

ROTTLER

S85A / S86A SURFACER 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

MANUAL SECTIONS

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INTRODUCTION

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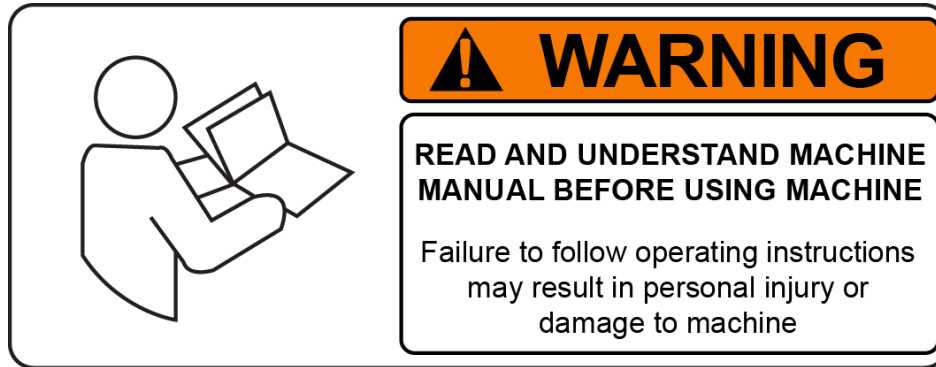
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Introduction



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 S85A / S86A 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 S85A / S86A 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 model S85A / S86A surfacing machine is a precision, high speed surfacing unit.

The model S85A / S86A can be equipped with tooling and accessories for surfacing most American passenger car and truck, inline, 90 and 60 degree V-type blocks as well as cylinder heads.

S85A / S86A machines may be readily tooled to resurface a wide variety of engines, including European and Asian models, as well as perform various other surfacing operations.

This machine is designed for two purposes:

1. The alignment of the deck surface to the pan rails and main bearing locations, as have been done in the original factory surfacing.
2. A considerable savings in surfacing time and operator involvement as a result of fast block clamping, and convenient controls.

Change over or resetting time required to set up V-type or in-line engines is a minimum, making this machine highly suited to the jobber shop where engines cannot be run through, in model lots.

All feeds and rapid travels are power operated and controlled from the conveniently located control panel.

Power required is 230 volt, single phase. This provides power to the variable speed AC motor controller, the horizontal S.C.R. drive, and various relays and solenoid valves that actuate mechanical controls on the machine to engage feeds and travels.

Disclaimer

The S85A / S86A 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.

Rottler Manufacturing does not make any representations, warranties or guarantees, express or implied, as to the accuracy or completeness of the Manual. Users must be aware that updates and amendments will be made from time to time to the Manual. It is the user's responsibility to determine whether there have been any such updates or amendments. Neither Rottler Manufacturing nor any of its directors, officers, employees or agents shall not be liable in any manner whatsoever to any person for any loss, damage, injury, liability, cost or expense of any nature, including without limitation incidental, special, direct or consequential damages arising out of or in connection with the use of the Manual.

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 S85A / S86A 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 if 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.

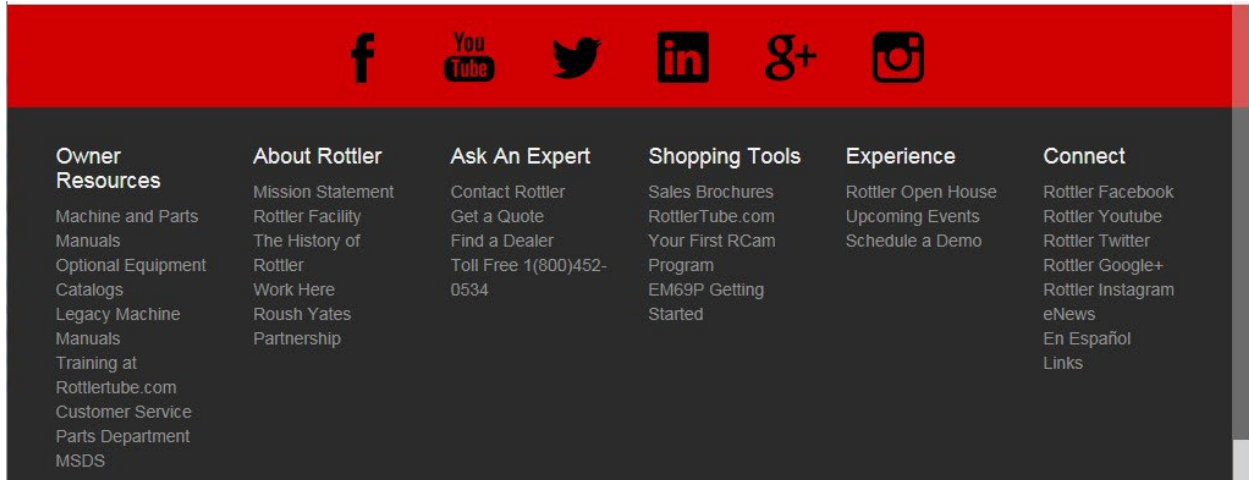
The issuance of a **RGR DOES NOT** guarantee credit - it is only authorization for the return of the goods. Credit for return merchandise is at the sole discretion of Rottler. Credit will be issued only after inspection of returned goods.

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.

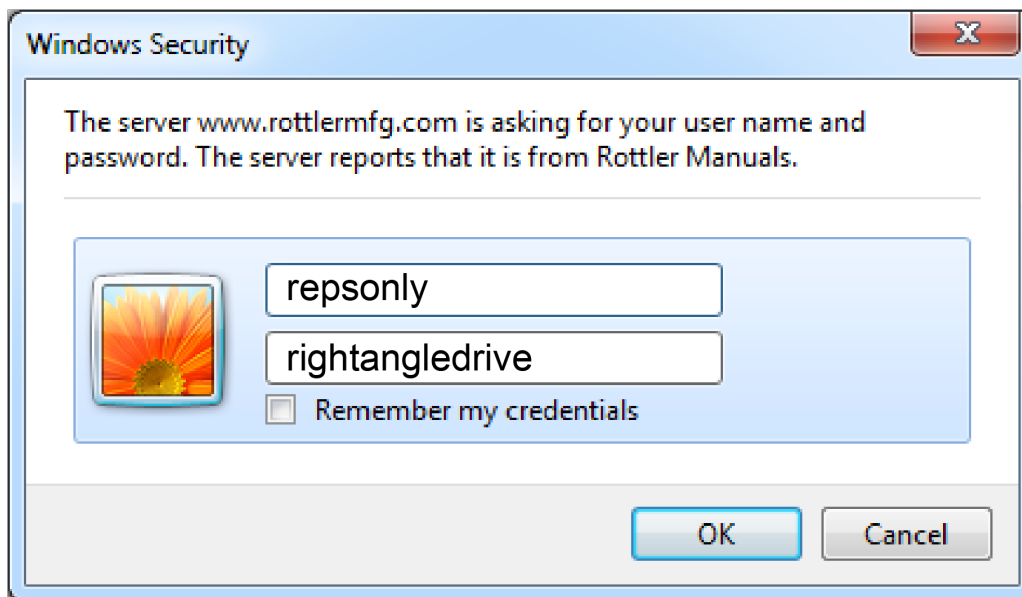
Online Documentation Access

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**

S80 SERIES

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.

_____ Follow instructions in this section to uncrate, unpack, and prep machine.

⚠ CAUTION **VERY IMPORTANT:** Modern design machines contain electronic low voltage circuitry that provides great advantages and a better machine life. BUT, you must have an excellent, stable power supply along with a good earth ground. If not, electrical noise problems are likely to interfere with machine operation unexpectedly.

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

_____ Check machine with precision level and for equal support on feet, then carefully adjust supports to precisely secure the best average flatness of the bed.

_____ This machine requires 208 to 240V AC 1-phase, 50/60HZ power supply (measured between L1 and L2). Current requirement is 30 amps. When using two legs of a three-phase supply, the voltage from each leg to ground must be between 100-120V AC. Measure the voltages of the power supply twice during installation (1) _____ VAC (2) _____ VAC.

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

MACHINE START-UP

_____ **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.

⚠ 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.

OPERATION

_____ Explain controls per “Control” section in manual.

- _____ Demonstrate and explain hand feed system (see manual).
- _____ Exercise spindle rotation, speed controls, fast travel, feeds, and stop adjustments.
- _____ Have operator perform machine functions (and automatic cycles on applicable machines).
- _____ Remove inspection plate and have operator unclamp, rotate, and clamp cutter inserts.
- _____ Point out the changing and adjustment of insert tool holders per manual.
- _____ Explain optional cutting inserts that are available and their correct application to the type of material being cut. Explain the use of one versus two inserts. _____ Explain availability of optional tooling.



STRESS CAUTION AND PERSONAL SAFETY

- _____ Explain speeds required for carbide, coated carbides, CBN, etc., on specific work piece materials.
- _____ Review operator manual and emphasize safe, methodical operation.
- _____ **Parts ordering-show how to refer to manual for part numbers.**

MACHINE MAINTENANCE

- _____ Lubrication (see manual).

CYLINDER HEAD RESURFACING

- _____ Assemble cylinder head fixturing in accordance with the manual diagram.
- _____ Have operator clamp head properly, place and adjust jacks and level the work piece with level. Point out value of a double axis level.
- _____ Use the first work piece to check dial indicator is set at zero, when cutters touch the surface of the work piece.
- _____ Set stop to use built-in rapid approach or operator control rapid approach.
- _____ Explain feed speed combinations for finish on cast iron and aluminum.

V6/8 BLOCK RESURFACING

- _____ Assemble V-block tooling in accordance with the instruction bulletin.
- _____ Demonstrate the convenience, strengths and weakness of block hold down and leveling capability where block surfaces require the adjustment.
- _____ Explain adjustments for block angles and rearrangement for large V-blocks, such as 3208 Cats and adaptations to odd angles such as the Ford super duty truck block.
- _____ Explain procedures to surface protruding cylinder sleeves flush with the block surface.

IN-LINE BLOCK RESURFACING

- _____ Assemble in-line tooling, demonstrating support levels to accommodate a great variety of blocks.
- _____ In addition to adequate hold down force, explain the use of chocking or providing stops that prevent the block sliding.
- _____ Thoroughly review speeds, feeds, cutter types including shell mills, and general productivity that the machine is capable of. Make sure operator demonstrates complete understanding.
- _____ Explain cleaning work piece if required and absolute prevention of direct air blast.
- _____ Similarly review all safety precautions and use of emergency stop.
- _____ Explain procedures to surface protruding cylinder sleeves flush with the block surface.

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Note: Rottler 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.

Instructions given to: _____

Sales/Service Technician: _____ Date _____

Shop Foreman/Superintendent or Owner: _____ Date _____

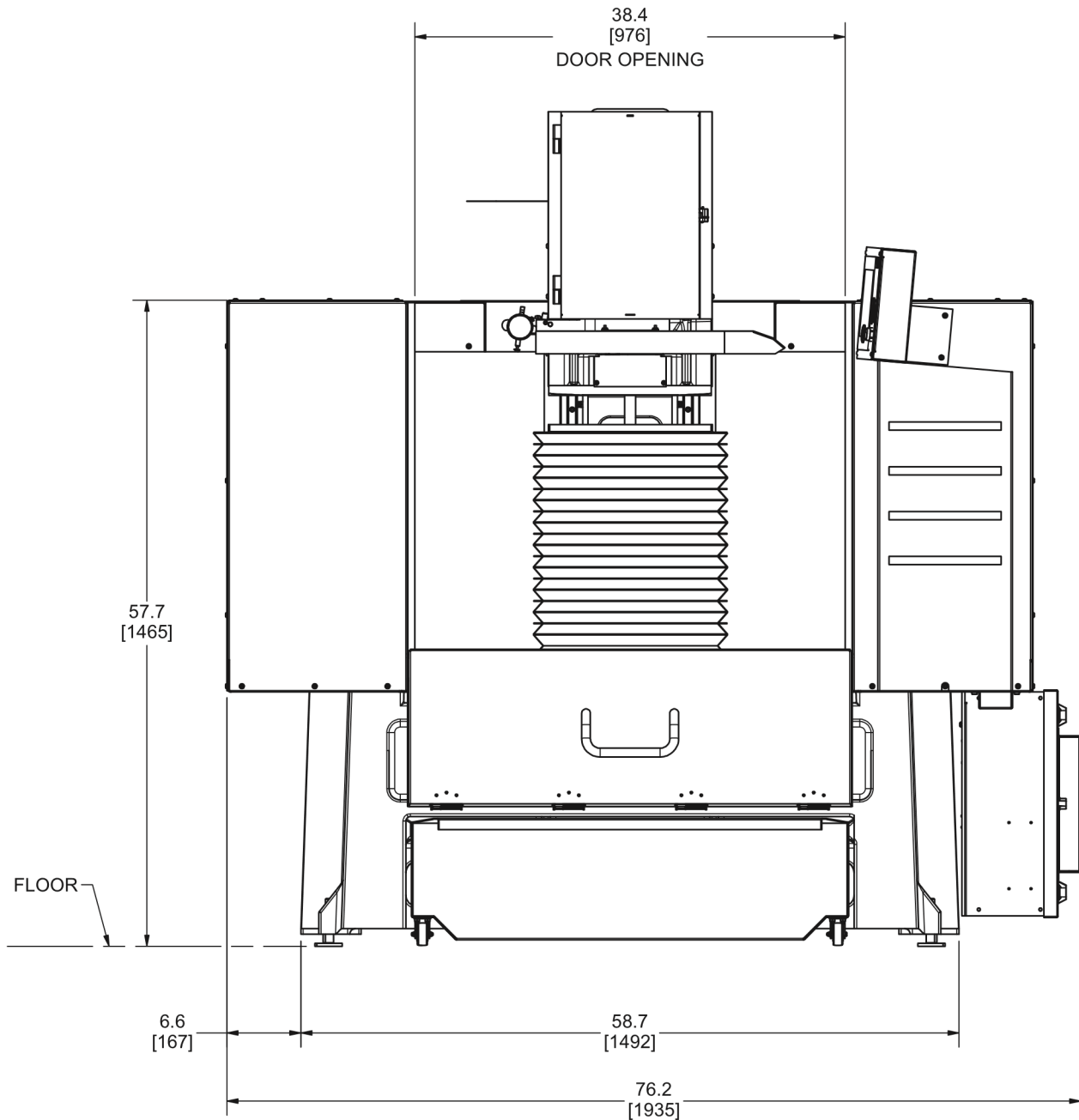
Once completed e-mail this form to:

service@rottlermfg.com

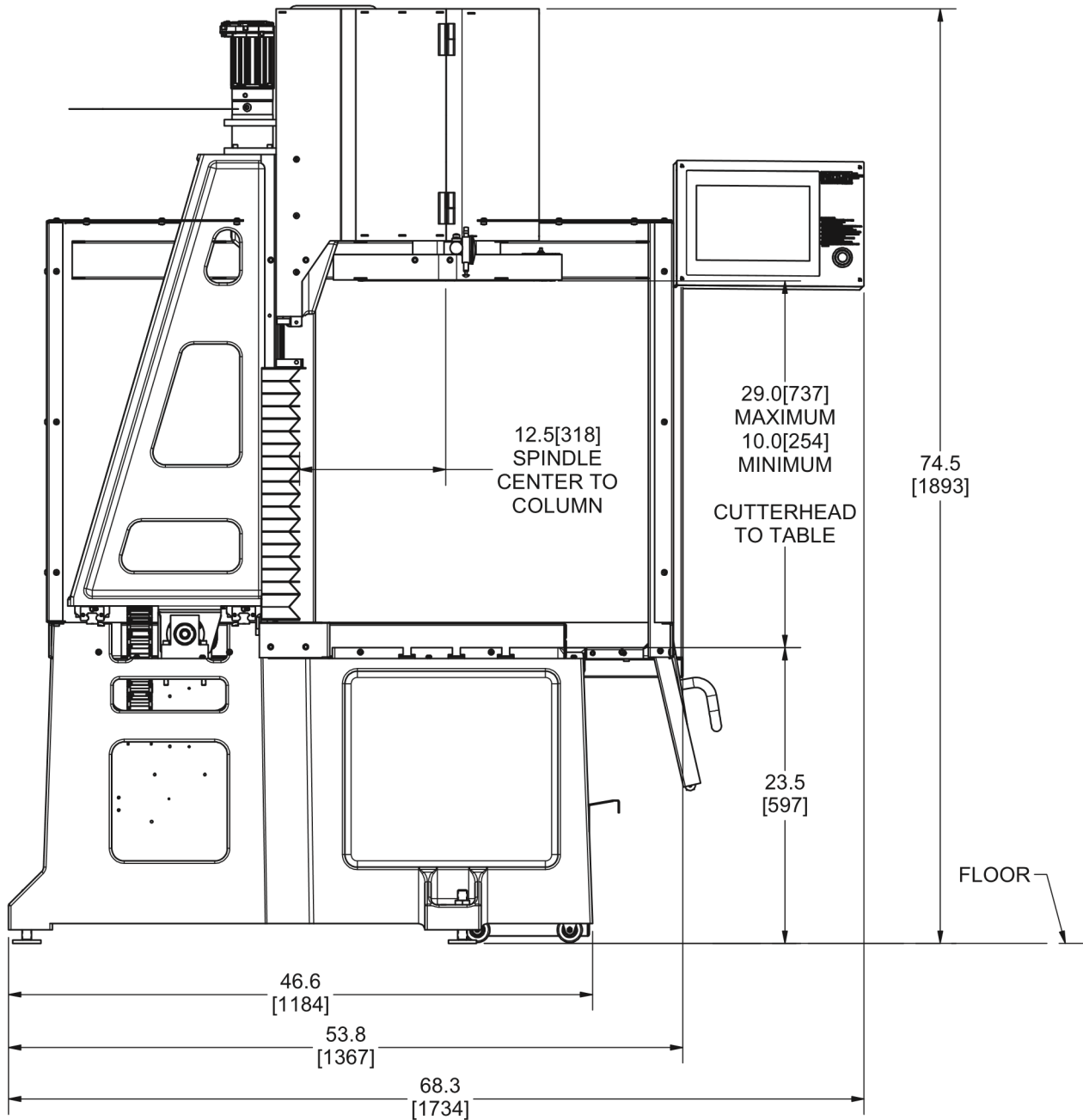
Machine Dimensions

S85A Dimensions

S85A Front Dimensions

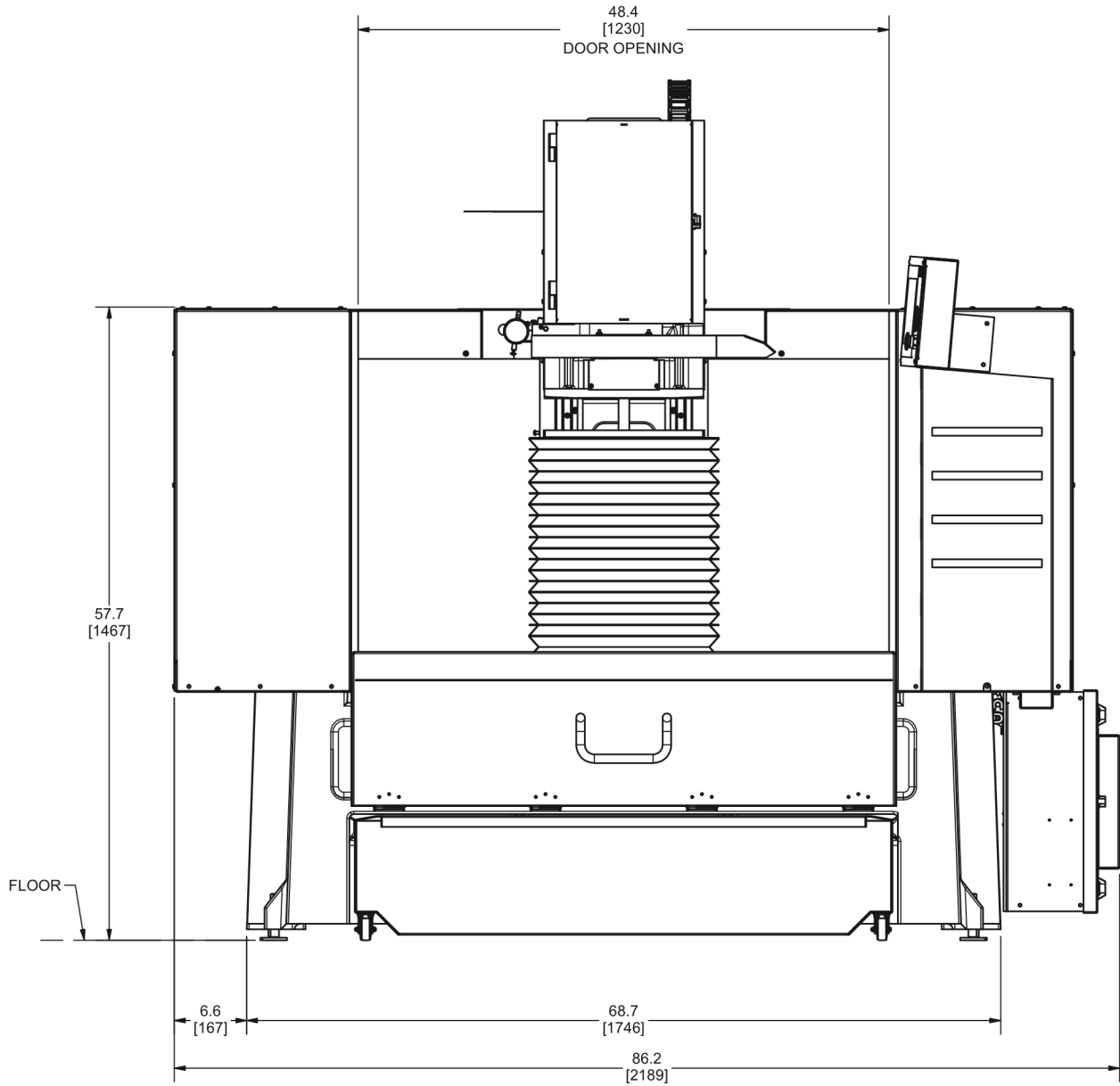


S85A Side Dimensions

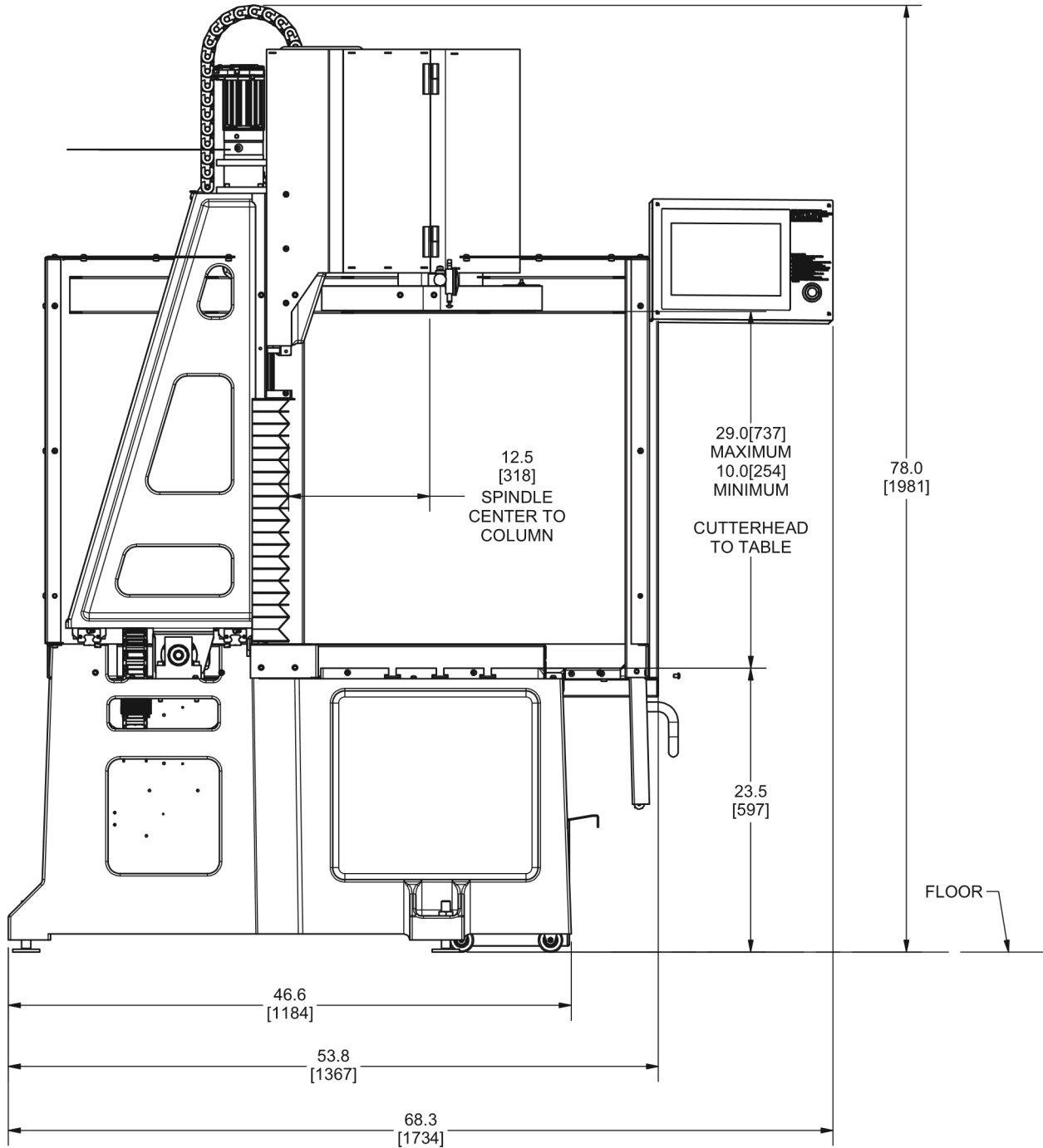


S86A Dimensions

S86A Front Dimensions



S86A Side Dimensions



Installation Procedure

Location

The productivity of this machine will depend a great deal on it's proper initial installation, particularly the means by which cylinder blocks/heads are lifted into the machine as well as the material handling to and from other operations in your shop.

The proper loading arrangement and location for your S85A / S86A machine is extremely important.

A slow travel (6 to 10 feet / min.) power hoist, operated from either a bridge crane or a jib crane arrangement works very well. A 1000-lb. hoist is generally adequate for lifting the engine block. An air hoist with speed control makes an ideal method for fast, convenient loading.

If some production surfacing with this machine is anticipated, and the cylinder blocks/heads are not directly loaded and unloaded from a conveyor, we recommend considerable attention be given to the crane so that it covers an adequate area to allow the operator to back up and remove cylinder blocks/heads without cluttering up his own area. If two machines are to be operated by one operator, we recommend that the open faces be placed at right angles to each other, with the machines about three feet apart.

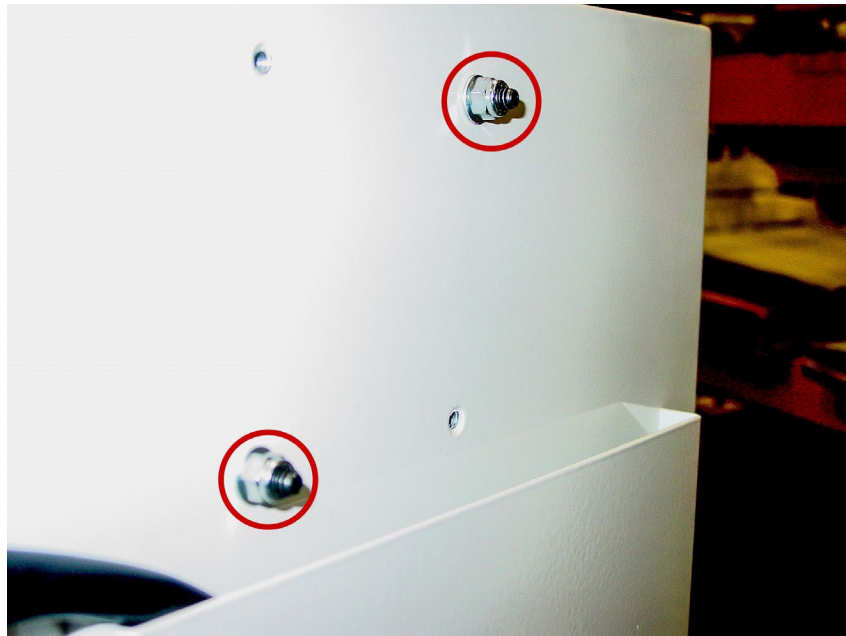
Unpacking

Use care in removing the crate from the S85A / S86A machine, do not use force on any part of the spindle unit.

Remove the tool box, parallels, and optional tooling, located at the lower portion of the machine and completely clean these articles, as well as the machine base with solvent. Rust inhibitor is applied to the machine at the time of shipment, any of this inhibitor left on the machine will result in considerable collecting of cast iron dust.

Remounting Control Screen

Remove the two 1/4-20 nylon lock nuts and washers from front of machine.



Support the screen enclosure with one hand and remove two each 1/4-20 SHCS.



Carefully swing the screen enclosure to the front of machine (use care not to pull wires and black vinyl natvar out of the screen enclosure).

Feed the extra wire and natvar into front sheet metal panel as you move the screen enclosure into the mounting position.



(Make sure you are not pinching any wires) Then mount the screen enclosure bracket to the machine with 4 each supplied 1/4-20 X 1/2" BHCS.



For a finished look push natvar covered wires to the left through slots in sheet metal and push natvar up from the bottom right.

Shipping Hold Down Bracket

Remove the bolts attaching the bracket to the carriage. Remove the bolts holding the bracket to the base. The machine will have to be powered up before the carriage can be lifted off the shipping bracket. Press the Vertical Position HOME button to move the carriage to the top of its travel.

Leveling

Four square head set screws (502-1-12A), jam nuts (502-1-12F), and chamfered washer (7300G), are provided with the machine for leveling. Insert the screw and nut at the base support points, being careful that the screw point seats in the washer.

Use a precision level and level the table within .0005" per foot in both directions and make sure that the machine weight is equally supported at the four support points of the base.

Power Supply

This machine has the following power requirements:

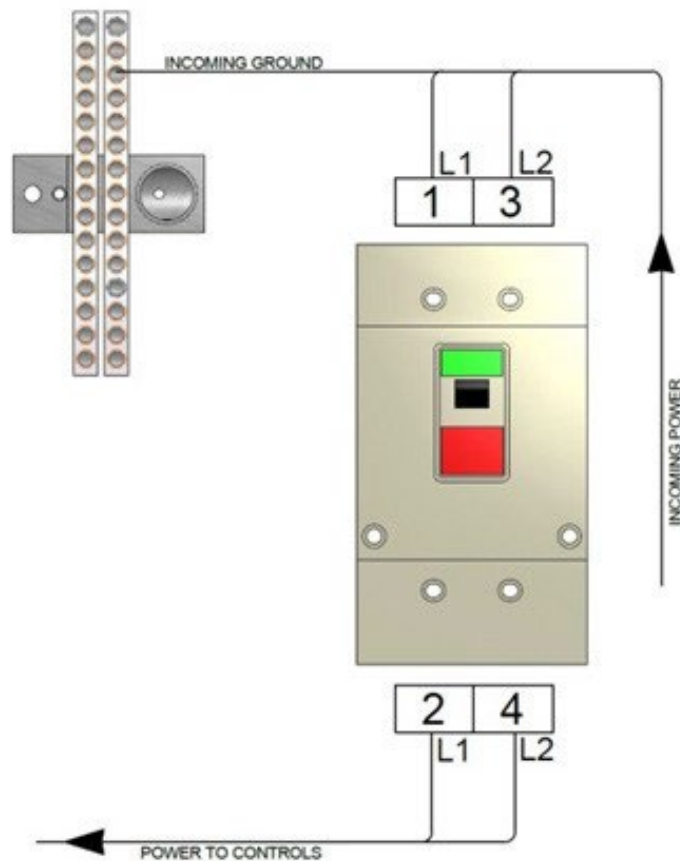
- 208 to 240 VAC
- Single Phase Power
- 50 or 60 Hz
- 30 Amps

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:

- 10 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.

