



ROTOWELD

MAINTENANCE MANUAL

Rotoweld 3.0
All Configurations

40101-00058-00
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TECNAR

 WELDING
TECHNOLOGIES



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NOTICES

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INTRODUCTION

Purpose

This document provides comprehensive information regarding the maintenance of the Rotoweld 3.0. Following this manual will help ensure the equipment is well-maintained and operates reliably within its intended application.

Scope

This manual is intended for qualified technicians. It provides guidance on maintenance instructions.

SAFETY CONSIDERATION & CONVENTION

The Rotoweld 3.0 has been designed with user safety in mind; however, improper use may result in injury, damage to the product, or hazardous situations. To ensure safe operation, please read and follow all instructions and warnings in this manual before use.

WARNING



A "WARNING" NOTICE WARNS THAT THE SITUATION CAN CAUSE SERIOUS INJURIES OR DEATH.

CAUTION



A "CAUTION" NOTICE WARNS THAT THE SITUATION MAY DAMAGE THE EQUIPMENT.

NOTE



A NOTE ADDS COMPLEMENTARY INFORMATION TO THE TEXT.

Failure to follow these safety considerations may result in product malfunction, injury, or legal liability. Always operate the Rotoweld 3.0 in accordance with local safety regulations and industry best practices.

TOOLS, SUPPLIES, AND REFERENCE DOCUMENTATION

This section describes all tools, supplies, and reference documentation required to perform maintenance operations on the Rotoweld.

Equipment

The list below shows the equipment required to perform maintenance operations.

- Basic toolbox
- Cleaning rag
- DC Voltmeter
- High wattage resistor (25-1000 ohm, 25 W minimum)
- Liquid level dipstick (10 inches approx.)
- Ohmmeter (500 000 ohm or more)
- Set of imperial and metric wrenches
- Torque wrench applicable for the following torque:
 - 75 in-lb (8.5 N·m)
- Welding equipment tools with multi-purpose MIG welding pliers

Supplies and Consumables

The list below shows the supply and consumables required to perform maintenance operations.

- A/R - SAE 20 Oil
- A/R - Soap
- A/R - SPX Power Team® 9637 Standard Hydraulic Oil
- A/R - Valvoline™ Crimson™ Grease
- A/R - Tweco 8Z-L Shaft Lube
- 2 Gallons (8 liters) - Coolant, composed of:
 - 1 Gallon (4 liters) - Water
 - 1 Gallon (4 liters) - Glycol
- A/R - Water
- Low-pressure hair line or industrial vacuum cleaner

References

The list below shows documents that may be required to perform maintenance operations.

- 40101-00079-00 - RTW 3.0 FE Maintenance Manual

FLEXIBLE CABLE CARRIER MAINTENANCE

The articulated cable carrier is a flexible conduit that contains the electrical cables, gas lines and connectors required between the welding carriage and the main positioner.

It is important to keep the base clean in the area where the cable carrier moves to prevent premature abrasion of the plastic links. A visual inspection should also be performed to identify any broken covers or links that require replacement.

How To Replace Damaged Covers And Broken Links

This section describes the steps required to replace damaged covers and broken links on the flexible cable carrier.

Section Removal

1. To raise the lids of the cable track management system, insert a flat screwdriver in the appropriate hole and pull down at each extremity of the lid.



Figure 1 – RTW 3.0 Damaged Cover (1 of 7)

2. To remove a section, raise at least three lids and remove two of them.



Figure 2 – RTW 3.0 Damaged Cover (2 of 7)

3. Insert a flat screwdriver into the side panel between the two sections.

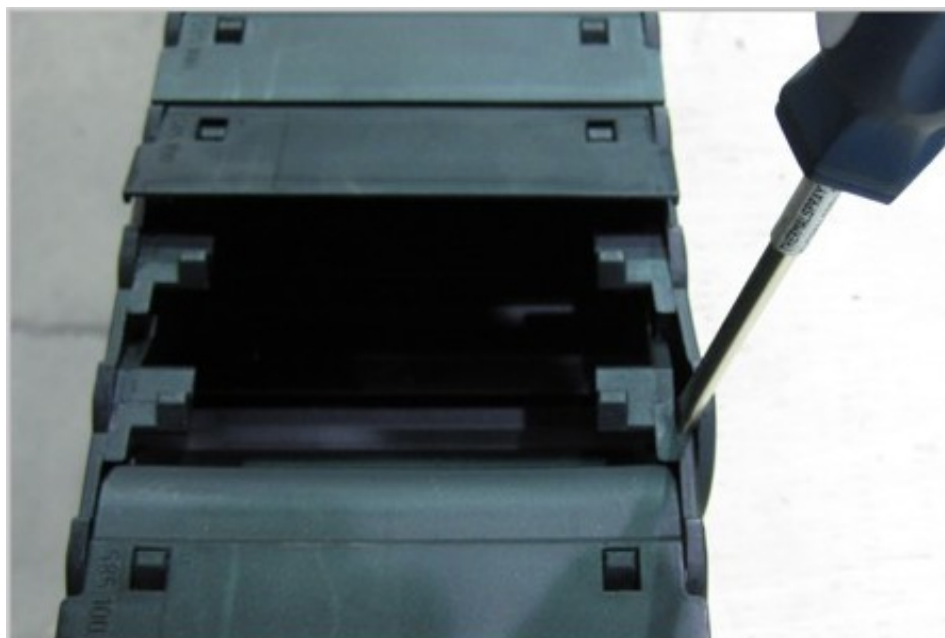


Figure 3 – RTW 3.0 Damaged Cover (3 of 7)

4. Gently pry outward.

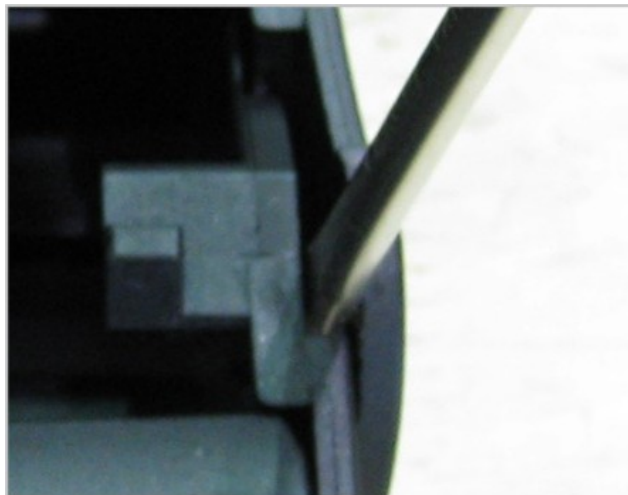


Figure 4 – RTW 3.0 Damaged Cover (4 of 7)

5. Pull the two sections apart.



Figure 5 – RTW 3.0 Damaged Cover (5 of 7)

Section Installation

6. Raise three lids and remove two of them.



Figure 6 – RTW 3.0 Damaged Cover (6 of 7)

7. To insert the flange into the chain, insert one side at a time. Ensure that all sections are fully and correctly seated.



Figure 7 – RTW 3.0 Damaged Cover (7 of 7)

NOTE



WITH THE NYLATUBE, 12 REGULAR SPARE LIDS AND TWO FLANGE SPARE LIDS ARE SUPPLIED. TWO TYPES OF LIDS ARE INCLUDED: THE LID WITHOUT SIDE TABS IS USED FOR THE FLANGE, WHILE THE LID WITH TABS IS USED FOR THE REGULAR CHAIN.



REGULAR LIDS



FLANGE LIDS

Figure 8 – RTW 3.0 Cover Regular/Flange Lids

TRACK SYSTEM

Keep the surface of the track system clean, use a broom, compressed air or vacuum. This ensures the welding carriage and pipe stands can move along the tracks smoothly.

Chain for Motorization

1. Put the carriage at a certain distance of the end of the track.

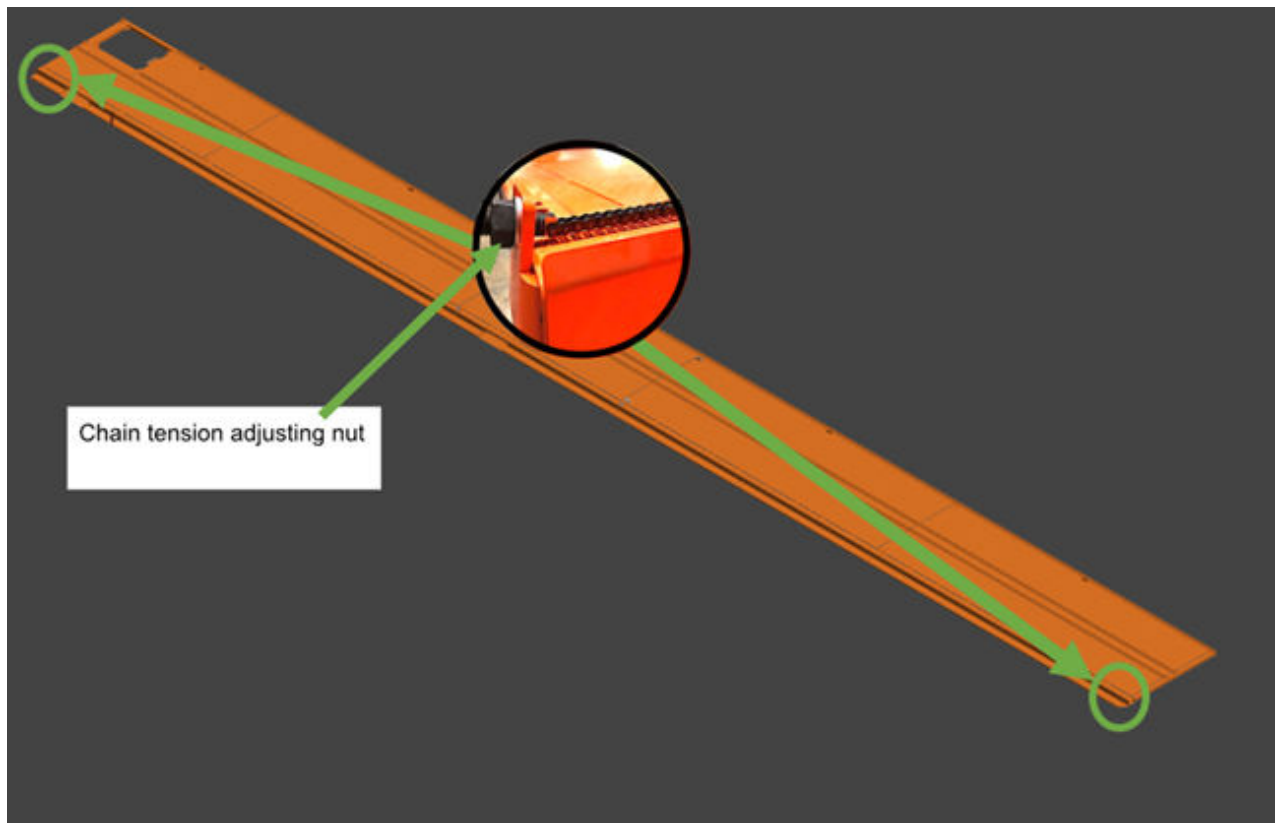


Figure 9 – RTW 3.0 Chain Tensionner Localization

2. Determine an amount play for adequate operation.

WELDING CARRIAGE

The welding carriage travels along the track system to reach the weld location. The following sections describe all maintenance operations required for the welding carriage and its sub-systems.

Water Cooler

The following sections describe all maintenance operations required for the water cooler.

Routine Maintenance

1. Remove accumulated dust and dirt from the internal components of the cooler by blowing it out with a low-pressure air hose or removing the dust and dirt with a vacuum hose.



Figure 10 – RTW 3.0 Cool Arc® Water Cooler Routine Maintenance

2. Validate that the fans are operating correctly.

Reservoir Coolant Level

The reservoir volume should be checked monthly (see **Table 5**).

The reservoir must remain full at all times, especially after disconnecting the water lines or replacing the cooled accessory.

1. Remove the reservoir fill cap.
2. Check the coolant level.

NOTE



THE RESERVOIR IS FULL WHEN THE COOLANT LEVEL IS JUST BELOW THE RESERVOIR FILL OPENING.

Pump Inlet Strainer

1. Drain coolant from the reservoir and open the case of the water cooler.



Figure 11 – RTW 3.0 Drain Coolant From The Pump Inlet Reservoir

2. Locate the pump.
3. Hold pump head to apply counter-torque when loosening strainer's 7/8 acorn nut. Remove nut and slide inlet strainer down and out from pump head.

NOTE



A 3/4 ACORN NUT IS NEXT TO THE 7/8 ACORN NUT. MAKE SURE TO NOT CONFUSE THEM.

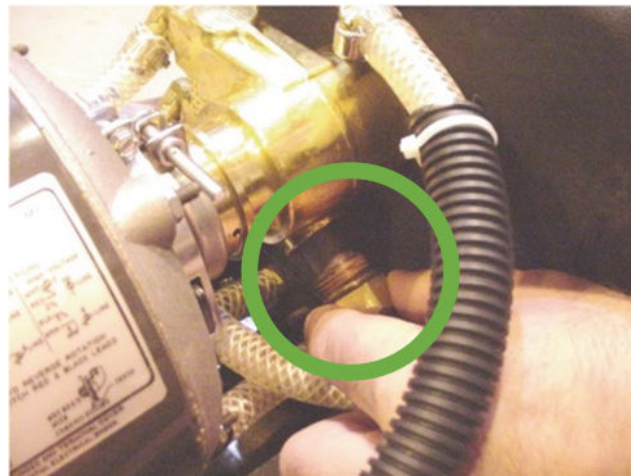


Figure 12 – RTW 3.0 Pump Head Acorn Nut Removal

4. Inspect strainer for damage or excessive clogging:
 - 4.1. Gently rinse the strainer under running water to thoroughly clean it.
 - 4.2. Replace the strainer if its too damaged.

CAUTION



USE CARE NOT TO DROP DEBRIS INTO THE PUMP.

5. Use a mirror to inspect the inside of the pump for contamination. If hardened debris is present and interferes with proper filter seating, carefully remove it with a dental pick, ensuring that the internal surfaces of the pump are not scratched.
6. Reinstall strainer and acorn nut, tightening with a torque of 75 ± 15 in-lb (8.5 ± 1.5 N·m).
7. Hold pump head to apply counter-torque when tightening strainers 7/8 acorn nut.
8. Add two gallons of coolant composed of one gallon (four liters) of water and one gallon (four liters) of glycol.

Pump Motor

The COOL ARC® 40 is rated for continuous operation.

It is recommended to re-oil the pump motor bearings once a year (see **Table 7**).

1. Remove the plastic plugs located on the top of both the inboard and outboard bearing endcaps.

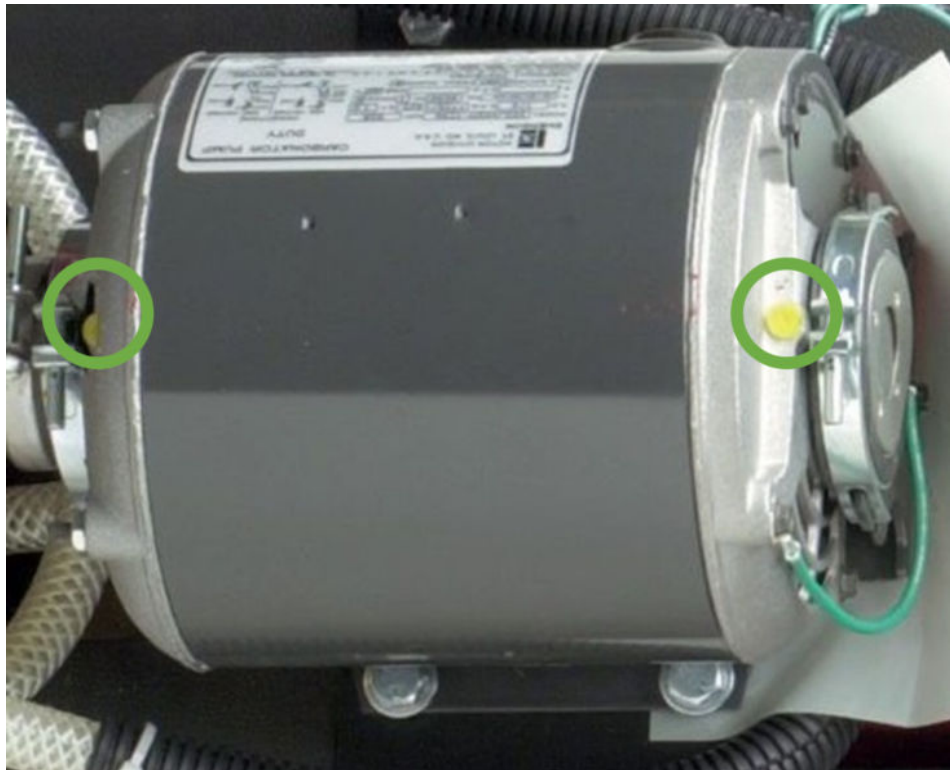


Figure 13 – RTW 3.0 Pump Motor

2. Re-oil each bearing with 30-35 drops of SAE 20 oil then reinstall both plugs.

Heat Exchanger

To maintain maximum cooler efficiency, the heat exchanger should be kept free of dust and dirt buildup. A clean heat exchanger offers better cooling performance and longer product life. Avoid placing the unit near a flux hopper or a flux waste container.

CAUTION



IN EXTREMELY DIRTY ENVIRONMENTS, IT MAY BE NECESSARY TO REMOVE THE HEAT EXCHANGER COMPLETELY FROM THE COOLER AND CLEAN THE FINS WITH SOAP AND WATER. USE CARE TO AVOID DAMAGING THE FINS.

1. Get a vacuum hose or a low-pressure compressed air line.
2. Using the applicable equipment, clean the heat exchanger.

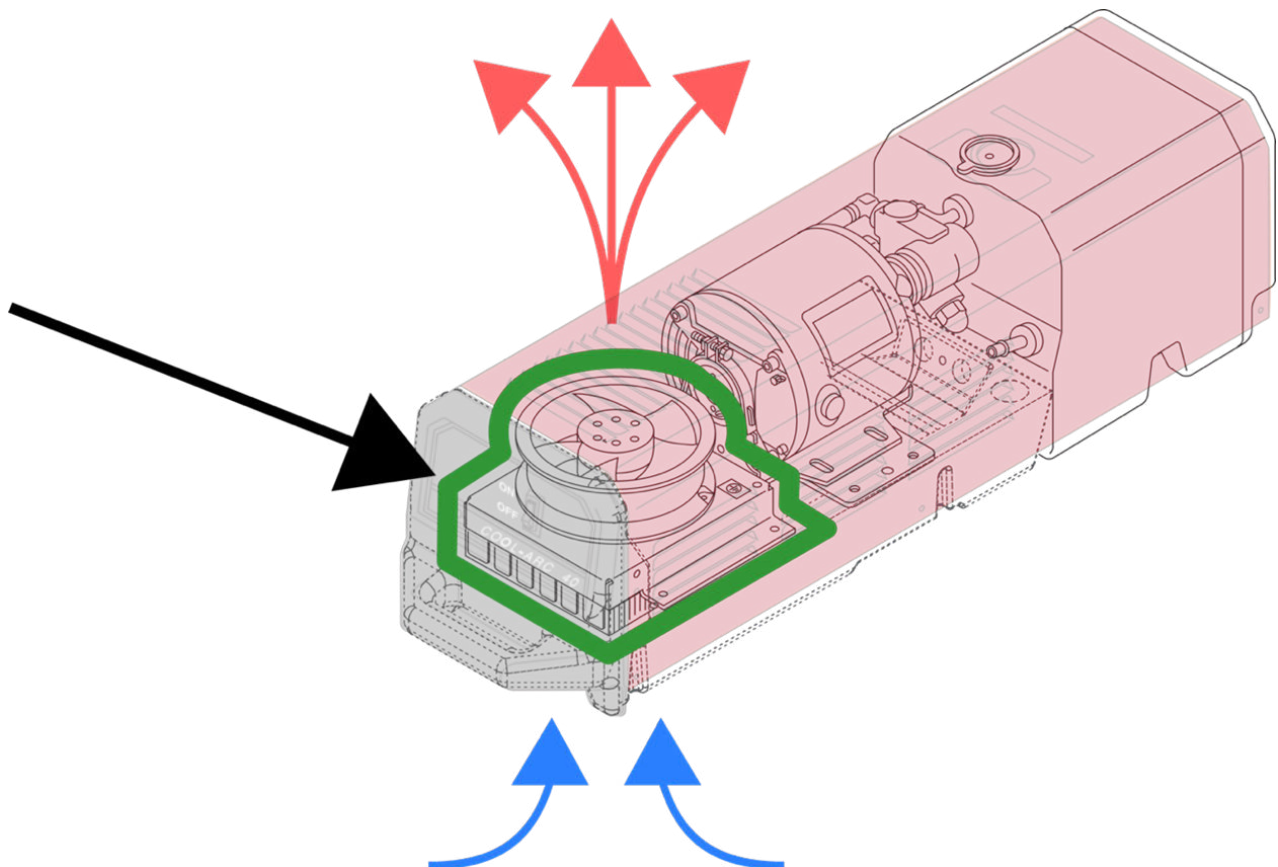


Figure 14 – RTW 3.0 Heat Exchanger

Gas Flow Meter

1. Check for leaks at the flow-meter connections using a soap-and-water solution.



Figure 15 – RTW 3.0 Gas Flow Meter Leaks

2. Check for leaks at the shielding-gas cylinder inlet connections and at the pressure regulators using a soap-and-water solution.



Figure 16 – RTW 3.0 Pressure Regulators Leaks

Wire Feeder

WARNING



MAIN POWER MUST BE DISCONNECTED BEFORE MAINTENANCE.

1. Clean and tighten wire feeder weld terminals.

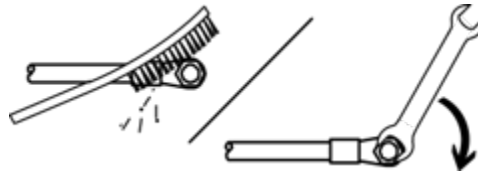


Figure 17 – RTW 3.0 Wire Feeder (1 of 5)

2. Repair or replace cracked weld cable.



Figure 18 – RTW 3.0 Wire Feeder (2 of 5)

3. Blow out or vacuum the interior.

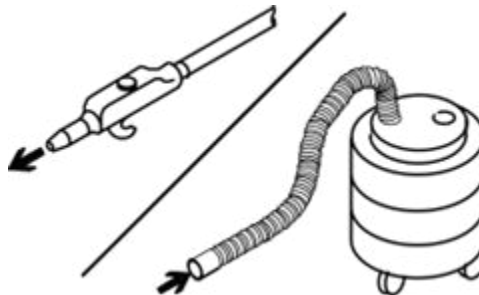


Figure 19 – RTW 3.0 Wire Feeder (3 of 5)

4. Repair or replace cracked weld cable.

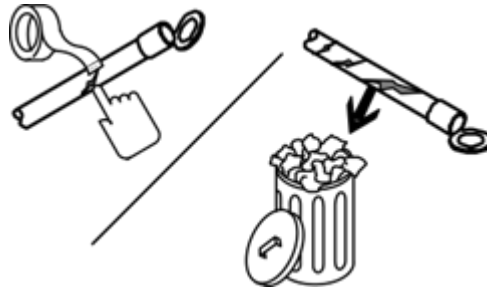


Figure 20 – RTW 3.0 Wire Feeder (4 of 5)

5. Clean the drive roll.

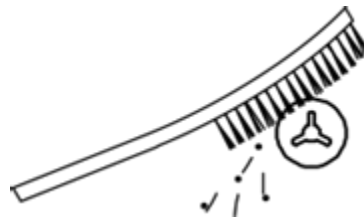


Figure 21 – RTW 3.0 Wire Feeder (5 of 5)

Pressurized Flux Feed Tank

NOTE



THIS SECTION IS APPLICABLE ONLY TO THE MIG/SAW CONFIGURATION OF THE ROTOWELD 3.0.

CAUTION



THE AIR PRESSURE VALVE MUST BE SHUT DOWN BEFORE ATTEMPTING ANY SERVICE.

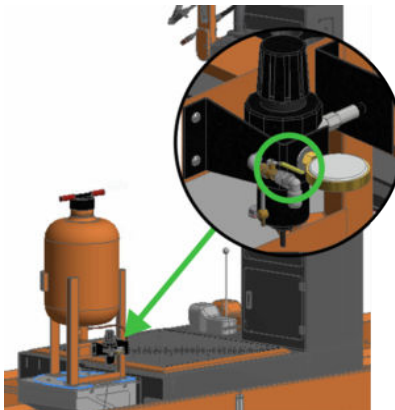


Figure 22 – RTW 3.0 Air Pressure Valve

1. Carefully loosen the cover of the flux tank without removing it completely.

NOTE



THIS ACTION ALLOWS THE REMAINING AIR TO ESCAPE COMPLETELY FROM THE RESERVOIR.



Figure 23 – RTW 3.0 Pressurized Flux Tank (1 of 3)

2. When the air is completely removed from the reservoir, unscrew the cap completely.

3. If required, do services.

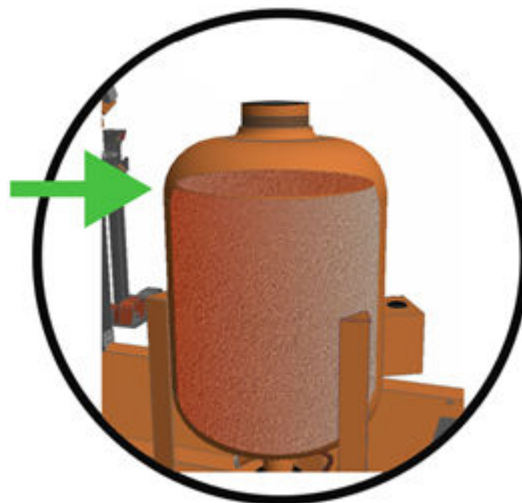


Figure 24 – RTW 3.0 Pressurized Flux Tank (2 of 3)

4. Install the tank cover and make sure it is properly tightened so that air does not escape.
5. Open the air valve.

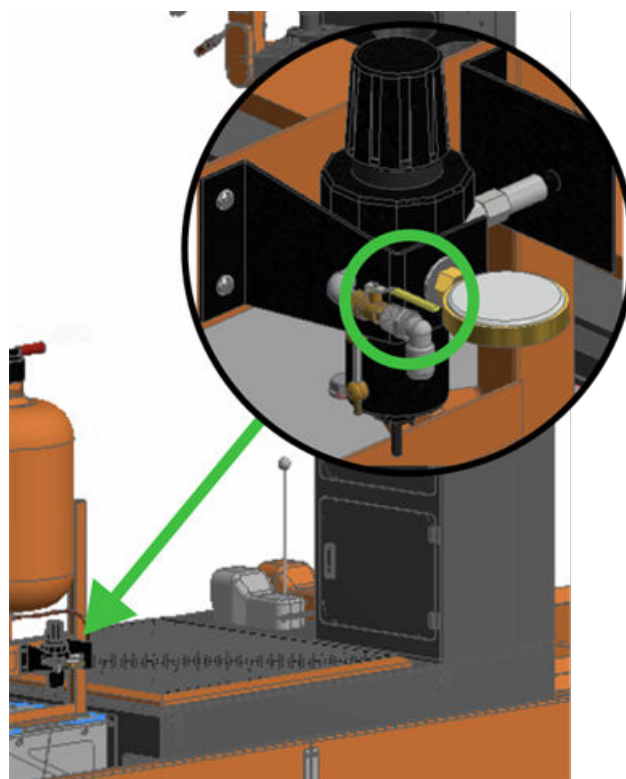


Figure 25 – RTW 3.0 Pressurized Flux Tank (3 of 3)

Invertec® STT® Arc Sensor

1. Check the wire, clamp and magnet for damages.
2. If required, repair or replace the applicable item.

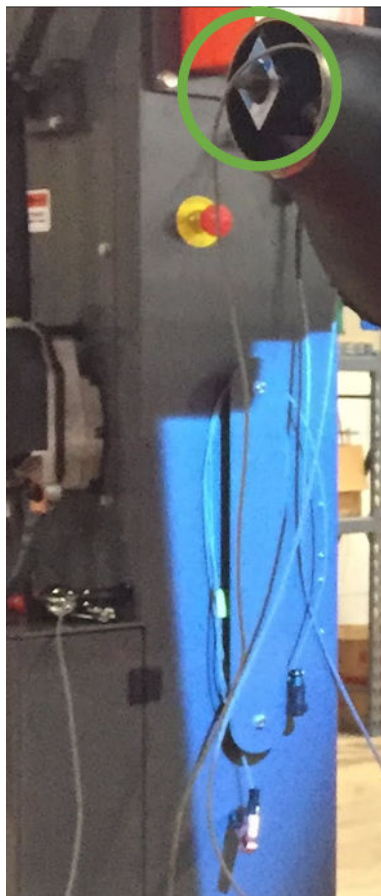


Figure 26 – RTW 3.0 STT® Arc Sensor

Pyrometer

For more details about the pyrometer, refer to the OEM manual.

1. Check the wire and clean the sensor input reader.

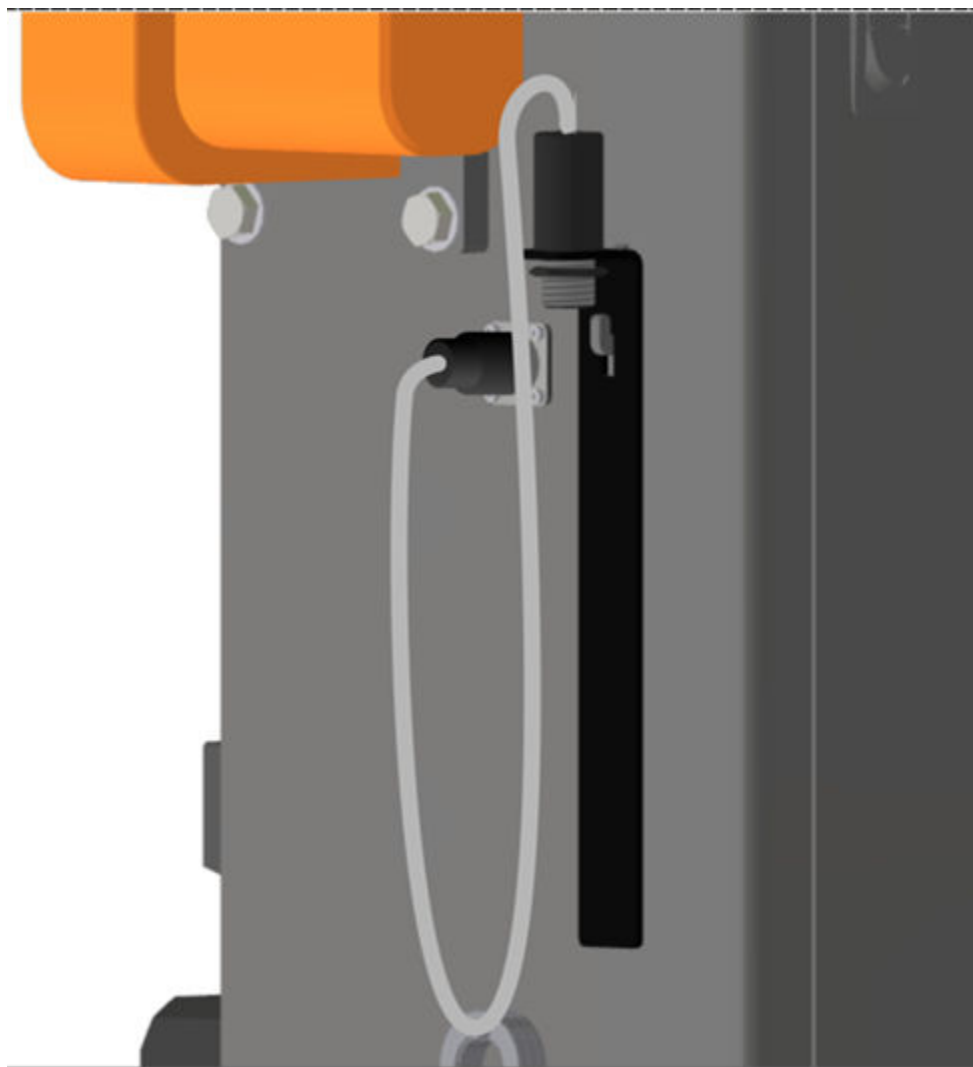


Figure 27 – RTW 3.0 Pyrometer

2. Point the carriage with the pyrometer.

Expected Result The temperature reading should be close to the ambient temperature.

If the temperature reading is not close to ambient temperature, service is required. Refer to OEM manual for more information.

Foot Pedal

The following sections describe all maintenance operations required for the foot pedals.

Positionner

1. Test the foot pedal functionality, forward/reverse and the E-Stop.
2. Perform a visual inspection of the electrical cables for signs of damage.
3. Repair or replace damaged wiring.

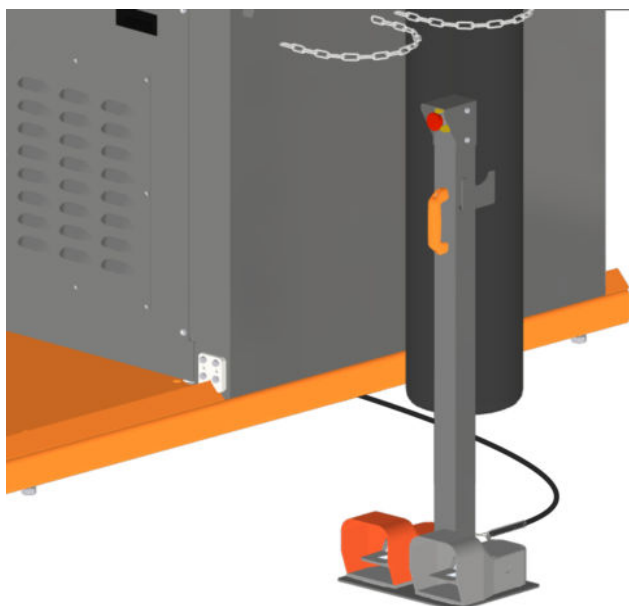


Figure 28 – RTW 3.0 Positionner Foot Pedal

4. For twin configuration, repeat steps **1** to **3** for the secondary positionner.

Carriage

1. Test the foot pedal functionality, forward/reverse.
2. Perform a visual inspection of the electrical cables for signs of damage.
3. Repair or replace damaged wiring.

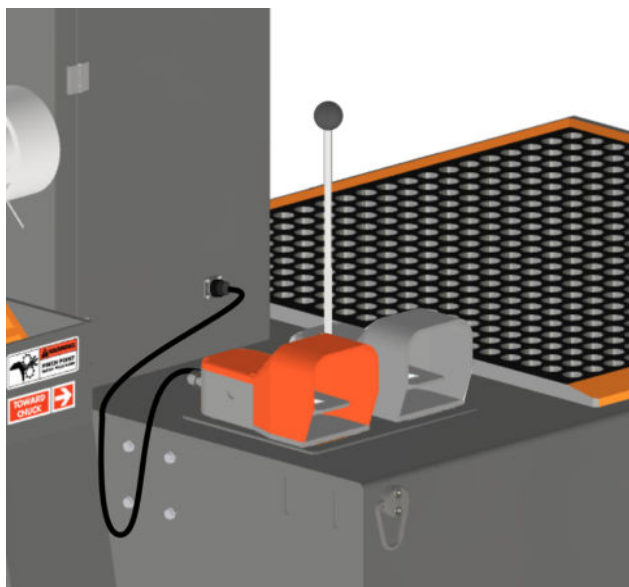


Figure 29 – RTW 3.0 Carriage Foot Pedal

Carriage Wheels

NOTE



USE VALVOLINE™ CRIMSON™ OR EQUIVALENT MULTIPURPOSE GREASE.

1. Use the grease fitting to lubricate each wheel.

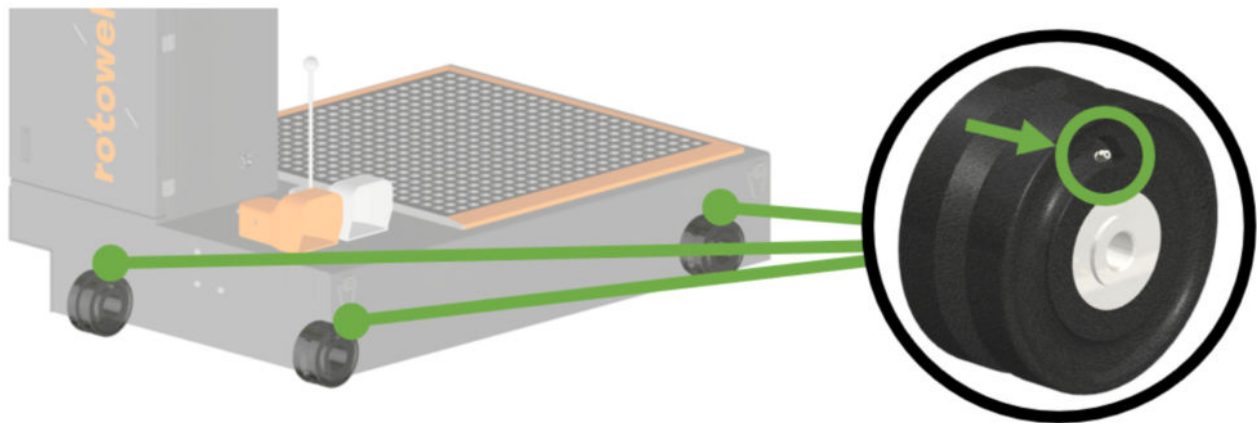


Figure 30 – RTW 3.0 Carriage Wheels

2. Make sure that the wheel housing are clean, if necessary, wipe off excess grease.

Motorization Sprocket

1. Validate that the sprocket is tight on the transmission shaft axis.
2. Verify that the sprocket height within the chain is properly set.

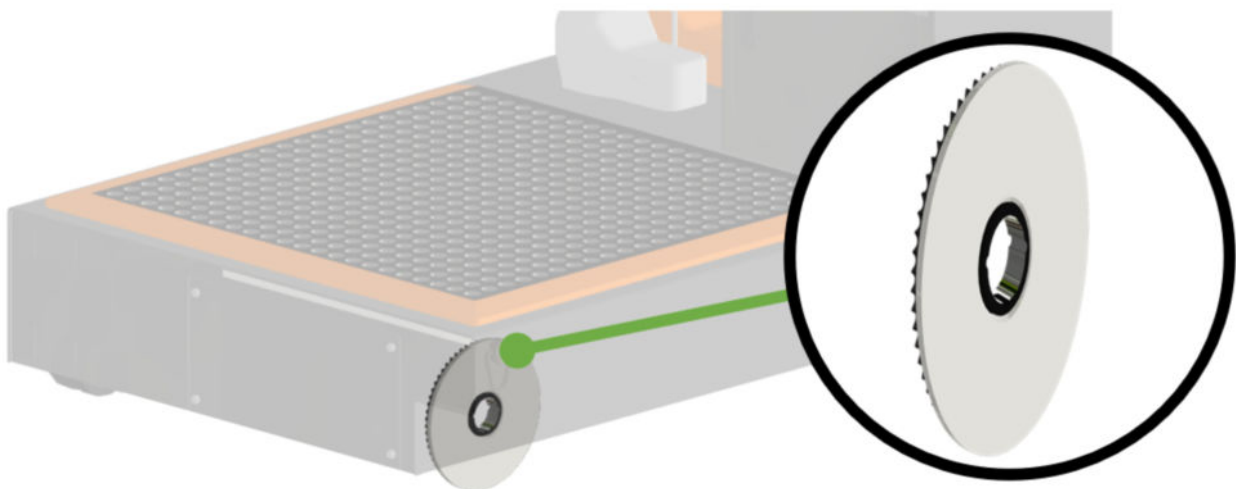


Figure 31 – RTW 3.0 Motorization Sprocket

Welding Manipulator

MIG/MIG Configuration

Two welding torches are connected to the manipulator. One torch is used for the root pass, and the other is used for the fill passes.



Figure 32 – RTW 3.0 MIG/MIG Welding Torches

MIG/SAW Configuration

This MIG/SAW configuration have both kits of torches MIG/MIG and MIG/SAW so it is possible to swap depending on the welding processe required.

Each torch kit contains the liners, gas line, contact tips, gas nozzle, gas diffuser and cooling line that are appropriate for the intended welding process.

The MIG/SAW kits come with specific features for SAW welding:

- Specific tip and nozzle,
- Flux feeding hose (red),
- Specific frame on top of the carriage to guide the MIG/SAW torch assembly, which is heavier than the MIG/MIG assembly.



Figure 33 – RTW 3.0 MIG/SAW Welding Torches

Torch Position Reference

Proper location of the X & Y welding tool point is important to maintain the required welding torches positions on the pipe. To proceed to welding arm calibration please contact Tecnar service team at service@tecnar.com.

Servo Control Timing Belt

This section describes the steps required to adjust the tension of the timing belt for the J1, J2, and J3 motorization systems. Refer to the applicable section below to tighten the belt.

1. Verify that the belts are not slack. If the belt is loose, open the appropriated section by following the steps below and tight the belt.

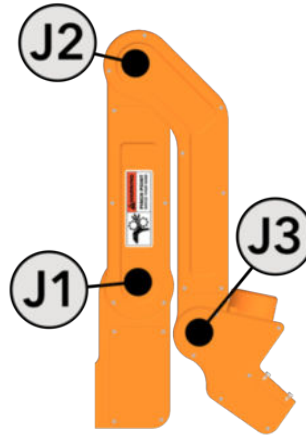


Figure 34 – RTW 3.0 Motor Drive Localization - General

J1 Timing Belt

2. Loosen the four screws of the motor without removing them.

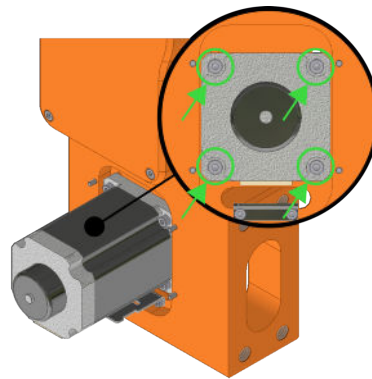


Figure 35 – RTW 3.0 Motor Drive Localization - J1 (1 of 2)

3. Adjust the timing belt tension. When the desired tension is reached, tighten the four screws mentioned in the previous step.

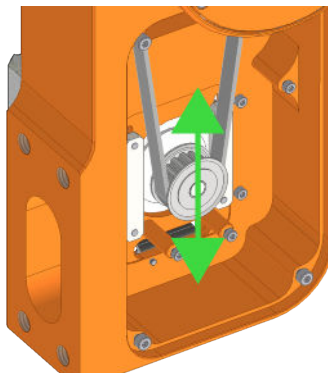


Figure 36 – RTW 3.0 Motor Drive Localization - J1 (2 of 2)

J2 Timing Belt

4. Loosen the four screws of the motor without removing them.

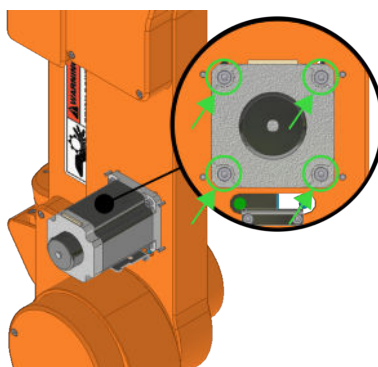


Figure 37 – RTW 3.0 Motor Drive Localization - J2 (1 of 2)

5. Adjust the timing belt tension. When the desired tension is reached, tighten the four screws mentioned in the previous step.

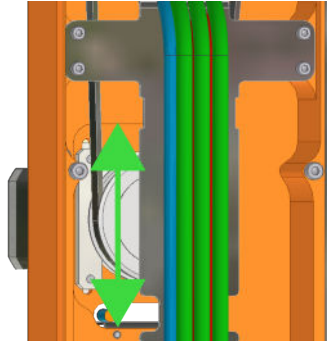


Figure 38 – RTW 3.0 Motor Drive Localization - J2 (2 of 2)

J3 Timing Belt

6. Loosen the four screws of the motor without removing them.

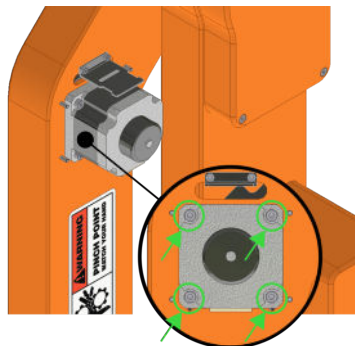


Figure 39 – RTW 3.0 Motor Drive Localization - J3 (1 of 2)

7. Adjust the timing belt tension. When the desired tension is reached, tighten the four screws mentioned in the previous step.

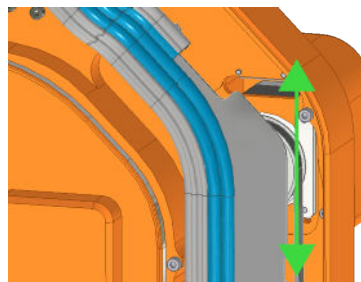


Figure 40 – RTW 3.0 Motor Drive Localization - J3 (2 of 2)

Root & Fill Torches

The following sections describe all maintenance operations required for the root and fill torches.

NOTE



USE THE APPLICABLE SECTION DEPENDING ON THE CONFIGURATION OF THE ROTOWELD 3.0.

Nozzle, Contact Tip & Gas Diffuser

1. Perform the applicable following substep:
 - 1.1. Clean the nozzle,
 - 1.2. If necessary, replace the nozzle.

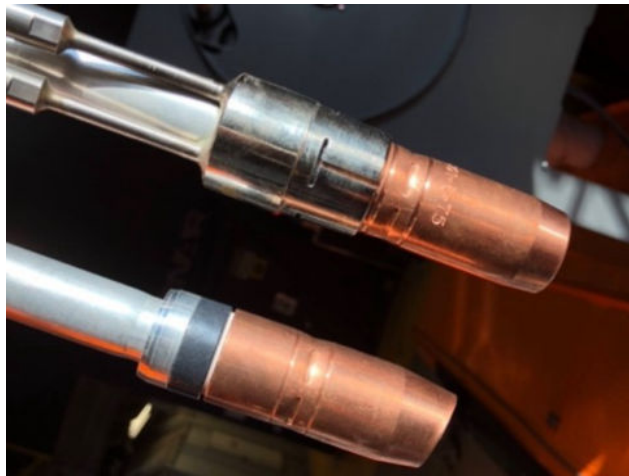


Figure 41 – RTW 3.0 Nozzle

2. Perform the applicable following substep:
 - 2.1. Clean the contact tip,
 - 2.2. If necessary, replace the contact tip.



Figure 42 – RTW 3.0 Contact Tip

3. Perform the applicable following substep:
 - 3.1. Clean the gas diffuser,
 - 3.2. If necessary, replace the gas diffuser.



Figure 43 – RTW 3.0 Gas Diffuser

Replace Conventional Liners

1. Remove consumables (nozzle, contact tip and gas diffuser) and set them aside.

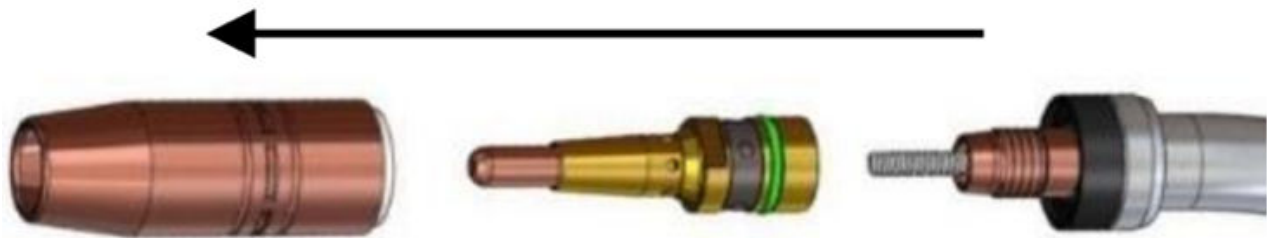
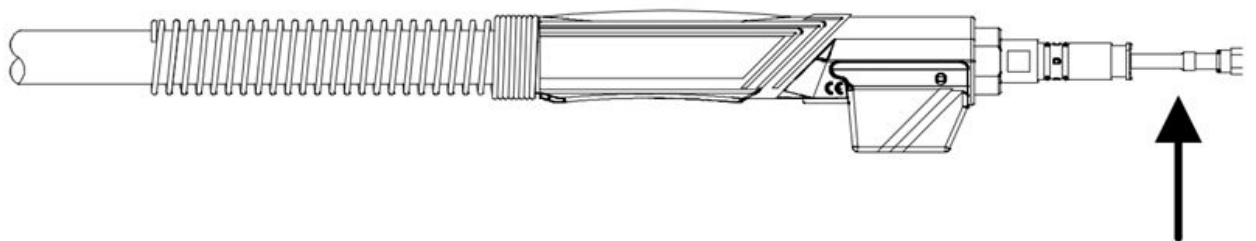


Figure 44 – RTW 3.0 Conventional Liner (1 of 3)

2. Using a 10 mm wrench, remove power pin, turn tread-in liner collet counter-clockwise until liner is free from the power pin.



CONDUIT LINER

Figure 45 – RTW 3.0 Conventional Liner (2 of 3)

3. Grip conduit liner with plier and remove.
4. Using short strokes, feed the replacement liner through the gun. Twist the liner clockwise if necessary.
5. Using a 10 mm wrench, turn thread-in liner collet in a clockwise direction and tighten in the power pin.
6. Push the liner back into the gun and hold in place.

7. Using the liner gauge, trim the conduit liner with a 3/4" (20 mm) stick out.

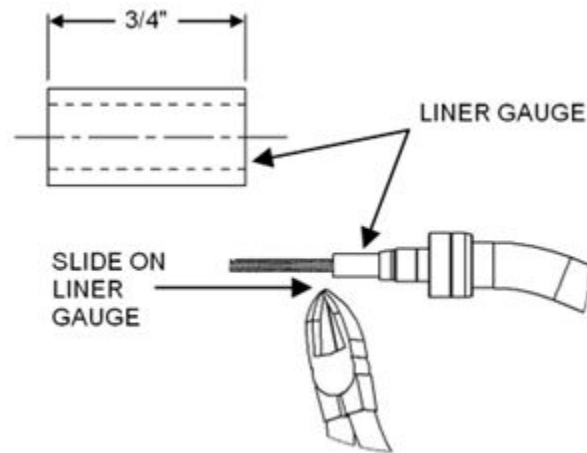


Figure 46 – RTW 3.0 Conventional Liner (3 of 3)

8. Reinstall consumables.

Replace QUICK LOAD™ Liners

1. Remove consumables (nozzle, contact tip and gas diffuser) and set them aside.



Figure 47 – RTW 3.0 QUICK LOAD™ Liner (1 of 4)

2. Using pliers, pull the existing QUICK LOAD™ liner from the neck.

3. Remove the protective cap from the new QUICK LOAD™ liner.



Figure 48 – RTW 3.0 QUICK LOAD™ Liner (2 of 4)

4. Insert the QUICK LOAD™ liner through the neck using the wire as a guide.



Figure 49 – RTW 3.0 QUICK LOAD™ Liner (3 of 4)

5. Using short strokes, push the QUICK LOAD™ liner in.
6. Once the QUICK LOAD™ liner stops feeding, give it an extra push to ensure it bottoms out and is inserted completely.

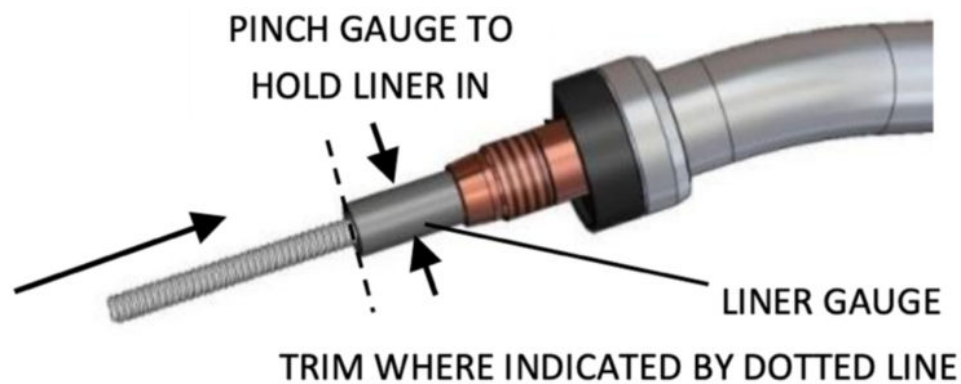


Figure 50 – RTW 3.0 QUICK LOAD™ Liner (4 of 4)

7. Reinstall consumables.

SAW Fill Torch Liner

1. Remove consumables (nozzle, contact tip and gas diffuser) and set them aside.



Figure 51 – RTW 3.0 SAW Fill Torch Liner (1 of 3)

2. Using a 10 mm wrench, remove power pin, turn tread-in liner collet counter-clockwise until liner is free from the power pin.

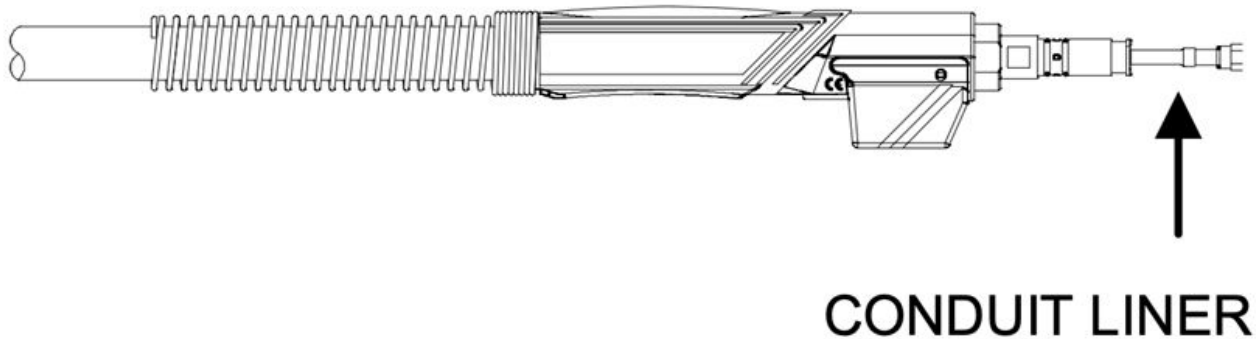


Figure 52 – RTW 3.0 SAW Fill Torch Liner (2 of 3)

3. Grip conduit liner with plier and remove.
4. Using short strokes, feed the replacement liner through the gun. Twist the liner clockwise if necessary.
5. Using a 10 mm wrench, turn thread-in liner collet in a clockwise direction and tighten in the power pin.
6. Push the liner back into the gun and hold in place.

7. Using the liner gauge, trim the conduit liner with a 3/4" (20 mm) stick out.

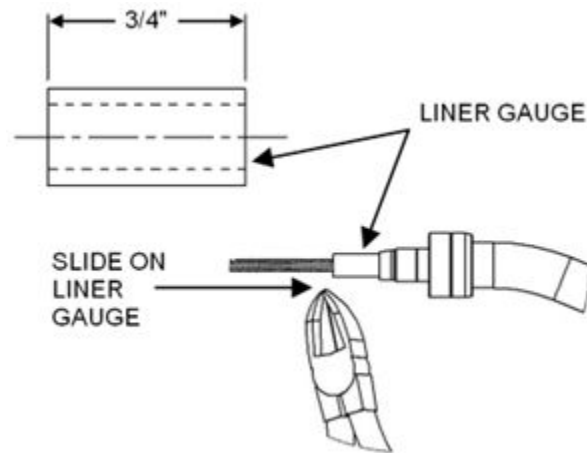


Figure 53 – RTW 3.0 SAW Fill Torch Liner (3 of 3)

8. Reinstall consumables.
9. In case of malfunction of the flux valve, clean the inside filter and/or inspect the rubber pinch valve for hole or tear.

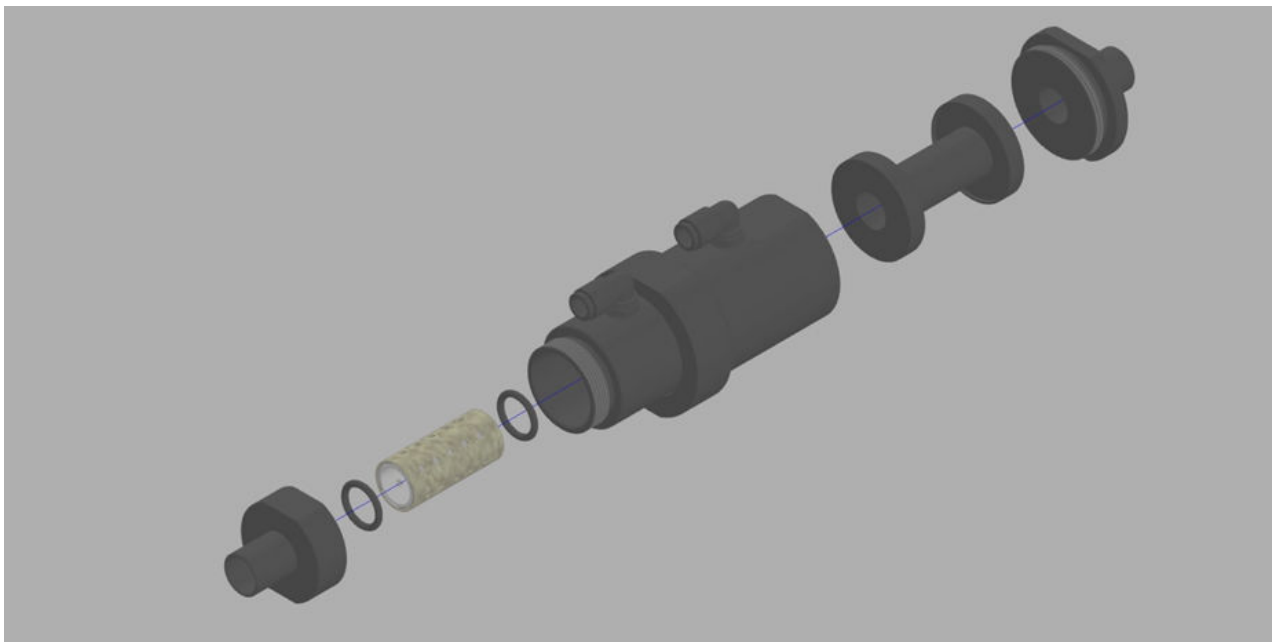


Figure 54 – RTW 3.0 SAW Fill Torch Filter and Rubber Pinch Valve

Control Station

The following sections describe all maintenance operations required for the control station of the welding carriage.

Monitor and Computer Enclosure

CAUTION



NEVER SWITCH THE MAIN POWER OFF BEFORE PROPER SHUT DOWN PROCESS OF THE ROTOWELD.

1. Shut down the Rotoweld 3.0 system.
2. Turn the power key to the OFF "O" position.



Figure 55 – RTW 3.0 Monitor Power Key

- Turn the Torch button to Up and hold to the right until the arm is completely calibrated.

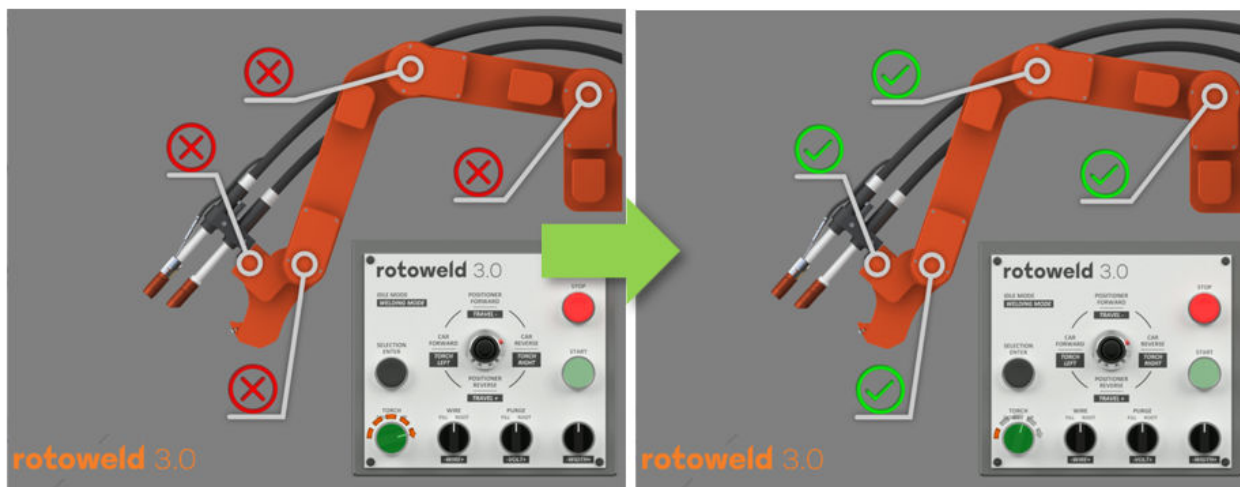


Figure 56 – RTW 3.0 Arm Calibration

Expected Result The Rotoweld will shut down.

- Once the computer shut down process is completed, wait one minute.

CAUTION



NEVER SWITCH THE MAIN POWER OFF BEFORE THE COMPLETE SHUT DOWN OF THE MACHINE.

- Turn off the main power switch.



Figure 57 – RTW 3.0 Main Power Switch

6. Open the back panel of the monitor cabinet to access the monitor.

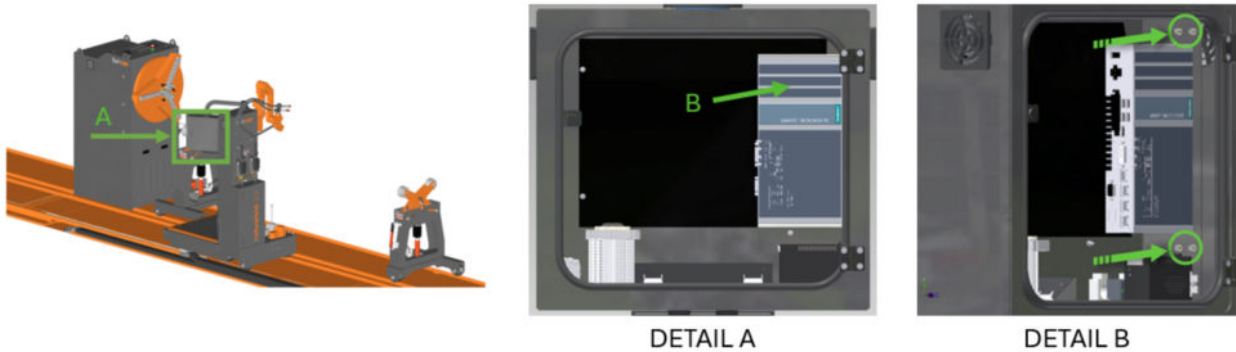


Figure 58 – RTW 3.0 Monitor Cabinet Back Panel

7. Loosen the four screws of the bracket mount of the computer without removing them completely.
8. Once the screws are sufficiently loosened, lift the computer and slightly tilt the lower portion to disengage it from the bottom bracket.
9. Pull down to release the top bracket from the bottom bracket.

CAUTION



PULL DOWN THE SLEEVE OF THE POWER CONNECTOR BEFORE PULLING DOWN THE CABLE OF THE OUTLET VOLTAGE.

10. Unplug all wires linked to the monitor.



Locked position - Don't pull out



Unlocked position - Pull out

Figure 59 – RTW 3.0 Monitor's Wires

11. Remove the four screws that hold the monitor to the cabinet housing and set them aside.

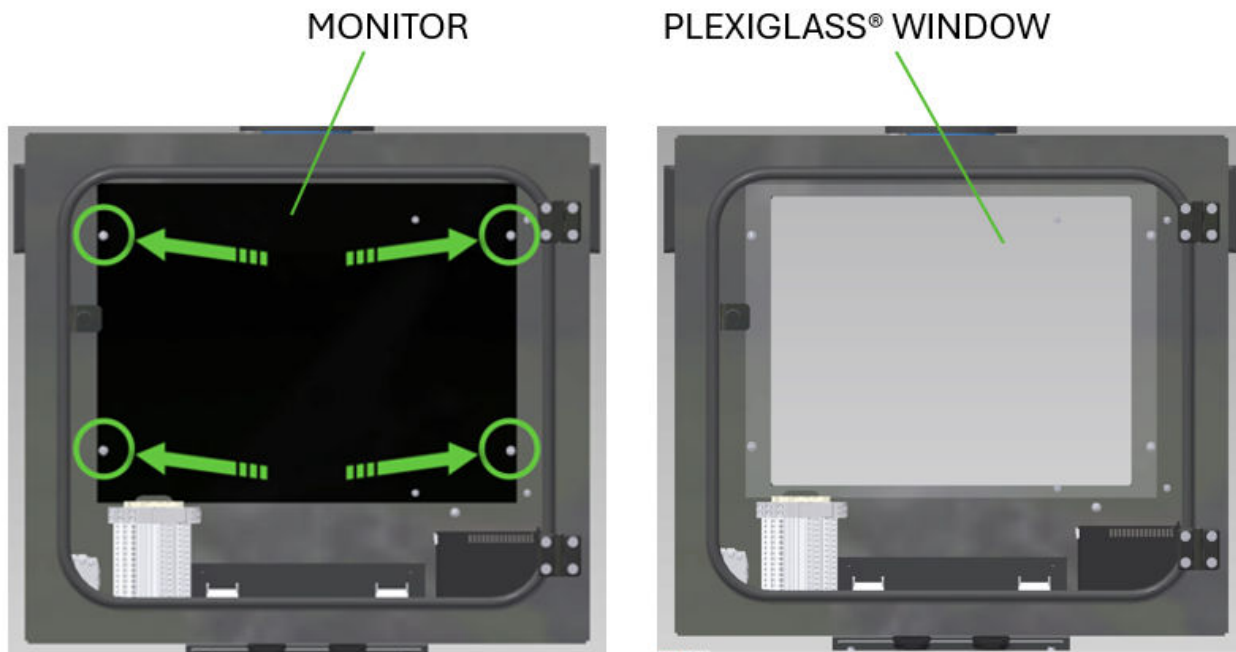


Figure 60 – RTW 3.0 Monitor fixation

12. Remove the monitor.
13. Clean the Plexiglass® window with mild soap, and gently remove dust from the monitor screen using a dry, clean cloth.

CAUTION



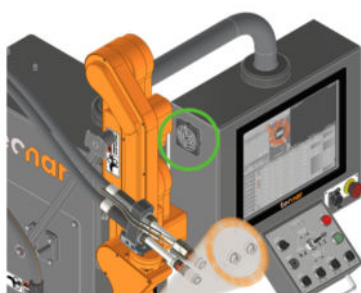
BEFORE USING COMPRESSED AIR, ENSURE THAT THE AIR HOSE DELIVERS CLEAN, DRY AIR AND THAT NO WATER OR OIL IS DISCHARGED DURING OPERATION.

14. Provide one of the equipment mentioned below to remove dust and debris:
 - air compressor
 - pressurized air supply
 - industrial vacuum cleaner
15. Remove dust from the inside of the monitor cabinet.
16. Reassemble the monitor inside of the cabinet housing.
17. Install the four screws that secure the monitor. Connect the 12 VDC power cable and the video cable to the monitor (see **Figure 60**).
18. Reinstall the computer to its initial location and tight all four screws.
19. Close the back panel of the cabinet.

Fan Filters

Perform the applicable following substep for the three filters.

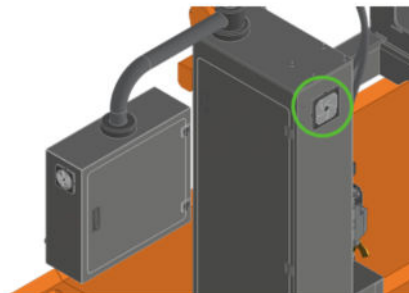
1. Clean the filter.
2. If necessary, replace the filter.



MONITOR FAN (RIGHT)



MONITOR FAN (LEFT)



CARRIAGE FAN (RIGHT)

Figure 61 – RTW 3.0 Fan Filters

POSITIONNER

The positioner controls the rotation of the pipes during the welding process. The main positioner also contains the welding power sources.

Access panels to various internal components:

- 1x - Access panels on both side of the positioner, which provide access to the gear box, and rotative ground.
- 1x - Access panel on the rear of the positioner, which provides access to the electrical panel and servo drive
- 2x - Access panels (one on the front and one on the rear) on the main positionner, which provide access to the fill welding power source.

NOTE



THE SECONDARY POSITIONER IS ESSENTIALLY IDENTICAL TO THE MAIN POSITIONER, BUT IT FEATURES A SMALLER ELECTRONIC PANEL, NO WELDING POWER SOURCES, AND NO GAS-CYLINDER HOLDER, AS POWER AND GAS ARE SUPPLIED BY THE MAIN POSITIONER.

Rotative Ground

CAUTION



IF THE ROTARY GROUND IS NOT PROPERLY GREASED IT COULD LEADS TO A LOCK OF THE POSITIONNER AND DAMAGE THE EQUIPMENT.

Make sure to follow the **Recommended Maintenance Schedule** for an optimal performance of the positionner.

1. When the positioner is not controlled by the welding carriage pendant, turn the positioner.

NOTE



THE POSITIONNER CAN ROTATE WHEN A SPOOL IS BEING LOADED OR UNLOADED.

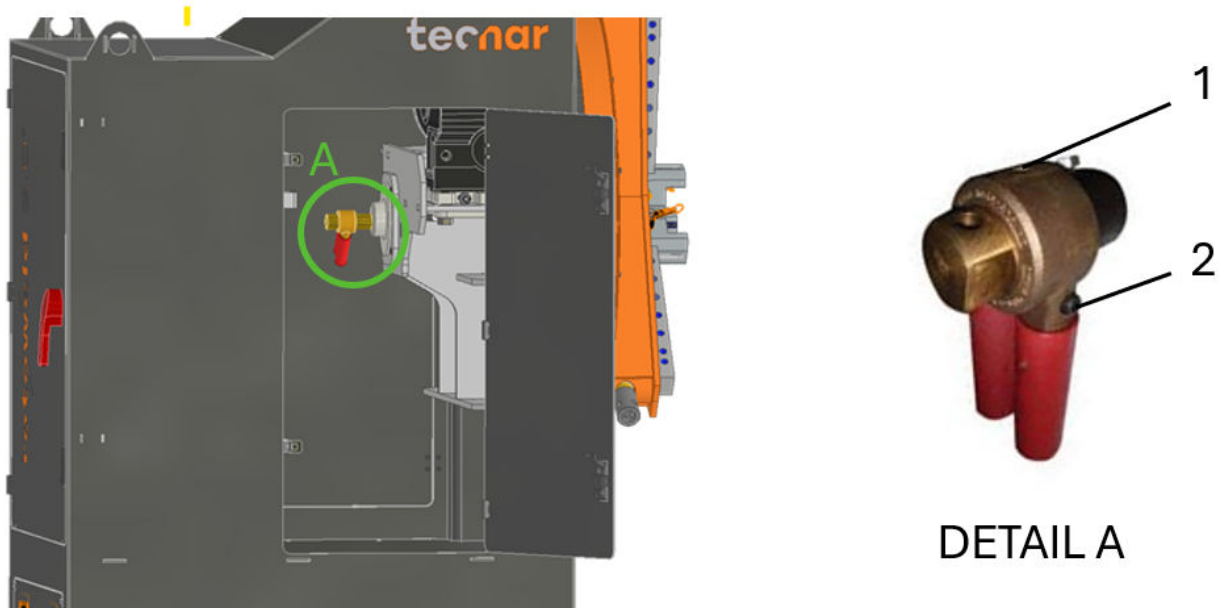


Figure 62 – RTW 3.0 Rotative Ground

2. On rotative ground **(1)**, add grease accordingly.

NOTE



USE TWECO 8Z-L SHAFT LUBE TO GREASE THE ROTATIVE GROUND.

CAUTION



IF THE ROTARY GROUND IS TOO TIGHT, THE WELDING CABLES CAN WRAP AROUND THE SHAFT AND BREAK CABLES.

3. If needed, on rotative ground, adjust the screw **(2)** by turning it.

Gas Cylinder Pressure Regulator

CAUTION



THE PRESSURE REGULATOR SHOULD ALWAYS BE SET AT 30 PSI.

1. Validate that the CO₂ gas pressure regulator is set at 30 psi.



Figure 63 – RTW 3.0 Gas Cylinder Pressure Regulator

2. Validate that the inert gas pressure regulator is set at 30 psi.

Self Centering Chuck

1. Clean the chuck gripper.
2. If necessary, replace the chuck gripper.

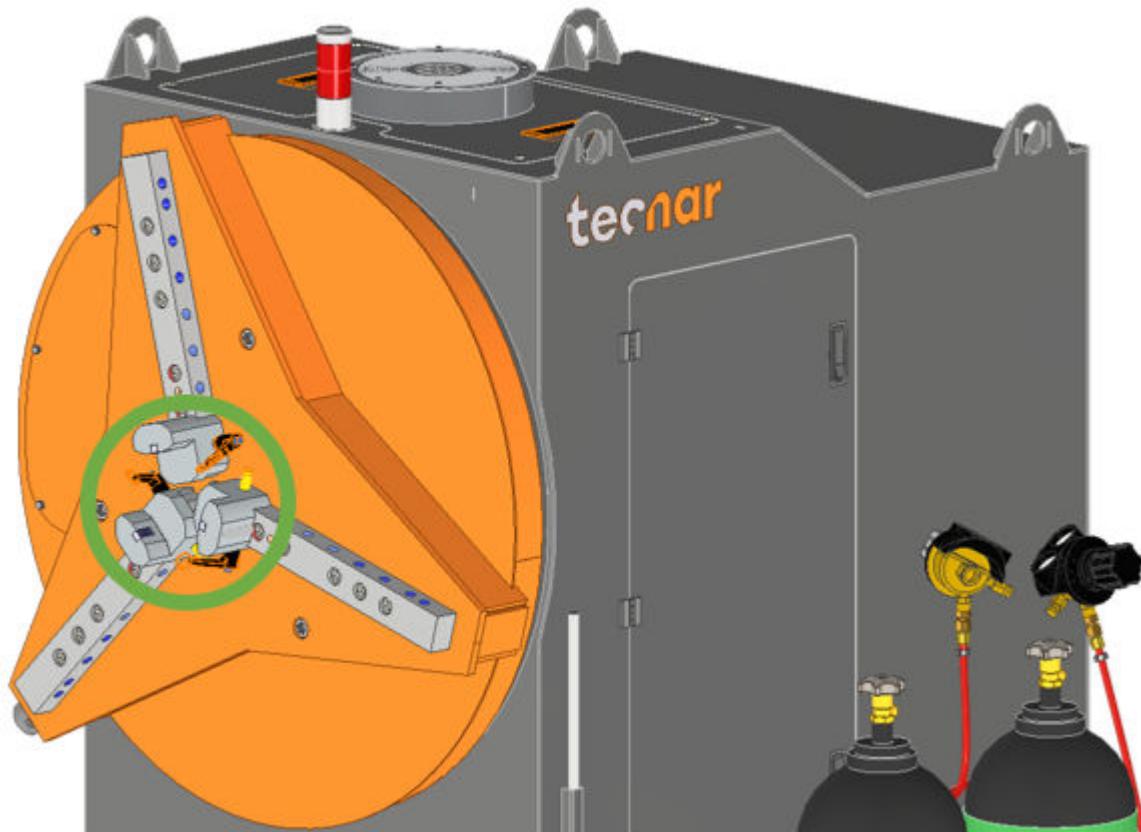


Figure 64 – RTW 3.0 Self Centering Chuck Gripper

Gears Assembly

1. Unscrew the six screws of the front panel and set them aside.

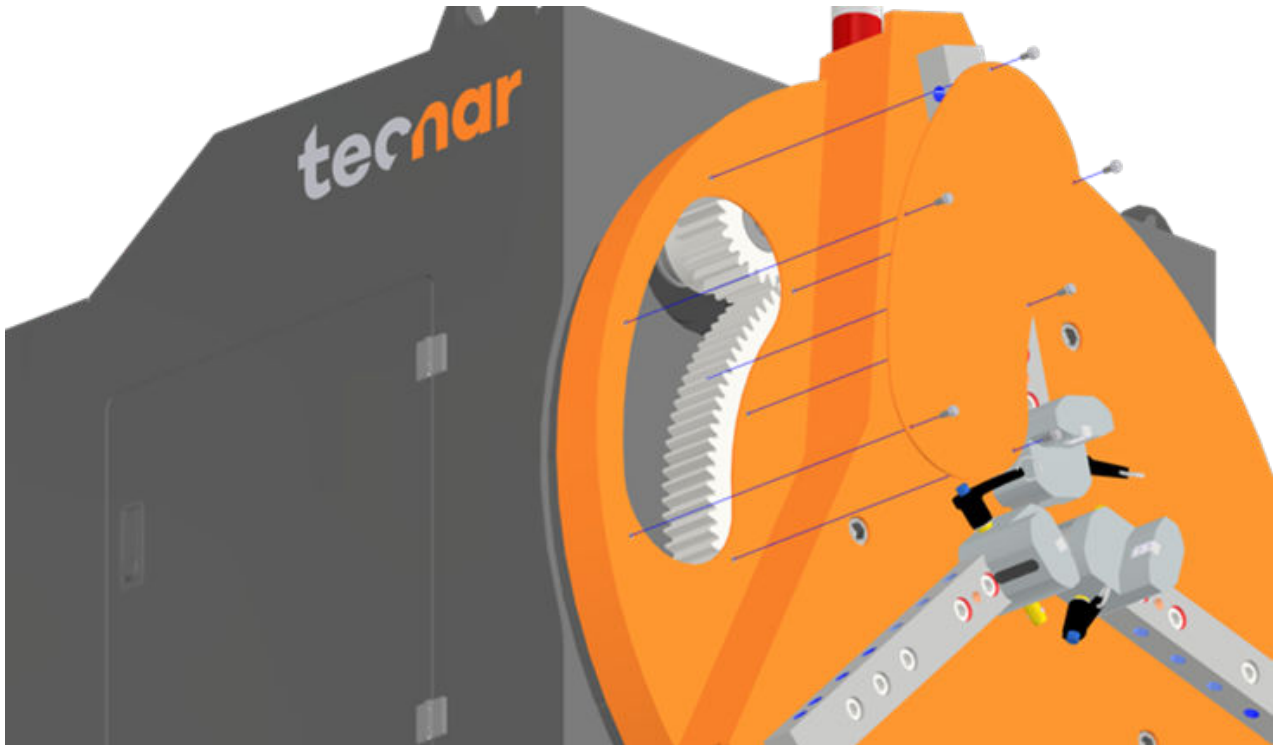


Figure 65 – RTW 3.0 Pinion Gear Access Panel

2. Remove the front panel of the chuck.

Gear Lubrication

3. Check whether lubrication is required and apply grease as needed.

NOTE



USE VALVOLINE™ CRIMSON™ OR EQUIVALENT MULTIPURPOSE GREASE.

Gear Box Maintenance

4. Perform visual inspection of the following elements:
 - Oil leaks
 - Seal

Gear backlash

5. To adjust backlash, perform the following substeps:
 - 5.1. Loosen the screws of the gearbox.
 - 5.2. Adjust the backlash by sliding the gearbox.

NOTE



DON'T EXCEED 1/64 IN.

- 5.3. Tighten the screws.



Figure 66 – RTW 3.0 Gear Backlash Adjustment

6. Put back in place the front panel and secure it with the six screws removed before.

Pillow Blocks Bearing

1. Open the side panel of the positionner.
2. For both pillow block bearings, verify that the grease quantity is adequate and add grease if necessary.

NOTE



USE VALVOLINE™ CRIMSON™ OR EQUIVALENT MULTIPURPOSE GREASE.

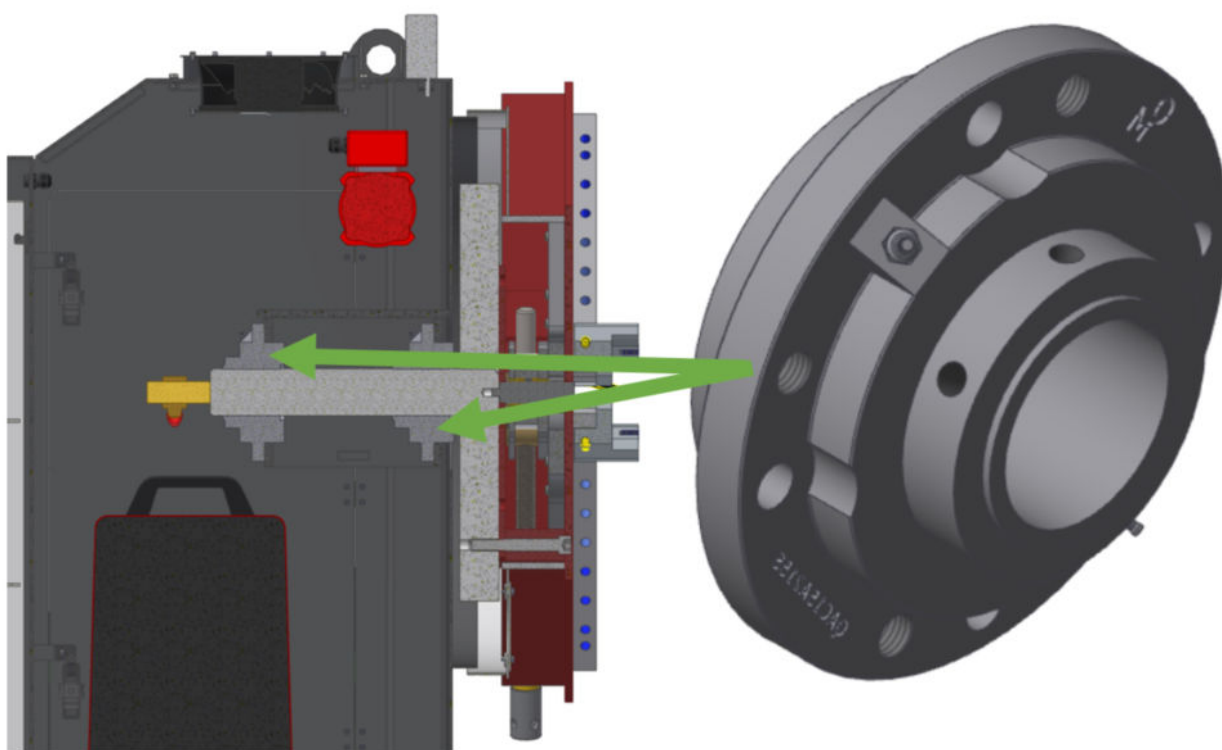


Figure 67 – RTW 3.0 Pillow Block Bearing

Root Power Source

The following sections describe all maintenance operations required for the root power source.

Invertec® STT® II Power Source

A preventive maintenance should be done at least once every six months (see **Recommended Maintenance Schedule**). It is good practice to keep a preventive maintenance record; a record tag attached to the machine works best.

1. Turn off input power or disconnect input power lines.

Input Filter Capacitor Discharge

2. Remove hex head screws from side and top of machine. Set them aside.
3. Remove the machine wrap-around cover.



Figure 68 – RTW 3.0 STT® II Power Source

WARNING



NEVER USE A SHORTING STRAP FOR THIS PROCEDURE.

4. Obtain a high resistance and high wattage resistor (25-1000 ohms and 25 watts minimum).

NOTE



THIS RESISTOR IS NOT SUPPLIED WITH MACHINE.

WARNING



NEVER TOUCH CAPACITOR TERMINALS WITH YOUR BARE HANDS.

5. Locate the two capacitor terminals (large hex head cap screws) on the side of the machine.

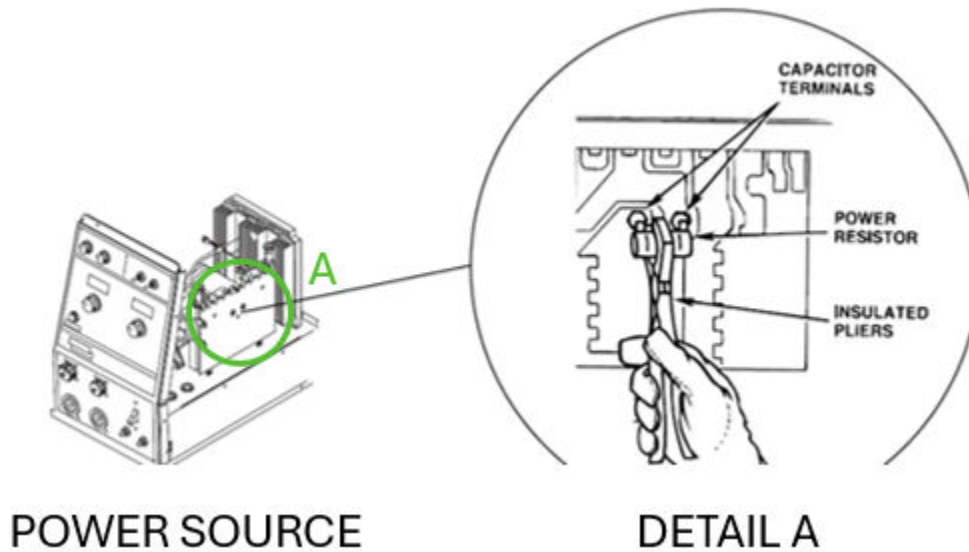


Figure 69 – RTW 3.0 Input Filter Capacitor Terminals

6. Make sure to use safety glasses, electrically insulated gloves and insulated pliers applicable to the energy level.
7. Perform the following substeps for capacitors on both side of the machine:
 - 7.1. Hold body of the resistor and connect resistor leads across the two capacitor terminals.
 - 7.2. Hold resistor in place for 10 seconds.
8. Check voltage across terminals of all capacitors with a DC voltmeter.

NOTE



POLARITY OF CAPACITOR TERMINALS IS MARKED ON PC BOARD ABOVE TERMINALS.

Expected Result Voltage should be zero.
If any voltage remains, repeat this capacitor discharge procedure.

Preventive Maintenance

9. Clean the inside of the machine with a low pressure airstream. Be sure to clean the following components thoroughly:
 - Power Switch, Driver, Protection, and Control printed circuit boards
 - Power Switch
 - Main Transformer
 - Input Rectifier
 - Heat Sink Fins
 - Input Filter Capacitors
 - Output Terminals
 - Lower base compartment
10. Inspect the capacitors for signs of leakage or oozing and replace them if necessary.
11. Inspect the wraparound cover for dents or breakage and repair it as required.

NOTE



THE COVER MUST BE KEPT IN GOOD CONDITION TO ENSURE THAT HIGH-VOLTAGE COMPONENTS REMAIN PROTECTED AND THAT PROPER CLEARANCES ARE MAINTAINED.

12. Using an ohmmeter, measure resistance between either output stud and an unpainted surface of the machine case to check electrical ground continuity.
Expected Result Ohmmeter reading should be 500 000 ohms or more.
If ohmmeter reading is less than 500 000 ohms, check for electrical components that are not properly insulated from the case. Correct insulation if necessary.

Invertec® STT® Module Power Wave S500 Routine Maintenance

For more details about periodic maintenance, refer to **Recommended Maintenance Schedule**.

1. Using a low-pressure air stream, remove accumulated dust and dirt from the intake and outlet louvers and the cooling channels in the machine.
2. Verify that the STT® Module fan is operational when the power source fan is activated.



Figure 70 – RTW 3.0 STT® Module Power Wave S500

Invertec® STT® Module Power Wave S500 Calibration

Due to the nature of its operation, calibration of the STT® Module is not required. From a system perspective, the output calibration of the power source and wire feeder should be performed as directed in their respective instruction manuals.

When calibrating the power source voltage using the Weld Manager utility, the actual output voltage should be monitored directly at the output of the power source (not the STT® Module output). This is necessary because the default calibration mode senses voltage directly from the power source output studs.

The STT® Module has no effect on the output current calibration.

Fill Power Source

The following sections describe all maintenance operations required for the fill power source.

Fill Power Source Maintenance

In extremely dusty environments, dirt may clog the air channels, causing the welder to operate at higher temperatures and leading to premature activation of the thermal protection.

1. Perform a visual inspection of the fill power source to identify any signs of damage.
2. Using a low-pressure air stream, eliminate excessive dirt and dust build-up on internal parts.

NOTE



USE THE APPLICABLE FIGURE AMONG THE THREE PROVIDED, DEPENDING ON THE CONFIGURATION OF THE ROTOWELD 3.0.



Figure 71 – RTW 3.0 Fill Power Source Idealarc® CV400



Figure 72 – RTW 3.0 Fill Power Source Flextec® 650



Figure 73 – RTW 3.0 Power Wave® S500

Fill Power Source Calibration

Output voltage and current are calibrated at the factory. Generally, the machine calibration will not need adjustment. However, if the weld performance changes, or the yearly calibration check reveals a problem, use the calibration section of the Diagnostics Utility to make the appropriate adjustments. The Diagnostics Utility includes detailed instructions and is available at [Lincoln Electric® - Software Downloads](#).

The calibration procedure requires the use of a calibration grid and certified reference meters for voltage and current. The accuracy of the calibration is directly dependent on the accuracy of the measuring equipment used.

PIPE STANDS

A positioner has two pipe stands, which can be moved along the tracks into the best positions for the spool.

MIG/MIG Configuration

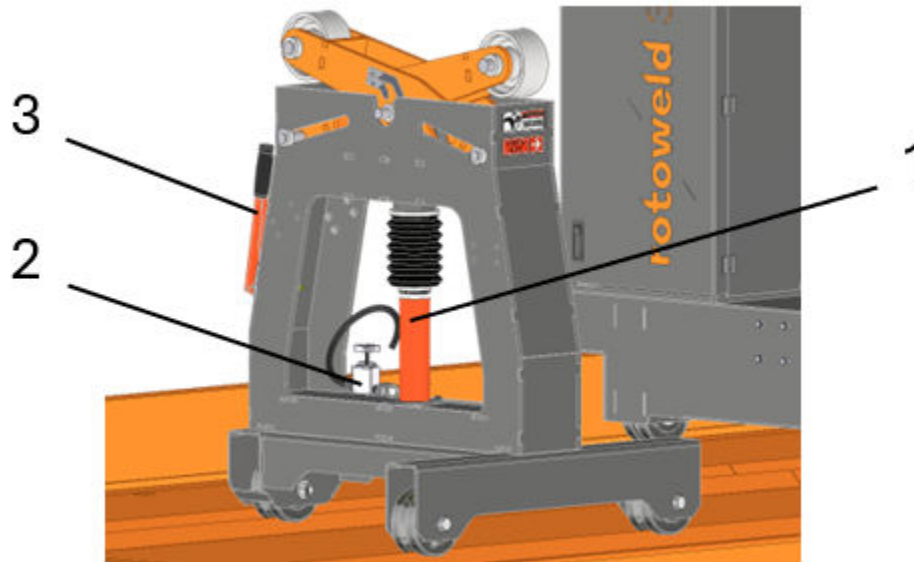


Figure 74 – RTW 3.0 MIG Pipe Stands

Item	Component	Description
1	Hydraulic cylinder, hoses connections	Hydraulic cylinder to raise or lower the pipe support, connected with hoses
2	Locking hydraulic valve	Locks the height of the rolls by closing the hydraulic circuit
3	Manual pump	Feed oil to the hydraulic cylinder for extension

Table 1 – RTW 3.0 MIG/MIG Configuration - Pipe Stand Components

MIG/SAW Configuration

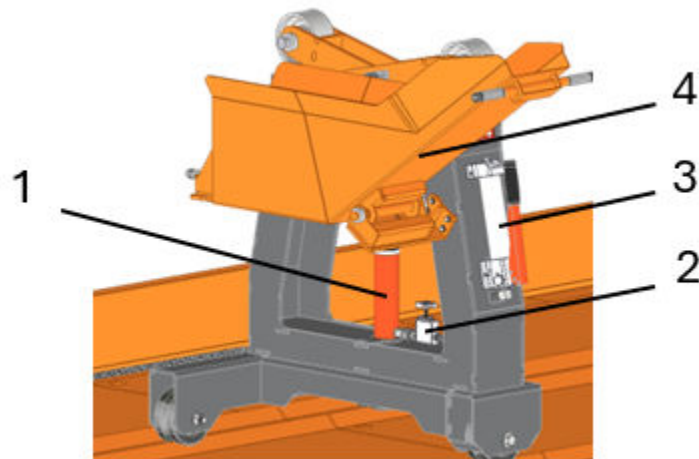


Figure 75 – RTW 3.0 SAW Pipe Stands

Item	Component	Description
1	Hydraulic cylinder, hoses connections	Hydraulic cylinder to raise or lower the pipe support, connected with hoses
2	Locking hydraulic valve	Locks the height of the rolls by closing the hydraulic circuit
3	Manual pump	Feed oil to the hydraulic cylinder for extension
4	Flow Basket	The flow basket is used to collect and retain excess welding flux after the welding pass, allowing recycling when authorized and preventing material loss.

Table 2 – RTW 3.0 MIG/SAW Configuration - Pipe Stand Components

Use the handles to tilt the flow basket in order to empty it.

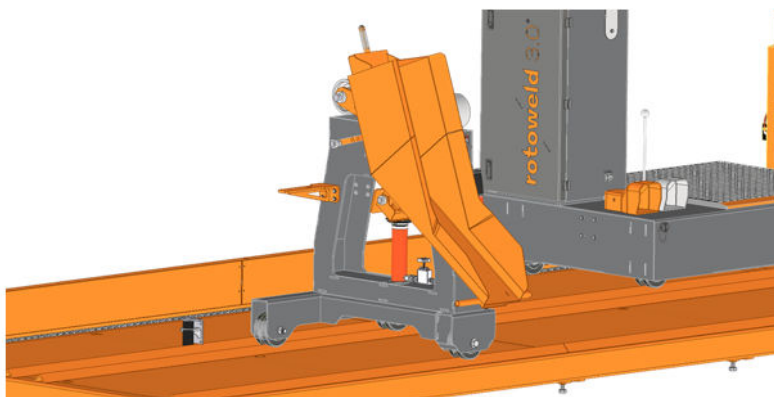


Figure 76 – RTW 3.0 Flow Basket

Pipe Stand Maintenance

Hydraulic Cylinder and Hoses Connection

1. Inspect for damages and fix if leaks are presents at connection points. Replace damaged hoses or components.
2. Inspect for damages and fix if leaks are presents at connection points.
3. To check oil level perform the following substeps:
 - 3.1. Validate that the oil level is in the adequate range.
 - 3.2. Raise the pipe to the maximum height until both wheel are touching.
If the wheels cannot reach this point, oil should be added to the pump reservoir. The nominal quantity of oil is 8 ¾ - 9 inches in the reservoir. Use a liquid level dipstick or equivalent.

NOTE



USE SPX POWER TEAM® 9637 STANDARD HYDRAULIC OIL.

- Lower the pipe stand to the lowest point,
- Open the cap pump and refill the reservoir.

Locking Hydraulic Valve

4. With a heavy pipe on the pipe stand, close the locking valve (clockwise).
5. Slowly open the pump to release the oil.
6. If the pipe is going down, a new locking valve maybe required.

Wheels

7. Grease all wheels on the pipe stand.

NOTE



USE VALVOLINE™ CRIMSON™ OR EQUIVALENT MULTIPURPOSE GREASE.

8. Repeat the step before for all pipe stands.

Flux Pan

9. If recycling of flux is permitted, using proper screening for debris, transfer flux from pans to pressure tank.

RECOMMENDED MAINTENANCE SCHEDULE

Maintenance is sorted in tables based on intervals (more to less frequent).

Legend:

- C: Clean
- R: Replace
- V: Verification

Task	Description
C	Track, Carrier cable & cable tray
C	Torch fill & root Nozzles
C	Transfer Flux from pans to pressure tank using proper screening for debris (if recycling of flux is permitted)
V	Welding Wire Spool remaining
V	Flux level pressurized tank
V	Remaining pressure of the bottles of shielding gas
R	Fill Torch Contact Tip

Table 3 – RTW 3.0 Maintenance - Daily

Task	Description
C	Jaw inserts on the chuck
V	Inspection of the cable carrier, replace broken cap or links if required

Table 4 – RTW 3.0 Maintenance - Weekly

Task	Description
C	Wire feeders rollers
V	Torch nozzles (change if needed)
V	Test foot pedals on carriage and positioner(s) in each direction, inspect cable for damage
V	Chain tension for welding carriage
V	Water cooler level
R	Root Torch Contact Tip
R	Camera window
R	Fill torch liner

Table 5 – RTW 3.0 Maintenance - Monthly

Task	Description
C	Base of the welding carriage with a vacuum
V	Visual inspection of the flow meters, flow meter for gas leak
V	Water cooler level
V	Positioner Ground tightness and lubrication
R	Root torch liner

Table 6 – RTW 3.0 Maintenance - Quarterly

Task	Description
C	Monitor
C	Inside of main and secondary positioners
C	Pump inlet strainer of the water cooler
C	Water cooler heat exchanger
V	Inspection of the big and pinion gear on each positioner, add grease if needed
V	Chuck backlash
V	Gear box in each positioner (sign of wear and oil leak)
V	Welding ground attach to the end of the shaft of each turn table
V	Leak from the water cooler
V	Welding torch
V	Flow meter for gas leak
V	Cable carrier, replace broken link if needed
V	Grease Pillow block and flange bearing of the positioner
V	Optical filter inside the optical tube of the camera
V	Pipe stand, hose, leak & oil level
V	Water cooler, re-oil the pump motor bearings
R	Coolant of the water cooler

Table 7 – RTW 3.0 Maintenance - Annually

ANNEXES

The table below lists the manuals and OEM documents applicable to the Rotoweld 3.0.

Annex	Document
Annex A	40101-00079-00 - RTW 3.0 FE Maintenance Manual
Annex B	Valvoline™ Crimson™ Grease
Annex C	SPX Power Team® 9637 Standard Hydraulic Oil

Table 8 – RTW 3.0 Annexes

Annex A

40101-00079-00 - RTW 3.0 FE Maintenance Manual



ROTOWELD

FUME EXTRACTOR MAINTENANCE MANUAL

Rotoweld 3.0 FE
All Configurations

40101-00079-00

Revision : 2026-10-14

TECNAR



WELDING
TECHNOLOGIES



REVISION HISTORY

Rev	Description	Written by	Date
B	Adapted to new document format	T.B.	2026-03-18
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NOTICES

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INTRODUCTION

Purpose

This document provides comprehensive information regarding the maintenance of the Rotoweld 3.0 Fume Extractor. Following this manual will help ensure the equipment is well-maintained and operates reliably within its intended application.

Scope

This manual is intended for qualified technicians. It provides guidance on maintenance instructions.

It defines the recommended maintenance schedule and refers to the relevant sections for detailed procedures and instructions associated with each maintenance task.

SAFETY CONSIDERATION & CONVENTION

The Rotoweld 3.0 Fume Extractor has been designed with user safety in mind; however, improper use may result in injury, damage to the product, or hazardous situations. To ensure safe operation, please read and follow all instructions and warnings in this manual before use.

WARNING



A "WARNING" NOTICE WARNS THAT THE SITUATION CAN CAUSE SERIOUS INJURIES OR DEATH.

CAUTION



A "CAUTION" NOTICE WARNS THAT THE SITUATION MAY DAMAGE THE EQUIPMENT.

NOTE

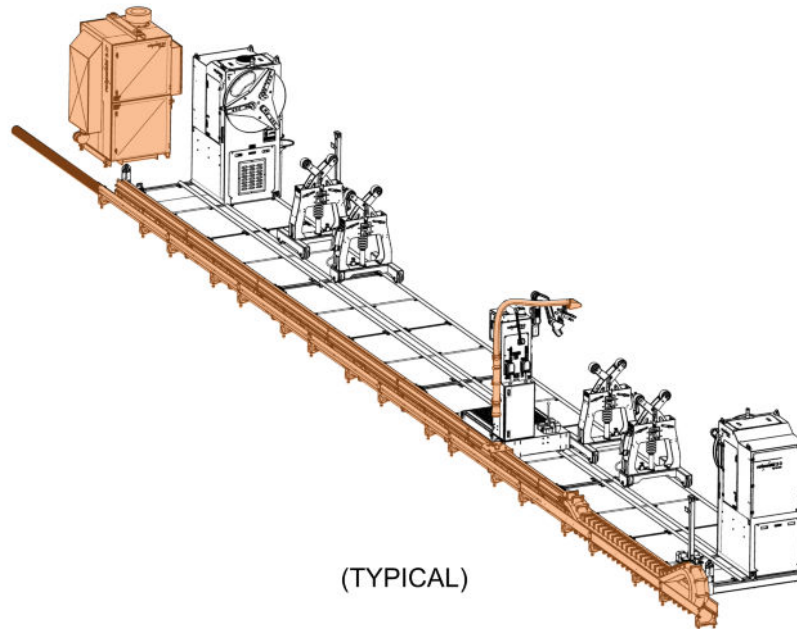


A NOTE ADDS COMPLEMENTARY INFORMATION TO THE TEXT.

Failure to follow these safety considerations may result in product malfunction, injury, or legal liability. Always operate the Rotoweld 3.0 Fume Extractor in accordance with local safety regulations and industry best practices.

PRODUCT OVERVIEW

The Fume Extractor is designed as a bolt-on assembly. Once installed on the Rotoweld, the Fume Extractor kit (orange highlight) will resemble the configuration shown in the figure.



TEC-RTW3FE-0036-LD-A_1/R0

Figure 1 – RTW 3.0 FE Final Assembly

The Fume Extractor consists of several key components designed to work together as an integrated system. Understanding each part is essential for proper installation and operation.

The kit includes everything required to install the Fume Extractor system on the Rotoweld 3.0.

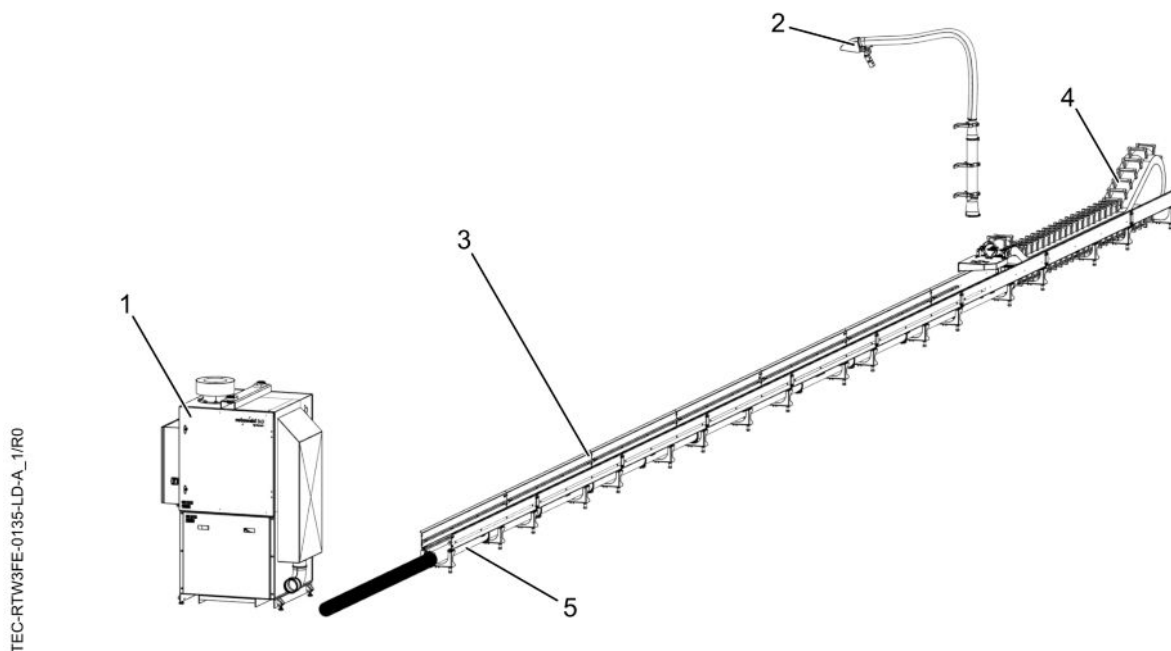


Figure 2 – RTW 3.0 FE Main Components

Item	Component	Description
1	Filters & Motor Unit	Houses the core functions of the fume extraction system. It includes the motor, filter assembly, and control electronics. The main unit is responsible for extracting welding fumes and filtering them effectively.
2	Column section	Allows efficient fume extraction by being directly connected to the welding torches and following the movement of the welding manipulator.
3	Track	Supports the ducts and hose to connect the filters & motor unit to the hood on the column.
4	Hose Carrier	Guides the flexible hose (Nylatube) to follow the movement of the welding carriage.
5	Rigid duct	Connect the Filters & Motor Unit flexible hose to the filters & motor unit.

Table 1 – RTW 3.0 FE Main Components Description

TOOLS, SUPPLIES, AND REFERENCE DOCUMENTATION

This section describes all tools, supplies, and reference documentation required to perform maintenance operations on the Rotoweld 3.0 Fume Extractor.

Equipment

The list below shows the equipment required to perform maintenance operations.

- 1x – Adjustable wrench
- 1x – Flat screwdriver
- A/R – Personal Protective Equipment required by the applicable regulations on site, including:
 - Glass
 - Gloves
 - Mask

Supplies and Consumables

The list below shows the supply and consumables required to perform maintenance operations.

- A/R - Dish soap
- A/R - Filters being replaced:
 - HEPA 23 3/8" x 23 3/8" x 5 7/8" (P/N: 10205-00061-00)
 - MERV 15 cartridge 9 1/2" ID, 13 7/8" OD, 26" length (P/N: 10205-00060-00)
 - Mesh pre-filter 23 1/2" x 23 1/2" x 3/4" (P/N: 10205-00062-00)
- A/R - Water

References

The list below shows documents that may be required to perform maintenance operations.

- 40101-00058-00 – RTW 3.0 Maintenance Manual

RECOMMENDED MAINTENANCE SCHEDULE

Maintenance is sorted in tables based on intervals (more to less frequent).

Legend:

- C: Clean
- R: Replace
- V: Verification

Task	Description
C	Pre-filter (see Cleaning The Prefilter)
V	Hoses and plastic chain visual inspection (see Hoses And Plastic Chain Visual Inspection)

Table 2 – RTW 3.0 FE Maintenance - Every 2 Weeks

Task	Description
C	Dust tray (see Empty The Dust Tray)

Table 3 – RTW 3.0 FE Maintenance - Every Month

Task	Description
C	Remove condensation from the pressure tank (see Remove Condensation From The Pressure Tank)

Table 4 – RTW 3.0 FE Maintenance - Every 6 Months

Task	Description
R	Cartridge filters (see Changing The Cartridge Filters)
R	HEPA filters (see Changing The HEPA Filter)

Table 5 – RTW 3.0 FE Maintenance - Alarms

Task	Description
R	Plastic chain part (see Replace Plastic Chain Part)

Table 6 – RTW 3.0 FE Maintenance - Corrective

FILTERS AND MOTOR UNIT

The following sections describe the step-by-step procedure for maintenance on the filters & motor unit.

WARNING



MAIN POWER AND COMPRESSED AIR SUPPLY MUST BE DISCONNECTED BEFORE MAINTENANCE.

CAUTION



DO NOT CLEAN THE HEPA FILTER. FAILURE TO FOLLOW THIS INSTRUCTION MAY CAUSE DAMAGE TO THE EQUIPMENT.

Close The Compressed Air And Electrical Supply

This task needs to be done before any other task on the filters & motor unit.

1. Turn the compressed air handle to OFF.



Figure 3 – RTW 3.0 FE Compressed Air Handle

2. Wait until the air pressure drops to 0 psi.

3. On the side of the electrical panel, turn off the main power switch.



Figure 4 – RTW 3.0 FE Main Power Switch

Cleaning The Prefilter

This task explains how to clean the prefilter. Refer to **Recommended Maintenance Schedule** for maintenance frequency.

1. Ensure that electrical power and compressed-air supply are turned off. If not, refer to **Close The Compressed Air And Electrical Supply** to perform the task as required.
2. Open the filters door.

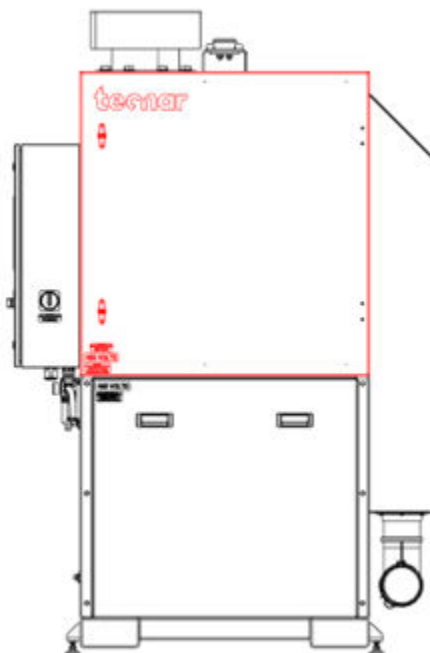


Figure 5 – RTW 3.0 FE Filters Door

3. Remove the prefilter.

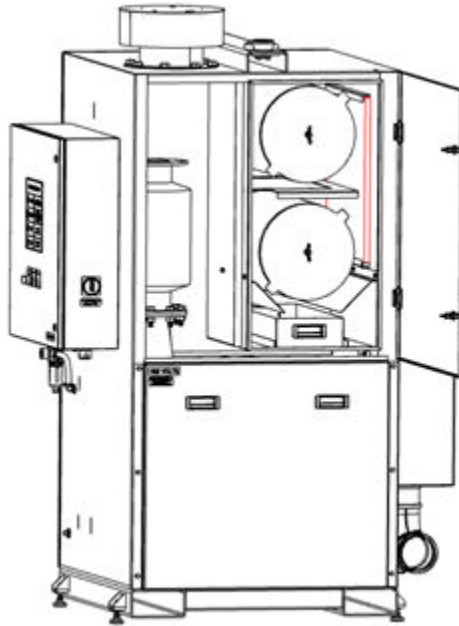


Figure 6 – RTW 3.0 FE Prefilters - Removal

4. Rinse the prefilter with water in the direction opposite to the airflow.

NOTE



AN ARROW INDICATING THE AIRFLOW DIRECTION IS MARKED ON THE SIDE OF THE FILTER.



Figure 7 – RTW 3.0 FE Prefilter - Airflow

5. Clean the prefilter using lukewarm water and mild soap (dish soap).
6. Rinse the prefilter.
7. Allow the prefilter to dry completely.

8. Reinstall the prefilter, ensuring that the airflow arrow on the filter points toward the inside of the unit (left).

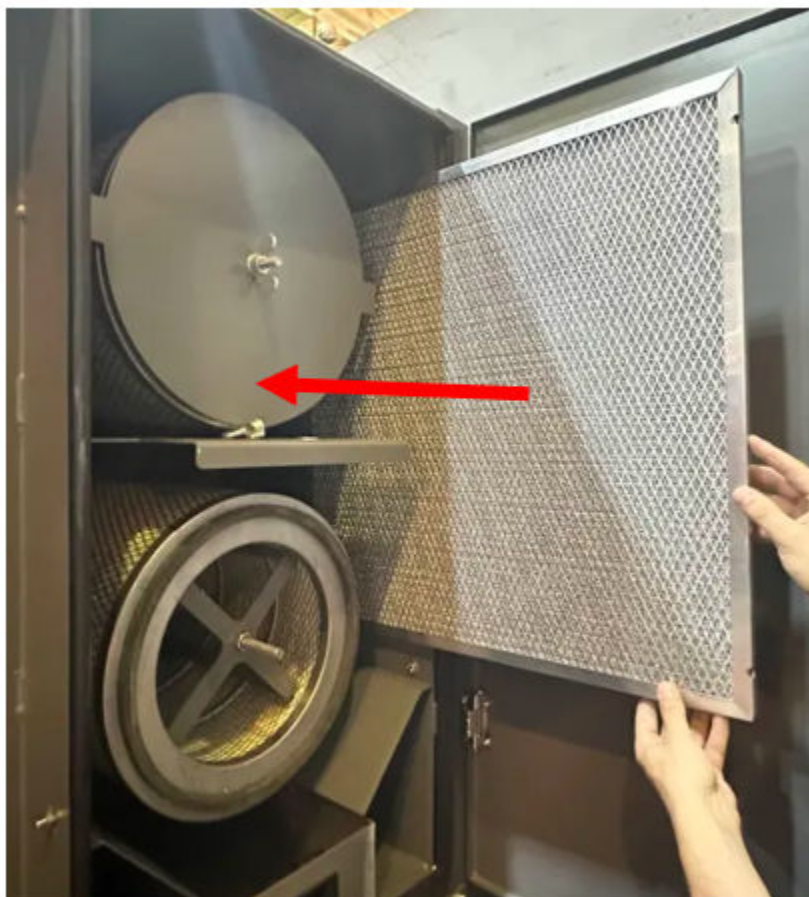


Figure 8 – RTW 3.0 FE Prefilter - Installation

9. Close the filter door.

Changing The Cartridge Filters

This task explains how to change the cartridge filters. Refer to **Recommended Maintenance Schedule** for maintenance frequency.

1. Ensure that electrical power and compressed-air supply are turned off. If not, refer to **Close The Compressed Air And Electrical Supply** to perform the task as required.
2. Open the filters door.

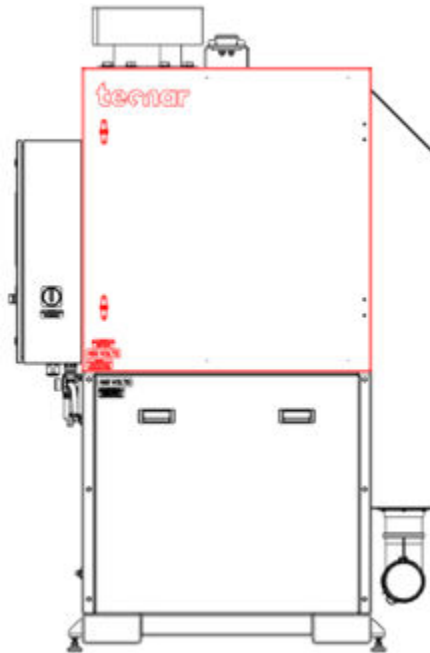


Figure 9 – RTW 3.0 FE Filters Door

3. Unscrew the butterfly nut, then take off the filter plate. Set the hardware aside.

NOTE



KEEP THE REMOVED ITEMS, THEY ARE REQUIRED TO INSTALL THE NEW FILTER.

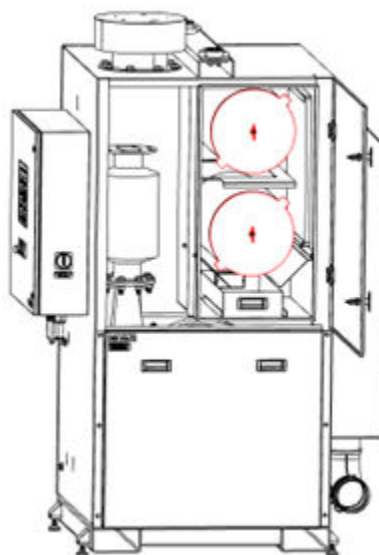


Figure 10 – RTW 3.0 FE Cartridge Filters - Plate

4. Remove the cartridge filters and dispose of them in accordance with local regulations.

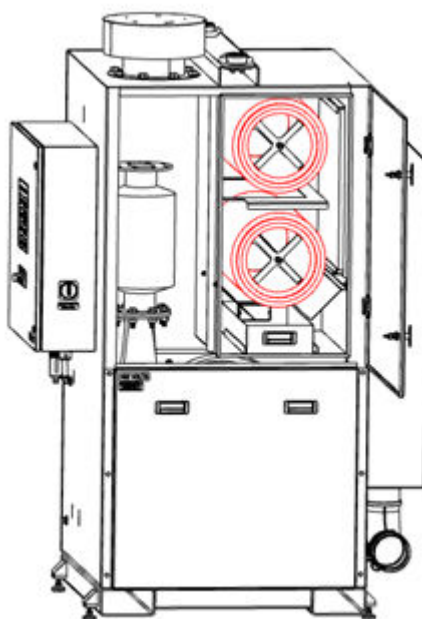


Figure 11 – RTW 3.0 FE Cartridge Filters

5. Reinstall both cartridge filters.

NOTE



BOTH ORIENTATIONS ARE ACCEPTABLE.

6. Reinstall both filter plates and secure them using the butterfly nuts.
7. Close the filter door.

Empty The Dust Tray

This task explains how to empty the dust tray. Refer to **Recommended Maintenance Schedule** for maintenance frequency.

1. Ensure that electrical power and compressed-air supply are turned off. If not, refer to **Close The Compressed Air And Electrical Supply** to perform the task as required.
2. Open the filters door.

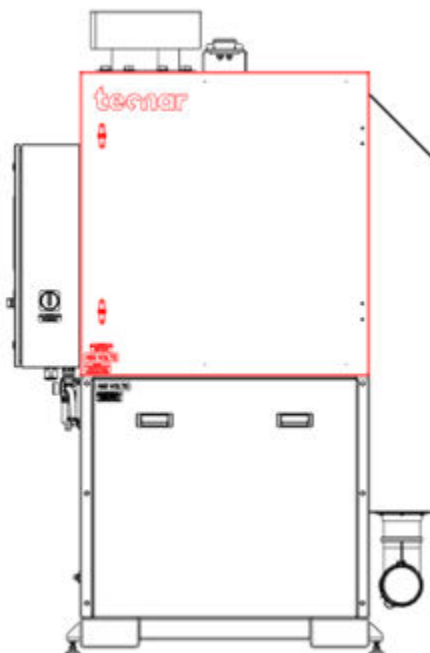


Figure 12 – RTW 3.0 FE Filters Door

3. Remove the dust tray and dispose of the dust in accordance with local regulations .

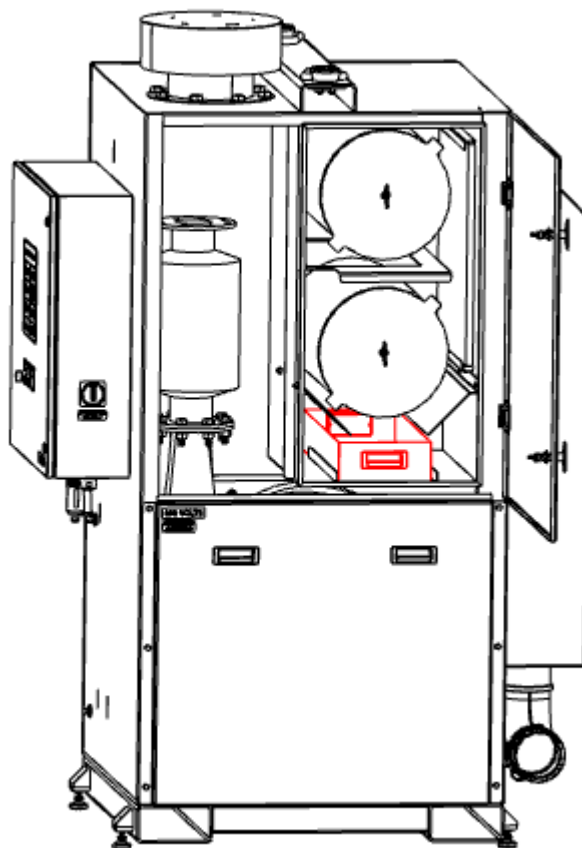


Figure 13 – RTW 3.0 FE Dust Tray

4. Slide the dust tray back into position.
5. Close the filter door.

Changing The HEPA Filter

This task explains how to change the HEPA filter. Refer to **Recommended Maintenance Schedule** for maintenance frequency.

1. Ensure that electrical power and compressed-air supply are turned off. If not, refer to **Close The Compressed Air And Electrical Supply** to perform the task as required.
2. Open the lower filters door.

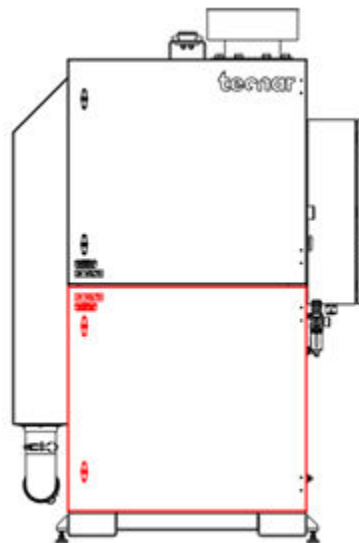


Figure 14 – RTW 3.0 FE Lower Filter Door

3. Unscrew the butterfly nut, then take off the filter plate. Set the hardware aside.

NOTE



KEEP THE REMOVED ITEMS, THEY ARE REQUIRED TO INSTALL THE NEW FILTER.

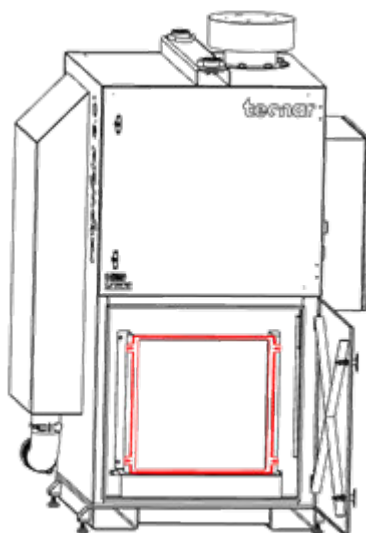


Figure 15 – RTW 3.0 FE HEPA Filter - Plate

CAUTION



DO NOT CLEAN THE HEPA FILTER. FAILURE TO FOLLOW THIS INSTRUCTION MAY CAUSE DAMAGE TO THE EQUIPMENT.

4. Remove the HEPA filter and dispose of it in accordance with local regulations.

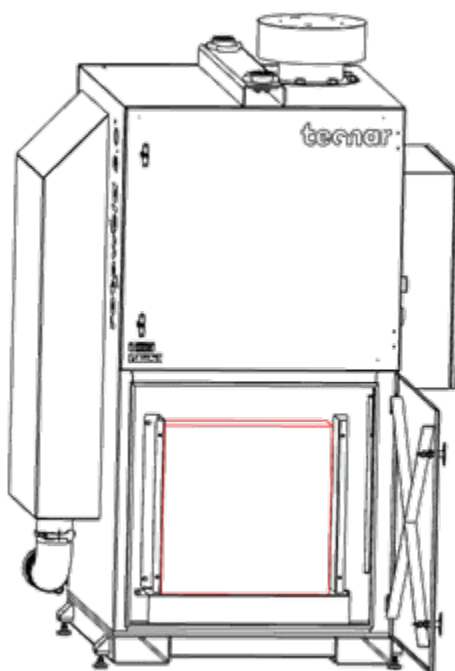


Figure 16 – RTW 3.0 FE HEPA Filter

5. Install the new HEPA filter, ensuring that the side with the gasket is positioned at the rear.
6. Reinstall the filter plate and secure it using the butterfly nut.
7. Close the lower filter door.

Remove Condensation From The Pressure Tank

This task explains how to remove condensation from the pressure tank. Refer to **Recommended Maintenance Schedule** for maintenance frequency.

1. Ensure that electrical power and compressed-air supply are turned off. If not, refer to **Close The Compressed Air And Electrical Supply** to perform the task as required.
2. Open the air pressure door.

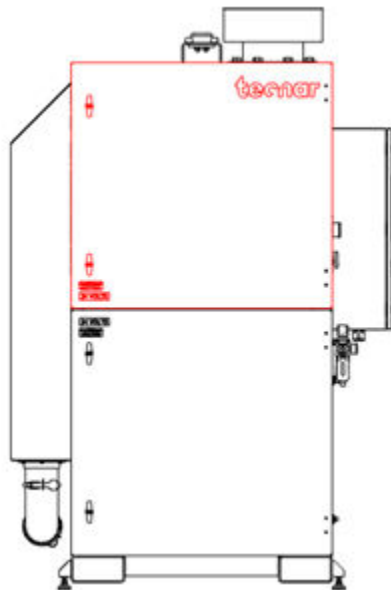


Figure 17 – RTW 3.0 FE Air Pressure Door

3. Place a recipient under the pressure tank to receive the condensation water.

4. Unscrew the bottom port.

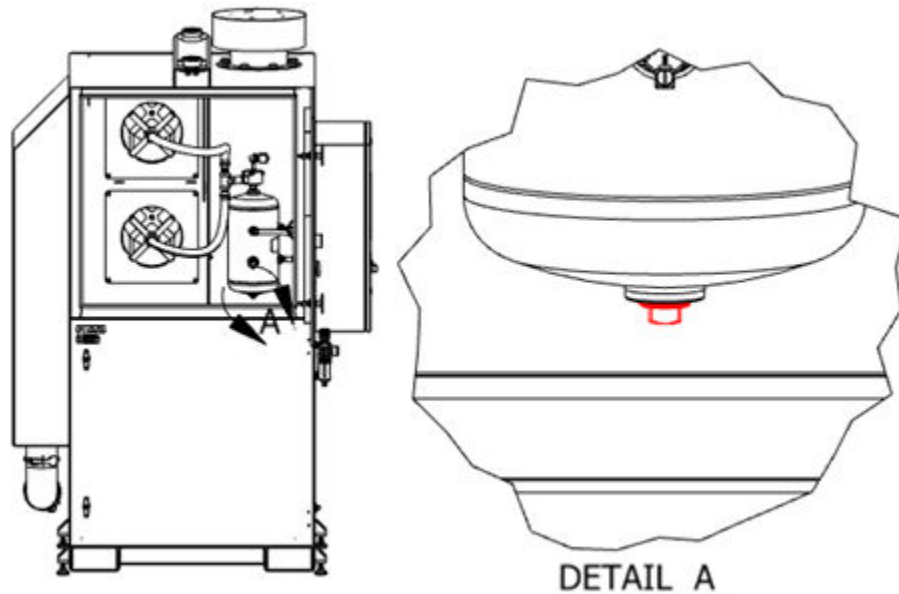


Figure 18 – RTW 3.0 FE Pressure Tank - Bottom Port

5. Using an adjustable wrench, unscrew the bottom port. Keep the plug.
6. Wait until the tank has fully depressurized and any air discharge has stopped.
7. Apply thread-seal tape to the plug, then reinstall it in the bottom port and tighten securely.
8. Take the recipient back.
9. Clean all the water and/or dirt.
10. Close the air pressure door.

HOSES AND PLASTIC CHAIN

The following sections describe the step-by-step procedure for maintenance of the hoses and plastic chain.

Hoses And Plastic Chain Visual Inspection

This task explains how to inspect the hoses and plastic chain. Refer to **Recommended Maintenance Schedule** for maintenance frequency.

1. Perform a visual inspection of the following items. If any damage is observed, contact Tecnar Service.
 - 1.1. Between the hood and vertical duct.
 - 1.2. Inside the plastic chain.
 - 1.3. Between the motor and filters unit and the horizontal duct.

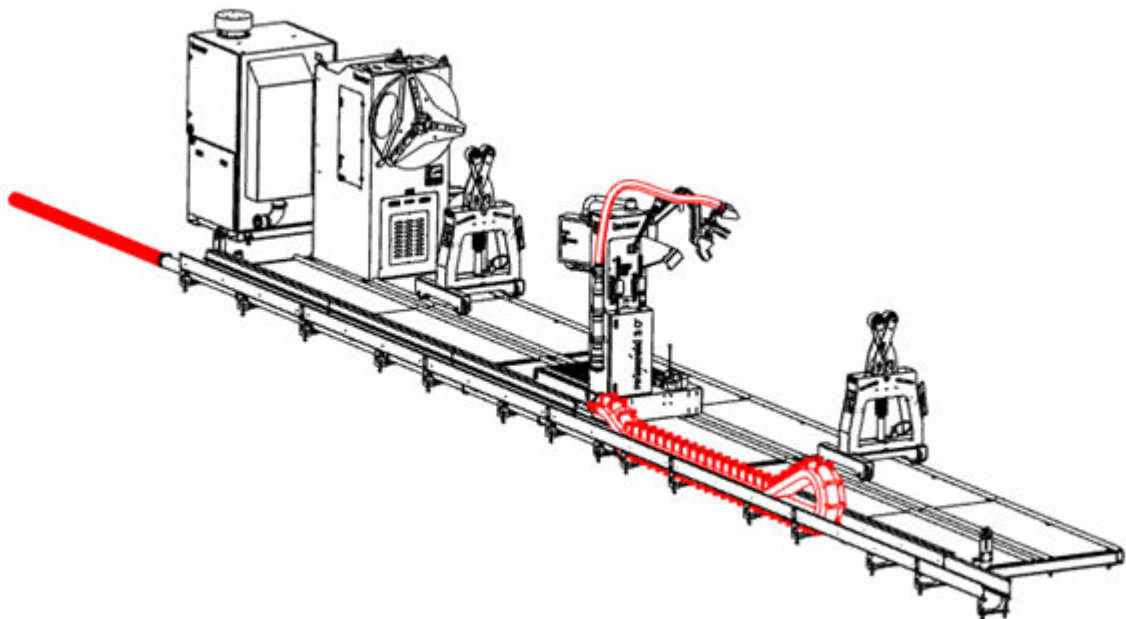


Figure 19 – RTW 3.0 FE Hoses And Plastic Chain

2. Perform a visual inspection of the plastic chain. If any part of the plastic chain is damaged, contact Tecnar Service.

Replace Plastic Chain Part

This task explains how to replace part from the plastic chain. Refer to **Recommended Maintenance Schedule** for maintenance frequency.

Remove The Broken Part

1. Remove crossbar and clips:
 - 1.1. Insert screwdriver into the slot.
 - 1.2. Push down.
 - 1.3. Release by lever action.

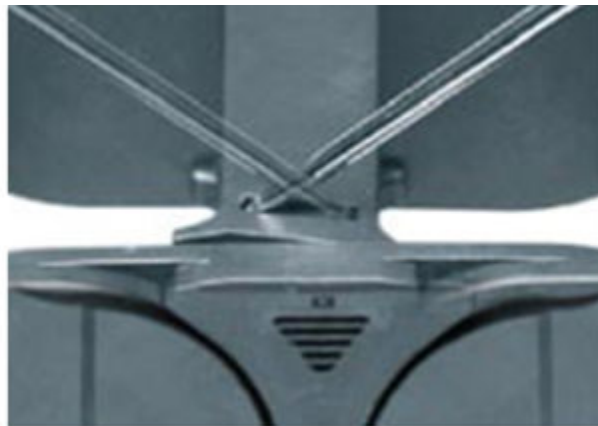


Figure 20 – RTW 3.0 FE Crossbar Clip - Removal

2. Guide the screwdriver into the slot between side links and release it by levering.



Figure 21 – RTW 3.0 FE Side Link

3. Remove the outer links.



Figure 22 – RTW 3.0 FE Outer Link - Removal

Install The New Part

4. Install the new part by performing the following substeps:
 - 4.1. Align two inner side links side by side.
 - 4.2. Attach one outer side link between the inner side links.
 - 4.3. Press the side links together until fully engaged.



Figure 23 – RTW 3.0 FE Outer Link - Installation

5. Using a screwdriver, push the clips downward until they snap into place.



Figure 24 – RTW 3.0 FE Crossbar Clip - Installation

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Annex B

Valvoline™ Crimson™ Grease

PRODUCT INFORMATION



VALVOLINE™ CRIMSON GREASE

Valvoline Crimson Grease is a high-quality, multi-purpose grease suitable for use in numerous heavy-duty applications. Designed with a lithium thickener system and tackifier polymers, it demonstrates excellent structural stability and adhesion to metal surfaces. Enhanced with select performance additives it provides wear and extreme pressure protection, resistance to water washout, rust, and oxidation. This product meets or exceeds the NLGI LB performance requirements listed in ASTM D4950.

Valvoline Crimson Grease is purpose built to provide broad suitability for use in trucking, industrial, agricultural, construction, mining, automotive applications and more.

Features & Benefits

- Certified vs. NLGI LB Specification.
- Exceeds NLGI LB requirement for Extreme Pressure (EP) protection by 50%.
- Extra tacky for improved adhesion to components.
- Dropping point $\geq 350^{\circ}\text{F}$.
- Excellent resistance to water washout.
- ISO 220 Base Oil Viscosity.

Recommended Applications

- Suitable for use in trucking, industrial, agricultural, construction, mining, automotive applications and more.
- Refer to equipment owner's manual for lubricant recommendation.

Typical Properties	Method	Results
NLGI Consistency		2
NLGI Certified, ASTM D4950		LB
Thickener Type		Lithium
Color		Red
Dropping Point	ASTM D2265	$\geq 350^{\circ}\text{F}$
Worked (60 stroke) Penetration	ASTM D217	265-295
Elastomer Compatibility: SAE AMS 3217/3B	ASTM D4289	Pass
Water Washout, % loss in 60 min @ 175°F (79°C)	ASTM D1264	$< 5\%$
Low Temp Torque (-40°C , Nm, max)	ASTM D4693	$< 15.5\text{ Nm}$
Oil Separation During Storage (mass loss)	ASTM D1742	$< 10\%$
4-Ball Wear	ASTM D2266	$\leq 0.6\text{ mm}$
4-Ball Extreme Pressure Weld Point	ASTM D2596	$\geq 315\text{ kg}$
Corrosion Prevention (48 hrs @ 52°C)	ASTM D1743	Pass
Approximate Temperature Range		$-20 - 150^{\circ}\text{C}$
Base Oil Viscosity: 40°C , cSt		220 cSt

Material Description	Material Number
400 Lb.	VV70119
120 Lb. Keg (L)	VV70120
35 Lb. Plastic Pail	VV70122
50/14 Oz. Carton	VV70124
10/14 OZ Carton	VV7012410

This information only applies to products manufactured in the following location(s): USA



For any product related questions please call
1-800-TEAM-VAL

Effective Date:
10/31/2025

Author:
JB

Annex C

SPX Power Team® 9637 Standard Hydraulic Oil

Hydraulic Fluids

Standard, Flame Out®,
Biodegradable And Low Temp.



Oil Description	Qty.	Order No.
Standard Oil	1 qt. (57 cu. in.)	9636
Standard Oil	1 gal. (231 cu. in.)	9637
Standard Oil	2½ gal. (577 cu. in.)	9638
Standard Oil	55 gal.	9616
Flame-Out®	1 gal. (231 cu. in.)	9639
Flame-Out®	2½ gal. (577 cu. in.)	9640
Biodegradable	1 gal. (231 cu. in.)	9645
Biodegradable	2½ gal. (577 cu. in.)	9646
Low Temp.	1 gal. (231 cu. in.)	9647

				SPECIFICATIONS						
Description	Grade (ASTM)	Specific Gravity	Color (ASTM)	Flash Point	Fire Point	Pour Point	Viscosity		Viscosity Index	Foam Test (ASTM)
		@ 60°F (16°C)					SUS @ 100°F (38°C)	SUS @ 210°F (99°C)		
Standard Oil	215	.88	2.0	400°F (204°C)	430°F (221°C)	-30°F (-34°C)	215	48	100 min.	Pass
Flame-Out®	220	.91	Light Amber	500°F (260°C)	550°F (288°C)	-15°F (-26°C)	220	55	140 min.	Pass
Biodegradable	—	.92	2.0	432°F (224°C)	NA*	-22°F (-30°C)	183	53	213 min.	Pass
Low Temp.	—	.87	6.5 (Red)	356°F (180°C)	399°F (204°C)	-48°F (-45°C)	183	52	190 min.	Pass

Standard Hydraulic Oil

- For dependable performance of all your hydraulic pumps and cylinders.
- Contains foam suppressant additives and has a high viscosity index.

Flame-Out® 220 fire resistant hydraulic fluid*

- Contains anti-rust, anti-foam and anti-sludge additives.
- Provides fire resistant protection.
(Note: Will burn if heat source is extreme enough. Will not, however, propagate the flame and is self-extinguishing when there is no ignition source.)
- Provides maximum lubrication and heat transfer.
- Offers a wider operating temperature range.
- No need to change seals in your Power Team equipment. Just drain the standard oil and replace it with Flame-Out® 220.

Biodegradable Hydraulic Fluid

- Biodegradable, non-toxic fluid with-stands moderate to severe operating conditions; provides excellent protection against rust.
- Offers superior anti-wear properties, has excellent multi-metal compatibility.

Developed to meet stringent performance requirements and satisfy growing environmental needs for hydraulic fluids which are readily biodegradable and non-toxic. Can be used with all Power Team pumps, cylinders, valves and other accessories using standard seals. Depending on the contamination or degradation levels which might be present in used fluid, small amounts of this substance, if spilled, will not affect ground water or the environment. Acceptable methods of disposal include use as a fuel supplement. Since this fluid will not typically be hazardous waste, additional

disposal options may be available, including land farming or processing through sewage treatment facilities, if necessary approvals are obtained from appropriate regulatory authorities. This fluid has been tested against EPA 560/6-82-003 and OECD 301 for biodegradability, and toxicity has been tested against EPA 560/6-82-002 and OECD 203: 1-12. Not recommended for operation in temperatures below 20°F (-7°C) or above 160°F (71°C). Recommended storage temperatures not below -10°F (-23°C) or above 170°F (77°C). For additional technical information or to order a **MATERIAL SAFETY DATA SHEET** call 1-800-477-8326 or go to www.powerteam.com.

Low Temperature Oil

Provides smooth, reliable operation in the coldest climate conditions.



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