



CUTTERS EDGE Ventilation Saws

**CE-670-FDV SERIES
AND
GUARD/DEPTH GAUGE SERIES
CE-670-FDV/D6
CE-670-FDV/D8**



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Cutters Edge Ventilation Saws

Operation & Maintenance

CUTTERS EDGE

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Operation & Maintenance

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CUTTERS EDGE VENTILATION SAWS OPERATION & TRAINING MANUAL

Edge Industries, Inc.

The purpose of ventilation is the establishment of a safer interior environment through planned and systematic removal of heat, smoke, and toxic gases and their replacement with fresh air. It is an offensive technique that, when accomplished early and effectively, can speed tactical operations.

As fire develops within a structure, several conditions result. First, the temperature and toxicity of the atmosphere increase rapidly. Then radiated and convected heat result in flashover and the subsequent rapid spread of fire throughout the structure. Without ventilation, the fire will develop a super-heated, oxygen-deficient, and fuel-rich environment ripe for backdraft.

Firefighters can minimize these conditions with proper ventilation techniques and proper tools. Knowledge, training and Cutters Edge Ventilation Saws are the proper tools.

Cutters Edge Ventilation Saws are designed and built exclusively for use by TRAINED FIREFIGHTERS. Although Cutters Edge Ventilation Saws are built around a chain saw power head and essentially are a modified chain saw, their use and applications differ substantially. This manual is provided to assist you in learning the safe and proper set-up, operation and maintenance of your new Cutters Edge Ventilation Saw. However, you should not attempt to use this tool without knowledge of the safe and proper application of ventilation saws in fighting fires. Cutters Edge recommends that you view the video edition of this training manual that further illustrates these steps and techniques. This manual is in no way intended to replace the enclosed chainsaw manuals, rather it should be used as a supplemental manual dealing with the specific applications of this specialized tool. Nor are the guidelines for operational procedures described herein intended to contradict the standard operating procedures (SOP) of your individual fire department.

For more information about the principles and techniques of ventilation, we recommend the book "VENTILATION METHODS AND TECHNIQUES", by Los Angeles City Fire Department Battalion Chief John Mittendorf. There are order forms for both the video and Chief Mittendorf's book at the back of this manual.

This manual will take you through each step of assembling the saw when you receive it, how to properly operate the saw, and how to clean and maintain the saw after use.

Before attempting to assemble or use your saw, we strongly suggest that you view the optional video completely and read the manual completely. Then carefully follow the instructions in this manual as you proceed to prepare your Cutters Edge Ventilation Saw for use.



WARNING



Please take note of the warnings in this manual and the warning labels attached to the various parts of the saw and its accessories. Read these warnings and heed their advise. Failure to do so could result in injury to you and/or damage to the saw. Any warranties provided by the manufacturer will not cover abuse, neglect or mishandling of the saw.



WARNING

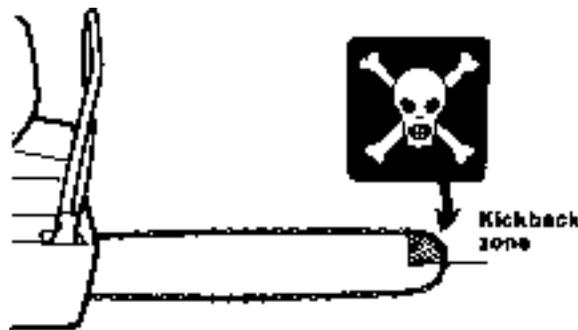
Beware of kickback!



There are two types of kickback that can be encountered with the improper use of a chainsaw or the Cutters Edge Ventilation Saw. Both types are the result of an equal and opposite reaction that occurs when the chain is suddenly stopped. This kickback movement is so fast that the operator cannot react quickly enough to avoid serious injury.

ROTATIONAL KICKBACK is the violent reaction which occurs when the chain at the upper section of the nose is suddenly stopped, thereby dangerously driving the bar nose in an upward arc towards the operator.

LINEAR KICKBACK is a push reaction, which can occur with the saw blade buried in the cut when the cut closes, pinching the chain along the top rails of the bar.



KICKBACK MAY OCCUR WHEN:

The upper section of the nose or tip of the guide bar touches an object. The wood closes in and pinches the saw chain in the cut.

Tip contact in some cases may cause a lightning-fast reverse reaction, kicking the guide bar up and back towards the operator. Pinching the chain along the top of the guide bar may push the saw rapidly back towards the operator. Either of these reactions may cause you to lose control of the saw, which could result in serious personal injury.

Cutters Edge builds several safety devices into their saws, but you should not rely exclusively upon these safety devices. As a ventilation saw user, you should take several steps to keep your cutting jobs free from accident or injury:

- 1) With a basic understanding of kickback, you can reduce or eliminate the element of surprise. Sudden surprise contributes to accidents.
- 2) Keep a good firm grip on the saw with both hands when the engine is running. Use a firm grip with thumbs and fingers encircling the chainsaw handles. A firm grip will help you reduce kickback and maintain control of the saw. Don't let go.
- 3) Make sure that the area in which you are cutting is free from obstructions. Do not let the kick-back zone of the guide bar contact any obstructions while you are operating the saw.
- 4) For ventilation cutting, always cut at full RPMs.
- 5) Do not overreach or cut above shoulder height
- 6) Follow manufacturer's sharpening and maintenance instructions for the saw chain.
- 7) Only use replacement bars and chains specified by the manufacturer or the equivalent.

YOUR CUTTERS EDGE VENTILATION SAW

When you receive your Cutters Edge Ventilation Saw, check that all of the following are included in the box:

Power Head

Loop of Fire Department Style Carbide-Tipped Chain

Fire Department Style Guide Bar

Tool Kit

Combo Bar Wrench

Combo Hex Wrench

Screwdriver

Grease Gun & Packet of Grease

Tool Bag

Funnel

Bar Scabbard

Filter Recharger Kit

6 oz. Filter Oil

12 oz. Filter Cleaner

Warranty Card

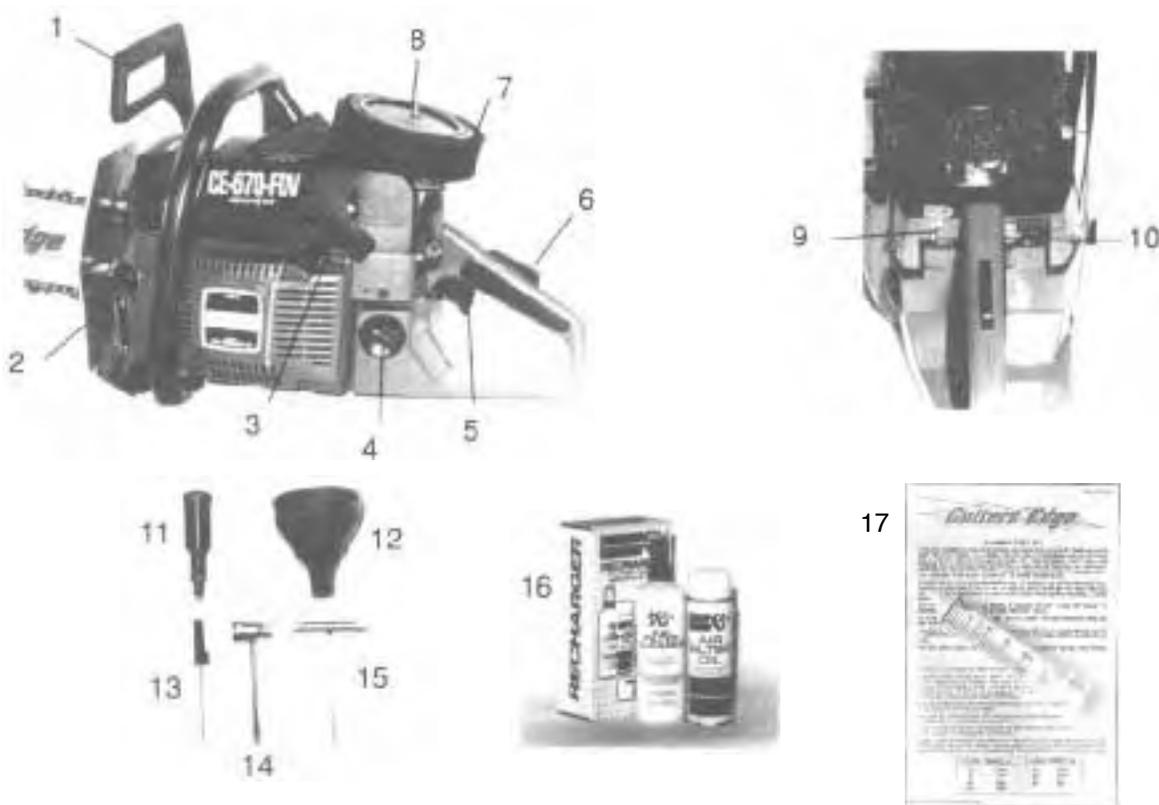
Cutters Edge Operation and Maintenance Manual

Chainsaw Operations Manual

Chainsaw Safety Manual

Alcohol Test Kit

Familiarize yourself with the saw, its parts and the tools you will need for set-up and maintenance.



1. Chain Brake Handle
2. Oil Tank Cap
3. Starter Handle
4. Fuel Tank Cap
5. Throttle Trigger
6. Throttle Safety Lock
7. Pre-Filter
8. Filter Element

9. On/Off ... Momentary Contact Switch
10. Chock Control
11. Grease Gun (& Packet of Grease)
12. Funnel
13. Screwdriver
14. Combo Bar Wrench
15. Combo Hex Wrench
16. Filter Recharger Kit (Filter Cleaner and Filter Oil)
17. Alcohol Test Kit

Part One

Set-Up

This section will cover assembly of the saw and preparation for operation. All necessary tools and equipment have been included with your saw.

THE CHAIN BRAKE

The saw is shipped with the chain brake engaged. This chain brake is designed to stop the rotation of the chain in less than one-twentieth of a second. If kickback should occur, the violent reverse action will drive the chain brake handle back into the operator's top hand, engaging the chain brake and stopping movement of the chain. We utilize a sealed inertia chain brake which works on the same principle as an auto seat belt.

The chain brake has three positions -



Fig. 1. Neutral position, chain brake disengaged.

During operation, the brake is in the neutral, or center position (Fig. 1). This allows the chain to turn freely.

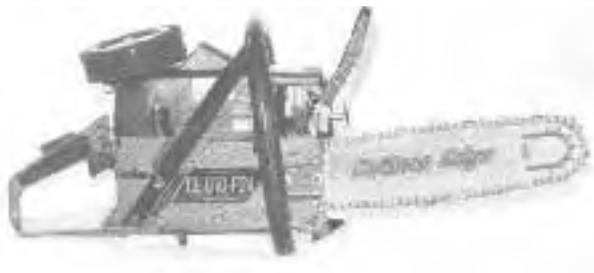


Fig. 2. Forward position, chain brake engaged.

When engaged, the chain brake handle is in the fully forward position (Fig. 2). At this point, the chain will not turn.



Fig. 3. Back position, to disengage chain brake.

To disengage the chain brake, pull the chain brake handle back completely to the saw's top handle (Fig. 3). It is important that the chain brake handle comes to full contact with the saw's handle. Any obstructions, such as your hand, will prevent disengagement of the chain brake. Once you have pulled the chain brake handle back completely, let go and it will snap back to the center or operating position.

THE CLUTCH COVER

Now, place the power head on your work surface. Once you have disengaged the chain brake, use the combo bar wrench to loosen the two clutch cover nuts (Fig. 4).

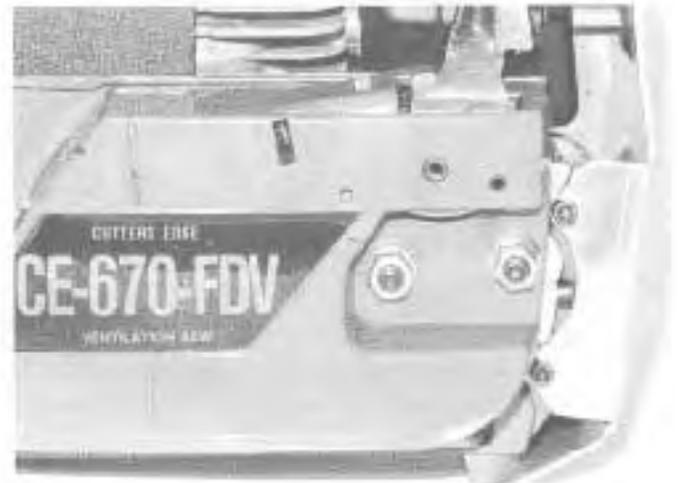


Fig. 4. Clutch cover nuts.

Remove the clutch cover. Now you can visually inspect the chain brake to see how it operates. When engaged, the chain brake band grabs the spinning clutch drum and immediately stops it.

THE BAR PLATES

Now remove the outer bar plate. Note that the two bar plates are similar (Fig. 5) but that the inner bar plate has an additional slot that allows oil to reach the chain.

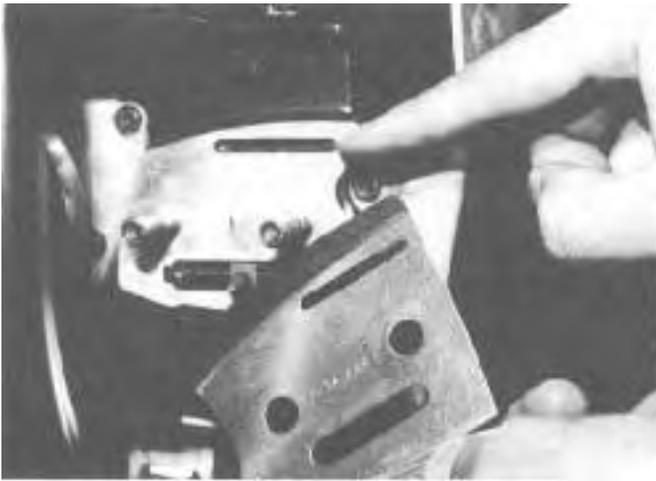


Fig. 5. Inner bar plate, with oil slot.



WARNING



It is imperative that the inner plate with the oil slot is installed properly or the flow of bar oil will be blocked and damage to the saw and chain, will occur.

INSTALLING THE BAR AND CHAIN

Next, install the bar by first adjusting the chain tensioning screw fully back (Fig. 6). This may have already been done prior to shipping. Slide the bar into position, aligning the chain tensioner with the adjusting hole in the bar.



Fig. 6. Chain tensioning screw.

THE CHAIN COMPONENTS

Before installing the chain, take a moment to become familiar with the components of the chain (Fig. 7).

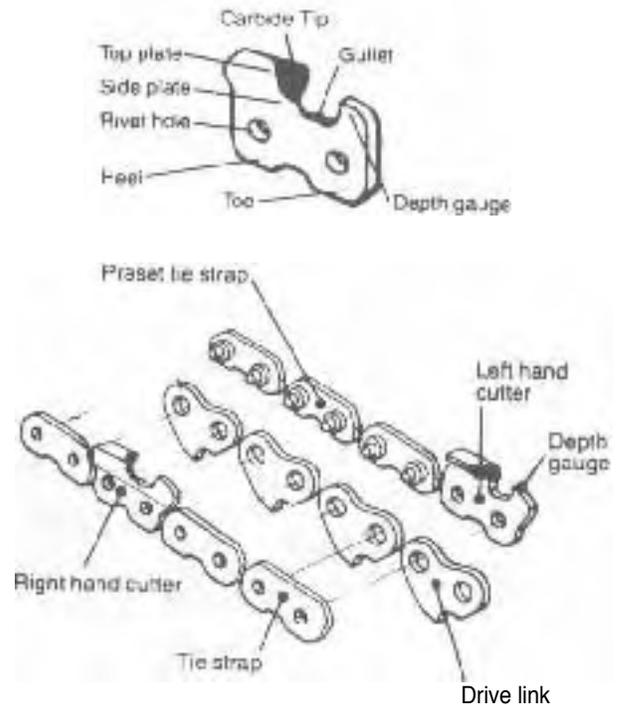


Fig. 7. Components of the chain

INSTALLATION OF THE CHAIN

To install the chain, first align the chain so that the cutters are pointing toward the tip of the bar as they lay on the top of the bar. Slip the chain onto the clutch sprocket rim (Fig. 8). Then slip the chain into the grooves of the guide bar, again verifying that the top cutters point toward the tip of the bar.



Fig. 8. Insert the chain into the drive sprocket.

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Pull the chain around the bar to be sure the drive links are properly seated in the drive sprocket.

Now replace the outer bar plate.

Replace the clutch cover, tightening the nuts only finger tight.

SECURING THE BAR & CHAIN

Wearing gloves or with a shop rag protecting your hand, pull up on the tip of the bar. While holding up the bar tip, tighten the chain tension adjustment screw by turning it clockwise. While still holding up the bar tip, tighten the clutch cover nuts (Fig. 9). Holding up the tip of the bar takes out any slack between the bar mounting slot and the two mounting studs. This will eliminate any upward movement of the bar when cutting pressure is applied at the bottom of the bar. Any such upward movement of the bar would cause the chain to loosen.



Fig. 9. Tightening the clutch cover nuts.

WITH A SPROCKET-TIP BAR

If you are installing a sprocket-tip guide bar, adjust the chain tension so that when you pull the chain down you can slip a quarter between the bar and the bottom of a cutter or tie strap at a mid-point along the bottom of the bar (Fig. 10). The chain should snap back when released.



Fig. 10. Sprocket-tip tension.

WITH A HARDNOSE BAR

If you are installing a hardnose guide bar, adjust the chain tension so that as the chain hangs relaxed you can slip a quarter between the bar and the bottom of a cutter or tie strap at a mid-point along the bottom of the bar (Fig. 11). Do not pull the chain, allow it to hang relaxed.



Fig. 11. Hardnose Bar tension.

Slide the chain completely around the bar once or twice to check that it moves smoothly.

FILLING THE TANKS

WARNING

DO NOT USE GASOHOL OR ALCOHOL-BLENDED FUELS IN THIS SAW OR ANY OTHER 2-CYCLE ENGINE.

IMPORTANT

Please note that each time you fill up or top off the fuel tank, always top off the bar and chain oil tank. The fuel tank and the bar and chain oil tank are sized so that the saw will always run out of fuel before it runs out of bar and chain oil, eliminating the possibility of running the chain dry.

Lay the saw on its side and remove the fuel tank cap. Fill with a fresh mixture of high octane leaded or unleaded gasoline and Cutters Edge Synthetic 2-Cycle Oil or a high quality two-cycle oil. Replace the cap.

NOTE:

Mix Cutters Edge Synthetic 2-Cycle Oil at 100:1 and petroleum-based 2-cycle oils at 50:1 Cutters Edge 2-Cycle Oil has been developed for use in all 2-cycle engines' used in the fire service.

Next remove the bar and chain oil tank cap and fill the tank with bar and chain oil. Replace the cap.

You do not need special detergent oils, as the chain produces high enough temperatures to prevent the buildup of tars on the chain.



WARNING



Do not mix the bar and chain oil with diesel or kerosene as this actually reduces its lubricating ability and does not reduce tar buildup.

We recommend the use of Cutters Edge Bar & Chain Oil for its excellent lubricating and anti-sling properties. This oil has been developed to provide high flash and fire points for optimum performance during harsh fire-ground applications, with high flow properties for use even in extreme cold temperatures. This anti-rust, anti-wear formula is recommended for use on all ventilation saws and other conventional chainsaw.

THE FILTERS

Remove the pre-filter and spray it lightly with filter oil. Then reinstall it on the filter. The main filter element is coated at the factory and needs no oil prior to this first use.

THE MOMENTARY CONTACT SWITCH

The saw is now ready to start. Before starting the saw, you should know how to stop it. The Cutters Edge Ventilation Saw is equipped with a momentary contact switch that is always in the "on" position (Fig. 12). To stop the saw, merely push the momentary contact switch to the right. This kills the saw. When released, the switch will snap back to the "on" position automatically.



Fig. 12. Momentary contact switch.

IMPORTANT

Before starting the saw, it is important to note that you should not run the saw at full throttle until after breaking in the engine, which will be the procedure following running-in of the chain saw.

STARTING THE SAW

To start the saw, place it on the ground. If you intend to run in the chain at this point, you should perform these steps outdoors or in a well-ventilated area.

NOTE

Release the chain brake before starting the saw. We do not recommend starting the saw with the chain brake engaged.

Grip the top handle firmly and step on the outer edge of the back handle (Fig. 13).



Fig. 13. Proper starting position.

Pull out the choke knob. This automatically locks the throttle trigger and the carburetor into their optimum positions for starting. If you do not touch the throttle during starting, there is no possibility of flooding.

Grasp the starter handle and pull sharply upward a few times until the engine catches.

Push the choke in.

Pull the handle again. The engine will start.

Quickly squeeze and release the trigger to set the idle.

NOTE

Note that you must depress the safety lock on top of the handle to be able to pull the trigger (Fig. 14). The trigger cannot be pulled without depressing this safety lock.



Fig. 14. Throttle lock.

You may stop the saw with the momentary contact switch or you may continue on to the chain run-in procedure.

RUNNING-IN THE CHAIN

The next step is running-in the chain. This important procedure pre-stretches and fully lubricates the chain, preparing it for cutting. This step is especially important when using a hardnose bar because the higher temperatures associated with the hardnose bar increase chain stretch.

Start the saw and run it at one-half to three-quarter speed for approximately three minutes or until the bar and chain begin to smoke.

Now turn off the saw. The chain has reached its operating temperature. You will notice that the chain has sagged (Fig. 15). Before readjusting, allow the chain to cool down for three to five minutes, or until it is cool enough to touch without discomfort.

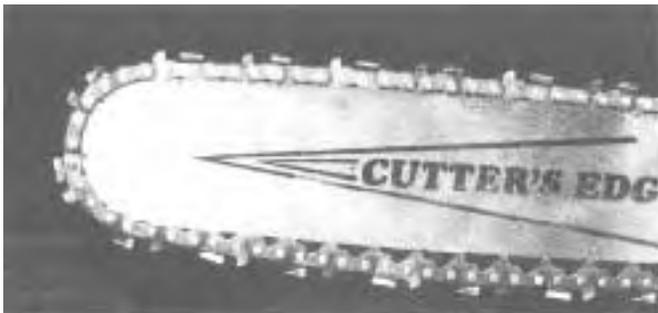


Fig. 15. The chain will sag when hot.

IMPORTANT

Never adjust the chain while it is hot. If the chain is adjusted tighter while it is hot, it will shrink as it cools and can damage the bar, drive sprocket or chain.

Once it is cool enough to handle, readjust the chain to the proper tension.

NOTE

Repeat this entire chain adjusting procedure once more.

Running-in the chain will remove approximately 75% of chain stretch. However, under normal use the chain will continue to stretch throughout its life. Re-check the chain tension during prolonged use and after each use.

BREAKING IN THE ENGINE



WARNING



Proper breaking-in of the engine is a crucial step in the set-up of your saw. This procedure allows the cylinder to coat with oil and seat the piston a ring properly. If you skip this procedure and run the saw at full throttle, severe damage to the engine can occur.

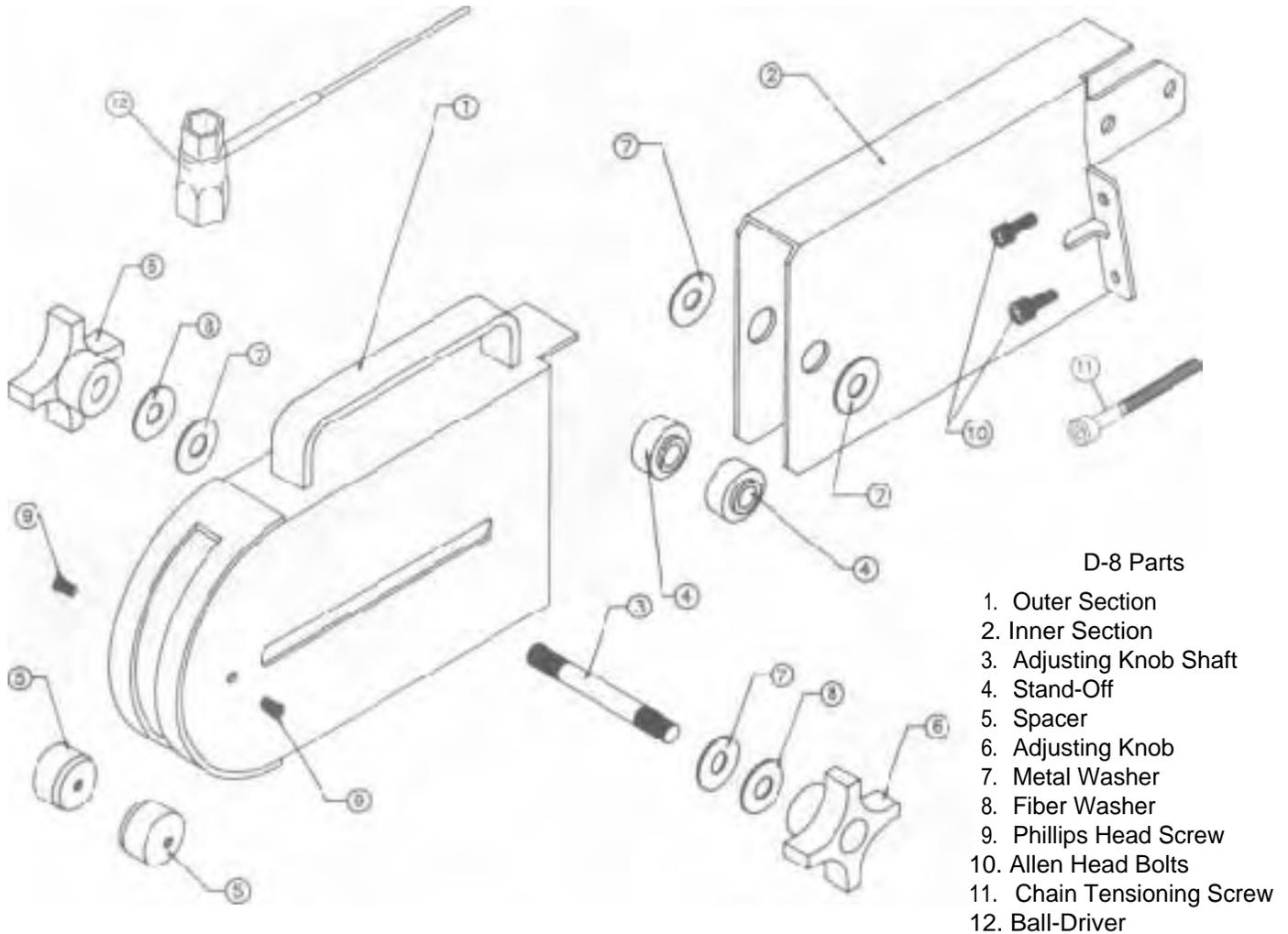
NOTE

Even though the chain will not turn at idle and no bar and chain oil will be pumped, this break-in procedure must be performed with the bar and chain installed and with the bar and chain oil tank filled. Also be sure the chain brake remains disengaged throughout the procedure.

To break in the engine, start the saw and let it idle for a minimum of ten to fifteen minutes. It is advisable to allow it to idle through a complete tank of gas. You may use the saw at this point to cut scrap lumber or for light training, but remember not to run it at full throttle.

Now your Cutters Edge Ventilation Saw is assembled and properly prepared for use.

Installation, Operation & Maintenance



*Cutters Edge D-8 & D-6 Guard/Depth Gauge

The Cutters Edge D-8 Guard/Depth Gauge has been designed, engineered and carefully tested to provide you with increased safety and efficiency in firefighting applications.

While in its fully extended position, the D-8 completely covers the guide bar and cutting chain, protecting you from accidental contact with the spinning chain. Even while retracted and set for specific depths of cut, the D-8 covers all but that chain at the tip exposed for cutting.

The D-8 allows you to set a specific depth of cut, preventing you from cutting any deeper than is absolutely necessary. This prevents you from weakening the roof structure and prevents exposure to hidden hazards like electrical wiring.

These features of the D-8 are designed to provide you with increased confidence as you make your ventilation cuts.

*D-8 fits 20" bar, has 8" maximum cutting depth.

You will be able to cut faster and you will have less to worry about. You can concentrate more on your cuts, your cutting position, and your environment.

Of course, as with any tool, it is only as safe as its operator. You must be careful to take all necessary safety precautions and to follow all safe operating procedures.

These instructions are intended to help you to install and to safely utilize the Cutters Edge D-8, whether you are installing it on a new Cutters Edge Saw or upgrading your older Cutters Edge Saw. Take the time to read these instructions carefully. Familiarize yourself with the parts and components of the D-8. If you are not experienced in the use of ventilation saws, refer to the Cutters Edge Ventilation Saw Operation and Maintenance Manual and Training Video.

*D-6 fits 16" bar, has 6" maximum cutting depth.

NOTE

If you are upgrading your saw with a D-S Kit:

Before proceeding you will first need to remove the chain tension adjusting screw and replace it with the alien head adjusting screw supplied with your D-8.

You will also need to remove and replace the old guard/deflector with the new guard/deflector supplied with your D-8.

Prepare Your Saw

To begin installation of your D-8, remove the chain brake cover, guide bar and chain according to the instructions in your Cutters Edge Ventilation Saw Operations and Maintenance Manual.

The Slotted Guide Bar

Adjust the chain tensioning screw fully back, then slide the new, slotted guide bar into position, aligning the chain tensioner with the adjusting hole in the bar.

The Chain

First make sure that the chain cutters are pointing toward the tip of the guide bar as they lay on the top of the bar. Slip the chain into the grooves of the guide bar, again verifying that the top cutters point toward the tip of the bar.

Pull the chain around the bar to be sure the drive links are properly seated in the drive sprocket.

NOTE

At this point you need not worry about tensioning the chain, as it is easy to do so after the D-8 is installed.

Now replace the outer bar plate.

Replace the clutch cover.

The D-8 Inner-Section

Place the inner section of the D-8 over the chain and guide bar, sliding the holes in the D-8 onto the bar mount bolts.

Snugly tighten the bar nuts.

Now align the holes in the flange of the D-8 with the holes in the saw's guard/deflector. Carefully insert and tighten the alien-head bolts with the special ball-driver included with your D-8.



Fig. 1. Use the ball-driver to tighten the alien-head bolts.

Insert the guide bar standoffs between the bar and the insides of the D-8. The standoffs will pop into the holes in the D-8 and the guide bar.



Fig. 2. Insert the guide bar standoffs.

The D-8 Outer Section

Place the D-8 outer section onto the bar.

WARNING

To avoid damaging the chain or the D-8, be careful to slip the spacers that are inside the nose of the D-8 outer section between two chain cutters.

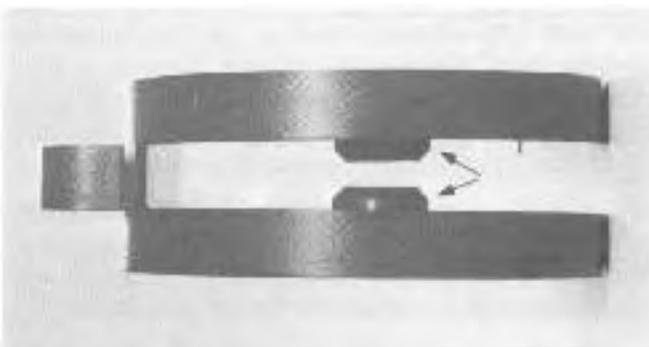


Fig. 3. Slip the spacers between two cutters.

Position the outer section properly, with the spacers between the cutters on the chain. Tap it into place.

The Adjusting Knobs

To install the adjusting knobs, first place a fiber washer, then a metal washer onto the adjusting knob shaft.

Slide a fiber washer between the two D-8 sections, using the ball driver to line up the holes.

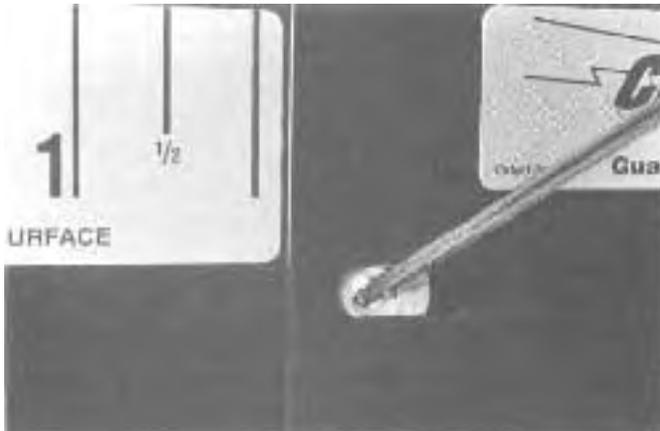


Fig. 4. Use the ball-driver to position the fiber washer.

Insert the adjusting knob shaft through the hole and push it out the opposite side.

Now push the adjusting knob shaft back through so that it is flush with the guide bar.

Slip a fiber washer between the inner and outer sections of the D-8, again using the ball-driver to align the holes. Push the adjusting knob shaft through all the way.

Slide a metal washer, then a fiber washer onto the adjusting knob shaft, then thread on the other adjusting knob.

Chain Tensioning

Slide the D-8 back all the way to the guard/deflector and check the chain tension. If the chain needs tensioning, loosen the bar nuts and the adjusting knobs. Adjust the chain tension as needed, using the ball driver.



Fig. 5. Use the ball-driver to tension the chain.

Retighten the bar nuts, then slide the D-8 out to its full extension.

Your Cutters Edge Ventilation Saw with the D-8 Guard/Depth Gauge installed is now ready for use.

NOTE

For detailed instructions on the uses and applications of ventilation saws, please refer to your Cutters Edge Ventilation Saw Operations and Maintenance Manual. Further instructions on inspection cuts (below) are on page 12.

Operation of the D-8

You can now adjust the D-8 to various depths of cut. If the saw is running, first set the saw's chain brake. Then twist the adjusting knobs to loosen them. Slide back the outer section of the D-8 to the desired setting on the depth scale. Retighten the adjusting knobs and release the chain brake. You are ready to cut.



Fig. 6. Set the D-8 to the necessary depth.

NOTE

Since the D-8 completely covers the cutting chain when it is fully extended, you can now start your saw on the ground and then carry it up to the roof while it is running. This eliminates the need to re-start the saw after you are in position on the roof.

Inspection Cut

On the roof, first make an inspection cut to determine the thickness of your roofing materials. Slide back the D-8 to its fully retracted position, then make the inspection cut as you normally would, keeping the saw at ninety degrees to the rafter, feeling for and rolling the rafter.

Set your chain brake. Visually determine the thickness of the roofing materials and then adjust the D-8 to the necessary setting. Release the chain brake and make your ventilation cuts.

Cutting deeper than the D-8 setting

Even with the D-8 set to a pre-determined depth you can increase the depth of your cut - without changing the setting - by increasing the angle of the saw to the roof surface. While cutting at the normal forty-five degree angle, the saw will cut to the depth you have set. But by raising the angle of the saw up to ninety degrees, you can cut up to one-half inch deeper for every one inch you have set on the D-8 scale.



Fig. 7. Depth of cut at forty-five degrees.

In Figure 7, above, the saw is set for a cut of approximately 2 1/2" inches. At the proper cutting angle of 45 degrees, the saw penetrates to that depth.

But as you can see in Figure 8, below, the saw penetrates another half-inch for each inch set on the D-8 - in this case another inch, down to 3 1/2 inches - when the cutting angle is raised to ninety degrees.

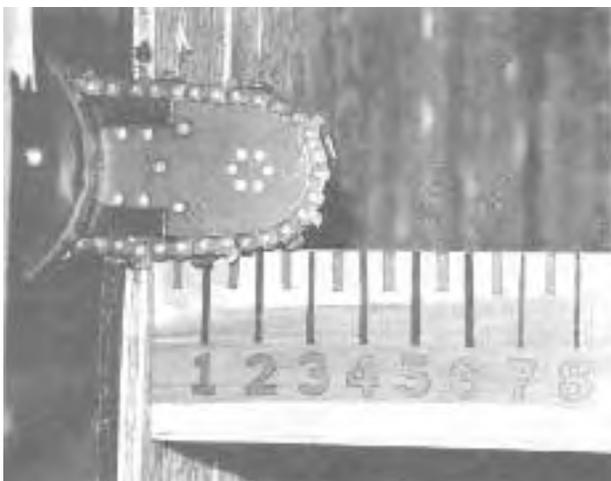


Fig. 8. Depth of cut at ninety degrees.

Removing the D-8.

To remove the D-8 for cleaning and/or to use your Cutters Edge saw for conventional cutting purposes. This process is simple and basically is a reversal of installation:

Remove one knob and pull out the adjusting knob shaft.

Pull off the outer section of the D-8.

Spread the inner section of the D-8 and let the stand-offs drop out.

Remove the bar nuts.

Remove the allen-head bolts from the guard/deflector side of the D-8.

Pull off the inner section of the D-8.

Rethread and retighten the bar nuts, while holding up the tip of the guide bar.

Your saw is now ready for use as a conventional chain saw.

NOTE

If you are removing the D-8 to use your saw for conventional cutting, first set the chain brake. This will prevent the need to retension the chain after you have removed the D-8.

Cleaning the D-8

It's important that the D-8 be cleaned after each use, along with your Cutters Edge Ventilation Saw.

To clean the D-8, simply remove it as you would to configure your saw for conventional cutting. Wipe off all inner and outer surfaces of the D-8.

NOTE

Cleaning may also be done in a parts washer.



If you should have questions about the installation, operation or maintenance of your D-8 or any Cutters Edge product, call our service department at 1-800-433-3716.

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After proper set-up and running-in, your Cutters Edge Ventilation Saw will be available for service. In the field, you should follow certain procedures for the use of your saw to insure safe and efficient operation.

The basic rules for safe operation of your Cutters Edge Ventilation Saw include:

- 1) Wear full turn-outs with gloves, face shield or goggles.
- 2) Keep a firm grip on the saw.
- 3) Avoid cutting across your body.
- 4) Cut with full RPMs.
- 5) Avoid the bar's kickback zone.
- 6) Do not attempt to operate saw without completion of your department's training for the use of a power tool.

WARM UP

As another safety feature, your Cutters Edge Ventilation Saw is equipped with One-Step Starting. To take advantage of One-Step Starting, the saw must be warmed up prior to going on the roof.

To warm up the saw after you have reached the scene of your operation, use the following starting procedure:

- 1) Pull out the choke.

NOTE

Remember not to touch the throttle while starting the saw.

- 2) Step on the back handle and grip the top handle firmly.
- 3) Pull the starter handle upward sharply a few times until the engine catches.
- 4) Push the choke in and pull the starter handle again to start the engine.
- 5) Squeeze the trigger quickly once to set the idle. Allow the saw to warm up, then touch the momentary contact switch to shut it off. It is now ready for use.



Fig. 16. The TS-10 Sling.

THE TS-10 SLING

Carry the saw up ladders by attaching the tool sling (Fig. 16). Loop the hook on the end of the sling around the top handle and clip it to the D-ring on the sling. Attach the other end of the sling to the back handle in the same manner.

Once on the roof, remove the sling and place it in your pocket or out of your way.

WARNING

Never operate the Cutters Edge Ventilation Saw with the sling attached.

IMPORTANT

Always operate the saw with a minimum of two people on the roof for safety. One should operate the saw and the other act as backup and as eyes and ears for the operator.

Always wear full protective gear, along with a face shield or goggles.

Sound the roof for the safest operator position.

Select and prepare an alternate escape route.

Position yourself properly and prepare to cut.

ONE-STEP STARTING PROCEDURE

Since you have properly warmed up the saw, you can start it now using the One-Step Starting Procedure. After positioning yourself properly, securely holding the saw in place, simply pull the starter handle upward (Fig. 17). The saw will start and you will be ready to cut.



Fig. 17. One-Step Starting

CUTTING

!
WARNING
!

Never cut with the saw directly in line with your body or across your body.

When ready to begin cutting, choose a position that is safe and comfortable. Cut with the saw held to one side of your body, locking your top elbow, if possible. Avoid cutting with the saw directly in line with or across your body.

IMPORTANT

When cutting, always run the saw at full RPMs. It is important to maintain a high chain speed throughout your cuts. Do not allow the RPMs to drop by forcing the saw into the cut.

PENETRATION CUT

To begin your penetration cut, hold the saw at an angle of approximately forty-five degrees to the roof (Fig. 18). This positions the highest number of cutters in contact with the roof surface for optimum penetration speed.



Fig. 18. Penetrate at approximately 45 degrees.

!
WARNING
!

Attempting to penetrate with too high an angle may cause kickback, while penetrating with too low an angle will actually increase penetration time and cause unnecessary wear to the cutters.

Plunge the bar in aggressively for penetration, but don't penetrate any deeper than necessary. This will prevent the inadvertent cutting of hidden dangers, such as rafters, wiring or braces.

After you have penetrated the roof surface, increase the angle of your saw up to ninety degrees. This places a greater number of cutters in contact with the broad surfaces of the rafters, increasing your sensitivity of feel.

With practice you will get a feel for boring through the roof surface. If it feels like it is taking too long to penetrate, you may be directly on a rafter. Simply move your cut over a few inches and begin to cut again.

"ROLLING THE RAFTERS"

When you feel a rafter, pull the saw up and allow it to cut only the roof decking as you roll over the rafter (Fig. 19). Then return to your previous depth of cut until you encounter another rafter to roll (Fig. 20). This preserves roof integrity and provides you with another measure of protection. With practice, you will be able to do this quickly and efficiently.



Fig. 19. Pull up and over the rafter ...



Fig. 20.... plunging back in on the other side.

Criss-cross your cuts at their intersections. The overlapping of your cuts will allow for easy removal or louvering of the roof material (Fig. 21).



Fig. 21. Criss-cross, or overlap, your cuts.

VENTILATION CUTS

There are many types of ventilation cuts. We will demonstrate some of them for your reference. For more information about the principles and techniques of ventilation, please refer to the Cutters Edge Training Video and its supplemental manual. We also recommend the book "VENTILATION METHODS AND TECHNIQUES" by Battalion Chief John Mittendorf. Order forms are in the back of this manual.

INSPECTION CUT

The 45 Degree Inspection Cut - or View Hole - is a triangular cut through the roof decking and rolled over one rafter at 45 degrees to any exterior wall (Figs. 22A & 22B). This cut allows you to identify the type of smoke and the roof composition, and to determine rafter direction.



Fig. 22A. Inspection Cut

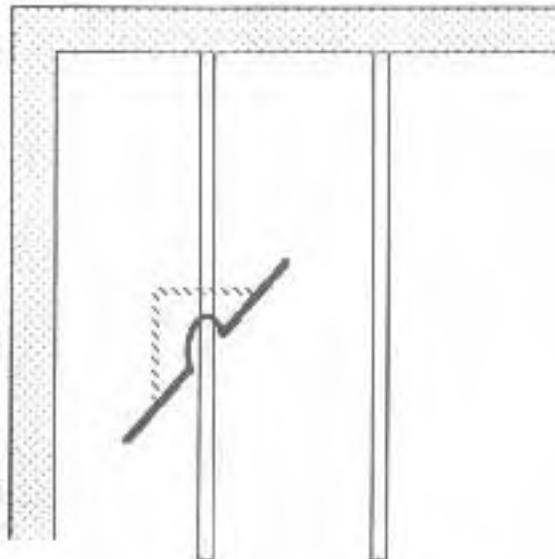


Fig. 22B. Inspection Cut.

LOUVER

To louver, start with a head cut parallel to the rafter direction, rolling any rafters. The rafters will become the pivots or hinges to louver the cut sections.

Make parallel longitudinal cuts approximately halfway between and parallel to the rafters. Be sure to criss-cross your vertical and horizontal cuts at their intersections. Complete the louver cut by cutting another horizontal cut across the bottom, rolling the rafters again. Then louver or hinge the sections, using the rafter as the pivot point (Fig. 23).



Fig. 23. Use the rafters as the pivot points.

PULLBACK

The Pullback Method follows the same procedure as a louver cut, but you would then remove the roofing material completely (Fig. 24).



Fig. 24. Remove roof materials for the pullback.

STRIP

A Strip- or Trench Cut-would normally be used across the width or length of the roof. You either cut between the rafters and let the roofing material drop into the structure, or cut across the rafters, being sure to roll the rafters, then louver or pull back the roofing material.



Fig. 25. Trench cut.

CUTTING OTHER MATERIALS

Your Cutters Edge Ventilation Saw may be used to cut many other materials and in conventional applications, such as downed trees, storm damage, windfalls, cutting shoring and cribbing, and to remove rubble from building collapse.

To cut through other materials, remember the basic operational rules of your Cutters Edge Ventilation Saw. With practice, you will develop a feel for the saw, enabling you to "read" the material you are cutting. Remember to always maintain full RPMs as you cut, and don't force the cut.

Remember the basic rules for safe operation of your Cutters Edge Ventilation Saw:

- 1) Wear full turn-outs with gloves, face shield or goggles.
- 2) Keep a firm grip on the saw.
- 3) Avoid cutting across your body.
- 4) Cut with full RPMs.
- 5) Avoid the bar's kickback zone.
- 6) Do not attempt to operate saw without completion of your fire department's training for the use of a power tool.

After use, your Cutters Edge Ventilation Saw should be cleaned and inspected. We recommend that you develop a departmental standard operating procedure (SOP) for periodic inspection, testing and maintenance of your ventilation saw.

	WARNING	
<p>Failure to clean the saw after each use can lead to a less of performance and premature wear or failure.</p>		

CLEANING

To clean the saw, reverse the steps described in the set-up portion.

Start by removing the clutch cover. Inspect it and clean all foreign matter and debris from it (Fig. 26).



Fig. 26. Thoroughly clean the clutch cover.

Remove the outer guide bar plate and wipe it clean.

THE CHAIN

Remove the chain. Inspect it closely.

IMPORTANT
<p>If the chain has six or more broken cutters, it should be repaired. If the chain is in satisfactory condition, clean and lubricate it.</p>

CHAIN REPAIR

To have Cutters Edge repair your chain, enclose a note or purchase order and a street address for return shipment by UPS and ship your chain to:

Cutters Edge
34385 Broken Oak Lane
Julian, CA 92036 U.S.A

We recommend that you ship your chain to us via UPS for fastest service. We repair your chain the day we receive it and return it the next day via UPS.

We recommend that you keep a minimum of two chains: one on the saw and one in for repair.

THE BAR

Remove the guide bar and inner bar plate. Wipe all debris from them.

Clean out the groove using a bar cleaning tool, the edge of a bar plate, or a putty knife. Also be sure to thoroughly clean the oil holes on both sides of the bar. If there is excess buildup on the bar, clean it off with solvent.

Feel along the edges of the bar body. If there are burrs, use a flat file to lightly file them down.

LUBRICATING THE SPROCKET TIP

After you have cleaned and dried your sprocket tip bar, lubricate it by squirting grease into the holes in the sprocket tip, using the grease gun provided with your saw (Fig. 27). Apply enough grease for a little to ooze out from the groove. Spin the sprocket to distribute the grease, then flip the bar and repeat this procedure on the other side.



Fig. 27. Lubricate the Sprocket-tip.

NOTE

We recommend lubricating your sprocket tip as soon as safely possible after cutting, while the bar is still hot. If this is not possible, you may run the saw to heat up the sprocket tip and lute it before starting the cleaning procedure. This will force out any molten tar and debris, aiding your later cleaning routine in the station.



Fig. 29. Remove the pre-filter.

Remove the main filter element by loosening the filter clamp screw. Pull out the choke to close the butterfly. This will prevent foreign objects from entering the carburetor after you have removed the filter.

If it needs cleaning, spray filter cleaner/degreaser around the interior of the filter, creating a puddle. Rotate the filter to distribute this evenly. Repeat with the exterior of the filter.

Next, rinse the filter thoroughly with water and allow to air dry.



WARNING



Do not use solvents to clean, or compressed air to dry, the filter as this may damage the filter element

Once thoroughly dry, spray filter oil only around the exterior of the filter. Do not spray filter oil inside the filter.

NOTE

It is a good idea to have a spare filter. Drying time can be over an hour and the extra filter can get your saw back in service faster.

Detailed instructions for cleaning the filters are included in the filter recharger kit.

THE POWER HEAD

Now inspect and clean the power head.

Wipe all debris and foreign matter from the power head, making sure to clean carefully around the clutch.

Make sure the oil slot on the power head is clear and open. Use a bar cleaning tool or small screw driver to remove any debris from this slot (Fig. 28).



Fig. 28. Carefully clean out the oil slot.

THE FILTERS

Next, remove the foam pre-filter from the saw (Fig. 29). Spray it liberally with the filter cleaner/degreaser provided with your saw. Work it in.

Rinse the pre-filter with clean water and allow it to air dry.

Once it is dry, spray it lightly with the filter oil provided.

You should clean the main filter element only if the red color is gone, or if you notice diminished power while running the saw.

CYLINDER HEAD

Now remove the carburetor compartment cover by first loosening the two screws (Fig. 30). Then remove the cylinder head cover by using the combo hex wrench to loosen and remove the hex-head screw (Fig. 30). Check the cooling fins on the cylinder and the fins on the flywheel for excess buildup of debris. If necessary, clean with compressed air or solvent.



Fig. 30. The top cover.

NOTE

If you use solvent to clean around the clutch and drive sprocket area, inject two or three pumps of grease into the hole at the end of the crankshaft to lubricate the bearings.

REASSEMBLY

Once you have completed this process, you have a clean saw and are ready to reassemble it for continued use. The reassembly is the same procedure as set-up, with the following exception:

Flip the guide bar each time you reassemble the saw (Fig. 31). This provides for even wear.



Fig. 31. Flip the guide bar each time you reassemble.

For specific engine adjustments and settings, consult the accompanying chainsaw operations manual.

THINK!

IS WHAT I'M ABOUT TO DO SAFE?

Read and follow all instructions for the proper set-up, operation and maintenance of your Cutters Edge Ventilation Saw. Be alert while using your saw, and always strictly observe all safety procedures.

Cutters Edge Ventilation Saws are designed specifically for fire department use and are exceptional tools. However - as with all tools - they have their limitations. With proper care and, especially, common sense, your Cutters Edge Ventilation Saw will give you many years of outstanding performance and reliability.

If you should have questions about the operation and/or maintenance of your Cutters Edge Ventilation Saw, call our service department at 1-800-433-3716.

CE-670-FDV SPECIFICATIONS

ENGINE

TYPE: Single-cylinder 2-cycle, with loop scavenging
DISPLACEMENT: 4.1 cu. in. (66.8cc)
BORE: 1.97 in. (50mm)
STROKE: 1.33 in. (34mm)
COMPRESSION RATIO: 10.5:1
BEARINGS: Heavy-duty deep-groove ball bearings on crank shaft, needle cages on connecting rod & piston pin
MAX. ENGINE SPEED: 12,500 RPM

ELECTRONIC IGNITION SYSTEM

MAKE: SEM
SPARK PLUG GAP: 0.020 in. (0.5mm)
MOMENTARY CONTACT SWITCH

AIR FILTRATION

TYPE: 2-stage, oil tack barrier, externally mounted
SURFACE AREA: 154 sq. in.

FUEL & ENGINE LUBRICATION

GASOLINE OCTANE RATING: Approx. 85
FUEL MIX OIL/RATIO: Cutters Edge Synthetic Oil/100;1;
High Quality 2 cycle engine oil/50:1
GASOLINE CAPACITY: 24.7 fl. oz. (0.73 l)

CARBURETOR ISOLATION

TYPE: Air gap insulation, eliminates vapor-lock

GUIDE BAR - 12", 16", 20" Guide Bars

BODY CONSTRUCTION: Solid, one-piece, with milled groove, induction hardened rails

TYPES:

Heavy Duty Sprocket Nose, w/9 steel rivets, six spot welds

Stellite Tipped Hardnose, w/laser welded stellite at the tip

GAUGE: .063

PITCH: 404

DRIVE SYSTEM - Centrifugal Clutch

TYPE: Rim & Drum System

SIZE: 404 Pitch

STYLE: Radially ported (to keep rim clear of tar & debris build-up, and to keep chain in perfect alignment with the bar groove)

SAW CHAIN

PITCH: 404

GAUGE: .063

CHAIN SPEED: 102.5 ft. per second (6150 ft. per minute)

SAW CHAIN LUBRICATION SYSTEM

TYPE: Automatic, adjustable

LUBRICANT: Cutters Edge Bar & Chain Oil; High quality "Bar & Chain Oil"

OIL TANK CAPACITY: 15.2 fl. oz. (0.45 l)

GUARD/DEFLECTOR

Controls air flow direction

WEIGHT

POWER HEAD ONLY: 13.5 lbs (dry weight)

GAS & OIL TANKS FULL

18.75 lbs., with 12" bar & chain

19 lbs., with 16" bar & chain

19.5 lbs., with 20" bar & chain

WITH GUARD/DEPTH GAUGE

22 lbs. with D-6

23 lbs. with D-8

SILENCING

MUFFLER: Large, side ported, low restriction

NOISE LEVEL: 104dB(A) at max. output

HANDLES

TYPE: Full-wrap front handle with kickback guard (for ease of use with gloves, from either side of saw)

ANTI-VIBRATION: Full isolation to front and back handles

OTHER SAFETY FEATURES

CHAIN BREAK: Double Break Bank (breaking time: 0.20 sec.)

SAFETY-GUARD PIN FOR CHAIN THROTTLE SAFETY CATCH

COMBINED CHOKE THROTTLE LOCK

D-6 D-8 GUARD/DEPTH GAUGE

Covers all of the cutting chain. Allows operator to set depth of cut.

D-6 ... 16" Bar ... Max. depth of cut 6"

D-8 ... 20" Bar ... Max. depth of cut 8"

PARTS & ACCESSORIES

CUTTERS EDGE FIRE DEPARTMENT CARBIDE TIPPED CHAIN

12" chain loop	#B3E-400SX47
16" chain loop	#B3E-400SX56
20" chain loop	#B3E-400SX66

CUTTERS EDGE FIRE DEPARTMENT GUIDE BARS SPROCKET-TIP

		HARDNOSE
12" guide bar	#CE1263SN	#CE1263HN
16" guide bar	#CE1663SM	#CE1663HN
20" guide bar	#CE2063SN	#CE2063HN

PREFILTER	#PW6701
AIR FILTER	#RU0330
FILTER RECHARGER KIT	#CE99-5000
2-CYCLE OIL MIX	#CEATC-08
BAR & CHAIN OIL	#CEABC-01
TOOL SLING	#TS-10
2-IN-1-GAS/OIL CAN	#CEW150
VENTILATION SAW CASE	
Metal	#CESC-14
Aluminum	#CESC-ALM
VIDEO TRAINING MANUAL	#VTM90-1
ILLUSTRATED PARTS LIST (CE-670-FDV)	#IPL-670

D-8 & D-6 GUARD/DEPTH GAUGE ... REPLACEMENT PARTS

OUTER SECTION	#206701
INNER SECTION	#206702
ADJ. SHAFT	#206703
STAND-OFF	#206704
NOSE SPACER	#206705
ADJ. KNOB	#206706
FIBER WASHER	#206707
METAL WASHER	#206708
PHILLIP SCREW	#206709
ALLEN SCREW	#206710
ADJ. SCREW	#206711
SCRENCH 4mm	#206712

D-8 & D-6 HARDWARE KIT: Does not include: Inner & Outer Sections, or Srench

D-8 & D-6 ALL MOUNTING HARDWARE	#20670HK
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CHAIN MAINTENANCE & REPAIR - PARTS & TOOLS

REPAIR KIT (Carbide cutter & preset)	
RIGHT SIDE	#RK-B3E-R
LEFT SIDE	#RK-B3E-L
PRESETS (Package of 25)	#PS-B3E
TIESTRAPS(Package of 25)	#TS-B3E
DRIVELINKS(Package of 25)	#DL-B3E
CHAIN SPINNER	#CS1025
CHAIN BREAKER	#CB1020
CHAIN SHARPENER with DIAMOND WHEEL	#CG1136

FOR BULK CHAIN CONTACT CUTTERS EDGE OR YOUR LOCAL DEALER.

CUTTERS EDGE LIMITED WARRANTY

Effective 7-1-92

As Limited Below,

Edge Industries, Inc., warrant to the original retail purchaser that this Cutters Edge Saw is free from defects in materials and workmanship and agree to repair and/or replace any defective saw part or component free of charge as follows:

1. *Parts other than electronic ignition parts.*

At not cost to the original retail purchaser, Edge Industries, Inc., will replace defective parts supplied or manufactured by Edge Industries, Inc:

A. For one year from date of original purchase when used for fire department applications.

B. For thirty days from date of original purchase when saw is used for commercial purposes, except as listed below in section 2.

C. A saw is used for commercial purposes when it is used to derive income.

2. *Extended warranty.*

Selected saw models used commercially may have warranty extended.

Electronic ignition parts.

A. For six months from the date of original purchase, Edge Industries, Inc., will replace any defective electronic ignition parts supplied or manufactured by Edge Industries, inc. at no cost to the original purchaser.

B. For a period starting six months and ending one year after the original retail purchase, Edge Industries, Inc., will replace any defective electronic ignition parts supplied or manufactured by Edge Industries, inc. at a charge to the original purchaser of 50% of Edge Industries's suggested retail price.

Engine parts.

A. For six months from date of original purchase, Edge Industries, Inc., will replace any defective engine part supplied or manufactured by Edge Industries, inc. at no cost to the original purchaser subject to the limitations of paragraph 5 below.

B. Engine parts are limited to cylinder assembly, crankshaft, crankcase and flywheel.

3. *Labor.*

For thirty days from the date of original purchase, an authorized Edge Industries, Inc., dealer will provide labor at no charge to the original retail purchaser for the replacement of any defective part supplied or manufactured by Edge Industries, Inc.

4. *Grantor of Warranty:*

Edge Industries, Inc.
1435 Manzanita Drive
Julian, CA 92036 U.S.A.
760-765-0597

5. *Limitations on Warranty:*

This warranty is not transferable, does not cover damage caused by unreasonable use or damage resulting from other than defects in material or workmanship, does not cover damages contributed to by a failure to provide reasonable and necessary maintenance, does not cover engine failure due to lack of or improper lubrication. Tuneups or replacement of non-defective parts-such as mounts, starter springs, ropes, spark plugs, and filters-that may be expected to wear out with reasonable use during the warranty period are not covered. This warranty applies only to saws sold through dealers appointed by Edge Industries, Inc.

THE WARRANTOR WILL BE LIABLE FOR NO INCIDENTAL OR CONSEQUENTIAL DAMAGES. THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE SET FORTH ABOVE. ANY WARRANTY IMPLIED BY STATE LAW-WHETHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE SHALL BE EFFECTIVE ONLY FOR THE DURATION OF THE APPLICABLE WARRANTY PERIOD LISTED ABOVE. Some states do not allow exclusions of incidental or consequential damages and/or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you.

6. *Responsibilities of me purchaser under this Warranty:*

A. To deliver or ship the saw covered under this Warranty to the dealer from whom it was originally purchased or to an Edge Industries, Inc. authorized servicer center. Time limits on warranties are measured to the date of delivery or shipment.

B. Freight costs, if any, will be borne by the purchaser.

C. To provide reasonable care and maintenance of the Edge Industries, Inc., product.

7. *Timely repair of warranted product:*

Any product which qualifies under this Warranty shall be repaired in a timely manner, consistent with the normal work flow at the servicing location and depending on the availability of replacement parts.

8. *Purchaser rights and remedies:*

This Warranty gives you specific legal rights. You may also have other rights which vary from state to state. If you do not receive satisfactory results from authorized servicing stations, you may contact Edge Industries, Inc., Customer Relations Department, PO. Box 1179, Julian, CA 92036.

CUTTERS EDGE FIRE RESCUE SAWS

ORDER FORM
VENTILATION METHODS AND TECHNIQUES
by John Mittendorf

Please send me () copy (copies) of Ventilation Methods and Techniques.

Name: _____

Street: _____

City, State & Zip: _____

Phone: _____ Amount Enclosed: _____

VISA/MasterCard #: _____ Exp. Date: _____

Each manual is \$20.00 plus \$2.20 shipping. California residents add \$1.25 (6.25% sales tax).

Mail this completed order form to:

For Credit Card Orders, call:
1-714-583-1914

Fire Technology Services
22422 Sunlight Creek
El Toro, CA 92630

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CUTTERS EDGE TRAINING VIDEO

Please send me () copy (copies) of the Cutters Edge Training Video, plus the Supplemental Manual.

Name: _____

Street: _____

City, State & Zip: _____

Phone: _____ Amount Enclosed: _____

Each copy of the Training Video and Supplemental Manual is \$50.00, plus \$3.00 for shipping. California residents add \$3.26 (7.25% sales tax).

VISA/MASTERCARD # _____ Exp. Date _____

Mail this completed order form to:

For credit card orders call:
1-800-433-3716

Cutter's Edge
P.O. Box 846
3855 23rd Street
Baker City, Oregon 97814



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