



Air-Cooled Semi-Automatic MIG Torches
For COOL-GRIP Models
456CG, 500CG and 507CG



This Product is
MADE IN THE U.S.A.

INSTALLATION, OPERATIONS, AND REPLACEMENT PARTS MANUAL

SERVICE QUALITY SOLUTIONS

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INTRODUCTION

Thank you for purchasing an American Weldquip product. The American Weldquip product you have purchased has been carefully manufactured, assembled, and fully tested. This manual contains information on the installation, operation, maintenance, and replacement part breakdown. Please read, understand, and follow all safety instructions, warnings, and procedures. Keep this manual handy for referencing installation, operation, maintenance, and part ordering information. While every precaution has been taken as to the accuracy in this manual, American Weldquip assumes no responsibility for errors or omissions. American Weldquip assumes no liability for damages resulting from the use of the information contained in this manual. American Weldquip shall have no liability to the buyer for consequential damages or expenses by any defect whatsoever.

WARRANTY

AMERICAN WELDQUIP MIG guns and parts are warranted to be free of defects in material and/or workmanship for the period listed below. For any product found to be defective under normal use, AMERICAN WELDQUIP at our option, will repair, replace, or issue a credit for the value of the defective product. All warranty claims must be submitted by the original purchaser. Use of non-genuine AMERICAN WELDQUIP parts and/or consumables may damage and/or severely limit the performance of the equipment which may limit or void any warranties. AMERICAN WELDQUIP will not assume responsibility for incidental damages or expenses related to any defect. This warranty does not cover damage caused by misuse or abuse, accident, alteration of product, improper installation, misapplication, lack of reasonable care and maintenance, unauthorized repairs or modifications, loss of use while at a repair facility or other conditions that are beyond the control of American Weldquip.

A Return Merchandise Authorization Number (RMA#) must be attained from the factory for any product being returned for Warranty Repair or Replacement. All returned products must be shipped freight prepaid by the sender. No-charge replacements, repaired products, or credit will be issued once the returned product has been evaluated and warranty condition has been verified. If an immediate replacement is required before proper warranty evaluation, a purchase order number is required, and the goods will be invoiced. A credit will be issued once it is determined that a warranty condition exists.

STANDARD WARRANTY

All Semi-Automatic, Automatic, Robotic MIG Torches and Components.....= 120 Days
MIG Torch Trigger Switches (Contacts only) - Excludes Smoke Extraction = LIFETIME
Robotic Nozzle Cleaning Stations, Wire Cutter.....= 6 Months
Robotic Peripherals, ArcSafe, Gun Mounts.....= 90 Days
TIG POINT Tungsten Electrode Grinders.....= 90 Days

LIMITED EXTENDED WARRANTY PROTECTION

This limited extended warranty protection expands coverage to loyal customers who use all GENUINE American Weldquip consumables. Customers filing a claim under the extended warranty will need to prove, by providing past invoices, that they have been purchasing and using Genuine American Weldquip consumables.

All Semi-Automatic, Automatic, Robotic MIG Torches and Components.....= 1 YEAR
MIG Torch Trigger Switches (Contacts only) -Excludes Smoke Extraction....= LIFETIME

MIG Torch Handles.....= LIFETIME
 Robotic Nozzle Cleaning Stations, Wire Cutter.....= 1 Year w/Exclusive Quip-Mist Use
 Robotic Peripherals, ArcSafe, Gun Mounts.....= 90 Days
 TIG POINT Tungsten Electrode Grinders.....= 90 Days

ROHS COMPLIANT

RoHS (Restriction of Hazardous Substances) is an environmental law which addresses the European Union directive 2002/95/EC known as the RoHS Directive. The RoHS directive restricts the use of hazardous substances listed below in electrical and electronic equipment. While it is not a requirement to meet the directive in the United States, currently, American Weldquip Inc. feels this is an important part of our “Go Green initiative. We have taken all reasonable steps to try to ensure the supporting evidence regarding the absence of the restricted substances to support RoHS compliance.

For reference, the maximum concentration values of the restricted substances by weight in homogenous materials are:

Lead/Lead Components.....-0.1%
 Mercury.....-0.1%
 Hexavalent Chromium.....-0.1%
 Polybrominated Biphenyls (PBBs).....-0.1%
 Polybrominated Diphenyl Ethers (PBDEs).....-0.1%
 Cadmium.....-0.01%

For RoHS Certification of Compliance Letter on a particular product please visit our website – www.weldquip.com or email us at technical@weldquip.com or call 330-239-0317.



EU DIRECTIVE

This product has met the requirements set by the EU directive and the products listed below are in conformity with the provisions of:

Council Directives - 2014/35/EC Low Voltage Equipment Safety

Council Directives - 2011/65/EU Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Harmonization Standard Used - IEC 60974-7:2013 Arc welding equipment – Part 7: Torches

260 Amp Mig Torch - 238CAXX

300 Amp Mig Torch - 347CAXX

350 Amp Mig Torch - 354CAXX

400 Amp Mig Torch - 407CAXX

400 Amp Mig Torch - 456CGXX

500 Amp Mig Torch - 500CGXX

500 Amp Mig Torch - 507CGXX

347 Amp Mig Torch - 347PGXX

407 Amp Mig Torch - 407PGXX

For EU Declaration of Conformity letter for this product please visit our website – www.weldquip.com or email us at technical@weldquip.com or call 330-239-0317.

SAFETY PRECAUTIONS – READ BEFORE USING

Before installing, operating, or performing maintenance please read the safety precautions below. Failure to observe safety precautions can result in injury or death.

Read and follow the Owner's Manual carefully before installing, operating, or servicing equipment. Read and understand all safety information.

CALIFORNIA PROPOSITION 65 WARNINGS

This product, when used for welding and cutting, can produce fumes or gases which contain chemicals known to cause birth defects and cancer. (California Health & Safety Code Section 25249.5 et seq.) **WASH HANDS AFTER HANDLING**

EMF – ELECTRICAL AND MAGNETIC FIELDS MAY BE DANGEROUS

Electrical current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates an EMF field around welding cables and welding machines.

WARNING - EMF fields may interfere with some pacemakers and other medical implants. Implanted medical device wearers should consult their doctor before operating or going near any arc welding applications. In addition, exposure to EMF fields in welding may have other unknown health effects.

- Welders should use the below procedures to minimize the exposure to EMF fields from the welding circuit.
- Route the cables close together. Secure by twisting, taping, or using a cable cover to keep together.
- Never coil, wrap, or drape welding cables around your body.
- Do not place your body between welding cables. Arrange so that cables are on one side and away from the operator.
- Connect the work clamp (ground) to the workpiece as close as possible to the area to be welded.
- Do not sit, lean, and stand next to the welding power source.
- Do not breathe the fumes and gases as they can cause asphyxiation.

FUMES AND GASES CAN BE DANGEROUS



WARNING - WELDING AND CUTTING PRODUCE FUMES AND GASES THAT ARE HAZARDOUS TO YOUR HEALTH

Fumes and gases generated from welding can cause severe injury to respiratory system and even death. In poorly vented areas it is required to properly ventilate the area and/or use local forced ventilation or other fume control equipment at the arc to remove welding and cutting fumes and gases.

The recommended way to determine adequate ventilation is to sample for the composition and quantity of fumes and gases to which personnel are exposed. The worker exposure level

should be checked initially and periodically thereafter to maintain applicable OSHA PEL and ACGIH TVL limits.

- In a poorly ventilated area, it is necessary to wear an approved air-supplied respirator.
- Always read and understand the Safety Data Sheets (SDSs) and the manufacturer's instructions for adhesives, coatings, cleaners, consumables, coolants, degreasers, fluxes, and metals.
- Always have a trained watchperson nearby. Welding and cutting fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld or cut in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld or cut on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

ELECTRIC SHOCK CAN KILL



WARNING - ELECTRICAL SHOCK CAN KILL. DO NOT TOUCH LIVE ELECTRICAL PARTS AND/OR USE IN DAMP LOCATIONS.

The electrode and work (ground) circuit are electrically “HOT” whenever the welding equipment is on. Do not touch these electrically live parts with your bare skin or wet/damp clothing. Wear dry, hole-free gloves. Incorrectly installed or improperly grounded equipment is a hazard.

Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.

Additional safety precautions are required when any of the following electrically hazardous conditions are present: in damp locations or while wearing wet clothing; on metal structures such as floors, gratings, or scaffolds; when in cramped positions such as sitting, kneeling, or lying; or when there is a high risk of unavoidable or accidental contact with the workpiece or ground. For these conditions, use the following equipment in order presented: 1) a semi-automatic DC constant voltage, 2) a DC manual (stick) welder or 3) an AC welder with reduced open-circuit voltage. In most situations, use of a DC constant voltage wire welder is recommended and do not work alone!

- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tag out input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install ground and operate this equipment according to its Owner's Manual and national, state/provincial, and local codes.
- Always verify the supply ground. Make sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- Keep cords dry, free of oil and grease and protected from hot metal and sparks.
- Frequently inspect input power cord for damage or bare wiring. Replace cord immediately if damaged. Bare wiring can kill.
- Turn off all equipment when not in use.

- Do not use worn, damaged, undersized, or poorly spliced cables. It is illegal to use electrical tape to repair torch power cable or ground cable that has damaged outer insulation. The cable must be replaced.
- Do not drape cables over your body.
- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Do not touch electrode holders connected to two welding machines at the same time since double open circuit voltage will be present.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Do not connect more than one electrode or work cable to any single weld output terminal. Disconnect cable for process when not in use.

ARC RAYS HAZARDS



WARNING – A WELDING ARC EMITS ULTRAVIOLET (UV) AND OTHER RADIATION AND CAN CAUSE SERIOUS INJURY TO UNPROTECTED SKIN AND EYES.

Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to ANSI Z87.1

standards.

Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.

Protect other nearby personnel with suitable, non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.

WELDING AND CUTTING CAN CAUSE FIRE OR EXPLOSION



WARNING – Welding and cutting produces sparks that fly off from the arc and can cause fires and/or explosions.

- Welding or cutting on closed containers, such as tanks, drums or pipes can cause them to blow up. Sparks can fly off from the welding or cutting arc. The flying sparks, hot work piece and hot equipment can cause fires and burns.
- Accidental contact of electrode to metal objects can cause sparks, explosion, overheating or fire. Check and be sure the area is safe before doing any welding or cutting.
- Do not weld or cut where flying sparks can strike flammable material.
- Remove all flammables and fire hazards from the welding area. If this is not possible, tightly cover them with approved covers to prevent the welding sparks from starting a fire.
- When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.

- Be alert that welding sparks and hot materials from welding and cutting can easily go through small cracks and openings and cause a fire in the adjacent areas.

Follow requirements in OSHA 1910.252 (a) (2) (iv) and NFPA 51B for hot work and have a fire watcher and extinguisher nearby.

- Do not heat, cut, or weld tanks, drums or containers that have held combustibles until the proper steps have been taken to ensure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been “cleaned”. For information, purchase “Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances”, AWS F4.1 from the American Welding Society.
- Do not weld or cut where the atmosphere may contain flammable dust, gas, or liquid vapors (such as gasoline).
- Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuff-less trousers, high shoes, and a cap over your hair. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when in a welding area.
- Connect work cable to the work as close to the welding or cutting area as practical to prevent welding or cutting current from traveling long, possibly unknown paths and causing electric shock, sparks, and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding or cutting.
- Inspect area to ensure it is free of sparks, glowing embers, and flames after work is complete.

CYLINDERS CAN EXPLODE IF DAMAGED



WARNING – Compressed gas cylinders contain gas under high pressure and/or flammable gas. If damaged, the cylinder can explode.

- Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.
- Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
- Cylinders should be located away from areas where they may be struck or subjected to physical damage and a safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.
- Never allow the electrode, electrode holder or any other electrically “hot” parts to touch a cylinder.
- Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

- Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-1, “Precautions for Safe Handling of Compressed Gases in Cylinders,” available from the Compressed Gas Association, 14501 George Carter Way Chantilly, VA 20151.

PRINCIPAL SAFETY STANDARDS

Safety in Welding, Cutting and Allied Processes, ANSI Standard Z49.1 – available for download from the American Welding Society website at www.aws.org.

CSA Standard W117.2 – available from Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Ontario, Canada L4W 5NS or website – www.csa-international.org.

Nation Electric Code, NFPA Standard 70 – available from National Fire Protection Association, Quincy, MA 02269, or website – www.nfpa.org.

Safe Practices for Occupational and Educational Eye and Face Protection, ANSI Standard Z87.1 – available from the American National Standards Institute, 25 West 43rd Street, New York, NY 10036. Website – www.ansi.org.

OSHA, Occupational Safety and Health Standard for General Industry, Title 29, Code of Federal Regulations, Part 1910, Subpart Q and Part 1926, Subpart J available from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburg, PA 15250. Website – www.osha.gov.

COOL-GRIP SEMI-AUTO TORCHES

FEATURES

American Weldquip torches have been designed with advanced features and benefits to include:

Durability – Heavy-walled gooseneck design gives increased durability where it matters the most.

Consumables – Common consumable platform keeps stock needs down.

Power Cable – A strong, durable power cable promotes clean arc starts and cut resistance.

Custom Configurations – Custom configurations are readily available and can even ship same day.

Extended Trigger – The aluminum, extended trigger provides comfortable reach while preventing breaks as compared to plastic extended triggers.

“Cool Design” – The Cool-Grip design was made to provide relief from the high heat of welding.

Strain-relief – Our spring strain-relief prevents the power cable from being over bent prolonging its lifetime while preventing feed issues.

Additional Options – Flex-necks, heat shield, thermal spring, and torch hangers are available across all torch designs.

Adaptation – Adaptable to most wire feeders with quick change control cable.

Location – Manufactured in Sharon Center, Ohio allowing for quick turnaround.

TORCH SPECIFICATIONS

MODEL	AMPERAGE	60% DUTY CYCLE		100% DUTY CYCLE	
		CO2	MIXED GAS (AR/CO2)	CO2	MIXED GAS (AR/CO2)
456CG	450	500A	450A	450A	350A
500CG	500	575A	500A	500A	390A
507CG	500	575A	500A	500A	390A

Duty Cycle is based on a complete cycle time of 10 minutes. (60% Duty Cycle = 6 minutes weld time, 4 minutes off time).

INSTALLATION

Depending on how your torch was ordered your American Weldquip torch has been supplied with either a EURO type feeder connection or a DIRECT wire feeder connection. The American Weldquip torch can be installed to the wire feed unit in two ways.

- Euro Connection – Feeder Adaptor Kit may be required
- Direct Connection

EURO CONNECTION (USING FEEDER ADAPTOR KIT)

In some cases, it may be desirable to use a Euro feeder adaptor kit when using different manufactures wire feed units. This will commonize torches to a Euro style configuration.

- 1) Thread feeder adaptor plug into the adaptor block and tighten.
- 2) Insert the adaptor guide tube into the adaptor plug.
- 3) Fully insert the feeder adaptor assembly into the wire feeder. Tighten screw or other method on wire feeder to secure the adaptor assembly.
- 4) Connect the Euro torch to the feeder adaptor assembly.
- 5) Feed welding wire into the torch and tighten drive rolls.

WARNING: WHEN FEEDING WELD WIRE THROUGH THE TORCH, KEEP THE FRONT END OF THE TORCH POINTED AWAY FROM ANY PERSON OR OBJECT. DO NOT POINT AT FACE, HANDS ETC. FAILURE TO DO SO WILL RESULT IN BODILY INJURY AND POSSIBLY DEATH.

DIRECT CONNECT

The direct connect torch system is designed for installation to the wire feeder without the need for any adaptor system. The torch is supplied (depending on the torch configuration ordered) with a feeder connection plug at the rear of the torch, gas connection, feeder control cable.

- 1) Fully insert the torch Direct Connection into wire feeder. Tighten screw or other method on wire feeder to secure torch.
- 2) Connect the gas hose if required:
 - a. Lincoln Universal – connect PtoC to power pin then hose from PtoC to feeder.
 - b. OTC/Daihen, Lincoln, and Panasonic – connect to feeder with attached hose.
- 3) Connect feeder control cable/plug to the feeder if required.
- 4) Feed welding wire into the torch and tighten drive rolls.

WARNING: WHEN FEEDING WELD WIRE THROUGH THE TORCH KEEP THE FRONT END OF THE TORCH POINTED AWAY FROM ANY PERSON OR OBJECT. DO NOT POINT AT FACE, HANDS ETC. FAILURE TO DO SO WILL RESULT IN BODILY INJURY AND POSSIBLY DEATH.

DAILY MAINTENANCE

A few minutes per day performing a quick check of your mig torch will help to decrease weld problems, minimize downtime, and help increase consumable life.

- **At Beginning of Shift**
 - Inspect the cable for cuts, nicks, or tears. If you can see bare copper return for maintenance.
 - Inspect the front-end consumables. Clean weld spatter and inspect the nozzle insulator. If nozzle insulation is damaged, the nozzle should be replaced.
 - Check that the gas diffuser is tight, and the insulating washer is on the gooseneck.

- The insulating washer is pertinent to have in place as this helps prevent the gooseneck from getting electrically charged.
- Check the gas holes on the diffuser and clean if necessary.
- Check and tighten the contact tip.
- Check all electrical connections including the power cable from the power supply, torch/feeder connections, and control cables for loose connections. Tighten if necessary. Loose connections can cause overheating of cables and/or loss of electrical power.

MAINTENANCE

LINER REPLACEMENT

Warnings – To avoid accidental injury ensure power supply and wire feed unit is turned off.

- 1) Trim the end of the weld wire at contact tip.
- 2) Retract or completely remove weld wire so torch can be removed from the wire feeder.
- 3) Remove the nozzle, contact tip and diffuser.
- 4) Loosen the set screw, DO NOT REMOVE, at the torch feeder pin connection using a 5/64” Allen wrench. If retaining nut, remove and set aside.
- 5) Making sure the torch cable is straight, grasp the liner at the rear of the torch with a pair of pliers and remove.
- 6) Carefully feed the new liner into the torch using short strokes to avoid kinking. You may need to twist the liner for easier insertion.
- 7) Tighten the set screw or retaining nut to secure the liner in the torch.
- 8) Reinstall the torch to the wire feed unit.
- 9) IMPORTANT: at the front end of the torch push the liner back into the gun and hold to trim.
- 10) Trim the liner to 13/32” stick out from the end of the gooseneck.
- 11) Replace the diffuser, contact tip and nozzle.
- 12) Feed welding wire into the torch and tighten drive rolls.

WARNING: WHEN FEEDING WELD WIRE THROUGH THE TORCH KEEP THE FRONT END OF THE TORCH POINTED AWAY FROM ANY PERSON OR OBJECT. DO NOT POINT AT FACE, HANDS ETC. FAILURE TO DO SO WILL RESULT IN BODILY INJURY AND POSSIBLY DEATH.

GOOSENECK REPLACEMENT

- 1) Secure Gooseneck in a vice.
- 2) Remove the liner from the torch, see liner replacement.
- 3) Unscrew the spring from the front handle and slide back on cable.
- 4) Remove the four handle screws and separate the handle assembly.

- 5) Using a 5/8" wrench loosen the gooseneck/cable connection and remove from the cable assembly.
- 6) Remove the Body Insulator from the old gooseneck and install on the new one.
- 7) Thread the new gooseneck on to the cable assembly and tighten with 5/8" wrench..
- 8) Install the bottom handle assembly (trigger side) onto the gooseneck/cable assembly. The trigger wires will fit in the grooves on the sides of the body insulator. Make sure the trigger wires stay seated in the body insulator and the insulator is fully inserted into the bottom handle.
- 9) Install the top handle and secure with the (4) screws.

IMPORTANT: Ensure the trigger wires are not pinched between the handles.

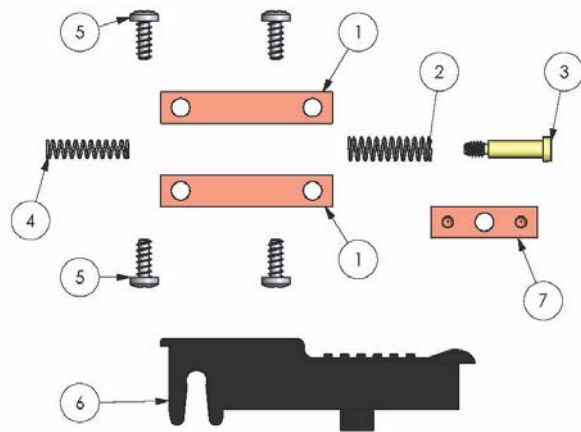
- 10) Slide the handle spring up and twist onto the rear of the handle.
- 11) Reinstall the liner, see liner replacement.
- 12) Reinstall the insulating washer, diffuser, contact tip, and nozzle.

TRIGGER SWITCH REPLACEMENT

CG SERIES TORCHES

The Trigger Switch Assembly (75000004) contains:

- (1) Trigger Paddle
- (2) Springs
- (4) Screws
- (1) Shoulder Screw
- (2) Copper Outer Contact Plates
- (1) Copper Contact Plate



- 1) Secure Gooseneck in a vice.
- 2) Remove the four handle screws and separate the handle assembly.
- 3) Remove the (4) screws securing the copper contact assemblies and remove the trigger leads and contacts.
- 4) Remove the trigger paddle shoulder screw and spring securing the center copper blade to the trigger paddle.

- a. If using the extended trigger there are two screws that secure the trigger paddle and must be removed.

- 5) Using a screwdriver gently push, from the inside of the handle, the trigger paddle where it attaches to the handle and remove the trigger paddle and return spring.
- 6) Insert the return spring (the smaller diameter spring) into the seat on the bottom handle assembly.
- 7) Carefully insert the new trigger paddle and small diameter spring into the handle assembly and tap the paddle in on the pivot point in the handle. The Trigger should snap in place.
- 8) Place the copper cross contact on the shoulder screw, then install the remaining spring over the screw, and thread into the trigger paddle until tight. DO NOT OVER TIGHTEN.

ITEM NO.	PART NUMBER	DESCRIPTION
1	75000010	TRIGGER BLADE, LONG
2	75000059	LARGE HANDLE SPRING - STRONG
3	75000013D	TRIGGER CENTER BLADE SCREW
4	75000058	SMALL SPRING, HANDLE EXTENDED TRIGGER
5	75000011	SCREW, #4 X 5/16" PRHMS
6	75000042	HANDLE TRIGGER W/ SPATTER GUARD
7	75000012	TRIGGER BLADE, CENTER

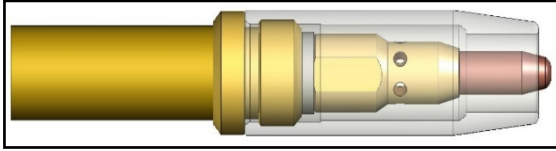
- 9) Using the (4) four screws provided attach the (2) two outer contact plates and install the (2) two trigger leads under the front contact plate screws.
- 10) Install the bottom handle assembly (trigger side) onto the gooseneck/cable assembly. The trigger wires will fit in the grooves on the sides of the body insulator. Make sure the trigger wires stay seating in the body insulator and the insulator is fully inserted into the bottom handle.
- 11) Slide the handle spring or cable support up and insert in the rear of the handle.
- 12) Install the top handle and secure with the (4) four screws provided. **IMPORTANT:** Ensure the trigger wires are not pinched between the handles.

POWER CABLE REPLACEMENT

- 1) Secure Gooseneck in a vice.
 - 2) Remove the liner from the torch., see liner replacement.
 - 3) Unscrew the spring from the gooseneck and slide back on cable.
 - 4) Remove the four handle screws and separate the handle assembly.
 - 5) Using a 5/8" wrench, loosen the gooseneck/cable connection and remove gooseneck from the cable assembly.
 - 6) Remove the spring from old cable and place on the new cable assembly.
 - 7) Thread the gooseneck on to the new cable assembly and tighten.
 - 8) Install the bottom handle assembly (trigger side) onto the gooseneck/cable assembly. The trigger wires will fit through the slot on the bottom of the body insulator. Make sure the insulator is fully inserted into the bottom handle.
 - 9) Slide the handle spring or cable support up and insert in the rear of the handle.
 - 10) Install the top handle and secure with the (4) screws.
- IMPORTANT: Ensure the trigger wires are not pinched between the handles.**
- 11) On the rear of the old cable assembly, unscrew the spring and slide back on the cable.
 - 12) Unplug the trigger control cable if present and set aside.
 - 13) Remove the screw securing the adaptor support to the feeder pin adaptor and separate.
 - 14) Unthread the power cable from the feeder adaptor block.
 - 15) Slide the rear spring and adaptor support onto the new cable assembly.
 - 16) Thread the feeder pin adaptor into the power cable and tighten.
 - 17) Slide the rear adaptor support onto the feeder adaptor block and secure with screw.
 - 18) Install the other handle half and screw on the rear spring.
 - 19) Install the screw on the rear handle and feeder adaptor.
 - 20) Plug trigger connector into socket on rear adaptor support if present.
 - 21) Reinstall the liner, see liner replacement.
 - 22) Replace the Diffuser, contact tip, and nozzle.
 - 23) Feed welding wire into the torch and tighten drive rolls.

NOZZLE/TIP RELATIONSHIPS

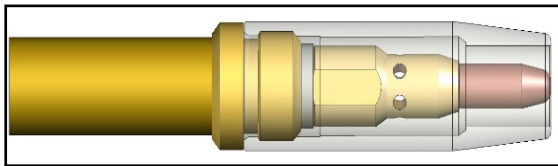
Shown below are typical relationship between the contact tip and nozzle in GMAW Semi-Automatic applications. Nozzles to tip relationships are usually dictated by the process and application but not necessarily the standard. Keep in mind that decreased tip life, increased spatter cleaning cycles may be required if the tip relationship is changed to achieve other objectives.



Extended Tip – Short Circuit (Short Arc, Dip Transfer) Welding Applications

The tip stick out is usually 1/8" or 1/4" from the nozzle. Keep in mind that the further the stick out the more susceptible to gas porosity

issues. Typically, this used in short circuit, lower amperage applications, and/or where you may need to reach into a corner.

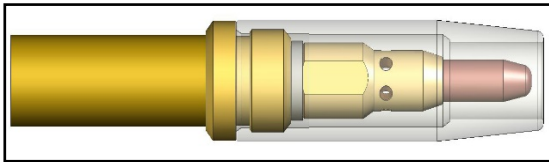


Flush Tip – Higher current Short Circuit (Short Arc, Dip Transfer) Welding Applications

The tip is flush with the end of the nozzle. Typically used in higher current and voltage short

circuit applications.

Recessed Tip – Spray Arc, Pulsed, Flux Core Welding Applications



The tip is usually recessed in the nozzle 1/8" or 1/4". Usually, the higher the heat and/or current the further the recess. However, this is also dependent on the wire used and the arc length requirement.

NOZZLE SELECTION CHART

400 Series Nozzles

Part Number	Description	Bore Size	Material	O.A.L	Insulator Req
75146202-I	BOTTLE NOSE	5/8" (15.9mm)	NI PLATED BRASS	3.125" (79.4mm)	INSTALLED
75145001	BOTTLE NOSE	1/2" (12.7mm)	NI PLATED BRASS	3.031" (77.0mm)	75001733
75146202	CONICAL	5/8" (15.9mm)	NI PLATED BRASS	3.125" (79.4mm)	75001738
75146202C	CONICAL	5/8" (15.9mm)	NI PLATED COPPER	3.125" (79.4mm)	75001738
75146202CU	CONICAL	5/8" (15.9mm)	BARE COPPER	3.125" (79.4mm)	75001738
75145601-I	TAPERED	9/16" (14.2mm)	NI PLATED BRASS	3.125" (79.4mm)	INSTALLED
75145002C	TAPERED	1/2" (12.7mm)	NI BARE COPPER	3.125" (79.4mm)	75001738
75145002CU	TAPERED	1/2" (12.7mm)	BARE COPPER	3.125" (79.4mm)	75001738
75145003	TAPERED (LONG)	1/2" (12.7mm)	NI PLATED BRASS	3.915" (99.4mm)	NONE REQ.
75146501S	SPOT	5/8" (15.9mm)	NI PLATED BRASS	3.437" (87.3mm)	75001738
75146204-I	CONICAL	5/8" (15.9mm)	NI PLATED BRASS	2.820" (71.6mm)	INSTALLED
75146204CU	CONICAL	5/8" (15.9mm)	BARE COPPER	2.820" (71.6mm)	75001738
75145602-I	SMALL CONICAL	9/16" (14.2mm)	NI PLATED BRASS	2.820" (71.6mm)	INSTALLED
75144301-I	TAPERED	7/16" (11.1mm)	NI PLATED BRASS	2.820" (71.6mm)	INSTALLED
75145004	BOTTLE NOSE	1/2" (12.7mm)	NI PLATED BRASS	3.125" (79.4mm)	75001733
75146205-I	CONICAL	5/8" (15.9mm)	NI PLATED BRASS	3.031" (77.0mm)	INSTALLED
75146205CU	TAPERED	5/8" (15.9mm)	BARE COPPER	3.031" (77.0mm)	75001738
75146206-I	SHORT CONICAL	5/8" (15.9mm)	NI PLATED BRASS	1.875" (47.6mm)	INSTALLED
75146207-I	SHORT CONICAL	5/8" (15.9mm)	NI PLATED BRASS	2.187" (55.6mm)	INSTALLED
75147501	CYLINDRICAL	3/4" (19.0mm)	NI PLATED BRASS	3.125" (79.4mm)	75001738
7514501CU	CYLINDRICAL	3/4" (19.0mm)	BARE COPPER	3.125" (79.4mm)	75001738
75145603-I	SHORT TAPERED	9/16" (14.2mm)	NI PLATED BRASS	2.375" (60.3mm)	INSTALLED
75145005	BOTTLE NOSE	1/2" (12.7mm)	NI PLATED BRASS	2.820" (71.6mm)	75001733
75144302-I	TAPERED	7/16" (11.1mm)	NI PLATED BRASS	3.125" (79.4mm)	INSTALLED

500 Series Nozzles

Part Number	Description	Bore Size	Material	O.A.L	Insulator Req
75156201	CONICAL	9/16" (14.2mm)	NI PLATED BRASS	2.670" (67.8mm)	75001740
75157001CU-I	CYLINDRICAL	11/16" (17.46mm)	BARE COPPER	3.187" (81mm)	INSTALLED
75157501-I	CONICAL	3/4" (19mm)	NI PLATED BRASS	3.187" (81mm)	INSTALLED

CONTACT TIP SELECTION CHART

M8 Contact Tips

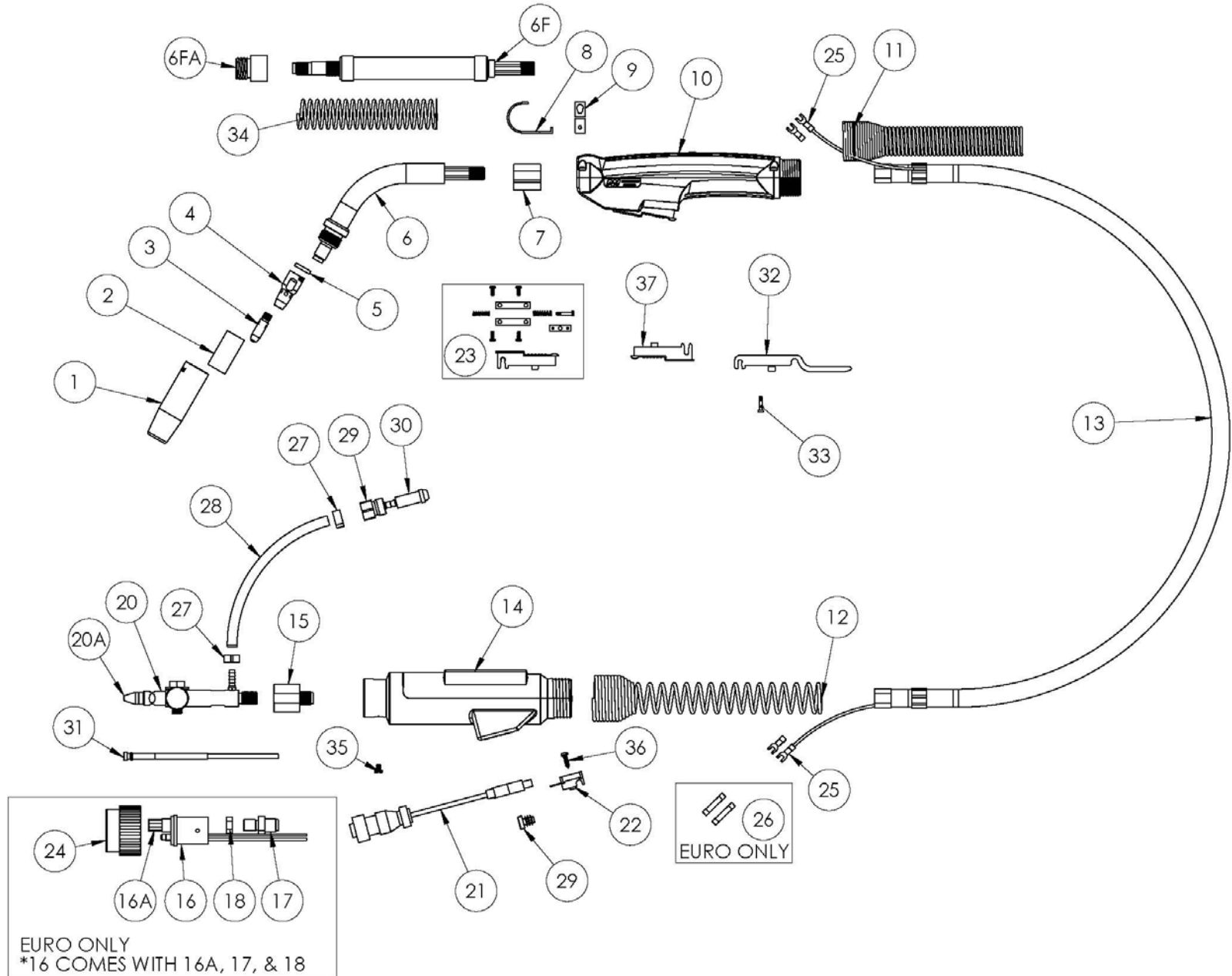
<u>Part Number</u>	<u>Wire Size</u>	<u>Nominal I.D</u>
Copper (CU)		
75030014	0.030" (.8mm)	0.038"
75035014	0.035" (.9mm)	0.044"
75040014	0.040" (1.0mm)	0.048"
75045014	0.045" (1.2mm)	0.054"
75052014	0.052" (1.3mm)	0.061"
75062014	0.062" (1.6mm)	0.073"
75062015	0.062" (1.6mm)	0.076"
75078014	0.078" (2.0mm)	0.087"
75093014	0.093" (2.4mm)	0.106"
Heat Resistant Technology (HRT)		
20030400	0.030" (.8mm)	0.039"
20035400	0.035" (.9mm)	0.041"
20040400	0.040" (1.0mm)	0.050"
20045400	0.045" (1.2mm)	0.054"
20052400TT	0.052" (1.3mm)	0.057"
20062400	0.062" (1.6mm)	0.069"
20030500	0.030" (.8mm)	0.039"
20035500	0.035" (.9mm)	0.041"
20040500	0.040" (1.0mm)	0.050"
20045500	0.045" (1.2mm)	0.054"
20052500	0.052" (1.3mm)	0.061"
20062500	0.062" (1.6mm)	0.069"

*TT is for tight tolerance.

LINER SELECTION CHART

<u>Part Number</u>	<u>Description</u>
75005215T	.023-.030 LINER, 5FT – T STYLE
75010215T	.023-.030 LINER, 10FT – T STYLE
75015215T	.023-.030 LINER, 15FT – T STYLE
75001222T	.035-.045 LINER, 1FT – T STYLE
75005222T	.035-.045 LINER, 5FT – T STYLE
75010222T	.035-.045 LINER, 10FT – T STYLE
75015222T	.035-.045 LINER, 15FT – T STYLE
75025222T	.035-.045 LINER, 25FT – T STYLE
75001228T	.045-1/16 LINER, 1FT – T STYLE
75005228T	.045-1/16 LINER, 5FT – T STYLE
75010228T	.045-1/16 LINER, 10FT – T STYLE
75015228T	.045-1/16 LINER, 15FT – T STYLE
75025228T	.045-1/16 LINER, 25FT – T STYLE
75001229T	5/64-3/32 LINER, 1FT – T STYLE
75005229T	5/64-3/32 LINER, 5FT – T STYLE
75010229T	5/64-3/32 LINER, 10FT – T STYLE
75015229T	5/64-3/32 LINER, 15FT – T STYLE
75025229T	5/64-3/32 LINER, 25FT – T STYLE

PARTS BREAKDOWN – 456CG, 500CG, 507CG



NO.	DESCRIPTION	456	500	507
1	CONICAL NOZZLE	SEE NOZZLE SELECTION CHART		
	TAPERED NOZZLE	SEE NOZZLE SELECTION CHART		
	BOTTLENOSE NOZZLE	SEE NOZZLE SELECTION CHART		
2	NOZZLE INSULATOR	SEE NOZZLE SELECTION CHART		
3	CONTACT TIP	SEE CONTACT TIP SELECTION CHART		
4	GAS DIFFUSER, STANDARD	75004033	75004033	75004033
	GAS DIFFUSER, SHORT	75004033S	75004033S	75004033S
	GAS DIFFUSER, LONG	75004033L	75004033L	75004033L
	GAS DIFFUSER, X-LONG	75004033XL	75004033XL	75004033XL
5	INSULATING WASHER	75001004	75001004	75001006
6	GOOSENECK, 60-DEGREE	75004456	75005042	75005046
	GOOSENECK, 45-DEGREE	75004455	75005041	75005045
6F	FLEX NECK (COMES WITH 6FA & 7)	750CGFLEX	750CGFLEX	N/A
6FA	FLEX NECK NOZZLE SEAT (REQUIRED)	75077FLX	75077FLX	N/A
7	BODY INSULATOR	75003002	75003002	75003000
8	GUN HANGER (Optional)	75000009	75000009	75000009
9	Gun hanger Bracket	75000030C	75000030C-.750	75000030C-.750
10	COOL GRIP HANDLE - STD	75000044	75000044	75000044
	COOL GRIP HANDLE- EXT TRIGGER	75000046	75000046	75000046
	COOL GRIP HANDLE TOP – STD.	75000040	75000040	75000040
	COOL GRIP HANDLE TOP – DUAL SCHEDULE	75000045	75000045	75000045
	COOL GRIP HANDLE BOTTOM – STD.	75000041	75000041	75000041
	COOL GRIP HANDLE BOTTOM – EXT. TRIGGER	75000046	75000046	75000046
NS	HANDLE SCREWS – COOL GRIP (4 REQUIRED)	75000008	75000008	75000008
NS	SWITCH ASSY – DUAL SCHEDULE	75000017	75000017	75000017
NS	SWITCH ASSY. – MULTI-SCHEDULE	75000018	75000018	75000018
NS	DS/MS SWITCH CONNECTORS	75077018	75077018	75077018
11	FRONT SUPPORT SPRING	75002006	75002006	75002006
12	REAR SUPPORT SPRING	75002019	75002018	75002018
13	10' POWER CABLE	75010407CG	75010507CG	75010507CG
	12' POWER CABLE	75012407CG	75012507CG	75012507CG
	15' POWER CABLE	75015407CG	75015507CG	75015507CG
	20' POWER CABLE	75020407CG	75020507CG	75020507CG
	25' POWER CABLE	75025407CG	75025507CG	75025507CG
14	REAR ADAPTOR SUPPORT	75077006	75077006	75077006
15	DIR CON ADAPT BLK	37077003	37077003	37077003
NS	DIR CON ADAPT BLK – FRONIUS KIT (INCLUDES 20,20A FRONIUS VERSION)	37677710	37677710	37677710
16	EURO BLOCK	37030001	37030001	37030001
16A	EURO LINER RETAINING NUT	37077005	37077005	37077005
17	ADAPTOR SCREW	75001151	75001151	75001151
18	LOCK NUT	75001029	75001029	75001029
19	HOLE PLUG	38000003	38000003	38000003
20	MILLER FEEDER PIN	37577705	37577705	37577705
	OTC / DAIHEN FEEDER PIN	37577700	37577700	37577700
	OTC DP SERIES FEEDER PIN	37577701	37577701	37577701
	LINCOLN LN7 FEEDER PIN	37577832	37577832	37577832
	PANASONIC FEEDER PIN	37577999	37577999	37577999
	TWECO #4 FEEDER PIN	37577699	37577699	37577699
	TWECO #5 FEEDER PIN	37577930	37577930	37577930
20A	LINER RETAINING CAP, MILLER	37577705-N	37577705-N	37577705-N
	LINER RETAINING CAP, OTC	38277001-N078	38277001-N078	38277001-N078
	LINER RETAINING CAP, EURO	37077005	37077005	37077005
	LINER RETAINING CAP, FRONIUS	37577706-N	37577706-N	37577706-N
	LINER RETAINING CAP, OTC	38277001-N078	38277001-N078	38277001-N078
21	CONTROL CABLE, MILLER	37577201	37577201	37577201

	CONTROL CABLE, LINCOLN	37777200	37777200	37777200
	CONTROL CABLE, OTC	37777503	37777503	37777503
	CONTROL CABLE, PANASONIC	37777504	37777504	37777504
	CONTROL CABLE, TWECO	37677200	37677200	37677200
NS	O-RING, MILLER FEEDER PIN	37577102	37577102	37577102
NS	O-RING, TWECO #4 FEEDER PIN	37577102	37577102	37577102
NS	O-RING, TWECO #5 FEEDER PIN	75000021	75000021	75000021
22	CONTROL CABLE CONNECTOR	38000001	38000001	38000001
23	TRIGGER SWITCH ASSEMBLY, STANDARD	75000004	75000004	75000004
24	EURO ADAPT NUT	75077014	75077014	75077014
25	TRIGGER WIRE CONNECTOR	75077024	75077024	75077024
26	BUTT SPLICE	75077066	75077066	75077066
27	7/16 HOSE CLAMP	38577108	38577108	38577108
28	GAS HOSE PER FOOT	38577087	38577087	38577087
29	5/8"-18 RH Nut (Gas; Type A)	38677141	38677141	38677141
NS	9/16-18 RH Nut (Gas; Type B)	38677145	38677145	38677145
30	2-7/32" Nipple (Type A)	38677142	38677142	38677142
NS	9/16" Nipple (Type B)	38677144	38677144	38677144
31	LINER	SEE LINER SELECTION CHART		
32	EXTENDED TRIGGER PADDLE	75000005E	75000005E	75000005E
33	EXTENDED TRIGGER SCREW	75000013	75000013	75000013
34	THERMAL SPRING	75002021	75002010	75002010
35	ADAPTOR SCREW	75077011	75077011	75077011
36	CONNECTING SCREW	38000002	38000002	38000002
37	TRIGGER PADDLE	75000042	75000042	75000042

- Type A = Lincoln
- Type B = OTC / Panasonic



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