



# Chainsaw Operation by Woodturners Society of Queensland Members

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## 1. Objective

The objective of this document is to prioritise safety of Woodturners Society of Queensland (WSQ) personnel when managing chainsaws. Everyone in the workplace has a work health and safety duty. This is no less important with chainsaw usage where even minor omissions in procedures may result in catastrophic outcomes. While it is recognised that previous WSQ chainsaw work has been injury-free, it is important to maintain this exemplary track record by clearly defining procedures which may mitigate injuries.

The second objective is to eliminate damage to chainsaw power head and cutting mechanism. It is imperative that the WSQ chainsaw is regularly serviced (inc. regular cleaning, inspections, tension and sharpening of the chain) and costly repairs are avoided. Well maintained equipment is fundamental to the safety of members as well as minimising the work to be carried out.

## 2. Background

Only WSQ accredited chainsaw operators are allowed to handle and use chainsaws and accessories. No chainsaw equipment should be removed from the premise without prior approval from the President of WSQ or their representative.

The maintenance programme for the chainsaws and accessories is the responsibility of the accredited chainsaw operators within WSQ. This programme includes power head cleaning; chain cleaning, sharpening, and tensioning; filling fuel (mix at 50:1 i.e., 20mls 2-stroke oil per 1 litre ethanol-free fuel) and bar oil reservoirs, and maintenance of safety equipment.

The power head and chain service should include the following after every planned cut and during a cutting procedure as required:

- Air filter - remove and clean with air gun (air flow inside to outside); may require mild soapy water for built up debris.
- Chainsaw chain – remove and clean; may require soak in fuel or methylated spirits to remove debris; sharpen and tension regularly; maintain a good oil flow in guide bar groove. Both the cutters and the depth gauges should be kept in good working state. Regular sharpening of the 0.325-inch chain is recommended with a 4.8 mm diameter round file (“80 percent/20 percent rule” i.e. 80 percent of the file is inside the cutter, and 20 percent is above the cutter to create a sharp, crescent-shaped hook on the end of the cutter tooth). In addition, the depth gauges should be checked after every five cutter sharpenings. It is recommended that the depth gauge is 0.025 in or 0.635 mm below the top of the cutter.
- Chain brake – check operating mechanism.

### **3. Planned Chainsaw Operations**

It is the responsibility of all accredited chainsaw operators who have agreed to participate in a planned operation to consider its risk management. Scheduling of chainsaw operations will require forward planning with accredited members, ensuring a reasonable workload for the session, reasonable weather conditions (e.g., no rain or heat wave) and physical fitness of workers. Dehydration and fatigue significantly increase the risk of injuries. Low risk cutting and steady work pace are essential for safe workplace planning.

The nature and outcomes of chainsaw injuries makes the safe management of chainsaws a priority.

### **4. Safety Operation Checklist:**

- Essential PPE –
  - Close-fitting clothes
  - Helmet
  - Ear protection (muffs or ear plugs)
  - Eye Protection (visor or safety glasses)
  - Chaps for leg protection
  - Steel capped boots
- Recommended as required –
  - Face mask to prevent inhalation of wood dust
  - Eye goggles (as well as visor)
  - Combination spanner
  - Chain sharpening files (both flat and round)
  - Chain sharpening angle gauge
  - Depth gauge setter

### **5. Environment:**

The area for the proposed operation will be clearly demarked with bollards and horizontal rods. A sign indicating that chainsaw operation is underway will be displayed outside and close to this barrier. Only chainsaw accredited WSQ members are allowed in this area. Only an essential number of members should be within this area to minimise human traffic and ensure safety.

It is essential that all timber is checked with a metal detector before cutting. This is the responsibility of all members involved in the cutting process.

It is recommended that a minimum of two and maximum of three chainsaw accredited members are allowed within the area. The maximum number of members will include the chainsaw operator, the spotter, and the roustabout. The operator will perform the chainsaw cuts. The spotter will supervise the chainsaw operator as well as the safety and integrity of the site. The spotter will use either hand signals and/or the chainsaw scabbard as a visual indicator to stop the operator during the cutting process. It is recommended that the spotter will usually stand behind and slightly to the right of the

operator. In this position the spotter can observe the operator is not directly over the cut but standing slightly offset should a kickback occur. However, the spotter may stand in any position that will ensure they have an unobstructed view of the operator and site. It is important that the operator is aware of where the spotter and roustabout are standing. The spotter and roustabout should avoid frequent changes in their position during the cut for safety reasons.

The roustabout will assist with positioning of timber prior to cutting, stabilising timber (e.g., use long pieces of timber during cutting) and removal of timber pieces after the cut is completed. The planning of a specific cut will be the responsibility of the operator, spotter, and roustabout. Once the type of cut is agreed, the operator will make the cut. Any changes to the planned cut should not be made during the cutting process unless an immediate danger is recognised. Should an immediate danger be recognised during the cut, the spotter will halt the cut by throwing or waving the chainsaw cover in the operator's line of sight. The operator will immediately stop the cut (even if the operator has not recognised the danger). It is imperative that the team acknowledges and trust each members' views. If there is any doubt the cut is unsafe, then team should address the issue and agree on a safe plan.

If someone outside this barrier wishes to communicate with the team, then they should wait until a cutting procedure has finished. Any communication specifically addressed to operator during the cutting procedure should be initiated only via the spotter and not directly with the operator. This will minimise operator distractions during the procedure. The only exception is when an outside party recognises an immediate danger which has not been observed by the team. It is recommended that they immediately contact the spotter who should stop the cut. The issue can then be raised with the team.

## 6. Chainsaw Operation

### Chainsaw Specifications

(following pertain to the current WSQ chainsaw; the details may be found on the Stihl website

<https://www.stihl.com.au/STIHL-Products/Chainsaws/Landowner-Chainsaws/21825-1572/MS-291-C-BE.aspx>)

Stihl MS 291 C-BE 2.8kW petrol chainsaw with fast chain tension

- Long-life air filter systems for chainsaws
- Four channel fuel-air mix
- Easy2Start

Cutting length	45 cm
Displacement	55.5 cc
Power output	2.8 kW /3.8PS
Weight	6.2 kgs (without fuel, bar and chain)
Tank volume	500 mL

## **Startup Procedure and Shut Down Procedure**

(See Appendix 1)

The operator must refer to the Stihl owners' manual prior to starting up and shutting down the chainsaw. The Stihl manual instructions override any information provided in this document.

### **Tensioning Procedure:**

The Stihl MS 291 C-BE has a Quick Chain Tensioning system - after loosening the sprocket cover, the chain can be adjusted using a thumb wheel without the need for tools. Correct chain tension is where the bottom of the chain tie straps are just touching the underside of the guide bar. The chain should be able to be pulled around the bar freely by hand. The bar tip should be held up and the bar nuts then tighten.

Note: do not re-tension a very hot chain and leave it overnight. The contraction of the chain when cooling overnight may bend the crankshaft.

### **Completion of Cutting Procedure:**

The area used for chain sawing should be returned to the same state it was before the procedure. This includes cleaning and returning the chainsaws and the accessories to their storage areas as well as sweeping residual sawdust into the garden area or bagging it prior to placing it in the appropriate bins.

## Appendix 1: Start-up and Shut-down Procedures.

### Start-up procedure:

- Lay the chainsaw on the ground and put your foot into the rear handle to secure it (Note: “drop starting” the chainsaw is not recommended by Stihl and should not be used by WSQ members; apart from the possible injuries incurred with drop starts, the **MS 291 C-BE has an Easy2Start mechanism which can be damaged when the start rope is suddenly pulled**)
- Fill the chainsaw with the appropriate fuel/oil mix and bar oil
- Set the chain brake on by pushing the brake handle forward
- Remove the scabbard
- While holding the throttle trigger lockout and the throttle trigger, press the master control lever all the way down to full choke position
- Press the manual fuel pump bulb several times – even if the bulb is already filled with fuel
- With your left hand on the handlebar, pull the starter rope with your right hand VERY SLOWLY upwards (this chainsaw has a tensioning spring to make starting easier; rapid pulling on the rope can damage this spring)
- The motor will turn over and stop
- Push the Master Control lever up one click to warm start position.
- Pull the starter rope again VERY SLOWLY until the engine fires.
- IMMEDIATELY squeeze and release the throttle trigger to allow the main switch to move to the “On” position and the engine will idle. DO NOT LEAVE THE THROTTLE IN THE WARM START POSITION WITH THE CHAINBRAKE ON. Increased engine speeds with the chain brake on will rapidly overheat and damage the powerhead.

### Shut-down procedure:

- To stop the chainsaw, move the control lever to the “OFF” (“0”) position.