

# C-59 SCARFING TORCH



These INSTRUCTIONS are for experienced operators. If you are not fully familiar with the principles of operation and safe practices for oxy-fuel gas equipment, we urge you to read our booklet "Precautions and Safe Practices For Gas Welding, Cutting, and Heating", Form 2035. Do NOT permit untrained persons to install, operate, or maintain this equipment. Do NOT attempt to install or operate this equipment until you have read and fully understand these instructions. If you do not fully understand these instructions, contact your supplier for further information.

## 1. GAS SUPPLY AND REGULATION REQUIREMENTS

### A. Pressures

This C-59 can be used with any fuel gas other than acetylene such as natural gas, propane, and many proprietary gases. Fuel gas pressures of 5 to 20 psi are adequate for scarfing.

The C-59 operates most efficiently under normal conditions with an oxygen pressure of 45 psi at the torch inlet. The torch is adjusted at the factory for this condition. Under unusual operating conditions, pipeline size and/or pressure may be inadequate to provide oxygen at this level. Under such conditions, a slight opening of the compensator valve (located in the torch body) may be necessary. Instructions for adjusting the compensator valve are given in Section III-A.

### B. Hose Sizes

To obtain an oxygen pressure of 45 psi at the torch, the regulator must be set to a pressure sufficiently high to allow for the pressure drop through the hose. To avoid excessive pressure drop 1/2 inch hose and standard OXWELD "C" size hose fittings, such as P/N 2120399 (50-ft.), must be used. Hose larger than 1/2 inch may be required where lengths greater than 75 feet are used.

With 50 feet of 1/2 inch hose, the approximate pressure drop will be 60 psi. The regulator must therefore be set to a delivery pressure of approximately

105 psi.

With 75 feet of 1/2 inch hose, the approximate pressure drop will be 90 psi. The regulator therefore must be set to a delivery pressure of approximately 135 psi.

Fuel gas hose should be 3/8 inch with standard "B" size fittings, such as P/N 2120404(50-ft).

Also available is a fitted 65-ft. Scarfing Hose Assembly, P/N 2119324, which includes 50-ft. of 3/4" hose with "D" size fitting on one end for connecting to oxygen regulator spliced with 15-ft. of 1/2" hose with "C" size fitting for torch connection, and 65 ft. of 3/8" fuel gas hose with "B" size fittings.

### C. Station Regulator Panel P/N 2119101

This regulator panel includes the R-52 Oxygen Regulator (20A16) and the R-76-75-025 Fuel Gas Regulator (19153) conveniently mounted on a frame for wall mounting. The panel also includes shutoff and check valves, oxygen line filter, and fuel gas safety valve.

The R-52 Oxygen Regulator has ample capacity to meet gas flow requirements under normal operation conditions. However, to obtain the required delivery pressure at the regulator, the line pressure ahead of the regulator must be at least 10 lb. per sq. inch greater -- that is, at least 145 lb. per sq. in. (135 + 10).

**Be sure this information reaches the operator.  
You can get extra copies through your supplier.**



**ESAB Welding &  
Cutting Products**

# SAFETY PRECAUTIONS

**WARNING:** These Safety Precautions are for your protection. Before performing any installation or operating procedures, be sure to read and follow the safety precautions listed below. Failure to observe these Safety Precautions can result in personal injury or death.

1. **PERSONAL PROTECTION** — Heat rays (infrared radiation) from an oxy-fuel flame or hot metal can injure eyes. Therefore:
  - a. Wear shaded safety goggles made for gas welding and cutting purposes for protecting your eyes from radiation burns as well as sparks or spatter. WARN bystanders not to watch the flame and not expose themselves to the rays of the flame or hot metal.
  - b. Wear flameproof gauntlet type gloves, heavy long-sleeve shirt, cuffless trousers, high topped shoes, and a cap for hair protection, to protect against hot sparks or hot metal. A flameproof apron may also be desirable as protection against radiated heat and sparks.
  - c. Hot sparks or metal can lodge in rolled up sleeves, trouser cuffs, or pockets. Sleeves and collars should be kept buttoned, and pockets eliminated from front of clothing.
  - d. Protect other personnel from rays and hot sparks with a suitable nonflammable partition.
  - e. Always wear safety glasses or goggles when in a work area. Use safety glasses with side shields or goggles when chipping slag or grinding. Chipped slag may be hot and can travel considerable distances. Bystanders should also wear safety glasses and goggles.
  - f. Some gouging and cutting processes produce excessively high noise levels and require ear protection.
2. **FIRE-PREVENTION** — Hot slag or sparks can cause serious fires when in contact with combustible solids, liquids or gases. Oxygen causes fire to burn more rapidly. Fuel gas can explode in air or oxygen. Therefore:
  - a. Remove all combustible materials well away from the work area or completely cover the materials with a protective nonflammable covering. Such combustible materials include wood, clothing, sawdust, gasoline, kerosene, paints, solvents, natural gas, acetylene, propane, and similar combustible articles.
  - b. Hot sparks or hot metal can fall into cracks in floors or wall openings and cause a hidden smoldering fire. Make certain that such openings are protected from hot sparks and metal.
  - c. Do not weld, cut or perform other hot work until the workpiece has been completely cleaned so that there are no substances on the workpiece which might produce flammable or toxic vapors.
  - d. For fire protection, have fire extinguishing equipment handy for instant use, such as a garden hose, water pail, sand bucket, or portable fire extinguisher.
  - e. After completing operations, inspect the work area to make certain there are no hot sparks or hot metal which could cause a later fire.

- f. For additional information, refer to NFPA Standard 51B, "Fire Prevention in Use of Cutting and Welding Processes", which is available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.
3. **VENTILATION** — Fumes, particularly in confined spaces, can cause discomfort and physical harm. Do not breathe fumes. Therefore:
  - a. At all times provide adequate ventilation in the work area by natural or mechanical ventilation means. Do not weld, cut, or heat materials such as galvanized steel, zinc, lead, beryllium, cadmium, etc. unless positive mechanical ventilation is provided. Do not breathe fumes from these materials.
  - b. If you develop momentary eye, nose, or throat irritation while operating, this is an indication that ventilation is not adequate. Stop work and take necessary steps to improve ventilation in the work area. Do not continue to operate if physical discomfort persists.
  - c. Refer to AWS Standard Z49.1 in item 5 for specific ventilation recommendations.
  - d. Air samples can be used to find out what respiratory protection is needed.
4. **EQUIPMENT MAINTENANCE** — Faulty or improperly maintained equipment can result in poor work, but most importantly it can cause physical injury or death through fires. Therefore:
  - a. Always have qualified personnel perform the installation, troubleshooting, and maintenance work. Do not operate or repair any equipment unless you are qualified to perform such work.
  - b. Keep all oxy-fuel equipment free of grease or oil. Grease, oil and other similar combustible materials once ignited can burn violently in the presence of oxygen.
  - c. Maintain torches, hoses, and regulators in safe working order. Do not operate any equipment in faulty conditions.
  - d. Do not abuse equipment or accessories. Keep equipment away from excessive heat and wet conditions, oil or grease, corrosive atmospheres and inclement weather.
  - e. Keep all safety devices in position and in good repair.
  - f. Use equipment for its intended purpose. Do not modify it in any manner.
5. **ADDITIONAL SAFETY INFORMATION** — For more information on safe practices for setting up and operating oxy-fuel welding and cutting equipment and on good working habits, ask your welding equipment supplier for a copy of "Precautions and Safe Practices for Gas Welding, Cutting, and Heating", Form 2035. The following publications, which are available from the American Welding Society, 550 N.W. LeJuene Rd., Miami, FL 33126, are recommended to you:
  - a. "Safety in Welding and Cutting" -AWSZ49.1 (ANSI)
  - b. "Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping that have held Hazardous Substances" AWSF4.1

The R-76-75-025 Fuel Gas Regulator is designed for high flow delivery of fuel gas.

## D. Central Regulation

If the oxygen supply is regulated from a central point in a distribution line piping system, the R-83-40M Oxygen Station Regulator should be used. A single unit is usually sufficient, but several units may be required. Where operations are continuous and extremely heavy, an OXWELD R-600 Series Station Regulator may be needed.

## II. OPERATING INSTRUCTIONS

**NOTE:** *As received from the factory the starting rod feeder is offset for right-handed operations. For left-handed operation, see III-B, Page 5.*

### A. To Connect

Check that the packing nuts on the torch valves are snug. Attach the oxygen and fuel gas hoses to the torch. Use 1/2 in. hose for the oxygen supply and 3/8 in. hose for the fuel gas supply. Where lengths of hose greater than 75 ft. are desired, it may be necessary to use a section of larger than 1/2 in. hose in the oxygen line to reduce the pressure drop between the regulator and torch at

the normal operating flows.

Attach an 1806, size 62 nozzle (see Table 1) to torch head, and tighten the connection nut firmly with a wrench.

Insert the starting rod (steel rod, .178 to .195 in. in diameter) in the rear end of the rod feed body. Remove end burrs from starting rod prior to inserting. The rod must move freely. Slide it forward until the end is even with the tip of the nozzle. A 3/16" diam. X 36" long OXWELD No. 7 rod, Part No. 1031F15 (50 lb. package), is recommended, mainly because of its freedom from burrs and uniformity in size.

### B. To Adjust Pressures

#### Oxygen Pressure

If individual station regulators are used, connect an OXWELD test gauge adaptor (Part No. 21X48) between the oxygen hose and the torch. Set the delivery pressure on the oxygen regulator at 105 psi if using 50 ft. of hose, or at 135 psi if using 75 ft. of hose. Open the torch cutting oxygen valve and turn the pressure-adjusting screw on the regulator until the test gauge shows a pressure of 45 lb. per sq. in. Note the exact pressure on the regulator gauge. Then release the pressure-adjusting screw of the regulator, release the torch cutting oxygen

valve, and remove the test gauge from the line. Readjust the regulator (with the torch cutting oxygen valve open) until it shows the pressure noted during the test and then close the cutting oxygen valve.

### Fuel Gas Pressure

Open the torch fuel gas valve and adjust the fuel gas delivery pressure at the regulator to between 10 and 20 psig.

### C. To Light the Torch

Open the preheat oxygen valve just enough to provide a slight flow of preheat oxygen. Open the fuel gas valve one turn. Light the gas at the nozzle with a friction lighter. Adjust the flames with the preheat oxygen valve. Then open the cutting oxygen valve. If the flames blow away from the nozzle or blow away as soon as lit, close the fuel gas valve slightly, or if operations are controlled from a main line, reduce the fuel gas line pressure.

Tables I and II give operating data as well as other useful information that will be helpful in the normal use of the C-59 torch. Cleaning drill sizes are specified as Table I, and the oxygen and fuel gas flows for a range in operating pressure are given in Table II so as to give an indication of actual gas usage.

The cutting oxygen pressure should normally be set at 45 psi with the cutting oxygen valve wide open so as to

obtain a reasonably wide scarfing path width. The fuel gas pressure should be set at the high end of the range, although at times the available pressure at the supply station will be the controlling factor. When the torch pressures and torch valve adjustments (including the adjustment of the preheat oxygen compensator valve) are properly set, the preheat flames will be stable and should not blow off the end of the nozzle as the cutting oxygen lever is fully depressed and then released. The high velocity flames, pale in color (oxidizing), should be just below the flow-off point when the cutting oxygen valve is closed.

### D. To Feed the Starting Rod

With the rod adjusted until the end almost touches the preheat flames, press the torch cutting oxygen lever about halfway down. This movement feeds the rod, but does not open the cutting oxygen valve. Hold the lever at the halfway position until the rod is heated; then push the lever all the way down to open the cutting oxygen valve. During the latter half of the stroke, the rod remains stationary.

To feed the rod independently of the cutting oxygen, limit the movement of the valve lever to about half a stroke. To operate the cutting oxygen valve independently of the rod feed, confine the lever movement to the lower half of the stroke - as would be desirable for fin burning. The amount of rod fed at each stroke of the lever may

**TABLE I  
NOZZLE INFORMATION - 1806 SERIES**

Nozzle		Scarfig Path Width in (mm)	Preheat Holes	Cleaning Drill Size		Replacement Parts	
Size	Part No.			Preheat	Cutting	Wear Ring Assembly	Nozzle Nut
1806 Series (Fuel Gas) 62	15X44	2-1/4" thru 3-3/16" (57 - 81mm)	16	1/16"	5/8"	60Y92	37Z23

**TABLE II  
GAS PRESSURE & CONSUMPTION DATA - 1806 SERIES, SIZE 62 (P/N 15X44)  
(Pressure measured at the torch inlet connection)**

Cutting Oxygen		Natural Gas	
Inlet Pressure psig (BARS)	Flow cfh (m³/hr)	Inlet Pressure, psig (BARS)	Flow cfh (m³/hr)
20 (1.38)	4300 (121)	5 (0.35)	40 (1.13)
30 (2.07)	5600 (159)	10 (0.69)	75 (2.12)
40 (2.76)	7000 (198)	15 (1.04)	105 (2.97)
50 (3.45)	8300 (235)	20 (1.38)	130 (3.68)
60 (4.14)	9600 (272)		

**Hose Sizes:** For oxygen, use "C" size hose (1/2" I.D.), P/N 2120399 (50-ft.).  
For Fuel gas, "B" size hose (3/8" I.D.), P/N 2120404.



**OIL OR GREASE IS EASILY IGNITED AND BURNS VIOLENTLY IN THE PRESENCE OF OXYGEN UNDER PRESSURE. HANDLE OXYGEN APPARATUS ONLY WITH CLEAN HANDS OR GLOVES. NEVER USE OXYGEN AS A SUBSTITUTE FOR COMPRESSED AIR.**

be regulated between 0 and a maximum of about 5/8 inch. To make this adjustment, increase or decrease the lever movement as the lever arm acts against the anvil within the rod feed body. Turning the rod-feed anvil locknut (71Z91) further down on anvil (77Z49) will reduce the contact distance, thus less feed is obtained. By unscrewing the nut to increase the anvil length, the lever will work through a greater arc for longer feeds. **IMPORTANT: Do not increase the anvil length to the extent that the lever extension will not clear it, before the spring between the rod feed block and the cap screw set solid.**

#### E. To Shut Off

First close the torch fuel gas valve, then the torch oxygen valve.

#### F. Operating Precautions

Improper handling of the torch may cause the flame to backfire — go out with a loud snap. This may be caused by overheating the nozzle or by dirt on the nozzle seat. Should the flame flash back — burn back inside the torch — immediately close the oxygen valve. Then close the fuel gas valve. After checking the apparatus for causes of flashback indicated above, relight the torch in the usual manner. If flashbacks occur repeatedly, the torch should be sent ESAB Remanufacturing Center, 411 S. Ebenezer Rd., Florence SC 29501 for a complete checkup.

### III. MAINTENANCE INSTRUCTIONS

***For all repairs other than those covered below, send the apparatus to ESAB Remanufacturing Center, Florence, SC. Improperly repaired apparatus is hazardous.***

#### A. Torch

##### 1. The Preheat-Oxygen Compensator Valve

Replacement of any of these parts will require readjustment of the compensator valve stem, as follows:

- a. Turn the adjustable stem in (clockwise) as far as it will go.
- b. Set the oxygen and fuel gas pressures, and light the torch in the usual manner.
- c. Open the fuel gas valve wide, and adjust the preheat oxygen valve until a high velocity pointed flame is obtained.
- d. Open the torch cutting oxygen valve. The preheat flames will become longer or blow off, indicating a lack of preheat oxygen. Hold the cutting oxygen valve open and adjust the compensator stem outward (counterclockwise), until the preheat flames show a minimum of change when the cutting oxygen valve is opened and closed.
- e. Any change in the cutting oxygen pressure at the

torch will require readjustment of the compensator stem. An increase in pressure will require an inward (clockwise) adjustment, a decrease in pressure will require an outward (counter clockwise) adjustment.

##### 2. Floating Mixer

If the mixer becomes clogged, it may be removed for cleaning as follows:

Unscrew the body plug between the two hose connections to the rear body. Remove the spring which holds the mixer in place. Screw a standard No. 10-32 machine screw, two inches or more in length, into the rear of the mixer and pull out the mixer. To clean the mixer, use a No. 35 drill (0.110 in. diameter) or a soft brass or copper wire; other tools might enlarge or bellmouth the orifice, hence they should not be used. If the mixer is bent, or if its tip has been badly nicked or marred it should be replaced by a new one.

Whenever the mixer is removed from the torch, the "O" ring should be replaced with a new one. Apply a light coat of soap film to the surface of the "O" ring and then insert the mixer carefully (with a twisting motion) into the torch to avoid damage to the "O" ring.

##### 3. To Reseat the Head

For reseating the head, use Tool No. 5230089 with Leak Test Solution (998771) as lubricant. If the nozzle nut threads in the head become fouled, they should be chased with a 1-3/8 x 18 tap.

##### 4. Fuel Gas or Preheat-Oxygen Valves

If leakage develops around the valve stems or if they turn too easily, tighten the packing nuts. If this does not help, remove the valve stem assembly and replace the sealing washer. In the original factory assembly the sealing washer is a solid ring. The replacement sealing washer is split so that it can be placed around the valve stem. Before inserting the valve stem assembly into the valve body, be sure the sealing washer is snug about the valve stem so that the washer will start properly into the packing recess. To seal properly, the packing material should be molded in place. To do this, the packing nut should be tightened until it is difficult to turn the valve. If possible set the torch aside for 3 or 4 hours (preferably over-night), then back off the packing nut slightly until the proper friction is obtained for satisfactory valve adjustment. Test valve for leakage around the nut and stem when the friction has been adjusted to

shut off tightly, remove the valve stem assembly. Wipe the seating portions of the valve stem and body with a clean cloth. If the valve stem is damaged, the stem assembly should be replaced. If the valve still leaks, the valve body should be resealed at the ESAB Remanufacturing Center, Florence, SC or the nearest ESAB distributor.

## 5. Cutting Oxygen Torch

If leakage develops through the cutting valve, replace the valve seat. If leakage is around the valve stem, replace the stem "O" ring seal. Proceed as follows to replace these parts:

- a. Remove cutting lever mounting nut (186W58), retaining screw (34Z91), and lever bushing (92Z66) from lever (25Z56). Remove lever from torch.
- b. Unscrew valve stem guide (637431) from the valve body and carefully remove the cutting valve assembly.
- c. Using soapy water, moisten the cutting valve stem (48Z67) through the stem guide and slide the stem out of the guide.
- d. Remove the "O" ring seal (85W10), spring washer (637430), "O" ring (86W70) and valve spring (29Z37) from the valve stem. Discard the "O" rings.
- e. Remove seat retaining screw (6124-4880), washer (94Z08), and valve seat (52Z89) from the bottom of the valve stem. Discard the old valve seat.
- f. Carefully clean and examine valve stem, spring, guide, locknut and adjusting screw for damage and excessive wear. Replace parts as necessary.
- g. Install new valve seat (52Z89) (flat face in) and secure in place with washer and screw.
- h. Place new brass washer (94Z08) (countersink out) against seat.
- i. Install valve spring on top of upper valve shoulder, and slide washer on top of the spring.
- j. Apply a light coat of DuPont Krytox 240 (73585064) on the new "O" ring seals (85W10) and (86W70) slide the "O" rings into place.
- k. Carefully slide the stem guide on the valve stem, over the spring washer and "O" ring (85W10).
- l. Insert the valve assembly in the torch valve body and tighten the valve guide until it seats firmly.
- m. Install the cutting valve lever on the torch and secure with the lever bushing, retaining screw and nut.

## B. Starting Rod Feeder

### 1. Off-Center Adjustment

A pair of offset shims inserted between the mounting bracket and the rod feed body locate the center line of the starting rod approximately 1/4 in. off from the nozzle center line. By offsetting the rod, the full benefit of four to six preheat ports is obtained instead of two, as would be the case if the rod were fed through the nozzle center line.

The shims may be reversed to shift the body to either side of the center line for normal right or left-hand operation. Always reverse the shims in pairs to assure proper alignment.

### 2. Off-the-Nozzle Adjustment

The rod feed body can be adjusted up or down for varying the distance between the nozzle face and the starting rod. An eccentric bolt (34Z90), bushing (78Z96), and holding bolt (6164-1028) are provided for this adjustment. The eccentric bolt head is turned (with a wrench) and the eccentric bushing at the same time. After the proper adjustment is obtained, make sure that the bolt head and bushing engage the shims and are against the sides of the mounting bracket before tightening the eccentric cap nut. Then tighten the holding bolt.

### 3. To Adjust the Anvil Locknut

Lift the stop nut (71Z91) clear of the broached hole in which it is located, and turn it for proper adjustment. (See Section II-D in Operating Instructions.)

### 4. To Replace Feed Block, Spring, and Guide Block (Refer to View "A")

To make these replacements, first remove the rod feed bottom cover (31Z76) by unscrewing the guide screw (35Z80). Then remove the guide block (39Z68) by unscrewing the attaching screw (34Z57) with a socket wrench. Examine all parts for wear or distortion, and replace where needed. Parts most frequently requiring replacement will be feed block spring (29Z23) and the spring (28Z82) and balls (90A13) in guide block (39Z68). If guide block shows wear, it should also be replaced.

Replacement of guide block spring and balls can be accomplished by first prying the spring (28Z82) out of the confining groove in the guide block. The two balls should fall free of the guide block. Install two new balls and new spring. Make sure the hole in the spring is centered over the countersink recess in the block groove. Carefully insert the guide block in rod feed body recess, with center bore approach taper facing out, and the hole in the spring and countersink recess in the guide block in line with the screw hole of the rod feed body. Replace attaching screw (34Z57), making sure the point of screw enters countersink recess in block for proper engagement. Tighten attaching screw securely, but do not over-tighten.

### 5. Rod Feed Mechanism Replacements

To replace parts of the rod feed mechanism, the rod feed body must be removed from the rod feed mounting bracket. Remove the cutting oxygen valve lever

screw (34Z91) and the rod feed clevis pin (93Z42). Slide the cutting oxygen lever from the head of the cutting valve stem. Attach a length of string to the rod feed sleeve for guiding purposes and remove the rod feed eccentric bolt (34Z90) and bushing (78Z96). Also remove the remaining rod feed body holding bolt (6164-1028). Removal of both bolts will free the cover plate and shims. Pull the rod feed body toward the torch head until the lever (78Z93) and pull rod clevis (68Z64) clears the mounting bracket (50Y59). The pull rod clevis and lever are joined together by an expansion pin (85W29). To remove the lever from the pull rod clevis, drive out the expansion pin. However, to avoid distortion of clevis, the section surrounding the pin must be supported from the bottom. Removal of the expansion pin will free the rod feed body by snapping out the anvil spring (29Z18) and lifting out the assembly. To remove the lever from the lever guide block (78Z99), back up the block from the bottom and drive out the rod feed lever pin (85W61).

To replace the rod feed clevis (68Z64), pull rod spring (29Z34), or pull rod (78Z95), move the pull rod toward the torch head until the offset in the pull rod strikes the mounting bracket (50Y59). Lift the pull rod up slightly on the clevis end and unscrew the clevis. To remove the pull rod, push the rod toward the rear body of the torch guiding the rod with the string attached to the end feed sleeve.

Remove the pull rod sleeve. When the pull rod clevis end clears the mounting bracket, the rod can be pulled free of the torch by bending the offset end past the mounting bracket. Reassemble the pull rod to the torch in the reverse order. Inserting the pull rod may cause it to bend. However, the bowed sections of the rod (between the tube support brackets) can be straightened out after the rod feed has been assembled to the torch.

### C. Replacement Parts

The 42 and 48 inch long torches are made up from the basic 36 inch long torch. This is accomplished by coupling the correct length extensions to the oxygen and mixer tubes to make up the extra length. Thus all parts shown in C-59 (36 inch) parts picture are common to the 42 and 48 inch torches. The sketch below shows the coupling and extensions used on the 42 and 48 inch torches.

#### C-59 TORCHES

Part No.	Description
02X67	36 in. Long Torch with Rod Feed Mechanism
02X68	48 in. Long Torch with Rod Feed Mechanism
02X91	42 in. Long Torch with Rod Feed Mechanism

#### ACCESSORIES

Part No.	Description
21X48	"C"-size 200 lb. Gauge Adaptor Assembly
33Y64	C-59 Compensator Valve for conversion (Includes 85W10, 48Z41 and 83Z26)
163Z25	Oxweld 54 Anti-Friction Compound, for Valve Threads
7358-5064	DuPont Krytox 240 Anti-Friction Compound, for "O" Rings

#### HARDWARE

Part No.	Description
6124-4880	8-32 x 1/2 in. Long Flat Socket Head Screw, Steel
6133-2996	6-32 x 5/16 in. Long Oval Hd. Self-Tapping Screw, Parker Kalon Type "F"
6164-1028	1/4-28 x 1-5/16 in. Long Hex. Head Capscrew, Stainless Steel
6260-0001	1/32 x 1/2 in. Long Cotter Pin, Stainless Steel
6430-4075	1/4 in. Standard SAE Plain Washer, Steel

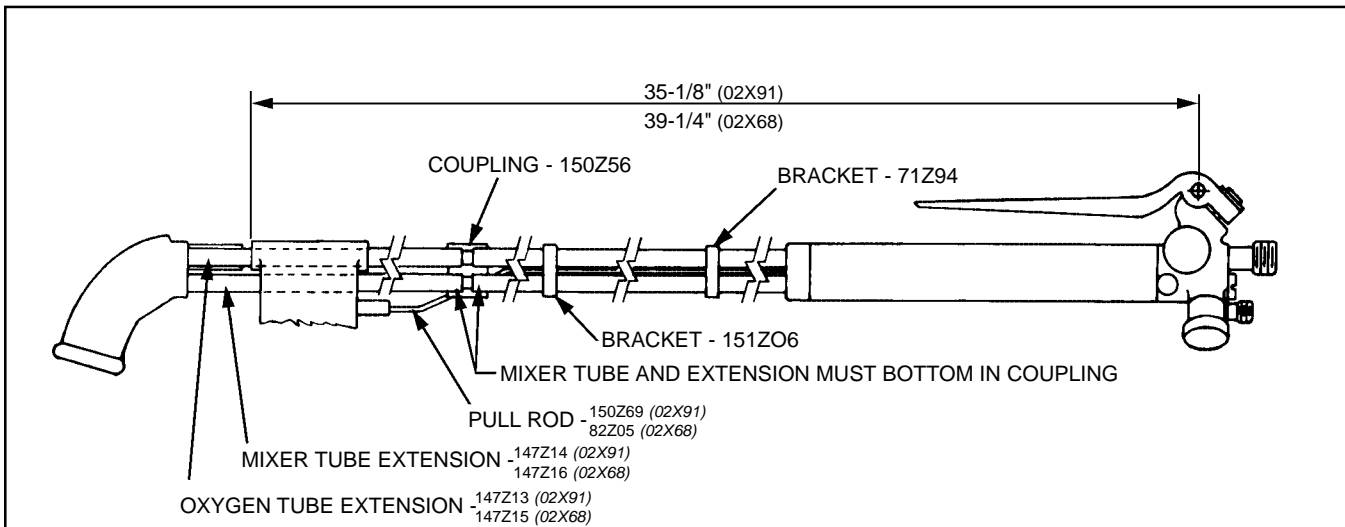


Fig. 1 - C-59 Scarfing Torch - 02X68- 48 in. long  
6 02X91- 42 in. long

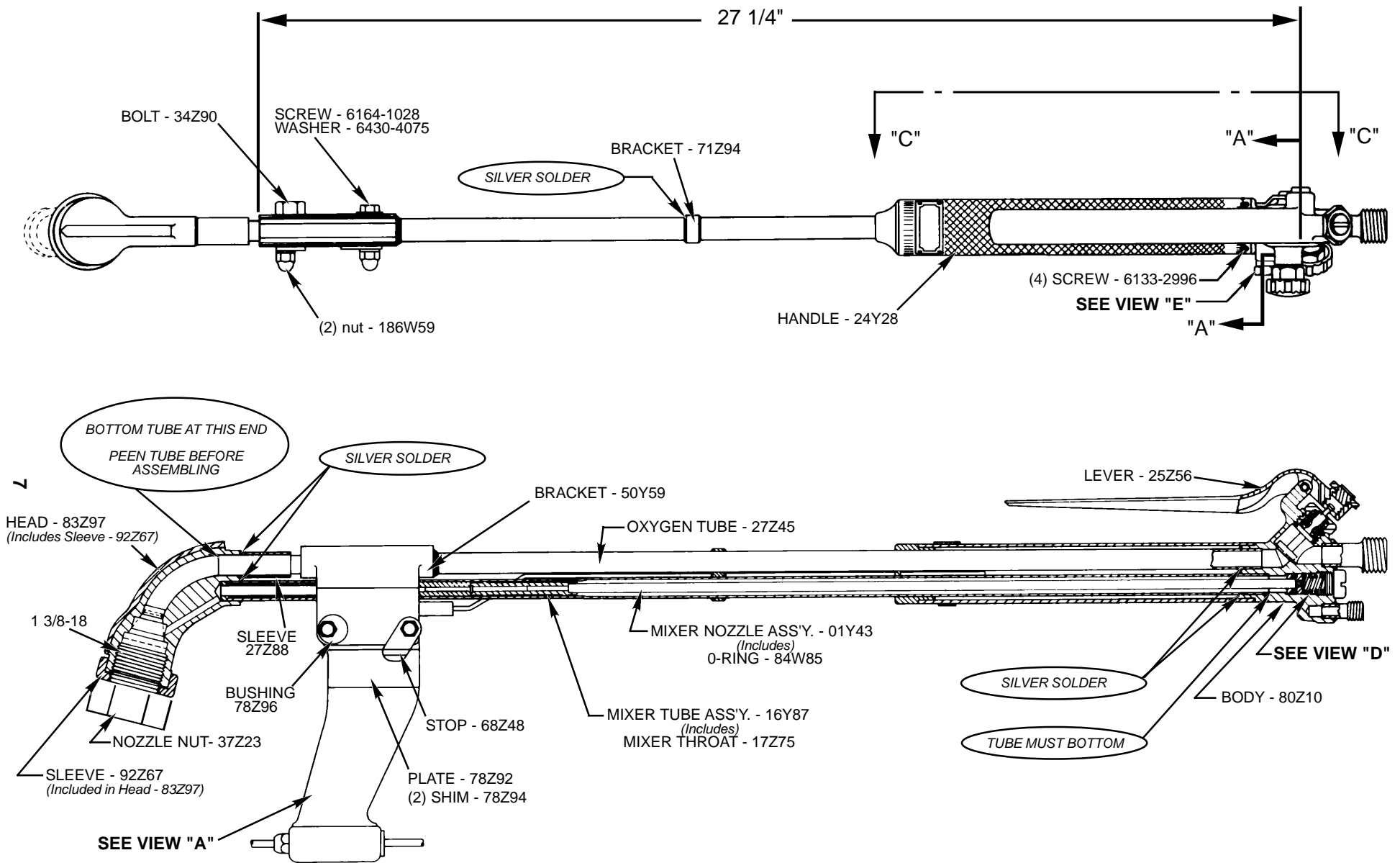


Fig. 2A - C-59 Scarfing Torch - 02X67 (36-in. Long)

Note: Parts for the cutting lever and arm assembly used on the Series 5 torch are not interchangeable with those used on Series 4. The series 4 can easily be converted to accept these parts by enlarging the hole in the body lug (to which the lever is attached) with a 7/32 in. diameter drill.

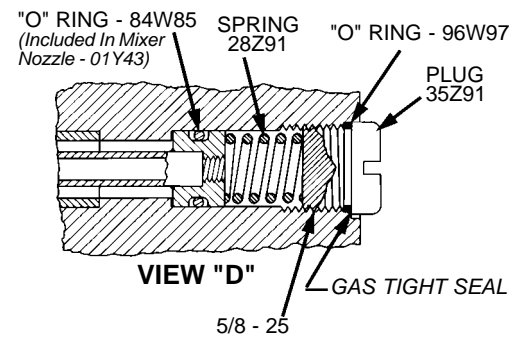
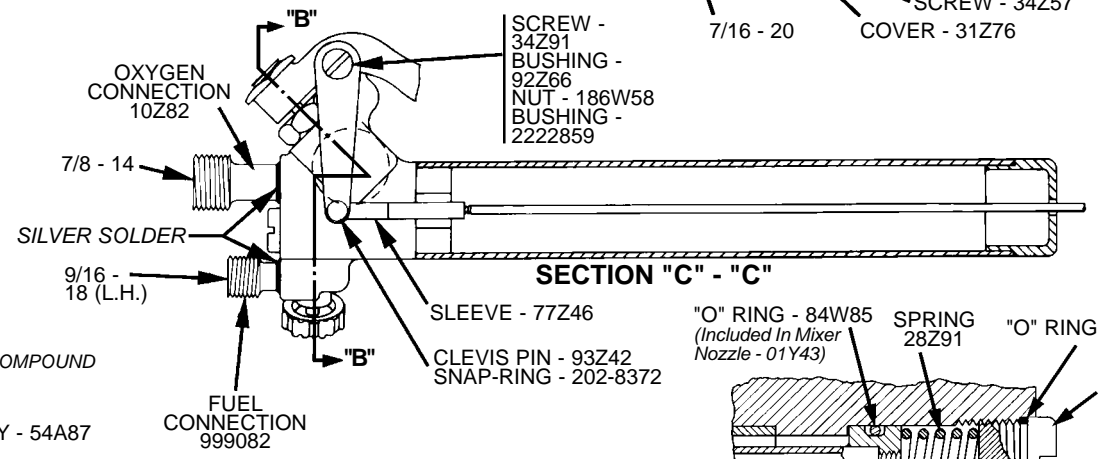
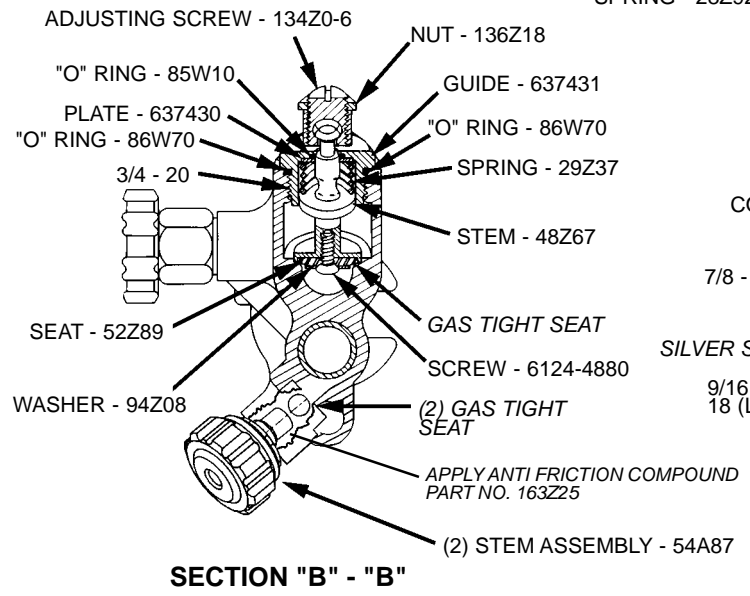
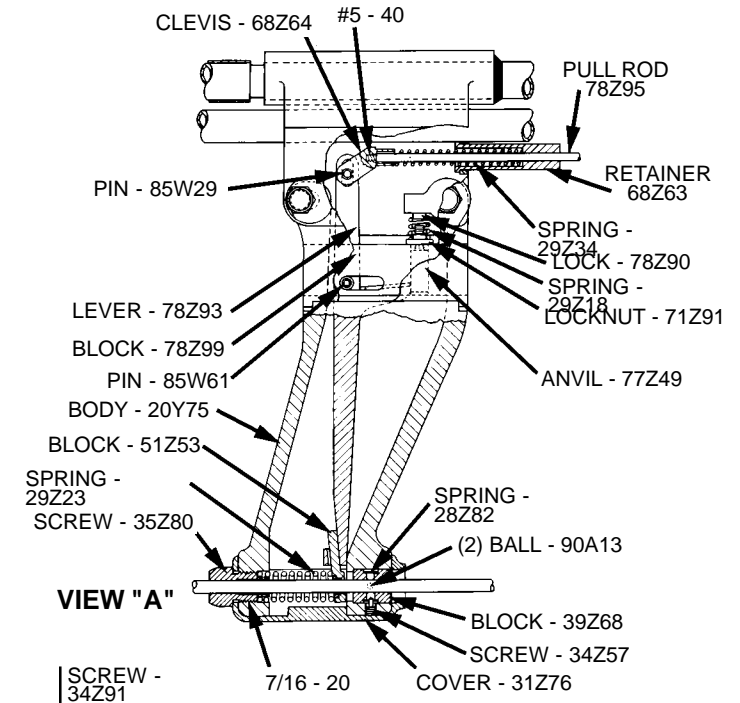
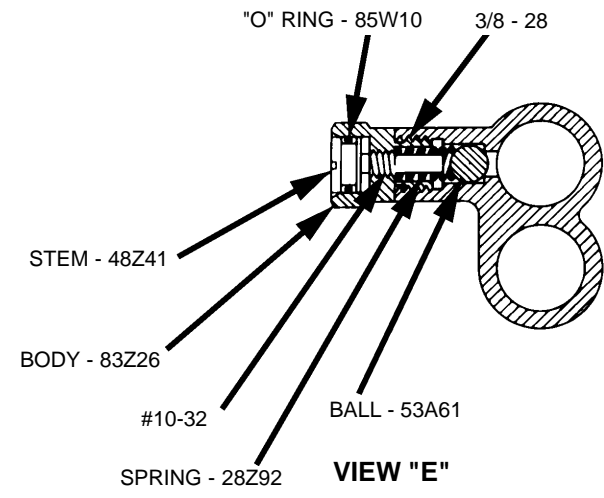
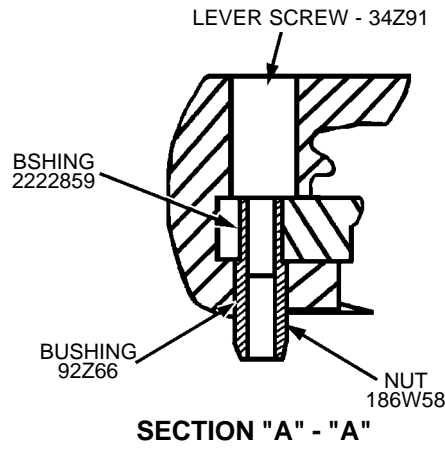


Fig. 2B - C-59 Scarfing Torch - 0X67 (36-in. Long)

