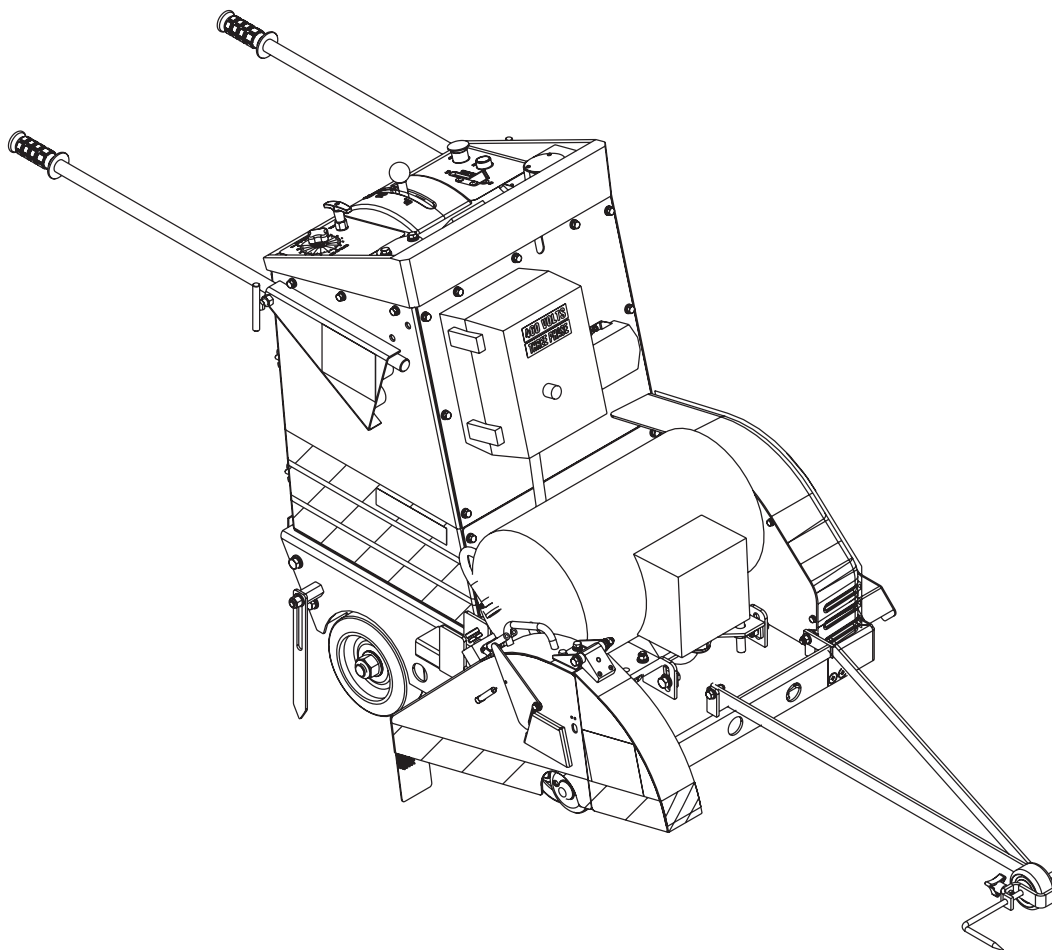


NORTON

clipper

C20 Electric Series 05/2012

**SELF PROPELLED SAW SERIES
OPERATOR'S MANUAL
C20 Baldor
ELECTRIC SERIES**



CAUTION: Read all safety and operating instructions before using this equipment. This manual **MUST** accompany the equipment at all times.

Revision: 100 05/2012
Manual Part# 168701-OM

www.nortonconstructionproducts.com

INTRODUCTION

Congratulations on your purchase of a C20 Electric Self Propelled Flat Saw. We are certain that you will be pleased with your purchase. Norton Clipper takes pride in producing the finest construction power tools and diamond blades in the industry.

Operated correctly, your C20 Electric Self Propelled Flat Saw should provide you with years of service. In order to help you, we have included this manual. This owners manual contains information necessary to operate and maintain your C20 Electric Self Propelled Flat Saw safely and correctly. Please take the time to familiarize yourself with the C20 Electric Self Propelled Flat Saw by reading and reviewing this manual.

Read and follow all safety, operating and maintenance instructions.

If you should have questions concerning your C20 Electric Self Propelled Flat Saw, please feel free to call our friendly customer service department at: (254) 918-2310.

Regards,



NOTE THIS INFORMATION FOR FUTURE USE:

MODEL NUMBER:	
SERIAL NUMBER:	
PURCHASE PLACE:	
PURCHASE DATE:	

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Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the Safety Precaution and Operating Instructions could result in injury to yourself and others.

This Operation and Parts Manual has been developed to provide complete instructions for the safe and efficient operation of the Norton Clipper Self Propelled Flat Saw.

Before using this machine, ensure that the person operating the machine has read and understands all instructions in this manual.

SAFETY MESSAGE / ALERT SYMBOLS

A safety message alerts you to potential hazards that could hurt you or others. Each safety message is preceded by a safety alert symbol () and one of three words: **DANGER**, **WARNING**, or **CAUTION**.



DANGER

You **WILL** be **KILLED** or **SERIOUSLY INJURED** if you do not follow directions.



WARNING

You **CAN** be **KILLED** or **SERIOUSLY INJURED** if you do not follow directions.



CAUTION

You **CAN** be **INJURED** if you do not follow directions. It may also be used to alert against unsafe practices.

Each message tells you what the hazard is, what can happen, and what you can do to avoid or reduce injury. Other important messages are preceded by the word **NOTICE**.



NOTICE

You can cause **PROPERTY DAMAGE** to your machine if you don't follow directions.

The safety labels should be periodically inspected and cleaned by the user to maintain good legibility at a safe viewing distance. If the label is worn, damaged or illegible, it should be replaced.

SAFETY WARNINGS

SILICA DUST 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.

CALIFORNIA PROPOSITION 65 MESSAGE

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contain chemicals known (to the State of California) to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- Lead, from lead-based paints
- Crystalline silica, from bricks and cement and other masonry products
- Arsenic and chromium, from chemically treated lumber

For further information, consult the following sources:

<http://www.osha.gov/dsg/topics/silicacrystalline/index.html>

<http://www.cdc.gov/niosh/consilic.html>

<http://oehha.ca.gov/prop65/law/P65law72003.html>

<http://www.dir.ca.gov/Title8/sub4.html>

Your risk from these exposures varies depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

RULES FOR SAFE OPERATION



DANGER

Failure to follow instructions in this manual may lead to serious injury or even death! This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only.

The following safety guidelines should always be used when operating the Norton Clipper Self Propelled Flat Saw.

MAINTENANCE SAFETY

- **NEVER** lubricate components or attempt service on a running machine.
- Keep the machinery in proper running condition. Clean the machine after each day's use. Follow instructions for changing accessories. Inspect tool periodically and, if damaged, have repaired by authorized service facility.

SET UP & TRANSPORTATION SAFETY

- **ALWAYS** use caution and follow the instructions when lifting and transporting this machine.
- **ALWAYS** tie down the machine when transporting. **DO NOT** tow this machine behind a vehicle.
- **NEVER** transport with the blade mounted on the machine.
- Lift only from the lift bail.

GENERAL SAFETY



- **DO NOT** operate or service this equipment before reading this entire manual. Read and understand all warnings, instructions and controls on the machine.

This equipment should not be operated by persons under 18 years of age.



- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.

- **NEVER** operate this equipment when not feeling well due to fatigue, illness or taking medicine.
- **NEVER** operate this equipment under the influence of drugs or alcohol.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult to read.
- **ALWAYS** check the machine for loose bolts before starting.



- **ALWAYS** wear proper respiratory, head, ear and eye protection equipment when operating this machine.

- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children.

- **CAUTION** must be observed while servicing the machine. Rotating parts can cause injury if contacted. Have all service performed by competent service personnel.
- Operate this machine only in well ventilated areas. **ALWAYS** ensure that the machine is on level ground before using.



- **NEVER** operate this machine in an explosive atmosphere.

- Establish a training program and give a copy of this manual to operators of this equipment. If you need extra copies, call (254) 918-2310.

SAW BLADE SAFETY

For complete safety information, refer to ANSI Safety Code B7.1 available through the American National Standards Institute.



- **ALWAYS** keep area around the machine clear of obstructions and clear the work area of unnecessary people. Keep all body parts away from the blade and all other moving parts.

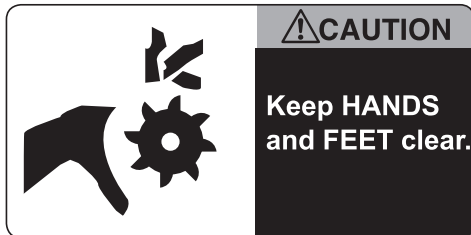


- Before starting the machine, check that all guards are in position and correctly fitted. **NEVER** allow blade exposure from the guard to be more than 180 degrees. **DO NOT** operate this machine with any guard removed.

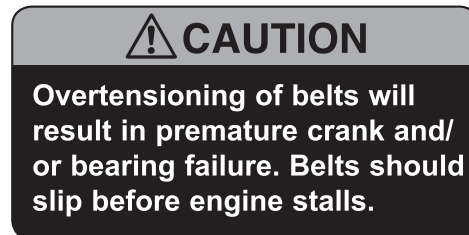
- Inspect the blade, flanges and shafts for damage before installing the blade. **NEVER** use damaged or worn blade flanges.
- The blade shaft flanges must be of proper diameter for the size blade being used.
- Inspect the blade, flanges and size shown for each blade size. **DO NOT** exceed maximum blade speed shown, as excessive speed could result in blade breakage. Use **ONLY** blades marked with a maximum operating speed greater than the blade shaft speed. Verify speed and saw drive configuration by checking blade shaft RPM and pulley diameters and blade flange diameters.
- Use the correct blade for the type of work being done. Use only reinforced abrasive blades or steel center diamond blades and flanges supplied with the saw or manufactured for use on concrete saws. **DO NOT** use carbide-tipped blades. Check with the blade manufacturer if you do not know if blade is correct.
- Make sure the blade and flanges are clean and free of dirt and debris before mounting the blade on the saw. Verify the blade arbor hole matches the machine spindle before mounting the blade. **ALWAYS** mount the blade solidly and firmly. Wrench tighten the arbor nut.

OPERATION & SAFETY DECALS

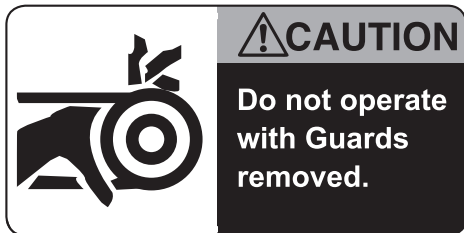
The Norton Clipper Self Propelled Flat Saw is equipped with a number of safety decals (Figure 1) provided for operator safety and maintenance information. Should any of these decals become unreadable, replacements can be obtained by calling (254) 918-2310.



Decal A



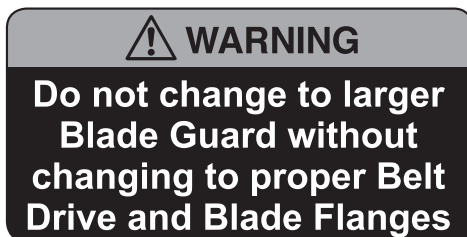
Decal B



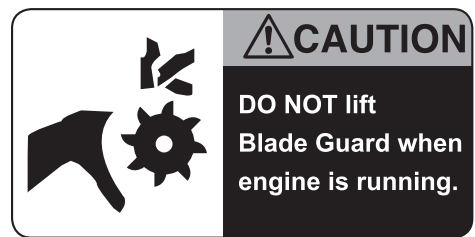
Decal C, D & E



Decal F



Decal G



Decal H

Fig. 1 Norton Clipper Self Propelled saw safety decal sheet part# 246002

SAFETY DECAL LOCATIONS

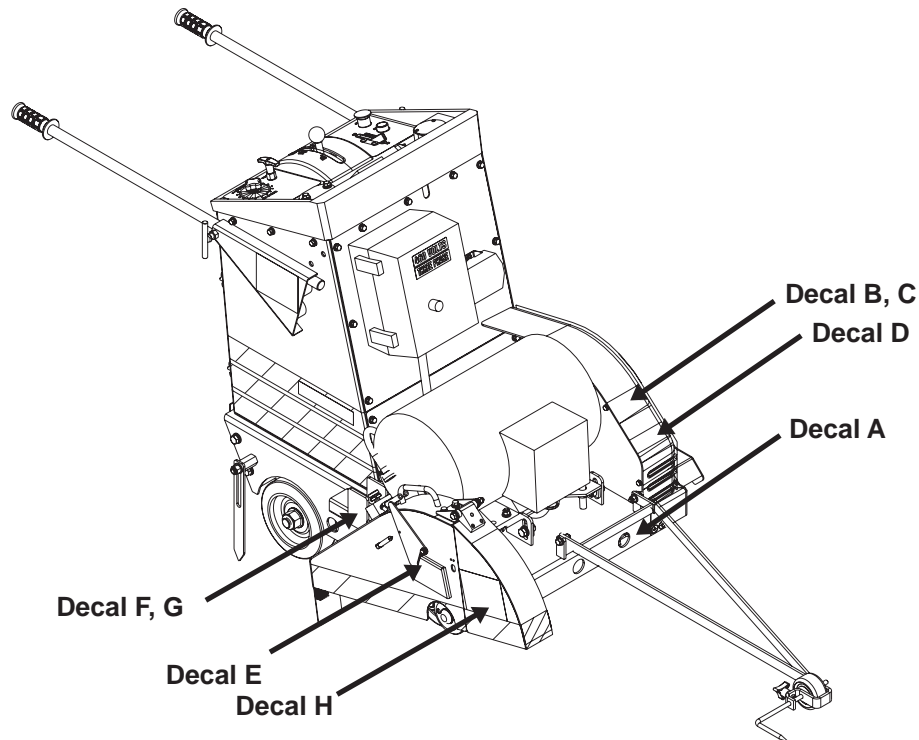


Fig. 2 Norton Clipper Self Propelled Flat Saw Safety Decal Locations

Decal	Location	Description
A	Machine Front	Caution Keep Hands and Feet Clear
B	Top of Belt Guard	Caution Do Not Overtension Belts
C	Top of Belt Guard	Caution Do Not Operate with Guard Removed
D	Face of Shaft Guard	Caution Do Not Operate with Guard Removed
E	Top of Blade Guard	Blade Rotation Direction
F	Top of Blade Guard	Caution Do Not Operate with Guard Removed
G	Top of Blade Guard	Warning Do Not Change to Larger Blade Guard
H	Side of Blade Guard	Caution Do Not Lift Guard When Motor Running

CONSOLE DECAL LOCATIONS

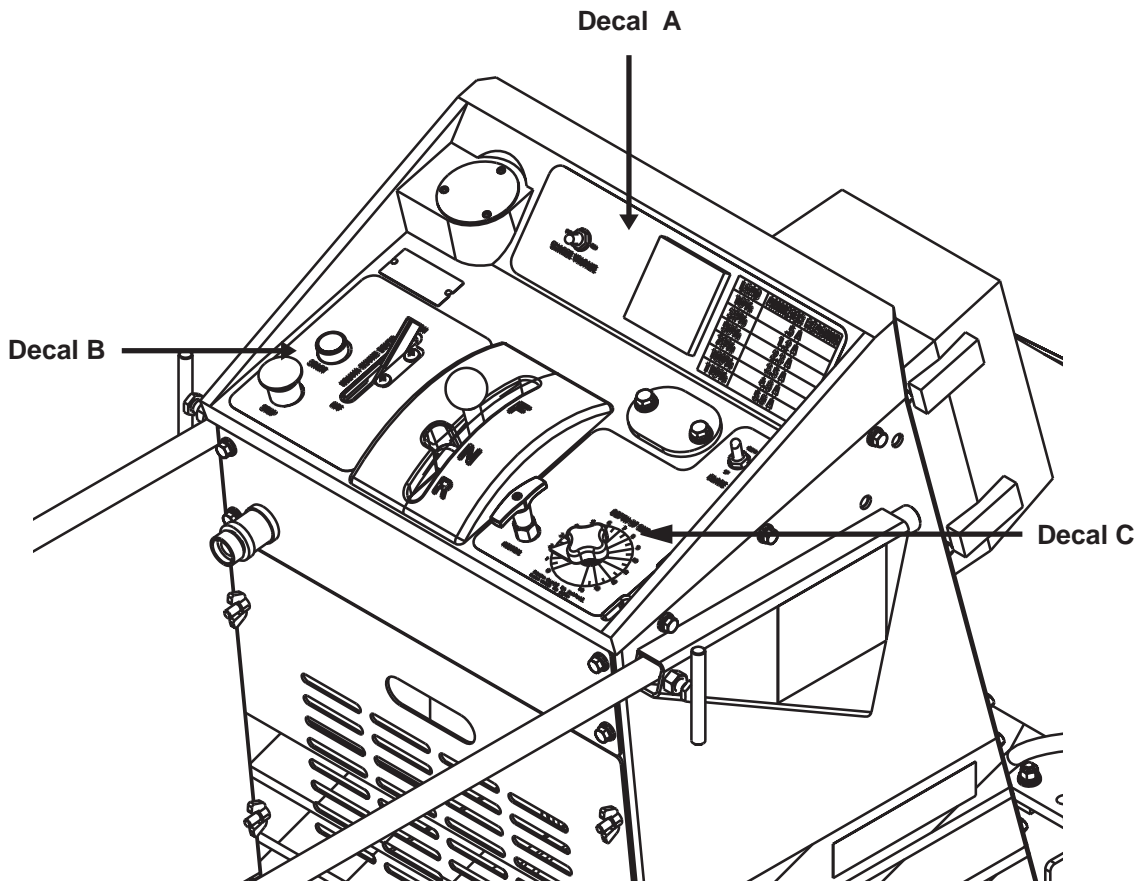


Fig. 3 Norton Clipper Self Propelled Flat Saw Console Decal Locations

Decal	Location	Description
A	Console Top	Instrument Label
B	Console Left	Console Label Left
C	Console Right	Console Label Right

CONSOLE CONTROL DESCRIPTIONS

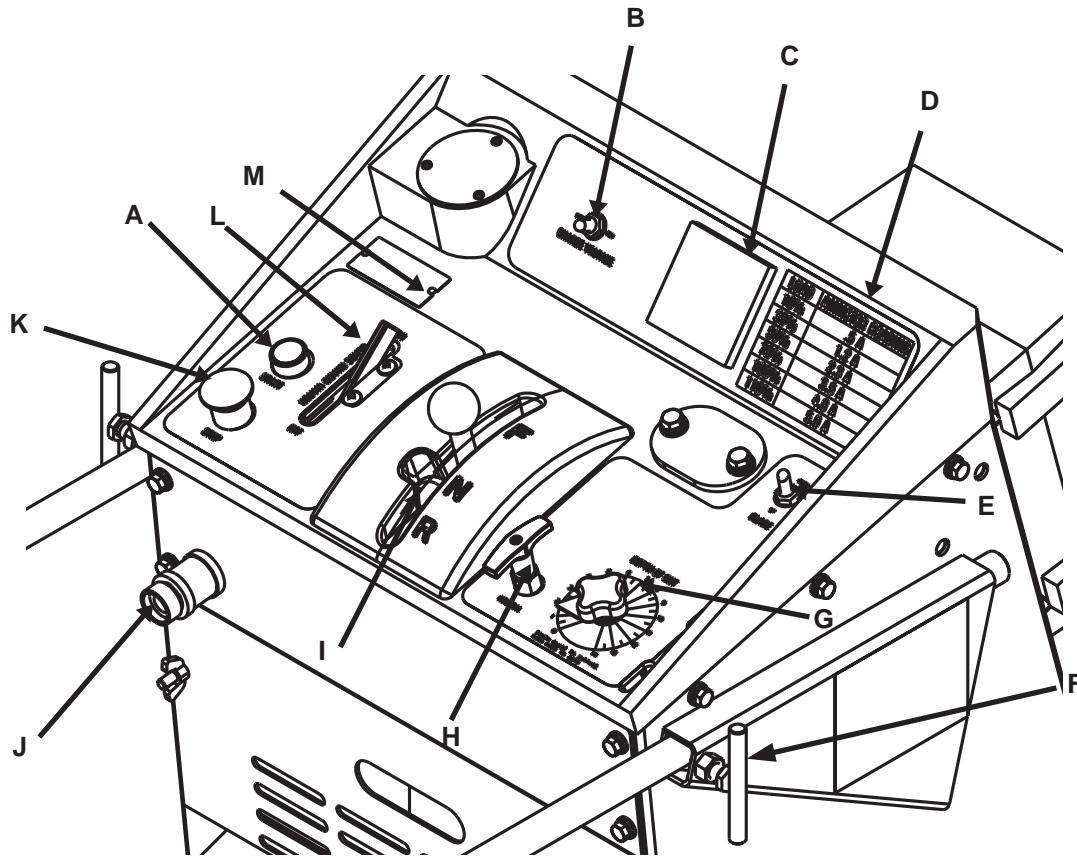


Fig. 4 Norton Clipper Self Propelled Flat Saw Console Control Descriptions

Object	Name	Function
A	Start Button	Start the motor.
B	Charge Light	Battery is charging.
C	Ammeter	Indicates level loading of saw.
D	Ammeter Chart	Motor load chart
E	Raise/Lower Switch	Controls raising or lowering the blade out of or into the cut.
F	T-Handle Knob	Use to tighten operator grip handles.
G	Depth Indicator	Displays cutting depth.
H	Engagement Handle	Engages Transmission.
I	FNR Lever	Used to Set Direction of Saw (Forward/Reverse/Neutral).
J	Water Inlet	Hook-up for standard water hose.
K	E-Stop	Stops down motor in an emergency!
L	Water Lever	Controls water flow to Blade Guard.

SAW FEATURES

The Norton Clipper C20 Electric Self Propelled Flat Saw has been engineered for operator convenience, improved accessibility for maintenance and better control during operations. The Norton Clipper C20 Electric Self Propelled Flat Saw has been designed with front pivot axle and has easily removable rear and side panels to provide easy accessibility for maintenance.

- Ergonomic FNR traverse control
- Quick release, auto latching bayonet mount blade guard
- 1-7/16 blade shaft with heavy duty pillow block bearings
- Three position adjustable solid steel handle bars
- Blade guard has garden hose style connector for quick disconnecting
- Rigid frame front pointer with high visibility guide wheel for accurate tracking
- Instrumentation includes tach, amp meter and hour meter
- Depth of cut indicator
- Valve control for delivery of water to blade guard
- Saw designed for left or right side mounting of blade and blade guard
- Blade guard water distribution system designed for optimal blade cooling
- Front pivot
- Removable rear and lower front panel for easy service
- 7 Rib Powerband from motor to center shaft
- Wide front wheel base increases stability and allows ramp loading/unloading
- Eaton model 6 Hydrostatic transmission coupled to an Norton trans-axle
- Transmission can be disengaged from axle to allow saw to be pushed manually
- Travel speed 0-220 FPM forward, 0-100 FPM reverse
- Neutral start switch to prevent starting with transmission in gear
- Made in the U.S.A.

SELF PROPELLED FLAT SAW

PRODUCT SPECIFICATIONS

Technical Specifications	C2020ES	C2026ES
Product Number	701846 42447 9	701846 42448 6
Blade Guard Capacity - in (mm)	20" (508mm)	26" (660mm)
Maximum Depth of cut - in (mm)	7" (178mm)	9-1/2" (241mm)
Arbor Size - in (mm)	1" (25.4mm)	1" (25.4mm)
Blade Flange Diameter - in (mm)	4" (102mm)	5" (127mm)
Blade Shaft RPM	2,020	2,020
Blade Shaft Diameter	1 - 7/16" (36.5mm)	
Blade Shaft Bearings	Heavy Duty Pillow Block	
Blade Shaft Drive	7 Belts	
Blade Guard Attachment	Quick Detach Bayonet	
Blade Control	Electric	
Axle - Front	1" (25.4mm)	
Axle - Rear	1" (25.4mm)	
Wheels - Front D x W x B	6" x 2 - 1/2" x 1" (152 x 64 x 25mm)	
Wheels - Rear D x W x B	10" x 3" x 1" (254 x 77 x 25mm)	
Handle Bars/Adjustment Length	32 1/2" (826mm)	
Transmission	Eaton Hydrostatic	
Rear End/Differential	Differential - Norton	
Control	Forward/Reverse Control, Engage/Disengaged Controls and differential Lock	
Speed	0 - 220 FPM (Forward) 0 - 100 FPM (Reverse)	
Chassis	Heavy Duty jig-welded box frame	
Power Source	460v/60Hz/3Phase	
Motor Type	Baldor	
Specifications	T.E.F.C. Thermal Protection	
Maximum Horsepower*	20HP (14.9kw)	
Starter	Electric	
Engine Cooling	Air	

Saw Dimensions

Height - in (mm)	42" (1,069mm)	42" (1,069mm)
Minimum Saw Length (Transport) - in (mm)	49-1/2" (1,257mm)	49-1/2" (1,257mm)
Maximum Saw Length (Working) - in (mm)	109-3/4" (2,788mm)	109-3/4" (2,788mm)
Maximum Pointer Length - in (mm)	33-3/4" (857mm)	33-3/4" (857mm)
Frame Width - in (mm)	22-1/2" (572mm)	22-1/2" (572mm)
Saw Width - in (mm)	29" (737mm)	29" (737mm)
Front (Outside to Outside Wheel Width) - in (mm)	19" (483mm)	19" (483mm)
Rear (Outside to Outside Wheel Width) - in (mm)	22-3/4" (578mm)	22-3/4" (578mm)
Blade to Wall - in (mm)	1-13/16" (46mm)	1-13/16" (46mm)
Wheel Base Length - in (mm)	20-1/4" (514mm)	20-1/4" (514mm)
Blade Shaft Maximum Height - in (mm)	17-1/8" (435kg)	17-1/8" (435kg)
Weight Crated - lbs (kg)	750lbs (341kg)	750lbs (341kg)
Weight Uncrated - lbs (kg)	700lbs (318kg)	700lbs (318kg)

PRE-OPERATION CHECKLIST

**WARNING**

Before leaving our factory, every machine is thoroughly tested. Follow instructions strictly and your machine will give you long service in normal operating conditions.



Before starting up the machine, make sure you read this entire Operation Manual and are familiar with the operation of the machine.

Machine Cold

1. Connect battery cables.
2. Check hydrostatic transmission fluid level.

SCHEDULE MAINTENANCE QUICK REFERENCE

1-2 Hour Operation Checklist

**WARNING**

ALWAYS locate machine on a level surface with the electric motor “OFF” and the E-stop switch set in the “OFF” (Down) position before performing any maintenance. Let the machine cool down prior to any service.

1. Tension the blade drive v-belts, do not over tension.

**WARNING**

ALWAYS locate machine on a level surface with the electric motor “OFF” and the E-stop switch set in the “OFF” (Down) position before performing any maintenance. Let the machine cool down prior to any service.

Service Daily

1. Check blade guard for damage.
2. Check hoses and clamps for damage or looseness. Tighten or replace as necessary.

Other time interval service

See the Maintenance Schedule Table on Page 21.

Battery Charging

Switch to 110V to charge battery from wall, other wise battery charges during use.

**NOTICE**

Before mounting the blade, machine should be turned “OFF”. Clean the blade collars and stub shaft.

BLADE MOUNTING INSTRUCTIONS

1. Remove Blade Guard.
 - A. Unscrew the hose fitting to disconnect hose (Figure 5).
 - B. Hold the Blade Guard by the handle (Figure 6). Release the inner latch.
 - C. Pull the guard up and off the Saw.



Fig. 5 Unscrew Hose Fitting



Fig. 6 Hold Blade Guard

2. Remove arbor bolt. If blade is mounted on right side saw, the bolt has left hand threads. To remove turn clockwise. If the blade is mounted on left side of saw, nut has right hand threads. To remove, turn counter-clockwise (Figure 7).
3. Pull off outer flange (Figure 8).



Fig. 7 Remove Arbor Bolt



Fig. 8 Pull Off Outer Flange

4. Install new blade (Figure 9).
5. Slide in the outer flange in place (Figure 10).



Fig. 9 Install New Blade

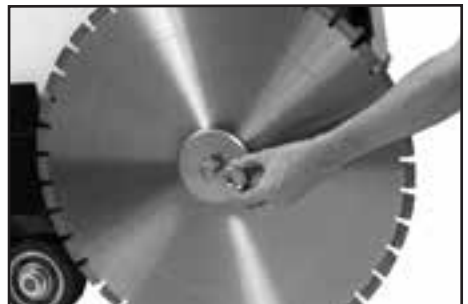


Fig. 10 Slide Outer Flange in place

BLADE MOUNTING INSTRUCTIONS CONTINUED

6. Tighten the arbor bolt (Figure 11).
7. Install the blade guard in place. Make sure that the guard locks in place and connect the hose.



Fig. 11 Tighten Arbor Bolt



Fig. 12 Install Blade Guard

! WARNING Observe the rotation arrow on blade and **DO NOT** exceed maximum RPM stamped on the blade.

! NOTICE To meet ANSI safety standards, larger diameter blade collars are required for large diameter blades. Information is available upon request.

! NOTICE We recommend the use of Norton diamond blades with these saws.

STARTING INSTRUCTIONS

1. Verify that E-Stop is pulled out.
2. Place Drive Control Level in **NEUTRAL**.
3. Verify the transmission is in **NEUTRAL**.
4. Press Green "ON" button.

SAW GUIDE ALIGNMENT AND ADJUSTMENT**⚠ WARNING**

This operation is performed with the motor "OFF"!

The front and rear pointers are set in line at the factory. However, the pointers should be checked for proper alignment with the blade after every use. The following are the procedures for aligning the pointers with the blade, with the motor shut off.

1. Using a straight edge, carefully mark a line 12 feet long on a smooth level concrete surface.
2. Place the saw parallel to the line. Lower the blade and center it over the line.
3. **FRONT:** With the blade centered over the line and the saw frame parallel to the line, lower the front pointer assembly and position the pointer over the line.
4. **REAR:** With the blade centered over the line and the saw frame parallel to the line, loose the pointer and adjust up or down and ensure that it touches the line.
5. Finally, roll the saw along the entire length of the line. The saw should lead off no more than 6 inches to the left in 12 feet of forward travel. Adjust the pointer in or out if the lead-off is outside this parameter.
6. Secure hardware.

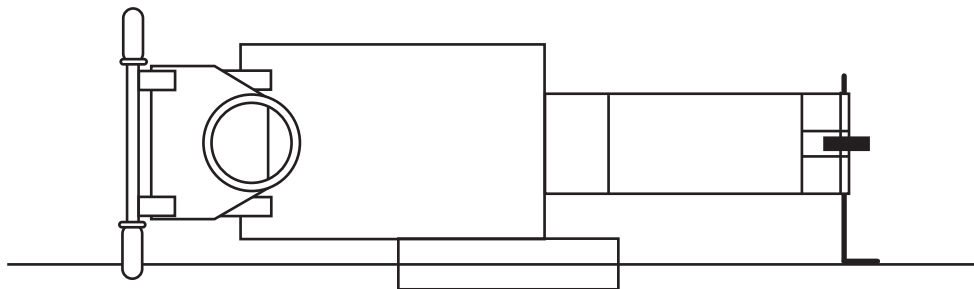


Fig. 13 Pointer Alignment

MANEUVERING THE SAW



WARNING

The blade is spinning whenever the saw is running. Raise the blade as high as possible when maneuvering so that the blade will not strike the pavement.

DRY CUTTING

Dry cutting blades have been specially designed for use with concrete saws. Ensure that the blade you are using is clearly marked for dry cutting.

When dry cutting it is important to keep the electrical motor clean of dust and dirt to insure proper cooling. From time to time it is advisable to blow off the motor and fan inlet with compressed air. Do not pressure wash the electric motor or any of the machine's electrical connections or control boxes.

Saw only as deep as the specifications and job conditions require. Remember airflow helps to cool the blade during dry cutting. Cutting too deep with one pass, or exerting excessive forward or side pressure can be dangerous. Step cut in increments of 1 inch (25 mm) or less, for the best results.

If reinforced abrasive blades are used for cured concrete, it is usually better to saw only 1 inch deep per pass. If deeper cuts are required, cut in multiple passes.

Thinner Diamond Blades are especially advantageous when cutting dry.

WET CUTTING

The water used on the blade is to provide coolant during cutting and to flush the concrete cutting from the cut. Turn the water control to full "on" when using wet cutting blades. The required flow rate is 5 to 8 gallons per minute.

SPEED CONTROL-LEVER USE AND ADJUSTMENT

Move the saw forward by pushing the lever away from the operator and move the saw in reverse by pulling the lever toward the operator. The further you push this lever, the faster the saw travels.



WARNING

Before starting the motor, place this lever in **NEUTRAL**.

ENGAGING THE DRIVE UNIT

This saw is driven by a hydrostatic transmission. To engage the transmission, **PULL** the Engagement Handle up and turn to either direction to lock (Figure 14). To disengage the transmission, twist the Engagement Handle and **PUSH** down.



NOTICE

DO NOT engage the transmission unless FNR Lever (Figure 14) is in **NEUTRAL**.



Fig. 14 Pull Engagement Handle

WATER HOOK UP

Prior to starting the motor, you should hook up the water hose to the Water Inlet (Figure 15) and visually inspect it to make sure that water is flowing to the blade. Hook up the hose to the the unit and turn on the water source. Open the water valve. Next, lift the front of the blade guard and visually inspect the make sure water is flowing out of each of the tubes. If either of the holes is blocked, flush impurities from the tube.



NOTICE

Water flow volume can be metered by opening the Water Valve Lever partially (Figure 16).

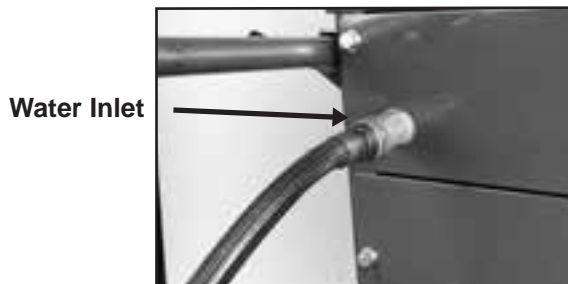


Fig. 15 Attach Hose to Water Inlet

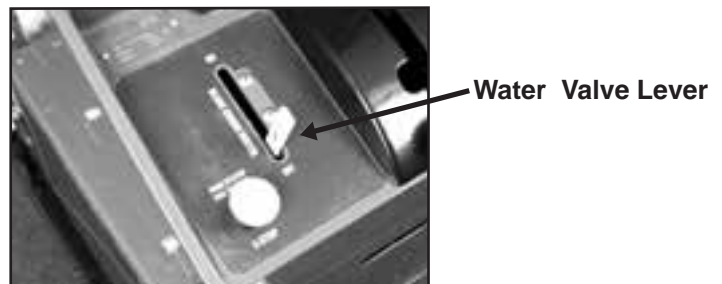


Fig. 16 Partially open Water Valve

DEPTH INDICATOR

The saw is equipped with a Depth Indicator. The Depth Indicator (Figure 17) tells you approximately how deep you are in the cut. To set the indicator, you need to first lower the blade until it is just touching the ground and then rotate the knob clockwise to 0.

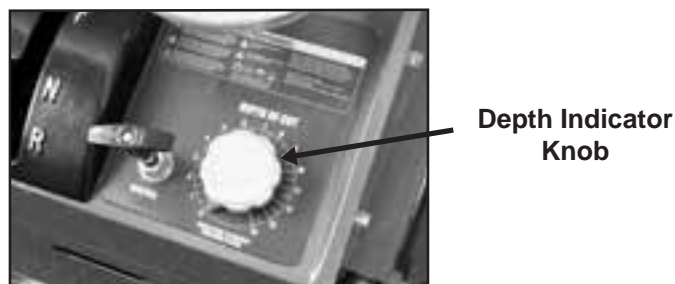


Fig. 17 Depth Indicator Knob

STEP CUTTING

1. Follow general instructions outlined in the section Operating the Saw pages 18 to 19.
2. When deep sawing (more than 4") or concrete with hard aggregate, sawing to full depth in several cuts should be made in incremental steps of 1-1/2 to 2 inches until the desired depth of cut is reached. In softer aggregates or asphalt, it may be possible to saw full depth in two passes.
3. Gradually move the speed control lever forward to increase the cutting speed. If the blade stalls in the cut (which can happen when deep sawing) immediately raise blade from cut. If not done at once, the belts will spin freely and burn. Check belts for proper tension and continue sawing at a slower rate of speed.
4. On final pass, lower the blade until it hits the sub-base (sandy color will appear in the water being discharged from the cut). Raise blade approximately 1/2" from bottom. The sand and gravel particles of the sub-base may cause premature wear or damage to the saw blade.
5. It is common, on the final pass of the cut, for pavement to wedge the blade or also known as a slammed or pinched Blade, particularly on a hot day. When this happens, immediately stop motor. If the blade is wedged, remove the Blade Shaft Bolt and Outside Collar and move the saw away from the blade. To remove a wedged blade from the concrete, use a jack hammer and carefully chip out concrete around the blade. (Pounding or twisting the blade may cause severe damage).
6. Go slowly with a new blade until it "opens up" that is, until you can see and feel the diamonds.
7. Small corrections can be made by leaning on handles.
Deep sawing is very hard on saws and blades. Experienced operators soon get a "feel" for the saw and are constantly on guard to slow down when they hit excessive steel or hard aggregate.

ARBOR, AXLE, DRIVE UNIT AND WHEEL BEARINGS

Blades shaft, Axle, Drive Unit, and Wheel Bearings should be greased according to the Maintenance Schedule table on the below.

! WARNING

DO NOT inspect when the motor is running.

Use of high quality detergent oil of API (American Petroleum Institute) service class SF or SG. Select the viscosity based on the air temperature at the time of operation. For temperatures below 0°F, 5W-20 or 5W-30 oil is recommended. For temperatures above 0°, 10W-30 or 10W-40 oil is recommended. Check your motor manual for other recommendations.

HYDROSTATIC DRIVE UNIT

The fluid shipped in your hydrostatic transmission is a fluid having a viscosity equivalent to SAE 20W20. Mobil fluid 300 or any other oil equivalent to SAE 20W20 is preferred by Eaton Transmission. The expansion tank is marked for proper fluid level. It should be checked when unit is cold. **DO NOT** allow the unit to run low on oil. If the unit is low, you can add oil by removing the cap (Figure 18).

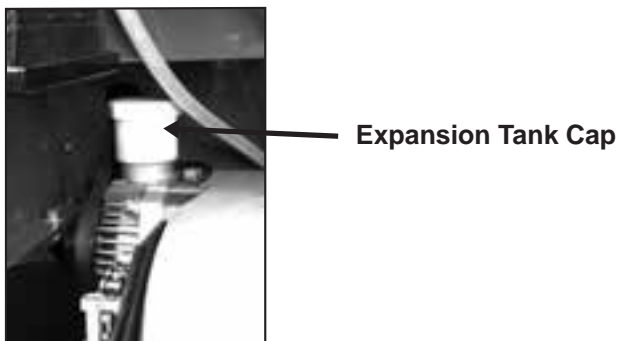


Fig. 18 Expansion Tank Cap

MAINTENANCE SCHEDULE

MAINTENANCE SCHEDULE	DAILY	25 HOURS	50 HOURS	250 HOURS
Grease Blade Shaft Bearings	X			
Grease Front Wheel Bearings		X		
Grease Rear Wheel Pillow Blocks		X		
Grease Front Axle Journal Bearings		X		
Check Transmission Fluid, Add if Low		X		
Check Power Unit Fluid, Add if Low		X		
Inspect Cooling System and Clean				X

* See Motor Manual for specific motor maintenance information and schedule.

TROUBLESHOOTING

When trouble occurs, be sure to check the simple causes which, at first, may seem too obvious to be considered. Refer to the table below for problems and their possible causes.

TRANSMISSION	Cause	Loose Transmission Linkage	Oil Level	Cooling Fan	Water in Oil Reservoir	Dirty Cooling Fans	Loose Drive Chain
	Problem						
	Transmission jerky when starting	X	X				X
	Transmission operates in one direction	X					
	Transmission operating hot	X	X	X		X	
	Oil color is black			X		X	
	Oil color is milky				X		

OTHER	Cause	Improper Blade for the Application	Improper Belt Tension	Damage Caused by External Objects
	Problem			
	Reduced blade life	X	X	
	Excessive belt wear		X	X

CONTACT

Please contact Saint-Gobain Abrasives, Inc. Customer Service Department with any questions you might have regarding distributors, parts or service.

Telephone: **(254) 918-2310**

Fax: **(254) 918-2312**

Customer Service Hours: **Monday through Friday, 6AM-6PM CST**

**Saint-Gobain Abrasives, Inc.
2770 W. Washington St.
Stephenville, TX 76401**

WARRANTY

Norton warrants all products manufactured by it against defects in workmanship or materials for a period of one (1) year from the date of shipment to the customer.

The responsibility of Norton under this warranty is limited to replacement or repair of defective parts at Norton's Indianapolis, Indiana Distribution Center, or at a point designated by it, of such part as shall appear to us upon inspection at such point, to have been defective in material or workmanship, with expense for transportation borne by the customer.

In no event shall Norton be liable for consequential or incidental damages arising out of the failure of any product to operate properly.

Integral units such as **gasoline engines, electric motors, batteries, tires, transmissions, etc.**, are excluded from this warranty and are subject to the prime manufacturer's warranty.

This warranty is in lieu of all other warranties, expressed or implied, and all such other warranties are hereby disclaimed.

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clipper

WARNING

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- Lead from lead based paints,
- Crystalline silica from bricks and cement and other masonry products, and
- Arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Saint-Gobain Abrasives, Inc.
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