ROTTLER

SG9MTS HEAVY DUTY CYLINDER HEAD SEAT & GUIDE MACHINE

MACHINE INSTALLATION MANUAL

PARTS ORDERING

For optional equipment catalogs, please visit https://www.rottlermfg.com/documentation.php

For fastest service ordering parts or equipment, contact us via e-mail with the information below. For customers within the U.S., send emails to parts@rottlermfg.com, for customers outside of the U.S., use intlparts@rottlermfg.com

Have the following information on hand to expedite the ordering process:

1. Your name, business name, and contact number
2. Customer number, or your billing address if you do not have a customer number
3. Shipping address if different from the billing address
4. Machine model and serial number
5. Part number and description of the item(s) to order
6. Preferred method of shipment

For customers outside of the U.S. requiring faster service, contact your local distributor.

In some cases, you may be requested to send a photo of the part you are ordering if it is a replacement part or does not appear in our database.

If you are unsure which part you need to order, contact our service department, and ask to speak to one of our service consultants. They will assist you in determining which part(s) you require.

THERE IS A MINIMUM ORDER OF $25.00

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INTRODUCTION

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Introduction

READ THE SAFETY CHAPTER BEFORE INSTALLING MACHINE. THOROUGHLY UNDERSTAND ALL SAFETY ISSUES BEFORE OPERATING MACHINE.

ATTENTION OWNER/BUSINESS MANAGER

To validate the warranty on your new Rottler machine, please be sure to sign and complete the "Installation Report" located in the Installation Chapter of this manual.

We suggest that the new user of the SG9MTS read the CONTROL DEFINITIONS to get an idea how the machine operates.

The Operating Instructions chapter should be read in order to familiarize the user with the actual button pushing sequences required to carry out a job. These chapters in the manual should be considered an introduction. As the operators of the SG9MTS series machines gain experience with using the different functions of the machine, complicated setups and programs will make more sense.

The rest of the manual contains information and part number reference on fixtures, cutting tools, and machine maintenance. The operator should read and become familiar with these areas as well.

Description

The SG9MTS uses the proven patented UNIPILOT tooling system. The machine has 2 modes of operation:

MANUALMATIC – a brand new concept has been added to these machines which should increase productivity by 30-50%. During seat cutting, the operator does not have to operate any buttons or switches, simply turn the spindle feed steering wheel up and down and the control takes care of all the functions like workhead float/clamp, pilot centering in the valve guide and spindle on/off. When depth of

seat is reached, the control automatically changes spindle RPM to high/finish speed to give equal depth of every seat and consistent surface finish results.

MANUAL – the buttons on touch screen are the same as the previous SGM machines. There is no external dial gage, the spindle vertical position is displayed on the touch screen. Simply feed the spindle down until the cutting insert touches the valve seat, touch set zero button and then the digital display will show exactly where the spindle is at all times. The change from low to high/finishing speed is easier as there are 2 separate buttons. The foot pedal for clamp and float of workhead has been eliminated and now controlled on touch screen for manual and automatically for MANUALMATIC.

The Rottler SG9MTS spindle is mounted on a sphere which allows the UNIPILOT to automatically center with the valve guide centerline while the Workhead is floating on air cushions. Once air floating stops and the Workhead clamps, the UNIPILOT and valve guide centerline are maintained while cutting the valve seat.

ACTIVE SPINDLE - Spherical Pneumatic Automatic Alignment System built into the Spindle for fast location of the pilot into the Valve Guide and Accurate Centering (Patent Pending)

Rottler Automatic Tightening and Quick Release Spindle Lock Nut System for One Hand Operation for fitting and removing tooling to and from the spindle – never comes loose!

Gives Best Concentricity
Rottler's Rigid Precision carbide centering UNIPILOTS are manufactured to less than one tenth (.002mm) tolerance. Combined with the light weight air float Workhead the SG9MTS gives perfect centering in the valve guide and the best concentricity of any machine on the market.

Disclaimer

The SG9MTS Manual (henceforth to be referred to as the "Manual") is proprietary to Rottler Manufacturing LLC. ("Rottler Manufacturing") and no ownership rights are hereby transferred. No part of the Manual shall be used, reproduced, translated, converted, adapted, stored in a retrieval system, communicated or transmitted by any means, for any commercial purpose, including without limitation, sale, resale, license, rental or lease, without the prior express written consent of Rottler Manufacturing.

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Rottler Manufacturing and its employees or representatives are not responsible for any information regarding final specifications of any workpiece that is created as a final product when using Rottler equipment. It is the responsibility of the end user of Rottler equipment to determine the final dimensions and finishes of the workpiece that they are working on. Any information regarding final dimensions and finishes that appears in any Rottler literature or that is expressed by anyone representing Rottler is to be regarded as general information to help with the demonstration of or for operator training of Rottler equipment.

Limited Warranty

Rottler Manufacturing Company Model SG9MTS parts and equipment is warranted as to materials and workmanship. This limited warranty remains in effect for one year from the date of installation or two years from the date of the original shipment from Rottler or whichever date occurs first. This only applies is the machine is owned and operated by the original purchaser and is operated and maintained as per

the instructions in the manual. A machine is warranted only if the Installation Report has been properly executed by a certified installation person and received by Rottler at the time of actual installation.

The products are warranted upon delivery to conform to their published specifications and to be free from defects in material and workmanship under normal use for a period of one year from shipment. Should a product not be as warranted, Rottler sole obligation shall be, at its option, to repair, correct or replace the product or to refund the amounts paid for the Product upon its return to a location designated by Rottler. No warranty shall extend to rapid wear Products (including tooling) or to Products which have been subject to misuse (including any use contrary to Rottler instructions), neglect, accident (including during shipment), improper handling or installation, or subject to any modification, repair or service not certified by Rottler. Rottler shall not be liable for any consequential, direct or indirect damages or for any other injury or loss. Buyer waives any right, beyond the foregoing warranty, to make a claim against Rottler. No warranty is provided for any Products not paid in full.

Merchandise cannot be returned to Rottler without prior approval. Customer must contact the Parts Department to get approval and to be issued a Return Goods Authorization number **(RGR#).** Merchandise authorized for return must be returned prepaid. If merchandise is returned with shipping charges collect, the actual amount of these charges may be deducted from any credit which may be due the customer. The **RGR #** assigned by the Parts Department should be written on the shipping label and must appear on a copy of the invoice(s) covering the original shipment. This invoice copy must be included in the box with the parts. Shipment must contain ONLY those items on the **RGR** as approved for return. Merchandise must be received within 10 days of the date of **RGR** or the **RGR** will be canceled. All returned merchandise may be subject to a 20% restocking fee on under $1,000.00 amount or 10% on any items over $1,000.00. Parts or tooling over 30 days old are considered as customer property and can only be returned with prior approval from Rottler Corporation Management.

The issuance of a **RGR DOES NOT** guarantee credit - it is only authorization for the return of the goods. Credit for return merchandise is at the sole discretion of Rottler. Credit will be issued only after inspection of returned goods.

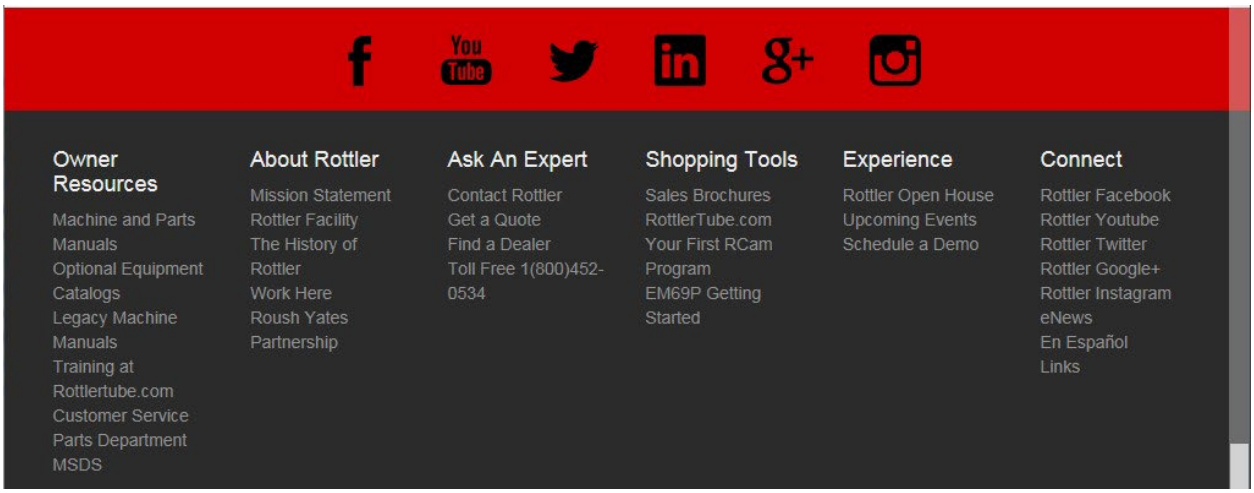
Tools proven to be defective within the warranty period will be repaired or replaced at the factory’s option.

We accept no responsibility for defects caused by external damage, wear, abuse, or misuse, nor do we accept any obligation to provide compensation for direct or indirect costs in connection with cases covered by the warranty.

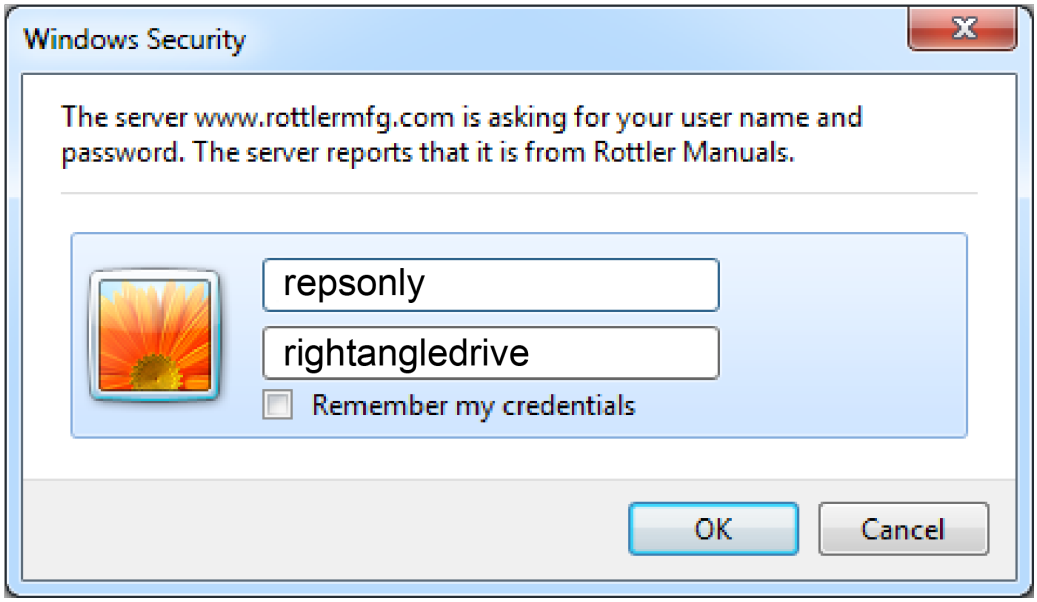
Online Documentation Access

Online documentation for machines and optional equipment can be accessed at the Rottler website. To access documentation open your browser and navigate to https://www.rottlermfg.com.

Scroll to the bottom of the page and under the Owner Resources title click the type of documentation you want to access.



If a log in window pops up asking for user name and password fill in the blanks as shown.



INSTALLATION

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ATTENTION OWNER/BUSINESS MANAGER

To validate the warranty on your new Rottler machine, please be sure to sign the installation report after the installation technician has installed the machine and verified the machine is operating correctly and given the operators operation and maintenance training.

Thank you for your cooperation and the opportunity to be of service to you.

ROTTLER MANUFACTURING

INSTALLATION REPORT
SG9MTS
REV 010924

OFFICE USE ONLY
Route to:
Orders Notified _____ Eng Mgr_____ Srvc Mgr _____ Assem Mgr _____ Andy _____ Srvc Filing _____
Warranty Exp Date _____

ROTTLER MANUFACTURING MUST HAVE THIS REPORT RETURNED TO PROPERLY QUALIFY WARRANTY ON EQUIPMENT

Customer:_____ Address:_____
City:_____ State:_____ Zip:_____ Phone:_____
Country:_____
Machine Model:_____ Serial Number:_____ Representative:_____

MACHINE INSTALLATION: Electrical information MUST be complete to validate this report.

Customer is responsible for providing electricity to machine in a manner that meets the local electrical code requirements.

_____Check machine level for equal support on feet.
_____This machine requires between 208 and 240 Volts AC, Single Phase, 50/60 Hz power supply. Measure the incoming voltage between L1 and L2. Current requirements for this machine are 15 amps. Measure the incoming AC voltage at least twice during installation.
1) _____VAC 2) _____ VAC
_____Measure each leg of the incoming supply to ground. When using a one leg and neutral of a 380 VAC three phase supply L1 should measure 240 VAC and Neutral should measure almost 0 VAC. L1 to ground _____VAC L2 to ground _____VAC.

Make sure all electrical equipment has the proper overload protection. The SG9MTS should have a stable power supply to prevent damage and uncontrolled movement of the machine.

⚠ CAUTION Neutral and machine ground are not the same thing. You should measure an open circuit between Neutral and ground.

⚠ CAUTION **IF VOLTAGE IS OUTSIDE THE CORRECT RANGE AT ANY TIME THE MACHINE WILL NOT OPERATE PROPERLY AND MAY BE DAMAGED.**

_____Relocate electrical enclosure from shipping location to operating location on lower right side of machine.
_____Air of the proper pressure and capacity connected to the machine. Air supply must be free from oil and water. Oil or water will damage electrical and air components. Air pressure should never drop below 90 PSI at any time. Failure to provide adequate air supply may cause improper floating and clamping.
_____**BEFORE** turning power on to the machine. Check all wires for security by using the correct screw driver and turning CW until movement stops. Stranded wire can “spread” slightly from vibration during transport.

_____Remove all shipping brackets in accordance with the machine manual.
_____Clean any rust inhibitor from the machine surfaces. Slide the spindle base from side to side continually cleaning the machine base until all inhibitor is removed.
_____Have the operator read through the operation manual before training begins. This will help him be familiar with the button pushing sequences. Have the operator read through the manual again after training and some of the sequences will make more sense.
_____Calibrate angle sensor

MACHINE START-UP

⚠ CAUTION When starting the machine for the first time, it may move out of control. Make sure all hands are clear of machine parts. Be ready to press the Emergency Stop button if needed.

_____Turn main power on from the main incoming breaker box.

MACHINE MOVEMENTS

_____Make sure there is nothing obstructing the full vertical travel of the machine.
_____When the machine is on the clamp mode and the air pressure is with the requirements, try to move workhead to verify that you have a solid clamp of Work head.
_____Place the level on the leveling post. The level assembly is referenced to the spindle via the level pin. It is therefore important to check alignment of the pin in reference to the spindle. Even though the level has been carefully calibrated at the factory, it is a good idea to recheck calibration before putting the machine into service. In the event that the level is dropped or handled roughly then the following recalibration methods should be implemented. If calibration is required refer to manual for Calibrating the Digital Level _____Start the spindle and verify operation.

INSTRUCTING THE OPERATOR:

Note: Rotter employees and representatives per company policy are not permitted to provide end user of Rottler equipment with any OEM specifications for the workpiece that is created by end user using Rottler equipment.

_____Using the operating manual as a guide explain the function of all buttons.
_____Cycle all machine movements and supervise the handling of same by operator.
_____Demonstrate the engaging of the fine feed system.
_____Point out safety features to customer and operator.
Do not push any buttons without thinking of safety first.

⚠ CAUTION Do not assume the Digital level has been calibrated rotate 180 to verify alignment.

_____The following is a checklist to go through every time the machine is started to begin machining a seat.

- Work piece secure
- RPM set
- Tool holder adjusted to the correct setting base on the type of seat you will be machining
- Tool holder locked in place
- Floating of the Workhead and clamping

_____Proceed to have operator to machine a seat under you control.
_____**Parts ordering, refer to the operating manual for part numbers and description.**
_____Review Emergency stop procedure and with operator per operating manual.

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Note: Rotter employees and representatives per company policy are not permitted to provide end user of Rottler equipment with any OEM specifications for the workpiece that is created by end user using Rottler equipment.

General remarks on machine performance, adjustments as received and any further organization or parts required to complete the installation.

_____

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_____

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_____

Instructions given to:_____

Sales/Service Technician: _____ Date_____

Shop Foreman/Superintendent or Owner: _____ Date_____

Once completed e-mail this form to:

service@rottlermfg.com

Installation Procedure

Location

The productivity of the SG9MTS will depend a great deal on the proper initial installation. Pay particular attention to the means by which work pieces are lifted into and out of the machine as well as the material handling to and from other operations in your shop. The proper loading arrangements and work location for your SG9MTS is extremely important.

For shops where large production runs are anticipated, the work pieces should be loaded and unloaded directly from a conveyor. If this is not the case, we suggest you pay considerable attention to the crane so that it covers an adequate area to allow the operator to back up and remove work pieces without creating a cluttered, dangerous work area.

Unpacking and Lifting

Use care when removing the crate materials from the machine. Be careful not to use force on any part of the machine.

Remove the shipping screws (4) from the skid; the shipping brackets will be painted red for easy identification. These screws are located at the four bottom corners of the Main Base.

⚠ CAUTION **THIS MACHINE IS TOP-HEAVY.** Use care when lifting and moving Machine. Approximate shipping Weight of Machine is 1800 lbs. (1258 kg).

Positioning the Machine

⚠ WARNING Lift Machine using a fork lift. Move fork lift to front of Machine and separate forks so they are visually centered. Insert forks under front-center of Machine, using care not to damage Foot Pedals Valve or Air Lines. Tilt forks slightly upward so Machine will lean toward fork lift and lift Machine.

While Machine is on fork lift, install five (6) Leveling Screws and Jam Nuts in holes provided in bottom of Machine Base. Two (2) Screws installed in rear-corners and one (2) Screw installed in front and rear -center of Machine Base will serve as Leveling Screws; while two (2) Screws installed in front-corners of Machine Base will serve only as Support Screws. Move Machine to desired location and placed leveling bolts over the center hole of the Leveling Pad. Be certain to allow sufficient clearance to allow access for leveling and also for connecting air and electrical lines. Lower machine onto leveling pads making certain that the leveling bolts align into counterbore on leveling pads. Be certain nothing interferes with air or electrical lines running from the floating head assembly to the cabinet. Determine there is no possibility of air or electrical lines dragging on wall surfaces or adjacent machinery. Wipe top Rails with a clean, dry cloth to remove protective shipping oil.

CAUTION Do not attempt to move the Work Head unless Air Supply is connected, and air valve is turned on, and foot Pedal is depressed, allowing Head to float on Rails apply (WD40) or similar degreaser and flow the work Head side by side to remove all the shipping oil from under the work head. (Top Upper surfaces rails should be clean and free of oil).

CAUTION Do not attempt to move the Work Head unless Air Supply is connected, and air valve is turned on, and foot Pedal is depressed, allowing Head to float on Rails apply (WD40) or similar degreaser and flow the work Head side by side to remove all the shipping oil from under the work head. (Top Upper surfaces rails should be clean and free of oil).

Removing Shipping Brackets

Before leveling the machine, loosen and remove the all shipping brackets and bolts. (Figures 1 – 5)

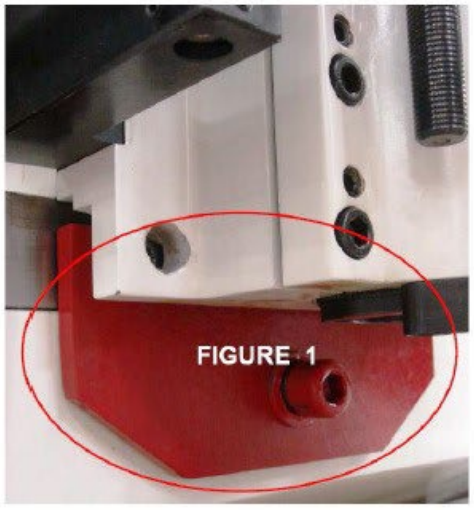


FIGURE 1

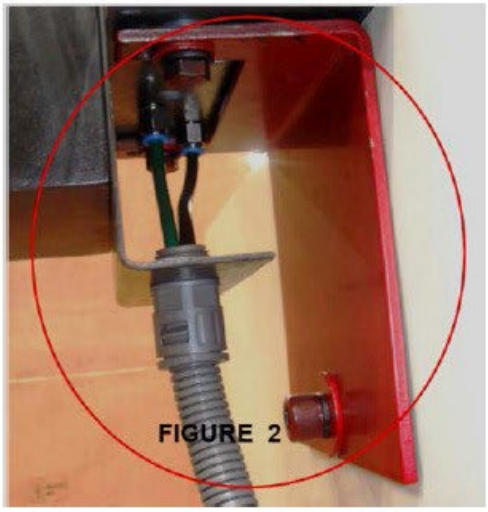


FIGURE 2

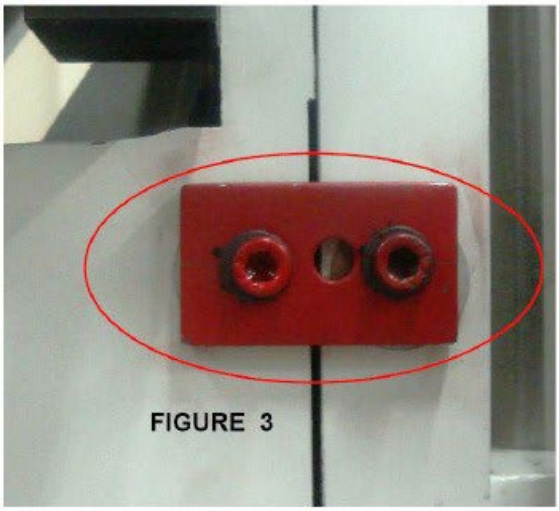


FIGURE 3

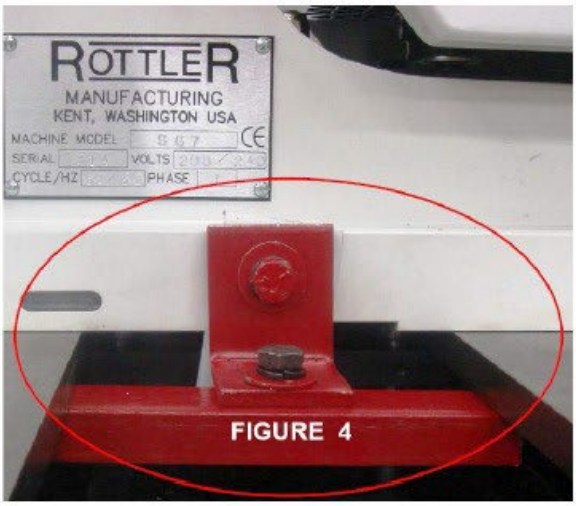


FIGURE 4

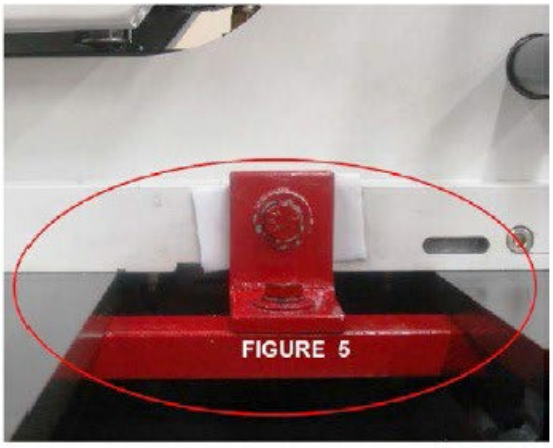


FIGURE 5

Leveling the Machine

Use required machinist level. (Starret 98 or better).

NOTE: Rotate Level 180º to check that Level is properly adjusted. If Level does not read same in both directions, recalibrate level.

Use the level on the upper float surface, level the machine as precisely as possible, front to back and side to side.

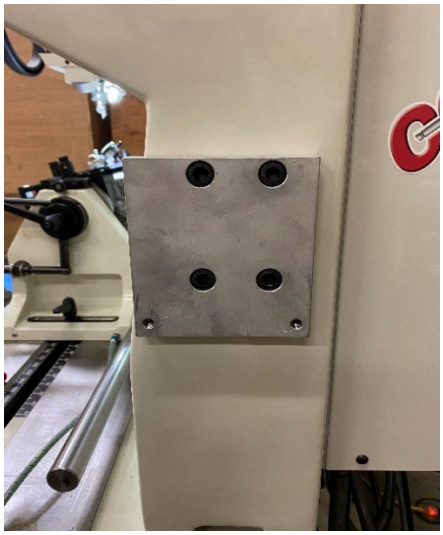
Adjust 4 corners until level and then extend the 2 center leveling bolts to support machine. Tighten jam nuts on leveling bolts and recheck level

Insert Sharpener Installation

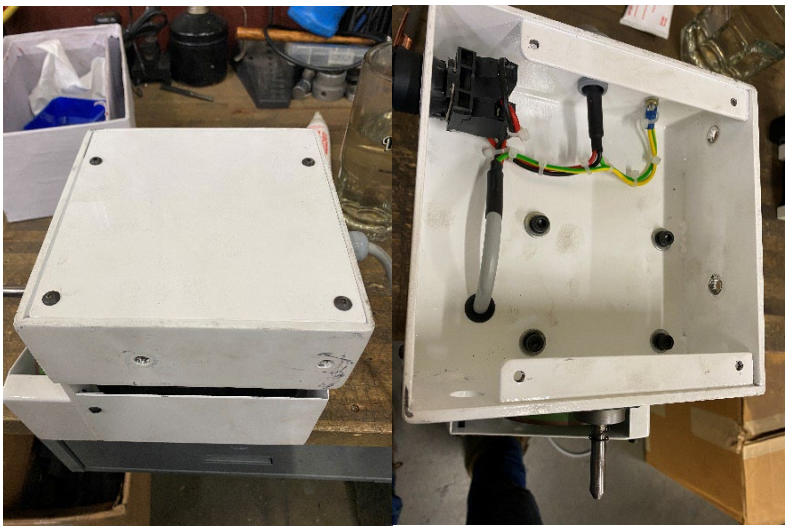
All Rottler Seat and Guide machines are supplied with an insert sharpening unit for dressing RCA and RCB inserts. On most machines, the sharpener may be attached to the right-hand side of the machine base. On machines such as the SG100XY model, the sharpener unit may be wired with a standard 220V single phase plug and used as a bench-top unit.

Installation:

Step 1: Install the aluminum mounting plate to the side of the machine



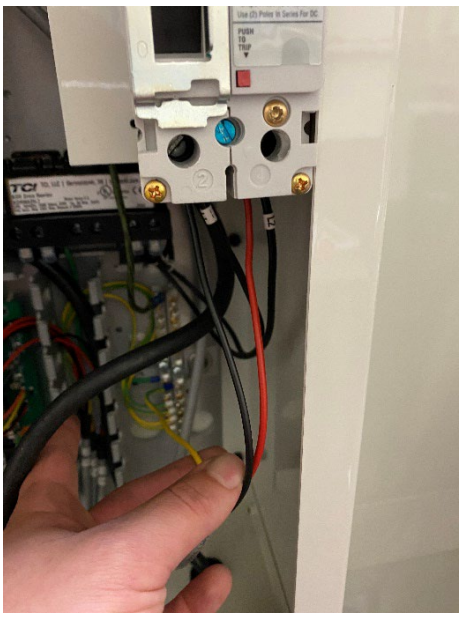
Step 2: Remove the 4 bolts that secure the bottom cover located on the bottom of the sharpener unit



Step 3: Mount the sharpener unit to the machine with the supplied bolts. The shaper mounts using the two holes accessed with the bottom cover removed and mounts to the threaded holes on the previously installed aluminum mounting plate.

Step 4: The sharpener should now be installed on the side of the machine as shown in the figure below:

Step 5: Wire the sharpener by running the power cable through the side of the cabinet and over to the breaker in the electrical cabinet. The sharpener is wired by attaching the red and black power leads to the T1 and T2 terminals on the lower part of the breaker as shown in the figure below. The green and yellow ground cable can be connected to any open ground terminal in the terminal block behind the breaker.
NOTE: POWER MUST BE OFF DURING THIS PROCEDURE AND THE MACHINE SHOULD BE DISCONNECTED FROM ANY POWER SUPPLY!



For operation instructions, see the Operations Manual.

Power and Air Connections

Air Supply

It is very important the air source for the SG9MTS machine be moisture free. Water and oil in the line will result in early cylinder and valve failure. The factory recommends installing a water trap at the machine.

Attach a 100 PSI air source to the appropriate intake in the small enclosure located on the left rear of the machine near the bottom.

Air Adjustments

Float

The float regulator is located at the rear of the spindle base on the bottom of the interconnect box.

If the machine is not floating properly, it could be from too much or too little air from the regulator. Turn the regulator all the way off (full counter clockwise). Start turning the regulator slowly clockwise while continually checking the Work Head for proper floatation. Once the correct float is established, lock the regulator into place by pushing in on the blue adjusting knob.

CAUTION ***Use as little air as possible to achieve correct floatation. Using too much air will could cause the spindle base to move slightly to the right when going into tilt. This will cause a scratch up the side of the cylinder.***

Power Supply

This machine has the following power requirements:

- 208 to 240 VAC
- Single Phase Power
- 50 or 60 Hz
- 15 Amps

See illustration below for correct connection of incoming power. Measured power at the machine's main breaker must be within the required range listed above. If incoming power is not within range, a transformer must be used. Failure to do so will cause the machine to function abnormally and cause permanent damage to the electronic control system.

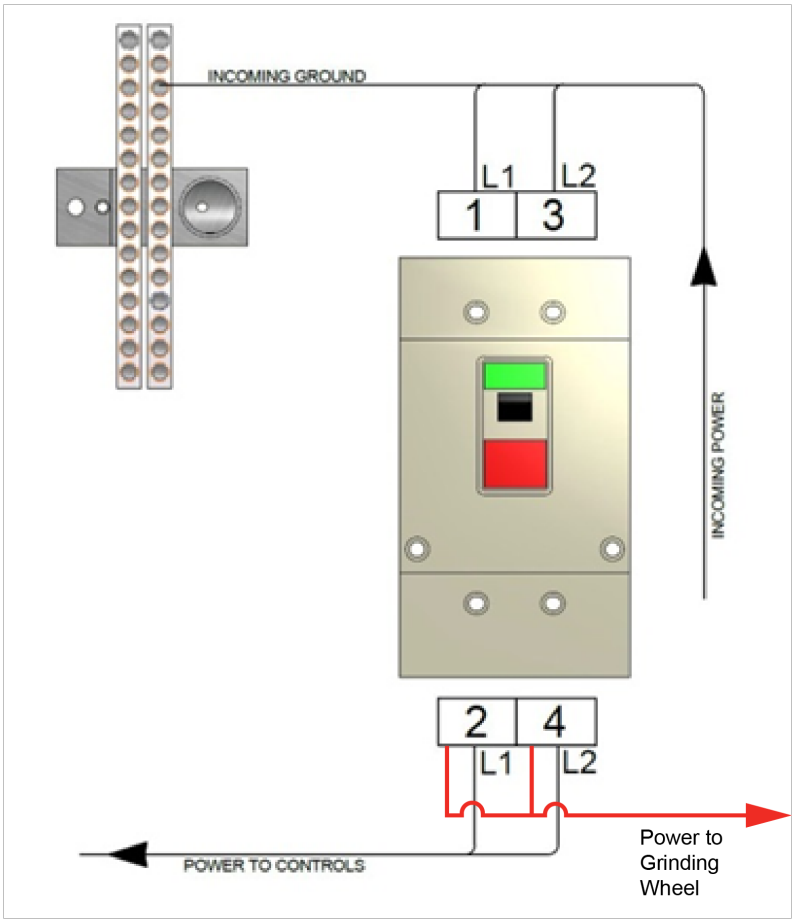
Some electrical services contain a "Hot Leg, High Leg, or Wild Leg", where single phase is derived from a three phase connection and one leg measures 208VAC to Ground instead of 120VAC. It is not permitted to use the "Hot Leg" for providing power to this machine. Voltage measured between the phases must be between 208VAC and 240VAC, while each phase to ground must be ~120VAC.

IMPORTANT ***Electrically connect in accordance with national and local electrical codes.***

⚠ CAUTION

Do not attempt to connect more 240VAC to this machine.

Do not attempt to connect to Three Phase Power.



Grounding

The machine requires a good earth ground. The grounding conductor from the incoming power source must be connected to the grounding block located inside of the electrical cabinet. A ground rod installed in addition to the electrical service grounding conductor is permitted, but must be connected directly to the grounding block inside of the electrical cabinet. Connecting the ground rod to the machine base is not permitted. Consult a Licensed Electrician in your area to assess the installation, and install the appropriate ground rod if necessary. Failure to do so may lead to an installation that is unsafe and does not meet national and local electric codes.

Transformer Connections

This machine has the following minimum transformer size requirement:

- 5 kVA

If a transformer is necessary for machine installation, please refer to the diagram below for connection information. Transformers must be sized to meet the minimum power requirements listed above. Consult a Licensed Electrician in your area for transformer selection and installation.