	<b>Cincinnati Fire Department Fire Training Supplement DRILL BOOK</b>	<b>SECTION #5 Tools &amp; Equipment</b>
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## **TOPIC #10: STIHL TS-400 CIRCULAR SAW**

This topic is intended to give the fire fighter the basic information for operation and normal maintenance of the STIHL saw. *For more in-depth information or repair instructions see the owners manual.*

The STIHL saw is carried by all ladder companies and Heavy Rescue Squads. Some outlying Engine companies also carry a Stihl Circular Saw. It is used to cut wood, metal and concrete, depending on the situation and blade attached.




### **BLADES**

There are three types of 12" saw blades used in the CFD.

1. The "All Purpose" blade, made out of steel with carbide tipped teeth. It is used for cutting wood, built up roof surfaces, insulation, very thin tin and aluminum used in roofing and other related surfaces.
2. The "Stone fiber wheel" made out of a gritty fibrous material formed into a circular shape is used for cutting concrete, masonry, reinforced concrete and brick. The only way to know what the blade is designed to cut is to read the label.
3. The "Steel fiber wheel" made out of a gritty fibrous material formed into a circular shape is used for cutting steel and other ferrous metals. The only way to know what the blade is designed to cut is to read the label

**Note:** Most blades are designed to rotate in one direction. You must look on the label for some indication such as a direction arrow or at the cutting teeth to tell you which way the blade should be mounted on the saw

The Stone and Steel fiber wheels are unique in their design because they wear away as they cut, causing them to become smaller. This is especially troublesome when cutting concrete because your depth of cut becomes less as you cut across a concrete slab. These blades should not be stored in the same compartment as the gasoline and saws. Over time the hydrocarbon fumes can breakdown the glue that holds the fiber wheels together causing them to violently disintegrate when used. They should be kept in a dry area protected from excess heat.

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**Ladder companies** will carry the saw with the “Steel fiber wheel” on the saw. This prepares them to cut locks, gates, bars on windows, roll up doors or any other metal obstacle encountered during forcible entry operations.

**Squad Companies** carry two saws, one saw has the “All Purpose” blade and the other saw has the “Steel fiber wheel” blade attached ready for use.

### **STORAGE:**

On all companies, the saw is carried in the “Ready to Start” position.


1. The choke is in the “ON” position
2. the throttle is locked in the “START” position and the
3. “Master control” is in the “START” position.

### **FUEL:**

Each company will carry a can of pre-mix fuel for the saw. The mix will consist of 50 parts gasoline to 1 part oil (50:1). In addition to the saw and its fuel, companies should have extra blades (all 3 types), air filter, “V” belt, spark plug and a set of goggles/safety glasses. When mixing new gas/oil mix, always start with a empty can. Adding new gas/oil mix to old gas/oil mix changes the mix ratio of the final product and increases the chance of starting problems.

### **SAFETY PERCAUTIONS**

1. Wear safety glasses, goggles or use the helmet face shield while using the saw.  
NOTE: the helmet face shield provides MINIMUM eye protection when using the saw. Safety glasses or goggles have a much higher safety rating and provide a much higher level of eye protection.
2. Wear gloves and turn-out gear.
3. Always start the saw before carrying it to the place of service.
4. Never carry the saw while it is running.
5. Do not “DROP START” the saw.
6. If the saw is equipped with a carrying strap, it must be removed before operating the saw.
7. Use the proper blade for each type of material to be cut.
8. When cutting any surface covered with loose material, remove any loose debris.

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## STARTING INSTRUCTIONS

There are two approved ways to hold the saw when preparing to start.

1. Place the saw on the ground, make sure you have a firm foot hold or place a knee on the back of the saw.
2. Place the rear section (air cleaner) of the saw between your legs, holding it tightly in place. Controlling the movement of the saw at all times.

**Note:** No one should be in the working range of the saw when you attempt to start.



## STARTING

1. Place the choke lever in the on position. if the saw is warm from operating the choke may be placed in the off or half choke position



Choke-ON

Choke-HALF


Choke-OFF

2. Squeeze the trigger and place the Master Control to the start position. The throttle is now locked in the full on position.



3. Depress the Compression relief Valve. This allows a small amount of pressure to be relived off the top off the cylinder head during the compression cycle. This makes the saw easier to start.



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4. Hold the saw by one of the two approved methods.
5. Pull the starter cord slowly until you feel the starter engage. Then give the pull cord a quick brisk pull, continue to pull till you hear the engine “pop” or “fire”. Once that happens, move the choke to the off position and pull the cord again, the saw should start. In very cold weather move the choke to the “half” position then pull the cord, allow the saw to run for a few seconds before moving to the choke off position.
6. As soon as the engine starts it will rev to full throttle (because it’s in the ready to start position). Squeeze the throttle quickly (allowing it to drop out of the ready to start position) and return to idle.
7. To stop the engine, move the master control to the “stop” position. After long periods of use, allow the saw to idle for a short period of time before turning it off, conversely, if possible, after starting allow the saw to idle for a while before operating.

### **SAW FAILS TO START**

If the saw fails to start, check fuel level. If it has fuel and still fails to start pull the cord multiple times. If the saw still fails to start turn the choke to the off position (leaving the throttle in the locked position) and pull the cord. After multiple attempts place the choke back in the full position and try again.

**NOTE:** If the saw fails to start after multiple attempts ***GET ANOTHER SAW TO COMPLETE THE TASK.***

### **CUTTING**

Move the wheel guard around the blade to a position that allows for the cutting angle needed. When cutting always run the saw at full throttle. Allow the saw to come up to full speed before starting or continuing a cut. Listen to the engine when cutting; adjust your cut speed to allow the saw to remain at the highest RPM. Allow the saw to work at its own speed; don’t try to force it to cut faster then it wants to cut, this will only slow the cutting process. Do not twist or bend the saw while cutting. Cut in as straight a line as possible.

### **CARE AND MAITNAINCE**

Keep the saw clean and ready for use. Make sure the fuel is always topped off. Test the saw daily, inspect the blade, check the fuel, start and operate the saw for at least two minutes. When the saw is started allow it to run at idle speed for one minute before testing it at max throttle, this allows the internal parts to reach operating temperature and prolongs saw life. Clean the saw after each use, clean or replace filters, check and/or change “V” belt as needed (follow instructions in the owners manual).