WIRE WIZARD® WELDING PRODUCTS

TORCH WIZARD®
NOZZLE CLEANING STATIONS

# INSTALLATION & OPERATION MANUAL


Installation, Maintenance and Warranty Information

Models
**EL-NCS-A-24**
**EL-NCS-A-24-SC**
**EL-NCS-AC-24**
**EL-NCS-AC-24-SC**
**EL-NCS-24**

**SHIP DATE** _____ **SERIAL #** _____

FAMILY OWNED AMERICAN MADE

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**wire-wizard.com**

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# 1.0 INTRODUCTION

This guide is designed to assist the user whose primary responsibility is to maintain and operate the Torch Wizard® Nozzle Cleaning Station. This manual provides specific information on installation, safety, basic operation, and maintenance. **Please read, understand, and follow all safety procedures.**

Torch Wizard® Nozzle Cleaning Stations offer fast and efficient cleaning cycle times for high production rates. The anti-spatter solution is applied via a venturi style sprayer on the front of the reamer.

The complete sequence of the Torch Wizard® Nozzle Cleaning Station must be started and controlled by a robot controller, programmable logic controller (PLC), or some other superior control system. See Sequence of Operations on pages 10 – 11 for details.

In order to obtain the optimum cleaning performance, the torch consumables should be sprayed with **Blue Magic®** or **Blue Chill® Anti-Spatter** after cleaning.

## 1.1 WARRANTY

**TWO YEAR EXTENDED WARRANTY TERMS AND CONDITIONS:** ELCo Enterprises, Inc. (hereinafter "ELCo") shall warrant the Torch Wizard® Nozzle Cleaning Station (hereinafter "Torch Wizard") to be free of defects in material and/or workmanship for two (2) years from the date of shipment to the Buyer. This two year warranty requires the exclusive use of **Blue Magic® or Blue Chill® Anti-Spatter (or other anti-spatter supplied by ELCo Enterprises)**, along with an **ELCo-supplied Filter/Regulator/Lubricator (FRL) with auto-drain**. The warranty shall cover 100% of all parts and labor with the exception of misuse, abuse, neglect and typical consumables as determined by ELCo. **Failure to follow proper installation and maintenance procedures specified in this operation manual will void this warranty. This includes the use of a Filter/Regulator/Lubricator (FRL) without auto-drain functionality.** ELCo will, at its option, repair, replace or issue a credit for the value of the defective Torch Wizard®. The use of anti-spatter agents other than **Blue Magic®** or **Blue Chill®** and non-ELCo parts and/or consumables with the Torch Wizard® may damage or limit the performance of the Torch Wizard® and will void this extended warranty on all components.

**ONE YEAR LIMITED WARRANTY TERMS AND CONDITIONS:** For units using anti-spatter agents other than **Blue Magic®** or **Blue Chill®**, ELCo Enterprises, Inc. shall warrant the Torch Wizard® Nozzle Cleaning Station to be free of defects in material and/or workmanship for one (1) year from the date of shipment to the Buyer. The warranty shall cover 100% of all parts and labor with the exception of misuse, abuse, neglect and typical consumables as determined by ELCo. This limited warranty excludes all sprayer components, which are warranted to be free from defects and/or workmanship for 90 days from the date of shipment to the buyer. **Failure to follow proper installation and maintenance procedures specified in this operation manual will void this warranty. This includes the use of a Filter/Regulator/Lubricator (FRL) without auto-drain functionality.** ELCo will, at its option, repair, replace or issue a credit for the value of the defective Torch Wizard®.

Buyer accepts all responsibility for compliance with any/all Local, State, and Federal Laws or Regulations including Regulations of Foreign Governments.

No equipment shall be returned to ELCo without a Return Authorization Number from ELCo. Upon evaluation and determination of warranty, replacements or repairs will be sent to the Buyer. If a replacement is needed immediately, a purchase order is required to cover the cost of the product until the validity of the warranty is determined.

ELCo's warranty is limited to replacing any goods that are proved to be defective and ELCo in no event shall have any liability for paying incidental or consequential damages including and without limitation, damages resulting in personal or bodily injury or death, or damages to, or loss of use of any property. Notwithstanding any of these terms and conditions, the warranties set forth shall apply in connection with any sales of goods, services or design by ELCo and are in lieu of all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose.

## 1.2 PRODUCT REGISTRATION

Please register this product online or by phone within 14 days after receipt.

Register this product online by going to ***wire-wizard.com/register*** or scanning the QR code on the right, or you may call 517.782.8040 to register by phone. Registering this product will allow us to provide firmware and software updates via email, as well as expedited service should there be any problems potentially covered by this warranty in the future.

Please record the following information for this product and retain for your records:

Model #: _____ Lot #: _____ Shipment Date: _____

## 1.3 MODEL INFORMATION

| Part No. | Reaming | Anti-Spatter | Cutter | Self-Cleaning |
|---|---|---|---|---|
| EL-NCS-A-24 | ✓ | ✓ | | |
| EL-NCS-A-24-SC | ✓ | ✓ | | ✓ |
| EL-NCS-AC-24 | ✓ | ✓ | ✓ | |
| EL-NCS-AC-24-SC | ✓ | ✓ | ✓ | ✓ |
| EL-NCS-24 | ✓ | | | |

## 1.4 SAFETY

The Torch Wizard® Nozzle Cleaning Station is designed to be safe to operate, provided the user reads, understands, and adheres to the safety precautions listed below. Failure to adhere to these precautions may result in personal injury and/or damage to the equipment.

1. Do not remove or deface any labels that are attached to the unit.
2. Ensure that all equipment in the area is disabled and locked out prior to entering the work zone where the Torch Wizard® is located.
3. Ensure that all electrical and air power is disconnected prior to performing any maintenance on the Torch Wizard®.
4. Keep hands and face away from clamp, reamer blade, and spray operating space during both automatic and manual operation.
5. Ensure that all electrical and pneumatic connections comply with the codes relevant to the country and/or state where the Torch Wizard® is installed.
6. Do not exceed the specified operating air pressure (120 psi).
7. Ensure that there is no equipment (e.g., robot) in the Torch Wizard® prior to shutting down the system.
8. Additional safety information can be found at the following websites:
   - *osha-slc.gov/SLTC/robotics/index.html*
   - *ansi.org*
   - *nfpa.org*

# 2.0 INSTALLATION

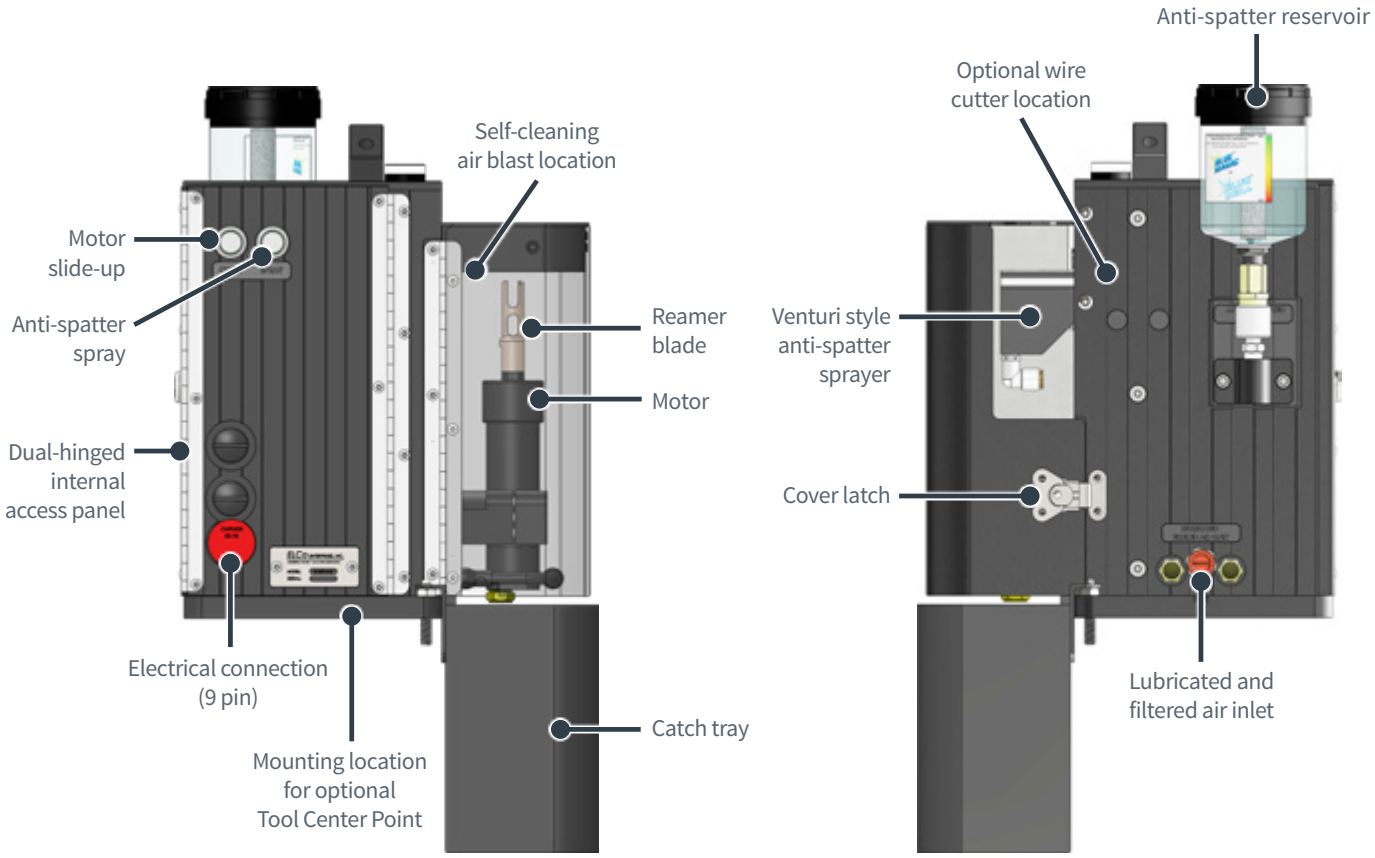



*Figure 1: Torch Wizard Components with Venturi Style Anti-spatter Spray System (EL-NCS-A-24-SC shown)*

## 2.1 MOUNTING THE TORCH WIZARD®

Select a location within the robotic workcell that provides the robot with the shortest approach points. It is important to consider the robot work envelope and any fixed obstructions or potential interference.

- Mount the Torch Wizard® to a stable platform that is parallel to the floor for best results (an optional stand is available). Use the (4) 11/32 mounting holes provided on base of the Torch Wizard® to secure the unit to the platform.
- It is recommended that (4) M8 – 1.25 SHCS (Socket Head Cap Screws) are used to mount the Torch Wizard® to the platform (the optional stand provides M8 – 1.25 tapped holes for mounting).

**BOLT PATTERN** (same for all models)

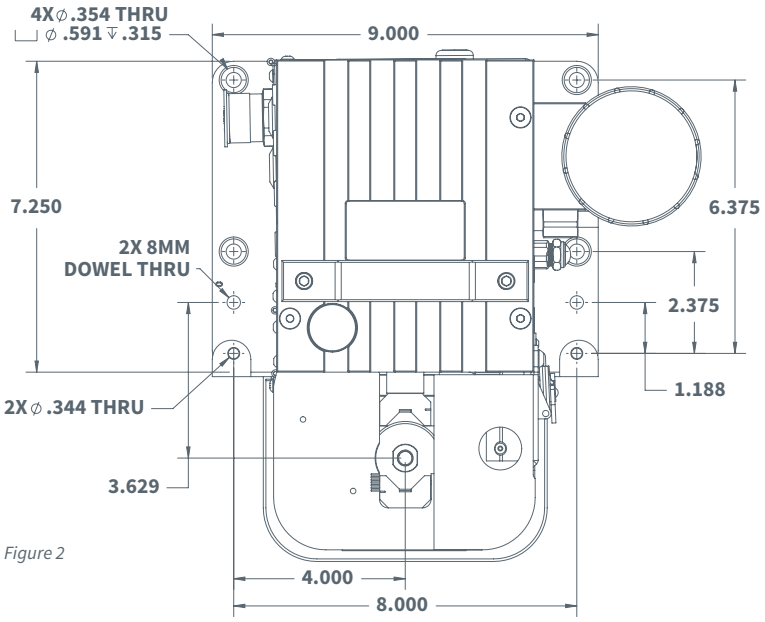



*Figure 2*

## 2.2 PNEUMATIC CONNECTION

*Figure 3*

### Air Supply Requirements

Air **must** be filtered, regulated, and lubricated. We recommend the filter portion of the Filter/Regulator/Lubricator have auto-drain functionality.

- Use an Air Supply Line with an inside diameter of 1/2", connect to the 3/8" N.P.T. female inlet located on the side of the Reamer (Fig. 3).
- Minimum 80 psi recommended at 16 CFM (5.0 – 7.0 BAR at 450 LPM) at the Reamer during operation.
- **Lubricator Adjustment**: Set the lubricatior to deliver one drop of pneumatic oil for every two minutes of operation at operational pressure (80-120psi). **Do not over-lubricate.**

**Use of unfiltered, dirty air may result in damage to the unit and will void the warranty.**

## 2.3 ELECTRICAL CONNECTION

The complete sequence of the Torch Wizard® Nozzle Cleaning Station must be started and controlled by a robot controller, programmable logic controller (PLC), or other superior control system.

**Electrical Draw:** 0.5 Amps
**Output Signal:** 24 V PNP Discrete Signal
**See Electrical Schematic on pages 14 – 15** for detailed wiring information

## 2.4 ADJUSTING THE V-BLOCK

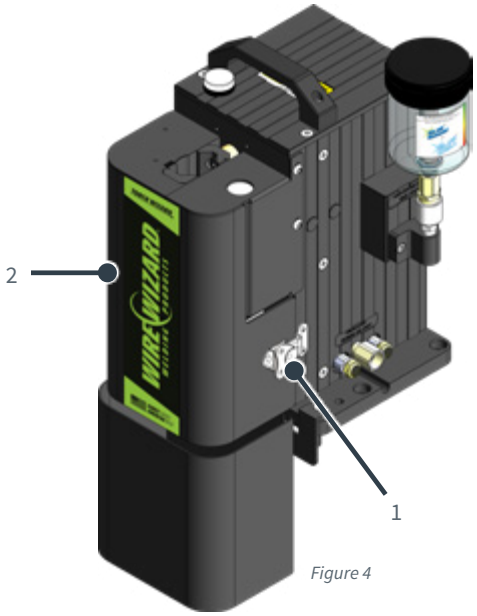



Figure 4

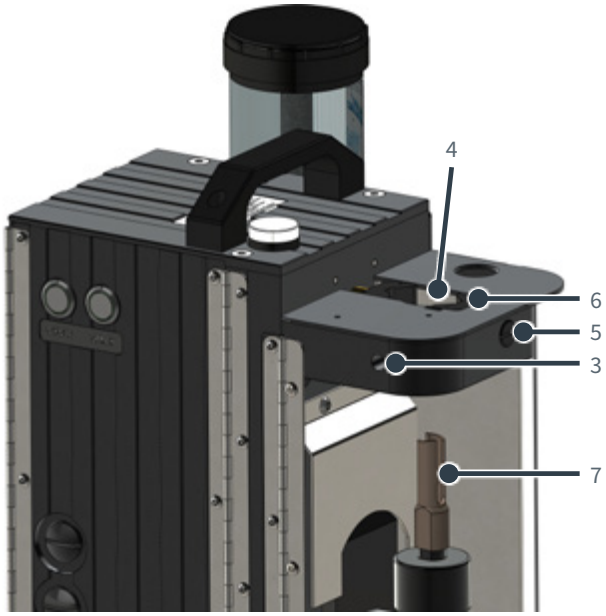



Figure 5

The Torch Wizard® Nozzle Cleaning Station incorporates an adjustable V-Block feature. This feature eliminates the need to replace the V-Block when changing to different diameter gas nozzles. To adjust the V-Block, follow the procedure below (along with Figs. 4 and 5). **Ensure that there is no air pressure or electrical power to the unit before performing this procedure.** After adjusting the V-Block, the Nozzle Presence Reed Switch will require adjustment as well (see Section 2.6 Reed Switch Adjustment for Instructions).

1. Open the Front Cover (2) by unlocking the latch (1).
2. Install the reamer blade (7). Use the slim profile wrench provided to hold the motor in place when securing the reamer blade.
3. Loosen Set Screw (3).
4. Loosen the Low Head Socket Head Cap Screw in the clamp (4).
5. Adjust the V-Block (6) using the Adjuster Screw (5) so that when the air motor is at its upper point, the reamer is centered in the gas nozzle. To check this, hold a gas nozzle in V-Block and raise the air motor slide by hand.
6. Tighten Low Head Socket Head Cap Screw (4).
7. Tighten Set Screw (3).
8. Replace the Front Cover (2) and Catch Tray and tighten screws, or leave open if performing the initial setup and proceed to reamer adjustment.

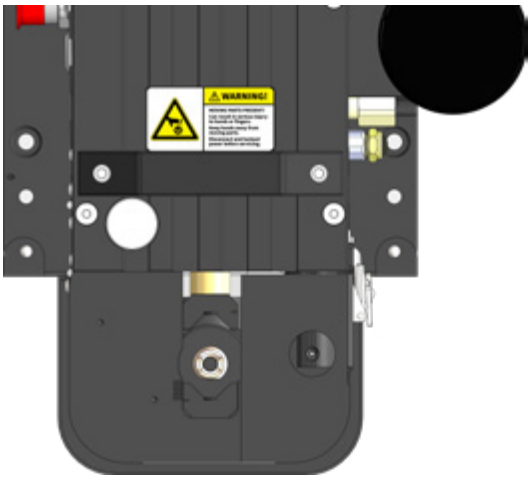


*Figure 6*
*The graphic above illustrating the top of the unit represents the approximate location of the V-Block when set up for a gas nozzle with a 1 inch outside diameter.*

## 2.5 REAMER BLADE ADJUSTMENT

In order to ensure adequate cleaning of the gas nozzle, it is essential that the correct reamer insertion depth is obtained.

The reamer insertion depth will vary based upon the nozzle, tip, and diffuser on the torch. In general, the reamer blade can be inserted up until it is approximately 1/16" to 1/8" away from making contact with the diffuser (see example in Fig. 7b). Blade depth can vary based on blade/consumable stack up, but should not go above the gas holes. Removing the nozzle from the torch to ensure the proper depth and clearance from the diffuser is recommended. **It is imperative that the reamer blade not make contact with the gas diffuser as this will cause damage to both the reamer and the gas diffuser. The Torch Wizard® is not designed to clean the contact tip or gas diffuser.**

To adjust the reamer and blade selection depth, use the following procedure and refer to Fig. 7a: **(Ensure that there is no air pressure or electrical power to the unit before performing this procedure).**

1. Open the Front Cover (refer to Fig. 4 and the procedure for adjusting the V-Block in section 2.4).
2. Position the robot inside the reamer where the nozzle will be clamped to the V-BLOCK. Confirm this is an adequate position then raise the robot to the perch point (6" above the clamp). Remove the nozzle then lower the torch back into the clamp location. with your hand, raise the air motor up to confirm correct ream height below or over the diffuser.
3. If the insertion depth is incorrect, loosen all four Socket Head Cap Screws (2). Move the Air Motor (3) up or down to obtain the correct insertion depth.
4. Repeat steps 1 – 3 until the correct insertion depth is obtained.

**Note:** *The air motor on this reaming station has a max torque of 7.3 ft/lbs @ 90 psi at the motor.*

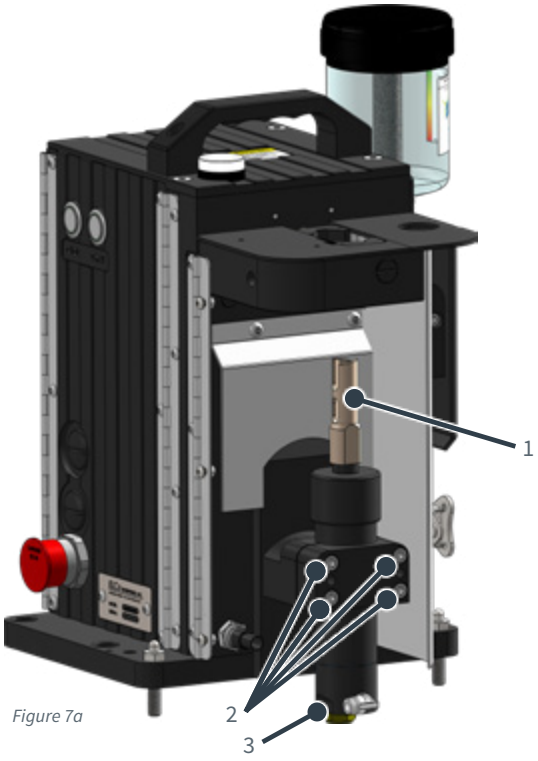



*Figure 7a*

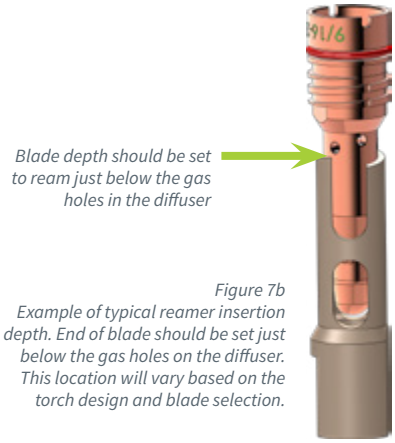



*Figure 7b*
*Example of typical reamer insertion depth. End of blade should be set just below the gas holes on the diffuser. This location will vary based on the torch design and blade selection.*

## Positioning Robot

The robot **must** be positioned such that the O.D. of the nozzle rests evenly against the V-Block. Failure to program the robot so that the nozzle rests against the V-Block could result in damage to the robot due to reactionary forces transmitted to the robot axis when the nozzle is clamped with the air cylinder. Torch shouldn't be tilted in any direction as this could cause the blade to get wedged in the nozzle.

**WARNING:** Ensure that the adjustable V-Block and the air motor have been correctly set prior to positioning the robot and running the Torch Wizard® in the automatic mode. Refer to sections 2.4 Adjusting V-Block and 2.5 Reamer Adjustment. **Failure to adjust these two items properly will result in damage to Torch Wizard® and possibly the robot.**

## 2.6 REED SWITCH ADJUSTMENT

The reed switches on the cleaning station set the position of the motor slide and the nozzle clamp slide. Each cleaning station comes equipped with three reed switches; two are located on the nozzle clamp slide (D-A93V), and the other is located at the bottom of the motor slide (D-Z73). Self-cleaning models with a wire cutter have only two reed switches (one of each).

### Adjusting the Nozzle Clamp Reed Switches

One switch is located in the home position when the nozzle clamp is not activated; this switch is factory pre-set and does not need to be adjusted. The other switch on the nozzle clamp is located where the slide is in its fully actuated position. **The reed switch is factory pre-set for a 5/8" nozzle. For other nozzle sizes, the switch will need to be adjusted to match the nozzle diameter.** To adjust the reed switch, the nozzle must be clamped in place. Loosen the set screw with a small flat head screwdriver and move the reed switch into the correct position. To identify that the reed switch is in the correct position, a red light on the reed switch will be visible. Once the reed switch is in the correct position tighten the set screw (Fig. 8).

### Motor Home Reed Switch

The reed switch located on the bottom of the motor slide is to signal when the motor has returned to its home position, this switch is factory pre-set as well (Fig. 9). If the switches need to be replaced, be sure to mark location of the switch position as well as the wires to ensure the replacement is installed in the correct position.

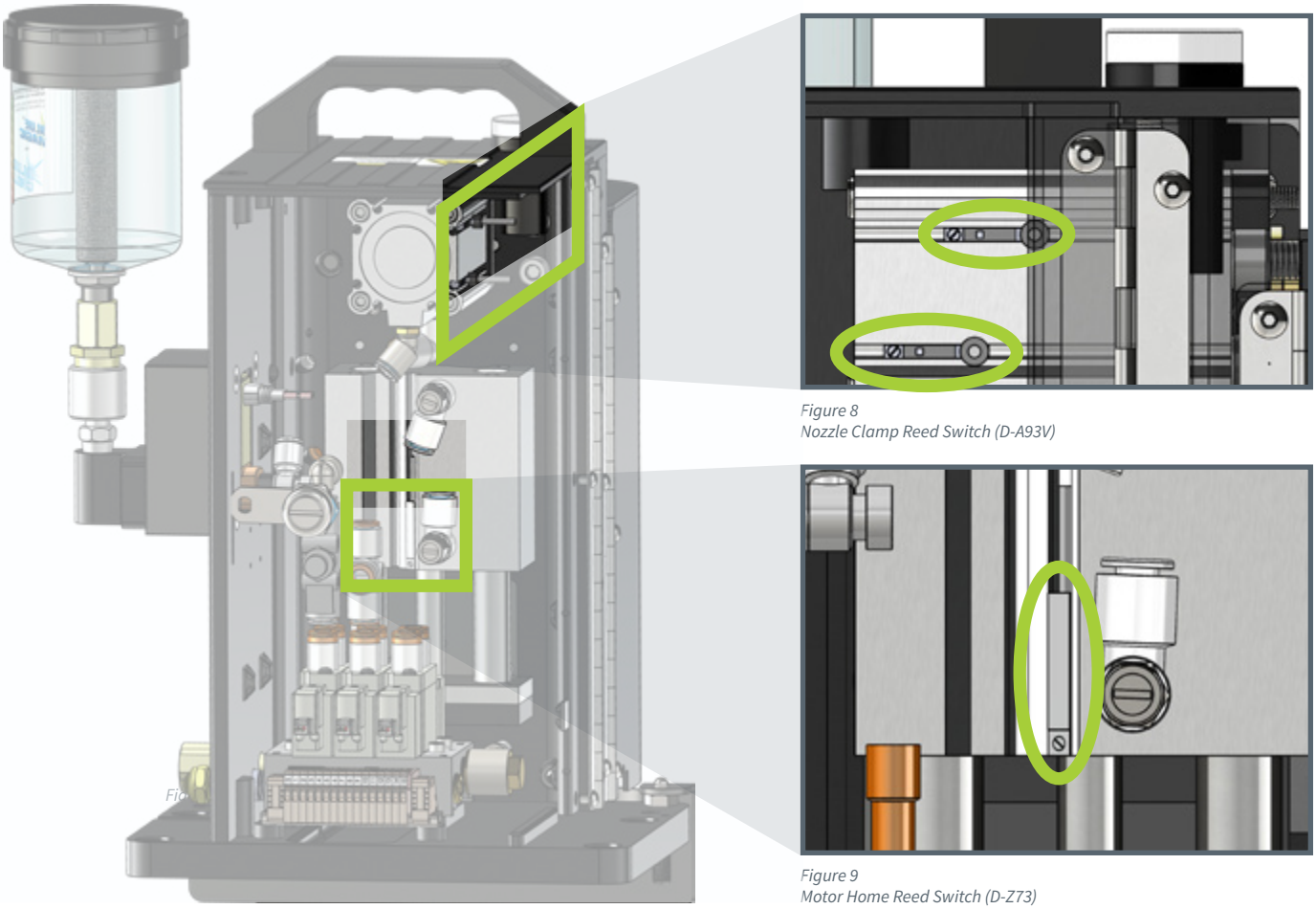


*Figure 8*
*Nozzle Clamp Reed Switch (D-A93V)*

*Figure 9*
*Motor Home Reed Switch (D-Z73)*

## 2.7 MOTOR SLIDE SPEED ADJUSTMENT

The motor slide speed on the Torch Wizard® Nozzle Cleaning Station may be adjusted to speed up or slow down the rise and fall of the reamer motor. This adjustment is most often made in order to reduce the cleaning cycle time. Follow these steps in order to adjust the motor slide speed:

1. Open the rear access panel. Locate the Guided Air Actuator Slide. This controls the air flow powering the up and down motion of the motor slide.
2. The actuator slide has two flow control adjustments located at the top and bottom. The BOTTOM adjustment controls the rise of the motor, and the TOP adjustment controls the fall of the motor.
3. Using a spanner screwdriver bit, the flow controls may be tightened or opened to decrease or increase the motor slide speed. To increase the rise or fall speed of the motor slide, turn the control valves in the counterclockwise direction. To decrease the rise or fall speed, turn the control valves in the clockwise direction, reducing the air supply. Since the control valves work in conjunction with each other, to achieve the best results adjust both valves so equal amounts of air can travel in and out of the actuator slide.

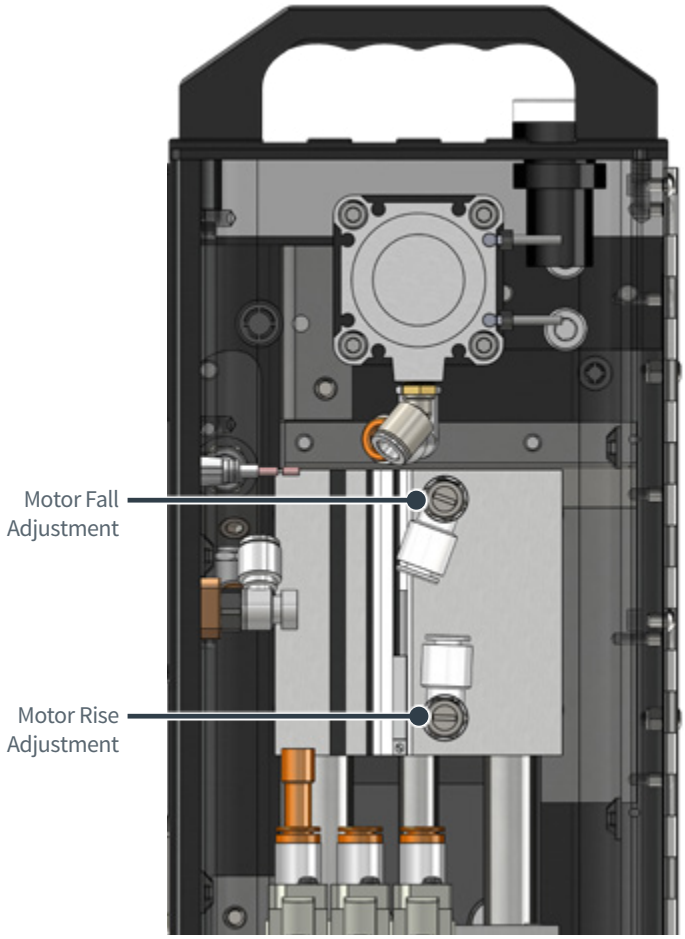



*Figure 10*

⚠ **Important!**
Running the motor actuator slide wide open is not recommended and will reduce the life span of the actuator.

## 2.8 ANTI-SPATTER DISPENSING

The Torch Wizard with Anti-Spatter option provides the user with the ability to ream then spray the nozzle using a venturi style sprayer. The anti-spatter solution is supplied from the anti-spatter reservoir (included with unit).

### Anti-spatter Dispensing with the Reservoir

The Anti-spatter Reservoir dispensing option is shipped loose. On models ordered with the reservoir, simply attach the bowl to the connection point on the side of the unit.

Once the Reservoir has been secured, remove the Fill Cap and fill the Reservoir with **Blue Magic®** or **Blue Chill®** anti-spatter solution. **The use of other anti-spatters will shorten the warranty on sprayer components from two years to one year. This is due to the corrosiveness of many anti-spatters, which is not found in either Blue Magic® or Blue Chill®.**

The anti-spatter liquid volume and air volume have been factory set and should be evaluated before making any adjustments to the system. You may also adjust the length of the spray time when programming the unit.

### Anti-spatter Volume Adjustment

**Note: In most cases, the factory setting for the anti-spatter spray should be sufficient, this setting should only be adjusted if absolutely necessary.**

To adjust the anti-spatter volume, unlock the panel latch on the back cover and open to reveal the interior of the reaming station. The anti-spatter volume can be adjusted using the volume control knob located on the left side of the unit (Fig. 11c). Turn the control knob clockwise to reduce the air flow and increase the amount of anti-spatter, turn it counter-clockwise to increase the air flow and reduce the amount of anti-spatter.

Settings can be tested by pressing the manual spray button on the side of the unit, and visibly observing the anti-spatter spray exiting the spray block and spray hole at the top of the cleaning station (Fig. 11b). Replace cover when desired setting is achieved. To avoid overspray you should teach the nozzle down into the spray hole (Fig. 11d).


*Figure 11a*
*Anti-spatter reservoir attachment*

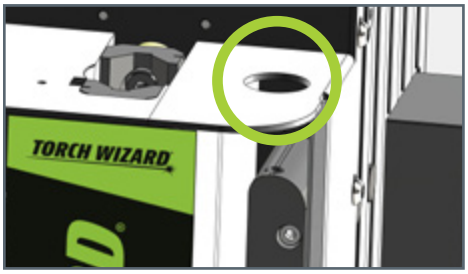



*Figure 11b*
*Anti-spatter spray hole*

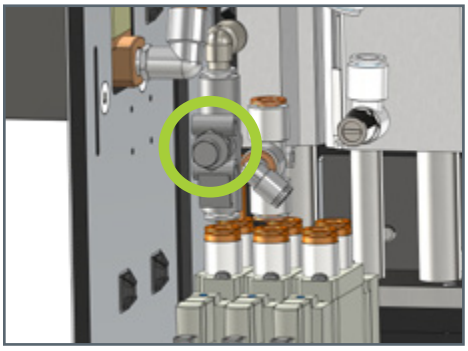


*Figure 11c*
*Anti-spatter Adjustment*

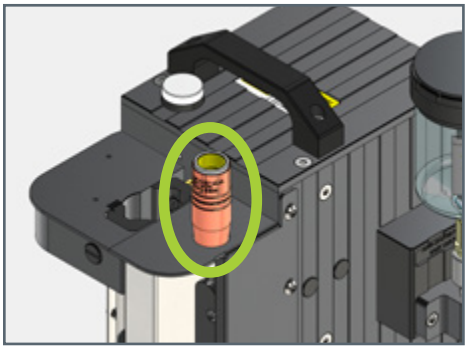


*Figure 11d*
*Nozzle in spray hole*

## 2.9 SEQUENCE OF OPERATIONS

Recommended sequences are shown in this section for each model. Dwell times can be adjusted depending on what is required for your application.

### EL-NCS-A-24 and EL-NCS-AC-24

1. Verify signal at Pin #3 is ON (Ream Motor in Home Position)
2. Energize Pin #4 (Clamp Nozzle and Spin Blade)
3. Verify signal at Pin #9 is ON (Nozzle Clamp in Clamped Position)

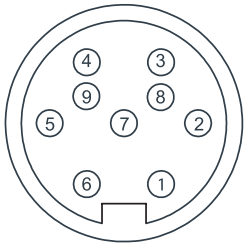
*Short Delay to allow cylinder to move and reed switch to activate*

4. Energize Pin #5 (Motor Slide Up)
5. Verify signal at Pin #3 is OFF (Ream Motor in Ream Position)
6. Dwell for Torch Clean
7. De-energize Pin #5 (Motor Slide Down)

*Short Delay to allow cylinder to move and reed switch to activate*

8. De-energize Pin #4 (Unclamp Nozzle and Stop Blade)
9. Energize Pin #6 (Spray Anti-Spatter)
10. Dwell for Application of Anti-Spatter*
11. De-energize Pin #6 (Stop Anti-Spatter Spray)
12. If using EL-NCS-AC-24 follow steps below, if not continue to 13
    a. Energize Pin #8 (Wire Cutter Advance)
    b. Dwell for Wire Cut
    c. De-energize Pin #8 ((Wire Cutter Retract)
13. Verify Signal at Pin #3 is ON (Reamer Motor in Home Position)
14. Cycle Complete

** Duration of energize determines the amount of spatter spray applied*




1. (ORANGE) - +24 VDC
2. (BLUE) - 0 VDC
3. (RED/BLK) - NOZZLE UNCLAMPED/SLIDE DOWN
4. (GRN/BLK) - AIR MOTOR/CLAMP
5. (WHITE) - SLIDE UP
6. (RED) - SPATTER SPRAY
7. (GRN/YEL) - GROUND
8. (WHT/BLK) - WIRE CUTTER ADVANCE (IF APPLICABLE)
9. (BLACK) - NOZZLE PRESENT

**Complete electrical drawing is on page 14.**

## EL-NCS-A-24-SC and EL-NCS-AC-24-SC

1. Verify signal at Pin#3 is ON (Ream Motor in Home Position)
2. Energize Pin #4 (Clamp Nozzle and Spin Blade)

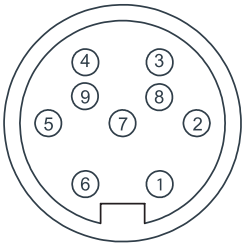
*Short Delay to allow cylinder to move and reed switch to activate*

3. Energize Pin #5 (Motor Slide Up)
4. Verify signal at Pin #3 is OFF (Ream Motor in Ream Position)
5. Dwell for Torch Clean
6. De-energize Pin #5 (Motor Slide Down)

*Short Delay to allow cylinder to move and reed switch to activate*

7. De-energize Pin #4 (Unclamp Nozzle and Stop Blade)
8. Energize Pin #6 (Spray Anti-Spatter)
9. Dwell for Application of Anti-Spatter*
10. De-energize Pin #6 (Stop Anti-Spatter Spray)
11. Energize Pin #9 (Self Cleaning Air Blast)
12. Dwell for Self Cleaning Air Blast*
13. De-energize Pin #9 (Self Cleaning Air Blast)
14. If using EL-NCS-AC-24 follow steps below, if not continue to 15
    a. Energize Pin #8 (Wire Cutter Advance)
    a. Dwell for Wire Cut
    a. De-energize Pin #8 (Wire Cutter Retract)
15. Verify Signal at Pin #3 is ON (Reamer Motor in Home Position)
16. Cycle Complete

** Duration of energize determines the amount of spatter spray applied or length of cleaning air blast*




1. (ORANGE) - +24 VDC
2. (BLUE) - 0 VDC
3. (RED/BLK) - NOZZLE UNCLAMPED/SLIDE DOWN
4. (GRN/BLK) - AIR MOTOR/CLAMP
5. (WHITE) - SLIDE UP
6. (RED) - ANTI-SPATTER SPRAY
7. (GRN/YEL) - GROUND
8. (WHT/BLK) - WIRE CUTTER ADVANCE, IF APPLICABLE
9. (BLACK) - SELF-CLEANING AIR BLAST

**Complete electrical drawing is on page 15.**

# 3.0 MAINTENANCE OF CLEANING STATION & WIRE CUTTER

The Torch Wizard® is for the most part, a low maintenance peripheral. However, maintenance of this unit should still be added to your preventive maintenance schedule. The following should be checked at regular intervals:

- Visually inspect unit for damage, especially mechanically stressed components
- Clean the filter on FRL
- Check that the air lines are free of leaks
- Clean and test anti-spatter sprayer(s)
- Ensure the lubricator has lubricant and fill if necessary
- Check blade for chips or cracks, replace if necessary
- Check for lose parts
- Ensure the proper depth of blade in the nozzle
- Ensure the blade is not contacting the diffuser
- Ensure all covers are in place before operating

## Wire Cutter Maintenance (if applicable)

The wire cutter blade and back plate should be checked occasionally for wear. Replace the blade (pt. #NCS-WCS-19) if worn. If the back plate is worn, it may be removed and flipped around to the other end. To disassemble and install a new blade, remove the two M6 screws on the top of the cutter with a 4 mm wrench. Remove the slide piece that rests on top of the blade and then remove the screw holding the blade with a 2.5 mm wrench. Install the new blade with the **angled side facing up** as shown in Fig. 14. Reassemble unit. To extend the life of your cutting blade we recommend teaching the robot to a different cutting position every 10,000 cycles (depending on wire type and size), this way a clean cutting edge is ensured without frequent blade replacement.

The wire back plate may be flipped by removing the screw on the bottom of the cutter with a 5 mm wrench. Replacement blades and other wire cutter components are available from ELCo Enterprises.

The wire cutter should also be greased approximately once every 10,000 cycles with multi-purpose grease.

*Figure 12*
*To extend Wire Cutter blade life, it is recommended to adjust the robot position inward or outward after each 10,000 cycles so blade is not cutting at the same location every time.*

**Wire Cutter Replacement Parts**

| Item Name | Part No. | Item Name | Part No. |
|---|---|---|---|
| Cutting Blade | NCS-WCS-19 | Clamping Block | NCS-WCS-07 |
| Wire Back Plate | NCS-WCS-16 | Replacement Spring | C0240-045-1000-S |

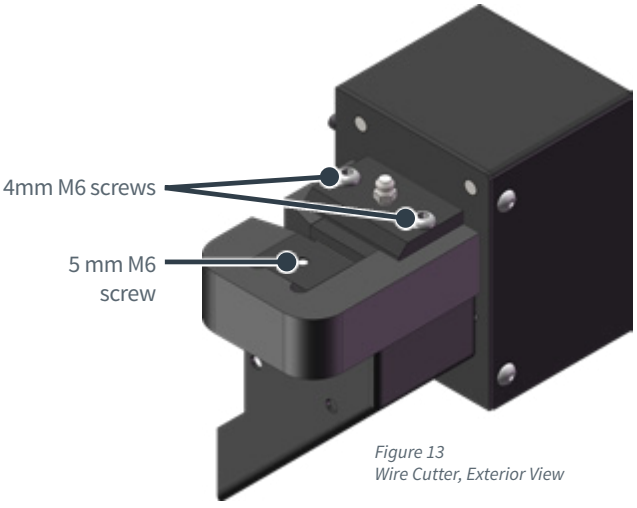



*Figure 13*
*Wire Cutter, Exterior View*

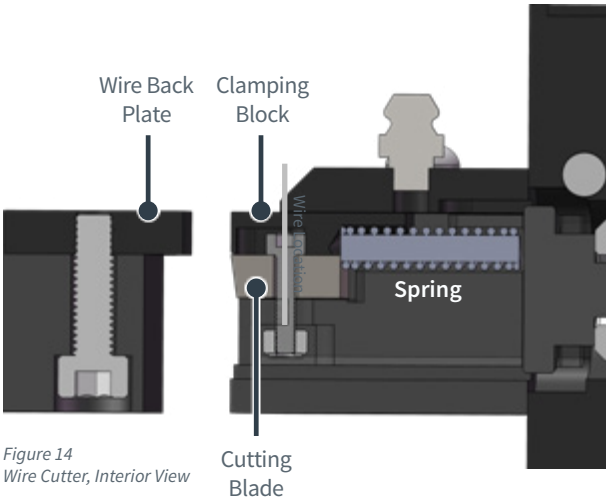



*Figure 14*
*Wire Cutter, Interior View*

## 3.1 MAINTENANCE SCHEDULE

| Description | Recommended Quantity |
|---|---|
| Empty Catch Pan | As needed* |
| Grease Wire Cutter | Every 10,000 Cycles |
| Ensure Lubricator has Pneumatic Lubricant | Daily* |
| Inspect and Clean Air Filter if Necessary | Daily* |
| Inspect Reamer Blade for Wear | Weekly |
| Inspect and Test Reaming Station for Proper Functionality | Weekly |
| Check Wire Cutter Functionality and Inspect Blade for Wear | Weekly |
| Check Positioning of Torch Nozzle & Reamer Blade | Weekly |
| Inspect Cleaning Station for Excess Debris, Wipe Down if Needed | Weekly |
| Clean Anti-spatter Lines | Monthly |

** It is recommended to document the frequency of these tasks as it will vary based on your welding application.*

## 3.2 RECOMMENDED SPARE PARTS

### FOR ALL UNITS

| Part No. | Description | Recommended Quantity |
|---|---|---|
| Varies | Replacement Reamer Blade | 1 per 10 cleaning stations |
| VX212CAB | Solenoid Valve for Anti-spatter Spray | 1 per 25 cleaning stations |
| D-Z73 | Motor Slide Reed Switch | 6 per 50 cleaning stations |
| D-A93V | Nozzle Clamp Reed Switch | 6 per 50 cleaning stations |
| NCS-16-MOTOR | Pneumatic Motor | 1 per 100 cleaning stations |
| CDQ2B40-40DZ | Clamp Cylinder | 1 per 100 cleaning stations |
| MGQM25-50 | Guided Air Actuator (Motor slide up/down) | 1 per 100 cleaning stations |
| NCS-PUSH-BUTTON-1 | Lighted Spray Push Button | 4 per 50 cleaning stations |
| NCS-PUSH-BUTTON-2 | Lighted Cycle Push Button | 4 per 50 cleaning stations |
| NCS-PUSH-BUTTON-COVER | Push Button Cover | 8 per 50 cleaning stations |
| EL-NCS-AB-24 | Anti-Spatter Bowl | 2 per 50 cleaning stations |

### FOR UNITS WITH WIRE CUTTER

| Part No. | Description | Recommended Quantity |
|---|---|---|
| C0240-045-1000-S | Stainless Compression Spring | 1 per 50 cleaning stations |
| CDQ2B63-10DZ | Double Acting Cylinder | 1 per 50 cleaning stations |
| NCS-WCS-07 | Stripper Block | 1 per 50 cleaning stations |
| NCS-WCS-16 | Back-Up Plate | 1 per 10 cleaning stations |
| NCS-WCS-19 | Cutter Blade | 1 per 50 cleaning stations |
| SY3120-5LU-C6 | Wire Cutter Solenoid | 1 per 25 cleaning stations |

### FOR UNITS WITH SELF CLEANING

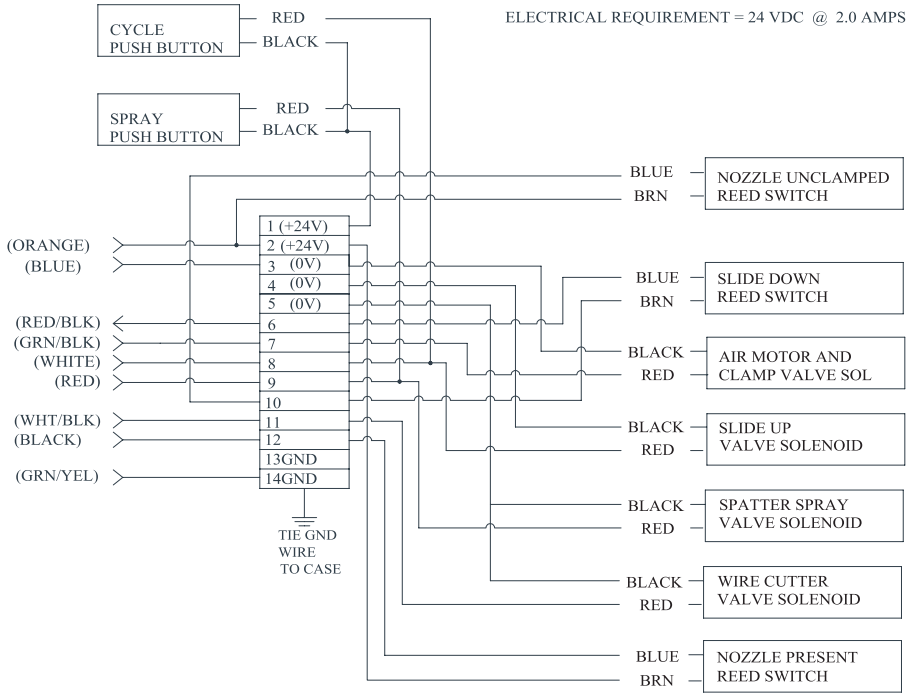
| Part No. | Description | Recommended Quantity |
|---|---|---|
| SY3120-5LU-C6 | Self-Cleaning Solenoid | 1 per 25 cleaning stations |

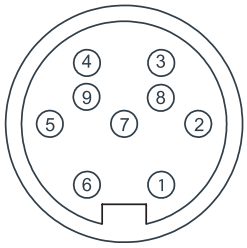
# 4.0 ELECTRICAL SCHEMATIC (9-PIN)

## EL-NCS-A-24 and EL-AC-24

**See page 10 for sequence of operations for your cleaning station model.**

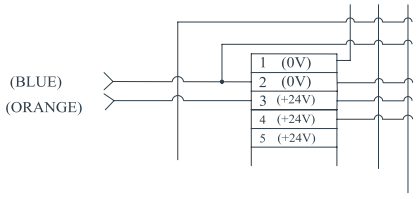
(*) Duration of energize determines amount of Spatter Spray Applied.




1. (ORANGE) - +24 VDC
2. (BLUE) - 0 VDC
3. (RED/BLK) - NOZZLE UNCLAMPED/SLIDE DOWN
4. (GRN/BLK) - AIR MOTOR/CLAMP
5. (WHITE) - SLIDE UP
6. (RED) - SPATTER SPRAY
7. (GRN/YEL) - GROUND
8. (WHT/BLK) - WIRE CUTTER ADVANCE
9. (BLACK) - NOZZLE PRESENT

"OPTIONAL" – NPN SINKING CONNECTION ONLY



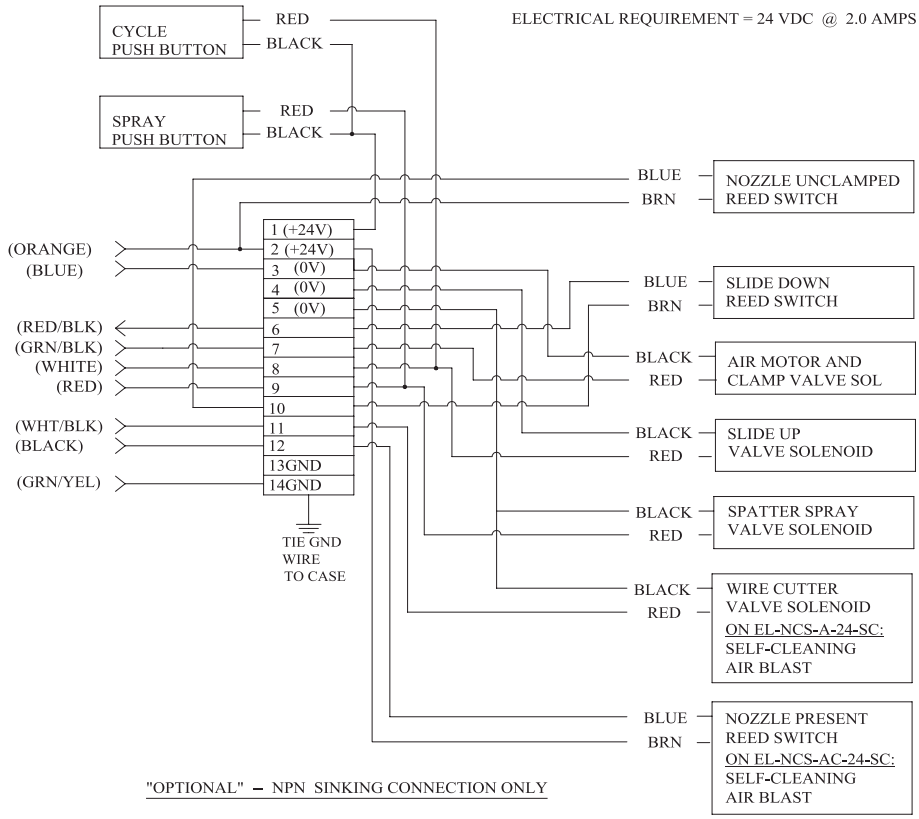

| QTY | PART NUMBER | MFG | DESCRIPTION |
|---|---|---|---|
| 1 | CC09-AE-16-VY-200F | BALLUFF | FEMALE 9 PIN 20FT. LONG CORD |
| 1 | ROCCA-09-B-16C-010F | BALLUFF | MALE 9 PIN 1FT LONG LEADS RECEPTICAL |

REV. 1.0 - 02.01.13 - FIRST ENGINEERED SCHEMATIC
REV. 1.1 - 03.11.13 - REMOVED SINKING CONNECTION SCHEMATIC
REV. 1.2 - 04.24.14 - UPDATED SEQUENCE OF OPERATIONS
REV. 1.3 - 05.30.14 - ADDED SINKING CONNECTION SCHEMATIC

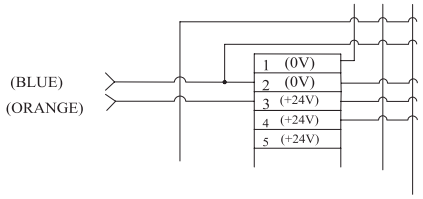
## EL-NCS-A-24-SC and EL-NCS-AC-24-SC

**See page 11 for sequence of operations for your cleaning station model.**

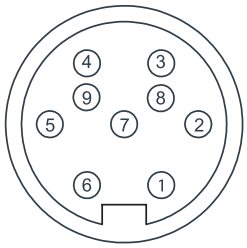
(*) Duration of energize determines amount of Spatter Spray Applied.




"OPTIONAL" – NPN SINKING CONNECTION ONLY




| QTY | PART NUMBER | MFG | DESCRIPTION |
|---|---|---|---|
| 1 | CC09-AE-16-VY-200F | BALLUFF | FEMALE 9 PIN 20FT. LONG CORD |
| 1 | ROCCA-09-B-16C-010F | BALLUFF | MALE 9 PIN 1FT LONG LEADS RECEPTICAL |

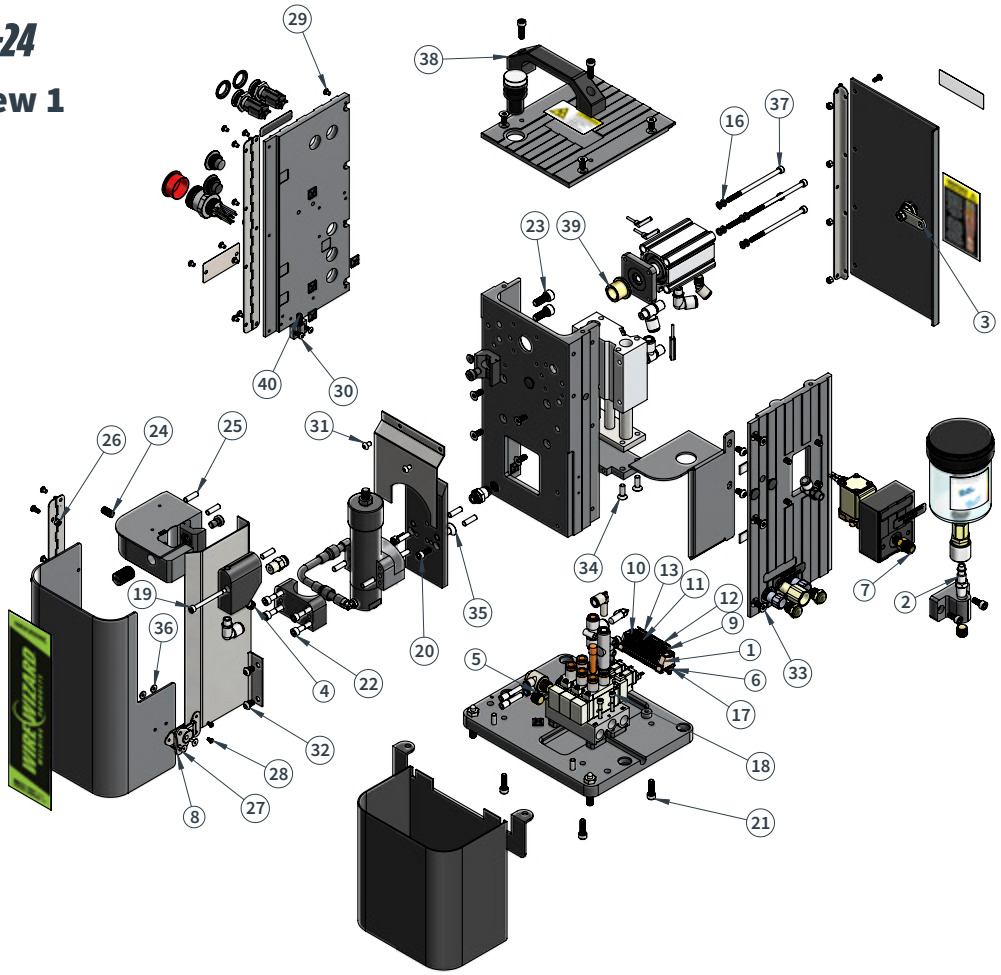



1. (ORANGE) - +24 VDC
2. (BLUE) - 0 VDC
3. (RED/BLK) - NOZZLE UNCLAMPED/SLIDE DOWN
4. (GRN/BLK) - AIR MOTOR/CLAMP
5. (WHITE) - SLIDE UP
6. (RED) - SPATTER SPRAY
7. (GRN/YEL) - GROUND
8. (WHT/BLK) - WIRE CUTTER ADVANCE
9. (BLACK) - SELF-CLEANING AIR BLAST

# 5.0 EXPLODED VIEWS & PARTS LIST

## 5.1 EL-NCS-A-24

### Exploded View 1




### Parts List

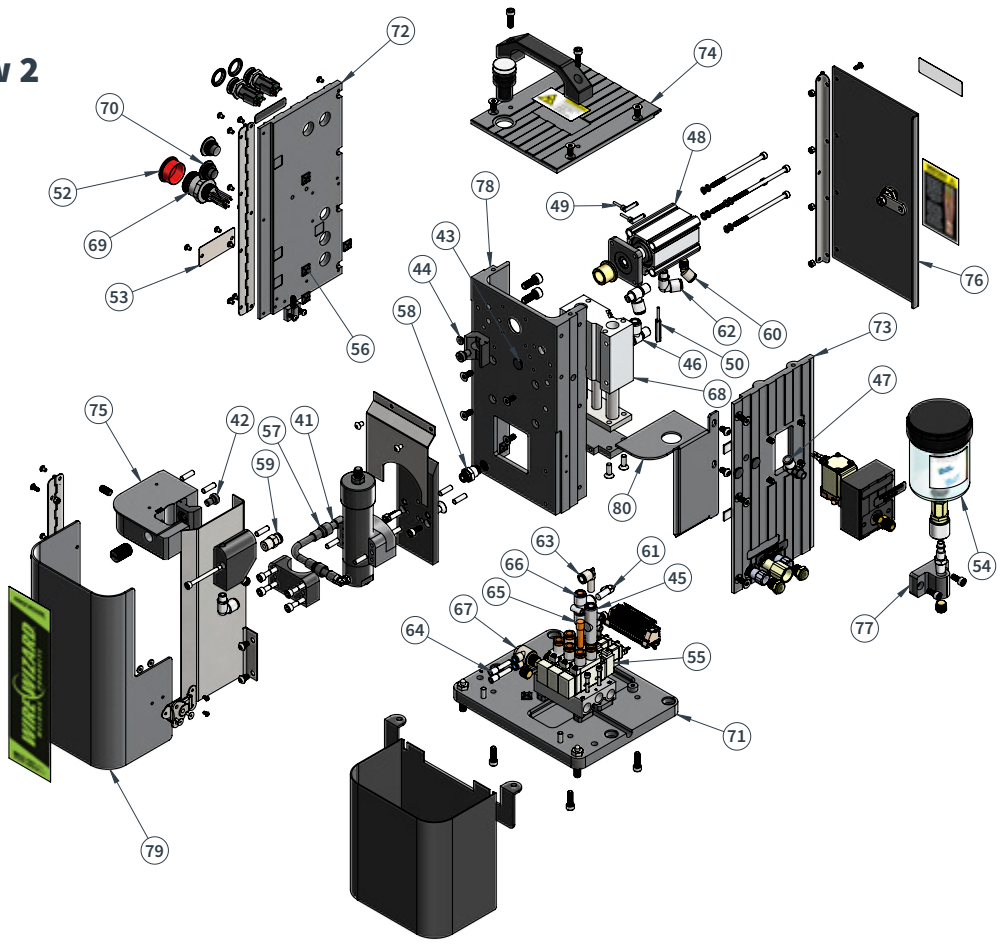
| No. | Part No. | Description | Qty |
|---|---|---|---|
| 1 | 382860000 | TERMINAL END BRACKET | 2 |
| 2 | 10 PLUG | 1/4-18 NPTF PLUG | 1 |
| 3 | 10335A75 | LOCK | 1 |
| 4 | 109AL-02 | 1/8 NPT BRASS PIPE PLUG | 1 |
| 5 | 109AL-04 | 1/4 NPT BRASS PLUG | 2 |
| 6 | 11751 | 3.150 DIN RAIL | 1 |
| 7 | 123-4-2 | 1/4 NPT X 1/8 NPT MALE BRASS NIPPLE | 1 |
| 8 | 1406A42 | DRAW LATCH | 1 |
| 9 | 1753280000 | TERMINAL BLOCK | 16 |
| 10 | 1754190000 | END PLATE | 1 |
| 11 | 1754290000 | JUMPER | 1 |
| 12 | 1762320001 | TERMINAL BLOCK TAG 1-10 | 2 |
| 13 | 1762320011 | TERMINAL BLOCK TAG 11-20 | 2 |
| 14 | 1J-158-07 | 6MM BLUE POLYURETHANE TUBING | 1 |
| 15 | 1J-159-07 | 8mm BLACK POLYURETHANE TUBE | 1 |
| 16 | 24766 | M5 HIGH COLLAR LOCK WASHER | 8 |
| 17 | 35877 | M4-.7 X 6 SHCS ZINC | 2 |
| 18 | 35886 | M4-.7 X 30 SHCS ZINC | 4 |
| 19 | 35908 | M5-.8 X 55 SHCS ZINC | 1 |
| 20 | 35915 | M6-1.0 X 14 SHCS ZINC | 4 |

| No. | Part No. | Description | Qty |
|---|---|---|---|
| 21 | 35918 | M6-1.0 X 20 SHCS ZINC | 5 |
| 22 | 35921 | M6-1.0 X 30 SHCS ZINC | 4 |
| 23 | 35934 | M8-1.25 X 20 SHCS ZINC | 2 |
| 24 | 39856 | M8-1.25 X 16 FPSS BLACK OXIDE | 1 |
| 25 | 40059 | M6 X 20 DOWEL | 11 |
| 26 | 40147 | M4-07 NYLOC NUT ZINC | 7 |
| 27 | 41212 | 1/8 X 1/4 POP ALUM. RIVET | 2 |
| 28 | 41293 | M3-.5 X 6 BHCS ZINC | 2 |
| 29 | 41299 | M4-.7 X 6 BHCS ZINC | 15 |
| 30 | 41301 | M4-.7 X 10 BHCS ZINC | 9 |
| 31 | 41307 | M5-0.8 X 8 BHCS ZINC | 2 |
| 32 | 41317 | M6-1.0 X 10 BHCS ZINC | 5 |
| 33 | 41389 | M6-1.0 X 14MM FHCS ZINC | 14 |
| 34 | 41391 | M6-1.0 X 18 FHCS ZINC | 4 |
| 35 | 41406 | M8-1.25 X 25 FHCS ZINC | 2 |
| 36 | 41451 | 3/8 ALUMINUM BACK UP WASHER | 2 |
| 37 | 41705 | M5-.8 X 90 SHCS ZINC | 4 |
| 38 | 5193A2 | PLASTIC HANDLE | 1 |
| 39 | 5448T21 | 16MM ID ALLOY 932 FLANGE BUSHING | 1 |
| 40 | 5901A14 | SPRING PLUNGER | 1 |

Please reference model and serial number when ordering replacement parts.

**NOTE:** Wire cutter not included on EL-NCS-24, EL-NCS-A-24, or EL-NCS-A-24-SC

## Exploded View 2




### Parts List

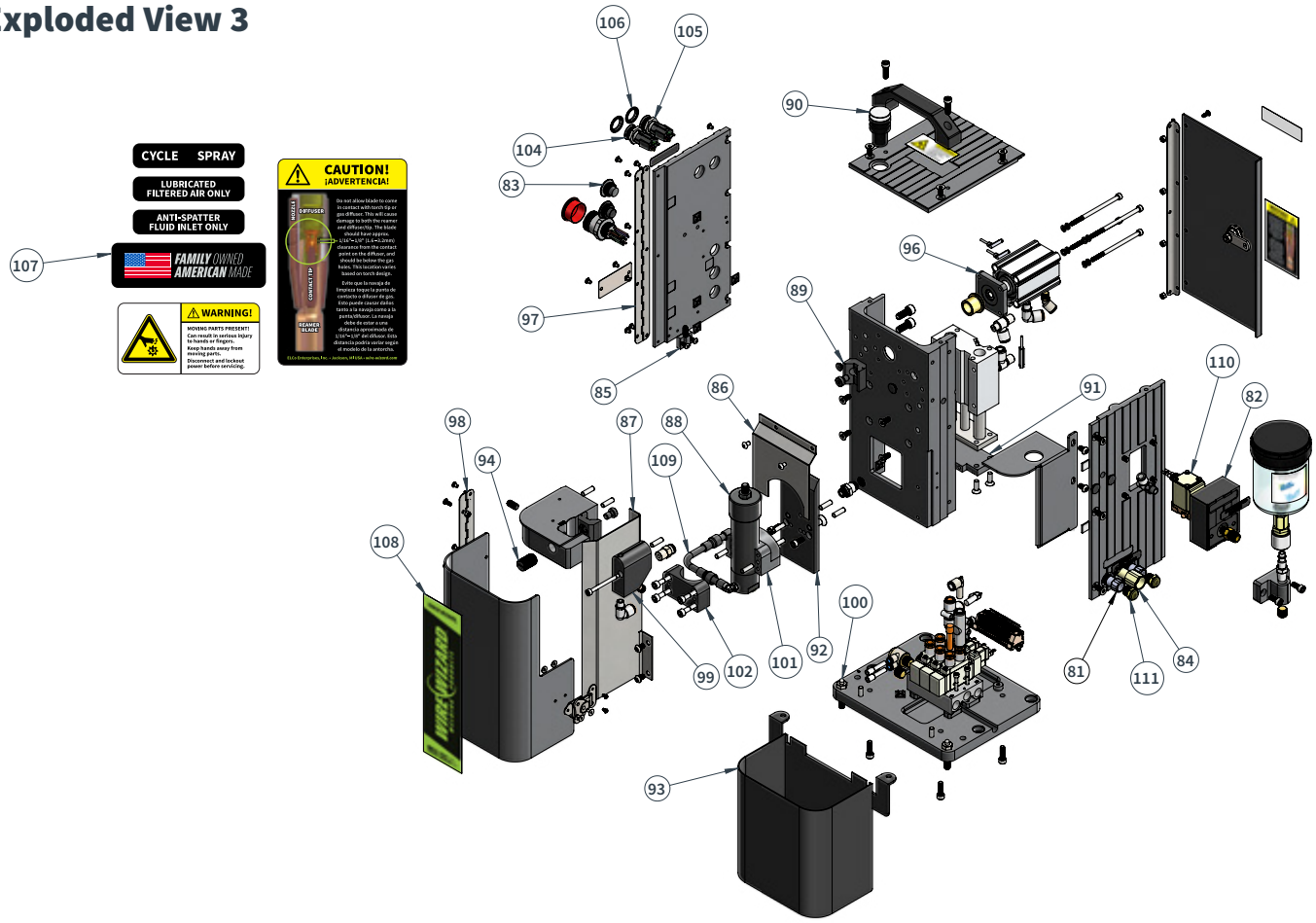
| No. | Part No. | Description | Qty |
|---|---|---|---|
| 41 | 74965K65 | 2.00" PIECE OF SHRINK TUBE | 2 |
| 42 | 90597 | M8-1.25 X 12 LSHCS BLACK OXIDE | 2 |
| 43 | 9688K124 | PLASTIC PLUG | 3 |
| 44 | 9688K221 | PLASTIC PLUG | 1 |
| 45 | AS2052F-08 | SPEED FLOW CONTROL | 1 |
| 46 | AS2201F-01-08ST | 8MM TUBE X 1/8 NPT FLOW CONTROL | 2 |
| 47 | AS2201F-N01-08SA | SPEED CONTROLLER | 1 |
| 48 | CDQ2B40-40DZ | SMC 40MM BORE X 40MM STROKE | 1 |
| 49 | D-A93V | SWITCH | 2 |
| 50 | D-Z73 | SWITCH | 1 |
| 51 | EAS1000-NCS | 16oz BLUE MAGIC ANTI-SPATTER | 1 |
| 52 | EC-18 | CAPLUG | 1 |
| 53 | EL-NCS-A-24-SERIAL TAG | MODEL/SERIAL TAG | 1 |
| 54 | EL-NCS-AB-24 | ANTI-SPATTER BOWL | 1 |
| 55 | HHB-108687 | SMC 3 STATION MANIFOLD 24V | 1 |
| 56 | HS-100 | Fastener-Mount Cable Tie Holder | 11 |
| 57 | IN-289-2006 | WELD SPATTER COVER | 2 |
| 58 | KQ2E06-00A | FITTING, BULKHEAD | 1 |
| 59 | KQ2H08-02S | FITTING | 1 |
| 60 | KQ2K08-01AS | 8MM 45 DEGREE ELBOW | 1 |

| No. | Part No. | Description | Qty |
|---|---|---|---|
| 61 | KQ2L06-08A | 6MM TUBE TO 8MM REDUCER ELBOW | 1 |
| 62 | KQ2L08-01S | 90 DEGREE FITTING | 2 |
| 63 | KQ2L08-99A | 8MM PUSH-IN ELBOW | 1 |
| 64 | KQ2P-06 | PLUG | 2 |
| 65 | KQ2P-09 | SMC 5/16 TUBE PUSH IN PLUG | 1 |
| 66 | KQ2T08-00 | 8MM UNION TEE FITTING | 1 |
| 67 | KQ2Z06-02AS | 1/4 NPT MALE BRANCH ELBOW | 1 |
| 68 | MGQM25-50 | GUIDED AIR ACTUATOR SLIDE | 1 |
| 69 | MIN-9MR-2-18 | 9-PIN RECEPTACLE | 1 |
| 70 | NCS-124 | 1/2-14 NPSM PANEL PLUG | 1 |
| 71 | NCS-126 | BASE PLATE | 1 |
| 72 | NCS-127 | SIDE PLATE (LH) | 1 |
| 73 | NCS-128 | SIDE PLATE (RH) | 1 |
| 74 | NCS-129 | TOP PLATE | 1 |
| 75 | NCS-130 | SUPPORT NEST | 1 |
| 76 | NCS-131 | REAR COVER | 1 |
| 77 | NCS-132 | SIDE MOUNT BLOCK | 1 |
| 78 | NCS-133 | FACE PLATE | 1 |
| 79 | NCS-134 | FRONT COVER | 1 |
| 80 | NCS-135 | ANTI-SPATTER SHIELD | 1 |

Please reference model and serial number when ordering replacement parts.

**NOTE:** Wire cutter not included on EL-NCS-24, EL-NCS-A-24, or EL-NCS-A-24-SC

## Exploded View 3




### Parts List

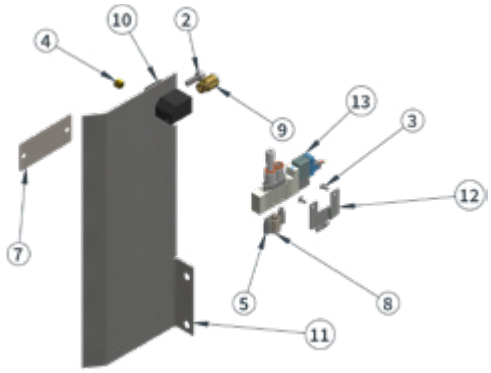
| No. | Part No. | Description | Qty |
|---|---|---|---|
| 81 | NCS-136 | EXTENSION FITTING | 2 |
| 82 | NCS-137 | SOLENOID COVER | 1 |
| 83 | NCS-139 | 3/4-16 HOLE PLUG | 1 |
| 84 | NCS-140 | EXTENSION FITTING | 1 |
| 85 | NCS-141 | SPRING PLUNGER BASE | 1 |
| 86 | NCS-142 | COVER | 1 |
| 87 | NCS-143 | INNER GUARD FOR NCS | 1 |
| 88 | NCS-16-MOTOR | MOTOR | 1 |
| 89 | NCS-24 | V-BLOCK | 2 |
| 90 | NCS-24-LIGHT | INDICATOR LIGHT | 1 |
| 91 | NCS-31 | ADAPTER PLATE | 1 |
| 92 | NCS-34 | SADDLE PLATE | 1 |
| 93 | NCS-37 | CATCH PAN | 1 |
| 94 | NCS-39 | THREADED ROD | 1 |
| 95 | NCS-44C | WRENCH | 2 |
| 96 | NCS-45 | CLAMP CYLINDER SPACER | 1 |
| 97 | NCS-46 | REAR COVER HINGE | 2 |

| No. | Part No. | Description | Qty |
|---|---|---|---|
| 98 | NCS-47 | FRONT COVER HINGE | 1 |
| 99 | NCS-50-3 | VENTURI BLOCK | 1 |
| 100 | NCS-81 | CATCH TRAY LOCATOR | 2 |
| 101 | NCS-97 | MOTOR MOUNT | 1 |
| 102 | NCS-98 | MOTOR MOUNT | 1 |
| 103 | NCS-A-24-BOLTS | BOLT KIT | 1 |
| 104 | NCS-PUSH BUTTON-1 | PUSH BUTTON | 1 |
| 105 | NCS-PUSH BUTTON-2 | PUSH BUTTON | 1 |
| 106 | NCS-PUSH BUTTON-COVER | COVER | 2 |
| 107 | NCS-TAG-SET | DECALS FOR NCS | 1 |
| 108 | NCS-TORCH WIZARD-LABEL | TORCH WIZARD EMBOSSED LABEL | 1 |
| 109 | TRB0604B-100 | 6MM FLAME RESISTANT BLACK TUBING | 1 |
| 110 | VX212CAB | SOLENOID VALVE 1/8" PORT N.C. 24VDC | 1 |
| 111 | W0970530053U | 1-4 NPT SFE MUFFLER | 2 |
| 112 | WIRE-5 | 22GA 12 WIRE | 1 |
| 113 | WIRE-6 | 22GA 3 WIRE | 1 |

Please reference model and serial number when ordering replacement parts.

**NOTE:** Wire cutter not included on EL-NCS-24, EL-NCS-A-24, or EL-NCS-A-24-SC

## 5.2 EL-NCS-A-24-SC

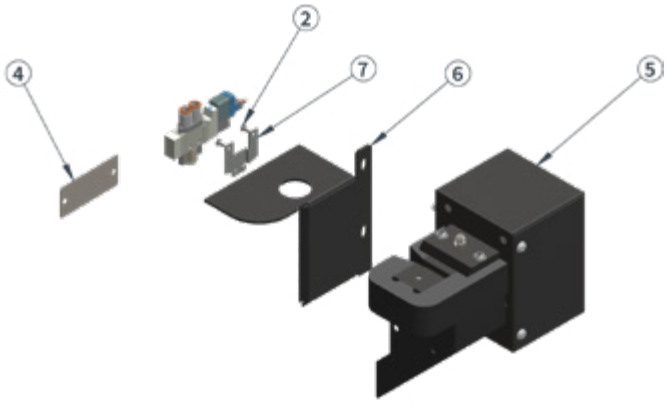




### Parts List

| No. | Part No. | Description | Qty |
|---|---|---|---|
| 1 | 1J-158-07 | 6MM BLUE POLYURETHANE TUBING | 1 |
| 2 | 35897 | M5-.8 X 14MM SHCS ZINC | 1 |
| 3 | 41293 | M3-.5 X 6 BHCS ZINC | 2 |
| 4 | 50785K267 | 1/16 NPT BRASS PLUG | 1 |
| 5 | AN05-M5 | SMC SILENCER | 2 |
| 6 | EL-NCS-A-24 | REAMER | 1 |
| 7 | EL-NCS-A-24-SC-SERIAL TAG | MODEL/SERIAL TAG | 1 |
| 8 | KQ2H06-M5A | SMC FITTING M5 THREAD X 6MM TUBE | 1 |
| 9 | KQ2S06-U01A | 6MM TUBE X 1/8 NPT FITTING | 1 |
| 10 | NCS-107 | BLOW-OFF BLOCK | 1 |
| 11 | NCS-144 | INNER GUARD FOR NCS | 1 |
| 12 | SX3000-16-1A | VALVE BRACKET | 1 |
| 13 | SY3120-5LU-C6 | SMC VALVE SINGLE SOLENOID BODY | 1 |

Please reference model and serial number when ordering replacement parts

## 5.3 EL-NCS-AC-24

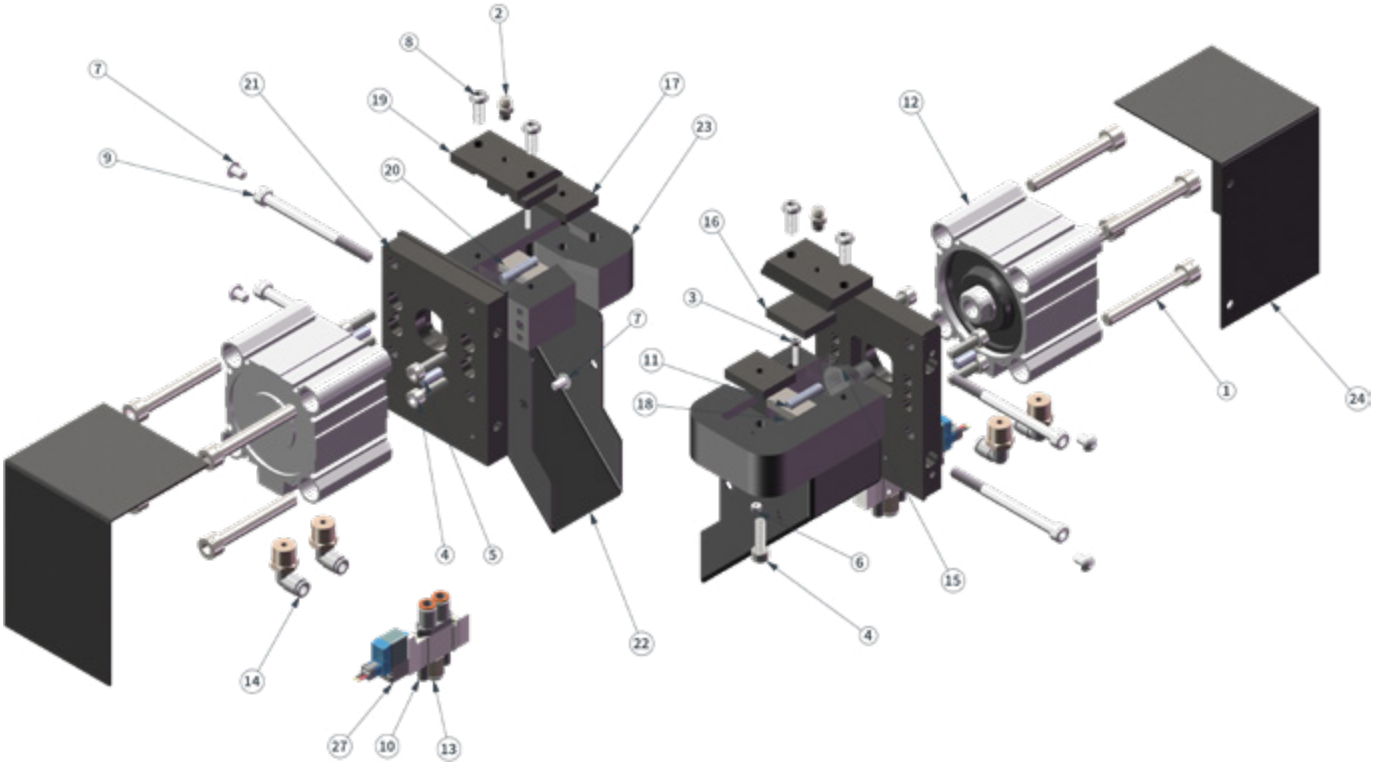




### Parts List

| No. | Part No. | Description | Qty |
|---|---|---|---|
| 1 | 1J-158-07 | 6MM BLUE POLYURETHANE TUBING | 2 |
| 2 | 41293 | M3-.5 X 6 BHCS ZINC | 2 |
| 3 | EL-NCS-A-24 | REAMER | 1 |
| 4 | EL-NCS-AC-24-SERIAL TAG | MODEL/SERIAL TAG | 1 |
| 5 | EL-NCS-WCS-24 | WIRE CUTTER STATION | 1 |
| 6 | NCS-138 | ANTI-SPATTER SHIELD | 1 |
| 7 | SX3000-16-1A | VALVE BRACKET | 1 |

Please reference model and serial number when ordering replacement parts

## 5.4 EL-NCS-WCS-24




**Parts List**

| No. | Part No. | Description | Qty |
|---|---|---|---|
| 1 | 135943 | M8-1.25 X 60 SHCS ZINC | 4 |
| 2 | 1105K71 | ZERK FITTING | 1 |
| 3 | 35866 | M3-0.5 X 14 SHCS ZINC | 1 |
| 4 | 35918 | M6-1.0 X 20 SHCS ZINC | 5 |
| 5 | 40057 | DOWEL PIN | 2 |
| 6 | 40143 | M3-.5 ZINC NYLOCK NUT | 1 |
| 7 | 41307 | M5-0.8 X 8 BHCS ZINC | 4 |
| 8 | 41320 | M6-1.0 X 12MM BHCS ZINC | 2 |
| 9 | 41715 | M6-1.0 X 80 ZINC SHCS | 2 |
| 10 | AN05-M5 | SMC SILENCER | 2 |
| 11 | C0240-045-1000-S | STAINLESS COMPRESSION SPRING | 1 |
| 12 | CDQ2B63-10DZ | DOUBLE ACTING CYLINDER | 1 |
| 13 | KQ2H06-M5A | SMC FITTING M5 THREAD X 6MM TUBE | 1 |
| 14 | KQ2L06-02AS | ELBOW FITTING | 2 |

| No. | Part No. | Description | Qty |
|---|---|---|---|
| 15 | NCS-WCS-05 | PUSH PLUG | 1 |
| 16 | NCS-WCS-07 | STRIPPER BLOCK | 1 |
| 17 | NCS-WCS-16 | BACK-UP PLATE | 1 |
| 18 | NCS-WCS-17 | SLIDE BLOCK | 1 |
| 19 | NCS-WCS-18 | CAP | 1 |
| 20 | NCS-WCS-19 | CUTTER BLADE | 1 |
| 21 | NCS-WCS-21 | BASE PLATE | 1 |
| 22 | NCS-WCS-22 | CHUTE | 1 |
| 23 | NCS-WCS-23 | GUIDE BLOCK | 1 |
| 24 | NCS-WCS-24 | COVER | 1 |
| 25 | NCS-WCS-BOLTS-24 | CUTTER BOLT KIT | 1 |
| 26 | NCS-WCS-PNEUMATIC PARTS | PNEUMATICS PARTS KIT | 1 |
| 27 | SY3120-5LU-C6 | SMC VALVE SINGLE SOLENOID BODY | 1 |

Please reference model and serial number when ordering replacement parts.

# 6.0 OPTIONAL COMPONENTS & ACCESSORIES

Single Flute Reamer Blades

Double Flute Reamer Blades

**TITANIUM NITRIDE**

*TiN Coated for Maximum Durability*

***Testing and Diagnostic Box***
***EL-NCS-TB***

***29.5" (749 mm) Stand for Torch Wizard®***
***EL-NCS-STAND***
*Additional heights available: 12", 20", 36", 48" and 60"*

***Tool Center Point Adapter Mount***
***EL-NCS-TCP-F-R***
*Excludes touch plate and point*

***Cobot Guarding Kit for Reamer & Wire Cutter***
***EL-NCS-CGK-C***

***Cobot Guarding Kit for Reamer models without Wire Cutter***
***EL-NCS-CGK-C-24***
***EL-NCS-CGK-24***

**REDUCE DOWNTIME & COST**

By using a multi-station bulk anti-spatter dispensing system

***5-gallon Manifold Kit***
***5GMK***

***Drum Manifold Kit***
***DMK***

## TORCH WIZARD® ROBOTIC NOZZLE CLEANING STATIONS

### STANDARD MODELS

| Part No. | Description |
|---|---|
| EL-NCS-A-24 | 9-Pin Cleaning Station w/ Integrated Anti Spatter Spray |
| EL-NCS-A-24-SC | 9-Pin Cleaning Station w/ Integrated Anti Spatter Spray and Self Cleaning |
| EL-NCS-AC-24 | 9-Pin Cleaning Station w/ Integrated Anti Spatter Spray and a Wire Cutter |
| EL-NCS-AC-24-SC | 9-Pin Cleaning Station w/ Integrated Anti Spatter Spray, Self Cleaning, and a Wire Cutter |
| EL-NCS-24 | 9-Pin Cleaning Station for aluminum |
| EL-NCS-A-TA-24-CL | Cleaning Station w/ Integrated Anti-Spatter Spray for Tandem Arc Torches w/ Cloos® Nozzles |
| EL-NCS-A-TA-24-FR | Cleaning Station w/ Integrated Anti-Spatter Spray for Tandem Arc Torches w/ Fronius® Nozzles |
| EL-NCS-A-TA-24-TR | Cleaning Station w/ Integrated Anti-Spatter Spray for Tandem Arc Torches w/ Tregaskiss® Nozzles |

### MODELS WITH INTEGRATED IO-LINK/ETHERNET

| Part No. | Description |
|---|---|
| EL-NCS-AIO-24 | IO-Link Cleaning Station w/ Integrated Anti Spatter Spray |
| EL-NCS-AIO-24-SC | IO-Link Cleaning Station w/ Integrated Anti Spatter Spray and Self Cleaning |
| EL-NCS-ACIO-24 | IO-Link Cleaning Station w/ Integrated Anti Spatter Spray and a Wire Cutter |
| EL-NCS-ACIO-24-SC | IO-Link Cleaning Station w/ Integrated Anti Spatter Spray, Self Cleaning, and a Wire Cutter |
| EL-NCS-AE-24 | Ethernet Cleaning Station w/ Integrated Anti Spatter Spray |
| EL-NCS-AE-24-SC | Ethernet Cleaning Station w/ Integrated Anti Spatter Spray and Self Cleaning |
| EL-NCS-ACE-24 | Ethernet Cleaning Station w/ Integrated Anti Spatter Spray and a Wire Cutter |
| EL-NCS-ACE-24-SC | Ethernet Cleaning Station with Integrated Anti Spatter Spray, Self Cleaning, and a Wire Cutter |

## TORCH WIZARD® OPTIONAL ACCESSORIES

| Part No. | Description |
|---|---|
| EL-NCS-STAND | 29.5" (749 mm) Stand for EL-NCS; additional heights available: 12" (305 mm), 20" (508 mm), 36" (914 mm), 48" (1,219 mm) and 60" ( 1,524 mm) |
| EL-NCS-FRL-14 | Filter/Regulator/Lubricator |
| EL-NCS-CGK | Cobot Guarding Kit for Reamer Only |
| EL-NCS-CGK-C | Cobot Guarding Kit for Reamer and Wire Cutter |
| EL-NCS-TB-20 | Testing and Diagnostic Box for 20 and 20-SC models (9-pin) |
| EL-NCS-TCP-F-R | Tool Center Point Mount (attaches to reaming station stand) |
| EL-NCS-WCS-12 | Integrated Wire Cutter (included on AC models) |
| EL-NCS-WCS-SA-12 | Stand Alone Wire Cutter |
| EL-NCS-CC9-20-3 | 9 Pin, 20 ft Power/Control Cable |

*Custom heights are available for Torch Wizard® stands*

## TORCH WIZARD® REAMER BLADES

| Part No. | Description | Diameter | Flutes | Thread | Height |
|---|---|---|---|---|---|
| EL-NCS-13MM | Reamer Blade | 13 mm | 2 | Female | 2.558" |
| EL-NCS-TL-13MMF | Reamer Blade | 13 mm | 1 | Female | 2.687" |
| EL-NCS-15MM | Reamer Blade | 15 mm | 2 | Female | 2.558" |
| EL-NCS-TL-15MMF | Reamer Blade | 15 mm | 1 | Female | 2.697" |
| EL-NCS-17MM-L | Reamer Blade (ID: .402") | 17 mm | 2 | Female | 3.564" |
| EL-NCS-17MM-1-L | Reamer Blade (ID: .329") | 17 mm | 2 | Female | 3.564" |
| EL-NCS-500 | Reamer Blade | 1/2" | 2 | Female | 2.558" |
| EL-NCS-TL-50F | Reamer Blade | 1/2" | 1 | Female | 2.687" |
| EL-NCS-TS-50F | Reamer Blade | 1/2" | 1 | Female | 2.433" |
| EL-NCS-625 | Reamer Blade | 5/8" | 2 | Female | 2.558" |
| EL-NCS-TL-62F | Reamer Blade | 5/8" | 1 | Female | 2.687" |
| EL-NCS-TS-62F | Reamer Blade | 5/8" | 1 | Female | 2.433" |
| EL-NCS-750 | Reamer Blade | 3/4" | 2 | Female | 2.558" |

***The reamer bit required is based on the I.D. of the gas nozzle being used.***

***Blades compatible with PowerBall® Torch Consumables***

## BLUE MAGIC® ANTI-SPATTER

| Part No. | Description |
|---|---|
| EAS1000-C32 | 32 oz Spray Bottle |
| EAS1000-C1 | 1 gal Bottle |
| EAS1000-C5 | 5 gal Container |
| EAS1000-C | 55 gal Drum |
| EAS1000-CT | 275 gal Bulk Tote |
| EAS1000-C-CON-1L | 1 l (33 oz) Concentrate |
| EAS1000-C-CON-5 | 5 gal Concentrate |
| EAS1000-DP | Manual Drum Pump (55 gal) |

## BLUE CHILL® ANTI-SPATTER

| Part No. | Description |
|---|---|
| EAS1000-BC32 | 32 oz Spray Bottle |
| EAS1000-BC1 | 1 gal Bottle |
| EAS1000-BC5 | 5 gal Container |
| EAS1000-BC | 55 gal Drum |
| EAS1000-BCT | 275 gal Bulk Tote |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