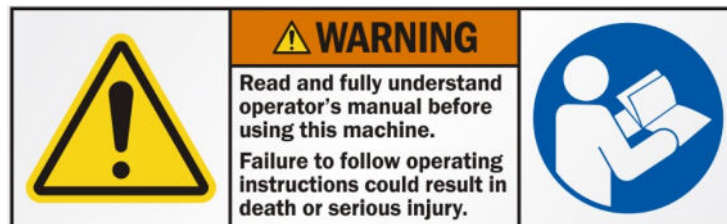


U.S.SAWS™



U.S.SAWS AIR POWERED CHAIN SAW OPERATING MANUAL



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INTRODUCTION & SPECIFICATIONS

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1.0 INSTRUCTIONS FOR USE OF MANUAL SECTIONS

Foreword/Introduction

The owner's manual is intended to point out some of the basic safety situations that maybe encountered during the normal operation & maintenance of the Air Powered Chain Saw Machine & to instruct you in safety practices for dealing with these conditions. Keep all manuals provided with your machine in a safe place at all times.

The information and specifications included in this publication were in effect at the time of approval for printing. U.S.SAWS reserves the right, however, to discontinue or change specifications or design at any time without notice and without incurring any obligation.

U.S.SAWS ACH-GB series chains saws are designed for demanding jobs that require cutting of ductile iron and other types of pipe. You can also pair with our standard concrete chain to create a concrete cutting saw. This type of concrete cutting is ideal for applications requiring square corners without overlapping cuts. It has the capabilities of a plunge cut up to 16" to 20" deep, depending on the model of chainsaw.

It can be powered with commonly used power sources. The ACH-GB line of chain saws has the power you need to get the job done quickly and safely. Read this entire operations and maintenance manual before using your new tool. Pay close attention to the rules for safer operation.

Dangers, Warnings and Cautions.

The purpose of safety symbols and explanations are to attract your attention to possible hazards and how to avoid them. The safety symbols and explanations do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper accident prevention measures.



DANGER: Indicates an imminently hazardous situation that if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.



WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.



CAUTION: Indicates a potentially hazardous situation that, if not avoided may result in minor or moderate injury. It may also be used to alert against unsafe practices that may cause property damage.



2.0 SPECIFICATIONS

Model	ACH-GB16	ACH-GB20
Part Number	US60466 (DUCTILE)	US60502 (DUCTILE)
Part Number	US60465 (CONCRETE)	US60503 (CONCRETE)
Power Source	Gearbox	Gearbox
Air Requirements	90 cfm @ 90 psi	90 psi @ 90cfm
Guide Bar	16"	20"
RPM	3300	3300
Maximum Cutting Depth	16"	20"
Weight	27 lbs	32 lbs



SYMBOLS & DECALS

3.0 SYMBOLS & DECALS

For Safe Operation

You must be qualified for safe operation of the U.S.SAWS Air Powered Chain Saw machine. You must clearly understand the written instructions supplied by U.S.SAWS, be trained - including actual operation - & know the safety rules & regulations for the job site. It is a safety practice to point out & explain safety signs & practices to others & to make sure they understand the importance of following these instructions.

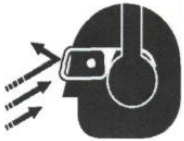
Be Safe

Human error is the result of many factors: carelessness, fatigue, sensory overload, preoccupation, unfamiliarity with the machine or attachments, or drugs or alcohol, to name a few. You can avoid serious injury or death caused by these & other unsafe work practices. Be safe and never assume accidents cannot happen to you.

For your safety and the safety of others, act safely and encourage your fellow workers to act safely as well.



Read and understand operator's manual before using this machine. Failure to follow operating Instructions could result in injury or damage to equipment.



Flying debris and loud noise hazards. Wear ear and eye protection



Engine exhaust contains poisonous carbon monoxide gas. Breathing it could cause death. Operate machine in well ventilated area.



Rotating chain hazard. Keep hands and feet away.



Wear safety boots when operating this machine



Wear appropriate clothing



Wear Head Protection, breathing protection, and the use of hearing protection is mandatory



Wear hand protection



Wear proper electrostatic grounding equipment at all times.



SAFETY INSTRUCTIONS

4.0 SAFETY INSTRUCTIONS

4.1 KNOW THE RULES & YOUR EQUIPMENT.

Most job sites have rules governing equipment use & maintenance. Before starting at a new work location, check with the supervisor or safety coordinator. Ask about any rules or regulations you need to abide.

OSHA enforces federal laws within the United States that apply to the safe operation, application, & maintenance of equipment on job sites. It is the employer's responsibility to comply with these laws.

Do not operate this machine unless you have read the operations and maintenance manual carefully.

4.2 RECEIVE PROPER TRAINING.

Do not operate this machine unless you have received operational and maintenance training from a U.S.SAWS representative or from an authorized distributor for U.S.SAWS.

4.3 PROTECT YOUR FEET.

Observe all applicable local, state and federal safety regulations. Wear OSHA approved foot protection.

4.4 PROTECT YOUR EYES.

Observe all applicable local, state and federal safety regulations. Wear OSHA approved safety glasses.

4.5 PROTECT YOUR LUNGS.

Breathable silica may be generated by use of this product. Silica can cause severe and permanent lung damage, cancer, and other serious diseases. Do not breathe the dust. Do not rely on your sight or smell to determine if the dust is in the air. Silica may be in the air without a visible dust cloud. If air monitoring equipment for silica is not provided by your employer at your work site, you **MUST** wear appropriate respiratory protection when using or servicing the machine. Consult your employer and OSHA regarding the appropriate respiratory protection.

4.6 PROTECT YOUR HEARING.

Observe all applicable local, state and federal safety regulations. Wear OSHA approved hearing protection.

4.7 DRESS PROPERLY.

Do not wear loose clothing or jewelry that can be caught in moving parts. Wear protective hair covering to contain long hair. Keep hair away from motor air vent. Rubber gloves and non-skid footwear are recommended when working outdoors.

4.8 AVOID A DANGEROUS ENVIRONMENT.

Do not expose machine to rain. Do not use machine in wet conditions. Water entering a power tool will increase the risk of electric shock. Keep work area well lit. When working at an elevated location, pay attention to articles and persons below. If operating the power tool in damp locations is unavoidable, use a Ground Fault Circuit Interrupter (GFCI) protected supply. Use of an GFCI reduce the risk of electric shock.

4.9 AVOID ANY AREAS OR ACTIONS THAT EXPOSE YOU TO CARBON MONOXIDE.

Do not operate in areas where exhaust fumes could accumulate without wearing appropriate respiratory protection. Consult your employer and OSHA regarding use of appropriate respirator for dangerous carbon monoxide gases.

4.10 KEEP WORK AREA CLEAN. DO NOT RUN OVER ANYTHING.

Loose objects could be thrown from crack. Make sure area to be cut is clear from people and any loose objects, nuts, bolts, etc. Never run over any loose objects.

4.11 KEEP CHILDREN AND VISITORS AWAY.

Do not allow anyone to stand in line with the cut path. Do not let children or visitors contact machine or extension cord. Keep children and visitors away from the work area.

4.12 KEEP FIRM GRIP ON MACHINE.

During normal operation as instructed in Section 6.0, keep a firm hold on the handle grips and maintain control of the machine until the chain completely stops.

4.13 SHUT OFF MACHINE.

When not in use, before servicing and when changing accessories shut off motor. Release the lever switch and move the on/off switch to the OFF position. Move the fuel valve lever to the OFF position.

4.14 STORE IDLE EQUIPMENT.

The machine and tools should be stored in a dry and secure location when not in use. Keep equipment out of reach of children.

4.15 OBTAIN MATERIAL SAFETY DATA SHEET (MSDS) FOR ALL WORK SURFACE MATERIALS.

This includes primers, all coatings, adhesives, tile and crack filling materials, etc. Do not attempt to cut, clean out or remove material without MSDS information. Consult MSDS sheet for hazards information. Be aware that some materials are explosive as a dust.

4.16 DO NOT OVERREACH.

Keep proper footing and balance at all times.

4.17 MAINTAIN MACHINE WITH CARE.

Keep machine clean and follow maintenance procedures for better and safer performance. Keep handles dry, clean, and free from oil and grease. Follow instructions for lubricating and changing accessories.

4.18 REMOVE ADJUSTING TOOLS.

Form a habit of checking to see that tools such as adjusting wrenches are removed from the machine and properly stored before starting the motor.

4.19 STAY ALERT.

Watch what you are doing. Use common sense. Do not operate machine when you are tired or fatigued.



SAFETY INSTRUCTIONS

4.20 DO NOT USE DRUGS, ALCOHOL, MEDICATION.

Do not operate machine while under the influence of drugs, alcohol, or any medication.

4.21 KEEP THE RIGHT PARTS IN THE RIGHT POSITIONS.

Do not operate machine with parts missing or improperly mounted.

4.22 CHECK DAMAGED PARTS.

Verify all parts are in good condition and will function properly before using the machine. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect machine operation. Do not operate machine if lever or motor on/off switch does not function properly.

4.23 SECURELY MOUNT ACCESSORIES TO THE MACHINE.

Extra care must be taken on elevated location to prevent injury to someone on a lower level in the event the tool or accessory should drop. Do not operate without fall protection for operator and debris protection for public.

4.24 NEVER TOUCH THE MOVING PARTS.

Never touch moving parts such as chains, belts and others.

4.25 STOP OPERATION IMMEDIATELY IF ANY ABNORMALITY IS DETECTED.

Stop using machine immediately if any abnormalities are observed during operation. Examples of abnormalities include unusual noise and vibration.

4.26 WHEN REPLACING A PART, USE THE SAME TYPE AND QUALITY.

When replacing a component part with a new one, use only the same type and quality of new part. Never attempt to repair a machine if you are unfamiliar with proper procedures and techniques required.

4.27 LOAD AND UNLOAD SAFELY.

Use proper heavy lifting procedures. Read & understand manuals before loading & unloading.

4.28 SAVE THESE INSTRUCTIONS.

Refer to this operations and maintenance manual as well as any additional instructions included from other manufacturers and organizations such as the Masonry and Concrete Saw Manufacturers Institute®. Never permit anyone to operate the machine without proper instructions.



DUST WARNING

Cutting, especially when DRY cutting, generates dust that comes from the material being cut, which frequently contains silica.

Silica is a basic component of sand, quartz, brick clay, granite and numerous other minerals and rocks. Exposure to excessive amount of such dust can cause:

- Respiratory diseases (affecting your ability to breath), including chronic bronchitis, silicosis and pulmonary fibrosis from exposure to silica. These diseases may be fatal;
 - Skin irritation and rash; and
 - Cancer according to NTP* and IARC*
- * National Toxicology Program, International Agency for Research on Cancer

Take precautionary steps

- Avoid inhalation of and skin contact with dust, mist and fumes;
- Wet cut when feasible, to minimize dust;
- Wear and ensure that all bystanders wear appropriate respiratory protection such as dust masks designed to filter out microscopic particles. (See OSHA 29 CFR Part 1910.1200)

California Prop 65 Warning: Use of this product can cause exposure to materials known to the State of California to cause cancer and/or birth defects or other reproductive harm.



PRE-OPERATION CHECKLIST

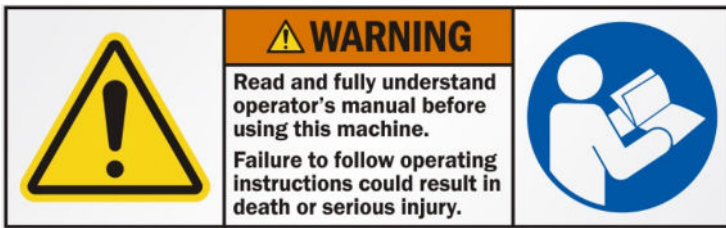
5.0 PRE-OPERATION CHECKLIST



Read and understand operator's manual before using this machine. Failure to follow operating instructions could result in injury or damage to equipment.

Figure 3 - Warning label - read and understand manual

5.1 Start by reading the entire Air Powered Chain Saw operations and maintenance manual. Get familiar with the machine's parts.



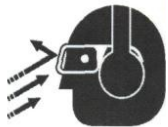
TO PREVENT SERIOUS INJURY DO NOT OPERATE SAW WITHOUT PROPER TRAINING AND UNDERSTANDING OF THE OWNERS MANUAL WHEN OPERATING THIS MACHINE



Rotating chain hazard. Keep hands and feet away.



Wear Head Protection, breathing protection, and the use of hearing protection is mandatory



Flying debris and loud noise hazards. Wear ear and eye protection



Wear hand protection



Wear proper electrostatic grounding equipment at all times.

5.2 Observe the condition of your work environment. Walk over area work area and look for hazards. Make sure the work environment is safe and meets all safe-working conditions discussed in section 4, Rules for safer operation.

5.3 Obtain SAFETY DATA SHEET (SDS) for all work surface materials. This includes primers, all coatings, adhesives, tile and crack filling materials, etc. Do not attempt to cut, clean out, or remove material without SDS information. Consult SDS sheet for health hazards information. Be aware that some materials are explosive as a dust

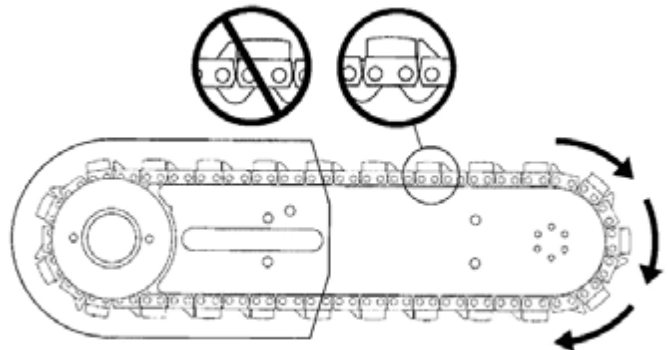


WARNING: Chain breakage can result in high-speed ejection of parts, which can result in death or serious personal injury to operators or bystanders. The items listed below are critical to minimizing the risk of chain breakage and injury.

5.4 DO NOT operate a diamond chain saw with damaged, modified, broken, or missing side cover, bottom guard flap. The side cover, bottom guard, and guard flap provide protection against contact with moving parts, ejected debris, broken chain, thrown water and concrete slurry.

5.5 DO NOT operate a saw with loose, missing, damaged, or improperly repaired parts.

5.6 DO NOT install or run the chain backwards. The bumper must lead the segment into the cut. (Applies to concrete chains only.)



5.7 DO NOT insert a diamond chain saw into a slot narrower than the chain segments. Rapid push back might occur. Reference: Most diamond segments are .225 inches (5.72 mm) wide.

5.8 DO NOT use damaged, modified or improperly repaired chain.

5.9 DO NOT run a diamond chain saw upside-down. Concrete debris can fly back into the operator's face.

5.10 DO NOT cut ductile iron pipe with concrete chain. Segment loss or diamond chain breakage may occur.

5.11 DO NOT cut concrete with ductile iron chain. Segment loss or diamond chain breakage may occur.



PRE-OPERATION CHECKLIST

Guide Bar and Diamond Chain Installation

5.12 STEP 1: Loosen side cover nut and remove side cover.

5.13 STEP 2: Place bar onto saw chassis and ensure the bar sits over bar spacers on stud bolts.



5.14 STEP 3: Mount the diamond chain on the guide bar starting at the drive sprocket and continue over the guide bar nose.



5.15 STEP 4: Install the side cover and ensure chain adjustment pin engages hole in bar. Do not fully tighten side cover until after chain is properly tensioned.



5.16 STEP 5: Make sure all the drive links are inside the guide bar groove then lift the bar nose and tension the chain by turning the screw clockwise.

5.17 STEP 6: Before cutting, check for proper tension by pulling the chain around the bar by hand. If you cannot easily pull by hand, the chain is too tight and needs to be loosened slightly.



CAUTION: Be aware that the guide bar rails may develop sharp edges over time so always pull the diamond chain by the diamond segments.

5.18 STEP 7: Before cutting, check for proper tension by pulling the chain around the bar by hand. If you cannot easily pull by hand, the chain is too tight and needs to be loosened slightly.



5.19 STEP 8: Continue to lift up on the nose of the guide bar and firmly tighten the side cover nut.

NOTE: To prevent chain tensioner breakage, be sure the side cover nut is tightened to approximately 20-25 ft-lbs



5.20 STEP 9: Attach to water source with pressure not less than 20 psi.

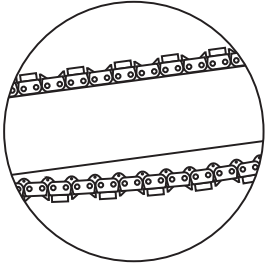


PRE-OPERATION CHECKLIST

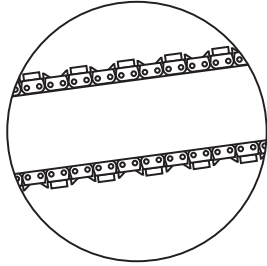
PROPER CHAIN TENSION

5.21 HOW TO CHECK

Before cutting, check for proper tension by pulling the chain around the bar by hand. If you cannot easily pull by hand, the chain is too tight and needs to be loosened.



CHAIN
TOO LOOSE



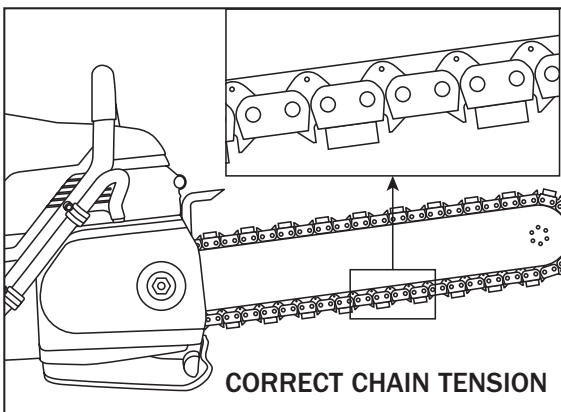
CHAIN
TOO TIGHT

5.22 CHAIN TOO LOOSE

If the chain is too loose, it could come off the bar, or it will allow the drive sprocket to spin without turning the chain which can damage drive links. When a chain stretches to a point where the drive links are hanging approximately 1/2 in (12mm) to 3/4 in (18mm) below the bar, it is time to replace the chain even if there seems to be usable segment left. The chain typically determines life rather than the segments wear.

5.23 CHAIN TOO TIGHT

If the chain is too tight, much of the saw's power goes into turning the chain rather than into the cut. In extreme over-tightened cases, the saw may not be able to turn the chain at all. In addition, damage can occur to the bar nose and premature chain stretch may occur.



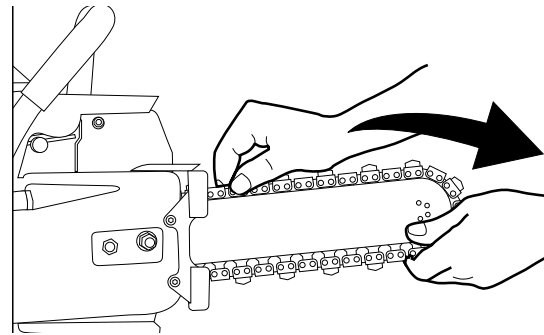
WARNING: Never attempt to shorten chain by removing links. This is not an option for extending tool life.



CAUTION: A properly tensioned chain will optimize cutting performance. The tensioning rule of thumb for a concrete cutting chain saw is that a properly tensioned chain must be bowstring tight and can be pulled freely around the guide bar by hand easily without binding.

5.24 WHEN TO TENSION

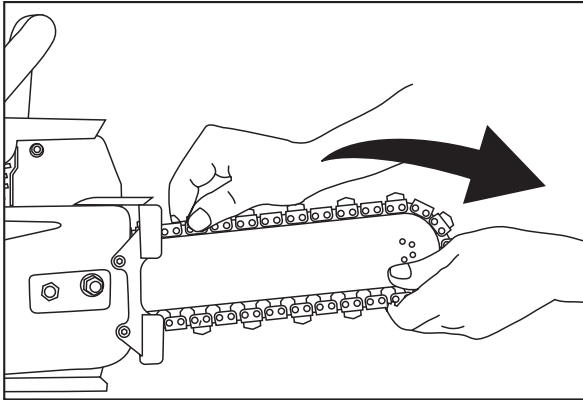
All chains have a tendency to stretch when used. Diamond chains stretch more than wood cutting chains because of the abrasive materials they are cutting. When a chain stretches to a point where the drive links are hanging approximately 1/2 inch to 3/4 inch below the bar, it's time to tension the chain.



PRE-OPERATION CHECKLIST

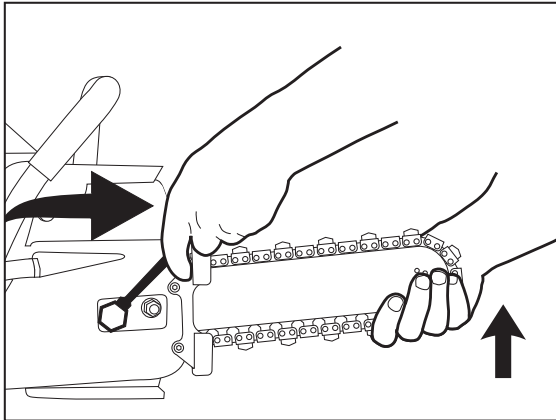
5.25 HOW TO TENSION

To tension the chain, first loosen the side cover nuts, then while holding the nose of the bar up, use a screwdriver to turn the tensioning screw clockwise until the chain drive links hanging below the bar are just beginning to enter the bar groove. Continue to hold up on the nose of the bar and firmly tighten the side cover nuts. And remember, it's the side cover nuts that hold the bar in position.

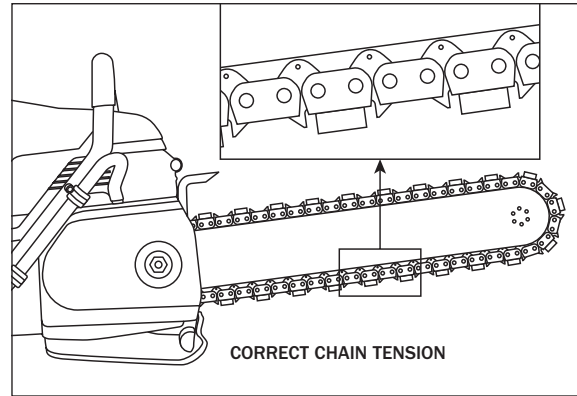


5.26 HOW TO PREVENT CHAIN TENSIONER BREAKAGE

Do not attempt to adjust the tensioner without first loosening the side cover nuts. Do not use the saw without making sure the side cover nuts are tight. If side cover nuts are not tight, the bar can slip backwards during cutting and break the tensioner pin.



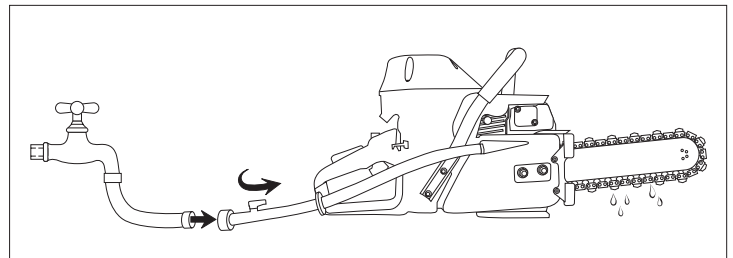
5.27 Concrete and ductile iron cutting chain saws operate with looser chain tension than wood chain saws. It is common, especially on gas powered, concrete cutting chain saws to have the drive links hang completely out of the bar. Wood cutting chain saws use oil to lubricate the chain. The oil makes the chain very slippery and allows the drive links to fully nest between the teeth of the drive sprocket. Concrete and ductile iron cutting chain saws require water for cooling and flushing the cut. Water is not as good as oil as a lubricant. Also, there is debris mixed in with the water. As a result, sometimes the drive links do not nest properly on the drive sprocket. When this happens, the chain acts like it got tighter. There seems to be tight spots and loose spots as you pull the chain around the



bar. If you tension when the chain is in one of the loose spots, it will be too tight at some point in its rotation around the bar. Rotating the chain completely around the bar by hand will let you know you have the chain properly tensioned.

5.28 ADDITIONAL TIPS

1. To reduce chain stretch and tensioning downtime, a minimum water supply should be used:
 - For ductile applications, a pump sprayer is sufficient.
 - For concrete applications us 20 psi or greater water pressure.
2. Oil the chain at the end of the day to prevent rust but be careful not to over tension in this condition.
3. When pulling the chain around the bar by hand, be careful not to touch the bar with thumb or forefinger. The bar rails can be very sharp. Grab only the diamond segments to pull the chain.
4. Always turn the engine off before tensioning the chain.



PRE-OPERATION CHECKLIST

5.29 PIPE CLAMP MOUNTING INSTRUCTIONS

5.29.1 Assess pipe and area to cut. Ensure the chain saw will pass freely around any objects in and around the path of the cut. (ie: power lines, telecommunication lines, rocks, tools, etc.) Ideally the pipe clamp should be mounted in a position that allows the locking pliers to be on the top side of the pipe. This will allow for easier clamping. U.S.SAWS recommends a bottom up cutting process. This allows two safety functions.



5.29.2 With a bottom cut, a pipe will not sag in a fashion that will pinch the bar. A top cut could cause pinching as a pipe sags. The saw will be pulled through the cut by the operator and the bar will swing away from the operators position. If the tool is pushed (downward cut) the saw swings towards the operator.



5.29.3 Mount the receiver at a 10 o'clock position. This will allow the saw to hang in a near vertical orientation.

5.29.4 Slide mounting pin on the saw (see pin installation instructions) into receiver and install retainer clip.

5.29.5 Clear the area of loose debris that could get caught in the chain.

5.29.6 Use the saw according to operating instructions. Light pressure applied to the handles is all that is required. Do not use levers, hang, or try to increase leverage on the tool. In some cases stopping your cut just before completion and leaving a tab allows greater stability while making cuts down-line.



5.29.7 Finish final cut freehand from the top to complete removal of section.

5.30 RECEIVER PIN MOUNTING INSTRUCTIONS

5.30.1 Remove the rear bar stud nut.

5.30.2 Install pin on rear bar stud.

5.30.3 The inner thread of the pin will take the place of the nut.

5.30.4 In certain applications (larger than 10" pipe) the mounting pin may need to be relocated to the front bar stud for greater saw clearance.

5.30.5 Ensure the chain is adjusted according to the chain tensioning guide.



WARNING: Read and understand instructions provided with the saw and/or pipe clamp before using this device. Use caution not to drop saw or strike mounting pin as damage to the chain tensioning mechanism can occur.



OPERATION

⚠ WARNING

WARNING: Never start a diamond chain saw without the bar, chain and side cover properly assembled. Failure to do so may result in serious injury.

⚠ CAUTION

CAUTION: Always check hose connections before turning on air compressor.

⚠ CAUTION

CAUTION: Hold saw with both hands and ensure the chain is not contacting any objects.

6.0 PRECUT CHECKLIST

- 6.0.1** Ensure Proper Chain Installation: Concrete chains should lead with the bumper segment into the cut. Ductile chains can be mounted in either direction.
- 6.0.2** Ensure Proper Chain Tension: The chain should be tight but easily pulled around the bar by hand.
- 6.0.3** Ensure all safety devices are properly mounted and functional. Ensure all controls are in working order.
- 6.0.4** Be sure there are no obstructions (plumbing, electrical conduit, air ducts, etc.) and no unnecessary people present.
- 6.0.5** Always wear protective clothing, including hard hat, eye protection, hearing protection, non-slip safety boots, and gloves. Avoid wearing loose fitting clothing.
- 6.0.6** Use Adequate Water Supply and Pressure:
 - Minimum Flow: 1gpm
 - Recommended Water Pressure: 20psi
- 6.0.7** Use Proper Air Supply:
 - Minimum PSI : 90
 - Minimum CFM: 90
- 6.0.8** Blow the air supply line clear before connecting to the saw.
- 6.0.9** Check oil level; if necessary, re-fill oiler with ice-free air tool oil.
- 6.0.10** The chain should travel away from the operator on the top side of the bar during operation.



⚠ CAUTION

CAUTION: The single most important factor an operator can control to increase chain life is to use adequate water pressure. Insufficient water supply will result in excessive wear to the chain which can lead to loss of strength and chain breakage and/or damage to the guide bar nose sprocket.

6.1 PLANNING THE CUT

- 6.1.1** Select the proper chain type for the material being cut.
- 6.1.2** Outline the cut with a permanent marker for a visual cutting edge.
- 6.1.3** Avoid pinching the guide bar and chain. Always cut the bottom of an opening first, then top, and then the sides. Save the easiest cut for last.
- 6.1.4** For the straightest cuts in concrete use the “Step Cut” method. First, score the entire cut line approximately a half-inch deep using the nose of the bar. Next, deepen the cut by about two inches. Then, plunge all the way through and complete the cut.
- 6.1.5** For the straightest cuts in pipe cutting applications cut from the bottom up using the Pipe Clamp.
- 6.1.6** Be sure that cut material cannot fall and injure operator or bystanders.
- 6.1.7** Check for live electrical wiring near the cut or in the concrete to avoid electrocution.
- 6.1.8** Check for and remove all obstructions (plumbing, electrical conduit, air ducts, etc.) that may interfere with the cut.

⚠ WARNING

WARNING: Before cutting, make sure the pipe is in a safe condition to be cut. Support the piece you are going to be cutting in such a way that the cut will remain open during the cut and when the cut is finished. Pinching the chain during the cut could cause chain breakage and could result in death or serious injury to the operator.

⚠ WARNING

If using the pipe clamp accessory, the clamp must be attached in such a way that it does not move during the cutting operation and/or when the cut is finished. Unexpected movement of the clamp could cause the operator to lose control of the saw resulting in death or serious injury.

With the saw engaged in any surface the operator should be aware that the forces generated by the tool can force debris to be ejected from the moving chain either away from the saw or towards the operator. Ensure no bystander is located immediately in front of or behind the material being cut.

6.2 MAKING THE CUT

- 6.2.1** All concrete pipe cutting chain saws are considered specialty tools. The overall cutting speed is slower than some other types of cutting equipment. For this reason the correct time allocation should be made so that the operator has time to make the cut at a safe pace and not have to force the saw to try and increase production. Forcing the saw creates unneeded wear on chains, bars, and drive components. Additionally, long periods of exertion can cause operator fatigue which can increase the likelihood of injury.



OPERATION

When using the saw in a hand held fashion a slow rocking motion will provide the best cutting action. Alternating pressure from the front of the cut to the rear of the cut offers reliable results.

The saw will cut slower when cutting through rebar and other reinforced materials. Allow the saw to run at full speed and use light pressure. Pushing hard on the tool only increases chain wear and stretching force adding to wear and increasing the cost per cut.

6.2.2 When cutting ensure that the water supply is sufficient for the cut being made.

1. Connect all fittings (Air, Hydraulic, Water).
2. Turn on power supply.
3. Turn on water valve on the saw.
4. Once water is running through the bar apply and hold full throttle to begin cut.
5. Use full throttle for the entire cut. Feathering the throttle makes the saw difficult to control.

6.2.3 SLOW CHAIN SPEED

Be sure the compressor is providing the correct air pressure, 90 psi, and cubic feet per minute, 90 cfm. These are the minimum requirements; ideal performance can be achieved at higher volume.

6.2.4 POOR CUTTING PERFORMANCE

Diamonds may be "glazed over". Make a few cuts in abrasive material such as cinder block to expose diamonds. In the case of the pipe cutting chain, the segment does not wear away. However, the diamonds will wear away leaving a smooth surface.

6.2.5 PREMATURE CHAIN STRETCH

Not enough water pressure. The recommended water pressure is 20 psi. Do not force the chain. Extra force will cause the chain to stretch faster.

6.2.6 CHAIN TENSIONER BREAKAGE

Side cover nuts are not tight enough.

6.2.7 WATER NOT FLOWING

Water hose is kinked, blockage in guide bar water ports, or water supply is not turned on.

6.2.8 MOTOR DOES NOT START

Insufficient air supply. Check compressor and air hose, valves, and air inlet screen for blockage.

6.3 MAINTENANCE

Only proper maintenance can ensure consistent saw performance, reduction of wear, and thus, a reduction in operation costs and an increase in service life.

6.3.1 Service life and performance of the chain saw are determined by:

1. Degree of air purity
2. Lubrication
3. Maintenance

6.3.2 SYSTEM CLEAN-UP

1. Run saw, with water on, for 15 seconds out of cut to flush slurry and/or debris from chain, bar, and drive.
2. Wash concrete slurry, cutting debris, and/or ductile shavings from saw assembly.
3. Remove bar and chain. Flush out chain tensioner assembly location with high water pressure, then lube with grease.
4. Clean all air fittings on saw and compressor.
5. When finished cleaning saw, spray entire saw, chain, bar, and drive sprocket with a light weight penetrating oil (ie: WD40). This will minimize rust and reduce build-up on saw assembly.

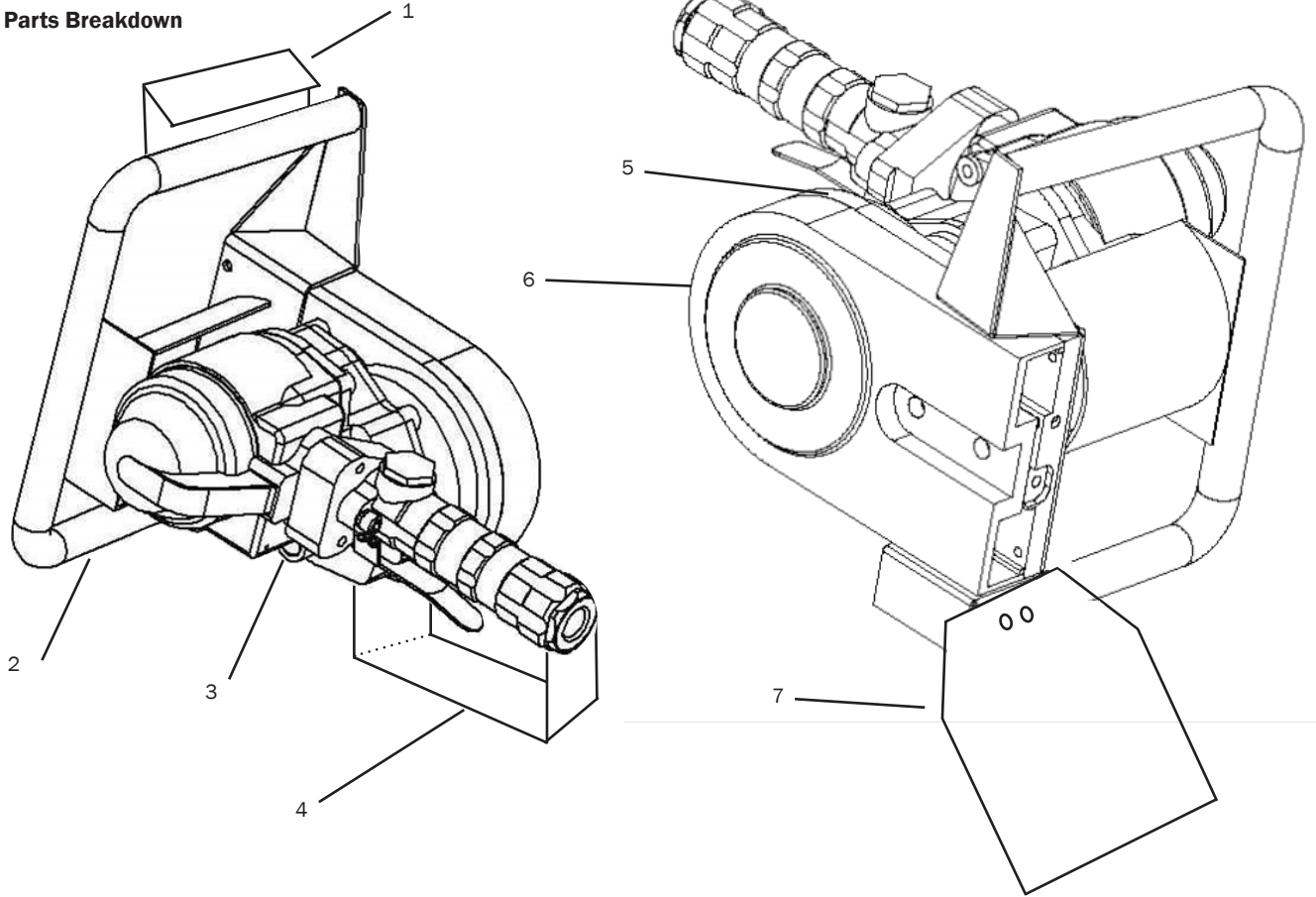
6.3.3 LUBRICATION

For every 50 hours of operation the motor will need to be greased. There is a grease fitting on the motor. It will need 2 pumps of standard bearing grease.



PARTS BREAKDOWN

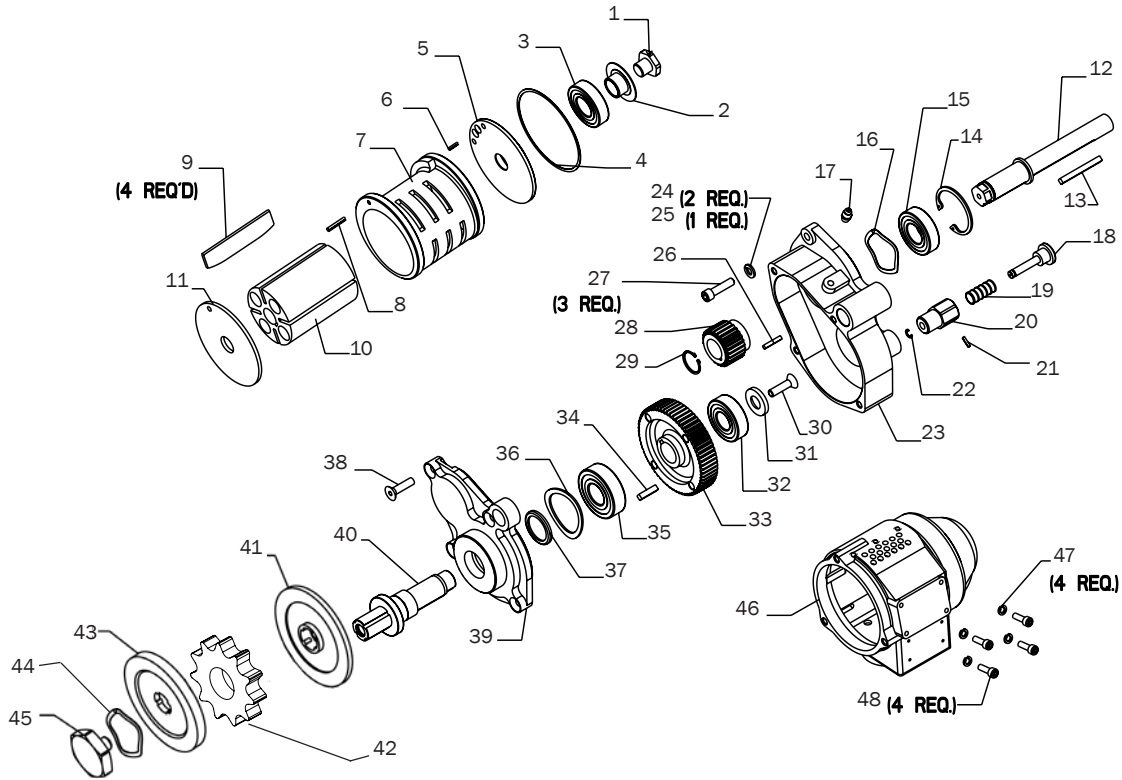
7.0 Parts Breakdown



Ref. Number	Part Number	Description	Note
1	US60510C	Hand Guard	
2	US60466-3	Handle	
3	US60466-5A	Handle Spacer	
4	US60134	Trigger Guard	
5	US60466-1	Chain Chassis	
6	US60466-2	Chain Cover	
7	US60523	Flap	
Not Shown			
8	US60466-8	Adjustment Pin	
9	US60466-12	Pin Washer	
10	US60466-11	E - Clip	
11	US60466-7	Adjust Bolt	
12	US60530	Stud Bolt	2 Required
13	US60531	Stud Nut	2 Required
14	US60466-6	Bar Spacer	2 Required



PARTS BREAKDOWN



Ref. Number	Part Number	Description	Note
1	02-70117	Bearing Cover/Spacer	
2	02-70118	Governor End Bolt	
3	02-70070	Bearing	
4	02-65013C	Gasket	
5	02-70116	Rear Bearing Retainer	
6	02-40044A	Roll Pin - Short	
7	02-70011L	Cylinder - Left Rotation	
8	02-70037	Roll Pin - Long	
9	02-70013	Vane	4 Required
10	02-70012	Rotor	
11	02-70010	Outer Thrust Plate	
12	02-6618B	Motor Shaft	
13	02-70015	Key - Motor Shaft	
14	02-55021	Bearing Retainer Clip	
15	02-70070	Bearing (no longer in use)	
16	02-66214	Spring Washer	
17	02-66126	Grease Nipple	
18	02-66178	Knob - Shaft(Spindle Lock)	Items 18-22 Assy 02- 66139



PARTS BREAKDOWN

19	02-60051	Spring - Spindle Lock	
20	02-66177	Spindle Lock Housing	
21	02-40044A	Roll Pin - Short	
22	02-59202	Lock Clip	
23	02-66201	Gearbox Housing	
24	02-70046	1/4 Lock Washer	2 Required
25	02-70046A	Hi-Cap Lockwasher 1/4	
26	02-66113	Key - Small Gear	
27	02-70047	Gear Box Housing Cap Screw	3 Required
28	02-66150	Low Speed Input Gear	
29	02-59261	C-Clip (Gear Retainer)	
30	02-66129	Gear Retaining Screw	
31	02-66128	Cone Washer	
32	02-66290	Gearbox Inner Bearing	
33	02-66270	Large Output Gear	
34	02-66112	Key Large Gear	
35	02-66211	Gearbox Outer Bearing	
36	02-66124	Spring Washer	
37	02-66123	Gearbox Outer Seal	
38	02-59114	Screw - Cover Mounting	
39	02-66230	Gearbox Outer Cover	
40	02-66147CS	Gearbox Output Shaft	
41	02-66146	Inner Flange	
42	US60466-13	Drive Sprocket	
43	02-66145	Outer Flange	
44	05-69003.2	7/8"x14 Gauge AVM Spacer	
45	02-66148	Flange Bolt	
46	02-66015	Motor Housing	
47	US31062	Hi-Cap Lockwasher #10	4 Required
48	02-55048	#10 - 24 x 5/8	4 Required



WARRANTY AND SERVICE

8.0 WARRANTY AND SERVICE

8.1.1 Warranty

This document is to be used as a guide in determining warranty policies and procedures for U.S.SAWS and its U.S.SAWS products. It is to be used in determining whether a warranty is justified and as a procedural guide in completing a U.S.SAWS warranty claim form.

8.1.2 Warranty Responsibility

The distributor or the end user must prepare a Machine Warranty Information Card when the machine is delivered. Failure to comply will make any and all warranties on this equipment null and void. Credit for warranty repairs will be given only after receipt of the WARRANTY CLAIM FORM, properly completed with all the required details. Submittal details are described later in this document.

8.1.3 Warranty Policy

8.1.3.1 U.S.SAWS warrants its U.S.SAWS products against defects in material and workmanship under normal and proper use for a period of one year (365) days from the date of delivery; in the case of Rental Fleet Machines, date of assignment to Rental Fleet. Such warranty is extended only to the buyer who purchases the equipment directly from U.S.SAWS or its authorized distributor. This warranty does not include expendable parts such as, but not limited to, plugs, cutters, blades, blast wheel, wear parts, liners and seals.

8.1.3.2 The obligation under this warranty is strictly limited to the replacement or repair, at US SAWS's option, of machines and does not include the cost of transportation, loss of operating time, or normal maintenance services.

8.1.3.3 This warranty does not apply to failure occurring as a result of abuse, misuse, negligence, corrosion, erosion, normal wear and tear, alterations or modifications made to the machine without express written consent of U.S.SAWS .

8.1.3.4 Warranty request must be submitted in writing within thirty (30) days after failure.

8.1.3.5 Written authorization to return merchandise under warranty must first be obtained from U.S.SAWS .

8.1.3.6 U.S.SAWS reserves the right to inspect and make the final decision on any merchandise returned under warranty.

8.1.3.7 U.S.SAWS offers no warranty with respect to accessories, including but not limited to, engines, motors, batteries, electrical boards, tires and any other parts not manufactured by us but which the original manufacturer warrants.

8.1.3.8 U.S.SAWS reserves the right to make product changes or improvements without prior notice and without imposing any obligation upon itself to install the same on its products previously sold.

8.1.3.9 The above warranty conditions can only be altered by US SAWS. US SAWS must confirm alterations in writing for each specific transaction.

8.1.3.10 U.S.SAWS reserves the right to establish specific warranty terms for used or demo machines on an individual transaction basis. Invoices covering such merchandise will clearly state the provisions of the applicable warranty for each specific transaction.

8.1.3.11 WE DO NOT AUTHORIZE ANY PERSON, REPRESENTATIVE OR SERVICE OR SALES ORGANIZATION TO MAKE ANY OTHER WARRANTY OR TO ASSUME FOR US ANY LIABILITY IN CONNECTION WITH THE SALE OF OUR PRODUCTS OTHER THAN THOSE CONTAINED HEREIN.

8.1.3.12 UNDER NO CIRCUMSTANCES SHALL US SAWS BE LIABLE TO CUSTOMER OR ANY OTHER PERSON FOR ANY DIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT OR ARISING OUT OF ANY BREACH OF ANY WARRANTY OR FOR ANY SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER, INCLUDING WITHOUT LIMITATIONS, DAMAGES FOR ANY LOSS OF GOODWILL, WORK STOPPAGE, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES.

8.1.3.13 U.S.SAWS MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE US SAWS PRODUCTS SOLD PURSUANT THERETO.



WARRANTY AND SERVICE

TO ENSURE THE PROPER WARRANTY COVERAGE IS EXTENDED TO THE OWNER OF THIS MACHINE, FILL OUT THE ATTACHED CARD COMPLETELY AND ACCURATELY.

WARRANTY REGISTRATION CARD

IMPORTANT! To ensure that your U.S.SAWS machine is covered under warranty, please fill in the following information and mail or fax it to U.S.SAWS, 8004B E. Broadway Ave. Tampa, FL 33619, Fax No. 714-434-7299

COMPANY
NAME
ADDRESS
INTENDED USE
DATE OF PURCHASE
INTENDED USE
SERIAL NUMBER

If you are not the owner of record as shown on the manual copy of the warranty registration card, do not operate this machine before contacting U.S.SAWS at 1-866-987-7297 Verify the following before operating the equipment:

CHANGE OF OWNER OR NEW ADDRESS REGISTRATION CARD

IMPORTANT! To ensure that your U.S.SAWS machine is covered under warranty, please fill in the following information and mail or fax it to U.S. SAWS, 8004B E. Broadway Ave. Tampa, FL 33619, Fax No. 714-434-7299

COMPANY
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SERIAL NUMBER

17

