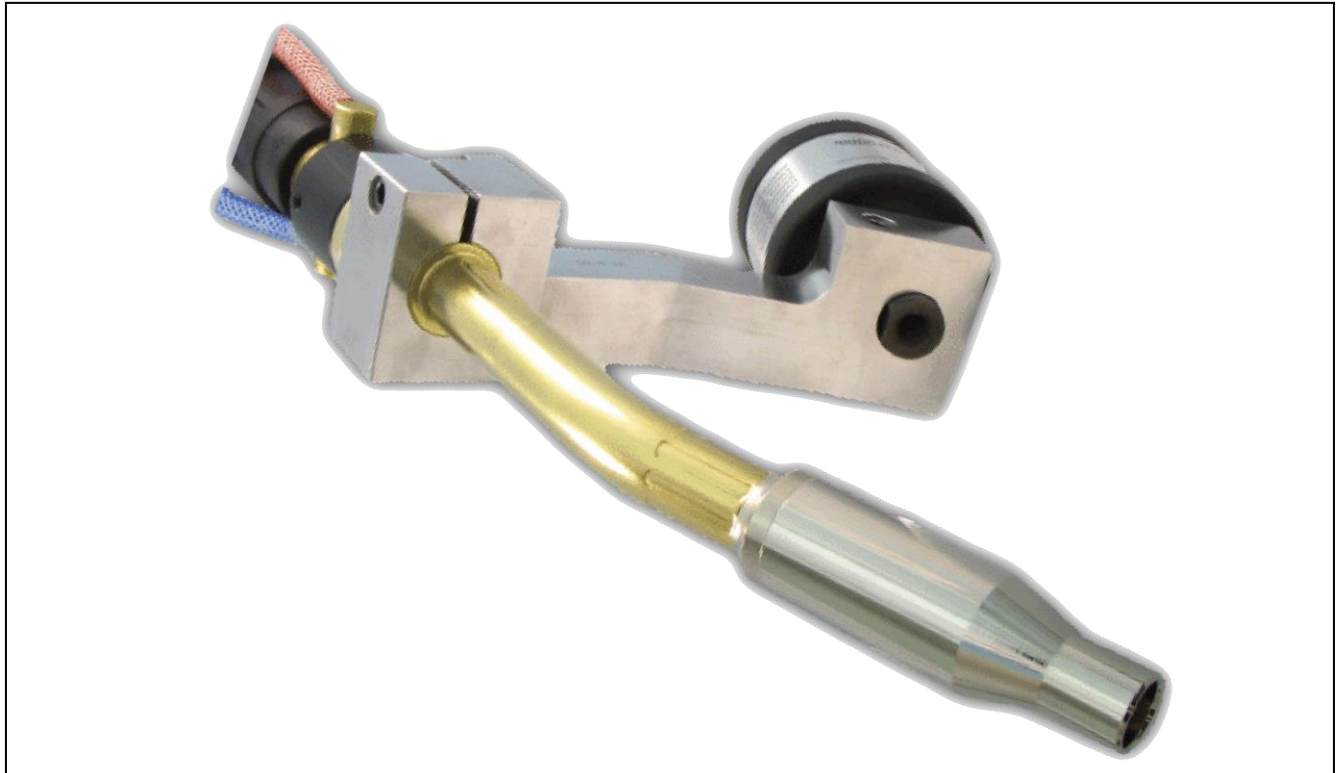


# Water-Cooled Robotic MIG Torches

For Models  
450R,550R,600R



**INSTALLATION, OPERATIONS AND REPLACEMENT PARTS MANUAL**

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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, Inc. assumes no responsibility for errors or omissions. American Weldquip, Inc. assumes no liability for damages resulting from the use of the information contained in this manual. American Weldquip, Inc. 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 of time listed below. For any product found to be defective under normal use, AMERICAN WELDQUIP, INC. 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, INC. 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, Inc.

A Return Authorization Number (RA#) must be attained from the factory for any product being returned for Warranty Repair or Replacement. All returned product 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                         | = 90 Days  |
| 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                         | = 90 Days  |
| 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, at this time, American Weldquip Inc. feels this is an important part of our "Go Green initiative. We have taken all reasonable steps to try to insure 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](http://www.weldquip.com) or email us at [technical@weldquip.com](mailto:technical@weldquip.com) or call 330-239-0317.



## **GENERAL SAFETY PRECAUTIONS**

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

**WARNING** – A welding arc emits ultraviolet (UV) and other radiation and can cause serious injury to unprotected skin and eyes.

**WARNING** – Hot metal produced by welding can cause severe burns. Heat from arcs and hot weld spatter and sparks can start fires and cause explosions of flammable gases.

**WARNING** – Fumes and gases generated from welding can cause severe injury to respiratory system and even death. **DO NOT** weld in confined spaces and make sure there is plenty of ventilation. Do not breathe fumes and gases as can cause asphyxiation.

**WARNING** – Electrical shock can kill. Do not touch live electrical parts and/or use in damp locations.

1. Always wear a welding helmet with the correct filter and cover plate.
2. Always wear safety Glasses with side shields in any work area even if a welding helmet is also required.
3. All exposed skin should be covered with flameproof protective clothing. This includes leather gloves, heavy long sleeve shirt, cuff less pants and high topped shoes. **DO NOT WEAR CLOTHING MADE FROM FLAMMABLE SYNTHETIC FIBERS.**
4. Protective screens or barriers should be used to protect others from spatter, flash and glare while welding.
5. Make sure work area is free of all combustible materials or cover with a protective non-flammable cover.
6. Remove all flammable gas cylinders as welding sparks can cause explosion in the event of a leak. Take serious precautions if welding in area of flammable gas lines and/or tanks.
7. Know where a fire extinguisher is at all times. The best practice is to have an extinguisher, water pail, fire hose and/or sand bucket available for immediate use.
8. Poorly maintained equipment can cause injury or death
9. Inspect, repair or replace worn or damaged welding cables and torch leads.
10. Insure equipment is properly grounded and installed according to code.
11. Never wrap the weld cable or torch leads around your body.
12. Make sure equipment is turned off when not in use.

### **ADDITIONAL SOURCES FOR SAFETY INFORMATION**

ANSI Standard Z49.1 CODE FOR SAFETY IN WELDING AND CUTTING - American National Standards Institute, 1430 Broadway, New York, NY 10018

NFPA Standard 51B, "Fire Prevention in the Use of Cutting and Welding Processes – National Fire Protection Association, Batterymarch Park, Quincy, MA 02269

CSA Standard W117.2 CODE FOR SAFETY IN WELDING AND CUTTING - Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3.

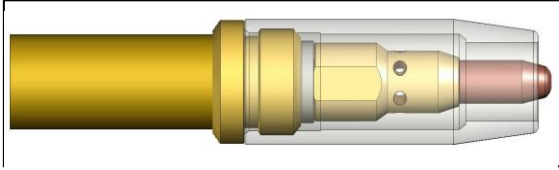
## **TORCH SPECIFICATIONS**

| MODEL | AMPERAGE | 100% Duty Cycle |           | 60% Duty Cycle |           |
|-------|----------|-----------------|-----------|----------------|-----------|
|       |          | CO2             | Mixed Gas | CO2            | Mixed Gas |
| 450R  | 450      | 400A            | 350A      | 450A           | 400A      |
| 550R  | 550      | 500A            | 450A      | 550A           | 500A      |
| 600R  | 600      | 550A            | 500A      | 600A           | 550A      |

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

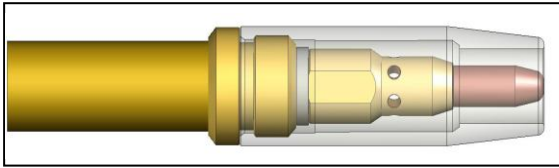
## NOZZLE/TIP RELATIONSHIPS

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.



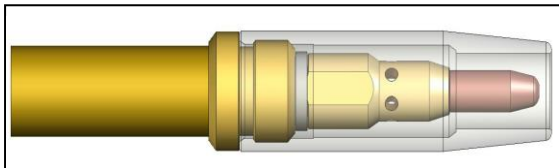
### Extended Tip – Short Circuit (Short Arc, Dip Transfer) Welding Applications

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 is used in short circuit, lower amperage applications, and/or where you may need to reach in to 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 dependant on the wire used and the arc length requirement.

## 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

### 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 to barbed fitting on the direct connect pin if required.
- 3) Connect feeder control cable/plug to torch.
- 4) Connect feeder control cable/plug to the feeder.
- 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.**

## ***Using Feeder Adaptor Kit***

In some cases it may be desirable to use a feeder adaptor kit such as when using different manufactures wire feed units to commonize on a torch 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) If required, connect the feeder control cable/plug to the wiring on the adaptor assembly.
- 5) Connect feeder control cable/plug to the feeder.
- 6) Connect the torch to the feeder adaptor assembly.
- 7) 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.**

## ***Torch Mount Installation***

The robotic torch has a precious locating flat for accurate locating in the mating torch mount.

- 1) Loosen the cap screw in the torch mount.
- 2) Insert the torch through the top of the mount lining the locating flat on the torch with the mating flat on the torch mount.
- 3) Fully insert the torch into the torch mount.
- 4) Tighten the cap screw to secure the torch into the torch mounting arm.

## **MAINTENANCE**

### ***Liner Replacement***

There are two types of liners offered – standard and the EASY front loading liner system. The standard liner requires the torch be removed from the feeder in order to be changed. The EASY front load system only requires the removal of the front end consumables.

#### **Standard Liner Maintenance**

**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 at the torch feeder connection using a 5/64" Allen wrench.
- 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 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 in place.

- 10) Trim the liner to 3/4" 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.
- 3) Remove the four handle screws and separate the handle assembly.
- 4) Using a wrench loosen the gooseneck / cable connection and remove from the cable assembly.
- 5) Remove the Body Insulator from the old gooseneck and install on the new one.
- 6) Thread the new gooseneck on to the cable assembly and tighten.
- 7) 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.
- 8) Slide the handle spring or cable support up and insert in the rear of the handle.
- 9) Install the top handle and secure with the (4) screws. IMPORTANT: Insure the trigger wires are not pinched between the handle.
- 10) Reinstall the diffuser, contact tip and nozzle.

### ***Hybrid Air-Cooled Unicable Replacement***

- 1) Secure Gooseneck in a vice.
- 2) Remove the liner from the torch.
- 3) Remove the handle screws and separate the handle assembly.
- 4) Using a wrench loosen the gooseneck / cable connection and remove from the cable assembly.
- 5) Thread the gooseneck on to the new cable assembly and tighten.
- 6) 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.
- 7) Slide the handle spring or cable support up and insert in the rear of the handle.
- 8) Install the top handle and secure with the (4) screws. IMPORTANT: Insure the trigger wires are not pinched between the handle.
- 9) Reinstall the diffuser, contact tip and nozzle.
- 10) On the rear of the old cable assembly turn and remove the spring guard hand nut and slide back on the cable.
- 11) Remove the screw securing the handle to the feeder pin adaptor and separate the handle.
- 12) Unthread the power cable from the feeder adaptor block.
- 13) Slide the threaded rear handle support nut and rear spring onto the new cable assembly.
- 14) Thread the power cable to the feeder pin adaptor and tighten.
- 15) Install the bottom handle assembly onto the feeder adaptor assembly.
- 16) Install the other handle half and screw the rear handle support nut and rear spring on the rear handle assembly.
- 17) Install the screw on the rear handle and feeder adaptor.
- 18) Reinstall the liner.

### ***Water-Cooled Cable Assembly Replacement***

- 1) Secure Gooseneck in a vice.
- 2) Remove the liner from the torch.
- 3) Remove the handle screws and separate the handle assembly.
- 4) Unthread the power cable from the gooseneck.
- 5) Cut off the clamps from the water line and conduit and pull off neck assembly. You may have to slit with knife.
- 6) Slide new clamps on the water line and conduit of the new cable assembly.
- 7) Thread the power cable to the gooseneck and tighten.

- 8) Push the water line and conduit on the gooseneck assembly and crimp the clamps.
- 9) Install two open end terminals to the trigger wire assembly and attached to the screws on the trigger assembly in the bottom handle.
- 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) screws. **IMPORTANT:** Insure the trigger wires are not pinched between the handle.
- 13) Reinstall the diffuser, contact tip and nozzle.
- 14) On the rear of the old cable assembly turn and remove the spring guard hand nut and rear support spring and slide back on the cable assembly.
- 15) Remove the screw securing the handle to the feeder pin adaptor and separate the handle.
- 16) Unthread the power cable from the feeder adaptor block.
- 17) Cut off the clamps from the short red water line ( do not discard as reusable) and conduit and pull off. You may have to slit with knife.
- 18) Slide the threaded rear handle support nut and rear support spring onto the new cable assembly.
- 19) Slide new clamps on the short red water line and conduit of the new cable assembly.
- 20) Thread the power cable to the feeder pin adaptor and tighten.
- 21) Push the red water line and conduit on the feeder pin adaptor and crimp the clamps.
- 22) Install the trigger wire using (2) butt splices.
- 23) Install the bottom handle assembly onto the feeder adaptor assembly.
- 24) Carefully route the red and blue water lines and the trigger lead thru the opening in the handle half. Make sure the water lines are not pinched between the handle halves.
- 25) Install the other handle half and screw the rear handle support nut and spring on the rear handle assembly.
- 26) Install the screw on the rear handle and feeder adaptor.
- 27) Reinstall the liner.

## **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 is should be replaced.
- Check that the gas diffuser is tight on the gooseneck.
- 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.



## NOZZLE SELECTION CHART

### 300 SERIES NOZZLES

| PART #     | DESCRIPTION            | TYPE | BORE SIZE      | MATERIAL        | BORE ID DIMENSION | O.A.L.           | INSULATOR REQUIRED |
|------------|------------------------|------|----------------|-----------------|-------------------|------------------|--------------------|
| 75133801   | NOZZLE - CONICAL       | A    | 3/8" (9.5mm)   | NI PLATED BRASS | .375"(9.5mm)      | 2.820" (71.6mm)  | NONE REQ.          |
| 75133802   | NOZZLE - BOTTLE NOSE   | C    | 3/8" (9.5mm)   | NI PLATED BRASS | .375"(9.5mm)      | 2.820" (71.6mm)  | NONE REQ.          |
| 75135601-I | NOZZLE - CONICAL       | A    | 9/16" (14.2mm) | NI PLATED BRASS | .593"(15.1mm)     | 2.820" (71.6mm)  | INSTALLED          |
| 75135002-I | NOZZLE - TAPERED       | B    | 1/2" (12.7mm)  | NI PLATED BRASS | .500"(12.7mm)     | 2.820" (71.6mm)  | INSTALLED          |
| 75135003-I | NOZZLE - TAPERED       | C    | 1/2" (12.7mm)  | NI PLATED BRASS | .500"(12.7mm)     | 2.672" (67.96mm) | INSTALLED          |
| 75135602-I | NOZZLE - CONICAL       | A    | 9/16" (14.2mm) | NI PLATED BRASS | .593"(15.1mm)     | 2.545" (64.6mm)  | INSTALLED          |
| 75135004   | NOZZLE - CONICAL SHORT | G    | 1/2" (12.7mm)  | NI PLATED BRASS | .500"(12.7mm)     | 1.937" (49.2mm)  | NONE REQ.          |

### 400R/500 SERIES NOZZLES

| PART #     | DESCRIPTION             | TYPE | BORE SIZE      | MATERIAL         | BORE ID DIMENSION | O.A.L.          | INSULATOR REQUIRED |
|------------|-------------------------|------|----------------|------------------|-------------------|-----------------|--------------------|
| 75146201-I | NOZZLE - BOTTLE NOSE    | E    | 5/8" (15.9mm)  | NI PLATED BRASS  | .625"(15.9mm)     | 3.125" (79.4mm) | INSTALLED          |
| 75145001   | NOZZLE - BOTTLE NOSE    | C    | 1/2" (12.7mm)  | NI PLATED BRASS  | .500"(12.7mm)     | 3.031" (77.0mm) | 75001733           |
| 75146202   | NOZZLE - CONICAL        | A    | 5/8" (15.9mm)  | NI PLATED BRASS  | .625"(15.9mm)     | 3.125" (79.4mm) | 75001738           |
| 75146202C  | NOZZLE - CONICAL        | A    | 5/8" (15.9mm)  | NI PLATED COPPER | .625"(15.9mm)     | 3.125" (79.4mm) | 75001738           |
| 75146202CU | NOZZLE - CONICAL        | A    | 5/8" (15.9mm)  | BARE COPPER      | .625"(15.9mm)     | 3.125" (79.4mm) | 75001738           |
| 75145601-I | NOZZLE - TAPERED        | B    | 9/16" (14.2mm) | NI PLATED BRASS  | .563"(14.2mm)     | 3.125" (79.4mm) | INSTALLED          |
| 75145002C  | NOZZLE - TAPERED        | B    | 1/2" (12.7mm)  | NI PLATED COPPER | .531"(13.5mm)     | 3.125" (79.4mm) | 75001738           |
| 75145002CU | NOZZLE - TAPERED        | B    | 1/2" (12.7mm)  | BARE COPPER      | .531"(13.5mm)     | 3.125" (79.4mm) | 75001738           |
| 75145003   | NOZZLE - TAPERED (LONG) | B    | 1/2" (12.7mm)  | NI PLATED BRASS  | .500"(12.7mm)     | 3.915" (99.4mm) | NONE REQ.          |
| 75146501S  | NOZZLE - SPOT           | H    | 5/8" (15.9mm)  | NI PLATED BRASS  | .656"(16.7mm)     | 3.437" (87.3mm) | 75001738           |
| 75146204-I | NOZZLE - CONICAL        | A    | 5/8" (15.9mm)  | NI PLATED BRASS  | .625"(15.9mm)     | 2.820" (71.6mm) | INSTALLED          |
| 75146204CU | NOZZLE - CONICAL        | A    | 5/8" (15.9mm)  | BARE COPPER      | .625"(15.9mm)     | 2.820" (71.6mm) | 75001738           |
| 75145602-I | NOZZLE - SMALL CONICAL  | D    | 9/16" (14.2mm) | NI PLATED BRASS  | .593"(15.1mm)     | 2.820" (71.6mm) | INSTALLED          |
| 75144301-I | NOZZLE - TAPERED        | D    | 7/16" (11.1mm) | NI PLATED BRASS  | .438"(11.1mm)     | 2.820" (71.6mm) | INSTALLED          |
| 75145004   | NOZZLE - BOTTLE NOSE    | C    | 1/2" (12.7mm)  | NI PLATED BRASS  | .500"(12.7mm)     | 3.125" (79.4mm) | 75001733           |
| 75146205-I | NOZZLE - CONICAL        | A    | 5/8" (15.9mm)  | NI PLATED BRASS  | .625"(15.9mm)     | 3.031" (77.0mm) | INSTALLED          |
| 75146205CU | NOZZLE - TAPERED        | B    | 5/8" (15.9mm)  | BARE COPPER      | .625"(15.9mm)     | 3.031" (77.0mm) | 75001738           |
| 75146206-I | NOZZLE - SHORT CONICAL  | G    | 5/8" (15.9mm)  | NI PLATED BRASS  | .625"(15.9mm)     | 1.875" (47.6mm) | INSTALLED          |
| 75146207-I | NOZZLE - SHORT CONICAL  | G    | 5/8" (15.9mm)  | NI PLATED BRASS  | .625"(15.9mm)     | 2.187" (55.6mm) | INSTALLED          |
| 75146209-I | NOZZLE - BOTTLE NOSE    | E    | 5/8" (15.9mm)  | NI PLATED BRASS  | .625"(15.9mm)     | 3.125" (79.4mm) | INSTALLED          |
| 75147501   | NOZZLE - CYLINDRICAL    | F    | 3/4" (19.0mm)  | NI PLATED BRASS  | .703" (17.9mm)    | 3.125" (79.4mm) | 75001738           |
| 75147501CU | NOZZLE - CYLINDRICAL    | F    | 3/4" (19.0mm)  | BARE COPPER      | .703" (17.9mm)    | 3.125" (79.4mm) | 75001738           |
| 75145603-I | NOZZLE - SHORT TAPERED  | G    | 9/16" (14.2mm) | NI PLATED BRASS  | .563"(14.2mm)     | 2.375" (60.3mm) | INSTALLED          |
| 75145005   | NOZZLE - BOTTLE NOSE    | C    | 1/2" (12.7mm)  | NI PLATED BRASS  | .500"(12.7mm)     | 2.820" (71.6mm) | 75001733           |
| 75144302-I | NOZZLE - TAPERED        | D    | 7/16" (11.1mm) | NI PLATED BRASS  | .438"(11.1mm)     | 3.125" (79.4mm) | INSTALLED          |

## CONTACT TIP SELECTION CHART

### M6 CONTACT TIPS

| <u>PART #</u>             | <u>WIRE SIZE</u>      | <u>NOMINAL I.D.</u> | <u>DESCRIPTION</u>     |
|---------------------------|-----------------------|---------------------|------------------------|
| <b><i>COPPER (CU)</i></b> |                       |                     |                        |
| 75023511                  | .023" (.6mm)          | .034"               | CONTACT TIP (STANDARD) |
| 75030511                  | .030" (.8mm)          | .038"               | CONTACT TIP (STANDARD) |
| 75035511                  | .035" (.9mm)          | .044"               | CONTACT TIP (STANDARD) |
| 75035512                  | .040" (1mm)           | .048"               | CONTACT TIP (STANDARD) |
| 75045511                  | .045" (3/64") (1.2mm) | .053"               | CONTACT TIP (STANDARD) |
| 75045512                  | .045" (3/64") (1.2mm) | .059"               | CONTACT TIP (STANDARD) |

### M8 CONTACT TIPS

| <u>PART #</u>             | <u>WIRE SIZE</u>       | <u>NOMINAL I.D.</u> | <u>DESCRIPTION</u>     |
|---------------------------|------------------------|---------------------|------------------------|
| <b><i>COPPER (CU)</i></b> |                        |                     |                        |
| 75030014                  | .030" (.8mm)           | .038"               | CONTACT TIP (STANDARD) |
| 75035014                  | .035" (.9mm)           | .044"               | CONTACT TIP (STANDARD) |
| 75040014                  | .040" (1.0mm)          | .048"               | CONTACT TIP (STANDARD) |
| 75045014                  | .045" (3/64") (1.2mm)  | .054"               | CONTACT TIP (STANDARD) |
| 75052014                  | .052" (1.3mm)          | .061"               | CONTACT TIP (STANDARD) |
| 75062014                  | .062" (1/16") (1.6mm)  | .073"               | CONTACT TIP (STANDARD) |
| 75062015                  | .062" (1/16") (1.6mm)  | .076"               | CONTACT TIP (STANDARD) |
| 75078014                  | .078" (5/64") (2.0 mm) | .087"               | CONTACT TIP (STANDARD) |
| 75093014                  | .093" (3/32") (2.4mm)  | .106"               | CONTACT TIP (STANDARD) |

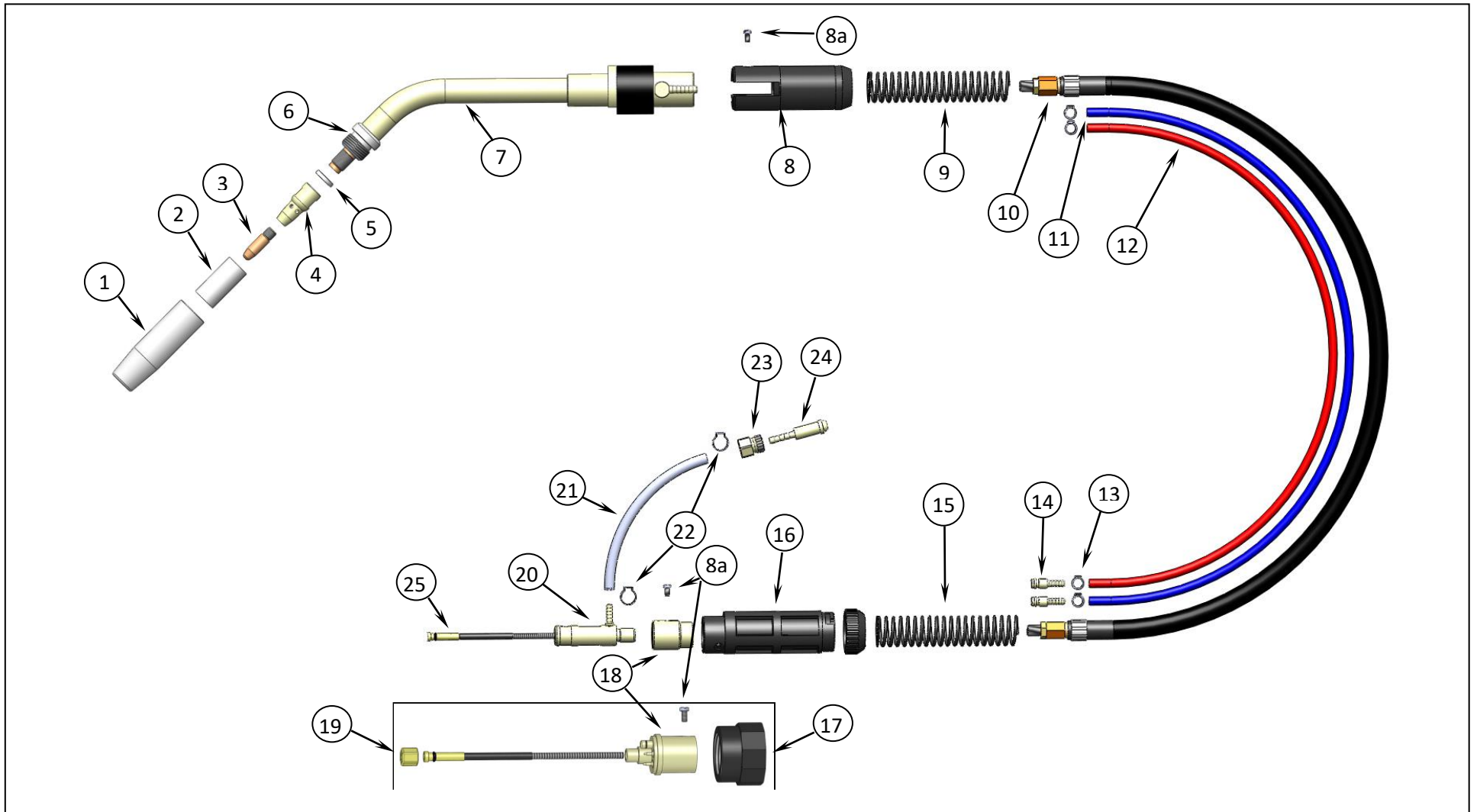
### M8 HRT – EXTENDED LIFE CONTACT TIPS

| <u>PART #</u> | <u>WIRE SIZE</u>      | <u>NOMINAL I.D.</u> | <u>DESCRIPTION</u>  |
|---------------|-----------------------|---------------------|---------------------|
| 20040400      | .040" (1.0mm)         | .050"               | .315 OD CONTACT TIP |
| 20045400      | .045" (3/64") (1.2mm) | .054"               | .315 OD CONTACT TIP |
| 20035500      | .035" (.9mm)          | .044"               | .395 OD CONTACT TIP |
| 20040500      | .040" (1.0mm)         | .050"               | .395 OD CONTACT TIP |
| 20045500      | .045" (3/64") (1.2mm) | .054"               | .395 OD CONTACT TIP |
| 20052500      | .052" (1.3mm)         | .061"               | .395 OD CONTACT TIP |
| 20062500      | .062" (1/16") (1.6mm) | .073"               | .395 OD CONTACT TIP |

### ROBOTIC TEACH TIPS

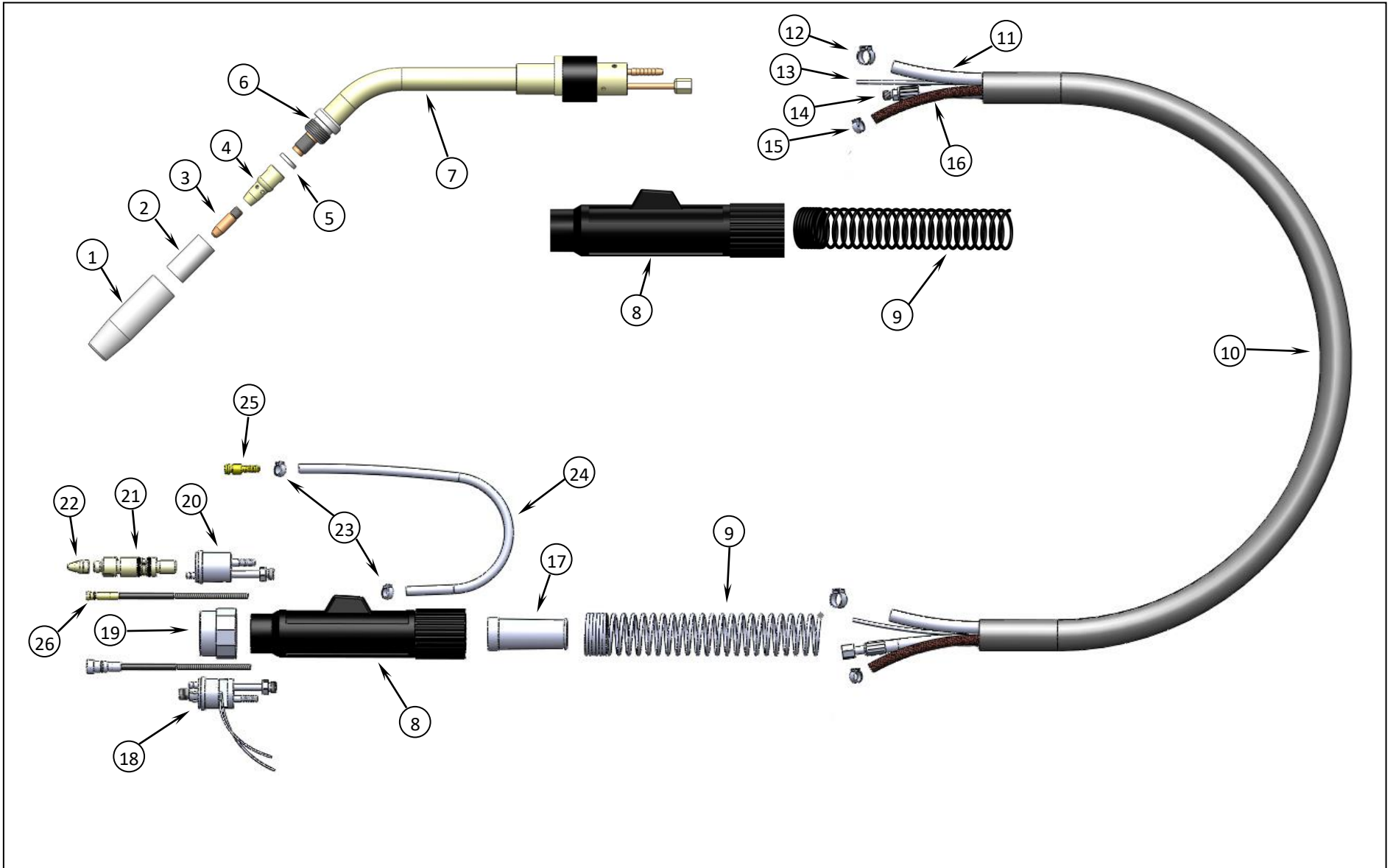
|               |   |
|---------------|---|
| 750TT014-.500 | ROBOTIC TEACH TIP (014 SERIES TIP WITH .500" WIRE STICKOUT) |
| 750TT014-.625 | ROBOTIC TEACH TIP (014 SERIES TIP WITH .625" WIRE STICKOUT) |
| 750TT014-.750 | ROBOTIC TEACH TIP (014 SERIES TIP WITH .750" WIRE STICKOUT) |
| 750TT230-.625 | ROBOTIC TEACH TIP (230 SERIES TIP WITH .625" WIRE STICKOUT) |
| 750TT511-.625 | ROBOTIC TEACH TIP (511 SERIES TIP WITH .625" WIRE STICKOUT) |

**PARTS BREAKDOWN – 450R/550R**



## 450R/550R PARTS LIST

| NO. | DESCRIPTION                      | 450R                                    | 550R       | NO. | DESCRIPTION                     | 450R          | 550R          |
|-----|----------------------------------|---|------------|-----|---------------------------------|---------------|---------------|
| 1   | NOZZLE                           | SEE NOZZLE SELECTION TABLE PAGE 9       |            | NS  | ORING – EURO ADAPTOR BLOCK      | 28500002      | 28500002      |
| 2   | NOZZLE INSULATOR                 | SEE NOZZLE SELECTION TABLE PAGE 9       |            | 19  | CAP - MILLER FEEDER PIN         | 37577705-N    | 37577705-N    |
| 3   | CONTACT TIP                      | SEE CONTACT TIP SELECTION TABLE PAGE 10 |            |     | CAP - OTC FEEDER PIN            | 38277001-N078 | 38277001-N078 |
| 4   | GAS DIFFUSER, STANDARD           | 75004033                                | 75004033   |     | CAP - EURO                      | 37077005      | 37077005      |
|     | GAS DIFFUSER, SHORT              | 75004033S                               | 75004033S  | 20  | MILLER FEEDER PIN               | 37577705      | 37577705      |
|     | GAS DIFFUSER, LONG               | 75004033L                               | 75004033L  |     | OTC / DAIHEN FEEDER PIN         | 37577700      | 37577700      |
|     | GAS DIFFUSER, X-LONG             | 75004033XL                              | 75004033XL |     | OTC DP SERIES FEEDER PIN        | 37577701      | 37577701      |
| 5   | INSULATING WASHER                | 75001004                                | 75001004   |     | LINCOLN LN7 FEEDER PIN          | 37577832      | 37577832      |
| 6   | REPLACEABLE NOZZLE SEAT - OPTION | 75077850                                | 75077850   |     | PANASONIC FEEDER PIN            | 37577999      | 37577999      |
| 7   | GOOSENECK, 180 DEGREE            | 450R-180-H                              | 550R-180-H |     | TWECO #4 FEEDER PIN             | 37577699      | 37577699      |
|     | GOOSENECK, 22 DEGREE             | 450R-22-H                               | 550R-22-H  |     | TWECO #5 FEEDER PIN             | 37577930      | 37577930      |
|     | GOOSENECK, 45 DEGREE-            | 450R-45-H                               | 550R-45-H  | NS  | O-RING- MILLER PIN              | 37577102      | 37577102      |
| 8   | FRONT HANDLE SUPPORT             | 75077017W                               | 75077017W  | NS  | O-RING- TWECO #4 PIN            | 37677102      | 37677102      |
| 8a  | SUPPORT SCREW                    | 75077011                                | 75077011   | NS  | O-RING- TWECO #5 PIN            | 75000021      | 75000021      |
| NS  | INSULATING CAPS                  | 75099755                                | 75099755   | 21  | GAS HOSE PER FOOT               | 38577087      | 38577087      |
| 9   | CABLE SUPPORT SPRING             | 75002009                                | 75002009   | 22  | 7/16 HOSE CLAMP                 | 38577108      | 38577108      |
| 10  | 3' POWER CABLE                   | 75003400R                               | 75003500R  | 23  | INERT GAS NUT                   | 38677141      | 38677141      |
|     | 4' POWER CABLE                   | 75004400R                               | 75004500R  | 24  | INERT GAS NIPPLE                | 38677142      | 38677142      |
|     | 5' POWER CABLE                   | 75005400R                               | 75005500R  | 25  | .023-.030 LINER, 5FT – T STYLE  | 75005215T     | 75005215T     |
|     | 6' POWER CABLE                   | 75006400R                               | 75006500R  |     | .023-.030 LINER, 10FT – T STYLE | 75010215T     | 75010215T     |
|     | 8' POWER CABLE                   | 75008400R                               | 75008500R  |     | .035-.045 LINER, 5FT – T STYLE  | 75005222T     | 75005222T     |
|     | 10' POWER CABLE                  | 75010400R                               | 75010500R  |     | .035-.045 LINER, 10FT – T STYLE | 75010222T     | 75010222T     |
| 11  | BLUE WATER HOSE – ORDER PER FOOT | 75099025                                | 75099025   |     | .045-1/16 LINER, 5FT – T STYLE  | 75005228T     | 75005228T     |
| 12  | RED WATER HOSE – ORDER PER FOOT  | 75099026                                | 75099026   |     | .045-1/16 LINER, 10FT – T STYLE | 75010228T     | 75010228T     |
| 11  | REAR ADAPTOR SUPPORT SPRING      | 75002005                                | 75002009   |     | 5/64-3/32 LINER, 5FT – T STYLE  | 75005229T     | 75005229T     |
|     | EURO REAR ADAPTOR SUPPORT SPRING | 75002005                                | 75006033S  |     | 5/64-3/32 LINER, 10FT – T STYLE | 75010229T     | 75010229T     |
| 12  | REAR ADAPTOR SUPPORT             | 75077010                                | 75077017   | NS  | LINER ORING                     | 75000001      | 75000001      |
|     | EURO REAR ADAPTOR SUPPORT        | 75077010                                | 75077012   |     |                                 |               |               |
| 13  | HOSE CLAMPS                      | 38577105                                | 38577105   |     |                                 |               |               |
| 14  | MALE QUICK DISCONNECTS           | 38660000                                | 38660000   |     |                                 |               |               |
| 15  | REAR ADAPTOR SUPPORT SPRING      | 75002005                                | 75006033   |     |                                 |               |               |
| 16  | REAR ADAPTOR SUPPORT             | 75077012                                | 75077012   |     |                                 |               |               |
| 17  | EURO HAND NUT                    | 75077014                                | 75077014   |     |                                 |               |               |
| 18  | DIR CONNECT ADAPT BLOCK          | 37077000                                | 37077000-C |     |                                 |               |               |
|     | EURO ADAPTOR BLOCK               | 75001148                                | 75001148   |     |                                 |               |               |



# PARTS LISTING

| NO. | DESCRIPTION                      | 600R                                   | NO. | DESCRIPTION                     | 600R          |
|-----|----------------------------------|--|-----|---------------------------------|---------------|
| 1   | NOZZLE                           | SEE NOZZLE SELECTION TABLE PAGE 8      | 19  | EURO HAND NUT                   | 75077014      |
| 2   | NOZZLE INSULATOR                 | SEE NOZZLE SELECTION TABLE PAGE 8      | 20  | DIR CONN ADAPTOR BLOCK          | 775006148-DC  |
| 3   | CONTACT TIP                      | SEE CONTACT TIP SELECTION TABLE PAGE 9 | 21  | MILLER FEEDER PIN               | 37577705      |
| 4   | GAS DIFFUSER, STANDARD           | 75004033                               |     | OTC / DAIHEN FEEDER PIN         | 37577700      |
|     | GAS DIFFUSER, SHORT              | 75004033S                              |     | OTC DP SERIES FEEDER PIN        | 37577701      |
|     | GAS DIFFUSER, LONG               | 75004033L                              |     | LINCOLN LN7 FEEDER PIN          | 37577832      |
|     | GAS DIFFUSER, X-LONG             | 75004033XL                             |     | PANASONIC FEEDER PIN            | 37577999      |
| 5   | INSULATING WASHER                | 75001004                               |     | TWECO #4 FEEDER PIN             | 37577699      |
| 6   | REPLACEABLE NOZZLE SEAT - OPTION | 75077580                               |     | TWECO #5 FEEDER PIN             | 37577930      |
| 7   | GOOSENECK, 180 DEGREE            | 600R-180-H                             | NS  | O-RING- MILLER PIN              | 37577102      |
|     | GOOSENECK, 22 DEGREE             | 600R-22-H                              | NS  | O-RING- TWECO #4 PIN            | 37677102      |
|     | GOOSENECK, 45 DEGREE-            | 600R-45-H                              | NS  | O-RING- TWECO #5 PIN            | 75000021      |
| 8   | FRONT/REAR HANDLE SUPPORT        | 75077012                               | 22  | CAP - MILLER FEEDER PIN         | 37577705-N    |
| NS  | SUPPORT SCREW                    | 75077011                               |     | CAP - OTC FEEDER PIN            | 38277001-N078 |
| 9   | CABLE SUPPORT SPRING             | 75006033S                              |     | CAP - EURO                      | 37077005      |
| 10  | 3' POWER CABLE ASSY.             | 75003600R                              | 23  | 7/16 HOSE CLAMP                 | 38577108      |
|     | 4' POWER CABLE ASSY.             | 75004600R                              | 24  | GAS HOSE PER FOOT               | 38577087      |
|     | 5' POWER CABLE ASSY.             | 75005600R                              | 25  | QUICK DISCONNECT - MALE         | 38660000      |
|     | 6' POWER CABLE ASSY.             | 75006600R                              | NS  | QUICK DISCONNECT - FEMALE       | 38660001      |
|     | 8' POWER CABLE ASSY.             | 75008600R                              | 21  | .023-.030 LINER, 5FT - T STYLE  | 75005215T     |
|     | 10' POWER CABLE ASSY.            | 75010600R                              |     | .023-.030 LINER, 10FT - T STYLE | 75010215T     |
| 11  | WIRE/GAS CONUIT - ORDER PER FOOT | 75099600                               |     | .035-.045 LINER, 5FT - T STYLE  | 75005222T     |
| 12  | CONDUIT CLAMP                    | 38577108                               |     | .035-.045 LINER, 10FT - T STYLE | 75010222T     |
| 13  | ANTI-STRETCH CORD                | 75099001                               |     | .045-1/16 LINER, 5FT - T STYLE  | 75005228T     |
| 14  | WATER-COOLED POWER CABLE - 3'    | 75006003                               |     | .045-1/16 LINER, 10FT - T STYLE | 75010228T     |
|     | WATER-COOLED POWER CABLE - 4'    | 75006004                               |     | 5/64-3/32 LINER, 5FT - T STYLE  | 75005229T     |
|     | WATER-COOLED POWER CABLE - 5'    | 75006005                               |     | 5/64-3/32 LINER, 10FT - T STYLE | 75010229T     |
|     | WATER-COOLED POWER CABLE - 6'    | 75006006                               | NS  | LINER ORING                     | 75000001      |
|     | WATER-COOLED POWER CABLE - 8'    | 75006008                               |     |                                 |               |
|     | WATER-COOLED POWER CABLE - 10'   | 75006010                               |     |                                 |               |
| 15  | 7/16" HOSE CLAMP                 | 38777108                               |     |                                 |               |
| 16  | WATER-IN BLUE - ORDER PER FOOT   | 75099025                               |     |                                 |               |
| 17  | CABLE SUPPORT BOOT               | 75006033                               |     |                                 |               |
| 18  | EURO ADAPTOR BLOCK               | 75006148                               |     |                                 |               |
| NS  | O-RING - EURO ADAPTOR BLOCK      | 28500002                               |     |                                 |               |

**NOTES:**



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