AMERICAN WELDQUIP

SERVICE QUALITY SOLUTIONS

Water-Cooled Semi-Automatic MIG Torch

For Cool Grip Models

607CG

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

INSTALLATION, OPERATIONS, AND REPLACEMENT PARTS

SERVICE QUALITY SOLUTIONS

TABLE OF CONTENTS

INTRODUCTION 2
WARRANTY 2
ROHS COMPLIANT 3
SAFETY PRECAUTIONS – READ BEFORE USING 4
FEATURES 9
TORCH SPECIFICATIONS 9
INSTALLATION 10
EURO CONNECTION (USING FEEDER ADAPTOR KIT) 10
DIRECT CONNECT 10
DAILY MAINTENANCE 10
MAINTENANCE 11
LINER REPLACEMENT 11
GOOSENECK REPLACEMENT 12
TRIGGER SWITCH REPLACEMENT 12
WATER COOLED CABLE ASSEMBLY REPLACEMENT 13
WATER FLOW REQUIRMENTS 15
NOZZLE/TIP RELATIONSHIPS 16
NOZZLE SELECTION CHART 17
400 SERIES NOZZLES 17
CONTACT TIP SELECTION CHART 17
M8 CONTACT TIPS 17
LINER SELECTION CHART 18
PARTS BREAKDOWN 19
APPENDIX 21
A-1 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.

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 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 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. 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 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-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.

Flow Switch – Standard on water cooled torches, the flow switch prevents welding without water circulating protecting your investment. Requires a **minimum** of 60 psi and 0.25 GAL/MIN.

"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 –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	100% Duty Cycle		60% Duty Cycle	
		CO2	Mixed Gas	CO2	Mixed Gas
607CG	600	600A	500A	650A	600A

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 THROUGHT 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

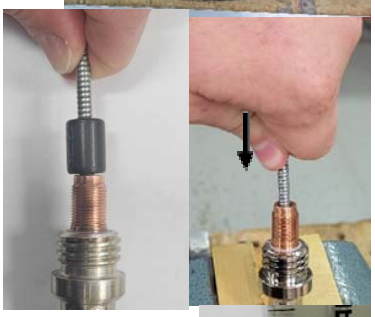
- Inspect the cable for cuts, nicks, or tears. If you can see bare copper return for maintenance.
- Inspect the front-end consumables. Clean weld spatter and inspect the nozzle insulator. If nozzle insulation is damaged, the nozzle should be replaced.

- 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.
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, at the torch feeder pin connection 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.
8) Tighten the set screw or retaining nut to secure the liner in the torch.
9) Slide the Liner Gauge (P/N 75067219), if present, over the end of the liner and against the gooseneck.
10) Reinstall the torch to the wire feed unit.
11) **IMPORTANT: at the front end of the torch push the liner back into the gun and hold to trim.**
12) While holding the liner in, trim the liner at the top of the Liner Gauge, or of not present, cut the Liner so that 11/16" (4033 series diffusers) sticks out from the end of the gooseneck. Check the torch diffuser to determine if AW 04033 is engraved on it.
13) Replace the diffuser, contact tip and nozzle.
14) 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) Purge water from lines and disconnect the water lines from the circulator.
2) Secure Gooseneck in a vice.
3) Remove the liner from the torch, see liner replacement.
4) Unscrew the spring from the front handle and slide back on cable.
5) Remove the 4 handle screws and separate the handle assembly.
6) Hold the nut at the power cable with an 10mm wrench and unthread the gooseneck using a 11mm wrench.
7) Cut off the (2) 8.7mm clamps from the water line and (1) 7/16" clamp on the gas conduit and pull off neck assembly. You may have to slit water line with knife to remove from barbed fitting.
8) Slide (2) new 8.7mm clamps on the water line and (1) 7/16" clamp on the gas conduit of the cable assembly. Include the end of the Kevlar cord in the 7/16" clamp when sliding onto the gas conduit.
9) Thread the power cable onto the gooseneck and tighten (11mm on gooseneck and 10mm on power cable).
10) Push the water line onto copper barb and gas conduit onto brass barb on the gooseneck assembly and crimp the (2) 8.7mm and (1) 7/16" clamps.
11) Install the bottom handle assembly (trigger side) onto the gooseneck/cable assembly. The trigger wires will fit in the hole of the body insulator. Make sure the insulator is fully inserted into the bottom handle.
12) Place the cable cover into the groove at the rear of the handle.
13) Install the top handle and secure with the (4) screws.

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

14) Reinstall the liner, see liner replacement.
15) Slide the spring up and screw onto the handle.
16) Reinstall the insulating washer, diffuser, contact tip, and nozzle.

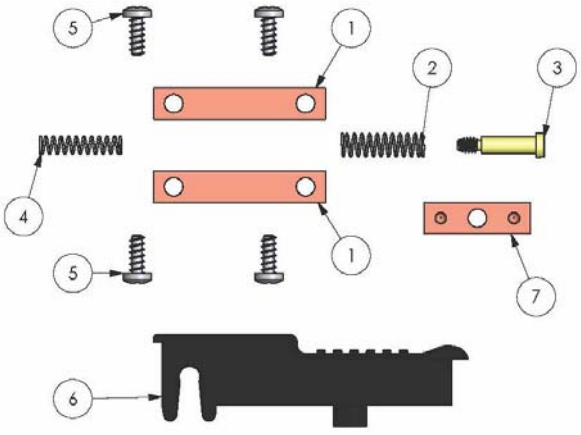
TRIGGER SWITCH REPLACEMENT

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) Unscrew the spring from the front handle and slide back on cable assembly.
3) Remove the four handle screws and separate the handle assembly.
4) Remove the (4) screws securing the



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

copper contact assemblies and remove the trigger leads and contacts.

5) 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.
6) 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.
7) Insert the return spring (the smaller diameter spring) into the seat on the bottom handle assembly.
8) Carefully insert the new trigger paddle and small diameter into the handle assembly and tap the paddle spring onto on the pivot point in the handle. The trigger should snap in place.
9) 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.
10) 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.
11) Install the bottom handle assembly (trigger side) onto the gooseneck/cable assembly. The trigger wires will fit in the hole of the body insulator. Make sure the insulator is fully inserted into the bottom handle.
12) Slide the cable cover support up and insert in the rear of the handle.
13) Install the top handle and secure with the (4) four screws provided. IMPORTANT: Ensure the trigger wires are not pinched between the handles.
14) Slide the handle spring over the outer cover and thread onto the handle.

WATER COOLED CABLE ASSEMBLY REPLACEMENT

****WARNING: This replacement is a labor-intensive process. Torch assembly can be sent into the manufacture to be evaluated for replacement parts.****

1. Purge water from water lines of the torch then disconnect the water lines from the cooler and cap the ends.
2. Secure Gooseneck in a vice.
3. Remove the liner from the torch, see liner replacement.
4. Unscrew the spring from the handle and slide back on cable assembly.
5. Remove the (4) screws on the front handle. And separate the top from bottom. There are two screws securing trigger wires. Loosen, do not remove, these screws and set handle halves aside.
6. On the rear adaptor support unscrew the spring from the rear adaptor. A screwdriver may be used to push/twist the spring to unthread it from the rear adaptor. Slide the spring down the cable assembly. The rear adaptor will come apart in 2 pieces. Remove the rear adaptor support screw to rotate adaptor support and access fittings.
7. Cut 8.7mm clamp from flow switch inside adaptor support. Blue water line may need slit to remove from barb. Do not cut if not replacing blue water line. Disconnect bullet connectors attaching flow switch to trigger wire and cable connector.
8. At the rear adaptor block, hold the nut on the power cable with a 12mm wrench and unthread the rear adaptor block nut using a 12mm wrench.
9. Cut off the clamp from the gas conduit and remove the gas conduit from the rear adaptor block. Keep the Kevlar cord as this can be reused.

10. Separate the rear adaptor from the cable assembly. Set the rear adaptor and rear adaptor block components aside and save.
11. Slide the outer cover, handle spring, and rear spring from around the cable assembly. Set aside for reuse.

    Power Cable Replacement (if necessary)

    a. At the gooseneck, hold the nut on the power cable with a 10mm wrench and unthread the gooseneck nut using an 11mm wrench.
    b. Replace the power cable with a new power cable and attach to the gooseneck with a 10mm wrench on the power cable and an 11mm wrench on the gooseneck nut and tighten.

    Gas Conduit/Kevlar Cord Replacement (if necessary)

    a. At the gooseneck, cut off the clamp and remove from the brass fitting. Do not cut Kevlar cord if reusing.
    b. Replace gas conduit with a new gas conduit. Place end of Kevlar cord in 7/16" clamp and slide over new gas conduit.
    c. Firmly attach gas conduit and Kevlar cord to the brass fitting with the 7/16" clamp.

    Blue Water Line Replacement (if necessary)

    a. At the gooseneck, cut off both clamps and remove from the copper fitting. The blue water line may have to be cut off the fitting with a knife.
    b. Replace the blue water line with a new blue water line and attach to the copper fitting with (1) 8.7mm clamp. Slide on new 8.7mm clamp at rear.
        i. This will get attached to flow switch after outer cover is pulled back over all cables.

    Flow Switch Replacement (if necessary)

    a. Cut 8.7mm clamp at flow switch outside of rear adaptor support. Water line may need to be slit to remove from barbed fitting. Do not cut if reusing water line.
    b. Push flow switch out of adaptor support from inside of cover towards outside.
    c. Snap new flow switch in place of the old.
    d. Slide new 8.7mm clamp onto blue hose and attach to barbed fitting on flow switch outside of adaptor support.

    Trigger Wire Replacement (if necessary)

    a. Loosen the 2 screws in the rear adaptor support to remove the trigger wire. Do not remove these screws.
    b. Disconnect the bullet connector from the flow switch if present.
    c. Crimp 2 trigger connectors to one end (handle end) of the new trigger wire.
    d. Crimp 1 trigger connector and 1 bullet connector to the other end (adaptor end).
        i. Replace outer cover before hooking up trigger wires.

    Outer Cover Replacement (if necessary)

    a. Remove the plastic boots (1 on each end) from the old outer cover with a screwdriver as they can be reused.
    b. Place a plastic boot on each end of the new outer cover. Secure each with super glue to the inside of the new outer cover.
12. Slide outer cover over cables/hoses up to the gooseneck.

13. Attach the trigger connectors to the (2) screws inside the front handle, if necessary. Set the outer cover inside the front handle assembly. Place the front handle assembly back on the gooseneck and secure with the front (4) screws.
14. Slide the handle spring over the outer cover and thread onto the handle.
15. Slide the rear adaptor and rear spring over all cables/hoses and outer cover.
16. The rear adaptor needs to be slid over the power block adaptor but not screwed down. You will need to rotate the adaptor support to access the power cable nuts and gas conduit clamp.
17. Attach the power cable to the rear adaptor block by holding the nut on the power cable with an 12mm wrench and thread the rear adaptor block nut using a 12mm wrench.
18. Attach the gas conduit to the rear adaptor block on the brass fitting with a 7/16" clamp.
19. Attach the rear adaptor support with the rear adaptor support screw.
20. Slide (1) new 8.7mm clamp on blue water line from gooseneck and attach to flow switch.
21. Connect bullet connectors to trigger wire and cable connector.
    a. Replace outer cover before proceeding.
22. Set the outer cover boot inside the rear adaptor assembly. Pull the Kevlar cord tight enough to see the gooseneck begin to move. Tie a knot and place in the groove on middle of adaptor support to hold tension. Do not hold Kevlar to tight. Slide the 2nd part of the rear adaptor into the first. The red water line should come out the notch in the side. Be sure not to pinch the red water line. Slide the spring down the outer cover and thread onto the 2-piece rear adaptor assembly securing in place.
23. Reinstall the liner, see liner replacement.
24. Reinstall the diffuser, contact tip and nozzle.

WATER FLOW REQUIRMENTS

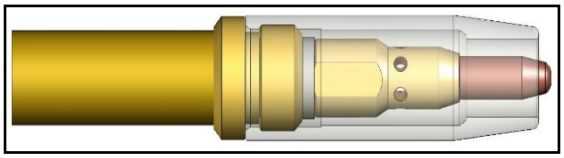
All American Weldquip water-cooled semi-auto torches incorporate a water flow switch. The flow switch is set on the rear of your torch to achieve the most accurate reading for the flow of coolant. The flow switch has been designed to prevent failure of the torch do to restricted or lack of proper coolant flow. A **minimum** of 0.25 GAL/MIN is required for trigger activation.

It is **imperative** that coolant flows in the right direction. Water MUST flow from the output of the water circulator and into the blue hose entering the flow switch to properly activate the switch and allow the torch trigger to operate. The coolant then runs through the gun and exits the red hose at the side of the rear adaptor and returns to the water circulator.

If trigger does not operate the wire feeder and commence the welding operation and cooler is on, verify there is adequate coolant in the reservoir. If coolant level is correct, flow may be restricted or too low to activate flow switch. Check pressure coming from coolant circulator with a gauge to verify coolant pressure leaving reservoir is a **minimum** of 0.25 GAL/MIN.

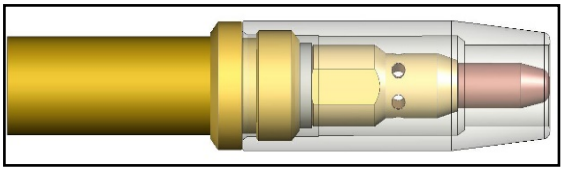
NOZZLE/TIP RELATIONSHIPS

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

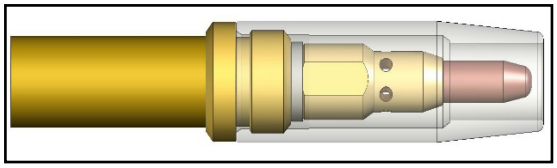
The tip stick out is usually 1/8" or 1/4" from the nozzle. Keep in mind that the further the stick out the more susceptible to gas porosity issues. Typically, this used in short circuit, lower amperage applications, and/or where you may need to reach into a corner.



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
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

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"

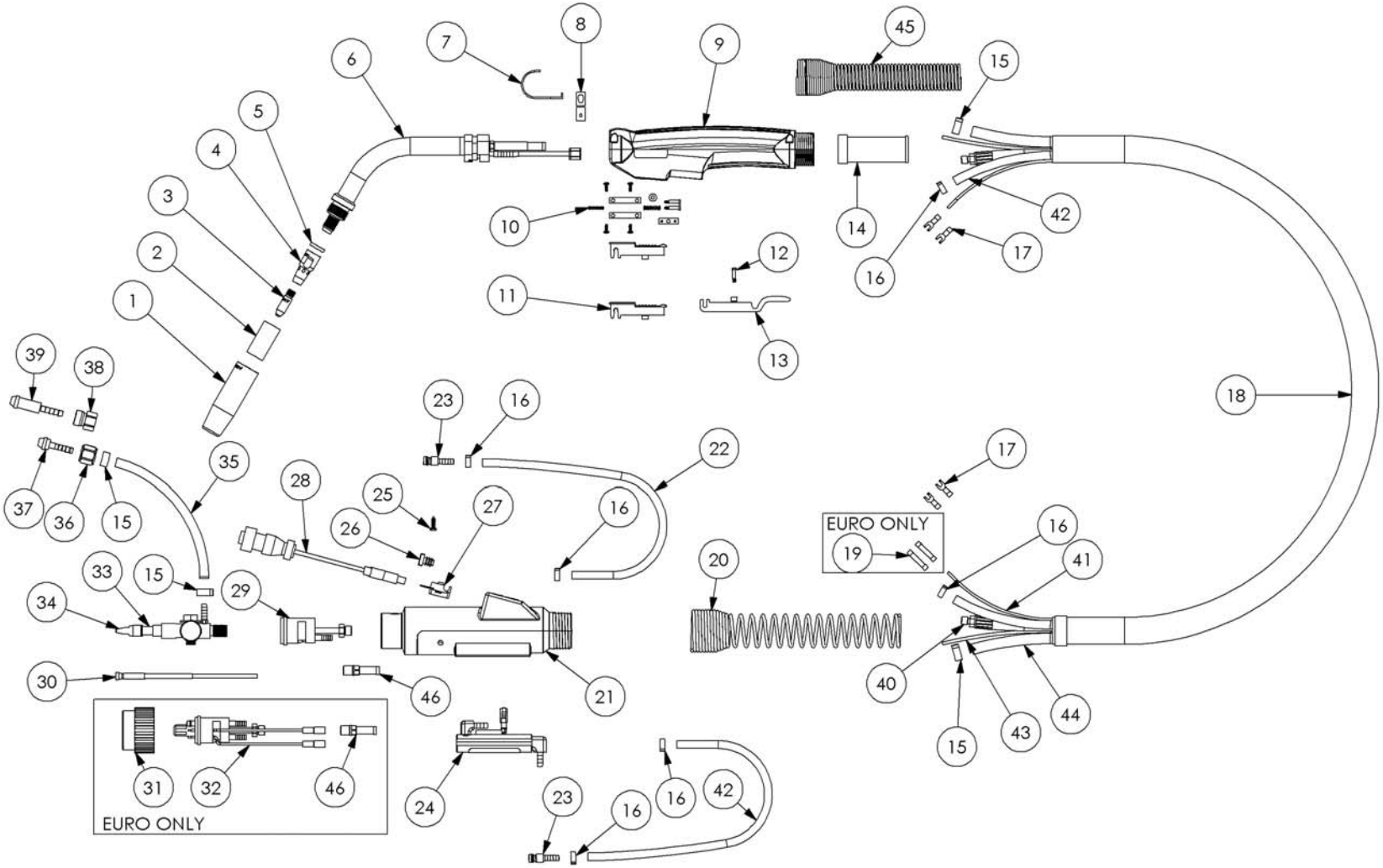
20040400	0.040” (1.0mm)	0.050”
20045400	0.045” (1.2mm)	0.054”
20052400TT	0.052” (1.3mm	0.057”
20062400	0.062” (1.6mm	0.069”
Heat Resistant Technology (HRT) – Short Length		
20030500	0.030” (.8mm)	0.039”
20035500	0.035” (.9mm)	0.041”
20040500	0.040” (1.0mm)	0.050”
20045500	0.045” (1.2mm)	0.054”
20052500	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



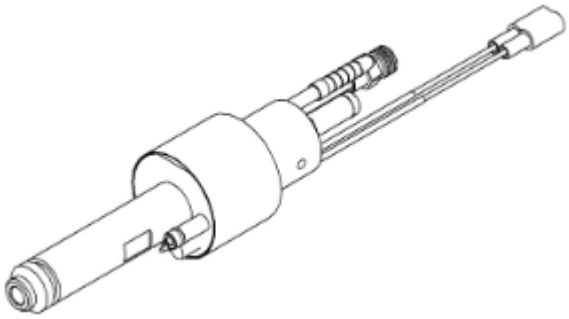
No.	Description	607CG	No.	Description	607CG
1	NOZZLE	SEE NOZZLE CHART	28	CONTROL CABLE LINCOLN	37777505
2	NOZZLE INSULATOR	SEE NOZZLE CHART		CONTROL CABLE OTC	37777503
3	CONTACT TIP	SEE TIP CHART		CONTROL CABLE TWECO	37777500
4	GAS DIFFUSER, STANDARD	75004033		CONTROL CABLE PANASONIC	37777504
	GAS DIFFUSER, SHORT	75004033S		CONTROL CABLE MILLER	37777501
	GAS DIFFUSER, LONG	75004033L	29	DIRECT CONNNECT BLOCK	75006148-DC
	GAS DIFFUSER, X-LONG	75004033XL	30	LINER	SEE LINER CHART
5	INSULATING WASHER	75001004	31	EURO FEEDER NUT	75077014
6	GOOSENECK, 60° CG SERIES	75006053	32	EURO ADAPTOR BLOCK	75006149
	GOOSENECK, 45° CG SERIES	75006052	33	FRONIUS (FSC) FEEDER PIN	37677710WC *SEE APPENDIX A-1*
7	GUN HANGER (OPTIONAL)	75000009A		LINCOLN LN7 FEEDER PIN	37577832
8	GUN HANGER BRACKET	75000030C-.750		LINCOLN UNIVERSAL	37577837
9	COOL GRIP HANDLE STD	75000044		MILLER FEEDER PIN	37577705
	COOL GRIP HANDLE EXT TRIGGER	75000046		OTC / DAIHEN FEEDER PIN	37577700
	COOL GRIP HANDLE EXT TRIG SHRT	75000060		OTC DP SERIES FEEDER PIN	37577701
	COOL GRIP HANDLE SWITCH HOUSING	75000045		PANASONIC FEEDER PIN	37577999
	COOL GRIP HANDLE SWITCH HOUSING EXT TRIG	75000047		TWECO #4 FEEDER PIN	37577699
	CG HANDLE SWITCH HOUS EXT TRIG SHRT	75000061		TWECO #5 FEEDER PIN	37577930
NS	HANDLE SCREWS COOL GRIP (4 REQUIRED)	75000008P	34	LINER CAP - EURO	37077005
NS	SWITCH DUAL SCHEDULE	75000017		LINER CAP- FRONIUS (FSC)	SEE APPENDIX A-1*
NS	SWITCH MULTI-SCHEDULE (ID)	75000018		LINER CAP - MILLER	37577705-N
NS	SWITCH MILLER CONTINUUM	75000016		LINER CAP - OTC	38277001-N078
NS	SWITCH WIRE CONNECTORS	75077018	NS	O-RING - EURO	28500002
10	TRIGGER SWITCH ASSMBLY STD	75000004	NS	O-RING FRONIUS (FCS)	75000057
11	TRIGGER PADDLE	75000042	NS	O-RING- MILLER PIN	37577102
12	EXT TRIG SCREW FOR PLASTIC	75000013D	NS	O-RING- TWECO #4	37677102
	EXT TRIG SCREW FOR ALUMINUM	75000013B	NS	O-RING- TWECO #5	75000021
13	EXTENDED TRIGGER PADDLE	75000005E	35	GAS HOSE (PER FOOT)	38577087
	EXT TRIG PADDLE – SHRT	75000005ES	36	9/16-18 RH NUT (GAS TYPE B)	38677145
14	RUBBER BOOT	75006033	37	9/16” NIPPLE (GAS TYPE B)	38677144
15	7/16” GAS HOSE CLAMP	38577108	38	5/8-18 RH NUT (GAS; TYPE A)	38677141
16	8.7MM WATER HOSE CLAMP	38577105	39	2-7/32” NIPPLE (GAS TYPE A)	38677142
17	TRIGGER WIRE CONNECTOR	75077024	40	10’ POWER CABLE ASSEMBLY	75006010
18	OUTER CABLE COVER (PER FOOT)	32160999		12’ POWER CABLE ASSEMBLY	75006012
19	BUTT SPLICE	75077066		15’ POWER CABLE ASSEMBLY	75006015
20	ADAPTOR SUPPORT SPRING	75002018		20’ POWER CABLE ASSEMBLY	75006020
21	REAR ADAPTOR SUPPORT	75077006		25’ POWER CABLE ASSEMBLY	75006025
22	RED WATER HOSE (PER FOOT)	75099026	41	TRIGGER WIRES (PER FOOT)	75099770
23	MALE QUICK DISCONNECT	38660000	42	BLUE WATER HOSE (PER FOOT)	75099025
24	FLOW SWITCH	FS-1000	43	KEVLAR CORD (PER FOOT)	75099001
25	CONNECTING SCREW	38000002	44	GAS CONDUIT (PER FOOT)	75099600
26	HOLE PLUG	38000003	45	HANDLE SPRING	75002006
27	CONTROL CABLE CONNECTOR	38000001	46	GAS CONDUIT FITTING	75077021

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

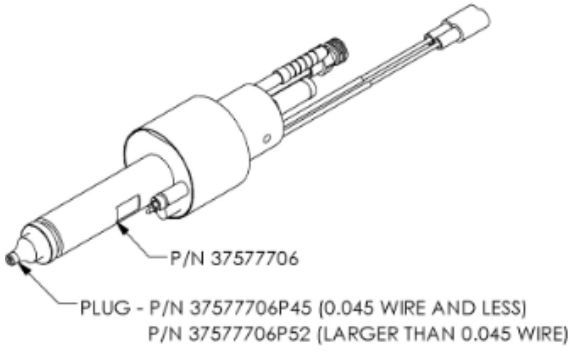
APPENDIX

A-1 FRONIUS FSC FEEDER PIN

Before February 2024
No longer Available



February 2025 and after
P/N 37677710WC



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

AMERICAN WELDQUIP

1375 Wolf Creek Trail – P.O. Box 397

Sharon Center, Ohio 44274

Telephone 330-239-0317

Fax 800-949-9353

www.weldquip.com

www.youtube.com/weldquip1

OM017 – 12/25