

## **TECHNICAL GUIDE**

### **TOUGH GUN™ Robotic Water-Cooled MIG Guns (600 amp)**

- **SAFETY & WARRANTY**
- **COMPLETE ASSEMBLY  
OVERVIEW**
- **EXPLODED VIEW & PARTS  
LIST**
- **OPTIONS**
- **AMPERAGE RATINGS**
- **ORDERING INFORMATION**

*Certified ISO 9001 : 2008.  
Please read instructions prior to use.  
Save this manual for future reference*

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## THANK YOU....

...for selecting a Tregaskiss TOUGH GUN™ Robotic MIG Gun. Manufacturing operations demand extremely dependable robotic equipment. With this in mind, the TOUGH GUN MIG Gun was designed and engineered to be a reliable tool to support high production within a robotic cell. As the name implies, the TOUGH GUN MIG Gun is made from durable materials and components engineered to perform in a rugged welding environment. Your TOUGH GUN MIG Gun is completely assembled and ready to weld, and has undergone numerous quality checks to ensure high performance.

The instructions and illustrations in this technical guide make it easy for you to maintain your TOUGH GUN MIG Gun. **Please read, understand, and follow all safety procedures.** Keep this Technical Guide booklet as a handy reference when ordering complete guns, parts and special options. **For technical support and special applications, call the Tregaskiss Technical Service Department at 1-855-MIGWELD (644-9353) or fax 1-877-737-2111.** Our trained technicians are available Monday through Friday from 8:00 am and 5:00 pm EST and will answer your application or repair questions.

Tregaskiss employees build TOUGH GUN MIG Guns for the world’s welding professionals. We are always striving to improve our products and services, and would appreciate receiving your suggestions or comments. Please contact us immediately if you experience any safety or operating problems.

## WARRANTY

Product is warranted to be free from defects in material and workmanship for the period specified below after the sale by an authorized Buyer. Should there be a defect please refer to our Return Merchandise Policy.

| PRODUCT   | WARRANTY PERIOD |
|---|-----------------|
| TOUGH GUN™ Robotic MIG Guns and Components                                  | 180 days        |
| TOUGH GUN™ TT3 Reamer   | 1 year          |
| TOUGH GUN™ TT3 Reamer with Lubricator                                       | 3 years         |
| TOUGH GARD™ Spatter Cleaner   | 1 year          |
| TOUGH GUN Robotic Peripherals (Clutch, Sprayer, Wire Cutter, Mounting Arms) | 1 year          |
| Low-Stress Robotic Unicables (LSR Unicables)                                | 2 years         |

Tregaskiss reserves the right to repair, replace or refund the purchase price of non-conforming product. Product found not defective will be returned to the Buyer after notification by Customer Service.

Tregaskiss makes no other warranty of any kind, expressed or implied, including, but not limited to the warranties of merchantability or fitness for any purpose. Tregaskiss shall not be liable under any circumstances to Buyer, or to any person who shall purchase from Buyer, for damages of any kind, including, but not limited to any, direct,

indirect incidental or consequential damages or loss of production or loss of profits resulting from any cause whatsoever, including, but not limited to, any delay, act, error or omission of Tregaskiss.

Genuine Tregaskiss™ parts must be used for safety and performance reasons or the warranty becomes invalid. Warranty shall not apply if accident, abuse, or misuse damages a product, or if a product is modified in any way except by authorized Tregaskiss personnel.

## **GENERAL SAFETY**

Before installation or operation of TOUGH GUN MIG Guns, please read the safety precautions listed below.

1. Do not touch live electrical parts. The following should be checked to prevent electrical shock:
  - a. Faulty or damaged equipment is repaired or replaced.
  - b. Equipment is off when not in use.
2. Ensure that all safety devices, guards, shields or barriers are properly in place and connected correctly before allowing operation of the equipment.
3. CSA Standard W117.2 CODE FOR SAFETY IN WELDING AND CUTTING obtainable from the Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3.
4. ANSI Standard Z49.1 CODE FOR SAFETY IN WELDING AND CUTTING obtainable from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

### **CALIFORNIA PROPOSITION 65 WARNING**

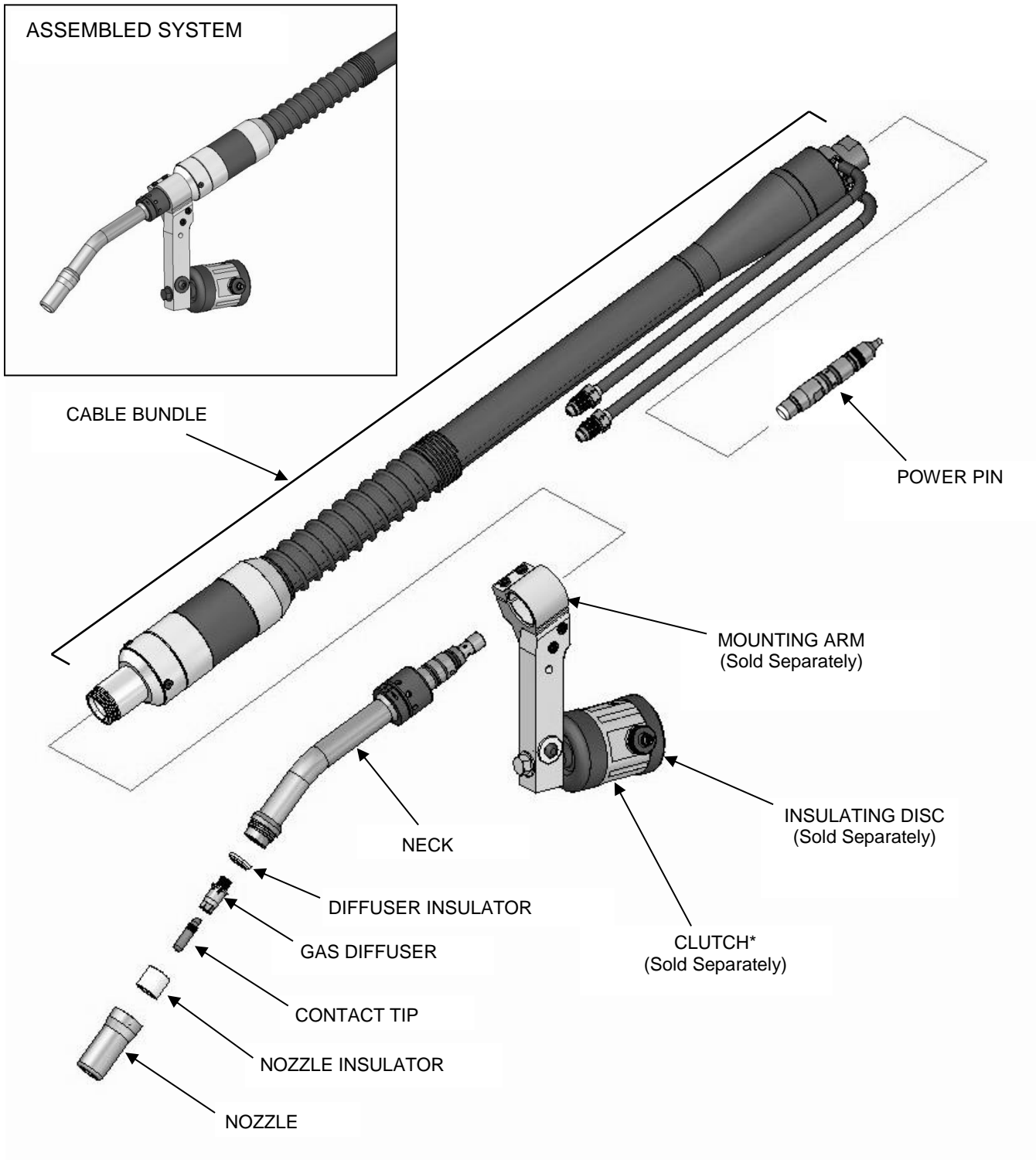
This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer.

This product contains chemicals, including lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. *Wash hands after use.*

(California Health & Safety Code Section 25249.5 at seq.)



# 1.0 – COMPLETE ASSEMBLY OVERVIEW

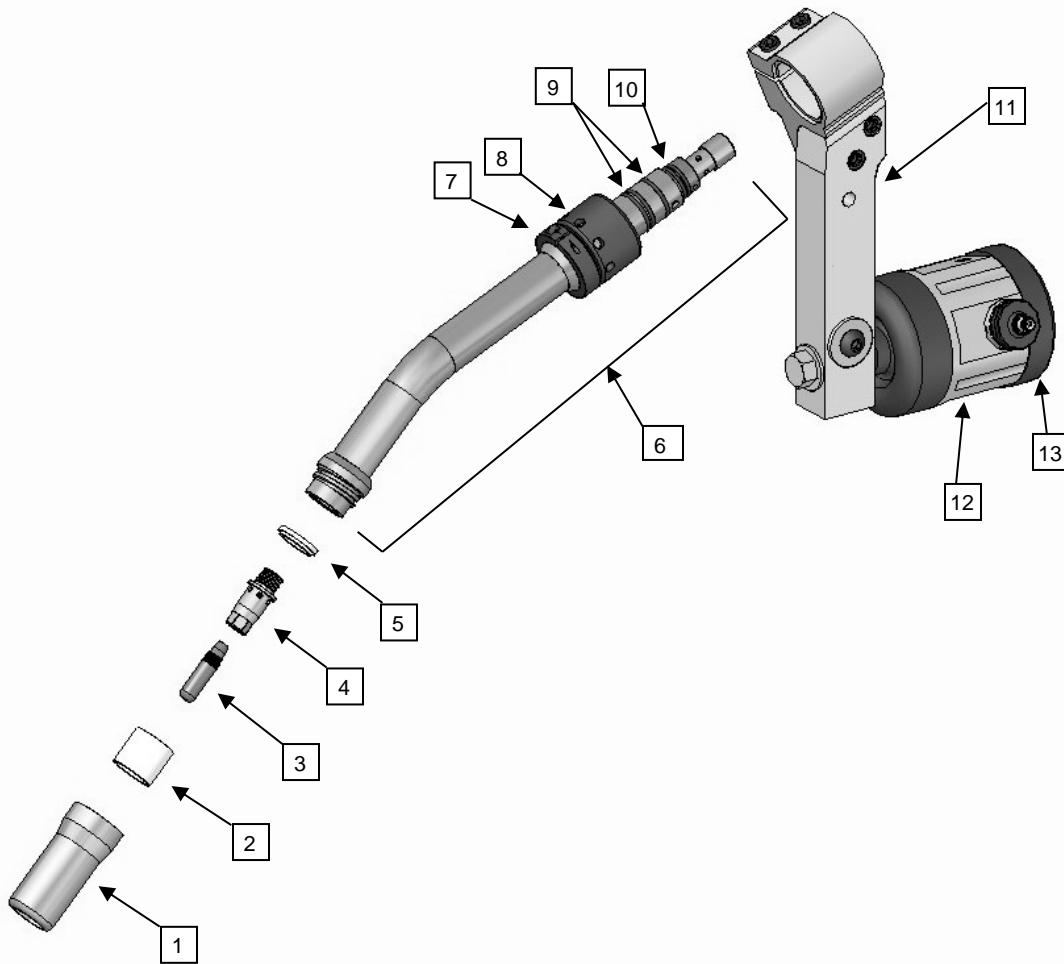


*\*Other mounting options are available in addition to the Clutch, including the Solid Arm Mount and TOUGH GUN G2 Style Mounting Arm.*

For a complete parts list, please proceed to **Section 2.0 EXPLODED VIEW AND PARTS LIST.**

## 2.0 – EXPLODED VIEW AND PARTS LIST

### 2.1 FRONT-END COMPONENTS



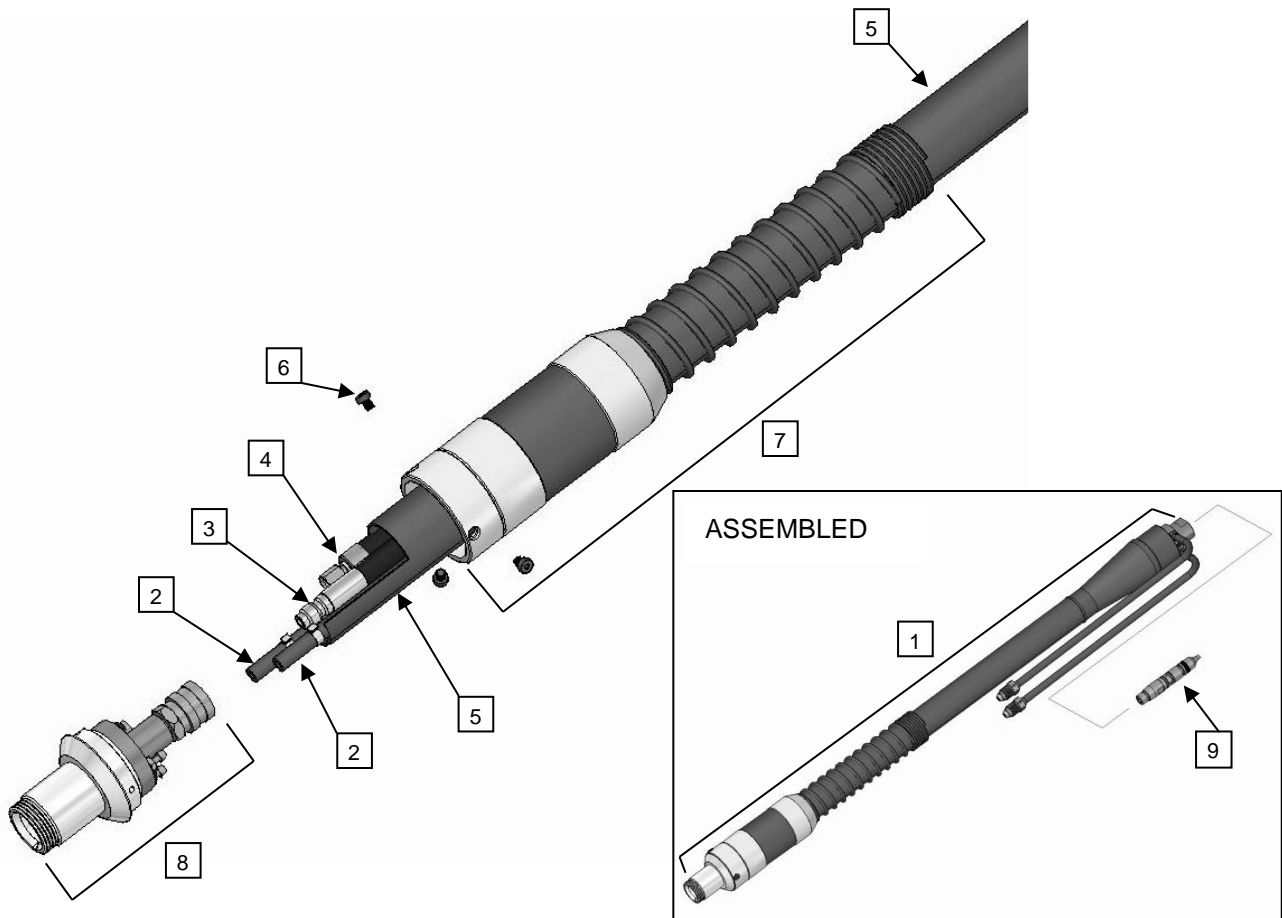
| PART # | DESCRIPTION   |
|--------|---|
| 1      | 671-6-75 Nozzle (3/4" Bore, 1/8" Recess)              |
|        | 671-8-75 Nozzle (3/4" Bore, 1/8" Stick-Out)           |
| 2      | 671-6-75-2 Nozzle Insulator                           |
| 3      | 403-20-xxx TOUGH LOCK™ HD Contact Tip                 |
|        | 403-27-xxx TOUGH LOCK EHD Contact Tip                 |
| 4      | 404-71 Gas Diffuser                                   |
| 5      | 404-71-2 Diffuser Insulator                           |
| 6      | RW1-1000-22 Neck – 22 Degree                          |
|        | RW1-1000-45 Neck – 45 Degree                          |
|        | RW1-1000-180 Neck – 180 Degree                        |
| N/A    | 415-35-6 Conventional Liner (0.035" to 0.045"); 6'    |
| N/A    | 415-35-10 Conventional Liner (0.035" to 0.045"); 10'  |
| N/A    | 415-35-15 Conventional Liner (0.035" to 0.045"); 15'  |
| N/A    | 415-116-6W Conventional Liner (0.045" to 1/16"); 6'   |
| N/A    | 415-116-10W Conventional Liner (0.045" to 1/16"); 10' |
| N/A    | 415-116-15W Conventional Liner (0.045" to 1/16"); 15' |
| N/A    | 415-564-6W Conventional Liner (1/16" TO 5/64"); 6'    |

| PART # | DESCRIPTION  |
|--------|--|
| N/A    | 415-564-10W Conventional Liner (1/16" to 5/64"); 10' |
| N/A    | 415-564-15W Conventional Liner (1/16" to 5/64"); 15' |
| 7      | N/A Neck Collar                                      |
| 8      | N/A Neck Nut   |
| 9      | 599-3 O-Ring – Large                                 |
| 10     | ROG O-Ring – Small                                   |
| 11     | AS-71-000-22 Mounting Arm (22 Degree)                |
|        | AS-71-000-45 Mounting Arm (45 Degree)                |
|        | AS-72-000-22 G2 Style Mounting Arm (22 Degree)*      |
|        | AS-72-000-45 G2 Style Mounting Arm (45 Degree)*      |
| 12     | AS-708 Safety Clutch                                 |
|        | AS-730 Solid Arm Mount                               |
| 13     | AS-xxx-xx Insulating/Transition Disc (Various)       |
|        | 59Dxx G2 Style Insulating/Transition Disc (Various)* |

\*TOUGH GUN G2 Style Mounting Arms (AS-72-xxx-xx) require the TOUGH GUN G2 Style Insulating Disc (59Dxx).

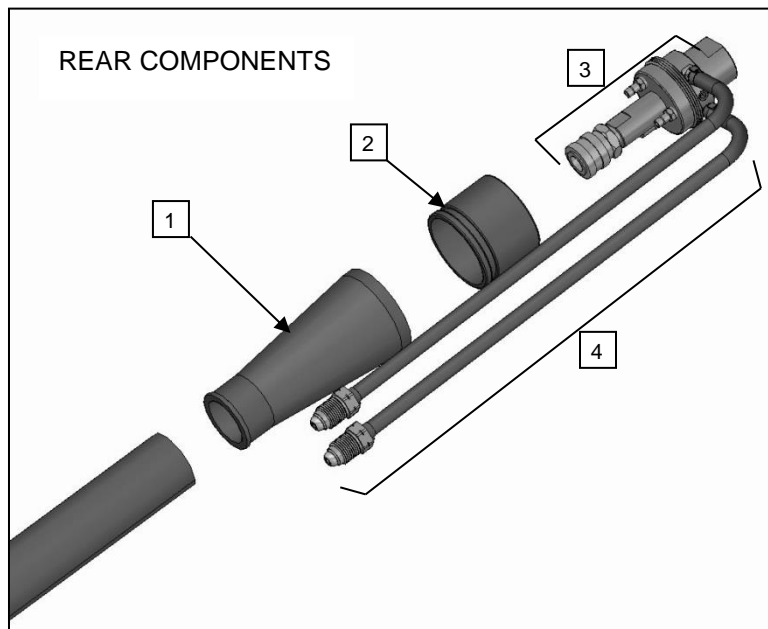
## 2.2 CABLE BUNDLE COMPONENTS

### 2.2.1 CABLE BUNDLE COMPONENTS – FRONT



| PART #            | DESCRIPTION   |
|-------------------|---|
| 1                 | Various<br>Cable Bundles (See Chart Below)                          |
| 2                 | RW1-2200<br>Gas / Water Line Kit – 15' Long (2 Clamps Included)     |
| 3                 | Various<br>Conduit Assembly (See Chart Below)                       |
| 4                 | Various<br>Power Cable Assembly (See Chart Below)                   |
| 5                 | Various<br>Cable Jacket – Leather (See Chart Below)                 |
| 6                 | N/A<br>Housing Screw (3 Req.) M5X.8X6MM Low-Head SHCS               |
| 7                 | RW1-2140<br>Housing Assembly (Includes Spring)                      |
|                   | RW1-2140-WB<br>Housing Assembly (Wire Brake)                        |
| 8                 | RW1-2100-Y<br>Docking Body Assembly                                 |
| 9                 | 214-1W<br>Power Pin – Miller®                                       |
|                   | 214-7W<br>Power Pin – Lincoln®                                      |
|                   | 214W<br>Power Pin – Tweco® #4                                       |
|                   | 214-12W<br>Power Pin – Tweco #5                                     |
|                   | 214-17W<br>Power Pin – Fronius®                                     |
|                   | 214-30W<br>Power Pin – Panasonic®                                   |
|                   | 214-40W<br>Power Pin – Lincoln (Modified)                           |
| <b>WIRE BRAKE</b> |   |
|                   | 450-17<br>Wire Brake Installation Tool                              |
|                   | 495-19-35<br>Wire Brake Jump Liner (0.035" to 0.045"); Water-Cooled |
|                   | 495-19-116<br>Wire Brake Jump Liner (0.045" to 1/16"); Water-Cooled |
|                   | RW1-599<br>Wire Brake; Water-Cooled                                 |
|                   | 598<br>Wire Brake Wire Guide (0.035" to 0.045"); Water-Cooled       |
|                   | 598-116<br>Wire Brake Wire Guide (0.045" to 1/16"); Water-Cooled    |
|                   | 499-9-15<br>Wire Brake Hose (15')                                   |

### 2.2.2 CABLE BUNDLE COMPONENTS – REAR

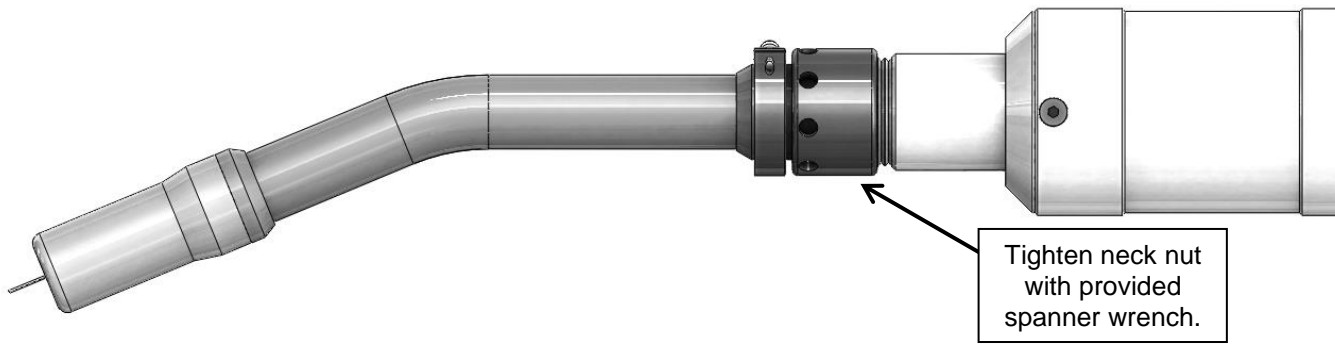


| PART # |            | DESCRIPTION   |
|--------|------------|---|
| 1      | RFHW600C-2 | Rubber Boot   |
| 2      | RFHW600C-1 | Cuff  |
| 3      | RW1-2700   | Power Block Assembly (#30 Hoses Not Included)   |
| 4      | RW1-2810-G | Water In / Out Hose Kit – 6' Long (Includes 2 Hoses, 2 Clamps, Threaded Water Fittings) |

### 2.2.3 CABLE BUNDLES

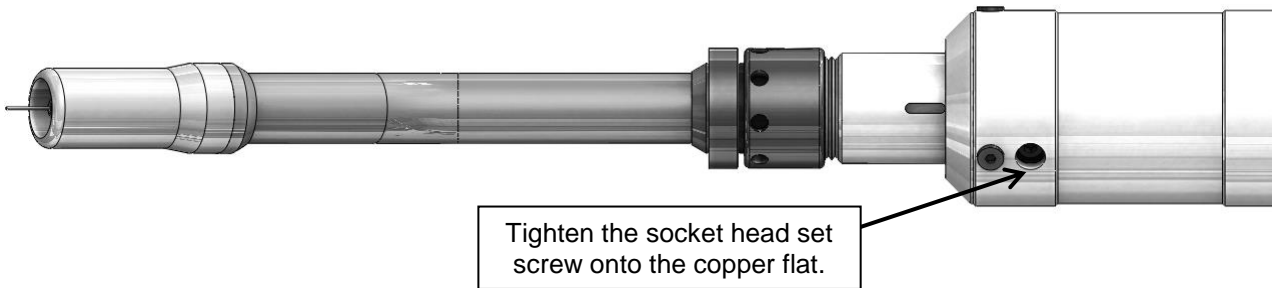
| CABLE BUNDLE LENGTH | CABLE BUNDLE (POWER PIN NOT INCLUDED) | CABLE BUNDLE FOR WIRE BRAKE (POWER PIN NOT INCLUDED) | CONDUIT ASSEMBLY | POWER CABLE ASSEMBLY | CABLE JACKET (LEATHER) |
|---------------------|---------------------------------------|--|------------------|----------------------|------------------------|
| 3.5'                | RW1-2000-B                            | RW1-2000WB-B   | RW1-2600-B       | RW1-2500-B           | RW1-2400-B             |
| 4.0'                | RW1-2000-C                            | RW1-2000WB-C   | RW1-2600-C       | RW1-2500-C           | RW1-2400-C             |
| 4.5'                | RW1-2000-D                            | RW1-2000WB-D   | RW1-2600-D       | RW1-2500-D           | RW1-2400-D             |
| 5.0'                | RW1-2000-E                            | RW1-2000WB-E   | RW1-2600-E       | RW1-2500-E           | RW1-2400-E             |
| 5.5'                | RW1-2000-F                            | RW1-2000WB-F   | RW1-2600-F       | RW1-2500-F           | RW1-2400-F             |
| 6.0'                | RW1-2000-G                            | RW1-2000WB-G   | RW1-2600-G       | RW1-2500-G           | RW1-2400-G             |
| 6.5'                | RW1-2000-H                            | RW1-2000WB-H   | RW1-2600-H       | RW1-2500-H           | RW1-2400-H             |
| 7.0'                | RW1-2000-J                            | RW1-2000WB-J   | RW1-2600-J       | RW1-2500-J           | RW1-2400-J             |
| 7.5'                | RW1-2000-K                            | RW1-2000WB-K   | RW1-2600-K       | RW1-2500-K           | RW1-2400-K             |
| 8.0'                | RW1-2000-M                            | RW1-2000WB-M   | RW1-2600-M       | RW1-2500-M           | RW1-2400-M             |
| 8.5'                | RW1-2000-N                            | RW1-2000WB-N   | RW1-2600-N       | RW1-2500-N           | RW1-2400-N             |
| 9.0'                | RW1-2000-P                            | RW1-2000WB-P   | RW1-2600-P       | RW1-2500-P           | RW1-2400-P             |
| 9.5'                | RW1-2000-Q                            | RW1-2000WB-Q   | RW1-2600-Q       | RW1-2500-Q           | RW1-2400-Q             |
| 10.0'               | RW1-2000-R                            | RW1-2000WB-R   | RW1-2600-R       | RW1-2500-R           | RW1-2400-R             |
| 10.5'               | RW1-2000-S                            | RW1-2000WB-S   | RW1-2600-S       | RW1-2500-S           | RW1-2400-S             |
| 11.0'               | RW1-2000-T                            | RW1-2000WB-T   | RW1-2600-T       | RW1-2500-T           | RW1-2400-T             |
| 12.0'               | RW1-2000-U                            | RW1-2000WB-U   | RW1-2600-U       | RW1-2500-U           | RW1-2400-T             |
| 13.0'               | RW1-2000-V                            | RW1-2000WB-V   | RW1-2600-V       | RW1-2500-V           | RW1-2400-V             |
| 14.0'               | RW1-2000-W                            | RW1-2000WB-W   | RW1-2600-W       | RW1-2500-W           | RW1-2400-W             |
| 15.0'               | RW1-2000-Y                            | RW1-2000WB-Y   | RW1-2600-Y       | RW1-2500-Y           | RW1-2400-Y             |

### 3.0 – SECURING THE NECK



**Step A:**

Align dowel on neck with the hole on the docking body. Press the NECK into place. Using the spanner wrench provided firmly tighten the "Neck Nut" onto the threaded body.



**Step B:**

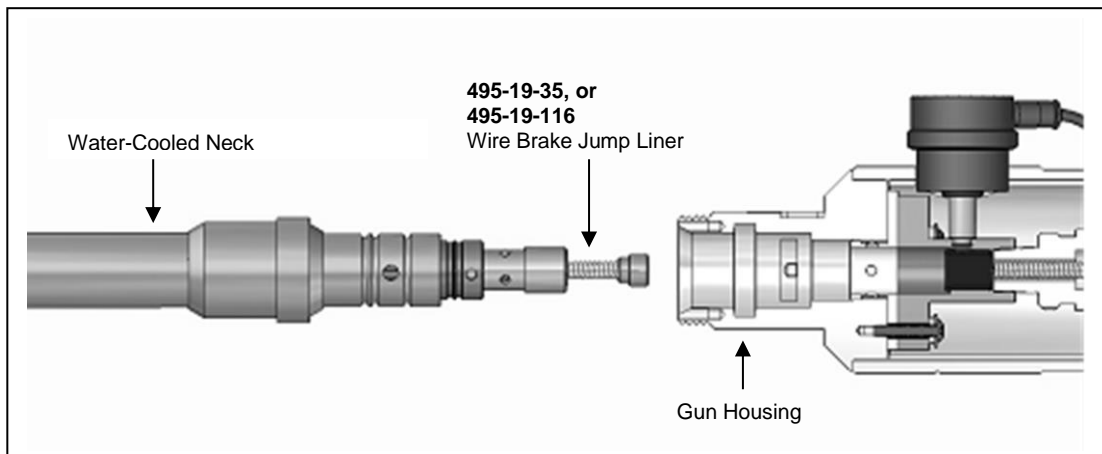
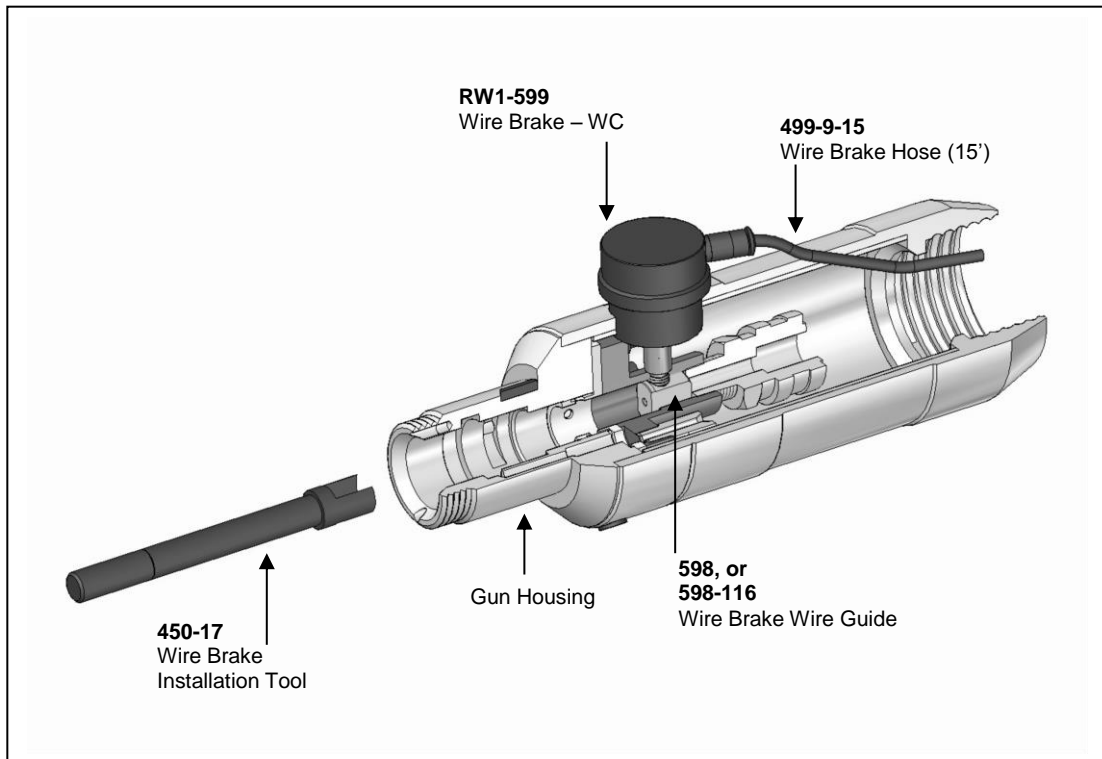
Once neck is firmly seated in place tighten the set screw. Ensure the set screw is seated on the flat of the copper NECK tube. [70 IN-LBS]



## 4.0 – WIRE BRAKE OPTION

### 4.1 WIRE BRAKE REPLACEMENT

- Remove the neck, liner and consumables.
- Inspect the jump liner for damage and replace if required.
- Remove air line connected to the wire brake.
- Unthread the existing wire brake from the gun housing.
- Remove the wire guide and replace if necessary.
- Using the 450-17 wire brake installation tool, replace the wire guide into the housing of the gun.
- While holding the wire guide into position, thread the wire brake into the housing until hand-tight.
- Reposition the air fitting and replace the hose.
- Add the neck, jump liner and consumables to the gun housing and be sure to install to the proper torque specifications.



## 5.0 – AMPERAGE RATINGS

| MODEL   | 60% DUTY CYCLE - MIXED GASES<br>OR 100% DUTY CYCLE - CO <sub>2</sub> |
|---------|--|
| 600 amp | 600 amp  |

**NOTE:** Ratings are based on tests that comply with IEC 60974-7 standards.

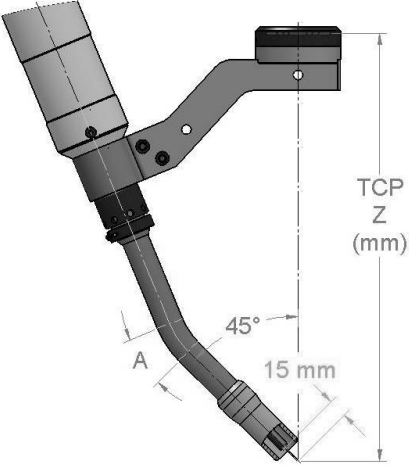
## 6.0 – ORDERING INFORMATION

**STEP A:** Build your custom 600 amp TOUGH GUN™ Robotic Water-Cooled MIG Gun using this chart:

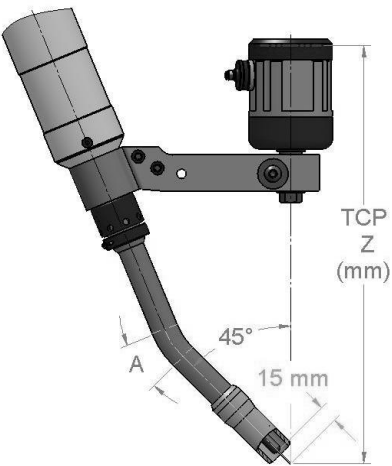
| WC Robotic<br>(600 amp) | 1     | 2    | 3   | 4    | 5    | 6     | 7     | 8            | 9      | 10       | 11        | 12        |
|-------------------------|-------|------|-----|------|------|-------|-------|--------------|--------|----------|-----------|-----------|
|                         | Class | Type | Gen | Amps | Neck | Opt 1 | Opt 2 | Cable Length | Nozzle | Tip Type | Wire Size | Power Pin |
|                         | R     | W    | 1   | 6    |      |       |       |              |        |          |           |           |

Contact Tregaskiss Customer Service or visit [www.tregaskiss.com/600RWC](http://www.tregaskiss.com/600RWC) for a complete list of available options to fill in the 12 digit part number above.

**STEP B:** Choose Mounting System (sold separately).



- TOUGH GUN G2 Style Solid Arm Mount System combines the Solid Arm Mount and the Mounting Arm into one product
- Ideal for robots with collision detection software
- Affixes directly to the insulating disc of the robot, providing an increase in the work envelope of the MIG gun



- Clutch System is designed to provide maximum protection for your robot, MIG gun and tooling during a “crash” situation
- Also available, the TOUGH GUN Solid Arm Mount System is made from a high strength aluminum alloy and is suitable for robots using collision detection software

**STEP C:** Choose Insulating Disc (sold separately).

For **Steps B and C**, contact Tregaskiss Customer Service or visit [www.tregaskiss.com/600RWC](http://www.tregaskiss.com/600RWC) for a complete list of available options.



**For Technical Support:**

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**www.tregaskiss.com**

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