

TYPE 'E', 'E'/FG-2, & 'E'/LPNG CUTTING TORCHES

Cutting Range using any fuel gas	1/8" - 12"
Cutting Nozzles	4200 series
Torch-Hose Connections	Oxy, - CGA-022 (9/16" - 18) F.G. - CGA-023 (9/16" - 18 LH)
Torch Overall Length	20-1/2-in.
Weight	3 lbs.



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.

The cutting torches covered by these Instructions are listed by Third Party Listed only when using cutting nozzles and parts manufactured by ESAB Welding & Cutting Products to the specifications on file with Third Party Listed, and when they are used in the gas service for which they are designed and listed. The use of other parts that cause damage or failure to the equipment will void the manufacturer's warranty.

OPERATION INSTRUCTIONS

CONNECTING

The Type 'E' cutting torch is designed for optimum flashback resistance with acetylene. The Type 'E'/FG-2 is for use with other fuel gases such as FG-2, natural gas, propane, MAPP, etc. The 'E'/LPNG torch is designed for use with natural gas where supply pressure is less than 1/2 psig. Do NOT use Type 'E'/FG-2 or 'E'/LPNG torch with acetylene. Flashback may occur quickly and damage the torch.

1. Attach regulators to the oxygen and fuel gas cylinders. Follow all instructions supplied with the regulators.
2. Attach oxygen and fuel gas hoses to the regulators and to the torch, after making sure all metal seating surfaces are clean. Tighten all connection nuts with a wrench.
3. Attach nozzle to torch head, and tighten connection nut with a wrench.
4. Check throttle valve packing nuts for tightness.



Flashbacks can cause serious burns.

Be sure gas flow is sufficient for head or nozzle size. Adjust regulators for proper psig pressures. Adjust throttle valves properly. Keep torch in good repair. **DO NOT** throttle back gases to use large head or nozzle on thin material.

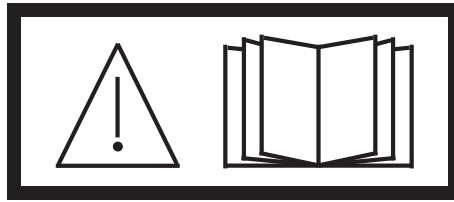
TESTING FOR LEAKS

Every cutting outfit should be thoroughly tested for leaks after it is first hooked up, and at regular intervals thereafter. After all connections have been made, make sure all valves on the torch handle are closed. Then turn in the regulator pressure-adjusting screws until the oxygen delivery-pressure gauge registers 60 psi and the fuel gas delivery-pressure gauge registers 10 psi. Using Leak Test Solution suitable for oxygen service, such as P/N 998771 (8 oz. container), check for leaks at the cylinder valves, the cylinder-to-regulator connections, the regulator-to-hose connections, and the hose-to-torch connections. If bubbling at any point indicates leakage, tighten the connection. If this does not stop the leakage, close the appropriate cylinder valve, open the corresponding torch valve to remove all pressure from the line, and finally release the regulator pressure adjusting screw by turning it counterclockwise. Then

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



ESAB Welding &
Cutting Products



READ AND UNDERSTAND INSTRUCTION MANUAL BEFORE INSTALLING OR OPERATING. PROTECT YOURSELF AND OTHERS!

CAUTION

These INSTRUCTIONS are for experienced operators. If you are not fully familiar with the principles of operation and safe practices for gas welding and cutting equipment, we urge you to read our booklet, "Precautions and Safe Practices for Gas Welding, Cutting, and Heating," Form F-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. Be sure to read the Safety Precautions before installing or operating this equipment.

USER RESPONSIBILITY

This equipment will perform in conformity with the description thereof contained in this manual and accompanying labels and/or inserts when installed, operated, maintained and repaired in accordance with the instructions provided. This equipment must be checked periodically. Malfunctioning or poorly maintained equipment should not be used. Parts that are broken, missing, worn, distorted or contaminated should be replaced immediately. Should such repair or replacement become necessary, the manufacturer recommends that a telephone or written request for service advice be made to the Authorized Distributor from whom it was purchased.

This equipment or any of its parts should not be altered without the prior written approval of the manufacturer. The user of this equipment shall have the sole responsibility for any malfunction which results from improper use, faulty maintenance, damage, improper repair or alteration by anyone other than the manufacturer or a service facility designated by the manufacturer.

IMPORTANT SAFEGUARDS

When using Oxy-Fuel Gas Torches, basic safety precautions should always be followed:

- a. Never use Acetylene gas at a pressure over 15 psig.
- b. Never use damaged equipment.
- c. Never use oil or grease on or around Oxygen equipment.
- d. Never use Oxygen or fuel gas to blow dirt or dust off clothing or equipment.
- e. Never light a torch with matches or a lighter. Always use a striker.
- f. Always wear the proper welding goggles, gloves and clothing when operating Oxy-Acetylene equipment. Pants should not have cuffs.
- g. Do not carry lighters, matches or other flammable objects in pockets when welding or cutting.
- h. Always be aware of others around you when using a torch.
- i. Be careful not to let welding hoses come into contact with torch flame or sparks from cutting.
- j. **SAVE THESE INSTRUCTIONS.**

**BE SURE THIS INFORMATION REACHES THE OPERATOR.
YOU CAN GET EXTRA COPIES THROUGH YOUR SUPPLIER.**

SAVE THESE INSTRUCTIONS!

SAFETY PRECAUTIONS

WARNING

These Safety Precautions are for your protection. They summarize precautionary information from the references listed in Additional Safety Information section. Before performing any installation or operating procedures, be sure to read and follow the safety precautions listed below as well as all other manuals, material safety data sheets, labels, etc. Failure to observe Safety Precautions can result in injury or death.



PROTECT YOURSELF AND OTHERS - Some welding, cutting and gouging processes are noisy and require ear protection. Hot metal can cause skin burns and heat rays may injure eyes. Training in the proper use of the processes and equipment is essential to prevent accidents. Also:

1. Always wear safety glasses with side shields in any work area, even if welding helmets, face shields, or goggles are also required.
2. Wear flameproof gauntlet type gloves, heavy long-sleeve shirt, cuffless trousers, high-topped shoes, and a welding helmet or cap for hair protection, to protect against hot sparks and hot metal. A flameproof apron may also be desirable as protection against radiated heat and sparks.
3. Hot sparks or metal can lodge in rolled up sleeves, trousers cuffs, or pockets. Sleeves and collars should be kept buttoned, and open pockets eliminated from the front of clothing.
4. Protect other personnel from hot sparks with a suitable non-flammable partition or curtains.
5. Use goggles over safety glasses when chipping slag or grinding. Chipped slag may be hot and can travel considerable distances. Bystanders should also wear goggles over safety glasses.



FIRES AND EXPLOSIONS - Heat from a flame can act as an ignition source. Hot slag or sparks can also cause fires or explosions. Therefore:

1. Remove all combustible materials well away from the work area or completely cover the materials with a protective non-flammable covering. Combustible materials include wood, cloth, sawdust, liquid and gas fuels, solvents, paints and coatings, paper, etc.
2. Hot sparks or hot metal can fall through cracks or crevices in floors or wall openings and cause a hidden smoldering fire on the floor below. Make certain that such openings are protected from hot sparks and metal.
3. Do not weld, cut, or perform any other hot work on materials, containers, or piping until it has been completely cleaned so that no substances on the material can produce flammable or toxic vapors. Do not do hot work on closed containers. They may explode.
4. Have fire extinguishing equipment handy for instant use, such as a garden hose, a pail of water or sand, or portable fire extinguisher. Be sure you are trained in its use.
5. After completing operations, inspect the work area to be sure that there are no hot sparks or hot metal which could cause a later fire. Use fire watchers when necessary.
6. 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.



FUMES AND GASES - Fumes and gases, particularly in confined spaces, can cause discomfort or injury. Do not breathe fumes or gases from welding or cutting. Therefore:

1. Always provide adequate ventilation in the work area by natural or mechanical ventilation means. Do not weld, cut, or gouge on materials such as galvanized steel, stainless steel, copper, zinc, lead, beryllium, or cadmium unless positive mechanical ventilation is provided. Do not breathe fumes and gases from these materials.
2. If you develop momentary eye, nose, or throat irritation while operating, this is an indication that ventilation is not adequate. Stop work at once and take necessary steps to improve ventilation in the work area. Do not continue to operate if physical discomfort persists.

3. Refer to ANSI/ASC Standard Z49.1 listed below for specific ventilation recommendations.
4. **WARNING:** This product, when used for welding or cutting, 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 §25249.5 et seq.)



EQUIPMENT MAINTENANCE - Faulty or improperly maintained equipment, such as torches, hoses and regulators, can result in poor work, but even more important, it can cause injury or death through fires. Therefore:

1. Always have qualified personnel perform the installation, troubleshooting, and maintenance work. Do not operate or repair any equipment unless you are qualified to do so.
2. Keep all oxy-fuel equipment free of grease or oil. Grease, oil, and other similar combustible materials, when ignited, can burn violently in the presence of oxygen.
3. Do not abuse any equipment or accessories. Keep equipment away from heat and wet conditions, oil or grease, corrosive atmospheres and inclement weather.
4. Keep all safety devices in position and in good repair.
5. Use equipment for its intended purpose. Do not modify it in any manner.



GAS CYLINDER HANDLING - Gas cylinders, if mishandled, can rupture or explode violently. Sudden rupture of a cylinder, valve or relief device can injure or kill you. Therefore:

1. Use the proper gas for the process and use the proper pressure reducing regulator designed to operate from the compressed gas cylinder. Do not use adaptors to mount the regulator on the cylinder. Maintain hoses and fittings in good condition. Follow manufacturer's operating instructions for mounting the regulator to the gas cylinder.
2. Always secure cylinders in an upright position by chain or strap to suitable hand trucks, benches, walls, post, or racks. Never secure cylinders to work tables or fixtures where they may become part of an electrical circuit.
3. When not in use, keep cylinder valves closed. Have the valve protection cap in place on top of the cylinder if no regulators is installed. Secure and move cylinders by using suitable hand trucks. Avoid rough handling of cylinders.
4. Locate cylinders away from heat, sparks, or flame of a welding, cutting, or gouging operation. Never strike an arc on a cylinder.
5. For additional information, refer to CGA Standard P-1, "Precautions for Safe Handling of Compressed Gases in Cylinders", which is available from the Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202.



ADDITIONAL SAFETY INFORMATION - For more information on safe practices for oxy-fuel welding and cutting equipment, ask your distributor for a copy of "Precautions and Safe Practices for Gas Welding, Cutting, and Heating", Form 2035. Gas apparatus safety guidelines are also available on video cassettes from your distributor.

The following publications, which are available from the American Welding Society, 550 N.W. LeJuene Road, Miami, FL 33126, are recommended to you:

1. ANSI/AWS Z49.1 - "Safety in Welding and Cutting".
2. AWS F4.1 - "Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances".
3. AWS SP - "Safe Practices" - Reprint, Welding Handbook.



MEANING OF SYMBOLS - As used throughout this manual: Means Attention! Be Alert! Your safety is involved.



DANGER

Means immediate hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.



WARNING

Means potential hazards which could result in personal injury or loss of life.



CAUTION

Means hazards which could result in minor personal injury.

break the leaky connection, wipe metal seating surfaces with a clean dry cloth, and examine them for nicks and scratches. Remake the connection(s) and retest. Do not try to light the torch until you are satisfied that all connections are gas tight.

ADJUSTING GAS PRESSURE

Fuel Gas: Open the fuel gas valve about one turn. Turn in the pressure-adjusting screw on the fuel gas regulator until its delivery-pressure gauge registers the desired pressure (see cutting chart on page 4 or 5). Then immediately close the fuel gas valve.

Oxygen: Open the cutting oxygen valve by depressing its valve lever fully. Turn in the pressure-adjusting screw on the oxygen regulator until its delivery-pressure gauge registers the desired pressure (see chart on page 4 or 5). Then release the cutting oxygen lever.

NOTE: When gaugeless regulators are used, do not open torch valves. Merely turn in the pressure-adjusting screws to the desired pressures as indicated on the scales of the regulator caps.

LIGHTING AND FLAME ADJUSTMENT

CAUTION: Use friction lighter for lighting torch. Do NOT use a match. Use of a match can seriously burn your hand.

Using Acetylene

1. Open the acetylene valve on the torch about 1/2 turn, and light the gas at the nozzle.
2. Slowly close the acetylene valve until the yellow flame just starts to throw off black smoke.
3. Slowly open preheat oxygen valve on torch until neutral flames are obtained.
4. Finally, open the cutting oxygen valve by depressing lever and readjust for neutral flames by turning pre-heat oxygen valve.

The flame now has the proper strength for any cutting job. With this flame, acetylene is being consumed economically and the torch will be operating at best resistance to flashback. If greater preheat flame temperature is desired for faster starts or piercing, open the cutting oxygen valve and adjust the preheat oxygen valve until the flame inner cones shorten about 10 percent and become sharply pointed.

Using Fuel Gases except Acetylene

1. Crack the fuel gas valve and light the gas at the nozzle.
2. Open fuel gas valve until flame starts to leave the end of the nozzle.
3. Slowly open preheat oxygen valve on torch until flame stabilizes.
4. Depress lever to open cutting oxygen valve and then adjust preheat oxygen valve until preheat flames are at their shortest length.
5. If larger or smaller preheat flames are desired, depress cutting oxygen valve lever and alternately readjust fuel gas and preheat oxygen valve to obtain the final flame setting.

SHUTTING OFF

Release the cutting oxygen valve lever. Then close the fuel gas valve, and finally the preheat oxygen valve.

If operations are to be stopped for a half-hour or more, all pressure should be released from the torch, hoses, and regulators by doing the following:

1. Close each cylinder or station valve.
2. Open torch valves.
3. After relieving the gases, back out the pressure-adjusting screw of each regulator and close the torch valves.

OPERATING PRECAUTIONS

Do not exceed 15 psig acetylene during operation.

Flow: There must be proper flow of gases for safe operation and full performance. This requires the following three conditions: (1) the regulators that determine the inlet pressure to the hoses must be set to the correct pressure; (2) the hoses and their connectors must have adequate capacity for the job (hoses that are too long, too small or have connectors with small passageways can cause problems); and (3) the throttle valves on the torch must be adjusted with the procedure shown in these instructions.

Note: Items (1) and (2) can be checked by measuring the gas pressures at the torch. Gauge adaptors are available for this purpose.

Backfire: Improper operation of the torch or cutting attachment may cause the flame to go out with a loud 'pop'. (If you are welding, the flame will often reignite instantly.) Such a backfire may be caused by contact of tip or nozzle with the work, by spatter from the work, by the use of incorrect gas pressures, or by leakage at the cutting nozzle seats due to dirt or nicks on seats or to a loose nozzle nut. After a backfire, you can normally relight the flames immediately. However, if backfires occur repeatedly, shut off the torch. Check the 'O' ring seals between the welding head or cutting attachment and the handle, and the nozzle seats (if cutting). Readjust operating pressure (see tables on pages 4 and 5) and relight.

Flashback: Under certain circumstances, the flame may not 'pop' out (backfire) but instead burn back inside the torch with a shrill hissing or squeal. This is called a 'flashback'. A flashback should never occur if (1) the equipment is in good condition; (2) preheat ports on cutting nozzles or welding tips are cleaned frequently; (3) operating pressures are correct; and (4) throttle valves are adjusted properly. Should a flashback occur, IMMEDIATELY shut off the torch. Allow it to cool off for at least a minute. Then check your nozzle or tip, gas pressures, readjust regulators if necessary, and relight the torch. If flashback recurs, send the torch handle and welding head or cutting attachment to your distributor for repair.

OPERATING DATA

1. The tables show average values based on typical conditions. The type and quality of steel, its surface condition, the purity of oxygen, etc. will always have a bearing on the end results.
2. If cutting up to 4-in. thick steel, 1/4-in. oxygen and fuel gas hoses up to 25-ft. long are suitable. For heavier cuts or if longer hoses are required, 3/8-in. hoses are recommended.

4202 Series Acetylene General Purpose Nozzles

Nozzle		Steel Thickness, in.	Pressure, psig		Gas Consumption, ft ³ /hr		Cleaning Drill Size	
Size	Part No.		Oxygen	Acetylene	Oxygen	Acetylene	Preheat	Cutting
1/8"	638869	1/8	30-40	5	31-34	8-9	73	76
1/4"	16K08	1/4	25-30	5	42-45	8-10	73	68
1/2"	16K09	1/2	30-40	5	70-75	10-12	73	60
1-1/2"	16K10	3/4	25-30	5	95-100	12-14	69	52
		1	35-40	6	120-125	14-16		
		1-1/2	50-55	7	165-170	16-18		
4"	16K11	2	40-45	5	195-200	18-20	68	50
		3	45-60	6	230-235	20-22		
		4	50-55	6	315-320	23-25		
6"	16K12	6	60-70	8	460-470	30-32	64	43
10"	16K13	8	65-75	10	605-615	36-38	60	35
		10	80-90	12	680-740	40-45		
12"	16K14	12	80-90	12	800-860	45-50	56	30

4207 Series Acetylene Gouging Nozzles

Nozzle		Groove Dimensions, in (approx.)		Gas Pressure, psig		Gas Consumption, cu. ft./hr.		Gouging Speed ft./min.	Cleaning Tool*	
Size	Part No.	Width	Depth	Oxygen	Acetylene	Oxygen	Acetylene		Preheat	Cutting
13	16K67	1/4-5/16	1/8-1/4	35-40	9-10	157-180	33-38	1.0-1.8	5190068	5190071
19	16K35	3/8-7/16	1/4-3/8	45-50	12-14	268-303	50-55	1.6-2.2	5190069	5190072

*Use the listed special cleaning tools only. DO NOT use twist drills.

4213 Series Fuel Gas Two-Piece Nozzles

NOTE: DO NOT use with Acetylene.

Nozzle Size	Nozzle (Internal) Part No.	Sleeve (External)◆ Part No.			Steel Thickness, In.	Pressure, psig		Gas Consumption ft ³ /hr			Cleaning Drill Size Cutting●
		Long	Medium	Short		Oxygen	Fuel Gas◇	Oxygen	FG-2■	Nat. Gas	
3	16K68	16K74	998562	114Z10	1/4	25-30	4-5	50-55	8-12	12-15	68
4	16K69	16K74	998562	114Z10	1/2	40-45	5-6	85-95	10-14	20-23	60
6	16K70	16K75	998563	114Z11	3/4	20-25	6-7	125-135	12-16	20-23	53
					1	25-30	6-7	135-145	12-16	20-23	
					1-1/2	45-50	6-7	195-205	12-16	20-30	
8	16K71	16K75	998563	114Z11	2	30-35	7-8	220-230	14-20	30-40	46
					3	40-45	7-8	265-275	14-20	30-40	
					4	60-65	7-8	355-365	14-20	30-40	
10	16K72	16K75	998563	114Z11	6	55-60	9-15	460-500	20-25	40-45	39
					8	80-90	9-15	640-680	20-25	40-50	
					10	90-100	9-15	750-800	20-25	50-65	
12	16K73	16K75	998563	114Z11	12	90-105	10-20	900-1000	25-30	70-75	31

◆ Long - For use with natural gas, propane, and butane.

Medium - For use with methylacetylene - propadiene (MPS) and propylene-based fuel gases where high preheat intensity is desired.

Short - For use with methylacetylene - propadiene (MPS) and propylene-based fuel gases for general purpose cutting.

■ Consumption of MAPP or propane is approximately the same as FG-2.

● Use soft bristled brush (750F99) to clean preheat slots of internal nozzles.

◇ If using LPNG injector (19417) in torch, it will operate with natural gas pressure less than 1/2 psig.

4216 Series Fuel Gas One-Piece Cutting Nozzles

NOTE: Primarily designed for use with FG-2 or MAPP. May be used with acetylene if heavy preheat is desired.

Nozzle		Steel Thickness, in.	Gas Pressure, psig		Gas Consumption ft ³ /hr		Cleaning Drill Size	
Size	Part No.		Oxygen	Fuel Gas	Oxygen	Fuel Gas	Preheat	Cutting
1/4"	998589	1/4	20-25	3-5	55-60	3-4	67	68
1/2"	998590	1/2	30-35	3-5	70-80	4-5	67	60
1-1/2"	998591	3/4	30-35	3-5	135-155	7-8	64	53
		1	35-40	3-5	150-165	7-8		
		1-1/2	40-45	3-5	160-210	8-9		
4"	998592	2	25-30	3-5	215-245	8-10	62	46
		3	30-35	3-5	235-290	8-10		
		4	35-40	3-5	270-320	10-11		
8"	998593	6	35-45	5-10	410-480	11-13	59	39
		8	55-65	5-10	580-670	15-17		
12"	998594	10	40-50	10-15	580-805	20-23	56	31
		12	55-65	10-15	845-975	22-28		

4217 Series Fuel Gas Two-Piece Cutting Nozzles

Nozzle Size	Nozzle (Internal) P/N	Sleeve (External) P/N	Steel Thickness, in.	Pressure, psig				Gas Consumption, ft ³ /hr				Cleaning Drill Size Cutting●
				Oxygen	Fuel Gas FG-2	Propane	Nat. Gas ◇	Oxygen	Fuel Gas FG-2	Propane	Nat Gas	
1/4"	19485		1/4"	30	4	6	7	70	8	12	30	68
1/2"	19486	19518	1/2"	35	4	7	8	120	9	14	32	60
1"	19487		1"	40	4	8	9	180	10	15	35	53
2"	19488		2"	45	5	9	10	250	11	16	40	50
4"	19489		4"	40	4	8	10	370	12	18	45	43
6"	19490	19519	6"	50	5	12	13	520	14	20	50	39
8"	19491		8"	50	6	15	16	610	16	22	55	35
12"	19492		12"	75	8	18	20	860	20	30	85	31

◇ If using LPNG injector (19417) in torch, it will operate with natural pressure less than 1/2 psig.

● Use soft-bristled brush (750F99) to clean preheat slots of internal nozzles.

MAINTENANCE INSTRUCTIONS

For all repairs other than those covered below, send the torch to your welding equipment distributor or to ESAB Remanufacturing Center, Ebenezer Road, Florence, SC 29501. Improperly repaired apparatus is hazardous.

Preheat Throttle Valves: Leakage around either throttle valve can almost always be corrected by tightening the packing nut slightly.

If either preheat valve will not shut off completely, loosen the packing nut and remove the valve assembly. Wipe the end of the valve stem, and the seating surface in the body, with a clean cloth. Then reinstall the valve and retighten the packing nut.

If the valve still leaks, install a new throttle valve assembly. After you do so, tighten the packing nut until you find it extremely difficult to turn the valve wheel. Set the unit aside for a few hours to set the packing. Then loosen the packing nut until the throttle valve turns readily.

If leakage through either preheat valve is still evident after a new throttle valve assembly has been installed, send the torch to a remanufacturing center or to your distributor for reseating.

Cutting Valve: If leakage is detected between the cutting valve stem cap and the valve, or if the cutting valve fails to shut off completely, remove cutting valve lever and then unscrew the valve assembly (08M05). You may either replace the entire valve assembly or disassemble the valve assembly to replace valve stem (19216), seat (19215), and O-ring (14K11). If the latter, unscrew the valve stem from the cap (824). Using the new valve stem, seat, and O-ring, reassemble the valve as follows:

1. Place the new O-ring and retaining washer (10K23) in the valve nut (19217).
2. Insert the valve spring (23K07) behind the retaining washer and hold in place firmly while inserting new seat, and then new valve stem through the valve nut and O-ring.
3. Screw the valve stem into the valve stem cap firmly.
4. Replace O-ring (14K07) about the seat of the valve nut if O-ring appears distorted.

5. Screw the entire assembly into the torch body and tighten firmly with a wrench. Reassemble the cutting valve lever to the torch body.

Mixer: To remove the torch mixer for cleaning or replacement, unscrew the lower tube nut completely and then pull the entire front end assembly (1053, 1054, or 1048) from the torch. The mixer can now be pulled straight out from the lower tube.

To clean a mixer, use correct size twist drills (see mixer table below) or soak the mixer overnight in a solution of OXWELD Nozzle Cleaning Compound (P/N 761F00), rinse, and blow dry with clean air.

Mixer Part No.	Recommended Use	Cleaning Center Orifice	Drill Size Side Orifice
19048*	Acetylene	48	68
19050†	Acetylene-for max. preheat & large nozzles	39	60
19049*	FG-2, Natural Gas	36	57
19417*	Low Press. Natural Gas (LPNG)	63	53

* 19048 is supplied with Type 'E' acetylene torch.

19049 is supplied with Type 'E'/FG-2 torch.

19417 is supplied with Type 'E'/LPNG torch.

† Accessory

Inspect O-rings (14K07, 85W43, and 2064101) and replace them if they are not in good condition.

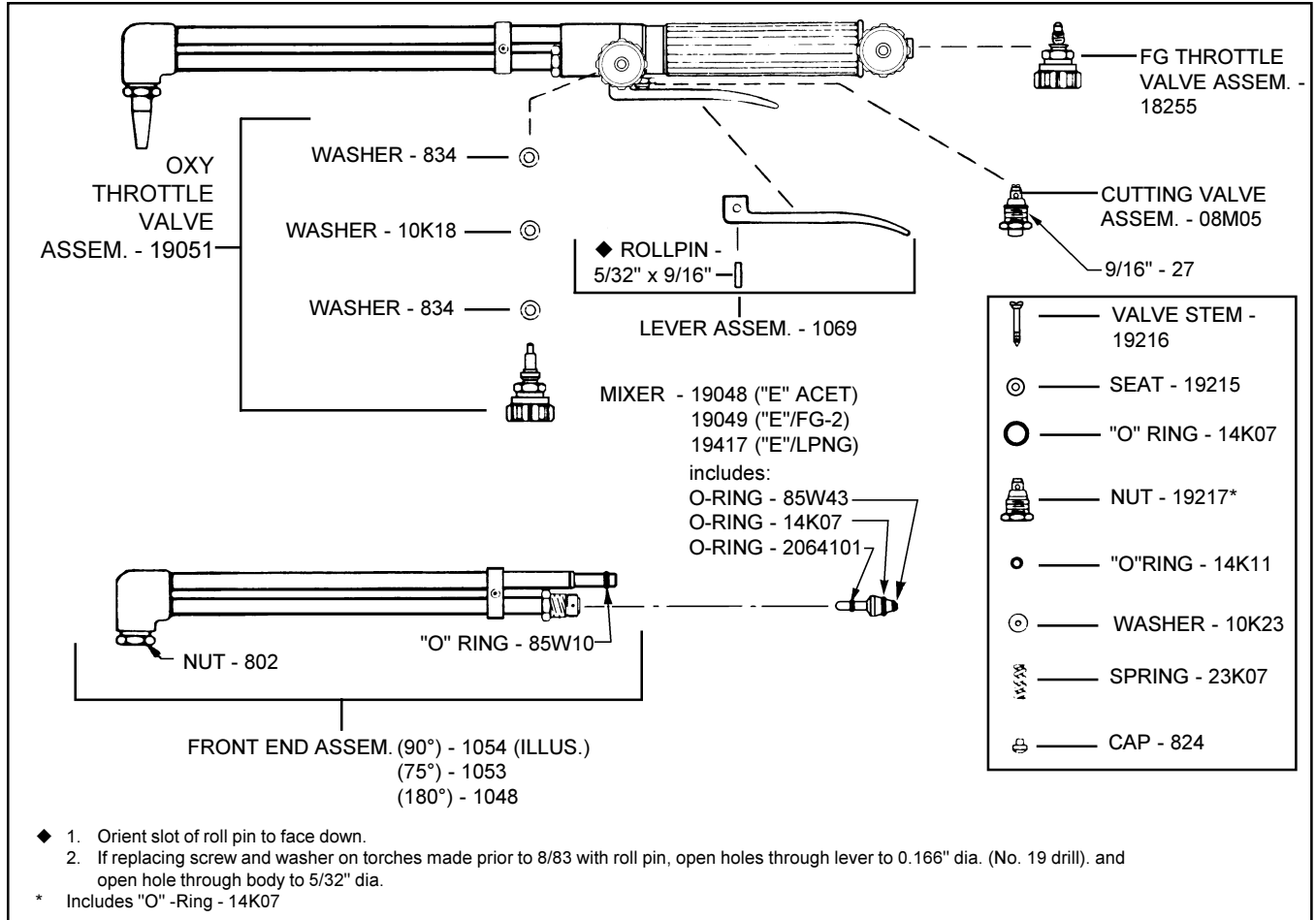
Cleaning Cutting Nozzles: If the cutting nozzle does not produce straight, uniform flames, or if any of the nozzle orifices become clogged, clean them by hand with the correct size twist drills shown in the table on page 4, or with OXWELD tip cleaners. (The relationship between OXWELD tip cleaners and drill sizes is shown on the tip cleaner case.)

To clean the preheat slots on internal nozzles, remove the external sleeve and use a soft bristled brush (750F99).

For longer life, nozzles should be cleaned periodically in a solution of OXWELD Nozzle Cleaning Compound (P/N 761F00) made up and use as directed on the jar in which it is packed.

PARTS INFORMATION

All parts which can be replaced without breaking soldered or brazed joints are illustrated and listed below. When ordering parts, please give both part number and description (including size where appropriate). Parts may be ordered from your welding equipment distributor or from ESAB Welding & Cutting Products, Customer Service Department, Florence, SC.



Type 'E' Acetylene Cutting Torch, 75° Head	P/N 04L04
Type 'E' Acetylene Cutting Torch, 90° Head	P/N 04L06
Type 'E' Acetylene Cutting Torch, 180° Head	P/N 04L16
Type 'E'/FG-2 Cutting Torch, 75° Head	P/N 998259
Type 'E'/FG-2 Cutting Torch, 90° Head	P/N 998260
Type 'E'/LPNG Cutting Torch, 75° Head	P/N 19574
Type 'E'/LPNG Cutting Torch, 90° Head	P/N 19573

**ESAB Welding & Cutting Products, Florence, SC Welding Equipment
COMMUNICATION GUIDE - CUSTOMER SERVICES**

- A. CUSTOMER SERVICE QUESTIONS:
Telephone: (800)362-7080 / Fax: (800) 634-7548 Hours: 8:00 AM to 7:00 PM EST
Order Entry Product Availability Pricing Order Information Returns
- B. ENGINEERING SERVICE:
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Warranty Returns Authorized Repair Stations Welding Equipment Troubleshooting
- C. TECHNICAL SERVICE:
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Part Numbers Technical Applications Specifications Equipment Recommendations
- D. LITERATURE REQUESTS:
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- E. WELDING EQUIPMENT REPAIRS:
Telephone: (843) 664-4487 / Fax: (843) 664-5557 Hours: 7:30 AM to 3:30 PM EST
Repair Estimates Repair Status
- F. WELDING EQUIPMENT TRAINING
Telephone: (843)664-4428 / Fax: (843) 679-5864 Hours: 7:30 AM to 4:00 PM EST
Training School Information and Registrations
- G. WELDING PROCESS ASSISTANCE:
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- H. TECHNICAL ASST. CONSUMABLES:
Telephone : (800) 933-7070 Hours: 7:30 AM to 5:00 PM EST

IF YOU DO NOT KNOW WHOM TO CALL

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