

1. Module details

Module name

Wood Chipper Operations and Maintenance

Module duration

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 18 - 20 hours.

Module code

NUE264

Discipline code

0789120

2. Module purpose

The purpose of this module is to provide participants with the skills and knowledge to operate a wood chipper in a safe and efficient manner and undertake routine maintenance activities on the machine.

3. Prerequisites

NBB002 Occupational Health and Safety.

4. Relationship to competency standards

NES101, NES450, NES604, NES606, RUH HRT207

5. Content

Safe operational requirements

Pre-start checks

Work site set up

Chipper operation

Periodic maintenance routines

6. Assessment strategy

Assessment methods

More than one learning outcome may be assessed at once. If appropriate, learning outcomes in this module may be assessed in conjunction with learning outcomes in other modules

Skills based learning outcomes should be assessed by practical demonstration with oral or written evidence where underpinning knowledge is required

Learning outcomes which do not require practical demonstration should be assessed using oral and/or written evidence such as assignments, reports, exercises, projects or presentations

Conditions of assessment

Assessment should be carried out at actual work sites at which previous pruning operations have been conducted and pruning material has been produced

Safety equipment, and a chipper in safe working condition

7. Learning outcome details

Learning outcome 1

Detail the conditions required for the safe operation of a wood chipper.

Assessment criteria

- 1.1 Compare and contrast various quality items of safety gear especially helmets, ear muffs, gloves, etc.
- 1.2 Select and don clothing and safety equipment.
- 1.3 Identify staffing levels required for the safe operation of a wood chipper.
- 1.4 Detail hazards commonly associated with work sites.
- 1.5 Select pruning materials of the appropriate size for the operation of the particular wood chipper and further prepare material as necessary. Ensure material does not include limbs and branches providing natural habitat at the site, unless otherwise instructed.

Learning outcome 2

Undertake pre-start checks on a chipper.

Assessment criteria

- 2.1 Identify the major operational parts of a wood chipper and state their functions.
- 2.2 Inspect chipper for any signs of obvious damage which will effect roadworthiness or operational serviceability including tyre pressure, lights, hydraulic hoses and safety guards.
- 2.3 Check hydraulic fluid levels and engine oil, consult operations manual for oil specifications and top up fluid and oil levels if necessary. Lubricate machine as per operations manual.
- 2.4 Check and top up radiator.
- 2.5 Check and add fuel as required.
- 2.6 Check intake chute and feed rollers are clear of obstructions.
- 2.7 Open access cover and inspect condition of knives and correct bolt tension.
- 2.8 Check and adjust anvil position as per operators manual.
- 2.9 Select and put on protective clothing.

Learning outcome 3

- 2.10 Start motor following machine operator manual instructions.
- 2.11 Advance motor, engage clutch and check forward and reverse functions of feed roller.
- 2.12 Check operation of emergency brake.
- 2.13 Shut down machine as per operator manual instructions.

Set up and safely position work site in preparation for operation of a wood chipper.

Assessment criteria

- 3.1 Inspect work site and indicate potential hazards in regard to position and manual handling.
- 3.2 Explain in detail how the site hazards can be minimised.
- 3.3 Locate hazard signs to delineate the work site.
- 3.4 Locate chipper and bin with respect to source of pruning materials in a way in which will ensure a safe and efficient operation and taking into account likely hazards.
- 3.5 Set up and safely position chain saws and other pruning equipment, oils, fuels and other materials as required.

Learning outcome 4

Operate the chipper to chip materials safely and efficiently.

Assessment criteria

- 4.1 Inspect and don personnel protective clothing and equipment.
- 4.2 Ensure material to be chipped is free of contaminants e.g. metals, stone, plastics, native fauna, pests and diseases.
- 4.3 Material to be chipped is in proportion to the capacity of the chipper.
- 4.4 Feed material into feed rollers keeping body parts clear of feed rollers at all times.
- 4.5 Forward and reverse feed rollers to ensure clearance of material.
- 4.6 Shut down machine as per manufacturers specifications.

Learning outcome 5

Assessment criteria

4.7 Remove debris from the machine and equipment, clean down machine and equipment to minimise the risk of pest and disease transmission, secure the machine and related equipment for safe transport.

Undertake periodic maintenance routines.

5.1 Explain the importance of undertaking thorough periodic maintenance tasks on the machine.

5.2 Explain the importance of use of correct oils for engine operation, consult operator manual instructions for oil change requirements, obtain correct oil and change engine oil as per instructions.

5.3 Remove and clean or replace air filter.

5.4 Check fuel lines and fuel sediment bowl for dirt and oil, remove and clean as required.

5.5 Check cooling system hoses for cracks, leaks or defects including radiator for any damage.

5.6 Check belts for tension and damage and replace as required.

5.7 Check tyres and re-inflate according to manufacturers specifications.

5.8 Check battery acid levels and add water if required, as well as terminals, leads, caps and battery securing device.

5.9 Check manual for grease nipple locations and grease according to operator manual instructions.

5.10 Open access cover to cutting wheel, inspect knives for damage and correct. Remove knives and mountings, rotate damaged knives if applicable, replace and reinstall knives.

5.11 Open and check chipper chute for damage.

5.12 Report any abnormalities, faults or defects or other signs or equipment fatigue/wear including weld cracks or distortions to metal.

8. Delivery of the module

All or part of this module may be delivered through full and part time, on and off the job. Practical components should be delivered in a way that ensures participant safety.

Delivery methods must provide for the demonstration of skills and associated knowledge specified in all learning outcomes, either in work place or simulated work place conditions.

Delivery should take into account current legislation, regulations and by-laws and be consistent with existing industry standards

References

O.H.& S Guidelines

Operator Manuals

Machinery Manufacturers Manuals

Blair, D.F. 1995, Arborist Equipment: A Guide to the Tools and Equipment of Tree Maintenance and Removal, The ISA, Savoy, Illinois

Occupational health and safety requirements

All work and training practices must comply with State and federal occupational health and safety legislation and codes of practice