Processes
MIG (GMAW) Welding

Description
Robotic, MIG (GMAW) Welding
Peripheral

TOUGH GUN™ Wire Cutter

OWNER’S MANUAL

Tregaskiss
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Canada

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+1-519-737-3000 (International)
Fax: 519-737-1530
For more information, visit us at Tregaskiss.com
Thank You for Choosing Tregaskiss

Thank you for selecting a Tregaskiss product. The TOUGH GUN™ Wire Cutter you have purchased has been designed and engineered to be a reliable tool to support high production within a robotic cell. Before installing, compare the equipment received against the invoice to verify that the shipment is complete and undamaged. It is the responsibility of the purchaser to file all claims of damage or loss that may have occurred during transit with the carrier.

The owner’s manual contains general information, instructions and maintenance to help better maintain your product. Please read, understand and follow all safety precautions.

While every precaution has been taken to assure the accuracy of this owner’s manual, Tregaskiss assumes no responsibility for errors or omissions. Tregaskiss assumes no liability for damages resulting from the use of information contained herein. The information presented in this owner’s manual is accurate to the best of our knowledge at the time of printing. Please reference Tregaskiss.com for updated material.

For customer support and special applications, please call the Tregaskiss Customer Service Department at 1-855-MIGWELD (644-9353) (US & Canada) or +1-519-737-3030 (International) or fax 1-519-737-2111. Our trained Customer Service Team is available between 8:00 a.m. and 5:30 p.m. EST, and will answer your product application or repair questions.

Tregaskiss manufactures premium robotic MIG (GMAW) welding guns, peripherals and consumables. For more information on other premium Tregaskiss products, contact your local Tregaskiss distributor or visit us on the web at Tregaskiss.com.

For additional support materials such as spec sheets, troubleshooting information, how-to guides and videos, animations, online configurators and much more, please visit Tregaskiss.com.
Scan this QR Code with your smart phone for immediate access to Tregaskiss.com/TechnicalSupport
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Subject to Change – The information presented in this manual is accurate to the best of our knowledge at the time of printing. Please visit Tregaskiss.com for the most up-to-date information.
1-1 Additional Safety Warnings for Installation, Operation and Maintenance

READ INSTRUCTIONS

- Read and follow all labels and the Owner’s Manual carefully before installing, operating, or servicing the unit. Read the safety information at the beginning of the manual and each section.
- Use only genuine replacement parts from the manufacturer.
- Perform maintenance and service according to the Owner’s Manual, industry standards and national, state/provincial and local codes.

MOVING PARTS can injure

- Keep away from moving parts such as blades.
- Keep all doors, panels, covers and guards closed and securely in place.
- Have only qualified persons remove doors, panels, covers, or guards for maintenance and troubleshooting as necessary.
- Reinstall doors, panels, covers or guards when maintenance is finished and before reconnecting input power.
- Keep away from pinch points.

FIRE OR EXPLOSION hazard

- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring – be sure power supply system is properly sized, rated and protected to handle this unit.

HOT PARTS can burn

- Do not touch hot parts barehanded.
- Allow cooling period before working on equipment.
- To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.

NOISE can damage hearing

- Noise from some processes or equipment can damage hearing.
- Wear approved ear protection if noise level is high.

FLYING METAL OR DEBRIS can injure or kill

- Welding, cutting, chipping, wire brushing and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.

1-2 California Proposition 65 Warnings

Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

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.
1-3 Principal Safety Standards


ANSI STANDARD, SAFETY FOR ROBOTS AND ROBOT SYSTEMS, American National Standards Institute, 1430 Broadway, New York, NY 10018


1-4 Commercial Warranty

Seller’s Products specified below shall be free from defects in material and workmanship for the period specified below from the delivery to an authorized Buyer provided the Products are operated, maintained, and repaired properly and pursuant to Product documentation provided by the manufacturer. The Warranty against defects does not apply to: (1) consumable components or ordinary wear items; or (2) use of the Products with equipment, components or parts not specified or supplied by Seller or contemplated under the Product documentation.

Should there be a defect please refer to our Return Merchandise Policy.

<table>
<thead>
<tr>
<th>Product</th>
<th>Warranty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tregaskiss TOUGH GUN™ Robotic MIG Guns and Components</td>
<td>1 year</td>
</tr>
<tr>
<td>Tregaskiss TOUGH GUN™ Automatic MIG Guns</td>
<td>1 year</td>
</tr>
<tr>
<td>Tregaskiss TOUGH GUN Reamer</td>
<td>1 year</td>
</tr>
<tr>
<td>• When factory-equipped with Lubricator</td>
<td>2 years when factory equipped with Lubricator</td>
</tr>
<tr>
<td>• When both (i) factory-equipped with Lubricator and (ii) used only with Tregaskiss™ TOUGH GARD™ Anti-Spatter Liquid</td>
<td>3 years when both (i) and (ii)</td>
</tr>
<tr>
<td>Tregaskiss TOUGH GUN Robotic Peripherals (Clutch, Sprayer, Wire Cutter, Arms)</td>
<td>1 year</td>
</tr>
<tr>
<td>Tregaskiss Low-Stress Robotic Unicables (LSR Unicables)</td>
<td>2 years</td>
</tr>
</tbody>
</table>

EXCEPT AS SET FORTH ABOVE, SELLER MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE. SELLER SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO ANY, DIRECT, INDIRECT, SPECIAL, 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 SELLER.

Genuine Bernard and Tregaskiss parts must be used for safety and performance reasons or the warranty above shall not be valid. Warranty shall not apply if accident, abuse, or misuse damages a product, or if a product is modified in any way except properly and by authorized Seller personnel.
SECTION 2- SPECIFICATIONS

2-1 System Components

Robotic Peripheral for GMAW Welding

**Power Requirements:** 24 VDC

**Air Supply:** 80-100 psi

For complete parts list, please see **SECTION 5 - PARTS LIST**
SECTION 3- INSTALLATION / SET UP

3-1 Installing TOUGH GUN™ Wire Cutter (TOUGH GUN TT3 Reamer)

A. To Mount Wire Cutter
1. The wire cutter should be installed within the weld cell where it is clear of all tooling and convenient for the robot to access the unit. The base plate has been designed for mounting on top of the TOUGH GUN Reamer. Be sure to consider movable fixtures and the confines of the robot.
2. Attach the wire cutter base to the top of the Reamer, or other sturdy platform using three (3) 10-24 x 3/4” bolts (for Reamer Serial numbers up to 11,299) or three (3) M5 x 0.8 x 25 mm long bolts (for Reamer Serial numbers 11,300 and up) in the holes provided.

B. To Connect Air Supply
1. Use only filtered lubricated air.
   IMPORTANT: Requirements – 80-100 psi at 16 CFM (5.5-7.0 bar at 450 LPM) at the wire cutter.
2. Use an air supply line with an inside diameter of 1/4” and connect to 1/8” female NPT inlet located on the side of the valve.

C. To Connect Power Supply
1. The TOUGH GUN TT3E Reamer Ethernet module can support the wire cutter function and as such can be connected directly to the Reamer. Once mounted to the top of the Reamer, take the 4-Pin M12 connector and attach it to the AUX port on the Comm Plate.

3-2 Installing the TOUGH GUN Wire Cutter (TOUGH GUN TT3E Reamer)

A. To Mount Wire Cutter
1. The wire cutter should be installed within the weld cell where it is clear of all tooling and convenient for the robot to access the unit. The base plate has been designed for mounting on top of the TOUGH GUN Reamer. Be sure to consider movable fixtures and the confines of the robot.
2. Attach the wire cutter base to the top of the Reamer, or other sturdy platform using three (3) M5x0.8x25 mm long bolts in the holes provided.

B. To Connect Air Supply
1. Use only filtered lubricated air.
   IMPORTANT: Requirements – 80-100 psi at 16 CFM (5.5-7.0 bar at 450 LPM) at the wire cutter.
2. Use an air supply line with an inside diameter of 1/4” and connect to 1/8” female NPT inlet located on the side of the valve.

C. To Connect Power Supply
1. The TOUGH GUN TT3E Reamer Ethernet module can support the wire cutter function and as such can be connected directly to the Reamer. Once mounted to the top of the Reamer, take the 4-Pin M12 connector and attach it to the AUX port on the Comm Plate.

(more on page 8)
2. If the Reamer is equipped with a nozzle detection system in addition to the wire cutter, splitter part number TT3E-2343 will be required, and will receive the 4-Pin M12 connector.

3-3 Wiring Interface Connections (TOUGH GUN TT3 Reamer)

**WARNING:** The following connection should only be performed by qualified technicians. Damage to equipment will occur if connections are incorrect.

To Interface the wire cutter with the Controller, two (2) electrical connections are required
- BLUE LEAD – 0 VDC supply
- BLACK LEAD – 24 VDC supply 0.5 amp

3-4 Inversing Logic

**WARNING:** Before start-up ensure that all connections are correct or damage to the wire cutter may occur.

**NOTE:** The TOUGH GUN Wire Cutter is factory set for Sourcing inputs.

To Switch from Sourcing to Sinking
1. Remove the exhaust and intake fittings.
2. Place the exhaust fitting in the port marked (1).
3. Place the air line fitting in the port marked (2).

This change allows the solenoid valve to function as normally open. In this situation, as the input signal drops to zero voltage, the valve passage opens, charging the cylinder.

3-5 Positioning Gun

**WARNING:** Keep hands clear of fixed blade and TCP Locator.

For best cutter performance, the MIG gun should be located so that the wire to be cut is **0.03” - 0.06”** horizontally away from the fixed blade.

The finished wire cut length is the vertical distance from the contact tip to the bottom of the fixed blade.

**NOTE:** Gun and nozzle not shown in diagram.
3-6 Programming Events Sequence

1. Program the robot to position the MIG gun at a right angle to the blades. Insert the gun to the proper depth and position the wire between wire cutter blades.
2. Jog the welding wire before cycle start is initiated.
3. Cycle Start – Supply output signal from the robot controller. Pulse output for 0.5 seconds.
4. TOUGH GUN Wire Cutter will perform cutting operation.
5. Upon completion of the cutting operation, program the robot to extract the gun from the wire cutter and continue to weld.

3-7 Manual Operation

- Depress the recessed button located on the top of the solenoid valve.
4-1 Replacing TOUGH GUN Wire Cutter Components

**WARNING:** Ensure power supply is off and disconnected before proceeding. Please follow your facility’s lockout / tagout procedures.

A. To Replace the Cylinder
1. Remove the air intake and exhaust fittings from the cylinder.
2. Remove both the M6 socket countersunk head cap screws (SCHCS) holding the fixed and moving blades, and the M3 socket head cap screws (SHCS) holding the backing plate.
3. Remove the M10 SHCS attaching the slide to the cylinder. (Refer to Section 5 - Item 9 for M10 SHCS diagram)
4. Remove the four (4) M8 SHCS attaching the cylinder to the main body. (Refer to Section 5 - Item 10 & 11 for M8 SHCS diagram)
5. Slide old cylinder out and slide new cylinder in. Reverse and repeat steps 1-4 to secure new cylinder.

B. To Replace the Blade(s)

**PRO TIP** - the blades can be rotated and used on all 4 edges, then the blade can be flipped over and used on all 4 edges again before replacement is required.

1. Remove the blade by removing two (2) M6 SCHCS.
2. Place the replacement blade back on the wire cutter and attach using the M6 SCHCS.
3. Manually cycle the cylinder forward to verify proper operation.

C. To Replace the Solenoid Valve
1. Remove the air fittings from the valve.
2. Remove the two (2) M3 SHCS attaching the valve to the base plate.
3. Install new valve in place, reattaching the M3 SHCS and air fittings.

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**4-2 Scheduled Maintenance**

The TOUGH GUN Wire Cutter will require a periodic maintenance program to ensure a reliable service life. The following schedule is recommended:

<table>
<thead>
<tr>
<th></th>
<th>DAILY</th>
<th>WEEKLY</th>
<th>QUARTERLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHECK</td>
<td>The air lines and interface cable for leaks and fraying.</td>
<td>The cutter blade. <em>The service life of the cutter blade is dependent on the type of application. In lighter duties the blade may last indefinitely but should be inspected weekly for dullness, looseness and possible breakage.</em></td>
<td>The sliding surfaces by applying general purpose grease (NLGI Grade 1-2) through the grease fittings located on the sides of the main body.</td>
</tr>
<tr>
<td>EMPTY</td>
<td>The wire catcher basket.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUBRICATE</td>
<td></td>
<td></td>
<td></td>
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### SECTION 5 - PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART #</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WC-100-8</td>
<td>Wire Cutter Base Plate</td>
</tr>
<tr>
<td>2</td>
<td>Not Sellable</td>
<td>M6x1x16 mm SCHCS</td>
</tr>
<tr>
<td>3</td>
<td>WC-100-20</td>
<td>Wire Catcher Basket</td>
</tr>
<tr>
<td>4</td>
<td>WC-100-27</td>
<td>Backing Plate</td>
</tr>
<tr>
<td>5</td>
<td>Not Sellable</td>
<td>M3x0.5x12 mm SHCS</td>
</tr>
<tr>
<td>6</td>
<td>WC-100-7</td>
<td>Blade (includes ITEM 2)</td>
</tr>
<tr>
<td>7</td>
<td>RR-707-30</td>
<td>TCP Locator</td>
</tr>
<tr>
<td>8</td>
<td>WC-100-31</td>
<td>Cylinder</td>
</tr>
<tr>
<td>9</td>
<td>Not Sellable</td>
<td>M10x1.5x25 mm SHCS</td>
</tr>
<tr>
<td>10</td>
<td>Not Sellable</td>
<td>M8x1.25x55 mm SHCS</td>
</tr>
<tr>
<td>11</td>
<td>Not Sellable</td>
<td>M8x1.25x50 mm SHCS</td>
</tr>
<tr>
<td>12</td>
<td>TR-2221</td>
<td>Breather Vent</td>
</tr>
<tr>
<td>13</td>
<td>WC-100-24</td>
<td>Solenoid Valve (for TOUGH GUN TT3 Reamer)</td>
</tr>
<tr>
<td>14</td>
<td>WC-100-26</td>
<td>Muffler</td>
</tr>
<tr>
<td>15</td>
<td>WC-100-18</td>
<td>Air Line Kit</td>
</tr>
<tr>
<td>16</td>
<td>WC-100-30</td>
<td>TOUGH GUN Reamer Installation Kit</td>
</tr>
</tbody>
</table>

WC-100-30 TOUGH GUN Reamer wire cutter Installation Kit (included with Wire Cutter)
For additional support materials such as Spec Sheets, troubleshooting information, how-to guides and videos, animations, online configurators and much more, please visit Tregaskiss.com. Scan the QR Code with your smart phone for immediate access to Tregaskiss.com/TechnicalSupport.