PERTRAIN
Creating innovative training solutions

AHCMOM213 Operate and Maintain Chainsaws

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Work Planning

- Attend Work Briefings and Shift Handovers
- Briefing information includes:
  - Location and status of other equipment in the area
  - Hazards in the area
  - Environmental issues
  - Events occurring during the shift
  - Problems from previous shift
  - Updates to work orders
  - Job progress
- Written work order with job specifications
- See supervisor if you need more information

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Obtain Additional Information

- Depending on your work site and task you may be provided with:
  - Environmental and cultural heritage protection requirements
  - Survey information

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Environmental Protection Requirements

- All operators have a legal obligation to protect the environment
- Follow site environmental management plan to:
  - Protect flora and fauna
  - Prevent/minimise dust
  - Control fumes
  - Control water quality
  - Control noise and vibration
  - Clean up chemical spills
  - Manage waste
  - Preserve heritage sites and items

Protect Native Fauna

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Survey Information

- Plans, maps, drawings
- Indicate job specifications
  - Work area
  - Dangerous areas
  - Exclusion zones
  - Trees to be cleared or retained
- Markers
- Compare survey information to site
- Report discrepancies

Check Markers

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Interpret Information and Plan Work

- Analyse information at work site to identify and report discrepancies
- Devise a brief work plan that includes:
  - How the task will be done
  - What tools are needed
  - How hazards will be managed
  - Work area preparation
  - Communication procedures
- Consult with supervisor for complex tasks
- Communicate plan to others

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Written Communication

- Paper-based or electronic
- Written communications include:
  - Site procedures and work instructions
  - Reports
  - Log books
  - Checklists
  - JSA/JSEA
  - Permits
  - Forms
  - Timesheets
  - Email, faxes, letters

Log Book

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Signs

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Signals

- Hand signals must be confirmed and clearly understood

Hand Signals

- Whistle signals may be used

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Safety

- Work safely and be professional:
  - Plan ahead
  - Manage risks
  - Put safety first
  - Maintain a steady work pace
  - Concentrate
  - Use sound, low risk techniques
  - Understand and look after equipment
  - Care about the environment

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Hazards and Risks

- Be aware of your surroundings
- Identify hazards and manage the risk at the work site, including:
  - Hazardous substances
  - Manual handling
  - working at heights
  - Overhead and underground services
  - Ground conditions
  - Equipment and traffic
  - Nearby personnel
  - Trees, vegetation and wildlife

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Hazard Identification

- Conduct personal hazard identification if:
  - Task is unfamiliar
  - Unsure if task can be done safety
  - Task is potentially hazardous
  - Task is high risk
  - Site requires it
- Do Job Safety Analysis (JSA) if:
  - Uncontrolled hazards are present
  - There is no written procedure for a complex task
  - Permit is required
  - Equipment brought to the site creates a hazard

1. Stop
2. Think
3. Identify
4. Plan
5. Proceed

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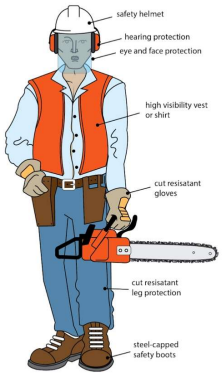
Hazard Associated with Chainsaws

- Operator:
  - Trained and able?
  - Right equipment?
  - Tired, fatigued, drugs, alcohol?
  - Sufficient rest breaks?
  - Water?
- Equipment:
  - Noise, vibration?
  - Properly maintained and fuelled?
  - Other equipment nearby?
- Work environment:
  - Weather suitable?
  - Fire danger?
  - Ground hazards?
  - Unsafe trees?
  - Other personnel?

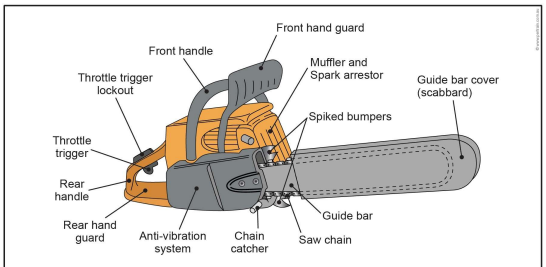
Personal Protective Equipment (PPE)

- Know what PPE is required
- Select suitable PPE
- Check PPE is:
  - Clean
  - In good condition
  - Fitted correctly
- Tag out damaged PPE
- Replenish consumable PPE
- Report low stocks or missing PPE



Selecting Tools and Equipment

- Match the equipment to the task
- Be familiar with components and safety features



Chainsaw Components

Other Equipment

Tool	Details
Sharp Axe	The axe is a necessary back-up tool for cutting and clearing. It is also used to clear away bark from the cutting surface. The axe should weigh between 1-1.1/2 kg and should be equipped with a suitable cover. Make sure that the axe head and handle are in good condition.
Wedges	At least two wedges are required. Plastic or aluminium wedges should be used, as steel wedges will throw the chainsaw if struck by the chain, and will ruin the chain. Wedges must be in good condition, free of cracks and mushroomed heads.
Hammer	A suitable hammer of sufficient weight is required for driving wedges, e.g. a 2-3kg sledge hammer. The handle must be of good length, tightly fitted and free of knots, cracks and splinters.
Fuel Container	Suitable fuel, oil containers and funnels for pouring. Heavy duty steel containers are the most suitable. You must have the appropriate Safety Data Sheets for all fuels being used.
Cant Hook	A cant hook is a useful directional falling aid. It is very useful for dislodging hung-up trees.
Fire Control Equipment	Fire control equipment including a rake-hoe, fully charged hand pump knapsack-type sprayer and fire extinguisher are required during the fire season.
Signage	Workplace signage needs to be erected at all entry points to the work area. Signage must be prominently displayed and readable.

Chainsaw Maintenance Kit

- Should include:
  - File guide
  - Flat and round files
  - Depth gauge setting tools
  - Small screwdriver
  - Spanner/wrench
  - Paintbrush/toothbrush
  - Rags

Pre-start

- When transporting the chainsaw:
  - Keep fuel cap facing up
  - Do not carry saw in passenger area of vehicle
  - Use scabbard when transporting or storing
  - Carry saw with the bar pointing to the rear
- Work area:
  - Keep people and animals at least 2m away
  - Keep work area clear of rubbish and off-cuts
  - Ensure saw path is clear of obstacles and service lines
  - Establish clear retreat path
  - Only work in suitable conditions

Pre-start (continued)

- Material:
  - Stabilise or secure material to be cut
- Pre-start checks:
  - Follow manufacturer's guidelines
  - Use checklist
  - Check chain for sharpness, security and tension
  - Check handles for cracks, splinters, wear, damage, moisture, grease
  - Check fuel and oil

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Start

- Remove the scabbard
- Chain brake engaged
- Chain is free of debris
- Place the saw on the ground
- Remove obstructions around the saw
- Start saw on the ground using both hands
- Start according to manufacturer instructions

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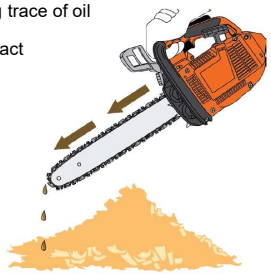
Post Start Checks

- Check chain lubrication
  - Nose bar over light background
  - Run engine at half throttle
  - Saw should throw out increasing trace of oil
- Do not allow the tip of the bar to contact any surface



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Using the Chainsaw

- Inspect item to be cut for hazards
- Ensure item is stable/secured
- Position yourself to one side of item
- Stable stance, two handed grip
- Begin cut at peak revs
- Use correct cutting method
- Do not allow chain to contact ground or obstacles
- Take regular rest breaks
- Turn chainsaw off when not in use

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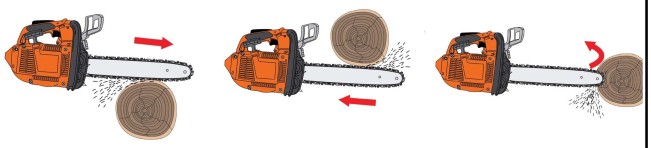
Chainsaw Reaction

Pull in Push out Kickback



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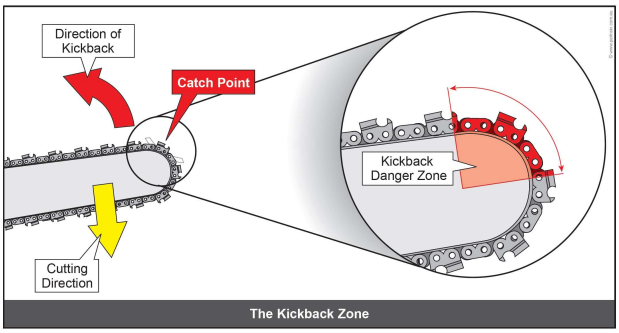
Kickback



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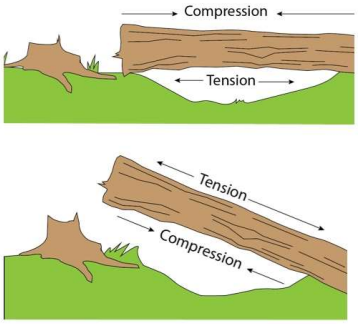
Forces



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Maintenance Checklist

Item	Maintenance	Frequency: Before use	During Use	After Use	As Required
Air filter	Check and clean if necessary	•			
	Replace				•
	Examine		•		
Spark plug	Remove and clean, check gap				•
	Replace				•
Fuel tank	Check full (use correct mixture)	•			
Fuel tank vent	Clean		•		
Fuel tank filter	Clean				•
Chain	Fill oil tank	•			
	Check oiling system	•			
	Check tension	•	•		
	Inspect and sharpen (if required)	•			•
	Replace (if necessary)				•
	Brake (check operative)		•		
Cutter bar	Clean (including oil inlet and groove) turn			•	
	Inspect for wear and burrs			•	
Clutch	Check for slip		•		
Sprocket	Inspect			•	
Oil reservoir vent	Clean		•		
Oil filter	Clean or replace				•
Sawdust guard	Clean			•	
Starter rope	Inspect			•	
Screws, nuts and bolts	Inspect and tighten			•	
Muffler	Inspect				•
Cylinder fins and body of chainsaw	Clean			•	

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Removing Cutting Debris

- Measure, estimate and calculate dimensions and volumes when removing material using a truck or trailer
- Convert measurements to the same unit

10mm = 1cm	1mm = 0.1cm
1000mm = 1m	1mm = 0.001m
100cm = 1m	1cm = 0.01m
1000m = 1km	1m = 0.0001km

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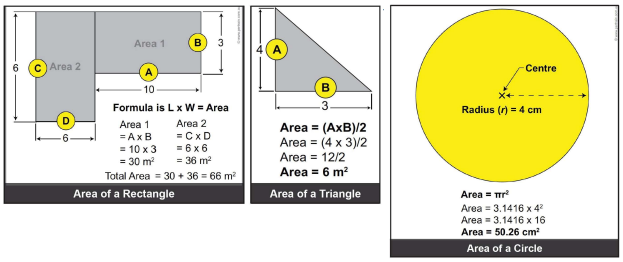
Area



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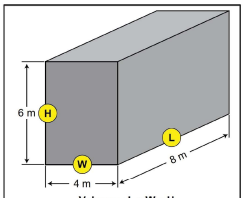
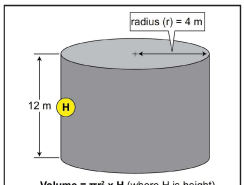
Volume and Mass



Volume = L x W x H
(where L is length, W is width and H is height)
Volume = (8 x 4 x 6)
Volume = **192 m³**

Volume of a Rectangular Object



Volume = πr² x H (where H is height)
Volume = 3.1416 x 16 x 12
Volume = **603.2 m³**

Volume of a Cylinder

- 1 cubic metre of hardwood has a mass of 1.1. tonne.
- 1 cubic metre of softwood has a mass of 0.75 tonne.
- 1 cubic metre of earth has a mass of 1.9 tonne.

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Equipment Cleaning

- Clean equipment according to safe work practices and manufacturer instructions

Item	Details
Spark Plugs	Remove with spark plug wrench, clean electrodes with a file.
Fuel Filter	Drain fuel if the chainsaw has been idle for more that 3 months. Remove filter and immerse in strong solvent to dissolve deposits. Put fuel filter back in place and fill the tank with fresh fuel.
Air Filter	Remove air filter with fingers, clean it with compressed air or warm, soapy water and rinse with clean water. Let it dry before reinstalling.
Spark Arrestor	Remove spark arrestor from behind the muffler and clean with a toothbrush.
Air Intake Vents and Cooling Fans	Use a rag or small paintbrush or toothbrush to clear vents and fins of debris and build-up.
Chain and Guide Bar	Remove the saw chain and visually inspect the chain and bar for debris, wear and damage. Remove oil and dirt from the chain, bar and sprocket with a rag. Clean out the groove (working from the nose backwards) with a plastic or wooden tool. Clean oil holes with a pipe cleaner or small nail. Replace and retension chain.
Saw body	Clean the saw body of dust, debris and any spilled fuel or oil with a rag.

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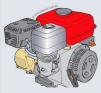
Equipment Storage

- Store equipment according to safe work practices and manufacturer instructions

Item	Maintenance	Storage
Hammers, axes	Check the handle for splinters and cracks. Ensure that the handle is firmly attached to the head.	Stow hammers in a toolbox to prevent tripping hazards and rusting.
Hand tools - wrenches, screwdrivers, etc	Straighten the handle if required. Replace wrenches that have burred or worn edges.	Stow wrenches in a toolbox to prevent tripping hazards and rusting.
Hand saws	Keep the teeth sharp. Ensure that the handle screws (e.g. on a hacksaw) are tightened.	Protect the teeth with a sleeve.
Shovels, Spades, Crowbars	Check the handle for splinters and cracks. Ensure that the handle is firmly attached to the blade.	Lean the tools against a barrier to prevent tripping hazards and rusting.
Petrol/Diesel Powered Plant and Equipment (e.g. chainsaw) 	Inspect the equipment for fuel, oil and coolant leaks. Ensure that fuel and other lines are firmly connected. Loose components should be tightened to manufacturer recommended tension. Guards should be secure and in place. Inspect air filters for dust or other material buildup, and clean regularly. Check equipment is lubricated. Inspect spark plugs for damage.	Store all petrol/diesel equipment in a dry, well-ventilated area, and away from extreme heat and dusty conditions.

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End of Shift Reports

- The purpose of reporting is to share information that can affect operations
- Reports may be verbal or written
- Hazard reports can help to recurring incidents
- End of shift reports may include:
  - Logbooks
  - Time sheets
  - Shift report
  - Maintenance report

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Completing Your Training Program

- Congratulations!
- Undertake the assessment in a work environment

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Summary

- Do you have any questions?

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