavier than air and will collect in low areas. Heavier-than-air gases are more difficult to diffuse and are more likely to accumulate. The recommended way to determine adequate ventilation is to sample for the composition and quality of fumes and gases which personnel are exposed.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand the Safety Data Sheets (SDSs) and the manufacturer's instructions for adhesives, coatings, cleaners, consumables, coatings, cleaners, degreasers, fluxes, and metals.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watchperson nearby. Welding and cutting fumes and gases can displace air and lower the oxygen level, causing injury or death. Be sure the breathing air is safe. Test atmospheres in confined areas for explosive and toxic gases before using oxy-fuel equipment.
- Do not weld or cut in locations near degreasing, cleaning, or spraying operations. The heat from welding or cutting flame can react with vapors to form highly toxic and irritating gases.
- Do not weld or cut on coated metals, such as galvanized, lead, or cadmium-plated steel unless the coating is removed from the affected area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded or cut.
- Do not weld or cut on sealed air conditioning or refrigeration systems unless all refrigerants have been removed from the system.

BUILDUP OF GAS can injure or kill.

- Shut off compressed gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.

LIGHT RAYS can burn eyes and skin.

Light rays from the welding and cutting process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- Wear approved face protection fitted with a proper shade of filter lenses to protect your face and eyes from light rays and sparks when welding, cutting, or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear welding goggles, or wear welding helmet/welding face-shield over approved goggles/safety glasses with side shields.
- Use protective screens or barriers to protect others from flash, glare and sparks; warn others not to watch the welding or cutting.
- Wear body protection made from durable, flame–resistant material (leather, heavy cotton, wool). Body protection includes oil-free clothing such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.

WELDING AND CUTTING can cause fire or explosion.

Welding and cutting on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding or cutting operations. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Check and be sure the area is safe before doing any welding or cutting.

- Do not use this welding and cutting equipment with gases and pressures other than those for which it is intended. Oxygen is not flammable; however, the presence of pure oxygen will drastically increase the speed and force with which burning takes place. Oxygen must never be allowed to contact grease, oil, or other petroleum-based substances; therefore, be sure there is no oil or grease on the regulator, cylinder, valves, or equipment. Do not use petroleum-based pipe sealants. Do not use or store near excessive heat (above 125° F/51.5° C) or open flame. Do not refer to oxygen as air and do not use oxygen as a substitute for compressed air. Do not use oxygen to clean clothes or work area, for ventilation, or to operate pneumatic tools. Open oxygen cylinder valves slowly. Be sure regulator adjusting handle is in the full out (off) position before opening oxygen cylinder valve.
- Inspect all equipment before use. Do not use damaged, defective, or improperly adjusted welding and cutting equipment. Make sure levers and valves work properly, threads on equipment are clean (no grease or oil) and not deformed, gauges are intact and easy to read, regulator is clean and free of oil or dirt, and fittings are properly sized for the cylinder. Make sure hoses are clean (no grease or oil) and ferrules are properly installed so the fitting does not slip inside the hose. Be sure all connections are tight.

- It is recommended that a reverse-flow check valve or a flashback arrestor be installed between the torch handle and the regulator. Check valves do not prevent the propagation of a flame upstream (flashback) but are designed to prevent the unintentional backflow of gases into the cutting attachment, torch, hoses, or regulator which could cause an explosion or fire. A flashback arrestor can be installed on the torch handle instead of a check valve. Miller flashback arrestors have a reverse flow check valve and prevent the propagation of a flame upstream. If a flashback arrestor is installed, a check valve is not necessary. Using a flashback arrestor and a check valve may reduce gas flow and affect torch operation. To help prevent the reverse flow of gases, be sure the cylinders contain enough gas to complete the work.
- Perform work only in an area with a fireproof floor (concrete). Do not heat concrete because it may expand and explode violently.
- Perform work on a fireproof surface. Use heat resistant shields to protect nearby walls and flooring.
- Do not use if grease or oil is present on equipment or if equipment is damaged. Have equipment cleaned/repaired by a qualified person.
- Do not open a cylinder valve quickly or the regulator may be damaged and cause a fire.
- Do not open acetylene cylinder valve more than 3/4 turn. (For all gases except acetylene, open cylinder valve fully to backseal the cylinder valve.) Keep cylinder wrench on the cylinder for quick shut-off.
- Do not slightly open or “crack” fuel cylinder valve to blow debris from the valve outlet. Remove the debris using nitrogen, air, or a clean, oil-free rag.
- Always purge gas from the system before lighting torch. Purge gas in a well-ventilated area and away from flame or sparks.
- Keep torch flame or sparks away from cylinder, regulator, and gas hose.
- Use only the gases recommended by the manufacturer of the oxy-fuel equipment being used.
- Never light a torch with matches or a lighter. Always use a striker.
- Do not use acetylene above 15 psi (103 kPa) flowing. It is acceptable to use acetylene regulators that indicate a static pressure up to 22 psi (151 kPa).
- Check oxy-fuel system for leaks with an approved leak detection solution or leak detector. Never test for gas leaks with a flame.
- Remove all flammables within 35 ft (10.7 m) of the welding or cutting operation. If this is not possible, tightly cover them with approved covers.
- Do not weld or cut where flying sparks can strike flammable material.
- Protect yourself and others from flying sparks and hot metal.
- Be alert that welding and cutting sparks and hot materials from welding and cutting can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding or cutting on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld or cut on containers that have held combustibles, or on closed containers such as tanks, drums, or pipes unless they are properly prepared according to AWS F4.1 and AWS A6.0 (see Safety Standards).
- Do not weld or cut where the atmosphere may contain flammable dust, gas, or liquid vapors (such as gasoline).

- Wear body protection made from durable, flame–resistant material (leather, heavy cotton, wool). Body protection includes oil-free clothing such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Do not use fuel gases to clean clothes or work area.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding or cutting.
- After completion of work, inspect area to ensure it is free of sparks, glowing embers, and flames.
- Follow requirements in OSHA 1910.252 (a) (2) (iv) and NFPA 51B for hot work and have a fire watcher and extinguisher nearby.

CYLINDERS can explode if damaged.

Compressed gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding or cutting process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, and sparks.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping. Do not lay acetylene cylinders on their sides or acetone will flow out of the cylinder and damage the equipment.
- Keep cylinders away from any arc welding, cutting, or other electrical circuits.
- Never drape a welding or cutting torch over a gas cylinder.
- Never weld or cut on a pressurized cylinder – explosion will result.
- Use only correct compressed gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition. Do not use compressed gas cylinder unless an approved gas regulator is attached to the gas valve.
- Turn face away from valve outlet when opening cylinder valve. Do not stand in front of or behind the regulator when opening the valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Use the right equipment, correct procedures, and sufficient number of persons to lift and move cylinders.
- Store compressed gas and oxygen cylinders in separate locations.
- Store empty cylinders with valves closed and caps in place.
- Do not modify or repair cylinders or valves. Store leaking acetylene cylinders outdoors in a safe area. Identify leaking cylinders and return them to the supplier.
- Dispose of used disposable cylinders according to the manufacturer's recommendations. Do not throw cylinders in fire.
- Follow instructions provided by the gas supplier and on compressed gas cylinders, associated equipment, and in Compressed Gas Association (CGA) publication P-1 listed in Safety Standards.

FLYING METAL or DIRT can injure eyes.

- Welding, cutting, chipping, wire brushing, and grinding cause sparks and flying metal.
- Wear welding goggles, or wear welding helmet/welding faceshield over approved goggles/safety glasses with side shields.

1-3. California Proposition 65 Warnings

Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

This product contains chemicals, including lead, known to the state of California to cause cancer, birth defects, or other reproductive harm. *Wash hands after use.*

1-4. Principal Safety Standards

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, is available as a free download from the American Welding Society at http://www.aws.org or purchased from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for Welding and Cutting Containers that have Held Combustibles, American Welding Society Standard AWS A6.0, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151 (phone: 703-788-2700, website:www.cganet.com).

Acetylene, CGA Pamphlet G-1, from Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151 (phone: 703-788-2700, website:www.cganet.com).

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Ontario, Canada L4W 5NS (phone: 800-463-6727, website: www.csa-international.org).

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (phone: 212-642-4900, website: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org.)

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (phone: 1-866-512-1800) (there are 10 OSHA Regional Offices—phone for Region 5, Chicago, is 312-353-2220, website: www.osha.gov).

Applications Manual for the Revised NIOSH Lifting Equation, The National Institute for Occupational Safety and Health (NIOSH), 1600 Clifton Rd, Atlanta, GA 30333 (phone: 1-800-232-4636, website: www.cdc.gov/NIOSH).

Recommended Practices for Safe Oxyfuel Gas Cutting Torch Operation C4.2/C4.2M, and *Recommended Practices for Safe Oxyfuel Gas Heating Torch Operation* C4.3/C4.3M from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

SECTION 2 – INTRODUCTION

⚠ **Inspect all equipment before use. Do not use damaged, defective, or improperly adjusted welding and cutting equipment. Make sure levers and valves work properly, threads on equipment are clean (no grease or oil) and not deformed, gauges are intact and easy to read, regulator is clean and free of oil or dirt, and fittings are properly sized for the cylinder. Make sure hoses are clean. Be sure all connections are tight and there are no leaks in the system.**

⚠ **Do not use this equipment with gases and pressures other than those for which it is intended. Do not use torch/tip combinations designed for use with acetylene with any other fuel gases. The regulator provided is designed to regulate acetylene. Do not use with high pressure gases such as oxygen.**

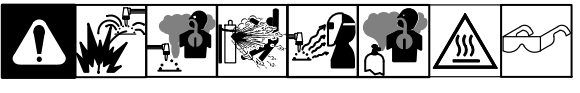
⚠ **Acetylene is highly flammable. Never let acetylene escape where it can be ignited. In certain proportions with air it may explode when ignited. Do not store tank in confined area.**

⚠ **Do not lay a lighted torch down. The torch flame reaches temperatures of 4800° F (2649° C) and can quickly start a fire.**

⚠ **Do not weld on containers that have held combustibles, or on closed containers such as tanks, drums, or pipes unless they are properly prepared according to AWS F4.1 and AWS A6.0 (see Safety Standards).**

This booklet offers basic information regarding the Handi-Heet and Silver Smith torch systems. Given reasonable care, these torches will provide trouble-free use for many years.

SECTION 3 – THE TORCH SYSTEM



3-1. Torch

The Handi-Heet torch is designed to meet the requirements of industry for a small, lightweight torch for brazing, soldering, leading, heating, and straightening. The Silver Smith torch is designed to meet the light brazing and soldering needs of jewelers and hobbyists. The various tips available provide a wide range of flame configurations and the versatility to perform many different tasks. Lightweight construction and highly flexible hoses provide pinpoint flame control and ease of operation.

3-2. Gases

The torch systems use atmospheric air and acetylene.

3-3. Tips

There are six tips available for the torches. Refer to the pressure recommendation chart provided in this booklet for the tips being used.

3-4. Repairs/Replacement Of Hose

⚠ **Replace hose at the first sign of any defects, flaws, or damage. The hose should otherwise be replaced every four years. Inspect hose for damage or leaks before each operation. Do not allow hose to come in contact with hot metal, molten solder, or corrosive chemicals. Do not expose hose to fluxing agents as these agents will deteriorate the hose materials and cause them to leak.**

⚠ **Use an approved oil-free leak detection fluid to locate possible leaks.**

⚠ **Use only industrial grade hose. Grade T hose is acceptable for all fuel gases. Grade R hose is for acetylene only.**

For your protection, use only genuine Smith Equipment hose and replacement parts. Smith Equipment replacement hoses come with step–by–step replacement instructions and a tool for securing the brass ferrules over the hose ends.

Repairs and replacement parts are available through your authorized Smith Equipment distributor. Find a dealer at www.smithequipment.com.

SECTION 4 – USING THE TORCH

⚠ **Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping. Maintain a clear path from the cylinders to the work area.**

⚠ **Inspect equipment before use. Do not use if grease or oil is present on equipment or if equipment is damaged. Have equipment cleaned/repaired by a qualified person.**

⚠ **Do not slightly open or "crack" fuel cylinder valve to blow debris from the valve outlet. Remove the debris using nitrogen, air, or a clean, oil-free rag.**

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

4-1. Industrial-Type Cylinder Information

Industrial acetylene cylinders are pressurized to approximately 250 psig (1,724 kPa).

4-2. Installing Regulator

1. Attach the regulator to the acetylene cylinder and tighten firmly with a wrench clockwise (right-hand threads).
2. Attach the regulator to the acetylene gas cylinder and tighten firmly with a wrench. Fuel gas regulators may have left or right hand threads. A regulator connection with machined grooves in the nut indicates the regulator has left-hand threads. If there are no machined grooves in the nut the regulator has right-hand threads (for use with MC or B acetylene cylinders). See Figure 1.

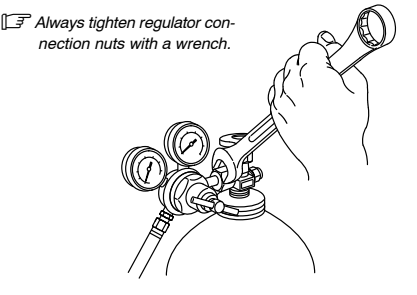


Figure 1. Installing Regulator

4-3. Installing Hose

⚠ **Replace hose at the first sign of any defects, flaws, or damage. The hose should otherwise be replaced every four years. Inspect hose for damage or leaks before each operation. Do not allow hose to come in contact with hot metal, molten solder, or corrosive chemicals. Do not expose hose to fluxing agents as these agents will deteriorate the hose materials and cause them to leak.**

⚠ **Do not splice or use damaged hose.**

3. Use only hoses that are supplied by Smith Equipment. Attach one end of hose to the regulator and tighten firmly with a wrench counterclockwise (left-hand threads).
4. Attach other end of hose to torch handle and tighten firmly with a wrench counterclockwise (left-hand threads).

4-4. Testing The Equipment For Leaks

⚠ **Use an approved oil-free leak detection fluid to locate possible leaks.**

⚠ **Do not stand in front of or behind the regulator when opening the cylinder valve. Never open a cylinder valve suddenly as this can damage a regulator.**

With the system pressurized and the torch valve closed, check every connection and joint from the cylinder valve to the torch tip with an approved leak detection solution (Figure 2). If leaks are detected, eliminate them before proceeding. If leaks cannot be eliminated, do not put the equipment into service until it has been repaired or replaced.

☞ *If the torch is not going to be in use for more than one half hour, turn the regulator valve to the Off position.*

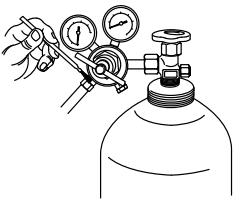


Figure 2. Testing Equipment For Leaks

4-5. Selecting And Installing A Tip

1. Fully open the acetylene regulator (turn handle clockwise).
2. Select the desired tip. Tip sizes are represented by a number stamped on the copper section.
3. Using a slight turning motion, push tip into the torch handle as far as it will go. Hand tighten the tip nut. It is not necessary to use a wrench on the tip nut since the rubber o-rings make a gas-tight seal. Replace o-rings when they become worn or deeply cut.

☞ *Reverse flow check valves or flashback arrestors are not required with the Handi-Heet or Silver Smith Torches.*

4-6. Lighting Procedures

Follow the set-up instructions explained in Sections 4-2 thru 4-5 before lighting the torch.

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

1. Open the torch valve approximately 1/8–1/4 turn (counterclockwise) and ignite the fuel gas using an approved friction spark lighter.

⚠ **Do not use matches or a cigarette lighter to ignite the gas.**

2. Fully open torch valve to produce maximum flame size.

4-7. Extinguishing The Torch Flame

Turn the torch valve to the closed position (clockwise). Do not be alarmed if a “pop” occurs at the base of the tip. This sound is created as the remaining gas in the torch tip burns.

4-8. Shutting Down The System

1. Extinguish torch flame (see Section 4-7).
2. Close tank valve firmly with tank key or valve handle.
3. Open torch valve until regulator gauge needle drops to zero (0) pressure, and you do not hear gas coming from the tip end. Then close torch valve again.
4. Turn regulator pressure adjusting handle to the left (counterclockwise) until no spring pressure is felt on the adjusting handle.

Acetylene Tip Selection Table
(For Soldering Sweat-Type Fittings To Std. Copper Tubing)

Fitting Diameter		Material	Tip	Acetylene Consumption	
in.	mm			ft^3/hr	L/hr
3/8	10	Copper	NE-180-1	2.8	79.3
		Copper	NE-180-2	5.2	147.2
		Copper	NE-180-3	9	254.9
		Brass	NE-180-1	2.8	79.3
		Brass	NE-180-3	9	254.9
1/2	13	Copper	NE-180-1	2.8	79.3
		Copper	NE-180-2	5.2	147.2
		Copper	NE-180-3	9	254.9
		Brass	NE-180-2	5.2	147.2
		Brass	NE-180-3	9	254.9
3/4	19	Copper	NE-180-2	5.2	147.2
		Copper	NE-180-3	9.0	254.9
		Copper	NE-180-4	22.8	645.6
		Brass	NE-180-2	5.2	147.2
		Brass	NE-180-4	22.8	645.6
1	25	Copper	NE-180-2	5.2	147.2
		Copper	NE-180-3	9.0	254.9
		Copper	NE-180-4	22.8	645.6
		Brass	NE-180-3	9.0	254.9
		Brass	NE-180-4	22.8	645.6
1-1/4	32	Copper	NE-180-2	5.2	147.2
		Copper	NE-180-3	9.0	254.9
		Copper	NE-180-4	22.8	645.6
		Brass	NE-180-3	9.0	254.9
		Brass	NE-180-4	22.8	645.6

Fitting Diameter		Material	Tip	Acetylene Consumption	
in.	mm			ft^3/hr	L/hr
1-1/2	25	Copper	NE-180-2	5.2	147.2
		Copper	NE-180-3	9.0	254.9
		Copper	NE-180-4	22.8	645.6
		Brass	NE-180-3	9.0	254.9
		Brass	NE-180-4	22.8	645.6
2	51	Copper	NE-180-3	9.0	254.9
		Copper	NE-180-4	22.8	645.6
		Brass	NE-180-3	9.0	254.9
		Brass	NE-180-4	22.8	645.6
4	102	Copper	NE-180-4	22.8	645.6
		Brass	NE-180-4	22.8	645.6
6	152	Brass	NE-180-4	22.8	645.6

☞ *Consumption values based on acetylene at an average pressure of 13 psig (89.6 kPa).*

TRUE BLUE® WARRANTY

Effective January 1, 2015

(For Oxy-Fuel and Pressure Regulation Equipment with a date code of BFA or newer)

This limited warranty supersedes all previous Miller warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY - Subject to the terms and conditions below, Miller Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser that new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS. Within the warranty periods listed below, Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Miller must be notified in writing within thirty (30) days of such defect or failure, at which time Miller will provide instructions on the warranty claim procedures to be followed. Miller shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the delivery date of the equipment to the original end-user purchaser, and not to exceed one year after the equipment is shipped to a North American distributor or twelve months after the equipment is shipped to an International distributor.

1. Lifetime Warranty – Parts and Labor
   * Torch Handles, Cutting Attachments, Straight Cutting Torches and Machine Torches stamped with a “LIFETIME” inscription. The use of tips other than genuine Miller tips may void the lifetime warranty.

2. 3 Years – Parts and Labor
   * Toughcut Outfits, Series 30, 32, 35, 36, 40, 46 Regulators, and all Flowmeters, Flow Gauges, and Flowmeter Regulators
3. 2 Years – Parts and Labor
   * Series 250, 820, and Smith-Branded Specialty Gas Regulators
4. 1 Year – Parts and Labor
   * Gas Axe Cutting Torches, HVAC/Purge Regulators, 3-Stage Nitrogen Low-Pressure Blanketing Regulators, Gas Savers, Gas Mixers, and all other Oxy-Fuel Products
   * SMITH BRANDED PRODUCTS

     The Little Torch, Quickbraze Torch, Handi-Heet/Silver Smith Torch
5. 90 Days – Parts and Labor
   * Corrosive Service Regulators

Miller's True Blue® Limited Warranty shall not apply to:

1. Consumable components; oxy-fuel cutting, welding, and heating tips, or parts that fail due to normal wear.
2. Items furnished by Miller, but manufactured by others. These items are covered by the manufacturer's warranty, if any.
3. Equipment that has been modified by any party other than Miller, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

MILLER PRODUCTS ARE INTENDED FOR PURCHASE AND USE BY COMMERCIAL/INDUSTRIAL USERS AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT. In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at Miller's option: (1) repair; or (2) replacement; or, where authorized in writing by Miller in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized Miller service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. Miller's option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at a Miller authorized service facility as determined by Miller. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed. TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MILLER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY. ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY OR REPRESENTATION AS TO PERFORMANCE, AND ANY REMEDY FOR BREACH OF CONTRACT TORT OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE OR COURSE OF DEALING, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, WITH RESPECT TO ANY AND ALL EQUIPMENT FURNISHED BY MILLER IS EXCLUDED AND DISCLAIMED BY MILLER.

Some states in the U.S.A. do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, so the above limitation or exclusion may not apply to you. This warranty provides specific legal rights, and other rights may be available, but may vary from state to state. In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be waived, the limitations and exclusions set out above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.

Mil oxy-fuel warr 2015-01

Miller Electric Mfg. Co.
An Illinois Tool Works Company
1635 West Spencer Street
Appleton, WI 54914 USA

International Headquarters–USA
USA Phone: 920-735-4505 Auto-Attended
USA & Canada FAX: 920-735-4134
International FAX: 920-735-4125

For International Locations Visit
www.MillerWelds.com

ORIGINAL INSTRUCTIONS – PRINTED IN USA