ForestWorks

Log Haulage Manual

for the Code of Practice

Disclaimer

While every effort has been made to ensure the accuracy of the information in the ForestWorks Log Haulage Manual; it is provided for general guidance purposes only. Information contained in this manual, including any referenced Codes of Practice, does not constitute legal advice.

Use at Own Risk	Users of this manual are responsible for assessing the relevance, suitability, and accuracy of the content for their specific operations and circumstances.
No Liability	To the maximum extent permitted by law, ForestWorks and its affiliates accept no liability for any damage, loss (including indirect or consequential loss), injury, or penalty suffered by any person or entity as a result of relying on information in this manual, or from acting—or failing to act—based on this information.
Compliance	This manual provides recommendations only. All parties in the Chain of Responsibility (CoR) are responsible for ensuring that their activities comply with applicable work health and safety (WHS) legislation, the Heavy Vehicle National Law (HVNL), and any relevant site-specific safety requirements.
No Guarantee of Safety	Following the guidance in this manual does not guarantee the elimination of all risks. Users must continue to apply safe operating practices, conduct risk assessments, and implement appropriate controls.

Contents

Introduction

Introduction

Who is this manual for?

This Manual is written for:

- truck drivers who transport logs, and
- forestry workers who harvest, load, unload and prepare logs for transport, which includes cutting and stacking logs.

Introduction

Safely performing your job is vital

Log transportation, loading and handling can be a high-risk activity for drivers and workers.

People struck by falling logs at loading sites have led to many fatalities and serious injuries. Loaded log trucks present risks when they are driven on the road, not only to truck drivers of heavy vehicles, but also to the public.

Crashes often occur due to a lack of forward planning by management. Vehicles roll over because of things like an unstable load, driver error or a vehicle in poor mechanical condition.

Safety incidents in the workplace can be caused by things like incorrect and unsafe loading or not following safe work procedures.

Knowing how to perform your job safely is vital to the safety of yourself and others.

Introduction

What about the Code?

The **Forestry Log Haulage Code of Practice** is written for Parties in the **Chain of Responsibility (CoR)** and their executives.

The Manual translates the content of the Code into practical advice about safe work practices including:

- correctly preparing logs for transport (including how logs are cut and stacked),
- loading and restraining logs,
- vehicle safety measures, and
- adapting driving on forest roads.

Following this advice will improve the safety of workers in forests, drivers, and road safety more broadly.

The Manual provides readers with a general understanding of the legal frameworks. It can help workers comply and keep themselves and their co-workers safe. But it does not provide a detailed explanation of the law.

Instead, this manual is designed to be used as a training resource and a quick reference guide for workers in the field. It might be kept in a glove box or break room.

This Manual is intended to be a useful guide but it can't contain everything. It is up to the business employing or contracting you to make sure you have the right training, knowledge and equipment to do your job safely.

Introduction

What safety laws apply to me as a driver or forestry worker?

Two main safety laws apply to drivers and forestry workers:

1	The **Workplace Health and Safety (WHS)** Law for your state or territory (also called Occupational Health and Safety Laws) and associated regulations.
2	The **Heavy Vehicle National Law (HVNL)** and associated regulations.

The table below highlights important ways that **WHS** Law and the **NHVR** are consistent with each other.

Table 1: Comparison of WHS Law and the HVNL

	WHS	HVNL
PCBU/Officer OR Chain of Responsibility Parties	Workplace	Transport Activities
Must eliminate risk so far as reasonably practicable, and where this is not possible, minimise risk so far as reasonably practicable	✓	✓
Hold the primary legal duty created by the law since a business/organisation has the most authority, control and resources to implement safe ways of working	✓	✓
Those in charge of the business or organisation can be held personally liable, prosecuted and fined if the company commits a breach of the law	✓	✓
Should ensure the health and safety of you, your colleagues and the public, and provide a safe working environment	✓	✓
Must be proactive about their safety responsibilities	✓	✓
Workers	Workplace	Transport Activities

Introduction

Take reasonable care of your own and others' health and safety	✓	✓

Under both laws, it is those in charge who hold most of the responsibility for ensuring safety.

WHS Law	**WHS Law covers any type of work** WHS obligations are primarily on PCBUs (a person conducting a business or undertaking), who must do what's reasonably practicable to ensure the health and safety of people in the workplace. Workers have a duty to look after their own and their colleagues' safety and follow reasonable instructions from their employers
HVNL	**The HVNL is focused on transport activities** It places a similar obligation on the 10 parties in the Chain of Responsibility (CoR) for heavy vehicles. It requires the 10 parties named in the law to ensure the safety of their transport activities and this includes the things that happen before a vehicle begins a journey and what happens afterwards. The HVNL imposes a duty on CoR parties to do what is reasonably practicable to eliminate if possible or minimise public risk, including risks to the driver, other people, infrastructure, property and the environment. Businesses that load and transport logs, manage coupes, and arrange or schedule the transport of logs are likely all considered CoR parties. To meet their primary duty, they need to ensure they do several things, including to train and equip employees to work safely.

A driver is not a CoR party

If	Then	And
You are an employed driver	You are not a CoR party	Do not have a primary duty.

An individual worker or driver would be considered CoR parties only when they perform any of the CoR functions such as scheduling, loading or unloading, but generally, their employers would be expected to take the lead on ensuring safety. Forestry workers and truck drivers who load their own vehicles belong to this category.

The HVNL already imposes over 90 prescriptive obligations on drivers for operating safely on roads, including responsibility for safe loads and load restraint. However - if you're not happy a load is safe to carry, your employer should support your decision to have it reloaded to make it safe.

The guidance in this Manual should help each of the above to operate safely and to meet their obligations.

For more information about the CoR or the HVNL, refer to the NHVR website and the Code.

Introduction

What does your employer need to do?

Your employer has an obligation to provide a safe workplace and safe work systems. You should have the time, equipment, resources and information you need to work safely. If those aren't provided, you are entitled to speak up and ask for them.

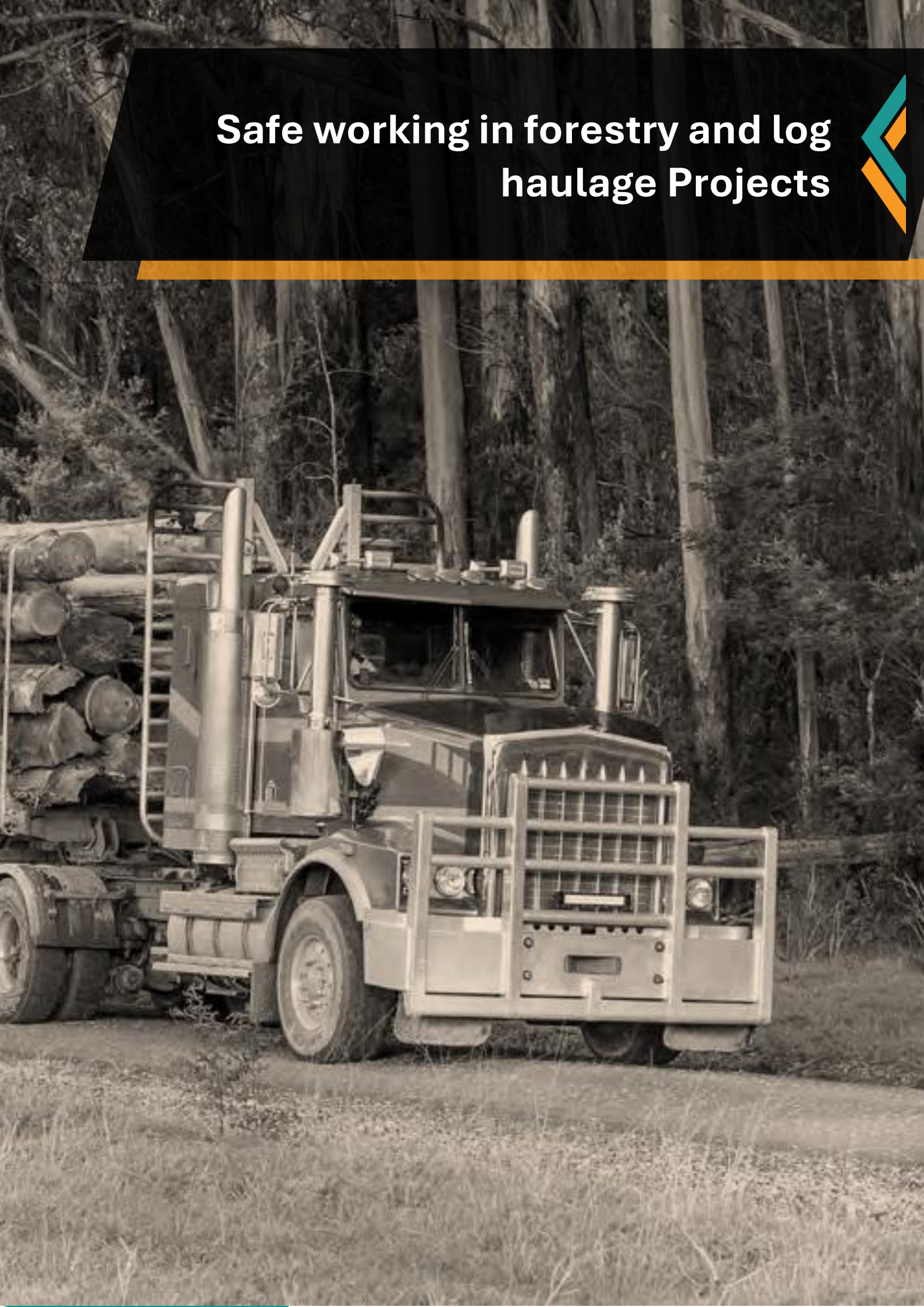
Your employer should, so far as reasonably practicable, ensure safety. This includes safety in a workplace, and the safety of the driver and members of the public (when the vehicle is on the road) and to ensure the vehicle or its load doesn't cause damage to infrastructure or the environment.

Your employer (including someone who may have contracted you to work) is also required to exercise due diligence to fulfil their primary duty. Both the WHS Law and the HVNL require executives to exercise due diligence to ensure their organisation fulfils its duty to ensure safety.

What do you need to do?

Following this manual will keep you safe and help your employer to meet their obligations about loading, unloading and transporting logs.

Safe working in forestry and log haulage Projects



Safe working in forestry and log haulage

The following topics address steps to ensure you, your co-workers and the public are safe:

1. Workplace.
2. Fitness for Work
3. Vehicle.
4. Load.
5. Your Journey.

1. Workplace[1]

Follow safety policies and procedures

Your employer will provide you with written policies and procedures explaining 'who does what' to make sure heavy vehicles are used safely. They also need to ensure you know:

- how to perform your tasks safely, and
- the process for raising safety concerns.

You should follow the safety policies, procedures and instructions, and if you don't understand, speak up and ask questions. You should also speak up if you feel they are not working effectively. This makes sure the safety measures remain suitable for the task and workers stay safe.

[1] The content in this section relies on The Code sections 4.1.2 and 4.1.3, WHS Law and WorkSafe's resources.

Complete training

Source: Pexels - copyright free royalty free images | https://www.pexels.com/search/ppe%20high%20vis/

Your employer will provide you with training about the location, activities, procedures, safety risks relevant to your role and the business's expectations for a safe workplace. They will also provide you with task-specific training which covers the specific skills and knowledge you need to perform your tasks safely at all workplace locations (e.g., loading). You will receive additional training if you are required to use new vehicles or equipment. You must follow the training provided and again, speak up if you don't understand or if something is not working effectively on-the-job.

Take responsibility for your own health and safety

You must take reasonable care for your own health and safety and that of the people your work may affect.

You should not:

- knowingly do something that could harm others
- take short cuts that could reduce the level of safety.

You must follow the workplace safety policies and procedures; training and instructions provided and safely use any equipment your employer provides.

Your employer should have a procedure for you to report any hazards and to take action to control them. You can help make your workplace and the transport task safer by promptly reporting any hazards you become aware of and working with your employer to manage them.

Personal Protective Equipment (PPE)

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Your employer will provide you with personal protective equipment (PPE) and instructions on how to use it. You must use it according to these instructions.

The PPE you are required to use can depend on the task you're doing. Forestry worker PPE might include:

- Safety boots with steel toe caps and non-slip soles
- High-visibility clothing
- Gloves
- Safety glasses
- Hard hat with face protection and hearing protection
- Cut protection trousers

Not wearing the correct PPE or not using it properly could:

- expose you to risks to your health and safety (such as falling branches, splinters, dust, noise, cut injuries, falling, weather exposure)
- restrict your vision or mobility, affecting how well you do your job
- cause you to overheat, if the PPE is stopping your sweat from evaporating, or
- lead to an allergic reaction to the materials in the PPE.

Read the care tag on your PPE and follow its instructions when washing, drying and waterproofing so you don't reduce its protective qualities.

2. Fitness for Work[2]

Both you and your employer are responsible for making sure you are fit to work.

Your fitness to work can be affected by:

- alcohol and other drug use,
- general physical and mental health,
- state of mind,
- distractions from things outside of work, and fatigue.

Workers who are affected are less able to carry out safety critical tasks like driving a heavy vehicle, restraining a load, making scheduling decisions, supervising operations or responding in an emergency. Items 1–4 can also potentially contribute to worker fatigue.

[2] The content in this section comes from The Code sections 5.5, 5.6, 8.2, 8.4, 8.4.5, 8.5.3 and NHVR Regulatory Advice – Fitness to Drive (Fatigue).

Why should I manage my fatigue?

Fatigue-related crashes are twice as likely to be fatal. Driver fatigue can be as dangerous as drink driving because it affects concentration and judgement and slows reaction time.

Fatigue in other forestry workers, including forwarder operators and loaders can contribute to safety incidents and near misses in workplaces.

Research shows being awake for about 17 hours has a similar effect on your driving as a blood alcohol concentration (BAC) of 0.05.

Managing your own fatigue as a driver or worker is crucial for your safety, the safety of others on the road and for others in your workplace.

How do I recognise the signs of fatigue?

Everyone is safer if you can identify the signs of fatigue in yourself and in others, including colleagues and those you encounter at work.

Table 2: Signs of Fatigue

Drivers and other Forestry Workers	Driver-specific
An inability to concentrate, slow reaction times or a lack of alertness	A near miss or accident
Changing position frequently, opening the window or turning up the music (restlessness)	Drifting out of your lane/swerving
Making more mistakes than usual	Not maintaining a constant speed
Difficulty keeping eyes open, drowsiness, microsleeps or falling asleep	Overshooting a road sign or traffic line
Not feeling refreshed after a rest/sleep	Poor gear changes or delayed braking

Drivers and other Forestry Workers	Driver-specific
Frequent head nodding, yawning or blurred vision	Not remembering the last few km of your trip
Mood swings/changes	Reactive

How can I manage my fatigue?

You can help protect yourself and others by:

- getting enough sleep,
- recognising signs of fatigue,
- taking regular breaks,
- knowing where rest areas are and using them, and
- speaking up.

Getting enough sleep	Most people need 7-9 continuous hours of sleep per day.
Recognising signs of fatigue	See: **Table 2: Signs of Fatigue**
Taking regular breaks	The HVNL sets out prescribed work and minimum rest limits for drivers of fatigue-regulated vehicles. Following these requirements is a good start but you might still become fatigued. So, take breaks more often if you need to and be aware of the signs of fatigue in yourself and others. Complying with the law for work and rest hours is only one part of managing fatigue. It is up to you to make sure you are fit to drive. Learn more here: https://www.nhvr.gov.au/safety-accreditation-compliance/fatigue-management/work-and-rest-requirements

Knowing where rest areas are and using them	 Rest areas (or rest stops) are places where drivers can park safely, get out of their vehicle, and refresh. Lunch rooms are a rest area option for other forestry workers. Rest facilities should be made available to drivers near waiting areas for receiving sites. To help drivers plan their breaks and manage fatigue, the NHVR National Network Map provides information on rest areas, truck stops, and service centres across Australia. This tool allows drivers to locate safe places to stop, access amenities, and comply with fatigue management requirements. Access the NHVR map tool here: https://maps.nhvr.gov.au
Speaking up	If you feel fatigued or see someone fatigued at any point in their shift, follow the procedure for speaking up.

Drivers are not allowed to drive a fatigue-regulated heavy vehicle on the road when they are fatigued. Other forestry workers have a general duty not to perform hazardous or safety critical tasks when fatigued (such as operating machinery). So, if you are fatigued, tell your supervisor and do not continue working.

If	Then
You feel pressure to drive while fatigued	Call the **Heavy Vehicle Confidential Reporting Line (HVCRL)** 1800 931 785. You can also refer your employer to the **NHVR** website for information about their duty to manage driver fatigue.

What should my employer do to make sure I am fit to work?

A business/organisation involved in scheduling drivers should have a process in place to manage worker (including driver) fatigue, as well as ensure drivers follow the legally prescribed work and rest requirements for drivers (and other guidance). They should also make alternative drivers available when needed.

Fatigue and distraction detection devices are one part of fatigue management. If installed in vehicles, drivers and supervisors need to be consulted and trained in how to use them.

If	Then
You work alone	Make sure you know and understand your employer's procedures for working alone. You should be provided with a duress alarm for your physical and mental health, particularly when it's dark or you are in isolated areas.

3. Vehicle[3]

Before starting any trip, drivers must check their vehicle and trailers are in a safe operating condition. These checks help prevent rollovers, collisions, load loss and equipment failures. Poor vehicle condition is a contributing factor to several major hazards in log haulage operations, including rollover, loss of control, and ineffective load restraint.

These checks should be done at the beginning of each shift, again during waiting periods or breaks, and whenever something feels wrong while driving.

[3] The content for this chapter comes from The Code sections 4.1.5, 12.1.2, 12.1.3, 12.1.4, 12.2.2, 12.3.3 and 13.4.1.

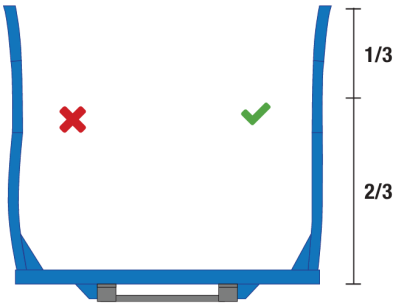
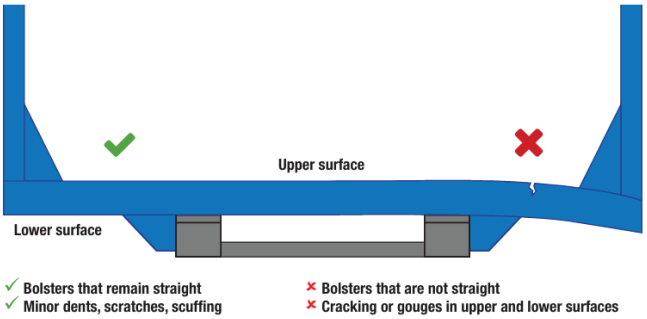
Vehicles that transport logs and other forest products often operate in very demanding conditions. Wear and tear can be faster due to a build-up of dirt, mud and other contaminants.

These can cause corrosion of heavy vehicle components.

Pre-Trip Vehicle Check

It's not your job to be a mechanic. All workers who have contact with the vehicle can conduct a quick visual inspection before the start of each trip and report anything they see in accordance with operating policies and procedures.

Walk around the vehicle and look for:	
Tyres & brake system • brake slack adjusters that are close to fully extended • **Tyres:** flat spots or uneven wear, tread depth, air pressure • **Drums or Discs:** signs of uneven heating such as blueing, ridges or surface cracking • Substantial build-up of dirt or debris	☐
Load restraint equipment	

Walk around the vehicle and look for:	
 Fig 1. Stanchion damage  Fig 2. Bolster damage • **Bolsters and mounting points** for cracks, gouges or bending • **Stanchions**, especially the lower two-thirds, for bending or cracking. • **Headboards and tailboards** for cracks or bends that would reduce their ability to block sliding logs. • **Winch brackets** for bends or cracking. • **Winches** to ensure proper operation and adequate air supply pressure (where air-tensioned systems are used).	☐
Chassis and suspension systems • Signs of damage or deterioration such as flaking, discoloured paint, a line of rust • Any signs of bending	☐
EBS system • Corrosion of electrical connections • Warning lights that indicate that ABS or EBS systems are not working	☐
Couplings: faulty, insecure, worn, damaged, or deteriorating	☐

Walk around the vehicle and look for:	
Windscreen: cracks, scoring, sandblasting that interfere with the driver's view	☐
Any leaking fluids	☐

You should sit inside the vehicle and start it, then look and listen for:	
Any warning lights or alarms	☐
Unfamiliar or strange noises or emissions	☐
Indications the brakes are not functioning	☐

Report safety issues with vehicles

Speak up if you find any safety issues with your vehicle or other vehicles.

If	Then
You don't feel safe to report vehicle safety issues to your employer	Call the **Heavy Vehicle Confidential Reporting Line (HVCRL)** on 1800 931 785.

Selecting the right vehicle

Drivers may not get a say in which vehicle they are allocated. But you should feel satisfied the vehicle is:

- the correct vehicle or combination to safely transport the load, and
- is in safe condition.

You should also feel satisfied the load restraint equipment is the correct equipment for the job and in good condition. For example:

- Bolsters are suitably spaced for the log length
- Bolster position allows logs to be placed close to the headboard
- Tensioner brackets are sound with no signs of fatigue or flexing, and
- Tensioner air pressure is above the recommended minimum.

Match safety systems when pairing vehicles

Drivers and allocators should make sure vehicles paired in combinations have the same safety systems (e.g., both truck and trailer have EBS). This makes sure the safety systems can operate as intended.

Understand what the warning signals from safety systems mean

Safety systems such as ABS, RSC, ESC or EBS may be fitted to your vehicle. You will be trained in their use and you need to understand what the different warning signals mean. When a warning signal starts, respond to it promptly in the way your training said to do so.

Being familiar with the warning signals means you can keep focussed on the road instead of looking away and searching for the source or meaning of that warning.

Never disable the safety system.

Know and use the Centralised Tyre Inflation (CTI) System

Don’t forget to use your CTI when moving between forest and public roads.

4. Load and Load Restraint[4]

Safe log transport starts well before the journey begins: through the careful preparation, correct cutting, stacking, loading, and restraint.

All of these are critical, interconnected steps and need to be done correctly. If one step is not done right, it can have a cascade effect on safety. For example, an unstable load can impact a vehicle's dynamics and stability and may ultimately cause a rollover or crash.

Logs are naturally a dynamic load because their round shape and potentially low friction allows them to shift, roll, or slide under acceleration, braking, and sharp turns or bumps on a journey. Forest roads can increase these dynamics, because of uneven road surfaces, potholes, bumps and steepness.

[4] The content for this chapter comes from The Code sections 1.2.7, 5.1.2, 6.1.1, 6.1.2, 6.1.5, 6.2.1, 6.2.2, 9.3.2, 9.3.5, 9.4.3, 9.5.3, 9.6.3, 9.7.4, 9.7.5, 9.10 (all), 10.3, 10.4.3, 12.5, 12.5.1, 12.6.1, 12.7.2, 13.4 and 13.5.1.

All of these factors increase the importance of load restraint.

This section discusses:

- how logs need to be prepared (cut, and stacked) prior to loading
- how the load is constructed,
- load restraint, including the Loading Performance Standards,
- your right to refuse, and
- adjusting driving for the load.

Preparing logs for transport (How logs are cut and stacked)

Careful preparation and sorting of logs prior to loading will help achieve safe load construction. When cut and stacked properly, loaders can efficiently choose from logs with specific characteristics for each stage of loading, and they can separate out non-uniform logs.

Best practice is to load logs with a similar length and diameter.

Preparation	Description
Cut logs to standard length	Cut logs to a standard length and keep odd-length logs separated. Then sort and stack the logs as they are brought to the landing. For example, sort and stack: • Short logs suitable for placing on the inside of the load • Straight logs suitable for building the walls of a bay of logs • Two stacks for tapered logs, with alternating butt ends and narrow ends, to minimise handling at loading time • Logs with twist or sweep, splits, etc. that are not suitable for tie-down restraint.
Stack logs on bearers	Stack logs on bearers to prevent rocks and debris from being loaded onto trailers. Tell loaders about any rocks or debris in stacks of logs to be loaded. The characteristics of logs in a load (shape, dimension, tapering) affect: • the clamping force that lashings can apply to the load, and • how that clamping force is distributed across the load. Logs of mixed length or diameter and logs with sweep or twist can significantly reduce clamping force.

Load construction

Communication between co-workers

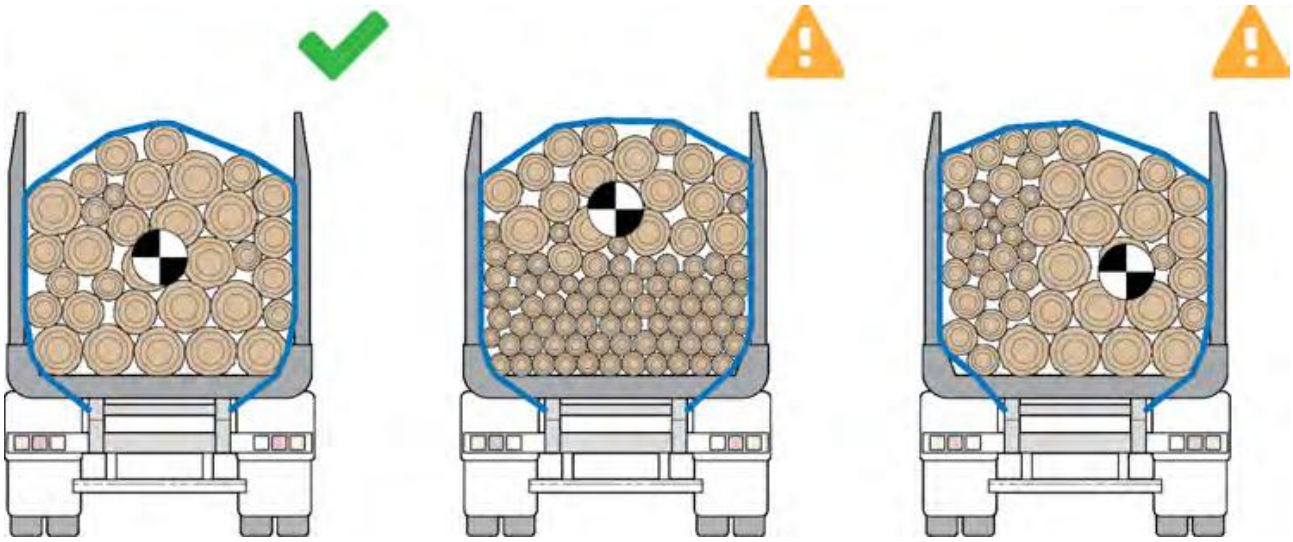
Drivers and loaders should talk to each other during the loading process to help with log placement on the vehicle. Follow loading plans to make sure load construction is best practice and the load mass is safely distributed. The procedures for safe working during unloading should also be followed.

During loading, drivers must remain at a designated safe location (e.g. cab of vehicle) and communicate with loaders about log placement.

Do not start loading or unloading until you are satisfied it is safe to do so.

Construct the load for your logs

When loading, consider the transport hazards and load restraints of particular products. Examples include freshly harvested low-friction species such as E. Globulus or E. Nitens; logs with significant twist or sweep; heavily tapered logs; very small diameter logs; short logs. Construct loads so short logs are safely contained.



Finish each bay of logs with a crown at the centreline to improve the distribution of the clamping force applied by the lashing.

Load restraint & the Loading Performance Standards

Logs are typically restrained by a combination of:
Lashings or vertical restraint which serve two purposes: • Preventing logs from "jumping" over stanchions or other containment devices, and • Improving restraint in the other directions by unitising the load.
Headboards and tailboards which provide secondary containment in the forwards/backwards directions. They are a valuable fail safe when lashings do not prevent sliding or spearing.
Stanchions provide sideways restraint.

HVNL Loading Performance Standards

The HVNL sets Loading Performance Standards to ensure loads are positioned and restrained so they stay secure and stable during all normal driving conditions. These standards help prevent load movement that could cause injury, damage, or loss of control.

A load on a heavy vehicle must be restrained by a restraint system to:

- prevent the load from moving in a way that would adversely affect the stability and weight distribution of the vehicle, or fall from the vehicle, when subjected to the forces set out by the Loading Performance Standards, and
- withstand the forces that occur during transport including braking, turns, uneven roads, and by a load moving around during the journey.

The **HVNL** says the restraints must handle forces in different directions:

Forward:	0.8g or 80% of the weight forwards (to allow for braking, including strong or sudden braking).
Sideways and rearwards:	0.5g or 50% of the weight of the load (for turning).
Vertical:	0.2g or 20% of the weight of the load upward (for uneven road surfaces).

Example. For a typical 15t bay of logs, the load restraint system must hold at least:

- 12 tonnes forward,
- 7.5 tonne sideways, and
- 3 tonnes upward.

The Loading Performance Standards specify the forces the load restraint system must withstand, but not the strength of individual straps or chains. The system may use a combination of equipment, vehicle structures, and restraint methods to meet these standards.

Restraints should prevent any load shift under conditions such as rapid acceleration, abrupt stops, sharp turns, or uneven surfaces.

The load restraint system should prevent any excessive movement of the load that could affect vehicle stability or cause the load to fall, while allowing for minor movement where this improves security (such as settling to increase friction or chocking).

Make sure the load restraint equipment can do its job

These logs slid during emergency braking and were stopped by the headboard.

Headboards – Forwards and backwards force

Spearing can occur when a log or logs slide forward when brakes are applied. Headboards and tailboards apply a physical barrier to keep the logs contained during transport.

The possibility of spearing is why a headboard is necessary and tailboard is strongly recommended.

A headboard is part of a load restraint system, and can reduce risk of spearing by:

- Providing forward/backward blocking even if lashings fail.
- Permitting safe carriage of loads by providing additional restraint to loads that would otherwise fail to meet the loading performance standards e.g., low friction logs or loads with insufficient clamping.

Headboards and tailboards need to meet relevant steel or aluminium standards and withstand dynamic forces (to stop logs penetrating or escaping under 0.8g forward and 0.5g rearward forces). More detail is available in Appendix A of the Code of Practice.

Headboards and tailboards should be designed and rated to withstand the forces they are intended to resist, based on the maximum load mass they restrain. They form part of the load restraint system and may contribute to meeting the Loading Performance Standards.

More detail is available in Appendix A of the Log Haulage Code of Practice.

When loading, distance from headboard is crucial.

When placing logs, always consider how close they are to the headboard

Logs placed close to the headboard reduce the forward movement risk during braking.

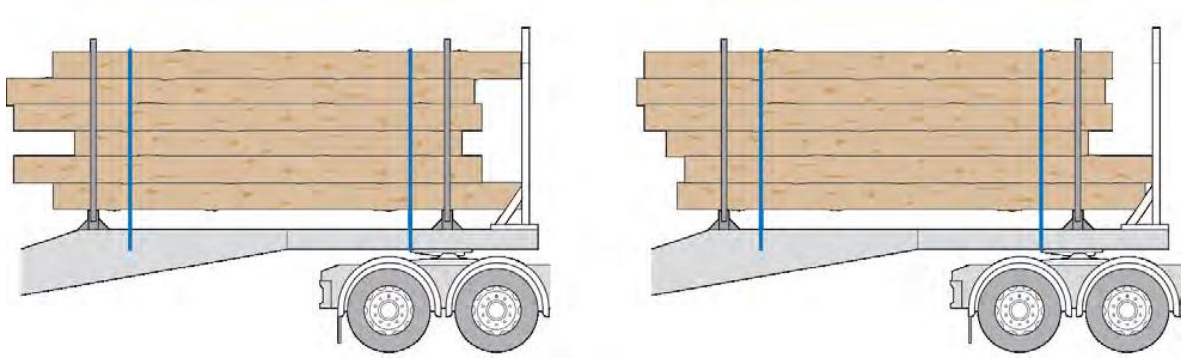


Fig 3. Log configurations that may lead to damage to headboards or loss of stanchion containment.

Logs placed further from the headboard have more space to accelerate forward, increasing spearing and containment failure risk.

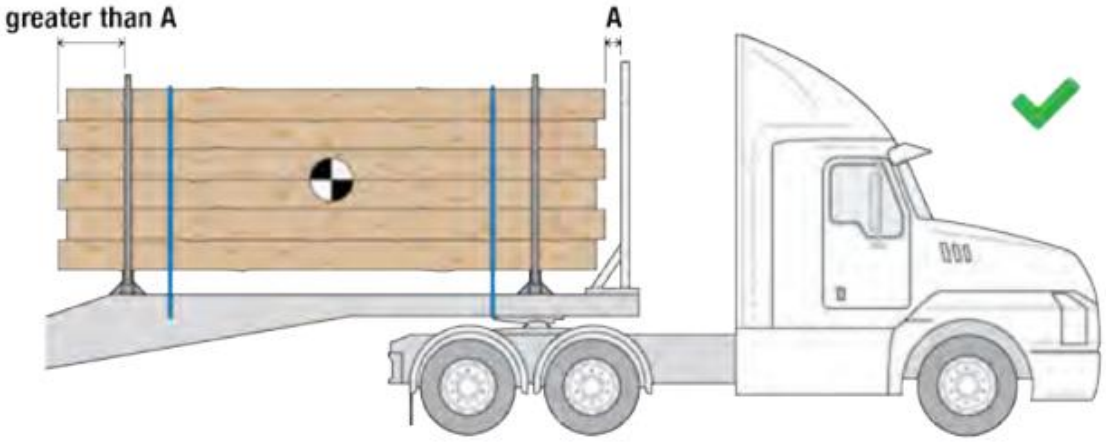


Fig 4. Horizontal stanchion containment with headboard.

Lashings and tensioning systems – Vertical restraint

Having the proper lashing tension for vertical restraint is vital for safe log transport.

The vertical clamping force makes or breaks the effectiveness of lashings. The vertical clamping force is:

- the friction between the truck components and the logs, and
- the friction between the logs themselves.

This comes down to the effectiveness of the tensioning system.

Many newer vehicles come with automatic air systems which are efficient. However, manual winches are still widely used for tensioning. Manual tensioning systems are less expensive and can be part of an effective restraint system. But they cannot self-adjust when logs settle in transport, or when lashings stretch (creep) due to being under tension. Air-tensioners can take up the slack and keep the tension on, but they require the trailer's air system to supply the proper pressure.

This section covers auto air tensioning systems and manual tensioning systems.

> Regardless of which tensioning system is used, both need to be maintained, checked and tested.

Regardless of whether an auto or manual system is being used, check:

- the tension of the side away from the winch, and check for
- excess lashings.

The tension on the side away from the winch

Lashings have a lower tension on the side away from the winch. There are several factors which affect how large the tension difference is, including:

- log species,
- whether bark is attached or not,
- freshness of the logs and the surface moisture content, and
- type of lashing. This becomes more significant when lashings are frayed or damaged or when logs have rough surfaces).

Excess lashings

Lashings that are too long leave too much lashing on the tensioner spool. This reduces the force the winch can apply to the lashing over the load.

Achieving the required clamping force is more important than how the clamping force is applied. For example, two auto-tensioner winches fitted with 2:1 (double purchase) systems at the correct air pressure may meet the standard for a bay of logs. Or several lower-performance winches (or winches operating at lower air pressure) might also achieve the requirement.

What is critical is verifying the system delivers enough tension to comply with the loading performance standard. Checks are essential.

Auto air-tensioners
Air-operated winches should be operated at the manufacturer's recommended air pressure. The recommended air pressure can be found in the operators' manual (OEM).
Your employer needs to make sure air pressure systems are regularly tested and maintained. Testing should be done at the intended pressure that will be applied when in use.
If air-operated winches are operated with reduced air pressure, they may not achieve the required lashing tension.
Pressures exceeding the manufacturers recommended air pressure may damage the winch and/or trailer.

When using auto air-tensioners:
Make sure the pressure matches the OEM. If pressure has been turned down then it is unable to deliver the 100% rating.
If using older air winches or tensioners, make sure sufficient tension is applied.

When using auto air-tensioners:
Check and re-check tension at different times on the journey.
Check for leaks in air systems and familiarise yourself with warning alarms or lights.
Make sure you know how much force the tensioner will apply to a load and monitor it on the day.
Check the load regularly throughout the journey, especially after a particularly large bump, or if you need to stop suddenly or navigate a tight turn.
If needed, adjust the load – carry less, apply additional lashings.
Tell your employer if something is not right.

Manual tension systems
When using manual tension systems, you must consider if the tension being applied by a manual winch is sufficient. Consider how much force does it apply (amount of force each winch is supposed to apply)
To reduce the tension difference, the winch and offside attachment point should be positioned so the lashing is vertical, or as near to vertical as possible, where it is in contact with logs at the base of the load.

When using manual air-tensioners:
Check the restraints regularly throughout the journey, especially after a particularly large bump, or if you need to stop suddenly or navigate a tight turn.
Schedule extra time for vehicles with manual tensioners to complete the same journey, due to the need to stop and check the load.
Make sure you use safe procedures when exiting the vehicle and parking up and use correct safety equipment when performing checks.
If needed, adjust the load – carry less, apply additional lashings.
Tell your employer if something is not right.

When using both manual and auto air-tensioners:
Use trailers fitted with lashing tensioning systems that provide sufficient clamping force to comply with the vertical loading performance standard (20% of the weight of the load (0.2g).
Understand what kind of system is being used.
Know the strength of tensioner.
Know how much tension to apply (related to tensioner itself, not straps).
If applicable, make sure the vehicle's air system is functioning correctly and at the right pressure.
Tell your employer if something is not right.

Stanchions and bolsters – Sideways restraint

Stanchions provide effective sideways restraint when logs extend at least 300mm beyond stanchions at each end of the bay.

- To keep logs contained by the stanchions, the amount they extend past the rear stanchion must be greater than the gap at the front between the logs and the blocking surface, such as a headboard.

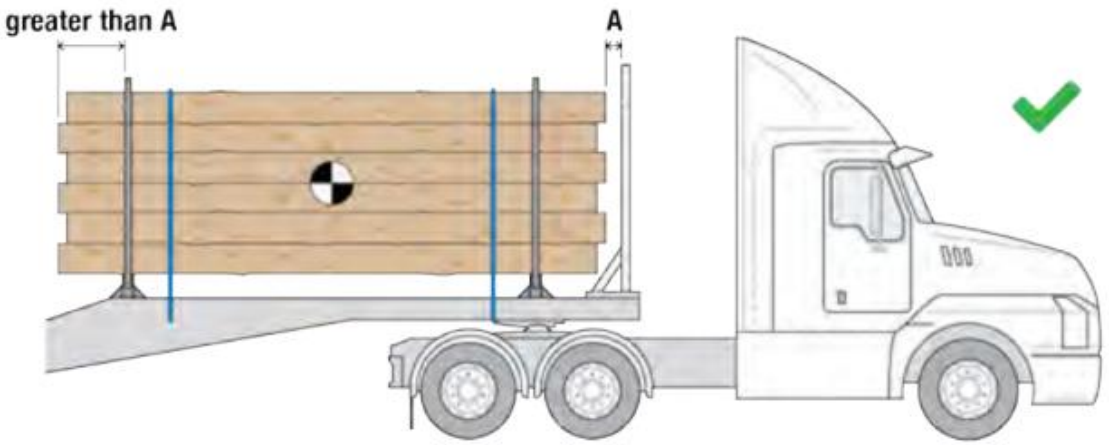


Fig 5. Horizontal stanchion containment with headboard.

In that case, if logs do move forward, they are blocked before their ends are clear of the stanchion.

- Logs touching the stanchions must be no higher than the tops of the stanchions. The top surface of logs used to crown the load must not be more than half a log diameter above the top of the stanchions.

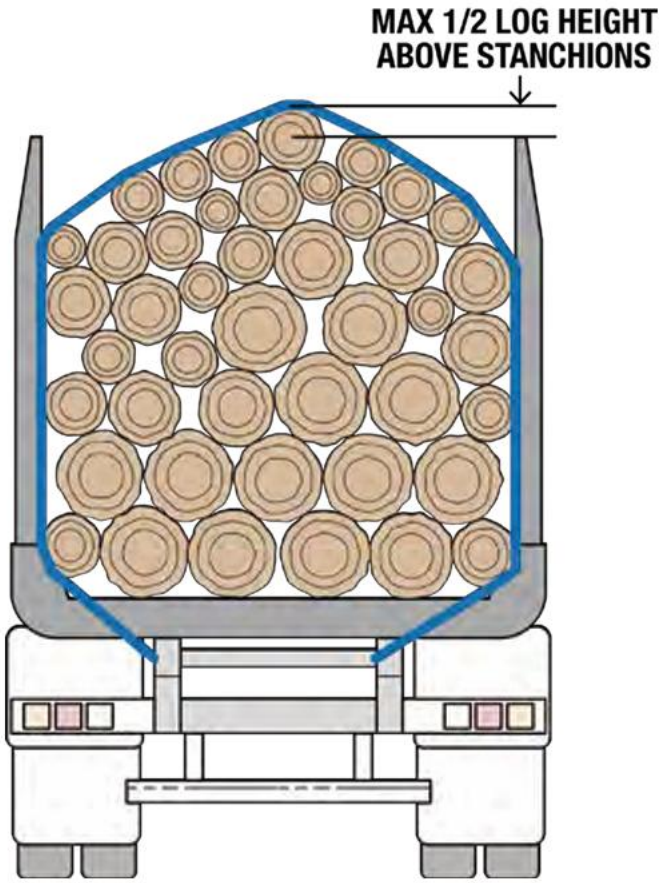


Fig 6. Vertical stanchion containment.

- Stanchions that are bent or that have damaged brackets, may deflect during transport allowing logs to move.

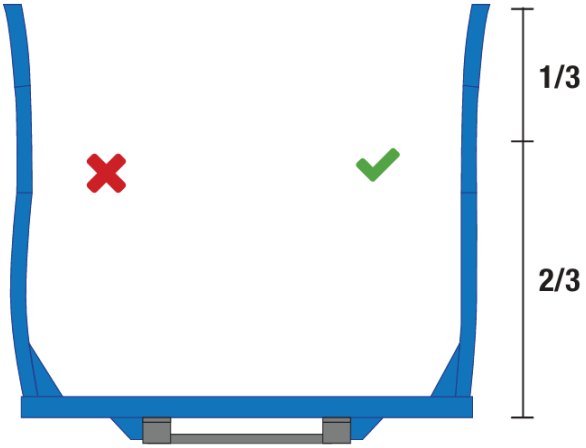


Fig 7. Stanchion damage

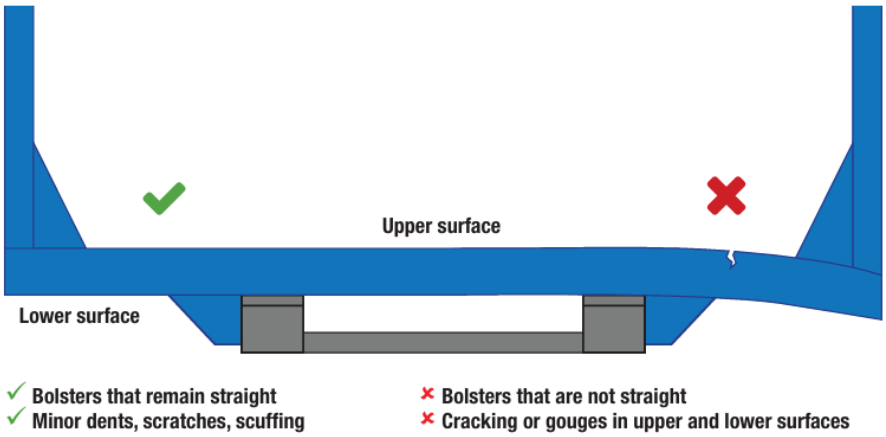
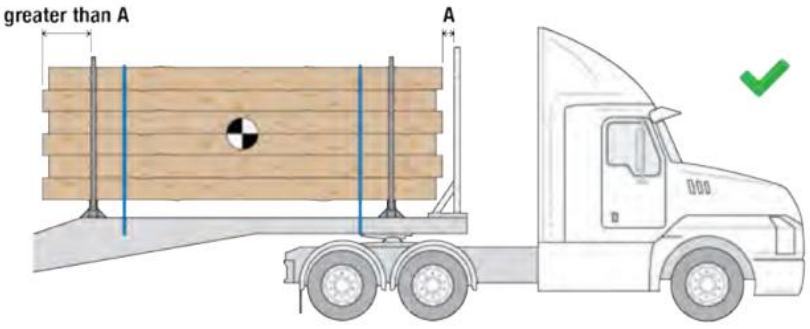


Fig 8. Bolster damage

Staying safe: Stanchions and bolsters
Look out for damaged stanchions or bolsters and report damage before starting a journey. Do not take a load if it cannot be safely restrained
Avoid using a stanchion if it is bent so that it exceeds width limits
Do not use a stanchion if its lower two-thirds have: bent sections, cracking, or dents larger than 10mm
Decide whether the stanchion overhang distance needs to be longer for slippery logs

What does this all mean for you?

Worker Checklist: Load Restraint	
Think about type of timber (species, freshness, presence or absence of bark)	☐
Know loading performance standards and how they apply to vehicle and load	☐
Do not take load if cannot be safely restrained	☐
Use trailers fitted with suitable headboards and tailboards to ensure loads have adequate secondary containment	☐
Check headboard for damage	☐
Only load non-uniform logs onto trailers fitted with suitable headboards and tailboards. Avoid loading non-uniform logs onto trailers not fitted with suitable headboards and tailboards.	☐
Where there is a headboard, make sure distance between tip of logs and headboard is minimal.  Fig 9. Horizontal stanchion containment with headboard. The greater that distance, the more potential there is for log to spear when braking force is applied.	☐

Use trailers fitted with lashing tensioning systems that provide sufficient clamping force to comply with vertical loading performance standard	☐
Understand kind of system being used	☐
Ensure lashings are in good working order. Consider creep or stretch that means lashings stretch or fray over time	☐
Know the strength of tensioner	☐
Know how much tension to apply (related to tensioner itself, not straps)	☐
If applicable, make sure the vehicle's air system is functioning correctly and at the right pressure	☐
Look out for damaged stanchions or bolsters and report damage before starting a journey.	☐
Do not use a stanchion if its upper third exceeds width limits	☐
Avoid using a stanchion if it is bent so that it exceeds width limits	☐
Do not use a stanchion if its lower two-thirds have: bent sections, cracking or dents larger than 10mm	☐
Decide whether the stanchion overhang distance needs to be longer for slippery logs	☐

Your right to refuse

As a driver, you have the right to refuse to carry loads you assess as unsafe.

All workers have the right to refuse to carry out tasks that create a risk to themselves, other workers, or to the public.

Adjust your driving for your load

Drivers should understand the way loading affects vehicle stability and adjust their driving accordingly. So, examine your route and use your judgement on where to reduce speed and which sections require particular care.

Drivers should know how to identify tapered logs and check their load more often when carrying them.

5. Your Journey[5]

Following procedure documents

All forestry workers should be able to understand and follow their employer's procedure documents which say who is responsible for what to ensure the safe use of heavy vehicles. These procedures should explain how to perform your tasks safely. They should also include when and how you can escalate safety concerns.

If	Then
There are different procedures for doing the same thing, or	**Speak up**. Knowing who is responsible for what so you can all work together and how to perform your tasks safely keeps you and everyone else safe.

[5] The content of this chapter comes from The Code sections 3.1, 3.2, 3.2.3, 3.2.4, 5.8, 7.2.4, 7.2.5, 9.2, 9.5, 11.1, 13.2 and 14.1.

If	Then
the procedure is hard to understand or hard to follow	

The examples in this section are mostly for drivers.

Getting in and out of heavy vehicles safely

You will receive training in safely getting in and out of heavy vehicles.

To get into vehicle:	Check for traffic before moving out from the line of the vehicle. Check again before opening the door.
	Use the available steps and grab handles to climb into the vehicle, always maintaining three points of contact.
To get out of vehicle:	Check for traffic before opening the door.
	Face the vehicle whilst exiting using the available steps and grabs. Always maintain three points of contact (no jumping).
	Always use three points of contact (two hands and one foot, or two feet and one hand) when getting in or out of a truck.
	Never jump down. Instead, use the steps and handholds slowly and carefully to avoid slips, trips and falls

Keep the cabin free of distractions

- Make sure loose items are secured in the cabin.
- Before driving, make sure loose items are secured.

  This prevents them from becoming a distraction in the cabin, which could lead to a crash or rollover.
- Stop in a safe place before using a mobile phone.

  Don’t make or answer calls while driving (not even with hands-free) because it can distract you and increase the risk of a crash.
- Choose a spot to stop, well off the road, visible to other drivers and away from traffic hazards.

  Never stop in a live traffic lane, a bend, or near intersections.

Telematics systems record vehicle data to keep you safe

Telematics systems might be installed in your heavy vehicle. They record and send vehicle information like speed, use of accelerator and brakes, and some even check when EBS and ABS systems are used.

The information collected is used to keep an eye on your fatigue levels but should not be relied on to manage fatigue.

Using Public Roads

Plan your route on public roads.

Driving on public roads means there are more things to be aware of that can affect safety. For example, areas with more traffic, the presence of vulnerable road users (e.g., schools, shops, towns), Level crossings and T-junctions, and multiple bends in quick succession.

Take note of places on your route where you can safely stop to check your load or rest.

Pulling over to check loads on public roads

If you need to pull over and check your load on a public road, find a spot with good visibility in both directions, away from traffic hazards, where you can pull off the road. Never stop in a live traffic lane, a bend, near intersections or near vulnerable road users.

Exit your vehicle by following the instructions on “Example: Getting in and out of your heavy vehicle safely” above. Wear the PPE provided by your employer (helmet, hi-vis jacket) and

your safety boots. Follow the training you've been provided, including setting up temporary hazard signage such as reflective triangles.

Using Forest Roads

A lot of roll overs and loss of control incidents happen on forest roads. So, look at the route carefully and think about what it means for vehicle dynamics.

Your employer needs to make sure you are familiar with the route, including the location of hazardous sections, the best approaches to complex corners, narrow sections or other hazards.

Check that vehicles have been loaded so they can safely use the chosen route. Adjust your driving to consider the way loading affects vehicle stability. For example, reduce speed for sections of the route that require particular care.

Know the features and layout of site & observe signage

There should be maps and signage on site that inform you about the safe use of coupe access roads and landing areas. You need to understand the features and layout of the site such as access requirements, the location of active landing areas, haul routes, harvesting or spraying areas, and passing areas and waiting locations. Follow all signage including speed limits and one-way roads.

Understand and use communication protocols

You will be trained in and expected to use particular ways of communicating including:

- 2-way radio,
- hand signals and whistles,
- verbal communication,
- written communication, and
- warning devices on trucks and machines.

2-way radio:	2-way radios are essential for safe communication in forestry operations. You must: • **Use the designated channel** for your site or operation. Your supervisor will advise which channel to use. • **Perform a radio check** at the start of your shift to confirm your radio is working. • **Keep messages short and clear**. Use plain language and avoid slang or jokes. • **Announce your movements** (e.g. “Loaded truck leaving coupe”, “Approaching landing area”) to alert others. • **Acknowledge messages** with a clear response (e.g. “Copy that” and “Received”). • **Report hazards or delays** immediately using the radio. • **Do not use the radio while driving** unless it is hands-free and safe to do so. If your radio fails, follow your site’s backup communication procedure (e.g. mobile phone or visual signals).

Hand signals and whistles:	**Hand Signals and Whistles**
	
	Hand signals and whistles are used when visibility is limited or when machinery noise makes verbal communication difficult.
	
	• **Hand signals** should be standardised across your site. Common signals include:
	  ○ Raised hand: **Stop**
	  ○ Arm waving forward: **Proceed**
	  ○ Pointing to a location: **Place load here**
	  ○ Thumbs up: **All clear / OK**
	• **Whistles** may be used to:
	  ○ Signal the start or stop of loading
	  ○ Warn of a hazard or emergency
	  ○ Get attention when visual contact is lost
	
	You will be trained in the specific signals used at your site. Always confirm you understand them before starting work. If unsure, ask your supervisor.
	
	Never assume a signal - if you're unclear, stop and seek clarification.

Verbal communication	You will receive verbal briefings from your supervisor and customers. Ask questions if you do not understand. Clearly understanding the location of a log coupe saves you the embarrassment of being lost or save you from putting your vehicle into a dangerous situation. You are expected to regularly participate in toolbox meetings and other consultative forums with your employer

	and other workers. Use these as opportunities to raise issues of concern but do this in a calm manner. Do not become rude or aggressive.
Written communication:	Keep accurate records and report hazards and incidents promptly. These are critical parts of being a competent forest worker.
Warning devices:	Most trucks and machines are fitted with audible warning devices. Some mobile plants use beepers to warn pedestrians and other workers when the machine is moving. You need to understand what each sound means and how to respond.

Communicating delays

You don't usually have much control over delays. Your job is to communicate the delay according to how the procedure says to do it.

When you report a delay, you should be treated with respect.

If	Then
The response you receive is: • Unfair e.g., a punishment like 'You are late, go to the back of the queue', or • Unsafe	Call the **Heavy Vehicle Confidential Reporting Line (HVCRL)** on 1800 931 785.

Resources

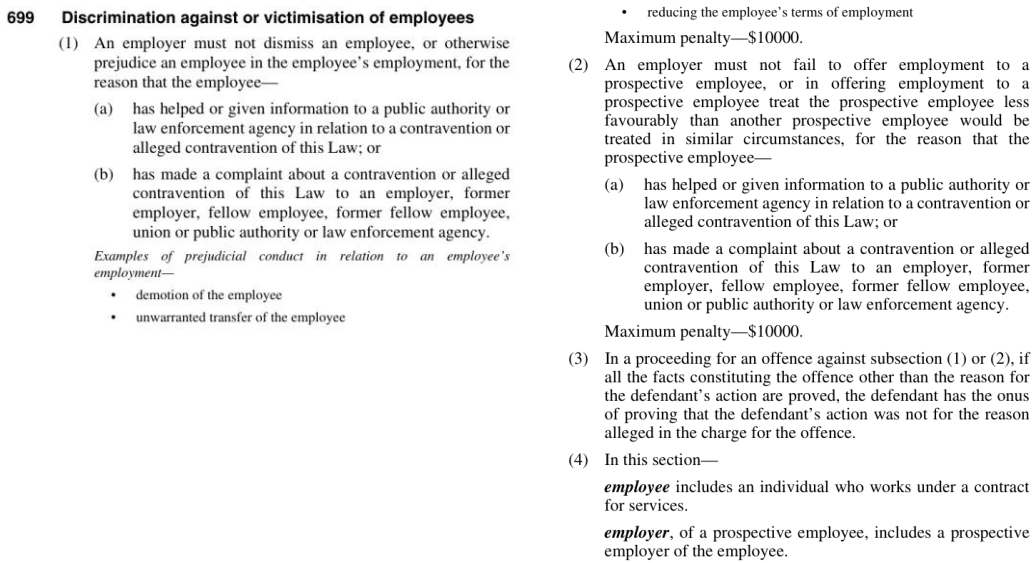
Resources

Further Information (NHVR)

Loading guides	https://www.nhvr.gov.au/road-access/loading/loading-guides
Load Restraint Guide	https://www.nhvr.gov.au/road-access/loading/load-restraint-guide
Fatigue Management guidance	https://www.nhvr.gov.au/safety-accreditation-compliance/fatigue-management
Fitness to drive: Fatigue regulatory advice	https://www.nhvr.gov.au/safety-accreditation-compliance/chain-of-responsibility/regulatory-advice/fitness-to-drive-fatigue
Master Code of Practice	https://www.nhvr.gov.au/safety-accreditation-compliance/industry-codes-of-practice/master-code-of-practice
Contact Centre	1300 MYNHVR (1300 696 487)

Employee Protections

Heavy Vehicle Confidential Reporting Line	1800 931 785 https://www.nhvr.gov.au/safety-accreditation-compliance/heavy-vehicle-confidential-reporting-line
HVNL – Section 669	Section 699 of the HVNL prevents employers from discriminating against or victimising employees for speaking up about actual or potential breaches of the HVNL.



699 Discrimination against or victimisation of employees

(1) An employer must not dismiss an employee, or otherwise prejudice an employee in the employee's employment, for the reason that the employee—

(a) has helped or given information to a public authority or law enforcement agency in relation to a contravention or alleged contravention of this Law; or

(b) has made a complaint about a contravention or alleged contravention of this Law to an employer, former employer, fellow employee, former fellow employee, union or public authority or law enforcement agency.

Examples of prejudicial conduct in relation to an employee's employment—

- demotion of the employee
- unwarranted transfer of the employee
- reducing the employee's terms of employment

Maximum penalty—$10000.

(2) An employer must not fail to offer employment to a prospective employee, or in offering employment to a prospective employee treat the prospective employee less favourably than another prospective employee would be treated in similar circumstances, for the reason that the prospective employee—

(a) has helped or given information to a public authority or law enforcement agency in relation to a contravention or alleged contravention of this Law; or

(b) has made a complaint about a contravention or alleged contravention of this Law to an employer, former employer, fellow employee, former fellow employee, union or public authority or law enforcement agency.

Maximum penalty—$10000.

(3) In a proceeding for an offence against subsection (1) or (2), if all the facts constituting the offence other than the reason for the defendant's action are proved, the defendant has the onus of proving that the defendant's action was not for the reason alleged in the charge for the offence.

(4) In this section—

employee includes an individual who works under a contract for services.

employer, of a prospective employee, includes a prospective employer of the employee.

ForestWorks

Log Haulage Manual

for the Code of Practice