

Tempe Fire Department Policies and Procedures

Circular Saw

405.06

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PURPOSE

The Tempe Fire Department carries “rescue” circular saws on all Ladder companies, Ladder Tenders and Squads, for use in ventilation and forcible entry. This procedure provides technical information about these tools and guidelines for their use and maintenance.

PROCEDURE

When operating power equipment under emergency conditions, accident potential is high due to adverse operational conditions. A slight miscalculation or sudden unplanned move can result in a serious accident. Training coupled with the use of common sense and the strict adherence to safety procedures can prevent accidents.

CHARACTERISTICS

Tempe Fire currently utilizes 2 types of rescue / circular saws; Stihl TS700 and Partner K960. Both have similar characteristics and starting procedures. Refer to respective tool manuals for unique starting, maintenance and repair procedures.

	Stihl TS700		Partner K960
Displacement	98.5cc	Displacement	93.6cc
Horse Power	6.7HP	Horse Power	6.1HP
Weight	25.6lbs (no fuel or blade)	Weight	22.1lbs (no fuel or blade)
Max blade RPM	5350 RPM	Max blade RPM	5400RPM
Depth of cut	5 inches	Depth of cut	5 inches
Max blade size	14 inches	Max blade size	14 inches

Cutting blades:

Four types:

- . **Wood** (carbide tip).
- . **Steel** (aluminum oxide).
- . **Concrete/Masonry** (silicon carbide)
- . **Diamond** Designed for cutting: * Concrete, Brick, Concrete Block * Reinforcing Bars (Rebar) This blade will also cut: * Steel * Aluminum

Fuel Capacity:

One quart 50:1 premix 2 cycle; equal to 30 minutes of operation

PERSONNEL PROTECTION

Full protective clothing shall be worn by those members operating and by those members in close proximity to the operation of power saws.

Eye protection must be worn.

To prevent accidents caused by moving belts, gears, chains, blades, etc., it is imperative that operator and guide have their clothing completely buttoned up and close fitting.

OPERATION

Carry the rescue saw with the engine stopped, the blade forward, and muffler away from body.

Keep both hands on the control handles when operating the saw. Use a firm grip with thumbs and fingers encircling the saw handles. The saw should not be extended beyond the comfortable reach of the operator.

Make sure of footing before operating the saw.

The saw shall always be shut down when unattended.

Have a plan of action before putting the saw into operation. The plan should include:

- A. Location and sequence of cuts and openings.
- B. Pre-planned escape routes. The plan should provide for at least two means of egress if possible.

Whenever possible, an officer should be present to supervise cutting operations and to assure compliance with safety procedures.

Always place the safety guard in the proper position to provide protection for the use intended before operating the saw.

Operating a power saw above chest height is extremely hazardous and should not be attempted as a normal course of action. This type of operation shall be conducted only under the direct order and/or under the supervision of an officer. The officer ordering this operation shall weigh heavily the value gained against the extreme hazard to personnel.

The use of a power saw from ladders is not recommended if there are alternatives.

When operating close to highly combustible or flammable materials, use care to prevent ignition from sparks. Do not operate saws in suspected flammable/explosive atmospheres.

Do not force the saw. Bring the blade up to full speed, then lower to material to be cut. Apply light pressure to make cut.

Side pressure or twisting of the blade when operating a rescue saw should be avoided. The saw should never be forced. If too much pressure is applied to the blade, the hazard of blade breakage (carbide tipped) or blade shattering (aluminum oxide or silicon carbide discs) is increased. A blade which breaks or shatters during cutting operations may cause serious injury to the operator or to others in the area.

The saw cut should be only as deep as necessary. Deep cuts may weaken supporting beams and lead to collapse. The experienced operator will know when he has reached a beam by the sound and feel of the saw.

If conditions permit, scrape gravel and debris from the path to be cut in order to reduce the danger of injury from flying chips and loose materials.

During steel and concrete cutting operations, sparks and dust may be a problem. Directing a fine spray of water upon the material to be cut will control sparks and dust.

FUELING AND MAINTENANCE PRECAUTIONS

Observe all safety regulations on the safe handling of fuel. When necessary to refuel, comply with the following:

- A. The saw should never be refueled while the engine is running.
- B. If fuel is spilled while refueling, wipe off saw before starting.
- C. Do not operate the saw if there is a fuel leak, send it in for servicing.
- D. Do not refuel the saw in a small enclosed space.

Always keep equipment in good, clean, serviceable condition, free of dirt and debris.

Examine the abrasive saw cutting wheel for nicks or defects at the beginning of each shift and after each use. Discard blade if damaged.

Carbide blades should be replaced if 3 or more carbide teeth are missing or damaged or when cutting efficiency was noticeably decreased.

Clean the wheel (blade) and both wheel washers when installing the wheel. Wheel blotters may be used between washers and wheel to compensate for irregularities in the wheel.

Care must be taken to assure that the abrasive saw blades do not become contaminated with petroleum based products. Such contamination may dissolve the resin which is used to bond the blade, causing the blade to shatter when use. Abrasive blades should stored laying flat with no blade on blade contact. When possible abrasive blades should not be stored on the saw (due to vibrations and the chase for micro fractures of the material) New blades should be stored in plastic bags to insure cleanliness.

Wipe saw with solvent on a rag to clean. Do not use hot water washer or hose down unit to clean.

The rescue saws are powered by a 2-cycle gasoline engine. Lubrication of the engines is accomplished by "premixing" the gasoline with lubricating oil. A 50:1 lubrication premix used by the department is available from the warehouse and should be mixed with 1 gallon of gasoline prior to use.

The rescue saws use a "V" type drive belt that needs no lubrication. The belt should be checked daily or after each use and replaced when noticeably cracked and/or worn.

The drive belt tension on the rescue saws are maintained by a pressure spring. To set the tension, slightly loosen the bolts which secure the cutting head and the belt guard. Turn the tensioning screw located on the mounting arm clockwise to set the proper tension and re-tighten the bolts that hold the cutting head.

The cutting head is normally carried in the inboard position but may be converted to an outboard position when needed.

Daily Check

- a. Check and fill fuel tank.
- b. Check and clean air filter.
- c. Check and clean cooling fins.
- d. Check and adjust drive belt.
- e. Check and select proper cutting disk.
- f. Check and adjust cutting disk guard.
- g. Check and tighten all loose nuts.
- h. Change fuel every two (2) months.
- i. Check and change spark plug every six (6) months.
- j. Change air filter every six (6) months.

Starting the Rescue saws

- a. Depress the compression release valve located on the or left side of the engine.
- b. Push the top control to the forward or run position.
- c. Pull the choke control backwards to the closed position.
- d. Set the throttle trigger by pressing the throttle catch on the side of the handle.

- e. Secure the saw and pull the starter cord.
- f. When the engine starts, release the starter cord.
- g. Adjust the choke when the engine warms up.

Stopping the Rescue saws

- a. Idle the engine to dissipate the engine heat.
- b. Pull the stop control backwards or push the red stop button
- c. Maintain control of saw until the rotation of the blade has ceased.
- d. Place in "ready state"