AMERICAN WELDQUIP

SERVICE QUALITY SOLUTIONS

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

TABLE OF CONTENTS

INTRODUCTION 2
WARRANTY 2
ROHS COMPLIANT 3
EU DIRECTIVE 4
SAFETY PRECAUTIONS – READ BEFORE USING 5
FEATURES 10
TORCH SPECIFICATIONS 10
INSTALLATION 11
- EURO CONNECTION (USING FEEDER ADAPTOR KIT) 11
- DIRECT CONNECT 11

DAILY MAINTENANCE 12
MAINTENANCE 12
- LINER REPLACEMENT 12
- GOOSENECK REPLACEMENT 13
- TRIGGER SWITCH REPLACEMENT 14
- POWER CABLE REPLACEMENT 14

NOZZLE/TIP RELATIONSHIPS 16
NOZZLE SELECTION CHART 17
- 400 SERIES NOZZLES 17
- 500 SERIES NOZZLES 17

CONTACT TIP SELECTION CHART 17
- M8 CONTACT TIPS 17

LINER SELECTION CHART 18
PARTS BREAKDOWN 19
APPENDIX 21
- A-1 EURO FEEDER PIN 21
- A-2 FRONIUS FSC FEEDER PIN 21

NOTES 22

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

400 Amp Mig Torch - 456CGXX

500 Amp Mig Torch - 500CGXX

500 Amp Mig Torch - 507CGXX

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 it 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, or 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 the composition and quantity of fumes and gases to which personnel are exposed. The worker exposer 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 the 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 the 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 the 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 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. The headshield and filter lens should conform to ANSI Z87. I 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 pieces and hot equipment can cause fires and burns.
- Accidental contact of electrode to metal objects can cause sparks, explosions, 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 the 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 the 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-l, "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 the 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 THE 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 THROUGHT THE TORCH KEEP THE FRONT END OF THE TORCH POINTED AWAY FROM ANY PERSON OR OBJECT. DO NOT_POINT AT THE 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

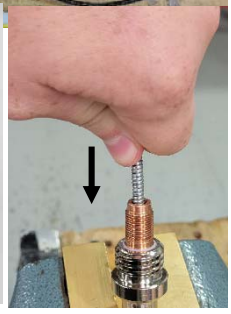
- Inspect the cable for cuts, nicks, or tears. If you can see bare copper return for maintenance.
- Inspect the front-end consumables. Clean weld spatter and inspect the nozzle insulator. If nozzle insulation is damaged, the nozzle should be replaced.
- Check that the gas diffuser is tight, and the insulating 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 the weld wire.
3. Remove torch from the wire feeder.
4. Remove the nozzle, contact tip, and diffuser. Inspect and replace if necessary.
    a. Inspect insulating washer (between diffuser and gooseneck) and replace if necessary.
5. Loosen the set screw, DO NOT REMOVE, on the feeder pin using a 5/64” Allen wrench. If retaining nut, remove and set aside.
6. Making sure the torch cable is straight, grasp the liner at the rear of the torch with a pair of pliers and remove.
7. Carefully feed the new liner into the torch using short strokes to avoid kinking. You may need to twist the liner for easier insertion. Ensure the liner collet is all the way against the power pin.
8. Tighten the set screw or retaining nut to secure the liner in the feeder pin.
9. Slide the Liner Gauge (P/N 75067219), if present, over the end of the liner and against the gooseneck.



10. **IMPORTANT: At the front end of the torch push the liner back into the gun and hold.**

11. While holding the liner in, trim the liner at the top of the Liner Gauge, or if not present, cut the Liner so that 13/32" (2007 series diffusers) or 11/16" (4033 series diffusers) sticks out from the end of the gooseneck. Check the torch diffuser to determine if AW 02007 or AW 04033 is engraved on it.
12. Gently twist the power cable 180°. Which end you twist from depends on direction of rotation.

Warning - It is important to keep one end of the power cable stationary while twisting the opposite end.

a. Holding the neck, twist the cable **counterclockwise**.
b. Holding from the power pin, twist the **cable clockwise.**

13. Replace the diffuser, contact tip, and nozzle.
14. Untwist the torch.
15. Attach torch to the wire feeder.
16. 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 THE 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

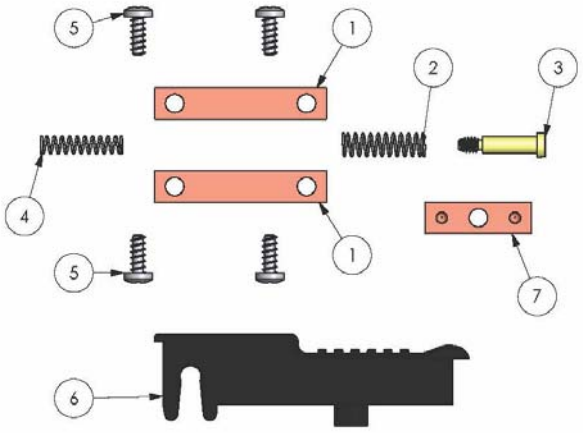
(2) Springs

(4) Screws

(1) Shoulder Screw

(2) Copper Outer Contact Plates

(1) Copper Contact Plate



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" PRHSMS
6	75000042	HANDLE TRIGGER W/ SPATTER GUARD
7	75000012	TRIGGER BLADE, CENTER

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.
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.

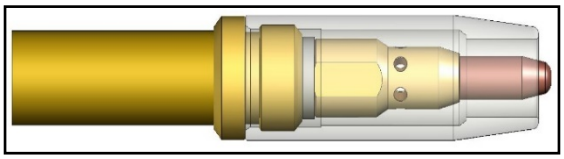
IMPORTANT: Ensure the trigger wires are not pinched between the handles.

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

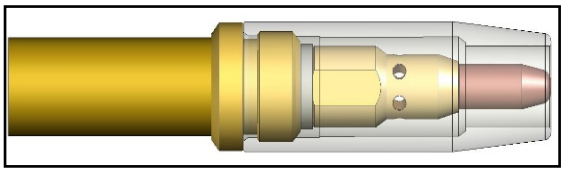
Shown below are typical relationship between the contact tip and nozzle in GMAW Semi-Automatic applications. Nozzles to tip relationships are usually dictated by the process and application but not necessarily the standard. Keep in mind that decreased tip life, increased spatter cleaning cycles may be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

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



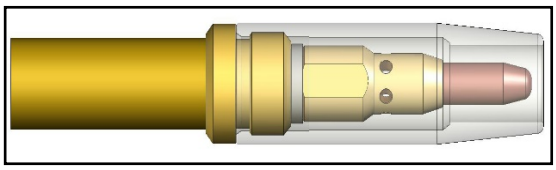
The tip stick out is usually 1/8" or 1/4" from the nozzle. Keep in mind that the further the stick out the more susceptible to gas porosity issues. Typically, this used in short circuit, lower amperage applications, and/or where you may need to reach into a corner.

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

(456CG – 500CG SERIES)

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

500 SERIES NOZZLES

(507CG SERIES ONLY)

Part Number	Description	Bore Size	Material	O.A.L	Insulator
75157001CU-I	CYLINDRICAL	3/4” (18.3mm)	BARE COPPER	3.187” (81mm)	INSTALLED
75156201	CONICAL	9/16” (14.3mm)	NI PLATED BRASS	2.670” (67.8mm)	75001740
75156201-I	CONICAL	9/16” (14.3mm)	NI PLATED BRASS	2.670” (67.8mm)	INSTALLED
75157501-I	CONICAL	3/4” (18.3mm)	NI PLATED BRASS	3.187” (81mm)	INSTALLED
75157501	CONICAL	3/4” (18.3mm)	NI PLATED BRASS	3.187” (81mm)	75001740

CONTACT TIP SELECTION CHART

M8 CONTACT TIPS

Part Number	Wire Size	Nominal I.D
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”
75047014 (FOR ALUMINUM)	0.045” (1.2mm)	0.057”

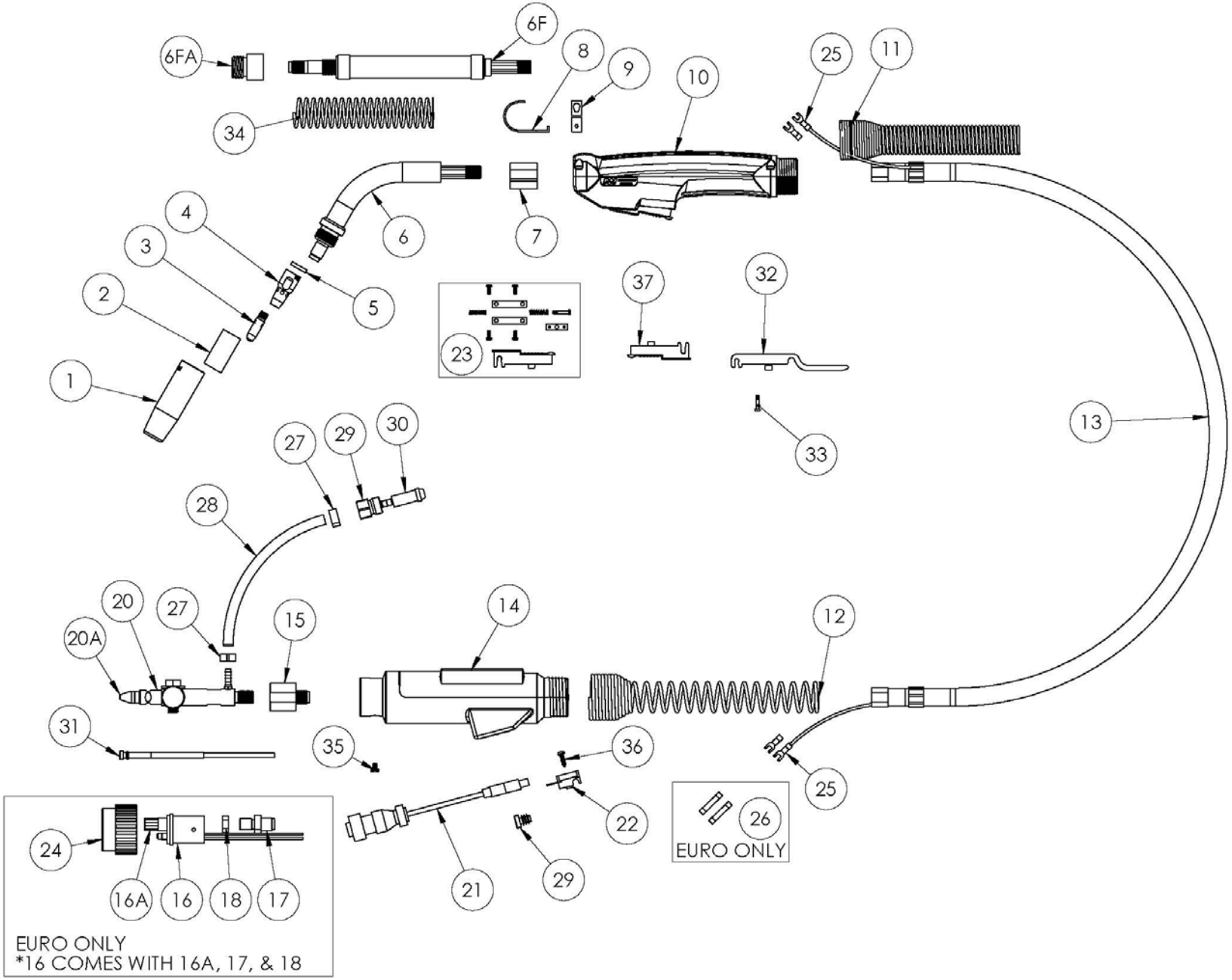
75052014	0.052” (1.3mm)	0.061”
75062014	0.062” (1.6mm)	0.073”
75062015 (FOR ALUMINUM)	0.062” (1.6mm)	0.076”
75078014	0.078” (2.0mm)	0.087”
75093014	0.093” (2.4mm)	0.106”
Heat Resistant Technology (HRT) – Standard Length		
20030400	0.030” (.8mm)	0.039”
20035400	0.035” (.9mm)	0.041”
20040400	0.040” (1.0mm)	0.050”
20045400	0.045” (1.2mm)	0.054”
20052400TT	0.052” (1.3mm	0.057”
20062400	0.062” (1.6mm	0.069”
Heat Resistant Technology (HRT) – Short Length		
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

Part Number	Description
For Steel Wire Applications	
75005215T	0.023-0.030 STEEL LINER, 5FT
75010215T	0.023-0.030 STEEL LINER, 10FT
75015215T	0.023-0.030 STEEL LINER, 15FT
75001222T	0.035-0.045 STEEL LINER, 1FT
75005222T	0.035-0.045 STEEL LINER, 5FT
75010222T	0.035-0.045 STEEL LINER, 10FT
75015222T	0.035-0.045 STEEL LINER, 15FT
75025222T	0.035-0.045 STEEL LINER, 25FT
75001228T	0.045-1/16 STEEL LINER, 1FT
75005228T	0.045-1/16 STEEL LINER, 5FT
75010228T	0.045-1/16 STEEL LINER, 10FT
75015228T	0.045-1/16 STEEL LINER, 15FT
75025228T	0.045-1/16 STEEL LINER, 25FT
75001229T	5/64-3/32 STEEL LINER, 1FT
75005229T	5/64-3/32 STEEL LINER, 5FT
75010229T	5/64-3/32 STEEL LINER, 10FT
75015229T	5/64-3/32 STEEL LINER, 15FT
75025229T	5/64-3/32 STEEL LINER, 25FT
For Aluminum Wire Applications	
75005320T-J	0.035-0.045 TEFLON LINER, 5FT
75010320T-J	0.035-0.045 TEFLON LINER, 10FT
75005324T-J	0.045-1/16 NYLON LINER, 5FT
75010324T-J	0.045-1/16 NYLON LINER, 10FT
75015324T-J	0.045-1/16 NYLON LINER, 15FT

PARTS BREAKDOWN



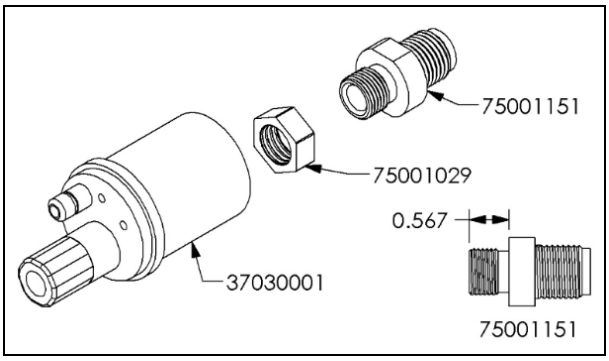
NO	DESCRIPTION	456	500	507	NO.	DESCRIPTION	456	500	507
1	NOZZLE	SEE NOZZLE CHART				LINCOLN UNIVERSAL	37577837		
2	NOZZLE INSULATOR	SEE NOZZLE CHART				MILLER FEEDER PIN	37577705		
3	CONTACT TIP	SEE CONTACT TIP CHART				OTC / DAIHEN FEEDER PIN	37577700		
4	GAS DIFFUSER, STD	75004033				OTC DP SERIES FEEDER PIN	37577701		
	GAS DIFFUSER, SHORT	75004033S				PANASONIC FEEDER PIN	37577999		
	GAS DIFFUSER, LONG	75004033L				TWECO #4 FEEDER PIN	37577699		
	GAS DIFFUSER, X-LONG	75004033XL				TWECO #5 FEEDER PIN	37577930		
5	INSULATING WASHER	75001004		75001006	20A	LINER CAP FRONIUS (FSC) FEEDER PIN	SEE APPENDIX A-2*		
6	GOOSENECK, 60°	75004456	75005042	75005046		LINER CAP MILLER FEEDER PIN	37577705-N		
	GOOSENECK, 45°	75004455	75005041	75005045		CAP OTC FEEDER PIN	38277001-N078		
6F	FLEX NECK (COMES W/ 6FA & 7)	750CGFLEX		N/A	NS	O-RING EURO	28500002		
6FA	FLEX NECK NOZZLE SEAT	75077FLX		N/A	NS	O-RING FRONIUS (FSC)	75000057		
7	BODY INSULATOR	75003002			NS	O-RING, MILLER	37577102		
8	GUN HANGER HOOK	75000009A			NS	O-RING, TWECO #4	37677102		
9	GUN HANGER BRACKET	75000030C-.750			NS	O-RING, TWECO #5	75000021		
10	COOL GRIP HANDLE - STD	75000044			21	CTRL CABLE MILLER	37777501		
	COOL GRIP HANDLE EX TRG	75000046				CONTROL CABLE LINCOLN	37777200		
	COOL GRIP HANDLE EXT TRIGGER SHORT	75000060				CONTROL CABLE OTC	37777503		
	COOL GRIP HANDLE SWITCH HOUSING	75000045				CONTROL CABLE PANASONIC	37777504		
	COOL GRIP HANDLE SWITCH HOUSING EXT TRIG	75000047				CONTROL CABLE TWECO	37677200		
	COOL GRIP HANDLE SWITCH HOUS EXT TRIG SHRT	75000061			22	CONTROL CABLE CONNECTOR	38000001		
NS	HANDLE SCREWS COOL GRIP (4 REQUIRED)	75000008P			23	TRIGGER SWITCH ASSEMBLY STD	75000004		
NS	SWITCH DUAL SCHEDULE	75000017			24	EURO ADAPT NUT	75077014		
NS	SWITCH MULTI SCHEDULE (ID)	75000018			25	TRIGGER WIRE CONNECTOR	75077024		
NS	SWITCH MILLER CONTINUUM	75000016			26	BUTT SPLICE (EURO ONLY)	75077066		
NS	SWITCH WIRE CONNECTORS	75077018			27	7/16" GAS HOSE CLAMP	38577108		
11	FRONT SUPPORT SPRING	75002006			28	GAS HOSE (PER FOOT)	38577087		
12	REAR SUPPORT SPRING	75002019	75002018		29	5/8-18 RH NUT (GAS; TYPE A)	38677141		
13	10' POWER CABLE	75010407CG	75010507CG		NS	9/16-18 RH NUT (GAS; TYPE B)	38677145		
	12' POWER CABLE	75012407CG	75012507CG		30	2-7/32" NIPPLE (GAS TYPE A)	38677142		
	15' POWER CABLE	75015407CG	75015507CG		NS	9/16" NIPPLE (GAS TYPE B)	38677144		
	20' POWER CABLE	75020407CG	75020507CG		31	LINER	SEE LINER CHART		
	25' POWER CABLE	75025407CG	75025507CG		32	EXT TRIGGER PADDLE	75000005E		
14	REAR ADAPTOR SUPPORT	75077006				EXT TRIGGER PADDLE SHRT	75000005ES		
15	DIRECT CONNNECT BLOCK	37077003			33	EXT TRIGGER SCREW FOR PLASTIC	75000013D		
16	EURO ADAPTOR BLOCK	75001148				EXT TRIGGER SCREW FOR ALUMINUM	75000013B		
16A	LINER CAP - EURO	37077005			NS	EXT TRIGGER KIT	75000004ET		
17	ADAPTOR SCREW	75001151			NS	EXT TRIGGER KIT SHRT	75000004ETS		
18	EURO LOCK NUT	*SEE APPENDIX A-2*			34	THERMAL SPRING GOOSENECK	75002021	75002010	
19	HOLE PLUG	38000003			35	ADAPTOR SCREW	75077011		
20	FRONIUS (FSC) FEEDER PIN	37677710 *SEE APPENDIX A-2*			36	CONNECTING SCREW	38000002		
	LINCOLN LN7 FEEDER PIN	37577832			37	TRIGGER PADDLE	75000042		

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

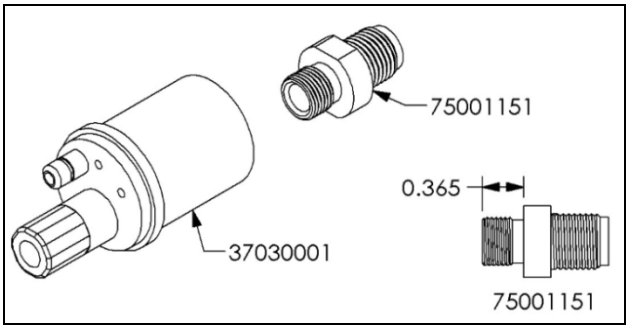
APPENDIX

A-1 EURO FEEDER PIN

Before January 2024
No longer Available



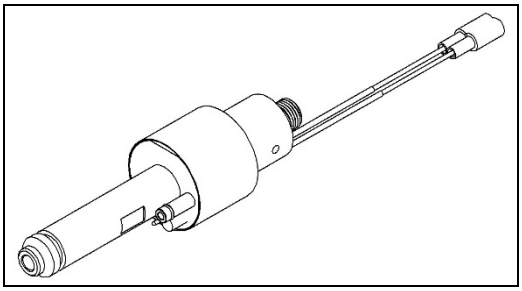
January 2024 and after
P/N 75001147



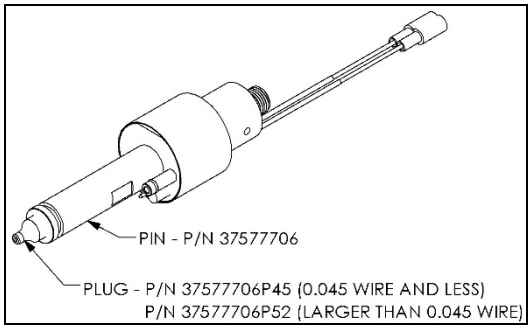
- If 75001151 length is 0.567" long, P/N 75001029 is still needed and is still available.
- 37030001 will come with pins and wires used in hand-held applications. Not used in this application.
- When ordering 75001147, 37030001 will not have pins and wires.

A-2 FRONIUS FSC FEEDER PIN

Before February 2024
No longer Available



February 2025 and after
For Air Cooled Power Cables P/N 37677710



Switching from old style to new style. A new Pin (P/N 37577706) and Plug (37577706P45 [0.045 wire and smaller] or 37577706P52 [larger than 0.045 wire]) is needed. No need to purchase the entire assembly.

NOTES

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www.weldquip.com

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