

SOFF-CUT
INTERNATIONAL, INC.

Model X-4000 Operating Guide



IMPORTANT:
Read ALL Directions Before Using

!WARNING: Failure to comply with the following warnings could result in serious bodily injury or death!

SAFETY WARNINGS

PERSONAL SAFETY

- Read and understand instructions before operating saw.
- Always wear safety approved hearing, eye, head and respiratory protection.
- Wear boots with non-slip soles to provide proper footing. Steel-toed safety boots are recommended.
- Wear rubber work gloves to avoid contact with wet concrete which can cause serious skin irritation.
- Know how to stop the saw quickly in case of emergency.
- Keep all parts of your body away from blade and other moving parts. Do not wear loose clothing or jewelry which can be caught in moving parts. Wear protective hair covering to contain long hair.
- Use caution when loading and unloading saw.
- Stay alert. Maintain awareness of saw operation. Use common sense. Do not operate saw when tired or after consumption of any substance that would impair physical function or rational judgement.
- Do not over reach. Keep proper footing and balance.

WORK AREA SAFETY

- Never operate the saw in any application or job where you are not trained or supervised.
- Keep visitors, children and animals out of the work area.
- Observe all safety regulations for the safe handling of fuel. Gasoline is extremely flammable and its vapors can explode if ignited. Do not refuel indoors or in poorly ventilated areas. Handle fuel in safety containers. Shut off the engine and allow it to cool before refueling. Wipe the saw dry if fuel is spilled on it. Always move away from the fueling area before starting the engine. Do not smoke while refueling.
- Do not operate the saw while smoking or near an open flame.
- Do not operate the saw in areas of combustible material or fumes. Sparks may occur from the saw that could cause a fire or explosion.
- Operate only in well ventilated areas. Engine exhaust contains carbon monoxide which can cause loss of consciousness and possible death.
- The muffler and engine become very hot during operation. Keep all body parts and foreign material away from the engine while running.
- Avoid dangerous environments. Do not use saw in damp or wet locations. Do not expose saw to rain. Keep work area well lit and clean.

SAW SAFETY

- Do not leave saw unattended while the engine is running.
- Do not alter the saw. Any alteration or modification is misuse and may result in a dangerous condition.
- All safety guards must be in place before starting engine.
- Only operate the saw from behind the machine with both hands on the handle.
- Do not use damaged equipment, blades, guards or personal protection equipment. Do not disable safety equipment or kill switches.
- Do not operate the saw if there is a fuel leak.
- Use extreme caution when maneuvering the saw on ramps or loading and unloading from trucks or trailers.
- Use only Soff-Cut International, Inc. replacement parts. Use of unauthorized parts may create a danger.
- Do not use the saw as a vehicle for transporting personnel or equipment.
- Remove the ignition cable from the spark plug before performing saw maintenance or changing blades to prevent accidental engine starting.
- Remove all wrenches from the saw before starting.
- Never stand on the saw.
- When the saw is not in use or transporting, remove the blade and lower the saw completely. Properly secure the saw to prevent accidental movement.

BLADE SAFETY

- Examine cutting blades before each use. Do not use any blade that has cracks, nicks, or flaws. Tri-arbor hole should be undamaged. Use only dry cut, steel centered, tri-arbor diamond blades made for cutting green concrete.
- Soff-Cut International, Inc. diamond blades are designed to only cut green concrete. Cutting any other material may result in blade failure or a dangerous condition.
- Inspect blade flanges for damage, excessive wear and cleanliness before mounting the blade. The blade should fit snugly on clean, undamaged, tri-arbor shaft.
- Use only Soff-Cut blades or blades marked with a maximum operating speed greater than 3500 rpm.
- Never operate the saw without the blade block assembly securely in place including blade cover, lexan shields and skid plate installed in working order. A damaged blade block assembly must be replaced to protect the operator.
- Make sure the blade does not make contact with the ground or any other surface when maneuvering the saw.
- Avoid getting in direct line with the blade or contacting the blade while it is rotating.

MACHINE DESCRIPTION

The Soff-Cut International, Inc. **Model X-4000 Prowler** is designed as heavy duty commercial, industrial and paving Ultra Early Entry concrete saw. The patented Soff-Cut Ultra Early Entry dry cutting system controls random cracking of concrete through the early timing of the saw cutting usually within one to two hours after the finishing process is completed. The patented low noise and low dust blade block and skid plate technology in conjunction with Soff-Cut blades allows for Ultra Early Entry sawing the same day while minimizing chipping and spalling. The saw is a self-propelled style with manual controls for most functions. It is an electric start saw with power blade depth control.

Model number and part number – X-4000

Materials cut – Green concrete only.

Blade type – 13.5” (343mm) or 12.0” (305mm) dry cut with tri-arbor

Blade rotation – Counter clockwise, upcutting

Blade shaft speed – 3500 rpm

Cutting depth – 3” maximum (76mm) depending on blade size and amount of blade wear

Cutting distance from wall – 3 1/2” (89mm)

Dry weight – 440 lbs. (200 kg)

Operating weight –454lbs. (206kg) fuel and oil full

Dimensions –61”L x 28”W x 38”H (1549mmL x 711mmW x 965mmH)

Fuel – Unleaded gasoline only with 87 or higher octane rating

Engine Oil – SAE 10W-30 viscosity detergent automotive type with API service class SE or higher grade

Transmission Oil – Hydraulic oil 20W with viscosity of 68 Mobil DTE 26 or equivalent

Blade raise/lower system – Electric actuator with switch on handlebar

Guide system – Manual front guide with remote control on handlebar and rear triangle blade block guide

Lifting point – Roll cage center hook

Average cutting rate	3” (76mm) depth	2” (51mm) depth
Soft aggregates	14 ft/min (4.3 m/min)	24 ft/min (7.3 m/min)
Medium aggregates	11 ft/min (3.4 m/min)	17 ft/min (5.2 m/min)
Hard aggregates	7 ft/min (2.1 m/min)	9 ft/min (2.7 m/min)

Estimate only. Speed will vary with job conditions and concrete mixes.

Blade applications

Green Excel Series 2000	XL14-2000	Hard to ultra hard aggregate and non abrasive sand
Red Excel Series 3000	XL14-3000	Hard aggregate, medium abrasive sand
Yellow Excel Series 5000	XL14-5000	Medium hard to soft aggregate, abrasive sand
Blue Excel Series 7000	XL14-7000	Soft aggregate, highly abrasive sand

Blades are available in 13.5” (343mm) and 12” (305mm) diameters and in .100”, .250”, .380” and .500” (2.5mm, 6.4mm, 9.7mm and 12.7) widths.

Engine specifications

Type	Air cooled, 4-cycle, twin cylinder, hydraulic overhead valves, gasoline engine
Power	18 hp (13.4 kW)
Oil capacity	2 quart (1.9 liter)
Fuel capacity	4.5 gallon (17 liter)
Starting system	Electric start with engine mounted key switch
Air filter	Dual element construction duty
Oil system	Full pressure lubrication with spin-on oil filter
Muffler	Low noise, front exhaust
Emissions	Complies with EPA Phase 2 and CARB Tier II USA regulations
Cooling	Air cooled
Cylinder	Aluminum with cast iron liner
Controls	Engine mounted manual throttle and choke levers, manual on/off key switch

!WARNING!

The engine exhaust from this product contains chemicals known to the State of California, USA, to cause cancer, birth defects or other reproductive harm.

UNPACKING

Your Soff-Cut **Model X-4000 Prowler** saw has been shipped from the factory thoroughly inspected. Only minimal assembly is required to start using the saw. Remove the saw from the container using proper lifting techniques. Discard or recycle the packing material per your regional laws. In your container will be the X-4000 saw, blade shaft wrench, spark plug wrench, an owner's manual, an engine owner's manual, a parts list, a warranty card, a joint protector sample pack, and a ramp for unloading the saw off the container. Connect the battery cables and turn the key switch to the "on" position. Press the rocker switch on the instrument panel to raise the saw. Place the unloading ramp at the edge of the container and roll the saw out of the container. Lower the saw and turn the key switch to the "off" position.

NOTE: No diamond cutting blade or skid plate is included with the saw. Purchase the appropriate Soff-Cut Excel Series 12 or 13.5 inch blade and skid plate from your local Soff-Cut dealer.

TRANSPORTING

The Soff-Cut **Model X-4000 Prowler** saw weighs approximately 454 pounds (206 kilograms) when ready to use. Use safe lifting practices when handling the saw. Always remove the diamond blade when transporting the saw. Always transport the saw with a skid plate installed. Fold the guide arm back. The saw can be lifted from the center hook on the roll cage. Always store and transport the saw in a completely lowered position and secured from moving.

BLADE AND SKID PLATE INSTALLATION

The Excel Series of diamond blades have been designed specifically for the Soff-Cut Ultra Early Entry dry cutting system of green concrete. These specialty blades are designed to increase speed and life while cutting a wide range of aggregates. Choose the correct specification of diamond blade for your area as follows:

Green Excel Series 2000	part no. XL14-2000	Hard to ultra hard aggregate and non-abrasive sand
Red Excel Series 3000	part no. XL14-3000	Hard aggregate, medium abrasive sand
Yellow Excel Series 5000	part no. XL14-5000	Medium hard to soft aggregate, abrasive sand
Blue Excel Series 7000	part no. XL14-7000	Soft aggregate, highly abrasive sand

Turn the key switch located on the engine to the "on" position. Press the rocker switch located on the right handle bar to raise the saw to its full height. Turn the key switch to the "off" position. Remove the blade block cover by turning the two knobs counter clockwise. Insert the blade wrench supplied with saw on the bolt on the end of the blade shaft in the blade block. Rotate the blade shaft counterclockwise with the wrench on the blade shaft bolt while pushing in on the blade shaft locking pin located on the front of the saw frame. The locking pin will drop in the blade shaft and prevent the shaft from rotating. Remove the blade shaft bolt by continuing to turn the bolt counterclockwise. Remove the outer arbor washer or flange. Match the blade tri-arbor to the blade shaft arbor and install the blade firmly against the back flange. Insure the blade is installed on the tri-arbor correctly. Match the female tri-arbor of the outer washer or flange with the blade shaft and install the blade shaft bolt turning clockwise while holding the locking pin in. Be sure the outer flange is fully seated and firmly holding the diamond blade in position. Install a new skid plate by hooking the front on the front blade block shaft pin. Connect the rear blade block shaft and the rear of the skid plate by installing the locking pin. Install the blade cover by turning the two knobs and tighten until fully seated against the blade block. Lift the front of the skid plate to insure the blade slides through the skid plate freely. When replacing a worn blade, thoroughly clean the concrete from the blade block and blade cover before installing the new blade. Discard the old skid plate and replace it with a new skid plate.

Note: The patented trussed skid plate is the most important part of the Soff-Cut Ultra Early Entry system. If it is bent, twisted or damaged, spalling and raveling of a cut may result. Store skid plates carefully and install them properly. Install a new skid plate with each new blade. Never reuse skid plates.

OPERATING INSTRUCTIONS

Experience is very important when running the **X-400 Prowler** saw. A skilled worker is highly recommended. Always do an inspection of the saw before starting the engine. Check the fuel and oil levels per the enclosed engine manual. SAE 10W/30 oil and unleaded gasoline with an 87 or higher octane should be used. The hydrostatic transmission use Mobil DTE 26 hydraulic oil or equivalent (20W with viscosity of 68). **Observe all safety regulations for the safe handling of fuel. Always check the engine oil with the saw turned off, completely lowered and the engine level!** Check that all controls are in good working order. Check for loose bolts or nuts. Check for fuel or oil leaks. **WARNING: Do not operate saw if there is a fuel leak!** Insure all guards are secure, undamaged and properly installed. **WARNING: Do not operate the saw unless all guards, safety equipment and kill switches are in place and operational!** Check the air filter and clean or replace if necessary. Check for proper specification of blade and that the skid plate operates properly. Check that the blade and skid plate are in good condition.

To start the engine, turn the key switch on the engine to the “on” position. Raise the saw by pushing the rocker switch on the right handle to the full up position. Move the engine throttle lever 1/3 of the way to the open position. Close the engine choke lever. The closed choke position enriches the fuel mixture for starting a cold engine. The open choke position provides the correct fuel mixture for operation after the engine starts and for restarting a warm engine. Start the engine by turning the key switch to “start” position and then release once the engine starts. Slowly close the choke lever. Allow the engine to warm for a few minutes.

Open the engine throttle lever to the full open position for maximum engine speed by pulling the knob marked “T” at the handle. Lower the front guide to the full down position by pushing the control handle on the right forward. Line up the saw with the cut line using the white wheel on the front guide and the triangle pointer on the back of the blade block. Pull the control lever on the left back towards you to a full stop position. Lower the saw in to the cut by pressing the rocker switch on the right handle to the “down” position. Lower the blade to full depth. Move the saw forward by slowly pushing the control lever on the left forward until the desired cutting speed is reached. Pulling the handle back slows the forward speed. Pulling the handle to the full back position stops the saw. Keep the front guide wheel on the cut line to insure straight cuts. Make small adjustments by applying side pressure on the handle to keep the saw straight. Move the saw at about half speed for the first 200 feet to allow the blade to develop good diamond exposure or open up and promote full blade life. Increase the forward speed of the saw until the blade and engine are working at maximum efficiency. Increase the forward speed if the saw is pulling left. Decrease the forward speed if the saw is pulling right. **Do not force the saw.** When approaching a wall, raise the front guide and use the triangle guide at the back of the blade block to cut the last few feet. **Do not hit the blade block assembly against any object.** Damage may result. Slow the forward speed by pulling the control handle lever back until the saw stops. Raise the saw out of the cut to the maximum height by depressing the rocker switch in the “up” position. The self propel function of the saw will not operate with the unit in a raised position. Move the engine throttle lever to the full closed position. Turn the engine kill switch to the “off” position. **WARNING: Do not leave the saw unattended while the engine is running! Always secure the saw from movement while unattended.** Periodically, clean any excess concrete from inside the blade block, scrapers and blade cover. Always clean the blade block assembly thoroughly before storing the saw.

MAINTENANCE

Maintenance schedule for the following items should be:

Check bolts, nuts, guarding, diamond blade, skid plate, lexan covers, controls and air filter.	Daily
Clean blade block assembly, engine and saw.	Daily
Replace air cleaner.	Every 25 hours
Replace engine oil.	Every 50 hours
Check blade drive belt, belt tensioner, wheels, wheel driver tubes and blade shaft bearings.	Monthly
Grease blade block shafts, bushings and springs. Grease blade shaft bearings.	Monthly

Refer to the engine owner’s manual included with the saw for additional maintenance requirements.

Battery - Use only a voltage regulated taper current charger designed specifically for sealed lead acid gel cell batteries rated at 2 amps or less (Soff-Cut part # 22-G20-0006). A standard automotive, or any other type, battery charger not designed specifically for sealed get batteries will cause permanent damage to the installed battery and void any warranty. Do not leave the ignition key in the ON position as this will drain the battery.

WARNING: Do not modify the saw! Use only Soff-Cut International replacement parts. Use of unauthorized parts may create a danger or damage the engine.

TROUBLESHOOTING

ENGINE WILL NOT START

- Check if there is fuel in the tank and it is the correct fuel. Make sure there is no water in the fuel.
- Check that the spark plug wire is connected to the spark plug.
- Engine is flooded. Adjust the choke per the engine owner's manual.
- Check that the choke is in the "on" position for cold starts. Adjust the choke per the engine owner's manual.
- Check that air filter is not dirty or plugged.
- Check that the blade shaft rotates freely and no concrete has built up in the blade block.

ENGINE RUNS ROUGH, BACK FIRES OR CAN NOT REACH FULL SPEED

- Check if there is fuel in the tank and it is the correct fuel. Make sure there is no water or debris in the fuel.
- Check that air filter is not dirty or plugged.
- Check that spark plugs are clean and properly gapped.
- Check that throttle lever is properly set.
- Check that choke is in the off position after engine is warm.

SAW IS SPALLING AND RAVELING CUT

- Check to see if diamond blade is worn out, glazed, warped or damaged.
- Insure skid plate moves freely up and down the entire shaft length without contacting the diamond blade.
- Check skid plate for excessive wear or gap around the diamond blade.
- Check bottom of skid plate for metal burrs or irregularities.
- Check skid plate for tension or loose mounts. Skid plates are preset at the factory.
- Insure skid plate is not twisted or bent.
- Check lexan covers for free movement up and down.
- Insure there is spring down pressure at each end of the skid plate.
- Do not twist or move the saw sideways while cutting.
- Check that the engine is running properly and at full throttle.
- Check belt and belt idler for proper tension.
- Insure the diamond blade is properly mounted and secured with clean flanges.
- Insure that the diamond blade is the correct specification for your area.
- Insure the slab is clean with no debris that could raise the skid plate or saw while cutting.
- Use Soff-Cut joint protectors at all cut intersections. Install at the intersection and where the closest wheel crosses joints.
- Clean excess concrete debris from the blade block assembly
- Check that the scrapers in the blade block are not bent or binding.
- Insure that the blade block shafts are not bent or damaged.

SAW PULLS TO ONE SIDE WHILE SAWING

- Check front guide is properly aligned with the center of the diamond blade.
- Check to see if diamond blade is worn out, glazed, warped or damaged.
- Do not twist or move the saw sideways while cutting. Make gradual changes in pressure on the handlebar to control the saw in the cut.
- Insure that all wheels roll freely and smoothly.
- Do not force the saw. Allow the diamond blade to cut at its own rate of speed.
- Check the skid plate for damage or burrs.
- Insure both driver tubes are contacting the rear wheels, driver tubes are clean and rear wheels are not damaged.

WARRANTY

The SoffCut International gas saw is thoroughly inspected and tested before leaving the factory. It is warranted to be free of defects from workmanship and materials (excluding the engine, which is covered by the engine manufacturer) for a period of six months for labor and up to one year on parts from the date of original purchase.

Before work is performed on any related warranty item, you must submit date of purchase and warranty repair estimate to SoffCut International. This can be done by letter, fax or telephone. SoffCut International will approve the cost or have you ship the unit back to SoffCut International prepaid for repair. Concerning parts that have failed, you can obtain a Returned Goods Authorization (RGA) number from SoffCut International. Send the parts back to SoffCut International prepaid with proof of purchase and the RGA number, and one of the following will happen:

1. Your account will be credited
2. The part will be repaired and returned to you
3. The part will be replaced and sent to you.

Note: SoffCut International is not responsible for shipping costs.

The above SoffCut International warranty does not apply under the following circumstances:

- Repairs made or attempted by others.
- Repairs required because of normal wear and tear.
- The saw has been abused, misused or improperly maintained
- Alterations have been made to the saw.

THE USE OF ANY OTHER BLADE EXCEPT THE ORIGINAL SOFFCUT BLADE PACKAGE MAY VOID THE WARRANTY AND COULD CAUSE INTERNAL DAMAGE TO THE MOTOR.

IN NO EVENT SHALL SOFFCUT INTERNATIONAL BE LIABLE FOR ANY INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES FROM THE SALE OR USE OF THE PRODUCT. THIS DISCLAIMER APPLIES BOTH DURING AND AFTER THE TERM OF THIS WARRANTY.

SOFFCUT INTERNATIONAL DISCLAIMS LIABILITY FOR ANY WARRANTIES INCLUDING IMPLIED WARRANTIES OF "MERCHANTABILITY" AND "FITNESS FOR A SPECIFIC PURPOSE" AFTER THE TERM OF THIS WARRANTY.

This warranty gives you specific legal rights and other possible rights, which may vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. Some states do not allow limitations on how long an implied warranty lasts so the above limitation may not apply to you.

WARRANTY ON ENGINE

1. SoffCut International does not perform warranty repairs or reimburse for warranty repairs on engines. Engine warranties are provided by the engine manufacturer.
2. To obtain warranty repair: Take your engine along with your proof of purchase to any general purpose dealer or distributor nearest you.

If you are unable to obtain warranty service or are dissatisfied with the warranty service you received, contact the owner of the dealership involved. Normally, this should resolve your problem. For further assistance, call our parts and service department at 1-800-776-3328 or 1-951-272-2330.

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Covered by one or more of the following U.S. Patents

4769201, 4889675, 4928662, 4938201, 5056499, 5086750, 5184597, 5303688, 5305729, 5373834, 5441033, 5505189, 5507273, 5570677, 5575271, 5579754, 5582899, 5603310, 5660161, 5664553, 5666939, 5689072, 58030371.

Other U.S. and foreign patents pending.

Maximizing the Soff-Cut® System

“**The timing of concrete operations – especially finishing and jointing – is critical**”, states a quote from the foreword of the American Concrete Institute (ACI) 302.1R-96. It goes on to say that “Failure to address this issue can contribute to undesirable characteristics in the wearing surface such as cracking...” (it mentions other problems).

The patented Soff-Cut Ultra Early Entry system has revolutionized the method used to control random cracking. While Soff-Cut is being specified more today than ever, sometimes the ultra early-entry spec is not always followed on the job site. When that happens, building owners are not getting what they are paying for or the finished product they expect.

In order for the Soff-Cut system and an experienced Soff-Cut contractor to do a satisfactory job, four components must exist to meet the “specification”:

1. A Soff-Cut Ultra Early Entry dry up-cut saw
2. A Soff-Cut dry-cutting diamond blade
3. A Soff-Cut anti-ravel skid plate installed with every new diamond blade
4. An operator skilled in using the Soff-Cut Ultra Early Entry cutting system.

Without this, joints can not be cut early enough to control random cracking before it starts, which is what the building owner is paying for.

The ACI Spec 302.1R-96 says it best:

“Early-entry dry-cut saws use diamond-impregnated blades and a skid plate that helps prevent spalling. Timely changing of skid plates is necessary to effectively control spalling. It is best to change skid plates in accordance with manufacturer’s recommendations...The goal of saw-cutting is to create a weakened plane as soon as the joint can be cut...The timing of the early-entry process allows joints to be in place prior to development of significant tensile stresses in the concrete...”

The Portland Cement Association (PCA) engineering bulletin, Concrete Floors on Ground, also states:

“Proper jointing can eliminate unsightly random cracks. Aspects of jointing that lead to a good job are choosing the correct type of joint for each location, establishing a good joint pattern and layout, and installing the joint at the correct time...**Timing of joint sawing is critical**...Lightweight, high-speed, early-cut saws have been developed to permit joint sawing very soon after floor finishing, sometimes within 0 to 2 hours...if the cut is sawn within a few hours after final finishing, random cracking can be controlled...”

Soff-Cut has the only Ultra Early Entry dry-cutting system which controls random cracking through the early timing of the cut. With the patented Soff-Cut method, control joints are usually cut within 0 to 2 hours after the finishing process. Joint cutting should begin as soon as the concrete will support the weight of the saw and the operator at each joint location and before final set. If the joints are not being cut within this time frame, then the Soff-Cut Ultra Early Entry method is not being followed and building owners are not getting what they are paying for or the finished product that they expect.

We hope this information is beneficial to building owners, general contractors, concrete finishers and sawers and the entire industry. For additional information, contact Soff-Cut International, Inc. at (951) 272-2330 or (800) 776-3328, or see our website www.soffcut.com.