ACT HEAVY VEHICLE DRIVERS' HANDBOOK

February 2012

ACT HEAVY VEHICLE DRIVERS' HANDBOOK

THIS BOOK SHOULD BE READ
BY ANY PROSPECTIVE OR CURRENT
HEAVY VEHICLE LICENCE HOLDERS AND
ANY PERSON INTERESTED IN THE
HEAVY VEHICLE INDUSTRY

ACT Government

ACKNOWLEDGEMENTS

The assistance of the following in compiling this publication is gratefully appreciated.

- ACT Fire and Emergency Services
- ACTION
- Road Transport Authority
- Australian Greenhouse Office
- Transport Industry Skills Centre (TISC)
- NSW Roads & Maritime Services

This handbook is intended to assist ACT or visiting drivers, however, it is intended as a guideline only. Legislative provisions are contained in the *Australian Road Rules (2008)* and related Acts and Regulations.

For further details on the information contained in this book please contact Canberra Connect on telephone number 13 22 81.

ISBN 1 86331 226 9

ACT Government, Justice and Community Safety Directorate
GPO Box 158, Canberra ACT 2601

First Published 1994
Reprinted 1999, 2001, 2002, 2004, 2006, 2007, 2008, 2012

Publication No 13/0174

http://www.tams.act.gov.au/move/

Telephone: Canberra Connect 13 22 81

FOREWORD

Welcome to the eighth edition of the *ACT Heavy Vehicle Drivers' Handbook.* Yours is a dynamic industry, one that makes a significant contribution to the Region's and Nation's economic well-being.

Moreover, it is an industry that is under constant public scrutiny. Therefore, safe driving practices are paramount for all drivers of heavy vehicles.

For its part, the ACT Government continues to be an active and willing participant in national road reforms. In March 2000, the ACT Government implemented the new Australian Road Rules which introduced the same basic set of road rules and vehicle licence classes in all Australian States and Territories.

Other reforms include the ACT Road Transport Authority 'Heavy Vehicle Driver Standards', which are a set of standards for the training and assessment of heavy vehicle licence applicants introduced in January 2001, and the introduction of a set of medical standards in February 2004 'Assessing Fitness to Drive for Commercial and Private Vehicle Drivers'. It is envisaged that licence applicants assessed to these standards will contribute to a better trained and safer driver for the heavy vehicle industry.

Remember, it is your responsibility to check the rules that apply to heavy vehicle drivers, before driving in another State or Territory.

ACCESSIBILITY

The ACT Government is committed to making its information, services, events and venues as accessible as possible.

If you have difficulty reading a standard printed document and would like to receive this publication in an alternative format, such as large print, please phone 13 22 81 or email https://www.contact.act.gov.au

If English is not your first language and you require a translating and interpreting service, please phone 131 450.

If you are deaf, or have a speech or hearing impairment, and need the teletypewriter service, please phone 13 36 77 and ask for 13 22 81.

For speak and listen users, please phone 1300 555 727 and ask for 13 22 81. For more information on these services visit http://www.relayservice.com.au/

Motorcycle licence (class R licence)

Car licence (class C licence)

Light rigid vehicle licence (class LR licence)

Medium rigid vehicle licence (class MR licence)

Heavy rigid vehicle licence (class HR licence)

Heavy combination vehicle licence (class HC licence)

Multi-combination vehicle licence (class MC licence)

CONTENTS

SECTION A: OBTAINING A HEAVY VEHICLE LICENCE

- Obtaining a licence
- Licence classes including age and eligibility requirements
- Vehicle weights and axle configurations
- Driver licence classes and motor vehicles covered by each class
- Additional road rules for heavy vehicle drivers
- The knowledge assessment
- A driving assessment appointment
- Licence class to be issued
- Provision of vehicle for driving assessment
- Automatic and manual licences
- Practical driving assessments
- The “on-road” driving assessment: Buses only
- Public vehicle bus drivers
- Bribing people is against the law
- Medical assessment

OBTAINING A LICENCE

There are numerous publications available that make excellent reading for any person about to embark on obtaining a heavy vehicle driver licence.

This book, ***THE ACT HEAVY VEHICLE DRIVERS' HANDBOOK,*** is an attempt to provide comprehensive information for people with an interest in the heavy vehicle industry.

THE ACT HEAVY VEHICLE DRIVERS' HANDBOOK should be read in conjunction with the ***ACT ROAD RULES HANDBOOK***. However, neither book should be accepted as a complete authority on the ACT traffic laws. For a closer definition of the laws, drivers should read the following publications.

- *Australian Road Rules*
- *Road Transport (Driver Licensing) Act 1999*
- *Road Transport (Driver Licensing) Regulation 2000*
- *Road Transport (Alcohol and Drugs) Act 1977*
- *Road Transport (Alcohol and Drugs) Regulation 2000*
- *Road Transport (Safety and Traffic Management) Regulation 2000*
- *Road Transport (Public Passenger Services) Act 2001*
- *Road Transport (Public Passenger Services) Regulation 2002*
- *Road Transport (Mass, Dimensions and Loading) Act 2009*
- *Road Transport (Mass, Dimensions and Loading) Regulation 2010*

A publication which should also be read is the *Load Restraint Guide*, the recommended code of practice for the safety of loads on load carrying vehicles. This publication is available from Canberra Connect Shopfronts.

NOTE: It is strongly recommended that applicants for a heavy vehicle driver licence obtain and read the *Load Restraint Guide* as questions relating to load restraint are asked in the heavy vehicle knowledge assessment.

Before applying for a licence to drive a heavy vehicle, a driver should establish the class of licence that he or she requires. The following charts should assist in making that decision.

LICENCE CLASSES

R – (for rider) Motorcycle Licence

C – Car Licence

LR – Light Rigid Vehicle Licence

MR – Medium Rigid Vehicle Licence

HR – Heavy Rigid Vehicle Licence

HC – Heavy Combination Vehicle Licence

MC – Multi-Combination Vehicle Licence

ELIGIBILITY REQUIREMENTS

The relevant eligibility requirements for applicants to apply for a heavy vehicle driver licence in the ACT are as follows:

Light Rigid Vehicle (LR) and Medium Rigid Vehicle (MR) Driver Licence

An applicant for a Light Rigid (LR) or Medium Rigid (MR) driver licence must be a minimum of 18 years of age and must have held an Australian driver licence (including a provisional licence) to drive a C class vehicle for at least 12 months.

Heavy Rigid Vehicle (HR) Driver Licence

An applicant for a Heavy Rigid (HR) driver licence must be a minimum of 19 years of age and must have held an Australian driver licence (including a provisional licence) to drive a C class vehicle for at least 24 months.

Heavy Combination Vehicle (HC) Driver Licence

An applicant for a Heavy Combination (HC) driver licence must be a minimum of 19 years of age and have held an Australian driver licence (including a provisional licence) to drive a MR or HR class vehicle for at least 12 months.

Multi-Combination Vehicle (MC) Driver Licence

An applicant for a Multi-Combination Vehicle (MC) driver licence must be a minimum of 20 years of age and must have held an Australian driver licence (including a provisional licence) to drive a HR or HC class vehicle for at least 12 months.

VEHICLE WEIGHTS AND AXLE CONFIGURATIONS

Item	Driver Licence Classes and Motor Vehicles Covered by Each Class	
1.	**R**	**Motorcycle Licence**
	1.1	A motorbike.
	1.2	A motorbike towing a single trailer designed to be towed by a motorbike.
2.	**C**	**Car Licence Class**
	2.1	A motor vehicle (other than a motorbike) with a GVM not over 4.5 tonne that is constructed or equipped to seat not more than 12 adults (including the driver).
	2.2	A tractor or implement.
	2.3	A motor vehicle mentioned in 2.1 or 2.2 that is towing a single trailer (other than a semi-trailer) with a GVM not over 9 tonne.
	2.4	However, this class does not cover a motor vehicle that is towing – • 2 or more trailers; or • a single semi-trailer; or • any other single trailer with a GVM over 9 tonne.
3.	**LR**	**Light Rigid Vehicle Licence**
	3.1	A motor vehicle with a GVM over 4.5 tonne, but not over 8 tonne.
	3.2	A motor vehicle with a GVM not over 8 tonne that is constructed or equipped to seat more than 12 adults (including the driver).
	3.3	A motor vehicle mentioned in 3.1 or 3.2 that is towing a single trailer with a GVM not over 9 tonne.
	3.4	However, this class does not cover a motor vehicle that is towing – a. 2 or more trailers; or b. a single semi-trailer; or c. any other single trailer with a GVM over 9 tonne.
4.	**MR**	**Medium Rigid Vehicle Licence**
	4.1	A motor vehicle with 2 axles and a GVM over 8 tonne.

Item		Driver Licence Classes and Motor Vehicles Covered by Each Class
	4.2	A motor vehicle mentioned in 4.1 that is towing a single trailer with a GVM not over 9 tonne.
	4.3	However, this class does not cover a motor vehicle that is towing – a. 2 or more trailers; or b. a single semi-trailer; or c. any other single trailer with a GVM over 9 tonne.
5.	**HR**	**Heavy Rigid Vehicle Licence**
	5.1	A rigid motor vehicle with 3 or more axles and a GVM over 8 tonne.
	5.2	An articulated bus with 3 or more axles and a GVM over 8 tonne.
	5.3	A motor vehicle mentioned in 5.1 or 5.2 that is towing a single trailer with a GVM not over 9 tonne.
	5.4	However, this class does not cover a motor vehicle that is towing – a. 2 or more trailers; or b. a single semi-trailer; or c. any other single trailer with a GVM over 9 tonne.
6.	**HC**	**Heavy Combination Vehicle Licence**
	6.1	A prime mover to which is attached a single semi-trailer plus any unladen converter dolly.
	6.2	A rigid motor vehicle to which is attached a trailer with a GVM over 9 tonne plus any unladen converter dolly.
7	**MC**	**Multi-Combination Vehicle Licence**
		Any motor vehicle or combination other than a motorbike.

Heavy Vehicle Driver Licence

ADDITIONAL ROAD RULES FOR HEAVY VEHICLE DRIVERS

There are several additional road rules that the driver of a heavy vehicle needs to be aware of. Questions relating to these additional rules are included in the computerised knowledge assessment. Applicants are required to pass the knowledge assessment prior to being able to book a practical driving test. The additional rules are as follows:

The Displaying of "L" Plates

"L" plates must be displayed at all times by a learner, and he or she must be accompanied by a person holding a full licence of the appropriate class, ie Heavy Rigid Vehicle licence if the learner is driving a Heavy Rigid Vehicle.

Allowable Width of Motor Vehicles or Loads

The allowable width of a vehicle or load in the ACT is 2.5 metres. For loads or vehicles exceeding 2.5 metres, an Over-dimensions Permit must be obtained from the Heavy Vehicle Permits Officer, Locked Bag 2000, Civic Square ACT 2608, BEFORE attempting to move the load or the vehicle.
(Phone 02 6207 6565)

Loading Zones

A loading zone may only be used by goods carrying vehicles for the purpose of loading or unloading goods.

Work Diary

Although work diaries are not necessary under ACT legislation, they are required for heavy vehicle drivers travelling outside the ACT. A driver must carry a work diary under any of the following conditions:

- a vehicle with a Gross Vehicle Mass (GVM) or Gross Combination Mass (GCM) exceeding 12 tonnes, or
- built to seat more than 12 adults (including the driver), when it is used to carry passengers for hire or reward or in the course of trade or business, and
- when travelling on a trip of more than 100 kilometres radius from the vehicle's normal depot (in the case of ACT drivers, interstate travel).

Work diaries are to record a driver's hours of work and rest periods.

The answers to the Heavy Vehicle Road Rules Knowledge Test questions can be found throughout this handbook and will be of assistance for drivers undertaking the various heavy vehicle knowledge assessments.

THE KNOWLEDGE ASSESSMENT

All applicants for a heavy vehicle driver licence are required to sit and pass a knowledge assessment as part of the process for obtaining a licence. To be successful at the knowledge assessment, applicants will require a thorough knowledge of the road rules, the contents of this Handbook and any other publication referred to within this book, eg the Load Restraint Guide.

The knowledge assessment consists of 45 computer based multiple-choice questions some of which are mandatory and some of which are general questions. The questions are based on information in this book, the *Load Restraint Guide and the ACT Road Rules Handbook.* It should be noted that all heavy vehicle driver licence classifications allow drivers to drive both trucks and buses, therefore, the knowledge assessment contains questions relating to both types of vehicles including questions about Public Bus ('O' Condition) licences.

A practice assessment is available on the Internet at www.tams.act.gov.au/move/Select *Driver Licence, Heavy Vehicle Safety* and click on *Sample Knowledge Test*. Selecting the *All Questions Test* will provide all of the questions that can be asked in all heavy vehicle assessments. Selecting the individual tests for the *Heavy Rigid, Heavy Combination* or *Multi Combination* vehicles will provide practice tests in each of the vehicle classifications.

For further details on the knowledge assessment contact Canberra Connect on 13 22 81.

A DRIVING ASSESSMENT APPOINTMENT

A practical driving assessment appointment can be arranged only after the applicant has successfully passed the heavy vehicle knowledge assessment.

A driving assessment can only be performed by an Accredited Heavy Vehicle Assessor. Contact Canberra Connect on 13 22 81 for the current list of Accredited Heavy Vehicle Assessors.

If an applicant is found 'Not Yet Competent' in any part of the practical driving assessment, there is a mandatory 48 hour period before the applicant is allowed to re-attempt that part of the practical assessment in which the applicant was unsuccessful. More detailed information on 'Competencies' can be found in the 'Practical Driving Assessment' area of this Handbook.

LICENCE CLASS TO BE ISSUED

Applicants who pass the driver assessment will be issued with the licence class applicable to the vehicle used for the assessment, ie the applicant's driver licence will be upgraded to MR if the vehicle used for the assessment is a medium rigid vehicle.

PROVISION OF VEHICLE FOR DRIVING ASSESSMENT

Conditions of Assessment

Applicants who provide a vehicle for the practical assessment must ensure that the vehicle is:

- loaded to 60% of the vehicle's carrying capacity;
- registered with a current registration label CLEARLY displayed - unregistered vehicle permits are not acceptable;
- roadworthy – applicants must ensure that their vehicle is roadworthy. Items to check are tyres, lights etc;
- clean - applicants should ensure that the cabin/seating area is clean and tidy. Tools, ropes and the like must NOT be on the floor;
- displaying "L" plates at the front and rear of the vehicle in a prominent position, and
- capable of attaining the posted speed limit for the area, ie 80km/h in an 80km/h zone, 100km/h in a 100km/h zone.

NOTE: The following vehicles are not acceptable for use as an assessment vehicle: Dangerous goods vehicles; Vehicles carrying Traders Plates; Federal Interstate registered vehicles; Vehicles without a reverse gear; Armoured security vehicles; Left-hand drive vehicles; Vehicles that are not roadworthy.

AUTOMATIC AND MANUAL LICENCES

Automatic (A Condition)

Applicants presenting a vehicle with an automatic, pre select, or semi automatic transmission or Tiptronic transmission, will, upon passing a practical driver assessment, be issued with an A condition licence which will allow the driver to operate heavy vehicles fitted with an automatic transmission only.

Synchromesh (B Condition)

Applicants presenting a vehicle with a synchromesh transmission will, upon passing a practical driver assessment, be issued with a B condition licence which will allow the driver to operate heavy vehicles fitted with a synchromesh or automatic transmission.

Non-synchromesh

Applicants presenting a vehicle fitted with a non-synchromesh gearbox will, upon passing a practical driver assessment, be issued with a heavy vehicle licence without an A or B condition code which will allow the driver to operate vehicles fitted with a non-

synchromesh, synchromesh or automatic transmission.

Licence Upgrade

Drivers wishing to upgrade their licence from an automatic or synchromesh transmission **will** be required to be reassessed in a suitable vehicle fitted with the appropriate transmission.

PRACTICAL DRIVING ASSESSMENTS

The Practical Licence Assessment will take up to 1 hour and 30 minutes for a rigid vehicle to complete, 2 hours for a heavy combination and 2 hours 30 minutes for a multi combination assessment.

Practical assessments are conducted in 3 Sections:

Section A: Load Securing Assessment

Section B: Before Entering Vehicle

Section C: On Road Practical Assessment

> **NOTE:** The assessment may not necessarily be conducted in alphabetical order, ie Section 'C' may be conducted first followed by 'A' and 'B'.

The assessment is conducted on a 'Competent' or 'Not Yet Competent' basis and an applicant accruing one or more 'Not Yet Competent' marks during the assessment will be assessed as unsuccessful.

SECTION A: LOAD SECURING ASSESSMENT

As part of the licence assessment an applicant will be asked to demonstrate his or her ability to correctly secure a load. This assessment may be carried out using a simulated load on a truck tray.

The applicant will be required to secure a load using:

- ropes;
- chains and dogs (load binders);
- winch and straps (webbing belts); OR
- ratchet and straps (webbing belts).

Failure to correctly secure a load using these items will result in a 'Not Yet Competent' load restraint assessment. The load restraint assessment will then need to be repeated at a time to be determined by the assessor and the applicant.

SECTION B: BEFORE ENTERING VEHICLE

If the assessment vehicle is equipped with an air system for the brakes, prior to moving off the applicant will be required to demonstrate how to drain the condensation from the air reservoir tanks, and to then build up tank pressure. Some low-bodied vehicles, ie buses, may be exempt from this assessment, however, a description will be required.

Failure to correctly demonstrate how to do this will result in a 'Not Yet Competent' rating for this section of the assessment and will need to be repeated at a time to be determined by the assessor and the applicant.

NOTE: At this point the assessor will visually check around the assessment vehicle (where the vehicle is provided for the assessment by the applicant) to ensure that it meets assessment requirements. ie roadworthy tyres, stop lights and indicators that operate, no missing or broken lights or lenses, "L" plates correctly displayed at the front and the rear of the vehicle, current registration label displayed in the correct position, clean windows and rear vision mirrors, clean seating and interior, seatbelts fitted.

If the assessment vehicle fails to meet this inspection, the assessment will not be conducted and the applicant will need to re-book (and pay another booking fee) for another assessment.

SECTION C: ON ROAD PRACTICAL ASSESSMENT

The 'On Road Practical Driving Assessment' is conducted on streets and roads within reasonable travelling time and distance of the assessment site office.

The driving assessment will be conducted to the Road Transport Authority's Heavy Vehicle Learner Driver Standards. A copy of these Standards can be found in Section 'H' of this Handbook. It is in every applicant's interest to ensure that he or she is familiar with the Standards prior to attempting a driver assessment.

REMEMBER, THE ASSESSMENT VEHICLE MUST BE LOADED TO AT LEAST 60% OF THE VEHICLE'S CARRYING CAPACITY

Reasons for accumulating an immediate 'Not Yet Competent' rating during a driving test are:

- inability to test emergency brake indicator (low air/vacuum);
- not keeping a safe distance from the preceding vehicle;
- mounting a kerb;
- not applying the park brake before leaving the cabin;
- disobeying a sign/signal (ie. stop sign, red light);
- roll back more than 100mm while moving off on a hill;

- failing to use or maintain a suitable gear for conditions (when moving off on a hill, or descending a hill);
- incorrect sequence for:
  - uncoupling a prime mover or truck and trailer combination,
  - coupling a prime mover or truck and trailer combination.

Buses Only

- unacceptable passenger discomfort; or
- not stopping in an acceptable position at a bus stop.

Applicants will be assessed as 'Not Yet Competent' if unsuccessful at any of the above items, or if they fail to follow the assessor's instructions.

During the Practical Driving Assessment

Normal driving in traffic, lane driving and adherence to the normal traffic laws is expected.

Drivers must drive within the posted speed limit, and where practicable, within 10km/h of the area speed limit.

During the assessment the applicant will be requested to demonstrate his or her ability to perform certain manoeuvres and actions. Failure to perform the manoeuvres to an acceptable standard will result in a 'Not Yet Competent' assessment. Some of these manoeuvres are:

- a demonstrated ability to double-de-clutch several gear changes - up and down the gears and ranges (where applicable);
- uncouple a prime mover from the trailer, then recouple it in an acceptable sequence and time frame (where applicable);
- uncouple and recouple a trailer from its towing vehicle in an acceptable sequence (where applicable);
- reverse the assessment vehicle to the left, the right and straight back, in a safe and competent manner;
- demonstrate the use of any brake saving devices that are fitted to the vehicle.

THE "ON-ROAD" DRIVING ASSESSMENT: BUSES ONLY

During the driving assessment the applicant will be required to complete a bus stop manoeuvre. Bus drivers need to be able to stop close enough to a kerb without touching it with a tyre.

Hitting the kerb, or stopping too far from the kerb which may result in a passenger having to step down to the road surface to get to the footpath, may attract a 'Not Yet Competent' result.

Driving Assessment Not Commenced

The Practical Driving Assessment is not commenced if the vehicle provided for the assessment is not roadworthy or is unregistered.

Discontinued Driving Assessments

The Practical Driving Assessment may be discontinued and/or assessed as 'Not Yet Competent' in the event of any of the following:

- actions of the applicant require the assessing officer to aid the applicant to control the vehicle;
- the assessing officer believes that continuation of the assessment could cause danger to the public;
- the applicant fails to stop at or obey a stop sign or red light;
- the applicant fails to give way to another vehicle or a pedestrian using a crossing;
- the applicant refuses to attempt any legal manoeuvre;
- the applicant repeatedly fails to follow or understand instructions;
- the applicant's vehicle strikes another vehicle, person or fixed object;
- the applicant exceeds the speed limit;
- the applicant causes a collision or near collision with another vehicle; or the applicant takes excessive assessment time.

PUBLIC VEHICLE BUS DRIVERS

Because buses and coaches are classified as passenger carrying vehicles, drivers of such vehicles are mostly public vehicle licence holders, and have been assessed for their competence to hold such a licence.

Bus drivers who require a public vehicle licence must meet the following criteria:

- pass a full police traffic and criminal record check;
- pass a full medical examination by a Medibank Health Solutions Medical Officer;
- applicants obtaining a heavy rigid vehicle licence, must also provide a reference statement signed by a person who currently holds an ACT Licence or an unconditional Heavy Vehicle Driver Licence and has known the applicant for at least 12 months.

An 'O' Public Bus condition is endorsed in the conditions field on the driver licence which allows the licensee to drive public buses, or buses that are carrying fare paying passengers.

Applicants who do not hold an appropriate driver licence for an 'O' condition of the vehicle class required, will also need to successfully pass a knowledge assessment and a full practical driving assessment.

INFORMATION FOR PUBLIC VEHICLE BUS DRIVERS

- public bus drivers are never permitted to smoke while carrying fare paying passengers.
- Passengers are never permitted to travel in the stairway of a public bus.
- A bus that is used only as a school bus does not need a vehicle monitor.

Further information may be obtained from any Canberra Connect Shopfront on 13 22 81.

BRIBING PEOPLE IS AGAINST THE LAW

It is illegal to offer, request or accept gifts, rewards, money or other favours in order to get a licence without passing the required tests. Penalties are severe and include fines and/or imprisonment. All cases of corruption will be reported and investigated, and strong action will be taken against all those involved.

If you know or believe that someone has obtained or is about to obtain an ACT licence by offering or responding to a request for a bribe – or if you suspect or know of any other corruption involving an RTA employee – call Canberra Connect on 13 22 81.

MEDICAL ASSESSMENT

When you apply for or renew your heavy vehicle licence, you must complete a form with questions about your fitness to drive a heavy vehicle safely. On the basis of this information the RTA may ask for a medical report.

ACT adopts the national medical standards for private and commercial drivers contained in the *Assessing Fitness to Drive, Commercial and Private Vehicle Drivers* booklet, published by AUSTROADS and approved by the Australian Transport Council.

PROOF OF IDENTITY AND ACT RESIDENTIAL ADDRESS

You need to provide proof of your identity and ACT residential address when you apply for a heavy vehicle driver licence.

For more information about proof of identity documents, get the brochure, *Information Requirements Checklists* from any Canberra Connect Shopfront or visit the rego.act website. Special requirements also apply if you have changed your name.

SECTION B: BEFORE DRIVING YOUR VEHICLE

- Alcohol, other drugs and driving
- Alcohol, drugs and professional drivers
- Stimulants
- Depressants
- Prescription drugs
- Drug testing
- Warning signs after taking medication/alcohol
- Points Demerit Scheme
- ACT Points Demerit Schedule
- The driver's health and attitude
- Points to remember
- Equipment
- Type of fire extinguishers
- Road rules
- Federal Interstate Registration Scheme (FIRS)
- Air pressure and vacuum assisted brake systems
- Testing for air leaks
- Anti-lock Braking System (ABS)
- Additional requirements for large trailers and combinations
- Defect notices
- Formal warning
- Minor defect
- Major defect
- Major defect-grounded

ALCOHOL, OTHER DRUGS AND DRIVING

The Risks of Alcohol and Other Drugs on Driving

Alcohol, drugs and driving do NOT mix. Any driver who combines alcohol, drugs and driving runs the risk of:

- injury and death;
- damage to his/her vehicle or other property;
- loss of income (and perhaps his/her job);
- loss of insurance cover since most insurance companies have a disclaimer clause indicating if a driver is involved in a crash and convicted of driving under the influence of alcohol or drugs, the insurance company will not pay for any damage or injury.

Legal Penalties

Legal penalties for driving over the prescribed alcohol concentration (BAC) limit and/or for taking drugs include:

- possible fine or imprisonment;
- licence suspension or cancellation, even for a first offender;
- a substantial fine, licence suspension, cancellation and/or a prison sentence even for a first time offender.

DO NOT DRINK AND DRIVE.
DO NOT TAKE DRUGS AND DRIVE.

The Legal Limit

A person who equals or exceeds the prescribed concentration of blood or breath alcohol limit is guilty of an offence.

A ZERO alcohol concentration (BAC) applies to a person who holds a:

- learner driver or rider licence;
- provisional driver or rider licence;
- probationary driver licence; or
- restricted driver licence.

Or a driver of:

- a public passenger vehicle including a taxi, bus, hire car and restricted hire car;
- a dangerous goods vehicle;
- a heavy vehicle, that has a GVM or GCM of more than 15 tonnes.

Or a person:

- who is learning to drive a heavy vehicle over 4.5 tonnes GVM;
- who is a driving instructor providing driving instruction or assessment to the driver;
- who is a heavy vehicle driver assessor providing driver assessment to the driver of a vehicle over 4.5 tonnes;
- who is a driving supervisor of a learner driver.

In any other case the legal limit is below 0.05% (e.g. 0.05 grams per 100 millilitres of blood or 210L of exhaled breath).

Mixing Alcohol, Drugs and Medication

Driving under the influence of drugs is dangerous and also an offence.

Tranquillisers, sedatives, antihistamines, marijuana, amphetamines, heroin or any mind altering drug can affect driving ability.

These drugs can affect driving ability for considerable periods, eg for at least 6 hours after a marijuana high. Research indicates that marijuana affects both the distance you can see, and your ability to react quickly.

In the case of legal drugs ask your doctor or pharmacist about your medication before drinking alcohol, or driving.

CHECK THE LABEL ON THE MEDICATION CONTAINER TO SEE IF THERE ARE WARNINGS INCLUDING THAT THE MEDICATION CAN CAUSE DROWSINESS.

DO NOT USE DRUGS IN PLACE OF SLEEP
This is illegal and can be fatal

ALCOHOL, DRUGS AND PROFESSIONAL DRIVERS

It is illegal to drive while under the influence of alcohol or drugs, including some over-the-counter and prescription medicines.

Effects of Alcohol on Driving

Alcohol is a depressant and reduces your ability to drive safely because it:

- Slows brain functions so that you can't respond to situations, make decisions or react quickly.
- Reduces your ability to judge speed and distance.
- Gives you false confidence that leads to taking risks.
- Makes it hard to do more than one thing at a time.
- Affects your sense of balance and coordination.
- Makes you sleepy.

Getting Back to Zero Takes Time

After a night of heavy drinking, it can take more than 18 hours for your alcohol concentration (BAC) level to get back to zero. Many people are booked for drink driving the day after.

What Does Not Sober You Up

- A cup of black coffee.
- A cold shower.
- Fresh air.
- Mints or chewing gum.
- Milk.
- A short nap.
- Throwing up.

These things have no effect on your alcohol concentration (BAC) level. Once you have had a drink, you just have to wait it out.

Drugs and Professional Drivers

A drug is any chemical substance that alters the normal way that your body or mind works. Drugs not only affect your physical skills such as reaction times, coordination and vehicle control but also affect your mood, perception, information processing and risk taking behaviour. That is why drugs can make your driving worse and greatly increase your chance of having a crash.

How a drug will affect you depends on:

- The drug itself – type, amount, purity and method of use.
- Your weight, body size and health.
- Other drugs you have taken, and the setting such as surroundings and work situation.

Whatever drug is used, it is important that you know how it affects you, the harm it can do and what it does to your body.

Generally heavy vehicle drivers who do take drugs take two types – stimulants to try to stay awake and depressants to try to go to sleep.

STIMULANTS

Stimulants (uppers) speed up messages between the brain and the body. They include medicines with mild stimulants like pseudoephedrine and illegal drugs like speed.

The Effect of Stimulants on Driving

Stimulants do not increase your driving ability or coordination, however, they can:

- Give you a false sense of confidence.
- Increase your risk taking behaviour.
- Distort your visual perceptions making it difficult to judge distances.
- Make you feel exhausted because you cannot sleep which will affect your reflexes and your concentration.
- Increase your risk of having a crash.

As the effects of stimulants begin to wear off, you may experience a level of fatigue that is worse than when you first took the drug.

The long-term health effects of taking stimulants include:

- Anxiety.
- Chronic sleep problems.
- Compulsive repetition of actions.
- Depression.
- Extreme mood swings.
- High blood pressure.
- Heart failure.
- Impotence.
- Irritability.
- Panic attacks or seizures.
- Paranoia.
- Suspiciousness.
- Weight problems.

A good sleep is the only way to prevent or cure fatigue. Taking drugs to keep awake can make fatigue worse when the effect of the drug wears off.

DEPRESSANTS

Depressants slow your reflexes, impair your balance and coordination, affect your vision and perception of time and space, your memory and your ability to think logically. The 'hangover' effects such as drowsiness and poor coordination can last for several hours after the initial effects, which can mean you are not able to drive safely.

Depressants greatly increase the risk of having a crash when you are driving because you can have:

- Slower reaction time.
- Distorted perception of speed and distance.
- Impaired vision.
- Reduced ability to concentrate.
- Impaired coordination and decreased ability to coordinate the appropriate reaction when driving.

PRESCRIPTION DRUGS

Some prescription medications can affect your driving. Read the instructions on the packaging or consult your doctor or pharmacist to find out if the drugs you are taking would impair your driving ability. Driving can be affected by non prescription medications such as those taken for coughs and colds.

DRUG TESTING

Roadside Drug Testing

Police now have the powers to carry out roadside drug testing on any driver or rider in the ACT. Specific Police drug testing operations will target heavy vehicle drivers.

Driving Under the Influence of Drugs

If the manner of your driving indicates that you are impaired by drugs or you are involved in a fatal crash, Police have the power to take you to hospital to obtain a blood and urine sample. The sample will be analysed for any drug, including some prescription drugs known to impair driving.

WARNING SIGNS AFTER TAKING MEDICATION

Drivers who are taking medication and feel any of the following symptoms, should not be driving:

- drowsy;
- dizzy, light headed, faint or shaky;
- aggressive;
- nauseous;
- have blurred or double vision.

ALCOHOL

Alcohol in the blood or breath is not easy to remove.

It takes the body one hour to get rid of one standard drink and this rate of elimination cannot be speeded up.

This means that once the driver of a heavy vehicle with a GVM below 15 tonnes has reached the legal limit, (below 0.05 BAC) it only requires one standard drink per hour thereafter to stay at that level.

A zero alcohol concentration (BAC) applies to a driver of a heavy vehicle that has a GVM or GCM of more than 15 tonnes.

Once alcohol is in the bloodstream its effects on the brain cannot be prevented or controlled.

Black coffee, sleep, cold showers and exercise may alter the way a person feels, but cannot change that person's blood or breath alcohol concentration.

As a rough guide, drivers may reach or exceed 0.05% if they drink more than:

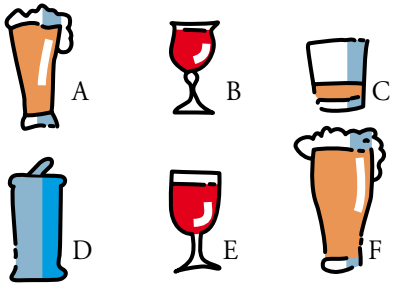
- 2 standard drinks in the first hour; OR
- 3 standard drinks spread over 2 hours; OR
- 4 standard drinks spread over 3 hours; and so on.

WOMEN - THINK ABOUT YOUR SECOND DRINK

MEN - THINK ABOUT YOUR THIRD DRINK

Examples of Standard Drinks

(containing 10 grams of alcohol)



Standard Drinks

Standard drinks all contain about the same amount of alcohol.

Be aware that "low alcohol" or "boutique beers" vary greatly in alcoholic content.

Most lower alcoholic type beers and wines are about 2/3 the strength of ordinary beers and wines.

Standard drinks

A 1 middy of full strength beer (285ml)

B 1 glass of fortified wine (60ml)

C Approx 1 nip of spirits (30ml)

D 1 can (375ml) of low alcohol beer

E Approx 1 small glass of table wine (100ml)

F Approx 1 schooner of low alcohol beer (425ml)

Effects of Alcohol on the Body

Alcohol can impair driving skills even when the blood or breath alcohol content is less than the legal limit. Alcohol affects skills in the following ways:

- a false sense of security develops;
- the driver remains unaware of the level of driving impairment;
- concentration deteriorates;
- speed is underestimated;
- reactions become slower;

- distances become harder to judge;
- vision loses range and breadth;
- it is more difficult to cope with bright lights;
- steering becomes slower and less competent.

Random Breath Testing (RBT) and Drug Testing

The Australian Federal Police conducts Random Breath Testing and drug testing to discourage drivers from drinking and /or taking drugs and driving.

Undertaking a RBT requires you to provide a sample of your breath by blowing into a breath analysis instrument.

A random drug test requires you to provide a sample of your saliva for testing at the roadside. If you fail a screening test, you will be taken into custody by a Police Officer for a test on a breath or drug analysis instrument. If you fail a drug or alcohol test, or refuse to take a test, you will be prosecuted for a drink or drug driving offence and must complete an alcohol and drug awareness course.

Further information on drugs and alcohol may be found in the

ACT ROAD RULES HANDBOOK.

DEMERIT POINTS SCHEME

Drivers within the ACT who are guilty of a traffic offence will incur a traffic fine and may incur demerit points.

With the introduction of a National Demerit Points Exchange Scheme, points accrued interstate for traffic offences, will accumulate against your licence in your home State or Territory. Different licence classes have different demerit point limits. These are set out below:

- The holder of a Provisional Driver Licence who incurs 4 or more demerit points within a three year period will have his/her Provisional Driver Licence suspended for 3 months.
- The holder of a Full or Heavy Vehicle Driver Licence who incurs 12 to 15 demerit points within a three year period will attract a 3 month suspension. Incurring 16 to 19 demerit points results in a 4 month suspension, and 20 or more demerit points results in a 5 month suspension. The licensee may elect to obtain a good behaviour period of 12 months instead.
- If two (2) or more demerit points are incurred during the good behaviour period, the licence holder will be disqualified from holding a licence for twice the initial suspension period.

- The holder of a Probationary Driver Licence who incurs 2 or more demerit points will attract cancellation of that licence and will be disqualified from holding a licence for 6 months.
- The holder of a Restricted Driver Licence who incurs 2 or more demerit points will attract cancellation of that licence.

ACT DEMERIT POINTS SCHEDULE

OFFENCE	PENALTY POINTS
Exceed speed limit by 45km/h or more	6 Points
Exceed speed limit by 30km/h but less than 45km/h	4 Points
Exceed speed limit by 15km/h but less than 30km/h	3 Points
Exceeding the speed limit by less than 15km/h	1 Point
Disobeying a traffic signal	3 Points
Disobeying major regulatory traffic control sign or Police directing traffic	3 Points
Failing to give way	3 Points
Failing to stop and/or give way at pedestrian, school or level crossing	3 Points
Driving with unrestrained passengers under legal age including children and infants	3 Points
Driving on wrong side of double lines or divided highway	3 Points
Driving without seatbelt	3 Points
Motorcyclists not wearing a helmet	3 Points
Careless/negligent driving	3 Points
Using a handheld mobile while driving	3 Points
Improper overtaking and passing	2 Points
Turning or stopping without signalling	2 Points
Turning improperly	2 Points
Failing to keep left	2 Points
Failure to dip headlamps	1 Point
Driving at night without headlamps on	1 Point

YOUR LICENCE IS A PRIVILEGE - NOT A RIGHT

THE DRIVER'S HEALTH AND ATTITUDE

A driver in ill health, or fatigued and tired will not feel like driving, and will therefore be a danger to himself or herself as well as to other road users.

A driver taking medication of any type should ask a doctor or chemist if their medication can affect their driving ability.

All drivers need to have a sensible attitude to correct and safe driving practices.

Bad temper has a direct effect on driving attitude and should not be allowed to take control of a driver's behaviour. A driver should never allow another road user's actions to adversely influence the way in which they drive. Any driver who reacts to another road user's poor behaviour by tailgating the offending vehicle, yelling abuse or blasting on the vehicle's horn, risks further incident and should consider whether or not they are a safe person to be in control of a motor vehicle.

All drivers need to have a "sensible attitude" when driving. A driver who has just had an argument, or has been involved in an incident which will interfere with his or her concentration, should not consider getting behind the wheel of a vehicle until they have calmed down.

POINTS TO REMEMBER

- Drivers should get plenty of sleep prior to driving long distances. A tired and fatigued driver is a dangerous driver.
- Drivers should time their trip to avoid peak traffic periods at their destination.
- Drivers who take medication should check with their doctor to ensure that it will not have any affect on driving ability.
- If the vehicle becomes too hot or uncomfortable, where possible, cool the cabin down. Alternatively, stop and have a short walk about to freshen up.
- Drivers should not eat too large a meal before driving or during a meal break. This will often result in a driver becoming drowsy.
- Alcohol should never be consumed prior to driving a motor vehicle of any type. (See separate section of this book for alcohol intake).
- Drivers should NEVER jump down from the cabin of a high vehicle. This can result in spinal damage or injury to leg joints, which could last for life.
- When lifting anything heavy, drivers should lift it in a recognised manner thus avoiding back injury or overstrained muscles. Most Occupational Health and Safety Offices will provide information on how to lift or move heavy objects.

EQUIPMENT

The equipment carried and used by heavy vehicle drivers can depend on what load the vehicle is carrying, where the vehicle is travelling to, and in some cases what is required by law.

Triangles

The most common equipment required to be carried in a heavy vehicle is the emergency warning triangles that are placed on the roadside approaching a vehicle that is partly blocking a road. Triangles should be packed or secured either under a seat or in another suitable storage area, so as not to create a danger in an accident, or an obstacle for the driver or passenger's feet. But they should remain easily accessible at all times.

Tools/Spare Parts/etc

All tools, spare parts, or any other item which may be likely to create a nuisance or danger by not being suitably secured, should be removed from the cabin area. These items should be carried in an externally mounted toolbox, or some other suitable container on the vehicle.

Chains/Ropes/Straps/etc

As with tools and other items, chains, ropes, straps and other load securing devices, should be stored in a secure but readily accessible area.

Ropes or chains lying loose in the cabin can cause people to trip and may become entangled around their feet. Loose items can also become airborne and a danger to vehicle occupants in the case of a crash or in an emergency situation.

CB Radios/Two Way Radios/Mobile Telephones

Most heavy vehicles are fitted with a CB, two-way radio, or mobile telephone equipment for communication to their depots, other drivers, or to home.

This equipment should be securely fitted in the vehicle in such a position as to avoid creating an obstruction or danger to any of the vehicle's occupants.

It is an offence to use a hand held mobile telephone while driving a vehicle. If your vehicle is not fitted with a hands free connection, you cannot legally use the telephone while driving or while waiting at an intersection. You must move your vehicle to a safe location, stop and turn off the vehicle before answering or making a call (mobile telephone does not include a CB radio or any other two-way radio).

Remember also: It is dangerous and irresponsible to drive with one hand off the steering wheel while operating a communication radio or CB. The correct method for using these devices is to pull off the road and stop.

Packing or Baulking

Some loads will need to have packing or baulking placed around them, or between the load and the vehicle, ie between the load and headboard, to protect the load or the vehicle from damage.

There are various types of packing that may be used for load protection. The most common type will be cardboard or felt. In other cases timber blocks or frames may be required. Whatever type of load packing is used, drivers should keep in mind that the load needs to be protected from damage just as much as the vehicle does.

Where a load requires chains or ropes to secure it in place, it is quite often necessary to place packing/baulking on the load or load container, where the rope, chain or straps hold the load. This will stop chafing or rubbing that could cause expensive damage.

TIP: Read the *Load Restraint Guide* for further information.

Fire Extinguishers

Some vehicles will carry fire extinguishers fitted as a safety item by a safety conscious owner.

Other vehicles will be required under legislation to carry fire fighting equipment. Whichever the case may be, drivers operating vehicles carrying fire extinguishers need to be fully aware of how and when to use them.

There are different types of fire extinguishers available, but the type carried would generally depend on the type of load carried. ie for a load of petrol or oil, a suitable type of extinguisher would be a foam or dry chemical (powder) type.

Drivers should be thoroughly competent in the use of extinguishers fitted to their vehicle, as time saved in using them may save a life or a load of freight on the vehicle. Some common types of extinguishers and their uses are shown below. Further information on fire extinguisher types and use may be obtained from:

ACT Fire Brigade
Telephone 6207 8363

TYPES OF FIRE

Type of Extinguisher	Wood, Paper, textiles, etc	Fat, Oils, Petrol etc	Live electricity	Motor vehicles	Comments
 **Water** (including soda acid)	Yes	No	No	May be used	Dangerous if used on electrical fires
 **Foam**	Not specifically suitable	Yes	No	May be used	Dangerous if used on electrical fires
 **Dry chemical powder**	Not specifically suitable	Yes	Yes	May be used	Recommended for home, garage, boat and caravan

First Aid Kit

Any driver who spends a lot of time driving should carry a small First Aid kit. Although it might never be used, it could save an amount of discomfort when required.

Your First Aid kit should be easily accessible, and should be kept in a clean and serviceable condition at all times.

Further information regarding First Aid kits, or First Aid training may be obtained from:

St John Ambulance Australia

Telephone 1300 360 455 for training and First Aid kits

www.stjohn.org.au

ROAD RULES

Most of the ACT's Traffic Laws are outlined in the *ACT ROAD RULES HANDBOOK*, copies of which may be purchased from any Canberra Connect Shopfront.

FEDERAL INTERSTATE REGISTRATION SCHEME (FIRS)

Vehicles that are continually travelling interstate are mostly registered under the *Federal Interstate Road Transport Act 1985*, and the *Federal Interstate Road Transport Regulations 1986.*

Vehicles registered under the Federal Interstate Registration Scheme are subject to all mass limits imposed by the Federal Legislation. However such vehicles are also required to comply with the *ACT Road Transport (Mass Dimensions and Loading) Act 2009.*

Further details regarding registration requirements may be obtained from: Canberra Connect 13 22 81.

NOTE: A vehicle with Federal Interstate registration MUST ONLY operate on interstate journeys. It is an offence to load and unload the same goods within any State or Territory.

Federal Interstate trailer plate

AIR PRESSURE AND VACUUM ASSISTED BRAKE SYSTEMS

Heavy vehicles such as large trucks, semi-trailers and buses are often fitted with a stored energy braking system. This system makes the operation of the brakes independent of the normal source of power assistance, ie the engine. Such systems incorporate a reservoir of compressed air or vacuum (ie stored energy) which is required by law to have sufficient capacity for at least two assisted full brake applications after the engine is switched off.

Like any other component of the braking system, a stored energy system must be maintained in a good state of repair and under constant inspection to ensure that it is completely dependable at all times.

Failure of a stored energy braking system may result in serious consequences for heavy vehicle operators.

Low Air or Vacuum Warning Devices

All vehicles that are fitted with air or vacuum assisted brake systems must be fitted with low air or vacuum warning devices. These devices may be buzzers, bells or arms that drop in front of the driver's vision. They are usually supplemented by a gauge and **MUST** operate before the pressure drops below 420kpa (60psi).

The low air/vacuum warning system should be checked daily for non-operation, or system faults, as a loss of air or vacuum will cause the brakes to lock on.

Low air warning device

To perform a test, the vehicle must be stationary with the engine switched off. Deplete the air in the reservoir tanks by repeated brake applications.

When the reservoir is empty, and the warning device is operating, the engine should be started and the time required to fill the reservoir, and the warning device to stop indicating, should be noted. The maximum pressure in an air assisted brake system should not exceed 900kpa (130psi).

- The time required to recharge an air system should not exceed three minutes, and for a vacuum system it should not exceed one minute.

While the service brakes are fully on, listen for escaping air and watch for any drop in air pressure. A drop of more than 20kpa (3psi) per minute for a truck, or 30kpa (4psi) per minute for a truck and trailer combination is unacceptable.

NEVER DRIVE A VEHICLE WITH A LOW AIR OR VACUUM ALARM SOUNDING.

NOTE: A warning device MUST operate when enough stored energy remains for only two brake applications.

Inspection of the Brake System

All heavy vehicle brake systems should be checked daily to ensure that they are in a full and safe working condition. Items to check are:

- air leaking from any valve, joint, pipe or reservoir;
- visible damage to any of the above;
- adjustment of the service brakes;
- low air or vacuum warning alarms are operating;
- the air compressor motor is delivering the required amount of air to operate the system safely and correctly;
- the system's safety relief valve is not clogged with dirt or grit so as to make it non-operable.

The air reservoirs are fitted with drain cocks or taps to drain out any moisture, oil or sludge that may build up during use. After applying the park brake or chocking the wheels, the drain cocks should be fully opened and all air pressure allowed to escape. Any sludge or oil that may have collected in the system should also drain away at this point.

This operation is most important as the presence of these impurities in the air system can create rust and corrosion within the pipes and reservoirs. It may also cause damage to valves and blockages of line pipes. Once the system has been allowed to fully discharge, the drain cocks should be closed and the air pressure then fully built up again. Some vehicles are fitted with automatic drainers, however these should also be checked regularly to ensure that they are working correctly.

TESTING FOR AIR LEAKS

This test should only be completed after full air pressure has been reached in the reservoir tanks.

Fully depress the brake pedal and hold it on. Listen for any audible air leaks, and watch the pressure gauge for any loss in pressure. **ANY** leaks should be repaired immediately.

A drop of more than 20kpa (3psi) per minute for a truck, or 30kpa (4psi) per minute for a truck and trailer combination (articulated) is unacceptable.

ANTI-LOCK BRAKING SYSTEMS (ABS)

Many vehicles are now fitted with ABS, which is designed to stop wheel lock-up and improve steering under heavy braking.

Maximum braking occurs when the wheels are just on the point of locking. However, if a wheel does lock and skidding occurs, braking is not effective and the driver may lose control of the vehicle.

To get the best results when using an ABS equipped vehicle in an emergency situation, the driver should press the brake pedal down fully and allow the ABS to regulate the vehicle's braking. This means that the driver will still have full steering control at the same time as maximum braking.

If the ABS fails, the system reverts to normal brake operation.

ADDITIONAL REQUIREMENTS FOR LARGE TRAILERS AND COMBINATIONS

Articulated vehicles, and truck-trailer combinations, are fitted with more sophisticated and complex braking systems.

It is imperative that the brake systems on these types of vehicles are maintained in perfect operating condition at all times.

It is essential that the vehicle remains fully controllable and stable during any braking manoeuvre. If the braking system is faulty or poorly maintained, skidding or skewing can occur between the prime mover and the trailer.

Large articulated type vehicles can seldom be controlled under runaway conditions which in turn can lead to 'jack-knifing'.

Breakaway Brakes

All large towed vehicles **MUST** be fitted with a breakaway brake system which will automatically activate the brakes should it become disconnected from the towing vehicle.

Similarly, all large towing vehicles, ie prime movers etc, **MUST** be equipped with a tractor protection valve. The purpose of the tractor protection valve is to ensure that only a limited amount of air escapes should the trailer air hose become separate from the towing vehicle.

The tractor protection valve must prevent the towing vehicles air pressure from dropping below 300kpa (45psi) if the trailer or towed vehicle becomes disconnected.

A low pressure warning device should begin to operate **BEFORE** the air pressure drops below 400kpa (60psi).

After fully exhausting the air supply, by means of pumping the brake pedal, the engine

should be restarted, and a check be made of how long it takes for the low air warning device to stop sounding. The time to charge from zero to 650 kpa (96 psi) with the engine running at high speed, should not exceed 5 minutes.

Heavy Vehicle Drivers Should

1. Check brakes, lights and other equipment before starting out, and periodically during each trip.
2. Park all personal problems at the kerb when starting to drive.
3. When on the road observe all traffic laws and respect the laws of nature governing momentum, deceleration, centrifugal force, gravity and weather conditions.
4. Watch out for children and pedestrians, especially near schools. Cyclists are legitimate road users, so watch out for them, share the road, especially on arterial roads.
5. Not tailgate. Keep enough distance between your vehicle and the one ahead to allow faster vehicles to pass. Make every effort to allow following traffic to pass on long grades and permit delayed traffic to pass at the top of a long grade.
6. Use reason and common sense when approaching stop and give way signs.
7. Never drink alcohol while driving or before starting a trip.
8. Not fight sleep. If drowsy get off the road and take a short rest.
9. Not hesitate to slow down and be ready to stop the instant potential danger appears. Drive so that your vehicle is under control at all times.
10. Give other motorists the breaks that you wish that they would give you.

Speed Limiter Offences

A heavy vehicle operator commits an offence if the speed limiter is altered or disconnected.

The operator will be given a traffic infringement notice. Severe traffic infringement notice penalties and court imposed penalties apply.

Refusal of a Licence

The RTA may refuse to renew the licence of drivers who have exceeded their demerit points limit or have committed a serious speeding offence. The periods of refusal for a licence are the same as those for suspensions.

Speed and Red Light Cameras

Fixed speed and red light cameras have been placed at various locations within the ACT to address the dangerous practices of speeding and running red lights. Sensors embedded in the road detect the presence of vehicles at the red light cameras. If a vehicle drives through a red light, a signal is sent to the camera, which then takes a series of photographs

of the vehicle as well as a close-up of the number plate. The same sensors also calculate the speed of vehicles and activate the camera if the pre-set speed limit is exceeded. This occurs regardless of whether the traffic lights are green, red or amber.

Vehicles that are speeding and running red lights at the same time can incur infringement notices for both offences. The images and infringement details, including the time and location, are digitally recorded and downloaded to the Traffic Camera Office. A number of fixed speed only cameras have been placed on high volume higher speed roads using sensors in the road or radar detectors.

Point-to-point cameras measure the average speed of a vehicle over a stretch of road and discourage drivers from the practice of speeding up and slowing down to avoid detection by conventional fixed safety cameras.

Noise Pollution

Noise can affect your physical health, cause nervous stress and annoy others. It adds to fatigue, lowers productivity and can also increase the risk of heart disease.

> There are heavy penalties under environmental protection legislation for breaking the noise control law. These penalties increase significantly for repeat offences.

Types of Noise Pollution

1. In heavy traffic flow each vehicle contributes to the general roar. Trucks contribute about half the noise energy from traffic – even though they make up less than 10 per cent of vehicles on the road.
2. There is also noise pollution from excessively noisy individual vehicles – these contribute more than their fair share to general traffic noise.

Noisy Vehicles

Excessive noise can come from:

- Deterioration of the exhaust system from corrosion.
- Fitting an unsuitable muffler.
- Engine modifications such as raising the maximum governed speed.
- Removing sound absorbent materials.
- Poor driving habits such as using the exhaust brake or a noisy retarder in built up areas.
- Body noise on hitting bumps in the road.

What you can do to Reduce Noise

- Fit a good exhaust system:
- Beware of 'cheapies' – they can wear out faster and may not have a warranty. A noisy muffler does not mean higher performance or better fuel consumption.
- Buy quality replacement mufflers. The manufacturer's recommended part usually provides the best all-round performance and noise control.

Get your Truck or Bus Tested for Noise

Ask the muffler fitter to check that your new muffler has a low noise level. The legal noise limits vary according to GVM, manufacture date, type of engine and whether the exhaust pipe is vertical or horizontal.

During testing, the fitting of raincaps and elbows may deflect the radiation of noise for dB(A) testing, however, the microphone can be placed at any suitable location so long as it is more than 1.0 metre from the centre of the exhaust outlet but not in the way of the gas flow.

For noise emission levels applicable to heavy vehicles please refer to the *Road Transport (Vehicle Registration) Regulation 2000* Schedule 1, Division 1.10.3 located on the ACT Legislation Register at: http:www.legislation.act.gov.au/sl/2000-12/default.asp

Smoke from Engines

Excessive smoke from vehicles is illegal, unpleasant and at times dangerous. It can also lead to expensive engine repairs and time off the road.

Blue smoke normally indicates engine wear or damage. Black and grey smoke results from incomplete combustion and may be caused by a number of factors. These examples can usually be fixed during routine maintenance:

- Blocked air filter.
- Obstruction of fuel filters or water traps with dirt, grit or fuel wax.
- Incorrect fuel pump timing.
- Engine speed too high.
- Incorrect valve or tappet adjustment.
- Poor cylinder compression indicating leakage past valves or piston rings.
- Excessive back-pressure in exhaust system.
- Injectors misfiring or leaking.
- Faulty turbo chargers where fitted.
- Poor driving techniques.

DEFECT NOTICES

Defect notices are issued by authorised officers of the RTA and the police service. There are two categories of defects – minor and major (which includes major grounded). The RTA may also issue formal warnings.

FORMAL WARNING

Type of Vehicle Defect

These are faults that are non-safety related and are relatively simple to repair. Owners should be advised that it is not necessary to return a Formal Warning Notice for clearance to the RTA – these are a self certification clearance notice.

How it Affects You

Your vehicle may continue to be used but any necessary repairs or adjustments must be made by the time specified on the notice. Formal warnings may be issued as a Load Restraint Advice, Undue Noise Advice or a Vehicle Unroadworthiness Caution.

> Empty tipper trucks can be very noisy, so drive slowly over rough roads or get rubber lining fitted to the body.

> You may be penalised if your vehicle blows excessive smoke for more than 10 seconds.

MINOR DEFECT

Type of Vehicle Defect

This includes faults in a vehicle's safety related systems that are not likely to cause the vehicle to become unsafe during the time specified on the notice. The vehicle may continue to be used until the expiry of time specified.

How it Affects You

Your vehicle may continue to be used up until the time specified on the notice of repair. These categories of vehicle defects are of a more technical nature and require inspection of the vehicle defect notice by either an authorised examiner at an authorised inspection station or an authorised officer of the RTA as indicated by the notice. The defect may then be cleared by the RTA.

MAJOR DEFECT

Type of Vehicle Defect

'Major' category vehicle defects are serious defects in a vehicle's safety related systems that would constitute an imminent and serious safety risk if the vehicle is operated beyond the time allowed for use. A yellow coloured defective vehicle label may be attached to the vehicle and a traffic infringement notice issued.

How it Affects You

Once repairs are completed the vehicle is to be inspected by an authorised officer of the RTA or an authorised examiner at an authorised inspection station as indicated by the notice. The vehicle defect notice may then be cleared by the RTA.

> It is against the law to drive or stand a vehicle with an uncleared defect notice on a public street or use a vehicle contrary to any conditions endorsed on the defect notice.

MAJOR DEFECT – GROUNDED

Type of Vehicle Defect

Vehicles with dangerous category defects must not be driven from the point of inspection unless the dangerous faults are repaired immediately or the vehicle is towed or carried to a place of repair.

How it Affects You

The issuing officer will explain the clearance procedures and where the vehicle may be inspected. In most cases the clearance procedures are the same as for major defects.

SECTION C: LOADING A VEHICLE

- Mass, dimensions and loading
- Dimensions and mass of vehicles and loads
- Allowable mass/weight limits
- Allowable dimensions
- Agricultural implements
- Transport of dangerous goods
- Packages and vehicles
- Oversize dimension notices and permits
- Classes of dangerous goods
- Dangerous goods
- The correct licence
- Check list for dangerous goods
- Vehicle dimensions and loading
- High loads
- Tankers
- Projecting loads
- Buses and bus passengers
- Driver fatigue
- National work diary
- Seatbelts
- Performance Based Standards (PBS)

MASS, DIMENSIONS AND LOADING

On 3 March 2010 new legislation for heavy vehicles commenced in the ACT. The commencement of the *Road Transport (Mass, Dimensions and Loading) Act 2009* (MDL Act) and the *Road Transport (Mass, Dimensions and Loading) Regulation 2010* (MDL Regulation) replaced the *Road Transport (Dimensions and Mass) Act 1990*, which has been repealed.

The MDL Act incorporates the national model of heavy vehicle compliance and enforcement legislation. The new legislation gives effect to the chain of responsibility concept in the ACT, where any party, including off-road entities, who has control in a transport operation, can be held responsible for breaches of road transport laws.

The purpose of the MDL Act and MDL Regulation is to set out the conditions under which heavy vehicles and heavy vehicle combinations may travel safely and efficiently on the ACT road network, including through the issuing of exemption notices and permits to allow vehicles and combinations that exceed general mass and dimension limits access to the road network.

The ACT Legislation Register has an up-to-date version of the MDL Act and MDL Regulation. To view the exemption notices, go to the heavy vehicle exemption notices at www.legislation.act.gov.au

Heavy Vehicle Exemption Notices

The MDL Regulation provides the Road Transport Authority (RTA) with the power to exempt specific class 1 or class 3 vehicles or combinations from a mass or dimension limit in the regulation or in the *Road Transport (Vehicle Registration) Regulation 2000* by issuing a notice. The RTA may also declare areas or routes on which a vehicle or combination may travel on when operating under a class 1 or class 3 notice.

For class 2 vehicles and combinations the RTA has the power to declare areas or routes on which specific class 2 vehicles may operate.

Class 1 Restricted Access Vehicles – These vehicles exceed a dimension or mass limit under road transport laws and may only be given restricted access to the road network through an exemption notice or a permit. For example:

- prime movers with semi-trailers that are oversize or over mass;
- cranes and other special purpose vehicles;
- agricultural machines or implements;
- tractors and road-going earthmoving equipment; and
- vehicles designed to carry large indivisible items.

Class 2 Restricted Access Vehicles – These vehicles comply with the dimension and mass limits in the *Road Transport (Vehicle Registration) Regulation 2000* and schedule 1 of the MDL Regulation. However, they may only be given restricted access to the road network through an exemption notice or a permit. For example:

- B-doubles;
- road trains;
- livestock carrying vehicles between 4.3 and 4.6 metres in height; and
- vehicle transporters not more than 4.6 metres in height.

Class 3 Restricted Access Vehicles – These vehicles may only be given restricted access to the road network. Class 3 Restricted Access Vehicles (RAVs) are RAVs that are not Class 1 or Class 2. These include:

- Class 2 RAVs that are oversize or over mass (e.g. 26 metre B-doubles);
- Class 2 RAVs that are concessionally loaded (e.g. vehicles operating under the Concessional Mass Limits Scheme); and
- Class 2 RAVs that do not meet the Australian Vehicle Standards Rules in terms of axle spacing.

General Access Vehicles – Any vehicles that are not RAVs. For example, rigid trucks and most prime movers with semi-trailers. These vehicles qualify for general access to the road network and generally do not require any permits or exemptions from regulatory requirements. The term 'General Access' does not mean access to all roads. Some roads are too narrow or have sharp bends making them unsuitable for heavy vehicles and trailers. Heavy vehicles and combinations must be operated in compliance with the Australian Road Rules. In addition, some roads have bridges which may have a restricted mass limit. Operators and drivers must ensure that they comply with all limits and restrictions relating to heavy vehicle operation in the ACT.

Notices issued by the RTA under the R*oad Transport (Mass, Dimensions and Loading) Regulation 2010* must be notified on the ACT Legislation Register.

Exemption Notice Conditions and Restrictions

Conditions and additional restrictions may be applied to the operation of a vehicle or combination when travelling under a notice. Any conditions stated in a notice must be complied with when travelling under a notice.

Additional restrictions may be contained in a notice relating to a specific area or a specific route. Where applicable, these are outlined in the schedule of the notice where declared routes are identified. These are mainly time of day restrictions where operation is not permitted, however for some routes they include restrictions relating to bridge crossings. Further restrictions may apply in relation to access to specific sites.

Information on these restrictions are detailed in the exemption notice, where relevant.

Compliance with Exemption Notices

While the RTA does not require drivers to carry a copy of a notice in the compartment of their vehicle when operating under a notice, the driver and operator must always ensure that the vehicle or combination is being operated in accordance with the notice and in accordance with any conditions or restrictions that may apply.

Where a vehicle or combination operating under a notice is not in compliance with the provisions of that notice, the driver and/or operator will be committing an offence and may be subject to enforcement activity such as an infringement penalty or prosecution.

Accessing Notices from the Web Page

All notices made under the MDL Regulation are accessible from the ACT Legislation Register webpage where authorised and up-to-date versions of these instruments are publicly available.

For further information on Exemption Notices applicable to heavy vehicles please refer to the Notifiable Instruments listed below the *Road Transport (Mass, Dimensions and Loading) Regulation 2010* located on the ACT Legislation Register at: http://www.legislation.act.gov.au/sl/2010-4/default.asp

DIMENSIONS AND MASS OF VEHICLES AND LOADS

The ACT *Road Transport (Mass, Dimensions and Loading) Act 2009* was introduced to limit the size and weight of loads transported on all roads within the Australian Capital Territory.

These limits allow for the operation of efficient vehicles which are built to suit the Australian market.

Recommended reading for all truck drivers is *The Load Restraint Guide.* This book is available from any Canberra Connect Shopfront.

ALLOWABLE MASS/WEIGHT LIMITS

DON'T BE AN OVERLOADER

It is important that legal mass limits are not exceeded.

Overloading causes serious damage to the Australian Capital Territory road system and can endanger the safety of road users.

The gross mass of a particular vehicle or combination of vehicles must not exceed the lowest of the mass limits which are determined by:

- the manufacturer's gross vehicle mass or manufacturer's gross combination mass (whichever is applicable);
- the sum of the masses allowed on the individual axles or axle groups for a particular vehicle or combination of vehicles (refer to mass limits for single axles and axle groups shown in Table 1.);
- vehicle mass or combination mass determined from the axle spacing schedule (see Table 2.);

As much loading of heavy vehicles takes place outside normal business hours, drivers should be aware that public weighbridges may not be available to them for weight checking purposes.

TABLE 1: Axle and axle group mass limits

Axle spacing (m)	Mass limit (t)	Axle spacing (m)	Mass limit (t)
$0 \leq$ axle spacing < 3.7	23.0	$6.8 \leq$ axle spacing < 7.0	33.0
$3.7 \leq$ axle spacing < 3.8	23.5	$7.0 \leq$ axle spacing < 7.2	33.5
$3.8 \leq$ axle spacing < 4.0	24.0	$7.2 \leq$ axle spacing < 7.3	34.0
$4.0 \leq$ axle spacing < 4.2	24.5	$7.3 \leq$ axle spacing < 7.5	34.5
$4.2 \leq$ axle spacing < 4.3	25.0	$7.5 \leq$ axle spacing < 7.7	35.0
$4.3 \leq$ axle spacing < 4.5	25.5	$7.7 \leq$ axle spacing < 7.8	35.5
$4.5 \leq$ axle spacing < 4.7	26.0	$7.8 \leq$ axle spacing < 8.0	36.0
$4.7 \leq$ axle spacing < 4.8	26.5	$8.0 \leq$ axle spacing < 8.2	36.5
$4.8 \leq$ axle spacing < 5.0	27.0	$8.2 \leq$ axle spacing < 8.3	37.0
$5.0 \leq$ axle spacing < 5.2	27.5	$8.3 \leq$ axle spacing < 8.5	37.5
$5.2 \leq$ axle spacing < 5.3	28.0	$8.5 \leq$ axle spacing < 8.7	38.0
$5.3 \leq$ axle spacing < 5.5	28.5	$8.7 \leq$ axle spacing < 8.8	38.5
$5.5 \leq$ axle spacing < 5.7	29.0	$8.8 \leq$ axle spacing < 9.0	39.0
$5.7 \leq$ axle spacing < 5.8	29.5	$9.0 \leq$ axle spacing < 9.2	39.5
$5.8 \leq$ axle spacing < 6.0	30.0	$9.2 \leq$ axle spacing < 9.3	40.0
$6.0 \leq$ axle spacing < 6.2	30.5	$9.3 \leq$ axle spacing < 9.5	40.5
$6.2 \leq$ axle spacing < 6.3	31.0	$9.5 \leq$ axle spacing < 9.7	41.0
$6.3 \leq$ axle spacing < 6.5	31.5	$9.7 \leq$ axle spacing < 9.8	41.5
$6.5 \leq$ axle spacing < 6.7	32.0	$9.8 \leq$ axle spacing < 10.0	42.0
$6.7 \leq$ axle spacing < 6.8	32.5	axle spacing ≥ 10.0	42.5

ALLOWABLE DIMENSIONS

Most vehicles have a dimension or size restriction, so this section is recommended reading for all drivers of larger vehicles.

Vehicles that are required to carry indivisible loads, (ie earth-moving equipment, farm machinery etc.) which exceed the relevant mass and/or dimensions limits, MUST obtain a special permit to do so. This permit MUST be obtained BEFORE attempting to move the relevant vehicle or load.

The permit may be in the form of an oversize exemption notice which will restrict vehicles to travelling on ACT roads deemed appropriate for the carriage of loads pertaining to the notice.

Depending on the type of load the permit may be issued for either annual, specified period, or single trip use.

In addition permits may be required and/or issued for the road movement of plant and machinery, such as mobile cranes and certain large tyred machines.

If the limits are exceeded, special signs are required under a permit.

Applications and further information regarding permits to move or transport over dimension vehicles or loads are available from the:

Territory and Municipal Services
Heavy Vehicle Permits Officer

Locked Bag 2000
Civic Square ACT 2608
Telephone: (02) 6207 6565

AGRICULTURAL IMPLEMENTS

Permits may be issued for road movements under certain conditions, for large agricultural implements, ie hay balers, crop headers etc.

Further information may be obtained from the Vehicle Inspection and Technical Unit.

TRANSPORT OF DANGEROUS GOODS

Transporting Dangerous Goods

All vehicles transporting dangerous goods are required to comply with the *Dangerous Goods (Road Transport) Act 2009* and Regulations included in the A*ustralian Code for Transport of Dangerous Goods (ADG Code)* and the Dangerous Substances Act 2004.

AUSTRALIAN CODE FOR THE TRANSPORT OF DANGEROUS GOODS (ADG CODE)

The Code classifies dangerous goods into 9 different classes according to the predominant type of risk involved with each. These classifications are in uniformity with those used throughout the world.

The classes are:

- Class 1 – Explosives.
- Class 2 - Gases (non-flammable, non-toxic, toxic, or flammable).
- Class 3 - Flammable liquids.
- Class 4 - Flammable solids.
- Class 5 - Oxidising substances, organic peroxides.
- Class 6 - Toxic substances, infectious substances.
- Class 7 - Radioactive material.
- Class 8 - Corrosive substances.
- Class 9 - Miscellaneous dangerous goods.

The Code sets standards and requirements for the packaging and transport of all dangerous goods except Classes 1, 6.2 and 7.

These standards and requirements apply to the design of the test requirements for:

- packaging;
- the marking of the vehicles and packages;
- design of vehicles for transporting bulk goods;
- safety equipment and documentation to be carried;
- the training and experience of drivers of bulk vehicles; and
- approvals.

PACKAGES AND VEHICLES

A package is the complete product of the packaging of the goods for transport by road, and consists of the goods and their packaging.

Vehicles carrying packages in quantities in excess of that listed in Table 3 are required to display class labels measuring 250mm on the front and rear of the vehicle.

The driver of any vehicle which has been required to display class labels, must remove or reverse the labels so that they are no longer displayed, immediately upon being unloaded.

The form and colours of class labels are listed in Table 4.

Packaged Dangerous Goods and Dangerous Goods in Bulk

Dangerous goods are '*packaged dangerous goods*' if:

a. they are dangerous goods of Class 2 in a container with a capacity of not more than 500L; or

b. they are dangerous goods of another Class in:

   i. a container with a capacity of not more than 450 litres; and

   ii. a container with a net mass of not more than 400 kilograms.

Dangerous goods in bulk are dangerous goods that are not packaged dangerous goods.

Tank vehicles are required to display Emergency Information Panels (EIP's) relevant to the dangerous goods being carried. The EIP is required to be displayed while the vehicle is carrying any dangerous goods and until the tanker or any compartment or container which has contained dangerous goods has been gas freed. For example, a tanker carrying diesel fuel with one compartment of petrol or a compartment which has contained petrol and not gas freed, is required to display EIP's and the class label.

The EIP's are to be displayed on both sides and on the rear of the vehicle or on the demountable tanks or containers, with a class label on the front of the vehicle

Display Class Labels and Emergency Information Panels

Class Labels and Emergency Information Panels are required by law and are very important. They provide immediate information to any Police, Fire Brigade or Emergency Response Personnel who may be in attendance at an accident in which a dangerous goods vehicle is involved.

It is required and equally important that class labels and EIP's are removed or reversed so that they are not displayed when the vehicle has been unloaded or is not carrying dangerous goods.

Penalty

The penalty for failure to comply with the *Dangerous Goods (Road Transport) Act 2009* and Regulations in regard to the display of class labels and EIP's is $4,400 for an individual, and five times the penalty for a body corporate.

Authorisation to Carry Dangerous Goods

Before transporting any form of dangerous goods be sure to check and find out what authorisations you may require, and/or what special precautions you need to take.

The *Dangerous Goods Act* specifies that no Dangerous Goods are carried in bulk on any vehicle unless that vehicle is licensed to do so under the Act.

The *Dangerous Goods Regulations* require that the driver of any vehicle which is carrying dangerous goods in bulk, is a person who is registered under the Regulations to carry such goods.

Further Information

For any further information regarding the transport of dangerous goods, please contact the Dangerous Goods Unit of Work Safe ACT on (02) 6207 3000.

TABLE 3: marking of vehicles and freight containers used to transport dangerous goods. Quantities at which marking is required (Note 1)

Column 1	Column 2
Dangerous Goods on or in a Vehicle or Freight Container	Aggregate Net Quantity (Note 2)
Class 1	(Note 3)
Class 6.2	(Note 4)
Class 7	(Note 5)
Contains any Class 2.1 and/or Class 2.3 and/or Packaging Group 1 of any other Class	250kg(L)
All other loads of dangerous goods	1000kg(L)

NOTE 1: These quantities are minimum quantities for the marking of vehicles and freight containers. Vehicles may be marked at lower quantities. Marking of vehicles and certain other provisions of the Code become mandatory at and above these quantities.

NOTE 2: The aggregate quantity of dangerous goods in a load is the total of:

a. the number of kilograms of solid dangerous goods and aerosols in a load; and

b. the number of litres or kilograms, (whichever is used in the shipping documentation for the load to describe the goods), of liquid dangerous goods in the load (except dangerous goods of Class 2); and

c. the total capacity in litres of containers in a load containing dangerous goods of Class 2 (except aerosols).

NOTE 3: As required by the *Australian Explosives Code* and the appropriate State or Territory legislation.

NOTE 4: Any quantity, except where the laws in force in the particular State or Territory otherwise allow.

NOTE 5: As required by the *Code of Practice for the Safe Transport of Radioactive Substances* and the appropriate State or Territory legislation.

OVERSIZE DIMENSION NOTICES AND PERMITS

Oversize and overmass notices and permits allow authorities under road transport law to exempt vehicles and combinations from the mass and dimension limits in the Heavy Vehicle Standards Regulations and Mass, Dimensions and Loading Regulations.

The types of vehicles and combinations which may be exempted are: special purpose vehicles such as mobile cranes, concrete pumps and fire trucks; vehicles and combinations including low loader and load platform combinations designed to carry large indivisible items; and agricultural machines and implements.

Authorities may grant exemptions by publishing a notice setting out the class of vehicle covered, the areas in which they may travel, and the conditions of travel—which must include the conditions in these Regulations.

If a vehicle or combination is not covered by a notice, or cannot comply with a notice condition, the operator may apply under these Regulations to the Authority for an individual permit exempting the vehicle or combination from normal mass or dimension limits.

The permit may impose some or all of the conditions in these Regulations. The Regulations also set out requirements for pilot and escort vehicles which accompany oversize and overmass vehicles and combinations.

For further information on obtaining an oversize dimension permit, please contact:

Heavy Vehicle Permits Officer
Locked Bag 2000

CIVIC SQUARE ACT 2608
Telephone (02) 6207 6565

TABLE 4: Form and colouring of class labels and subsidiary risk labels

CLASSES OF DANGEROUS GOODS

Class 1 Explosives
Eg Gunpowder, Gelignite, Fireworks, Fuses, Detonators

Class 2.2 Non-flammable, Non-toxic gases
Eg Air, Argon, Liquid Oxygen

Class 2.1 Flammable Gases
Eg Acetylene, LPG

Class 2.3 Toxic Gases
Eg Nitrogen dioxide, Chlorine, anhydrous Ammonia, Methyl bromide

Class 3 Flammable Liquids
Eg Petrol, Kerosene, Paint thinners

Class 4.1 Flammable Solids
Eg Sulfur, Nitrocellulose, Picric acid

Class 4.4 Dangerous when wet
Eg Calcium carbide

Class 5.1 Oxidizing Substances
Eg Calcium hypochlorite-swimming pool 'dry chlorine' Hydrogen peroxide

Class 5.2 Organic Peroxide
Eg Dibenzyl peroxide, Methyl ethyl ketone peroxide

Class 6.1 (a) Toxic Substances
Eg Sodium cyanide, Arsenic trioxide

Class 6.1 (b) Infectious Substances
Eg Lead acetate, dichloromethane

Class 7 Radioactive Substances
These substances are controlled by the Environmental Protection Authority

Class 8 Corrosives
Eg Hydrochloric acid, sodium hydroxide

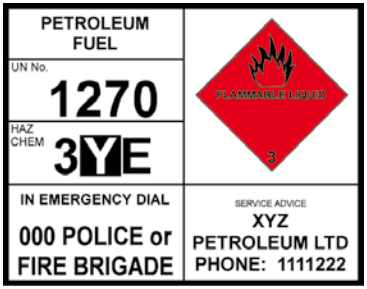
Class 9 Miscellaneous
These substances do not have to be licensed.

For a full list of Dangerous Goods Class Labels go to the National Transport Commission website at: www.ntc.gov.au

DANGEROUS GOODS

Information on the transport of dangerous goods is available from the Department of Infrastructure and Transport website.

For copies of the codes *The Australian Code for the Transport of Dangerous Goods by Road and Rail or Australian Code for the Transport of Explosives by Road and Rail* call 1300 889 873.



An example of a petroleum fuel compliance plate.

☑ IN THE EVENT OF A CRASH YOU MUST:

- ☐ Call the police or fire brigade on 000.
- ☐ Not touch spilled chemicals and avoid breathing fumes and dust.
- ☐ Wash off any chemicals with plenty of water if you are splashed.
- ☐ Keep people away from the crash site.
- ☐ Show the shipping documents and emergency procedure guide to the police or fire brigade when they arrive.

THE CORRECT LICENCE

Any driver of a vehicle which carries bulk dangerous goods must be licensed for that purpose. To find out vif your vehicle is defined as carrying bulk dangerous goods, contact Work Safe ACT at website: www.ors.act.gov.au

RISKS

Many vehicles carry dangerous loads including substances which are flammable, toxic, infectious, radioactive or corrosive.

A crash, leakage or fire involving a vehicle carrying dangerous goods could cause extensive damage, death or serious injury to many people.

Vehicles carrying flammable loads must be fitted with a switch that isolates the battery and so reduces the risk of fire. For further details contact Work Safe ACT.

In the event of leakage or accident follow the procedure outlined on your emergency procedure guide. The procedure varies for different materials so make sure you carry the right card.

CHECKLIST FOR DANGEROUS GOODS

☐ Consignment papers

Make sure you have these (shipping documents) that show what you are carrying.

☐ Proper labelling

Make sure your vehicle is properly labelled. For bulk dangerous goods it should have:

- ☐ A hazard warning diamond at the front and rear.
- ☐ Information as required by Work Safe ACT which should be shown on three emergency information panels, one at the rear of the vehicle and one on each side, and should include:
  - The name of the substance.
  - United Nations (UN) identification number.
  - Emergency action code.
  - Emergency telephone number.
  - Name and telephone number of the responsible company that can be contacted.

☐ Vehicle monitoring device

If your vehicle is more than 13.9 tonnes GVM or GCM and is used for carrying bulk dangerous goods, it must be fitted with a vehicle monitoring device (such as an approved tachograph) which complies with RTA Vehicle Engineering Specification 531.

Carry appropriate guides

You must keep the Emergency Procedures Guide, a 'product' card which gives a guide to the emergency procedures that apply to the particular hazardous substance which you are carrying, together with the Vehicle Fire Card, on or near the inside of either cabin door.
You are permitted to carry the Initial Emergency Response Guide instead of carrying both the product card and vehicle fire card as the guide provides similar information to the cards. The guide book and cards are published by Standards Australia.

Tank inspections

Inspect the tank or other containers before and after loading and frequently throughout the journey.

Hatch inspections

Inspect the hatches of the tanker and make sure the seals are in good condition. Make sure that all filling points are closed. If they are not, the tank could leak a lot in a rollover. The vapour from an open filling point could impair your driving.

Protective clothing

Carry sufficient protective clothing so that you will be able to attend to any small leaks. You may be able to stop them before they become serious problems.

NOTE: When carrying bulk dangerous goods, drivers must stop between 3 and 15 metres before a railway level crossing.

it is the responsibility of the driver to ensure the vehicle does not exceed dimension or mass limits and that the load is appropriately restrained.

LOAD SHIFT

When moving, a vehicle's load can shift due to forces caused by changes of speed, braking, accelerating, cornering, travelling over uneven road surfaces, and slopes. Load shift needs to be managed to prevent danger to any person or damage to any property.

How to Carry a Load Safely

To carry a load safely and prevent danger to any person, or damage to any property you must:

- Choose a suitable vehicle.
- Position the load correctly.
- Use suitable and adequate restraint equipment.
- Use appropriate driving methods.

VEHICLE DIMENSIONS

Maximum heights

- Double deck bus 4.4 metres.
- All other vehicles 4.3 metres.

Certain types of commercial vehicles, and vehicles carrying specified commodities, may operate to a maximum 4.6 metres high. These vehicles are only permitted on specified routes and are subject to conditions, as defined by the *Road Transport (Mass, Dimensions and Loading)* 4.6 metre High Vehicle Exemption Notice 2010 (No 1), made under the *Road Transport (Mass, Dimensions and Loading) Regulation 2010*.

Maximum widths

The maximum width limit for all vehicles is 2.5 metres. When you measure the width do not include external rear vision mirrors, signalling devices and tyre pressure monitors.

For more information on maximum axle loads, including maximum allowable axle weights with 'super single' (wide profile) tyres, check the *Road Transport (Mass, Dimensions and Loading) Regulation 2010* accessible at www.legislation.act.gov.au

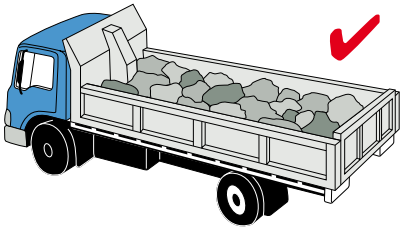
To carry a load safely you must make sure the size of the load space and the condition of the platform are suitable for the task.

Vehicles carrying:

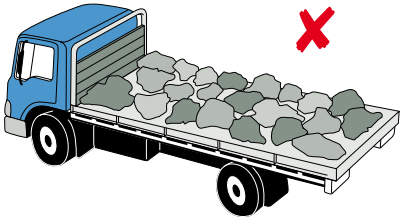
- Long loads should be long enough to avoid excessive overhang and ensure good weight distribution for vehicle stability.
- Liquids and loose bulk material must be designed to completely contain the load and to minimise the effect of load movement.

CONTAINED LOADS

Tipper bodies are best to contain loose loads such as bush rock, sand, gravel etc. The most suitable vehicles for these loads have solid sides and tailgates such as tippers. The solid sides prevent the load from spilling. Sheets or tarpaulins should be used to cover loose loads to prevent them from being blown out of the truck. Liquid loads or 'fine powder loads' such as cement powder, flour etc are best contained in tankers.



A correctly contained loose load.

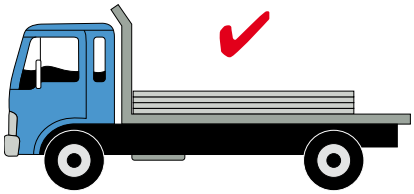


Loose loads need to be safely restrained as shown on the left.

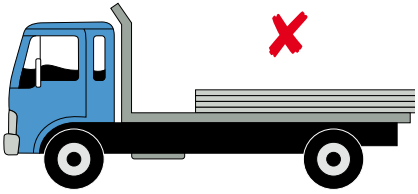
HEAVY LOADS

A long, heavy load can also make your vehicle difficult to handle. You can overcome this by using the right vehicle for the job.

An incorrectly loaded heavy load can take weight from the front wheels and make steering difficult. On rough roads, the truck may pivot on its rear wheels, lifting the front wheels entirely off the road.



The load weight is well positioned and evenly distributed.

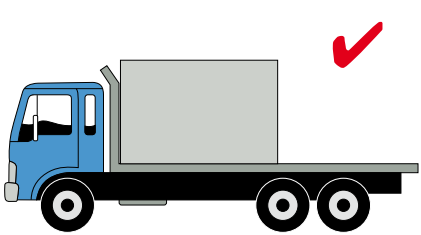


The load is not blocked.

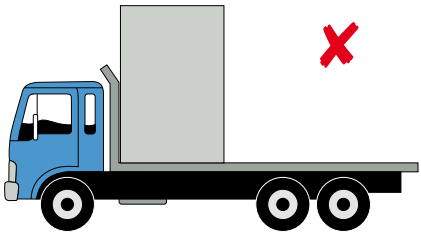
HIGH LOADS

These are loads with a high centre of gravity. It may even tip over when cornering. High loads should be carried on vehicles with a low platform whenever possible such as a drop frame trailer or low loader.

The overall height of a loaded vehicle must be checked to make sure that it clears any overhead bridge or other obstruction on your route. It must not exceed 4.3 metres in height unless you have a special permit.



The load weight is well positioned and evenly distributed.



The centre of gravity is too high and may destabilise the vehicle.

TANKERS

Bulk liquid loads should be carried in tankers and have the same problems of weight distribution as other loads as well as the special problems of a fluid load.

Avoid swerving and slow down before any curve or corner.

The tank is divided into compartments which are filled separately. Be aware that difficulties can be caused by the partial filling of compartments. A part-filled compartment allows the liquid to move from side to side (cornering) and rear to front (braking). The shift of the cargo's centre of gravity is a safety concern because it makes the vehicle easier to rollover. Try to empty one compartment completely before you start to empty another one.

Always empty the centre compartments first and work outwards to keep weight evenly balanced over the front and rear axles of the vehicle.

There is still some space left when the compartment registers full – this reduces spillage and allows for expansion of the fluid.

This small space also allows the fluid to move but much less than if the compartment has been partly emptied. Even minor movements are sometimes enough to make your vehicle unstable and perhaps cause a rollover.

LOADING

Restrictions on the mass and loading of vehicles and vehicle combinations have been set by the *Road Transport (Mass, Dimensions and Loading) Regulation 2010* and apply to any vehicle with a GVM of more than 4.5 tonnes or any vehicle combination with a GCM of more than 4.5 tonnes.

The limits on the mass or weight of your vehicle (including the load) are set to reduce wear on roads and bridges, and to increase safety. Vehicle manufacturers set gross mass (GVM/GCM) limits for each vehicle model.

A vehicle must not be operated at a mass limit that will exceed the:

- Manufacturer's GVM/GCM.
- Manufacturer's individual component rating (ie axles, springs, tyres etc).
- Statutory mass limits or overall axle spacings.

It is the operator's responsibility to make sure these limits are not exceeded.

Part of your vehicle registration fee covers the cost of road wear and maintenance. National charges are calculated using the vehicle type, the GVM on the compliance plate, the number of axles and the nominated configuration (usage) of the vehicle (the penalty for overloading a vehicle may exceed $1,000 for an individual and $5,000 for a corporation).

Fines can vary depending on the state or territory you are driving in.

THE COST OF OVERLOADING

Millions of dollars are spent every year to repair damaged roads and bridges. This is not covered by registration fees and overloading fines as they only recover a small part of this cost.

Even a little overloading causes a lot of damage to roads and bridges, which everyone must pay for. It is very important for the future of ACT roads and the heavy vehicle industry that you do not overload your vehicle.

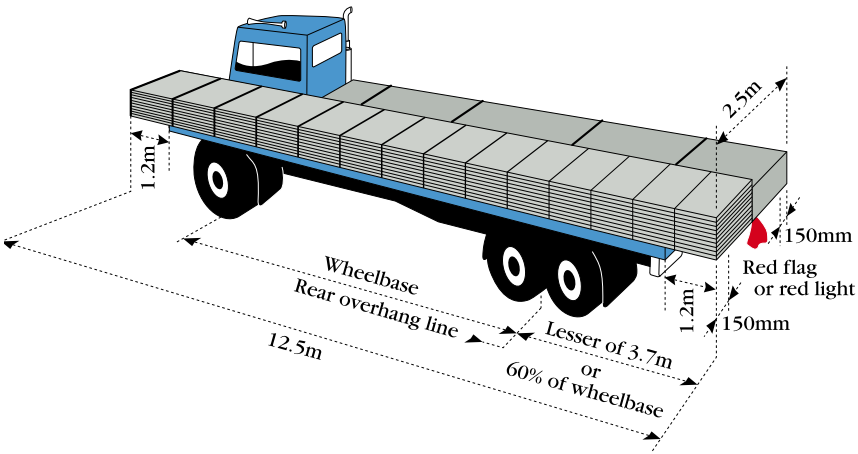
PROJECTING LOADS

This information applies to vehicles with a GVM over 4.5 tonnes.

A load on a vehicle must not project more than 1.2 metres in front of the vehicle, or more than 150 millimetres from the side of a vehicle. The vehicle width, including the load, must not be greater than 2.5 metres.

A warning signal must be attached to the rear of the load in daytime if it:

- Projects more than 1.2 metres behind the vehicle.
- Overhangs the rear of the vehicle so that the end of the load cannot be seen easily from behind.
- Is on a pole type trailer.



This diagram shows the allowable projected load limits.

The warning signal must be a brightly coloured flag or piece of material with each side at least 300 millimetres long. At night-time the warning signal must be a red light which can be seen for 200 metres.

A load on a vehicle must not project in a way that is dangerous to any person or likely to cause property damage, even if all dimension and warning requirements are met.

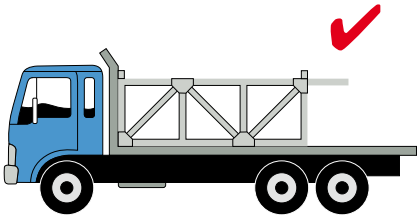
For vehicles over 4.5 tonnes GVM, the rear overhang, including the load, must not exceed 60 per cent of the vehicle's wheelbase or 3.7 metres, whichever is less.

If the size of the vehicle, or vehicle with load, is more than the allowable length, you must get a permit from the RTA. The maximum allowable length for a rigid vehicle including any overhanging load front or rear is 12.5 metres. The maximum allowable length for an

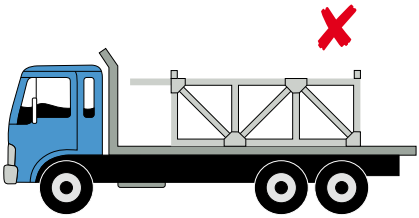
articulated or heavy trailer combination vehicle, including any overhanging load, is 19 metres. See **Vehicle Dimensions** in this section.

DANGEROUS PROJECTIONS

A load with any potentially dangerous projection should be placed to minimise risk to the driver or any other person, should the load shift during braking or a collision.



The potentially dangerous projection is correctly positioned to minimise the risk of load shift.



The load is incorrectly positioned and projections are potentially dangerous in the event of load shift.

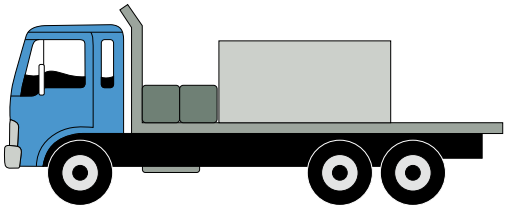
Security of the load on trucks must meet performance standards as set out in the Load Restraint Guide available from any Canberra Connect Shopfront for a fee.

LOAD DISTRIBUTION AND ARRANGEMENT

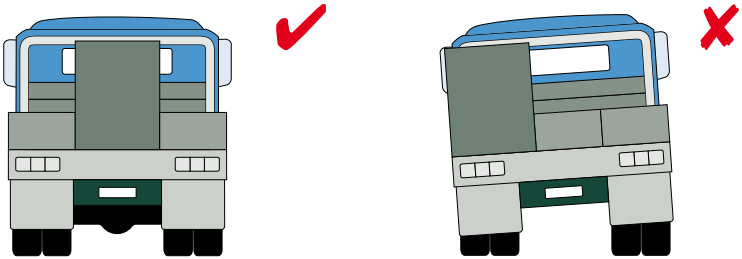
An overloaded vehicle is unsafe to drive, inefficient to operate and damages the road.

Poor load distribution can cause:

- Loss of steering.
- Loss of traction under power.
- Wheel lock-up under braking resulting in a jackknife or trailer swing.
- Vehicle roll-over on a roundabout or when changing lanes.



The weight of the load should be evenly distributed.



The weight of the load needs to be evenly distributed.

It is very important to have even distribution of maximum permitted weight because:

- **Maximum permitted axle loads will not be exceeded.**
- **Driving control is improved through the wheels.**
- **The chassis frame will not be damaged by twisting or bending.**

POSITIONING THE LOAD

For stability, the load should be spread close to the centre line of the vehicle. You should stack the heavier things at the bottom. Loading a heavy item on one side may result in twisting and stress on the chassis frame, or overloading of axle housings, wheel bearings and tyres. This could be bad enough to:

- Allow the brakes to lock on the wheels on the lighter side.
- Cause flat spots on the tyres.
- Skid on a wet surface.

Problems may occur in a rigid vehicle, when a very heavy small load is placed against the headboard. This could cause:

- The chassis frame to bend, perhaps permanently.
- Overloading of the front tyres.
- Irregular tyre wear or even a blowout.

Avoid these problems by placing any small heavy load just ahead of the rear axle.

If you need to place a load back from the headboard to distribute weight, the load should be blocked so that it cannot move forward. Unless it is blocked, even the heaviest load will move forward if you stop suddenly.

SECURING THE LOAD

The following information is a guide only. Detailed information on securing your load is available in the *Load Restraint Guide.*

The way your vehicle is loaded is very important for your safety and for the safety of others. You are legally responsible for your load and any damage or injury it may cause.

Driving over bumps in the road, around curves and corners, and accelerating and braking can cause your load to move. The force of an impact can move a load that is unstable or not properly secured and you can lose control of your vehicle.

The weight of your load should also be evenly distributed so you can control your vehicle properly.

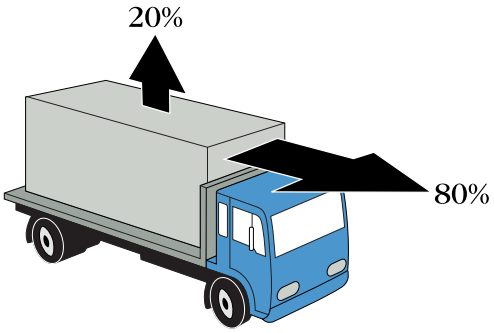
A load on a vehicle or trailer must be:

- placed in a way that does not make the vehicle unstable or unsafe,
- secured so that it is unlikely to fall or be dislodged from the vehicle or trailer, and restrained using an appropriate method.
- Compliance with the NTC Load Restraint Guide is required.

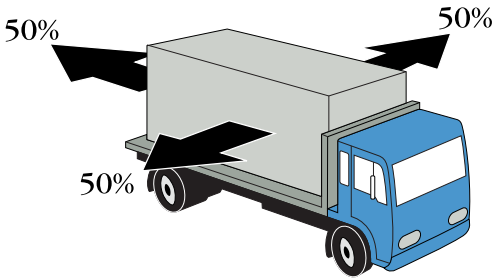
LOAD RESTRAINTS

A load restraint system on a vehicle should be capable of restraining the following percentages of the weight of the load from shifting:

- 20 per cent upward.
- 80 per cent forward.
- 50 per cent rearward.
- 50 per cent sideways.



20% upwards and 80% forward.



50% rearward and sideways.

Loads must be secured to prevent:

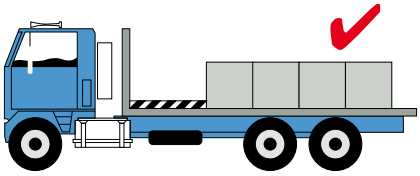
- Any part of the load hanging over or sticking out of the vehicle in a way which could hurt someone, damage property or cause a hazard to other road users.
- Any part of the load being dislodged or falling out of the vehicle.

It is against the law to drive a vehicle where the load is not secured. You can stop your load from moving by:

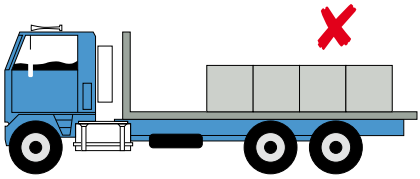
- Lashings secured to the vehicle chassis, including:
  - Cross bearers.
  - Outriggers.
  - Tie rails and similar arrangements.
- Blocking arrangements such as:
  - Load racks.
  - Headboards.
  - Bulkheads.
  - Stakes in pockets.
  - Transverse beams.
  - Shoring bars.
  - Chocks, dunnage, etc.
- Containing the load by using a truck with solid sides and tailgate, a tanker or a shipping container.
- Covering loose loads such as sand or gravel with sheets or tarpaulins.

BLOCKING

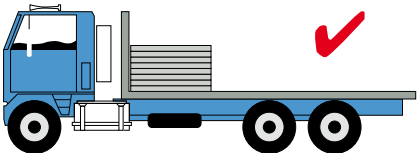
The most important part of the blocking is the headboard or bulkhead. It is best to put most loads right against the headboard to prevent the load acting like a battering ram if it moves forward. If other restraints fail in a sudden stop, the load might break the headboard. This could damage the cabin and leave you severely injured.



The headboard and extra blocking can be used to stop load shift.



The load is not secured and could shift.



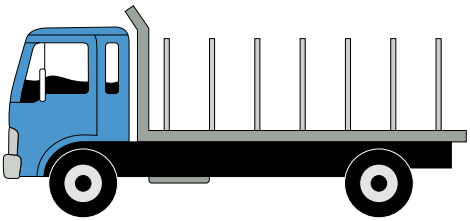
The load is correctly blocked against the headboard.

Many vehicles carry loads that could crush the driver's cab if the load shifted forward under sudden braking. If you carry loads such as coils, sheet steel, steel pipes, structural steel and timber, you should have a solidly constructed bulkhead instead of a normal headboard.

When carrying a load of metal bars, it is particularly important to ensure that all bars are secured and unable to move out of the stack. One bar that moves could go through the bulkhead.

STAKES IN POCKETS

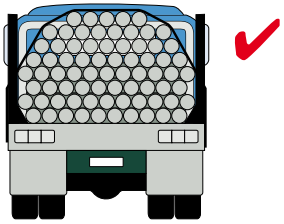
These or stanchions may be used in conjunction with lashings to prevent long rigid loads such as pipes, logs etc from moving sideways.



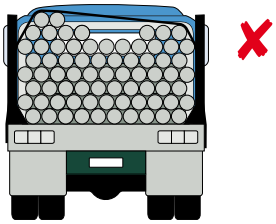
Stakes or stanchions should be used to prevent sideways movement.

CROWNED LOADS

It is important that long rigid loads such as pipes, logs etc be crowned to ensure the load is lashed securely without 'gaps'. Gaps in the load may allow it to move and cause the lashings to become loose.



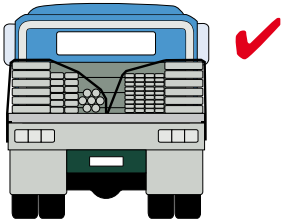
To restrain movement in loads such as pipes, they need to be crowned and have no gaps.



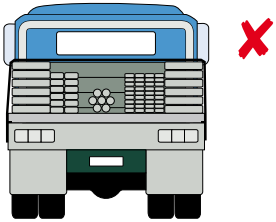
The gaps in this load can cause potentially dangerous load shift.

DIVIDED CROWNED LOADS

In some cases it may be necessary to divide the load into two or more stacks to crown it effectively. This can be achieved by attaching the lashings along the middle of the deck.



A load that is divided to minimise the chance of movement.



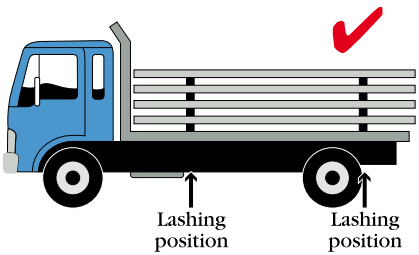
A load with substantial gaps that would allow potentially dangerous movement.

DUNNAGE

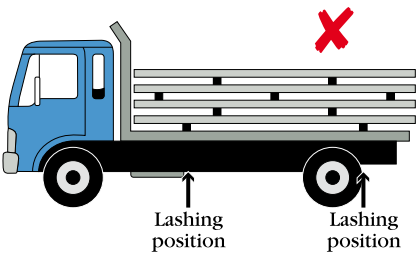
This is packing placed under or between parts of the load. It is used to allow loading and unloading with forklifts or lifting slings. It is usually made of rectangular or square hardwood or softwood and must be strong enough to support the weight of the load placed upon it.

A load with multiple layers or rows must have all dunnage placed directly above the bottom dunnage. Tie-down lashings must only be placed at these positions along the load to ensure that the lashings do not loosen or overtighten if the vehicle chassis flexes.

Long rigid loads such as large diameter steel pipes must be supported in two positions to allow the vehicle to flex. Additional dunnage (and lashings) will need to be used along the lengths of more flexible loads such as plastic pipes etc.



Dunnage needs to be vertically aligned to minimise movement when under lashings.

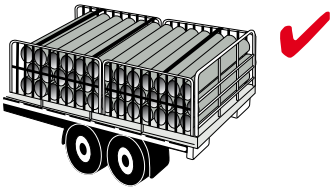


The dunnage is placed irregularly and could loosen or overtighten lashings when the vehicle is operating.

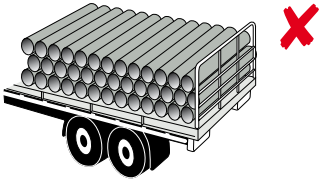
GATES/FENCING

A load can also be secured with sidegates, tailgates and other blocks. The sidegates have to be strong enough not to be forced out by the weight of the load. Other blocks should be secured and braced. You should close and lock the tailgate of your vehicle unless the load is too long. Never carry any separate part of the load on the tailgate.

Where small pipes or logs are carried, suitable sidegates or other containment methods should be used to prevent sideways movement.



A load secured from sideways movement by gates and fencing.



A load not secured from sideways movement.

CONTAINERS

Containers are recognised as an easy, safe and secure means of transporting loads. They are simple for shipping companies to load and stack, and can be sealed up to keep out weather etc. Most containers are now constructed with insulated walls, ceiling and floor, which make them most suitable for transporting foodstuffs, and other materials and goods that need to be protected from extremes of temperature.

Some containers are equipped with a built in refrigeration plant for transporting fresh food. Others are a container sized steel frame, containing a large cylinder for the transportation of liquids, gases or powders.

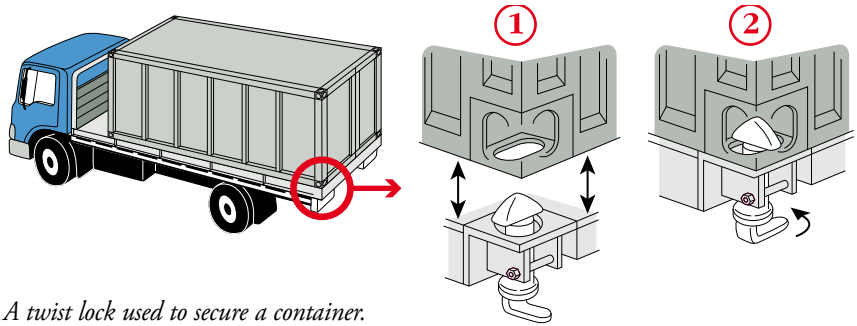
A poorly loaded container makes a vehicle very unstable. Heavier sections of the load should be on the bottom, with the lighter goods on the top.

The contents of a container should be secured so as not to move about within the load space during transportation.

Weight distribution is another aspect to be considered when loading a container that has been filled by someone else. This check will ensure that the vehicle's axle weights are legal before driving away. Always check the height of the vehicle after loading.

Vehicles used to carry containers must be equipped with special devices known as 'twist locks'. Containers have special corner-pieces which fit into the twist-locks on the vehicle. They can then be locked into place. Sometimes frames with twist-locks can be attached to the vehicle. These frames need to be securely bolted to the chassis.

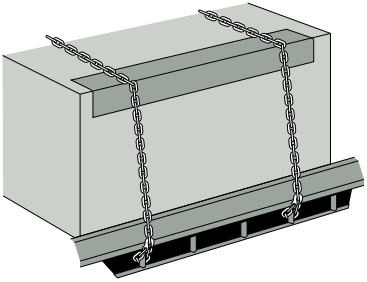
A container is not properly secured unless the twist-locks are used. This applies whether the container is full or empty. A vehicle without twistlocks should not be used to carry containers. Decommissioned containers (those not carrying a load) can be chained to a vehicle for transport.



A twist lock used to secure a container.

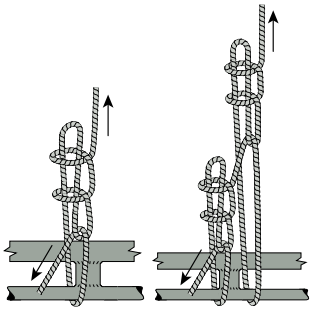
LASHINGS

These and other fastening devices such as dogchains, cables, clamps, load binders must be in good condition. A chain is not good enough if even one link is deeply gouged, pitted or worn. Make sure the lashings are tight enough to stop any movement. Make sure the type of lashing you use is strong enough to fasten in place.



The lashings should be protected from any sharp edges on the load or on the vehicle. When using more than one lashing, secure them separately so if one line fails the others will hold.

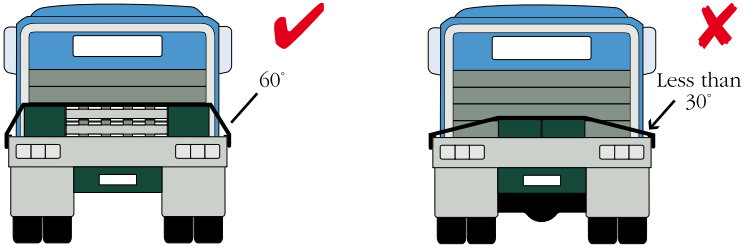
A correctly lashed and fastened load.



ROPES

Ropes used for lashing loads should be tensioned by either a single or double 'truckies hitch'.

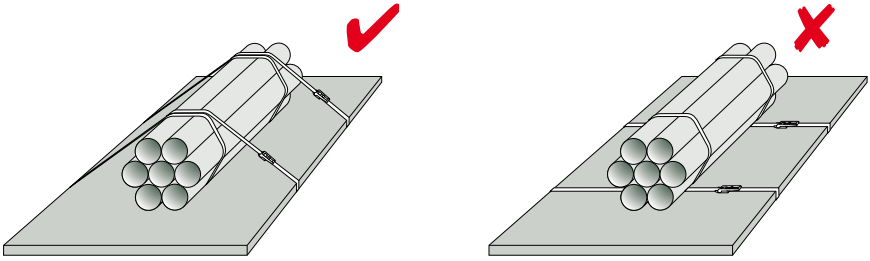
The greater the tie down angle of the lashing to the load, the greater the lashing tension will be on the load. Angles of less than 30 degrees are not recommended.



The greater the angle of the lashing to the load the greater the lashing tension will be. Angles less than 30˚ are not recommended.

BELLY WRAPPING

Belly wrapping may be used to prevent large diameter pipes or bars from rolling. When belly wrapping, the lashings must be looped over the top of the load to provide tie-down. Lashings that are looped underneath a rounded load will not prevent the load from rolling.

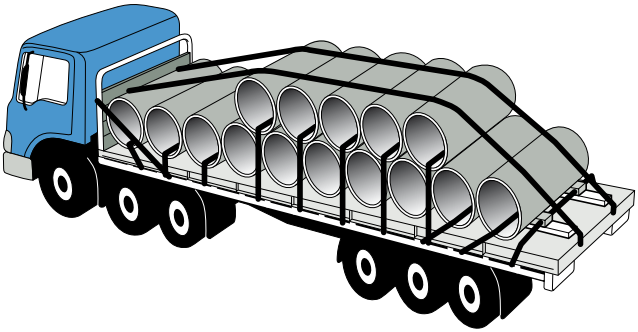


The lashings must be looped over the top to prevent rolling.

The load could roll dangerously.

LARGE PIPE LOADS

When placed across the vehicle, all upper layer pipes in the load should be individually tied down so that all pipes in the load are positively clamped to prevent sideways movement.

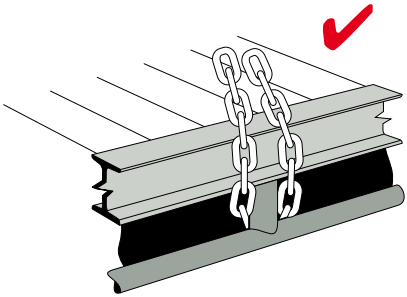


All pipes need to be clamped to prevent sideways movement.

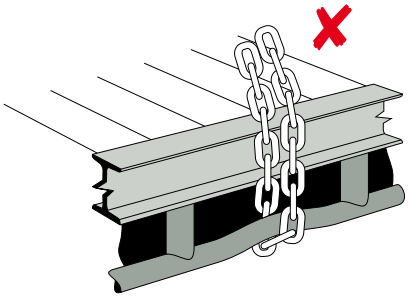
LOAD ANCHORAGE POINTS

You cannot rely on traditional rope hooks or rings to hold anything other than light loads.

Vehicles should have load anchorage points fixed to the vehicle so that the main chassis frame takes the force of the load.



The chassis frame should be used as an anchorage point.



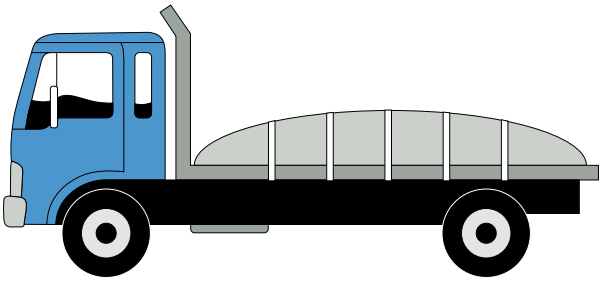
You should not rely on non anchorage points to take anything other than light loads.

FRICTION

Friction cannot stop your load from moving but it can be a great help. To make the best use of friction, the base of the load and the platform should be kept clean, dry and free from grease. A slippery platform surface is always dangerous.

SHEETS AND TARPAULINS

Except in the case of very light bulk loads, sheets and tarpaulins are not strong enough to hold down loads, they only protect the load from the weather. Sand, gravel, etc. should always be covered.



Secured sheets and tarpaulins can be used to protect loads from the weather.

INTERNATIONAL CARGO SYMBOLS

There are seven internationally recognised symbols used on cargo. These signs should always be adhered to, so damage to loads can be minimised.

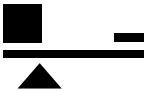
This way up

Sling here

Keep dry

Keep away from heat

Fragile - Handle with care



Heavy weight

Use no hooks this end

Tarpaulins

Tarpaulins should be placed over any load that may be damaged by exposure to the weather, or any load that may soak up moisture or rain, ie sand, soil, tan bark etc. which would add to the weight of the load or blow away in the wind. The covering should be arranged so as to provide maximum protection but not be able to come loose and flap in the wind.

It should be tight enough to stay firm and secure.

> **WARNING:** A tarpaulin should not be used as the sole means of holding the load to the vehicle.

Always remember that the ends of any ropes, chains or belts that may be used to secure a load or covering, MUST have their ends or excess length tucked or tied up so as not to be able to hang or swing free at the side of the vehicle.

LIVE LOADS

The most common types of "LIVE" loads that are carried by heavy vehicles are livestock such as sheep, cattle and horses. The other common type of "LIVE" load carrying vehicles are buses.

LIVESTOCK TRUCKS

Most larger stock crates are constructed with fold up decks so they can be readily converted for carrying cattle, sheep or horses. Some of the larger trailers are constructed to hold up to five decks of sheep. Live loads can create hazards that fixed or static loads do not create. Whereas vehicles with a fixed load will handle in a certain way, vehicles with a live load, which can move about to a limited extent, will change the handling characteristics of the vehicles.

Consequently, a vehicle that is carrying steel may travel through a particular bend at 60km/h quite comfortably. However the same vehicle carrying live stock attempting to travel through the same bend at the same speed may suffer loss of control, or roll over. Such an occurrence could be the result of the live load moving while the vehicle is traversing the bend.

Another example of a live load affecting vehicle stability is a vehicle carrying two decks of cattle. If some of them move or turn while the vehicle is mobile, the vehicle can become very unstable. While travelling in a straight line, the vehicle would be seen to be swaying from side to side, therefore creating a difficult situation for an inexperienced driver to control.

Great care must be taken when carrying any type of live load.

BUSES AND BUS PASSENGERS

Although buses form a large section of the Australian heavy vehicle fleet, they are, by and large, a forgotten identity when people talk in terms of heavy vehicles.

Generally, the chassis construction of a bus is similar to that of a truck, however, the bodywork is built to accommodate passengers and not goods. The handling characteristics of a bus differ considerably from that of a truck due to the difference in the load. A truck, in the main, carries a static load which becomes part of the vehicle when it is correctly loaded and secured. However, a passenger load on a bus will be constantly moving (albeit usually in a minor fashion) and will sway in the opposite direction of travel when the vehicle is cornering. Trucks loaded with livestock will perform in a similar way to that of a bus loaded with passengers, although the movement in the truck is usually more violent due to the undisciplined nature of the load.

Double deck buses and coaches, and high-bodied coaches, which are usually fitted with luggage space below the seating area, have different handling characteristics to those of low bodied vehicles.

Because of their additional height, these vehicles must be driven with a watchful eye on overhead wires and trees, and especially overhead bridges. Other obstacles can be shop awnings that protrude over footpaths, street signs or light poles with which the vehicle can collide as it leans with the slope of the road. Another problem for high vehicles can be wind on a windy day.

Strong buffeting winds can cause a vehicle to rock violently, and will often use excessive amounts of fuel as a result of the additional heavy work required of the engine.

Buses are used in a wide variety of situations. Some move passengers throughout a suburb or town, while others are required to move passengers across the country.

Drivers of buses have special criteria to consider, in particular passenger safety and comfort. A careless driver who may brake too hard, or turn a bend or corner too fast can easily throw passengers from their seats. This can be especially so if passengers are young children, or elderly citizens. Passenger comfort must be a high priority with any bus driver.

DRIVER MANAGEMENT

The ACT does not have driver fatigue laws in place however heavy vehicle drivers need to be aware of the regulations when driving in other jurisdictions. A driver needs to check the laws applicable to the jurisdiction where he/she will be driving.

Driving a heavy vehicle can be demanding. It is important to abide by the driver fatigue laws and regulations and generally take care of your health, in the interest of public safety and your own wellbeing.

A heavy vehicle driver spends a lot of time on the road. The work is demanding and you are responsible for heavy loads, dangerous goods and passengers. It is very important that you are in good health for your own safety and that of the public.

HEALTH OF PROFESSIONAL DRIVERS

The most important ways to stay healthy and keep on top of your job are:

- Get enough sleep.
- Eat a well-balanced diet.
- Exercise regularly.
- Try to relieve stress.

Enough Sleep

The need for sleep varies among individuals with some people needing more sleep than others. Make sure that you get most of your sleep at night time – it is better than daytime sleep. Regular night sleep of about seven to eight hours is one of the best ways to manage driver fatigue.

Diet and Exercise

To stay fit and healthy for your job your weight needs to be within an acceptable range. Eating the right foods and taking regular exercise is the only answer. Ask your GP for advice or check these websites for information:
www.ntc.gov.au and www.austroads.com.au

Try to Relieve Stress

Stress affects your driving. If you are having problems at home or at work, you are up to five times more likely to be involved in a crash. Your GP can advise you on where to go for help.

DRIVER FATIGUE

Driver fatigue is one of the biggest causes of crashes for heavy vehicle drivers. Many of these crashes occur late at night or early in the morning.

As a professional driver, you need to understand what causes fatigue and how to pick up on the early warning signs so that you can do something about it before it affects your driving.

FATIGUE IS CAUSED BY A NUMBER OF FACTORS, INCLUDING:

Sleep Factors

- Getting less sleep than you need.
- Getting less sleep than you need over a number of days.
- Trying to sleep during the day.

Time of Day Factors

- Working when you should normally be asleep.
- Working in the early hours of the morning.
- Working in the early afternoon after a heavy lunch.
- Sleeping during the day when you would normally be awake.

Work Factors

- Long driving hours.
- Night time driving.
- Irregular hours and early starting times.
- Tight scheduling.
- Insufficient time to recover from previous work.
- Doing non-driving physical work such as loading and unloading.
- Poor driving conditions such as hot or wet weather.
- Monotonous driving.

Physical Factors

- Poor health and fitness.
- Emotional issues.
- Medical sleep problems.

SIGNS OF DRIVER FATIGUE

Driver fatigue severely impairs your concentration and judgment; it slows your reaction time. Watch for these early warning signs of driver fatigue:

- Yawning.
- Poor concentration.
- Tired or sore eyes.
- Restlessness.

- Drowsiness.
- Slow reactions.
- Boredom.
- Feeling irritable.
- Making fewer and larger steering corrections.
- Missing road signs and taking wrong turns.
- Having difficulty staying in the lane.
- Microsleeps where you 'nod off' for a short time.

TIPS ON MANAGING DRIVER FATIGUE

- Resting and sleeping are the two most important ways to combat fatigue. Have a good night's sleep before you start your trip, and even have an afternoon nap before starting back on a night shift. You can also take rests early on in the trip before you start feeling fatigued.
- Plan your trip ahead of time to allow for rest breaks.
- Plan your rest breaks to happen before you start feeling fatigued, or plan where to stop if you do start to feel fatigued. If you can, plan rest breaks for when your body clock will tell you to be asleep (ie afternoon, night/early morning) because that is when you are most likely to become fatigued.
- Try and have a regular sleep and waking schedule on every day of the week.
- Be aware of the causes and effects of fatigue and recognise the early warning signs. Make sure you stop and rest as soon as possible when you realise you are becoming fatigued. Do not try and push on, especially in those 'body clock' danger times of night/early morning and afternoon.
- Have at least two nights of unrestricted sleep to repay 'sleep debt' to become completely refreshed.
- Look after your health and fitness with regular exercise and a healthy diet.
- Never drink alcohol before or during your trip.
- Never drive longer than the legal work and rest hours, or agree to a roster that is longer than the legal work and rest hours.

NATIONAL WORK DIARY

Records must be kept of work and rest hours in a work diary. All drivers of regulated heavy vehicles must complete a work diary if they are on a journey that will take them more than 100km from their driver base. Drivers must record information such as whether they are working under Standard Hours, Basic Fatigue Management (BFM) hours or Advanced Fatigue Management (AFM) hours, and when they change from

work and rest options in their work diary. Work diaries are available from any Canberra Connect Shopfront.

RECORD KEEPING

You must record all work and rest time in your work diary. These records must be completed for the whole trip. The work diary must show:

- Your name.
- Driver licence number.
- State/Territory licence issued.
- Accreditation number (if applicable).
- Name of work and rest option.
- Date and day of week.
- Time zone (driver base).

During the journey, you must record:

- Work and rest hours.
- Number plate (record at start and end of day and at each work and rest change and vehicle change).
- Odometer reading (record at start and end of day and at each work and rest change and vehicle change).
- Name of location at each work and rest change (rest area, truck stop, suburb or town).
- Total number of hours of each activity at the end of the day.
- When the page is completed, sign the daily sheet to certify that the entries are correct.

If you are a two-up driver or become a two-up driver, you must record the:

- Other driver's name.
- Other driver's licence number.
- Security or identifying number of the other driver's work diary and the name of the jurisdiction that issued the work diary.

You must use the work diary pages in strict order from start to finish. You must be able to produce your last 28 days driving records. You must give your record keeper the duplicate copies of your work diary within 21 days. If you have more than one employer in a single day, you must also give the other record keeper a copy of your work diary page. Record keepers must keep copies of work and rest records for a period of three years.

LOOKING AFTER YOUR WORK DIARY

The work diary is issued to you personally and it is an offence to:

- Let anyone else use or borrow it.
- Have more than one work diary containing pages which have not been used or cancelled.
- Remove the application page or any original pages.
- Alter, deface or destroy any page.
- Make any false entries.

Carry and complete your work diary at all times. You must be able to produce your driving record for the last 28 days.

DRIVER BASE

The driver base is the place from where the driver normally does the work.

SEATBELTS

It is important for truck and bus drivers to wear a seatbelt. Any driver or passenger must wear a seatbelt properly adjusted and securely fastened wherever there is one available. The driver will not be penalised if there is no seatbelt and the vehicle has been manufactured before the requirement for seatbelts commenced.

Vehicles that have been modified by the installation of non-original seats (eg driver's suspension seat) must have suitable seatbelts in order for those vehicles to comply with mandatory equipment requirements and provide the driver with a suitable level of comfort.

It is an offence to remove a fitted seatbelt from a vehicle. If you remove it you may be breached for not wearing it as well as for removing it.

The Driver is Responsible

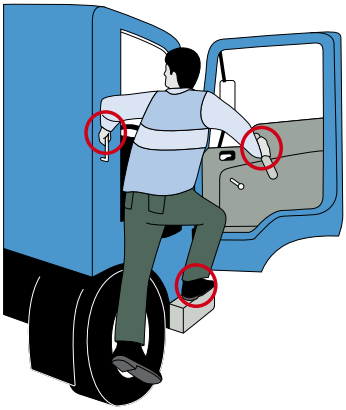
Drivers are responsible for all passengers, particularly children, being properly restrained in a seatbelt or approved child restraint where seatbelts are fitted. There are fines and demerit points for a driver who is not wearing a seatbelt and who fails to ensure that passengers use seatbelts.

Passengers aged 16 years and over who do not use an available seatbelt will also be individually fined.

The driver of a motor vehicle (except a bus or motor bike) must ensure that each passenger who is under 16 years old is restrained in a suitable and properly fastened and adjusted child restraint or seatbelt.

The driver of a motor vehicle (except a bus or taxi) must ensure that each passenger who is 16 years old or older is wearing a seatbelt.

ENTERING AND EXITING A VEHICLE



For safety there is a procedure for entering and exiting a heavy vehicle.

To enter the vehicle the driver must check for traffic before moving out from the line of the vehicle and again before opening the door. When entering the vehicle the driver must use available steps and grab handles to climb into the vehicle, maintaining three points of contact at all times.

To exit the vehicle the driver must check again for traffic before opening the door. When exiting the vehicle the driver must exit facing the vehicle using available steps and grabs (not jumping) while maintaining three points of contact.

Route bus drivers also need to be aware of this procedure.

PERFORMANCE BASED STANDARDS (PBS)

Performance Based Standards (PBS) provides an innovative approach to vehicle regulation. It focuses on the vehicle's behaviour on the road, rather than the vehicle's length, width, height and mass. This is achieved through a set of safety and infrastructure protection standards.

PBS governs what a vehicle can do—its performance rather than its appearance.

Road freight has been traditionally regulated by prescriptive vehicle mass and dimension rules (ie: 19 metre overall length and 42.5 tonne GCM for general access). These regulations are widely recognised as being close to their limits because of infrastructure protection and road safety concerns.

Vehicle manufacturers and designers can use innovative engineering technology to build a vehicle or combination which complies with standards for vehicle stability, rollover risk; the ability to turn in traffic within a safe 'envelope' and manage 'tail swing'; and measures to protect roads and bridges from excessive 'wear and tear'.

Four levels of performance standards will ensure the vehicle is matched to the right road network. For example, an 'over-length' quad axle semi-trailer fitted with lift and steering axles running at higher masses could run on general access freight routes providing it met all the Level 1 performance standards.

For more information about PBS and levels of road classification guidelines please see the National Transport Commission's website at: http://www.ntc.gov.au

SECTION D: CONTROLLING A HEAVY VEHICLE

- Pre-drive and cabin checks
- Starting up/Shutting down
- Moving off
- Vehicle control
- Vision
- Space cushion
- Stability
- Lane driving
- Gear selection/changing – selectors
- Cornering/turning left and right
- Braking/Stopping
- Steering
- Defensive driving
- Traffic signs/signals/markings
- Indicator use
- Overtaking
- Parking
- Hill start
- Three point turn
- Reversing
- Driving under difficult conditions
- Safe driving
- Vehicle controls
- Basic driving techniques
- Heavy vehicle road rules
- Speed limits
- Driving in wet conditions
- Intersections
- Height and length limits for B-doubles
- Special signs for heavy vehicles
- Buses
- Vehicle monitors
- Roadworthiness
- Brakes
- Pre departure checks

VEHICLE CONTROL

1. PRE-DRIVE AND CABIN CHECK

Before attempting to start or drive a heavy vehicle, several checks should be made to ascertain that the vehicle is in a fit, reliable and safe condition. This can be completed in three stages.

A. Visual external inspection of the vehicle.

B. Manual check of the external of the vehicle.

C. Enter and carry out visual and manual checks inside the cabin BEFORE attempting to start the engine.

A. External Inspections

Drivers should always carry out an external inspection of their vehicle before entering the cabin. The easiest way to do this is to walk slowly in a clockwise direction. Check such items as:

- lights, wheel nuts and tyres for inflation and wear;
- fuel tanks for leaks;
- turntable for security, damage and lubrication;
- support legs (landing gear) for condition and operation;
- any load for correct and safe position and security;
- tarps and lashings for security and damage;
- suspension and chassis for damage;
- towing attachments for wear, security or damage;
- tailgate, doors or gates for security or damage;
- racks or frames for security or damage;
- number plates and label for currency, and any other plates or placards that are required ie dangerous goods placards;
- hoses and electrical connections for damage and/or connection;
- rear vision mirrors for security, damage and cleanliness;
- windows for damage and cleanliness;
- windscreen wiper blades for wear and/or damage;
- below the vehicle for any obvious oil, water or fluid leaks;
- windscreen washer reservoir is full.

B. Manual External Inspections

- open drain taps on air tanks/reservoirs/lines to drain condensation that may have built up in the system;
- tyre pressures for compliance with vehicle, tyre and/or owners requirements;
- engine bay to check oil, water and fluid levels;
- all drive belts are in good condition and correctly adjusted;
- any fire extinguishers mounted externally are secured, ready for use, (including the drivers knowledge of how to operate them);
- all lights are operating correctly.

C. In Cabin Checks

- doors closed and safely latched;
- drivers seat is correctly adjusted and in good condition, (seatbelts should be in a clean condition with buckles and adjusters operating correctly);
- first aid kit is complete;
- emergency reflectors (triangles), lights, jacks, tools, first aid kit, ropes and lashings, or other items are stowed safely;
- windscreen washers, heater/demister.

A suggested vehicle safety maintenance schedule:

DAILY CHECK	WEEKLY CHECK
Oil level	Battery
Fuel level	Wheel nuts
Water level	Tyre pressures
Tyre inspection	Lights and wiring
Drain air tanks	General safety check

IMPORTANT: A driver should not attempt to start a vehicle without having personally checked the above items.

2. STARTING UP/SHUTTING DOWN

Starting up

- check that the park brake is applied, the transmission is in neutral and that no one is standing near the exhaust;
- depress the clutch to reduce the load on the starter motor;
- if the vehicle has a diesel engine, it may have a shut down control lever which should be placed in the 'run' position;
- some diesel engines are fitted with glow plugs which will need heating, usually for about 15 to 20 seconds.

NOTE: Diesel engines should not be run at high revs until full oil pressure has built up and normal operating temperature has been reached. It is during this period that most damage can be caused to the moving parts of the engine. The driver should:

- check that all warning lights have gone out and that all gauges are now up to their normal running positions;
- check that the vacuum warning has gone out, if fitted;
- check air pressure gauges to ensure full operating pressure has been reached BEFORE attempting to drive the vehicle;
- now get out of the cabin and walk around the vehicle looking and listening for air leaks.

Shutting down

- ensure the vehicle is stationary and the park brake is correctly applied;
- where the vehicle is turbo charged, let the engine idle for several minutes (check manufacturers recommendations) before shutting it down;
- where stopped on a hill, place the vehicle into first gear if facing uphill and reverse gear if facing downhill;
- turn off the engine.

3. MOVING OFF

The driver should ensure that an appropriate gear has been selected. Check rear vision mirrors for a suitable gap in traffic, indicate and move off. Once mobile and fully into the traffic lane, make certain that the indicators are cancelled and shift up through the gears and ranges as the road and traffic conditions permit. Rear vision mirrors should be checked to ensure correct lane position and following traffic.

4. VEHICLE CONTROL

For correct and safe control of a vehicle, drivers should follow a system of vehicle control.

The driver's seating position is most important for safe and proper control of a vehicle, therefore, it should be comfortable and correctly adjusted so that the driver is able to depress the clutch pedal fully to the floor without stretching his or her leg or twisting in the seat. The driver should not need to stretch or lean forward in the seat to control the steering wheel. Good vision over the steering wheel and dashboard is also important. After adjusting the seating position, all rear vision mirrors should then be adjusted (the driver may need a person to assist in this), to allow maximum vision to the rear of the vehicle.

Moving off should be smooth and the driver should not over rev the engine to gain more speed. Gear changes and changes of diff ratio etc should be smooth and gentle. Forcing a gear change may cost thousands of dollars in transmission repairs.

Position on the road and within the lane should be maintained by checking the rear vision mirrors every 10 to 15 seconds. Drivers should be able to see that the vehicle is central within the lane and not encroaching into another lane.

The route should be planned well ahead and the driver should ensure that any lane changes required prior to turning into another road or street are done well in advance of that street. When cornering, drivers should make sure that the inside rear wheels do not hit or mount the kerb or hit a street sign or electrical pole - especially if driving an articulated or long vehicle. Trailer wheels or rear wheels on longer vehicles will generally "cut in" sharper than other vehicles. Drivers should be aware of this and drive deep enough into an intersection to allow a safe margin before beginning to turn.

Gear changes should be made in ample time and before attempting to turn or corner a vehicle so that the vehicle retains its stability and traction on the road. Correct procedure is to brake up to and into a corner, then drive it through and out of the corner. All gear changes etc should be smooth, so as not to dislodge or shake the load more than is absolutely necessary.

5. VISION

After positioning the driver's seat and adjusting the left and right hand external mirrors, the driver should be correctly positioned so as to have a full view of the road ahead, to the sides and a clear view in the external rear vision mirrors.

The mirrors should be secure enough to ensure that they do not vibrate and make it impossible to see anything in them, and solid enough that they do not swing about or move due to transmitted shock from the road surface.

Rear vision mirrors can often be used to check the sides of a load or the ropes and tarps to see if anything is hanging out or blowing about. The vehicle should be set up in such a way that no loading or tarps can block out the driver's rearward vision in the mirrors.

All of a driver's vision should be unobstructed. Items should not be hanging from the inside of the vehicle that could distract the driver's attention, nor should stickers etc block vision through the windows. All windows and mirrors should be clean and free of cracks or other damage that could interfere with vision.

Blind Spots

Blind spots exist on any vehicle regardless of its size. To be safe and competent, a driver needs to be aware of a vehicle's blind spots and look to those areas as often as possible. Good drivers look in their rear vision mirrors every few seconds to keep an eye on the traffic behind. When checking mirrors, drivers should remember that at 60km/h the vehicle will travel 17 metres in one second, therefore a driver should not look into the mirrors for longer than is needed.

6. SPACE CUSHION

The space cushion is a clear area in front of, at the sides and behind a vehicle that drivers should endeavour to maintain wherever possible. This will allow room to manoeuvre or swerve slightly if required. A space cushion is a safety measure which will allow for slight errors of judgement by the vehicle driver or other road users.

Heavy vehicle drivers usually have the advantage of extra height allowing them to see over vehicles in front, giving them warning of problems ahead.

Drivers should never forget the need to have a space cushion above the vehicle. This can be done by always being aware of the height of a vehicle and its loading. Low bridge overpasses, trees, wires and other structures can be a concern for higher vehicles and loads.

7. STRAIGHT FORWARD DRIVING

Straight forward driving is the easy part of controlling a heavy vehicle. Once mobile, the driver should keep the vehicle moving in a smooth and steady manner. The driver should also ensure that any acceleration, braking, steering or gear change movements are done in a smooth manner.

This will not only protect the vehicle mechanically and help to improve fuel economy, but will lessen the chances of load shift.

Drivers should not over-rev an engine unnecessarily, as this will only use more fuel, and could damage the engine. Making an engine pull hard at low revs can have the same effect unless the engine is designed to operate at low revs, ie most modern European vehicles. Drivers should always ensure that the vehicle is in a gear that is suitable for the conditions at the time.

Smooth steering will ensure minimum wear and tear on tyres and suspension and is unlikely to unsettle the vehicle's load. Rough or jerky steering movements can cause a load

to break loose and fall from a vehicle.

Mirrors should be checked regularly to ensure that the driver is aware of what is happening behind. Indicators must always be used to warn other road users of the driver's intentions. Use them BEFORE moving the steering wheel, as there may be someone about to pass or close behind who the driver is unable to see in the mirrors.

In wet or misty weather, or where a driver may have had spray from another source settle on the windscreen, make sure that the wipers are used as they were intended.

In light mist or rain, wipers are sometimes best used in the intermittent mode. Drivers should ensure that they have good clear vision at all times with no moisture just left on the screen because they were too lazy to operate the wiper switch. This is an illegal and dangerous practice.

On multi-lane roads drivers should always use the left lane and leave the right hand lane for cars and faster vehicles. Where a driver needs to turn right further ahead, he or she should make sure that they change lanes well in advance to allow room to correctly position the vehicle for the turn.

At night or during dark or overcast conditions headlights should be switched on so that the vehicle can be seen. Drivers should remember that park lights are for parking, and headlights are for driving. If it is dark enough to have vehicle lights on they should be the low beam headlights.

8. STABILITY

The stability of a vehicle can be affected by a number of different causes.

Load

If the vehicle's load is not positioned correctly, the vehicle will be unstable and hard to steer and control. See additional information on loading in the Load Restraint Guide.

Control

As previously mentioned, the manner in which a vehicle is steered, cornered and stopped can have a dramatic affect on its stability. Smooth control by the driver can have a bearing on fuel consumption together with general wear and tear on the vehicle.

Weather

In adverse weather conditions, ie strong wind, a vehicle can be buffeted and blown about on the road, making it hard to steer and control. This also can affect fuel consumption and tyre wear. Wet, uneven and narrow roads or gravel surfaces need to be driven on with care. Drivers need to allow greater distances for slowing or stopping under such conditions.

Traffic

Weaving or swerving in and out of traffic on a busy road can have a bearing on how stable a vehicle will remain, especially under braking. A heavy vehicle in a cornering or swerving situation will not brake and stop as smoothly, quickly or as straight as lighter vehicles.

9. LANE DRIVING

Lane driving refers to the driver's position within the lane he or she is driving in, whether it be a single lane road or a multi lane road.

Drivers should always:

- drive in the centre of the lane;
- maintain an appropriate space cushion around the vehicle;
- drive with the other traffic;
- avoid using the vehicles size to intimidate other road users or to force them to give way or move out of the way;
- drive in the left hand lane on roads with a speed limit greater than 80km/h.

10. GEAR SELECTION/CHANGING - SELECTORS

The majority of larger vehicles are fitted with multi range gearboxes. Drivers should always make sure that the vehicle is in a suitable gear for the conditions. Engines should not be permitted to labour or over rev as this will cause fuel to be wasted and possible damage to the engine itself. Drivers should also ensure that all gear changes are smooth, as rough use of the gearbox could cause damage. As most heavy vehicles are equipped with a rev counter which is usually marked with a safe engine rev band, drivers should endeavour to keep the engine revs within the green or safe band.

Some manufacturers are reducing the number of gears and compensating with extra engine power.

Empty vehicles can often be driven quite easily and safely in high range which will cut down on the number of gear changes a driver is required to make. In fact some gears can be skipped.

Drivers should always check the manufacturer's instructions on transmission and clutch use, before attempting to drive the vehicle. Some manufacturers (eg Volvo) warn **AGAINST** doing double de-clutch gear shifts with their vehicles as it creates damage and premature wear.

On vehicles that are fitted with a non-syncromesh gear box (crash box), a double-de-clutch gear shift will have to be made so as not to clash the gears during the gear change. Even on some later manufactured vehicles, it is easier on the vehicle and load if double-de-clutch gear shifts are made. A check of the manufacturer's handbook will give more details

on clutch use for the type of vehicle being driven. To complete a double-de-clutch gear shift, neutral should be treated as an additional gear in the gear box.

The double-de-clutch method of gear changing is:

- depress the clutch;
- shift gear lever to neutral;
- let clutch out again;
- rev engine so that the engine revs will match the vehicle's road speed when the driver lets out the clutch on the next movement (increased revs may be required when going back through the gears, but fewer revs when going up through the gears);
- depress the clutch again;
- shift gear lever to required gear;
- let clutch out again (at this point the engine revs should match the road speed).

If trouble is experienced selecting the new gear or the gears clash, the driver should return to neutral, match up the engine revs and try again.

Listening to the engine and watching the rev counter closely will help drivers to learn when to change to a lower or higher gear.

NOTE: When travelling interstate check that State's rules on following distances. Some authorities set a minimum distance for a heavy vehicle when following behind another heavy vehicle.

11. CORNERING/TURNING LEFT AND RIGHT

Cornering or turning with a heavy vehicle can be dangerous if a driver is not completely aware of his or her surroundings and does not use adequate observation. With longer vehicles, the rear wheels of the vehicle take a shorter path around the turn than the front wheels. This shorter path is often referred to as the cut in or swept path. As this is a very different exercise to that of a motor car, a driver needs to be aware and remember that not only is the vehicle longer, it is also wider.

Turning to the right is not quite so difficult as the turn is taken in a large arc. However, care needs to be taken to ensure that the rear wheels of the vehicle do not mount or hit any traffic islands that may be in the middle of the road.

Drivers must also be aware that the tray, mirrors or load could easily hit a sign or traffic light pole.

A left turn will usually be made beside a kerb, and therefore closer to traffic light poles, street lights, signs etc, so drivers need to drive further into the intersection before starting to turn. This will allow the rear wheels of the vehicle to comfortably miss the kerb or any light posts or other objects that may be close to the edge of the road.

Whichever way a driver is intending to turn, he or she must ensure that they **DO NOT** swing out wide, unless absolutely necessary, before starting to turn. A following driver may misinterpret the direction the vehicle is taking and try to pass on the turning side of the vehicle, even though the vehicle may be fitted with a **DO NOT OVERTAKE TURNING VEHICLE** sign.

12. BRAKING/STOPPING

Getting a heavy vehicle mobile is one thing but stopping it safely in the appropriate place and manner is more difficult.

Drivers should expect a vast difference between a loaded vehicle and an unloaded vehicle when stopping.

An empty vehicle that is fitted with air brakes will not need very much pressure applied to the brake pedal to stop it or even to lock up the wheels if that pressure is applied too violently. However, place a load on or in the same vehicle and it will be easier to stop as the weight helps to keep the wheels on the road and improve the vehicle's traction. Often it is found that a heavy vehicle with half a load will stop just as quickly and efficiently as a car. The same vehicle fully laden will need a longer distance in which to stop, so drivers should always allow additional following distance when preparing to stop.

When the brake pedal is depressed it opens an air valve which lets air flow through to the air chambers at each wheel, which in turn operates the brakes. The more the pedal is depressed, the more air is allowed to flow to the wheel chambers, and the more braking applied at each wheel.

Vehicle manufacturers establish a fine balance between front and rear braking pressure of their vehicles, therefore, any adjustments should be referred to the manufacturer specifications. This balance **MUST** be maintained for smooth and even braking.

It can take up to a second for the brakes to activate after the brake pedal is pushed as the air has to travel through the airlines. At 60km/h the vehicle will travel about 17 metres in this time. This means that drivers will need to be aware of the braking performance of the vehicle they are driving to avoid any unpleasant incidents in traffic or around buildings or stationary objects and perhaps start to brake earlier.

SAFETY TIP:

Drivers remember:

Always check your mirrors for closely following traffic, before applying your brakes.

Do not forget the following distance at the front of your vehicle.

Always brake smoothly - your load will stay stable and should not slide or break free from its lashings.

Become familiar with the "feel" of your braking system BEFORE attempting to drive in traffic.

SAFETY TIP:

Check the hydraulic brake system daily for leaks. Remember, no fluid no brakes.

Emergency Brakes

Most air system equipped vehicles have a spring brake emergency system built into them. These work on the principle that the springs force the brakes on and the air pressure holds them off. If an air leak develops, the air pressure drops and the springs force the brakes on. If this happens while the vehicle is mobile, and the vehicle is only lightly loaded or empty, the brakes may lock on and lock or skid the wheels before the vehicle comes to a stop.

Stored energy braking is where more than one air reservoir is used and air pressure is required to activate the brakes in an emergency situation.

Low Air Warning

Reservoir tanks are supplied for extra volume to allow for at least one long brake application.

If an air leak develops while the reservoir supply is depleted due to excessive use, a low pressure warning light, bell or buzzer will sound. This means that the air pressure is down to a dangerous level and the vehicle should be stopped as quickly as possible at the side of the road.

Use of gears is best in this situation, as changing to lower gears will speed up the engine, together with the compressor pump, which may help deliver enough air to stop the vehicle. Drivers should try to use the brakes as the vehicle slows down to bring it to a stop.

A driver should not continue driving a vehicle that has the low air or vacuum warning sounding. In such cases, the driver should stop the vehicle as quickly as possible and have the fault rectified.

Vehicles with air brake systems should be checked for air leaks daily. This can be done by building up the pressure to the manufacturer's operating specifications; switch off the engine; with all brakes off, fully apply the footbrake and listen for leaks. Any apparent leaks or drops in pressure on the gauge should be investigated and repairs carried out before driving.

SAFETY TIP: Check for air leaks daily.

Park Brakes

The park brakes on an air brake system work similar to the emergency brakes. When operating the park or maxi brake lever or button, the air in the chamber is released and the spring brakes are applied, holding the vehicle at a standstill.

Transmission parking brakes are another form of park brake and the braking assembly is mounted at either the differential or the transmission.

Another form of park brake is the one that is similar to that of a car and the park brake operation and assembly is the same as a car.

Brake Savers

Brake savers come in three forms, retarders, exhaust brakes and active engine braking devices (ie Jakobson).

Retarders are usually built into the drive-line of the vehicle and operate to slow the vehicle down. Exhaust brakes are built into the exhaust system and block off the exhaust to slow up the engine; active engine braking systems operate on the engine's valve train to load the engine internally to slow the vehicle down. These systems are selectable depending on the vehicle load and road and traffic conditions at the time.

While these braking systems are designed to slow the vehicle down, they are not designed to stop the vehicle completely or quickly. They will however help to control a vehicle's speed when descending a long down hill slope.

Under such situations, a driver should be in a low enough gear that, combined with the engine braking, the retardation will hold the vehicle to the desired speed. Optimum braking can then be maintained for emergency use or stopping if required.

All drivers should be aware of the road conditions and select the appropriate gear for the conditions. It is easier to control the upward gathering of speed than it is to slow down or stop from a higher speed.

WARNING: Because exhaust brakes and active engine brakes are usually quite noisy, they should not be used in towns or city areas. In some areas this noise will attract a penalty.

SAFETY TIP: Be familiar with your vehicle, its braking systems and how they operate.

13. STEERING

Steering a larger vehicle requires skill and practice. Novice drivers need to be patient and above all should not try to drive a heavy vehicle the way they would a car.

Drivers should always hold the steering wheel firmly with both hands, but not too tightly. The steering wheel should only be released with one hand when vehicle controls need to be operated. For example, changing gear, switching on the headlights etc. A driver should always return his or her hands to the steering wheel immediately after changing gears or operating other controls.

The fingers should be around the wheel with the thumbs along the outside of the wheel rim. Drivers should **NEVER** drive with their thumbs wrapped around the wheel as a crash or sudden jolt from the road could make the wheel spin around and break or dislocate them.

When driving on a straight road, the drivers hands should be at about 1/4 to 3 or 20 to 4 position as you would look at a clock face.

Incorrect position

Correct position

Steering movements should always be smooth and even, as jerky or sharp movements of the steering wheel can cause a load to move or fall, or the wheels to lose traction and slide on the road.

Although the preferred method of turning a steering wheel is by the push - pull method, hand over hand steering and palming is also acceptable during a practical driving assessment, as long as whichever method used is done safely and capably. While palming is acceptable, the driver must not release the steering wheel during this procedure.

14. DEFENSIVE DRIVING

Defensive driving is safe driving. Defensive drivers always:

- allow a longer following distance behind the vehicle ahead;
- allow more room between their vehicle and the one that they are overtaking;
- allow more room between their vehicle and any others when they are parking;
- brake earlier when approaching a bend, corner or stopping point;

- always look for an escape route when driving down hills or in windy areas;
- always change to a lower and more appropriate gear before descending a long or steep descent;
- always drive a properly serviced and roadworthy vehicle.

15. TRAFFIC SIGNS/SIGNALS/MARKINGS

All drivers are required to follow and abide by a variety of traffic controls. There are three major types of traffic controls that govern where, when and how we should drive. They are traffic signs, signals and road markings.

Traffic signs come in various forms. There are mandatory, warning, information and temporary signs, all of which are designed for a specific purpose.

Stop and give way signs, which are mandatory signs, MUST be obeyed. Stop signs mean that the vehicle must come to a complete stop and give way to all other traffic, then proceed when the road is clear.

Give way signs mean that a vehicle must slow down and be prepared to stop and give way to any other traffic, but may proceed without stopping if the road is clear of other traffic.

Warning signs are generally black over yellow and are to warn drivers of a hazard ahead. For example, sharp bends, T intersections, kangaroos ahead, winding roads etc. This type of sign is to warn drivers that they should slow down and take care. Safe drivers always heed these signs.

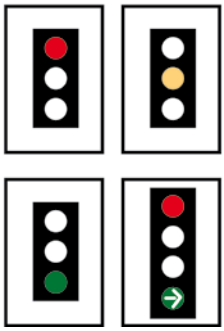
Information signs Information signs are for the general knowledge of the public and to help road users find their way to different places.

These signs are usually white over blue, however direction type signs are usually white over dark green.

Temporary signs are usually black over yellow, but sometimes are green or red with white letters. These signs mostly warn drivers of obstacles ahead such as detours, flying stones, rough surfaces etc. Careful drivers always slow down after seeing one of these signs and are ready to stop if required.

Traffic signals (traffic lights) are usually placed at major intersections on major roads to create a safe even flow of traffic through that intersection.

Most signals are programmed to provide a predetermined time for travel from each direction.



A round green light means a driver may travel straight ahead, turn left or turn right **UNLESS** there is a red arrow or sign advising the driver that he or she must not turn in that direction.

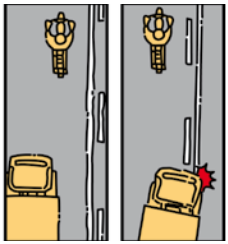
A yellow (amber) light is a warning that the red light is about to come on and that drivers must stop if safe to do so, without entering the intersection.

A red light or arrow means that drivers **MUST NOT** travel in that direction under any circumstances. A driver must stop and wait until the lights change to green before continuing ahead.

Roadwise drivers look well ahead and watch the signals. They know that if the light has been showing green for some time, that by the time they reach it, it will be about to change to yellow/red. Drivers should be aware, travel slowly and be able to brake smoothly so as not to unbalance a load if required to stop.

The same penalty applies for travelling through a yellow light as it does for a red light.

When stopping at traffic signals, drivers should make sure that they stop with the front of their vehicle **BEHIND** the hold line and not over it. The vehicle should remain stationary behind that line until the lights have changed to green.

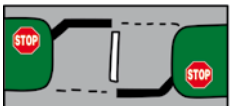


Road markings are displayed in different forms. Careful drivers watch the road markings and follow these rules closely.

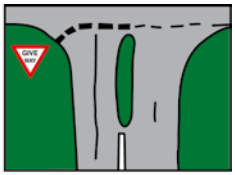
Broken lane lines allow drivers to cross to the other side of the road if it is safe to do so.

Unbroken lane lines mean drivers **MUST** not cross.

Where two rows of lines are displayed and the driver has a broken line on his or her side of the road, he or she may cross the lines if it is safe to do so. However, where a driver has an unbroken line on his or her side of the road, the driver MUST NOT cross the line.



The solid line across the road at traffic signals or stop signs is the point at which a vehicle must stop. Drivers should stop as close as practicable to but not over or past it. Similarly, the heavy bar type broken line at a give way sign must be treated in the same way.



The other road markings to watch for when in a city area is the large yellow lined box area which directs vehicles to **KEEP CLEAR.**
These areas are usually outside a fire, ambulance or police station, or across the exit from a bus interchange.

Observant drivers see these areas and do not stop across them. Disobeying a keep clear box attracts a substantial monetry penalty.

A commonly used road marking is the edge line. Edge lines are long unbroken lines that are painted along the edges of the road to mark the edge of the lane and road for drivers to follow. Edge lines are often a good guide for drivers travelling at night or when driving in foggy conditions.

16. INDICATOR USE

Indicators are a very important safety factor when driving a vehicle and advise other road users that a driver is about to change direction.

Indicators **MUST** be used **BEFORE** moving the steering wheel to change lanes, turn a corner, move out from the kerb or side of the road, or steer around any object or obstacle.

Safety conscious drivers watch their mirrors and are always aware of other road users who are nearby or close behind, and give those people adequate warning of any intention to change direction.

SAFETY TIP: Indicators should always be used to warn other road users of a driver's intentions **BEFORE** moving the steering wheel..

17. OVERTAKING

Overtaking in a heavy vehicle can be very dangerous if not done with care and common sense.

Firstly a driver should consider whether he or she really needs to, or should attempt to, overtake the vehicle ahead. Depending on the length, weight and power of the vehicle being driven, together with the speed, traffic volume and road conditions, it may be very unwise to attempt an overtaking manoeuvre.

It may be dangerous to try and overtake a slower vehicle if:

- the road is narrow;
- the road surface is not in good condition;
- the weather conditions are not good eg it is raining;
- the vehicle ahead is not travelling much slower than the driver's vehicle;
- the driver's vehicle is carrying a heavy, long, wide, high, bulky or unstable load;
- the driver's vehicle is carrying hazardous material;
- there is heavy traffic travelling in either direction;
- the driver's vehicle is not very powerful;
- the vehicle ahead is carrying a wide load;
- the driver intends to turn off or stop in the next short period or distance;
- the road markings do not permit the driver to do so;
- the driver is not going to get past quickly and may obstruct other traffic, ie using the right lane of a road with 2 lanes travelling in the driver's direction.

Drivers finding themselves unable to pass quickly should be prepared to drop back behind the other vehicle and wait for a better chance.

When a driver has decided to overtake, he or she will need to thoroughly check their mirrors for overtaking traffic. If clear, the driver should move out just enough to see the road ahead past the vehicle to be overtaken. If the road is clear and unobstructed for about 500 metres (depending on the vehicle weight, power and speed); switch on the indicators; recheck the mirrors and then blind spots; proceed to pull out and overtake.

When the driver can see that he or she is fully past and well clear of the overtaken vehicle, the driver should then indicate left and check the left hand mirror before moving back into the left lane. Some overtaken drivers may give a flash from their headlights to advise that it is clear to move back to the left lane. When fully back into the original lane, the driver should recheck both mirrors immediately, to ensure that the position within the lane is correct and safe.

18. PARKING

Heavy vehicles within the ACT are permitted the same parking arrangements as for cars and motorbikes except in residential areas. Drivers of heavy vehicles should be considerate of other road users and park legally and sensibly, so as not to cause an obstruction or inconvenience to others.

Tips for Parking:

- drivers should look for any signs and read and comply with their directions before leaving their vehicle;
- drivers should make sure that their vehicle is not going to cause an obstruction or unreasonable inconvenience to any other road users;
- if parking at night in a narrow street or area with little or no street lighting, drivers should ensure their vehicle will be visible to other road users by leaving the parking lights switched on;
- drivers using loading zones should do so only as indicated by the signs;
- heavy vehicle drivers should never park in Taxi Ranks, Bus Stops (if not a bus), or areas signposted for specific users;
- drivers should always apply the park brake before leaving their vehicle.

When parking a vehicle, a driver should ensure that it is parallel to the kerb, and that it complies with parking regulations. For example, the tyres should be about 300mm from the kerb and the maximum distance from the kerb for the tyres should be no more than 450mm.

These distances are of course dependent on the width of the body or loading tray of the vehicle. **NO** part of the vehicle or load should project over the kerbing or footpath.

The rules relating to parking are set out in the Australian Road Rules 2008 and the *Road Transport (Safety and Traffic Management) Regulation 2000*.

The road transport legislation provides that the registered operator is responsible for parking offences incurred in relation to that motor vehicle.

However, if the registered operator is not the actual offender, liability will be waived if:

- the registered operator supplies a Statutory Declaration to state the name and address of the person driving at the time of the offence;
- the registered operator supplies documented proof that at the time of the alleged offence, the vehicle was stolen or illegally taken or used.

NOTE: If the vehicle is sold or transferred to a new party, the registration must also be changed to record the new owner. If this is not done, parking infringement liability remains with the registered operator.

FAILURE TO PAY THE PENALTY WITHIN THE PRESCRIBED PERIOD WILL INCUR ADDITIONAL ADMINISTRATIVE FEES AND RESULT IN SUSPENSION OF THE OFFENDER'S ACT LICENCE AND/OR REGISTRATION, OR RIGHT TO DRIVE IN THE ACT.

Parallel Parking

Vehicles should always be parked with the left side of the vehicle parallel and close to the left-hand side of the street facing in the direction of the traffic flow.

In angle parking areas, smaller vehicles may fit legally into a marked parking bay.

Drivers MUST park:

- in-line with and having the left side of the vehicle as close as practicable to the left hand kerb, unless otherwise indicated;
- the recommended distance from the kerb (300mm);
- at least one metre from the vehicle in front and behind.

Drivers MUST NOT park a vehicle:

- adjacent to another vehicle, so as to double park;
- on the right hand side of the road with the vehicle facing oncoming traffic;
- in a NO STOPPING zone. NO STOPPING means a vehicle may NOT stop or park on the street for any purpose;
- in a NO PARKING zone, stopping is permitted. Where signs indicate NO PARKING, a vehicle may stop to pick up or set down passengers or goods ONLY. The driver MUST remain with the vehicle at all times;
- on a footpath, traffic island, median strip or plantation between a divided carriageway, or any grassed area or nature strip;
- in such a position as to obscure a traffic sign or likely to cause danger, an obstruction, or unreasonable inconvenience to others;
- in a LOADING ZONE, unless the driver is ACTUALLY loading/unloading goods to/from a vehicle specifically permitted to do so. Time restrictions usually apply to LOADING ZONES.
- within a junction or intersection;
- within 20 metres of an intersection with traffic lights;
- within 10 metres of an intersection without traffic lights;
- upon or within 20 metres before and 10 metres after a pedestrian crossing, or children's crossing;
- in a Taxi Zone or Bus Zone;

- across or within a passage, thoroughfare, entrance driveway or foot crossing;
- so as to use more marked parallel parking bays than is absolutely necessary.

NOTE: Machinery trucks/tow trucks/etc are **NOT** goods vehicles under the terms of the Australian Road Rules and associated ACT Road Transport Legislation.

Definition of a Heavy Vehicle for Parking Purposes

A heavy vehicle is defined as a vehicle, or combination of vehicles, loaded or unloaded, that is:

- more than 7.5 metres in length; and
- has a GVM exceeding 4.5 tonnes.

Heavy vehicles as defined above are not permitted to park on land adjoining residential land for more than one hour. The only exception is vehicles being used for the delivery or collection of persons or goods or the provision of services.

Some vehicles are prohibited from parking on residential leases. These include refrigeration trucks with the refrigeration unit still operating, semi-trailer pantechnicons, stock trucks and vehicles more than 3.6 metres high including any load.

Vehicles used for commercial purposes with a GVM of more than 3.75 tonnes, longer than 6 metres or more than 2.6 metres high, are not permitted to park on residential land containing a multi-unit development.

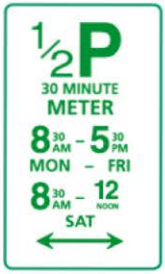
Contact Parking Operations on 6207 7200 for further information on parking on residential leases.

Ticket Machines

Motorists must purchase a ticket immediately **AFTER** entering the carpark and display the ticket face up on the dashboard of the vehicle.

For further information including information about parking heavy vehicles on residential leases, please contact Parking Operations on telephone 6207 7200.


EXPIRED
LIMIT
HOUR


½P
30 MINUTE
METER
8 30 AM – 5 30 PM
MON – FRI
8 30 AM – 12 NOON
SAT


PAY PARKING
MON-THURS 9:00am-5:30pm
FRI 9:00am-9:00pm
SAT 9:00am-12Noon
4 HOUR LIMIT
1 PARK CAR
2 PURCHASE TICKET
3 DISPLAY ON DASHBOARD


P 5
MINUTE
7 30 AM – 6 PM
MON – FRI


BUS
ZONE


TAXI
ZONE


P
ONLY
DISPLAY PERMIT


PERMIT
ZONE
MEDICAL
PRACTITIONERS
ONLY
DISPLAY PERMIT

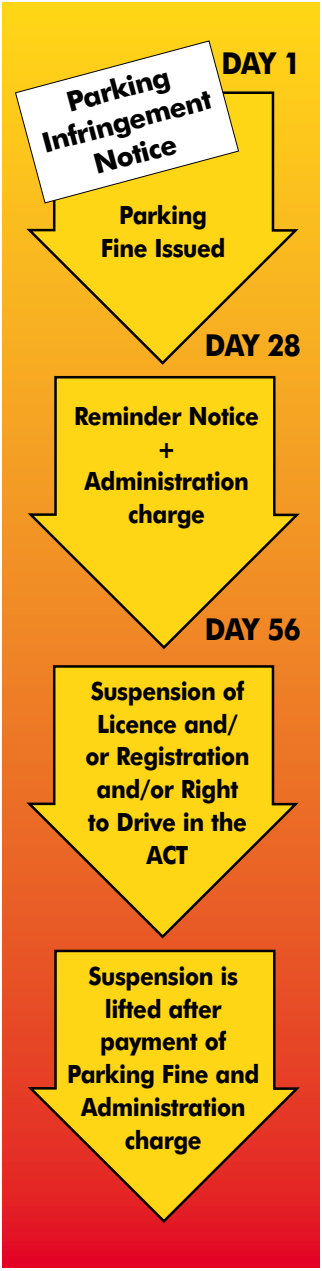

LOADING
ZONE
7 30 AM – 6 PM
MON – FRI
30 Minute
Limit


NO STOPPING
7 30 AM – 9 AM
MON – FRI


NO PARKING
7 30 AM – 6 PM
MON – FRI


2P
2 HOUR
9 AM – 3 PM
MON – FRI

How to Avoid Parking Infringements



Drivers should ALWAYS read the parking sign carefully and make sure that they understand and comply with the directions on the sign:

- parking signs apply 24 hours a day and 7 days a week, unless RESTRICTED hours are stated on the sign;
- drivers should look for the signs on upright poles or on walls adjacent to the parking surface.

A high level of enforcement is undertaken in Canberra to ensure safe and fair parking for all motorists.

Parking Meters

If parking a longer vehicle in an area where marked parking bays or meters are in use, a driver should only take up the least number of bays as possible.

The driver **MUST** immediately upon standing or parking next to a meter, insert the correct and specified coins into the meter.

Parking Fines

Drivers who don't pay their parking fines on time will lose their right to drive.

- A driver has just **28 days** to pay his or her parking fine from the day the ticket was issued.
- If a driver does not pay within **28 days** he or she will have **28** more days, but will have to pay an administration charge, as well as the fine.
- Drivers who still don't pay will have their **licence or registration suspended**.
- Where a licence or registration is suspended drivers will have to pay their fine and the administration charge, before being eligible to drive, or before the vehicle may be used again.

Infringement Notices

Parking Infringement Notices are printed from a hand held computer terminal.

How to keep on the right side of the law:

- Drivers should park according to the rules to avoid receiving an Infringement Notice.
- Drivers who receive an Infringement Notice should pay it within 28 days to avoid the extra administration charge.
- Drivers who still don't pay will have their licence, registration or right to drive suspended.
- Drivers who post their payment must allow time for it to reach the Road Transport Authority. If the payment is not received within 28 days, the additional administration charge will be levied.

19. HILL START

The same basic rules apply to moving off on a hill in a heavy vehicle as they do in a motor car. By following some simple rules and with a little practice it becomes quite easy.

Beginning from a stationary position at the side of the road and with the park brake applied, drivers should:

- ensure that the vehicle is in a suitable gear (automatic vehicles should use low gear);
- check mirrors for road users approaching from the rear;
- operate the right hand indicator;
- take up the clutch until the friction point is reached;
- recheck mirrors for overtaking vehicles;
- if clear, build up revs while releasing the park brake and easing out the clutch;
- accelerate and change up through the gears as required, while switching off the indicators;
- recheck mirrors for road position and other traffic.

Maintain a suitable gear for the conditions, ie weight of vehicle, steepness of incline.

With a little practice the driver should be able to move away without rolling backwards at all. During a practical driving test the maximum allowable roll back is 100mm.

Drivers must be able to complete a hill start without stalling.

Drivers should also keep in mind that when the engine is not running, the delivery of air or maintainance of vacuum to boost the operation of the brake system stops. This severely hampers the ability of a driver to stop a vehicle should it start to roll away.

20. THREE POINT TURN

It is most unlikely that a driver will need to attempt this manoeuvre in a larger vehicle, however it is a likely manoeuvre for a smaller delivery type vehicle.

When attempting any manoeuvre that requires a driver to reverse, it is important to be aware of the direction the rear of the vehicle travels. Because of the reduced rearward vision, it is not easy to see or be aware that a small car, motorbike, pedestrian or other obstacle may be behind the reversing vehicle.

If reversing and the rear of the vehicle hangs over the footpath, be conscious of the possibility that light poles, signs or pedestrians could be in the path of the vehicle. Under no circumstances should a driver allow the vehicle's wheels to mount the kerb or footpath.

21. REVERSING

All drivers of heavy vehicles, regardless of size or type, need to be able to reverse their vehicle capably and safely. This manoeuvre can be risky because of the reduced vision to the rear of the vehicle.

If it is necessary to reverse into a laneway or out onto a street, the driver should get out of the vehicle and check the area first. Drivers should ensure that when backing into a laneway, shed or loading dock, the vehicle has enough clearance to the sides, above and below. The road surface should also be inspected to see if it will support the weight of the vehicle.

Hazard lights should always be utilised during any reversing manoeuvre as a warning to other road users. Where possible, drivers should have someone outside the vehicle to act as a guide to assist reversing.

It is usually easier to reverse to the right as a driver can then watch the mirrors as well as look out the window.

Drivers should always reverse slowly to allow time to steer the vehicle accurately and safely in the correct direction.

DRIVERS SHOULD REMEMBER: **Reversing a rigid vehicle is like a car and will need to be steered to the right to get the vehicle to turn to the right. Articulated vehicles will need to be steered in the opposite direction of intended travel, ie pull down on the left lock to get the trailer to turn to the right.**

22. DRIVING UNDER DIFFICULT CONDITIONS

Night Driving

Drivers MUST ensure that head lights, tail lights, side lights and clearance lights are switched on when driving between sunset and sunrise.

The use of lights at other times, such as during the day, or in fog, makes it easier for a heavy vehicle to be seen by other drivers.

ACT legislation requires a vehicle to be fitted with at least two red reflectors (one on either side) at the rear. Red reflectors must not be fitted to the front of a vehicle, however white ones are permitted at the front.

Points for night driving:

- When using high beam, drivers are required to dip their headlights for oncoming vehicles as early as possible and certainly at a distance of not less than 200 metres.
- Blinding another driver with headlights on high beam is illegal. It is also inconsiderate and dangerous.
- Drivers should always be on the alert for pedestrians and cyclists.
- When approaching oncoming vehicles, drivers should avoid looking directly into their headlights. If the oncoming vehicle's headlights remain on high beam, drivers should look to the left hand edge of the roadway to avoid the glare, and if dazzled, slow down or pull over until their eyes recover.
- Drivers should always dip their headlights when following another vehicle. A following vehicle's headlights should not shine into the vehicle ahead.
- Drivers should watch the road for animals which may be dazzled by a vehicle's headlights. If an animal is dazzled, drivers should brake carefully and sound the horn. Speed should be kept down to allow time to react. Drivers must always be able to stop within the distance they can see with their headlights, particularly on rural and/or unlit roads where they need to be prepared for the unexpected.

SAFETY TIP: Drivers will see better in fog if the headlights are dipped. High beam should not be used, as the light will be reflected back at the driver.

Fog Lights

Some modern vehicles, especially imported vehicles are fitted with fog lights as standard fitting from the factory. Should your vehicle be equipped with fog lights, be aware of how and when to use them.

Front fog lights - must only be used when driving in fog or other hazardous weather conditions causing reduced visibility. In severe conditions, it can be beneficial to drive with only the park lights and fog lights switched on, further reducing headlight glare.

Rear fog lights (Red) - must only be used when driving in fog or other hazardous weather conditions causing reduced visibility. Rear fog lights should be switched off as driving conditions and visibility improve.

Winter and Wet Weather Driving

It is essential that drivers ensure their vehicles are in good condition for cold weather motoring. Lights, brakes, tyres, windscreen wipers, steering, radiator and battery must be checked regularly.

The following tips and information should also be considered when driving during inclement weather:

- Anti-freeze in the radiator is helpful and recommended in the ACT;
- Do **NOT** drive with dirty or fogged up windows;
- Drivers should try their brakes cautiously to test a vehicle's braking ability if the road is wet or icy;
- Brakes should be applied gently when stopping, as harsh braking may cause the vehicle to skid;
- Brakes should always be tested after driving through water; and
- Drivers should watch out for icy patches which often occur on the road in areas shaded by trees, on timber bridges or on exposed windy stretches.

Snow Conditions

- Drivers should always carry adequate warm and protective clothing to enable comfort, even survival, in the event of a breakdown or delay.
- The tread on all tyres including the spare should be checked before beginning a journey.
- Anti-freeze should be used in the radiator.
- A tool kit (including a jack and wheel brace), a strong tow rope and a shovel should be carried in the vehicle.
- It is mandatory for snow chains to be carried in certain areas of the Snowy Mountains (Kosciusko National Park).
- The fitting of snow chains should not be delayed until the vehicle has become stuck.

- Drivers should find a safe place to fit snow chains to their vehicle. The middle of the road is not a safe place.

When travelling on snow covered or icy surfaced roads, drivers should always use smooth steering and braking.

Sudden or jerky movements can cause the tyres to lose their grip, and the vehicle to slide, possibly off the road.

Steep Hills and Descents

- When driving down a steep hill, drivers should reduce speed and engage a suitable low gear BEFORE starting the descent.
- The brakes should be used as little as possible.
  If a driver must brake, he or she should do so on a straight stretch of road, using smooth controlled braking so as not to dislodge the load.
- When following another vehicle down a hill, a driver should allow at least four times the following distance that would be used under normal conditions (i.e. an 8 second rule).
- When loaded or towing a trailer, drivers should note the following points:
- Slow down well in advance of corners and accelerate lightly through them.
- Do not brake through corners.
- Be careful when descending hills or overtaking as a vehicle's braking performance will be greatly reduced.

SAFETY TIP: It is essential that loads are carefully secured. Avoidable injuries and deaths have been caused in the ACT by poorly secured loads.

Unsealed Roads

When driving on loose surfaces drivers should:

- reduce speed;
- reduce speed further when approaching another vehicle - loose stones thrown up by another vehicle's tyres can shatter a windscreen;
- not brake or accelerate harshly;
- not allow his or her vehicle to drift out in corners. There is usually a build up of loose dirt and gravel on the outside of corners that may cause loss of traction and steering control;
- watch for corrugations and potholes in the road;
- approach river crossings with caution - they may be deeply rutted;

- when approaching railway crossings slow down, and have a good look to make sure that no train traffic is approaching. Look for any road signs and be prepared to stop if required.

SAFE DRIVING

LOW RISK DRIVING

As a professional driver you should at all times display 'low risk' driving. Only drive when you are alert, respect other road users and know how to control your vehicle.

Driving is never risk free, but you should aim to drive 'low risk'. A low risk driver has good observation, speed management and road positioning skills. This is explained in detail in the *ACT Road Rules Handbook.*

OBSERVATION

The key to good observation is scanning.

SPEED MANAGEMENT

Drive at a speed that is within the speed limit and that will allow you to react and completely stop within the distance you can see is clear. When you see potential hazards, slow down and prepare to stop. If you cannot see at least five seconds ahead you must slow down. Slow down on wet, icy or gravel roads where it will take longer for your vehicle to stop.

ROAD POSITIONING

Position your vehicle to maximise the distance from hazards (this is also referred to as buffering). For example, moving left at the crest of a hill to create space from oncoming vehicles, or moving away from a parked car to avoid doors opening and pedestrian movement.

CRASH AVOIDANCE SPACE

A low risk driver maintains a crash avoidance space completely around the vehicle. The crash avoidance space is managed by adjusting the vehicle's speed and road position.

To determine the crash avoidance space to the front of the vehicle you need to take into account two key factors – reaction time and response time.

Reaction time is the time the driver needs to:

- See the information.
- Perceive what it means.
- Decide on a response.
- Instigate that response.

A heavy vehicle driver who is fit, concentrating, and alert, and not affected by alcohol, drugs, fatigue or a distraction, will still require about 1 1/2 seconds to react.

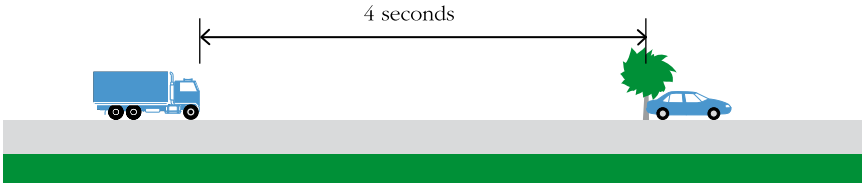
Response time is the time required to take action. Generally a minimum of two to three seconds is needed to respond. In many situations braking may be the only possible response. Swerving is rarely appropriate and can result in a more severe crash, for example a head-on collision.

A total of at least four seconds crash avoidance space is needed to react and respond to a situation in front of you. You may need even longer in poor conditions such as rain or darkness.

The four-second gap can be used when following another vehicle or if there is potential for something to move into your crash avoidance space.

Following Another Vehicle

Four-second crash avoidance space. To calculate a four-second crash avoidance space when following another vehicle use this basic technique: as the rear of the vehicle in front of you passes an object at the side of the road such as a power pole, tree or sign, start a four-second count 'one thousand and one, one thousand and two, one thousand and three, one thousand and four'.



If your vehicle passes the object you picked before you finish the four-second count, you are following too closely. Your crash avoidance space is not large enough. Slow down, and repeat the count again until the four-second crash avoidance space is achieved.

In poor driving conditions, such as rain, night or gravel roads, it may be necessary to increase your crash avoidance space to five or more seconds.

Potential for Something to Move into the Crash Avoidance Space

The four-second gap can also be used for situations where there is potential for something to move into the crash avoidance space, for example, a car in an adjacent street could fail to give way and pull out. Low risk drivers experienced in maintaining a four-second following distance are able to mentally judge a four-second crash avoidance space in front of their vehicle. If there is potential for a hazard to enter this crash avoidance space, reduce your speed and create a buffer. It is necessary to maintain the crash avoidance space for all potentially hazardous situations, including blind corners and crests.

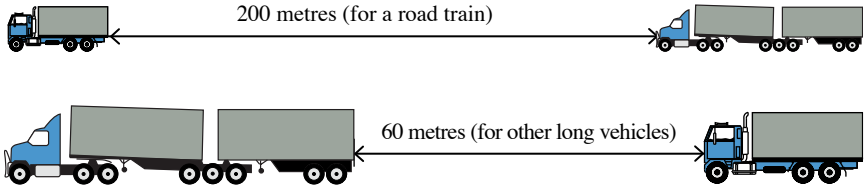
Many of the crashes that occur each day in ACT could be avoided if drivers actively maintained their crash avoidance space.

Legal Minimum Distances Between Large Vehicles

All vehicles 7.5 metres or longer must keep the following minimum distances between long vehicles:

- 200 metres for a road train
- 60 metres for other long vehicles

This rule does not apply on multi-lane roads, in built-up areas or when overtaking.



Legal requirements. By law large vehicles must maintain the minimum or greater following distance.

VEHICLE CONTROLS

Spring Brakes or 'Maxi-Brakes'

Most fully air-braked vehicles on the road are equipped with spring-loaded parking brakes. These brakes rely on air pressure to hold them in the OFF position. See this section on *Brake failure.*

Trailer Brake

Some vehicles are fitted with a hand operated trailer brake. This is a separate valve operated by hand which applies the trailer brake independently of the footbrake. The trailer brakes must not be used for normal braking as they will wear, overheat or burn

out, and lose their effectiveness completely. A trailer with ineffective brakes attached to a towing vehicle with effective brakes can cause it to jack-knife or rollover if it brakes heavily.

A trailer hand brake may be applied if necessary to prevent the vehicle from rolling backwards and to avoid transmission shock load when moving off on a hill. Trailer brakes are not parking brakes and should not be used as such.

Controlling Speed

- Brake early and gradually.
- Where possible, brake when your vehicle is travelling in a straight line.
- Allow for the weight of the load – a loaded vehicle takes far more braking effort to slow down than an unloaded one.
- Brake according to the road surface – allow more braking distance if the road is gravel, steep or slippery.
- Ease off the brakes as the vehicle slows down.
- Always test the brakes immediately after driving through deep water as wet brakes do not perform well.
- The service brake should be used under all normal conditions.

The maximum speed limit for any vehicle in the ACT is 100km/h.

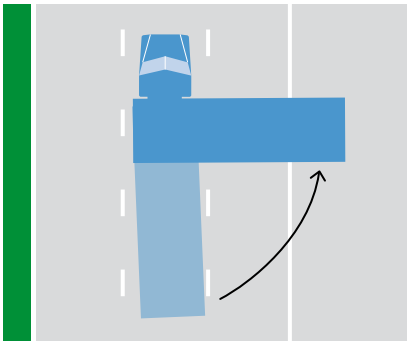
Brake Failure

Brakes kept in good condition rarely fail. Most brake failures occur because of:

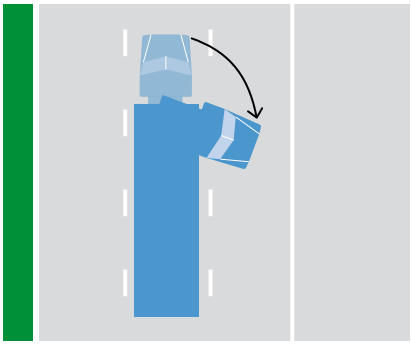
- Loss of air pressure.
- Loss of hydraulic pressure.
- Brake fade (boiling of hydraulic fluid) on long hills – bad driving practice.
- Poorly maintained brakes.

Jack-knife and Trailer Swing

You can reduce the chances of jack-knife or trailer swing by making sure that all brakes and tyres are in good condition and that the load is evenly distributed between axle groups. You should be especially careful in wet weather.



Trailer swing is where the trailer slides dangerously.



A jack-knife is where the trailer and prime mover lock against each other.

BASIC DRIVING TECHNIQUES

HILLS

Before Going Down a Hill

Reduce speed and select the correct gear before beginning the descent. See section *Going down hills* below. It is very important to select a gear low enough to slow down the vehicle.

> If you try to gear down but you miss the gear, stop the vehicle with the brakes immediately, then select the correct gear. Attempting to coast while you struggle with the gears is very dangerous. Do not try to change gears while going downhill as you can lose control of the vehicle.

Braking Going Down Hills

Brake failure can be prevented by good driving techniques.

If you use the brakes to slow a vehicle travelling down hill it can cause overheating. This leads to brake fade, or brake burn-out in which the brake linings completely lose their grip and are no longer effective.

Going Down Hills

- Select a gear low enough to slow down the vehicle without the constant use of brakes.
- If you miss the gear when trying to gear down, stop the vehicle with the brakes immediately, then select the correct gear. It is very dangerous to coast while you struggle with the gears.
- Use auxiliary brakes to help control the vehicle speed.

- Reserve your service brakes for coping with emergencies, traffic conditions or sharp corners.
- Try to brake on straight sections of road where possible as this reduces the chance of skidding.
- Avoid fanning (repeatedly applying and releasing) the brakes as this leads to an increase in brake temperature and failure due to brake burn out. In air brake systems, fanning wastes compressed air, reducing the reserve available for an emergency.

Going Up Hills

- Shift down early to prevent engine 'lugging'. Lugging is shuddering or excessive vibration in the engine or driveline.
- Use engine torque (the turning force available at the crankshaft) efficiently. Do not let engine revs fall below the maximum torque speed.
- Shifting down two or more gears at once may be necessary when going up a steep hill.

BEFORE ENTERING A SHARP CURVE

Reduce speed and select the correct gear before you enter the curve. The gear you select should have the engine revs near the maximum torque level as specified by the engine manufacturer, allowing you to accelerate smoothly out of the turn.

SLOWING AND STOPPING

When slowing or stopping a heavy vehicle it is best to use your brakes only. However, when driving down a steep hill it may be necessary to remain in a low gear to control the vehicle's speed.

Never drive out of gear. This is extremely dangerous and can lead to loss of vehicle control and overheated brakes.

> You must select a low gear before commencing steep descents.

ANIMALS AND VEHICLES

A driver or passenger must not lead an animal including by tethering while the vehicle is moving.

Animals that are being transported must be seated or housed in appropriate areas. Drivers must not drive with an animal in the driver's lap.

HEAVY VEHICLE ROAD RULES

As a professional driver it's your responsibility to know the road rules that apply to all vehicles, especially heavy vehicles.

SPEED LIMITS

In ACT the maximum speed limit for any vehicle is 100 kilometres per hour. Signs advise of the speed limit.

For certain road conditions (eg sharp bend, steep descent, winding road), special speed limit signs may be posted for trucks, road trains and buses. You must not drive at a speed greater than the speed shown on the sign.

Speed Limiters

Speed limiters are devices that limit a vehicle's maximum speed. If your vehicle falls into one of the following groups, it must be speed limited to 100 kilometres per hour.

A heavy vehicle or bus manufactured on or after 1 January 1988, being either a:

- Truck having a GVM exceeding 15 tonnes.
- Bus used to provide a public passenger service and with a GVM exceeding 14.5 tonnes.

A heavy vehicle or bus manufactured on or after 1 January 1991 being either a:

- Truck having a GVM exceeding 12 tonnes.
- Bus used to provide a public passenger service and with a GVM exceeding five tonnes.

Parties in the Supply Chain

There is a specific duty on seven off road parties in the supply chain to take all reasonable steps to ensure that their actions do not cause drivers to exceed speed limits. The parties in the chain include:

- Employers
- Prime contractors
- Operators
- Schedulers
- Loading managers
- Consignors
- Consignees

It is the performance of any of these functions that determines whether a person falls into one of the above categories rather than their job title or description.

In addition, a person may be a party in the chain in more than one capacity.

Heavy Vehicle Drivers

Drivers of heavy vehicles are required to obey the speed limits. Penalties on drivers failing to comply with speed limits include demerit points, licence suspension, cancellation or disqualification and fines.

DRIVING IN WET CONDITIONS

Wet roads reduce tyre grip and can result in loss of control.

You should drive at a speed that allows you to brake gradually and stop within the distance you can see. The safe speed for your vehicle and its load may be much lower than the posted speed limit.

> To avoid skidding, slow down when approaching corners and select an appropriate gear to maintain vehicle control without the need for braking.

INTERSECTIONS

At intersections you may have to swing wide to make a left turn. At marked intersections:

- Position your vehicle so that any vehicles behind cannot pass on your left.
- Position yourself to get the best view possible of the road you are turning into.

Bus and truck drivers need to start a left turn further into the intersection than a car so that the back wheels do not run over the kerb.

Crossing or Entering Traffic

You must choose a suitably large gap in the traffic to get across an intersection, enter a new street or merge with traffic.

Consider the size and weight of your vehicle when crossing or entering intersections, changing lanes, and making other manoeuvres. Also remember that a loaded vehicle will accelerate more slowly than an empty one.

> Before moving from a stationary position at the side of the road or a median strip parking area, you must signal for at least five seconds and check mirrors and blind spots.

Turning

Trucks and buses need more space to turn wide or cut into traffic so allow enough space on either side of your vehicle to avoid sideswiping other road users or objects.

Turning Right from a One Way Street

A vehicle (or vehicle and trailer) that is 7.5 metres or longer and has a **DO NOT OVERTAKE TURNING VEHICLE** sign displayed on the back, can turn right from the lane on the immediate left of the far right lane.

Plan your turn early so that you are in the correct part of the intersection and you have time to signal. Avoid turning too soon because the side of your vehicle may hit vehicles on your right as the back of your vehicle cuts in to the turn.

In a road with two right turn lanes, always use the turning lane on the far left.

A vehicle of 7.5 metres or longer may display the words *DO NOT OVERTAKE TURNING VEHICLE* on one of the rear marking plates.

If your vehicle (or vehicle and trailer) is under 7.5 metres long, you must not display this sign on the back, and you must turn within the lanes marked on the road at all times.

DO NOT OVERTAKE TURNING VEHICLE

REVERSING

When reversing a heavy vehicle, you must:

- Activate hazard warning lights before starting to reverse.
- Avoid unnecessary reversing. Plan ahead to use the shortest possible reversing distance.
- Use a helper to guide you whenever possible. You should be able to see the guide who should have a clear view of where your vehicle is going.
- Get out and have a look if you are not sure what is behind you.
- Always reverse your vehicle into position in a driveway or loading dock.

Although you may need to hold up traffic while you reverse, it is much safer to drive forward into traffic as you leave.

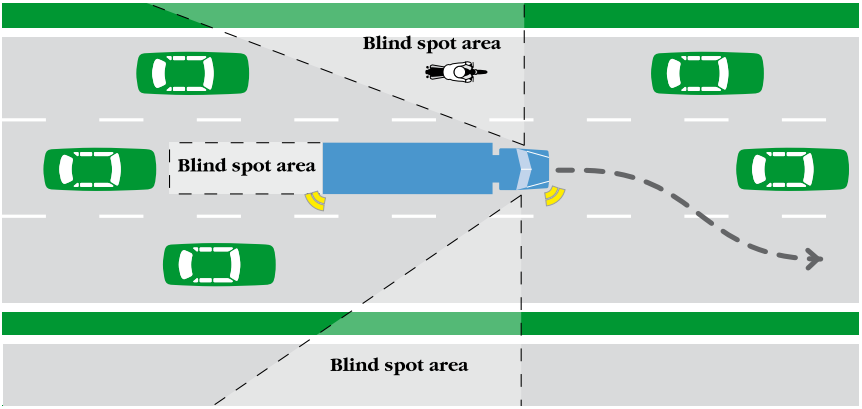
Being Overtaken

If it is safe, move into the left lane to allow faster moving traffic to overtake.

It is illegal and dangerous to direct following vehicles to overtake, using your hand or the indicator. You may be encouraging an inexperienced driver to attempt an unsafe move.

LANE CHANGING

It is very important to check that the road is clear when you want to change lanes, or when lanes merge. You also need to check before leaving the kerb and before turning. You must look in the appropriate mirrors and do blind spot head checks before making any of these moves. In a heavy vehicle it is also essential to check below the side doors, for any vehicle before changing lanes.



Before pulling out check mirrors, signal, check blind spot below cabin.

RESTRICTED AREAS FOR B-DOUBLES IN THE ACT

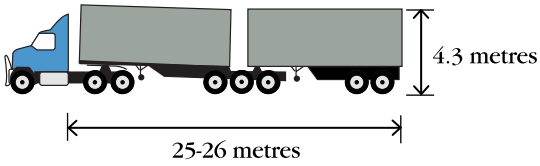
Under the *Road Transport (Mass, Dimensions and Loading) Regulation 2010,* there are a number of legislative instruments relating to the operation of B-doubles in the ACT.

The permitted routes for B-doubles can be found in the Notifiable Instruments, and are located in the ACT Legislation Register under www.legislation.gov.au under *Road Transport (Mass, Dimensions and Loading) Regulation 2010.*

This sign must be fitted to the back of vehicle combinations longer than 22m. B-doubles carry a greater payload than a single articulated vehicle and handle differently.

HEIGHT AND LENGTH LIMITS

The height of a B-double, including load, is limited to a maximum of 4.3 metres. Heights of 4.6 metres are permitted under the *4.6 metre High Vehicle Exemption Notice 2010.* The 4.6 metre Vehicle Route includes B-doubles and specifies approved routes for vehicles 4.6 metres high. A B-double combination may have a maximum length of 26 metres.



B-doubles with an overall length not greater than 19 metres and a total mass not exceeding 50 tonnes operating under a notice may travel on all roads except where prohibited by a load limit or other sign.

LIGHT TRAFFIC ROADS

You must not use any road with a load limit sign if the total weight of your vehicle is the same as, or heavier than, the weight shown on the sign.

You may use a light traffic road when that road is your destination for a pick-up or delivery and there is no alternative route.

LOAD LIMIT SIGN

You must not drive past a bridge load limit (grosS masS) sign or gross load limit sign if the total of the gross mass (in tonnes) of your vehicle, and any vehicle connected to it, is more than the gross mass indicated in the sign.

NO TRUCKS SIGN

Drivers of long or heavy vehicles except buses must not drive past a NO TRUCK sign unless the vehicle is equal to or less than the mass or length specified on the sign.

When the sign does not provide detailed information, no truck (ie GVM greater than 4.5 tonnes) is permitted to drive past the sign, unless the driver's destination lies beyond the sign and it is the only route.

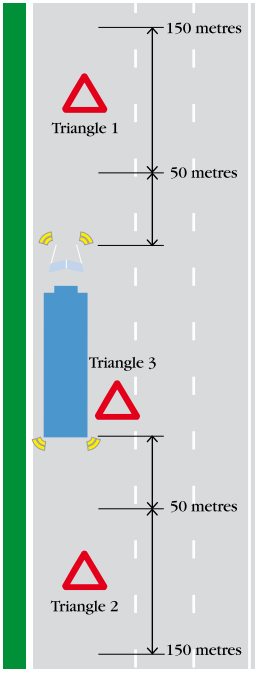
TRUCKS MUST ENTER SIGN

Heavy vehicle drivers must enter the area indicated by information on or with this sign.

WHERE HEAVY VEHICLES CAN STAND OR PARK

Heavy vehicles (GVM of 4.5 tonnes or more) or long vehicles (7.5 metres long or longer) must not stop on a length of road outside a built up area, except on the shoulder of the road. In a built up area they must not stop on a length of road for longer than one hour (buses excepted). For more information on where vehicles can stand or park, refer to the *ACT Road Rules Handbook.*

WARNING TRIANGLES



A vehicle or a vehicle and trailer with a GVM of more than 12 tonnes, must carry three portable warning triangles to use if the vehicle breaks down.

If a vehicle required to carry warning triangles stops or the load being carried by the vehicle falls onto the road and is not visible for 200 metres in all directions, the driver must put:

- The first triangle between 50-150m from the front of the vehicle or fallen load.
- The second triangle between 50-150m from the rear of the vehicle or fallen load.
- The third triangle at the side of the vehicle, or fallen load, in a position that gives sufficient warning to other road users of the position of the vehicle or fallen load.

For proposed changes to the rules for use of Warning Triangles in 2012 see page 219.

Requirements for placing warning triangles.

TRUCK AND BUS LANES

Truck Lanes

Truck lanes are marked by the following sign. Trucks more than 4.5 tonnes GVM must use these lanes.

Bus and Bus Only Lanes

Bus and bus only lanes are marked by the following signs, or by lane markings. Public buses constructed principally to carry persons and equipped to seat more than eight adults, including the driver, and used to convey passengers for hire or reward, or in the course of trade or business, may use these lanes.

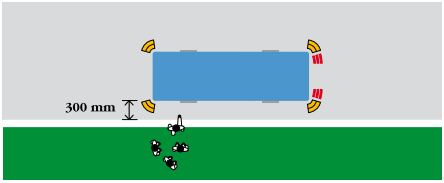
Priority for Buses

In a built-up area, when you are approaching a stationary bus from behind and the bus displays a Give Way to Buses sign and is indicating its intention to pull out from the kerb, you MUST slow down or stop to allow the bus to enter the line of traffic.

Buses cannot park at bus stops but may wait at a bus stop prior to commencing a regular passenger service.

BUSES

Stopping at a Bus Stop



Bus drivers should pull up so the entrance and exit doors are as close as possible to the kerb at a bus stop.

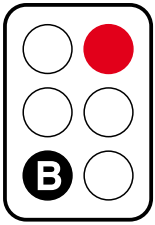
- Signal your intention.
- Stop the bus smoothly.
- Stop parallel with the kerb.
- Stop within 300 millimetres of the kerb measured from the front bus step.

- Stop the bus without hitting the kerb.
- Apply the bus stop brake. If the bus does not have a bus stop brake then you must apply the normal parking brake.
- Indicate for at least five seconds before pulling out of a bus stop.

Monitors record:

- Lengths of time the vehicle is moving and stationary during a journey.
- Speeds at which the vehicle is driven.
- Distance the vehicle travels between stops.
- The time, date and place of starting and finishing a journey, drivers' details and vehicle identification.

Bus (B) Signals



B signals separate buses and other vehicles at intersections with traffic lights. B signals are attached to the traffic lights and show a white B on a black background. Shortly before the usual traffic signals change to green the B signal lights up white. Buses and other vehicles that are allowed to drive in bus lanes, may proceed from the bus lane in any direction unless signs or markings indicate otherwise.

White B means buses only go.

FIRES

To minimise the risk of fire:

- Make regular checks of the vehicle during your trip.
- Follow recommended vehicle operating rules. See section CVehicle dimensions and loading.
- Check the instruments and mirrors as part of your regular scanning routine.

If there is a fire in your vehicle:

- Stop it well away from anything else which may burn.
- Notify emergency services (dial 000).
- Use the correct fire extinguisher.
- If the trailer is on fire, and it is safe to do so, uncouple the prime mover and move it away
- If the engine is on fire, try not to open the bonnet any more than necessary. Spray the fire extinguisher through louvres, or from the underside of the vehicle.
- Where the load is on fire in a van or box trailer, open the doors slowly and only far enough to let you use the extinguisher properly.

VEHICLE MONITORS

Vehicle monitors are not required in the ACT however, it is the driver's responsibility to ensure they comply with the requirements for vehicle monitor use when travelling interstate.

Vehicle monitors are devices which automatically record details about the operation of a vehicle at all times, whether the engine is on or off. There are various types of vehicle monitors. Among them are tachographs and electronic boxes, also known as trip computers or black boxes.

Monitors record:

- Lengths of time the vehicle is moving and stationary during a journey.
- Speeds at which the vehicle is driven.
- Distance the vehicle travels between stops.
- The time, date and place of starting and finishing a journey, drivers' details and vehicle identification.

Monitors produce a continuous record of vehicle operation, allowing drivers and operators who break the law to be identified. Vehicle monitoring records also help identify vehicles on which the speed limiter has been tampered with or disabled.

ROADWORTHINESS

The driver and the owner/operator are responsible for a vehicle's roadworthiness. A roadworthy vehicle is a safe one that offers advantages to both driver and operator as well as other road users. Unroadworthy vehicles can be heavily fined, especially if they are involved in a crash.

It is very important to check your vehicle is roadworthy. Pre-departure checks can save time and expense later on and reduce the chance of a crash resulting from mechanical failure.

To make sure that your vehicle remains roadworthy, you should carry out daily pre-departure checks and more 'in depth' weekly inspections. Refer to the checklists in this section as a guide. This icon ☑ will help you locate them.

BODY/CAB CONDITION

All door latches or hinges must be secure and working well. The cabin must be sealed from engine and fuel areas.

BRAKES

Air Brake Operation

Most heavy vehicles have full air brakes. It is important that brakes are properly adjusted and well maintained.

When you apply the foot brake pedal you are opening a valve that allows pressurised air to flow to the brake chambers at each wheel. Therefore braking effectiveness depends on how far you depress the pedal, unlike a car where the braking effectiveness depends on how hard you depress the pedal.

It is very important to check your brakes properly and regularly, and to refer to the manufacturer's manual. Use the following procedure as a guide only and get a professional to service your brakes often.

KNOWING THE VEHICLE

☑ INSPECTION OF HYDRAULIC BRAKES

STEP 1: External check

1. Check for line damage and leaks.
2. Check wheel backing plates and brake hoses for any signs of leaks or damage, such as chafed hoses or pipes
3. Check around the master cylinder and hydraulic oil reservoir for leaks. Also check that the reservoir is full.

STEP 2: System check

1. Check the feel of the brake pedal when you apply the foot brake.
   If the pedal sinks down further than usual or if it feels spongy, there may be a leak or air in the system.
2. Keep full pressure on the pedal – it should continue to be hard. If the pedal starts to sink, there may be a leak in the system.
3. Vacuum brakes – check booster retention with full vacuum and the engine off.
   When you apply the pedal it should stay down without resistance.
   The vacuum must be available soon after the engine is started with low vacuum available after 30 seconds and normal working vacuum after 60 seconds.
4. Check that the vehicle does not pull to one side when you brake with the vehicle moving, off road if possible.

☑ INSPECTION OF AIR BRAKES

STEP 1: Secure the vehicle

1 Put on the parking brake.

2 Switch off the engine.

3 Where manual valves are fitted to air tanks, drain daily.

It is illegal to discharge fluid on the ground as it can be washed down drains and is an environmental hazard.

STEP 2: Drain all air tanks

On vehicles with a dual circuit braking system, drain one system first. Check to make sure that only one gauge indicates no pressure, then drain the other system. If both gauges show no pressure after draining one system, do not use the vehicle before your brakes have been checked by a professional.

STEP 3: Refill the system

1 Start engine and run at fast idle – do not race the engine.

2 Check that:

- Any low air pressure warning signals (if fitted) are operating as a result of having no air in the system.
- The low air pressure warning signals (if fitted) operate at about 410kPa.
- The time it takes for air pressure to build up from 0 to 80 per cent of maximum pressure limit (refer to manufacturer's specification) is not longer than five minutes.

3 Allow maximum pressure to build up and turn off engine.

STEP 4: System check

1 Chock the wheels and release the park brake.

2 Apply the foot brake fully and check the drop in air pressure on the gauge. The drop in pressure per minute should not exceed the following:
– Truck 20kPa.
– Truck and trailer 30kPa.

3 Apply the foot brake another four times, holding it down on the fourth application. The pressure should not have fallen by more than half normal system operating pressure.

If it has, do not use the vehicle before your brake system has been checked by a professional.

4 Recharge air system.

STEP 5: Trailer check

1 Turn the engine off.

2 Disconnect the air hoses between the hauling unit and trailer (articulated vehicles and truck/trailer combinations). The trailer brakes must automatically come on and remain on for at least 15 minutes. This is to check if the breakaway system is operational.

3 Check the tractor protection system of the hauling unit after air has stopped being released from the hauling unit trailer air line fittings. If these fittings contain self-sealing devices, hold them open until no more air is released.

4 Check that the:

• Air pressure is in excess of 300kPa.

• Service brakes still work.

• Spring brakes (if fitted) have not come on.

STEP 6: External check

1 Re-connect air hoses.

2 Apply the park brake.

3 Walk around the vehicle and listen carefully for air leaks.

STEP 7: Final check

1 Start the engine to recharge the air system.

2 Release and re-apply the park brake and walk around the vehicle again and listen carefully for air leaks.

These 'general checks' do not replace the need for thorough inspections of the systems.

Anti-lock Braking Systems (ABS) – *refer page 32*

Parking Brake

When applied a parking brake must be capable of holding the vehicle stationary on a slope up to a gradient of at least 15 degrees, or prevent it from moving under light throttle and must function by mechanical means such as springs.

Engine/Exhaust Brakes or Speed Retarders

These devices may be fitted to medium and large vehicles to supplement the vehicle's service brake system. They will not stop the vehicle completely but may help to slow it down. They are not considered service brakes as they act on the engine or drive train.

Three most common types are:

- Exhaust brake.
- Engine brake.
- Electric, magnetic or hydraulic retarder.

Applying these brakes may cause a lightly loaded vehicle to skid or jack-knife on slippery roads.

Auxiliary brakes are generally noisier than the service brake. Try to reduce brake noise in urban areas by limiting the use of Auxiliary brakes.

COUPLINGS

Prime mover/semi-trailers – Turntable mountings and other tow couplings must be secure and comply with Australian Standards for installation.

Other vehicles – All towbar, coupling and drawbar components must be in good working condition. Steps on performing uncoupling and coupling are covered at the end of Section E.

DRIVING CONTROLS

All controls should function correctly and be regularly checked and maintained.

ELECTRICAL SYSTEMS

Electrical wiring and connections, both inside and outside the vehicle, must be secure, damage-free and not exposed to excessive heat.

ENGINE

When running, the engine must not discharge excessive crankcase fumes.

EXHAUST SYSTEM

The exhaust system must not have leaks due to damage, looseness or poor maintenance.

The exhaust system must not be too noisy.

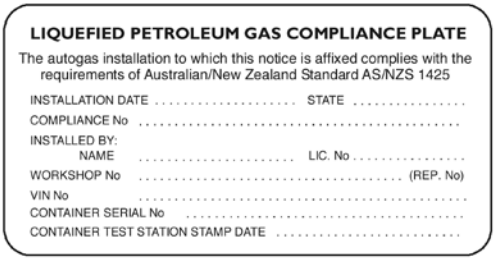
FUEL SYSTEM

The fuel tank and lines must be secure and not leak. The fuel tank cap must be properly fitted.

LPG fuelled vehicles must be fitted with an AUTOGAS plate near the LPG fuel tank and display the appropriate plates or stickers on the front and rear number plates.

Compressed Natural Gas (CNG) is an alternative fuel commonly used in the ACT in buses. CNG vehicle must display the appropriate plates or stickers, be fitted with a compliance plate and also be fitted with a refuelling information plate near the filler connection. LPG and CNG cylinders need to be periodically inspected.

LPG and CNG retroreflective identification labels must be in the shape of a square and mounted diamond-wise.


LIQUEFIED PETROLEUM GAS COMPLIANCE PLATE

The autogas installation to which this notice is affixed complies with the requirements of Australian/New Zealand Standard AS/NZS 1425

INSTALLATION DATE ..... STATE .....

COMPLIANCE No .....

INSTALLED BY:

NAME ..... LIC. No .....

WORKSHOP No ..... (REP. No)

VIN No .....

CONTAINER SERIAL No .....

CONTAINER TEST STATION STAMP DATE .....

Example of a LPG Compliance plate.

GEAR BOXES

Heavy vehicles greater than 4.5 tonnes GVM must use low gear on roads where a sign displays TRUCKS & BUSES MUST USE LOW GEAR. The gear chosen by the driver must be able to control the speed of the vehicle without use of the brakes.

There are basically three types of gear boxes.

Non-Synchromesh Gear Box (Constant Mesh)

In this type of gear box, the matching of engine and road speeds depends entirely on your judgement and skill as there are no synchronisers in the gear box to help you. Double-declutching is essential while you are learning to use this type of gear box. A non-synchromesh gear box may commonly be known as a crash or constant mesh gear box.

Synchromesh Gear Box

This type of gear box works in much the same manner as those in most modern cars. They are easy to use, as the synchronising of the gears is done by the gear box. Be aware that damage can be caused by forcing gear changes before the engine and road speeds are matched.

Automatic Gear Box

These work in much the same manner as in modern automatic cars.

Double-Declutching

Double-declutching means to change gear, by moving the gear lever first into neutral and then into the desired gear, releasing the clutch pedal between each movement. You should learn this technique from someone who is experienced with the practice.

Double-declutching is not recommended for synchromesh gear boxes as it may cause long term damage.

LIGHTS AND INDICATORS

All lights and reflectors must work properly and their lenses must not be damaged. All rearward facing lights except reversing and indicator lights must be red.

Warning Lights

Parking brake and brake failure warning lights, where fitted, must work.

Rotating Lights

Rotating warning lights must be visible in normal daylight from a distance of 200 metres to drivers approaching from any direction. A rotating light can be distracting to the driver so must not be directly visible from the normal driving position of the vehicle to which it is fitted.

A rotating light displayed on a vehicle may only be amber/yellow, blue or magenta/crimson. Each of these colours or combination of colours is intended to convey a specific warning to road users. Their use is limited to particular types of vehicles and in particular circumstances.

An amber/yellow rotating light warns road users of an obstruction to the free flow of traffic and can be used by public utility vehicles, tow trucks, motor breakdown service trucks and street vending vans.

Blue or blue and red rotating lights may only be fitted to police vehicles, ambulances, operational fire brigade and accredited bush fire brigade vehicles.

A red rotating light warns road users of the presence of an emergency service vehicle associated with a risk-to-life situation.

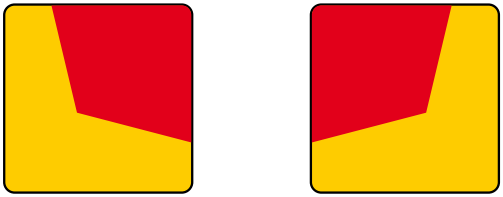
A green rotating light warns road users of the presence of a stationary operational fire brigade, accredited bush fire brigade, ambulance or police emergency site command vehicle. Green rotating lights may not be fitted to any other type of vehicle and should not be operated on an approved vehicle while it is in motion.

A magenta/crimson rotating light warns road users of the presence of an RTA enforcement vehicle while engaged in monitoring or measuring the weight of heavy vehicles.

REAR MARKING PLATES

all motor vehicles with a GVM exceeding 12 tonnes and trailers with a GTM over 10 tonnes must be fitted with retroreflective marking plates at the rear of the vehicle. Smaller trucks may have rear marking plates fitted too.

Prime mover and semi-trailer combinations must display rear marking plates at the rear of the semi-trailer.



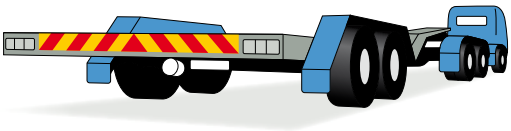
Rear marking plates may also display DO NOT OVERTAKE TURNING VEHICLE in black letters 50 millimetres high as shown if the vehicle exceeds 7.5 metres in length. Only use plates with approved retroreflective material. Do not modify or use alternative plates except those described previously.

Keep the plates clean and in good condition. Plates must not be covered or obscured by any vehicle equipment or load.

When a hauling unit vehicle is rated with a GCM exceeding 12 tonnes or the sum of the laden mass of the trailer and hauling unit exceeds 12 tonnes, rear marking plates must be fitted to the rearmost trailer being towed.

Rear marking plate rules do not apply to route buses used only in urban areas.

The marking plate shown below may be an acceptable alternative, if the first option is not practicable, provided it meets specific dimensions and locations. For further information refer to Vehicle Standards Information No:13 – Rear Marking Plates for Heavy Vehicles.



Typical fitting of alternative style class 2 plate (type 1).

RUST AND CORROSION

any structure, chassis, frame etc must not have advanced rust. Any panel separating the driver or passenger from fuel or engine fumes must not have advanced rust – that is rust which would cause the metal to collapse in a crash.

SEATS AND SEATBELTS

seat frames or mountings must be structurally sound with all seatbelts undamaged and working properly.

STEERING

The steering wheel must be undamaged and firmly attached to the steering column. All steering components must be secure, undamaged and not have excessive free play.

STRUCTURE

Any structure, chassis, frame etc must not be distorted, cracked or damaged.

SUSPENSION

suspension springs must not sag or be modified and all suspension components must be aligned and undamaged.

WHEELS AND TYRES

All wheels must be properly attached to the vehicle with the right number and type of nuts and studs and wheel rims must not be cracked or bent.

All tyres must have at least 1.5 millimetres tread depth over 75 per cent of tyre surfaces which normally contact the road. All tyres must have correct air pressure. Manufacturer's recommendations are a good guide.

Regrooved tyres are acceptable provided such tyres (or retreads) are marked by their manufacturers as being suitable for regrooving. This only applies to heavy vehicles. Regrooved tyres must be retreaded to meet the requirements of an appropriate version of Australian Standards AS 1973.

WINDSCREEN AND WINDOWS

The windscreen directly in front of the driver or in the path of the windscreen wipers must not be cracked, scored or chipped.

Wiper blades, windscreen washers and demisters must be fitted and work well.

PRE-DEPARTURE CHECKS

All drivers are legally responsible for the safety and roadworthiness of the vehicles they drive. Before driving any vehicle you must ensure it is safe and roadworthy.

PRE-DEPARTURE SAFETY CHECKS

It is very important to check your vehicle before you drive, particularly items that have been reported defective. These checks can save time and expense later on, reducing the chance of component failure and subsequent loss of vehicle control, which may result in an accident.

These inspections should be conducted prior to shift start (no matter what the time of day) and always following the manufacturer's recommendations. The areas you need to cover are listed in this section.

ENGINE COMPARTMENT

Engine oil level ..... ☐

Engine coolant level ..... ☐

Clutch fluid level ..... ☐

Brake fluid level ..... ☐

Power steering fluid level ..... ☐

Screen washer fluid level ..... ☐

Ancillary drive belts ..... ☐

ELECTRICAL

Headlights: high and low beam ..... ☐

Driving and fog lights ..... ☐

Park lights ..... ☐

Indicators: left and right ..... ☐

Clearance lights ..... ☐

Tail lights and plate light ..... ☐

Brake lights ..... ☐

Hazard lights ..... ☐

School warning lights ..... ☐

VEHICLE POSTURE, LEAKS AND LOAD

Vehicle posture ..... ☐

Fluid leaks ..... ☐

Load properly secured (trucks) ..... ☐

COUPLING

Air hoses and cables ..... ☐

Security ..... ☐

VEHICLE BODY

Body damage .....
Mud flap(s) and guards – front and rear .....
Cabin entry grab handles .....
Door operation and locks .....
Windows – operation and damage .....
Bus rear window – Emergency Exit .....
Cargo and luggage doors (if available) .....
Mirror(s) – lens and security .....
Plates and signs .....
Fuel tanks .....
Air tanks .....
Toolbox(es) .....
Other .....

BRAKES

Foot and hand controls correctly adjusted and not worn .....
Hydraulic brakes
Brake fluid reservoirs must be full .....
Hoses, pipes and cylinders leak free .....
Rigid pipes bracketed, free of rust and have grommets when passing through chassis frames .....
Air brakes
Compressors, drive belts, exhausters and reservoirs securely mounted and undamaged .....
Brake air lines, hoses, valve drain cocks and plugs secure, functional and leak-free .....

WHEELS AND TYRES

Rims (dents in flanges, loose lugs and nuts, rust trails, cracks in rim assembly) .....
Tyres (tread minimum legal depth of 1.5 millimetres) .....
Tyre inflation correct .....
Tyre cuts, damage, dual tyres touching, rocks lodged between duals .....
Spare wheel(s)/tyre(s) .....

GENERALLY

Registration label(s) current and attached ..... ☐
Windscreen wipers ..... ☐
Warning triangles ..... ☐
Fire extinguishers ..... ☐
Other .....
..... ☐

DEALING WITH PROBLEMS

If the vehicle you are driving has a maintenance or mechanical problem, you should make a written report on a form supplied by the owner.

Keep a record of all repairs and check that the fault has been fixed. Take it back to the repairer if the problem persists.

DEFECT REPORTING

if the vehicle you are driving has been issued with a defect notice inform the owner in a written report.

SECTION E: ARTICULATED VEHICLES

- Heavy combination vehicles
- Truck and trailer combinations
- Coupling types
- Multi-combination vehicles
- B-doubles
- Road trains
- The Road Train (MC) licence
- Uncoupling and coupling
- Uncoupling a semi-trailer
- Coupling a semi-trailer
- Uncoupling a truck and trailer
- Coupling a truck and trailer

HEAVY COMBINATION VEHICLES

There are various types of heavy combination vehicles (semi-trailers). There are pantechnicons for refrigeration, furniture and general freight etc. There are low loaders for transporting machinery such as bulldozers, tankers for transporting liquids and powders, and heavy combination vehicles for the transportation of a vast variety of goods and equipment.

TRUCK AND TRAILER COMBINATIONS

There are many combinations of trucks and trailers. A particular combination will often be the result of the type of use for which the vehicle is required.

The driver of a large truck and trailer combination requires the same class of driver licence to drive this vehicle type as does the driver of a heavy combination vehicle.

Notwithstanding this, drivers operating this type of configuration need a different set of skills to drivers operating a semi-trailer and need to be aware of the problems associated with this type of vehicle.

For example, a truck may be loaded with sand for one delivery, while the trailer is loaded with blue metal for delivery to a separate destination. In this instance, a driver would need the knowledge to reverse them into confined areas and the skill to reverse the truck to almost right angles to the trailer for tipping purposes.

COUPLING TYPES

There are several different types of truck to trailer couplings. The most common are:

- turntable and kingpin;
- ring leader or auto pin; and
- pintal hook and ring.

Another type, the TREG coupling has become very popular with off-road and 4 wheel drive enthusiasts, as the coupling remains attached and operable at angles of up to 70 degrees as against about 15 degrees for a normal ball type coupling. This coupling consists of a nylon block with two pins through it at right angles to each other allowing it to operate in a similar fashion to a universal joint. They remain connected where a ball coupling could become detached because of the operating angle.

Turntable and Kingpin

The turntable is normally fitted to the prime mover above the rear axle assembly. The standard size of pin fitted to most semi-trailers is 50mm. To couple this system, the driver reverses the prime mover under the trailer until the kingpin is fully engaged and the jaws of the turntable have locked. To check that the trailer is correctly coupled the driver would raise the support legs just clear of the ground, and attempt to drive forward gently. This is

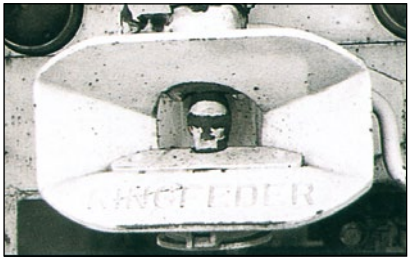
called a tug test (on earlier vehicles not equipped with spring brakes, the air lines will need to be connected and the trailer brakes applied first). If the trailer is correctly coupled the driver can then connect the air supply and electrical power to the trailer, and fully retract the support legs.

Automatic Pin Type Coupling

The ring feeder or auto pin coupling is usually found on rigid trucks or on the rear of semi trailers used for road train use. To couple a trailer using this type of system, a driver must first lift the release lever until it locks, then reverse the truck up to the trailer until the ring is fully engaged into the ring feeder, which should automatically lock the ring in place.

The connections must then be checked by means of a tug test, after which air, power supplies, and safety chains can be connected.

Some ring feeders are air operated. These types are fully automatic and are referred to as automatic ring feeders, or auto pins.



Auto pin type coupling

Pintle Hook

The pintle hook is a manual coupling which is found mostly on smaller trucks. It consists of a hook with a lockable cover, to retain the ring in place. The trailer coupling is placed over the hook and then the cover is locked. This prevents the trailer from becoming uncoupled. Some of the hook assemblies have air operated dampers to reduce the free play between the hook and the ring.

Pintle hook

Drivers need to make sure that they know what type of system is fitted to the vehicle they are driving, and be familiar with how that system operates. It is always a good idea to recheck the coupling after driving a short distance. Drivers who are unsure how a system operates, should ask an experienced operator BEFORE attempting to connect or disconnect a trailer, as it is very easy to cause major damage to the connections.

MULTI-COMBINATION VEHICLES

Other types of combination vehicles are Road Trains, B-Doubles and B-Triples. A MC licence classification on a driver licence authorises a driver to drive these vehicle types. Road Trains cannot be operated legally within the ACT, however, some ACT driver licence holders require a MC licence to drive Road Trains in other Australian States. ACT drivers who need a driver licence to drive any MC vehicle will be required to meet the RTA's regulations to upgrade his or her driver licence. While B-Doubles are permitted to drive on certain authorised roads within the Australian Capital Territory, B-Triples are not yet permitted to operate legally within the ACT.

B-DOUBLES

A B-Double vehicle is a combination consisting of a prime mover towing two semi trailers where the second semi-trailer is attached to the first semi-trailer by means of a turntable and kingpin.

ROAD TRAINS

Any rigid truck or prime mover with more than one trailer attached, apart from a B-Double or B-Triple is a Road Train.

Road Trains are usually found in the northern and western areas of Australia. They are generally used to transport large amounts of goods across the wider open spaces of the country, where there are lower volumes of traffic.

A Road Train sign must be displayed at the front of hauling unit and the rear of the last trailer on the Road Train.

THE ROAD TRAIN (MC) LICENCE

Road Trains are not permitted to operate within the Australian Capital Territory, however, ACT residents who are required to drive road trains interstate may obtain an ACT Road Train (MC) licence for the purpose of their employment.

A MC licence class allows the licence holder to drive Road Trains and B-Doubles.

UNCOUPLING AND COUPLING

Uncoupling and coupling a prime mover and semi-trailer is a task which can lead to serious accidents, injury and vehicle damage. Follow these steps to perform the task correctly.

UNCOUPLING A SEMI-TRAILER

Step 1: Secure the Vehicle

1. Before uncoupling:
   - Make sure your semi-trailer is parked on a level area.
   - Ensure the vehicle is on a surface firm enough to support the trailer landing gear and its load.
   - Make sure the prime mover and semi-trailer are in a straight line.
2. You will then need to:
   - Apply the parking brakes and tractor/trailer protection valve.
   - Ensure trailer security by giving it a 'tug test' with the prime mover to see if the trailer moves or by chocking the trailer wheels.

     Always use chocks when you have to park a semi-trailer on a grade. It is best to chock the semi-trailer's front axle in case the landing legs collapse and the rear axle(s) lifts.

     When you uncouple on soft ground, put suitably strong timber or other flat supports under the landing gear.

     Large pressure drops during a static brake check may indicate that there is a problem. Always have this checked.

Step 2: Trailer Check

1. Lower the landing gear ensuring firm and even contact with the ground.
2. Raise the trailer until a gap is visible at the fifth wheel (turntable).
3. Secure the landing gear handle.

Step 3: Uncoupling the Trailer

1. Release the turntable jaws. If the release handle cannot be moved, the jaws may be under load.
2. Take the pressure off by gently rocking the prime mover forward and back and then try to release again.
3. Move forward slowly. Release the prime mover parking brake and slowly drive forward in a straight line until the fifth wheel is just clear of the trailer skid plate, making sure the trailer stays put, using the trailer brakes if necessary.
4. Apply prime mover park brake.

Step 4: Final Check

1. Disconnect the air hoses and electrical cables from the trailer.
2. Stow hoses and cables properly on the prime mover making sure that the connectors are kept free of dust and water, and that they cannot get caught on the tail shaft.
3. Drive away slowly. Ensure the driver's door is closed whenever the vehicle is moving.

COUPLING A SEMI-TRAILER

Step 1: Position the Vehicle

1. Reverse the prime mover into position, lined up straight in front of the trailer, stopping the prime mover with the skid plate just touching the trailer.
2. Apply the parking brake.

Step 2: Trailer Check

1. Check the trailer skid plate, kingpin, turntable jaws, airlines, leads and connections for damage.
2. Make sure the turntable jaws are open.
3. If the trailer:
   - Has a block welded to the skid plate about 30cm behind the kingpin, make sure the top of the turntable is the type which turns and is unlocked.
   - Is without the block the turntable will need to be locked in position. Make sure the top of the turntable is well greased when it is used in the locked position.

Step 3: Secure the Trailer

1. Ensure trailer is secure. Place chocks behind at least one wheel. If the trailer is equipped with spring brakes, the trailer brakes should already be on.
2. Check that the turntable and kingpin are lined up and that the prime mover will clear the trailer.
3. Check and adjust the height of the skid plate to the turntable. The height of the trailer skid plate should be slightly lower than the centre of the turntable. About five centimetres is ideal.

   If the trailer is too low, the prime mover chassis or edge of the turntable can hit the trailer front instead of going under.

   On a trailer that is too high, the turntable may not properly latch on to the kingpin, or the turntable could even pass beneath the kingpin, allowing the prime mover cab to hit the trailer.

Step 4: Trailer Check

1. Connect air hoses and electrical cables (do not forget to twist lock ring on bayonet fittings).
2. Set tractor protection valve (if fitted) to normal.
3. Apply the trailer brake.
4. Check brake air pressure.

Step 5: Coupling the Trailer

1. Check the jaws are open.
2. Ensure trailer is secure.
3. Position the prime mover just forward of the trailer, check entry alignment and that the prime mover will clear the trailer.
4. Reverse the prime mover under the trailer (skid plate not yet over turntable).
5. Check and adjust the height of the skid plate to turntable to slightly lift trailer on connection.
6. Secure the handle.
7. Connect air hoses and electrical cables.
8. Apply trailer brake.
9. Switch tractor protection valve (if fitted) to normal.
10. Check brake air pressure.
11. Reverse prime mover slowly until turntable jaws lock around kingpin and make sure that the head of the kingpin is not sitting on top of the jaws. Check that the coupling release lever is locked in position and there is no gap between the turntable and trailer skid plate and check the jaws are closed correctly.
12. Raise the landing gear approximately 25 mm.
13. Perform a tug test.
14. Fully raise landing gear and stow the handle.

Step 6: Final Check

1. Run the engine until the air pressure has reached its maximum in the air tanks.
2. Switch off the engine, apply the parking brakes, and turn on the hazard warning lights, side and tail lights.
3. Perform an inspection by walking around the truck and trailer listening for air leaks, and checking all trailer lights are operational.
4. Remove and stow wheel chocks.
5. Allow time for air ride systems to prime before moving off as substantial damage may occur if not in the full ride position – this may take time with some combinations eg B-double.

UNCOUPLING A TRUCK AND TRAILER

Step 1: Secure the Vehicle

1. Before uncoupling:
   - Make sure your truck and trailer are parked on a level area.
   - Ensure they are on a surface firm enough to support the trailer drawbar support leg if fitted.
   - Make sure the truck and trailer are in a straight line.

Step 2: Trailer Check

1. Apply park brake and truck/trailer protection valve.
2. Ensure trailer security by 'tug test' or chocking wheels.

Step 3: Uncoupling the Trailer

1. Lower drawbar support leg.
2. Disconnect and secure all hoses and cables.
3. Release towing connection.
4. Drive slowly forward.
5. Check mirrors to confirm disconnection.

COUPLING A TRUCK AND TRAILER

Note: These procedures may need to be varied.

Step 1: External Check According to Actual Vehicle Configuration and Manufacturer's Recommendations

1. Check coupling assembly including guide flange, towing and locking pins, and connections.
2. Check pin is in the coupling position.

Step 2: Secure the Trailer

1. Place chocks behind at least one wheel or if the trailer is equipped with spring brakes, the trailer brakes should already be on.

Step 3: Coupling the Trailer

1. Reverse truck close to, but not touching, the draw bar.
2. Check height and alignment of eye ring to coupling assembly, adjusting if necessary.
3. Reverse truck slowly until the towing system is locked or in position to be connected.

4. Perform a ‘tug test’.
5. Look to check the connection.
6. Connect air hoses and cables.
7. Raise drawbar support leg and stow (if fitted).

Step 4: Final Checks

1. Check brake air pressure.
2. Switch off engine and inspect by listening for airleaks, and checking all trailer lights are operational.
3. Remove and stow wheel chocks.

SECTION F: SPECIAL PURPOSE VEHICLES

- Special purpose vehicles
- Mobile cranes and drilling plants
- Concrete trucks – Agitators
- Fire engines
- Tankers
- Tow trucks
- Legal requirements for towing equipment

SPECIAL PURPOSE VEHICLES

All of the following types of vehicles have their own handling characteristics for their individual weight and size. Braking, cornering and steering are the main differences, and therefore, they should be driven with caution at all times. Generally they do not stop, steer or corner as well as other types of heavy vehicles.

Mobile Cranes and Drilling Plants

Mobile Cranes and drilling plants are completely different types of vehicles, but similar in the respect that they are vehicles built for a specific purpose.

Mobile Cranes are usually found in two configurations:

- Mobile Rough Terrain Cranes. This type of crane is driven and operated from the same cabin. It can be used as a static crane for lifting and lowering heavy objects, or as a mobile crane for moving objects short distances.
- Mobile Cranes. This type of crane has been purpose built on the rear of a large rigid vehicle. It is designated as a static crane only and should not be used in a mobile capacity.

Both vehicle types are usually equipped with a cable operated winch, and are governed by the *ACT Work Safety Act 2008,* further details of which can be found elsewhere in this book under the Tow Truck Section.

Drilling plants are vehicles that have had a drilling plant mounted (usually) to the rear of a large rigid vehicle. They are mostly used for drilling bores for water and sometimes oil. The drilling plant is often operated using a cable system, and the cable details should be clearly displayed on the plant. As for cranes, drilling plants are controlled by the *ACT Work Safety Act 2008*.

Both these types of vehicles have unusual handling, steering and braking characteristics and drivers of such vehicles should be aware that they are usually heavier than normal vehicles because of their type of construction. Additional care should be exercised when manoeuvring them because of their sheer weight, configuration and size.

Concrete Trucks - Agitators

Concrete trucks normally only carry wet concrete, which is mixed ready for pouring. Depending on the distance that the load has to be transported, the quantity of water that has been added to the mixture can vary greatly. The more water that is added, the heavier the load will be. Most of these vehicles carry extra water in a separate tank, which can then be added, where necessary, to the load at the point of delivery.

Most agitators are designed to hold a set number of cubic metres, so the bowls are usually fitted to a vehicle that is designed to carry that weight legally.

Because an agitator bowl is mounted above the vehicle's chassis, when loaded with wet concrete and the bowl is rotating, the centre of gravity of the vehicle is very high. This in turn creates a vehicle with distinct handling characteristics.

Special care should be taken when travelling around corners or across the sides of hills or embankments, as a vehicle with such a high centre of gravity could very easily roll over.

SPECIAL NOTE: Drivers should be aware that it is illegal to allow any substance (water/concrete) to spill onto the road surface.

Concrete-Pumpers: These vehicles are mobile pumping machines permanently mounted to the rear of a large rigid vehicle. They are used for pumping wet concrete into places which are awkward to reach, or high.

Fire Engines

A fire engine is usually a heavy duty high pressure water pump combined with a tank and storage compartments that are mounted onto a heavy vehicle chassis. These vehicles often have a high centre of gravity which tends to make them lean heavily while cornering. Most Fire Brigade Authorities conduct their own "in house" training for their drivers.

Tankers

Tankers are constructed in various forms to transport petroleum products, water, and various types of chemicals such as Liquefied Petroleum Gas (LPG) or acids. Others carry cement powder, flyash, lime, flour, carbon black and different types of grains. Generally, this type of tanker is just a large hollow tank on wheels, while others that are regularly transporting liquids are fitted with tank dividers, or baffles.

The reason for baffles is to stop the liquid from surging about while stopping, cornering etc, which would have a severe effect on the vehicle's handling characteristics.

Usually, petrol tankers are constructed in such a way that the tanker is made up of five or six tanks joined together. This allows the vehicle to carry various grades of petrol on the one trip. Because of the weight and handling problems, individual tank sections are usually filled to the Safe Fill Level (SFL) or left empty. The SFL is the maximum level for filling a liquid tanker and **MUST** not be exceeded, as most liquids need room to expand.

Tankers require careful loading to ensure that they comply with weight limits after loading. Multi-tank tankers are easier to load to the legal axle and overall weight limits, because an individual tank can be loaded, but the one next to it can be left empty to accommodate the required weight requirements.

Because of the possible changes to the handling characteristics of a tanker transporting liquids, companies generally only employ experienced drivers for these types of vehicles.

Drivers carrying petroleum goods, chemicals etc should be aware of the regulations required under the *Dangerous Goods (Road Transport) Act 2009* details of which may be found elsewhere in this book.

Tow Trucks

Another type of heavy vehicle that drivers need to be aware of is the tow truck. The Australian Capital Territory does not have a specific licence for tow truck operators or drivers, apart from the normal licence requirements for vehicle type and weight. However, should an ACT tow truck driver travel over the border into New South Wales to tow a vehicle back into the ACT, he or she will be required to comply with NSW laws.

For further information on NSW tow truck legislation, drivers should contact: NSW Roads and Maritime Services.

As with other specialist type vehicles, tow trucks, when towing or transporting another vehicle, have unusual handling characteristics. Due to the additional weight of a towed vehicle, braking distances will be much greater than under normal driving conditions.

Drivers of tow trucks should ensure that they are skilled in the art of attaching a vehicle correctly and safely to the rear of the truck and be aware of how to attach the safety chains. If the vehicle being towed requires that the rear end of the towed vehicle be lifted and not the front, then the steering wheel should be tied firmly, in such a way as to ensure that the front wheels track squarely behind the tow truck. Tow truck operators should **NOT** rely solely on a towed vehicle's steering lock to hold the steering wheel in position. The steering locks on some vehicles do not lock the steering wheel, or the front wheels of the vehicle in a straight-ahead position.

Some vehicles may require an all up lift. For this purpose most tow trucks now carry a compact steel frame fitted with small wheels, which is constructed especially for this purpose. It is the operator's responsibility to ensure that he has secured the towed vehicle in such a way that it cannot bounce or jump off the frame. As an all up lift frame is usually much wider than the towing vehicle, extreme care needs to be exercised while towing such a device.

SPECIAL NOTE: Emergency amber warning lights on a tow truck/break down vehicle should only be used where a vehicle could cause an obstruction or danger to other road users.

When towing a damaged vehicle with no lights operating, additional lights (tail light, stop light and indicator) connected to the towing vehicle's lighting system must be fitted to the rear of the towed vehicle. This is most important at night time, during dark overcast conditions, or in foggy or rainy weather.

When using an all up lift frame that is wider than the towing vehicle, the amber rotating lights should be left in operation.

Legal Requirements for Towing Equipment

The *Work Safety Act 2008* is the Act under which towing equipment on tow trucks is controlled.

The crane, jib or lifter cables etc **MUST** meet Australian Standard 1418.

The *Work Safety Act 2008* requires that the safe working load, and the wire rope diameter be clearly displayed on that area of the vehicle that the equipment is attached to.

Further information regarding the *Work Safety Act 2008* can be obtained by writing to the:

Chief Inspector
Occupational
Health and Safety Office

GPO Box 158
Canberra ACT 2601

SPECIAL NOTE: It is a legal requirement that all employers provide a safe working environment for their employees. This includes provision of safe equipment and protective clothing as is deemed necessary.

SECTION G: EMERGENCIES

- Emergencies
- Tyre failure
- Steering failure
- Skidding
- Emergency oil response group
- Crashes

EMERGENCIES

There are many types of emergencies. The most common are tyre blowout, brake fade or loss of brakes, fire, steering failure, breakdowns, a crash or an accident.

Whichever type of emergency you are confronted with, you need to be aware of how to cope with the situation.

TYRE FAILURE

Although not a common problem with modern tyres, tyre failure can cause a dangerous situation.

The most common causes of tyre failure are over or under inflation and tyre wall damage. For example if a tyre wall has been subjected to abuse or damage caused by hitting an object (such as a kerb), it is possible that the tyre may fail where that damage has occurred.

Tyres should be kept at the manufacturer's recommended inflation pressure. When travelling, the temperature build up can be significant in a tyre that is operated below its recommended pressure. If the tyre has been retreaded, the chances of the cap coming away from the case is amplified greatly as the temperature increases. This is one of the major reasons that recaps are marked with a maximum speed rating.

Tyre size is most important when fitting tyres to dual wheels that are side by side. Heat build up is created in the larger tyre, if a smaller tyre is running next to it. Where a dual tyre situation exists, drivers should ensure that the two tyres are unable to rub together in any circumstance.

If a tyre blows out or suddenly deflates the driver should grip the steering wheel firmly and attempt to slow the vehicle and stop in a straight line.

STEERING FAILURE

Steering failure is more likely to be caused by a flat tyre or a tyre blow out, than by mechanical failure, although mechanical failure is possible.

If a problem arises with the steering of a vehicle or if a driver feels that the steering is not responding the way it normally does, he or she should carefully bring the vehicle to a stop at the side of the road. It can then be inspected for problems, and repaired if necessary, before moving off again.

For vehicles fitted with power steering, the power pump may lose power or a pressure hose or connection may burst. Generally when this happens, the steering of the vehicle becomes extremely heavy, and the driver will need to bring the vehicle to a stop as quickly and carefully as possible at the side of the road.

When repairs have been effected, the vehicle will be safe to drive again.

Evasive Steering

Steering a heavy vehicle correctly and safely requires a lot of care. Generally, when an emergency arises, a driver's natural instinct is to apply the brakes as hard as possible. On vehicles without ABS, this action will lock the brakes on all wheels. Once the front brakes are locked on it is impossible to steer the vehicle. To regain steering ability, the driver will need to release the brakes until the wheels start to turn, then reapply the brakes to slow or stop the vehicle.

A driver who controls his or her actions in an emergency situation will retain steering control and generally be able to steer the vehicle around an obstruction and/or out of harm's way. It must be remembered though that if the steering wheel is turned violently, the vehicle may roll over, or the wheels may lose traction and slide off the road. Drivers need to be aware that it is very easy for the load to shift, which in turn can cause the driver to lose control of the vehicle.

Emergency Steering Technique

Quick turns can be made quite safely, if they are done in a sensible manner.

Some useful tips:

- Drivers should always use a steering method that allows an accurate and smooth steering system.
- Drivers should not brake hard while turning or cornering, as the wheels may lock and cause the vehicle to slide or skid. This can happen so quickly that the driver does not realise what is happening until he or she has lost control.
- Drivers should not turn the steering wheel any further than is required to avoid an obstacle or traverse a path. The more the steering wheel is turned, the more chance there is of losing control of the vehicle altogether.
- Drivers should be prepared to use counter steering in an emergency. Once a vehicle has been steered around an obstacle, counter steering takes place when the vehicle is steered back to its original direction and path. Counter steering also needs to be done smoothly to avoid tyre breakaway or rollovers.

SKIDDING

Skids occur when the tyres lose their grip on the road surface. Most skids result from driving too fast. They can be caused by:

- over steering and turning the wheels more sharply than is required to turn the corner;
- over acceleration or applying too much power to the drive wheels, in turn causing the tyres to lose their grip;
- over braking caused by driving into a corner too fast, or applying the brakes too hard and locking up the rear wheels.

Drivers who adjust their speed to the conditions don't need to over brake, over steer or over accelerate.

A skid caused by over acceleration can be controlled by the driver lifting his or her foot off the accelerator. This action allows the tyres to re-grip the road surface.The usual over-braking skid happens when the rear wheels lock up and the rear of the vehicle starts to slide sideways. The recovery technique to use is to turn the steering in the direction the vehicle is sliding. As the tyres start to re-grip the road, the driver can then steer back onto the original direction of travel.

With a prime mover and trailer, or truck and trailer, a drive wheel skid can be very difficult to control. The trailer will tend to push the prime mover/truck sideways, and will usually end up in a jack-knife position.

Front Wheel Skids

A front wheel skid occurs when the front wheels lock up under braking, and the vehicle travels straight ahead. The quickest way to recover from this situation is to release the brakes until the tyres re-grip the road surface and the front wheels start to turn again. It is then safe to gently reapply the brakes.

Wet, slippery or loose surfaces, combined with excessive speed are causes of front wheel skids. Other contributing factors are:

Rigid vehicle: Heavy load too far to the rear.

Semi-trailer: Heavy load too far to the front.

Sliding axle groups: Semi-trailer axle groups placed too far to the rear of the trailer.

Drive Wheel Skids

These usually occur because the brakes have been applied too hard or violently and the drive wheels lock up and slide sideways. A rigid vehicle will also slide sideways when the drive wheels lock up, but will be very difficult to control when a trailer is attached.

Loss of control in a semi-trailer can cause the trailer to push the prime mover sideways,

sometimes causing the vehicle to jack-knife. A jack-knife occurs when the trailer moves right around against the side or rear of the prime mover, or with a truck and trailer combination, the trailer moves right around against the side or rear of the towing vehicle. This type of skid can sometimes be controlled when the driver lifts his or her foot off the accelerator until the wheels re-grip the road surface.

To control this type of skid the driver will need to stop braking immediately and steer in the direction that he or she wishes to travel. A driver will usually find that the vehicle will steer back very quickly and will try to slide in the opposite direction. The driver will then need to counter steer very quickly to try and stop the slide.

Trailer Skids

A badly loaded vehicle, or one that is in the process of unloading as it does deliveries, will have very different braking characteristics to when it is fully laden or empty.

This can occur in a rigid vehicle with a heavy load too far forward or too far back, or in an articulated vehicle with a heavy load that is too far forward.

Many older vehicles are equipped with an adjustable proportioning valve to regulate the amount of air pressure transmitted to the trailer brakes. On later model trucks this valve generally operates automatically.

It is most important to readjust the proportioning valve, if fitted, after loading or unloading. Failure to adjust the valve after loading will result in inadequate pressure to the rear brakes. Under hard braking this can cause the prime mover brakes to lock on and jack-knife the rig. Similarly, not readjusting the valve after unloading may cause the trailer brakes to lock under hard braking.

Loss of Hydraulic Pressure or Fluid

Not all vehicles with hydraulic brakes are fitted with an emergency braking system. If the vehicle being driven is one of these, and the hydraulic system fails, the driver will need to bring it to a stop by some other means. Here are some tips to consider:

- change down a gear. This will help to slow the vehicle;
- pump the brake pedal. If enough fluid remains in the system, this may enable the build up of enough pressure to stop the vehicle;
- use the park brake. Park brake systems are independent of the footbrake system, so the driver may be able to slow the vehicle, or even bring it to a complete stop. Drivers should remember not to pull the park brake straight on. Hold the release toggle or button in the released position, or the wheels may lock on;
- when all else fails, and as a last resort, look for an escape route off the side of the road. Check for an embankment or cutting and aim for an area that will not cause the vehicle to roll or crash.

Brake Fade

What is brake fade?

Brake fade is caused when the brakes have had so much constant use that the whole system becomes hot, resulting in significantly reduced braking capacity. This can occur in spite of having a full and hard brake pedal.

Brake fade is mostly caused by an excessive amount of brake use or applications. A common practice by careless drivers is to drive down a long hill in a gear that is too high, with the engine compression doing little to control the speed of the vehicle. Riding the brakes in this situation will soon create brake fade. To overcome brake fade drivers will need to stop the vehicle until the whole brake system has completely cooled. The brakes may then require readjustment.

Many vehicles are equipped with brake savers such as engine or exhaust brakes. These devices should be used where possible, to relieve excessive use of the brakes.

Poorly Maintained and Serviced Brakes

An important part of all vehicles is the braking system. A vehicle that does not undergo regular maintenance or inspection of its braking systems could be a danger to all road users.

It is most important that the braking systems of all vehicles are regularly inspected and maintained so that they remain in a fully safe and serviceable condition.

Regardless of whether the system is equipped with hydraulics, air or vacuum, a systematic and regular service program will be of benefit in the long run.

EMERGENCY OIL RESPONSE GROUP

Transportation of oil and petroleum based products are a common occurrence in the community today. To cover any emergency that might arise, a special emergency response group has been established by local industry.

The Canberra and Region's Oil Industry Emergency Response Group has specialised equipment to cater for oil spills in the ACT. The group is a voluntary organisation formed by the oil distributors based at the major oil depots and terminals (Fyshwick and Queanbeyan) and petroleum product haulage contractors.

The group has specialised, fully equipped spill response trailers and a supply of back-up equipment to:

- **CONTAIN**
- **CONTROL**
- **CLEAN UP**

spills, leaks or escapes of petroleum products.

The group is available to assist the emergency services- UPON REQUEST - and can also assist with "**specialist advice**".

Canberra Oil Response Group:

Telephone (02) 6226 1752
or mobile 0428 627 777
www.croierg.com.au

The group is on call 24 hours a day seven days a week. For members only.

CRASHES

No driver wants or needs to be involved in a vehicle crash. Crashes can be avoided.

If a driver is involved in a crash causing death or injury to any person, or damage to any property, he or she MUST stop the vehicle.

A driver must give their name and address, and the name and address of the owner of the vehicle, together with the vehicle's details to:

- any other driver involved in the crash;
- any member of the Police;
- any injured person;
- anyone acting on behalf of any injured person;
- any person whose property has been damaged.

The Police need not be called to attend an accident if no one is killed or injured and damage to vehicles or property is only minor. Drivers should remember however, that **ALL** crashes **MUST** be reported to the police as soon as possible, or in any case within 24 hours.

As with a breakdown, if a driver's vehicle is obstructing traffic after a crash, unless someone has been killed or seriously injured, it should be moved to the side of or off the road. The law does not require the vehicle to be left where it stopped after a collision.

SECTION H: ROAD TRANSPORT AUTHORITY HEAVY VEHICLE LEARNER DRIVER STANDARDS

- Learner driver standards

ROAD TRANSPORT AUTHORITY HEAVY VEHICLE LEARNER DRIVER STANDARDS

The RTA has introduced a Standard to which heavy vehicle learner drivers will need to be instructed to and assessed by. The practical driving assessment is designed to assess a driver's competency to meet the RTA's Heavy Vehicle Learner Driver Standards. The Standard is divided into five (5) Sections comprising of 29 competencies, which includes all aspects of learning to drive vehicles from Light Rigid vehicles through to Heavy-Combination vehicles. The Learner Driver Standards also includes a competency (competency 29) for Load Securing.

The following transcript of the Learner Driver Standards has been included in this Handbook to assist drivers to gain the knowledge required to obtain a heavy vehicle driver licence.

SECTION 1. DRIVER AND VEHICLE READINESS

(Competencies 1 to 4)

SECTION 2. BASIC DRIVING SKILLS

(Competencies 5 to 12)

SECTION 3. INTERACTING WITH OTHER ROAD USERS

(Competencies 13 to 17)

SECTION 4. OPEN ROAD DRIVING

(Competencies 18 to 22)

SECTION 5. SPECIFIC ROAD AND VEHICLE SKILLS

(Competencies 23 to 29)

SECTION 1: DRIVER AND VEHICLE READINESS

Competencies

1. **Pre-Safety Check**
2. **Vehicle Controls**
3. **Pre-Driving Adjustments**
4. **Start and Stop Engine**

COMPETENCY NO. 1: PRE-SAFETY CHECK

PERFORMANCE: Inspect vehicle and load.

CONDITIONS: The following conditions are to apply:

- Vehicle parked and secured in a low level traffic area or off road area with safe access around the vehicle.
- Vehicle loaded to 60% of its capacity.

REQUIREMENTS: The driver will, identify, inspect and describe reasons for inspection of:

- Tyres, wheels and wheelnuts
- Fluid leaks
- Air leaks (after vehicle has been running for a short time)
- Couplings (where fitted)
- Loose/missing/broken fittings
- Vehicle posture
- Load security *(including appropriate and adequate ropes/chains and/or webbing straps for the vehicle load).*

COMPETENCY NO. 2: VEHICLE CONTROLS

PERFORMANCE: Locate, identify, describe the function of and operate all controls, gauges and warning lights.

CONDITIONS: The following conditions are to apply:

- Vehicle parked and secured in a low level traffic area or off road area.
- Assessor to state the required performance without nominating any controls.

REQUIREMENTS: The driver will, locate, identify, describe the function of and operate the following controls:

- Engine start & stop systems
- Indicators/hazard lights, (wig wag lights if applicable)
- Washers/wipers
- Monitoring devices (warning lights, air pressure warning system, buzzers)
- Gauges (fuel, oil pressure, alternator, temperature, tachometer, voltmeter, air pressure)
- Foot brake (move vehicle forward)
- Park brake (*check)
- Trailer brake (*check)
- Clutch (if applicable)
- Gear changing mechanisms (gear positions/neutral)
- Accelerator/throttle systems
- Steering wheel
- Horn(s)
- Air conditioning/heating/demisting systems
- All lighting controls
- In-cab suspension adjustments (if fitted)
- Passenger door operations /interlocks
- Passenger stop cords/buttons/ warning lights
- Other (as applicable to assessment vehicle)

NOTES: The driver must operate all of the above listed controls (if fitted) except for any item grouped under 'Other'. These items require the driver to locate, identify and describe the function and operation only.

The driver is to be assessed according to the controls fitted to the vehicle. If necessary, the assessor may prompt the driver on a maximum of four items.

- Using a low gear, bring the clutch to friction point to apply a load on the park or trailer brake.

COMPETENCY NO. 3: PRE-DRIVING ADJUSTMENTS

PERFORMANCE: Demonstrate all adjustments required to ensure safe, efficient and comfortable operation of vehicle.

CONDITIONS: The following conditions are to apply:

- Vehicle parked and secured
- Engine not running
- Driver in driver's seat
- Driver asked 'Are you ready to drive?'

REQUIREMENTS: The driver will demonstrate, once, the following checks and adjustments (if necessary)

- Seat adjustment for posture, comfort and operation of controls
- Control adjustment for posture, comfort and operation of controls
- Mirrors clean and adjusted for effective vision
- Storage of all loose articles
- Seatbelt correctly adjusted and fastened
- Windows and windscreen clean

NOTES: If adjustments are not carried out, the assessor is to judge whether the positioning is satisfactory without adjustment and score accordingly.

In a bus, all internal mirrors are to be set correctly for passenger monitoring.

COMPETENCY NO. 4: START AND STOP ENGINE

PERFORMANCE: Demonstrate engine start and shut down procedures.

CONDITIONS: Unannounced in typical driving situations.

REQUIREMENTS: The driver will perform the following tasks once:

Starting the engine:

- Ensure park brake is applied
- Ensure auxiliary brakes are off
- Ensure gearbox is in neutral/park (auto)
- Diesel – push in Bowden Cable (if fitted) – switch on start heater (if fitted and required) – allow to warm (if required)
- Petrol – set accelerator and choke to recommended positions
- Depress clutch pedal

- Switch on circuit power, checking gauges, warning lights and buzzers
- Activate the starter
- Recheck gauges and warning lights

Shutting down the engine:

- Apply the park brake
- Select neutral/park (auto)
- Diesel – allow engine to idle (if required) – Bowden Cable to stop (if fitted) – stop engine
- Petrol – stop engine

NOTES: Procedure may vary for particular vehicles and/or fuel systems. (eg after shutting down the engine the final gear position will depend on the vehicle type)

SECTION 2: BASIC DRIVING SKILLS

Competencies

5. **Leave and Return to Kerb**
6. **Steering Control**
7. **Braking**
8. **Indicate**
9. **Lane Positions**
10. **Left and Right Turns at Intersections**
11. **Gear Changing**
12. **Stop and Start on Inclines**

COMPETENCY NO. 5: LEAVE AND RETURN TO KERB

PERFORMANCE: Demonstrate moving off from and returning to the kerb safely while maintaining full vehicle control.

CONDITIONS: The following conditions are to apply:

- Vehicle parked adjacent to kerb in a low level traffic area, with no overhanging obstructions, preferably free of parked cars.
- Engine running, park/trailer brake on.

REQUIREMENTS: The driver will perform the following tasks once:

Moving off from kerb:

- Close all doors
- Depress clutch, select gear (manual)
- Place foot on brake, select drive (auto)
- Check all mirrors
- Indicate
- Apply appropriate throttle
- Release clutch to friction point and hold
- Check all mirrors and left/right blind spot
- Release park/trailer brake
- Gently release clutch
- Accelerate smoothly
- Steer vehicle out from kerb
- Cancel indicator
- Check mirrors

Returning to kerb

- Check all mirrors
- Indicate
- Apply foot brake
- Depress clutch slightly above stalling
- Stop smoothly, parallel and close to kerb
- Apply park brake
- Select neutral/park (auto)
- Release clutch and foot brake
- Cancel indicator

NOTE: Assessor to assess the timing of park/trailer brake release.

COMPETENCY NO. 6: STEERING CONTROL

PERFORMANCE: Demonstrate steering control.

CONDITIONS: The following conditions are to apply:

- Kerbed road (or road with clearly defined edge to seal or edge markings)
- Sections of straight and sweeping curves in a low level traffic area with intersections.
- Posted speed limit 80km/h or less and driving speed limited to a maximum of 60km/h by a direction from the assessor.

REQUIREMENTS: The driver will, for a minimum of three (3)km:

Maintain steering control by:

- Placing both hands on the wheel except when operating controls
- Placing hands in an acceptable steering position
- Using 'hand over hand' or 'push – pull' steering technique
- Maintaining a flexible driving posture

Maintain a steady course on straight and curved roads:

- Without over or under correcting
- With minimal, smooth, and non-erratic corrections

NOTES: Acceptable steering positions are either 'ten to two', 'quarter to three' or 'twenty to four'.

Deviations due to road or traffic conditions are to be accepted.

During low speed manoeuvres, 'Palming' is acceptable provided full control of the vehicle is maintained.

COMPETENCY NO. 7: BRAKING

PERFORMANCE: Demonstrate controlled and safe braking to a stop at a specified point.

CONDITIONS: The following conditions are to apply:

- Open level road, low level traffic, allowing speeds to 60km/h.
- Inside lane or sealed verge available for stopping.
- Recognisable stopping points (power pole, tree, etc).

REQUIREMENTS: The driver will demonstrate normal braking to a complete stop from approximately 20km/h, then again from approximately 40km/h, and during these manoeuvres will:

- Check mirrors for traffic (and passenger security – bus only)
- Indicate
- Slow evenly and smoothly
- Maintain control of the vehicle

- Not skid or slew
- Select appropriate gears
- Maintain an appropriate steering line
- Stop at the nominated point

NOTES: This is not an emergency stop but a demonstration of controlled braking and the stopping points are to be selected accordingly.

COMPETENCY NO. 8: INDICATE

PERFORMANCE: Demonstrate consistent indicating both when legally required and when appropriate for safe or efficient movement of traffic.

CONDITIONS: A continuous drive including the following road and traffic conditions:

- Suburban streets and urban through roads
- Roundabouts
- Leaving and returning to the kerb
- Frequent turns to left and right

REQUIREMENTS: The driver will, without error, indicate for 20 consecutive required signalling events:

- When legally required to do so
- When diverging or merging for more than one metre
- To the intended direction
- At least 60 metres before turning (unless confusing, or other circumstances prevail)
- Only when required
- Continuing to indicate until the vehicle is in a new road position
- Cancelling within five (5) seconds of being in the new road position

NOTES: The assessor is to exercise discretion, according to the particular situation, whether a self cancelled signal should be re-activated.

COMPETENCY NO. 9: LANE POSITIONS

PERFORMANCE: Demonstrate compliance with lane markings.

CONDITIONS: Road(s) providing the following lane conditions:

- No lane markings.
- Single marked lane (broken or unbroken in each direction).
- Multiple clear lanes Left and Right (two or more lanes in travel direction suitable for

driving in the required lane).

- Two sections per lane condition with the first and second sections to be separated by at least 200 metres of a different lane condition.

REQUIREMENTS: The driver will, for at least 500 metres per section:

- Maintain an appropriate steady course on straight and curved sections of road

NOTES: Driver may be requested to move, when safe to do so, into lanes required for assessment.

Deviations, appropriately executed, from staying within lane markings, are to be accepted where the dimensions and swept turning area of the vehicle makes it essential for part of the vehicle to cross road markings to negotiate the required course.

COMPETENCY NO. 10: LEFT AND RIGHT TURNS AT INTERSECTIONS

PERFORMANCE: Demonstrate safe and legal road positions during left and right turns.

CONDITIONS: Roads, with the following intersections (not roundabouts) with left and right turn conditions:

- Single lane or no marked lanes to same,
- To double/triple marked lanes
- From double/triple marked lanes

REQUIREMENTS: The driver will negotiate five (5) left and right hand turns:

APPROACHING THE INTERSECTION:

Left Turn

(for vehicles under 7.5m or not displaying 'DO NOT OVERTAKE TURNING VEHICLE' sign)

- Keeping vehicle entirely within left turn lane boundaries, and
- Where unlaned, adopt a line as near as practicable to the left boundary of the carriageway.

(*for vehicles over 7.5m long and displaying 'DO NOT OVERTAKE TURNING VEHICLE' sign)*

- Approach the intersection to discourage inside lane-sharing by other vehicles.
- Keep the vehicle adequately to the left to efficiently complete the turn.

Right Turn

(*for vehicles under 7.5m or not displaying, 'DO NOT OVERTAKE TURNING VEHICLE' sign)*

- Keeping vehicle entirely within right turn lane boundaries, or
- Right turn line of traffic (to the left of, and as near as practicable to the centre of, the carriageway).

(for vehicles over 7.5m long and displaying 'DO NOT OVERTAKE TURNING VEHICLE' sign)

- Where there are two right turn lanes, turning from the left lane.
- If a one way street, keeping the vehicle adequately to the right.

EXITING THE INTERSECTION:

Left Turn

- Into a lane or unmarked carriageway with due regard for prevailing traffic conditions, parked vehicles, or an upcoming right hand turn.
- Where arrowed, into the lane corresponding to the lane from which the turn was entered.
- Not lane-share excessively.
- Not unnecessarily cross the centre of the road on entry or exit.

Right Turn

- When practicable, into the line or lane of traffic to the left of centre of the carriageway.
- Where arrowed, into the lane corresponding to the lane from which the turn was entered.
- Not lane-share excessively.
- Not unnecessarily cross the centre of the road on entry or exit.

COMPETENCY NO. 11: GEAR CHANGING

PERFORMANCE: Demonstrate smooth efficient gear changing and gear selection according to road and traffic conditions, and speed and vehicle requirements.

CONDITIONS: Roads with the following conditions:

- Posted speed limit 80km/h or less.
- Intersections requiring stopping, slowing and turning.
- Without (or with minimal) steep inclines and descents.

REQUIREMENTS: The driver will, for 20 successive gear changing events:

- Change gears smoothly and efficiently (assessor to allow up to two (2) mischanged gears, provided they are effectively managed)

- Select step or skip shifts according to road and traffic situations
- Always be in an appropriate gear (for the road speed, terrain, traffic and engine speed, and engine efficiency)
- Double de-clutch a non-synchromesh gearbox – Not double de-clutch a synchromesh gearbox (or as recommended by gearbox manufacturers)
- Not coast in neutral or in gear (ie with the clutch disengaged – feathering to allow some mismatch between revs and speed when slowing is acceptable)
- Demonstrate progressive rpm selection (low rpm for low gears to higher rpm for higher gears).

NOTES: A gear changing event is a location at which gear changing is required and one event may comprise several gear changes. Manufacturers requirements apply. Clutchless changing is not acceptable.

COMPETENCY NO. 12: STOP AND START ON INCLINES

PERFORMANCE: Demonstrate controlled, smooth, safe stopping against the kerb and leaving the kerb on ascending and descending roads.

CONDITIONS: The following conditions are to apply:

- Vehicle loaded to 60% of its capacity.
- Road with low level traffic, inside lane with kerb or distinct edge and available for drawing into or parking.
- Moderate inclines and descents.

REQUIREMENT: The driver will, when ascending and descending, draw into the kerb and stop the vehicle and then (when directed by the assessor) leave the kerb and continue driving along the road. During these procedures the driver will:

- Check all mirrors
- Indicate
- Stop parallel to kerb/road and with wheels within 400mm of kerb/road edge
- Secure vehicle when stopped
- Not roll back when leaving kerb
- Not roll forward in neutral or coast with the clutch depressed
- Operate all controls smoothly and efficiently
- Conduct the manoeuvres with due regard for the safety and convenience of other road users

SECTION 3: INTERACTING WITH OTHER ROAD USERS

Competencies

13. **Controlled Intersections**
14. **Observation and Pedestrian Awareness**
15. **Safety Cushion**
16. **Anticipation and Speed**
17. **System of Vehicle Control**

COMPETENCY NO. 13: CONTROLLED INTERSECTIONS

PERFORMANCE: Demonstrate compliance with, and drive safely and efficiently through, intersections controlled by traffic lights and regulatory signs.

CONDITIONS: Roads with limited traffic containing intersections with:

- Traffic lights or stop signs (both to be used where available)
- Give way signs, including at roundabouts

REQUIREMENTS: The driver will demonstrate safe, efficient and legal negotiation of controlled intersections (as listed above) and in particular will:

- Stop as near as practicable to, but with no part of the vehicle over the stop line, at a stop sign or when first vehicle at red traffic lights
- Approach traffic lights and give way signs at an appropriate speed, being prepared to stop, if necessary
- Slow, stop and accelerate smoothly, retaining full control of vehicle
- Give way to other traffic, where necessary
- Not unnecessarily:
  - give way to other traffic
  - delay other traffic
  - obstruct other traffic
  - intimidate pedestrians

COMPETENCY NO. 14: OBSERVATION AND PEDESTRIAN AWARENESS

PERFORMANCE: Demonstrate continuous forward scanning and regular observation to sides and rear of vehicle and an awareness of pedestrian activity.

CONDITIONS: Roads with the following conditions:

- Varying road and traffic conditions.
- Road(s) containing uncontrolled pedestrian and/or school crossings (at operative times).
- Areas of pedestrian activity.
- Assessment unannounced by assessor

REQUIREMENTS: For a minimum of 5kms, the driver will:

SCANNING

- Scan continuously to:
  - Both left and right
  - Short, middle and long distance
- Regularly monitor left and right hand mirrors
- Regularly monitor internal mirrors (bus only)
- Operate controls without diverting attention from the road and traffic conditions

PEDESTRIAN/SCHOOL CROSSINGS

The driver will also demonstrate safe, efficient and legal negotiation of all crossings, and an awareness of pedestrians in areas of pedestrian activity. In particular the driver will:

- Be prepared to stop if necessary at pedestrian crossings, and/or school crossings by decelerating, covering the brake pedal, etc.
- Approach areas of pedestrian activity at an appropriate speed, covering the brakes and being prepared to stop if necessary

NOTES: Areas of pedestrian activity include:

- Shopping centres
- Schools
- Sporting facilities
- Playgrounds
- Pedestrians walking on the roadway

COMPETENCY NO. 15: SAFETY CUSHION

PERFORMANCE: Demonstrate continuous adjustment of road position to maintain a safe distance from vehicles and obstacles to the front and at the sides.

CONDITIONS: The following conditions are to apply:

- Varying roads (laned and unlaned) and medium level traffic conditions.
- Assessment unannounced by assessor.

REQUIREMENTS: The driver will, for a minimum of 5km:

- Maintain a four (4) second gap behind the vehicle directly in front (increasing in adverse conditions)
- Maintain at least 1 (and preferably 2) metres of space to the side from parked cars
- Allow at least three (3) to five (5) metres of space to the vehicle in front when stationary
- Approach a stationary vehicle in front with caution

AND ON AN UNLANED ROAD:

- Drive in the main carriageway
- Drive to the left of centre of the road so as to maintain adequate clearance from oncoming vehicles
- Not unnecessarily cross the centre of the road

COMPETENCY NO. 16: ANTICIPATION AND SPEED

PERFORMANCE: Anticipate and respond to varying traffic, road and roadside conditions by adjusting to a safe, legal and appropriate speed.

Demonstrate consistent driving at a reasonable, but safe and legal, speed.

CONDITIONS: The following conditions are to apply:

- Road with varying speed zones of 40, 60, 80 and 100km/h.
- Varying road conditions, medium level traffic, allowing travel at or close to the posted speed limit with varying roadside conditions and activity.
- Advisory speed sign (one (1) minimum).
- Assessment unannounced by assessor.

REQUIREMENTS: The driver will, for a minimum of 5km:

ANTICIPATION

- Adjust speed and/or cover brake (as appropriate) in response to actual changes in traffic, road or roadside conditions which warrant adjustment to continued safe driving

SPEED

- Drive at a safe speed for the road and traffic conditions
- Not exceed the posted or vehicle speed limit
- Not exceed advisory sign speeds
- Not unnecessarily slow other traffic
- Demonstrate ability and confidence to drive close to the speed limit when safe to do so

NOTES: Examples of anticipation include:

- Be prepared to stop at traffic lights, even if currently green.
- Adjusting speed for a blind corner.
- Seeing that a pedestrian is likely to step onto a pedestrian crossing and preparing to stop.
- Changing lanes to allow space for entering traffic.

COMPETENCY NO. 17: SYSTEM OF VEHICLE CONTROL

PERFORMANCE: Habitually practice the system of vehicle control.

CONDITIONS: The following conditions are to apply:

- Road hazard, (a road feature which will either cause the driver to change speed or direction or has the potential to cause a change of speed or direction).
- Assessment unannounced in typical driving situations.

REQUIREMENTS: The driver will safely negotiate a road hazard:

THE APPROACH

- Course selected (observing/deciding/selecting correct line of approach)
- Mirrors/ and signal (check for following traffic and overtaking traffic and to signal intention to other road users)
- Brake (to reduce speed to a safe rate of approach to arrive at the hazard)

DECISION POINT – STOP OR GO? – DECISION TO GO

- Gear and mirrors (select an appropriate gear for flexible control, check blind-spots and for following and overtaking traffic)
- Evasive action (avoid or negotiate the situation/hazard as applicable)
- Normal acceleration (leave the hazard safely having regard to the road surface and traffic conditions)
- Check mirrors

SECTION 4: OPEN ROAD DRIVING

Competencies

18. **Curves and Bends**
19. **Brake – Open Road**
20. **Accelerate – Open Road**
21. **Hills and Bends**
22. **Open Highway**

COMPETENCY NO 18: CURVES AND BENDS

PERFORMANCE: Select legal, safe and controlled positions and speeds for entering, negotiating and leaving curves and bends.

CONDITIONS: Roads with the following conditions:

- Road with left and right curves and bends.
- Clearly marked lanes.

REQUIREMENTS: The driver will safely negotiate 10 consecutive curves and bends and, in particular, will:

- Adjust to an appropriate speed and gear prior to entering curve
- Maintain an appropriate speed during the curve
- Position the vehicle in the curve to avoid the rear of the vehicle sweeping out of the lane
- Observe and check mirrors, as required
- Competently and smoothly operate the controls throughout
- At all times give due regard to prevailing road and traffic conditions

NOTES: A roundabout may be included on the section of road used, but must not be included in the count of ten consecutive curves and bends.

Travelling through intersections is acceptable when assessing this competency.

COMPETENCY NO. 19: BRAKE – OPEN ROAD

PERFORMANCE: Demonstrate smooth and efficient normal slowing and stopping from open road speed.

CONDITIONS: The following conditions are to apply:

- Vehicle loaded to 60% of its capacity.
- Open road with 80km/h minimum limit and no traffic to restrict slowing.
- Suitable safe, firm, sealed roadside area in which to draw into and stop.

REQUIREMENTS: The driver will demonstrate normal slowing and stopping of the vehicle from open road speed in a safe, designated area and, in particular, will:

- Smoothly and efficiently operate all controls (throttle, clutch, gear changes, etc)
- Demonstrate system driving (including observation, indicating etc)
- Adopt suitable road/lane position
- Not obstruct other traffic
- Safely execute the manoeuvre

NOTES: The assessor is to select a suitable traffic-free opportunity for the driver to brake in an area to be defined by the assessor. If traffic interferes, the applicant misunderstands the requirement, or the notice is too short, then the exercise is to be repeated.

COMPETENCY NO. 20: ACCELERATE – OPEN ROAD

PERFORMANCE: Demonstrate smooth and competent normal acceleration to open road speed.

CONDITION: The following conditions are to apply:

- Vehicle loaded to 60% of its capacity.
- Open road with 80km/h minimum speed limit and no traffic restricting acceleration.
- Safe roadside area from which to commence acceleration.

REQUIREMENTS: The driver will demonstrate a normal driving acceleration from stationary to open road speed and, in particular, will:

- Smoothly and efficiently operate all controls (throttle, clutch, gear changes etc.)
- Safely leave the stationary position (observation, indicating etc.)
- Adopt suitable road/lane positions
- Achieve a speed close to the posted speed limit when safe to do so
- Not exceed the vehicle or road speed limit

NOTES: The assessor is to select a suitable traffic-free opportunity for the driver to accelerate to open road speed. If traffic interferes, the exercise is to be repeated.

COMPETENCY NO. 21: HILLS AND BENDS

PERFORMANCE: Demonstrate safe and competent driving on roads with frequent bends and changes of grade.

CONDITIONS: The following conditions are to apply:

- Vehicle loaded to 60% of its capacity.
- Road conditions with frequent bends and changes of grade.

REQUIREMENTS: The driver will, for a minimum of 5km, while driving under the nominated conditions:

- Competently and efficiently operate all controls (throttle, brake, clutch, gears etc)
- Drive to the posted speed limits at safe and comfortable road speeds for the road, traffic and vehicle conditions
- Adopt suitable road positions (on curves, crests, straights, etc)
- Not unnecessarily use auxiliary brakes in traffic

COMPETENCY NO. 22: OPEN HIGHWAY

PERFORMANCE: Demonstrate safe, controlled and efficient driving on the open highway.

CONDITIONS: The following conditions are to apply:

- Vehicle loaded to 60% of its capacity.
- Straight (or with minimal curves) flat sealed open road;
  - 90km/h minimum speed limit,
  - nil or infrequent intersections,
  - freeway or dual carriageway preferred, otherwise a major lane-marked highway.

REQUIREMENTS: The driver will, for a minimum of 5km, while driving under nominated conditions:

- Competently and efficiently operate all controls
- Adopt suitable lane positions
- Keep to the left except when overtaking or allowing merging
- Maintain a safe buffer zone to other vehicles
- Maintain legal separation distance from other vehicles

- Maintain speeds close to vehicle and/or posted speed limits when safe and reasonable to do so
- Maintain concentration and observation throughout

SECTION 5: SPECIFIC ROAD AND VEHICLE SKILLS

Competencies

23. **Loading Bay/Driveway**
24. **Reversing**
25. **Uncouple Semi-Trailer (HC Only)**
26. **Couple Semi-Trailer (HC Only)**
27. **Uncouple Truck and Trailer (HC Only)**
28. **Couple Truck and Trailer (HC Only)**
29. **Load Securing**

COMPETENCY NO. 23: LOADING BAY/DRIVEWAY

PERFORMANCE: Demonstrate safe, accurate reversing into, and exiting from a loading bay or driveway.

CONDITIONS: The following conditions are to apply:

- A low level traffic area. Clear of pedestrian activity.
- Straight wide road with driveway(s) or loading bays to the right.
- Exercise access limit is not to exceed one and a half full vehicle widths.

REQUIREMENTS: The driver will:

When reversing into the nominated loading bay/driveway

- Operate the hazard lights
- Stop beyond the driveway and reverse to a position:
  - Central and parallel in the loading bay/driveway
  - If possible, reverse fully into the driveway
- Not exceed one forward correction (2 corrections allowed for HC)

When exiting the loading bay/driveway

- Cancel the hazard lights
- Indicate
- Select appropriate exit course

In general

- Competently operate controls throughout
- Pay due regard to traffic on road and driveway
- Drive with doors shut
- Not mount kerb or strike obstruction

NOTES: The driver may exit the vehicle once during the exercise to inspect the vehicle position.

COMPETENCY NO. 24: REVERSING

PERFORMANCE: Demonstrate safe and accurate reversing in a straight line.

CONDITIONS: The following conditions are to apply:

- Straight, level road with marked edge line or clearly defined straight seal edge, free of parked vehicles or other obstructions.
- Non-traffic or low level traffic area.
- Clear of pedestrians.

REQUIREMENTS: The driver will reverse the vehicle four (4) vehicle lengths and, in particular, will:

- Operate hazard lights
- Maintain observation for traffic
- Not have any wheel cross the edge line (or seal edge, or kerb)
- Not make any forward adjustment (articulated vehicles may make one (1) forward adjustment)
- Secure the vehicle at the conclusion of the exercise
- Switch off hazard lights

NOTES: No time limit is set. The driver may stop the vehicle during the exercise but is not to alight from the vehicle.

It is suggested that the assessor nominates a suitable marker to which the driver has to reverse to eg a pole, tree etc.

COMPETENCY NO. 25: UNCOUPLE SEMI-TRAILER (HC ONLY)

PERFORMANCE: Demonstrate uncoupling of an articulated vehicle (semi-trailer).

CONDITION: The following conditions are to apply:

- Vehicle parked and secure in a straight line.
- Firm level non-traffic area.
- Safe pedestrian access around the vehicle.
- If required, use wheel chocks and suitable strong timber or flat supports.

REQUIREMENTS: The driver will, and during the procedure:

- Apply park brake and tractor/trailer protection valve
- Ensure trailer security (by 'Tug test' or chocking wheels)
- Lower landing gear ensuring firm and even contact with the ground
- Raise the trailer until a gap is visible at the fifth wheel
- Secure handle
- Release turntable jaws
- Move prime mover forward slowly until the fifth wheel is just clear of the skid plate
- Apply prime mover park brake
- Ensure semi-trailer supports its own weight
- Disconnect and secure all hoses and cables
- Drive slowly away
- Ensure driver's door is closed whenever vehicle is moving
- Conduct all procedures safely and efficiently

NOTES: Procedure may be varied according to actual vehicle configuration.

COMPETENCY NO. 26: COUPLE SEMI-TRAILER (HC ONLY)

PERFORMANCE: Demonstrate coupling of an articulated vehicle (semi-trailer)

CONDITIONS: The following conditions are to apply:

- Prime mover and trailer uncoupled and secure.
- Prime mover behind trailer.
- Firm level non-traffic area.
- Safe pedestrian access around vehicle.

- If required, use wheel chocks and suitable strong timber or flat supports.

REQUIREMENTS: The driver will, and during the procedure:

- Check the king pin, turn-table and its lubrication, jaws, airlines, leads and connections
- Check jaws are open
- Ensure trailer is secure
- Position prime mover just forward of trailer, check entry alignment and that prime mover will clear trailer (two positioning adjustments are allowed)
- Reverse prime mover under trailer (skid plate not yet over turntable)
- Check and adjust the height of skid plate to turntable (to slightly lift trailer on connection)
- Secure the handle
- Connect air-hoses and cables
- Apply trailer brake
- Switch tractor protection valve (if fitted) to normal
- Check brake air pressure
- Reverse prime mover slowly until turntable jaws lock around king pin
- Check that coupling release lever is in locked position and there is no gap between turntable and trailer skid plate, check jaws are closed correctly
- Raise the landing gear approximately 25mm.
- Perform 'Tug Test'
- Fully raise landing gear and stow handle
- Switch off engine and conduct a walk around inspection, listening for air leaks, stowing chocks and checking all trailer lights (assessor may assist under driver direction)
- Conduct all procedures safely and efficiently

NOTES: Procedure may be varied according to actual vehicle configuration.

COMPETENCY NO. 27: UNCOUPLE TRUCK AND TRAILER (HC ONLY)

PERFORMANCE: Demonstrate uncoupling a heavy vehicle combination (truck and trailer).

CONDITION: The following conditions are to apply:

- Vehicle parked and secure in a straight line.
- Firm level non-traffic area.
- Safe pedestrian access around the vehicle.
- If required, use wheel chocks and support leg packing.

REQUIREMENT: During the procedure the driver will:

- Apply park brake and tractor/trailer protection valve
- Ensure trailer security (by 'Tug test' or chocking wheels)
- Lower draw bar support leg
- Disconnect and secure all hoses and cables
- Release towing pin catch
- Raise towing pin with handle (locking handle to the up position)
- Drive slowly forward
- Check mirrors to confirm disconnection
- Conduct all procedures safely and efficiently

NOTES: Procedure may be varied according to actual vehicle configuration.

COMPETENCY NO. 28: COUPLE TRUCK AND TRAILER (HC ONLY)

PERFORMANCE: Demonstrate coupling of a heavy vehicle combination.

CONDITIONS: The following conditions are to apply:

- Truck and trailer uncoupled and secure.
- Truck behind trailer.
- Firm level non-traffic area.
- Safe pedestrian access around vehicle.
- If required, use wheel chocks and suitable strong timber or flat supports.

REQUIREMENTS: During the procedure the driver will:

- Check coupling assembly including guide flange, towing and locking pins and connections
- Check pin is in coupling position
- Reverse truck close to, but not touching, the draw bar
- Check height and alignment of eye ring to coupling assembly, adjusting if necessary
- Reverse truck slowly until the towing pin locks into the eye ring
- Visually check towing pin engagement
- Perform 'Tug Test'
- Connect air-hoses and cables
- Apply trailer brake
- Raise draw-bar support leg and stow
- Check brake air pressure
- Switch off engine and conduct a walk around inspection, listening for air leaks, stowing chocks and checking all trailer lights (assessor may assist under driver direction)
- Conduct all procedures safely and efficiently

NOTES: Procedure may be varied according to actual vehicle configuration.

COMPETENCY NO 29: LOAD SECURING

PERFORMANCE: Demonstrate the common methods of securing a load to confirm ability to check, and if necessary, adjust load restraints.

CONDITIONS: The following conditions are to apply:

- Vehicle parked and secured. Engine not running.
- Non traffic area.
- Safe pedestrian access to all sides of the vehicle.
- Vehicle with a load (minimum height one (1) metre).
- Tray configuration with coaming rails.
- Load in place but not secure.
- Sufficient rope, chains and binders, winches/ratchets and straps.

OR

- A simulated vehicle tray, equipped as above, for assessment of this competency.

REQUIREMENTS: The driver will, to the *Load Restraint Guide* (LRG):

- *Demonstrate placing, securing, tidily stowing and removing one each of the following types of load restraints,*

and

- *Describe placement of a full set of each of the restraints which would be required to fully secure the load.*

- Ropes (truckies hitch, single or double shank/hitch) (LRG page 42)
- Chains and dogs (load binders) (LRG pages 41 to 43)
- Winches and straps (webbing belts), or Ratchets and straps (webbing belts)

NOTES: A maximum of 15 minutes is to be allowed for the completion of this section of a heavy vehicle assessment.

During the dog and chains exercise, the correct positioning of the chain on the vehicle tie-down rail must be demonstrated. A cheater bar is not to be used during this exercise.

The driver must be able to relate the maximum capacity rating for each load restraint required to restrain the load without friction.

The load securing competency section is to be considered a failure where the driver is:

i. unable to complete the section in the time allowed;

ii. unable to successfully demonstrate the correct procedures for any load securing competency;

iii. unable to correctly tension any of the load restraints.

SECTION I: FUEL EFFICIENCY

- Fuel efficiency
- Fuel efficient driving and maintenance tips – Heavy vehicles
- Road and traffic
- Improving behaviour
- Hints on driving techniques
- Vehicle configuration and design
- Aerodynamic drag
- Vehicle maintenance
- Further information

FUEL EFFICIENCY

Fuel Efficient Driving and Maintenance Tips – Heavy Vehicles

This section highlights a number of opportunities for vehicle fleet managers and drivers to reduce fuel consumption and help the environment by reducing pollution and greenhouse gas emissions from vehicle exhausts.

Greater fuel economy will not only reduce greenhouse gas emissions, it will also reduce driving costs and increase profitability.

Hence it makes good common sense to implement some basic fuel conservation measures. It is important that both fleet managers and drivers understand the simple choices open to them.

Factors affecting fuel economy:

- Road and traffic conditions
- Driver behaviour and education
- Vehicle configuration and design
- Aerodynamic drag
- Vehicle maintenance
- Improving engine technology and using alternative fuels.

Following these tips should help drivers to reduce fuel consumption and also help the environment by reducing pollution and greenhouse gas emissions from their vehicles' exhaust.

Road and Traffic

There is a considerable difference between fuel consumption of an isolated vehicle, and the fuel consumption of the same vehicle in a traffic stream.

Estimates suggest that if peak traffic conditions can be avoided, a potential fuel saving of 6% is achievable.

Research conducted by Shell (UK) found that there are savings in introducing limits on the top speed of commercial vehicles.

Increasing speed from 100 to 110km/hr can increase fuel consumption by 14%.

Reducing speed from 100 to 90km/hr can reduce fuel consumption by 12%.

Another area in which it is possible to achieve more economical use of fuel is providing better route guidance for drivers on a road network.

Some tests suggest that 4% of route kilometres are unnecessary.

Improving Behaviour

- Aggressive driving can increase fuel consumption by nearly 30% with only a 10% increase in average speed.
- Anticipate conditions ahead so that braking is minimised. Drivers, do not accelerate to a higher speed than required if you must later slow or stop – every time brakes are applied, energy extracted from the fuel is dissipated.
- Avoid stopped delays – fuel used idling is unproductive and, when accelerating after stopping, increased energy must be extracted from the fuel.
- A major parcels company in the UK carried out a training exercise with 31 drivers. All returned better fuel consumption, while the average improvement was nearly 15%, with no increase in journey time. These improvements were achieved with the use of cruise speed control, speed governing and fuel consumption meters.

Hints on Driving Techniques

- Start up/warm up – start with no throttle, idle until full oil pressure is indicated, maintain low engine speed until water temperature begins to rise
- Ease up to full speed – use only enough revs to keep truck moving and to reach the next gear smoothly
- Watch the tachometer – fuel efficiency is normally greater when engine speed (rpm) is slightly above where maximum torque is produced
- Downshifting – let the engine pull down to torque speed before selecting lower gear. Lower rpm means lower fuel consumption
- Avoid jerky patterns of acceleration and deceleration – too sudden acceleration results in incomplete fuel combustion, and heavy exhaust smoke
- Don't accelerate downhill – in many diesel trucks when the wheels are 'pushing' the vehicle on a downhill grade, there is almost complete shut-off of fuel to the engine. But don't coast in neutral – it's unsafe and can damage brakes and transmission
- Do not speed – besides being unsafe and illegal, it is more wasteful on fuel than all other bad habits combined
- Drive smoothly – protracted passing squanders fuel
- Do not drive tired – the tired driver is erratic and unsafe, usually ignores gauges and gear changes
- Use accessories, such as air conditioners, only when necessary.

Vehicle Configuration and Design

The main factors affecting fuel consumption are:

- Mass (or weight)
- Height and shape
- Vehicle components and tyres
- Engine/vehicle accessories

The selection of truck is an important decision of the fleet manager

- A truck that is too large will carry needless tare weight
- A truck that is too small may overwork the engine and overload the chassis

Increasing pay load can result in substantial fuel savings. Fuel consumption does not increase in proportion with load. While consumption will increase, it is nothing compared with the cost of an extra trip.

Steel belted radial and low profile tyres can reduce rolling resistance of a vehicle. Trials have shown fuel savings of 4-8%, compared with cheaper alternatives. Incorrect tyre pressure can increase fuel consumption.

Engine and vehicle modifications that have an impact include:

- Turbocharging
- Intercooling/aftercooling reduced axle ratios
- Environmentally friendly (eg engine powered, nitrogen gassed).

Aerodynamic Drag

While a vehicle cannot be completely streamlined to eliminate aerodynamic drag, there are some ways to reduce it.

Consider these facts:

- At 80km/hr the aerodynamic resistance of the air is greater than the vehicle's rolling resistance
- At 80km/hr a pantech uses one half of its power to overcome air resistance
- Doubling speed from 60km/hr to 120km/hr can increase the power required to overcome drag resistance by 8 times.

Trials conducted by TNT (UK) shows that vehicles with side skirts, fill in panels and roof mounted deflectors have produced fuel savings of around 14% to the company fleet.

Ensure even load distribution and correct tarping to reduce air resistance and fuel consumption.

Vehicle Maintenance

An engine is efficient if it burns all the fuel that passes into the cylinders.

Dark exhaust smoke is an indicator of wasted fuel and the need for engine maintenance.

While diesel engines generally need less attention than petrol, they still need a regular maintenance program.

- The program should include:
- Regular tune-ups
- Use of low viscosity oils
- Correction of engine governor settings
- Alignment of trailer axles
- Constantly checking tyre pressure.

Further Information

Further information can be found by visiting the following website:
www.deh.gov.au/atmosphere/index.html

SECTION J: INDEX

INDEX

SECTION K: INDUSTRY GLOSSARY

GLOSSARY

ABS – An abbreviation for anti-lock braking systems.

ADR – Australian Design Rule. A set of regulations governing vehicle design.

Aggregate mass – Maximum allowable loaded mass of a particular vehicle or combination comprising the GVM or GCM plus any overload tolerance applicable in a given state.

Aggregated trailer mass – The total mass of a trailer carrying the maximum load as specified by the trailer manufacturer. It includes the mass imposed on the tow coupling of the towing vehicle as well as the mass imposed on the road by the trailers tyres.

Air suspension – A suspension system in which the weight of the vehicle is supported by air bags containing compressed air and the axles are held in position longitudinally and laterally by bushed rods.

Air trip – An air-activated release catch on a tipper tailgate that is operated from the cabin.

Articulated vehicle – A vehicle with flexibly connected sections. Usually applied to a prime mover and semi-trailer as opposed to a truck and trailer and known as a combination vehicle.

Anchor point – Fitting or attachment on a vehicle or load to secure lashings.

Automatic pin type coupling – The most common type of heavy trailer hitch in Australia and Europe for connecting a heavy trailer to a heavy truck..

Auxiliary gearbox – A secondary gearbox that may be located before or after the main gearbox to provide additional overdrive or reduction ratios.

Axle group – A group of axles (or a single axle) supporting one section of a vehicle.

A-Train – Usually refers to a prime mover and semi-trailer towing a trailer.

Baffles – Barriers fitted crosswise and lengthwise inside tanks to limit surging of fluids (or loads which behave like fluids) during acceleration, braking and cornering.

Baulking – A solid object, often a large piece of timber, placed against the load and fixed securely to the vehicle to prevent movement of the load.

B-Double – An articulated vehicle with a second semi-trailer attached to the rear of the first semi-trailer by means of a turntable.

Blocking – Material, usually timber, placed between the load and the vehicle structure, to prevent movement of the load.

Bolster – A piece of steel or heavy timber firmly attached to the vehicle (often bolted to the chassis) to support the load and/or prevent it from moving.

Bulker – A container fitted with loading hatches on the roof and discharge hatches on the doors and front wall.

Bulkhead – A term sometimes applied to the gate at the front of the tray body or flat top trailer which is built heavier than side gates.

Cab chassis – A truck with only the cab fitted.

Chassis – A vehicle frame.

Chocks – Wedge shaped blocks used to prevent movement of the load, or the vehicle.

Clutch brake – A device actuated by the last inch of clutch pedal travel which brakes the spinning gears in the transmission.

Coaming – A frame border around the outside of a vehicle's loading deck.

Combination vehicle – A rigid truck (or bus) towing one or more trailers.

Constant mesh transmission – A transmission in which all gears remain in mesh at all times.

Contained load – A load prevented from dislodging from the vehicle by the vehicle structure, gates, sides, racks, headboards, stanchions or other parts of the load.

Container – A box used for the transporting goods in bulk. Standard lengths are 20 and 40 feet.

Converter dolly – A unit designed to convert a semi-trailer to a dog trailer. A dolly can also be a device for spreading the weight of overdimensional loads.

Corner protectors – Material used to protect lashings and the exposed edges of loads and vehicles, and to allow lashings to slide freely when being tensioned.

Cradle – A frame shaped to support a rounded object.

Crashbox – An older type transmission in which the ratios were changed by sliding the various gears into and out of mesh with each other.

Cribbing – A method of supporting a load on a stable column of packing of uniform thickness, stacked in pairs, with alternate layers at 90 degrees to one another.

Cross-member – A support placed crosswise between chassis rails.

Deck – The load carrying platform.

Dog – A chain tensioner incorporating an over-centre locking action with a fixed or pivoting lever.

Dog trailer – A trailer with two axle groups, the front group being steered by the drawbar

coupled to a towing vehicle.

Double trailer combination – Combination of a prime mover, semi-trailer and trailer.

Drawbar length – The distance from the line of the towing pivot to the centreline of the leading axle group of the trailer.

Drawbar stand – A leg that holds a trailer drawbar at coupling height to allow for easier hook-up.

Drive shaft – See 'Tail shaft'.

Driveline – The motor, clutch, gearbox, drive shafts, diff(s) and axle(s).

Drivetrain – As for Driveline but usually does not include the engine.

Dry freight container – A normal, fully enclosed container with doors at the back and occasionally on one side.

Dual wheels – A matched pair of wheels attached to each end of an axle.

Dunnage – Packing material (eg pieces of timber, plywood, mats) placed between the cargo and the truck platform, or between items of cargo to level the load and/or increase friction so the load is less likely to move during journey. It is also used to leave a gap between a load and the load deck, or different parts of the load, to enable forklifts tyres to be placed under for lifting.

Flat rack – A steel base for supporting loads fitted with receptacles for twist locks and provision for forklift operation.

Flat top – A truck, trailer or semi-trailer that has flat goods carrying area without sides.

Flush deck – A flat loading deck without a raised coaming.

Forward control vehicle – A truck with the cab mounted over the engine.

Gates – Permanent or removable vertical frames used at the front, side and rear of a vehicle's loading deck to contain its load. The front gate is usually called a loading rack or load rack.

Gross combination mass (or GCM) – of a motor vehicle, means the greatest possible sum of the maximum loaded mass of the motor vehicle and of any vehicle that may lawfully be towed by it at the same time.

GRTM (or Gross road train mass) – means the mass transmitted to the ground by the axles of a trailer when the trailer is loaded to its GVM and connected to a towing vehicle.

Gross trailer mass (or GTM) – means the mass transmitted to the ground by the axles of

a trailer when the trailer is loaded to its GVM and connected to a towing vehicle.

Gross vehicle mass (or GVM) – of a vehicle means the maximum loaded mass of the vehicle.

Inter-axle differential – A differential that operates between two driven axles to allow one axle to turn at a slightly different speed to the other.

Inter-axle lock – Locks the inter-axle differential so drive is shared equally by both driven axles to reduce wheel spin and increase traction in slippery conditions.

Lashings – Fastening devices, chains, cables, ropes or webbing used to restrain loads.

Lashing capacity (LC) – The maximum force (in kilograms) that a lashing system is designed to sustain in use.

Load Binder – A device used for tensioning a lashing.

Load capacity – The difference between the GVM or GTM of a vehicle and its tare mass.

Load limit – The maximum load that may be carried in, or on any motor vehicle upon the road.

Load mat – A sheet of material used to increase friction and protect the load.

Pallet – A portable platform or tray onto which loads are placed for mechanical handling.

Pantechnicon – A vehicle with a body enclosed by solid rigid sides and roof.

Pawl – A lever or lock which protects reverse rotation on a winch.

Pockets – Housings or slots fixed to the vehicle to locate gates, stakes or loading pegs.

Prime mover – A short wheel base truck used to tow a semi-trailer.

Rear marker or reflector plates – Red and yellow plates which must be fitted to the rear of heavy vehicles to make them more visible.

Road train – Either a truck hauling two or more trailers, or a prime mover and semi-trailer hauling one or more trailers (Note: this is not a B-double, which consists of a prime mover and two semi-trailers).

Rope hooks – Attachments fixed to the surrounds of the loading deck for securing of tarpaulin and tie-down ropes.

Semi-trailer – A trailer that has one axle group towards the rear and is designed so that the front is supported by the prime mover that tows it.

Speed limiter – A engine management device that limits the top speed of a truck without limiting engine revs or power in the lower gears.

Shackle – A metal coupling link closed by a bolt which can be used for attaching chain fittings.

Shoring bar – Adjustable metal beam used to restrain or segregate sections of load.

Sling – A length of hemp-core rope, webbing or steel-wire rope with eyes formed at each end.

Spreader – A transverse spar or frame used to support tarpaulins and side gates.

Stanchion – A large upright fixed to the side of a vehicle for sideways restraint.

Stillage – A metal structure for containing individual items of load.

Strut – A rigid member which can support loads in the direction of its length.

Synchromesh transmission – A transmission in which the speeds of the gears are matched or 'synchronised' by means of in-built synchronising clutches before they are meshed.

Tachograph – A trip recorder incorporating a clock, speedometer and often a rev counter that inscribes a record of a journey on circular paper graph.

Tachometer – An instrument for measuring engine revolutions.

Tare mass – The mass of a vehicle without its load.

Tarpaulin (tarp) – A waterproof sheet used to cover and protect goods from the weather.

Tie rail – A round rail which skirts the perimeter of the loading deck below the coaming rail.

Torque – The turning force or turning effort of a shaft. Engine torque is the turning force available at the crankshaft.

Trailer – A non-powered vehicle built to tow behind a motor vehicle.

Trailer coupling – The device that attaches a trailer to a towing vehicle.

Truck winch – A device used for tensioning a lashing which is normally placed under the coaming rail and may be fixed in position using the tie-rail or slide on a rack.

Twist lock – A locking device with a rotating head which normally engages a corner casting on the load.

Unladen mass – The mass of a motor vehicle without a load, but including all tools, fixed cranes, oil and fuel in the tanks. The unladen mass of an articulated vehicle is the unladen mass of the prime mover only.

Work diary – Driver's record of hours driven and rest periods taken.

Winch – A device for tensioning lashings via a rotating spool.

Proposed changes to the rules for use of Warning Triangles commence 2012

On a divided road or one way road where the speed limit is 80km/h or higher the requirements to position warning triangles will be as follows:

It will not be necessary to place a warning triangle to the front of the vehicle or fallen load.

The first triangle must be placed between 200-250 metres behind the vehicle or fallen load.

The second triangle must be placed between the first triangle and the vehicle or fallen load.

The third triangle must be placed at the side of the vehicle or fallen load.

On a two way road where the speed limit is 80km/h or higher the requirements to position warning triangles will be as follows:

The first triangle must be placed between 200-250 metres behind the vehicle or fallen load.

The second triangle must be placed between 200-250 metres in front of the vehicle or fallen load.

The third triangle must be placed at the side of the vehicle or fallen load.

On a divided road or one way road where the speed limit is less than 80km/h the requirements to position warning triangles will be as follows:

It will not be necessary to place a warning triangle to the front of the vehicle or fallen load.

The first triangle must be placed between 50-150 metres behind the vehicle or fallen load.

The second triangle must be placed between the first triangle and the vehicle or fallen load.

The third triangle must be placed at the side of the vehicle or fallen load.

On a two way road where the speed limit is less than 80km/h the requirements to position warning triangles will be as follows:

The first triangle must be placed between 50-150 metres behind the vehicle or fallen load.

The second triangle must be placed between 50-150 metres in front of the vehicle or fallen load.

The third triangle must be placed at the side of the vehicle or fallen load.