

TROUBLE SHOOTING TIPS FOR MASONRY SAWS BY NORTON

1. Correct Amperage Circuit for Motor

Running the Masonry Saw on a circuit which is undersize for the amperage rating of the motor can create nuisance tripping of the power supply circuit breaker. Always run the machine on a circuit that is rated higher than the amperage draw of the machine. A sign that the incorrect amperage circuit is being used is the tripping of the circuit breaker when the machine is turned on. Always insure that the machine is properly grounded and connected to the correct circuit as per National Electrical Code (NEC), Local Electrical Codes, and NEMA (National Electrical Manufacturer's Code).

For example: A 5hp 230-volt motor which is rated at a 20.6 AMP should be run on a 25 AMP circuit as it is the next larger size.

2. Correct Length Extension Cord for Motor Size

Too long or too thin of gauge cords can create low voltage/high amperage levels which can damage the electric motor and degrade the saw's performance. Most motor trouble is the result of too small gauge or too long of extension cord. A sign that the extension cord is the incorrect size is tripping of the circuit breaker when the machine is turned on. The incorrect extension cord will cause the motor to over heat and trip the thermal reset on the motor.

Read Carefully

Most motor trouble is the result of too small or too long of an extension cord. Extension cords must be one-piece and as short as possible. Cords should be no longer than shown in the following table.

Masonry Saw Horse Power	1-1/2 to 2hp		3hp		5hp
Wire Gauge	115v	230v	115v	230v	230v
12 AWG	25'	100'	-NA-	50'	50'
10 AWG	50'	150'	25'	100'	50'
8 AWG	75'	250'	50'	150'	100'
6 AWG	-NA-	-NA-	75'	250'	150'

For best operation always connect to 230 volt supply.

3. Use the Correct Voltage

Always connect the machine to the same voltage and phase as the motor was designed for. Connecting a machine up to the incorrect voltage or phase can damage the motor or create shock hazard.

For example 230-volt 3 phase should only be connected to 230-volt 3 phase and not to 230-volt 1 phase.

Some motors are classified as a dual voltage motors. These motors are designed to run on one of two different voltages that are related to one another. For example a 115-230-volt 1 phase motor can run on either 115-volt or 230-volt 1 phase power. With the Norton Manufactured Masonry saws of this classification, simply wire the motor into the desired voltage and change a voltage change switch on the front of the motor to the same voltage as the circuit is. **NOTE: Do not run the motor set to the incorrect voltage of the circuit.**

Generators: Using a generator that is too low of Wattage can damage the electrical motor.

Watts (W)	Kilowatts (kW)			
1-1/2hp	115 volts	1	5,000 W	5 kW
1-1/2hp	230 volts	1	5,000 W	5 kW
2hp	115 volts	1	6,000 W	6 kW
2hp	230 volts	1	6,000 W	6 kW
5hp	230 volts	1	15,000 W	15 kW
5hp	230 volts	3	9,000 W	9 kW
5hp	460 volts	3	9,000 W	9 kW
7-1/2hp	230 volts	3	14,000 W	14 kW
7-1/2hp	460 volts	3	14,000 W	14 kW

*1,000 watts (W) = 1 kilowatts (kW), Watts= (Amps x Volts) x 3 (Start up Factor)

4. Use the Correct Blade for the Material being Cut

Using a blade that is too hard or too high of diamond concentration when cutting Hard Material will create additional drag on the motor and increase the Amperage draw and over heats the motor. A sign that the incorrect blade is being used for the material being cut is if user trips the circuit breaker at the power supply when cutting the material.

NOTE: Wet only blades can only be used with water. Wet/Dry blades can be used with water or no water.

5. Use the Correct Blade Speed For The Diamond or Abrasive Blade Diameter

When changing the Diameter of the Diamond or Abrasive Blade, the blade speed will change. The larger the diameter of the Blade the slower the Blade RPM. This is regardless of motor/engine type and horsepower. For the BBL series Professional Masonry Saws:

Blade Diameter	Engine Type	Motor/Engine RPM	Blade Shaft RPM
14"	Electric	3450 rpm	2900 rpm
14"	Gasoline	3600 rpm	2900 rpm
20"	Electric	3450 rpm	2400 rpm
20"	Gasoline	3450 rpm	2400 rpm

6. Ensure That the Machine Cuts Straight

A machine that is not cutting straight can result in short blade life, poor performance, and rejected materials. If the machine is not cutting straight check the following:

Inspect the Cart Wheels: Warn out Cart Wheels or Cart Wheel Bearings will cause the cart not to roll straight. Replace the cart wheels.

Inspect for Bent or Warped Frame

Inspect for warn out Pivot Head Bearings

Loose Blade Shaft

Misaligned Blade Shaft

Warn out Blade Shaft Bearings

Replace or Repair any missing, damaged, or misaligned components.

7. For the best machine performance insure that the belts are properly tensioned and aligned.

Improperly tensioned or misaligned belts will lead to belt failures. NOTE: Only use the size and profile of belt that was originally shipped on the machine or that is recommended by the manufacturer.

Adjustment and Alignment Warning: Never make adjustments to v-belts and pulleys while engine is running.

Belts that are too loose will burn. Belts that are too tight will break. Pulleys that are misaligned will tear or roll off the pulleys.

The best tension for a v-belt drive is the lowest tension at which the belts will not slip under full load.

Simply take up the drive until the belts are snug in the grooves. Run the drive for about 15 minutes to "seat" the belts. Then impose the peak load. If the belts slip, tighten them until they no longer slip at peak load.

Remember, too much tension shortens belt and bearing life.

Check belt tension frequently during the first day of operation. Check belt tension periodically thereafter and make any necessary adjustments.

The two most common causes of misalignment are shown in the drawing. a. The engine drive shaft pulley and the blade shaft are not parallel. See figure 1 b.

The pulleys are not located properly on the shafts. (See figure 2)

To check alignment, all you need is a steel straight edge.

Line up the straight edge along the outside faces of both pulleys as shown in the drawing.

Misalignment will show up as a gap between the pulley face and the straight edge.

Make sure that the width of the outside land is equal on both pulleys.

Also see the following application information:

How To Use "[Jam Cutting](#)" (Fixed Cutting) and "[Step Cutting](#)" With Diamond Blades. Use "step cutting" without exception when cutting wet or dry with Diamond Blades or cutting dry with an Abrasive Blade. "Jam cutting", which is discussed and illustrated in the section following, is to be used only with wet and dry cutting Diamond Blades.

[Dry Cutting](#) with Diamond Blades

[Wet Cutting](#) with Diamond Blades

8. Proper Maintenance of Bearings

Temperature	Environmental Cleanliness	Greasing Interval
*Up to 150°F	Dirty	6 to 12 months
*Over 150°F	Dirty	Daily to 2 Weeks
Any Temp	Very Dirty	Daily to 2 Weeks
Any Temp	Extreme Conditions	Daily to 2 Weeks

The blade shaft bearings are lubricated and should not require daily lubrication under normal conditions. However, to assure long life the bearings do need to be lubricated periodically. The time interval between greasing is dependent on the running speed and operating conditions. The following chart covers most situations and can be used as a guide.

Note: Never operate saw without bearing cover in place.

For normal conditions the grease should conform to the NLGI Grade Two (2) consistencies and be free of any chemical impurities such as free acid or free alkali, dust, rust, metal particles or abrasives. For best results, the bearings should be lubricated while in operation. Note: Due caution for personal safety must be observed when servicing rotating equipment.

If necessary to lubricate while the bearing is idle, refer to lubrication table for the maximum grease capacity for the bearings.

Shaft Sizes	Maximum Grease Capacity of Bearing Chamber in Ounces
1/2" to 3/4"	.09
7/8" to 1-3/16"	1/4
1-1/4" to 1-1/2"	3/8
1-11/16" to 1-15/16"	3/4
2" to 2-3/16"	1-1/8

9. Blade Wobble

Blade wobble can be caused by the following:

Improper Speed. Never run a blade higher than its rated speed (rpm).

Improper Blade for the material being cut.

Over heating the blade. Wet cut if possible.

Faulty Blade Shaft Bearings or worn Blade Shaft Collars. Replace if faulty

10. Basic Safety Precautions

Dust and Silica Warning

Grinding/cutting/drilling of masonry, concrete, metal and other materials can generate dust, mists and fumes containing chemicals known to cause serious or fatal injury or illness, such as respiratory disease, cancer, birth defects or other reproductive harm. If you are unfamiliar with the risks associated with the particular process and/or material being cut or the composition of the tool being used, review the material safety data sheet and/or consult your employer, the material manufacturer/supplier, governmental agencies such as OSHA and NIOSH and other sources on hazardous materials and make certain to comply with all product warnings and instructions for the safe and effective use of the material being cut. California and some other authorities, for instance, have published lists of substances known to cause cancer, reproductive toxicity, or other harmful effects. Control dust, mist and fumes at the source where possible. In this regard use good work practices and follow the recommendations of the manufacturer/supplier, OSHA/NIOSH, and occupational and trade associations. Water should be used for dust suppression when wet cutting is feasible. When the hazards from inhalation of dust, mists and fumes cannot be eliminated through engineering controls such as vacuum and/or water mist, the operator and any bystanders should always wear a respirator approved by NIOSH/MSHA for the material being cut.