

INSTRUCTION MANUAL

PT-32

PLASMA ARC CUTTING TORCH



This manual provides installation and operation instructions for the following PT-32 torches:

P/N 0558001971 - 25 ft (7.6 m), PT-32
P/N 0558001972 - 50 ft (15.2 m), PT-32

Torches and torch body assemblies purchased individually are supplied without electrode, nozzle, heat shield and valve pin. Order individual components shown on pages 9 or 15.

CAUTION

These INSTRUCTIONS are for experienced operators. If you are not fully familiar with the principles of operation and safe practices for arc welding equipment, we urge you to read our booklet, "Precautions and Safe Practices for Arc Welding, Cutting, and Gouging", Form 52-529. 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.

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

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 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 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.

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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. The arc, like the sun, emits ultraviolet (UV) and other radiation and

can injure skin and eyes. Hot metal can cause burns. Training in the proper use of the processes and equipment is essential to prevent accidents. Therefore:

1. Always wear safety glasses with side shields in any work area, even if welding helmets, face shields, and goggles are also required.
2. Use a face shield fitted with the correct filter and cover plates to protect your eyes, face, neck, and ears from sparks and rays of the arc when operating or observing operations. Warn bystanders not to watch the arc and not to expose themselves to the rays of the electric-arc or hot metal.
3. 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 arc rays and hot sparks or hot metal. A flameproof apron may also be desirable as protection against radiated heat and sparks.
4. Hot sparks or metal can lodge in rolled up sleeves, trouser cuffs, or pockets. Sleeves and collars should be kept buttoned, and open pockets eliminated from the front of clothing.
5. Protect other personnel from arc rays and hot sparks with a suitable non-flammable partition or curtains.
6. Use goggles over safety glasses when chipping slag or grinding. Chipped slag may be hot and can fly far. Bystanders should also wear goggles over safety glasses.



FIRES AND EXPLOSIONS -- Heat from flames and arcs can start fires. Hot slag or sparks can also cause fires and explosions. Therefore:

1. Remove all combustible materials well away from the work area or 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 or fires on the floor below. Make certain that such openings are protected from hot sparks and metal.
3. 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. 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, water pail, sand bucket, or portable fire extinguisher. Be sure you are trained in its use.

5. Do not use equipment beyond its ratings. For example, overloaded welding cable can overheat and create a fire hazard.
6. After completing operations, inspect the work area to make certain there are no hot sparks or hot metal which could cause a later fire. Use fire watchers when necessary.
7. For additional information, refer to NFPA Standard 51B, "Fire Prevention in Use of Cutting and Welding Processes", available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.



ELECTRICAL SHOCK -- Contact with live electrical parts and ground can cause severe injury or death. DO NOT use AC welding current in damp areas, if movement is confined, or if there is danger of falling.

1. Be sure the power source frame (chassis) is connected to the ground system of the input power.
2. Connect the workpiece to a good electrical ground.
3. Connect the work cable to the workpiece. A poor or missing connection can expose you or others to a fatal shock.
4. Use well-maintained equipment. Replace worn or damaged cables.
5. Keep everything dry, including clothing, work area, cables, torch/electrode holder, and power source.
6. Make sure that all parts of your body are insulated from work and from ground.
7. Do not stand directly on metal or the earth while working in tight quarters or a damp area; stand on dry boards or an insulating platform and wear rubber-soled shoes.
8. Put on dry, hole-free gloves before turning on the power.
9. Turn off the power before removing your gloves.
10. Refer to ANSI/ASC Standard Z49.1 (listed on next page) for specific grounding recommendations. Do not mistake the work lead for a ground cable.



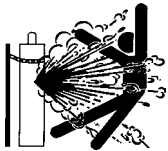
ELECTRIC AND MAGNETIC FIELDS -- May be dangerous. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding and cutting current creates EMF around welding cables and welding machines. Therefore:

1. Welders having pacemakers should consult their physician before welding. EMF may interfere with some pacemakers.
2. Exposure to EMF may have other health effects which are unknown.
3. Welders should use the following procedures to minimize exposure to EMF:
 - A. Route the electrode and work cables together. Secure them with tape when possible.
 - B. Never coil the torch or work cable around your body.
 - C. Do not place your body between the torch and work cables. Route cables on the same side of your body.
 - D. Connect the work cable to the workpiece as close as possible to the area being welded.
 - E. Keep welding power source and cables as far away from your body as possible.



FUMES AND GASES -- Fumes and gases, can cause discomfort or harm, particularly in confined spaces. Do not breathe fumes and gases. Shielding gases can cause asphyxiation. Therefore:

1. Always provide adequate ventilation in the work area by natural or mechanical 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 from these materials.
2. Do not operate near degreasing and spraying operations. The heat or arc rays can react with chlorinated hydrocarbon vapors to form phosgene, a highly toxic gas, and other irritant gases.
3. 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.
4. Refer to ANSI/ASC Standard Z49.1 (see listing below) for specific ventilation recommendations.
5. **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.)



CYLINDER HANDLING -- Cylinders, if mishandled, can rupture and violently release gas. Sudden rupture of cylinder, valve, or relief device can injure or kill. 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. Maintain hoses and fittings in good condition. Follow manufacturer's operating instructions for mounting regulator to a compressed gas cylinder.
2. Always secure cylinders in an upright position by chain or strap to suitable hand trucks, undercarriages, 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 valve protection cap in place if regulator is not connected. Secure and move cylinders by using suitable hand trucks. Avoid rough handling of cylinders.
4. Locate cylinders away from heat, sparks, and flames. 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 Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202.

EQUIPMENT MAINTENANCE -- Faulty or improperly maintained equipment can cause injury or death. Therefore:

1. Always have qualified personnel perform the installation, troubleshooting, and maintenance work. Do not perform any electrical work unless you are qualified to perform such work.
2. Before performing any maintenance work inside a power source, disconnect the power source from the incoming electrical power.
3. Maintain cables, grounding wire, connections, power cord, and power supply in safe working order. Do not operate any equipment in faulty condition.
4. Do not abuse any equipment or accessories. Keep equipment away from heat sources such as furnaces, wet conditions such as water puddles, oil or grease, corrosive atmospheres and inclement weather.
5. Keep all safety devices and cabinet covers in position and in good repair.
6. Use equipment only for its intended purpose. Do not modify it in any manner.



ADDITIONAL SAFETY INFORMATION -- For more information on safe practices for electric arc welding and cutting equipment, ask your supplier for a copy of "Precautions and Safe Practices for Arc Welding, Cutting and Gouging", Form 52-529.

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/ASC Z49.1 - "Safety in Welding and Cutting"
2. AWS C5.1 - "Recommended Practices for Plasma Arc Welding"
3. AWS C5.2 - "Recommended Practices for Plasma Arc Cutting"
4. AWS C5.3 - "Recommended Practices for Air Carbon Arc Gouging and Cutting"
5. AWS C5.5 - "Recommended Practices for Gas Tungsten Arc Welding"
6. AWS C5.6 - "Recommended Practices for Gas Metal Arc Welding"
7. AWS SP - "Safe Practices" - Reprint, Welding Handbook.
8. ANSI/AWS F4.1, "Recommended Safe Practices for Welding and Cutting of Containers That Have Held Hazardous Substances."



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.

PRÉCAUTIONS DE SÉCURITÉ

AVERTISSEMENT: Ces règles de sécurité ont pour objet d'assurer votre protection. Veuillez à lire et à observer les précautions énoncées ci-dessous avant de monter l'équipement ou de commencer à l'utiliser. Tout défaut d'observation de ces précautions risque d'entraîner des blessures graves ou mortelles.

1. **PROTECTION INDIVIDUELLE**-- Les brûlures de la peau et des yeux dues au rayonnement de l'arc électrique ou du métal incandescent, lors du soudage au plasma ou à l'électrode ou lors du gougeage à l'arc, peuvent s'avérer plus graves que celles résultant d'une exposition prolongée au soleil. Aussi convient-il d'observer les précautions suivantes:

a. Portez un écran facial adéquat muni des plaques protectrices et des verres filtrants appropriés afin de vous protéger les yeux, le visage, le cou et les oreilles des étincelles et du rayonnement de l'arc électrique lorsque vous effectuez des soudures ou des coupes ou lorsque vous en observez l'exécution.

AVERTISSEZ les personnes se trouvant à proximité de façon à ce qu'elles ne regardent pas l'arc et à ce qu'elles ne s'exposent pas à son rayonnement, ni à celui du métal incandescent.

b. Portez des gants ignifugés à crispins, une tunique épaisse à manches longues, des pantalons sans rebord, des chaussures à embout d'acier et un casque de soudage ou une calotte de protection, afin d'éviter d'exposer la peau au rayonnement de l'arc électrique ou du métal incandescent. Il est également souhaitable d'utiliser un tablier ininflammable de façon à se protéger des étincelles et du rayonnement thermique.

c. Les étincelles ou les projections de métal incandescent risquent de se loger dans des manches retroussées, des bords relevés de pantalons ou dans des poches. Aussi convient-il de garder boutonnés le col et les manches et de porter des vêtements sans poches à l'avant.

d. Protégez des étincelles et du rayonnement de l'arc électrique les autres personnes travaillant à proximité à l'aide d'un écran ininflammable adéquat.

e. Ne jamais omettre de porter des lunettes de sécurité lorsque vous vous trouvez dans un secteur où l'on effectue des opérations de soudage ou de coupage à l'arc. Utilisez des lunettes de sécurité à écrans ou verres latéraux pour piquer ou meûler le laitier. Les piquetures incandescentes de laitier peuvent être projetées à des distances considérables. Les personnes se trouvant à proximité doivent également porter des lunettes de protection.

f. Le gougeage à l'arc et le soudage à l'arc au plasma produisent un niveau de bruit extrêmement élevé (de 100 à 114 dB) et exigent par conséquent l'emploi de dispositifs appropriés de protection auditive.

2. **PRÉVENTION DES INCENDES**-- Les projections de laitier incandescent ou d'étincelles peuvent provoquer de graves incendies au contact de matériaux combustibles solides, liquides ou gazeux. Aussi faut-il observer les précautions suivantes:

a. Éloigner suffisamment tous les matériaux combustibles du secteur où l'on exécute des soudures ou des coupes à l'arc, à moins de les recouvrir complètement d'une bâche non-inflammable. Ce type de matériaux comprend notamment le bois, les vêtements, la sciure, l'essence, le kérosène, les peintures, les solvants, le gaz naturel, l'acétylène, le propane et autres substances combustibles semblables.

b. Les étincelles ou les projections de métal incandescent peuvent tomber dans des fissures du plancher ou dans des ouvertures des murs et y déclencher une ignition lente cachée. Veiller à protéger ces ouvertures des étincelles et des projections de métal.

c. N'exécutez pas de soudures, de coupes, d'opérations de gougeage ou autres travaux à chaud à la surface de barils, bidons, réservoirs ou autres contenants usagés, avant de les avoir nettoyés de toute trace de substance susceptible de produire des vapeurs inflammables ou toxiques.

d. En vue d'assurer la prévention des incendies, il convient de disposer d'un matériel d'extinction prêt à servir immédiatement, tel qu'un tuyau d'arrosage, un seau à eau, un seau de sable ou un extincteur portatif.

e. Une fois le travail à l'arc terminé, inspectez le secteur de façon à vous assurer qu'aucune étincelle ou projection de métal incandescent ne risque de provoquer ultérieurement un feu.

3. **CHOC ÉLECTRIQUE**-- Le gougeage à l'arc et à l'arc au plasma exige l'emploi de tensions à vide relativement importantes; or, celles-ci risquent de causer des dommages corporels graves et même mortels en cas d'utilisation inadéquate. La gravité du choc électrique reçu dépend du chemin suivi par le courant à travers le corps humain et de son intensité.

a. Ne laissez jamais de surfaces métalliques sous tension venir au contact direct de la peau ou de vêtements humides. Veuillez à porter des gants bien secs.

b. Si vous devez effectuer un travail sur une surface métallique ou dans un secteur humide, veuillez à assurer votre isolation corporelle en portant des gants secs et des chaussures à semelles de caoutchouc et en vous tenant sur une planche ou une plate-forme sèche.

c. Mettez toujours à la terre le poste de soudage/coupage en le reliant par un câble à une bonne prise de terre.

d. N'utilisez jamais de câbles usés ou endommagés. Ne surchargez jamais le câble. Utilisez toujours un équipement correctement entretenu.

e. Mettez l'équipement hors tension lorsqu'il n'est pas en service. une mise à la masse accidentelle peut en effet provoquer une surchauffe de l'équipement et un danger d'incendie. Ne pas enrouler ou passer le câble autour d'une partie quelconque du corps.

f. Vérifiez si le câble de masse est bien relié à la pièce en un point aussi proche que possible de la zone de travail. Le branchement des câbles de masse à l'ossature du bâtiment ou en un point éloigné de la zone de travail augmente en effet le risque de passage d'un courant de sortie par des chaînes delevage

- des câbles de grue ou divers chemins électriques.
- g. Empêchez l'apparition de toute humidité, notamment sur vos vêtements, à la surface de l'emplacement de travail, des câbles, du porte-électrode et du poste de soudage/coupage. Réparez immédiatement toute fuite d'eau.
4. VENTILATION-- La respiration prolongée des fumées résultant des opérations de soudage/coupage, à l'intérieur, d'un local clos, peut provoquer des maux et des dommages corporels. Aussi convient-il d'observer les précautions suivantes:
- a. Assurez en permanence une aération adéquate de l'emplacement de travail en maintenant une ventilation naturelle ou à l'aide de moyens mécaniques. N'effectuez jamais de travaux de soudage ou de coupage sur des matériaux de zinc, de plomb, de beryllium ou de cadmium en l'absence de moyens mécaniques de ventilation capables d'empêcher l'inhalation des fumées dégagées par ces matériaux.
 - b. N'effectuez jamais de travaux de soudage ou de coupage à proximité de vapeurs d'hydrocarbure chloré résultant d'opérations voisines de dégraissage ou de pulvérisation. La chaleur dégagée ou le rayonnement de l'arc peut déclencher la formation de phosgène -- gaz particulièrement toxique -- et d'autres gaz irritants, à partir des vapeurs de solvant.
 - c. Une irritation momentanée des yeux, du nez ou de la gorge constatée au cours de l'utilisation de l'équipement dénote un défaut de ventilation. Arrêtez-vous de travailler afin de prendre les mesures nécessaires à l'amélioration de la ventilation. Ne poursuivez pas l'opération entreprise si le malaise persiste.
 - d. Certaines commandes comportent des canalisations où circule de l'hydrogène. L'armoire de commande est munie d'un ventilateur destiné à empêcher la formation de poches d'hydrogène, lesquelles présentent un danger d'explosion; ce ventilateur ne fonctionne que si l'interrupteur correspondant du panneau avant se trouve placé en position ON (Marche). Veillez à manœuvrer cette commande en vérifiant si le couvercle est bien en place, de façon à assurer l'efficacité de la ventilation ainsi réalisée. Ne jamais débrancher le ventilateur.
 - e. Les fumées produites par l'opération de soudage ou de coupage peuvent s'avérer toxiques. Aussi est-il nécessaire de disposer en permanence d'un dispositif adéquat de ventilation de type aspirant, afin d'éliminer du voisinage de l'opérateur tout dégagement de fumée visible.
 - f. Consultez les recommandations particulières en matière de ventilation indiquées à l'alinéa 6 de la norme Z49.1 de l'AWS.
5. ENTRETIEN DE L'ÉQUIPEMENT-- Un équipement entretenu de façon défectueuse ou inadéquate risque non seulement de réaliser un travail de mauvaise qualité mais, chose plus grave encore, d'entraîner des

- dommages corporels graves, voire mortels en déclenchant des incendies ou des chocs électriques. Observez par conséquent les précautions suivantes:
- a. Efforcez-vous de toujours confier à un personnel qualifié l'installation, le dépannage et l'entretien du poste de soudage et de coupage. N'effectuez aucune réparation électrique sur l'équipement à moins d'être qualifié à cet effet.
 - b. Ne procédez jamais à une tâche d'entretien quelconque à l'intérieur du poste de soudage/coupage, avant d'avoir débranché l'alimentation électrique.
 - c. Maintenez en bon état de fonctionnement les câbles, le câble de masse, les branchements, le cordon d'alimentation et le poste de soudage/coupage. N'utilisez jamais le poste ou l'équipement s'il présente une défectuosité quelconque.
 - d. Prenez soin du poste de soudage et de coupage et des équipements accessoires. Gardez-les à l'écart des sources de chaleur, notamment des fours, de l'humidité, des flaques d'eau maintenez-les à l'abri des traces d'huile ou de graisse, des atmosphères corrosives et des intempéries.
 - e. Laissez en place tous les dispositifs de sécurité et tous les panneaux de l'armoire de commande en veillant à les garder en bon état.
 - f. Utilisez le poste de soudage/coupage conformément à son usage prévu et n'effectuez aucune modification.
6. INFORMATIONS COMPLÉMENTAIRES RELATIVES À LA SÉCURITÉ--
- Pour obtenir des informations complémentaires sur les règles de sécurité à observer pour le montage et l'utilisation d'équipements de soudage et de coupage électriques et sur les méthodes de travail recommandées, demandez un exemplaire du livret N° 52529 "Precautions and Safe Practices for Arc Welding, Cutting and Gouging" publié par ESAB. Nous conseillons également de consulter les publications suivantes, tenues à votre disposition par l'American Welding Society, 550 N.W. LeJuene Road, Miami, FL 32126:
- a. "Safety in Welding and Cutting" AWS Z49.1
 - b. "Recommended Safe Practices for Gas-Shielded Arc Welding" AWS A6. 1.
 - c. "Safe Practices for Welding and Cutting Containers That Have Held Combustibles" AWS-A6.0.
 - d. "Recommended Safe Practices for Plasma Arc Cutting" AWS-A6. 3.
 - e. "Recommended Safe Practices for Plasma Arc Welding" AWS-C5. 1.
 - f. "Recommended Safe Practices for Air Carbon Arc Gouging and Cutting" AWS-C5. 3.
 - g. "Code For Safety in Welding and Cutting" CSA-Standard W117. 2.

1.1 GENERAL

The patent pending PT-32 is a manual torch with a 75° head designed for use with several Plasma Arc Cutting Packages using clean, dry air as the plasma gas. The service line lengths available with the PT-32 torch are 25 feet (7.6 m) and 50 feet (15.2 m). The PT-32 torch is rated to operate at a maximum of 90 amperes at 100% duty cycle.

1.2 SCOPE

This manual is intended to provide the operator with all the information required to assemble, operate, and repair the PT-32 Plasma Arc Cutting Torch. For additional safety precautions, process instructions, and system troubleshooting; refer to the appropriate instruction manual for your Plasma Arc Cutting Package.

1.3 SPECIFICATIONS

Refer to Figure 1-1 and Figure 1-3 for specifications.



WARNING

The plasma arc cutting process employs high voltages. Contact with "live" parts of the torch and machine must be avoided. Also, the improper use of any of the gases employed can present a safety hazard. Before beginning operation with the PT-32 torch, refer to the Safety Precautions and operating instructions in the appropriate power source instruction manual.

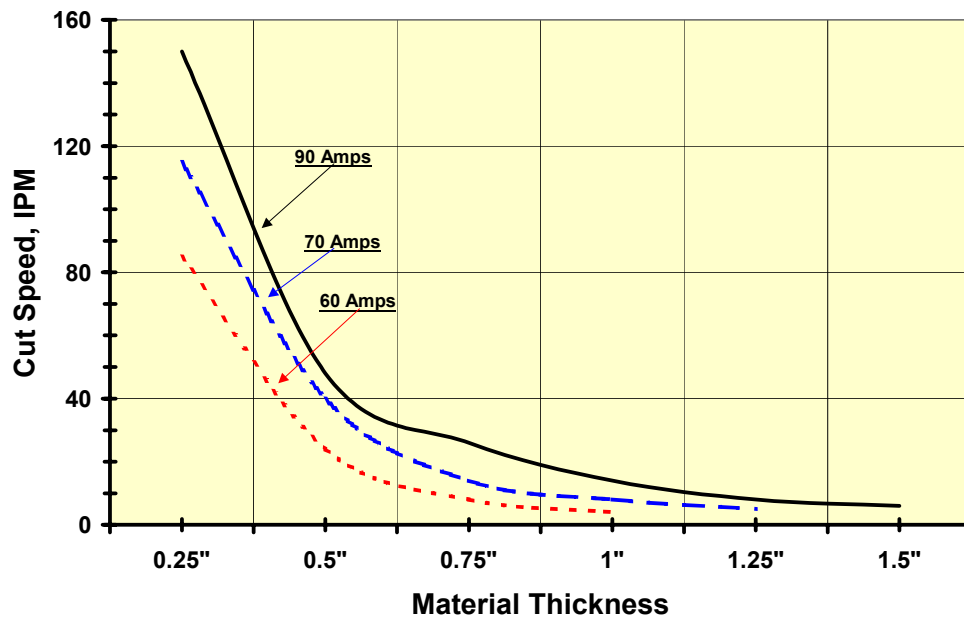
Using the torch on any unit not equipped with a mating safety interlock circuit may expose operator to unexpected high voltage.

Torch Assembly (Part No.)	Service Line Length	Weight	Current Capacity (100% duty)
0558001971	25 ft (7.6 m)	5.2 lbs (2.4 kg)	90 A DCSP
0558001972	50 ft (15.2 m)	9.6 lbs (4.4 kg)	90 A DCSP

Torches and torch body assemblies purchased individually are supplied without electrode, nozzle, heat shield and valve pin. Order individual components shown on pages 9 or 15.

Figure 1-1. PT-32 Specifications

PT-32 CUT SPEED - CARBON STEEL



PT-32 CUTTING SPEEDS
AIR @ 75PSI and OUTPUT CURRENT 40AMPS

Material	Thickness (In.)	Cutting Speed (IPM)
Carbon Steel	1/16	200
	1/8	98
	1/4	36
	3/8	18
	1/2	11
Stainless Steel	1/16	138
	1/8	58
	1/4	18
	3/8	10
	1/2	6
Aluminum	1/16	200
	1/8	110
	1/4	48
	3/8	17
	1/2	14

Figure 1-2. PT-32 Cutting Performance

1.4 OPTIONAL EQUIPMENT (NOT SUPPLIED WITH TORCH)

- A. Spare Parts Kits - The spare parts kits listed in figure 1-3 are recommended for maintaining the PT-32 torch with minimum downtime.

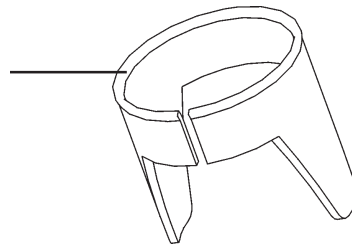
PowerCut 875 & PowerCut 1125 Systems Kit

DESCRIPTION	PART NUMBER (50/70 A Kit - P/N 0558002822)
Heat Shield	0558001957 (QTY 2)
Stand Off Guide	0558002393 (QTY 1)
Nozzle, 50-70 A	0558002618 (QTY 4)
Drag Nozzle, 40 A	0558002908 (QTY 1)
Electrode	0558001969 (QTY 3)
Valve Pin	0558001959 (QTY 1)
Lubricant	17672 (QTY 1)
Wrench	19129 (QTY 1)

Figure 1-3. Contents of PT-32 Spare Parts Kits

- B. Steel Guards (for extending the life of the heat shield) - Refer to Figure 2-2 for installation and operation.

STAND OFF GUIDE TYPE
P/N 0558002393



PowerCut 1500 Systems Kit

DESCRIPTION	PART NUMBER (90 A Kit - P/N 0558003062)
Heat Shield	0558001957 (QTY 2)
Stand Off Guide	0558002393 (QTY 1)
Nozzle, 90 A	0558002837 (QTY 4)
Drag Nozzle, 40 A	0558002908 (QTY 1)
Electrode	0558001969 (QTY 3)
Valve Pin	0558001959 (QTY 1)
Lubricant	17672 (QTY 1)
Wrench	19129 (QTY 1)
Fuse 2Amp 600VAC	0558003075 (QTY 1)

2.1 GENERAL

**WARNING**

Make sure power switch on console is in the "OFF" position and primary input power is deenergized.

2.2 ASSEMBLY

Install PT-32 front end parts as shown in Figure 2-1.

**WARNING**

The torch head contains a gas flow check valve and a nozzle back pressure tap that act in conjunction with circuitry within the power source. This system prevents the torch from being energized with high voltage if the torch switch is accidentally closed when the shield is removed. **ALWAYS REPLACE TORCH WITH THE PROPER TORCH MANUFACTURED BY ESAB SINCE IT ALONE CONTAINS ESAB'S PATENTED SAFETY INTERLOCK.**

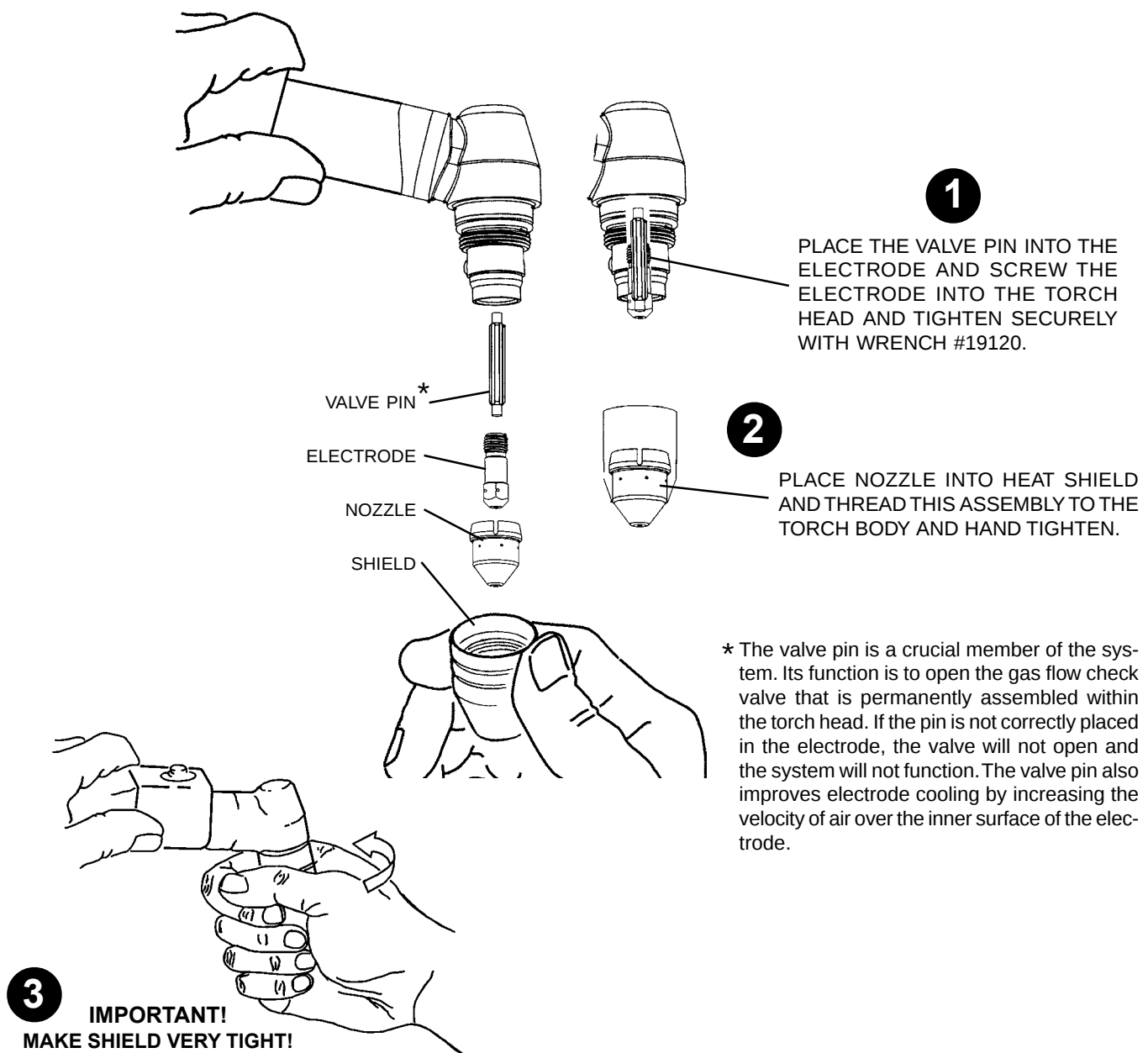


Figure 2-1. Assembly of PT-32 Torch Front End Parts

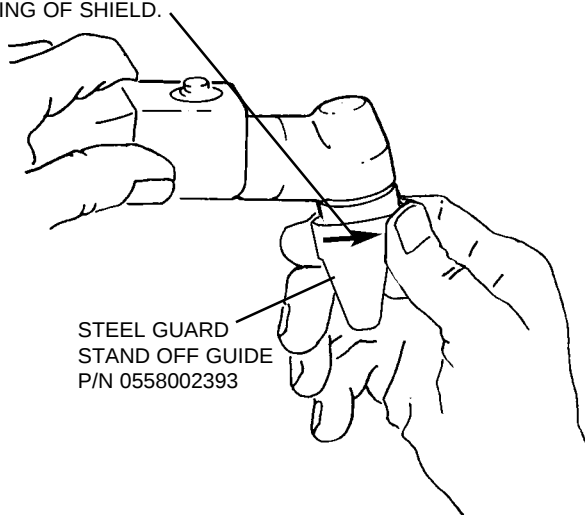
2.3 STEEL HEAT SHIELD GUARDS

(Refer to Figure 2-2)

NOTICE

Drag cutting, even with lower current levels may significantly reduce the life of torch consumables. Attempting to Drag Cut with higher currents (70 amps) may cause immediate catastrophic consumable damage.

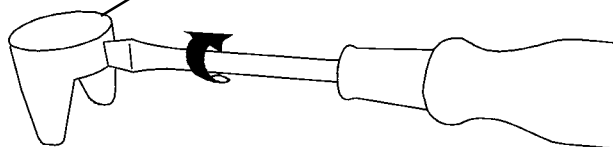
ADJUST GUIDE BY TURNING IN A CLOCKWISE DIRECTION ONLY. THIS WILL PREVENT ACCIDENTAL LOOSENING OF SHIELD.



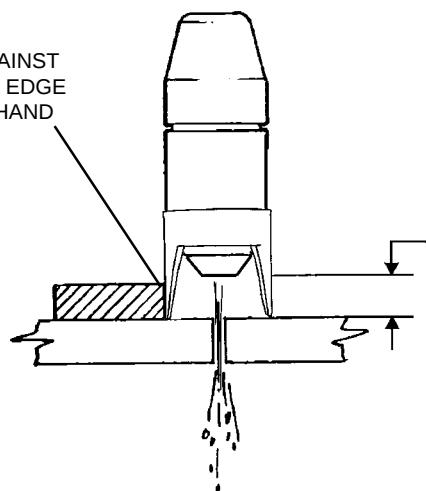
Drag Cutting with the PT-32 Torch

If drag cutting is desired, attach ESAB's standoff guide (P/N 0558002393). For thin material, under 3/8", remove 50-70 amp or 90 amp nozzle from torch head, insert ESAB's 40 amp nozzle (P/N 0558002908). Lower current level to 40 amps or lower.

IF GUIDE IS TOO TIGHT ON SHIELD, OPEN SLOT WITH SCREWDRIVER.



GUIDE AGAINST STRAIGHT EDGE OR FREE-HAND CUT



3/16" (4.6 mm)
TORCH-TO-WORK

IF TOO LOOSE, CLOSE SLOT WITH VISE OR LARGE PLIERS.

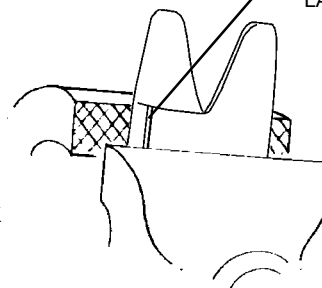


Figure 2-2. Installation and Operation of Steel Heat Shield Guards

3.1 GENERAL

**WARNING**

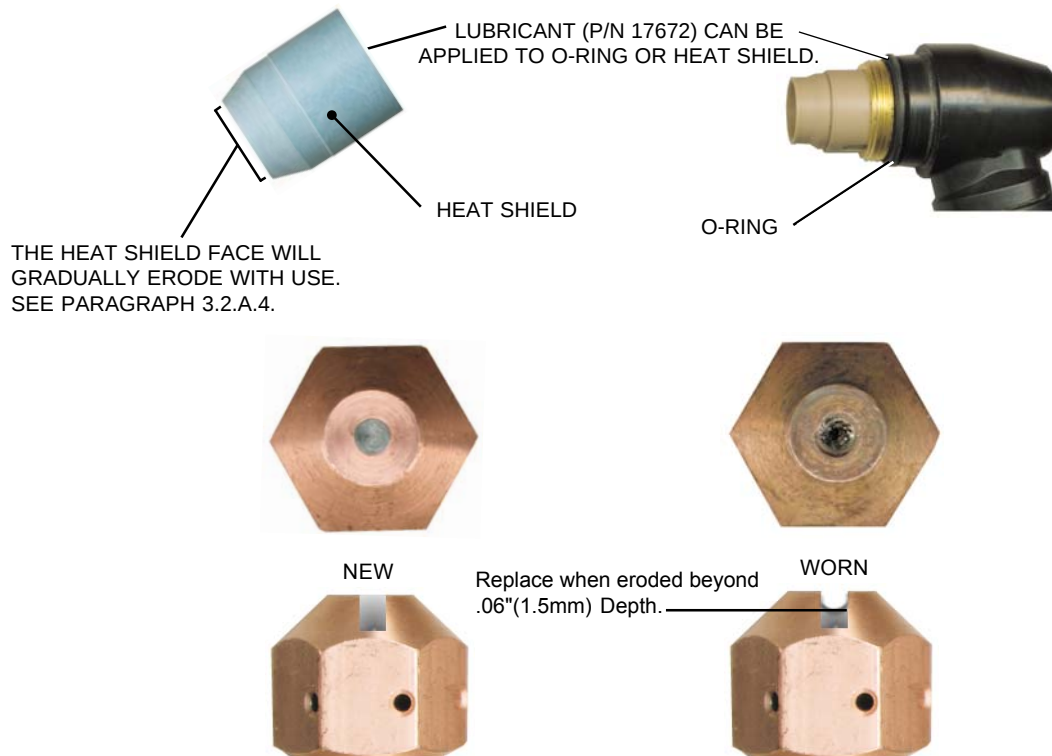
Before any maintenance is attempted on this torch, make sure the power switch on the console is in the "OFF" position and the primary input is deenergized.

3.2 INSPECTION AND CLEANING OF CONSUMABLES

A. Disassemble the front end of the PT-32 as follows:

1. Position torch head in a downward direction (refer to Figure 2-1) and remove the shield. The nozzle will drop from the head and remain in the shield. Unscrew the electrode to remove it and the valve pin. Remove these components and inspect for wear. The nozzle and electrode will generally wear at the same rate. For best performance, replace together.

2. Nozzle: Replace if the orifice is clogged, nicked, or out-of-round.
 3. Electrode: When replacing the nozzle, always inspect the electrode for wear. If more than .06" of electrode Hafnium has eroded, replace the electrode. If the electrode is used beyond this recommended wear limit, damage to the torch and power source may occur. Nozzle life is also greatly reduced when using the electrode below the recommended limit. Refer to Figure 3-1.
 4. Shield: The face of the shield will gradually erode from the heat and molten metal spray. Replace the shield if more than 1/8 inch (3.2 mm) has eroded from the face. Refer to Figure 3-1.
 5. O-ring: Lubricate as per Figure 3-1. Replace if cut or worn. Air leaking past this seal will reduce cutting performance.
- B. To replace the above front end components, refer to Figure 2-1.

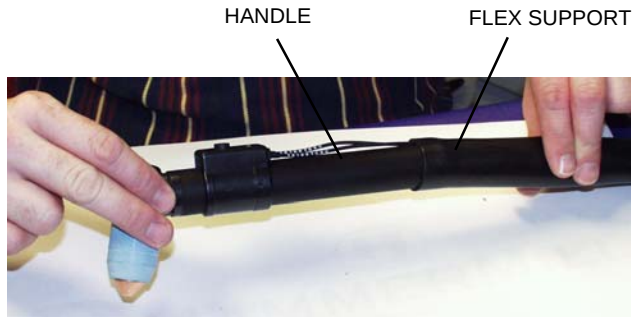
**CAUTION**

REPLACE ELECTRODE BEFORE PITTING BECOMES DEEPER THAN .06 INCH (1.5 MM)

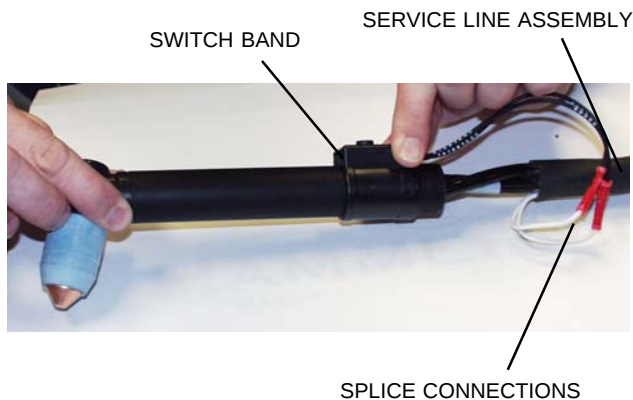
Figure 3-1. O-ring, Electrode, and Shield Maintenance

3.3 REMOVING / REPLACING TORCH HEAD AND SWITCH FROM SERVICE LINE

3.1 Slide back the flex support to the end of the Handle.



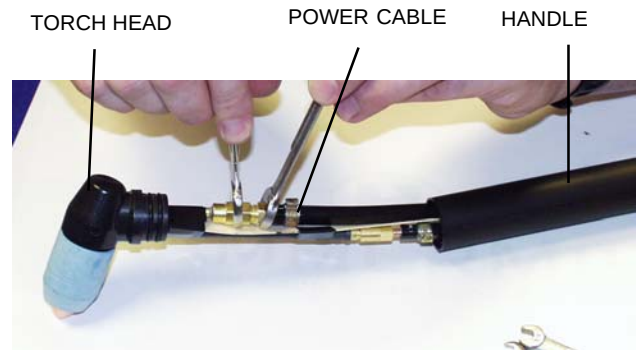
3.2 Slide Switch and Switch Band to end of handle. If the switch is to be replaced, remove switch from switch band and snip leads (2) at the spliced connections. (Replacement switches are supplied with new splices and extra long leads)



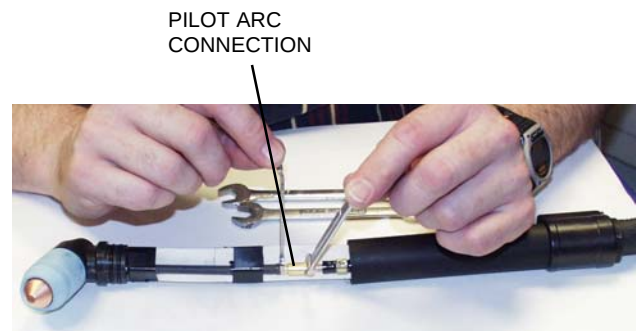
3.3 Carefully slide the handle back from the torch body to expose the cable and hose connections.



3.4 Remove the power cable from the Torch Head by using two wrenches to prevent twisting brass tube.



3.5 Remove the Pilot Arc connection from the Torch Head using two wrenches to prevent twisting stainless steel tube.



4.1 General

Replacement parts are illustrated on the following figures. When ordering replacement parts, order by part number and part name, as listed. Always provide the series or serial number of the unit on which the parts will be used. The serial number is stamped on the unit nameplate.

Replacement parts may be ordered from your ESAB distributor or from:

ESAB Welding & Cutting Products
Attn.: Customer Service Dept.
PO Box 100545, Ebenezer Road
Florence, SC, 29501-0545

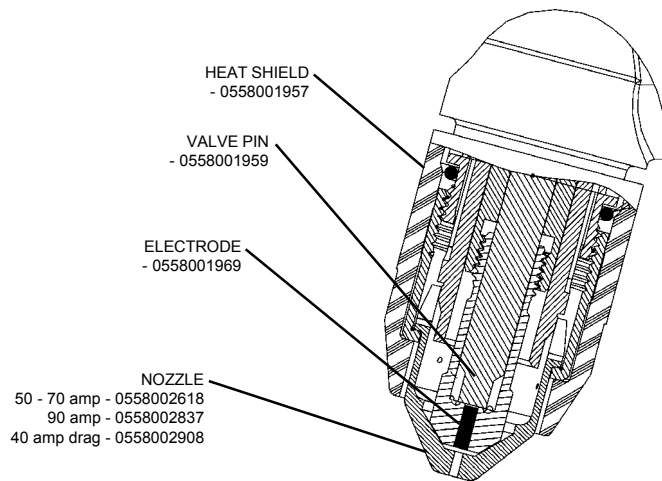
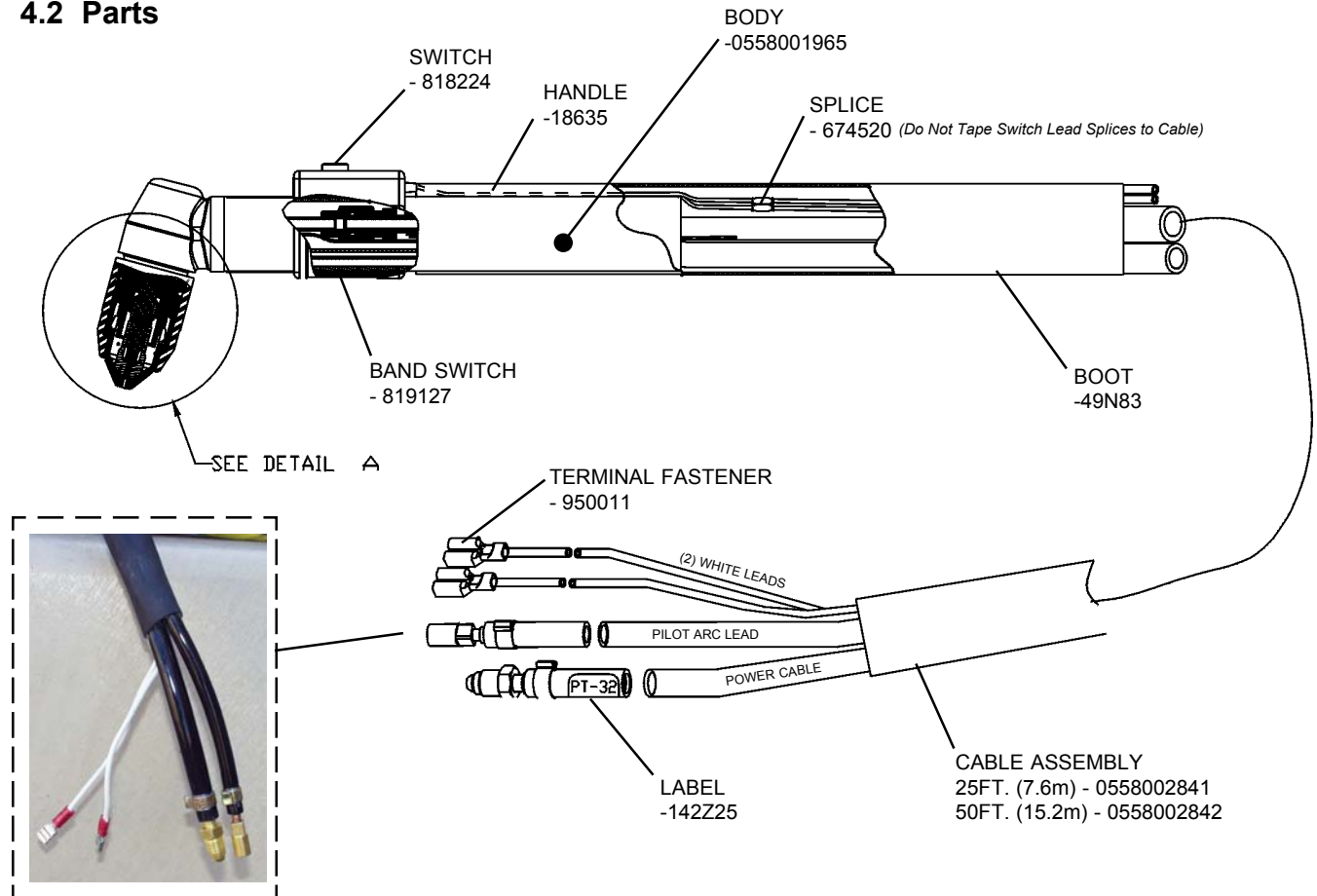
Refer to the Communication Guide located on the last page of this manual for a list of customer service phone numbers.

Revision History

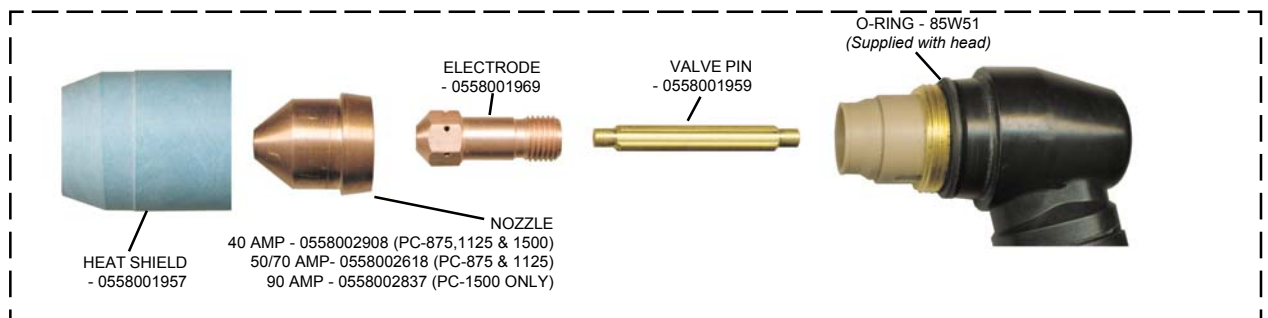
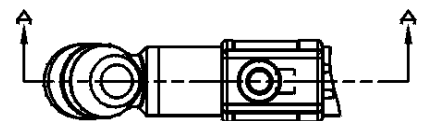
The "A" edition of this book adds a Cutting Speed Chart for 40Amp Current; updates the Optional Equipment list on page 9 and revises the assembly instructions on page 11.

The "B" edition of this book changes part number for the torch body and handle.

4.2 Parts



DETAIL A



PT-32 Exploded View
15

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

A. CUSTOMER SERVICE QUESTIONS:

Order Entry	Product Availability	Pricing	Delivery
Order Changes	Saleable Goods Returns	Shipping Information	

Eastern Distribution Center

Telephone: (800)362-7080 / Fax: (800) 634-7548

Central Distribution Center

Telephone: (800)783-5360 / Fax: (800) 783-5362

Western Distribution Center

Telephone: (800) 235-4012/ Fax: (888) 586-4670

B. ENGINEERING SERVICE: Telephone: (843) 664-4416 / Fax : (800) 446-5693

Welding Equipment Troubleshooting	Hours: 7:30 AM to 5:00 PM EST
Warranty Returns	Authorized Repair Stations

C. TECHNICAL SERVICE: Telephone: (800) ESAB-123/ Fax: (843) 664-4452

Part Numbers	Technical Applications	Hours: 8:00 AM to 5:00 PM EST
Performance Features	Technical Specifications	Equipment Recommendations

D. LITERATURE REQUESTS: Telephone: (843) 664-5562 / Fax: (843) 664-5548

Hours: 7:30 AM to 4:00 PM EST

E. WELDING EQUIPMENT REPAIRS: Telephone: (843) 664-4487 / Fax: (843) 664-5557

Repair Estimates	Repair Status	Hours: 7:30 AM to 3:30 PM EST
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F. WELDING EQUIPMENT TRAINING:

Telephone: (843)664-4428 / Fax: (843) 679-5864	
Training School Information and Registrations	Hours: 7:30 AM to 4:00 PM EST

G. WELDING PROCESS ASSISTANCE:

Telephone: (800) ESAB-123 / Fax: (843) 664-4454	Hours: 7:30 AM to 4:00 PM EST
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H. TECHNICAL ASST. CONSUMABLES:

Telephone : (800) 933-7070	Hours: 7:30 AM to 5:00 PM EST
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IF YOU DO NOT KNOW WHOM TO CALL

Telephone: (800) ESAB-123/ Fax: (843) 664-4452/ Web:<http://www.esab.com>

Hours: 7:30 AM to 5:00 PM EST

