



SASQUATCH MOBILE SHREDDERS

PROCESSING EQUIPMENT FOR BREWING, DISTILLING & ORGANIC MATERIALS



Sasquatch Organic Materials Grinder Operator's Manual



Proudly Made In The USA



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Thank You!

Thank you for your purchase of a **Sasquatch Organic Materials Grinder**! Your Grinder was carefully and thoughtfully designed with you, the customer and end user, in mind. It's controls are simple, user-friendly, and very intuitive. The Grinder has been manufactured in the U.S.A. from the highest grade materials providing both durability and reliability. If properly operated and cared for, your **Sasquatch Organic Materials Grinder** will prove to be the workhorse you need it to be everyday.

About This Manual

From initial concept and design through its final production, your **Sasquatch Organic Materials Grinder** is built to give you years of trouble-free use. To ensure it provides that service, and to avoid injury, it is critical that you read this entire manual prior to attempting to deploy or operate your new **Sasquatch Organic Materials Grinder**. Become familiar with the terms and diagrams, and pay close attention to the highlighted areas with the following labels:



DANGER! Emphasizes an area in which personal injury or even death **will** result from failure to follow instructions properly. Mechanical damage may also occur.



WARNING! Emphasizes an area in which personal injury or even death **may** result from failure to follow instructions properly. Mechanical damage may also occur.



CAUTION! Failure to observe a "Caution" may cause damage to the equipment.



IMPORTANT! These boxes contain information that illustrates a point that may save time, or be key to proper operation, or clarifies a step.

At Oronoko Iron Works, your satisfaction with our products is paramount to us. If you have questions or need assistance with your product, please contact us at 1-269-326-7045 (M-F 8 AM-4 PM ET).



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Safety Information



DANGER! The Sasquatch Organic Materials Grinder is equipped with very sharp blades rotating at a very high speed inside the processing chamber. Improper use or operation of the Grinder **will** result in bodily injury or death.



WARNING! To ensure the safe and proper operation of your Grinder, it is critical to read and adhere to all of the safety warnings and precautions. Failure to follow the instructions below or improper use of the Grinder **may** cause bodily injury or death!

Operational Safety



WARNING! Operation of the Grinder with the interlocks defeated or over-ridden and the grinding chamber door open is a very dangerous practice and should not be done except by properly trained maintenance professionals working in a maintenance capacity. Improper operation or use of the Grinder **may** result in bodily injury or death.



WARNING! Rotating Sharp Machinery! All rotating machinery has the potential for extreme danger. Loose clothing, long hair, and dangling jewelry can all be drawn into the machine bringing also limbs and other body parts. Never operate the Grinder while wearing anything that could be trapped by contact with the rotating components. Improper operation or use of the Grinder **may** result in bodily injury or death.



WARNING! Operation of the Grinder with the infeed hopper removed is a very dangerous practice and should not be done except by properly trained professionals working in a maintenance capacity. Improper operation or use of the Grinder **may** result in bodily injury or death.



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CAUTION! Before operating the Grinder be sure to read and follow all safety decals and equip yourself with appropriate hearing and eye protection, along with other appropriate safety gear.



CAUTION! Parts of the Grinder may become very warm during normal operation and may become hot if operated in continuous duty. Be aware that exterior metallic surfaces of the Grinder may be warm to the touch and may be hot enough to burn the skin.

Maintenance Safety



WARNING! When cleaning the inside of the Grinder, proper lockout and tagout procedures should be followed and should only be performed by properly trained professionals working in a maintenance capacity. Improper servicing of the Grinder **may** result in bodily injury or death.



WARNING! When replacing or servicing the Grinder knives, proper lockout and tagout procedures must be followed and should only be performed by properly trained professionals working in a maintenance capacity. Improper operation or use of the Grinder **may** result in bodily injury or death.



WARNING! When servicing the drive motor or drive belt, proper lockout and tagout procedures must be followed and should only be performed by properly trained professionals working in a maintenance capacity. Improper operation or use of the Grinder **may** result in bodily injury or death.

Section 1. Uncrating the Grinder

Your Sasquatch Organic Materials Grinder is carefully crated and/or wrapped at the factory before shipping to assure that it arrives undamaged at your facility. In the event that you observe any damage to the crate or wrapping, contact the carrier for instructions how to proceed. Carefully remove the Grinder from any crating or wrapping.



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Section 2. Preparing the Grinder

After uncrating or unwrapping your **Sasquatch Organic Materials Grinder** several things must be accomplished before your first use of the machine. Assure that the power switch is in the off position. Place the Grinder in a location that is well ventilated, as level as possible, and that affords adequate room for the product infeed and product take-away conveyance systems. Once positioned, lock the casters to prevent movement after startup.



Lock Casters



On & Off Switch



IMPORTANT! Correct preparation and proper placement of your Grinder is critical and the key to its successful operation and continued trouble-free service. Adequate ventilation is necessary for proper cooling of the Grinder.



WARNING! The Grinder must not be started until the feed hopper is clear of any obstacles. Failure to comply **may** result in bodily injury and damage to the equipment and **may** void the warranty!



WARNING! The Grinder must be electrically wired by a professional electrician to assure proper connection and operation. Failure to comply **may** result in bodily injury and damage to the equipment and **may** void the warranty!

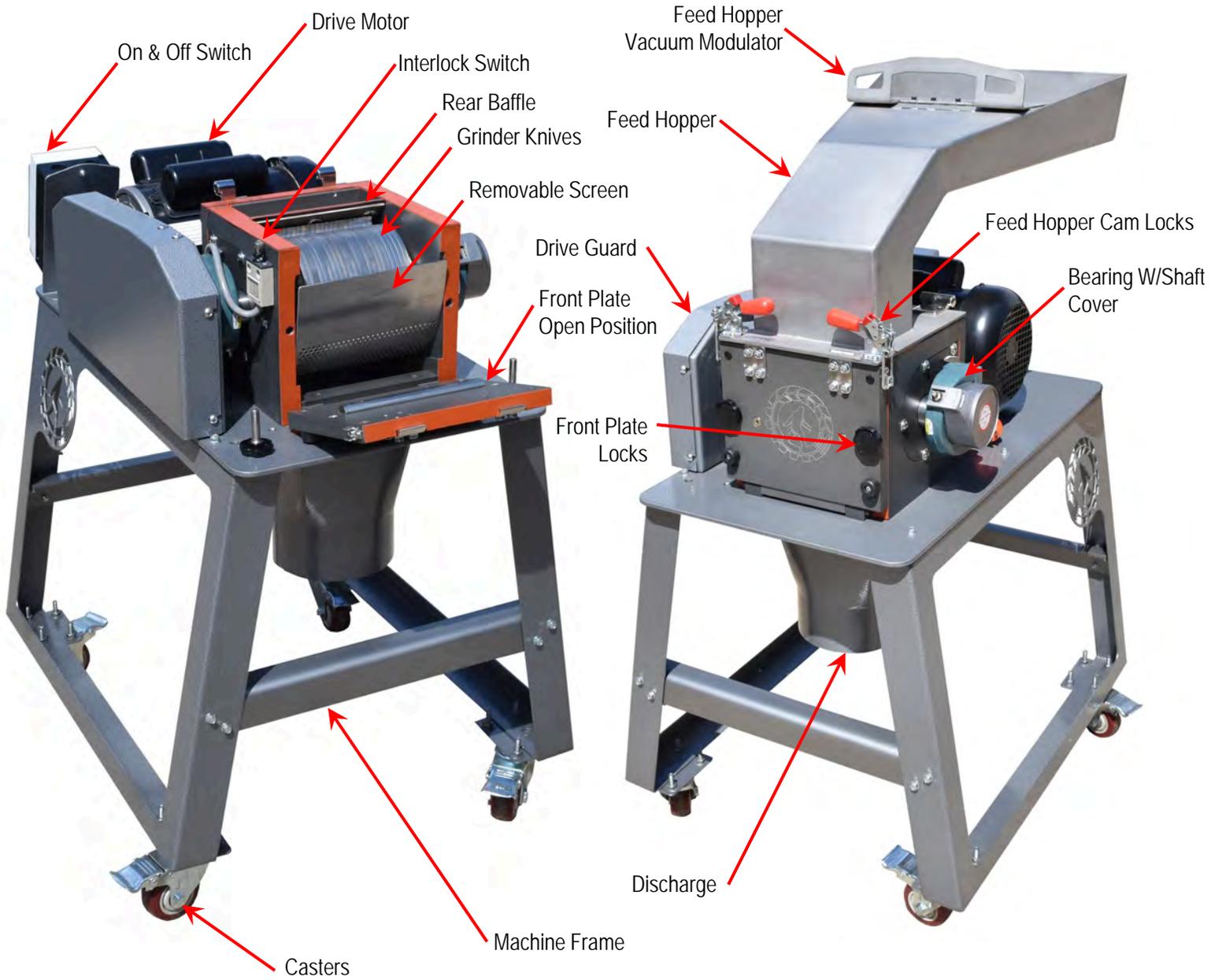
Section 3. Operating the Grinder

Your **Sasquatch Organic Materials Grinder** is designed to operate with a minimal number of controls. **Addendum A** contains a Grinder Startup Checklist which should be employed every time the Grinder is started. After performing the Startup Checklist, you are ready to start and operate the Grinder.



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Starting The Grinder



WARNING! The direction of rotation of Grinder motor must be confirmed before placing the Grinder in service. This must be accomplished by a professional electrician in a maintenance setting. The Grinder motor must be turning clock-wise when viewed from the Drive Guard side. Observing the Drive Shaft while bumping the On & Off switch will allow the rotation direction to be established. Personal injury or even death **may** result from failure to follow instructions properly. Mechanical damage may also occur.



Rotor Shaft

To start the Grinder, first assure that there is nothing in the Feed Hopper. Secondly, assure that all infeed and take-away conveyance systems (if any) are turned on. Once this is accomplished turn the On and Off switch to the "On" position. Allow the Grinder to spool up to full speed before feeding any material into the Feed Hopper.



IMPORTANT! It is recommended that a Cyclone system be used on the outlet to draw product through. It provides maximum product throughput of the mill.



CAUTION! The Sasquatch Organic Materials Grinder was designed to process **ORGANIC MATERIALS ONLY**. Any processing of non-organic materials will void the warranty and mechanical damage may also occur.



WARNING! If the Grinder does not start or fails to spool up in a timely manner, depress the "Emergency Stop" button immediately and consult Addendum B. Failure to shut the system down immediately **may** result in personal injury or even death. Mechanical damage **may** also occur.



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Feeding Material Into The Grinder

Your Grinder is equipped with a wide-mouth Feed Hopper for manual feeding, and it will perform at its optimum if product is fed into the center of the Grinder at a metered rate. Start with a small amount to determine the rate at which the Grinder is grinding the materials completely and satisfactorily and then adjust the feed rate accordingly.

Using The Vacuum Modulator

As was stated earlier, your Grinder will do its best work if a Cyclone system is connected to the outlet, thus effectively sucking product through the Grinder and into the discharge. The Vacuum Modulator was designed to feed the Grinder with organic material in “pulsed modules” of product by building up a maximum vacuum force when the gate is closed and then rapidly opening the gate and violently sucking the product through the Grinder into the discharge.



Default Open Position



Vacuum Modulator



Closed Position

Section 4: Clearing A Minor Or Major Jam

Minor Material Jam

If the Grinder becomes jammed and stops turning, stop the Grinder immediately either by depressing the E-Stop or turning the “On/Off” switch to the off position.



WARNING! Grinder motor must come to a complete and total stop before proceeding to the next step. Failure to comply **may** cause personal injury and **may** result in Mechanical or Electrical damage and **may** void the warranty.



CAUTION! All work must be done by qualified maintenance personnel. Never attempt to clear a jam by repeatedly cycling the Grinder motor on and off. Failure to comply **may** result in damage to the equipment and **will** void the warranty!



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- STEP 1 - Shut down all other conveyance systems motors that are running.
- STEP 2 - Follow Lockout – Tagout procedures to assure that the Grinder and all associated equipment is totally off.
- STEP 3 - Unlock the two Cam Locks that are securing the Feed Hopper and lay it back against the motor
- STEP 4 - Remove the two Front Plate thumb screw locks and lower the front plate and remove the screen.
- STEP 5 - Remove the outer cover of the Drive Guard.
- STEP 6 - Inspect the Grinding Chamber to determine whether it is a material jam or a mechanical jam.
- STEP 7 - Try to rotate the shaft in a clockwise direction using the drive pulley. If it rotates it is likely a material jam.
- STEP 8 - Continue rotating and cleaning the knives until the jam is totally cleared and the shaft is spinning freely
- STEP 9 - Replace the outer drive guard, feed hopper, screen, and front plate.
- STEP 10 - Remove all Lockout-Tagouts and return the Grinder to normal service.

If the shaft will not rotate, it is likely a mechanical jam. See Service Manual



WARNING! When opening the Grinding Chamber be aware that the sharp edges of the knives are fully exposed and very sharp. Precautions should be taken to avoid being cut. Failure to comply **may** result in personal injury.



Rotate Shaft Using Belt Pulley
Never Use A Wrench On The Shaft



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Section 5. Routine Maintenance

Your Sasquatch Organic Materials Grinder is designed to operate with a minimal amount of maintenance required. However, the routine maintenance items covered in this section must be performed at the intervals listed in order to assure the performance and longevity of the Grinder. Failure to comply with routine maintenance items **may** void the warranty!



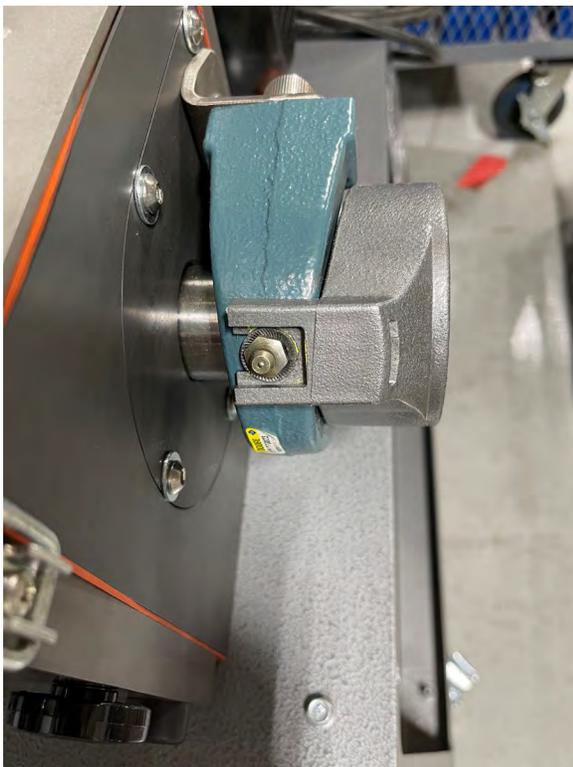
IMPORTANT! The front and rear motor bearings must be greased every 40 hours of operation. See **Addendum C** for motor maintenance instructions.



IMPORTANT! The rotor shaft mounting bearings must be greased every 40 hours of operation.



IMPORTANT! The outside and inside surfaces of the Grinder should be thoroughly cleaned on a weekly basis with moderate usage. Heavy Grinder usage will require more frequent cleanings.



Non-Drive Side Rotor Bearing



Drive Side Rotor Bearing



SASQUATCH MOBILE SHREDDERS

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LIMITED WARRANTY POLICY

Revised 12/15/2018

Oronoko Iron Works, Inc. ("Manufacturer") warrants the original Buyer of its products ("Buyer") that goods of its manufacture ("Goods") shall be free from defects of materials and workmanship for 12 months from date of shipping from factory, and for 18 months from date of shipping from factory if products are installed by Manufacturer or its representative. End user must contact the Manufacturer within the warranty period to process a warranty. Warranty is not transferrable and is extended to the original Buyer only.

Manufacturer's sole obligation under the foregoing warranties will be limited to either – at Manufacturer's option – replacing defective goods (subject to limitations hereinafter provided) or refunding the purchase price for such Goods theretofore paid by the Buyer, and Buyers exclusive remedy for breach of any such warranties will be enforcement of such obligations of the Manufacturer. If the Manufacturer so requests the return of such Goods, the Goods will be redelivered to the Manufacturer in accordance with Manufacturer's instructions FOB Factory.

The remedies contained herein shall constitute the sole recourse of the Buyer against the Manufacturer for breach of warranty. **IN NO EVENT SHALL THE MANUFACTURER'S LIABILITY FOR ANY CLAIM FOR DAMAGES ARISING OUT OF THE MANUFACTURE, SALE, DELIVERY, OR USE OF THE GOODS EXCEED THE PURCHASE PRICE.**

The foregoing warranties will not extend to goods subject to misuse, neglect, accident, improper installation or maintenance, improper operation, or that have been repaired by anyone other than the Manufacturer or its authorized representative. **THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE OF ANY OTHER TYPE, WHETHER EXPRESSED OR IMPLIED.**

No person may vary the forgoing warranties or remedies, except in writing signed by a duly authorized officer of the Manufacturer. The Buyer's acceptance of delivery of the Goods constitutes acceptance of the foregoing warranties and remedies, and all conditions and limitations thereof.



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ADDENDUM A

Start-up Check List

Daily Visual Inspection

Verify that all of the following are accomplished before starting the Grinder.

- 1 Are there any LOCKOUT-TAGOUT tags visible? If so, go no further and contact supervisor immediately
- 2 Is the Feed Hopper Empty? NEVER start the Grinder with product in the Feed Hopper!
- 3 Are all safety guards in-place and fasteners tight?
- 4 Is the Front Plate locked in place?
- 5 Is the screen installed?
- 6 Are all motor mounting and adjustment bolts tight?
- 7 Does the motor appear to be parallel to the back of the Grinder?
- 8 Is the Feed Hopper in-place and tight?
- 9 Is the discharge and takeaway conveyance system in-place and tight?
- 10 Is the power to the control panel on?

ADDENDUM D - Cannabis Grinder Trouble Shooting Matrix

ADDENDUM D - Cannabis Grinder Trouble Shooting Matrix										
Electrical Issues	Check - NOTE!!! ALL ELECTRICAL WORK MUST BE DONE BY A QUALIFIED ELECTRICIAN									
Motor will not start	Is electrical voltage correct?	Is main breaker on?	Is motor wired correctly?	Is Grinder jammed?						
Motor turning wrong direction	Check motor wiring diagram	See Addendum C								See Addendum C for all pertinent motor information, including the recommended motor maintenance schedule from the
Motor running slow	Is electrical voltage correct?	Is motor wired correctly?	Is the wiring run less than 30ft?	Is Grinder partially jammed?	Has routine motor maintenance been completed?					
Motor overheating	Is electrical voltage correct?	Is motor wired correctly?	Has routine motor maintenance been completed?	Is Grinder being operated in overloaded condition?	Is motor adequately ventilated?	Is the Grinder room temperature less than 95° F?	Is the belt tensioned correctly?			
Motor tripping overloads	Is electrical voltage correct?	Is motor wired correctly?	Has routine motor maintenance been completed?	Is Grinder being operated in overloaded condition?	Is motor adequately ventilated?	Is Grinder jammed?	Is the belt tensioned correctly?			
Product Grinding Issues	Check									
Ground particle size is inconsistent	Is the correct screen installed?									
Whole particles are getting through	Is the correct screen installed?									
Throughput is not as expected	Does material being ground correspond to throughput?	Is the Grinder being operated at FLA on ammeter?	Is product moisture content too high?	Have all Electrical Issues listed above been ruled out?						
Grinder is jammed with product	<div style="border: 2px solid red; padding: 5px;"> <p>NOTE! NEVER USE ANY TYPE OF WRENCH TO TURN THE SHAFT IN AN EFFORT TO UNJAM THE GRINDER. FAILURE TO COMPLY WILL DAMAGE THE EQUIPMENT AND WILL VOID THE WARRANTY. SEE INSTRUCTIONS IN SECTION 5 OF THE MANUAL TO CLEAR JAMS CORRECTLY</p> </div>									
Grinder is jammed with foreign object										
Mechanical Issues	Check									
Grinder is vibrating excessively	Is the Grinder mounted on a level surface?	Are all motor mounting bolts tightened?	Are all bolts in taper lock bushings tightened?	Are all Grinder mounting bolts to base plate tightened?	Are all feed hopper mounting bolts tightened?	Are the belts tensioned correctly?	Is product moisture content too high?	Is there a foreign object in the Grinder?		
Grinder is making unusual noises	Are all motor and guard mounting bolts tightened?	Are all bolts in taper lock bushings tightened?	Are all belt pulleys aligned and spaced on shaft correctly?	Are drive guard mounting bolts tightened?	Are all discharge hopper mounting bolts tightened?	Has the interior of the Grinder been cleaned on schedule?	Are the belts tensioned correctly?	Is the screen installed correctly?	Is there a foreign object in the Grinder?	
Belts are squealing	Are the belts tensioned correctly?	Are the belts worn out & needing replaced?	Is there a foreign substance on the belt?	Is the belt pulley worn out and needing replaced?	Is the Grinder Jammed?					
Bearings are making noise	Have the bearings been greased on schedule?	Are the bearings loose or out of alignment?	Are the belts tensioned correctly?	Have incompatible greases been mixed?						



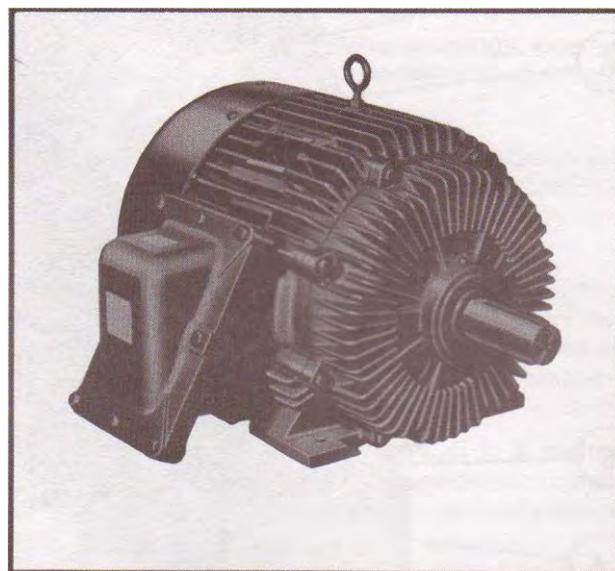
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ADDENDUM C

Motor Maintenance

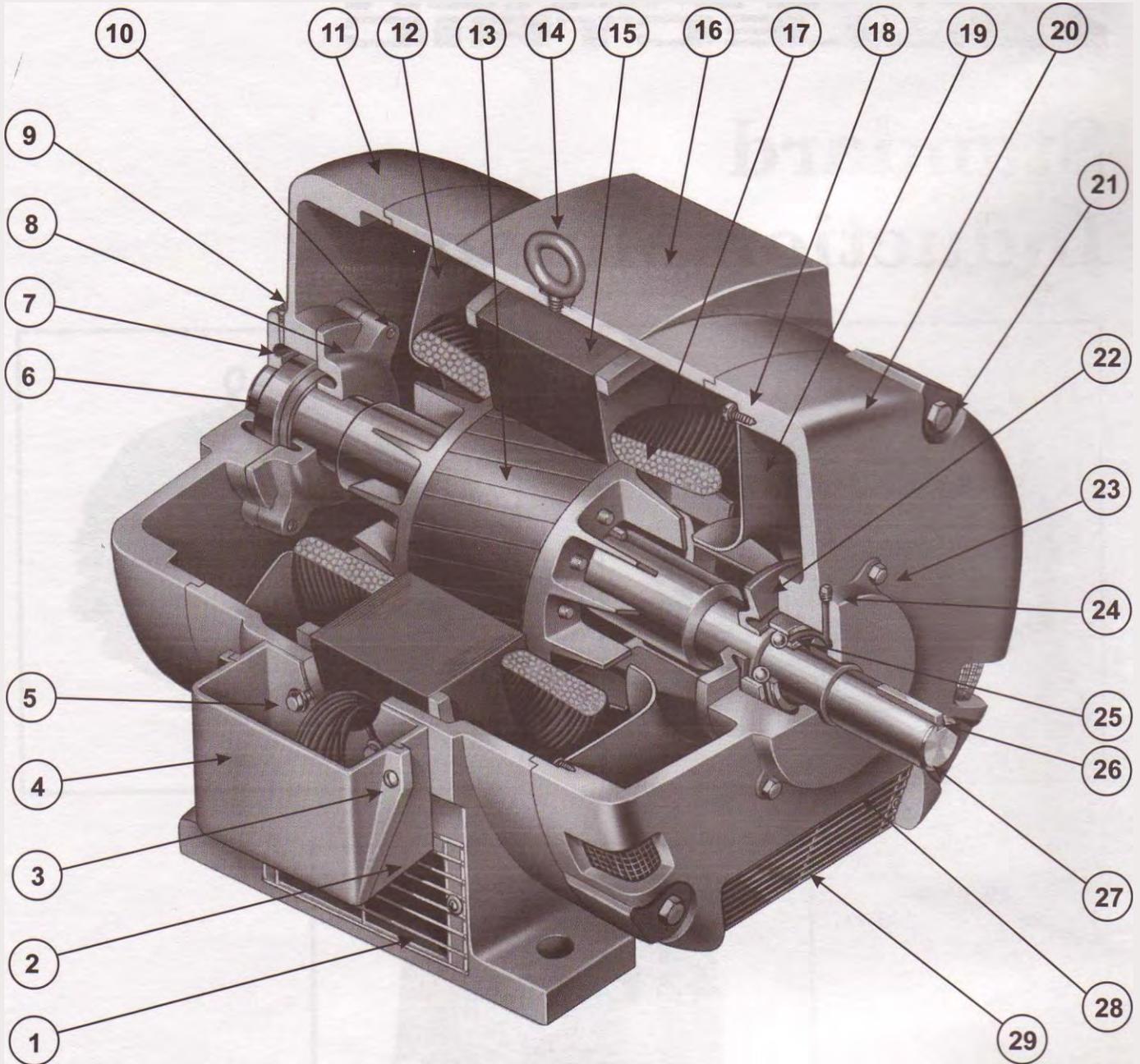
marathon[™]
Motors

Standard Induction Motors



Installation, Operation, & Maintenance Instructions

TYPICAL CUTAWAY VIEW
OF A DRIPPROOF, HORIZONTAL
INTEGRAL HORSEPOWER MOTOR & PARTS DESCRIPTION
364 THRU 445 FRAME SIZE



ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
1.	**Frame Vent Screen	11.	Bracket O.P. E.	21.	Bracket Holding Bolt
2.	Conduit Box Bottom	12.	Baffle Plate O.P.E.	22.	Inner Bearing Cap P.E.
3.	Conduit Box Top-Holding Screw	13.	Rotor Core	23.	Inner Bearing Cap Bolt
4.	Conduit Box Top	14.	Lifting Eye Bolt	24.	Grease Plug
5.	Conduit Box Bottom-Holding Bolt	15.	Stator Core	25.	*Ball Bearing P.E.
6.	*Ball Bearing O.P.E.	16.	Frame	26.	Shaft Extension Key
7.	Pre-loading Spring	17.	Stator Winding	27.	Shaft
8.	Inner Bearing Cap O.P.E.	18.	Baffle Plate Holding Screw	28.	Drain Plug (grease)
9.	Grease Plug	19.	Baffle Plate P.E.	29.	**Bracket Screen
10.	Inner Bearing Cap Bolt	20.	Bracket P.E.		

P.E. = Pulley End

O.P.E. = Opposite Pulley End

* = Bearing Numbers are shown on motor nameplate when requesting information or parts always give complete motor description, model and serial numbers.

** = Bracket and frame screens are optional.

WARNING

These instructions must be followed to ensure safe and proper installation, operation and maintenance of the motor. They should be brought to the attention of all persons who install, operate or maintain this equipment.

GENERAL INFORMATION

Motors are all fully factory tested and inspected before shipping. Damage during shipment and storage can occur. Motors not correctly matched to the power supply and/or the load will not operate properly. These instructions are intended as a guide to identify and eliminate these problems before they are overlooked or cause further damage.

ACCEPTANCE

Check carefully for any damage that may have occurred in transit. If any damage or shortage is discovered, do not accept until an appropriate notation on the freight bill is made. Any damage discovered after receipt of equipment should be immediately reported to the carrier.

STORAGE

A. Keep motors clean

1. Store indoors
2. Keep covered to eliminate airborne dust and dirt.
3. Cover openings for ventilation, conduit connections, etc. to prevent entry of rodents, snakes, birds, and insects, etc.

B. Keep motors dry

1. Store in a dry area indoors
2. Temperature swings should be minimal to prevent condensation.
3. Space heaters are recommended to prevent condensation.
4. Treat unpainted flanges, shafts, and fittings with a rust inhibitor.
5. Check insulation resistance before putting motor into service. (Consult manufacturer for guidelines).

C. Keep Bearings Lubricated

1. Once per month, rotate shaft several turns to distribute grease in bearings.
2. If unit has been stored more than one year, add grease before start-up. (Refer to lubrication procedure).

INSTALLATION

UNCRATING AND INSPECTION

After uncrating, check for any damage which may have been incurred in handling. The motor shaft should turn freely by hand. Repair or replace any loose or broken parts before attempting to use the motor.

Check to be sure that motor has not been exposed to dirt, grit, or excessive moisture in shipment or storage before installation.

Measure insulation resistance (see operation). Clean and dry the windings as required.

Never start a motor which has been wet without having it thoroughly dried.

SAFETY

Motors should be installed, protected and fused in accordance with latest issue of National Electrical Code, NEMA Standard Publication No. MG 2 and local codes.

Eyebolts or lifting lugs are intended for lifting the motor only. These lifting provisions should never be used when lifting or handling the motor with other equipment (i.e. pumps, gear boxes, fans or other driven equipment) as a single unit. Be sure the eyebolt is fully threaded and tight in its mounting hole.

Eyebolt lifting capacity ratings is based on a lifting alignment coincident with the eyebolt centerline. Eyebolt capacity reduces as deviation from this alignment increases. See NEMA MG 2.

Frames and accessories of motors should be grounded in accordance with National Electrical Code (NEC) Article 430. For general information of grounding refer to NEC Article 250.

Rotating parts such as pulleys, couplings, external fans, and shaft extensions should be permanently guarded.

LOCATION

In selecting a location for the motor, consideration should be given to environment and ventilation. A motor with the proper enclosure for the expected operating condition should be selected.

The ambient temperature of the air surrounding the motor should not exceed 40c C (104°F) unless the motor has been especially designed for high ambient temperature applications. The free flow of air around the motor should not be obstructed.

The motor should never be placed in a room with a hazardous process, or where flammable gases or combustible material may be present, unless it is specifically designed for this type of service.

1. Drip-proof (open) motors are intended for use indoors where atmosphere is relatively clean, dry and non-corrosive.
2. Totally enclosed motors may be installed where dirt, moisture and corrosion are present, or in outdoor locations.
3. Explosion proof motors are built for use in hazardous locations as indicated by Underwriters' label on motor. Consult UL, NEC, and local codes for guidance.

Refer to manufacturer for application assistance.

FLOOR MOUNTING

Motors should be provided with a firm, rigid foundation, with the plane of four mounting pads flat within .010" for 56 to 210 frame; .015" from 250 through 500 frame. This may be accomplished by shims under the motor feet. For special isolation mounting, contact manufacturer for assistance.

V-BELT DRIVE

1. Select proper type and number of belts and sheaves. Excessive belt load will damage bearings. Sheaves should be in accordance to NEMA Spec. MG-1 or as approved by the manufacturer for a specific application.
2. Align sheaves carefully to avoid axial thrust on motor bearing. The drive sheave on the motor should be positioned toward the motor so it is as close as possible to the bearing.

- When adjusting belt tension, make sure the motor is secured by all mounting bolts before tightening belts.
- Adjust belt tension to belt manufacturer's recommendations. Excessive tension will decrease bearing life.
- For more information see Marathon Electric Publication SB528.

DIRECT CONNECTED DRIVE

Flexible or solid shaft couplings must be properly aligned for satisfactory operation. On flexible couplings, the clearance between the ends of the shafts should be in accordance with the coupling manufacturer's recommendations or NEMA standards for end play and limited travel in coupling.

MISALIGNMENT and RUN-OUT between direct connected shafts will cause increased bearing loads and vibration even when the connection is made by means of a flexible coupling. Excessive misalignment will decrease bearing life. Proper alignment, per the specifications of the coupling being used, is critical.

Some large motors are furnished with roller bearings. Roller bearings should **not** be used for direct drive.

ELECTRICAL CONNECTIONS

CAUTION

Install and ground per local and national codes. Consult qualified personnel with questions or if repairs are required.

WARNING

- Disconnect power before working on motor or driven equipment.
- Motors with automatic thermal protectors will automatically restart when the protector temperature drops sufficiently. Do not use motors with automatic thermal protectors in applications where automatic restart will be hazardous to personnel or equipment.
- Motors with manual thermal protectors may start unexpectedly after protector trips. If manual protector trips, disconnect motor from power line. After protector cools (five minutes or more) it can be reset and power may be applied to motor.
- Discharge all capacitors before servicing motor.
- Always keep hands and clothing away from moving parts.
- Never attempt to measure the temperature rise of a motor by touch. Temperature rise must be measured by thermometer, resistance, imbedded detector, or thermocouple.
- Electrical repairs should be performed by trained and qualified personnel only.
- Failure to follow instructions and safe electrical procedures could result in serious injury or death.
- If safety guards are required, be sure the guards are in use.

- All wiring, fusing, and grounding must comply with National Electrical Codes and local codes.
- To determine proper wiring, rotation and voltage connections, refer to the information and diagram on the nameplate, separate connection plate or decal. If the plate or decal has been removed, contact Marathon Electric for assistance.
- Use the proper size of line current protection and motor controls as required by the National Electrical Code and local codes. Recommended use is 125% of full load amps as shown on the nameplate for motors with 40°C ambient

and a service factor over 1.0. Recommended use is 115% of full load amps as shown on the nameplate for all other motors. Do not use protection with larger capacities than recommended. Three phase motors must have all three phases protected.

THERMAL PROTECTOR INFORMATION

The nameplate will indicate one of the following:

- Motor is thermally protected
- Motor is not thermally protected
- Motor is provided with overheat protective device

For examples, refer to paragraphs below:

- Motors equipped with built-in thermal protection have "THERMALLY PROTECTED" stamped on the nameplate. Thermal protectors open the motor circuit electrically when the motor overheats or is overloaded. The protector cannot be reset until the motor cools. If the protector is automatic, it will reset itself. If the protector is manual, press the red button to reset.
- Motors without thermal protection have nothing stamped on nameplate about thermal protection.
- Motors that are provided with overheat protective device that does not open the motor circuit directly will indicate "WITH OVERHEAT PROTECTIVE DEVICE".
 - Motors with this type of "Overheat Protective Device" have protector leads brought out in the motor conduit box marked "P1" and "P2". These leads are intended for connection in series with the stop button of the 3-wire pilot circuit for the magnetic starter which controls the motor. See Figure 1.
 - The circuit controlled by the above "Overheat Protective Device" must be limited to a maximum of 600 volts and 360 volt-amps.

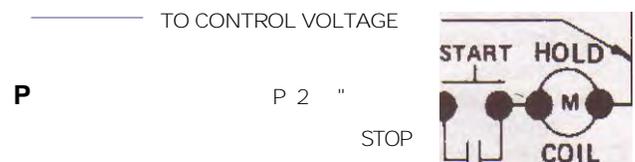


FIGURE 1

NORMALLY CLOSED PROTECTORS

Normally Open (N/O) Motor Thermostats may be used in conjunction with controls installed by Original Equipment Manufacturers.



FIGURE 1A

CHANGING ROTATION

- Keep hands and clothing away from rotating parts.
- Before the motor is coupled to the load, determine proper rotation.
- Check rotation by jogging or bumping. Apply power to the motor leads for a short period of time, enough to just get motor shaft to rotate a slight amount to observe shaft rotating direction.
- Three phase - interchange any two (2) of the three (3) line leads. Single phase - reconnect per the connection diagram on the motor.

REDUCED VOLTAGE STARTING

Motors used on reduced voltage starting, should be carefully selected based upon power supply limitations and driven load requirements. The motors starting torque will be reduced when using reduced voltage starting. The elapsed time on the start step should be kept as short as possible and should not exceed 5 seconds. It is recommended that this time be limited to 2 seconds. Refer to Marathon Electric for application assistance.

OPERATION

WARNING

Disconnect and lock out before working on motor or driven equipment.

BEFORE INITIAL STARTING

1. If a motor has become damp in shipment or in storage, measure the insulation resistance of the stator winding.

$$\text{Minimum Insulation Resistance} = \frac{\text{Rated Voltage}}{1 + \frac{\text{1000}}{\text{In Megohms}}}$$

Do not attempt to run the motor if the insulation resistance is below this value.

2. If insulation resistance is low, dry out the moisture in one of the following ways:
 - a. Bake in oven at temperature not more than 90°C (194°F).
 - b. Enclose motor with canvas or similar covering, leaving a hole at the top for moisture to escape, and insert heating units or lamps.
 - c. Pass a current at low voltage (rotor locked) through the stator winding. Increase the current gradually until the winding temperature, measured with a thermometer, reaches 90°C (194°F). Do not exceed this temperature.
3. See that voltage and frequency stamped on motor and control nameplates correspond with that of the power line.
4. Check all connections to the motor and control with the wiring diagram.
5. Be sure rotor turns freely when disconnected from the load. Any foreign matter in the air gap should be removed.
6. Leave the motor disconnected from the load for the initial start (see following caution). Check for proper rotation. Check for correct voltage (within + 10% of nameplate value) and that it is balanced within 1% at the motor terminals. After the machine is coupled to the load, check that the nameplate amps are not exceeded. Recheck the voltage level and balance under load per the above guidelines. Shut down the motor if the above parameters are not met or if any other noise or vibration disturbances are present. Consult NEMA guidelines or the equipment manufacturer if any questions exist before operating equipment.

CAUTION

For motors nameplated as "belted duty only", do not run motor without belts properly installed.

COLLECTOR RINGS (Wound Rotor Motors Only)

The collector rings are sometimes treated at the factory to protect them while in stock and during shipment. The brushes have been fastened in a raised position. Before putting the motor into service, the collector rings should be cleaned to remove this treatment. Use a cleaning fluid that is made for degreasing electrical equipment. All of the brushes must be released and lowered to the collector surface. Keep the rings clean and maintain their polished surfaces. Ordinarily, the rings will require only occasional wiping with a piece of canvas or non-linting cloth. Do not let dust or dirt accumulate between the collector rings.

BRUSHES (Wound Rotor Motors Only)

See that the brushes move freely in the holders and at the same time make firm, even contact with the collector rings. The pressure should be between 2 and 3 pounds per square inch of brush surface.

When installing new brushes, fit them carefully to the collector rings. Be sure that the copper pigtail conductors are securely fastened to, and make good contact with, the brush holders.

ALLOWABLE VOLTAGE AND FREQUENCY RANGE

If voltage and frequency are within the following range, motors will operate, but with somewhat different characteristics than obtained with correct nameplate values.

1. Voltage: Within 1 0% above or below the value stamped on the nameplate. On three phase systems the voltage should be balanced within 1%. A small voltage unbalance will cause a significant current unbalance.
2. Frequency: Within 5% above or below the value stamped on the nameplate.
3. Voltage and Frequency together: Within 10% (providing frequency above is less than 5%) above or below values stamped on the nameplate.

CLEANLINESS

Keep both the interior and exterior of the motor free from dirt, water, oil and grease. Motors operating in dirty places should be periodically disassembled and thoroughly cleaned.

CONDENSATION DRAIN PLUGS

All explosion proof and some totally enclosed motors are equipped with automatic drain plugs, they should be free of oil, grease, paint, grit and dirt so they don't clog up. The drain system is designed for normal floor (feet down) mounting. For other mounting positions, modification of the drain system may be required, consult Marathon Electric.

SERVICE

WARNING

Disconnect power before working on motor or driven equipment. Motors with automatic thermal protectors will automatically restart when the protector cools. Do not use motors with automatic thermal protectors in applications where automatic restart will be hazardous to personnel or equipment.

CAUTION

Overgreasing bearings can cause premature bearing and/or motor failure. The amount of grease added should be carefully controlled.

NOTE

If lubrication instructions are shown on the motor nameplate, they will supersede this general instruction.

Motors are pregreased with polyurea mineral oil NGLI grade 2 type grease unless stated otherwise on the motor nameplate. Some compatible brands of polyurea mineral base type grease are: Chevron SRI #2, Rykon Premium #2, Exxon Polyrex EM or Texaco Polystar RB.

Motors are properly lubricated at the time of manufacture. It is not necessary to lubricate at the time of installation unless the motor has been in storage for a period of 12 months or longer (refer to lubrication procedure that follows).

LUBRICATION PROCEDURES

1. Stop motor. Disconnect and lock out of service.
2. Remove contaminants from grease inlet area.
3. Remove filler and drain plugs.
4. Check filler and drain holes for blockage and clean as necessary.
5. Add proper type and amount of grease. See the Relubrication Time Intervals table for service schedule and Relubrication Amounts table for volume of grease required.
6. Wipe off excess grease and replace filler and drain plugs (see following warning).
7. Motor is ready for operation.

WARNING

If motor is nameplated for hazardous locations, do not run motor without all of the grease or drain plugs installed.

RELUBRICATION TIME INTERVAL AND AMOUNTS

(For motors with regreasing provisions)

Service Condition	NEMA FRAME SIZE					
	140-180		210-360		400-510	
	1800 RPM and less	Over 1800 RPM	1800 RPM and less	Over 1800 RPM	1800 RPM and less	Over 1800 RPM
Standard	3 yrs.	6 months	2 yrs.	6 months	1 yr.	3 months
Severe	1 yr.	3 months	1 yr.	3 months	6 months	1 month
Seasonal	See Note 2.					

NOTE

1. For motors nameplated as "belted duty only" divide the above intervals by 3.
2. Lubricate at the beginning of the season. Then follow service schedule above.

SEASONAL SERVICE: The motor remains idle for a period of 6 months or more.

STANDARD SERVICE: Up to 16 hours of operation per day, indoors, 100°F maximum ambient.

SEVERE SERVICE: Greater than 16 hours of operation per day. Continuous operation under high ambient temperatures (100° to 150°F) and/or any of the following: dirty, moist locations, high vibration (above NEMA standards), heavy shock loading, or where shaft extension end is hot.

RELUBRICATION AMOUNTS

(For motors with regreasing provisions)

NEMA FRAME SIZE	VOLUME cu. in. (fluid oz.)
140	.25 (.14)
180	.50 (.28)
210	.75 (.42)
250	1.00 (.55)
280	1.25 (.69)
320	1.50 (.83)
360	1.75 (.97)
400	2.25 (1.2)
440	2.75 (1.5)
500	3.00 (1.7)

TROUBLESHOOTING

WARNING

1. Disconnect power before working on motor or driven equipment.
2. Motors with automatic thermal protectors will automatically restart when the protector temperature drops sufficiently. Do not use motors with automatic thermal protectors in applications where automatic restart will be hazardous to personnel or equipment.
3. Motors with manual thermal protectors may start unexpectedly after protector trips. If manual protector **trips**, disconnect motor from power line. After protector cools (five minutes or more) it can be reset and power may be applied to motor.
4. Discharge all capacitors before servicing motor.
5. Always keep hands and clothing away from moving parts.
6. Never attempt to measure the temperature rise of a motor by touch. Temperature rise must be measured by thermometer, resistance, imbedded detector, or thermocouple.
7. Electrical repairs should be performed by trained and qualified personnel only.
8. Failure to follow instructions and safe electrical procedures could result in serious injury or death.
9. If safety guards are required, be sure the guards are in use.

If trouble is experienced in the operation of the motor, make sure that:

1. The bearings are in good condition and operating properly.
 2. There is no mechanical obstruction to prevent rotation in the motor or in the driven load.
 3. The air gap is uniform. (Consult manufacturer for specifications).
 4. All bolts and nuts are tightened securely.
 5. Proper connection to drive machine or load has been made.
- In checking for electrical troubles, be sure that:
1. The line voltage and frequency correspond to the voltage and frequency stamped on the nameplate of the motor.
 2. The voltage is actually available at motor terminals.
 3. The fuses and other protective devices are in proper condition.
 4. All connections and contacts are properly made in the circuits between the control apparatus and motor.

These instructions do not cover all details or variations in equipment nor provide for every possible condition to be met in connection with installation, operation or maintenance. Should additional information be desired for the purchaser's purposes, the matter should be referred to the manufacturer.

MOTOR TROUBLE SHOOTING CHART

Your motor service and any trouble shooting must be handled by qualified persons who have proper tools and equipment.

TROUBLE	CAUSE	WHAT TO DO
Motor fails to start	Blown fuses	Replace fuses with proper type and rating
	Overload trips	Check and reset overload in starter.
	Improper power supply	Check to see that power supplied agrees with motor nameplate and load factor.
	Improper line connections	Check connections with diagram supplied with motor.
	Open circuit in winding or control switch	Indicated by humming sound when switch is closed. Check for loose wiring connections. Also see that all control contacts are closing.
	Mechanical failure	Check to see if motor and drive turn freely. Check bearings and lubrication.
	Short circuited stator	Indicated by blown fuses. Motor must be rewound.
	Poor stator coil connection	Remove end bells, locate with test lamp.
	Rotor defective	Look for broken bars or end rings.
Motor may be overloaded	Reduce load.	
Motor stalls	One phase may be open	Check lines for open phase.
	Wrong application	Change type or size. Consult manufacturer.
	Overload	Reduce load.
	Low voltage	See that nameplate voltage is maintained. Check connection.
	Open circuit	Fuses blown, check overload relay, stator and pushbuttons.
Motor runs and then dies down	Power failure	Check for loose connections to line, to fuses and to control.
Motor does not come up to speed	Not applied properly	Consult supplier for proper type.
	Voltage too low at motor terminals because of line drop.	Use higher voltage on transformer terminals or reduce load. Check connections. Check conductors for proper size.
	Starting load too high	Check load motor is supposed to carry at start.
	Broken rotor bars or loose rotor	Look for cracks near the rings. A new rotor may be required as repairs are usually temporary.
	Open primary circuit	Locate fault with testing device and repair.
Motor takes too long to accelerate and/or draws high amp	Excessive load	Reduce load.
	Low voltage during start	Check for high resistance. Adequate wire size.
	Defective squirrel cage rotor	Replace with new rotor.
	Applied voltage too low	Get power company to increase power tap.
Wrong rotation	Wrong sequence of phases	Reverse connections at motor or at switchboard.
Motor overheats while running under load	Overload	Reduce load.
	Frame or bracket vents may be clogged with dirt and prevent proper ventilation of motor.	Open vent holes and check for a continuous stream of air from the motor.
	Motor may have one phase open	Check to make sure that all leads are well connected.
	Grounded coil	Locate and repair.
Motor vibrates	Unbalanced terminal voltage	Check for faulty leads, connections and transformers.
	Motor misaligned	Realign.
	Weak support	Strengthen base
	Coupling out of balance	Balance coupling.
	Driven equipment unbalanced	Rebalance driven equipment.
	Defective bearings	Replace bearing.
	Bearings not in line	Line up properly.
	Balancing weights shifted	Rebalance motor.
Unbalanced line current on polyphase motors during normal operation	Polyphase motor running single phase	Check for open circuit.
	Excessive end play	Adjust bearing or add shim.
	Unequal terminal volts	Check leads and connections.
Scraping noise	Single phase operation	Check for open contacts.
	Unbalanced voltage	Correct unbalanced power supply.
	Fan rubbing air shield	Remove interference.
Noisy operation	Fan striking insulation	Clear fan.
	Loose on bedplate	Tighten holding bolts.
	Airgap not uniform	Check and correct bracket fits or bearing.
Hot bearings general	Rotor unbalance	Rebalance.
	Bent or sprung shaft	Straighten or replace shaft.
	Excessive belt pull	Decrease belt tension.
	Pulleys too far away	Move pulley closer to motor bearing.
	Pulley diameter too small.	Use larger pulleys.
Hot bearings ball	Misalignment	Correct by realignment of drive.
	Insufficient grease	Maintain proper quantity of grease in bearing.
	Deterioration of grease or lubricant contaminated	Remove old grease, wash bearings thoroughly in kerosene and replace with new grease.
	Excess lubricant	Reduce quantity of grease, bearing should not be more than 1/2 filled.
	Overloaded bearing	Check alignment, side and end thrust.
Broken ball or rough races	Replace bearing, first clean housing thoroughly.	

ENGLISH

1. Foreword

The installation, operation and maintenance of the motor must be always performed by qualified personnel using proper tools and methods and following the instructions contained in the documents supplied with the motor.

The instructions presented in this document are valid for WEG motors with the following characteristics:

- Three-phase and single-phase induction motors (squirrel cage rotor);
- Three-phase permanent magnet motors;
- Three-phase hybrid motors (squirrel cage rotor + permanent magnets);

The objective of this manual is to provide important information, which must be considered during the shipment, storage, installation, operation and maintenance of WEG motors. Therefore, we advise to make a careful and detailed study of the instructions contained herein before performing any procedures on the motor. The noncompliance with the instructions informed in this manual and others mentioned on the website www.weg.net voids the product warranty and may cause serious personal injuries and material damages.

 Electric motors have energized circuits and exposed rotating parts which may cause injuries to people.

2. Shipment, storage and handling

Check the conditions of the motor immediately upon receipt. Where any damage is noticed, this must be reported in writing to the transportation company, and immediately communicated to the insurance company and to WEG. In this case, no installation job can be started before the detected problem has been solved.

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 Take the required measures in order to ensure the degree of protection indicated on the motor nameplate:
- unused cable inlet holes in the terminal boxes must be properly closed with blanking plugs;
- the cable entries used must be fitted with components, such as, cable glands and conduits;
- components supplied loose (for example, terminal boxes mounted separately) must be properly closed and sealed;
- fixing elements mounted in the threaded through holes in the motor enclosure (for example, the flange) must be properly sealed.

The motor must be installed with overload protection devices. For three-phase motors, it is recommended to install a phase failure protection device. When motor is fitted with temperature-monitoring devices in the stator windings and/or bearings, they must be connected during the operation and even during tests.

 For flying leads motors, do not push the overlength of leads into the motor in order to prevent that they touch the rotor.

Ensure the correct operation of the accessories (brake, encoder, thermal protection, forced ventilation, etc.) installed on the motor before it is started. Motors fitted with Automatic Thermal Protectors will reset automatically as soon as the motor cools down. Thus, do not use motors with Automatic Thermal Protection in applications where the auto-resetting of this device may cause injuries to people or damage to equipment. Motors fitted with Manual Thermal Protectors require manual reset after they trip. If the Automatic Thermal Protector or the Manual Thermal Protector trip, disconnect the motor from the power supply and investigate the cause of the thermal protector tripping.

 W22 Magnet motors must be driven by WEG variable frequency drives only.

For more information about the use of variable frequency drives, follow the instructions in the motor manual 50033244 on the website www.weg.net and in the manual of the variable frequency drive.

4. Operation

 During operation, do not touch the non-insulated energized parts and never touch or stay too close to rotating parts.

 Ensure that the space heater is always OFF during the motor operation.

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Check if the nameplate data matches the invoice data and the environmental conditions in which the motor will be installed. If the motor is not immediately installed, it must be stored in a clean and dry room protected against dust, vibrations, gases and corrosive agents, and with relative humidity not exceeding 60%.

In order to prevent water condensation within the motor during the storage period, it is recommended to keep the space heater ON (where provided). In order to prevent oxidation of the bearings and ensure an even distribution of the lubricant, rotate the motor shaft at least once a month (at least five turns), always leaving it in a different position. For bearings with oil mist lubrication systems, the motor must be stored horizontally, independently from the mounting configuration, with ISO VG 68 oil in the bearing, (the amount is indicated in the motor manual available on the website www.weg.net) and the shaft must be turned weekly. If the motors are stored for more than two years, it is recommended to change the bearings, or to remove, wash, inspect and relubricate them before the motor is started. After this storage period, it is also recommended to change the start capacitors of single-phase motors since they lose their operating characteristics.

 Always handle the motor carefully in order to prevent impacts and damages to the bearings and always install the shaft transportation/locking device (if supplied) when transporting the motor. Use only the eyebolts to lift the motor. However these eyebolts are designed for the motor weight only. Thus never use these eyebolts to lift the motor with additional loads coupled to it. The lifting eyebolts of the terminal box, fan cover, etc., are intended to handle only these parts when disassembled from the motor. For multmounting motors (with removable feet/base), the eyebolts must be positioned according to the motor mounting position so that the lifting angle is vertically aligned (lifting at 0°). Additional information regarding the maximum allowable angle-of-inclination is indicated in the general manual available on the website www.weg.net.

Periodically and mainly before the initial start-up, measure the insulation resistance of the motor winding. Check the recommended values and the measuring procedures on the website www.weg.net.

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The rated performance values and the operating conditions are specified on the motor nameplate. The voltage and frequency variations of the power supply should never exceed the limits established in the applicable standards.

Occasional different behavior during the normal operation (actuation of thermal protections, noise level, vibration level, temperature and current increase) must always be assessed by qualified personnel. In case of doubt, turn off the motor immediately and contact the nearest WEG service center. Do not use roller bearings for direct coupling. Motors fitted with roller bearings require radial load to ensure their proper operation.

For motors fitted with oil lubrication or oil mist systems, the cooling system must be ON even after the machine is OFF and until the machine is at complete standstill.

After complete standstill, the cooling and lubrication systems (if any exist) must be switched OFF and the space heaters must be switched ON.

5. Maintenance

 Before any service is performed, ensure that motor is at standstill, disconnected from the power supply and protected against accidental energization. Even when the motor is stopped, dangerous voltages may be present in space heater terminals.

If motors are fitted with capacitors, discharge them before any handling or service is performed.

Motor disassembly during the warranty period must be performed by a WEG authorized service center only.

For motors with permanent magnet rotor (lines W22 Quattro and W22 Magnet), the motor assembly and disassembly require the use of proper devices due to the attracting or repelling forces that occur between metallic parts. This work must only be performed by a WEG Authorized service center specifically trained for such an operation. People with pacemakers cannot handle these motors. The permanent magnets can also cause disturbances or damages to other electric equipment and components during maintenance.

For the W50 and HGF motor lines provided with axial fans, the motor and the axial fan have different markings for indicating the direction of rotation for prevent incorrect assembly.

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3. Installation

 During the installation, the motors must be protected against accidental energization. Check the motor direction of rotation, turning it without load before it is coupled to the load.

Remove the transportation devices and shaft locking device (if supplied) before starting the motor installation. Motors must be only installed in places compatible with their mounting features and in applications and environments for which they are intended.

Those motors with feet must be installed on bases duly planned in order to prevent vibrations and assure perfect alignment. The motor shaft must be properly aligned with the shaft of the driven machine. Incorrect alignment, as well as improper belt tension, will certainly damage the bearings, resulting in excessive vibrations and even causing the shaft to rupture. The admissible shaft radial and axial loads indicated in the general manual of the website must be respected. Use flexible coupling whenever possible. When motors are fitted with oil lubricated bearings or oil mist lubrication systems, connect the cooling and lubrication tubes (where provided). For oil lubricated bearings, the oil level must be in the center of the sight glass.

Only remove the corrosion protection grease from the shaft end and flange immediately before the motor installation. Unless specified otherwise in the purchase order, WEG motors are dynamically balanced with "half key" and without load (uncoupled). The driving elements, such as pulleys, couplings, etc., must be balanced with "half key" before they are mounted on the shaft of the motors.

 The motor must always be positioned so the drain hole is at the lowest position. Motors supplied with rubber drain plugs leave the factory in the closed position and must be opened periodically to allow the exit of condensed water. For environments with high water condensation levels and motor with degree of protection IP55, the drain plugs can be mounted in open position .

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The axial fan must be assembled so that the indicative arrow for direction of rotation is always visible, viewing the non-drive end side. The marking indicated on the axial fan blade, CW for clockwise direction of rotation or C CW for counterclockwise direction of rotation, indicates the direction of rotation of the motor viewing the drive end side.

Regularly inspect the operation of the motor, according to its application, and ensure a free air flow. Inspect the seals, the fastening bolts, the bearings, the vibration and noise levels, the drain operation, etc. The lubrication interval is specified on the motor nameplate.

6. Additional information

For further information about shipment, storage, handling, installation, operation and maintenance of electric motors, access the website www.weg.net.

For special applications and operating conditions (for example, smoke extraction motors, totally enclosed air over (TEAO), motors for high thrust applications, motors with brake, motors with encoder) refer to the dedicated manual supplied with the equipment, or the manual 50033244 available in the website or contact WEG.

When contacting WEG, please, have the full description of the motor at hand, as well as the serial number and manufacturing date, indicated on the motor nameplate.

Warranty Term

WEG Equipamentos Eléctricos S/A, Motors Unit ("WEG"), offers warranty against defects in workmanship and materials for its products for a period of 18 months from the invoice date issued by the factory or distributor/dealer, limited to 24 months from the date of manufacture.

Motors of the HGF Line are covered for a period of 12 months from the invoice date issued by the factory or distributor / dealer, limited to 18 months from the date of manufacture.

The paragraphs above contain the legal warranty periods.

If a warranty period is defined in a different way in the commercial/technical proposal of a particular sale, that will supersede the time limits set out above.

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 For motors with degree of protection IP56, IP65 or IP66, the drain plugs must remain at closed position, being opened only during the motor maintenance procedures. The drain system of motors with Oil Mist lubrication system must be connected to a specific collection system.

Do not cover and block the motor ventilation openings. Ensure a minimum clearance of ¼ (25%) of the diameter of the air intake of the fan cover from the walls. The air used for cooling the motor must be at ambient temperature, limited to the temperature indicated on the motor nameplate.

For power cables and grounding system connections, terminal box and drip cover assembly, the tightening torques indicated on Table 3.1 must be respected.

Component	M4	M5	M6	M8	M10	M12	M14	M16	M20	UNF 8x32	UNF 10x32	UNC 10x24
Terminal block pins	1.0 to 1.5	2.0 to 4.0 ¹⁾	4.0 to 6.5	6.5 to 9.0	10.0 to 18.0	15.5 to 30.0	-	30.0 to 50.0	50.0 to 75.0	1.0 to 2.0	-	-
Grounding	1.5 to 3.0	3.0 to 5.0	5.0 to 10.0	10.0 to 18.0	20.0 to 40.0	45.0 to 70.0	-	115.0 to 170	-	-	-	2.5 to 3.0
Terminal box cover	-	3.0 to 5.0	4.0 to 8.0	8.0 to 15.0	15.0 to 30.0	40.0 to 45.0	-	-	-	-	-	2.5 to 3.0
Drip cover installed in the fan cover	1.5 to 2.5	2.3 to 5.0	6.0 to 9.0	14.0 to 20.0	-	-	-	-	-	-	1.0 to 1.5	-
Drip cover installed in NDE shield	-	3.5 to 5.0	6.0 to 9.0	14.0 to 20.0	-	-	-	-	-	-	1.5 to 2.0	2.5 to 3.0

1) For 12-pin terminal block, the tightening torque range allowed is: minimum 1.5 Nm and maximum 2.5 Nm.

 Motors installed outdoors or in the vertical position require the use of additional shelter to protect them from water; for instance, use of a drip cover. To prevent accidents, ensure that the grounding connection has been performed according to the applicable standards and that the shaft key has been securely fastened before the motor is started.

Connect the motor properly to the power supply by means of safe and permanent contacts, always considering the data informed on the nameplate, such as rated voltage, wiring diagram, etc.

For power cables, switching and protection devices dimensioning, consider the motor current, the service factor, and the cable length, among others. For motors without terminal block, insulate the motor terminal cables by using insulating materials that are compatible with the insulation class informed on the nameplate. The minimum insulation distance between the non-insulated live parts themselves and between live parts and the grounding must meet the applicable standards and regulations for each country.

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The warranty periods above are independent of the product installation date and the start-up.

If any defect or abnormal occurrence is detected during machine operation, the customer must immediately notify WEG in writing about the occurred defect, and make the product available for WEG or its Authorized Service Center for the period required to identify the cause of the defect, check the warranty coverage, and perform the proper repairs.

In order for the warranty to be valid, the customer must be sure to follow the requirements of WEG's technical documents, especially those set out in the product Installation, Operation and Maintenance Manual, as well as the applicable standards and regulations in force in each country.

Defects arising from the inappropriate or negligent use, operation, and/or installation of the equipment, non-execution of regular preventive maintenance, as well as defects resulting from external factors or equipment and components not supplied by WEG, will not be covered by the warranty.

The warranty will not apply if the customer at its own discretion makes repairs and/or modifications to the equipment without prior written consent from WEG.

The warranty will not cover equipment, components, parts and materials whose lifetime is usually shorter than the warranty period. It will not cover defects and/or problems resulting from force majeure or other causes not imputable to WEG, such as, but not limited to: incorrect or incomplete specifications or data supplied by the customer; transportation, storage, handling, installation, operation and maintenance not complying with the provided instructions; accidents; defects in the construction works; use in applications and/or environments for which the machine was not designed; equipment and/or components not included in the scope of WEG supply. The warranty does not include disassembly services at the buyer's premises, product transportation costs and travel, lodging and meal expenses for the technical staff of the Service Centers, when requested by the customer.

The services under warranty will be provided exclusively at WEG authorized Service Centers or at one of its manufacturing plants. Under no circumstances will the warranty services extend the equipment warranty period.

WEG's Civil Liability is limited to the supplied product; WEG will not be liable for indirect or consequential damages, such as losses of profit and revenue losses and alike which may arise from the contract signed between the parties.

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EU DECLARATION OF CONFORMITY

Manufacturers:

WEG EQUIPAMENTOS ELÉTRICOS S.A.
Av. Prefeito Waldemar Grubba, 3000 - CEP 89256-900 Jaraguá do Sul - SC - Brazil
www.weg.net

WEG Linhares Equipamentos Eléctricos S.A.
Rod. BR 101, Km 161,5, s/n. Distrito Industrial Rio Quarent, Bairro Rio Quarent de Baixo 29915-500 - Linhares - ES - Brazil
www.weg.net

WEG MEXICO, S.A. DE C.V
Carretera Jorobas - Tula Km 3.5, Manzana 5, Lote 1, Fraccionamiento Parque Industrial Huehuetoca, Municipio de Huehuetoca, C.P. 54680, CD. de México y Area Metropolitana - Mexico
www.weg.net/mx

WEG (JIANGSU) ELECTRIC EQUIPMENT CO., LTD.
No. 15 Group, North City Street, Dengyuan Community Rugao City, Jiangsu Province - China
www.weg.net/cn

WEG (NANTONG) ELECTRIC MOTOR
Manufacturing CO.LTD.
No. 128# - Xinkai South Road, Nantong - Economic & Technical Development Zone, Nantong, Jiangsu Province - China
www.weg.net/cn

WEGEURO - INDUSTRIA ELÉCTRICA S.A.
Rua Eng Frederico Ulrich, Apartado, 6074 4476-908 - Maia - Porto - Portugal
www.weg.net/pt
CONTACT PERSON: Luís Filipe Oliveira Silva Castro Araújo
Authorized Representative in the European Union
(Single Contact Point)

Branch - Santo Tirso: Parque Industrial da Ermida Avenida Luis Areal - Sta Cristina do Couto 4780-165 - Santo Tirso - Portugal
www.weg.net/pt

The manufacturer declares under sole responsibility that:

WEG electric motors and components used for following motor lines:
W01, W11, W20, W21, W22, W40, W50, HGF, Roller Table, W21 Magnet, W22 Magnet and W22 Quattro
.....

when installed, maintained and used in applications for which they were designed, and in compliance with the relevant installation standards and manufacturer's instructions, comply with the provisions of the following relevant European Union harmonisation legislation, wherever applicable:

Low Voltage Directive 2014/35/EU*
Regulation (EC) No 640/2009*, Regulation (EU) No 4/2014* and Directive 2009/125/EC*
Machinery Directive 2006/42/EC**
EMC Directive 2014/30/EU (electric motors are considered inherently benign in terms of electromagnetic compatibility)

The fulfilment of the safety objectives of the relevant European Union harmonisation legislation has been demonstrated by compliance with the following standards, wherever applicable:

EN 60034-1:2010 + AC:2010/ EN 60034-2-1:2007/ EN 60034-5:2001 + A1:2007/ EN 60034-6:1993/ EN 60034-7:1993 + A1:2001/ EN 60034-8:2007 + A1: 2014/ EN 60034-9:2005 + A1:2007/ EN 60034-11:2004/ EN 60034-12:2002 + A1:2007/ EN 60034-14:2004 + A1:2007/ EN 60034-30:2009/ EN 60204-1:2006 + A1:2009 + AC:2010 and EN 60204-11:2000 + AC:2010

CE marking in: 1996

* Electric motors designed for use with a voltage rating higher than 1000V are not considered under the scope.

** Low voltage electric motors are not considered under the scope and electric motors designed for use with a voltage rating higher than 1000V are considered partly completed machinery and are supplied with a

Declaration of Incorporation:

The products above cannot be put into service until the machinery into which they have been incorporated has been declared in conformity with the Machinery Directive. A Technical Documentation for the products above is compiled in accordance with part B of annex VII of Machinery Directive 2006/42/EC. We undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery identified above through WEG authorized representative established in the European Union. The method of transmission shall be electronic or physical method and shall be without prejudice to the intellectual property rights of the manufacturer.

Jaraguá do Sul, April 04th, 2018


Signed for and on behalf of the manufacturer:
Milton Oscar Castella
Engineering Director

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ADDENDUM D

TENSIONING THE BELT

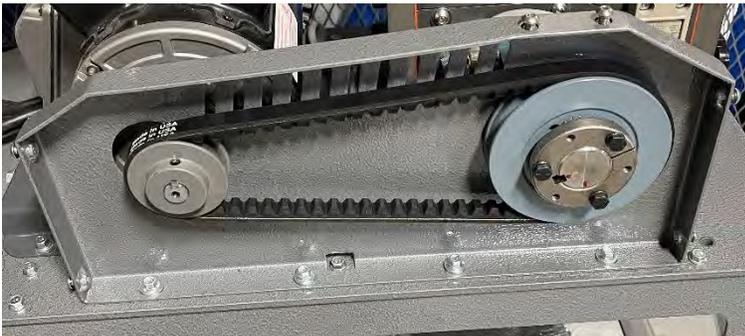
One of the most important factors to the reliable operation of your Sasquatch Cannabis & Hemp Flower Grinder is assuring that the drive belt is tensioned properly. Without proper tension under heavy load, the V-Belt drive belt may slip which will place an excessive shock load on the belt and will eventually cause it to fail.

When your mill was assembled, the drive belt was tensioned properly and has already been run for a short period of time. New drive belts will stretch a little as they wear-in, so checking the tension on a new machine several times shortly after installation is very important.

It is important that you set up a regular maintenance procedure to check the belt tension in accordance with the schedule below. If you notice any unusual operational issues, the belt tension is always a good place to begin troubleshooting.

TENSIONING PROCESS

STEP 1 – Add belt tension by adjusting the motor base



10.75" C/C Distance Between Motor & Rotor Shafts



Adjust Motor To Tension Belt

STEP 3 – Use Belt Tension Gauge to set belt tension

There are many types of belt tension gauges available on the market, and any type will work as long as the instructions are followed. All new Sasquatch Cannabis & Hemp Flower Grinders come with a Dodge Belt Tension Gauge included as shown below. The belt tension required is 11 pounds.



The most common process for checking belt tension is illustrated below. The effective span length is $10 \frac{3}{4}$ " and the desired belt tension is 11 pounds for V-Belt drives. The resulting deflection is $\frac{3}{16}$ ".

Slide the large O-ring on the gauge to the correct deflection value on the inch scale. Slide the small O-ring on the gauge to zero. Place a straight edge on the belt. Place the non-rubber end of the gauge against the belt and push down on the rubber end until the large O-ring is aligned with the straight edge. Look at the small O-ring and read the value which is the actual tension on the belt.

Continue adding tension to the belt until the $\frac{3}{16}$ " deflection results in an 11-pound reading on the gauge. ASSURE THAT THE MOTOR IS SQUARE TO GRINDER! Re-tighten the nuts on the motor base.

NOTE: All belt tensions should be achieved while adding tension to the belt, not reducing tensioning.

