GOVERNMENT OF ALBERTA

Professional Truck Driver Training Course

Course Delivery Guidelines and Curriculum

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THE PROFESSIONAL TRUCK DRIVER TRAINING PROGRAM

INTRODUCTION

Welcome to Alberta Transportation's Truck Driver Training Program. Alberta Transportation is committed to enhancing road safety for new truck drivers and other road users. The goal of this course is to enhance the quality of truck driver training, create a foundation for safe and responsible driving, and foster the development of positive driving attitudes and behaviours in new professional drivers.

Driver education and training are important to learning the skills required to safely operate a commercial vehicle. Delivery of the training in a supervised environment helps entry-level professional truck drivers to develop the confidence and skills to operate commercial trucks on public roadways

The purpose of this manual is to provide individuals seeking to obtain a Class 1 driver's licence with basic to advanced driving skill procedures. The course reinforces driving theory, skills practice and promotion of positive driving attitudes.

This course has both classroom and practical components that will be delivered in three learning environments: in-class, in-yard (around the vehicle) and in-cab (behind-the-wheel). Instruction hours are organized as follows:

- 40.50 hours Classroom instruction
- 15.5 hours of In-yard instruction
- 57 hours of In-cab training
    - Actual drive – 39 hours
    - Off-road maneuvers – 18 hours
- Total training hours – 113.00

All participants are encouraged to become familiar with the course content, take notes, and ask questions.

PREREQUISITES FOR PARTICIPATING IN THE COURSE

Prior to taking this course, participants must:

- Be at least 18 years of age; and
- Hold an Alberta non-probationary driver's licence.

OVERVIEW OF COURSE DELIVERY STANDARDS

Approach to Course Delivery

Learning Environment

The Truck Driver Training (Class 1) course is divided into two (2) sessions and will be delivered in three (3) learning environments

Classroom session

In-class refers to the classroom environment. Learning in this environment is supported by instructional aids to facilitate large training sessions. This component of training must be conducted in a classroom approved by Alberta Transportation. All activities performed must be supervised by a licenced instructor.

Practical session

In-yard refers to activities that occur around the vehicle when the vehicle is not in motion such as vehicle inspection. This is conducted outside the classroom. It is conducted in an approved area where the vehicle is parked. This component of training does not involve actual operation of the vehicle or any of the components. All activities performed must be supervised by a licenced Instructor.

In-cab refers to the activities that occur when the trainee is behind-the-wheel either in-yard or on-road. This includes driving in various conditions, backing, coupling and uncoupling. All activities performed must be supervised by a licenced Instructor.

Course Structure

Instructors are required to address all competencies as outlined in the curriculum. It is important to continually reinforce driving theory, practical skills and promote positive attitudes in all learning environment using a variety of instructional strategies and methods. There should be an assessment of trainee at the end of training sessions delivered in each learning environment.

All topics should be presented in a logical sequence allowing for the development of knowledge and skills throughout the different stages of learning to ensure all prerequisites are met.

Daily instruction should not exceed eight (8) hours. A combination of different training components may be incorporated within the eight hours. Within the eight (8) hours of instruction, a meal break of at least 30 minutes but not exceeding 60 minutes should be included. It should be recognized that lessons of increased duration may cause trainee fatigue and a decreased ability to learn. One 15-minute break is required if a lesson exceeds two (2) hours. It should be provided near the mid-point of the lesson and may not be provided more than two hours into the lesson. Behind-the wheel training should not exceed three (3) hours in a day for each trainee.

Course Hours

The total instructional hours represent 1:1 direct instruction between trainee and instructor. Time spent by one trainee observing another trainee is not calculated.

The following minimum required instructional hours must be adhered to:

	Classroom (hours)	In-Yard (Around the Vehicle) (hours)	In-Cab (Behind-the-Wheel) (hours)	Total Training Duration (hours)
Class 1	40.50	15.5	57	113.00
Air brake	6.5	2 (including practical training and testing for a group of 3 trainees)		Approximately 8.5 hours*
Total	47.00	17.5	57	121.50

Trainee to Instructor Ratio

In-class: a maximum of 15 trainees will be permitted. The time allotment is calculated at 1:1.
In-yard: a maximum of four (4) trainees will be permitted. Example: If one hour of in-yard time is required for 1:1 instruction, and provided the instructor is giving direct instruction to a trainee while the other three observe, it is considered 1:1 for all four. However, with four trainees who are working alone or together, without the instructor present, the in-yard time is not credited to the overall time.
In-cab: a maximum of two (2) trainees will be permitted. The behind-the-wheel (BTW) time allotment is calculated by the number of trainees. Example: If one hour of BTW time is required, with two trainees in the cab, the time increases to two hours. A trainee may observe another trainee who is behind-the-wheel, however, observation time is not calculated toward completion of the mandatory training hours.

General Facility Requirements

The facility where the training is to take place must meet all *Occupational Health and Safety Act* (OHSA) requirements, local municipal by-laws and adhere to the Alberta Transportation's requirements. The facility must have the following:

- Appropriate seating and tables for the number of trainees and instructors:
- Washrooms
- Easily accessible emergency exits
- Adequate lighting
- Heating/cooling systems
- Appropriate facility for in-yard training. This facility must be located away from public roadways– Yard size of at least 55 metres wide by 73 metres long for the in-yard training.

Classroom Equipment

Driver training schools and employee driver training agencies must provide the following required equipment when delivering this classroom sessions:
A computer to deliver the presentation;
A projector and screen, or a TV/monitor appropriate for the classroom size
A speaker

Training Vehicle Configuration	Training must be completed using a tractor trailer with the following configuration: Fully-equipped manual-shift tractor-trailer (minimum of 13 speed) Tractor-trailer combination with three or more axles with gross vehicle weight of at least 11,794 kg Full-air brake system on both tractor and trailer. Minimum tandem axle tractor and a tandem axle trailer Fifth wheel coupling device Single trailer with a minimum length of 48 feet and a minimum distance of 35 feet measured from the kingpin to the centre of each rear axle The vehicle be mechanically sound and must meet all applicable requirements outlined in the *Vehicle Equipment Regulation* and the *Commercial Vehicle Safety Regulation*

COURSE DESCRIPTION AND STANDARDS

This course is organized in a modular format, with 10 modules. The modules align with the competency block of the National Occupational Standard (NOS) for Commercial Vehicle Operator (Truck Driver). The NOS for Commercial Vehicle Operator is a recognized framework of the skills, knowledge and abilities that are required of the majority of competent, safe and efficient commercial vehicle operators (truck drivers) working across Canada.

For more information on the National Occupational Standard (NOS) for Commercial Vehicle Operator (Truck Driver), visit: https://truckinghr.com/sites/default/files/nos_commercial_vehicle_operator_truck_driver_2015.pdf

Each module must be successfully completed to graduate from this course. There is statement of purpose at the beginning of each module which indicates its importance to the completion of this course. In addition, learning outcomes have been outlined for each module. These outcomes indicate what each trainee should have learned at the end of each module.

Module 1 - Employment in the Trucking Industry – This is delivered in the classroom. It focuses on the overview of the trucking industry and employment expectations, responsibilities and duties. It further discusses the laws governing the operation of commercial vehicles on public roadways and the consequences of traffic laws violations.

Module 2 – Vehicle Components and Systems – This module incorporates classroom and in-yard training. Identification and function of basic vehicle components and systems will be discussed in the classroom. At the end of the classroom session, trainees will proceed to the yard for actual identification of components and systems.

Module 3 - Basic Driving Techniques – This module incorporates classroom, in-yard, and behind-the-wheel training. The focus will be on the development of basic safe driving skills and to understand how to control the vehicle when in motion.

Module 4 – Professional Driving Habits – This module is delivered in the classroom. It includes information on visual search patterns, hazard identification, speed management, space management, sharing the road with other road users (including vulnerable road users), driving in adverse weather conditions and other defensive driving techniques.

Module 5 - Off-Road Tasks and Manoeuvers – This module incorporates classroom, in-yard and behind-the-wheel training. It focuses on allowing trainees to learn and to practice how to safely back up in a truck-straight-line, offset, and alley-dock backing skills, for example. Trainees will also learn how to couple and uncouple a tractor to a trailer.

Module 6 - Documents, Paperwork and Regulatory Requirements – This is delivered in the classroom. It focuses on outlining the regulatory requirements and documentations that a commercial truck driver must have when driving a truck. It further provides information on trip planning and how to cope with difficult situations that may occur while driving.

Module 7 – Vehicle Inspection Activities – This module incorporates classroom and in-yard training. It involves discussion around preventative maintenance and how to know if a vehicle is safe for the road by inspecting components and systems to determine if they are functioning properly.

Module 8 - Hours of Service Compliance – This is delivered in the classroom. It focuses on federal and provincial laws regarding Hours of Services requirements. It further discusses a driver's responsibilities in recording and maintaining hours of service logs.

Module 9 – Cargo Securement and Loss Prevention – This module incorporates classroom, in-yard and behind-the-wheel training. It focuses on safe securement of cargo to prevent loss of live and property.

Module 10 - Handling Emergencies – This module incorporates classroom and in-yard training. It focuses on the procedures to follow in emergency situations, such as major and minor collisions, and fire outbreaks.

GUIDE TO PROVIDING CLASSROOM INSTRUCTION

INTRODUCTION

Effective communication of ideas and concepts is the core of all education programs.
As such, this section has been prepared to help the Instructor improve his or her communication skills.

This document is not intended as a substitute for formal communication training but, rather, is meant to provide some guidance and reference for training instructors.

ADVANCE PREPARATION FOR EFFECTIVE COMMUNICATION

A carpenter cannot build a house without first acquiring the necessary knowledge, developing the skills for reading blueprints and gathering the necessary tools and supplies.

Likewise, an Instructor must "lay the groundwork" in order to effectively communicate the topics to the class. It is essential that you begin your preparation well in advance of the actual classroom date.

Advance preparations must include four primary areas:

1. Yourself;
2. Classroom;
3. Required Equipment; and
4. Supplies.

Preparing Yourself

Study and review the course materials you are to present. If the course uses videos view these so that you are familiar with their content.

For each lesson, make note of the key topics and phrases you will be addressing. Use these notes to "prompt" you in your discussions with the class. Also, write down questions you are going to ask the class concerning lesson (and video) content.

All the questions you prepare in advance should be directed to:

- Generate class participation in a discussion of the topic;
- Determine if the class has understood and accepted the information provided; or
- Stimulate trainee thought with respect to the topic of discussion.

Know how to use any reference materials you will have available and know the contact information of all key resource persons if clarification or advice is needed

Classroom

As an Instructor, you must ensure that you have an appropriate facility in which to instruct.

- The classroom should be well lit , well ventilated and large enough to comfortably accommodate the number of expected trainees. The classroom temperature should be cool, yet comfortable and the room should be distraction free. If the room has large windows overlooking a busy street, drapes or blinds should be used to minimize outside distractions.
- The classroom must contain sufficient seating for the class and a writing surface for each trainee as stipulated in Section 2.00.01 C(2) of the Alberta Transportation Licenced Driver Training School Policy and Procedures Manual
- Make sure the classroom is clean and uncluttered.
- Ensure that washrooms and electrical outlets are conveniently located and available.

Required Equipment

- Visual aids and audio/visual equipment are valuable teaching tools. In addtion to the equipment listed above (see overview of course delivery standard), it is important that the training room has access to the internet. Internet is needed to access addition information that are not provided by this curriculum. You will also find the following useful:
- Flip chart or white/smart board;

Pre-test all electronic equipment to ensure there are no malfunctions. It can be frustrating and time consuming to have an equipment failure delay the class.

Supplies

Standard supplies you should have on hand include:

- Writing paper;
- Spare pens/pencils;
- Reference materials;
- Markers for whiteboards or chalk (if using chalk board);
- Felt markers (if using a flip chart);
- Handout materials;
- Name tags and cardboard for name plates; and
- Spare projector bulbs.

Handout materials should be prepared in advance.
Reference materials should be conveniently located so that the class may refer to them during breaks and before or after class.

COMMUNICATION SKILLS

In order to teach, you must be able to communicate with the trainees and hold their attention. Most of us, at one time or another, have had the misfortune of listening to a poor communicator.

Generally, poor communicators:

- Are ill-prepared (not knowledgeable regarding their topic); or
- Read word for word from a prepared text; or
- Have memorized their speech and get "stuck" in the middle when their memory fails them; or
- Tend to mumble and refuse to look at the audience.

This section will provide you with some ideas to better equip yourself to communicate with your audience and hold their attention.

Remember the three golden rules of learning:

1. Hear;
2. See; and
3. Do.

Whenever possible, use these three actions in your instruction by:

1. Telling the class;
2. Showing the class; and
3. Allowing the class to actually demonstrate their understanding.

SPEAKING TECHNIQUES

When you speak, speak clearly, distinctly and with enough volume to reach your entire audience.

- *Pause a second or two after making a key point.* This will allow your audience time to mentally absorb what you have just finished saying.
- *Make sure each person in your audience feels as if you are talking directly to them.* To do this, make brief eye contact with each person and periodically shift your gaze from one person to another as you speak.
- *Be selective in reading course material to the class.* Few people can read word for word and still be natural and effective. Unless the subject matter is very detailed, most of its use will be far more effective if we speak about specific key points and phrases that we have extracted from the course materials. (Refer to the notes you have prepared in advance or use "cue cards" as an aid)
- *Be natural with both your voice and your body.* Let your enthusiasm and emotions come through in the same way they would if you were discussing the subject with a group of friends. Let your voice rise and fall naturally. If you would normally gesture in your description, do so. If you lean with your hands on the instructor's table or sit on the corner of the desk while facing the class, it is okay, but do not assume any one position for too long. Periodically move from one position to another as you speak to the class.

  Use the trainee's name when you have the opportunity to do so. Everyone likes the sound of their name and this will help make individuals feel a part of the course. (e.g., "You have a question, John?"; "Frank, would you turn off the lights please?"; "That is a

good suggestion, Mary.").

USE LEARNING AIDS

Use examples, displays, and diagrams to help make your point. Relate appropriate personal experiences that help to reinforce your topic to the class.

Use videos as teaching tools, but do not just let the class "watch the movie". If there is a particular point you wish to discuss, stop the video and begin a short discussion on the point, without letting it get too drawn out. When the video is over, discuss the content with the class. Ask questions about what was shown and solicit their opinions and views. Perhaps some trainees would like to relate a personal experience on the topic. If so, encourage them to share it with the class.

USE QUESTIONS TO REINFORCE LEARNING

Be sure to periodically ask questions about the course content and actively encourage the class to raise their own questions and concerns. Keep the class members involved.

Keep your questions "open", unless you are interested in receiving only a specific reply. For example, when you are trying to determine whether the class has understood the topic of discussion, ask:

"Would someone please explain, in their own words, what this means?"

Do not ask: "Does everyone understand what we have just covered?"

A "closed" question should only be asked if you wish to receive a specific piece of information (e.g., "How many tractor-trailer companies operate within your municipality?").

In order to keep the entire class involved; ask your questions to the entire class, rather than to a specific person. When the question is asked to the class, everyone will begin to think of how to answer. This keeps all trainees involved and their "thought reinforces their learning".

If a question is raised during discussions to which you do not know the answer, do not try to bluff. Be honest and admit that you do not know, but advise the trainee that you will find out and let them know later. Then, at the first available opportunity, do some research and provide the answer. Alternately, ask if anyone in the class can provide the information.

CONTROL, CRITICISM AND PRAISE

While you want to remain friendly, you must not lose control. Allow only one trainee to speak at a time. If several discussions are occurring at the same time, you might try raising your hand to chest level, with your palms facing out in a "stop" motion, while addressing the class with: "Could I please have your attention? We're all talking at once and can't hear everybody's point of view. Let's take turns. Who is first?" Then recognize one trainee and let that trainee make their point to the group.

Give sincere praise freely whenever the opportunity is presented. Do not, however, confuse praise with flattery. Praise is genuine and truthful. Flattery is phoney and transparent.

Never embarrass anyone, or put them down in front of the class. If you are having a problem with an individual, discuss it with that trainee away from the rest of the class.

If you must give criticism, be sure to do so in a constructive manner and precede any criticism with a compliment (e.g., "You know, George, you have some excellent points and I want everyone in the class to hear them. Please wait until I acknowledge you so that you can have the floor to yourself.").

MAINTAINING TIME FRAMES

Because your time with the class is limited, you must teach the materials within available time frames established for the course. This means at certain points you may have to tactfully cut off discussion in order to move on. You do have some leeway, but if you allow one portion to go substantially overtime, you may find you have to "rob time" from another, equally important, session.

If you do find yourself in the position where you must take time from a lesson in order to "catch up", be sure you at least cover that lesson's key points.

SUMMARIZE AND REVIEW

At the end of each lesson, save a brief period of time to quickly review with the class all the major points. This will help to reinforce the learning process.

Similarly, at the end of the course, summarize the main points of each lesson.

Reminder

One final reminder, not even the best Instructor can teach a topic they are not familiar with. Read and study your course material and lesson plans. Review and familiarize yourself with all additional reference materials.

If you are well prepared ahead of time, you will find teaching the class a much more enjoyable and relaxed experience.

Knowledge

As an instructor, you need to have a a comprehensive understanding of traffic rules, safe driving principles, and problem-solving ability combined with effective teaching techniques that are essential to meeting learning outcomes. As a driver training instructor, you must continually enhance your instructor development programs to ensure their programs are current in terms of how people learn and how effective teachers teach.

Communication

Teaching someone to safely operate a vehicle can be a complicated task that requires a conscientious and well-informed instructor.

Instructors must communicate effectively to ensure the message is understood by each trainee. An effective communicator enhances understanding with demonstrations, illustrations, observations, and verbal description to teach new activities and processes.

Communication involves active listening while receiving feedback, as well as providing information to ensure learning outcomes are achieved and the teaching process is effective.

An effective instructor will balance timely instruction relative to the current traffic situation, with important general information provided when the conditions are safe, such as when the vehicle is not moving or is parked in a quiet location.

Observation and Awareness

It is imperative that instructors are aware of the traffic situation to be able to provide information to their trainee to proactively handle potential hazards by avoiding or minimizing risk.

Patience

Teaching the complex task of driving can be challenging and demanding. It requires an understanding of the challenges that new drivers must overcome. The instructor must be prepared and able to adapt to each individual’s learning style and to each situation.

In the Classroom

First Day

Immediately Before Class

- ☐ Arrive at least one hour prior to the start of the session.
- ☐ If possible, post directions to the room being used for the training.
- ☐ Check to see that there are sufficient tables and chairs and that the Audio Visual equipment is present and functioning.
- ☐ Set up the room according to your “Room Set” up diagram (if applicable).
- ☐ Place the flipchart(s) at the front of the room and make sure that you have your prepared pages with you.
- ☐ Make sure you have pens, pencils, masking tape and flipchart markers.
- ☐ Check that trainee Workbooks are present, if applicable.
- ☐ Verify you have sufficient copies of handout materials.
- ☐ Ensure your training vehicle is pre-tripped, fuelled and available.
- ☐ When everything is ready, take a walk or give yourself a little quiet time to settle your nerves.

WELCOME TO CLASS 1 PROFESSIONAL DRIVER EDUCATION PROGRAM

Be prepared so that you have time to greet each trainee as they enter.

- Verify trainees identity checking their government-approved photo identification card or a valid driver’s licence
- Greet the class and introduce yourself. Briefly talk about your background and experience.
- Write your name on a flip chart or white board
- Ask each person to make a name tag and name plate and have everyone introduce themselves to the group.
- Provide a brief overview of the purpose and content of the course, advising trainees what they should expect to have learned after having completed the course.
- Review information and policies of your driver training school- including distribution of studing materials, location of washrooms, fire exits, turning of cell phones and other electronic devices
- Make sure trainees carry their driver’s licence, as this is required for the in-vehicle component of the course. Commercial and law enforement agencies may request for the

trainee's and instructor's driver's licence.

- Ensure trainees are dressed in appropriate clothing for the weather conditions.
- Provide course structure and curriculum overview by modules
- Establish the "ground rules" for all trainees including attendance, punctuality, participation, homework, testing, smoking and facilities

Punctuality is expected

Example: "Classes will start at 9:00 a.m. each morning. We will break for 15 minutes at 10:30 a.m. and for lunch between 12:00 and 1:00 p.m. Because we have a lot of material to cover in a short time, I would ask that everyone be in class and ready to proceed at the scheduled times."

How to ask questions or make comments

Example: "We encourage your questions and comments, however, I would ask that anyone wishing to say or ask something, raise their hand and wait for my acknowledgement. This way we can be sure that everyone hears what is being said or asked."

Homework Requirement

If homework is required or desirable, advise the class as to what is expected.

Testing

If tests are to be given after a lesson or course completion, advise the class and tell them the passing grade required.

Facilities

Advise the trainees of the location of:

- Washrooms;
- Restaurants; and
- Smoke area, etc.

You are now ready to begin the actual lesson.

Definitions

It is important to understand the following definitions used in this document

- A-train - a combination of vehicles consisting of a truck tractor, a semi-trailer attached to the rear end of the truck tractor.
- B-train - a combination of vehicles consisting of a truck tractor, a semi-trailer attached to the truck tractor and a semi-trailer attached to the lead semi-trailer by means of a fifth wheel mounted no more than 0.3 metres behind the centre of the last axle on the lead semi-trailer.
- C-train - a combination of vehicles consisting of a truck tractor, a semi-trailer attached to the truck tractor and a semi-trailer attached to the rear end of the lead semi-trailer by means of a C-hitch.
- Trailer – a vehicle without motive power that is designed to be towed by another vehicle.
- Truck – this mean a motor vehicle designed and intended for the transport of goods and carrying load.
- Tractor- a vehicle that is designed to tow a trailer.
- Truck tractor/ tractor trailer- a truck that may be coupled to a semi-trailer by means of a fifth wheel, but does not include bed truck, picker truck or winch truck.

MODULE 1 - EMPLOYMENT IN THE TRUCKING INDUSTRY

Purpose

The purpose of this module is to introduce and familiarize trainees with the various government regulations and standards. The module will outline the licensing requirements and legal responsibilities of a professional truck driver. A truck driver must be aware of the laws governing the trucking industry. It should take 1 hour, 25 minutes to cover the materials in this module

General Learning Outcomes

At the end of this module, the trainees should be able to:

- Understand their roles and responsibilities as professional drivers.
- Understand the requirements and process of obtaining Class 1 driver's licence.
- Understand the regulations that govern driving on public roads and highways in Alberta.
- Understand the federal and provincial laws governing the operation of trucks in Alberta.

Habits of Minds

Trainees will:

- Recognize their roles and responsibilities as professional drivers.
- Recognize the impact of traffic laws convictions on current and future employment opportunities.

Knowledge and Understanding

Trainees will:

- Know the requirements to and process of obtaining a Class 1 driver's licence.
- Be introduced to key regulations that govern driving on public roads and highways in Alberta.
- Be introduced to key federal and provincial laws governing the operation of trucks.
- Know the type of vehicles a Class 1 driver's licence holder can operate.

Skills and Processes

Trainees will be able to:

- Demonstrate their knowledge of responsibilities and roles as professional truck driver.
- Demonstrate understanding of Class 1 licencing requirements and the types of vehicle a Class 1 driver can operate.

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, activities, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
1		**0.42**					**1.42**

Overview of the Trucking Industry and Career Opportunities

Approximately 90% of all consumer products and foodstuff movement between Canada and the United States are shipped by trucks (Canadian Trucking Alliance, 2017). According to the Canadian Industry Statistics (2016), there are over 111,000 establishments involved in truck transportation of goods in Canada with average revenue of $289,600. The trucking industry generates over $65 billion in revenue in per year. It is important to note that there are over 670,000 registered trucks in Canada.

Access to consumer products and some foodstuff may not have been possible without the 300,000 professional truck drivers in Canada. In Canada, professional truck drivers make up nearly 1% of the national population and over 1.5% of the nation's labour force. Truck drivers are important to the growth of the economy. Lack of truck drivers may have significant impact of the economy and way of life of the people.

The trucking industry in Canada involves hauling goods locally, regionally and internationally.

A Brief History of the Canadian Trucking Industry

The trucking industry has significantly evolved in last century in terms of the equipment, technological improvements, regulatory requirements and the eligibility to own and or operate a truck.

Prior to the introduction of trucks, goods were transported locally and regionally by a team of oxen and horse pulling wagons and carts. This team of animals were driven by individuals and hence the term "teamsters". The role of the teamsters is similar to the roles of today's professional truck drivers.

The construction of railroad by late 19th century, contributed to transportation of people and goods by connecting the eastern region of the country to its western region. The railroad did not cut across all towns and cities. Trucking was introduced in the early 1900s to fill this gap, operating locally within short distances, as the highway networks were not yet well established.

The construction of more road and highways contributed to subsequent growth in size and network of the trucking industry.

The federal government established the authority to regulate the trucking industry. Government regulates this industry in form of vehicle size and weight restriction. Government also collected service fees for trucking companies as well as the eligibility to obtain a commercial truck licence and transport goods commercially.

The provincial government regulates carriers operating with the province. When a trucking company operates beyond a province, specific federal laws supersede the provincial laws.

Employment in the Trucking Industry

Drivers may be a carrier's biggest strength, if the right person is hired, or biggest liability, if the wrong person is hired. All carriers want to employ a driver who will ensure road safety and add value to their operation. A truck driver with clean driving records has higher opportunity to be

employed than a truck driver with a record of traffic and criminal violations, regardless of the level of training, and work experience as a tractor-trailer driver.

In addition to having the required driver's licence, a prospective employer may request the following:

- A completed employment application form.
- Personal driver's abstract and commercial driver's abstract (dated within 30 days).
- Submission of a medical fitness certificate.
- A criminal record check (dated with a specified period of time).
- Drug testing.
- Records of your previous work experience and training that are relevant to your job.

The request for the above outlined employment requirements may be conducted by employers periodically. Failure to successfully provide any of the periodic employment requirements may affect the status of your job.

After employment, you will be required to participate in the employer's training programs. Employers are required to provide additional training to their drivers. Training may be specific to operation of specialized equipment/features on vehicle and workplace, transportation of specific cargo (e.g., dangerous goods), occupation health and safety rules, company's policies (such as dress codes, code of conduct and ethics, disciplinary policies, substance abuse policies etc.), duties and scope of your position, condition of employment, etc. Your success as a professional truck driver goes beyond your driving skills - your interpersonal skills are also important.

Employers often expect that you, as a professional driver, have basic knowledge and understanding of the laws and other compliance requirements that govern the operation of commercial vehicles.

It important to note that to be successful as a professional driver, you must ensure that you have a clean driving record. Carriers are required by law to keep specific records on each employed driver's file for four (4) calendar years after the driver files have been created, established or received. According to the *Commercial Vehicle Certificate and Insurance Regulation* (AR314/2002), the following records must also be kept for each person who is authorized to drive a National Safety Code (NSC) vehicle for a carrier:

- The driver's completed application for employment;
- A copy of the driver's abstract dated within 30 days of hire;
- Annual updated copies of driver's abstract;
- The driver's employment history for the preceding 3 years;
- A record of the driver's conviction of safety laws relating to the operation of a motor vehicle in the current year and in each of the 4 preceding years;
- A record of any administrative penalty imposed on the driver;
- A record of all collisions involving a motor vehicle operated by the driver that are required to be reported to a peace officer;
- A record of all training taken by a driver related to the operation of a vehicle and compliance with safety laws;

- A copy of any training certificate issued to the driver, in electronic or paper form, for the period starting on the date the training certificate is issued; and
- Alcohol and drug testing records are kept by carriers operating in the United States.

Role and Responsibilities of a Professional Driver

Driving a motor vehicle in a professional capacity is a great responsibility and requires specialized skills. As a professional driver, you should set a high expectation for yourself. The treatment of other road users with respect, courtesy and patience are important responsibilities of a professional driver. A positive attitude towards your employer, co-workers and other road users will contribute to your success as a professional driver.

Respect is not always reciprocal. It takes professionalism and positive attitude to overcome many challenges you will face. When you display positive attitude at all time, you may enhance the good reputation of truck drivers among other road users.

- Driving with the wrong licence Class is against the law. It is also an offence for a vehicle's owner to allow the vehicle to be driven by someone who does not have the Class of licence to drive that vehicle.
- A professional driver must have sound knowledge of the laws and other regulatory standards governing the operation of a commercial vehicle. This would assist the driver to comply with regulatory requirements. A professional driver needs to have the right attitude to be a skillful and safety-conscious driver.
- It is required of all drivers to drive responsibly. Dangerous or careless driving may result in unforeseen circumstances such as damage to property, causing death or injury, etc.
- As a professional driver you must ensure that you are physically and emotionally fit to operate a motor vehicle. Avoid things that may impair your judgment and ability to responsibly and safely operate a vehicle such as alcohol, drugs (legal and illegal), some medications, stress, fatigue (mental, emotional and physical), and lack of sleep.

Licensing

A driver's licence is required to operate a motor vehicle in Alberta. The following are the requirements to obtain a Class 1 driver's licence in Alberta.

- After successful completion of this course, trainees will be required to complete a knowledge test at any registry agent office in Alberta.
- To participate in the test, the trainee must present a copy of the air brake Notice of Course Completion form to the registry agent office.
- After successful completion of the Class 1 knowledge test, the trainee can schedule their Class 1 road test.
- Road tests will be conducted by Alberta Driver Examiners.
    - The road test components include pre-trip inspection, coupling/uncoupling procedures, inspection of vehicle's air brake system and an in-vehicle (behind-the-wheel) road test.

- Class 1 road test clients are required to provide a tractor-trailer combination with three or more axles and the trailer must be equipped with an air brake system to its foundation brakes.
- Proof of air brake “Q” endorsement or an air brake course completion certificate from an approved air brake training organization is required.

- A Class 1 driver’s licence will be issued after successful completion of the road test.
- The holder of a Class 1 driver’s licence can operate a motor vehicle or a combination of vehicles, other than a motorcycle; and
- Class 6 type vehicles, for learning only

- Condition codes are placed a driver’s licence when it is determined that a driver’s licence holder’s driving privileges require limitations or restrictions. Some code will appear on the driver’s licence and some do not. For more information on Condition Codes, to go http://www.transportation.alberta.ca/1930.htm

Medical Condition

- Your medical condition may affect your ability to operate a commercial vehicle. Drivers are legally responsible to report any disease or disability that may interfere with safe operation of a motor vehicle to any Alberta registry agent office or to Alberta Transportation.
  - The registry agent office can request a medical report from any driver, in any licence Class, if they have concerns about the driver’s medical condition.
- A medical report is required to upgrade a driver’s licence to a Class 1, 2 or 4.
  - Medical forms are available from a registry agent, or a physician. This form must be completed by a physician.
- A medical report is required when first apply for a driver’s licence; and
  - Every 5 years after that, until 45 years of age
  - Every 2 years from age 45 to 65
  - Every year after you turn age 65

Traffic Laws

A person or company operating a commercial truck or bus is commonly referred to as a “motor carrier”, or “carrier” for short. There is both provincial and federal NSC legislation that may require a carrier to obtain a Safety Fitness Certificate (SFC). Only one piece of legislation will apply to a carrier at any given time.

Federal law applies to carriers wishing to operate outside of Alberta and requires carriers to obtain an SFC if they operate:

- A truck, tractor, or trailer or any combination of these vehicles registered for or weighing in excess of 4,500 kilograms, or
- A commercial passenger vehicle with an original manufacturer's seating capacity of 11 or more persons including the driver.

Provincial law applies to carriers operating solely within Alberta and requires carriers to obtain an SFC if they operate:

- A truck, tractor, or trailer or any combination of these vehicles registered for a weight of 11,794 kilograms or greater, or

A commercial passenger vehicle with an original manufacturer's seating capacity of 11 or more persons including the driver.

Traffic Safety Act

The *Traffic Safety Act* (TSA) is a provincial legislation that governs the operation of motor vehicle on public roadways. This Act promotes safety on the highways, which includes any street, road, sidewalk or bridge that the public is ordinarily entitled or permitted to use. The Act is divided into 7 parts.

The TSA has about 19 associated regulations. The following are examples of applicable regulations governing the operation of all motor vehicles on public roads and highways in Alberta - *Use of Highway and Rules of the Road Regulation, Operator Licensing and Vehicle Control Regulation, Distracted Driving Regulation,* and the *Traffic Control Device and Vehicle Equipment Regulation*.

i. *Use of Highway and Rules of the Road Regulation*

This Regulation governs the utilization of highways and the use and operation of vehicles in respect of speeding, signalling, passing, turning, yielding, stopping, parking and other matters. Rules regarding the driving and operation of school buses, emergency and maintenance vehicles, motor cycles and other cycles are established.

ii. *Operator Licensing and Vehicle Control Regulation*

This Regulation sets standards and procedures for obtaining driver's licenses, Air Brake endorsement as well as providing a classification of licenses and the requirements for each type of license and provisions for their renewal, expiry, and suspension. The Regulation additionally provides for the registration of vehicles, providing classifications and outlining permitted uses for each class of vehicle. Related to the registration of vehicles, the Regulation provides rules for types, conditions, and uses of license plates. The Regulation additionally outlines the authority of the Registrar of Motor Vehicle Services with respect to licensing and registration, and provides for a number of fees related to licensing and registration.

iii. *Distracted Driving Regulation*

This Regulation applies to all motor vehicles as defined in the *Traffic Safety Act*. It prohibits a driver from performing other functions that may affect their ability to safely operate a vehicle. The Regulation exempts individuals who hold radio operator

certificates under the *Radiocommunication Act* (Canada) and others from those sections of the *Traffic Safety Act* that prohibit distracted driving. The manner in which a cellular phone or a radio communication device may be used in "hands-free mode" is specified.

iv. Traffic Control Device Regulation

Under this Regulation, traffic control devices placed, marked, or erected under the authority of the *Traffic Safety Act* must conform with the design standards prescribed in the *Manual of Uniform Traffic Control Devices for Canada*, published by the Transportation Association of Canada.

v. *Vehicle Equipment Regulation*

This Regulation sets the equipment standards to which vehicles in Alberta must comply. In some cases, these standards are specific to Alberta, in other cases the Regulation directly incorporates federal regulations or is harmonized with national standards. In addition to creating requirements for all vehicles, the Regulation additionally sets standards for specific vehicles and examples (e.g., tow trucks, wide loads, or fire fighting vehicles).

vi. Demerit Point Program and Service of Documents Regulation

This Regulation provides the legislative framework, timelines and process for the administration of demerit points for driving offenses. The Regulation provides for notice provisions for accumulating points, as well as for the ultimate suspension of a driver's license for accumulated demerit points.

The following are some of the regulations that govern the operation of a commercial driver - *Commercial Vehicle Dimension and Weight Regulation, Commercial Vehicle Safety Regulation, Driver Hours of Service Regulation, Vehicle Inspection Regulation, and Commercial Vehicle Certificate and Insurance Regulation:*

i. *Commercial Vehicle Dimension and Weight Regulation*

The *Commercial Vehicle Dimension and Weight Regulation* regulates the weight, dimension and configuration of commercial vehicles being operated on Alberta's highways. The Regulation balances road infrastructure impacts, road safety, and public safety concerns with efficiencies related to the commercial transportation industry.

ii. *Commercial Vehicle Safety Regulation*

The *Commercial Vehicle Safety Regulation* adopts specified national standards relating to the safe condition and operation of commercial vehicles, including specified National Safety Code for Motor Carriers Standards, Society of Automotive Engineers Standards, Underwriters' Laboratory of Canada Standards, Canada Motor Vehicle Safety Standards, and Canadian Standards Association Standards. Compliance these and other safety and maintenance standards set out in regulation is required. The Regulation also creates inspection and reporting obligations.

iii. *Driver Hours of Service Regulation (Provincial)*
This Regulation enhances safety on Alberta's roads by limiting the on-duty hours of the drivers of certain vehicle types, and by specifying the number of off-duty hours between shifts. The Regulation applies generally to buses and to vehicles having a gross weight of 11,794 kg or more and includes provisions exempting certain vehicles and activities from the Regulation's application. The Regulation also articulates the specific recording obligations of drivers.

iv. *Vehicle Inspection Regulation*
This Regulation ensures that only vehicles that are safe to operate can continue operating on Alberta's highway network. This is achieved through: designating certain vehicles as salvage vehicles; regulating the sale of salvage, out-of-province and used vehicles, and; creating a comprehensive vehicle inspection program. The Regulation requires vehicle inspection facilities and technicians to be licensed and to adhere to strict standards.

v. Bill of Lading and Condition of Carriage Regulation

This Regulation applies to goods transported by commercial vehicle on Alberta's highway network. It sets out the specific information that must be included in bills of lading and waybills. Specific reporting requirements apply to certain types of goods being transported, for example to livestock and household goods. Conditions of carriage are also set out in the Regulation's Schedules

vi. Commercial Vehicle Certificate and Insurance Regulation
This Regulation prescribes the insurance requirements for specific types of commercial vehicles. It also seeks to achieve high levels of compliance with transportation legislation by providing for certification processes that are associated with the issuing of Safety Fitness Certificates and Operating Authority Certificates. One or both certificates must be applied for and acquired to operate most commercial vehicles lawfully on Alberta's highways. The Regulation requires the Registrar of Motor Vehicle Services to establish and maintain operator profiles to monitor the activities and safety records of carriers and other persons.

National Safety Code

On April 1, 1989, each province and territory in Canada agreed to a set of performance and safety standards for commercial motor carriers and the National Safety Code (NSC) came into effect. Alberta, like other Canadian jurisdictions, has passed legislation to put these standards into effect. Although NSC is not a law, it is considered by federal, provincial and territorial governments when drafting their traffic safety laws.

Currently there are of 16 safety performance standards.

The 16 National safety Code Standards include

1. **Single Driver's Licence Concept** – prohibits a driver from holding more than one driver's licence. All driving infractions are required to be assigned to a single licence and record.

2. **Knowledge/ Performance Tests**- provides information on the process of standardizing commercial drivers' testing (written and road test) by identify key testing key testing elements including information on how to safely operate a vehicle and road rules and traffic laws.

3. **Driver Examiner Training program** – sets consistent standards for upgrading knowledge (standardized course materials) and skills of driver examiners.

4. **Classified Driver Licence system**- this standard ensures uniformity in classification and endorsement system for driver licences.

5. **Self-Certification Standards and Procedures**- outlines the requirements that must be met before driver training schools and carriers are allowed to train commercial drivers.

6. **Medical Standards for Drivers** – outlines the medical requirements used to determine if a driver is medically fit to operate a vehicle.

7. **Carrier and Driver Profiles** – assists in identifying they type of information that should be maintained on each commercial driver and carrier profiles. The carrier and drivers profile assist in reviewing of carriers and driver's safety performance.

8. **Short-Term Suspension** – identifies the criteria that can be used by peace officers to place a driver out-of-service on a short term (24 hours) when the driver's ability to operate a vehicle is impaired by alcohol, drugs or fatigue.

9. **Hours of Service** –describes the number of hours a commercial driver can be on duty and operate a commercial vehicle.

10. **Cargo Securement**- describes the safest methods for securing loads to commercial vehicle to ensure that they do not shift, move or spill onto the roadway.

11. **Commercial Vehicle Maintenance and Inspection (PMVI)-** outlines the minimum standards for periodic inspection, maintenance and repair of commercial vehicle.

12. **CVSA On-Road Inspections** contains Commercial Vehicle Safety Alliance on-road inspection information and sets the minimum standards for roadside inspection in Canada, the United States and Mexico

13. **Trip Inspection** –contains daily trip inspection requirements and ensures that any vehicle with problems or defects are immediately identified so that their operation may

be prevented until all repairs have been made.

14. **Safety Rating** – establishes the safety rating framework to assess a carrier's safety performance.

15. **Facility Audits –** this describes the auditing process used to determine a carrier level of compliance with safety laws. It also indicates that carriers must maintain records at their principal place of business for review and assessment by auditor

16. **First Aid Training** – this describes the recommended minimum first ait training requirements for drivers

Traffic Laws

- Traffic-related laws and regulations are based on Alberta *Traffic Safety Act*, which can be found at http://www.qp.alberta.ca/documents/Acts/t06.pdf
- Other Canadian jurisdictions have their laws regarding operation of vehicles on public roadways.
- Individual municipalities in Alberta can also pass traffic by-laws.
- It is your responsibility as a driver to be aware of by-laws and other regulations in other Canadian jurisdictions before traveling outside the province or out of your municipality.
- Violation of these laws and regulation may result in various consequences.
- Under these laws and regulations, some infractions can lead to a criminal conviction

1.1.1. Criminal Code of Canada

1.1.2. The *Criminal Code of Canada* provides judiciary consistency across Canada. Conviction of an infraction will result in a Criminal Record. A copy of the *Criminal Code of Canada can be found at http://laws-lois.justice.gc.ca/PDF/C-46.pdf*

- Examples of infractions that can lead to a criminal conviction include:
  - Impaired driving
    - Impaired driving regardless of blood alcohol content
    - Blood alcohol level over the legal limit
    - Drug or drug-alcohol combination or toxicological sample. For more information, go to - https://www.alberta.ca/impaired-driving-law-changes.aspx
  - Leaving the scene of a collision
  - Failure to provide a breath or blood sample
  - Impaired driving causing bodily harm
  - Impaired driving causing death
  - Driving while suspended or disqualified
- Convictions under the *Criminal Code of Canada* vary with gravity of the offence and frequency of traffic violations.
- A police officer has the authority to enforce the *Traffic Safety Act,* the *Criminal Code of Canada* and any municipal by-laws. It is illegal to refuse a lawful request from a police officer.

Consequences of Traffic Convictions

Some of the consequences of traffic convictions may include one or a combination of the following:

- **Fines** - a driver may receive fines for traffic violation. Amount of fine varies with the gravity of the traffic violation.
- **Demerit points** – demerit points are recorded against your driving record when you are convicted of an offence. You are convicted when you:
    - Pay the fine assessed on your ticket voluntarily
    - Appear in a court and are found guilty
    - Fail to appear in a court and are convicted (guilty) in absence.
- **Driver's licence suspension** - driving privileges can be immediately suspended for a specific period of time for various reasons including accumulation of 15 or more demerit points within two years, impaired driving, refusal to comply with a lawful demand of a peace officer, etc. period of suspension may vary with the frequency of the offence.
- **Jail time** - drivers found guilty under the *Criminal Code of Canada* to cause bodily harm or death while impaired, you may face a time in jail.
- **Criminal record** - criminal convictions may affect an individual's employment status and/or future employment opportunities. The employer may require employees and job applicant to disclose criminal record history in order to maintain their jobs or prior to employing new employees.
- **Insurance cost** - drivers with records traffic convictions and incidents may face increased insurance premiums.
- **Travel restrictions** - individuals with criminal history may be refused entry into some countries.
- **Loss of employment -** criminal convictions may result in lose of employment.

It is important to note that traffic convictions and incidents are retained on an individual driver's records and will appear on your driving abstract. These may affect the status of your driver's licence as well as your ability to operate a truck.

Transporting Dangerous Goods

According to the Federal *Transportation of Dangerous Goods Act*, *"dangerous goods" means a product, substance or organism included by its nature or by the regulations in any of the classes listed in the schedule*. Transportation of some goods could pose significant danger if they are not properly secured or contained during transporting. Dangerous goods can be in solid, liquid or gaseous form and can harm people, other living organisms, property or the environment. Proper caution must be taken when handling and transporting dangerous goods.

Drivers who transport dangerous goods in Alberta must comply with both provincial and federal standards: Alberta Provincial *Dangerous Goods Transportation and Handling Act* and *Dangerous Goods Transportation and Handling Regulation* as well as the Federal

Transportation of Dangerous Goods Regulation (TDG). These regulations set safety standards and shipping requirements for dangerous goods.

The laws on dangerous goods state that no one shall handle, offer for transport or transport dangerous goods unless they are trained or they work in direct contact with someone who is trained.

Carriers are responsible to make sure their employees have the proper training to work safely with dangerous goods. This usually means a formal in-house training program to earn a Dangerous Goods Training Certificate. This certificate shows that the employee has successfully completed the training. Carriers can provide their own training or may hire someone to do the training for them. However, in all cases, the employer must be satisfied with the training, and sign the certificate of training indicating that the driver has successfully completed the dangerous goods course.

There are nine hazard classes of dangerous goods – some with divisions.

Class 1 Explosives

1.1 A substance or article that explodes as a mass.

1.2 A substance or article with a fragment projection hazard, but not a mass explosion hazard.

1.3 A substance or article that has a fire hazard along with either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.

1.4 A substance or article that presents no significant hazard, with explosion effects that are largely confined to the package and no projection or fragments of appreciable size or range are to be expected.

1.5 A very insensitive substance that has a mass explosion hazard like those substances in 1.1.

1.6 An extremely insensitive substance that can have a mass explosion hazard like those substances in 1.1.

Class 2 Gases

2.1 A flammable compressed gas.

2.2 A non-flammable, non-toxic compressed gas.

2.3 A toxic compressed gas.

Class 3 Flammable Liquids

3 A liquid with a closed-cup flash point of less than 60.5 degrees Celsius.

Class 4 Flammable Solids, Substances Liable to Spontaneous Combustion, and Substances that Emit Flammable Gases on Contact with Water

4.1 A solid that: ignites easily while it is being transported, burns vigorously and persistently, or contributes to fire through friction or from heat kept during manufacturing or processing.

4.2 A substance that might spontaneously combust when exposed to air, or might spontaneously heat up to the point where it ignites in contact with air.

4.3 A substance that might emit flammable gas(es) or create enough heat to ignite gas(es) if it comes in contact with water or water vapour.

Class 5 Oxidizing Substances and Organic Peroxides

5.1 A substance that contributes to the combustion of other material by yielding oxygen or other oxidizing substances, whether or not the substance itself is combustible.

5.2 An organic compound that has the bivalent “0-0” structure that is a strong oxidizing agent and may be liable to explosive decomposition or is sensitive to heat, shock or friction.

Class 6 Toxic Substances and Infectious Substances

6.1 A solid or liquid that is toxic when: · its vapours are inhaled, it comes in contact with skin it is ingested.

6.2 Infectious organisms or organisms believed to be infectious to humans and animals.

Class 7 Radioactive Materials

Radioactive materials are not named, only described by activity or package requirements.

Class 8 Corrosive Materials

Corrosive materials will corrode metal, human skin and internal tissue.

Class 9 Miscellaneous Products or Substances

9.1 Miscellaneous dangerous goods.

9.2 An environmentally hazardous substance.

9.3 A dangerous waste.

Module 1 Key points

- Professional drivers must act in a safe and responsible manner while operating a motor vehicle.
- Professional drivers must be aware and abide by all the laws governing the operation of a vehicle.
- Profession drivers must have the appropriate class of driver’s licence prior to operating any type of vehicle.
- Violations of laws may result in traffic convictions.
- There are several consequences for traffic violations including fines, driver’s licence suspension, jail time, travel restrictions, criminal record, increase in insurance premiums, and accumulation of demerit points.
- Traffic convictions may affect the status and future employment of a professional driver

NOTES:

MODULE 2 – VEHICLE COMPONENTS AND SYSTEMS

Purpose

The purpose of this module is to familiarize trainees with the basic components and systems of truck. The module will outline the location and functions of these components and systems. This module is organized as follows, minimum of 3 hours, 30 minutes of classroom session and minimum of 3 hours of in-yard session. It should take a total of 6 hours, 30 minutes to complete this module.

General Learning Outcomes

At the end of this module, the trainees should be able to:

- Identify the basic components and systems of a truck/tractor
- Understand and discuss the function and safe use of the components and systems Locate the vehicle components and systems.

Habits of Minds

Trainees will:

- Recognize the importance of being able to identify and locate basic vehicle components and their functions

Knowledge and Understanding

Trainees will:

- Know the functions of outlined vehicle components and systems
- Know how the components and systems work

Skill and Processes

Trainees will be able to:

- Demonstrate the ability to operate some of the components and systems including electrical systems, door controls and vehicle controls such as switches, adjustments
- Demonstrate the location and accessibility to fluids system
- Demonstrate the ability to locate and operates all typical primary and secondary controls, gauges and instruments.
- Demonstrate the ability to read the instrument panel indicators displaying important vehicle operating information, warnings and safety system status.
- Demonstrate the ability to locate fuel tanks and filler caps

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
3		**0.5**	**1**	**2**			**6.5**

Components and Systems of a Tractor-Trailer Truck

Know your systems and components

It is important to know the basic components of the vehicle, where they are located, their functions and how they operate. Before driving, the driver must familiarize his/her with the basic components and systems of the vehicle.

As professional driving skills is developed, the importance of knowing the functions of all controls, systems and instruments found in a vehicle will be clearer. Some controls, systems and instruments are unique to a truck/tractor trailer and may not be found in other types of vehicles. It is important that drivers consult the manufacturer's manual of their vehicles to identify the vehicle's components, functions and to determine if the components or systems are functioning optimally.

The components and systems are divided into 16 broad categories

1. **Primary Vehicle Controls**- These are the main components that allow the driver to move and control the vehicle.

2. **Secondary Vehicle Controls** – These components do not affect the movement of the vehicle but contribute to the safety-related issues.

3. **Engine –** This is located under the hood of the truck-tractor. Truck tractors use internal combustion engine, which implies that, fuel is burned by the engine inside a closed chamber.

4. **Air Intake and Exhaust Systems**- These systems ensure that fresh air is constantly supplied into and burned gases are expelled from the engine to enhance smooth running of the tractor.

5. **Lubricating System** – This is the system that assists with the distribution of oil to various parts of the engine. The presence of oil in enables the moving parts to slide smoothly instead of rubbing together, thereby reducing friction between the parts surfaces to a minimum. A well lubricated engine will increase engine efficiency and extension of parts life.

6. **Cooling System**- Heat is generated in the vehicle engine and may destroy the engine if not controlled. The Cooling system assists in keeping the temperature of the engine down.

7. **Suspension System** – This system provides support to the vehicle by distributing and carrying its weight.

8. **Hydraulic Brakes System** – This system enables the driver to stop or slow down the vehicle's tire rotation through creating a friction of the tires against the road surface.

9. **Air Brakes** - This is a system that uses pressure from compressed air to increase braking force.

10. **Auxiliary Equipment**- Equipment used during emergencies.

11. **Electrical System** – This system is important to start the engine, run the light, or to utilize vehicle instruments

and gauges

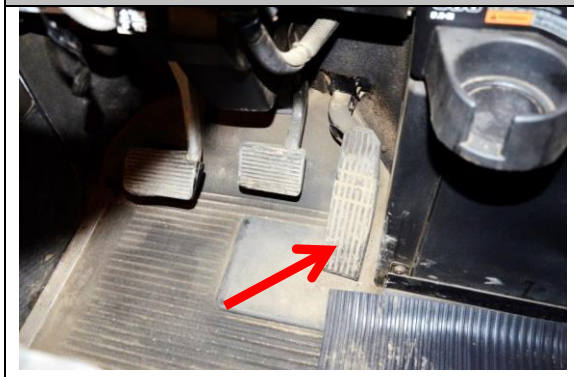
12. **Vehicle Body and Frame** – This includes the occupant section of the vehicle and the metal infrastructure supports the rest of the vehicle.

13. **Tires and Wheels** – Tires with the support of the wheels assist in providing traction between the vehicle and the road surface and also support in absorbing shock when the vehicle is driven over uneven surface.

14. **Coupling System** – These are vehicle components used to connect a tractor to a trailer. This system has two main components- the fifth wheel and the trailer kingpin. Proper coupling of the trailer is one of the responsibilities of a professional truck driver.

15. **Gauges** – There are devices on the vehicle's instrument panel. They use of a needle or pointer that moves along a calibrated scale to indicate the measurement of a monitored system. Drivers are encouraged to consult the manufacturer's manual of the vehicle they are driving to identify the gauges and their normal operating ranges.

16. **Switches** – These are used to control the vehicles electrical system. They are binary controls- either on or off. They vary in style, type and configuration depending on the vehicle manufacturer. Drivers are encouraged to consult the manufacturer's manual of the vehicle they are driving to identify the vehicle's switches and how to operate them.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
PRIMARY VEHICLE CONTROLS		
	Accelerator Pedal/Throttle Actuator	This component controls the flow of fuel entering the vehicle's combustion chamber. It is an important component in moving a vehicle and is also used to adjust the speed to the corresponding gear of a vehicle. When the pedal is pushed down, the vehicle speed increases and speed is reduced when the pedal is eased off.
	Transmission (manual)	It is a box of gears located behind the clutch. It involves the use of the clutch, the accelerator and the gear lever to move and adjust through the shift pattern. Power generated by the vehicle engine is adjusted to determine the appropriated speed and torque to move the vehicle.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Clutch and Clutch Pedal	This is a vehicle component that has to be disengaged in order to start the engine and shift the gear of a vehicle. The clutch unit is a disc used to transfer power from the engine to the transmission. Therefore, to shift gears you must disconnect the engine from the transmission.
 	Gear/Shift Lever	This is manually controlled by the driver to select vehicle speed. The gear lever is used to change gears. On top of the shift lever you will notice there are one or two controls, the range control and possibly a splitter. They may look different or be in slightly different places for different transmissions but they all perform the same way. The range control in a transmission provides both a high and a low range of basic gears. A range control turns a five-speed transmission into nine speeds, five low range gears and four high range gears. Most tractor-trailer(tractor) transmissions will have a range control. This control lets the main transmission gears do double duty. You may use them once in low range and then use them over again in high range. This provides an economical way to increase gear ratio selections. The more selections you have, the more closely you will be able to match the speed of the

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
		engine to the speed needed by the wheels to accelerate, climb grades, and cruise along the road. These selections help you accelerate faster, hold your speed on hills better, and keep a higher average rate of speed. As the transmission range control splits the basic gears into low and high gears, the transmission splitter control splits those high gears into “Direct” and “Overdrive”. That means a range control transmission with a splitter has a low gear range, a high gear range and an overdrive for each gear in high range.
	Steering/ Steering Mechanism	This allows the driver to make various types of manoeuvers in order to move a tractor-trailer from one point to another. It is used to determine the direction of travel of a vehicle in motion.

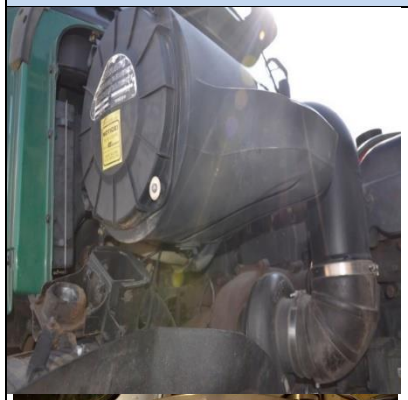
VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Brake Pedal	This is used to slow down or stop a vehicle when energy of momentum is converted into energy of heat.
	Parking brake	This keeps the vehicle in a motionless state when it is parked. It can also be used for emergency stop.
SECONDARY VEHICLE CONTROLS		
	Lights Exterior lights on the tractor-trailer (stop/tail light, back up and docking light, turn signal lamps, licence plate light, hazard warning lamps, clearance	These components play important roles in safety issues relating to vision and communication

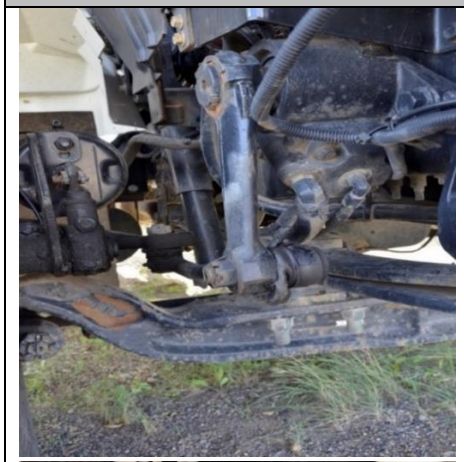
VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	and marker lights, high/low beam) Reflectors	
	Windshield wiper/washer Defroster	These components play important roles in safety issues relating to vision. Defroster keeps the windows clear of condensation
	Air vents Air conditioner and heater	These components play important roles in safety issues relating to comfort of the driver and other occupants
	Horn	These components play important roles in safety issues relating to communication.
	Radio	
	Instrument Panel Lamp Interior Lamps including stepwell lights	These lamps illuminate the interior of the cab and the dashboard or instrument panel when driving in the dark. The instrument panel lamps are activated once the exterior lights are turned on.
ENGINE		

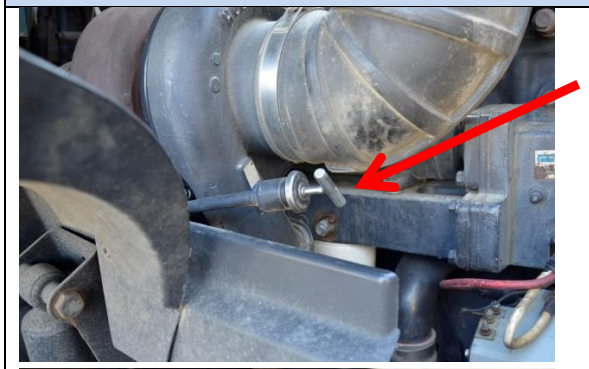
VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Engine block	This is a large steel block with cylindrical holes drilled through it which houses the engine components.
	Cylinders	This is a closed chamber inside which fuel is burned by the engine. Engine power that turns the wheel and pulls the tractor is generated in the cylinders. Each cylinder has a piston, a crank and a connecting rod.
	Fuel Injectors	This supply fuel (diesel) to the cylinders.
	Fuel Filter	This component keeps contaminants out of the fuel system by cleaning the fuel as it flows from the tank through the fuel lines into the fuel injector
	Piston	Piston rings create a seal between the piston and liner. During combustion, an expansion is created within the cylinder that forcefully moves the piston to move in up and down motion. This motion creates a compression of the air-fuel mix in the cylinder. The movement of the piston is called a stroke. The connecting rod connects the piston to the crank

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Crank	This is an arm attached to the crankshaft at a right angle and connected to the piston by a rod. As the piston moves in up and down motion, the crank is also turned.
	Crankshaft	This a shaft to which series of cranks and crank pins are attached to an engine's connecting rods. The up and down movement of the piston is converted into circular or rotational motion in the crankshaft which creates a force that moves the wheels and in turn, the vehicle.
AIR INTAKE AND EXHAUST SYSTEMS		

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
 	Exhaust System	This system assists in removing or expelling burned gases and fumes from the engine cylinder. A stroke of the piston forces the burned gases to be expelled through the exhaust valves and manifolds. The gases then pass through the exhaust pipe and a muffler.
	Muffler	The muffler is important in reducing the reduce the sound of the engine combustion

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
 	Air Intake System	A diesel internal combustion engine is not only powered by fuel but a mixture of fuel and air. This system supplies the air that causes combustion in cylinder. It is composed of- air cleaner, intake manifold, turbocharger, aftercooler, rain cover, snorkel, outside air cleaner.
	Turbocharger	This is a turbine-driven forced induction device that increases an internal combustion engine's efficiency and power output by forcing extra compressed air into the combustion chamber. The power received from the exhaust gases are converted into power that can be used by the engine through the turbocharger

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Aftercooler	This assists in cooling the intake air received from the turbocharger to a safe temperature level. The cooler air is more dense, so that with the increase in oxygen more fuel can be added resulting in more horsepower.
LUBRICATING SYSTEM		
 	Power Steering System	This is a component of the engine that enhances easy movement of the steering wheel. It is driven by a belt connected to the engine. It comprises of hoses, pump and power steering fluid. It assists the driver to steer the wheel with less effort. Fluid pressure from the pump is used to push against a piston. When the wheel is turned, pressure flows to one side and the piston moves. The piston is attached to the steering gears. Hydraulic pressure does the work, and the driver controls the direction by turning the steering wheel.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
 	Oil Dip Stick	This is used to indicate the level of oil in the engine
	Applicable Hoses and Clamps	Hose clamps are used to attach a hose to a fitting. Hoses are used to convey fluid or air from one part of the engine to another

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Oil Filter	Oil circulating through the engine collects dirt and bits of impurities which can damage the engine if not removed. The oil filter removes these impurities before they circulate to all the moving components.
COOLING SYSTEM		
	Radiator	A vehicle cooling system keeps the temperature down to prevent Intense heat from damaging the vehicle engine. The radiator is the largest part of the cooling system. It is a reservoir that assists in cooling the engine through heat exchange
	Radiator Cap	This seals the radiator. The cap assists in maintaining the pressure on the coolant. The cap should only be removed only when the engine is cold.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
 	Fan Belt and Blades	A belt transfers motion from the drive shaft to the radiator fan and the alternator. This must be well tightened and replaced as needed. Fan blades rotate and help dissipate heat and circulate air, keeping the engine cool.
SUSPENSION SYSTEM		

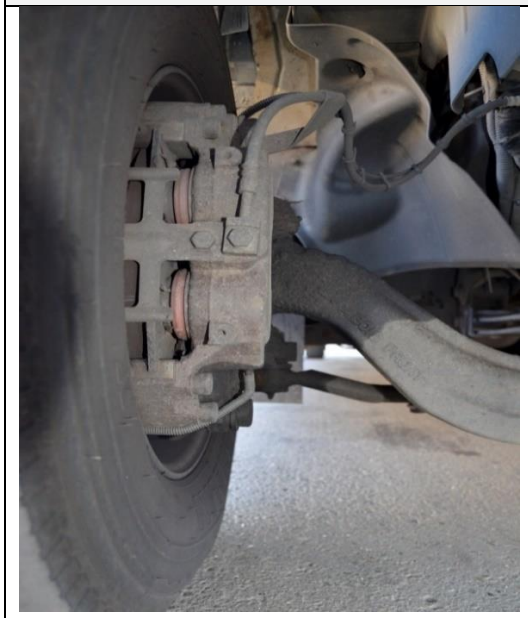
VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Suspension & Frame Attachments	The body of the tractor-trailer is connected to and strengthened by the frame. The frame rests on the suspension system. The suspension reinforces and distributes the weight of vehicle. The suspension system also supports the axles by enabling axle movement when surface or ground changes. The system is divided into spring leaf suspension and air bag suspension.
Axle		
	Axles	The axle is a shaft on which two or more wheels revolve. The wheel is connected to the rest of the vehicle by the axle. Tractor axle, along with trailer axle serves as connection points for brakes. Tractors have front axle and one or more rear axles

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE	
		Front tractor axle	This is the steering axle on a truck. Steering axle means the articulated axle of a commercial vehicle that can be controlled by the driver of the vehicle for the purpose of steering the vehicle
		Rear tractor Axle	This is also called drive axle. Power is transferred from the engine and the powertrain to the wheels by the rear axle.
		Single axle	Some two-axle trucks have one rear axle. This rear axle is called the single drive axle. This could also be any combination of two axles whose centres are less than one metre apart.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE	
		Tandem:	Some trucks have two consecutive rear axles (two drive axles) where the axles have an axle spread of not less than 1.2 metres and not greater than 1.85 metres, or in the case of a trailer manufactured before November 15, 1988, the axles have an axle spread of not less than 1.0 metre and not more than 2.4 metres. This type of axle is called tandem axle. The additional axle lengthens a truck's wheelbase but enables the truck to accommodate and carry heavier load. Some tandems have a drive and a non-drive axle. The non-drive axle mounted behind the drive axle is called the tag axle while the one mounted ahead of the drive axle is called the pusher axle. Tandem axle tractor with two drive axles is described as twin screws. Tractors equipped with two drive axles have more traction on slippery surfaces (mud or snow).
		Tridem/Tri-Drive Axles:	This is an axle group, on a trailer or tractor, consisting of any 3 consecutive axles of a vehicle where the axles are evenly spaced over a distance of not less than 2.4 metres and not greater than 3.7 metres, but does not include a lift axle in the down position or a single steer

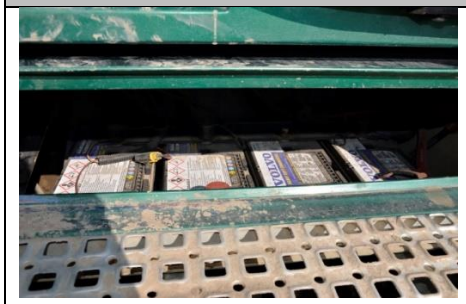
VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Drive Shaft	This is a shaft that runs between the front and the rear axles
	Air Bag Suspension	This is a type of vehicle suspension which requires an electric or engine-driven air pump or compressor for operation.

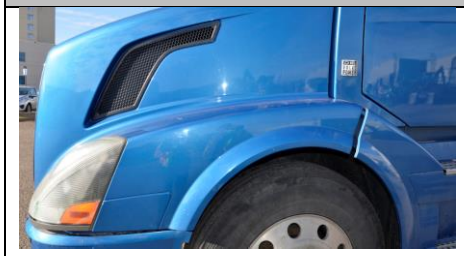
VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Shock Absorber	This assists in reducing the motion of the vehicle body when the wheel moves over an uneven surface.
BRAKE SYSTEMS		
Hydraulic Brake System		
	Hydraulic brake	Hydraulic Brakes Hydraulic brakes apply instantly

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
		Hydraulic fluid is held in reservoir and brake lines so the system is constantly full Brake fluid cannot be compressed as opposed to the air brake system Brake fluid transfers pressure rather than flows The force applied to the brake is immediate
Disc Brake System		
	Disc Brake	The components of a disc brake system consist of a disc and calliper. When the brakes are applied, the calliper squeezes the disc creating friction and slowing the vehicle.
Drum Brake System		

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Drum Brake	This is a drum attached to each side of the axle by bolts, to stop or slow down tire rotation when the driver applies pressure on the brake pedal. When brake is applied friction is created when the brake shoe linings are forced against the inside of the brake drum.
Air Brake System		
	Air Compressor	This pressurizes air and pumps it into storage tanks. It is directly driven from the internal gearing of the engine. They can either be single or multiple piston pump. It takes in air from the atmosphere and compresses (pressurizes) it.
	Air Tanks	These store the air pressure. The size of the air tanks depends on the air volume required for the brake lines and chambers.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Air Tank Check Valves	These are one-way valves which are located at the entrance of the air tanks. They allow air flow from one side of the tank to the other, while blocking air flow in the opposite direction.
AUXILIARY EQUIPMENT		
	Advance warning Triangle	These are devices to be used in an emergency situation to warn other road users of an obstruction ahead caused by a broken-down vehicle. A commercial vehicle shall not be operated unless the vehicle carries at least 2 advance warning triangles. If the breakdown occurs during daylight hours, place the warning triangle 30m in front and rear of the vehicle. If between sunset and sunrise or when visibility is reduced to 150m, place the warning triangle 75m in front and rear of the vehicle.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
 	Fire Extinguisher	The equipment must be fully charged and show a validity label. Only to be used to extinguish minor fires.
ELECTRICAL SYSTEM		
	Battery and Battery Cable	A battery converts chemical energy into electrical energy to supply power to the vehicles electrical system. The battery has a positive terminal and a negative terminal. The terminals are located on the top of the battery. Battery cables are connected to the cell connector to transport electricity from the cell to the power system. The battery must be securely mounted. Some battery systems are equipped with emergency kill-switches.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
 	Wires	These are used to connect the electrical components of a vehicle. Wires carry the energy required to activate a vehicle's electrical components and devices e.g. lights, doors, locks, windows etc. Wire connections should not be exposed.
VEHICLE BODY AND FRAME		
	Hood or Engine Enclosure	This is the part of the truck body within which the engine is housed

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Cab -Vehicle Body	This is the part of the truck that accommodates the driver and the occupants of the vehicle. A vehicle frame, also known as its chassis, is the main supporting structure of a motor vehicle.
	Seat	This is in the interior of the truck for the driver and any co-occupant's comfort
	Seat Belt/Occupant Restraint	Seat belts save lives, reduce injuries and provide the greatest protection when worn properly in the event of a collision.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Fender/Mud Flap	Protects the vehicle and other road users from rocks, spray and debris. Mud flaps are flexible, fenders are rigid.
 	Mirrors	Drivers of large commercial vehicles rely on their mirrors to observe traffic conditions behind and beside the vehicle. Making effective use of mirrors when performing reversing manoeuvres and driving on a highway or city streets is imperative to ensure the safe operation of a tractor-trailer. Mirrors must be correctly adjusted to ensure the widest possible field of vision.
	Fuel Tank Door and Cap	Fuel Tank: a safe container for flammable fluids. Fuel Cap: a cover that screws onto the fuel inlet tube and allows fuel to be added to the tank. By replacing the fuel cap, contaminants are prevented from entering the fuel tank.

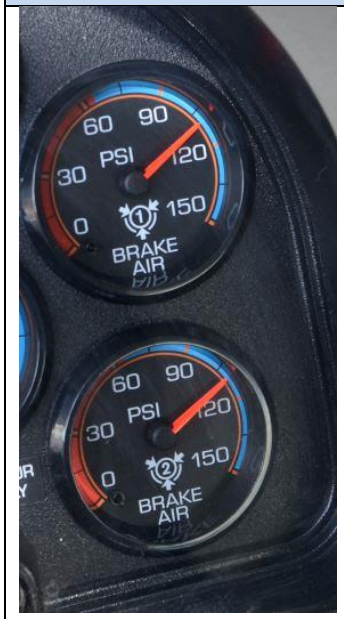
VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Doors	These allow the driver and co-occupant in the cab to enter and exit the truck.
TIRES AND WHEELS		
	Tire	This is a ring-shaped, air-cushioned component around the wheel's rim. It provides traction between the vehicle and road surface. Driver must ensure that tires are inflated correctly. Underinflated tire builds up heat as it travels over the road surface. This may damage the tire casing. If not inflated on time, the tire may catch fire due to high internal temperature.
	Wheel Hub	This is the central portion of a wheel through which the axle passes.
	Wheel/Rim	This is a single assembly used for mounting large tires of heavy equipment

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Wheel Fasteners (Nuts, Bolts and Studs)	Wheel fasteners are used to secure wheels on a vehicle.
COUPLER SYSTEM		
 	Fifth Wheel	This is a coupling device that is mounted on the vehicle chassis and that consists of a skid plate, associated mounting brackets and latching mechanism that couples or connects to a kingpin located on the other vehicle or component, for the purpose of supporting and towing a semi-trailer. There are two types of fifth wheels, the stationary and the sliding fifth wheel. A stationary fifth wheel is mounted on the frame rails of the tractor and is positioned in a way that the optimum weigh distribution is achieved between the front and the rear axles of a properly loaded trailer. The sliding or adjustable fifth wheel can be adjusted back and forth along the frame rail in a way to ensure even weight distribution on each axle. The sliding fifth wheel can adjust the overall length of the tractor-trailer and hence, the turning radius of the vehicle.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Trailer Kingpin	This is a 2 –inch high-strengthened steel pin that fits and locks into the jaws of the fifth wheel to couple the tractor to the trailer.
	Landing Gear	This provides stationary support for the front of a trailer when it is not coupled to a tractor.
GAUGES		
	Ammeter	Measures the level of electrical draw on a battery by how much the battery is being charged or discharged.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
 	Water Temperature Gauge	This shows the temperature of the coolant in the engine. This gauge should be monitored regularly to avoid engine damage. After starting a cold engine, you should wait for the water temperature to rise before moving the vehicle. • Normal operating temperature is generally between 165°F to 205°F (refer to engine manual for your engine). • Maximum allowable temperature is 210°F when the cooling system is pressurized (refer to engine manual for your engine). • Overheating can happen when there are low coolant levels, a sudden loss of coolant, and severe operating conditions such as climbing a steep grade. • If the engine overheats and the Engine Coolant Temperature warning light illuminates: ▪ Stop the vehicle but leave the engine running (unless a low water warning device indicates a loss of coolant). ▪ With the transmission in neutral, check to ensure that the oil pressure gauge reads normal. Increase the engine speed to about 1100 to 1200 RPM maximum. Return the idle speed to normal after 2 to 3 minutes. If the warning light does not go off or the temperature gauge does not begin to drop, turn the engine off.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Fuel Gauge	This indicates the level of fuel in the fuel tank. This gauge should be checked regularly to ensure there is plenty of fuel to reach your destination. • If you notice that the needle is stuck in one position for too long, this can indicate an issue with the gauge, the sensor in the tank(s), or the fuel is not leveling out between the two tanks. You should stop the vehicle, remove the cap(s), and ensure you still have plenty of fuel to reach your destination. • If it is a leveling problem, one tank may still be full while the tank where fuel is being drawn from is almost empty. • Fuel tanks should be kept at least half full to reduce condensation and a buildup of moisture in the tanks. Moisture can damage your engine.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Air Brake Pressure Gauge	The air brake system is activated by air pressure. This measures the amount air pressure in the air tank in pounds per square inch (psi) or kilopascals (kPa)
	Speedometer	This instrument displays the road speed in miles per hour and kilometer per hour. • If the speedometer is indicating speeds that are slower or faster than what they should be, have the vehicle checked by a mechanic to correct the problem. • Malfunctioning cruise control could indicate a problem with the speedometer sensor. • If the message centre displays a warning or diagnostic message, pull over to determine the cause immediately. Refer to the owner's manual or

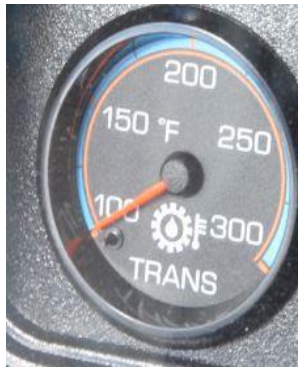
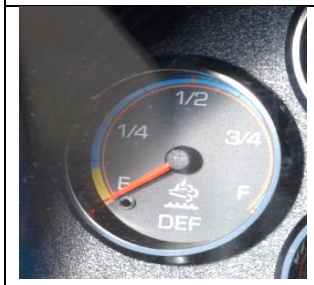
VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
		contact a repair shop that specializes in the vehicle you are driving.
	Odometer	This indicates the distance travelled in miles or kilometers
	Tachometer	This device measures engine rotation speed in RPM (Revolutions Per Minute). • If engine speed gets too high, select a higher gear to lower the RPM's. • If engine speed drops too low, select a lower gear to raise the RPM's. • To avoid engine damage, do not let the pointer exceed maximum governed speed (refer to engine manual for RPM recommendations).
	Pyrometer	This measures the temperature of the exhaust gases which ranges from 351.5-537.8^{o}C. Monitoring engine exhaust temperature is a more effective and efficient way to recognize early signs of engine problems over any other method. The normal operating range varies among trucks.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
		• Refer to owner's manual for normal operating temperatures. • Sustained high temperature can lead to engine failure. • Higher exhaust temperatures can be a result of these basic causes: ▪ Excessive fueling (heavy acceleration or faulty fuel system ▪ High intake ambient air temperature ▪ Restricted air flow ▪ Headwinds ▪ Lugging the engine (improper acceleration or shifting)
	Voltmeter	This displays the battery's charging voltage when the engine is in operation. It can be identified by the word volts on the lower part of the gauge. Battery charging issues can be identified and addressed early if drivers monitor this gauge. It is displayed in numbers or colour or a combination, depending on the vehicle's manufacturer. • A fully charged battery will typically read between 12-14 volts, and it should stay within this range unless there is a heavy pull on the electrical system. • If the gauge stays below 12 volts (undercharged) or goes above 15 volts (overcharged), you should have the system checked.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Fuel Filter gauge	This gauge indicates the condition of the fuel filter. It usually has 2 sections- white and red. When the pointer point towards the red section, it indicates that the fuel filter need to be changed due to clogging by dirt.
	Engine Oil Temperature Gauge	This indicates the engine oil's temperature. This gauge should be monitored regularly because inadequate oil pressure can cause engine damage. • Normal operating temperature will differ among different types of engines (refer to engine manual for normal ranges). • If oil temperature rises above the normal operating temperature, you should reduce the load being placed on the engine or transmission to help reduce the temperature, and then determine the cause and have it repaired to avoid engine damage. • • High temperatures can indicate a failing oil pump, a shortage of oil, or a blockage.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
 	Engine Oil Pressure	This measures the force of oil being pushed through the engine in psi • Normally rises and falls between 20-50 psi with engine speed (refer to engine manual for correct oil pressure ranges for your engine) • If oil pressure fails to rise within 10 seconds after the engine starts, stop the engine and determine the cause • If oil pressure suddenly drops while driving, bring the vehicle to a safe stop as soon as possible and turn off the engine. Wait a few minutes to allow the oil to drain into the oil pan and then check the oil level. Add oil if necessary. • Low pressure can indicate worn bearings or oil pump needs repair • High pressure can indicate a blocked oil filter, pressure relief valve stuck, or wrong grade of oil was used • In all cases, you should safely stop the truck immediately, shut the engine off, and determine the cause or contact a mechanic before causing any further damage to the engine.

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Air Cleaner/Filter Restriction Indicator or Gauge	This measures the condition of the engine air cleaner in inches of water (inH20) or kilopascals (kPa).
	Front and Rear Axle Temperature Gauge	This indicates the temperature of the lubricant in the front and rear axles. Temperatures vary with the type of load, driving conditions, and type of lubricant. • Normal operating temperatures can range between 80°F to 220°F depending on the type of manufacturer (refer to owner's manual for normal temperatures for your vehicle). • Maximum axle temperature may vary depending on the axle and type of lubricant. It is normal for the front axle to read higher than the rear axle. • High temperature readings indicate you should have the axle lubrication checked. • Driving with very hot temperatures in your rear driver axles can cause serious damage to axle bearings and seals. • When the truck is under a load such as climbing steep grades, it is not unusual for the temperatures to exceed the normal operating range as long as the

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
		temperature returns to normal when the load decreases.
 	Transmission Temperature Gauge	This measure the temperature of the oil in the vehicle's transmission system. This gauge should be monitored to ensure the transmission does not overheat. • The normal operating range for most transmissions is 180°F to 240°F (refer to transmission owner's manual for normal operating range) • If the transmission overheats, have it checked by a mechanic. • Maximum transmission temperature is around 250°F, but it may vary depending on the type of transmission and the type of lubricant used (refer to transmission owner's manual for maximum temperature allowed).
	Diesel Exhaust Fluid (DEF) Gauge	This gauge measures the level of diesel exhaust fluid in the tanks. If a vehicle tank runs out of DEF when the vehicle is in operation, the engine power will be reduced and hence, speed will be limited.
SWITCHES		

VISUAL REPRESENTATION	NAME	FUNCTION/PURPOSE
	Ignition Switch	An ignition switch is a switch in the control system of a motor vehicle that activates the main electrical systems for the vehicle, including "accessories" (radio, power windows, etc.).
	Door Control	This controls the opening, closing and locking of the doors.
	Signal Controls Switches	This turns on or off the signal lights
	Light Controls and Adjustments	This is used to turn on or off the exterior lights and to adjust the light beam level.

Stability Control System

The Stability Control System is a crash avoidance system found on new vehicles. New tractor trailers are equipped with Electronic Stability Control (ESC) which assists to detect and minimize skids and hence, improving a vehicle's stability.

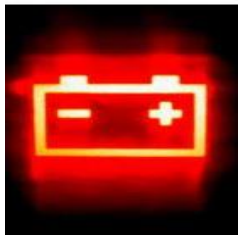
This system assists drivers to remain in control of their vehicles by detecting loss of steering control. The system automatically applies the brake to offset oversteering or understeering.

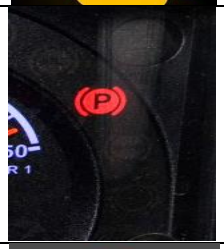
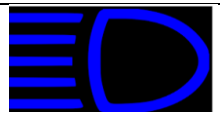
Through application of brakes, ESC can help drivers reduce the risk of vehicle instability while in a slippery curve, or sudden brake application to avoid obstacles.

Anti-Lock Brake System (ABS)

The Anti-Lock Brake System monitors and controls wheel slip during vehicle braking by minimizing lockup. The wheel sensors detect wheel lock-up and automatically release and reapply the brakes repeatedly by way of a pulsing application. ABS enables the driver to maintain steering control and to stop the vehicle in the shortest possible distance under most conditions.

BASIC WARNING LIGHTS AND INDICATOR SYMBOLS			
Name	**Symbol**	**Color**	**Description**
Oil pressure Warning Lights		Red	This light may illuminate as the tractor-trailer is being started, but should go off right after the engine stars, if it does not, then the vehicle should be examined. Low pressure means there either isn't enough oil in the system or the oil pump isn't circulating enough oil to keep the critical bearing and friction surfaces lubricated.
Low Oil Level Warning Light		Red	Displays when oil level is too low for normal, safe operation
Low Coolant Level		Blue	Displays when the coolant level is low

Service Brake Warning Light		Red	With a dual brake system, if this light comes on during a hard braking application, this could indicate that at least one of the hydraulic brake systems is not operating properly.
Alternator or Generator Warning Light		Red	Displays when the alternator is not charging.
Battery Light		Red	The battery light indicates a battery charging problem
Water Temperature Warning light		Red	This light is displayed when coolant temperature becomes excessively hot.
Low Fuel Warning Light		Red	Displays when the fuel level is low

Anti-Lock Brake System; Tractor		Yellow	If warning light comes on while you are driving, it means the ABS is not working correctly
Check Engine		Yellow	Displays when the engine has a problem. Although the vehicle can still be safely driven it should be examined to correct the problem.
Park Brake		Red	Displays when park brake light is applied.
Fasten Seat Belt		Red	Displays to remind driver/co driver to fasten the seat belt
High Beams		Blue	Displays when high beam lights are on
Hazard signal		Green	Blinks when hazard lights are activated

Left turn signal		Green	Blinks when left turn signal is on
Right Turn Signal		Green	Blinks when right turn signal is on
Stop engine		Red	Displays when major engine problems occurs
Cruise control		Yellow	Displays when cruise control is activated
Diesel Particulate Filter (DPF)		Yellow	Displays when the diesel particulate trap is plugged or when the regeneration operation is disabled.

High Exhaust System Temperature (HEST)		Yellow	Displays when exhaust gas temperature becomes excessively hot
Fifth Wheel Slide Unlocked		Red	This is displayed in addition to an audible warning tone to alert the driver of an unlocked fifth wheel slide

Exercise

1. Provide the function of the discussed vehicle components and systems

Practical - In-yard training

- The Instructor will first identify and explain the functions of each component in the checklist. The Instructor will spend about one (1) hour performing these tasks.
- Trainees will be required to identify and explain the functions of the outlined vehicle components prior to conducting vehicle inspection. Trainees will have a minimum of two (2) hours to practice these tasks.

In-Yard Evaluation Checklist

A. PRIMARY VEHICLE CONTROLS
- ☐ Accelerator Pedal/Throttle Actuator
- ☐ Transmission (if visible)
- ☐ Clutch Pedal
- ☐ Gear lever
- ☐ Steering
- ☐ Brake Pedal/Actuator
- ☐ Parking brake

B. SECONDARY VEHICLE CONTROLS
- ☐ Lights
- ☐ Exterior lights on the tractor-trailer
  - ☐ stop/tail light
  - ☐ back up and docking light
  - ☐ turn signal lamps
  - ☐ licence plate light
  - ☐ hazard warning lamps
  - ☐ clearance lights
  - ☐ low beams
  - ☐ high beams
- ☐ Reflector
- ☐ Windshield wiper/washer
- ☐ Defroster
- ☐ Seat position
- ☐ Air vents
- ☐ Air conditioner and heater
- ☐ Horn
- ☐ Radio
- ☐ Instrument Panel Lamp
- ☐ Interior Lamps on a truck

C. ENGINE
- ☐ Engine block

D. LUBRICATING SYSTEM
- ☐ Power Steering System (Hydraulic & Electric)
- ☐ Oil dip stick
- ☐ Applicable hoses and clamps
- ☐ Oil filter

E. COOLING SYSTEM
- ☐ Radiator
- ☐ Radiator Cap
- ☐ Fan Belt and blades

F. AIR INTAKE AND EXHAUST SYSTEMS
- ☐ Exhaust system
- ☐ Muffler
- ☐ Air intake system (if visible)
- ☐ Turbocharger (if visible)
- ☐ Aftercooler (if visible)

G. SUSPENSION SYSTEM
- ☐ Suspension & Frame Attachments
- ☐ Axle
  - ☐ Front tractor axle
  - ☐ Rear tractor axle
  - ☐ Single (if applicable)
  - ☐ Tandem axle
  - ☐ Tridem axle (if applicable)
- ☐ Air Suspension
- ☐ Shock Absorber
- ☐ Drive shaft

H. BRAKE SYSTEMS
- ☐ Hydraulic System Components
- ☐ Disc brake system
- ☐ Drum brake system
- ☐ Air brake system
  - ☐ Air Compressor

- ☐ Air Tank
- ☐ Air Tank Check Valves

I. AUXILIARY EQUIPMENT
- ☐ Fire Extinguisher
- ☐ First Aid Kit on a truck
- ☐ Advance warning Triangle

J. ELECTRICAL SYSTEM
- ☐ Battery and battery cable
- ☐ Wires

K. VEHICLE BODY AND FRAME
- ☐ Hood or Engine Enclosure
- ☐ Cab -Vehicle Body
- ☐ Seat
- ☐ Seat Belt/Occupant Restraint
- ☐ Fender/Mud Flap
- ☐ Mirrors (interior and exterior)
- ☐ Fuel tank door and cap
- ☐ Doors

L. TIRES AND WHEELS
- ☐ Wheel Hub
- ☐ Wheel Bearing
- ☐ Wheel/Rim
- ☐ Wheel Fasteners (Nuts, Bolts and Studs)

M. COUPLERS AND HITCHES
- ☐ Fifth wheel
- ☐ Trailer kingpin
- ☐ Landing gear

N. GAUGES
- ☐ Ammeter
- ☐ Water temperature Gauge
- ☐ Fuel gauge
- ☐ Air brake pressure gauge
- ☐ Speedometer
- ☐ Odometer
- ☐ Thermostat
- ☐ Tachometer
- ☐ Pyrometer
- ☐ Voltmeter
- ☐ Fuel Filter gauge
- ☐ Engine oil temperature gauge
- ☐ Engine oil pressure
- ☐ Air cleaner/filter restriction indicator or gauge
- ☐ Front and rear axle temperature gauge
- ☐ Transmission temperature gauge
- ☐ Diesel Exhaust Fluid Gauge

O. SWITCHES
- ☐ Ignition Switch
- ☐ Door control and latch
- ☐ Signal controls switches
- ☐ Light controls and adjustments

NOTES:

MODULE 3 – BASIC DRIVING TECHNIQUES

Purpose

The purpose of this module is to learn the steps that should be taken prior to driving a commercial vehicle. This module is organized as follows, minimum of 9 hours, 45 minutes of classroom session and minimum of 2 hours, 30 minutes of in-yard session and about 39 hours of driving behind-the-wheel. It should take a total of 51 hours, 15 minutes to complete this module.

General Learning Outcomes

At the end of this module, the trainees should be able to:

- Demonstrate and understand safe and effective tractor-trailer manoeuvering procedures

Habits of Minds

Trainees will:

- Recognize the importance of following all manoeuvering procedures in order to ensure safety
- Communicate the importance of journey management in ensuring a safe and low-stress trip.

Knowledge and Understanding

Trainees will:

- Communicate the correct procedure for:
  - Lane positioning
  - Steering and turning
  - Crossing railroad tracks
  - Stopping and parking on hills
- Understand the stopping distances of the vehicle under normal conditions.
- Understand the common errors at railway crossings

Skill and Processes

Trainees will be able to:

- Demonstrate awareness of the need to continually practice decision-making regarding
  - Appropriate lane selection
  - Best lane position
  - Adjustments for relative conditions
- Demonstrate use of recommended procedure and alternate methods to turn and steer the tractor-trailer
- Demonstrate the correct procedure for stopping and parking on hills

This module is divided into 3 sections. Below is the training format for all 3 sections

Learning Environment (hours) Module 3 - (Sections 1, 2 and 3)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
8.4		**1.35**	**1.5**	**1**	**39**		**51.25**

Section 1 – Training format

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
1.40		**0.25**	**1.5**	**1**			**4.15**

Proper Start Up and Warm Up Procedures

A driver's first responsibility is to ensure that everything regarding their vehicle is in order. Prior to operating the truck, it is important that you are fully alert and not impaired by anything that may affect your judgement.

When approaching the truck, the driver needs to assess the general condition of the truck. Complete an overall visual inspection of the truck, noting damage, fluid leaks under the truck, and general appearance. Check to see if the tractor-trailer is leaning to one side or the other.

Confirm that the Vehicle Inspection Program (VIP) certificate/sticker is present and valid and conduct the 'Under the Hood' portion of the pre-trip inspection. See **Modules 3 and 6** of this manual for information on pre-trip inspection process.

Entering and Exiting the Cab

To prevent fall and injury, it is important for drivers to maintain three-point contact when entering and exiting the cab.

To enter the cab safely, use the following steps:

1. Always check steps and handles for grease, fuel, oil, mud, ice. Clean off all residue before entering cab. Keep steps as clean as possible to eliminate slipping and injury.
2. Wear appropriate footwear and high-visibility clothing
3. Maintain a minimum of three points of contact between your body and call at all times during the entry. Focus on your entry, always facing the tractor, avoiding distractions which may result in injury
4. Place one foot on the step while keeping the other foot securely on the ground. Grip the handle on the inside of the door with one hand and the handle on the exterior cab frame with the other. Notice the three points of contact – two hands and one foot.
5. Move your lower foot to the top step, pulling your body with your arms if necessary. There are still three points of contact.
6. Bring your rear foot to the top step. Both feet are now on the top step so you may release one handle and still maintain three points of contact.
7. Slide or step into the cab and release the remaining handle, because you are now safely inside.

To exit the cab safely, use the following steps:

1. Exit the truck by climbing out backward, as if you were using a ladder

2. Maintain three points of contact at all times
3. Never jump out of the cab

Starting the Engine

For manual transmission vehicles, ensure that parking brake is applied, the vehicle is in neutral position and the clutch is depressed. Turn the key to the ON position. Ensure you have read the manufactures guide for proper start-up procedures, and follow the guide's direction, especially for cold-weather start-ups.

If the engine does not start, turn the starter off and try again in 60 seconds.

If the unit is equipped with glow plugs, wait for the light to go out before starting the engine. Start the unit, confirm the oil pressure and ensure no warning lights are on and gauges are reading correctly. All gauges must be functioning; otherwise you must not operate the truck.

Once the engine is on, proceed with the Interior and Exterior portion of the pre-trip inspection. See **Modules 3 and 6** of this manual for information on pre-trip inspection process.

Engine Warm-Up

Engine warm up prepares the engine to do its job by circulating oil, lubricating parts, and building pressure to proper levels. Use a low RPM level to warm up the engine, between 800-1000 RPM. Avoid excessive idling as it wastes fuel and can result in unnecessary wear and tear on the engine. Engine warm up is complete when the temperature reached anywhere from 170-195° F

Documentation

Prior to undertaking any trip, ensure all needed documentation is in the truck, correct and up-to-date and confirm its location for easy access. Commercial drivers are required to carry:

- Vehicle registration
- Insurance
- Safety Fitness Certificate (if applicable)
- Permits (if applicable)
- Hours of Service records (if applicable)
- Trip Inspection Report
- Bills of Lading (if applicable)
- Dangerous Goods shipping document /training certificate (if applicable)

Also ensure you have any required personal documents, such as your licence, identification from your employer, passport, medical certificate and any other relevant licences or documents.

Note: Documentation requirements may vary by jurisdiction and by employer. If you are making a trip across provincial or national boundaries, ensure you know the documentation requirements of all jurisdictions you may be traveling to or through. See **Module 6** of this manual for more information on documentation requirements.

Seat Adjustment

Correct seat adjustment must be made before the vehicle is moved. This is essential for a safe vehicle operation. Sit in a neutral posture to support your spine, with your neck and back in an upright position.

Begin by adjusting the vertical position of the driver's seat. Adjust the seat so that it is at the proper height to allow the left foot to rest on the floor without pressure on the underside of the leg.

Front to back horizontal adjustment is made while seated. Position the seat so that the right knee is slightly bent as the right foot rests on the accelerator.

To maintain the greatest control, keep both hands on the steering wheel.

Proper Seat Belt Use

Wearing a seat belt is not only the law, but it reduces the chance of you being killed or injured by 55% if you are involved in a collision.

Check that the seat belt is in working condition by ensuring the seat belt is not loose, damaged, or twisted. The seatbelt must be adjusted to fit snugly and properly. The lap part of the belt must fit snugly across the hips. The shoulder portion of the belt should be centered on your shoulder. The shoulder straps must never be tucked behind your body or under your arm.

Mirror Adjustment

Correct mirror adjustments are essential for the safe operation of a commercial vehicle. While seated, adjust the left and right mirrors to obtain optimum vision.

There are multiple types of mirrors for different types of vehicles, and different mirrors within the same vehicle. Mirrors should allow you to better view your blind spots and "danger zone".

The danger zone is an area around the tractor-trailer where pedestrians and other objects are at the most immediate risk. The no zone refers to the blind spot areas around large commercial vehicles, or the areas where cars are so close to the tractor-trailer that the driver's ability to stop or manoeuvre safely is restricted.

Here is an overview of the types of mirrors you may use as a Class 1 Driver:

Convex Mirrors

Convex mirrors are located below the outside flat mirrors. They are used to monitor the left and right sides at a wide angle. They provide a view of traffic and clearances at the side of the vehicle.

These mirrors present a view of people and objects that does not accurately reflect their size distance and position from the vehicle – objects will appear smaller and farther away. You should position the mirrors to see:

- A small portion of the entire side of the vehicle up to the mirror mounts
- Approximate location of where rear tires touch the ground

- At least one traffic lane on either side of the vehicle

Flat Mirrors

Flat mirrors are mounted on the left and right at the front of the windshield. They are used to monitor traffic and check clearances on the sides and to the rear of the vehicle. Adjust the flat mirror vertically (up and down) to optimize the field of view to the side of the truck and to minimize the horizon.

There is a blind spot immediately below and behind each mirror, directly in front of the vehicle, and directly in back of the rear bumper.

Ensure that the left mirror is properly adjusted so you can see:

- 60 metres or four vehicle lengths behind the vehicle
- The top of the vehicle.
- A small portion of the sides of the vehicle
- The rear tires touching the ground
- Ensure that the right mirror is properly adjusted so you can see:

Adjust the right mirror so that the right side of the vehicle is visible along the left, inside edge of the mirror. The horizon line is seen three quarters of the way up the mirror. Both mirrors need to be adjusted the same way.

Though these are base guidelines for adjusting vehicle mirrors, mirrors are designed to minimize blind spots from the driver's seat and should be set to fit each individual driver. Mirrors will not be helpful if they are not adjusted properly.

Set the convex mirror to identify objects near the vehicle. Adjust the inside mirror to see through the rear-view window of the vehicle if applicable

Leaving the Driver's Seat

The parking brake is set when the vehicle is to remain in position for some period of time and whenever the Driver is not at the controls. Turn off the engine to prevent idling. In the event the engine is to remain running, the transmission is placed in neutral, parking brake is set and idle is set to 1000rpms to maintain water temperature (especially in the winter).

Alternatively, chock-blocks should be used in addition to the parking brake to ensure the vehicle remains in position when the driver is not in control. Wheel chocks are wedges of sturdy material placed closely against a vehicle's wheels to prevent accidental movement. Chocks or 4x4 blocks can also be used for safety in addition to setting the brakes. The bottom surface is sometimes coated in rubber to enhance grip with the ground.

When using a wheel chock, the following procedure should be followed:

- Always ensure the chock is centered and squared with the tire.
- Position the chock against snuggly against the tire, with about 1inch (2.5cm) of the chock extending from the edge of the tire
- Always use wheel chocks in pairs.

- Wheel chocks must be positioned downhill and below the vehicle's center of gravity.
    - On a downhill grade, position the chocks in front of the front wheels.
    - On an uphill grade, position the chocks behind the rear wheels.
- On a level grade, position the chocks on the front and back of a single wheel.

Additionally, here are some combinations of conditions that must be considered when using wheel chocks:

Tire size

- Smaller tires require smaller chocks, while larger tires require larger chocks.

Gross vehicle weight

- Heavier vehicles require larger chocks than lighter vehicles.

Level or grade of the ground surface

- Chocks need to be positioned in different ways depending on if the ground is level or not. Ensuring that the chocking configuration is correct based on surface grade is paramount for proper chocking.

Radial Tires vs. Bias-Ply Tires

- Radial tires by design deflect more than bias-ply tires. While this flexibility allows the vehicle to move more smoothly, it also allows the tire to wrap around the wheel chock, which reduces the chocks effectiveness. To combat this, vehicles with radial tires should be chocked with wheel chocks that are larger.

Tire pressure variance due to environment

- It is important to monitor tire pressure, especially in harsh environments. Improperly inflated tires can lead to chocking failures.

Condition of the ground

- Whether the ground is firm, soft, wet, dry, icy, or frozen is a key determination in the type of chock to use. For frozen or icy terrain, choose a chock with a cleated bottom. For severely wet or muddy terrain, multiple chocks may be necessary to ensure safe chocking.

Practical - Role Playing

After completing the above classroom topics, the instructor and the trainees will proceed to the yard. The Instructor will have about 1 hour, 30 minutes to demonstrate the following outlined procedure, after which the trainee will have minimum of 1 hour to practice.

- ☐ Proper Start Up and Warm Up Procedures
  - ☐ Entering and Exiting the Cab
  - ☐ Starting the Engine
  - ☐ Engine Warm-Up
  - ☐ Check Documentation
- ☐ Seat Adjustment
- ☐ Proper Seat Belt Use
- ☐ Mirror Adjustment
- ☐ Leaving the Driver's Seat

Section 2 – Training format

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
3		**0.5**			**3**		**6.5**

Fuel Efficient Driving

1. Smart driving practices - Fuel efficiency starts when the engine on. Proper warm-up helps lubricate components and seals reducing wear and leakage. Starting the truck properly can save money on fuel. The trainees should keep the following in mind:
   - When starting the vehicle make sure you use zero throttle and are in a gear that does not need any throttle.
   - Do not pump the throttle of a fuel-injected engine: the amount of fuel required for starting is pre-measured. Similarly, do not pump the throttle when cranking with older mechanical engines: it wastes fuel and can damage cylinder walls.
   - Use ether sparingly when having difficulty starting your engine: excessive use can harm the engine.
   - When warming up the engine do not increase the engine speed. Five minutes of idling for a warm-up is generally adequate, and cool down is provided when pulling-in for parking.
   - Ensure oil and air pressure are in their normal operating ranges during start up.

- Warm the vehicle up after the initial idle time by driving easily; do not try to get too much speed out of the engine by pushing the throttle down hard.
- Back off the accelerator when going over the top of a hill and let gravity and momentum do the work.
- Use cruise control where appropriate.
- Reduce the average speed - driving fast eats up fuel no matter what you drive.
- Change gears smoothly - shifting professionally will result in about 30% improvement in operating costs.
- Always use the clutch, failure to do so can wear the gear teeth down in the transmission.
- Practice progressive gear shifting at approximately 1600 rpm. Shifting before you reach the maximum governed rpm reduces equipment wear, decreases noise levels and saves fuel.
- Run the engine in the highest gear range to keep it in a low rev range.
- Use the retarder properly and turn it off when you do not need it - let the terrain work for you.

2. Idling a truck engine burns up to four litres of fuel per hour at 900 rpm. Turn off the engine when the vehicle is stopped for any length of time - will save fuel, reduce maintenance requirements, prolong engine life and prevent unnecessary emissions. If a 10-truck fleet were to cut idling by an hour a day for 260 days, it would save approximately 10,400 litres of fuel ($11,440 at $1.10 per litre). A 100-truck fleet would save $114,400 and a 500-truck fleet $572,000.

Excessive idling should be avoided as it increases fuel costs, engine wear and fuel emissions.

- Ten seconds of idling uses more fuel than restarting your engine.
- Engine oil life can be reduced by as much as 75% leading to more frequent and expensive oil changes.
- Engine wear is increased. One hour of idling is equivalent of 11 kilometres of driving.

Two ways to manage idle time

1. The driver knows how long the engine should run before and after a trip for correct engine operation and prevention of unnecessary fuel use
2. The vehicle’s computer - Some modern engine monitoring systems automatically shut-down the engine after a preset idling time

Company policies on idling are becoming more common and should be followed.

Vehicle Size and Clearance

It is important for truck driver to know the length of the vehicle, the amount of overhang and the amount of space that is available on the other side of the railway crossing. When approaching a railway crossing and a STOP sign on the opposite side of the tracks, pay attention to the amount of room there is between the tracks and the sign. Be sure there is enough space to completely clear the railway tracks on the other side. If there is insufficient space and the

vehicle would over hang the railway tracks, you must visually and audibly ensure there is no oncoming train. Then proceed to the stop sign and stop. When safe, proceed, ensuring that your vehicle does not block the railway crossing for more that 20 seconds.

Having knowledge of your vehicle height, width and weight is important in ensuring smooth trip. Plan your route ahead of time to avoid encountering obstacles or roadways where restrictions prevent you from safely reaching your destination. Refer to Module 6 for details on vehicle height clearances and weight restrictions.

Height

Know the height of the tractor-trailer (and load) and be able to recognize if the vehicle is too tall to pass through underpasses, bridges or tunnels. Knowing the height will also help to watch for potential hazards of unmarked overhead obstructions such as: canopies, roof overhangs and other building protrusions, signs, utility lines, tree limbs, doorway entries, etc. Signs may be posted on these structures to give their overhead clearances. Some areas may have check bars and warning devices installed to warn drivers.

When crossing railroads or uneven surfaces, ensure there is enough undercarriage clearance before crossing.

Width

Knowing the width is also important because external components such as side mirrors, anti-splash and spray devices, or clearance lights may be easily overlooked and damaged if the tractor-trailer is driven through a structure that is too narrow. In addition, load components extending beyond the frame of the vehicle must be considered.

Length

Be aware of the vehicle's length when negotiating turns on narrow roads and in alleys. When making turns, be sure to leave enough room to avoid the rear of the tractor-trailer striking the vehicle in the other lanes. This is especially important if the trailer axles have been moved in order to transfer weight.

When leaving a curb, be aware that the rear of the tractor-trailer does not go onto the sidewalk, as this will be a danger to pedestrians and cyclists or may damage property such as poles or sign posts.

A truck driver should be mindful that environmental factors may affect the clearance of the truck. Potential hazards include:

- Weather-snow buildup
- Debris or uneven roads due to construction
- Unmarked objects such as tree limbs, utility lines, canopies, roof overhangs or other building protrusions

Weight

Provinces and territories have laws that establish maximum vehicle weights. A carrier must comply with all weight restrictions for the roads on which they operate. In Alberta, legal weights depend on different things such as the type of vehicle, the number of axles on the vehicle, the manufacturer's rating and the size of the tires on the vehicle.

The TARE weight of a vehicle means the weight of the vehicle when it is empty. By subtracting the TARE from the gross vehicle weight (GVWR), you can determine your legal load capacity. For example, a vehicle with a GVWR of 50,000 kg and TARE of 15,000 kg would have a maximum carrying capacity of 35,000 kg

In the case of any commercially regulated vehicle, the GVWR and TARE must be identified on the driver's side of the vehicle in contrasting lettering.

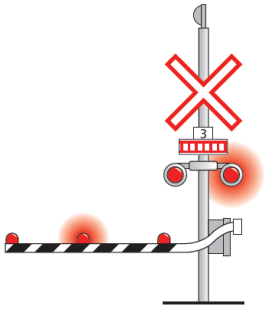
For specific weight regulations refer to *Commercial Vehicle Dimension and Weight Regulation* (AR 315/2002).

Note: Use of Highway and Rules of the Road Regulation AR 304/2002 Section 42 (8) states that a driver shall not shift gears of the vehicle while crossing railway tracks. Shifting gears while crossing railway tracks will increase the chance of stalling or not being able to get the transmission into the correct gear while on the tracks.

Railroad Crossings

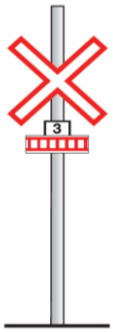
Crossing railway tracks can be especially hazardous for drivers of large vehicles because of the following:

- Longer vehicles need to travel further and will need more time to clear a crossing.
- Heavier vehicles take more time and need more room to stop before a crossing.
- Larger vehicles are more likely to derail a train if there is a collision.



Controlled crossing - A controlled crossing is one with a flag person, stop sign, crossing gate or an electric or mechanical signalling device. All vehicles are required to stop at controlled railway crossings if signalled to do so.

Uncontrolled crossing - Some vehicles are required by law to stop at all uncontrolled railway crossings. These vehicles are:



- School buses
- Vehicles carrying explosives as a cargo or part of their cargo
- Vehicles designated for carrying flammable liquids or gas, whether the vehicle is loaded or empty.

Railroad Crossing Procedure

- Slow down, shift to a lower gear if you have a manual transmission, and test your brakes.
- Obey the traffic signs, signals, gates, and flag person
- Check for traffic behind you and then stop gradually.
- Stop no closer than 5 metres (about 16 feet) and no further than 15 metres (about 49 feet) from the nearest rail.
- To better hear a train, roll down the window and reduce any noise inside the vehicle such as silencing the audio system, radio etc.
- While stopped, look carefully in each direction for approaching trains. Look around obstructions such as mirrors and windshield pillars.
- When waiting, put on your park brakes so that you will not move onto the track.

Note: Do not drive the vehicle through, around or under a crossing gate or barrier at a railway crossing while the gate or barrier is closed or is being opened or closed.

Resuming Travel

Before resuming travel, make sure there is enough room on the other side of the track for the whole unit to clear, including the vehicle's overhang. Be aware that a train will be a metre wider than the rails on both sides.

- Use a gear that will let you cross the track without shifting.
- Check the crossing signals one more time before proceeding.
- If the crossing lights begin to flash after starting, keep going. It is safer to continue than to back up.
- If there is more than one track, there may be more than one train. Do not assume the train you see is the only one.

Other considerations

1. Vehicle stalled or stuck on the tracks - If your vehicle stalls or gets stuck on a crossing, get out of the vehicle immediately. If a train is coming, move away from the track in the direction of the approaching train. This will reduce the chances of being struck by flying debris if the train hits the vehicle as the momentum of the train striking the vehicle will sweep the debris forward. Contact the railway company if its emergency number is posted or call 911.
2. Scan the tracks at a crossing - Do not attempt to cross the tracks unless you can see far enough in both directions to be sure that no train is approaching. Be especially careful at crossings without gates, flashing lights or bells. Even if there are active warning signals, and they do not indicate that a train is approaching, you should still look and listen to be sure it is safe to proceed.
   Be cautious when approaching an uncontrolled rural railway crossing at night. A train may be crossing in front of you. The presence of a train may appear like a black, dark object against the background of a dark road.

3. Railway crossings at rural roads - Pay extra attention when you cross railway tracks in rural areas because of the following:
    - Approach grades may be steeper.
    - Snow banks may be higher.
    - Brush and trees may be more common.
    - There tend to be fewer automated warning systems.
    - The grade crossing may be rough or uneven.

10 Tips to Save Your Life at a Railway Crossing

1. Be prepared to stop at all highway/railway crossings
2. Look for the cross-buck symbol of a highway/railway crossing. The higher traffic highway/railway crossings generally have signals and bells. Some also have gates across the road.
3. Listen for warning bells and whistles. Turn off, or down, distracting fans, heaters and radios. Opening the window helps you hear.
4. Always obey the signals. Never attempt to drive under a gate as it is closing, or around a closed gate. If the gate begins to close while you're underneath, keep moving ahead until you clear the crossing.
5. If a police officer or railway personnel are directing traffic at the crossing, obey their directions.
6. If one train passes, make sure that a second train isn't approaching on another track.
7. Cross the tracks in low gear. Never attempt to change gears while crossing.
8. If your vehicle stalls on the tracks, get out quickly and away from the vehicle and the tracks. Keep well away, but move generally in the direction of the approaching train to avoid being hit by debris, because your vehicle and debris from the train hitting your vehicle will be swept forward by the momentum of the train.
9. If your view is obstructed for 300 metres in either direction, do not attempt to cross the tracks until you are certain that no train is approaching. Be especially careful when crossing tracks during bad weather.
10. Walking or playing on train tracks is extremely dangerous and illegal. The only safe way to cross railway tracks as a pedestrian is to use designated crossings, and to obey all signs and signals.

Common Driver Errors at Crossings

- Because of its size, it is easy to misjudge the speed and distance of an approaching train.
- Never try to beat a train to the crossing. Many vehicles have been hit by the train or have run into the side of it when trying to get across the tracks ahead of the visibly approaching train.
- When the train clears the crossing, the driver should not immediately proceed across the tracks without first checking for other trains. Drivers must be patient and wait for a train to proceed a sufficient distance to allow for good visibility in both directions.

- A driver should never attempt to cross tracks while the flashing signals are still operating. If the signals are on and there is no train in sight, it may be approaching at high speed but is just not yet visible or possibly there could be a malfunction in the system. (The cross-buck has the phone number to call for repair and a number that indicates the location of the track).
- The signals may be malfunctioning in the off position and a train may be approaching the crossing – always be prepared to stop when approaching a railway crossing, even one where signals are present but not activated.
- Familiarity breeds complacency. Always remember the saying, “Anytime is Train Time!” When approaching a familiar crossing that normally never has a train on it, the driver should still be alert for a train since their schedules can change from day to day.
- Drivers should reduce speed and be especially observant if weather conditions or sight observations limit visibility of the rail.
- Highway crossing and/or approaching trains. Some tracks may have curves and be hidden behind trees or hills which would make a train approaching a high speed difficult to see and react to ahead of time.
- Always use extreme caution. Take your time. Be 100 per cent sure it is safe before crossing any railway track whether signalized or not.

Traffic Lights

Traffic control signals are lights that use the colors green, yellow and red to control the flow of traffic at intersections or where roadways merge. The color of the light determines which stream of traffic has the right of way. The traffic control signal may be vertical or horizontal.

The order of lights for a vertical traffic control signal is red at the top, yellow in the centre, and green at the bottom.

The order of lights for a horizontal traffic control signal is red on the left, yellow in the centre, and green on the right.

Solid Red Light

When you face a traffic control signal displaying a solid red light, you must bring the truck to a complete stop before the stop line or crosswalk that is directly in front of the vehicle. If there is no stop line or crosswalk, you must stop before the intersection. The truck must remain stopped at the red light until it turns green, unless safely turning right after stopping.
A solid double red light has the same meaning as a single red light.

Unless a sign prohibits the turn, you may turn right at a red light after stopping completely before the stop line or crosswalk, if the turn can be made safely after yielding to other traffic.

Unless a sign prohibits the turn, the only left turn permitted at a red light is onto a one-way street from a one-way street. This turn is only permitted after the vehicle is brought to a complete stop before the stop line or crosswalk, and if the turn can be made safely after yielding to other traffic.

Solid Yellow Light

When a green light change to yellow, it warns that the light will change to red immediately and drivers must prepare to stop or clear the intersection. When you are approaching an intersection with a solid (not flashing) yellow traffic control light, you must bring the truck to a complete stop before the stop line or crosswalk, unless a point has been reached at the intersection where stopping cannot be done safely. If there is no stop line or crosswalk, stop the truck before the intersection. When you are already in the intersection and facing a yellow light, you must safely clear the intersection.

Solid green

When you are facing a solid green traffic control light, you are permitted to travel through the intersection without stopping, unless required to yield to oncoming traffic when turning left or to pedestrians in the crosswalk when turning right or left.

When you are approaching a green light, anticipate that it will turn yellow. A good tip is to check the pedestrian walk light at the intersection. If it shows the WALK symbol, the light will stay green. If it shows the DON'T WALK symbol, be ready to stop. If the traffic light does change, you must stop before the intersection if it can be done safely.

Awareness on the Road

In addition to pre and post trip inspections, monitoring your vehicle's behaviour while driving will help prevent encountering dangerous and costly mechanical breakdowns. The following are vehicle components to monitor as you drive.

Brakes

- Any pulling to the left or right or skidding while braking?
- Brakes should not grab or lock or make excessive noise.
- Excessive pedal pressure required or unusual braking behaviour should also be noted
- Monitor the gauge to ensure that adequate air pressure is maintained.

Transmission

- When the transmission is engaged in either the reverse or forward gears, the tractor-trailer should start out smoothly in response to depressing the accelerator and the transmission should not produce any odd mechanical noises
- Are there any difficulties shifting gears?

Clutch

- The clutch should engage easily and smoothly without jerking, slipping excessively or "chattering".
- A properly adjusted clutch should have some "free play" (refer to manufacturer's recommendations) when pedal is fully released
- Never "ride" the clutch pedal. Once the shift has been made, your foot should be removed from the clutch pedal and placed flat on the floor

- When changing gears, carefully control the speed of the engine so that the shift may be completed without jerking or excessive slippage.
- Erratic or careless shifting of gears wears out the clutch and reduces service life.

Engine

- Be aware of any unusual engine noise, vibrations, or lack of normal response.
- Increase speed slowly so that all parts may be properly lubricated. In colder weather, the tractor-trailer should idle for about 10 minutes before first starting out on your route this is because fluids need to warm in the engine to ensure proper viscosity and uniform coating.

Steering

- is it responsive?
    - Does the tractor-trailer steer easily?
    - Does it go precisely where you steer it?
- does there appear to be excessive “play” or “jerking?”
- Is the power steering quiet?
- Is steering steady in turning and over bumps?

Suspension

- Is there excessive bounce or does the tractor-trailer bottom out when going over bumps or potholes?
- A constant pull to the left or right on steering may be due to a suspension defect
- Does it weave or sway excessively when turning corners or curves? If this occurs, it may be due to broken springs or faulty shock absorbers

Forward Driving

To avoid conflicts with other vehicles when driving forward, keep the tractor-trailer in the centre of the appropriate lane, at a posted speed limit or speed matched to the nature and conditions of the road and at a safe travelling distance providing consideration to conditions, vehicle weights, and dimensions.

Be aware of your surroundings:

- Scan mirrors, the road ahead and behind, paying attention to blind spots
- There is a “danger zone” approximately 3 metres or 10 feet around the tractor-trailer where pedestrians or other vehicles may present with notice
- Do not engage in any activity that may take away your focus from driving

Be courteous of those you share the road with:

Other Vehicles

- Smaller vehicles may become impatient when driving behind a truck. When being passed, slow the tractor-trailer down to allow the vehicle to move safely and quickly ahead of you
- Use extra care when sharing the road with motorcycles. Their smaller size means they can be more difficult to spot and in the event of a collision, they are more likely injured because they are less protected
- Sometimes a motorcycle's turn signals can be hard to see. Watch the rider for clues. If the rider does a shoulder check, he or she may be intending to change lanes or turn.
- When turning left, watch for oncoming motorcycles. They can be hard to see, especially in heavy traffic, at night or at dusk. It may also be difficult to judge the speed of the motorcycle.
- Be aware that motorcycle riders will often move within their lane to avoid road hazards like pot holes and to maintain a space cushion from other vehicles.

Pedestrians

- When pedestrians indicate their intention to cross the street, you must stop your vehicle safely before the crosswalk and allow them to cross.
- When a pedestrian has entered a marked or unmarked crosswalk, you must yield the right-of-way.
- When stopping for a pedestrian at a crosswalk, stop far enough back (about two to three car lengths) so that traffic in another lane will be able to see the pedestrian and have time to stop.
- Never pass another vehicle when you are approaching a crosswalk. There is always a chance that the other vehicle is slowing or stopping for a pedestrian. If amber lights are flashing, the required speed limit is 30km/hour
- Not all crosswalks are marked, but the rules of pedestrian safety should be followed at all intersections.
- Be considerate of visually impaired pedestrians. Some will have a white cane or guide dog.
- At night, do not over-drive your headlights. This means you should drive so you are able to stop your vehicle within the distance you can clearly see with your headlights.
- When it is dark, be alert for pedestrians. If they are wearing dark clothing, they can be difficult to see from a distance.
- Children can be unpredictable. In residential areas, watch for children around parked vehicles, riding bikes or playing on the street. Glance under parked vehicles ahead on both sides of the road to check for children's feet, toys, and bicycle wheels. These provide warning that you may need to stop.

Cyclists

- Cyclists are required to ride as close as practicable to the right curb. However, they may need to ride further out when avoiding drainage grates, pot holes, debris, gravel or sand, wet or slippery surfaces, and rutted or grooved pavement. Be aware of the roadway conditions that may affect a cyclist.

- When passing a cyclist, change lanes like you would for other vehicles.
- When you are preparing to turn right, watch for cyclists who may ride alongside your vehicle. Remember to check to your blind spots to the right.
- Before moving away from the curb, check for cyclists who may be riding past your vehicle.
- Do not follow too closely behind cyclists. They do not have brake lights to warn you when they are stopping.
- Be alert for children on bicycles. They may lack the necessary knowledge and skills for safe cycling around traffic and may not be aware of all the dangers. Children on oversized bicycles are at risk of losing control.

Shifting Gears, Accelerating and Decelerating

A skilled driver can utilize a combination of transmission and engine retarder to slow their vehicle while only using their brake at the last moment to come to a complete stop. Looking ahead 12 seconds down the road at the traffic situation and maintaining a six second following distance between vehicles gives you the necessary space to slow down, accelerate or change lanes safely and smoothly.

The objective is to try to minimize speed changes by being in harmony with the traffic tempo and, in urban areas, in sync with traffic lights.

Standard Synchronized Transmission

1. Familiarize yourself with the gear pattern by checking the chart on the gear shift lever or the dash. Check to determine the starting gear recommended under normal circumstances for the tractor-trailer you are driving.
2. Depress the clutch pedal and turn the ignition on.
3. Shift into the appropriate gear.
4. Depress the foot brake.
5. Release the park brake.
6. Release the clutch to the friction point.
7. Remove foot from the brake pedal, place it on the accelerator pedal and accelerate gradually.
8. Remove your left foot from the clutch slowly and completely place it on the floor while continuing to accelerate. Do not ride the clutch!
9. Accelerate the tractor-trailer to the proper engine speed before attempting to shift into the next higher gear. This will prevent the engine from lugging. With practice, you will learn to feel and hear the proper engine speed for shifting.
10. When appropriate to shift gears, first depress the clutch pedal and release accelerator simultaneously.
11. Shift into the next gear.
12. Smoothly release the clutch and continue to accelerate gradually
13. When downshifting a standard transmission, the procedures are very similar.

When downshifting from cruising speed, reduce speed, then:

1. Depress the clutch and release the accelerator.
2. Shift to the next lower gear.
3. Release the clutch smoothly and use the accelerator to provide engine power appropriate to the terrain you are travelling on.
4. Repeat these steps to continue downshifting as the proper engine speeds are reached.
5. To bring the tractor-trailer to a complete stop, apply the brake, gradually increasing pressure, and depress the clutch after reducing speed to between 8-16 km/h.
6. If you are parking the tractor-trailer to leave it: set the parking brake, follow the shutdown procedures, select the appropriate gear, and secure the truck.

Note: It is not recommended to depress the clutch at too high a speed and then keep it depressed while braking to a stop. This is called “coasting to a stop”. Depressing the clutch all the way while the vehicle is in motion will eventually damage the clutch brake. Always use the appropriate gears when downshifting to a stop

Double clutching is a procedure where you depress the clutch pedal just past the friction point, release it and depress it again while shifting gears. On non-synchromesh transmissions, double clutching makes shifting gears smoother because it co-ordinates the engine speed and the transmission speed, aligning the gears for easier shifting. During the actual shift, (when the tractor-trailer is out of gear) re-clutching and revving the engine will, in most cases, prevent excessive gear grinding.

Double-clutching lets you speed up or slow down the input shaft while it’s in neutral and not engaged to any gear. When you move the shift lever into neutral and let the clutch out, the engine flywheel can turn the input shaft without engaging any gear. When the input shaft reaches the correct rpm, quickly depress the clutch, move into the next gear and release the clutch.

Upshifting by Double Clutching

1. Depress clutch pedal and release accelerator simultaneously.
2. Shift gear lever to neutral position.
3. Release clutch pedal momentarily.
4. Depress clutch pedal and shift to next higher gear.
5. Release clutch pedal and accelerate engine at the same time

Downshift by Double Clutching

1. Depress the clutch pedal.
2. Move the gearshift lever into neutral.
3. Release the clutch pedal.
4. Accelerate the engine speed until engine rpm and road speed “match”.

5. Depress the clutch pedal and quickly move the gearshift lever to the next gear position. (Do not engage the clutch brake)
6. Release the clutch pedal and press the accelerator at the same time.

By learning and practicing the correct procedures for shifting, accelerating and decelerating, a professional driver can save countless dollars on the wear and tear of an engine and clutch as well as providing your passengers with a smoother ride.

Practical – Minimum of 3 hours

At the end of the classroom portion of Section 2 of this Module, the instructor and the trainee will go for a drive. Prior to performing this task, the instructor should review and re-familiarize trainee with the tasks performed in Section 1 of this Module During the drive, the instructor will assess the trainee on the following:

- ☐ Smooth movement the vehicle from the yard to roadway
- ☐ Smooth clutching and gear shifting
- ☐ Smooth steering control
- ☐ Watches for other road users
- ☐ Watches for potential hazards of unmarked overhead obstructions such as: canopies, roof overhangs and other building protrusions, signs, utility lines, tree limbs, doorway entries, etc.
- ☐ Watches for snow build-up, debris or road construction that can change vehicle height, weight or clearances
- ☐ Identifies and reads all road signs indicating the weight capacity of roadways or bridges -- including seasonal weight restrictions

Section 3 – Training format

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
4		**0.6**			**36**		**40.6**

Tractor-trailer Manoeuvres

This section is designed to provide more information on truck driving skills. By continuing to improve our driving skills, all road users will benefit. This section will cover basic driving techniques.

Areas of continuous improvement include:

- Merging traffic
- Lane positioning and changing lanes
- Steering and turning

- Continual observation techniques and monitoring of road conditions
- Managing and following speeds and being aware of the consequences of failing to do so
- Driving through curves in a straight manner
- Crossing intersections in a safe manner
- Exiting traffic

Entering Traffic/Merging

Merging is done when two roadways join into one and the traffic on the main roadway must cooperate to allow enough space for vehicles to enter from the merging lane. Neither the merging vehicle nor the vehicles already on the highway have the right-of- way. Merging is a shared responsibility between the vehicles joining the roadway and the vehicles already on the roadway.

When entering traffic from the curb or loading zone, signal intent at least four flashes of signal light in advance, check mirrors and look directly out the windows to ensure path is clear before starting to move. Stay in the lane nearest the curb until reaching appropriate speed. When entering traffic from an alley, side street, driveway or terminal, come to a stop before entering a cross street and proceed with extreme caution.

When entering highways, freeways and other restricted access roads, signal intent, use mirrors and direct view to ensure path is clear in the right lane. Keep glancing at the gap you chose to ensure you are making the necessary speed and timing adjustments to safely merge into traffic. Avoid reducing your speed abruptly or stopping when merging. When it is safe and legal to merge, move into the gap after you are past the solid white line of the acceleration lane. Maintain your speed at or near the speed of the other vehicles and cancel signal. Stay in the right lane until matching the speed of other traffic and only change lanes when necessary.

Lane Positioning

Selecting the proper lane, positioning yourself within the centre of the lane, and then making adjustments to your position to suit the current circumstances is a skill that requires a great deal of practice. As you continue to practice you will improve your ability to maintain adequate separation distance between your truck and other vehicles and pedestrians. On a multi-lane highway, it is recommended that trucks should position themselves in the right lane or the lane closest to the shoulder of the road. This will leave you an “out”, to the right, if you need one to avoid a collision.

Off-Tracking

In any vehicle where the rear axle cannot steer during a turn, the rear tires will follow a different path than the steering tires. This is called off-tracking. There are two types of off-tracking:

- *Low speed* off-tracking is common when driving in a city. In low or moderate speed turns, the rear tires are pulled inward of the steering path. The longer the wheelbase of the vehicle or the tighter the turn, the more off-tracking occurs.

- *High speed* off-tracking is the effect of centrifugal (outward) force. It is seen when a vehicle travels at higher speeds, and the rear tires pull outward from the steering path during a turn. When you are driving a large vehicle, use a moderate speed when entering curves on open highways. Otherwise, you may encounter serious high-speed off-tracking that may result in a dangerous situation.

Steering and Turning

Operating a tractor-trailer is considerably different than driving a standard size automobile. It generally requires a lot more room to perform the same types of manoeuvres.

Before making a turn, make certain you check traffic to the front, sides and rear of the tractor-trailer by using the proper technique of mirror/shoulder/signal/shoulder check and that you are in the correct lane for the turn. Plan ahead for the turn; you may need to borrow a portion of another lane in order to complete the turn. Reduce your speed and downshift to the proper gear needed.

During a turn the hand-over-hand steering method is the best to use. One hand pushes the steering wheel up, across and down, while the other hand reaches up to the top of the wheel and pulls down. This action is repeated grasping the wheel at the top again. If you were trained in the shuffle or push-pull method of steering, and are comfortable using it, then continue to use that method. The key is to ensure that the tractor-trailer is under control at all times.

Note: Letting the steering wheel spin freely when recovering from a turn is not acceptable. You must stay in control even when recovering from a turn.

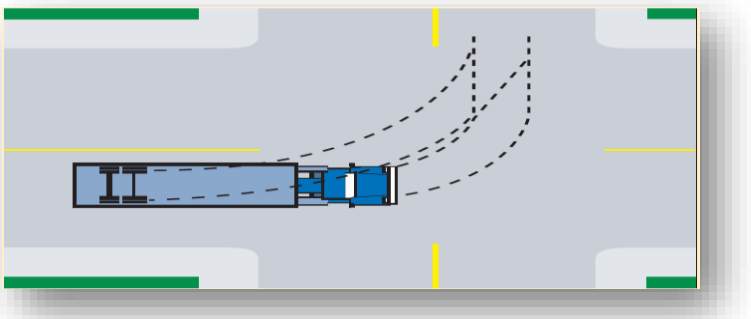
Making Turns

- Mirror check and signal (signal approximately 30 metres from the turn in urban areas or approximately 100 metres in rural areas) to move into the proper position for the turn
- Reduce speed and downshift to the proper gear needed to execute the turn. The speed required for the turn should be achieved prior to the maneuver. A professional driver should slow the vehicle down to the necessary speed and then ‘power’ through the turn. This is especially important on wet, muddy, icy, snow covered or graveled road surfaces as braking in a turn - or hard acceleration - can lead to a jack-knife situation while providing power will ‘pull’ the trailer around the turn. This is applicable to negotiating curves as well.
- Check for clear right-of-way by looking for potential conflict with other traffic, cyclists or pedestrians. Remember the off-tracking tendencies of the large vehicle
- Be aware of other road users who may want to squeeze into an open space
- Check for traffic signals or signs that are directed at you plus be aware of signs or signals applying to cross-traffic
- Execute the turn and cancel the signal when complete

Left Turns

Left turns should be avoided where possible as they are high risk manoeuvres that may place the driver and other vehicles at risk. When required, make sure you follow the steps below.

- If not in the legal turning lane, mirror and shoulder check left, signal at least one-half block back and when safe enter the proper turning lane (in an urban area). This is the lane just to the right of the center line or the left curb on one-way streets or as indicated by directional signs.
  Where two or more lanes are allowed to turn left you should always position yourself in the outside (right) lane. This will keep other vehicles that are turning, visible in your left mirror and not on your blindside.

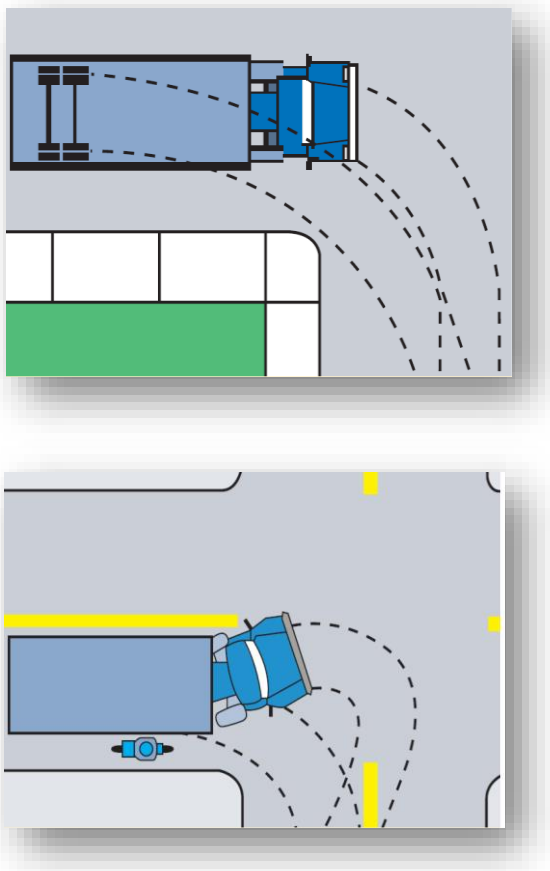


Left Turns

- Reduce your speed one half-block back if necessary.
- Ensure that you shift into a proper gear for the turn if the turn can be done without stopping. (Lugging the engine should be avoided)
- From the proper lane, signal left at least one third of a block from the intersection.
- Scan the intersection for traffic control devices and comply as required.
- Check left, center, right and left again for traffic and pedestrians.
- Travel straight into the intersection to within approximately 3 meters, one lanes width, of the intended lane. (Except on one-way streets.)
- Keep front wheels straight and yield to approaching traffic and/or pedestrians in the crosswalk to the left.
    - Keeping the wheels pointed straight ahead will ensure that you will not be pushed into oncoming traffic, if struck from behind.
- Look well along the intended lane of travel, accelerate, and begin the turn when safe to do so. Use the hand-over-hand steering method. Remember to constantly check the left mirror.
- Stay only as far to the right side as necessary to avoid the rear wheels running over obstacles or other vehicles. Amount of off-tracking must always be considered.
- Start to recover steering by using the hand-over-hand method and return into the proper lane.
- Accelerate, cancel the turn signal and look well down your intended path of travel. (At least twelve seconds or one block ahead.)

Right Turns

- Take the right-most lane available. Be aware that, for every turn of the steering wheel, the rear wheels will follow a shorter path than the front wheels. Allow for this low speed off-tracking on every turn.
- Signal to the right.
- Scan the intersection for traffic control devices and comply as required.
- Check left mirror for vehicles attempting to pass or that could otherwise interfere with the turning procedure.
- Check right mirror to ensure that smaller vehicles, motorcycles, cyclists, or pedestrians are not attempting to proceed in or around the right side of the tractor-trailer unit. Yield if necessary.
- Check if the intended lane of travel is free of obstructions, such as parked vehicles. If there is a parked vehicle within one block, then the left side of the vehicle is to be used as an extension of the curb.
- Check left, center, right for traffic and pedestrians. Check left again.



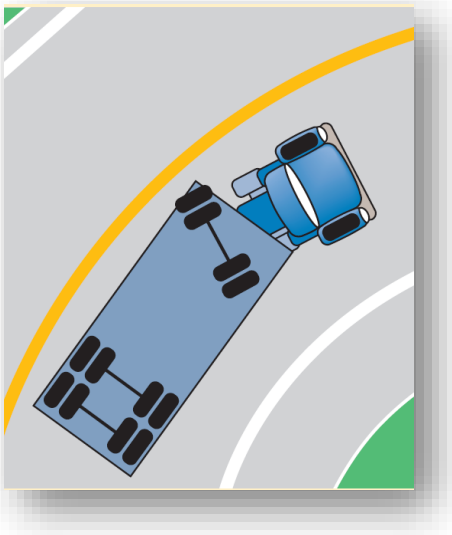
Right Turns

- Proceed with the turning procedure using the hand over hand steering method while constantly scanning the front and right side of vehicle. (Watch for vehicles attempting to pass on the right)
- Be aware that you might need to go over the centre line of the street you are entering or into the second traffic lane.
- Return to curb lane immediately after the rear wheels clear the curb.
- Maintain a safe and controlled speed at all times
- Look well down the driving path, at least one block, continue recovering the steering wheel using hand-over-hand method.
- Accelerating as necessary and ensure that signal light has been cancelled.

Note: Changing gears must not happen just prior to the steering wheel being turned in the direction of the turn and until the off-tracking of the left rear tire of the trailer has safely cleared the tightest point of the turn.

Curves

When large vehicles enter a curve, the rear wheels do not follow the same path as the front because they do not pivot; the rear wheel will "off-track" closer to the curb than the front wheels. To mitigate this off-tracking, you must lead your turning arc of the front wheels according to how sharp the curve is and the vehicle's off-track. Mirrors can also be used to monitor off-tracking

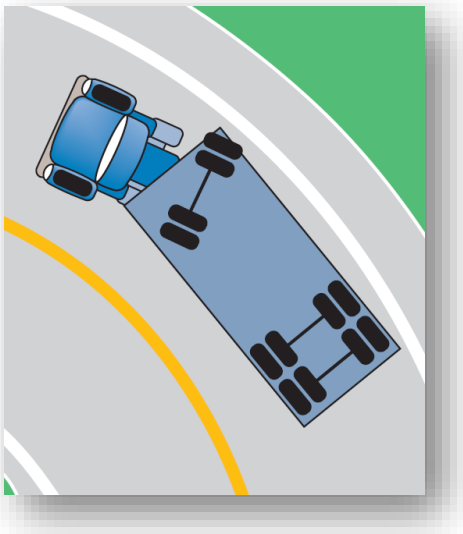


What is the best way to negotiate a curve?

- When approaching a curve, estimate a safe speed of travel (if not posted on a sign) from the degree of curvature and banking.

- On right curves, keep the front of the vehicle closer to the centre of the road so the trailer wheels do not roll over the curb or drop off the pavement on the right, while watching the right mirror for the position of the rear of your vehicle.

- On left curves, keep the front of the vehicle closer to the outside of the curve (right side of road) so the trailer wheels do not cut into the other lane of traffic on the left, while watching the left mirror.



- Left curve risk - Hugging the outside of a curve increases the risk of hitting a soft shoulder. Hugging the inside increases the risk of putting your mirrors into the path of oncoming vehicles. Manage the space you have and pay attention to tail swing and off tracking.
- Slow down a bit before the curve and then gently apply power to the wheels after entering the curve. When you apply power to the wheels, you introduce a force in a different direction from the centrifugal force (this force acts on your wheels by trying to keep it going in a straight line when negotiating a curve). The result is greater control.

Lane Changes

Lane changing poses additional hazards - only change lanes when necessary. Always check for clearance by looking out of the windows and using both mirrors to be sure that there are no vehicles beside or behind the truck.

Give special consideration for the speed vehicles are travelling behind you to ensure they will not overtake you once the lane change has begun. Always signal intent with at least four flashes of the turn signal before beginning the lane change. If the lane change involves passing another vehicle, when on a multiple lane highway, always maintain a minimum six second following distance. Once you are in the desired lane, cancel turn signal after completion.

Negotiating Intersections

Know

Expect the unexpected. Decide in advance what you need to do at intersections. Your indecision can confuse other drivers and cause a collision. Be prepared to yield at all times.

Show

Signal your intentions well in advance and be in the proper lane.

Slow

Slow down gradually. An intersection is not a place for speed. Remember at 25 km/h you cover over seven metres per second and may travel five metres just moving your foot from the accelerator to the brake.

Go

Proceed through the intersection without hesitation, when safe. It is important to keep in mind that other uncontrolled traffic access locations are considered intersections as well, such as side roads that enter onto highways, driveways and alleyways. The distraction from pedestrians, cyclists and animals are additional hazards.

At all intersections:

- Never assume the other driver will yield to you where required. Approach each intersection with your foot off the accelerator and covering the brake
- As you approach the intersection, look left, then right. Prior to going through the intersection check again left then right. If objects like parts of your vehicle or your mirrors block your vision, check carefully around them before you proceed
- Proceed only when safe to do so, even if you have the right of way. You can’t count on the other driver always obeying the rules
- When changing lanes prior to turning at an intersection, ensure you driver the vehicle to the required lane at least 15 metres before reaching the intersection
- Never pass a vehicle that is stopped at an intersection until you are sure it is not stopped waiting for a pedestrian to cross. Never assume a vehicle stopped at the intersection

and signaling left is only waiting for oncoming traffic to clear. There may be a pedestrian crossing as well.

- *It is illegal to pass a vehicle that has stopped to allow a pedestrian within a crosswalk (marked or unmarked) to cross the road.*

Crossing Intersections

In an urban area the following procedure will help you travel safely through each intersection and will get you into the habit of looking fully around your vehicle.

- Depending on visibility, take your foot off the accelerator and cover the brake if needed. Check mirrors and be aware of traffic following you. Prior to entering the intersection, check left then right for traffic indicators and controls, pedestrians and other vehicles. Make certain no vehicle approaching is about to turn left in front of you. If clear, check to the left and right once more and proceed through the intersection when safe
- Scan the area to determine the point-of-no-return. This is the point at which you will no longer stop if the lights turn amber. There is no exact point but there is an area or range a short distance before the intersection where the Driver must decide if it is possible to stop safely before the crosswalk or intersection when the lights are amber. Deciding factors include: speed of the vehicle, road conditions, traffic volume to the front, rear and side, and visibility. The point-of-no-return requires good judgement and experience when making the decision to stop or proceed.
- Between intersections, watch for traffic changing lanes or entering your lane from alleys or driveways
- Once past the intersection check mirrors again for any change in traffic patterns behind you. If you plan to turn at the next intersection, position yourself so you are ready to turn. Look for pedestrians that may be crossing ahead

With any intersection, if your visibility is obstructed for any reason, you may be required to stop prior to proceeding.

Mountain Driving and Grades

Driving through mountains requires attention and ability to adapt to changing conditions-both in terms of weather and terrain. Mountainous roads may fluctuate with both up and down grades.

Driving Up Grades

Move to the right and maintain a safe speed. When shifting becomes necessary, shift one shift range at a time to maintain a safe speed. Observe the engine temperature more frequently under these conditions to detect dragging, pulling and overheating. Never pass a vehicle on a downgrade or an upgrade on a two lane highway.

Driving Down Grades

Before proceeding down a grade, check the system air pressure and cover the brake. Select the appropriate gear to descend the hill, this is usually a lower gear than required to go up the hill. This gear should allow the descent without the use of service brakes. Stay to the right while proceeding down the grade, maintaining a safe vehicle speed as required to be in control without overheating the brakes or depleting the air pressure. Use a moderated or intermittent braking action on downgrades to prevent over-speed.

Hill

If you are driving an automatic transmission, do not exceed top speed of selected gear in order to keep automatic transmission from up-shifting while driving down grades

Snub Method Downhill Braking:

- Apply the brakes hard enough to feel a definite slowdown.
- When speed has dropped to 5 km/h below safe or posted speed, release the brakes.
- When speed increases above the safe or posted speed, repeat the first two (2) steps.

Runaway Lanes

An additional lane maybe located beside some downhill sections, usually found on roads preceded by a mandatory brake-check. These runaway lanes provide an extra path to help vehicles slow down and stop should the brakes fail.

Stopping and Parking on Hills

- Check for following traffic using side mirrors and signal to pull over to the curb or edge of the road
- Downshift, if necessary, to reduce speed in preparation to stop
- Apply brakes lightly at first (on a downgrade you should probably tap the brakes with your right foot a couple of times) and then apply firm, even pressure for a smooth stop
- Depress the clutch as you are near a stop; and when stopped, shift to low gear or reverse for manual transmissions and neutral for automatic transmission
- Allow extra room between vehicles for safety
- Turn wheels into the curb on a downgrade; away from curb on an upgrade. Ensure front tire makes gentle contact with the curb. If no curb, always turn the wheel to the right on either up or down hill grades. The laws require the wheels of a parked vehicle be no more than 50cm from the curb.
- Set the park brake and turn off the ignition
- Remove keys.

Starting on a Hill

Starting on an upgrade in a tractor-trailer with standard transmission can be difficult even for the most experienced drivers, particularly in areas with heavy traffic. On less steep grades and with considerable experience, it may be possible to use the normal starting procedure.

The recommended procedure for starting on a hill, however, requires that you use the parking brake as outlined here.

- When stopped on a hill the parking brake should already be engaged
- Depress the clutch and shift into the appropriate gear
- Release the parking brake
- Release the clutch slowly to the friction point while gradually depressing the accelerator

Exiting a Major Roadway

Tips on how to exit a major roadway or highway safely:

- Plan ahead. Be in the proper lane well before you reach your exit.
- Use your turn signal well in advance of the exit to alert the drivers behind you.
- Move into the deceleration lane as soon as space is available, if there is one.
- If possible, do most of the slowing in the deceleration lane. Some deceleration lanes are short; you may need to start to reduce your speed while still on the highway.
- When you have exited, ensure your signal light is turned off.
- If you miss your exit, do not stop. Continue to the next exit and make plans to return to your route. Do not stop and reverse on the highway, the emergency stopping lane or shoulder.

Weave Zones

On some roadway interchanges, there are places where the highway entrance and exit use the same lane. The entrance and exit can be close together. These areas require caution and cooperation because vehicles share the same lane to slow to exit the highway while other vehicles are using it to increase speed to enter the highway. The area that these vehicles share is called a weave zone.

In weave zones, control your speed and the timing of your lane change to merge with other traffic. This requires skillful use of time and space. Use caution in these zones to ensure safe highway exiting and entering for all vehicles.

Module 3 Key Points

- When stopping for a train at a railroad crossing, tractor-trailer can be brought to a stop no closer than 5 metres from the nearest track(s) and no further than 15 metres.
- When making a left turn keep the wheels pointed straight ahead will ensure that you will not be pushed into oncoming traffic, if struck from behind.

- Looking ahead 12 seconds down the road and maintaining a six second following distance between vehicles gives you the necessary space to react to unexpected situations
- Do not enter an intersection or rail crossing unless you can clear it completely.

Practical Training Guide

At the end of the classroom session of this module, the trainee will be required to learn and practice various driving skills under the supervision of the instructor. During in-vehicle instruction, trainee shall develop the skills and control required to safely operate a motor vehicle in a traffic environment. A minimum of 36 hours is required to complete this practical section of this module.

Prior to performing any of the manoeuvers outlined in each lesson, the instructor will provide a brief (approximately 20 minutes) demonstration drive to illustrate the driving skills to the trainee.

Objectives of the On-Road Practical

- To provide trainees with an adequate level of skill, knowledge, attitude and vehicle control to ensure safe handling and the smooth operation of a tractor-trailer
- To provide trainees with the knowledge required to apply driving laws, proactive driving practices, hazard detection and defensive driving techniques to ensure cooperative, safe and legal operation of a motor vehicle
- To provide trainees with the abilities required to:
    - Gather information from events and conditions encountered while driving;
    - Effectively analyze the information gathered;
    - Decide on the correct course of action required for the circumstance; and
    - Act in a timely manner to implement such decisions
- To provide trainees with the ability to plan their driving.
- To provide the opportunity for the trainees to gain confidence to drive independent of instruction.

Prior to starting the practical, the instructor must check fthe vehicle for the following:

- Speedometer malfunction.
- Air brake component malfunctions.
- Obstructed visibility (glass).
- Signal or brake lights defective.
- Inadequate brakes.
- Headlights or windshield wipers not working.
- Vehicle unsafe.

Upon entering a vehicle, the instructor will ask the trainee to point out the location and explain the fucntion of each of the following controls:

- Hazard light switch;
- Park brake;
- Headlight switch;
- Dimmer switch;
- Windshield washer and wiper controls;

- Defroster switch; and
- Speedometer.

Prior to moving the vehicle, trainee should apply the following basic habits:

- Ensure **parking brakes** are applied.
- Remove **wheel chocks**.
- Check **seats and mirrors** for proper adjustment.
- Attach and properly adjust **seatbelts**.
- Depress **clutch** and ensure **transmission** is in neutral prior to starting engine.
- Start **engine**.
- Verify that the air compressor functions properly
- Select proper **gear** and release **parking brakes** when ready to leave.

Prior to commencing actual drive, the instructor will inform the trainee that:

- Advance and audible notice will be given for any turn or manoeuvre required during the practice; ensure that trainee is paying full attention prior to giving directions;
- If no direction is given prior to an intersection, the trainee should continue to drive straight ahead;
- The trainees will not be required to complete any unsafe or illegal action; and
- The trainee may ask questions prior to the beginning of the on-road practical;

When they are ready, and it is safe to proceed, the practical will begin. Prior to moving the vehicle, the instructor will start will a brief summary (approximately 10 minutes) to the tasks that will be performed and brief demostration drive to illustrate to the trainee the maneuvers and skills to be performed.

Lessons should be practice in the following environment – freeway, gravel/grid roads, urban roads and hills

Lesson A - Basic driving manuevers (minimum of 6 hours)- practice in urban/commercial area

While driving, the instructor must ensure that the trainee:

1. Can smoothly start the vehicle
2. Applies continual observation techniques and monitoring of road conditions
3. Conduct regular traffic checks
4. Monitors vehicle blind spots and proper use of mirror
5. Drives courteously, manages unexpected situations, manages distractions and drives within capabilities and experience
6. Monitors vehicle behavior and operating conditions
7. Recognizes their responsibilities for sharing the road surface with pedestrians and other vehicles of various dimensions, speeds and purposes, and the consequences of failing to do so

8. Manages speed and following distance to allow adequate time to observe, react, manoeuvre and perform safe braking and stopping if necessary
9. Maintains proper road and lane position
10. Observes road signage and pavement markings
11. Integrates with traffic and show awareness of other road users
12. Operates vehicle controls smoothly
13. Hand position - Maintain two-handed grip on the steering wheel as much as practicable
14. Operates a manual transmission, selecting gears correctly and shifting smoothly
15. Smootly stops the vehicle at the end of this task

Lesson B - Driving through the curves (minimum of 5 hours) – practice in urban, highway and gravel/grid environment

Prior to performing this task, instructor should review and re-familiarize trainee with the tasks performed in previous lesson. Previous lessons should be incorporated into this lesson While driving through the curves the instructor must ensure that the trainee:

1. Prepares for the curve as it becomes visible by completing the following steps:
   a) Conducts a visual assessment;
   b) Conducts a signage check;
   c) Conducts a pavement marking check;
   d) Conducts a traffic check; and
   e) Adjusts speed as required.
2. Travels through the curve by completing the following steps:
   a) Manages speed and following distance;
   b) Steers through the curve following a proper path, based on vehicle off- tracking and clearance requirements;
   c) Conducts a traffic check; and
   d) Maintains two-handed grip on the steering wheel as much as practicable.

Lesson C - Practicing lane changing (minimum of 5 hours) – practice in urban roads and highways

Prior to performing this task, the instructor should review and re-familiarize the trainee with the tasks performed in the previous lessons. Previous lessons should be incorporated into this lesson Before change lanes, the instructor must ensure that the trainee:

1. Prepares for the lane change by completing the following steps:
   a) Conducts a traffic check;
   b) Conducts a pavement marking check;
   c) Manages speed and following distance; and
   d) Activates turn signal correctly and on time, mirror check one more time.
2. Executes the lane change by completing the following steps:
   a) Steers vehicle into the correct position in the new lane;

b) Manages speed and following distance to allow adequate time to observe, react and manoeuvre vehicle if necessary; and
c) Cancels turn signal within about 5 seconds after completion.

Lesson D - Crossing intersections (minimum of 6 hours)- practice in urban road, highways and gravel/grid roadways

Prior to performing this task, the instructor should review and re-familiarize the trainee with the tasks performed in the previous lessons. Previous lessons should be incorporated into this lesson. Before crossing any intersection, the instrutor must ensure that the trainee:

1. Prepares for crossing the intersection as it becomes visible by completing the following steps:
   a) Conducts a visual assessment;
   b) Conducts a signage check;
   c) Conducts a pavement marking check;
   d) Conducts a traffic control signals check; and
   e) Conducts a traffic check.
2. Approaches the boundary of the intersection while completing the following steps:
   a) Reads and respond to signage;
   b) Reads and respond to traffic control signals;
   c) Conducts a traffic check; and
   d) Plans a crossing path.

3. Stops at an intersection when required by completing the following steps:
   a) Reads and respond to signage;
   b) Reads and respond to traffic control signals;
   c) Stops the vehicle in the correct location;
   d) Keeps wheels in proper position and two hands on wheel while stopped; and
   e) Drives vehicle forward when necessary.

4. Proceeds across the intersection after stopping, or when no stop is necessary, by completing the following steps:
   a) Conducts a traffic signal light check;
   b) Conducts a traffic check;
   c) Interprets right of way obligations correctly;
   d) Steers the vehicle through the proper path; and
   e) Manages speed and following distance.

Lesson E – Turning at intersections (minimum of 5 hours)

Prior to performing this task, the instructor should review and re-familiarize the trainee with the tasks performed in the previous lessons. Previous lessons should be incorporated into this lesson. Before turning at an intersection, the instrutor must ensure that the trainee:

1. Selects the correct lane for starting the turn;
2. Activates turn signal correctly and on time;
3. Conducts a continuous traffic check while turning;
4. Manages speed and following distance;
5. Interprets right-of-way obligations correctly;
6. Steers through the intersection following a proper path, based on vehicle off tracking and clearance requirements;
7. Selects the correct lane for travel after the turn; and
8. Cancels turn signal after completion (never more than 5 seconds).

Lesson F – Entering and Exiting a Highway (minimum of 7 hours)

Prior to performing this task, the instructor should review and re-familiarize the trainee with the tasks performed in the previous lessons. Previous lessons should be incorporated into this lesson.

Entering a highway- Before entering a highway, the instrutor must ensure that the trainee:

1. Conducts a traffic check;
2. Manages vehicle speed according to conditions, weather conditions, posted advisories;
3. Conducts a pavement marking check and stay within markings;
4. Changes lanes or merge as necessary on the ramp;
5. Negotiates the ramp at appropriate speed;
6. Manages following distance;
7. Activates turn signal correctly and on time;
8. Adjusts vehicle speed within the acceleration ramp to facilitate merge into traffic;
9. Interprets right-of-way obligations correctly;
10. Merges onto highway maintaining suitable distance from other vehicles and adjusting speed as needed, responding to metered ramp entry systems where applicable; and
11. Cancels turn signal after merge is complete (never keep signal on more than 5 seconds).

Exiting a highway - Before exiting a highway, the instrutor must ensure that the trainee:

1. Conducts a traffic check;
2. Manages following distance;
3. Changes lanes if necessary well before the exit;
4. Reduces speed as appropriate (neither too soon or too late);
5. Activates turn signal correctly and on time;
6. Conducts a pavement marking check and stay within markings;
7. Drives onto exit ramp as soon as space is available;
8. Decelerates as necessary within deceleration ramp;
9. Manages vehicle speed according to conditions and posted advisories;
10. Negotiates the ramp at appropriate speed and change lanes or merge as necessary; and
11. Cancels turn signal after getting fully into exit lane.

The assessment guideline is composed of seven sections:

1. Controls- This involves knowledge and use of vehicle components including steering, gears, clutch, brake, accelerator and signal switch.
2. Starting and Stopping- This covers all situations where the driver is putting the vehicle in motion, either forward or in reverse.
3. Main Driving. This includes manoeuvres between intersections such as safe lane changes, planned driving, speed, and vehicle control.
4. Turns. This relates to proper procedures for completing turns such as signals, proper lane to start and complete the turn, correct positioning for the turn, and vehicle control.
5. Intersections. This includes observation of conditions, speed, compliance with traffic control devices, right of way judgements, and vehicle control.
6. Traffic light and signs – this involves observing and obeying traffic lights and signs.
7. Hill Park.

It should be noted that it is impossible to cover all circumstances in detail. Keep in mind that this is an assessment for the Mandatory Entry Level Program (MELT) and is **not** a road test for a Class 1 licence.

Practical Assessment Guidelines

All lessons must be reviewed and assessed according to this guidelines.

A. Controls

- Knowledge and use of vehicle components

Gears:

- Starts in wrong gear, affects vehicle;
- Focusing on the gear while shifting
- Fails to gear down, if required, before descending grade;
- Shifts gear while crossing railway track(s)
- Fails to select appropriate gear for a turn.

Clutch:

- Stalls more than once;
- Coasts around corners / down hills / when stopping.

Steering:

- Occasional one hand steering;
- Poor hand position;
- Allows the steering wheel to spin freely without control, when recovering from a turn.

Acceleration:

- Accelerates too fast when starting, backing or turning.

Braking:

- Fails to exhibit threshold braking when stopping or attempting to slow down to stop on icy roads.
- Vehicle Controls (Discuss any control problems that might occur during manoeuvres in this section e.g. utilizes hand brake to slow vehicle. Sets park brake before vehicle is fully stopped. Pumps brakes.

B. Starting (Ahead/Back) and Stopping

1. Fails to check for traffic and/or conditions.
2. Fails to signal.
3. Rolls back 50 centimetres to 100 centimetres.
4. Fails to observe crosswalks and stopping lines
5. Poor control of clutch friction point causing ‘jerking/lugging’ motion of

vehicle

6. Hiting the curb.

C. Main Driving

1. Planned Driving:

- Late choosing lane.
- Fails to travel in right lane where appropriate.
- Fails to use right lane on double left turn.
- Changes lanes for no apparent reason.
- Changes lanes when unsafe to do so.

2. Road Position:

- Straddles traffic lanes.
- Crosses or crowds centre line for no apparent reason.
- Too close:
- Stops too close behind other vehicles.
- Follows other vehicles too closely.
- Passes other vehicles too closely.

3. Observation:

- Fails to check blind spots or periodically check mirrors.
- Fails to signal or cancel signal light on lane changes.

4. Signals:

- Fails to signal or cancel signal light on lane changes.

5. Speed:

- Too slow for conditions (under 10 km/h).
- Too fast for conditions.
- Exceeds speed limit (5 to 10 km/h).

6. Vehicle Controls:

- As previously indicated in Part **A**.

D. Turns

1. Signals:

- Too soon (more than 1/2 block from turn).
- Too late (less than two vehicle lengths from turn).
- Not activatedor not cancelled after turn.

2. Lanes:

- Chooses wrong lane before or after the turn.
- Fails to check the miror.
- Fails to check blind sport.
- Position on the road.
- Fails to observe signs and condition.
- Improper lane change.

3. Cuts Corner / Turns Wide:

- Cuts corner on a left turn or brushes curb on a right turn.
- Turns wide on a left or right turn, but ends up in proper lane on completion.

4. Incorrect Position

- Fails to enter an intersection when required (e.g., waiting for approaching traffic on a green light);
- Enters an intersection to prepare for a left turn when other vehicles are already in the intersection.

5. Vehicle Controls:

- As previously indicated in Part **A**.

E. Intersections

1. Approach Too Fast:

- Approaches uncontrolled/ controlled intersections too fast for vision and road restrictions.

2. Fails to Observe Conditions:

- Poor observation entering

uncontrolled/ controlled intersections with limited or restricted vision.
- Fails to observe and respond when passing stopped vehicle.
- Fails to observe and respond when approaching controlled railway crossings.

3. Traffic Control Devices:

- Fails to comply with traffic control signs / signals.
- Fails to anticipate change in traffic control signal.

4. Entering Highway:

- Fails to stop leaving private / public driveways that are not controlled by traffic control devices.
- Impedes traffic when entering highway.

5. Right of Way Judgement:

- Fails to yield to pedestrians.
- Other vehicles
  - Poor judgement of speed / space requirements when entering the traffic flow.
- Own:
  - Slows down or stops unnecessarily.

6. Position

- Stops too far back from the crosswalk or intersection (in excess of one vehicle length).
- Blocks the crosswalk.
- Blocks an intersection.

F. Traffic light and signs

- Fails to aniticpate traffic light or signs.
- Fails to obey traffic light and signs.

G. Hill Park

1.Tires:

- Fails to turn steering wheel for contact with the curb.
- Turns steering wheel in wrong direction.

2. Position:

- Rear wheel more than 50 centimetres from the curb.

3. Brake / Gear:

- Fails to apply park brake.
- Fails to leave vehicle in lowest gear.

4. Control:

- Hits curb hard.
- Climbs curb.

Terminating an On-road practice

Some situations may warrant an immediate termination of the practical prior to completing the required maneuvers.

Summation

The instructor will summarize the trainee's driving ability at the end of each lesson by:

- Explaining and identifying weak areas and provide means to improve to achieve competence.
- Providing an overall assessment of the trainee’s progress, identifying areas of success and areas requiring more attention. Provide recommendations for further practice
- Providing feedback and complete the assessment form
- Assigning a final grade for the in-vehicle portion of this module

NOTES:

MODULE 4 - PROFESSIONAL DRIVING HABITS

Purpose

The purpose of this module is to explain the concept of defensive driving and teach trainees how to drive in a safe manner regardless of the actions of others. This module will be delivered in the classroom It should take 7 hours to cover the materials in this module.

General Learning Outcomes

At the end of this module, the trainees should be able to:

- Understand basic defensive driving principles
- Recognize common situations that lead to collisions
- Understand that personal attitudes and defensive driving habits are key to preventing collisions

Habits of Minds

Trainees will:

- Appreciate the importance of defensive and proactive driving habits
- Recognize their duty of care to proactively protect other road users from harm.
- Recognize the importance of the truck driver as the most significant factor in collision avoidance
- Appreciate the concept of “connecting the mind with the eyes” when operating the vehicle
- Recognize the importance of developing good visual habits
- Appreciate the value in practicing commentary driving for collision avoidance
- Recognize the impact of distracted and impaired driving on traffic safety

Knowledge and Understanding

Trainees will:

- Know the importance of responsible driving
- Know and understand the elements of defensive driving
- Know the steps for avoiding hazards
- know and understand the six conditions affecting driving
- Know and understand the importance of space and speed management
- Know and understand the basic collision prevention formula
- Know and understand the potential causes for two-vehicle collisions and the procedures for avoiding them

Skill and Processes

Trainees will be able to:

- Demonstrate good visual habits by:
  - Actively minimizing blind spots including those caused by mirrors and where motorcycles and bicycles might be hidden
- Determine the time needed to bring the vehicle to a full stop by considering
  - Perception time
  - Reaction time
  - Lag time
  - Braking time

- The need for modifications due to varying conditions and factors

- Detect and interpret clues in zone of awareness

- Demonstrate an understanding of emergency driving techniques

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
6.5		**0.5**					**7**

1. Defensive Driving

While a properly maintained vehicle is a very valuable tool in the prevention of collisions, the most influential factor is the driver. It is the driver's skills, knowledge, habits, attitudes, physical and mental condition that are major factors in either being involved in a collision or avoiding one.

Elements of Defensive Driving

In order to successfully avoid collisions, the professional driver requires a high degree of knowledge, alertness, and foresight and must always exercise good judgment and skill.

a) Knowledge

A great deal of knowledge about driving can be acquired through experience, but experience is not necessarily the best teacher as bad habits develop and are hard to break.

b) Alertness

Alertness is the habit of keeping one's attention focused on driving and free of distractions. It includes the attitude of detecting hazards and the ability to avoid collisions. Mental alertness can be developed consciously and is improved with practice.

c) Foresight

This is the ability to anticipate and prepare for most eventualities. It consists of being able to assess traffic situations as far ahead as possible, to anticipate how they are likely to develop and to decide whether or not they will present a hazard.

d) Judgement

Good judgment implies recognition of the alternatives present in any traffic situation and the ability to arrive at a wise choice in time to avoid a collision. It is dependent on knowledge and experience and also intangibles such as critical thinking skills and intuition.

e) Skill

Skill is the ability to manipulate the controls of the vehicle to successfully perform basic traffic manoeuvres such as turns, passing, reversing, parking, etc. There is a correct way to do each of these. Skill is developed through learning how do them the right way and then doing them the right way every time.

f) Good Habits

Good habits are developed by consciously practicing the correct procedure to the point where you subconsciously do it right every time. Correct performance has become instinctive. Good visual habits, for example, are one of the most important tools available to the defensive driver.

Steps for Avoiding Hazards

- **Identify**
  The driver must be able to identify any real or potential hazards or dangerous situations.
- **Predict**
  Predict likely outcomes.
- **Decide**
  Decide which course of action will lead to the desired outcome,
- **Execute**
  Put your plan in action.

It is important that you remain alert and consciously scan for hazards as you drive. Both your survival and that of other occupants of the vehicle depends on your ability to identify clues that indicate a potential or real hazard.

One of the most important aspects of defensive driving is recognizing impending hazards before they become a problem. Early recognition allows the time you need to avoid trouble. It is vitally important that you recognize and become immediately aware of what you see while driving. Use your eyes to see and your mind to analyze what you see for potential dangers.

Six Conditions Affecting Driving

There are six conditions in any driving situation; your ability or inability to adjust may prevent or create a collision.

1. **Light**
2. **Weather**
3. **Road**
4. **Traffic**
5. **Vehicle**
6. **Driver**

Light Conditions

- **Driving at night** - When you are driving at night or at any time when you cannot see clearly 150 metres (500 feet), (12 seconds) in front of you, you must turn your headlights on.

Daytime running lights are not bright enough to be used at night. They are too dim and the tail-lights and instrument panel lights will not be on.

  - Use your low-beam headlights if there is oncoming traffic, even when the highway is divided.
  - Be sure that your headlights are properly aimed so that they do not bother or interfere with other drivers.
  - Keep your headlights clean.
  - Avoid looking directly at oncoming headlights so they do not blind you. Look slightly down and to the right edge of your driving lane until the vehicle passes you.
  - The human eye takes about seven seconds to recover from headlight glare. At 80km/h a vehicle would travel 156 metres in those seven seconds.
  - Do not overdrive headlights at night (unable to stop or respond to a hazard illuminated by your headlights). The average low beam headlights are only capable of illuminating the highway for approximately 100 metres.

- **Glare** - Glare from the sun, reflections, and the lights of other vehicles can affect your vision in the daytime or at night. If glare makes it difficult to see the road, reduce your speed. Ensure your vehicle's windows are properly cleaned inside and outside to improve visibility. Sun glare anytime of the day or glare from the snow on a bright winter day; sunglasses and a clean windshield are essential for a professional driver.
- **Smoke and Fog**- In smoke and fog, use low beam headlights, as high beams reflect the light back to you, creating glare. If visibility becomes so poor that it is no longer safe to continue driving, slow down and move your vehicle well off the road to a safe location. Turn on your hazard lights. Do not attempt to drive until conditions improve. If a safe place to park is not available, ensure that you and your passengers move to a safe location away from the vehicle in case it is hit.

Weather Conditions

Rain, snow, sleet, and fog can all contribute to loss of vehicle control. These conditions can be dangerous because they affect other road users as well.

- **Rain** - Drive with low-beams on as high beams reflect the light back to you, creating glare and reduce your speed. If conditions are too bad, do not drive at all. Be careful not to splash other vehicles and pedestrians. This could cause hazardous condition to other road users.
- **Ice and Snow** - During the winter you can experience poor weather conditions that can make driving more dangerous. Winter conditions include freezing rain, very low temperatures, blowing snow, high wind chill, blizzards and heavy snowfalls.

Ensure the truck is well-maintained. Have it serviced before winter arrives. Be sure that your vehicle's battery, tires, exhaust system, windshield wipers and heating system are in good working condition. Intersection areas may become icy more quickly because of vehicle exhaust, engine heat, and vehicles spinning their wheels or skidding. Allow more time and distance for stopping and starting. The most important thing is to reduce your speed. Ensure your vehicle's windows and windshield are not obstructed by snow, frost, steam, mud, or anything else that may make driving the vehicle dangerous.

If you find yourself stranded off the highway and your vehicle is in a safe place, it is usually safer to stay with your vehicle. Run the engine just enough to stay warm. Keep the vehicle ventilated while the engine is running. Open a window a small amount to assist air circulation to prevent carbon monoxide poisoning. Carbon monoxide can get into your vehicle from a leaky exhaust system. Carbon monoxide is a poisonous gas that is colourless, odourless, tasteless and, therefore, very dangerous. Be sure your exhaust system is checked whenever you take your vehicle in for servicing.

Winter emergency supplies to carry in your vehicle:

- blankets and extra clothing
- sand or road salt
- shovel
- heat source, candle, matches and a deep can to hold the candle
- ice scraper and snow brush
- tire chains

Road Conditions

Gravel, debris, visibility, valleys and hills all limit the speed at which you can drive. When road conditions are poor due to bad weather, allow more time for your trip. Increase your following distance, reduce your speed and maintain your space cushion.

- **Wet road condition** - On wet roads, your tires may lose contact with the road surface. This is called hydroplaning. The loss of contact between the road surface and your tires can cause you to lose control of your vehicle.
  If this happens, do not brake. Release pressure on the accelerator to allow the vehicle to slow. Look and steer where you want the front of the vehicle to go.
  Reduce your speed before driving through large amount of water. If water enters the brake drum, it may affect braking effort.
- **Ice and Snow -** When the temperature rises to the point where the snow begins to melt, roads can become very slippery. When the frost begins to come out of the ground, a thin layer of water is formed on the road surface. Do not use cruise control when the weather and road conditions are poor. When your tires contact ice, the cruise control will continue to apply the accelerator and you could lose control.
  Black ice is caused by moisture freezing on the road surface. Often a driver cannot see it. However, if the asphalt looks shiny and black instead of grey-white, be cautious, and reduce your speed without braking.

  It is important to note that bridge decks and overpasses tend to form slippery patches more readily than other road surfaces. Use extra caution and try to avoid unnecessary lane or speed changes.

Tire Chains

Tire chains improve traction when driving in snow and ice. Tire chains may be a requirement by law for driving on roads during certain parts of the year in the United States and some Canadian

jurisdictions. As part of your pre-trip planning, check if chain laws apply if you are driving through multiple jurisdictions.

Before you begin your trip check that you are carrying the correct number of chains and the chains are in proper working order (no broken fasteners, condition of cross links, side chains are not bent or broken).

The following is a general guide on how to install tire chains. Chain placement may vary depending on tractor trailer configurations. For example, the chain placement will differ between a single-drive axle commercial vehicle towing a semi trailer and a tandem-drive axle vehicle towing a trailer.

Prior to Installing Chains:

- Ensure the vehicle is in a safe location, away from traffic
- Check that the vehicle is parked on a stable and level surface
- Use caution when walking around the vehicle, as the ground may be slippery from snow and ice
- Wear proper Personal Protective Equipment (PPE) such as gloves and high-visibility PPE during adverse weather conditions
- Place a chain on the left rear trailer tire to help stabilize the trailer on the highway

Installing Chains (Single Drive Axle):

- Engage the emergency brake and secure the vehicle.
- Check tire pressure.
- Place chains flat (check that there are no twists or tangles) on the ground, with the traction part of the crosslink facing the ground.
- Wrap chains over the top of each tire. Ensure the fastener is on the outside and the traction part is facing up away from the tire. Side chains and fastener hooks should not be under the tire.
- Place excess crosslinks under the tire.
- First hook the inside fastener as tight as possible followed by the outside fasteners
- Release the emergency brake and move vehicle forward or backwards at idling speed until the hooks are approximately axle high.
- Re-apply emergency brake and secure the vehicle.
- Hook the inner chain first as tight as possible, with a bit of room to hook the outer fastener.
- Tighten tightening device (d-cam tightener) if equipped. If chains do not have a tightening device bungee cords can be used for extra security.

Note: The tighter the chains are installed, the less wear and tear will occur on the chains and tires.

Gravel Surfaces

Travelling through Alberta, a driver may encounter various types of roads, including gravelled surfaces. Roads may not be paved if they are not used frequently. Gravel (loose fragments of rock) are used to cover some road surfaces. Driving on gravel roads requires different skills than on paved roads, as they are narrower and fluid in nature. When there are loose fragments, drivers should reduce speed and increase following distance (12 seconds) in order to maintain visibility from dust clouds created by vehicles ahead and to avoid rock chips from striking and damaging the truck. Slowing down also prevents churning up large amounts of loose gravel, which could become a hazard for other drivers.

Traction is also reduced when driving on loose surfaces because tires of the vehicle are rolling over another dynamic surface. To get a sense of how your vehicle will handle on a gravel road, accelerate slowly and gradually increase your speed. If the vehicle looses traction or starts to slip, slow down. When approaching turns or an area where you may need to stop (railway, intersection or hill) or a hazard, slow down the vehicle by braking in advance.

In the event traction is lost, do not brake abruptly. This will cause the vehicle to skid. Ease off the accelerator then look and steer in the desired direction. Loosing control of a vehicle is a frightening experience, try to stay calm and not over-steer. Once the vehicle has regained traction, gently and smoothly apply brakes as needed.

Changing weather conditions further add to the challenge of driving on gravelled roads. When mixed with moisture, the dust and dirt on the surface of gravel roads can become very slippery. Heavy rainfalls may make the ground extremely muddy and cause the vehicle to become stuck. If it is safe, the driver can step out of the cab to check the ground, in instances where the road condition is unknown. If the vehicle is stuck and has sunken down to the wheel axles, the drive wheels are deeply submerged in mud or the vehicle is leaning to one side, seek assistance to recover the vehicle. Further attempts to drive the vehicle may lodge the vehicle deeper into the surface or worse, damage the vehicle.

Precautions when passing

Take extra care when passing on gravel roads. This manoeuvre should only be done when absolutely necessary. Several factors can increase risks of passing:

- Narrower road
- Soft shoulders
- Reduced visibility from dust and debris from vehicles ahead

Vehicles passing in the other direction may kick up gravel and dust. When oncoming vehicles approach, slow down and move the truck as far right as it is safe to do so. Once the vehicle has passed, gradually re-centre the truck and regain the appropriate speed.

Gravel Roads and Vehicle Maintenance

Frequent driving on gravel roads can take a toll on the vehicle. Dust and other foreign particles collect in the air filter and radiator, reducing airflow into the engine and causing it to overheat. Particles will also stick to vehicle components that require grease to function. Excessive buildup of particles can increase friction between two moving parts and cause them to overheat or wear

down more easily. Ensure air filters are checked and changed frequently and inspections are conducted regularly.

Traffic Conditions

Traffic conditions refers to the other vehicles on the road, their general flow, distribution, and speeds. Drivers should be aware of the actions of those other drivers and their vehicles, planning ahead to ensure that they are not placing themselves at risk of a collision.

Vehicle Conditions

Vehicle conditions such as wear and tear, and pre-existing damage can lead to equipment failure and collisions. Professional drivers must ensure that major defects are addressed prior to operating the vehicle on a public roadway.

Driver Conditions

Driving requires both mental and physical sharpness. Drivers should ensure they are fit for duty and not suffering from impairment, fatigue, or distraction. Additionally, poorly trained drivers pose a higher risk to themselves and others. Be mindful of your skill level and always seek to improve.

The state of our mental well-being affects the conditions and quality of our work. In terms of driving errors, these can be divided into two generalized categories, recognition errors and decision errors.

- Recognition errors:
  - Distraction (psychological, environmental, situational)
  - General inattention
  - Inattention blindness
  - Improper lookout (fixation)
- Decision errors:
  - Speed
  - Risk taking
  - Failing to obey traffic control indicators

Both of these error types arise from diminished mental or physical condition of the driver. Recognition errors arise typically from some situation which the driver is not fully conscious of, or does not take seriously. While decision errors arise due to conscious factors which the driver does not consider significant. Some forms of errors have elements of both categories, as in the case of texting while driving. Texting and driving is a conscious decision which results in a distracted state that the driver does not acknowledge.

<u>Recognition Errors:</u>

There are numerous issues that can diminish a driver from operating a vehicle at their optimum capability. These may be on-going, such as health problems, money or family issues, or immediate ones, such as distractions to your attention or time pressure.

Any of these may create a state of mind which takes the driver's attention from the primary task of driving and so creates a situation in which an incident or collision becomes more likely.

Decision errors:

Decision errors may arise from unrecognized circumstances that affect the driver's behavior, but many are actually within ability of the driver to observe and correct at will. Failing to stop fully at a stop sign or red light may appear on the surface to be a small concern, but in fact creates a brief moment in which the driver has not taken sufficient time to observe the entire situation. Crucial information may be missed such as the existence of a small animal or child, or a vehicle not behaving as expected. This can easily lead to very serious consequences. Time concerns frequently create unconscious stresses in the mind of a driver which lead to poor decision making such as speeding or clearing intersections too late. Laws and rules of defensive driving are established based upon the principle of making driving, which is inherently a dangerous activity, as safe as possible given the circumstances and decision errors are invariably a violation of law or good practice that increases the chances for collision. These factors all increase the potential likelihood of an individual being involved in a collision.

- Impaired Driving

    - Drugs (prescribed and non-prescribed)
        - Driving under the influence of any drugs can affect your driving ability. When prescribed, ask your doctor about any potential side effects of your medication.
        - Over the counter medication requires the same attention. Your pharmacist is a great source for information on side effects, especially when combined with prescribed medication.

    - Alcohol
        - Even though alcohol is a legal substance, it is an addictive substance. Alcohol is a depressant and consumption may trigger mood and behaviours changes.

        - The parts of the brain affected when consuming alcohol and other substances are the same brain functions drivers rely on to make decisions while driving. Drugs and alcohol also affect the same brain functions required to make rational, safe decisions about NOT driving after drinking or take drugs.

        - Alcohol and substances affect everyone differently. Effects can vary due to age, gender, physical condition, dosage or amount consumed, reaction to other medications and whether they were taken on an empty stomach.

        - Two or more impairing substances consumed together creates what is called a synergistic effect. For example, if a person consumes alcohol with another drug already in their system, the impairing effort on the function of the central nervous system is far greater than the impairing effect caused by the alcohol alone. The combined effects of different substances consumed at the same time are difficult to predict and, in some cases, fatal.

- There is no known safe amount of substances or alcohol that a driver can have in their system. The only safe amount is zero.

- Driving impaired by substances or alcohol is a criminal offence punishable by fines, court-imposed penalties, incarceration and the loss of driving privileges. For a professional driver, this can mean the loss of not just a job but a career as a commercial vehicle operator. Alcohol in any amounts will affect your ability to drive. Alcohol depresses the central nervous system to slow down brain activity. Judgement, motor skills, vision and short-term memory are also impaired by the consumption of alcohol. Many employers in Canada forbid employees from driving within 12 hours of consuming any alcohol.

Impaired driving is a transportation-related offence under the *Criminal Code of Canada*. Penalties for impaired driving as outlined by the federal government can include license suspension, fines, jail time, and participation in various programs. Provinces, including Alberta, have sanctions that apply to impaired driving in addition to the criminal penalties imposed by the courts.

There are four impaired driving sanction programs in Alberta, designed to immediately remove impaired drivers from the road and deter impaired driving. Three of the sanctions that apply to commercial drivers are:

Sanction	**Offence**	**Penalty**
Alberta Administrative Licence Suspension (AALS) program	- Drivers with a blood alcohol concentration of over .08 per cent, - A blood drug concentration over 2 nanograms of THC per millilitre of blood, - A combination of 50 milligrams of alcohol per 100 millilitre of blood & 2.5 nanograms or more of THC per one millilitre of blood, or - Refusal or failure to provide a breath or fluid sample	- Immediate fixed term driving suspension - Subject to remedial education courses and vehicle seizure
Immediate Roadside Sanction (IRS) program	- drivers with a blood alcohol concentration of .05 to .08 percent	Penalties vary depending on the number of times the driver has committed the offence; they include: - Driver license suspension and vehicle seizure for 1st, 2nd and 3rd offence - Completion of a remedial education course “Planning Ahead” for the 2nd offence, and

		- Completion of remedial education course "IMPACT" for the 3rd offence
24-hour Suspension program	- Drivers that are suspected of being impaired by alcohol, drugs or a physical or medical condition. This program allows peace officers who may not be authorized to conduct an impaired driving investigation to remove suspected impaired drivers from the road immediately, as well as drivers suspected of being impaired by fatigue or other physical conditions.	- immediate 24-hour licence suspension Note: Drivers that receive a 24-hour suspension for medical reasons may have their file reviewed by Alberta Transportation's Driver Fitness and Monitoring to determine their fitness to drive.

For detailed information on Alberta's impaired driving sanction programs please visit: http://www.transportation.alberta.ca/impaireddriving.htm

Effects of Drugs Other than Alcohol on the Driving Task

Perception - This involves giving meaning to human senses of vision, hearing, etc. Unless a driver accurately understands what he/she sees, it is impossible to react appropriately. Both amphetamines and cocaine can cause perceptual problems.

Judgment - Accurate decisions are based on a driver's ability to assess and judge a given driving situation. Poor judgments often result in collisions.

Coordination - Drivers must coordinate hand, eye and foot movements to operate a motor vehicle successfully. Loss of such ability greatly handicaps performance.

Vision - Vision is the key to information gathering and processing and safe driving. Visual impairments make it difficult to search, evaluate and execute appropriately.

Mood - A driver's mood may cause him/her to take unnecessary risks or be so lethargic as to fail to act correctly in a dangerous situation.

Effects of Cannabis

Drug most often found in drivers involved in crashes (after alcohol) and because more research data is available on marijuana than other drugs, specific attention is provided.

Effects include:

- **Loss of tracking ability** - The ability to maintain the vehicle in a given line.
- **Distance judgment** - Following too closely can cause problems.
- **Vigilance** - Not remaining attentive to the driving task can cause a driver to follow too closely, drift into another lane, etc.
- **Divided attention** - Driving is a task which requires constant but changing attention to traffic, roadway and weather conditions, passengers, gauges, etc.

Mixing Alcohol and Drugs

Many people think that driver impairment is caused exclusively by ingestion of alcohol. The truth is that the alcohol in one's body will determine their blood alcohol level. However, if that person already has another drug in their system, the impairing effect on the functioning of the central nervous system (brain) is far greater than the impairing effect of the alcohol and the impairing effect of the other drugs. It is not as simple as adding together for impairment, but rather a multiplier or synergistic effect.

What it means is that the whole is greater than the sum of its parts. When combining drugs and alcohol it causes a multiplying effect.

Perhaps a few real life examples would be helpful to understand this synergistic effect. Assume that a drink is:

- 1 bottle of regular alcohol content beer; or
- 5 ounces table wine; or
- 3 ounces fortified wine (port or sherry); or
- 1-1/2 ounce hard liquor (rye, rum, vodka etc.).
  Combined with:
- anti-depressants
- Gravol
- antihistamines
- valium

It has been discovered that there is a predictable synergistic effect related to the level of impairment caused by a certain number of drinks when combined in this manner.

A driver should never drink alcohol while taking other drugs. These drugs could multiply the effects of alcohol or have additional effects of their own. These effects not only reduce the driver's ability to operate a vehicle, but could cause serious health problems, even death. The key factor to remember is that any change a drug produces may also cause a lessening of driving ability. Drugs should never be mixed with alcohol because of the possible synergistic effects (chemical reaction between two or more drugs that may produce a reaction greater than either drug alone).

Reasoning

- Inhibitions
- Memory

- Vision
- Speech
- Hearing
- Muscular coordination
- Consciousness
- Automatic Processes (heart, lungs, etc.)
- Death

Alcohol has similar effects on the driving task as do fatigue and stress. However, the effect is compounded by the fact that alcohol affects the perception of one's ability and, while a fatigued driver may know he is not driving well, an alcohol-impaired driver will believe he is driving well when this is not true. **Further, alcohol-impaired drivers tend to drive faster than normal, and wear their seat belts less, which gives rise to more serious, less survivable collisions**

The IPDE Method of Driving

Draw the attention of the class to the Driving Task Analysis list (IPDE) and, taking each concept in turn through questions leading to class discussion, examine the relationship between the two lists. For example, identify from the driving task list requires the use of Reasoning, Memory, Vision and possibly Hearing from the above list. Predict and Decide require these same abilities plus inhibitions that contribute our personal values to the predictions and decisions we make.

At the Execute phase of the driving task (Execute), the Muscular Coordination required to carry out this task is far down the list of progressive impairment. This provides a solid base from which to discuss the inaccuracy of society's long-held belief that an "impaired driver" is a person who has difficulty in steering, stopping, accelerating and braking a vehicle. From this point, it becomes an easy task to involve the class in developing awareness that most accidents and other problems resulting from impaired driving are really centred in poor identification, prediction and decision making. Thus, no longer can we consider tests of a drinker's motor skill function; e.g., walking a line, touching one's nose with eyes closed, etc. as valid indications for safe vehicle operation. This is why the breathalyser and Alert instruments have been developed and play a significant role in the attempt to control the impaired driver problem.

Effects of Alcohol on Space Management

- **Searching** – the primary sense humans use in driving is vision. Even low levels of alcohol (0.03) have been found to reduce this ability. Alcohol affects vision in a number of ways.
    - This is particularly important since about ninety percent of what a driver “identifies” is by use of his or her eyes. The prime reason for visual

problems after use of alcohol is lessened muscular control. Alcohol relaxes the fine muscles of the eye that focus and control eye movement.

- **Eye Focus** – the human eye has the ability to change focus rapidly from objects close to the viewer to objects far away. Alcohol delays this process; thus, a driver may experience difficulty, especially at higher speeds.
- **Double Vision** – although humans have two eyes, each eye must work in conjunction with the other. Alcohol impairs this coordination and may produce a double image. Some drivers close one eye to cope with this, but this greatly affects the next two areas— distance judgment and side vision.
- **Distance Judgment** – a driver must be able to determine how far objects are from his or her path of travel. This is complicated by movement of other objects. Alcohol reduces the ability to judge distance accurately.
- **Side Vision** – sometimes called peripheral vision, this ability is critical to the driving task.
    - A person's central vision is very narrow so a driver must be able to take in a number of things to each side of his/her path of travel. Speed also reduces side vision.
- **Visual Acuity** – this is sharpness of vision. Alcohol may make images blur for the driver and thus impair the ability to identify properly what is in the traffic scene.
- **Colour Distinction** – a driver gets much information from different colors in the traffic scene. Red is used on three types of signs: stop, yield, or some prohibition of action. If alcohol is impeding a driver's ability to determine accurately the color of a sign or traffic light, problems in information processing will occur.
- **Night Vision** – humans have limited night sight at best, and alcohol reduces this ability further. In addition, alcohol reduces the control of light entering the eye. This is important, since drivers must adapt from the situation of no oncoming light to that of headlights shining in their eyes.
- **Slowed Response Time** – alcohol slows a driver's ability to process information and respond to critical driving tasks.
- **Impaired Motor Skills** – a driver's eye, hand, and foot coordination is impaired by alcohol.
- **Judging Distance –** Ability to properly determine safe following distance may be affected.

Fatigue

Driving while fatigued can make you a road hazard. Drowsy driving is as dangerous as impaired driving because it slows a driver's reaction time, decreases awareness and can impair judgment. Lack of sleep is the most common causes of drowsy driving. Other contributing factors include driving alone, driving long distances without rest breaks and driving through the night, or at times when the driver normally sleeps. Taking medication that increases sleepiness or drinking alcohol also contributes to driver fatigue.

In Canada, a driver can drive a commercial vehicle under the National Safety Code up to 13 hours a day, but it is recommended the driver not drive more than two hours without stopping for a rest.

Stress, as a result of mental fatigue or due to anxiety, distress or discomfort tied to interpersonal, social, physical or other factors, can seriously affect a driver's physical and mental abilities to operate a vehicle. Mental illness is very stigmatized. A lots of people do not know how to talk about mental health or where to get help. Trying to manage it alone can be harmful and even result in poor physical health.

Some illnesses and health conditions can pose serious risks to commercial drivers. Even a temporary illness or an injury can limit or impair a driver's ability to operate a vehicle safely. Illnesses can range from a bout of the flu to a chronic medical condition but, even when managed and treated, some illnesses and conditions can impair or restrict a person's driving ability

It is important that you learn to recognize when any or all these conditions are adversely affecting your driving behaviour or ability. This means not driving until after the condition has improved. Take a 'Pre-Trip Mental Inventory' before you start:

Driver conditions:

- Am I fully rested?
- Am I free from alcohol or other drugs?
- Am I feeling healthy?
- Am I able to concentrate on driving?
- Is my attitude courteous, careful and considerate?

Warning signs of driver fatigue

- Yawning.
- Inability to keep eyes focused and head up.
- Having wandering, disconnected thoughts.
- Driving the past few kilometres without remembering them.
- Drifting between lanes, tailgating or missing traffic signs.
- Noticing a vehicle in the rear-view mirror that seemed to appear out of nowhere.

Managing Driver Fatigue

Fatigue, stress and illness are often invisible conditions, and many times they are unpleasant, awkward or stigmatized. Your health is your business, but you have an obligation to tell your employer about a change in your health. A change in health does not necessarily mean you are not healthy enough to drive, but your employer should know if you require limited or modified duties, hours or tasks. Fatigue and stress often happen as a result of illness. Recognizing exhaustion, anxiety and other mental and emotional conditions is the first step to managing them. Fighting fatigue with caffeine or energy drinks may give you a short-term boost but will make you feel more tired in the long run. If you need rest, get rest. Trip planning that includes planned down-time will help you get the rest you need.

A physician may recommend physical aids (such as a back or knee brace) or medications to treat physical and psychological conditions. Familiarize yourself with the side effects and know the effects these supports have on your before you try and drive with them. Always take medication as prescribed and obey all laws pertaining to the use of medications, particularly narcotics, that impair cognitive and motor function. Supplements or non-prescription treatments can affect your judgement so read the product information on all products before taking them. Your diet, physical activity level and sleep habits influence your physical and mental wellbeing as well. Be kind to yourself, and your body will be kind to you.

The following actions will help prevent driver fatigue:

- Stop if you become sleepy while on the road.
- Get plenty of sleep the night before a long trip.
- Avoid working all day and then driving all night. Stay overnight rather than driving straight through.
- Schedule a break every two hours or every 160 km. Stretch or take a walk to get some fresh air.
- Take a mid-afternoon break. Have a 20-40-minute nap.
- Travel with an awake and alert passenger. Having someone to chat with will keep the driver awake and the passenger can also let the driver know if he/she is showing any signs of fatigue.

Road Rage

As motorists, we have almost all found ourselves in unpleasant situations involving abusive gestures or language from another driver who takes issue with how we drive. Anxiety and frustration can quickly provoke an aggressive or careless driver, who tailgates, speeds, fails to yield the right of way among other behaviours.

Aggressive driving behaviour may lead to incidents of road rage where motorists have been threatened and/or subject to retaliatory actions by angry motorists. If people drive responsibly they will reduce the chances of conflict on the road and help, make our roads safer.

Experts recommend the following tips to help avoid road rage conflicts:

1. Plan your route in advance. Some of the most erratic and inconsiderate driving occurs when motorists are lost.
2. Make a conscious decision not to take your problems with you when driving.
3. Combat the warning signs of stress by getting fresh air and breathing deeply and slowly.
4. Avoid heavy meals which tend to make a person drowsy.
5. Drive in a courteous and considerate manner. Give way at busy intersections and where traffic lanes merge.
6. Don’t compete or retaliate. If someone’s driving annoys you, do not try to ‘educate them’. Leave traffic enforcement to the police.
7. Don’t take other driver’s mistakes personally.
8. Avoid honking your horn unless absolutely necessary and, if you must, tap it lightly.
9. Say, “Sorry” if you make a mistake. An apology can reduce the risk of conflict.

10. If you are being physically threatened, stay in the truck and secure the doors. If you have a cell phone, call the police or use the company's two-way radio to have the police come. Use your horn and lights to attract attention.
11. If you think you are being followed, drive to a police station.

Distracted Driving

When operating a commercial vehicle, a driver's attention should be devoted exclusively to the tasks and actions necessary to drive that vehicle. There are a lot of demands on a driver's attention. Traffic, movement of objects and things in the vicinity of the vehicle, digital billboards or static advertising signs, interacting with colleagues and friends inside the vehicle, eating take-out food, listening to news or music, talking to someone on a speaker phone or Blue Tooth, adjusting controls, and so on are just a handful of examples of distractions a driver deals with. There are three kinds of distraction, too.

- Visual – something that takes your eyes off the road.
- Manual – something that results in your hands being off the wheel.
- Cognitive – something that takes your mind off what you are doing.

Being alert and free of distractions is important in preventing collisions. If a driver focusses too much on non-driving-related tasks, they may not see or notice real or potential threats or may react too late. Any driver whose attention lapses create a real or potential hazard for those around could face fines, tickets or even criminal charges.

The penalty for distracted driving in Alberta is a $287 fine and three demerit points. The distracted driving law applies to all vehicles as defined in the *Traffic Safety Act* and distractions are not limited to the use of cellular phones, but include activities such as:

- Reading printed materials
- Writing, printing or sketching
- Personal grooming (brushing teeth, flossing, putting on makeup, shaving)
- Using electronic devices such as laptop computers, cameras, video entertainment displays and programing portable audio players (e.g. MP3 players)

The use of two-way radios or hand-held radios (Citizen's Band radios) is permitted for commercial drivers to contact their employer and in emergency management situations. GPS navigation units can also be displayed, but the unit must be affixed to the vehicle and programmed before you begin driving or the system is voice activated. Commercial drivers are also permitted to have the following screen displayed:

- A gauge, instrument, device, or system that provides information about the vehicle's systems or location

Distracted Driving Legislation in Alberta:
http://www.transportation.alberta.ca/DistractedDriving.htm

Managing Emotions and Distractions

Aggression management is emotion and reaction management. Like any skill, it comes easier to some individuals than others. What other people do is not something you can control but your response and behaviour is. There are a number of anger-management strategies – counting to three; taking a deep breath – but you will have to decide what works for you in any given situation. Your conduct reflects not just on your but on your colleagues, and the company you work for.

Of the many concerns arising from the human factor, is their emotional content or the effect of outside circumstances on one's emotional state. Negative emotional states invariably result in a narrowing of focus and attention that makes you less prepared to cope well with the task of driving. A useful method of dealing with emotional situations as they arise is to cultivate the **Stop, Drop** and **Process** technique (or **SDP**).

This is a method that can be cultivated to help you better manage your emotions when the going gets rough. A time when you may feel 'hijacked' by your emotions, and no longer feel calm and collected. It is especially important if you are worried that you may act in a way you will regret or you are uncertain about the best way to respond to a situation. With repeated practice, SDP can become a healthy habit for dealing with emotionally challenging situations. Situations that sometimes arise while driving. **Remember, it is never a mistake to pull over in a safe location to deal with a difficult situation and calm yourself.**

Methods to Ensure Alertness

STOP – Stop and think before you act

If you are in a situation where your emotions are building to a point where you may have trouble maintaining control, stop! Sometimes, when we are in a highly emotional state, we act automatically, without considering the consequences or the best way to approach the situation.

Learn how to identify the signs that you may be getting to this point:

- Take note of the physical feelings and thoughts that are associated with this emotional state, such as tension in the jaw, neck or face.
- When these sensations or thoughts arise, this is a cue to stop and become conscious of your emotions and consider your response more carefully.

Then you are ready to start working on the next steps.

DROP – Reduce the intensity of your emotions

When we are in an extremely emotional state, it becomes very difficult to think clearly and rationally. The mind's response is triggered (i.e., we want to act quickly to resolve the situation or run away from it) and neither response is likely to be appropriate or effective for dealing with situations on the road. Before you begin to think through a situation, you need to calm down and reduce the emotional intensity. Here are a few ways to reduce emotional intensity:

- Engage in a repetitive action (e.g., counting and deep breaths). Any repetitive action can help you focus and calm your attention.

- Think about something that triggers a positive feeling.
- Breathe deeply. Concentrate on your abdomen and breathe in through your nose while counting to 5, hold it briefly and breathe out for a 5 count, focusing on the feelings of the air and tension leaving your body. Repeat for a few minutes.

Now you are ready to more rationally consider the situation and your response.

PROCESS – Think about it

- Begin with identifying the emotions you are feeling. To manage them, you must first be able to accurately identify them. Are you angry? Overwhelmed? Afraid? Ashamed? Frustrated? Annoyed? Uncomfortable? Helpless? Overconfident?
- Sometimes the surface emotions are masking deeper reactions that are more difficult to identify, but which are important to the situation and understanding your reaction.
- Identify the source of these feelings: Why are you feeling the way you are? What underlying issue may need to be addressed? You can increase your emotional awareness by going 'inside.'
- Finally, decide the best way to proceed, given your ultimate goals and your values.

Once you work through the Stop, Drop and Process steps, you will be better prepared to find a healthy and effective way to deal with the challenges you face on the road. You will find you are glad that you stopped yourself from acting impulsively.

Distraction is another factor that is a choice. Although you do need to look at your surroundings and be aware of what is happening in your vicinity, you make a choice to focus on some things over others. Chatty friends and colleagues can take up a lot of your attention, too. It is up to you to know your own distraction vulnerabilities, triggers and temptations and set boundaries or create habits to manage these.

Keep your attention where it belongs – on the tasks and functions related to driving. If you decide to get take-out meals, ask yourself whether you can drive and eat while keeping your attention on the road and both hands on the wheel where they belong.

Basic Collision Prevention Formula

Collisions can be avoided if you practice a few simple steps.

1. Recognize the hazard;
2. Understand the defense;
3. Act in time.

Some people continually go through the mental process of practicing the 'Basic Collision. Prevention Formula' subconsciously while driving. However, there is a tendency for minds to wander and daydream; thus the process stops. By practicing the formula, your mind will stay focused longer and you will have developed an important tool for maintaining mental alertness. Virtually every driving situation has potential hazards and in order to protect yourself it is not enough to just know what you are doing. You must also be aware of what is developing around

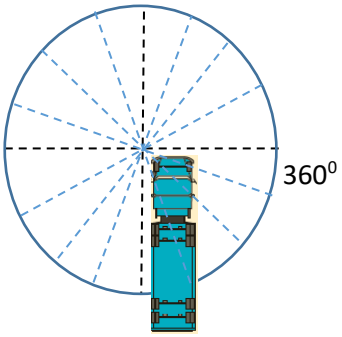
you. The actions of others, the condition of the road, parked cars, visibility, etc., are all part of that process.

Far too often we are lulled into a state of relaxed well-being when we drive, thus our attention wanders. In this state we can easily miss the detection of a hazard. When this happens, an easily avoided problem can rapidly become a full-blown emergency.

It is important that you remain alert and consciously search for hazards as you drive. If you consciously practice hazard detection, you will soon develop the habit of detecting hazards.

Zone of Awareness

Many drivers are content to limit their awareness to the things they can observe by looking through the windshield, with an occasional glance in their mirrors. A defensive driver, however, realizes a hazard can develop from any angle and that zone of awareness must include a full 360˚ circle around the vehicle as well as above and below the vehicle.



While most hazards will appear from the front, rear or side of the vehicle, many drivers have lost control by not being aware of the road condition under their truck. Similarly, drivers have lost the tops of their campers, buses or trailers in parkades or underpasses by not paying attention to hazards above the vehicle. Overhanging eaves, wires or tree limbs may also be a collision point if the driver is unaware.

Remember, the earlier a potential hazard is detected, the more time you have to avoid any problem that develops. Therefore, your zone of awareness should be as wide as possible for the circumstances.

Our zone of awareness contains clues to detect any potential hazards. We can detect these through the use of our senses.

Hearing

The sound of car horns, train whistles, children playing and the sound of other vehicles are all examples of messages we receive through hearing and are indicators of potential hazards. Listening to the sound of your own vehicle can help you identify maintenance problems that can lead to a collision if left unattended.

To gain the greatest advantage of your hearing as a hazard identifier, you must have unimpaired hearing by not playing the stereo or radio excessively loud and other in-vehicle noises should be kept at a low level.

Feel

As we drive, our bodies are in contact with various parts of the vehicle, our hands on the steering wheel, our bodies in the seat and our feet on the pedals. The vibrations caused as the wheels roll over the road surface are transmitted through the vehicle to our bodies. These vibrations can tell us much about the road surface and how our vehicle is ‘holding’ the road.

Smell

Smell may give the driver early indication of a possible problem with their vehicle such as the smell of hot oil, rubber, or anti-freeze. Early detection of a vehicle problem allows the driver more time to find a safe location to park and have the problem dealt with.

Vision

Good vision and good visual habits are essential to safe and defensive driving. Vision can change so gradually that it is easy to be unaware of a vision problem until it is too late. Make it a practice to have an eye examination on a regular basis. There are two interesting facts related to vision that you should be aware of:

- Speed
  As your speed of travel increases, there is a corresponding reduction in your peripheral vision. At a standstill, most people, while looking straight ahead, can still see objects appearing to the side without shifting their gaze. This gives us a range of vision covering approximately 180˚. At highway speeds, this range of vision is reduced so the effect becomes somewhat like driving through a tunnel where you still see straight ahead but your peripheral vision is limited.
- Steering

  Drivers tend to steer toward whatever they look at. They use this tendency to help drive around curves by focusing our gaze well ahead in the direction they wish to go. If, however, drivers were to focus their attention on an off-road object ahead, they would find themselves gradually turning toward that object and if they did not react in time they would drive off the road. For this reason, it is important to keep your eyes moving, scanning the 'Big Picture'.

Developing Good Visual Habits

Continuously scanning our surroundings on and off the road leads to good visual habits. Specifically:

- Scan approximately 12 seconds ahead of your present position.
- Scan and shift your gaze continuously; this includes checking your dashboard gauges, seeing if any warning lights have come on, and scanning all mirrors.
- At night when meeting oncoming vehicles with bright headlights or headlights on high beam, shift your gaze well ahead and to the right edge of the road.
- Keep your vehicle windows clean to reduce glare.
- Maintain an unobstructed view.
- Vegetation, buildings, trees, parked vehicles or any roadside obstruction that obscures vision should be treated as a hazard potentially requiring you to stop if necessary, giving you time to study the situation before proceeding.
- Be aware that other vehicles in the adjacent lane may obscure your vision.
- Pay attention to traffic ahead possibly stopping for any number of reasons including a left turn or a pedestrian.

- Remember that urban driving demands a greater need for attention due to greater concentration of traffic. Traffic controls, congestion and pedestrian traffic on urban roads makes driving more difficult.

Blind Spots

It should make you uncomfortable if you are driving in other drivers' blind spots. Virtually all vehicles have blind areas—even motorcycles. (Motorcyclists are sometimes limited in how far they can turn their head to look behind them.) Yet, some drivers habitually change lanes without checking their blind areas for other vehicles. It is a good idea to adjust your position relative to other traffic to stay out of another driver's blind spot whenever you can.

Motorcycles and Bicycles

Due to the size of these vehicles, they can easily be hidden in your vehicle's blind spots and are even quite difficult to spot in a wide-angle mirror. They are far too often only seen at the last moment. Extra caution needs to be taken around motorcycles or bicycles.

There are large blind spots both behind and to the side of large vehicles. The "right turn squeeze" could occur if a motorcycle or bicycle rider is positioned between a large vehicle that is turning right and the curb. In this position, the driver of the large vehicle may not see the cyclist.

Detecting and Interpreting Clues

In our zone of awareness, we can detect and interpret clues that may lead to collisions by using our senses.

Parked Vehicles

Driving beside parked vehicles is potentially hazardous because your vision is partially obstructed. Hazards often appear when there is little time or space for evasive action. Three key sources of hazards are:

1. The space between parked vehicles through which pedestrians and animals may suddenly appear and dart into the street.
2. The parked vehicle may suddenly pull out into your path without warning.
3. Occupants of parked vehicles may open their doors without looking first. Positioning your vehicle at least 1½ metres out from a parked vehicle will place it beyond the arc of a door should it suddenly be opened.

Usually there are clues from parked vehicles of impending entry into the lane of traffic:

- Exhaust fumes will indicate the engine is running and that vehicle is potentially ready to go
- Back-up and brake lights may indicate that a parked vehicle is preparing to enter traffic
- Front wheels pointing toward traffic may indicate the vehicle is ready to leave the space or manoeuvring in preparation to leave
- A person behind the steering wheel may indicate a readiness to leave a parking space.

Collision Avoidance

Commentary Driving

One of the best methods of hazard detection you can practice is ‘commentary driving’. Commentary driving is a technique where the driver actually verbalizes (talks about) their main observations and interpretations of the events developing around and ahead of their vehicle. With regular practice, ‘real observation’ will become habit and you will not find it necessary to speak out loud. Silent but ‘active’ observation is just as effective for collision avoidance.

An example of commentary driving:

“Signal light is green; oncoming car signaling left; walk light just flashed off; pedestrian crossing” Commentary driving is extremely useful when practiced because:

- It creates an awareness of the vast number of things a driver should be watching for and thinking about
- It assists in the development of good visual skills and helps the driver resist common distractions
- If done aloud with an instructor, it helps the instructor evaluate progress and instructor effectiveness. It also shows the instructor where the driver’s attention is focused and how far ahead the driver is looking.

You can use commentary driving with the *Steps for Avoiding Hazards*, as mentioned earlier: Identify the hazard, predict what may happen, decide on a course of action and execute your action plan.

Let’s follow one example all the way through the process of commentary driving:

Identify:

“Speed is 50 km/h, cars are parked on both sides of the street, no other vehicle traffic is in sight front or rear, there are no side streets, children are playing ball one half block ahead on the right and road conditions are good.”

Predict:

“Child could run out onto road from behind parked cars.”

Decide:

“If the child runs out from the right, sound horn, apply brake.”

Execute:

“Reducing speed now, preparing to brake if necessary.”

This example is fairly simple. Imagine how this situation would have been complicated if there were oncoming traffic and a car behind you was tailgating and attempting to pass. Practicing this approach will better prepare you when a real emergency arises.

Two-Vehicle Collisions

To this point, we have discussed how to detect hazards and given you a few suggestions on how to minimize them. We will now discuss how to avoid the two-vehicle collision as it is usually the most serious of all collisions.

Space management and Collison Avoidance

It is important for you, as a driver, to maintain enough space around your vehicle at all times. This includes space in front, to the sides, to the rear, above and under the vehicle. This is important to ensure a smooth trip, smooth maneuvering (turning, crossing, lane changing, entering traffic, etc.) and to avoid collisions. It also helps you plan for some unforeseen events. To do this, you must be aware of the size and weight of your vehicle.

Positioning of the vehicles on the road way is important in collision avoidance

There are only six positions that another vehicle can take in relation to yours prior to a collision.

The six positions are:

1. Vehicle ahead – travelling in same direction.
2. Vehicle behind – travelling in same direction.
3. Oncoming vehicle.
4. Vehicle approaching intersection or at an angle.
5. Another vehicle passing you.
6. You are passing another vehicle.

By studying these six positions, learning the hazards associated with each and the defenses against them, you can avoid being in most two vehicle collisions. This section will study those types of collisions as well as the mystery crash and run-off-the road collisions.

a. **Collisions with the Vehicle Ahead**

Why do collisions with the vehicle ahead occur?

There could be a variety of reasons; however, they generally all boil down to ‘following too close’. When required to stop you must always be able to stop before running into the vehicle ahead. When driving a larger vehicle, it will take longer to bring your vehicle to a full stop than it will be for the motorist in front of you. Being a good ‘follower’ is one of those key attributes that separates a professional driver from the average driver.

In order to defend against this type of collision you must:

- Stay alert,
- Allow a safe following distance.

Determining the following distance:

- For cars and smaller vehicles, the two second rule can apply (in ideal condition). However, larger vehicles should not be closer than four seconds to the vehicle ahead.

Note: Following distance may vary with the prevailing weather and road conditions. Following distance should increase when weather conditions are less favourable due to poor visibility, snow, ice, rain, slick road or when experiencing mechanical problems.

The four second rule works as follows:

- Watch the vehicle ahead of you pass a stationary object (such as a power pole)
- Count to yourself:
    - one-thousand-and-one
    - one-thousand-and-two
    - one-thousand-and-three
    - one-thousand-and-four
- If you pass the same object before you finish counting, you are following too close. Slow down a bit and increase your following distance.
- Repeat the count process until you are at least four seconds behind the vehicle ahead.

There are times when your following distance should be increased to more than four seconds, such as when you are following:

- Oversize vehicles that obscure your vision
- Dangerous goods carriers
- Vehicles that stop frequently, such as delivery
- Vans, school buses, etc.
- Two-wheeled vehicles such as motorcycles or
- Bicycles
- Vehicles being driven erratically
- Emergency vehicles

Also, increase following distance to more than four seconds in poor road conditions and under conditions that reduce visibility such as fog, snow and smoke. Also leave more space in areas where traffic intersects, merges, or converge.

Few drivers are fully aware of the total stopping distance or time it takes to bring a vehicle to a stop. Consequently, they make errors in their decisions which, in turn, may result in a collision with the vehicle ahead. Many drivers following too close can result in a “domino” effect crash involving a large number of vehicles.

b. Collision with the Vehicle Behind

Tailgaters can crate hazardous situations for you. Be aware of any vehicle following you too close and allow or encourage them to pass if possible. If you are already driving at the maximum posted speed limit, slow down a little to see if the tailgater will pass. If the tailgater stays behind you, increase your following distance from the vehicle ahead to give yourself more time to react should you have to stop suddenly.

c. **Collision with an Oncoming Vehicle**

One of the first rules of the road we learn is that you are expected to drive on the right side of the road. There are times, such as passing another vehicle, when it is permissible to venture to the left side. But these are specific instances only. If everyone carefully followed this rule of staying to the right, there would not be any head-on collisions.

Circumstances do arise in which you or an oncoming vehicle will cross the centre line and you may suddenly find yourself in the path of disaster. Some of these circumstances are driver caused, but some are not. Being consciously aware of the reasons why a driver would venture into the wrong lane makes it more likely that you will be able to anticipate and avoid a potential head-on collision.

Other than when passing another vehicle, there are four reasons a driver could be on the wrong side of the road:

A. **A problem in their lane.** Trouble in a driver's own lane such as a construction barrier, animal, pedestrian or bicycle may cause a driver to swerve left in order to avoid the problem.
B. **Faulty driving manoeuvres**. Through an error in judgment a driver may enter your lane. For example: making a wide right turn (which may be necessary for larger vehicles), or misjudging the distance required to pass a vehicle. If you drive a vehicle with an extended wheel base, take any additional space needed to complete the turn on the street being entered.
C. **Centrifugal force on curves.** Centrifugal force acts on your vehicle by trying to keep it going in a straight line when negotiating a curve.

If the driver on the inside of the curve allows centrifugal force to push their vehicle across the centre line, a sideswipe or head-on collision could result.

D. **Loss of Control.** Drivers can lose control of their vehicles for many reasons, including:
- right wheel dropping off pavement edge and the driver overcompensates in making the recovery
- loss of visibility, centre line obscured or worn away
- falling asleep at the wheel, drug or alcohol impairment
- tire blowout, skidding on a slippery surface
- poor road conditions, potholes
- poor judgment

In these instances, what can you do to avoid a head-on collision? The next points have been developed for this purpose.

Read the Road Ahead

Be aware of oncoming traffic and try to anticipate what problems the oncoming driver may encounter causing that vehicle to cross the centre line and enter your lane.

Ride to the Right

Do not crowd the centre line. Leave plenty of room. If there are two lanes available to you going in the same direction, use the right lane as a matter of preference. In urban areas, the right lane generally moves quicker because vehicles turning right normally cause less delay than those turning left.

Reduce Speed

When you see a threat developing with an oncoming vehicle in your lane, reduce your speed immediately. This means slow down right away and if necessary, sound your horn and flash your lights to let the oncoming vehicle know you are there. By quickly slowing down you allow them the extra time they may need to get back into the proper lane and avoid a collision.

Ride Right off the Road

If you have followed the first three steps and the vehicle still keeps moving in your direction, you have only one out left – to ride off the road to the right. This option will, in almost all cases, be better than a head-on collision. If a collision is unavoidable, try to hit the object or vehicle at an angle rather than head-on to lessen the impact. Never try to out- guess the other driver by pulling to the left.

Intersection or Angle Collision

About one-half of all two-vehicle collisions occur at intersections. This is largely due to the traffic conflict that exists at intersections, both vehicular and pedestrian. Be prepared for the unexpected.

Intersection hazards include:

- Green lights that have been visible for a block or two may change suddenly to yellow. Also watch for pedestrian signals that have changed to ‘wait’ as an indication of a green light about to change to yellow.
- Vehicles in the left lane waiting behind vehicles that are waiting to turn left may become impatient and without warning or signal, swing over into the right lane to get by
- Vehicles that are sitting at a green light rather than continuing on may be waiting for other vehicles or pedestrians to clear
- Drivers making turns may signal and move into the intersection and then stop unexpectedly even when no traffic or pedestrians are blocking their path.

d. Collision Caused by Another Vehicle Passing You

As a professional truck driver, you quickly become aware that most motorists would rather drive in front of you than behind you and some of those drivers will take unnecessary risks such as:

- Tailgating – staying too close behind your vehicle and darting out to make a pass with limited visibility
- Following the leader – a series of vehicles passing you at the same time, even though the second and subsequent vehicles have extremely limited visibility.

There is the potential here for three types of collisions:

- The sideswipe
- The cut-off
- Being run off the road.

As a defensive driver, you can do much to alleviate the potential hazards and make it easier for other vehicles to pass.

If the pass appears to be safe:

- maintain your lane position, either in the centre of the lane or slightly to the right to allow the passing vehicle extra clearance
- maintain or reduce your speed.

If the passing vehicle cuts in too quickly after the pass, slow down to ensure a safe following distance. Depending upon the situation, braking may be necessary. If the passing vehicle attempts to abort the pass and attempts to get back in line behind you, you may need to allow them to pull back into the lane safely.

Section 23(b) of the *Use of Highway and Rules of the Road Regulation* under the *Traffic Safety Act* states the following:

23. Notwithstanding anything in this Regulation, a person driving a vehicle shall not drive the vehicle so as to overtake and pass or attempt to pass another vehicle (b) by driving in a parking lane

Note: In the above definition "parking lane" means the shoulder of a provincial highway to the right of the solid white line.

e. **Collision Caused by You Passing Another Vehicle:**

Think about passing before you do it. Every time you find yourself in a position to pass you must ask yourself:

- What will I gain by passing?
- Is it worth the risk?
- Is the pass necessary?
- Will I have to exceed the speed limit to pass?

By consciously asking yourself these questions before you pass, you may find, in most cases, you do not have to pass after all.

Passing also tends to increase fuel consumption significantly. There is nothing wrong with passing another vehicle, so long as it is done where and when it is safe to do so and can be completed without exceeding the speed limit.

Space management beneath and above the tractor-trailer

Drivers should make conscious effort to make sure there is enough clearance overhead at all times. A major cause of damage is hitting overhead objects. Drivers should watch out for low-hanging wires, signs etc. It is important for you as a driver to know the height of the truck you

are driving. Ensure you checkout the heights of the overhead objects prior to driving under them. Slow down and drive carefully when you are not sure about the clearance.

While the heights of bridges or overpasses are often posted, clearance may be reduced when the road is repaved or there is snow pack.

Drivers should also ensure adequate space is maintained beneath the truck. Space beneath the truck may vary with weight of load the tractor-trailer is carrying. The spring of a heavily load truck is compressed and can make the vehicle ride low. Low space beneath the truck way may cause problems when crossing a railroad track, soft road surface, unpaved surface etc.

Speed Management

Speed management is a major responsibility of a professional driver. It is your responsibility as a professional driver to know speed limit of the roadway you are driving on and adjust your speed according to the amount of traffic, mechanical condition of the vehicle, prevailing atmospheric condition, nature and use of the road. Your vehicle speed plays an important role in the ability to slow down or stop the vehicle.

A driver's ability to steer safely around curves or objects in the roadways can be reduced by speeding. Speed also extends the distance necessary to slow down or stop a vehicle in the event of dangerous situation. The faster the speed, the less time there is to react situations around you.

Consequences of Speeding

Speeding is when drivers are traveling more than the posted speed limit. The consequences of speeding include one or more of the following:

- Fines and penalties such as speeding tickets.
- Demerit points – these are recorded against a driver's driving record.
    - 6 demerit points are given to drivers speeding – exceeding limit by at least 51 km/h
    - 4 demerit points are given to drivers speeding – exceeding limit by 31 to 51 km/h
    - 3 demerit points are given to drivers speeding – exceeding limit by 16 to 30 km/h
    - 2 demerit points are given to drivers speeding – exceeding limit to maximum of 15 km/h
- Licence suspension
- Mandatory Court appearance - Drivers travelling at more than 50 km/h speed are subject to a mandatory court appearance where a judge can impose penalties such as a fine or licence suspension Anyone convicted of speeding more than 50 km/h over the posted speed limit will face a maximum fine of $2, 000 or imprisonment for not more than 6 months or both and up to 90 days driver's licence suspension.

Stopping a Moving Vehicle

In order to stop a moving vehicle, a driver needs to perform three actions:

- See - a hazard
- Think - decide to stop
- Do - place foot on the brake pedal until vehicle stops

The function of any braking system is to slow the motion of a moving vehicle. Heavy commercial vehicles take more time and more distance to stop than smaller vehicles.

More braking force is needed to overcome their weight and forward motion.

The distance a commercial vehicle needs to stop is affected by the following four factors:

Brake condition. All the brakes on a vehicle must share the task in the same way. If one or more brakes are not properly aligned or maintained, the remaining brakes will have to generate more friction. This means that it will take longer to stop the vehicle.

Traction. Traction is the friction between the road surface and the area where the tire contacts that surface. The amount of traction a vehicle has depends on several factors: the condition of the road, how much tire contact there is with the road surface and the gross weight (GVW) of the vehicle. The condition and inflation pressure of the tires also plays a factor.

Weight (GVW). A heavy vehicle, even though it has better traction, needs more time and distance to stop. When the weight is doubled, the amount of force needed to stop the vehicle is doubled, and it will take about twice as long for that vehicle to stop.

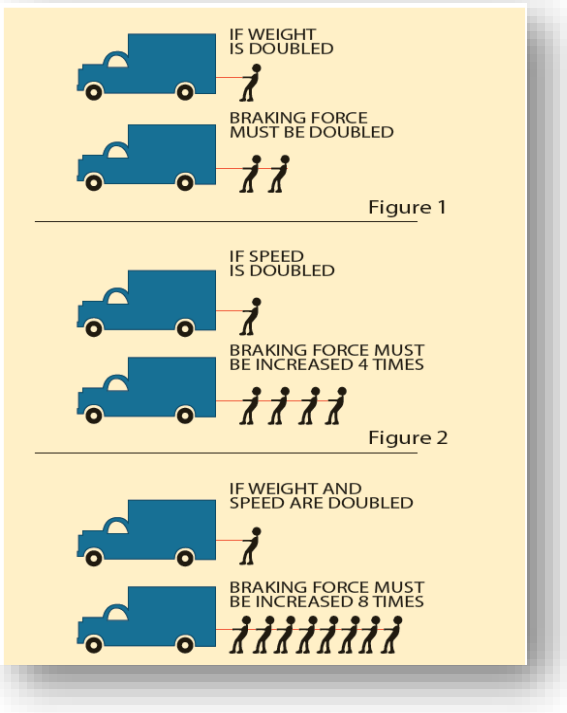
Speed. The greater the speed, the more time and distance are needed to stop. For example, doubling the vehicle speed means that four times the braking force is required to bring the vehicle to a stop.

Stopping distance

The total stopping distance to bring a vehicle to a complete stop is measured from the time a driver realizes the need to apply the brakes until the vehicle comes to a full stop. The time it takes for a vehicle to stop is affected by four factors:

1. **Perception time** is the amount of time it takes a person to realize the need to stop the vehicle. The average perception time is about three-quarters of a second. Perception time can increase if a person is not paying attention to driving, or is not feeling well physically or mentally. Perception distance is how far a vehicle travels during this time.

2. **Driver reaction time** is the amount of time it takes between deciding to stop and actually applying pressure to the brake pedal. Normal driver reaction time is about three quarters of a second. Reaction time will be slower if the driver:



- is tired, or
- has been drinking alcohol or using drugs

Reaction distance is how far a vehicle travels during this time.

3. **Lag time** is the amount of time it takes for the air brake system to respond after the driver has applied pressure on the brake pedal. Air brakes do not respond immediately because it takes time for the compressed air to flow through the system and apply the brakes which takes about 4/10 of a second. Lag time distance is how far a vehicle travels during this time

4. **Braking time** is the amount of time it takes for the vehicle to come to a complete stop after the brakes have been applied.

Braking time depends on:

- the force with which the brakes are applied
- the condition of the brake linings and drums
- the traction of the tires on the road surface
- the vehicle weight and speed

Braking distance is how far a vehicle travels during this time.
Total stopping distance is the sum of perception distance, reaction distance, lag time distance and braking distance.

Another factor involved in stopping distances is the slope or grade of the road. A vehicle travelling down a hill will need a longer stopping distance than a vehicle travelling at the same speed on a level surface because of the effect of gravity. A vehicle travelling up a hill will stop in a shorter distance than a vehicle travelling the same speed on a level surface, again because of the effect of the grade.

General braking information

- When applying the brakes, press down the pedal using an even pressure and then ease off the pedal as the vehicle slows down. Just before the stop, release the brakes to avoid a

sudden jerk or rebound. Then apply pressure to the brake pedal again to hold the vehicle while it is stopped.

- Do not pump (alternately applying and then releasing) the air brakes as this will result in a loss of air pressure. Pumping the brakes on a long downhill grade may mean that you do not have enough air pressure for the brakes to work properly.
- Avoid using the brakes too much going down hills. Downshift before going over the top of the hill. Use engine compression as a way to control your speed on steep grades.
- If there is a low air pressure warning, stop as soon as possible in a safe place. Increase the air pressure before continuing.
- Before going down a hill, test the brakes. Look at the air pressure gauge, apply the brakes, and check for abnormal air pressure loss. Do not proceed if there is abnormal pressure loss.
- If the trailer hand valve is used too much, particularly on steep hills, the trailer brakes may fail. Use of the trailer hand valve only is not recommended as it leads to a greater wear on the trailer brakes then the truck-tractor brakes. This causes unbalanced braking between the truck-tractor and the trailer which could cause the unit to jackknife.
- Always be sure the brakes are adjusted properly. If they are not, some brakes will have to work harder than the others. This could cause a skid.
- A driver must not pull any trailer that weighs more than 2,300 kg that is not equipped with brakes controlled by the driver.

Emergency Driving Techniques

Skid Control

The key is to plan ahead, watch carefully and slow down, especially if you are unfamiliar with the road. Skids often happen when the vehicle is travelling too fast for conditions.

Be careful when conditions might be slippery, since this is when most skids occur. Regardless of road surface conditions, skids are the result of driver error A number of factors could cause a vehicle to go into a skid. During a skid, the tires lose traction with the road surface. The normal means of controlling the vehicle are affected – steering, braking, decelerating and accelerating. You must be able to quickly detect a loss of traction in time to maintain or regain control.

Loss of traction may include:

- Skids caused by tire failure, resulting from under inflation or sudden deflation from a blowout
- Front wheel skids resulting from faulty brakes, excessive acceleration or speed on curves, rough or slippery surfaces
- Hydroplaning resulting from travelling too fast on a water covered road
- Skids caused by the oily film that develops on the road after the first few minutes of rain.

Once you lose traction and your vehicle goes into a skid, the correct way to regain control is through steering and braking properly.

Jackknifing

Jackknifing is a dangerous situation in which a tractor trailer skids and the trailer pushes the tractor from behind, causing the entire unit to form an L or V shape.

Jackknifing is prone to happen from:

- Over-acceleration
- Improper braking (most common cause of jackknifing)
- Oversteering (while cornering)
- Driving at a speed not suitable for conditions

Two types of jackknifing can occur:

- Trailer Jackknife
- Tractor Jackknife

Trailer jackknifing frequently occurs when trailer wheels lock up and the friction from this sudden stopping supersedes the traction between the trailer wheels and the road surface. The trailer goes from forward facing to a skidding motion. Another cause of trailer jackknifing is from taking a curve at excessive speeds. Lastly, mechanical problems such as a faulty air system, cam-over, worn trailer brake linings may be the culprit for jackknifing.

To prevent trailer jackknifing:

- Ensure that the brake, air, and wheel systems are thoroughly inspected
- Do not drive through curves with excessive speeds. Ease off the accelerator when entering a curve then resume acceleration when driving out of the curve
- If the tractor trailer begins to swing during braking, release the brakes and provide gentle acceleration to correct the trailer. Avoid hard braking or over-acceleration.

Tractor Jackknifing occurs when the front wheels looses traction and start to skid while the trailer wheels continue to roll forward. This will cause the vehicle to continue to move in a straight line and can be dangerous when driving through a curve or turn. The driver will have a decreased ability to steer because the front wheels have locked up. Tractor jacking may occur due to wheel lockup, over-acceleration, or a poorly loaded trailer.

To prevent tractor jackknifing avoid:

- Hard braking
- Sudden turns downshifting
- Swerving and braking at the same time
- Overloading the front end of the trailer (also ensure loads are secured properly to prevent goods from shifting to the front end during transport)
- Using engine brakes when road conditions are poor

A proper pre-trip inspection of tires, front wheel alignment, suspension and braking systems is also key in preventing tractor jackknifing. If sudden acceleration is causing the skid, ease up on the accelerator and steer out.

Steering

Turn your wheels in the same direction the rear of the vehicle is skidding. Be careful not to oversteer. You will be able to feel when the vehicle regains traction. Then, straighten the wheels.

Frequently a skid in one direction is followed by one in the opposite direction (often caused by over-steering while trying to correct the first skid). As the vehicle fishtails in the opposite direction, steer in the direction of the new skid.

Braking System

Anti-Lock Brake System (ABS) has been around awhile, but there are still drivers who have not learned what they are, how they work and how to use them effectively. Most of us do not get the chance to properly practice the skills required to deal with skids or loss of control situations.

Emergency braking with non-ABS brakes requires a sensitive touch on the brake pedal, using a technique called “threshold braking.” Threshold braking is what some people confuse with the practice of “pumping the brakes.” But that’s not really what it is. Awkwardly pumping the brakes with no “feel” for what the wheels and brakes are doing is counterproductive in a situation where maximum braking effort is needed.

Threshold braking means applying brake pressure right up to the point of almost locking the wheels (skidding), backing off just enough to prevent the skid, and then constantly adjusting throughout the stop to keep the braking effort right at that point. This is not easy. You have to acquire a “feel” for it, literally. You have to be quick enough on the pedal to stay on the edge of just avoiding a skid, without actually locking your wheels. Once mastered, the technique will stop you faster than any other way.

Threshold braking is what ABS brake systems do for you. Computer-controlled sensors at each wheel “feel” when that tire is about to slip and lessen the brake pressure at that wheel to keep the skid from occurring.

In a panic stop with ABS brakes, you can steer around whatever it is you are trying to miss – whether it is traffic cones or something else, like a car – or a child. Remember this: if you try to pump ABS brakes, they will not work. Pumping ABS brakes defeats the computer’s efforts to sense a wheel skid. If your vehicle has ABS brakes, when you need to stop in a hurry, press the brake hard and hold your foot on the pedal no matter what it feels or sounds like. ABS brakes pulsate, they rattle, and they make noise – but that is normal – they are doing what they are supposed to do.

Do not release pressure on the brake pedal on a vehicle with ABS brakes until you no longer need to brake. As a suggestion go to an empty parking lot somewhere and stop hard enough to activate your ABS system. You will then know what it feels like before you really have to use it.

Tire Blowout

If a tire has an air leak you may feel, through the steering wheel, the vehicle begins to pull and a vibration as you hold the steering wheel. If this air leak is not corrected soon, the tire will become flat. If one of your front tires blows, there will be a strong pull in your steering towards

the side with the blowout. A back-tire blowout may or may not cause the back end to swerve or 'fish-tail'. A flat tire acts as a brake and the tractor-trailer will pull hard to that side. You will have to grip the wheel firmly to maintain steering control. When a blowout occurs:

- Take your foot off the accelerator pedal and allow the engine to slow you down.
- Grip the steering wheel firmly and steer your vehicle straight down the centre of your lane
- Resist the urge to immediately apply the brakes.
- DO NOT apply the brakes immediately. When you have the vehicle under control and speed is reduced, apply the brake with gentle and steady pressure.
- Safely move to the emergency stopping lane or edge of the road and park in a safe place.
- Turn on your hazard warning lights.

Loss of Brakes

You are driving down the highway, you step on the brake pedal to slow down or stop – and there is no response or a sudden evacuation of air. This is definitely an emergency situation.

With a loss of brakes, the driver should:

- Apply steady pressure to the brake pedal so not to waste air volume.
- Downshift to the lowest gear possible. If the way ahead is clear, allow the engine compression to slow you down and stay on the road,
- As you slow down, select a path for leaving the travel portion of the road and bring the vehicle to a stop on the shoulder or as far to right as practical

Note: If loss of air drops below 80 psi, it is likely the spring brakes have started applying. If you don't get to a safe spot to park before air pressure drops to 45 psi, you may be stranded in the driving area of the highway

- Once stopped, proceed to placing your emergency triangles to warn other traffic of your position.
- If you must leave the road quickly to avoid a collision, select the path that will most likely minimize injury and property damage, in that order. Look for something to sideswipe, like a roadside bank, snow bank, or guardrail – anything that will slow you down. If you must go into a ditch, do so at an angle to reduce the chance of a rollover.

Loss of Visibility

Several things can happen to cause a sudden loss of visibility – your headlights could fail, your hood flies up, mud and slush gets splashed on the windshield, etc. Suddenly you can't see where you are going and you must attempt to stop as quickly as practical before losing steering control or hitting something.

What can you do in each situation?

If your headlights fail:

- Immediately hit the dimmer switch to see if the high-beams work;
- Activate your right-turn signal;

- Slow your vehicle quickly but safely. The idea is to reduce your speed before a slight steering error results in a collision;
- Carefully steer out of the traffic lane and stop at the side of the road in as safe a location as practical; and
- Activate your hazard warning lights and place warning devices on the road as required by law.

If your hood flies up:

- Look out the left and right windows to keep your sense of direction and road position;
- Apply brakes moderately;
- Activate your right-turn signal;
- Steer out of the traffic lane and stop in as safe a location as practical; and
- Activate your hazard warning lights and place warning devices on the road as required by law.

If mud or slush is splashed on the windshield:

- Turn on wipers and washers;
- Look out side windows and apply brakes moderately;
- If the windshield wipers have failed or you have no washer fluid, activate right turn signal;
- Pull over as far as practical out of traffic and stop; and
- Activate hazard warning lights. If vehicle will remain stationary more than momentarily, put out warning devices on the road as required by law.

Emergency Evasive Action

When you suddenly see an obstruction or potential hazard such as a pedestrian, ball, another vehicle, construction barrier, etc., in your immediate path, you must take evasive action to avoid a collision.

Evasive action to avoid a collision is simply the exercise of your fundamental driving manoeuvres under conditions of stress, limited time, space and distance.

You must decide which of these evasive actions is appropriate:

- Controlled emergency braking;
- Quick steering, with or without braking; or
- Leaving the paved portion of the road both with or without roadside hazards present.

For effective evasive action, you must resist the urge to always just immediately slam on the brakes. Generally, drivers tend to apply the brakes at the first sign of trouble. While effective in many instances, if your vehicle is not equipped with anti-lock brakes, hard, sudden braking could lock the wheels and cause loss of control, thereby reducing your chance to avoid a collision.

Deciding that braking is your best option will depend on how fast you are going, how far away the object is, how good your tires are and whether the road is wet or dry. Since this is an

emergency situation, you will not have the time to think about your choices for very long. If it's not immediately obvious that you can stop in time, you must choose to steer your vehicle in an alternate path.

At a glance you must assess your escape path for the following:

- Is the escape path free of hazardous obstacles?
- Are clearances sufficient for the vehicle?
- Will an off-road surface still permit steering control?
- Is the path going to remain clear or will it be occupied by someone or something else by the time you get there?

Remember, if you focus only on the obstruction, you will be unable to assess your best escape path. Look to where you want to go, taking in the 'big picture'. The size and weight of a larger vehicle limits its ability to swerve sharply to avoid an object or to leave the pavement with any great amount of control. Oversteering is always a danger, especially when your wheels leave the pavement and are in soft ground. Steer firmly and as gradually as possible to clear the obstruction.

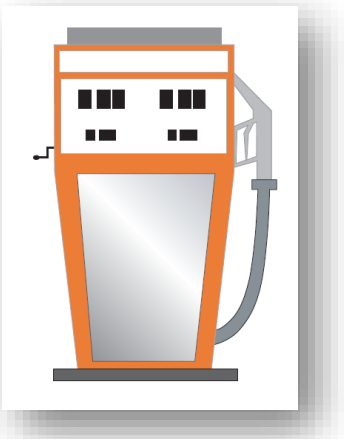
Use controlled braking. Where a collision is unavoidable try to:

- Avoid a head-on collision. Colliding at an angle reduces the force of the impact; and
- Avoid hitting pedestrians. If you have a choice, it is far better to hit inanimate objects than people.

Fuelling and Fuel Efficiency

Fueling a Vehicle

- Do not add fuel into the tank when the engine is running.
- Do not repeatedly enter and exit the vehicle while fueling. Doing so can cause static build-up that can cause a static spark to occur when handling fuel nozzle
- Never overfill the fuel tank.
- In the event of a major or minor fuel spill, notify the attendant to get it cleaned up immediately using an approved absorbent material.
- Do not add fuel close to electrical sparks or open flame.
- DO NOT SMOKE and be sure no one around is smoking.
- Do not use a cell phone while fueling.



Propane

- Only people with the proper certification or training can refuel a propane vehicle or container.
- Do not fuel a vehicle when the engine is running or a radio transmitter is on.

- Ensure there is nothing that could ignite within three metres (10 feet) of the dispenser or container being filled.
- Wear proper protective gloves and clothing, such as long sleeve shirts.
- Engine and electrical accessories must be switched off.
- DO NOT SMOKE, and be sure no one around is smoking.
- Do not use a cell phone while fueling.
- Properly attach the filling hose to the vehicle's fuel tank.
- Open the fixed-liquid level gauge (bleeder valve).
- When the fuel level reaches the maximum permitted in the tank, liquid propane in the form of a mist will be discharged from the liquid level gauge. Fueling should now end.
- The fixed level gauge must be shut off and the fill-line disconnected.
- The magnetic float gauge attached to the tank should indicate that the tank is now filled to capacity. The total capacity of the tank is approximately 80 percent.

The following information has been provided by Natural Resources Canada in conjunction with the Government of Alberta to introduce energy-efficient practices that can reduce fuel consumption and emissions. FleetSmart is a component of this program. For more information on this subject visit this web site: http://www.transportation.alberta.ca/4531.htm

Your driving habits can reduce the amount of fuel you burn. In addition to the fuel efficiency tips discussed in Module 3, here are some tips you can take:

Dealing with the weather - Weather conditions affect fuel efficiency. Driving on snow-covered roads can increase fuel consumption by 15 to 20%, and fuel economy can be significantly affected by heavy winds. Here are a few ways to minimize the effects of weather:

- Avoid bad weather where possible by changing trip times or routes.
- Adjust speed to suit the conditions, e.g., reduce speed when there's a strong head wind.
- Slow down and maintain safe following conditions in order to better anticipate other vehicles in front of you.
- Do not park your tractor-trailer on an icy grade - getting stuck wastes fuel and time.

Caring for your vehicle - Preventative maintenance plays a huge role in maintaining the health and efficiency of your vehicle. When your truck is serviced properly, you can run more efficiently and avoid unexpected downtime. Small problems should be fixed before they become bigger - and more expensive. In addition to regularly scheduled maintenance, you should also:

- Ensure your tires are inflated according to the manufacturer's recommendations - 1% of fuel is wasted for each 10 pounds per square inch of under inflation.
- Before you hit the road, make sure you have done a pre-trip inspection. Not only is it the law but it can also help you avoid unwelcome breakdowns during your travels.
- Perform a post-trip inspection to spot problems that could delay you next time.
- Ensure all fluid levels are correct. Under- filling and over-filling can both damage your vehicle.
- Monitor your restriction indicator for signs of the air filter becoming plugged or contaminated.

- Continually monitor your vehicle's condition during your trip: check gauges, tires and cargo every three hours.

Module 4 Key Points

- A proactive driver is a safe driver. It is important to continually scan for hazards and implement the Identify, Predict, Decide, Execute technique while driving
- Driving while fatigued can be just as dangerous as driving impaired. Drivers can take a few minutes before every trip to check that they are mentally and physically alert for every trip. This a simple, but important step in preventing collisions.
- Following too close is one of the primary causes for collisions with vehicles ahead. Larger vehicles, like trucks should not be closer than four seconds to the vehicle in front of it.

NOTES:

MODULE 5 - OFF ROAD TASKS AND MANEUVRES

Purpose

The purpose of this module is to have trainees learn and demonstrate proper backing procedures for the different types of backing: straight, left, and right. This module is organized as follows, minimum of 3 hours, 20 minutes of classroom, minimum of 3 hours of in-yard session and a minimum of 18 hours of off-road task and manoeuvres. It should take a total of 24 hours, 20 minutes to complete this module.

General Learning Outcomes

At the end of this module, the trainees should be able to:

- Understand the theory behind the different procedures of straight, left, and right reversing
- Demonstrate proper backing procedures for straight, left and right reversing

Habits of Minds

Trainees will:

- Recognize the importance of following backing procedures to ensure safe backing
- Appreciate the importance of attentiveness and care when backing

Knowledge and Understanding

Trainees will:

- Know the correct backing procedure for:
  - Straight backing
  - Offset backing; and
  - Alley-dock backing

Skill and Processes

Trainees will be able to:

- Demonstrate proper backing procedure for:
  - Straight backing
  - Offset backing; and
  - Alley-dock backing

The module is divided into 2 sections Backing, and Coupling/Uncoupling. Below is the training format for the 2 sections

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
2.5		**0.84**	**3**			**18**	**24.34**

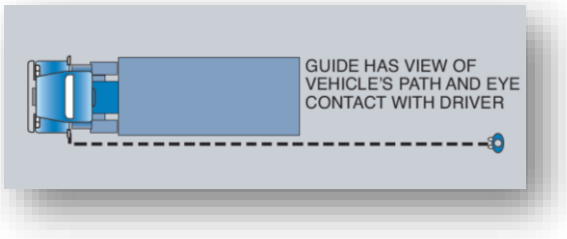
Backing/ Reversing

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
1		**0.42**	**2**			**12**	**15.42**

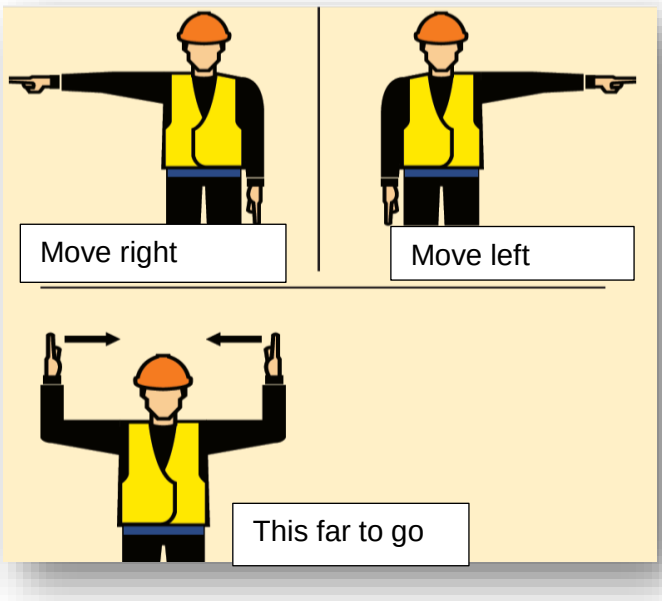
Reversing/Backing

Reversing a tractor-trailer is a hazardous movement and should only be done when absolutely necessary. When reversing cannot be avoided, great caution should be used, as the driver is entirely responsible for the safe backing of the vehicle. If the reversing distance exceeds two vehicle lengths, stop, get out and visually recheck the areas behind, above, below and around the entire unit.

If possible, ask someone to act as a guide and establish hand signals between the driver and the guide. The guide must be able to see the path the vehicle is taking and the driver must be able to see the guide. Stop the vehicle if you cannot see the guide. Remember that even with a guide, the driver is still responsible for all movements of the vehicle.



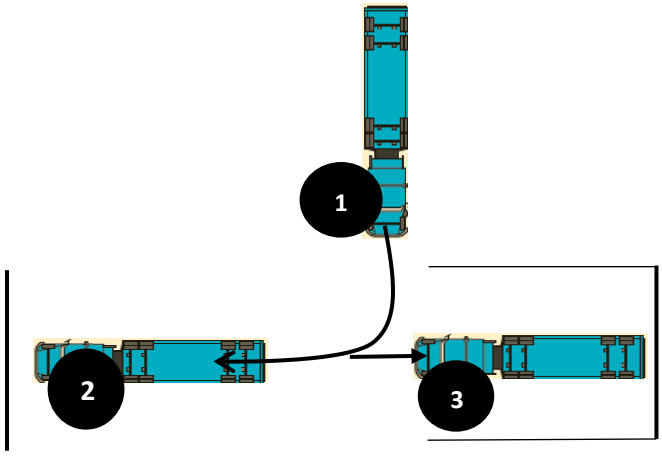
Here are some examples of hand signals that can be used by the guide to communicate with the driver



There are three different backing maneuvers that you may encounter: straight, offset backing (backing left and right) and alley-dock backing.

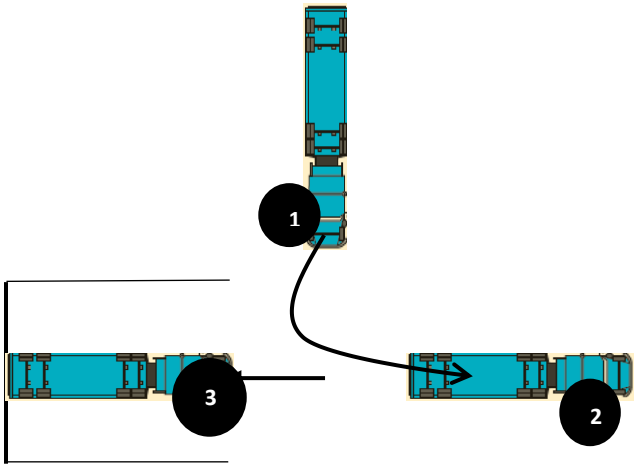
Reversing in a Straight Line

Position the tracker-trailer for the backing manoeuvre. When aligning the vehicle, pull up it up no more than once during the manoeuvre. Prior to reversing, walk around the vehicle in a counter clock-clockwise direction and check for obstacles, possible hazards and clearance. After re-boarding, check mirrors and put the gear in reverse. Always select the lowest reverse gear available. Move very slowly and keep your right foot covering the brake pedal in case you need to stop quickly. Turn on four-way flashers, sound horn and recheck mirrors before allowing the vehicle to move from a stationary position.



Straight backing. To space on left

Once you are ready to reverse back slowly, at engine idle speed, with the brake covered, using mirrors frequently. When reversing a semi-trailer, turn the steering wheel in the opposite direction to where you want the trailer to go. Then turn the wheels in the other direction to maintain the arc of the tractor and trailer. Then turn the wheels toward the mirror on the inside of the arc to straighten the tractor to reverse in a straight line to the dock. Finally, constantly adjust the tractor to trailer angle to continue in a straight line to the dock. Pull forward as often as necessary to either readjust the tractor trailer angle, or to adjust the angle of the trailer to the dock. Another method is to place your hand on the bottom of the steering wheel and move your hand in the same direction that you want the trailer to go. The tractor must follow an S-shape in order to bring the trailer around smoothly.



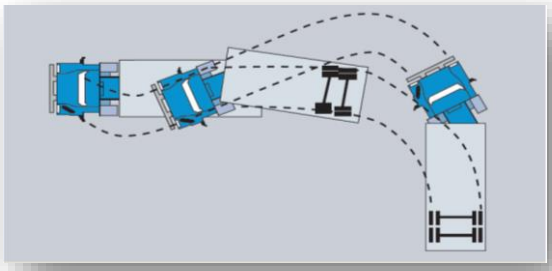
Straight backing. To space on right

Use both rear-view mirrors and be mindful that there is always a blind spot directly behind the vehicle that is not visible in the mirrors. Listen intently for any indication of conflict or impending collisions (horn, shouts, someone banging on the side of the vehicle, etc.).

The reverse movement is to be completed while staying entirely within the manoeuvre space and completed within 10 minutes.

Offset Backing Procedures

A. 90 Degree Reversing, Clear Side (Left Side)

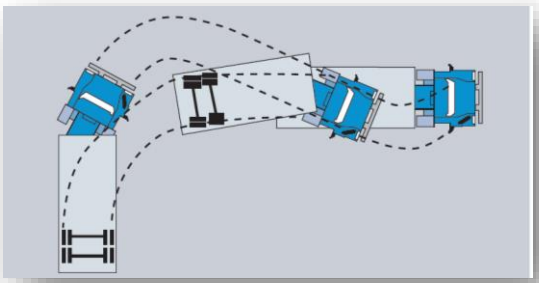


Reversing to the left provides a clear view in the left mirror of the space you are reversing into. Drive the tracker-trailer forward out of the starting position and align it with the target space while driving forward into the pull up area.

Secure the vehicle and start reversing and turn the steering wheel to the right to move the trailer to the left. Once the trailer is curving towards the space, turn the steering wheel to the left and let the tractor follow the trailer into the space.

When the trailer is in line with the parking space, turn the steering wheel even more to the left to straighten the tractor in relation to the trailer. Slowly finish reversing into the loading dock or parking space. Stop the vehicle when the desired position is reached.

B. 90 Degree Reversing, Blind Side (Right Side)



Reversing from the blind side uses the same steps as clear side reversing. However, it is harder to see where you are going. Once the reversing has started, you will mostly be using the right side mirror, including the convex mirror.

You should stop often and get out of the tractor to check your position. This type of reversing is the most difficult and also potentially the most dangerous. Avoid it if you can.

Alley-Dock Backing Procedures

- Align the vehicle with the target space (in the direction of your stopping point), this must be defined (3.5 and 3.7 metres wide) and be of sufficient depth to accommodate the entire length of the tractor-trailer. Activate warning flashers.
- Exit the vehicle and walk around and check for obstacles and clearance.
- Re-board the vehicle, sound horn and recheck mirrors before reversing
- Shift into reverse and back up slowly.
- Look out the driver's window to monitor the rear of the trailer and use mirrors to guide your backing.
- Make slight adjustments to the steering wheel to the left if the turn is sharp or to the right, if the turn is wide.
- Stop the vehicle when the desired position is reached.

Practical Training Guide - Backing

At the end of the classroom portion of this module, instructor will practice the backing manoeuvers with the trainees.

Three forms of backing would be demonstrated by the trainee- straight backing, offset backing and alley-dock backing. Each trainee must spend a minimum of 12 hours practicing these outlined forms of backing.

The instructor will spend bout 40 minutes to demonstrate each backing techniques to the trainee.

A. Straight Backing

Manoeuvre Space Straight-line backing manoeuvre will be in a space that is between 3.5 and 3.7 metres wide and as long as 2/3 the length of the tractor-trailer

The trainee will:

- ☐ Check mirror set up
- ☐ Open windows and silence audio devices
- ☐ Position the tractor-trailer for the backing manoeuvre
- ☐ Secure the vehicle and activate the warning flashers
- ☐ Exit the vehicle to examine the manoeuvre space- check up, down, and around the unit
- ☐ Re-enter the vehicle and sound vehicle horn briefly
- ☐ Use your mirrors to ensure nothing is in the way of your vehicle-on either side, behind, and underneath
- ☐ Reverse into the space at idle speed, with brake covered and checking your mirrors
- ☐ Pull up the vehicle as often as necessary to align it during the manoeuvre
- ☐ Exit the vehicle to examine space and vehicle alignment as often as necessary during the manoeuvre
- ☐ Complete the reverse movement while staying entirely within the manoeuvre space
- ☐ Stop tractor-trailer movement upon reaching the desired position (Stop the tractor-trailer gently when backing up to a solid fixture)
- ☐ Complete the backing manoeuvre within a reasonable amount of time.

B. Offset backing

Manoeuvre Space -Offset backing manoeuvres will be from a space that is between 3.5 and 3.7 metres wide, and at least as long as 2/3 length of the tractor-trailer, into an adjacent space of the same dimensions. The pull-up space in front of the backing target must be no deeper than the length of the vehicle. The manoeuvre will be learned from both sides.

90 Degree Reversing, Clear Side (Left Side)

The trainee will:

- ☐ Drive the vehicle forward out of the starting position
- ☐ Secure the vehicle and activate the warning flashers
- ☐ open windows and silence audio devices
- ☐ Exit the vehicle to examine the manoeuvre space from outside the vehicle and check vehicle position and clearance if necessary
- ☐ Re-enter the vehicle and align the trailer with the target space by turning the wheel all the way to the left
- ☐ Check mirrors, shoulder check and use the mirrors to frame the desired destination.
- ☐ Sound horn and reverse into the space at idle speed, with brake covered
- ☐ Use the right mirror to line up the outside edge of the tractor tires with the middle of the landing gear
- ☐ Stop the vehicle and turn the wheel as far right as possible
- ☐ Pull up the tractor-trailer as often as necessary to align it during the manoeuvre
- ☐ Exit the tractor to examine space and vehicle alignment as often as necessary during the manoeuvre
- ☐ Complete the reverse movement while staying entirely within the manoeuvre space
- ☐ Stop tractor-trailer movement upon reaching the desired position
- ☐ Stop the tractor-trailer gently when backing up to a solid fixture
- ☐ Complete the backing manoeuvre within a reasonable amount of time.

90 Degree Reversing, Blind Side (Right Side)

The trainee will:

- ☐ Drive the vehicle forward out of the starting position
- ☐ Secure the vehicle and activate the warning flashers
- ☐ Open windows and silence audio devices
- ☐ Exit the vehicle to examine the manoeuvre space from outside the vehicle and check vehicle position and clearance if necessary
- ☐ Re-enter the vehicle and align the trailer with the target space by turning the wheel to the left until the tractor points to the left-hand edge of the target space
- ☐ Check mirrors, shoulder check and use the mirrors to frame the desired destination.
- ☐ Sound horn and reverse into the space at idle speed, with brake covered
- ☐ Continue backing and steering to the left to correct your positioning as needed
- ☐ Pull up the tractor-trailer as often as necessary to align it during the manoeuvre
- ☐ Exit the tractor-trailer to examine space and vehicle alignment as often as necessary during the manoeuvre
- ☐ Complete the reverse movement while staying entirely within the manoeuvre space
- ☐ Stop tractor-trailer movement upon reaching the desired position
- ☐ Stop the tractor-trailer gently when backing up to a solid fixture

- ☐ Complete the backing manoeuvre within a reasonable amount of time.

C. Alley-Dock Backing

Manoeuvre Space - alley backing manoeuvres will be into a space that is between 3.5 and 3.7 metres wide, and at least as long as 2/3 the length of the truck, starting with the vehicle positioned perpendicular to the space. The pull-up space in front of the backing target space must be no deeper than the length of the vehicle. The manoeuvre will be learned from both sides.
The trainee will:

- ☐ Check mirror set up, open windows and silence audio devices
- ☐ Drive the vehicle forward out of the starting position until the front of the trailer is in line with the left side of the target area
- ☐ Turn the steering wheel hard to the right
- ☐ Continue to move forward at 5 to 8 km/hour until the tractor is in a straight line with the target space
- ☐ Turn to the left and move forward until the trailer is near a 45-degree angle. The tractor should be at an angle slightly to the left of the trailer and the target space should be visible from the driver's window
- ☐ Straighten the front wheels and stop
- ☐ Secure the vehicle and activate the warning flashers
- ☐ Exit the vehicle to examine the manoeuvre space from outside the vehicle and check vehicle position if necessary
- ☐ Sound vehicle horn briefly
- ☐ Reverse into the space at idle speed, with brakes covered
- ☐ Pull up the vehicle as often as necessary to align it during the manoeuvre
- ☐ Exit the vehicle to examine space and vehicle alignment as often as necessary during the manoeuvre
- ☐ Complete the reverse movement while staying entirely within the manoeuvre space
- ☐ Stop vehicle movement upon reaching the desired position
- ☐ Stop the vehicle gently when backing up to a solid fixture
- ☐ Complete the backing manoeuvre within a reasonable amount of time.

Coupling and uncoupling

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
1.5		**0.42**	**1**			**6**	**8.92**

Coupling and Uncoupling Tractor-Trailer Procedure

Having the knowledge and skills to correctly connect and detach the trailer from the tractor is a major responsibility of every professional driver.

Some weight of the trailer is transferred to the tractor when coupled through the fifth wheel. Some trailers have sliding tandem axles which assist in transferring weight between the tractor and the trailer in a way to achieve even distribution of weight. For example, when the tandem axles are adjusted toward the rear, the amount of weight on the steering and drive axles of the tractor will increase. However, when the tandem axles are adjusted forward, the weight will be shifted off the tractor and the amount of weight on the drive and steering axles will be decreased.

The position of the fifth wheel plays an important role in tractor weight distribution. The fifth wheel may be stationary or adjustable. Sliding the fifth wheel will change the weight distribution between the rear axle and the drive axle. For a single rear axle tractor, the fifth wheel should be positioned slightly in front of the axle. When the fifth wheel is moved forward, more of load is shifted to the steering axle and when moved backwards, the weight shifts to the drive axles. When too much weight is shifted forward towards to the front axle, you may lose traction on your rear axles, and hence, making steering difficult. Ensure that you know the legal weight that the front axles can accommodate before shifting the load forward.

Coupling a Tractor-trailer

1. Inspection of the yard prior to coupling
   - Walk the area around the trailer and tractor before beginning the coupling procedure. Look for anything in the path that could damage the tractor and trailer. Make sure it is clear before beginning the first stages of alignment.
2. Secure the vehicle
   - Set transmission into neutral gear and apply tractor parking brakes
   - Ensure trailer is secure against movement before coupling. Block the trailer wheels using a chock to ensure the trailer will not roll backward from the pressure applied by the tractor as it moves under the trailer. Placing of wheel chocks is an important skill for drivers, especially in situations that may require addition safety precautions.
3. Inspection of the tractor

- Ensure fifth wheel is tilted back and the jaws are in the unlocked position.
    - Ensure the fifth wheel is not damaged and has no missing or bent parts
    - If the tractor is equipped with sliding fifth wheel, it is important to confirm that it is properly locked and free of damage
    - Check for adequate grease on the fifth wheel.
    - See that the mounting to the tractor is secure.
- It is important to ensure that the following components are in good condition and are properly secured.
    - Air and electrical lines
- It is important to check that the 7-way connector and the cord are not damaged.

4. Inspect the trailer
    - Check the condition of the trailer kingpin and apron (including collar). Check for excessive wear or cracks
    - Check all air and electrical connections for any damage
    - Chock the wheels of the trailer. This is dependent, new trailers are equipped with trailer brakes which may make the need for a chock unnecessary.

5. Align tractor and trailer
    - Enter the tractor and release the parking brake to reverse the tractor towards the trailer
    - Back the tractor at a walking pace as it approaches the trailer. Back the tractor so fifth wheel slot is in line with the trailer king pin. Use both outside mirrors or the rear window (if equipped) while backing. If your view of the trailer is the same in both mirrors you should be centered.
    - Stop when fifth wheel contacts the trailer apron. Know the width of the tractor as compared to the trailer. Remember that the center of the fifth wheel is always in the center of the tractor frame and the kingpin is always in the centre of the front of the trailer.
    - Get out to check the alignment of the fifth wheel with the kingpin. It is much easier to notice any extreme offset from the ground than it is from the tractor.
    - Chock the wheel of the tractor once you exit the tractor.
    - Check height of the fifth wheel with trailer apron and raise or lower landing gear as required. There should be no space between the fifth wheel between the wheel and the trailer. The coupling surface of the trailer should be just below the middle of the fifth wheel. If the trailer is too far below the fifth wheel level, the kingpin will hit the tractor frame. If the trailer is too high, the kingpin could slide over top of the fifth wheel when you back under the trailer.

6. Latch fifth wheel
    - Re-enter the tractor and shift tractor into reverse gear, release tractor parking brake, and apply trailer hand valve. Use mirrors to check tractor and trailer alignment as well as trailer's stability.

- Ensure that fifth wheel remains in line with trailer king pin while backing tractor slowly. Continue to back until connection is made with the fifth wheel locking around the trailer king pin.
- Gently but firmly latch the fifth wheel. Listen for for and feel the fifth wheel latching into its locked position.

For tractors equipped with fixed suspensions

a) Align the tractor and trailer, reversing the vehicle until the fifth wheel is just ahead of trailer, touching the trailer or slightly under, but not against the kingpin
b) Exit the tractor and check the upper coupler and confirm that the kingpin is aligned (no more than 10 cm (4 inches) from the center of the fifth wheel lower coupler), adjust height if necessary so that contact of the upper coupler will be on the bottom half of the fifth wheel lower coupler.
c) Re-enter the vehicle and continue reversing toward the trailer, monitor the trailer's position during coupling using the mirrors to confirm proper alignment
d) Reverse the tractor, gently but firmly engage the fifth wheel
e) Listen for and feel the fifth wheel latch into its locked position

For tractor equipped with air suspension.

Continue coupling with a tractor having air suspension offering a suspension drop feature:

a) Reverse the vehicle slowly toward the trailer until the fifth wheel just touches the trailer, or is about to touch it.
b) Exit the tractor and check vehicle heights.
c) Re-enter the tractor and release (dump) the tractor air suspension, then reverse the tractor until the fifth wheel lower coupler is fully under the front of the trailer, but still ahead of the king pin.
d) Restore the tractor air suspension to its normal height.
e) Monitor the trailer's position during coupling using the mirrors to confirm proper alignment.
f) Reverse the tractor, gently but firmly engaging the fifth wheel.
g) Listen for and feel the fifth wheel latching into its locked position.

7. Tug test
   - Select 1st gear. Attempt to move the tractor forward
   - The tug test musts be firm enough to overcome the friction between the plate and the trailer's bolster. This should be done at least twice.
   - Select neutral
   - Secure the unit by setting tractor and trailer brakes.
8. Confirm fifth wheel is locked
   - Exit the tractor and visually check the following:
     - Ensure fifth wheel jaws are properly secured around the trailer king pin.
     - Fifth wheel release lever is in locked position, by checking the fifth wheel contact, the release handle position and the latch
     - Ensure upper plate of trailer is resting firmly on fifth wheel (no space should be visible).

    - Ensure bolt on front of fifth wheel is all the way in (if applicable).
9. Connect air and electrical lines
    - Electrical cable to trailer and confirm normal operation
    - Attach air lines (if applicable)
        - Lines are usually colored red for emergency and blue for service.
        - Check the seals and secure each air supply line to the appropriate trailer connection.
            - If the air lines are crossed, supply air will be sent to the service line instead of the trailer air tanks. This will not allow the release of the trailer parking brakes.
        - Charge trailer air system.
        - Apply and release trailer hand valve.
            - Listen for exhausting air to determine if trailer brakes are operating.
10. Raise landing gear
    - Fully raise the landing gear then release slightly to prevent sticking during cold weather. stow the handle into its retainer
        - Optimum ground clearance is available with the gear is in its uppermost position. **Never drive with the landing gear part way up.**
11. Supply air check
    - Re-enter the vehicle and supply air to the trailer with the trailer supply valve, monitor the air pressure gauges, and confirm air pressure gauges show normal pressure levels
12. Brake tests
    - Remove wheel chock if used,
    - Drive forward slowly a short distance and apply either the trailer service brakes only, or the full service brakes to test brake operation
    - After ensuring that all lights are operating and clean, wheel chocks are removed.

Uncoupling a Tractor-trailer

1. Location inspection
    - Ensure that the selected location and ground condition of the location is suitable for safe uncoupling.
2. Park tractor-trailer
    - Park the tractor and trailer in a straight line.
3. Secure the tractor and trailer
    - Secure the tractor with parking brake.
    - Secure the trailer with trailer brakes.
4. Chock wheels
    - Exit the tractor and place wheel chocks and blocks in appropriate location of the wheels
5. Adjust suspension
    - Dump the trailer suspension if equipped with a manual air ride.
    - Confirm that the suspension has deflated if equipped with an auto-dump
    - Block the trailer wheels (both sides of front axle).
6. Lower landing gear

- Lower the trailer landing gear until it touches the ground (or just above the ground), but does not raise the trailer from the fifth wheel.
    - Unhook the crank from its travel position, shift to high gear and turn in proper direction to extend gear.
    - Turns the crank until the dolly plates come in contact with the ground.
    - Shift to a low gear and crank until most of the trailer weight is on the dollies and not the tractor, this will be identified when airbag suspension begins to auto-deflate as weight is removed from tractor. Trainee should **not have lifted the trailer off the fifth wheel.**

Note: Always use dolly pads regardless of the ground surface condition.

7. Stow landing gear handle
    - After the landing gear is lowered, the crank handle is placed into its travel position.
8. Remove connections
    - Disconnect electrical connection and air lines.
        - Hook gladhands to dead end couplers on tractor.
9. Unlock and disengage the fifth wheel
    - Release the fifth wheel coupler lock
    - Release tractor parking brakes and drive tractor ahead slowly until trailer apron slips to the lower part of the fifth wheel.
    - **STOP** the tractor once the fifth wheel lower coupler is fully out from under the trailer, but the tractor frame is still under the trailer.
        - If the landing gear collapses, the tractor will prevent the trailer from falling to the ground.

For tractors with fixed suspensions (if applicable)

- Re-enter the vehicle and drive forward slowly to release the fifth wheel, watch the trailer in the mirrors or out of the rear window, confirm the trailer is stable
- When the fifth wheel lower coupler is fully out from under the trailer, but the tractor is still under the front of the trailer, exit the tractor and check that the trailer is stable and secure
- Re-enter the vehicle and drive forward slowly until the tractor is clear of the trailer

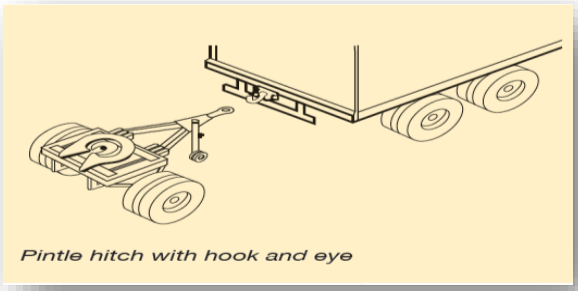
For a tractor with air suspension having <u>suspension drop</u> feature

a) Re-enter the vehicle and drive forward slowly far enough to unlatch the fifth wheel coupler and stop
b) Operate the control to drop the tractor suspension
c) Watch the trailer in the mirrors or out of the rear window, confirm the trailer is stable
d) When the fifth wheel lower coupler is fully out from under the trailer, but the tractor is still under the front of the trailer, exit the tractor and check that the trailer is stable and secure
e) Re-enter the vehicle and drive forward slowly until the tractor is clear of the trailer
f) Raise the tractor suspension to the normal position

10. Confirm stability of trailer
    - Apply the trailer and tractor parking brakes then exit the cab.
    - Check one last time that the ground and the landing gear will support the trailer.
    - Return to the tractor, release the parking brakes.
11. Clear trailer
    - Re-enter the tractor, and slowly drive forward until the tractor is clear of the trailer.
    - Re-inflate the airbag suspension (in applicable).

Coupling and Uncoupling pintle hitch attachments

1) The Basic Steps in Coupling Pintle Hitch Attachments are:
   a) Position the towing/power unit in line to receive the pintle eye.
   b) Stop the towing/power unit before contact is made with the pintle eye.
   c) Chock trailer wheels.
   d) Ensure pintle hook is open to receive pintle eye.
   e) Ensure pintle hook and eye has no cracks and or signs of excessive wear.
   f) Ensure pintle eye is the proper height to lower onto the pintle hook, adjust drawbar height if necessary.
   g) Position towing/power unit so the pintle eye can be lowered onto the pintle hook.
   h) Snap pintle hook shut and ensure safety latch is locked.
   i) Properly attach safety cables/chains to towing/power unit.
   j) Fasten safety pin (if applicable)
   k) Double check the “no-slack” air ram is functional



Pintle hitch with hook and eye

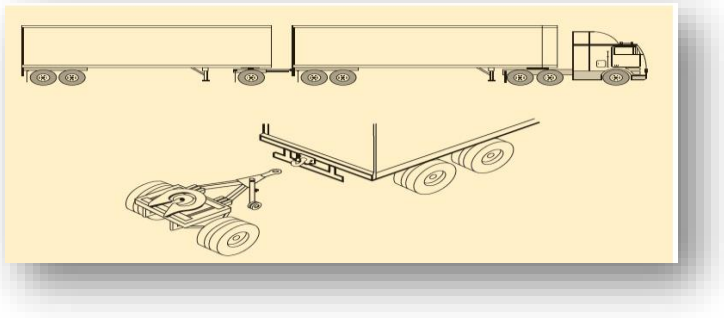
2) The Basic Steps in Uncoupling Pintle Hitch Attachments Are:
   a) Park the towing/power unit and trailer in a straight line.
   b) Set the parking brakes of the towing/power unit and trailer.
   c) Chock trailer wheels.
   d) Disconnect air lines, electrical line and other associated hoses (if applicable).
   e) Disconnect safety cables/chains from towing/power unit.
   f) Disconnect safety pin (if equipped).
   g) Release pintle hook locking (safety latch) mechanism.
   h) Lower landing leg if equipped; otherwise, block the drawbar when required.
   i) Move towing/power unit ahead slowly until pintle eye completely clears pintle hook.
   j) Stop and visually check that the pintle eye is free of the pintle hook.

Double trailer combinations types

When adding a second trailer to the rear of a lead trailer, a converter mechanism is needed. Each converter must have its own fifth wheel attachment. There are three different types of converters.

A Train

This converter has an A shaped drawbar that joins into a single pintle hitch point on the lead trailer. Due to its A shape, it is often called an A-dolly. When two trailers are joined together using the A-dolly, the whole unit is called an A train. These converters provide two points of articulation (joints that allow side to side or lateral movement). One of these points is at the pintle and the other is at the fifth wheel.

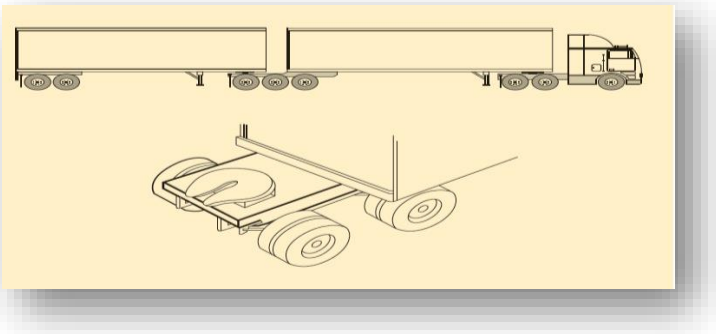


A train- example of a unit connected by a type A converter dolly

B Train

In a B train, the converter is part of the lead trailer. The fifth wheel assembly sits on the rear axle of the lead trailer. It is either permanently fixed in position or slides out with the rear axle.

No converter dolly is required, as the second unit connects directly to the extended frame of the lead unit.



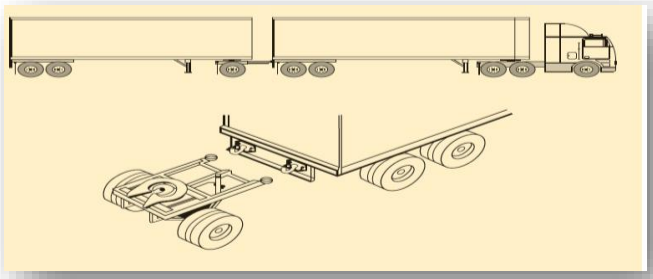
B train - example of a unit connected by a type B converter dolly.

C Train

A C train is like the A train, in that it uses an independent converter. The difference between the two is that the C train has two drawbars and two pintle hitches in the double drawbar converter.

Two bars mean there is only one articulation point. The result is that the trailer moves less from side-to-side. To improve performance even more, double drawbar converters have a self-steering axle.

When driving a C train, check that the air pressure on the self-steering axle is within the manufacturer's standards. If the air pressure falls too low, the wheels will steer too much and the unit becomes unstable.
This can lead to skid steering, which can damage the converter and hitch.

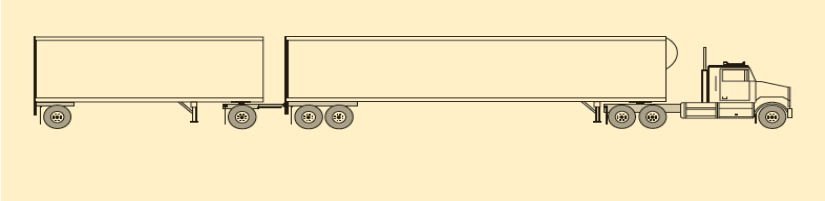


C train - example of a unit connected by a type C converter dolly.

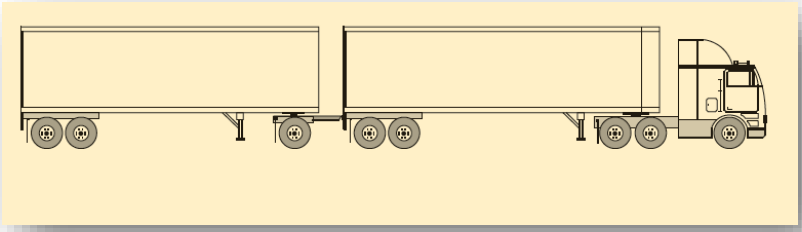
Link-up Arrangement

When linking two or more trailers to a towing unit, always hook the heaviest trailer directly to the tractor. The lightest trailer should be the furthest away from the towing unit. This rule applies no matter how long each trailer is. If the trailers are not joined according to weight, the unit will be unstable. The rear trailer will sway and control of the unit could be lost.

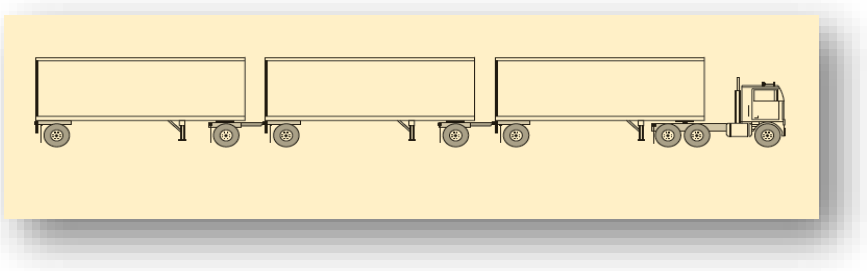
Examples of Long Combination Vehicles



Rocky Mountain Double



Turnpike Double



Triple

Coupling and Uncoupling (Practical Guide)

The instructor will spend about 1 hour to demonstrate coupling and uncoupling procedures for combination vehicles to the trainee. Trainee will practice coupling and uncoupling by following procedures outlined for combination vehicle earlier in this module. The trainee will spend a minimum of 6 hours to practice coupling and uncoupling of a tractor to a trailer.

Module 5 Key points

- Make a habit of checking and using your mirrors when performing any backing manoeuvres
- Prior to reversing, get out and take a look around your tractor-trailer for people, obstructions and clearance
- When coupling a tractor to a semi-trailer, perform a firm tug test to ensure you have a good hook-up. If noticeable slack is present, make necessary corrections.

NOTES:

MODULE 6 - DOCUMENTS, PAPERWORK AND REGULATORY REQUIREMENTS

Purpose

The purpose of this module is to outline the purpose and importance of vehicle related documentation and associated regulations as well as route preparation and safety. It should take 3 hours, 30 minutes to cover the materials in this module

General Learning Outcomes

At the end of this module, the trainees should be able to:

- Administer written workplace documents and communicate effectively through written means
- Plan ahead, anticipate problems, and be familiar with regulations related to emergency equipment.
- During this Module, Instructors will introduce the documentation requirements and work through the various forms that drivers may be required to complete. Trainees will also be required to plan several trips with different scenarios.

Habits of Minds

Trainees will:

- Recognize the importance of carrying the required vehicle documents when operating on public roadways
- Recognize the importance of trip planning prior to operating the vehicle

Knowledge and Understanding

Trainees will:

- Know the documents that must be in the vehicle when operating on the road ways
- Know how to verify the validity of information on the documents
- Know the vehicle's weight and dimension prior to driving

Skills and Processes

- Trainees will:
  Demonstrate how to complete some of the vehicle's documents
- Demonstrate trip planning using various outlined trip planning tools.

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
2.5		**0.5**	**0.5**				**3.5**

Documentation Requirements

Carriers who operate National Safety Code (NSC) vehicles are required to follow safety performance standards for commercial vehicles, drivers and motor carriers in Canada. Commercial vehicles weighing or registered for more than 4,500 kg that operate in multiple provinces, territories or states and commercial vehicles that are registered for a weight of 11,794 kg or more that only operate only within Alberta are regulated under Alberta's National Safety Code Program. Alberta Transportation, Carrier Services ensures all carriers are licensed according to provincial and federal requirements. http://www.transportation.alberta.ca/499.htm

Carriers in Alberta are required to establish, maintain and follow a written safety plan and preventative maintenance program to operate and retain a Safety Fitness Certificate (SFC). Detailed information for Carriers can be found in Alberta Transportation's Commercial Driver's Guide https://www.transportation.alberta.ca/850.htm and the Educational Manual for Commercial Carriers http://www.transportation.alberta.ca/671.htm

All commercial drivers have a responsibility to know and follow the policies and procedures contained in their company's safety plan and preventative maintenance program and understand their responsibilities.

Drivers must ensure all required paperwork is in the truck. The documentation that is required to be in the vehicle or to be carried by the driver can vary by the type or intended use of the vehicle and may differ between carriers. Document requirements may also vary by jurisdiction, so if travelling across provincial or national borders, drivers must be aware of documentation requirements.

The driver may be required to carry and produce the following documentation:

- Driver's licence
- Registration documentation
- Insurance documentation
- Lease Agreements
- Safety Fitness Certificate
- Operating Authority Certificate
- Dangerous Goods
- Medical certification
- Valid Passport (for border crossing)
- Commercial Vehicle Inspection Certificate
- Permits
- Daily Log
- Trip Inspection Schedule and Report
- Route/Passenger Information
- Shipping Documentation

Driver's Licence

It is important that a driver holds the correct licence when operating a vehicle. Not only does the driver need to obtain the proper class of driver's licence for the vehicle they operate, but they also need to have the proper knowledge and skills to operate a vehicle safely. *Operator Licensing and Vehicle Control Regulation*, AR 320/2002.

A Class 1 driver may operate any motor vehicle or combination of vehicles, other than a motorcycle. The driver must successfully complete an approved air brake endorsement (Q) course.

Registration and Insurance

Carriers must ensure that their vehicles are registered, insured, have the appropriate vehicle plate class, and have the appropriate permits and certification to operate. Additional information on Licensing, Registration and Insurance requirements can be found in the *Commercial Vehicle Certificate and Insurance Regulation* (AR 314/2002) and the Educational Manual for Commercial Carriers.

.

For more information, consult the Commercial Vehicle Safety Compliance in Alberta, Module 3

A carrier must ensure that they meet the insurance requirements for their operation.

Coverage requirements may include:

- Public Liability and Property Damage

- Cargo Insurance (see Schedule 1 of the Alberta *Commercial Vehicle Certificate and Insurance Regulation*, AR 314/2002 for exemptions)

The following insurance coverage requirements may apply:

INSURANCE COVERAGE REQUIREMENTS FOR COMMERCIAL TRUCKS

Public Liability and Property Damage

- $1 Million (minimum) of liability and property damage insurance is required for all commercial trucks.
- $2 Million if transporting Dangerous Goods as defined by Section 25 of the Alberta *Commercial Vehicle Certificate and Insurance Regulation,* AR 314/2002. Column 7 of Schedule 1 of the Federal *Transportation of Dangerous Goods Regulations* identifies the minimum quantities of each substance when an Emergency Response Assistance Plan must be filed with Transport Canada.

Cargo Insurance

- $15,000 to $32,000 of cargo insurance is required depending on the maximum registered gross weight of the vehicle hauling cargo. See the specifications chart below for details.
- If transporting goods owned by the carrier, then the carrier is not required to have cargo insurance.
- If transporting goods in Alberta that are listed on the next page, then no cargo insurance is required at any time.

Specifications	Minimum Insurance Required
For each commercial vehicle engaged in the transportation of farm produce other than dairy products	$600
For each commercial vehicle engaged only in the transportation of unprocessed milk or cream	Actual cash value of goods.
For each vehicle having a registered gross weight not exceeding 12,700 kilograms.	$15,000
For each vehicle having a registered gross weight exceeding 12,700 kilograms but not exceeding 18,000 kilograms.	$20,000
For each vehicle having a registered gross weight of at least 18,000 kilograms but not exceeding 21,000 kilograms.	$20,000
For each vehicle having a registered gross weight exceeding 21,000 kilograms but not exceeding 37,000 kilograms.	$27,000
For each vehicle having a registered gross weight exceeding 37,000 kilograms.	$32,000

For more information, consult the Commercial Vehicle Safety Compliance in Alberta, Module 3

Goods exempted from cargo insurance:

Schedule 1 of the Alberta *Commercial Vehicle Certificate and Insurance Regulation*, AR314/2002	
• Alfalfa *(raw or pelletised)* • Animal feed and related concentrates • Animal supplements *(not for human consumption)* • Asphalt mix *(bituminous)* • Brick • Cement *(dry or wet)* • Clay • Coal • Concrete products • Condensate • Crude oil • Crushed glass • Dead animals • Drilling mud • Fodder • Garbage • Grain • Granite • Granulite • Gravel	• Herculite • Lime • Loam • Logs • Lumber • Newspapers • Organic manure • Peat moss • Propane • Salt • Sand • Sawdust • Scrap iron • Septic tank refuse • Snow • Stone • Sugar beets *(raw or pelletised)* • Sulphur • Water • Woodchips

For more information, consult the Commercial Vehicle Safety Compliance in Alberta, Module 3

Safety Fitness Certificate and Operating Authority Certificate

Depending on how a carrier registers their vehicles, they may require a Safety Fitness Certificate and/or an Operating Authority Certificate. **The original or copy of the certificate must be carried in the vehicle**. A summary of common vehicles that may need a certificate to operate can be found in Module 3 of the Educational Manual for Commercial Carriers.

Vehicle or Operation Type	Safety Fitness Certificate Required	Operating Authority Type Required	Vehicle Plate Class Required
B. Transporting Goods by Trucks, Tractors, and Trailers			
Driver Training School using vehicles registered for a weight of 11,794kg or more. Vehicle may not transport goods for compensation.	**Yes**	Not applicable	**Class 2** Restricted plate
Driver Training School using vehicles registered for a weight of 11,793kg or less operating solely within Alberta. Vehicle may not transport goods for compensation.	**No**	Not applicable	**Class 2** Restricted plate
Carrier is hauling goods using vehicle registered for 11,794kg or more	**Yes**	Not applicable	**Class 1, 2, or 3**
Carrier is hauling owner's own goods within a 10km radius of the carrier's registered address in Alberta.	**Yes**	Not applicable	**Class 2** Restricted plate
Carrier is a farm operation hauling owner's own goods to various points.	**No**	Not applicable	**Class 2** Farm plate
Carrier is hauling other persons' goods for hire within a 10 km radius of the carrier's registered address.	**Yes**	Not applicable	**Class 2** Restricted commercial plate

For more information, consult the Commercial Vehicle Safety Compliance in Alberta, Module 3

Alberta Government

SAFETY FITNESS CERTIFICATE

CERTIFICATE NUMBER

XXXXXXXXX

CERTIFICATE HOLDER

Example Transport (Alberta) Limited
4221 - 53 St.
RED DEER AB T4N 2E1

NSC NUMBER

ABxxx-xxxx

MVID NUMBER

xxxx-xxxxx

OPERATING STATUS

Provincial

Carrier Identification and Operating Status

EFFECTIVE

EXPIRY (THIS CERTIFICATE EXPIRES AS INDICATED BELOW UNLESS OTHERWISE SUSPENDED OR CANCELLED)

JANUARY 01, 2014

Continuous

This Carrier holds a SATISFACTORY UNAUDITED Safety Fitness Rating

in the Province of Alberta.

This Certificate is issued pursuant to the Traffic Safety Act. The holder of this Certificate may operate vehicles anywhere in Alberta that are registered for a gross weight of 11,794 kilograms or greater, or designed with a seating capacity of 11 or more persons including the driver. This Certificate is not valid when the carrier operates or intends to operate outside of Alberta.

The original or a copy of this Certificate must be carried in vehicles operating under the authority of this certificate and produced on demand of a Peace Officer.

This Certificate may be cancelled where the holder has not operated a vehicle authorized by this certificate for a 12 month period.

This Certificate may be suspended or cancelled for failing to comply with transportation legislation.

All carriers must read the conditions on their Safety Fitness Certificate. For example, this certificate states that carriers with a "Provincial" Operating Status may not operate vehicles outside of Alberta.

DIRECTOR ALBERTA TRANSPORTATION

Operating Status

Carriers who need a Safety Fitness Certificate must declare where they will be operating their vehicles in order to determine their Operating Status.

- Provincial Operating Status
  - Operate only in Alberta.
  - Commercial vehicle with a registered weight of 11,794 kg or more.
  - Commercial vehicle designed with a seating capacity of 11 or more including the driver.
- Federal Operating Status
  - Operate in multiple provinces, territories or states.
  - Commercial vehicle with a registered weight of 4,500 kg or more.
  - Commercial vehicle designed with a seating capacity of 11 or more including the driver.

For example, an Alberta-based carrier who operates commercial vehicles registered for a weight of more than 4,500 kilograms outside of Alberta must hold a Safety Fitness certificate with a “Federal” Operating Status.

Carriers with a “Provincial” Operating Status who operate near the Alberta/Saskatchewan border may operative within Lloydminster’s city limits and on Highway 17 as long as the trip starts and ends in Alberta and no services are provided or received in Saskatchewan.

More information about Alberta/Saskatchewan border requirements is available online at: www.transportation.alberta.ca/4560.htm.

Commercial Vehicle Inspection Certificate

Commercial Vehicle Inspection Program (CVIP)

Section 19 of the *Vehicle Inspection Regulation* (AR 311/2006) requires that all commercial vehicles have a signed Commercial Vehicle Inspection Certificate and decal. Commercial vehicles that are registered for a weight of 11,794 kg or more and a combination of vehicles which add up to a registered weight of 11,794 kg or more (including trailers) must be inspected under the CVIP once every 12 months. **The driver of the vehicle must be able to produce the inspection certificate on the request of an investigator or peace officer.**

- It is illegal for a commercial vehicle to be operated on a highway unless it has a valid inspection certificate and decal.
- Inspections in Alberta must be conducted a government licenced facility by a licenced technician.

International Registration Plan (IRP)

The International Registration Plan (IRP) is an agreement between the United States and Canada that allows for the sharing of commercial vehicle registration fees. This plan was created to encourage the fullest possible use of the highway system between member

provinces, territories and states. Federal carriers operating Alberta-plated vehicles can apply through Prorate Services for vehicle registration in other provinces or states. The Alberta government will issue a cab card for each vehicle the carrier operates.

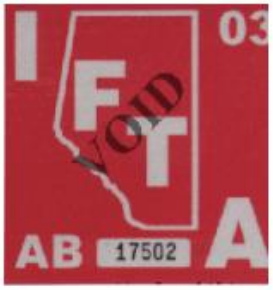
The cab card will specify which member IRP locations a vehicle may operate in. An IRP registration does NOT:

- Exempt a carrier from paying motor fuel taxes in any province or state;
- Exempt a carrier from obtaining an Operating Authority Certificate and/or a Safety Fitness Certificate;
- Allow a carrier to operate outside of Alberta with a Provincial Operating Status; or
- Allow a carrier to exceed maximum height, length, width and axle limitations.

For more details on the International Registration Plan (IRP) contact:

Alberta Transportation
Prorate Services
Phone: 403-297-2920
Toll Free from Within Alberta: 310-0000
Website: www.transportation.alberta.ca/561.htm

International Fuel Tax Agreement (IFTA)



The International Fuel Tax Agreement (IFTA) is an agreement between the United States and Canada that allows federal carriers to operate in more than one location. This plan was created to make it easier for carriers to register, licence, report and pay taxes for motor fuels (such as diesel and gasoline). A carrier licensed under IFTA is required to send quarterly fuel tax returns to its base jurisdiction, where it is registered.

To register under IFTA, a carrier must have a vehicle that is:

- Registered for a gross vehicle weight of 11,794 kilograms or more;
- A unit with 3 or more axles, regardless of weight.

For more details on the International Fuel Tax Agreement (IFTA), contact:

Alberta Treasury Board and Finance
Phone: 780-427-2731
Toll Free from Within Alberta: 310-0000
Website: https://finance.alberta.ca/publications/tax_rebates/ifta/overview.html

Daily Trip Inspection Report

A driver is required to carry an Inspection Schedule and Daily Trip Inspection Report in the vehicle.

Provincially regulated carriers (those that operate solely within Alberta) and federally regulated carriers (those that operate one or more vehicles outside the province of Alberta) must complete and keep a record of trip inspection reports. Section 10 of the *Commercial Vehicle Safety Regulation* (AR 121/2009).

The daily vehicle trip inspection report is required to ensure early identification of vehicle problems and defects, and to prevent the operation of vehicles with conditions that are likely to cause or contribute to a collision or vehicle breakdown - *Canadian Council of Motor Transportation Administrators (CCMTA), CCMTA, NSC Standard 13.*

Completed by the driver, the owner, the carrier or the person authorized by the carrier or the owner, the daily vehicle trip inspection report is intended to serve as the communication tool between the driver, the carrier, and the maintenance department.

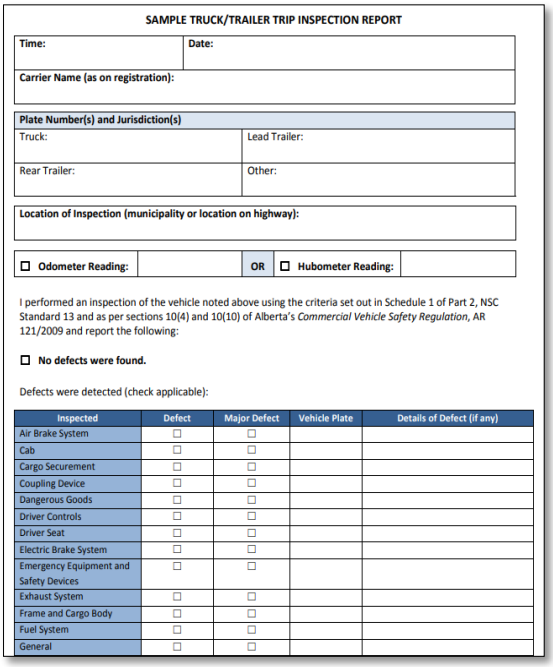
Note: Daily Trip Inspection information can be found in **Module 7: Vehicle Inspection Activities** of this manual.

Upon completion of a trip inspection form, the driver must forward the original report to the home terminal of the carrier within twenty days. The carrier is then responsible for storing this record in its principal place of business within thirty days of receiving the report. Each inspection form must be kept in chronological order for each vehicle for at least six months after receiving it.

The daily trip inspection report must include the following:

1. The licence plate number, the commercial vehicle identification number or unit number of the commercial vehicle,
2. The odometer or hubometer reading of the commercial vehicle at the time of the inspection,
3. The name of the carrier operating the commercial vehicle,
4. The name of the municipality or location on the highway where the commercial vehicle was inspected,
5. Indication that either no defect was detected or each defect in the operation of every item required to be inspected in accordance with Schedule 1 of NSC Standard 13, Part 2 or a modified schedule. If a modified inspection is used, deleted portions of the Schedule and information on additional items inspected must be indicated on the report,
6. The time and date that the report is made,
7. The name of the person who inspected the commercial vehicle and include a statement signed by that person stating that the commercial vehicle has been inspected in accordance with the applicable requirements, and
8. The name and signature of the driver or the person making the report

Sample Truck/Trailer Trip Inspection Report:



SAMPLE TRUCK/TRAILER TRIP INSPECTION REPORT

Time:	Date:
Carrier Name (as on registration):	

Plate Number(s) and Jurisdiction(s)	
Truck:	Lead Trailer:
Rear Trailer:	Other:

Location of Inspection (municipality or location on highway):

☐ Odometer Reading: | OR | ☐ Hubometer Reading:

I performed an inspection of the vehicle noted above using the criteria set out in Schedule 1 of Part 2, NSC Standard 13 and as per sections 10(4) and 10(10) of Alberta's *Commercial Vehicle Safety Regulation*, AR 121/2009 and report the following:

☐ **No defects were found.**

Defects were detected (check applicable):

Inspected	Defect	Major Defect	Vehicle Plate	Details of Defect (if any)
Air Brake System	☐	☐		
Cab	☐	☐		
Cargo Securement	☐	☐		
Coupling Device	☐	☐		
Dangerous Goods	☐	☐		
Driver Controls	☐	☐		
Driver Seat	☐	☐		
Electric Brake System	☐	☐		
Emergency Equipment and Safety Devices	☐	☐		
Exhaust System	☐	☐		
Frame and Cargo Body	☐	☐		
Fuel System	☐	☐		
General	☐	☐		
Glass and Mirrors	☐	☐		
Heater/Defroster	☐	☐		
Horn	☐	☐		
Hydraulic Brake System	☐	☐		
Lamps and Reflectors	☐	☐		
Steering	☐	☐		
Suspension System	☐	☐		
Tires	☐	☐		
Wheel Hubs and Fasteners	☐	☐		
Windshield Wipers/Fluid	☐	☐		

Name of person completing inspection *(Print Name)* | Signature of person completing inspection

Provide details of defect(s) detected at any other time(s):

Name of person identifying defect(s) *(Print Name)* | Signature of person identifying defect(s)

Certification of Repairs Completed:

☐ I certify all defects have been repaired I certify repair(s) were unnecessary.

OR

☐ I certify repair(s) were unnecessary.

Remarks:

Name of Certifier | Signature of Certificate

Alberta Government | **Commercial Vehicle Safety Compliance in Alberta** | **Last Updated: March, 2018**

Daily Log

A driver may be required to complete a daily log and retain fuel and accommodation receipts in accordance with all regulations and the carrier's policy. *See **Module 8** of this manual for details and exemptions for Provincial and Federal Hours of Service Regulations and additional information on Daily Logs (Section 11, AR 317/2002)*

Alberta Government

If a driver is required to maintain a daily log, they must have the following documents in their possession during their work shift:

- Bill of Lading and other shipping documents (if applicable).
- A log for the driver's current work shift and the 2 previous days.
- Fuel and accommodation receipts for expenses incurred during the trip.

If a driver works for more than one carrier, they must provide each carrier with a copy of all logs.

Section 17 of the *Drivers' Hours of Service Regulation* states that: a driver must keep copies of all daily logs for a period of at least 6 months from the date that the information is recorded in the daily log.

ACTIVITY: Instructor will provide a demonstration and Trainees will be required to complete a daily log

Shipping Documentation/Cargo Information

Bill of Lading and Conditions of Carriage Regulation (AR 313/2002)

Shipping documents must be carried within the driver's reach, and when the driver leaves the cab, the shipping documents must be left in an obvious place in the cab – either on the seat or in the pocket in the driver's door. The driver ensures information is complete and legible according to carrier policy, and checks that load and paperwork match.

Types of shipping/cargo documents:

- Bills of lading
- Waybills
- Dangerous Goods Shipping Documents (*Dangerous Goods Transportation and Handling Act*, Federal Transportation of Dangerous Goods Regulations)
- Weigh Slips
- Cargo Packaging
- Delivery instructions

The detailed information on shipping documents that follows is taken from Alberta Transportation's Sample Safety Maintenance Programs.

Bill of Lading

Where applicable, a Bill of Lading shall be identified by a numerical code or other means of identification and shall set out at least the following:

- Name and mailing address of the consignor;
- Date of the consignment;
- Point of origin of the shipment;

- Name of the originating carrier;
- Names of connecting carriers, if any;
- Name and mailing address of the consignee;
- Destination of the shipment;
- Particulars of the goods comprising the shipment, including weight and description;
- A space for the signature of the consignor or his agent;
- A provision stipulating whether the goods are received in apparent good order and condition;
- A space in which to show the declared value of the shipment;
- Where charges are to be prepaid or collected;
- A space in which to indicate whether the charges are prepaid or collect;
- A space in which to show whether the C.O.D. fee is prepaid or collect;
- A space in which to show the amount to be collected by the carrier on a C.O.D. shipment;
- A space in which to note any special agreement between the consignor and the carrier;
- A statement in conspicuous form indicating that the carrier's liability is limited by a term or condition of the applicable schedule of rates or by other agreement, if such a limitation exists.

The person who is the originating carrier of the goods being shipped shall, on the bill of lading issued for those goods:

- Acknowledge receipt of the goods by signing the bill of lading, and
- Indicate the condition of the goods and give details of any defect.

Waybills

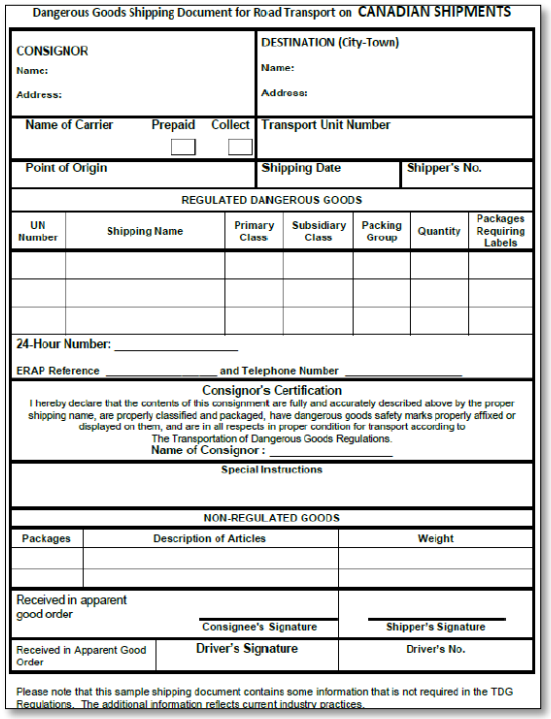
Instead of carrying a bill of lading for the goods transported, the company may carry a waybill for the goods issued by the consignor or carrier. A waybill shall be identified by the numerical code or other means of identification set out on the bill of lading and set forth at least the following:

- Particulars of the goods carried on the vehicle;
- Name and mailing address of the consignor;
- Point of origin of the shipment;
- Name and mailing address of the consignee;
- Destination of the shipment;
- Names of connecting carriers, if any;
- Whether the charges are prepaid or collect;
- Date of the consignment.

Note: See Section 2 of the Bill Of Lading and Conditions of Carriage Regulation (AR 313/2002) for exemptions.

Dangerous Goods Shipping Documents

Every driver who transports dangerous goods must have with them a copy of the shipping document, waste manifest or any other of the document(s) required by law.



Dangerous Goods Shipping Document for Road Transport on CANADIAN SHIPMENTS

CONSIGNOR Name: Address:	DESTINATION (City-Town) Name: Address:
Name of Carrier Prepaid ☐ Collect ☐	Transport Unit Number
Point of Origin	Shipping Date / Shipper's No.

REGULATED DANGEROUS GOODS

UN Number	Shipping Name	Primary Class	Subsidiary Class	Packing Group	Quantity	Packages Requiring Labels

24-Hour Number: _____

ERAP Reference _____ and Telephone Number _____

Consignor's Certification

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to The Transportation of Dangerous Goods Regulations.

Name of Consignor : _____

Special Instructions

NON-REGULATED GOODS

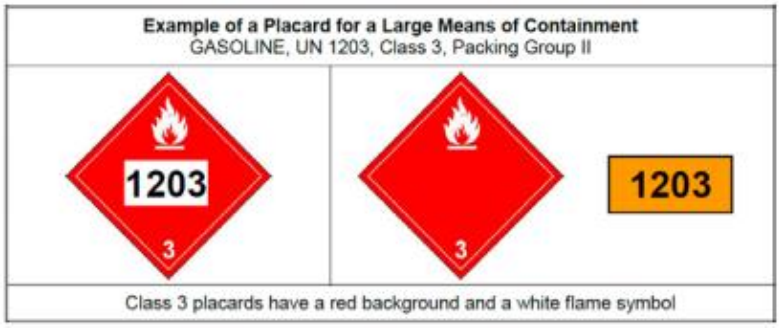
Packages	Description of Articles	Weight

Received in apparent good order	Consignee's Signature	Shipper's Signature
Received in Apparent Good Order	Driver's Signature	Driver's No.

Please note that this sample shipping document contains some information that is not required in the TDG Regulations. The additional information reflects current industry practices.

The Dangerous Goods Shipping Document shall contain, at minimum, the following information:

- Consignor's name and address in Canada;
- Date of shipment;
- Description of the goods: (in the following order)
    1. UN number (e.g. UN1230);



UN number

    2. Dangerous goods shipping name (e.g. Methanol);
    3. Primary class and subsidiary class (e.g. 3(6.1));
    4. If applicable, the packing group in roman numerals (e.g. I, II or III) or the compatibility group letter for explosives;
    5. If applicable, the words "toxic by inhalation" or "toxic – inhalation hazard" for dangerous goods subject to Special Provision 23 (Class 6.1, PGI, toxic due to inhalation);
- The quantity in metric measurement (e.g. kg or L) for transport originating in Canada;
- The "24-hour number" of a person who can provide technical information on the dangerous goods; and
- The consignor's certification.

In some cases, more information may need to be included, such as:

- The number of small means of containment (e.g., volume of 450 L or less) that require labels;

- The technical name or the statement “not odorized”;
- The Emergency Response Assistance Plan (ERAP) number and its activating telephone number; Note: An ERAP is only required for certain dangerous goods in certain quantities. To learn more about ERAP, please consult Part 7 of the Transportation of Dangerous Goods Regulations.
- The flash point, if the product is a Class 3 flammable liquid and is being transported on a ship; (e.g., gasoline, diesel, etc.);
- Special instructions, such as the control and emergency control temperatures of Classes 4.1 and 5.2; and
- The number of any applicable Transport Canada Equivalency Certificates.

Shipping documents must be carried within the driver’s reach and, when the driver leaves the cab, the shipping documents must be left on the driver’s seat, in a pocket on the driver’s door or in an obvious place in the cab. If the vehicle is left in a supervised area, a copy of the shipping document must be left with the person in charge.

A driver who is in charge of, in management of, or in control of dangerous goods when a dangerous incident occurs such as a leak or a collision, or an unintentional release or near release, must immediately notify:

- The local police;
- Alberta EDGE (Environmental and Dangerous Goods Emergencies) at 1-800-272-9600 (toll Free) or 780-422-9600 (Edmonton area);
- The owner of the vehicle; and
- The employer.

Note: There may be exemptions to regulations. Refer to Part 3 of the Transportation of Dangerous Goods Regulations (SOR/2001–286).

Placards

Placards are clear indicators that the transport unit contains larger amounts of dangerous goods. When a collision or spill occurs, these placards alert responders to the presence and nature of the dangerous goods. This allows them to take the correct actions.

The consignor is responsible for providing the placards to the carrier before allowing a carrier to take possession of dangerous goods for transport in a large means of containment on the vehicle. It is a carrier's responsibility to make sure a vehicle has all the proper placards on it before it is loaded. Drivers must place the placards on each side and each end of the vehicle so anyone looking at the vehicle from any angle will be able to see the signs.

Note: There may be exemptions to regulations. Refer to Part 3 of the Transportation of Dangerous Goods Regulations (SOR/2001–286).

Permits for Equivalent Level of Safety

Dangerous goods Permits for Equivalent Level of Safety allow the handling, offering for transport or transporting of dangerous goods in a way that is not necessarily in compliance with the TDG Regulations. Although a permit may exempt a carrier from meeting all of the requirements in the TDG Regulations, it still ensures the carrier is operating at a level of safety equivalent to that required by law. Permits are only issued if the risks to health, safety and the environment are reasonably addressed.

A carrier does not need to obtain a permit to handle, offer for transport or transport dangerous goods if they follow all of the requirements in the *Transportation of Dangerous Goods Act*.

Permits issued by the Dangerous Goods, Rail Safety and 511 Alberta Section of Alberta Transportation are valid only for road transportation within the province of Alberta


Alberta Government

Dangerous Goods, Rail Safety and 511 Alberta
4999 98 Avenue, Twin Atria Building
Edmonton, AB T6B 2X3
P: 780-422-9600 |F: 780-427-1044 |
E: TRANS.dangerousgoods@gov.ab.ca

Application for Exemption by Permit (Alberta Equivalent Level of Safety)
Dangerous Goods Transportation and Handling Act, Section 5(1)

Section A: Stakeholder Information
ompany Name:

Alberta Government

For more information refer to the web site: www.transportation.alberta.ca and/or contact the Dangerous Goods Coordination and Information Centre at 1-800-272-9600 for further information on bulletins, permitting and general information.

Weigh Slips

The company will obtain accurate vehicle weights and weigh slips for vehicles that are required to be weighed under the *Bill of Lading and Conditions of Carriage Regulation* (AR 313/2002).

Route

It is important for drivers to know and understand where important information about their route, vehicle equipment, and cargo.

- Route – Local operations, Long-distance operations
- Cargo information
- Emergency information and equipment

Collision Reporting

If an incident occurs, the driver will be required to document the details of the collision and report back to the carrier. In addition to the information below, Carriers may have their own collision reporting requirements. *Details of how to handle emergency situations can be found in* ***Module 10 – Handling Emergencies*** *of this manual.*

All drivers are required to report all collisions to the police or local law enforcement if:

- Anyone has been injured;
- Anyone has been killed;
- Overall damage exceeds $2,000;
- If you damage any traffic control device, parking meter, or public property even if the damage is less than $2,000;
- If police are called to the scene, all drivers must remain at the scene.

If you are involved in a collision, give assistance where you can, protect the scene, and notify emergency assistance if needed.

- Exchange names, contact information and insurance details with the other driver(s) involved;
- Record the names and contact information of all witnesses;
- Do not discuss who is at fault;
- Record the time, location, weather, and any other details that may be important;
- Notify your insurance company as soon as possible (Carrier may do on your behalf)

Accident reporting requirements can be found in Sections 145-149 of the *Operating Licencing and Vehicle Control Regulation*

Additional Information:

Carriers are responsible to maintain driver files, vehicle files, and safety and maintenance plans.

Details can be found in the Commercial Vehicle Safety Compliance in Alberta education manual

Vehicle Weights and Dimensions

Provinces and territories have laws that establish maximum vehicle weights. This is to ensure public safety and to protect Alberta's highway infrastructure. A carrier must comply with all weight restrictions for the roads they operate on. In Alberta, legal weights depend on different things such as the type of vehicle, the number of axles on the vehicle, the manufacturer's rating and the size of the tires on the vehicle.

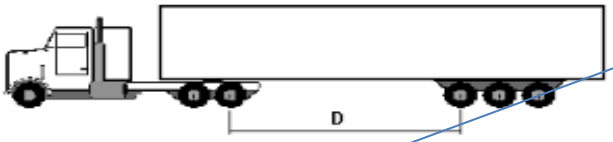
Drivers must be aware of weight restrictions that may apply to their vehicles. There is a calculator available on the website mentioned above which may help a carrier or a driver determine whether their vehicles meet the maximum allowable weight according to Alberta laws.

To use the calculator, go to http://www.transportation.alberta.ca/4779.htm.

Maximum Allowable Weight for Tractor Semi-trailer

Maximum Allowable Weight for Tractor Semi-trailer

Sept. 13, 2018



Select information about vehicle

Interaxle spacing: 5.5 m

Max. combined weight:

Percentage axle limit 100 %

Axle Group	Number of axles	Tridem Axle Spread	Number of tires	Tire size	Rated tire capacity	Allowable axle weight	Notes
Steering	1		2	11 in.	2750		
Drives	2	2.4-2.80 m	8	235 mm.	2200		
Trailer	3	3.0-3.10 m	12	235 mm.	2200		

Maximum Allowable Gross Weight

Calculate Weight | Reset | Minimum registered weight

Data that matches selected information will appear after the user clicks “calculate weight”

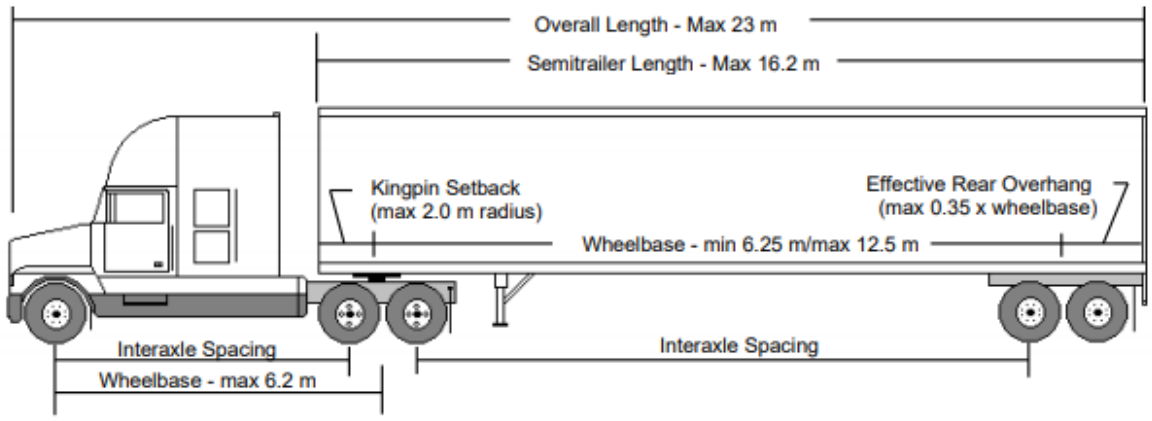
1. This function calculates the maximum allowable weights as per the Commercial Vehicle Dimension and Weight Regulation of the Traffic Safety Act. Where the information shown on this page is not in agreement with the regulation, the regulation shall prevail.
2. This function **does not** take into consideration the "gross axle weight rating" (GAWR) or the "gross vehicle weight rating" (GVWR) of the vehicle. The owner/operator of the vehicle should ensure that the weight carried is within the manufacturer's rated capacity specifications.
3. The "Rated Tire Capacity" is the rated capacity of one tire, based on either single or dual application, as stamped on the sidewall of the tire.
4. The steering axle weight for a truck tractor is capped at 6,000 kg.
5. When the interaxle spacing is less than the minimum specified in regulations, the combined axle weight for the combination is reduced by 500 kg for every 0.1 metre or portion thereof. This will also reduce the allowable GVW. Notwithstanding the requirements for the interaxle spacing, the trailers shall also conform to all other legal dimension requirements such as trailer wheelbase and overhang.
6. The maximum weight allowed on municipal roads is 17,000 kg on a tridem axle and 53,500 kg for the GVW. Permits may be available to exceed these weight limits, subject to municipal approval. Contact the Central Permit Office at 1-800-662-7138 (in North America) or 403-342-7138 for details.
7.

1.

Maximum Dimensions

A driver must be aware of the actual size of their vehicle and load as maximum dimensions apply. If a vehicle or its load is too tall or too wide, it may not be able to travel on certain routes.

The table below provides information on the dimension limits for specific vehicle components:



DIMENSION	LIMIT
Overall Length	Maximum 23 m
Overall Width	Maximum 2.6 m
Overall Height	Maximum 4.15 m
Tractor:	
Wheelbase	Maximum 6.2 m
Tandem Axle Spread	Minimum 1.2 m/Maximum 1.85 m
Semi-trailer	
Length	Maximum 16.2 m
Wheelbase	Minimum 6.25 m/Maximum 12.5 m
Kingpin Setback	Maximum 2.0 m radius
Effective Rear Overhang	Maximum 35% of wheelbase
Tandem Axle Spread	Minimum 1.2 m/Maximum 1.85 m
Tridem Axle Spread	Minimum 2.4 m/Maximum 3.7 m
Track Width	Minimum 2.5 m/Maximum 2.6 m
Interaxle Spacings	
Single Axle to Single, Tandem or Tridem Axle	Minimum 3.0 m
Tandem Axle to Tandem Axle	Minimum 5.0 m
Tandem Axle to Tridem Axle	Minimum 5.5 m

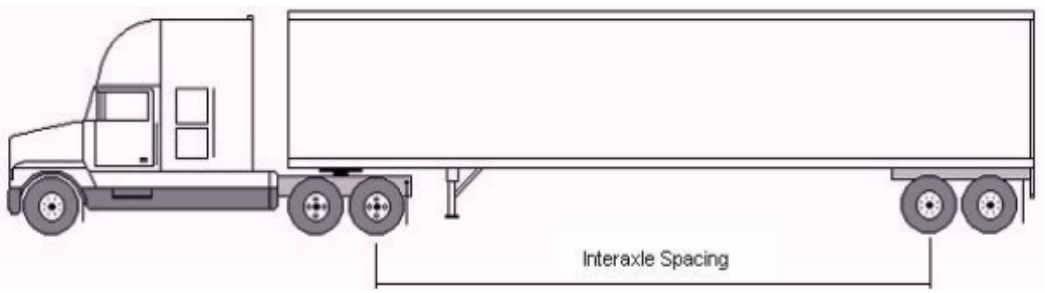
Length:

- Single Vehicle 12.5 metres (41’ 0’’)
- Truck-Tractor and Semi-Trailer 23.0 metres (75’ 6’’)
- Tractor-trailer in Combination, Tractor-trailer and Pony Trailer, Tractor-trailer and Full Trailer
  23.0 metres (75’ 6’’)
- Truck-Trailer, Semi-Trailer and Full Trailer or Semi-Trailer in Combination
  26.0 metres (85’ 3’’)

Legal Weight

Maximum weight standards have been established by jurisdictions to ensure public safety and the protect infrastructure. In Alberta, the type of vehicle, the number of axles, the manufacturer’s rating, and the tire size can all impact the legal weight. Trailers with sliding axes are capable of changing the way the weight is distributed on the trailer. Shortening the trailer wheelbase reduces off-tracking, but also reduces the maximum weight limit. Extending the wheelbase allows the weight capacity to reach the maximum allowed for axles. Never exceed the manufacturer’s Gross Axle Wheel Rating (GAWR). A carrier must be aware and comply with all weight restrictions that apply to their vehicles – these restrictions may vary between jurisdictions.

The table below provides information on the weight limits for specific vehicle components:



WEIGHT	LIMIT
Axle Weights:* **	
Steering Axle	Maximum 6000 kg
Single Axle	
Single tires	Maximum 7300 kg
Super single tires	Maximum 7700 kg *
Dual tires	Maximum 9100 kg
Tandem Axle:	
Single tires	Maximum 13,600 kg
Super single tires	Maximum 15,400 kg *
Dual tires	Maximum 17,000 kg
Tridem Axle:	
Single and super single tires	Maximum 19,000 kg **
Dual tires with axle spread from 2.4 m to less than 3.0 m	Maximum 21,000 kg **
Dual tires with axle spread from 3.0 m to 3.7 m	Maximum 24,000 kg **
Gross Vehicle Weight Limits	
See Weight Calculator	Cannot exceed the sum of the maximum legal axle weights and is subject to minimum interaxle spacing.

* Super single tires require "New Generation, Wide Base" tires with a minimum tire width of 445 mm. Available by permit only. Super single tires do not apply to the steering axle.

** These weights for tridem axles apply to provincial highways only. The maximum weight for a tridem axle on a municipal road is 17,000 kg. Permits may be available to achieve heavier weights.

*** All axle weights are subject to minimum tire size. The maximum weight per tire shall not exceed the lesser of the tire manufacturer's weight rating or the width of the tire stamped on the sidewall multiplied by 10 kg/mm.

A reference guide for Alberta's Dimension limits, weight regulations and online weight calculator for common vehicles and equipment is available online:
http://www.transportation.alberta.ca/4777.htm.

Once a carrier has calculated weight they must place signs on it as directed in Schedule 1, Section 9 of the *Commercial Vehicle Safety Regulation* (AR 121/2009). These signs must be clearly visible and at least 50 mm high and contain the following information:

- The name and logo of the vehicle's owner;
- The vehicle's TARE weight; and
- The licensed maximum gross weight of the vehicle.

A commercial vehicle must not be operated on a highway unless the owner of the registered vehicle has correctly decaled the sides of it.

See Schedule 1, Section 9(4) of the *Commercial Vehicle Safety Regulation* (AR121/2009) for exemptions to this requirement.

Permits

Permits may be required in order for a driver to travel in full compliance. For example, a vehicle that that exceeds maximum weight or dimension limits may be allowed to operate if the carrier obtains a permit; or a driver may be able to extend hours of service with the appropriate permit.

http://www.transportation.alberta.ca/4484.htm

Also consider what permits may be required if you are required to travel to the United States or are transporting dangerous goods. Contact the appropriate department prior to departure.

If a carrier is issued a permit, they must ensure that they and their drivers read and follow all applicable conditions

The Alberta government monitors, controls and issues permits for the movement of all overweight or over-dimensional commercial vehicles. In order to enhance public safety, conditions are often applied to permits including things such as adding extra signage to vehicles which have exceeded the weights and dimensions in regulations

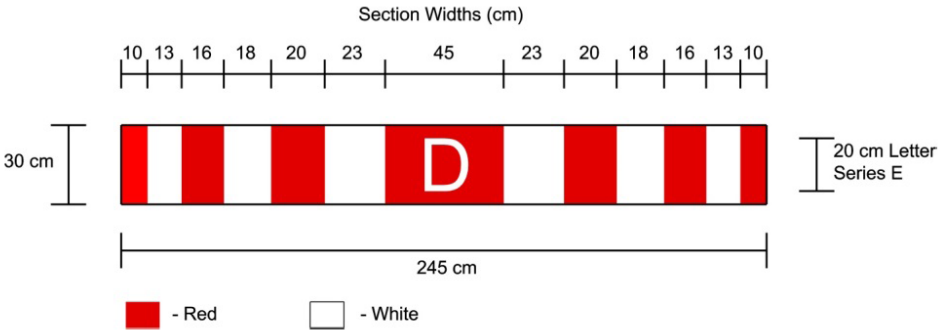
Over-dimensional Safety Requirements

When a commercial vehicle is operated under the authority of an over-dimensional permit, they must meet all relevant safety requirements in Part 4 of the Alberta *Commercial Vehicle Dimension and Weight Regulation* (AR 315/2002):

Over 2.60 metres wide (8' 6")	• Vehicle equipped with warning flags by day; • Vehicle equipped with warning lights by night or during adverse weather conditions.
Over 3.05 metres wide (10')	• As above PLUS 2-dimension signs at the front and back of the vehicle in a manner

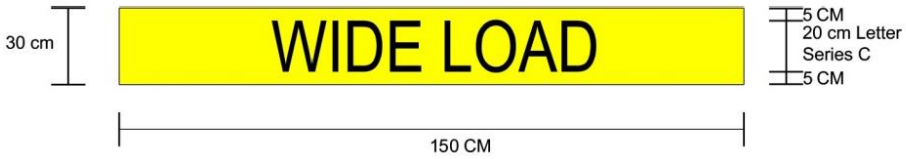
	that is clearly visible to approaching traffic.
Over 3.35 metres wide (11')	• As above PLUS 1 or more flashing lights.
Over 3.85 metres wide (12' 6")	• As above PLUS 1 pilot vehicle behind when on 4-laneroad or 1 pilot vehicle in front when on 2-lane road; • No movement from 3:00pm until midnight on a Friday or a day preceding a statutory holiday; • No movement on a Sunday or a statutory holiday.
Over 4.45 metres wide (14' 7")	• Vehicle equipped with flags, signs, and flashing lights; • On 2-lane road, need 1 pilot and 1 trailing vehicle; • On 4-lane road, vehicles up to 5.5m wide (18') need 1trailing vehicle; • On 4-lane road, vehicles over 5.5m wide need 1 pilot and 1 trailing vehicle; • No operation on highway from 3:00pm until midnight on a Friday or a day preceding a statutory holiday; • No operation on highway on Sunday or a statutory holiday; • Travel during DAYLIGHT HOURS ONLY.
Over 5.5 metres wide (18')	• As above PLUS other conditions as specified on the permit; • Stopping on provincial highways only permitted at designated tractor-trailer pull-outs (except for emergencies and power line lifting); • Travel during DAYLIGHT HOURS ONLY.
Over 5.3 metres high (17' 4")	• Notify power and telephone companies; • Travel during DAYLIGHT HOURS ONLY

Sign for Over-dimensional Load



1. The sign or rigid area must be 2.45 metres by 0.3 metres.
2. The letter “D” must be white in colour and must be 20 centimetres high, Series E.
3. The white portions of the sign or rigid area must be white in colour with a good reflective quality.
4. The red portions of the sign or rigid area must be red in colour and painted with the transparent red paint used for stop signs.

Alternate Sign for Over-Dimensional Load



1. The panel size must be 1.5 metres by 0.3 metres.
2. The lettering must be black on a yellow background.
3. The lettering “Wide Load” must be 20 centimetres high, Series C.
4. The panel must have a 9.5 millimetre black border at the panel’s edge.

Additional Sources of Information:

Information on high load corridors in Alberta can be found at:
http://www.transportation.alberta.ca/3192.htm

Information on the Long Combination Vehicle Program in Alberta can be found at:
http://www.transportation.alberta.ca/3191.htm

Information on the Log Haul Program in Alberta can be found at:
http://www.transportation.alberta.ca/3193.htm

Information on Dimension/Winter Weight Log Haul Permits can be found at
http://www.transportation.alberta.ca/3233.htm

Commercial Vehicle Dimension and Weight Regulation -
http://www.qp.alberta.ca/documents/Regs/2002_315.pdf

ACTIVITY: Trainees will work through Alberta Transportation's online weight calculator.

Trip Planning and the Law

Roads are monitored and controlled by governments to ensure the safety and minimize the inconvenience to the travelling public. Planning your route ahead will allow you to reach your destination effectively and efficiently. It is important for a driver to have a plan before heading out as well as have an awareness of regulations and travel restrictions. Pre-trip preparation includes being aware of general weight and size laws of jurisdictions you will be travelling through, knowledge of permits required, road bans and road restrictions, or local bylaws regarding loading and unloading cargo.

Road Restrictions and Road Bans

From time to time Alberta's roads are restricted because of construction, maintenance or seasonal conditions such as the spring thaw restrictions may be due to vehicle dimension (due to overhead structures and bridges) or weight (due to the maximum weights that bridges or other structures are capable of holding).

Seasonal Weights

Seasonal weights for heavy haul are set according to the following schedule:

- Spring: weather dependant, subject to thaw depth readings of at least 25 centimetres and begins at same time as Period 1 weights for service rigs
- Post-Thaw: June 16 (may begin one week earlier or one week later)
- Summer: July 1
- Fall: September 1

Winter: Weather dependant, subject to frost depth readings of 75 centimetres or more.

Seasonal weights for service rigs are set according to the following schedule:

- Period 1: weather dependant, subject to thaw depth readings of at least 25 centimetres and begins at same time as Spring weights for heavy haul
- Period 2: June 16 (may begin one week earlier or one week later)
- Period 3: July 16
- Period 4: September 1

Up to date information on Road Restrictions and Bans, as well as information on Road Ban Permits, can be found on the Alberta Transportation website: http://www.transportation.alberta.ca/522.htm

Toll free road ban information for provincial highways can also be obtained by dialing 1-855-ROADBAN (1-855-762-3226).

Trip planning is essential for safe and responsible operation of a commercial vehicle. It is essential for time management and will help to reduce driver stress and costs. Trip planning ensures that equipment can be operated legally on specific roads and in accordance with all requirements.

Communication between the driver and dispatch is a vital tool in ensuring a successful trip. In addition to route information that may be provided by the carrier, there are a number of navigation tools that can assist a driver with trip planning including a number of GPS/Map Applications. The tools provided may depend on the carrier or type of vehicle being operated. The driver should use devices according to the jurisdictional regulations.

Note: The role of a driver may vary in trip planning. A carrier may provide the driver with designated route information, or the driver may be required to do the planning.

Things to consider when planning your trip:

- Travel distance
- Departure and arrival times
- Essential services – where you can rest, eat, etc.
- Weigh station locations
- Traffic delays – rush hour, construction zones
- Vehicle Dimensions
- Loading zones
- Fuel costs, other expenses
- Terrain – mountain vs. prairie, urban vs. rural
- Restricted routes
- Low or narrow clearances
- Weather conditions
- Border crossings
- Required documents – permits
- Emergency information and equipment
- Hours of Service Regulations

Tools for Trip Planning

It is important for drivers to have access to reliable information and know when and how to use electronic devices and other available tools.

Dispatching System

Drivers can use dispatch systems for transporting goods. Carriers may have their own policies and procedures for devices and working with communicating with dispatch personnel.

Maps/Global Positioning Systems (GPS)

Drivers should know how to interpret traditional maps and program and read GPS devices. Drivers must follow jurisdictional distracted driving regulations.

For information about driving with hand-held electronic devices, cell phones, display screens, GPS systems, etc., See Section 115 of Alberta's *Traffic Safety Act*.

The following activities are not specifically restricted for commercial drivers under Alberta's Distracted Driving Law:

- Using two-way radios or hand-held radios, such as those commonly referred to as CB (Citizen's Band) radios, when escorting oversized vehicles, to contact one's employer, or when participating in search, rescue and emergency management situations.

Display screens that are permitted:

- A GPS navigation system – as long as the system is affixed to the vehicle and programmed before you begin driving or the system is voice activated. You cannot hold the unit or manually enter information while driving.
- A gauge, instrument, device or system that provides information about the vehicle's systems or the vehicle's location
- A logistical transportation tracking system that tracks vehicle location, driver status or the delivery of goods for commercial purposes

Calculating Travel Time and Fuel Usage

The following formulas are often used by tractor-trailer drivers to figure the distance, average speed, and trip time:

Distance = Speed multiplied by time

80 km x 9 hours = 720 km

Average Speed = Distance divided by time

720 km / 9 hours = 80 km

Trip Time = Distance divided by average speed

720 km/ 80 km = 9 hours

Calculating Personal Needs

Drivers should consider personal needs when trip planning and retain receipts or other documentation proving expenses. Each carrier will have their own policies and procedures for reimbursement.

Drivers should consider:

- Meals
- Lodging
- Fuel
- En route repairs
- Tolls
- Permits
- Special fees

Ports of Entry

Ports of Entry are locations that drivers must stop and prove that the carrier has authority to operate in the jurisdiction. Inspections and weighing may take place at a port of entry. Drivers must follow directions and ensure that they are carrying all required documents.

Roadside Safety Inspections

Roadside Safety Inspections can be conducted at weigh stations, ports of entry, special safety inspection facilities, or a suitably safe area. The driver must produce their driver's licence, medical certificate, driver's logs, and cargo documentation. Cargo may be inspected even if sealed. Inspectors will provide a new seal and drivers should document both the old and new seal numbers.

A driver may be out of service at once for the following:

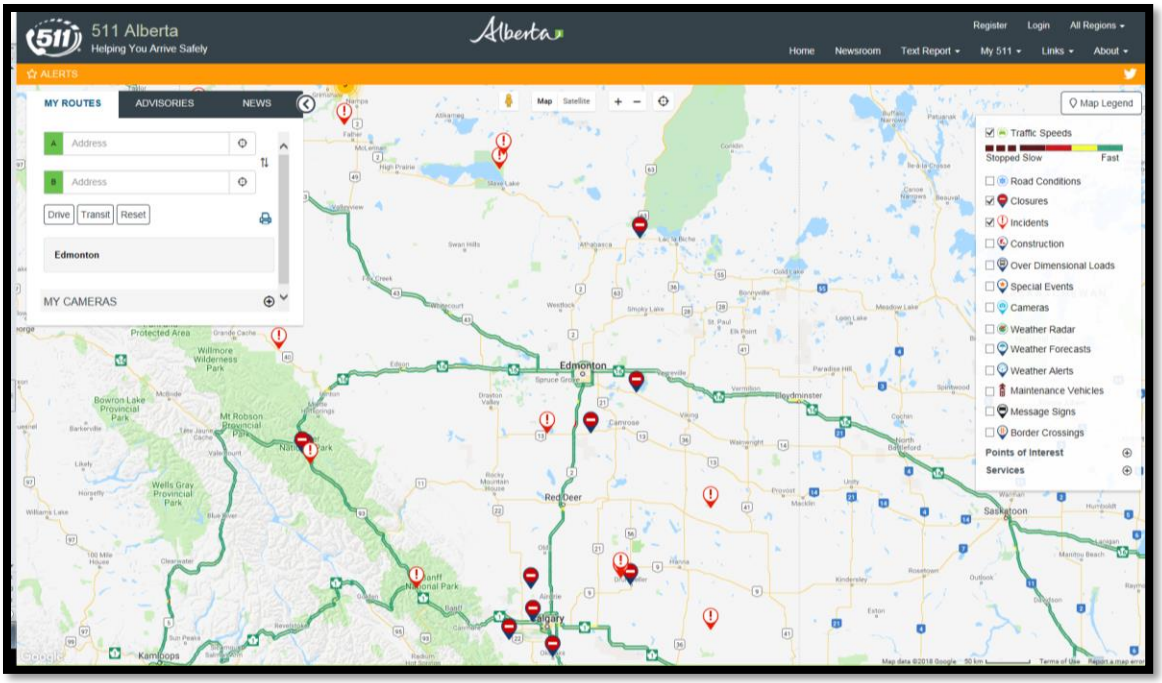
- Hours of service violation
- Unsafe vehicle
- Leaking hazardous materials

Signs (recommended)

Drivers need to know and understand traffic control signs and safety marks for dangerous goods. Information on signs can be found in Alberta Transportation's Driver's and Commercial Driver's Guides. https://www.transportation.alberta.ca/531.htm

511 Alberta – Helping You Arrive Safely

Alberta's Official Road Reports can be found at http://511.alberta.ca/ or by dialling 511 or 1-855-391-9743 (outside of Alberta)



Note: Information about road restrictions, road bans, and seasonal weight information can be found On Alberta Transportation's website at http://www.transportation.alberta.ca/522.htm. Drivers can subscribe to the Road Ban and Seasonal Weight Notification service at http://www.transportation.alberta.ca/5849.htm.

Drivers will want to check weather conditions and be prepared to drive in adverse conditions. Dispatch, local radio, and online sources can provide up-to-date weather information. Drivers should carry extra clothing, blankets, food and water in the event of becoming stranded.

Weather information for Canada can be found at https://weather.gc.ca/mainmenu/weather_menu_e.html

Planning Steps:

1. Ensure that paperwork is current and correct.
    - Registration and Insurance
    - Permits
    - Licences
    - Certificates
    - Logs
2. Select the route
    - Restrictions
    - Traffic and weather conditions
3. Estimate travel time and plan for stops
    - Essential services – food, rest, etc.

- Compliance with hours of service regulations

4. Estimate need for fuel.
    - Fuel stations on route
5. Estimate food and accommodation costs
    - Receipts and reimbursement (may vary according to Carrier's policy).

ACTIVITY: Trainees should plan several trips. Scenarios should be created by the instructor.

Workplace Safety and Emergency Equipment

Planning ahead and anticipating potential hazards plays an important role as does ensuring that your vehicle is maintained and knowing how to use emergency equipment in the event of an emergency.

Drivers must receive the training specified in the Carrier Safety Plan and know how to perform their duties properly and safely. Some topics in the Carrier Safety Plan may include:

- Safe use and operation of vehicles
    - Speed limits
    - Seat belts
    - Drug and alcohol use - drivers must be medically fit to drive and not fatigued or under the influence of alcohol or any drug
    - Defensive driving
    - Distracted driving
    - Cargo securement
    - Fueling
- Proper record completion and retention
    - Bills of lading, manifests, dangerous goods documents
    - Time records, drivers' daily logs
    - Weigh slips
    - Vehicle information
- Compliance with the law
- Use of safety equipment
    - Use of warning devices
    - Use of fire extinguishers
    - Use of Personal Protective Equipment such as protect hands, eyes, and feet, high visibility clothing and sound dampening headphones
- Driver conduct and discipline
- Driver qualifications

Special attention must be paid when driving through construction zones. Drivers must follow the speed limit and obey the flag person's signal and should be prepared to slow down and stop at all times.

Note: Details of how to handle emergency situations can be found in **Module 10 – Handling Emergencies** of this manual.

Emergency Equipment

It is recommended that all commercial vehicles be operated in a safe manner and have the available emergency equipment to do so. All drivers must be properly instructed in the use of all emergency equipment that is provided to them. Safety equipment includes:

- Reflective Triangles
- Fire Extinguishers
- First Aid Kits
- Hazard Lights

The following legal requirements for safety equipment in vehicles apply:

Reflective Triangles

Section 4 of the *Commercial Vehicle Safety Regulation* (AR121/2009) requires commercial vehicles to carry at least 2 advance warning triangles with the exception of school buses which are required to carry 3. An “advance warning triangle” is a reflective emergency warning device which is visible for a distance of at least 150 metres under normal atmospheric conditions.

Commercial vehicles that are operated solely within the boundaries of an urban area or between that urban area and an abutting urban area are exempt from carrying triangles.

Fire Extinguishers

Section 63 of the *Explosives Regulation* requires that all commercial vehicles carrying Class 1 Dangerous Goods carry a fire extinguisher. That fire extinguisher must be marked and must have a rating of at least 5- BC.

Although not a regulatory requirement, it is strongly advised that all commercial vehicles carry fire extinguishers that are easily accessible to the driver.

First-Aid Kits

The type of first aid kit that should be kept in a vehicle is dependent on the details found in Schedule 2 of the *Occupational Health and Safety Act* which is available online at: https://www.alberta.ca/assets/documents/ohs-code-2009.pdf

Although not a regulatory requirement, it is strongly advised that all commercial vehicles carry first aid kits that are easily accessible to the driver.

Use of Personal Protective Equipment (PPE)

A carrier’s Safety Plan will document PPE requirements and will ensure that drivers receive training on the proper use of PPEs (such as protect hands, eyes, and feet, high visibility clothing and sound dampening headphones, etc.).

Drivers are required to wear PPE while conducting inspections.

The Occupational Health and Safety Act and Regulations provide specific instructions and the use of PPEs.

NOTES:

MODULE 7 – VEHICLE INSPECTION ACTIVITIES

Purpose

The purpose of this module is to outline the process of vehicle inspections. Pre and post-trip inspections ensure the early detection of problems or defects that are signs of major mechanical failures. This module is organized as follows; minimum of 2 hours, 30 minutes of classroom session and minimum of 7 hours of in-yard session. It should take a total of 9 hours, 30 minutes to complete this module.

General Learning Outcomes

At the end of this module, trainees should be:

- Proficient in conducting pre and post trip inspections
- Knowledgeable in the general components of Class 1 vehicle engine components and typical controls, gauges, and instruments so that the driver can properly conduct a pre and post trip inspection
- Knowledgeable in the basic operational functions of a Class 1 vehicle components so that the driver can properly conduct a pre and post trip inspection

Habit of Minds

Trainees will:

- Recognize the importance of inspecting a tractor
- Recognize the importance of maintaining a tractor
- Understand the importance of pre-trip checklist

Knowledge and Understanding

Trainees will:

- Know the reason for conducting an inspection prior to each trip
    - Ensuring the truck tractor is in a safe operating condition
    - Identifying signs of potential problems
- Know the pre-inspection trip procedure using the circle check

Skill and Processes

Trainees will be able to:

- Demonstrate an understanding of the correct under the hood procedure
- Demonstrate an understanding of correct engine start-up and interior inspection procedure
- Demonstrate an understanding of the correct general inspection of the vehicle's exterior
- Demonstrate the proper use of the inspection checklist

Learning Environment (hours)

Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
2		**0.5**	**1**	**6**			**9.5**

Introduction

Daily vehicle inspection is important in ensuring that problems and defects are detected early before the vehicle is operated on the highway. Inspections prevent the operation of a vehicle with conditions that are likely to cause or contribute to the severity of a collision.

The trip inspection process is part of a carrier's legal requirement to have and implement a written maintenance program. It also ensures there is clear communication within the company about the vehicle's day-to-day safety. Time spent performing vehicle inspection is part of the on-duty time and should reported on the daily log book as **on-duty not driving**

Inspection reports serve as communication between drivers, the carrier and the carrier's maintenance department. Reports are used to verify inspections, record defects, report defects and may be used to verify repairs.

Compliance with Vehicle Inspections

Commercial Vehicle Enforcement Agencies in each province are responsible for ensuring commercial vehicle compliance with Provincial and Federal Acts and Regulations. Transportation or Peace Officers assist in maintaining a safe highway system in Alberta by conducting inspections and monitoring commercial vehicles for safety compliance.

All jurisdictions recognize inspections of each participating province or territory and, except in rare circumstances, will accept the host jurisdiction's inspection to be equivalent to the inspection mandated by their legislation.

The province of Alberta has a mandatory safety inspection program. This is called the Alberta Vehicle Inspection Program (VIP) for Commercial Vehicles. The VIP for Commercial Vehicles is not a replacement for the ongoing preventive maintenance carried out by vehicle owners, but rather sets the standards for owners' maintenance programs.

A commercial vehicle passing inspection under VIP will receive a Commercial Vehicle Inspection Certificate, as well as a Commercial Vehicle Inspection decal to be placed on the vehicle.

As with the National Safety Code, municipal transit buses and farm trucks are exempt when operating solely within the borders of Alberta from the VIP.

Drivers may also be required to produce documents upon request, such as the Safety Fitness Certificate, Daily Log, and insurance documentation. Please see Module 6 for a comprehensive list and description of required documents.

Commercial Vehicle Safety Regulation *AR 121/2009*

Pre and post-trip inspections are a vital part of the job because the driver will be able to screen for any issues that could potentially cause or contribute to a collision. The trip inspection process is part of a carrier's legal requirement to have and implement a written maintenance program. It also ensures there is clear communication within the company about the vehicle's day-to-day safety. Inspection checklists are based on the National Safety Code (NSC) Standard 13: Schedule 1, which is intended to identify enable drivers to identify vehicle problems and defects and to prevent vehicles to be driven if they are in a state that will likely contribute to a collision or vehicle breakdown.

Provincially regulated carriers (those that operate solely within Alberta) and Federally regulated carriers (those that operate one or more vehicles outside the province of Alberta) must complete and keep a record of trip inspection reports on trucks registered for a weight of 4,500 kilograms and greater.

A "commercial vehicle" is defined as a vehicle operated on a highway by or on behalf of a person for the purpose of providing transportation but does not include a private passenger vehicle.

Vehicle Defects

1. **Recording Defects:** The driver is required to record a defect on the report immediately after the initial inspection or upon discovery of a defect while travelling or when discovered at the end of a trip or day.

2. **Reporting Defects:** For the purposes of reporting defects to the carrier, the carrier may designate an employee to receive reports of defects. Defects and major defects, which are listed in the NSC 13 Schedule 1, must be reported immediately by the driver or inspection person to the carrier upon discovery of the defect. Depending on the driver's situation, reporting defects to the carrier may be done in person, by phone, via written report or by electronic means.

3. **Driving with Defects:** A driver may continue to drive with a defect that is listed on an inspection schedule if the driver has immediately entered the defect on the daily inspection report and reported the defect to the carrier.

   No carrier shall permit a person, and no person shall, drive a commercial vehicle on a highway when a major defect that is listed on an inspection schedule is present on the vehicle.

Driver Inspection Requirement

The driver is required to complete and sign a report upon completion of the inspection. Drivers are not permitted to drive a truck or tow a trailer unless the driver or another person has conducted an inspection of the vehicle(s) within the previous 24 hours.

In addition to the initial inspection, whether conducted by the driver or not, the driver is required to monitor the condition of the vehicle(s) for defects while en route.

In addition to drivers, other persons such as maintenance or yard staff are also permitted to conduct inspections and complete sign reports.

Where a trip inspection report has been completed, the trip inspection is valid for a maximum of 24 hours.

A person other than the driver who conducts an inspection and signs the report is responsible under law for the inspection and the information contained in the inspection report. The driver may rely on such an inspection and produce the report to an officer, unless the driver has reason to believe the inspection and report do not meet the requirements, or the driver is aware or ought to be aware that the vehicle has a defect.

All information required to be on a report must be accurately completed in full. There are vehicle inspectors throughout the province who conduct commercial vehicle inspections. Vehicles that do not meet the requirements can be taken out-of-service until repairs are made. This can result in fines and points assessed on the Carrier Profile or the driver's Commercial Driver Abstract.

On the demand of a peace officer, a driver must produce the inspection schedule and the written trip inspection report. Alberta's trip inspection legislation is contained in sections 9 through 16 of the Commercial Vehicle Safety Regulation (AR121/2009) and can be viewed on the Queen's Printer website at www.qp.alberta.ca.

Trip Inspection Schedule

1. Application of inspection schedule
   - Carriers are required to supply drivers with a copy of the inspection schedule.
   - Drivers are required to carry and produce the inspection schedule to an officer.
   - A schedule and an inspection report may be combined on the same document.

2. Where to get inspection schedules

   Schedule 1 - 4 of National Safety Code Standard 13, which is published by the Canadian Council of Transport Administrators (CCMTA), is acceptable in Alberta, when produced by the driver of an Alberta plated commercial vehicle. These schedules may be viewed at: www.ccmta.ca. Some companies, associations and organizations also produce and sell schedules and report forms.

Trip Inspections

Drivers are accountable for the safety and well-being of themselves, co-occupants and the goods they transport as well others they share the road with. Trip inspections are a part of being a responsible driver.

When approaching the truck, this is a good opportunity to assess the overall condition of the truck. Drivers may choose an inspection procedure (circle procedure) that best suits the vehicle

and its location. However, whichever procedure is used, each regulated inspection item must be inspected and where a defect is discovered the defect must be recorded on the report and reported to the carrier.

The following detailed trip inspection is for reference only. Check with your employer to determine if the company has its own forms for recording vehicle condition.

Note: Personal Protective Equipment (PPE) should be worn during inspection activities in accordance to the *Occupational Health and Safety Act* (OHSA) such as protect hands, eyes, and feet, high visibility clothing and sound dampening headphones.

The amount of time required to complete the pre-trip exercise may vary. Vehicle components, equipment, system and other features may vary from one vehicle to another.

Vehicle Inspection check points by component:

The following table is general guide for what to look for during a vehicle inspection. Detailed information on maintenance standards can be found in Schedule 2 of the *Commercial Vehicle Safety Regulation (AR121/2009).*

External Inspection

Component	Check Points
Hood	• Hood latch is not missing and is secure
Bumper, Fender	• Is not missing • Is securely mounted • Is not broken, bent or corroded or have sharp edges
Mirrors	• Should be securely mounted and adjusted to the appropriate setting for the driver • Check for damage that affects the proper functioning of the mirror
Windows	• Cracks, discolouration, exposed sharp edges, or missing parts • Cracks or chips in any area swept by windshield wipers must not be greater than 25millimetres in diameter • Driver's window can be opened on the inside
Windshield Wipers and Washers	• Windshield washer system must function in • accordance with the manufacturer's specifications • Each wiper arm and blade assembly must sweep the area specified by the manufacturer and provide effective clearing of the windshield

Component	Check Points
Frame (body, chassis, sliding subframe)	• Cracks, corrosion, structural damage, deformation, missing or loose fastener
Underbody	• Structural damage, deformations, perforations, or presence of openings not designed by the manufacturer
Drive Shaft	• Missing, loose or damaged parts • Excessive wear • Universal Joints must not show evidence of free play
Brakes	• No cracks (other than heat crack) • Damage to drum or disc • Excessive wear-Wear on discs or inside drum must not exceed manufacturer's wear limit
Hydraulic and Vacuum-Assisted Brake Components (if equipped)	• Leaks • Corrosion • Vacuum, hydraulic or air boost systems are fully charged • Hydraulic levels are not lower than specified by the manufacturer • Hose and tubing are not crimped, bulged, cracked, broken, disconnected, rubbing against other parts of the vehicle • Air cleaner of vacuum system or air compressor is not clogged
Parking Brake	• Friction material must not be less than 1.6 millimetres when measured at any point of a bonded lining or pad other than the chamfered area
Steering Components	• The power steering drive belt must not be missing, cut, frayed or badly worn • Steering linkage system components are not loose or damaged • Bolts, nuts, clamps are not missing or badly worn
Suspension	• Excessive play for ball joints, control arm pivots, wheel and axle bearings • Front and rear springs, shackles, U-bolts, centre-bolts, radius rods, control arms, torque arms, equalizers, sway-bars, stabilizers and their supports and attachments must not be loose, bent, cracked, broken, disconnected, displaced, perforated by corrosion or missing • Shock absorbers must not be loose, bent, disconnected, missing or damaged, or show evidence of active fluid leakage

Component	Check Points
Electrical Components	• Components are secured on their mountings • Battery must be securely mounted, and must not be loose, missing or have hold downs missing • Electric wiring and any trailer cord must not be loose so as to contact moving parts, rubbed through the insulation, peeled, cut or deteriorated
Lamps and Reflectors	• Components must not be damaged, discoloured, or be missing in whole or part • Lamps must not be covered or modified in a manner that reduces the effective area of the lens or reduces the brightness of the light
Tires	• Tire pressure is maintained in accordance with manufacturer's specifications • Excessive tread wear, tread separation, exposed cord, abnormal bumps, bulges or knots, • Cuts or snags that affect the safety of the tires no part of the exhaust system must be closer than 50 millimetres to wiring, any part of a fuel or brake component or any combustible material that is not protected by a shield
Wheels	• Wheel stud, bolt, clamp, nut, and lug must not be loose, missing, damaged, broken or mismatched • Disc wheel assembly does not have any visible cracks, or be bent in a way that affects the safe operation of the vehicle • Hub must not be cracked, bent, distorted, worn, or missing. • Hub should also be checked for leaks
Mud Guard/Flap	• Is secure and not damaged
Exhaust	• Missing, perforated, patched or insecure components • Leaks • No part of the exhaust system must be closer than 50 millimetres to wiring, any part of a fuel or brake component or any combustible material that is not protected by a shield
Fuel System	• Fuel tank is securely mounted/attached and fuel lines are present and secure • Filler Cap is not missing and is secure • Leaks
Fifth Wheel Coupling Device	• Fifth wheel is secured to vehicle frame and positive stops prevent the fifth wheel from shifting on the frame

Component	Check Points
	• Jaw closure and locking mechanism is in good working order, not cracked or broken • Jaw closure is not worn beyond 6.4 millimetres • Slider mechanisms (if equipped) lock securely, do not show signs of failure or excessive wear, are equipped with stops • Saddle bushings must not be worn in excess of manufacturer's specifications • Upper plate is not loose, cracked or warped • Upper plate king pin is not loose, cracked, deformed or have wear in excess of 3.2 millimetres
Trailer Hitch, Mount and Connecting Devices	• Hitch or towing structure is securely mounted • Latch mechanisms close securely • No missing, cracked, broken, bent or badly worn parts on hitch system • Connecting devices at the rear of the vehicle for the attachment of a safety chain or cable must be securely fastened and not cracked, broken or badly worn
Rear Impact Guard	• Must not be missing, bent or broken, or have cracked welds • Must be securely mounted

Interior Inspection

Component	Check Points
Heating and Defrosting Systems	• Visible portions of the hoses and piping for the interior heaters routed within the occupant compartment must not be abraded, cracked or leaking • Windshield defroster system must deliver heated air to the windshield and, where fitted, to the side windows to the left and right of the driver • If the service door is equipped with frost-resistant glass panels, heated air does not have to be delivered to door glass panels
Lamps and Reflectors	• Each circuit must light and activate the required lamps on that circuit when the appropriate switch is in the "on" position
Brake Pedal	• Brake pedal pad or anti-skid surface is secure and does not have excessive wear (Where equipped)

	• Moderate foot force is maintained when pedal is depressed for 10 seconds • Total pedal travel does not exceed 80% of the total available travel when heavy force is applied • The brake releases immediately when pressure is released from the pedal
Parking Brake	• When fully applied and not held by foot or hand force or by hydraulic or air pressure, the parking brake must hold the vehicle stationary against the engine momentarily while the vehicle is operated in reverse gear and low forward gear at a light throttle setting • Brakes are fully released while in the “off” position
Doors	• Securely fastened to the body • Function properly • Do not have missing, loose or torn materials • Door controls operate smoothly and seals in good condition
Seats	• Are securely mounted • Cushion or padding are not missing, torn or badly worn

NSC 13 - Part 2, Schedule 1 – Truck, Tractor & Trailer

1. Air Brake System
Defects • audible air leak • slow air pressure build-up rate
Major Defects • pushrod stroke of any brake exceeds the adjustment limit • air loss rate exceeds the prescribed limit • inoperative towing vehicle (tractor) protection system • low air warning system fails or system is activated • inoperative service, parking or emergency brake
2. Cab
Defect • occupant compartment door fails to open
Major Defect • any cab or sleeper door fails to close securely
3. Cargo securement
Defect • insecure or improper load covering (e.g. wrong type or flapping in the wind)
Major Defects • insecure cargo • absence, failure, malfunction or deterioration of required cargo securement device or load covering
4. Coupling Devices
Defect • coupler or mounting has loose or missing fastener
Major Defects • coupler is insecure or movement exceeds prescribed limit

• defective, incorrect or missing safety chain/cable • coupling or locking mechanism is damaged or fails to lock
5. Dangerous goods
Major Defect • dangerous goods requirements not met
6. Driver controls
Defect • accelerator pedal, clutch, gauges, audible and visual indicators or instruments fail to function properly
7. Driver seat
Defect • seat is damaged or fails to remain in set position
Major defect • seatbelt or tether belt is insecure, missing or malfunctions
8. Electric Brake system
Defect • Loose or insecure wiring or electrical connection
Major Defects • Inoperative breakaway device • Inoperative brake
9. emergency equipment and safety devices
Defect • emergency equipment is missing, damaged or defective or expired
10. exhaust system
Defect • exhaust leak
Major Defect • leak that causes exhaust gas to enter the occupant compartment
11. frame and cargo body

Defect • Damaged frame or cargo body.
Major Defect • Visibly shifted, cracked, collapsing or sagging frame member(s).
12. fuel system
Defect • missing fuel tank cap
Major Defects • insecure fuel tank • dripping fuel leak
13. general
Major defect • serious damage or deterioration that is noticeable and may affect the vehicle's safe operation
14. glass and mirrors
Defects • required mirror or window glass fails to provide the required view to the driver as a result of being cracked, broken, damaged, missing or maladjusted • required mirror or glass has broken or damaged attachments onto vehicle body
15. heater/defroster
Defect • control or system failure
Major Defect: • defroster fails to provide unobstructed view through the windshield
16. horn
Defect • vehicle has no operative horn
17. Hydraulic Brake System
Defect

- Brake fluid level is below indicated minimum level.

Major Defects
- Parking brake is inoperative
- Brake boost or power assist is inoperative.
- Brake fluid leak.
- Brake pedal fade or insufficient brake pedal reserve.
- Activated (other than ABS) warning device.
- Brake fluid reservoir is less than ¼ full.

18. lamps and reflectors

Defect
- Required lamp does not function as intended.
- Required reflector is missing or partially missing.

Major Defects – When use of lamp is required
- failure of both low-beam headlamps
- failure of both rearmost tail lamps

Major Defects- at all times
- failure of a rearmost turn-indicator lamp
- failure of both rearmost brake lamps

19. steering

Defect
- steering wheel lash (free-play) is greater than normal

Major Defects
- steering wheel is insecure, or does not respond normally
- steering wheel lash (free-play) exceeds prescribed limit

20. suspension system

Defects
- air leak in air suspension system
- broken spring leaf
- c)suspension fastener is loose, missing or broken

Major defects
- damaged or deflated air bag [patched, cut, bruised, cracked to braid, mounted insecurely]
- cracked or broken main spring leaf or more than one broken spring leaf
- part of spring leaf or suspension is missing, shifted out of place or in contact with another vehicle component
- loose U-bolt

21. tires

Defects
- damaged tread or sidewall of tire
- tire leaking (if leak can be felt or heard, tire is to be treated as flat)

Major defects
- flat tire
- tire tread depth is less than wear limit
- tire is in contact with another tire or any vehicle component other than mud-flap
- tire is marked “Not for highway use”
- tire has exposed cords in the tread or outer side wall area

22. wheels, hubs and fasteners.

Defects
- hub oil below minimum level (When fitted with sight glass)
- leaking wheel seal

Major Defects
- wheel has loose, missing or ineffective fastener
- damaged, cracked or broken wheel, rim or attaching part
- evidence of imminent wheel, hub or bearing failure

23. windshield wiper/washer

Defects
- control or system malfunction
- wiper blade damaged, missing or fails to adequately clear driver’s field of vision

Major Defects- <u>when use of wipers or washer is required</u>:
- wiper or washer fails to adequately clear driver’s field of vision in area swept by driver’s side wiper

Class activity –Instructor will work though the NSC Inspection Schedule and complete a Trip Inspection Report with the trainees.

SAMPLE TRUCK/TRAILER TRIP INSPECTION REPORT

Time:	Date:
Carrier Name (as on registration):	

Plate Number(s) and Jurisdiction(s)	
Truck:	Lead Trailer:
Rear Trailer:	Other:

Location of Inspection (municipality or location on highway):

☐ Odometer Reading:		OR	☐ Hubometer Reading:	

I performed an inspection of the vehicle noted above using the criteria set out in Schedule 1 of Part 2, NSC Standard 13 and as per sections 10(4) and 10(10) of Alberta's *Commercial Vehicle Safety Regulation*, AR 121/2009 and report the following:

☐ No defects were found.

Defects were detected (check applicable):

Inspected	Defect	Major Defect	Vehicle Plate	Details of Defect (if any)
Air Brake System	☐	☐		
Cab	☐	☐		
Cargo Securement	☐	☐		
Coupling Device	☐	☐		
Dangerous Goods	☐	☐		
Driver Controls	☐	☐		
Driver Seat	☐	☐		
Electric Brake System	☐	☐		
Emergency Equipment and Safety Devices	☐	☐		
Exhaust System	☐	☐		
Frame and Cargo Body	☐	☐		
Fuel System	☐	☐		
General	☐	☐		

Glass and Mirrors	☐	☐		
Heater/Defroster	☐	☐		
Horn	☐	☐		
Hydraulic Brake System	☐	☐		
Lamps and Reflectors	☐	☐		
Steering	☐	☐		
Suspension System	☐	☐		
Tires	☐	☐		
Wheel Hubs and Fasteners	☐	☐		
Windshield Wipers/Fluid	☐	☐		

Name of person completing inspection
(Print Name)

Signature of person completing inspection

Provide details of defect(s) detected at any other time(s):

Name of person identifying defect(s)
(Print Name)

Signature of person identifying defect(s)

Certification of Repairs Completed:

☐ I certify all defects have been repaired I certify repair(s) were unnecessary.

OR

☐ I certify repair(s) were unnecessary.

Remarks:

Name of Certifier

Signature of Certificate

En route Check Stop Inspections

Regardless of the driver's hours of service, drivers may break their trip for several reasons. Rest and check stops serve two purposes. First, they provide a break and a change of routine. You will feel less tired and more alert after a rest stop. Second, you can check your vehicle after it has been on the road for some time. You will be able to see if everything is still secure and working the way it should.

Schedule rest and check stops according to National Safety Code (NSC) requirements and your company's policy.

Reporting to a vehicle inspection station

One of the most common misconceptions regarding vehicle inspection stations is that only large commercial vehicles have to report. The law is that all commercial vehicles or combinations weighing over 4,500 kg are required to report to inspection stations when the highway lights are flashing.

If you are operating a motor vehicle that is required to report, if the vehicle is loaded, drive slowly across the scale lane. If empty, drive slowly in the lane beside the scale lane. Whether loaded or empty watch the light board for instructions. If the "STOP" light is activated, stop the vehicle and wait for further instructions. If the "BACK UP" light is activated, slowly and safely back the vehicle up keeping in mind there may be other vehicles behind you. If the "PARK" light is activated park the vehicle in the lot and bring all of the vehicle and driver documents to the scale building.

Post-Trip Inspection

Post-trip inspections are completed at the end of the shift. This will enable you to obtain service or repairs if required before the next trip. The report should include any problems discovered during the trip. Postponing inspections can result in problems that are frustrating, time consuming and costly.

Practical guide

At the end of the classroom session, the instructor and the trainee will proceed to the yard for the vehicle inspection activities. The instructor will have about 1 hour, 30 minutes to demonstrate the vehicle inspection activities (pre-trip, en route, post trip inspection) to the trainee, after which the trainee will perform the activities. The trainee will have a minimum of 5 hours, 30 minutes to practice the vehicle inspection activities (pre-trip, en route, post trip inspection).

Pre-trip Inspection

Before beginning the inspection

Choose terrain that is as level as possible and park the vehicle safely away from traffic. Set parking/spring brake. Place the transmission in low gear for a manual transmission.

- ☐ Ensure that the engine has been shut off
- ☐ Chock the wheels and ensure the chocks will keep the vehicle from moving especially for vehicles equipped with air brakes when they are released later. The minimum size for square blocks should be 15 by 15 centimetres

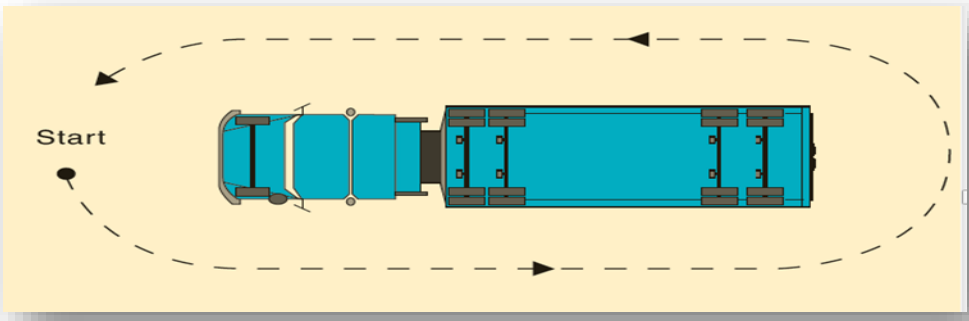
The instructor is required to demonstrate these tasks prior to trainee's practice and demonstration.

Step 1 - Exterior Inspection

Each driver is responsible and accountable for the safety and operation of their equipment to ensure that it meets mechanical and safety standards. It is essential that each driver to inspect their vehicle before departing on a trip. The inspection must involve a complete circle check of the vehicle the trainee will be driving. Trainee will check a number of items along the inside and outside of the tractor and trailer. The inspection will take you full circle around the vehicle.

Circle check

The drawing below illustrates one way to make a full circle check. Do a walk-around check before starting any trip. The circle check may be done in any order, but make sure that you check everything and always make a complete circle around the vehicle.



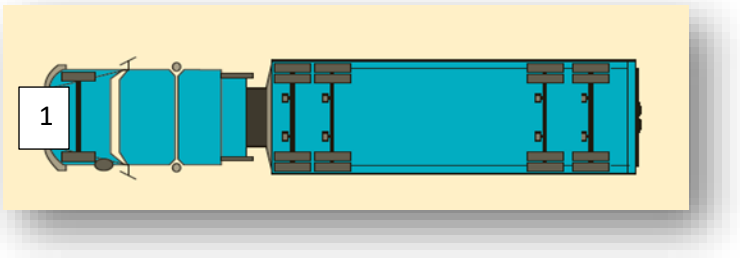
Daily walk-around procedure – items to check:

- General Appearance- there should not be any grease or oil spills or signs of coolant leakage on the ground.
- Starting at the front of the vehicle and going down the driver's side of the vehicle, from the front to the back, check the following:

The trainee will continue with the inspection in the following order:

1. Front of the vehicle
2. Driver side of the vehicle
3. Rear of the vehicle
4. Passenger side of the vehicle

Front of the Vehicle



a. Under the Hood

Trainee must check for any cracks in the front of the hood prior to unlatching.

Trainee will learn how to unlatch and open up the engine compartment and check the following:

- ☐ Oil Level- should be above the line on the dipstick indicating "add", but not over the line indicating "full"
- ☐ Coolant in Radiator- fluid level is adequate according to manufacturer's specifications, is free of leaks and has a proper fitting cap
- ☐ Fan Belts/Fan Blades- Should not be frayed, badly worn, or twisted and should have 1.5cm or less tension. Fan blades must also be in good condition; not bent, cracked, missing blades or have loose mountings.
- ☐ All belts for tension and signs of wear
- ☐ Hoses- no cracks or tears or leaks and all connections should be secure
- ☐ Wire Connections- all appear tight and secure. No exposed wiring
- ☐ Power Steering- Ensure fluid levels are adequate; check power steering pump and hose for leaks; ensure power steering mechanism does not have wear or excessive play.

- ☐ Brake fluid – check chamber for leaks, warning light will come on if fluid is low (only open the fluid reservoir to top fluid up if needed)
- ☐ Windshield Washer Fluid- should be no less than ¾ full
- ☐ Steering mechanism has no bent, broken or missing parts, power steering pump and hose for leaks and adequate fluid level, steering mechanism has no wear or excessive play. Trainee will shake the steering arm, tie rod, and drag link at each wheel to ensure that they are not loose.

At the end of the under the hood inspection, trainee should learn how to properly close and secure the hood.

b. Engine Start-Up and Interior Inspection

Trainee will learn and demonstrate the proper method for entering and exiting the tractor.

- Use 3-point method - always have three points making contact at all times:
- Two hands and one foot, or
- Two feet and one hand

In-cab Inspection - The trainee will provide an inspection of the tractor interior to ensure the vehicle is clean, there are no loose objects, and the brakes and steering do not show signs of functioning improperly.

The trainee will:

- Demonstrate proper adjustment of the driver's seat. This must include all adjustments on the seat.
  - Confirms that the cab doors open properly and is securely closed. Confirm the occupant compartment or any cab or sleeper door opens and closes properly. Doors open and close from inside.
  - Seats are securely fastened to the floor and in good condition and seat settings function properly
  - Adjust the height so that the feet can rest flat on the floor.
  - Then adjust the forward placement of the seat so that the left foot can push the clutch pedal to the floor without having to stretch.
  - Next, set the back of the seat so it is straight up. Then lean back slightly and lock it on the first setting that allows the trainee to maintain 9 & 3 or 10 & 2 hand position on the steering wheel.
  - Demonstrate tilt and telescopic steering wheel assembly (if equipped). Confirm that the steering has no excessive play or slack
- Ensure that the mirrors and glass are securely attached to the vehicle. Confirm that the mirrors and glass are not cracked, missing, broken, damaged, maladjusted or obstructed. They must provide the required full view to the driver.
- Confirm that the window glass (open and closes)
- Demonstrate proper adjustment of mirrors on tractor.
  - Confirm mirrors are adjusted correctly

        - The large flat mirror allows a driver to keep an eye on traffic and on the trailer.
        - The smaller convex mirror allows a driver keep an eye on traffic and the tractor drive wheels. When sitting in the driver's seat, the large flat mirrors on either side of the tractor allows the driver to see the sides of your trailer.
    - Confirm seatbelt and tether belt are secure and function properly.
    - Driver's floor is clean and free from damage and obstructions
    - Fuel level is adequate

    Engine Start-up

- The trainee is required to explain proper procedure for starting the engine. (Ensure transmission is in neutral, prior to starting the tractor's diesel engine) by following this procedure:
    - Ensure park brake is applied.
    - Depress the clutch pedal to the floor and hold it there.
    - Turn the key if your vehicle has one to ON position, or press the starter button. It is important to follow the manufacturer's start-up procedures, especially for cold weather start-ups.
    - As soon as the engine fires, release the key.
    - Once the truck engine is on, listen for unusual engine noises. Immediately after starting the engine, always check the oil pressure gauge.
    - Oil pressure should start to register in a few seconds. If no oil pressure shows, stop the engine at once. You can damage the engine by running it with no oil pressure.

Note: Idling should be kept to a minimum, depending on weather conditions.

Once the engine is running, the trainee must ensure gauges are reading correctly and no warning lights are on. All gauges must be functioning and giving "normal" readings otherwise you should not operate the truck. Some of the gauges to check include:

Vacuum or Air Pressure Gauge (if equipped)

- ☐ Indicates capacity to operate the brakes. Do not operate the truck until the "reserve" vacuum or air reaches the manufacturer's minimum specifications
- ☐ Excessive loss of pressure overnight can indicate a leak in the air system and must be reported to the appropriate supervisor immediately.

Oil Pressure Warning Light

- ☐ This light may go on as the truck is being started, but should go off right after the engine starts. If the warning light does not go off this is a possible sign of low oil level (check the dipstick); bad oil pump defective oil pressure sending unit, oil pressure gauge, or warning light switch

- ☐ Turn the engine off immediately and report to appropriate supervisor if the warning light remains on

Service Brake Warning Light

- ☐ With a dual brake system, if this light comes on during a hard braking application, this could indicate that at least one of the brake systems is not operating properly. This must be reported to the appropriate supervisor immediately.

Interlock System Warning Light

- ☐ The interlock system should be lit when the rear door is open

Alternator/Generator Warning Light

- ☐ If this light remains on after the engine is running, it may indicate a malfunction with the charging system. Frequently a loose or slipping belt is the cause of a glowing or flickering alternator warning light.
- ☐ Do not operate and report immediately to the appropriate supervisor if the light remains lit.

Ammeter (instead of alternator/generator warning light)

- ☐ If it continues to show a discharge after the engine is running, do not operate and report immediately to your appropriate supervisor.

Water Temperature Gauge or Warning Light

- ☐ This gauge shows the temperature of the coolant in the engine. If your truck has a gauge it should read “cool” or “warm”
- ☐ When it indicates “hot” or the warning light goes on, turn off the engine and report immediately to your appropriate supervisor. This could be a sign the engine is not being cooled adequately.

Fuel Gauge

- ☐ It should indicate a safe margin of fuel for the day’s operation, preferably operate out of the “top half” of the tank
- ☐ Drivers must use kilometres traveled to determine their next fill-up. Follow company procedures.

Light Indicators

- ☐ Confirm the following indicators are operational:
  - hazard lights
  - brake lights, tail lights, clearance lights, head lights (high and low beams).

Interior Emergency Equipment

- ☐ Approved warning devices are accessible and operational
- ☐ Fire extinguisher is charged, secured and pin is in place

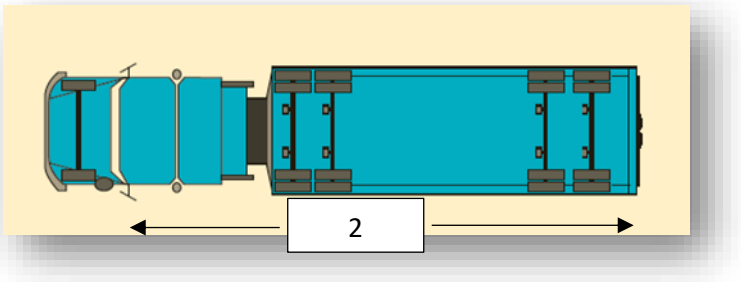
- ☐ First aid kit is full, secure, and accessible

Other Interior components and systems should also be operational, properly adjusted and accessible

- ☐ Horn and backing alarm works properly (if equipped)
- ☐ Heaters/defrosters and fans (defroster must be able to provide unobstructed view through windshield)
- ☐ Confirm that the wiper blades and are not damaged or missing
- ☐ Confirm that the wiper and washer control is functioning properly. Wiper and washer must adequately clear driver's field of vision
- ☐ Foot brake/parking brake/clutch are all working properly
  - ☐ **Foot brake check** - with the engine running, apply the foot brake and hold for five seconds. The pedal should not move (lose pressure) during those five seconds. If equipped with hydraulic reserve system, with the key in the off position, depress the brake pedal and listen for the sound of the reserve system electric motor turning on. Check that the warning buzzer and light is off. Ensure that the air pressure build-up time is adequate and the air pressure drop does not exceed an acceptable amount when the brakes are applied
  - ☐ **Park brake check** - to check the park brake place the truck in drive or appropriate gear (neutral), release your foot off of the foot brake and test under load (recommended at idling speed)
  - ☐ **Clutch check** – depress the clutch pedal and ensure that it is not sticking; vibrating or loose; or making squeaking or grumbling noises
- ☐ Hand throttle and accelerator pedal are secure, operate properly (no sticking or engine failing to return to idle).
- ☐ Engine runs smoothly, there are no unusual engine noises
- ☐ Radio equipment and P. A. system work and siren works in all modes (if applicable)
- ☐ Air brake system
  - ☐ Emergency or park brake is operative
  - ☐ Towing vehicle system is operative
  - ☐ Air compressor is securely mounted,
  - ☐ Condition of lines, fittings, hoses and couplers
  - ☐ Brake chambers for condition and security
  - ☐ Slack adjuster angle, push rod travel,
  - ☐ Mechanical condition and wear
  - ☐ Air lines have no leaks, kinks, cuts, abrasions or cracks in housing
  - ☐ Check low air warning system. check if the system is activated
  - ☐ Check for audible air leak
  - ☐ Check for slow air pressure build-up rate

Note: For air brake systems, the parking brake will remain applied if the air pressure falls below 310-345 kDa (45-50 psi).

Driver Side of the Vehicle



The trainee will check for the following**:**

- ☐ Oil level in steering axle wheel bearing, if equipped
- ☐ Inspection decal is present, valid and in the proper location (if required for the specific vehicle)
- ☐ Be sure all road film, dirt, snow, and ice are removed as they can cause a dangerous glare making it difficult to see properly mirrors should be clean and properly adjusted
- ☐ Handrail is secured
- ☐ Steps are in good condition
- ☐ Battery (if under the hood)- has no cracks, securely mounted and terminal connections are secure and do not have excessive corrosion or leaks
- ☐ Wheels and coupling components:
  - ☐ Sliding tandem and locking pin - the pin is locked and secure, no bends, cracks, breaks or weld separations in the cross members, torsion bars or flanges
  - ☐ Axle assembly has no breaks, cracks, holes, broken seals or bends
  - ☐ First drive axle wheel rims have no cracks, missing pieces, bends or rust streaks, wheel fasteners are secure and not missing or broken,
  - ☐ Second drive axle wheel rims have no cracks, missing pieces, bends or rust streaks, wheel fasteners are secure and not missing, broken or loose
  - ☐ A solid seal of dust between the nut and the wheel is a good indication that the nut is secure. Check for any wear (silvering) or gaps around the lug nut. If this is present, it indicates movement. Do not drive with a loose or damaged lug nut
  - ☐ Be sure to check for any foreign objects between the duals.
  - ☐ Hub oil/wheel seal is not leaking
  - ☐ Wheel seal is not leaking
  - ☐ Fifth wheel coupler bolt is secure, slider is locked and secure, plate shows no damage, cracks or weld separations, plate is flush to the apron (no daylight is visible between them)

- ☐ Fifth wheel locking jaws are closed, plate sits flat on the underside of trailer, kingpin is enclosed
- ☐ Kingpin and pintle hitch eyehook (if equipped) is not worn, damaged, cracked or broken
- ☐ Hitches (if equipped), pintle hitch or ball hitch is not worn and locking mechanism is closed
- ☐ Chains, cables (if equipped) have no stress cracks or weld breaks and are securely attached
- ☐ Drive shaft is in good condition and there are no obstructions

☐ Tires:

- ☐ Look for under-inflated, leaking or flat tires
- ☐ First drive axle tires have adequate tread depth (not less than 1.6 mm), proper inflation, no bulges, sidewall separation, cuts or uneven wear, dual tires are not touching and nothing is trapped between them. Excessively worn (tread depth is no less than 1.6mm) or damaged tires (damaged sidewall or treads). driver must not drive until repaired or corrected. One flat rear tire, for example, can place a dangerous weight on the companion tire of a dual set
- ☐ Second drive axle tires have adequate tread depth (not less than 1.6 mm), proper inflation, no bulges, sidewall separation, cuts or uneven wear, dual tires are not touching and nothing is trapped between them
- ☐ Tire is not in contact with any vehicle components
- ☐ Confirm that there are no missing valve stem covers, and objects lodged between the dual tires

☐ Fuel System

- ☐ Fuel tank has no leaks, tank is secure, the air vent is not plugged and that the proper fitting cap is secure
- ☐ Fuel system lines are secure, not hanging dangerously low and have no leaks
- ☐ Check that fuel cap is not missing or damaged and is secured ((fuel cap location may vary on each vehicle)
- ☐ Fuel tank is secure and not leaking

☐ Suspension System

- ☐ Suspension has no cracked, missing or broken springs,
- ☐ Torsion bars or walking beams are secure and not damaged,
- ☐ No loose, missing, or broken U-bolts,
- ☐ Shock absorbers are securely mounted and not leaking.
- ☐ If a vehicle has air suspension, check for damaged, worn or inoperative air bags

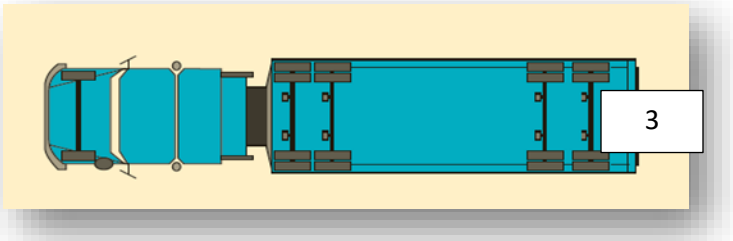
Under the Truck:

☐ Carefully view the ground under the truck and on the inner walls of the tires for indications of fluid leaks, or damage leaks could include engine oil, fuel, water,

coolant, brake fluid, transmission fluid, power steering fluid, clutch or axle fluids or grease

- ☐ Check drive shaft for any visible damage (dents, missing hardware, cracks, twists, etc.)

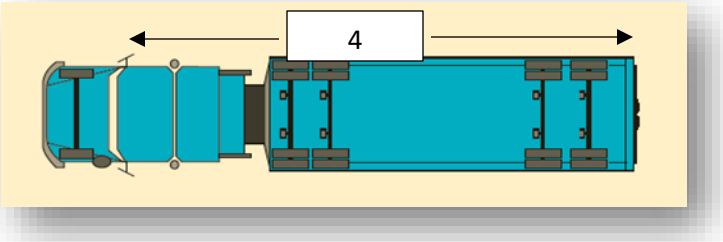
Rear of the Vehicle



The trainee will confirm that:

- ☐ Right and left turn signals work, lenses are clean and not cracked
- ☐ Hazard warning lights work, lenses are clean and not cracked
- ☐ Brake lights work, lenses are clean and not cracked (whenever possible, have another person activate the brakes while you check for proper operation)
- ☐ Clearance and marker lights work, lenses are clean and not cracked, reflectors and retro-reflective tape (if applicable) are clean
- ☐ 4-way emergency flashers are working
- ☐ Backing and docking lights work, lenses are clean and not cracked (whenever have another person activate the controls while you check for proper operation)
- ☐ Licence plate is clean, attached securely, the registration decal is valid, licence plate light is secure and works, and the lens is clean
- ☐ Doors or gates work, are closed and secure (if applicable)
- ☐ Mud flaps are secure, not torn, and do not drag or rub on the tires
- ☐ Exhaust System
  - ☐ Look carefully for loose exhaust pipes, tailpipes, or muffler(s)
  - ☐ The heat shield (if present) is secure
  - ☐ Look for visible exhaust and listen for excessive noise indicating a leak
  - ☐ Leaks should be reported immediately due to the danger of carbon monoxide poisoning from gas entering the truck

Passenger side



- ☐ The trainee will continue inspecting the passenger side of the unit using the same procedures as on the driver's side of the truck-tractor and semi-trailer

General Outside Appearance

- ☐ Visually inspect for damage and vandalism and report immediately to the appropriate supervisor. Serious damage or deterioration that is noticeable is a major defect
- ☐ Body has no damage, broken or missing rivets, holes or weld separations.
- ☐ Brake chambers are secure, no signs of cracks, corrosion or holes and nothing obstructs the push rod travel

Note: During the vehicle inspection, trainee will return to the driver's compartment as required to turn the lights on and off to check that they are working properly

Cargo Securement system

- ☐ Vehicle structure and other securement devices are not damaged or weakened
- ☐ Load security devices work, anchor points are secure, vehicle and load devices are not damaged (if applicable)

Trip Air brake inspection

The following information is a guide only. As in the trip inspection of the vehicle, the driver plays an important role in maintaining the air brake unit. A driver must be alert and know how the air brake system works. Any brake problems must be reported so the necessary repairs can be done.

Step 1:

- Chock the wheels with the vehicle on level ground
- Perform a visual inspection of the air brake components

Step 2: (Tractor Protection System)

- Leave the engine off with the key in the 'run' position
- Push the trailer air supply valve (red button): park control valve (yellow button) should be pulled
- Disconnect both air lines to the trailer and return to the cab.
- Low air pressure warning should come on by 60 PSI (41kPa)
- Trailer air supply valve should "pop" out at 40 -60 PSI (276-414 kPa) or higher.

Apply and hold the foot or hand valve: no air should leak from the open trailer service (blue) line. **Step 3:** (Park Control Valve)

- Push the park control valve (yellow button)
- Pump the foot valve to reduce air pressure
- Park control valve (yellow button) should "pop" out by 20-45 PSI (138-310 kPa).
- Reconnect both air line to the trailer.

Step 4: (Supply Circuit)

- Start the engine and run at fast idle around 1200 RPM
- Perform compressor build-up test: 50 to 90 PSI (345 to 621) within 3 minutes
- Low air pressure warning light should go out by 60 PSI (414 kPa)
- Build air pressure to system maximum to confirm governor cut-out at 120-135 PSI (828-931kPA)
- Pump service brake to reduce air pressure until governor cuts in. Confirm cut-in is 20 – 25 PSI (138 – 172 kPa) less than cut-out pressure

Step 5: (Air System Leaks)

- Push park control valve and rebuild air pressure
- Turn off engine
- Apply and firmly hold full service brake application for 2 minutes
- Maximum 4 PSI (28 kPa) loss for power unit, plus an additional 2 PSI (14kPa) per trailer, after the system stabilizes., after the system stabilizes
- Release service brake application and reapply spring park brakes

Step 6: (Service Brake Response)

- Remove wheel chocks
- Release spring park brakes
- Perform a brake response test using the foot valve
- Perform a brake response test using the trailer hand valve

Vehicle Documents

- ☐ Ensure all paperwork is in the truck: vehicle registration, operating authority, insurance certificate, daily trip inspection checklist, safety fitness certificates, log books, and the Commercial Vehicle Inspection Permit (VIP)

En route Inspection

Before performing the en route inspection, keep the following in mind:

- ☐ Make sure the vehicle is completely off the road.
- ☐ You should be able to enter and exit a rest or check stop so that you do not have to back the vehicle.
- ☐ Do not make a stop at the bottom of a hill or on an uphill slope.
- ☐ The stop area should have an adequate acceleration lane to allow you to merge on to the highway at the appropriate speed.

A vehicle en route inspection at a rest and check stop should include the following:

- ☐ All lights are clean and in working order.
- ☐ There are no air leaks.

- ☐ All the wheels are secure, and tires are properly inflated and are not hot.
- ☐ There are no broken or loose items on the vehicle.
- ☐ The load/cargo is secure.
- ☐ Coupling devices are secure
- ☐ The dangerous goods placards are clean and secure (if applicable).
- ☐ The trailer locking mechanisms are secure and in good condition.
- ☐ The brakes are properly adjusted.

Post-trip inspection must include the following:

- ☐ Fuel the truck if the level is below ½ a tank
- ☐ Return to the yard and park your vehicle
  - ☐ Park your vehicle and allow the engine to cool down on low idle
  - ☐ Shut down engine, turn off master switch
  - ☐ Secure your tractor-trailer
  - ☐ Turn all lights (exterior and interior lights) and switches off (fans, AC and heaters)
- ☐ Complete a circle check of the truck exterior for:
  - ☐ Body condition (no new damage)
  - ☐ Lights that have been left on, check that all exterior lights are functioning properly
  - ☐ Suspension
  - ☐ Tire pressure
  - ☐ Mud flap (secure)
  - ☐ Fuel cap (secure)
  - ☐ New leaks
  - ☐ Check condition of wheels and tires and tire pressure
- ☐ Interior
  - ☐ Floor (clean, nothing left behind)
  - ☐ Seats (no new damage)
  - ☐ Close windows
  - ☐ Set seat belts back in order
- ☐ Complete Log book

Note: Ensure trailer brakes cool before activing the park or spring brakes to prevent snow from melting to water and re-freezing between the brake shoe and drum

NOTES:

MODULE 8 - HOURS OF SERVICE COMPLIANCE

Purpose

The purpose of this module is to explain federal and provincial legislations that regulate commercial drivers' hours of work and how to properly record and maintain a daily log of driver activities. It should take 3 hours, 30 minutes to cover the materials in this module.

General Learning Outcomes

At the end of this module, trainees should:

- Have a good understanding of the federal and provincial legislations for Hours of Service requirements.
- Be knowledgeable in how to record and maintain a log of their hours of driving.
- Understand driver and employer responsibilities regarding Hours of Service Regulations.

Habits of Minds

Trainees will**:**

- Recognize the importance of rest in collision avoidance.
- Recognize the importance of keeping daily log of on-duty activities.

Knowledge and Understanding

Trainees will:

- Know the legislative hours of service for both provincially-operating and federal operating drivers.
- Know the information required in a log book.
- Know the exemptions to hour of service laws.
- Know the consequences of violating the hours of service regulation and tampering with a log book.

Skills and Processes

Trainees will be able to:

- Complete a log book using the four-duty statuses:
  - Driving time
  - On duty, other than driving time
  - Off Duty, other than time spent in the sleeper berth
  - Off Duty time spent in a sleeper berth

Learning Environment (hours)							
Classroom			**In-yard**		**In-cab**		**Total**
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
3		**0.5**					**3.5**

Legislation

Hours of service are regulated to help reduce collisions caused by driving while fatigued. Drivers are required to complete and carry a log or time record to verify that the hours they worked comply with regulations. Drivers are required to maintain a complete, legible and accurate log book in electronic or written format. The log book must have the capability for drivers to record activities that occur 24 hours day, 7 days of the week. It is also the driver's obligation to understand and follow the hours of service legislation.

Both the federal and provincial governments oversee this legislation and associated regulations. Alberta legislation applies to carriers and their drivers who operate vehicles solely within Alberta. The federal legislation applies to carriers and their drivers who operate one or more vehicles outside of Alberta. Once it has been determined that a carrier falls within the federal legislation, all the drivers of the carrier's regulated vehicles must comply to federal requirements, even those that never leave Alberta.

The sections below outline the main regulatory requirements. For more information on:

Alberta legislation, refer to *Driver's Hours of Service Regulation* AR 317/2002: http://www.transportation.alberta.ca/525.htm

Federal legislation, refer to *Commercial Vehicle Drivers Hours of Service Regulation* (SOR/2005-313): http://laws-lois.justice.gc.ca/eng/regulations/SOR-2005-313/

Provincial Legislation

Hours of Service Compliance – Provincial Hours of Service

The Provincial hours of service regulations define the maximum driving hours and minimum off-duty requirements for driver commercial vehicles in Alberta. These requirements have been outlined to prevent fatigue related incidents. It is important that carriers and drivers understand and abide by the provincial driver's hours of service laws.

Application

The law is applicable to:

- Carriers with a Provincial Operating Status (intra-provincial Operation).

Note: Carriers operating all regulated vehicle only in Alberta are referred to as provincially regulated carriers.

  - A bus (a commercial vehicle designed to carry 11 or more people including the driver) s. 130(1)(a) *Traffic Safety Act*
  - A vehicle registered for a weight of 11,794 kilograms or more Section 2(1)(b) of the (*Driver's Hours of Service Regulation* AR317/2002).
- Does not apply to:
  - Passenger vehicles (e.g., cars) weighing less than 11,794 kilograms;

    - Commercial vehicles with a total registered gross vehicle weight (including trailers) of less than 11,794 kilograms;
- "Emergency vehicles" as defined in Section 1(m) of the *Traffic Safety Act;*
- Commercial vehicles transporting goods or passengers for the purpose of:
    - Providing relief in the case of a natural disaster or a disaster caused by human intervention;
- Commercial vehicles that are used primarily to transport an agricultural
- Product where the driver of the vehicle:
    - Is a bona fide farmer who owns or produced that agricultural product, or
    - Is an employee of that farmer;
- Two or three-axle vehicles transporting primary products of a forest, lake or river, and the driver (carrier) is the producer of the products. This includes tree farms and fish farms;
- Recreational vehicles;
- Urban transit buses;
- Commercial vehicles with a mounted mobile service rig, or equipment used in the operation/transportation of a mobile service rig;
- Commercial vehicles that are exempted by the Registrar.

The Four Duty Status

- Driving time
- On duty, other than driving time
- Off Duty, other than time spent in the sleeper berth
- Off Duty time spent in a sleeper berth

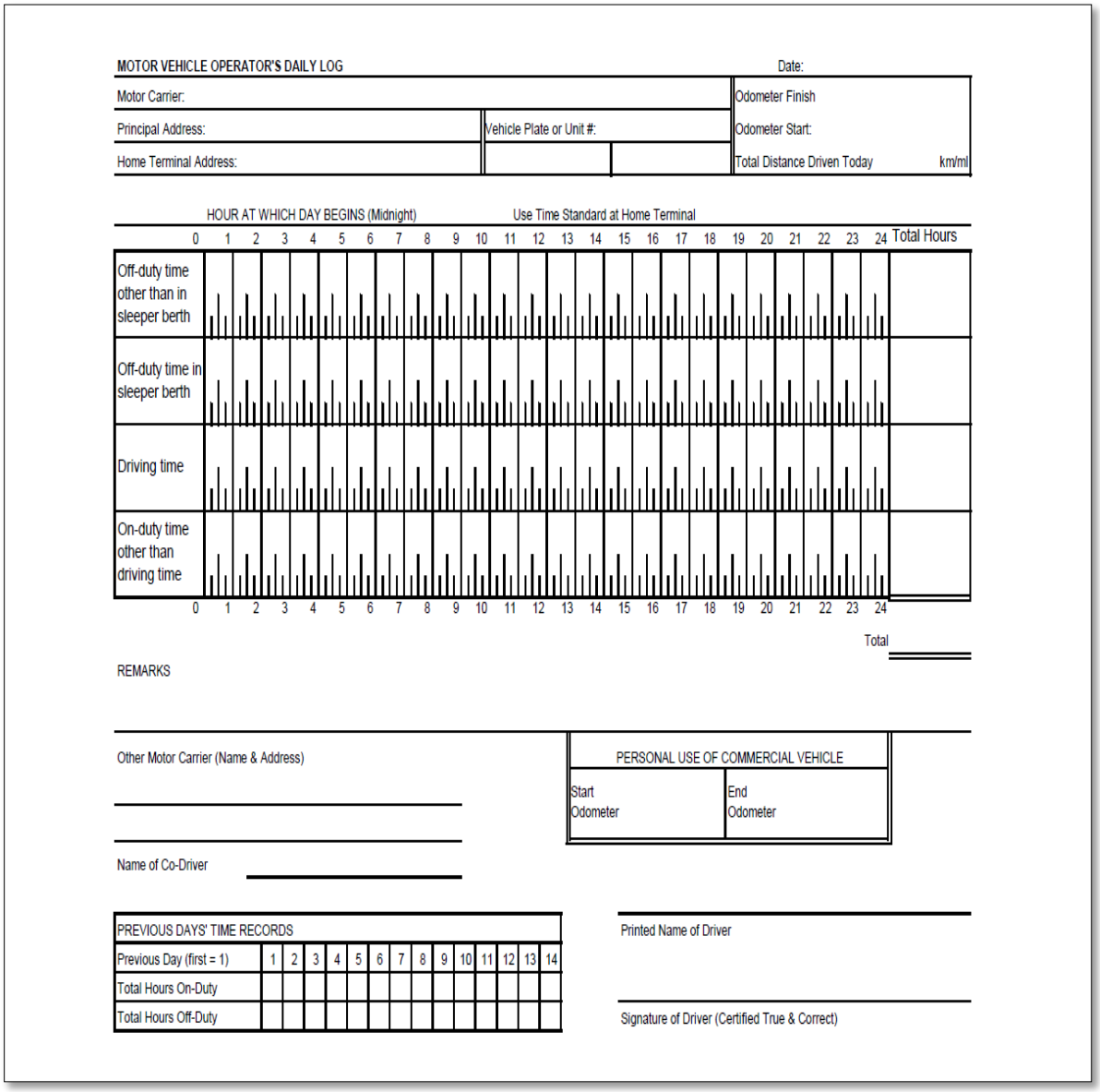
Daily Log

A driver must account for every day by completing a daily log (or time record) for each calendar day, or indicating in the remarks section of the daily log that the driver was off-duty on the indicated dates. The driver's employer must ensure the driver follows the regulations; and maintain the daily logs, in an orderly manner, for each driver for six months.
Daily logs must be completed as follows:

- Enter required information accurately and legibly.
- Maintain the daily log current to the last change of duty status, such as off-duty time and driving time.
- Keep copies of documents received during the trip, such as hotel receipts and fuel receipts.
- Deliver the daily log, and all supporting documents, to the employer within 20 days.
- Keep a copy of each daily log and supporting documents for at least six months.

Daily Logs Information

Sample of a Motor Vehicle Operator's Daily Log



MOTOR VEHICLE OPERATOR'S DAILY LOG

Date:

Motor Carrier:		Odometer Finish
Principal Address:	Vehicle Plate or Unit #:	Odometer Start:
Home Terminal Address:		Total Distance Driven Today km/mi

HOUR AT WHICH DAY BEGINS (Midnight) Use Time Standard at Home Terminal

	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Total Hours
Off-duty time other than in sleeper berth		
Off-duty time in sleeper berth		
Driving time		
On-duty time other than driving time		
	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Total

REMARKS

Other Motor Carrier (Name & Address)

PERSONAL USE OF COMMERCIAL VEHICLE

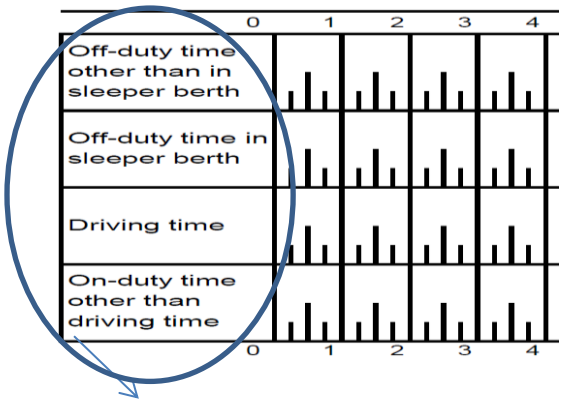
Start Odometer	End Odometer

Name of Co-Driver

PREVIOUS DAYS' TIME RECORDS														
Previous Day (first = 1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Total Hours On-Duty														
Total Hours Off-Duty														

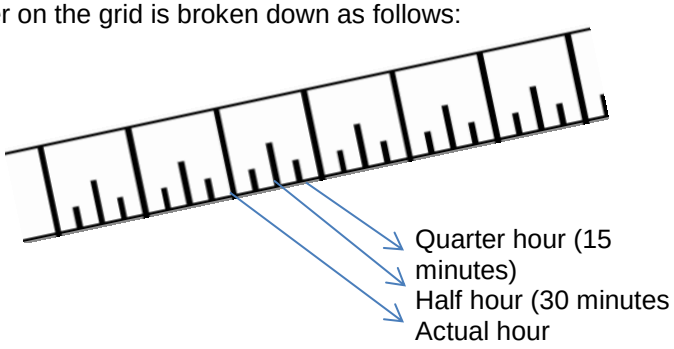
Printed Name of Driver

Signature of Driver (Certified True & Correct)



These are the four types of duty status. Each duty status is demarcated into rows by horizontal lines. Time spent in each of the duty is recorded on each horizontal row

Driver duty statuses are recorded on the grid. This is completed using a pen and ruler or a straight edge. Time marker on the grid is broken down as follows:



Time is recorded by drawing a horizontal line that corresponds to the actual time up to the nearest Half-hour (30 minutes) or quarter-hour (15 minutes)

Completing a daily log

Start of the day:

- The odometer reading at the commencement of driving.
- The vehicle's unit or licence plate number.
- The name of the carrier for whom the driver worked during the work day.
- The name of the driver.
- The name of any co-driver.
- The time of commencement of the work shift and the location at which the driver commenced the work shift.
- The address of the principal place of business and of the home terminal of each carrier for whom the driver is employed or otherwise engaged during the work day.

During the Day:

- Completed on a graph grid.
- At each change in duty status.
    - Draw a continuous line between the appropriate time markers to record the period of time off duty, time spent in a sleeper berth, driving time and time on duty other than driving time.
    - Under "Remarks", record (a) the name of the city, town or village or the highway location and the name of the province or state where each change of duty occurs, and (b) the name of each city, town or village or highway location and the name of each province or state where fuel was obtained and the number of litres or gallons of fuel.

End of the day:

- The total number of kilometers or miles driven by the driver during the work day.
- In the case where a vehicle is being operated by co-drivers, the total number of hours that the vehicle has travelled during a work day.
- Record the total number of hours of time off duty, time spent in a sleeper berth, driving time and time on duty other than driving time.
- Sign the log

Automatic On-Board Recording Device

- According the *Drivers' Hours of Service Regulation, "automatic on-board recording device" means any electric, electronic or electro-mechanical device that accurately and automatically does at least the following:*
    - *(i) records*

        (A) the driving time and the time on duty of drivers for each day that the device is in operation,

        (B) the remaining driving time and on duty time that a driver may use, and

        (C) the sequential changes in duty status and the time those changes occurred;

    (ii) indicates and records the time at which the device is disconnected;

    (iii) records the times that the vehicle is in motion;

    (iv) displays or prints out, at the request of the driver, at least the information referred to in subclause (i);
- Information contained in the device must be the same information that a driver would record on daily log in paper format.
- It must automatically record when it is disconnected and keep a date and time record of those occurrences.
- It must automatically record when vehicle is in motion.
- Driver must keep a written or printed record of the information collected by the electronic log.
- Driver must sign each hard copy.
- If it is malfunctioning or not operating properly, driver shall maintain a regular log.

Radius Record Partial Exemption

The daily log is not required to be completed if ALL of the following four conditions below are met (however, all other regulated requirements must still be met):

- The driver does not operate outside of a 160 km radius from the home terminal.
- The driver starts and ends the work shift at the same place.
- The driver returns to the home terminal and does not exceed 15 hours elapsed in the work shift.
- The motor carrier maintains time records showing the start and end of the driver's work shift for 6 months.

If one or more of those conditions cease to exist, the driver shall:

- Commence keeping a daily log.
- Record in the daily log the total number of hours on duty accumulated by the driver during the 7 days immediately preceding the day on which that condition ceased to exist.

Home terminal means the place of business of a motor carrier where a driver usually reports for work. This includes a temporary work site designated by the motor carrier. Refer to page 13 of this link for more information
http://www.transportation.alberta.ca/Content/docType276/Production/Module8.pdf

The following is an example of a radius record

Carrier Name and Address:

DRIVER'S TIME RECORD

Day of Month	On-Duty Time		Description	Unit #
	Start	End	i.e. Field Trip, Service Trip, Training, Teaching, etc.	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Driver's Name (Print): _____ Month: Year:

Driver's Signature: _____

Note: All calendar days must be accounted for. If you had no on-duty time for the period covered by this time record, please write "OFF" over the above dates and submit this time record as specified below.

THIS TIME RECORD MUST BE SUBMITTED TO THE TRANSPORTATION DEPARTMENT IMMEDIATELY FOLLOWING THE 1ST OF THIS MONTH

On-Duty Time

This is the period when that begins when a driver is begins work or when a driver is required by the employer/carrier to be available at work. This period ends when the driver stops work.

The on-duty hours (consisting of "driving" and "on-duty not driving" time) allowed for a driver are regulated in work shifts that start after having a period of eight consecutive hours off-duty and end when the driver has another period of eight consecutive hours off-duty. Some situations are

considered equivalent to this eight hour off-duty requirement. On-duty time activities (driving" and "on-duty not driving" time) include time spent:

- Checking in or preparing reports at the start or end of a work shift;
- Inspecting, servicing, repairing, conditioning or starting a commercial vehicle;
- Driving a vehicle;
- In the case of a vehicle that is being operated by co-drivers, travelling as one of the drivers, except the time that the driver spends resting en route in a sleeper berth;
- Participating in the loading or unloading of a commercial vehicle;
- Inspecting or checking the load of a commercial vehicle;
- Waiting, at the request of the carrier by whom the driver is employed or otherwise engaged, for a vehicle to be serviced, loaded or unloaded;
- Waiting for a vehicle or load to be checked at customs, at a vehicle inspection station or by a peace officer;
- At the request of the carrier by whom the driver is employed or otherwise engaged, travelling as a passenger to a work assignment when the driver has not been off-duty for at least eight consecutive hours immediately prior to departure;
- Waiting at a point en-route due to an accident involving the vehicle that the driver is operating or other unplanned event; and
- Performing any work for the carrier.

Work Shift Limit

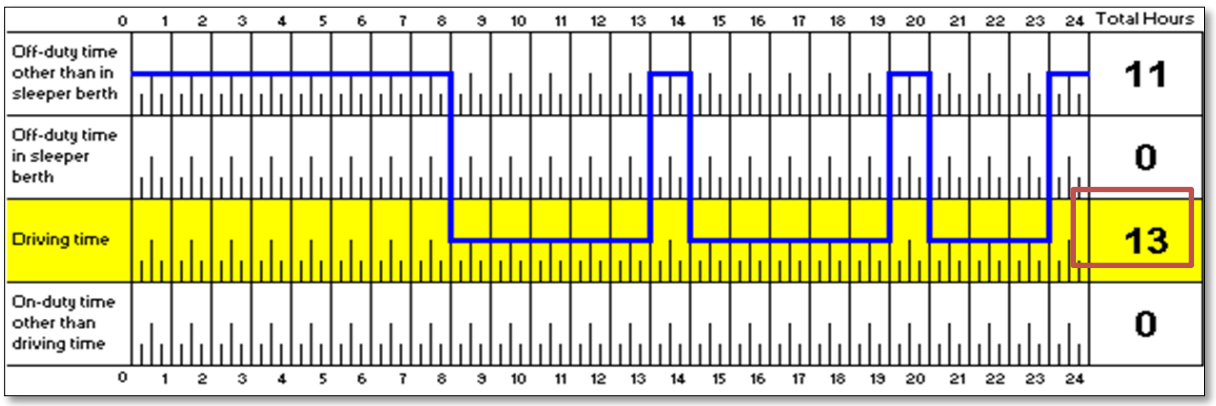
- Work shift is the period of time between 2 periods of 8 consecutive hours off-duty
- Work shift begins when the driver starts work or is required to be available for work (goes on duty)
- Work shift ends when driver is relieved of all responsibility by the motor carrier
- To start or a new work shift, a driver must take a minimum of eight consecutive hours of off duty time
- Can be straight off duty or sleeper berth, or combined as long as it is eight hours long and consecutive

Section 5(2) Subject to subsections (3) and (4) of the provincial regulation, a driver shall not commence a work shift unless the driver has been off duty for at least eight consecutive hours immediately prior to commencing the work shift.

Work shift

- No driving after 13 hours driving in a work shift

For example:

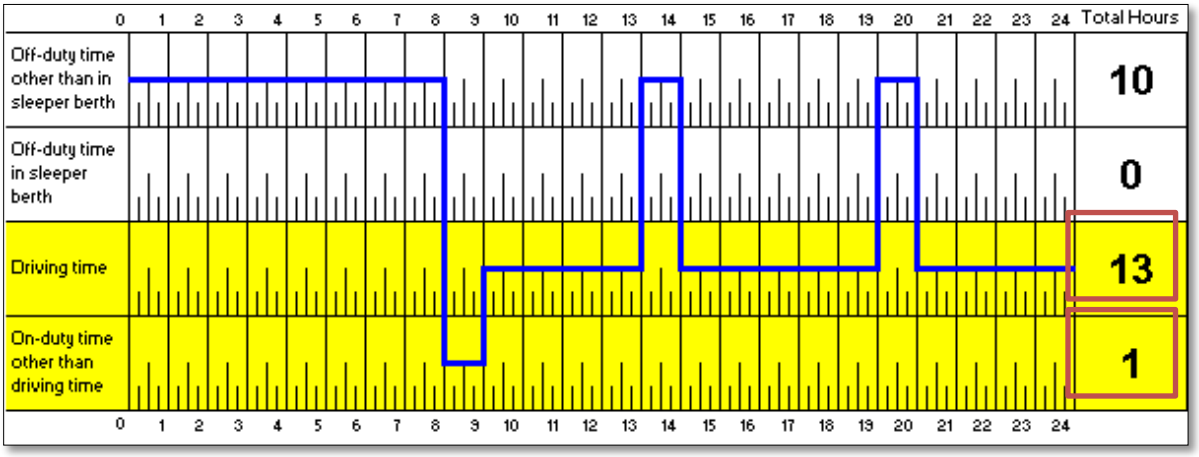


Driving Time
8:00 – 13:00 5 hours
14:00 – 19:00 5 hours
20:00 – 23:00 3 hours
Total 13 hours

Total Driving Time ≤ 13 hours

- No Driving after 15 hours on duty in a work shift

For example:



On-Duty Time

8:00 – 13:00	5 hours
14:00 – 19:00	5 hours
20:00 – 24:00	4 hours
Total	**14 hours**

Total On-Duty Time ≤ 15 hours

Time Breaks

According to Section 7(1) of the *Drivers' Hours of Service Regulation, a driver may continuously drive a vehicle*

> *(a) for a period of time of up to 4 consecutive hours if at the conclusion of driving for that period of time the driver takes at least 10 consecutive minutes off duty or of non-driving time, or*
>
> *(b) for a period of time that exceeds that permitted under clause (a) but does not exceed 6 consecutive hours if at the conclusion of driving for that period of time the driver takes at least 30 consecutive minutes off duty or of non-driving time.*

4 hours

As long as the driver takes at least 10 minutes of non-driving time at the end of that period

OR

6 hours

As long as the driver takes at least 30 minutes of non-driving time at the end of that period

Off-Duty Time

"Off-duty" is considered any time where the vehicle is at a stop, and for the duration of the stop, the driver is at liberty to pursue activities of their choosing and leave the premises where the

truck is situated. The driver may operate the vehicle for personal use, up to 75 kilometres in a day when:

- There are no passengers
- No trailer is being towed
- No work of any sort is being done for the carrier
- The starting and ending odometer readings are recorded in the driver's daily log

Deferral of Off Duty Time

- According to Section 5(4) of the *Drivers' Hours of Service Regulation* Subject to subsections (5) and (6), where the last work shift of a driver did not exceed 15 hours, the number of hours that the driver is off duty before the driver commences the driver's next work shift may be reduced to not less than 4 hours if the total consecutive hours that the driver will be off duty immediately following that next work shift will not be less than 8 hours plus the number of hours by which the driver's time off duty had been reduced before the driver had commenced that next work shift.

- According to Section 5(5), of the *Drivers' Hours of Service Regulation*a driver's time off duty may only be reduced under subsection (4) once in any period of 7 consecutive days.

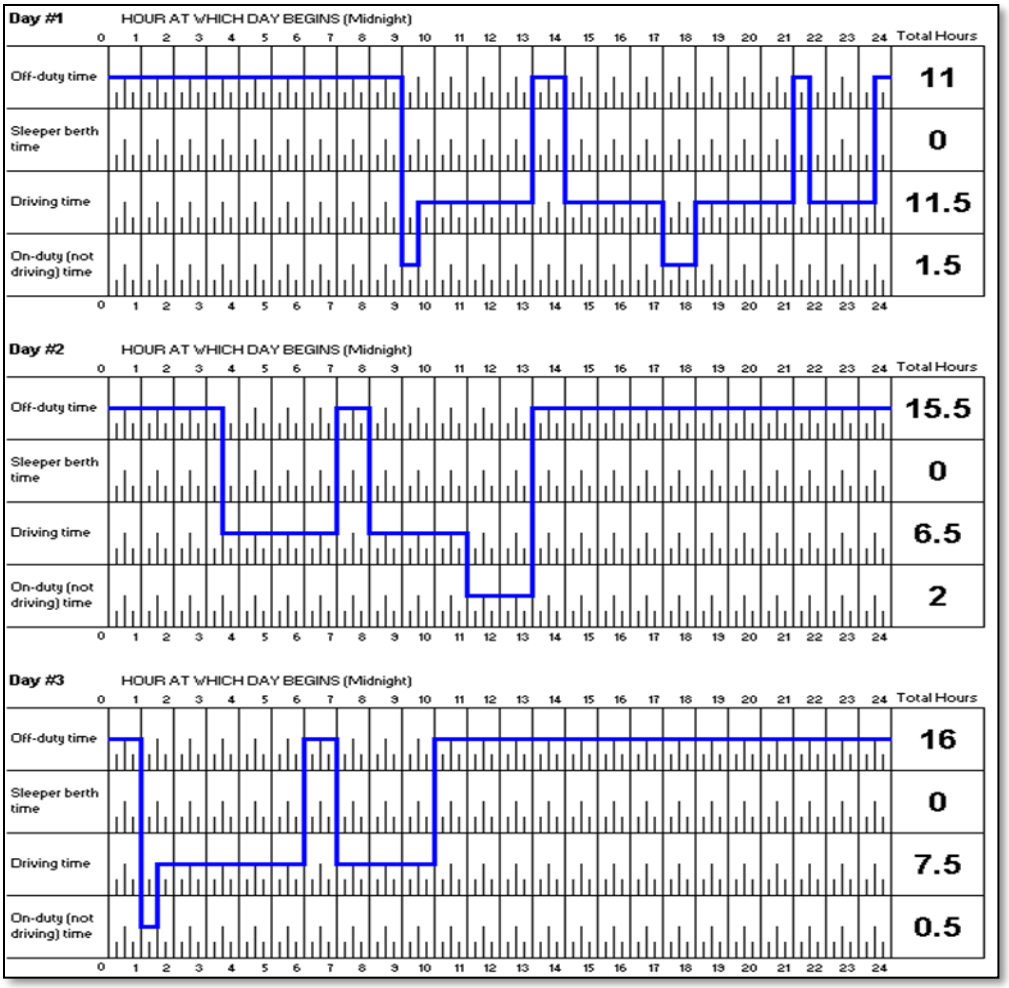
- According to Section 5(6) *Drivers' Hours of Service Regulation*, *if the Registrar is of the opinion that a reduction under subsection (4) of the number of hours that a driver is off duty will jeopardize or is likely to jeopardize the safety or health of the driver, the Registrar may*

  (a) direct that off duty time not be reduced under subsection (4), or

  (b) specify the minimum number of hours that the driver must be off duty before the driver commences the driver's next work shift.

- A driver may reduce the eight hours required to end a work shift provided:
  - They have not already done so in the past seven days.
  - The previous work shift does not exceed 15 hours of elapsed time.
  - The off duty period is not less than four hours long.
  - The time deferred is added to the next eight consecutive hours of off duty time (e.g. If a driver only takes six hours to end their work shift, they must take 10 consecutive hours off duty [8+2] to end their next work shift).
  - The deferral does not affect the health or safety of the driver.

Example



Considering the above example:

- The driver is not in violation, because he/she took 4 hours off from 2330hrs on day 1 to 0330hrs on day 2, then take 12 hours off to end their work shift (8+4)
- The previous work shift does not exceed 15 hours, and, as far as we can tell, they have not deferred in the previous 7 days

- A driver does not have to indicate in their logbook whether or not they are deferring hours, however it is good practice to do so.
- Be prepared to explain to an inspector that they are deferring hours.

Splitting Sleeper Berth Time

According to Section 5(3) of the *Drivers' Hours of Service Regulation*, *where a driver is driving a vehicle that is equipped with a sleeper berth, the driver may take the time off duty referred to in subsections (1) or (2) in 2 periods of rest if*

(a) neither of the 2 periods of rest is less than 2 hours,
(b) the aggregate of the time spent resting in the sleeper berth immediately preceding and immediately following the time on duty is at least 8 hours in total, and
(c) the aggregate of the driving time immediately preceding and immediately following the resting time in the sleeper berth does not exceed 13 hours in total.

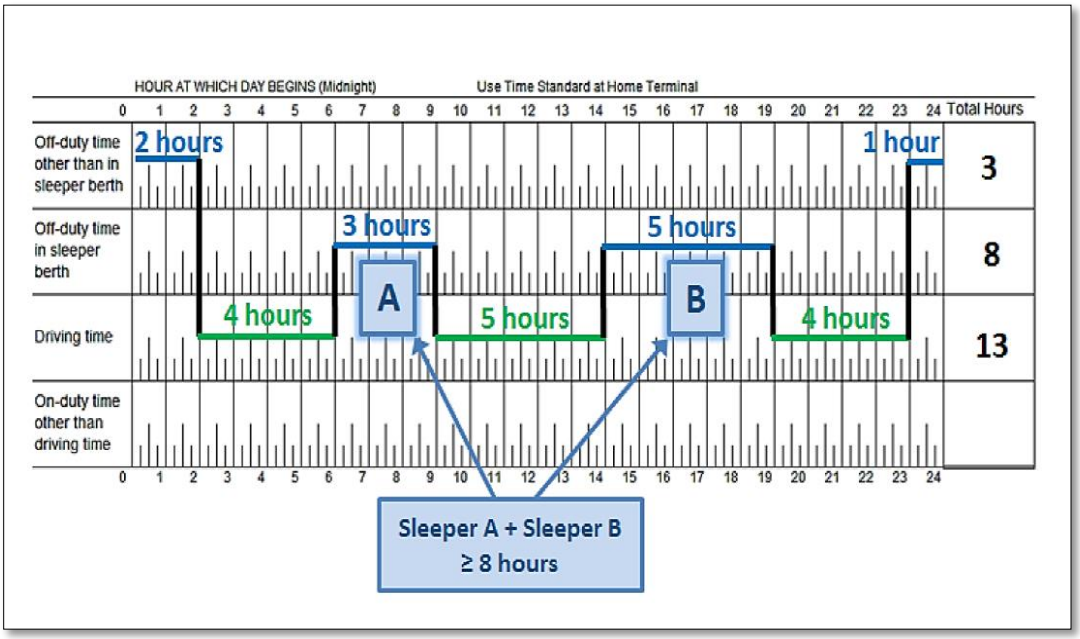
- If the vehicle is equipped with a sleeper berth, driver may rest in the sleeper berth
- 2 sleeper berth periods ≥2 hours
- The combined sleeper berth period to make ≥8 hours
    - Ex. 2+6, 3+5, 4+4…
- Driving time before and after each sleeper berth period be ≥13 hours
- 15-hour rule not a requirement to split sleeper, but driver can still be in violation if they drive after 15 hours on duty time in a work shift.

According to Section 1(k) of the Drivers' Hours of Service Regulation "sleeper berth" means a facility that

- (i) is located in or on a vehicle, and
- (ii) is designed and maintained for the purposes of providing sleeping accommodation for persons operating the vehicle

- Cannot be "made" in passenger, driver, or back seat areas
- Sleeper berths must meet the requirements found in the federal Commercial Vehicle Drivers Hours of Service Regulations (SOR/2005-313)

Example of an acceptable use of a sleeper berth



Summary of the above example:

- Stop driving after 13 hours driving time in a work shift;
- Stop driving after 15 hours on-duty time in a work shift;
- Each sleeper berth period is at least 2 hours;
- The total time spent in the 2 sleeper berth periods is at least eight hours;
- The total driving time immediately before and after each rest period does not exceed 13 hours
- The driver took appropriate time breaks:
  - Time Breaks (after 4 hours of driving) = 3 hours of off duty time ≥ 10 minutes
  - Time Breaks (after 5 hours of driving) = 5 hours of off duty time ≥ 10 minutes
  - Time Breaks (after 4 hours of driving) = 1 hour of off duty time ≥ 10 minutes

A. Adverse Driving Conditions

Section 6(3), *Drivers' Hours of Service Regulation*, *a driver may, in the case of unexpected adverse driving conditions, exceed by not more than 2 additional hours the number of hours that the driver is permitted to drive under this Regulation if the trip as originally planned could have been completed within the driving time or the time on duty specified by subsection (2).*

The driving, on-duty and elapsed time is not extended more than 2 hours. A driver may increase their driving and on duty limits by up to 2 hours provided the trip could have been completed as originally planned:

- The driver still takes the required 8 consecutive hours of off-duty time.
- The trip could have been completed under normal driving conditions without the extension.
  - Heavy snow, sleet, fog, smoke, adverse weather or other road hazards that were not known immediately before the driver began driving from the last place of rest.
- Does not include delays from border crossings, inspections, breakdowns.

Adverse Conditions may include:

- Snow, sleet, fog or smoke in amount that obscure a person's vision to extent that the person cannot safely drive.
- A highway covered with snow or ice.
- Physical circumstances, other than snow or ice, that make the highway or driving unsafe.

B. Emergency

Section 6(4), of the *Drivers' Hours of Service Regulation*, *Where the safety of an occupant of a vehicle, the goods being transported by a vehicle or a vehicle itself is in jeopardy, the driver of the vehicle may exceed the number of hours that the driver is permitted to drive under this Regulation in order to reach a place of safety for the person, goods or vehicle, as the case may be.*

Some examples of the cases may include but are not limited to:

- Sudden, urgent, unexpected situation that requires immediate action.
- Safety or security of people, goods, or vehicle is at risk or likely to be in jeopardy.
- Does not include shipper's demands, driver's desire to get home, loading/unloading delays or shortage of drivers.
- Limits do not apply in an emergency.
- Driver may drive to the first available safe location to remove people/load/vehicle from the situation.

Production of Logs and Supporting Documents

- Driver must produce daily logs for the current day and the previous 2 days.
- Driver must produce any supporting documents or relevant records for the current trip (receipts, bill of lading, inspection reports, etc.).

Distribution and Keeping of Daily Logs

- According to Section 15(1), of the *Drivers' Hours of Service Regulation*, *Where a driver is employed or otherwise engaged by more than one carrier in a calendar day, the driver shall forward a copy of the daily log for that day to each carrier by whom the driver was employed or otherwise engaged.*
- *According to 15(2), of the Drivers' Hours of Service Regulation*, *A driver shall, within 20 days from the day that a daily log is completed, forward the original of the daily log to the home terminal of the driver or to the principal place of business of the carrier by whom the driver was employed or otherwise engaged*

Retention of Records by Carrier

- According to Section 16(1), *Drivers' Hours of Service Regulation, a carrier shall retain at its principal place of business*
    - *(a) every copy of the daily log that is forwarded to the carrier pursuant to section 15(1), and (b) every daily record referred to in section 15(2),*

  (2) A carrier

    - *(a) shall retain the daily records and daily logs referred to in subsection (1) in a neat and orderly manner, and*

- *(b) shall, on request by a peace officer, produce forthwith to the peace officer the daily records and logs for inspection.*

(3) A carrier shall, within 30 days after it has received the original copy of a daily log pursuant to section 15, place the original copy of the daily log at the location where the carrier retains the records relating to its drivers or at such other location as may be approved in writing by the Registrar.

- Section17(1) of the *Drivers' Hours of Service Regulation*, *A driver shall retain a duplicate of all of the daily logs maintained by the driver for a period of at least 6 months from the date that the information is recorded in the daily log.*

  (2) A driver

  (a) shall retain the duplicate of the daily logs referred to in subsection (1) in a neat and orderly manner at the residence of the driver, and
  (b) shall, within 7 days from the day that a peace officer makes a request for the duplicate of the daily logs, produce the duplicate of the daily logs to the peace officer for inspection.

- A driver is required to submit each completed log to the carrier within 20 days of being produced. The carrier must, within 30 days of receiving the original copy of a daily log, retain that document at their principal place of business. All original log book records must be retained by the carrier for a period of at least 6 months from the date each log was created. Carriers must also keep supporting documents such as fuel and lodging receipts for the same period.
- If a driver is following provincial hours of service laws they must also keep a personal copy of their hours of service records.
- Information about log book records is available online in our education manual or at: www.transportation.alberta.ca/675.htm.

Violations

- When a driver exceeds driving time limit as identified in this module.
- When a driver fails to meet off-duty time requirement (*e.g., complete 8 consecutive hours off duty).*
- When a driver is unable or refuses to produce his/her log book (if not under radius exemption).
  - Driver may be prevented from driving until the required documentations have been presented.
- When there are evidences that the driver has tampered with the logbook.

Inspections

- According to Section 18 of the *Drivers' Hours of Service Regulation*, *A peace officer may enter any facility or vehicle for the purpose of determining whether a carrier and a driver have complied with this Regulation*.

Tampering with Daily Logs

- No driver shall:
  - Keep more than one daily log;
  - Record inaccurate information on a daily log; or
  - Falsify, mutilate, or deface a daily log or supporting documents.

Disciplinary Action and Enforcement

According to Section 8(1) of the *Drivers' Hours of Service Regulation*, *A peace officer may prohibit a driver from driving a vehicle where the peace officer determines that the driver*

> *(a) has not had the time off duty as required under this Regulation,*
>
> *(b) has been driving for a longer period of time than that permitted under this Regulation, or*
>
> *(c) has been driving when prohibited from doing so under this Regulation.*

If a driver has been prohibited from driving, they will not be permitted to drive a vehicle until the driver:

- Has had the time off duty as required under the regulation; and
- Has met all on-duty and time break requirements under the regulation.

Hours of service violations are included in the carrier's Profile. An accumulation of these violations may result in the carrier being identified for further monitoring, penalties, or enforcement actions.

Click here for more information - http://www.transportation.alberta.ca/Content/docType276/Production/Module8.pdf

Federal Legislation

The federal drivers' hours of service regulations are more restrictive than the Alberta's regulations. Canada's *Commercial Vehicle Drivers Hours of Service Regulation* applies to carries and drivers who operate in multiple provinces, territories or states. It is important to realize that the federal regulation has daily, work shift and cumulative cycle limits that all must be met every day. The following is only a summary of the main regulatory requirements.

Definition of On- and Off-Duty

In the federal drivers' hours of service regulations, "on-duty time" means the period that begins when a driver begins work or is required by the motor carrier to be available to work. This period ends when the driver stops working. On-duty time includes driving time and time spent by the driver:

a) Inspecting, servicing, repairing, conditioning or starting a commercial vehicle;

b) Travelling in a commercial vehicle as a co-driver, when the time is not spent in the sleeper berth;
c) Participating in the loading or unloading of a commercial vehicle;
d) Inspecting or checking the load of a commercial vehicle;
e) Waiting for a commercial vehicle to be serviced, loaded, unloaded or dispatched;
f) Waiting for a commercial vehicle or its load to be inspected;
g) Waiting at an en-route point because of a collision or other unplanned occurrence or situation;
h) Resting in or occupying a commercial vehicle for any other purpose except;
    a. Time spent travelling as an off-duty passenger;
    b. Time spent in a sleeper berth;
    c. Time spent in a stationary commercial vehicle to satisfy off-duty time requirements
i) Performing any work for any motor carrier.

"Off-duty time" means any period other than on-duty time and includes "sleeper berth time." The requirements of these duty statuses as well as the "driving time" limitations will be discussed in greater detail in the sections to follow.

Sleeper Berth Periods

Off-duty periods can be split into shorter periods, as defined in sections 18 and 19 of the federal government's *Commercial Vehicle Drivers Hours of Service Regulations*.

A driver may split sleeper berth time instead of taking 8 consecutive hours off to end a work shift. A single driver may take 2 periods of sleeper berth time at least 2 hours long, combined to make at least 10 hours off. For example:

- 8 hours + 2 hours
- 5 hours + 5 hours
- 6 hours + 4 hours

A team of drivers may split their sleeper berth time into 2 periods lasting at least 4 hours long combined to make at least 8 hours off. For example:

- 4 hours + 4 hours
- 5 hours + 4 hours

The off-duty time must be spent resting in the sleeper berth and cannot be deferred to the next day. To switch back to a regular shift, the driver must take 8 consecutive hours off duty. This off-duty time can be a combination of sleeper berth period and off duty time.

Daily Limit

During a day (a consecutive 24-hour period determined by the carrier) a driver cannot drive:

- After having driven 13 hours; or
- After being on-duty for 14 hours

In each day a driver must take 10 hours of off-duty time, 8 of the hours off being consecutive. The other two hours must be taken in no less than 30-minute periods.

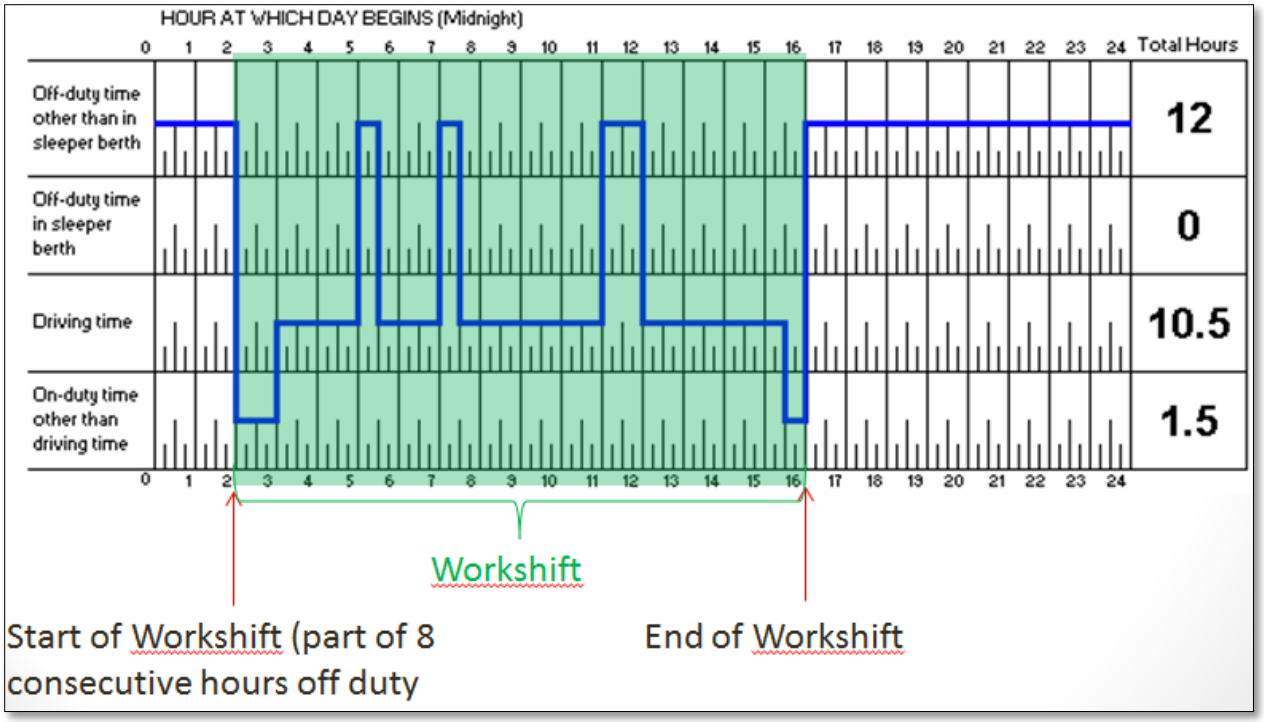
Some concessions apply.

Shift Limit

During a work shift (a work shift starts after the driver has 8 consecutive hours off), a driver cannot drive:

- After having driven 13 hours;
- After being on-duty for 14 hours;

After 16 hours of time has elapsed since the conclusion of their most recent 8 hours of consecutive off-duty time (counting the time elapsed from the start of the workshift to the end. For example, driving time and off duty time).



Cycle Limit

A carrier must ensure their drivers are following Cycle 1 or 2. The driver must then indicate which cycle they are operating under on their daily log. Depending on the cycle, the driver shall not drive after accumulating:

- Cycle 1 - 70 hours of on-duty time in 7 consecutive days; or
- Cycle 2 - 120 hours of on-duty time in 14 consecutive days.

Drivers using Cycle 2 are required to take at least 24 consecutive hours off prior to reaching their 70th hour of on duty time. Drivers have the option to switch cycles if they like. A driver operating on Cycle 1 may reset their accumulative hours back to zero by taking 36 consecutive hours off duty. A driver operating on Cycle 2 may reset their accumulative hours to zero by taking 72 consecutive hours off-duty. A driver cannot move from one cycle to the other without

taking a reset. No driver may drive unless they have taken at least 24 consecutive hours off in the preceding 14 days.

Mandatory 24 Hours Off-Duty

According to Section 25, a driver may not drive unless they have taken at least 24 consecutive hours of off-duty time in the preceding 14 days. This rule applies regardless of whether a driver follows Cycle 1 or 2.

A driver is only in violation of the mandatory 24 hours off duty if the driver is driving after reaching the 14-day limit. The driver may continue to work without having a 24-hour period of off-duty time in the preceding 14 days as long as that work does not involve driving an NSC regulated vehicle.

The driver below is on duty for 14 days, but does not reach the Cycle 1 or Cycle 2 limit. In this case the driver must take 24 consecutive hours of off-duty time before driving again.

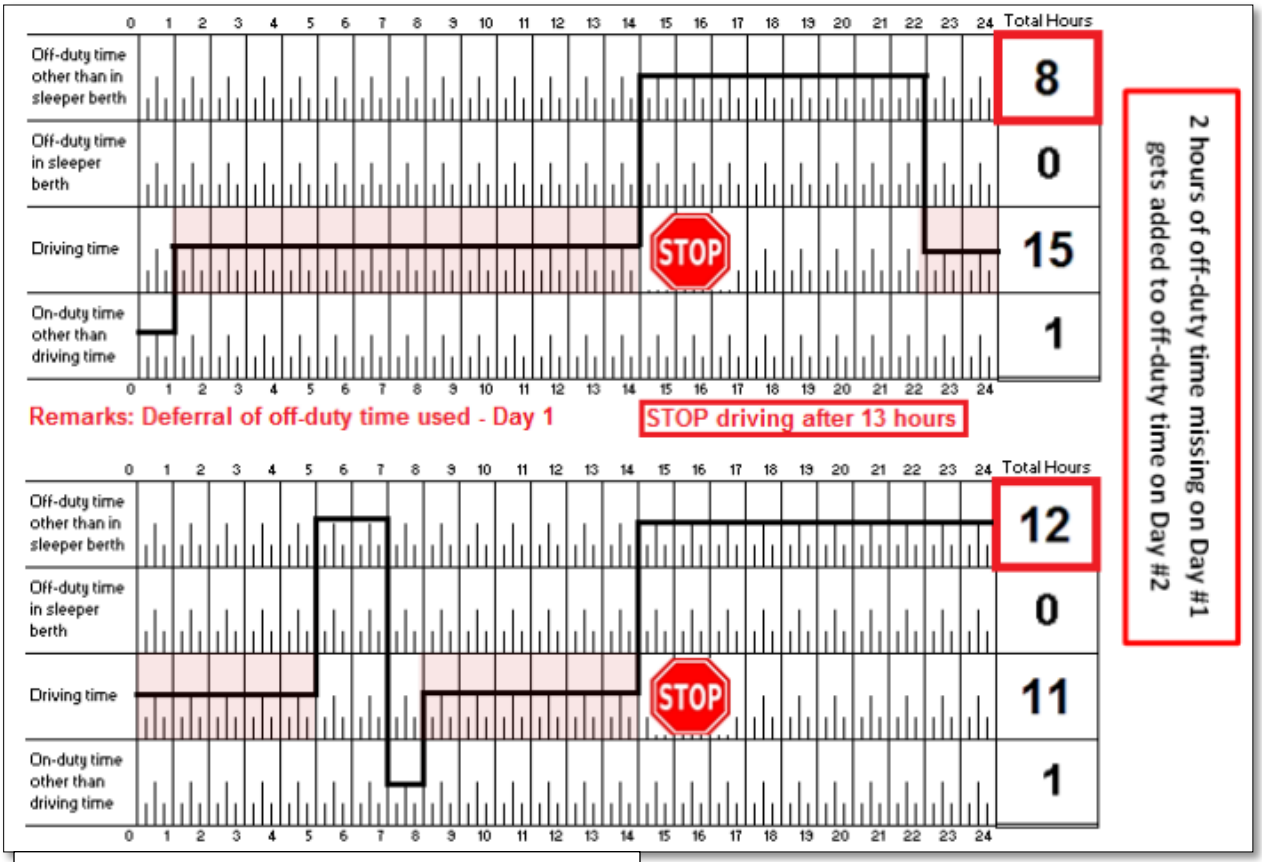
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Stop Driving 24 hours off-duty	On Duty	On Duty	On Duty	On Duty	On Duty	On Duty
On Duty	On Duty	On Duty	On Duty	On Duty	On Duty	On Duty
On Duty	Stop Driving 24 hours off-duty	On Duty	On Duty	On Duty	On Duty	On Duty

Off-Duty Time Deferrals

A driver may defer a maximum of 2 hours of the daily off-duty time to the following day if they are not splitting time-off duty time in accordance with section 18 or 19 of the federal government's *Commercial Vehicle Drivers Hours of Service Regulations* and if:

a. The off-duty time deferred is not part of the mandatory 8 consecutive hours of off-duty time;
b. Only the extra 2 hours required may be deferred
c. The total off-duty time taken in the 2 days is at least 20 hours;
d. The driver isn't splitting his/her off duty time (split sleeper)

e. The off-duty time deferred is added to the 8 consecutive hours of off-duty time taken in the second day;
f. The total driving time in the 2 days does not exceed 26 hours; and
g. There is a declaration in the "Remarks" section of the daily log that states that the driver is deferring off-duty time under this section and that clearly indicates whether the driver is driving under day one or day two of that time.
h. Even though a driver could drive up to 15 hours in a day, driver must still not drive after 13 hours of driving in a work shift



Emergencies and Adverse Conditions

Federal regulations take into consideration situations where adverse conditions may inhibit drivers from adhering to driving time limits.

A driver who encounters adverse driving conditions while operating the vehicle during a trip in any province may extend the permitted 13 hours of driving time specified in Sections 12 and 13 and reduce the 2 hours of daily off-duty time required by subsection 14(3) by the amount of time needed to complete the trip if:

a. The driving, on-duty and elapsed time in the elected cycle is not extended more than 2 hours;
b. The driver still takes the required 8 consecutive hours of off-duty time; and

c. The trip could have been completed under normal driving conditions without the reduction.
d. The adverse driving conditions were not known or could not have been reasonably known by a driver or carrier before the driver began driving.

Click here for more information on Federal *Hours of Service Regulations* - http://www.transportation.alberta.ca/Content/docType276/Production/Module7.pdf

Daily Logs

Similar to drivers who only operate within Alberta, federal regulations require drivers to fill out a daily log. Information to be included on daily logs includes:

- The date, the start time if different than midnight, the name of the driver and, if the driver is a member of a team of drivers, the names of the co-drivers, the cycle that the driver is following.
- The commercial vehicle licence plates or unit numbers (if switching units or trailers, new unit or plate numbers must be recorded on log).
- The odometer reading of each of the commercial vehicles operated by the driver at the start and end of the day.
- The names and the addresses of the home terminal and the principal place of business of every motor carrier by whom the driver was employed or otherwise engaged during that day.
- Notes for the “Remarks” section of the daily log that states that the driver is deferring off-duty time, and if it is day one or day two, if applicable.

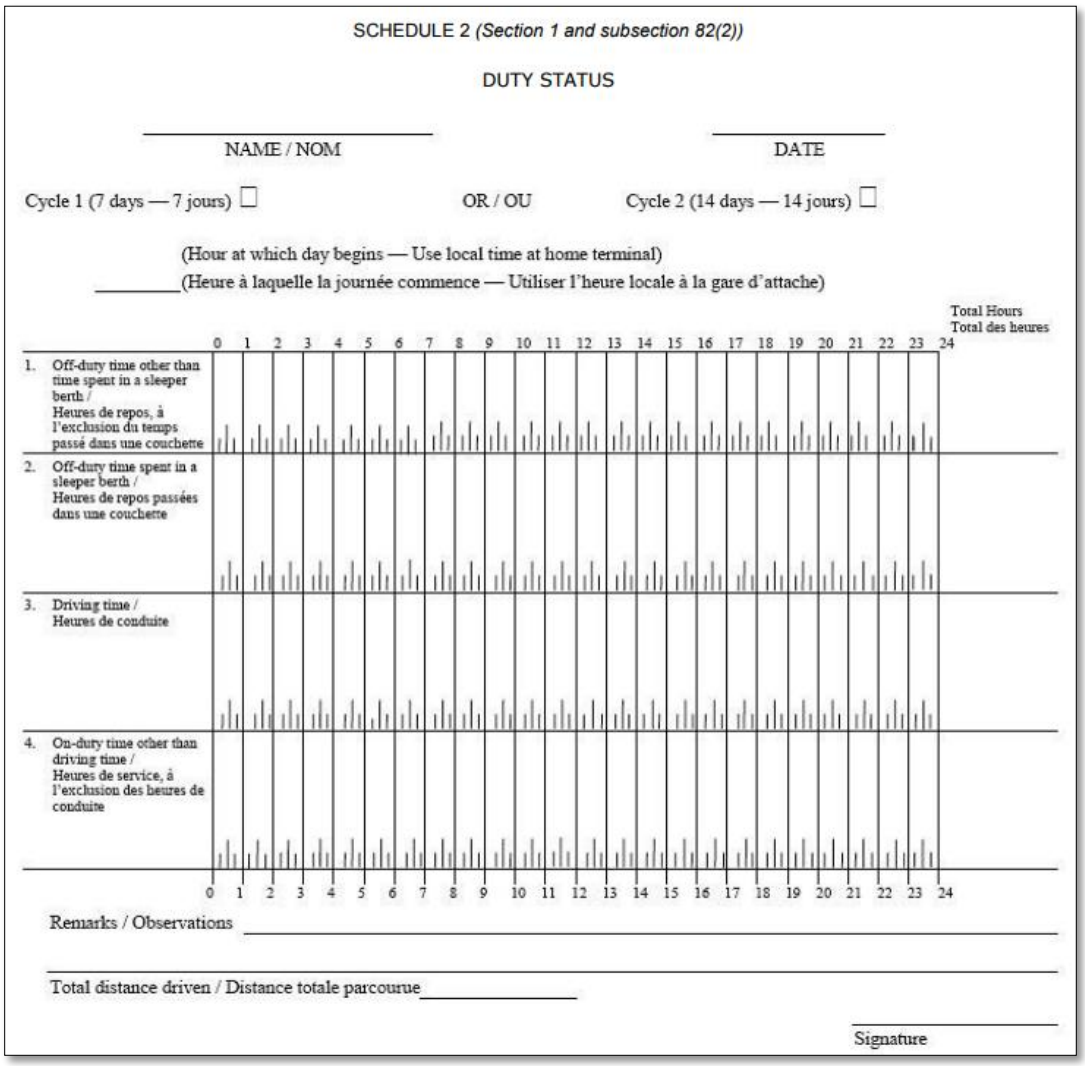
Drivers are also required to fill out a log grid (Schedule 2 of the federal *Hours of Service Regulations*).

The grid must be completed as follows:

- For each duty status,
  - Mark the beginning time and the end time, and
  - Draw a continuous line between the time markers;

- Record the name of the municipality or give the location on a highway or in a legal sub-division and the name of the province or state where a change in duty status occurs.
- If the driver is engaged in making deliveries in a municipality that result in a number of periods of driving time being interrupted by a number of short periods of other on-duty time, the periods of driving time may be combined and the periods of other on-duty time may be combined.
- Enter on the right of the grid the total number of hours of each period of duty status, which total must equal 24 hours.
- The log page for off-duty time must not include any information for a day other than “off-duty time other than time spent in a sleeper berth”.

- The log book must be signed by the driver to indicate the accuracy of the information recorded.



SCHEDULE 2 *(Section 1 and subsection 82(2))*

DUTY STATUS

NAME / NOM _____ DATE _____

Cycle 1 (7 days — 7 jours) ☐ OR / OU Cycle 2 (14 days — 14 jours) ☐

(Hour at which day begins — Use local time at home terminal)

_____(Heure à laquelle la journée commence — Utiliser l'heure locale à la gare d'attache)

Total Hours
Total des heures

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

1. Off-duty time other than time spent in a sleeper berth / Heures de repos, à l'exclusion du temps passé dans une couchette

2. Off-duty time spent in a sleeper berth / Heures de repos passées dans une couchette

3. Driving time / Heures de conduite

4. On-duty time other than driving time / Heures de service, à l'exclusion des heures de conduite

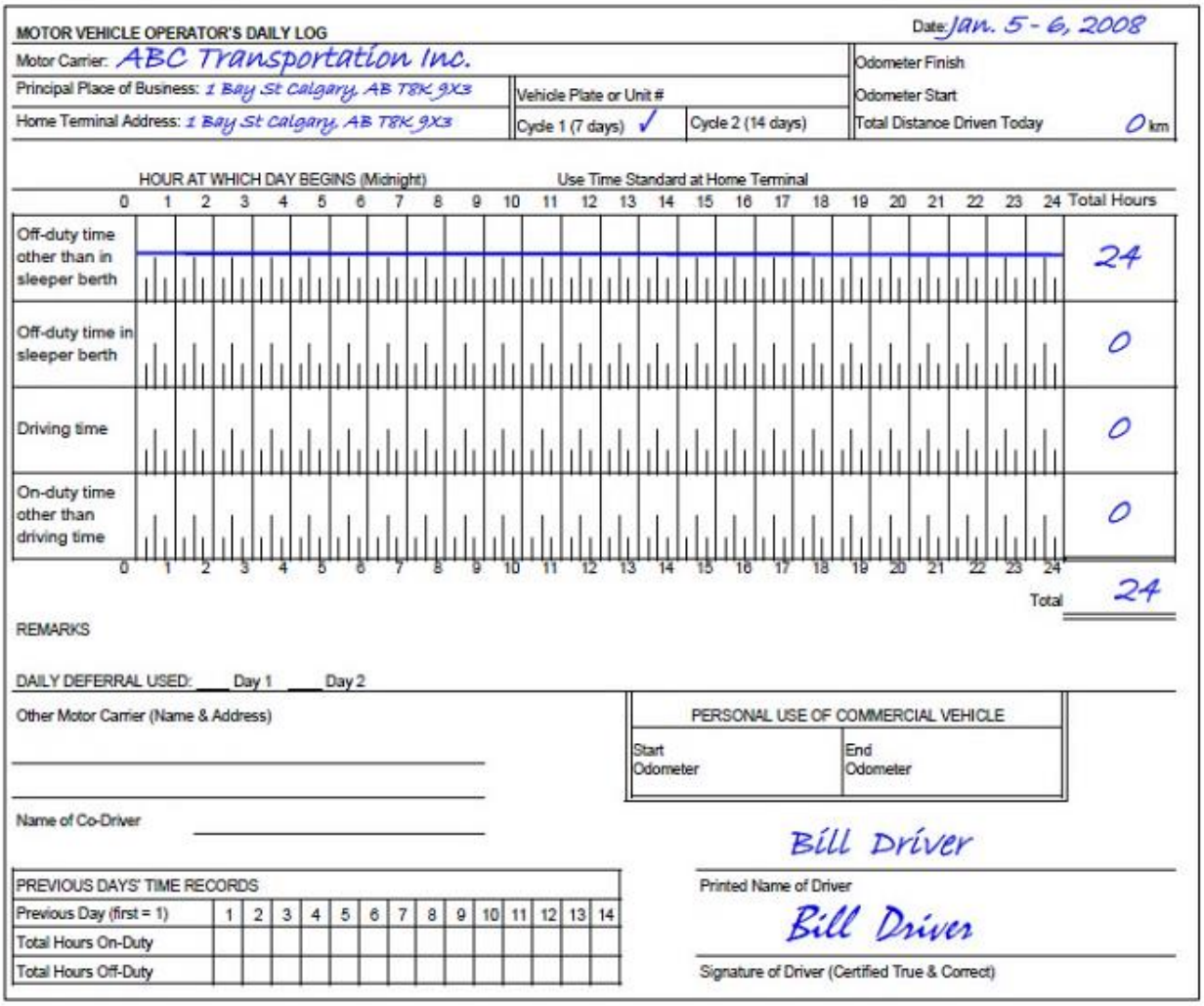
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Remarks / Observations _____

_____

Total distance driven / Distance totale parcourue _____

_____
Signature



MOTOR VEHICLE OPERATOR'S DAILY LOG

Date: Jan. 5 - 6, 2008

Motor Carrier: ABC Transportation Inc.

Principal Place of Business: 1 Bay St Calgary, AB T8K 9X3

Home Terminal Address: 1 Bay St Calgary, AB T8K 9X3

Vehicle Plate or Unit #

Cycle 1 (7 days) ✓ Cycle 2 (14 days)

Odometer Finish

Odometer Start

Total Distance Driven Today 0 km

HOUR AT WHICH DAY BEGINS (Midnight) Use Time Standard at Home Terminal

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 Total Hours

Off-duty time other than in sleeper berth	24
Off-duty time in sleeper berth	0
Driving time	0
On-duty time other than driving time	0
Total	24

REMARKS

DAILY DEFERRAL USED: ___ Day 1 ___ Day 2

Other Motor Carrier (Name & Address)

PERSONAL USE OF COMMERCIAL VEHICLE

Start Odometer | End Odometer

Name of Co-Driver

Bill Driver

Printed Name of Driver

Bill Driver

Signature of Driver (Certified True & Correct)

PREVIOUS DAYS' TIME RECORDS

Previous Day (first = 1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Total Hours On-Duty														
Total Hours Off-Duty														

Example of how to complete log page for "off-duty time other than time spent in a sleeper berth"

Onboard Recording Devices

A driver is permitted to use an electronic onboard recording device instead of filling out a log book. The device must still provide all of the required information found in Section 82 of the *Commercial Vehicle Drivers Hours of Service Regulations* (SOR/2005-313).

An onboard recording device must also be capable of displaying:

- The driving times and other on-duty times for each day when the device is used;
- The total on-duty time remaining and the total on-duty time accumulated in the cycle being followed by the driver;
- The changes in duty status and the time at which each change occurred for each day on which the device is used;
- The times and dates on which the device has been disconnected and reconnected.

Record Radius Record Exemption

A driver need not complete a daily log if they are eligible for the 160-kilometer radius exemption. This exemption applies ONLY to record keeping requirements. ALL other requirements of the regulation must still be met.

The following conditions must be met to qualify for this exemption:

- The driver operates or is instructed by the motor carrier to operate a commercial vehicle within a radius of 160 kilometres of the home terminal;
- The driver returns to the home terminal each day to begin a minimum of 8 consecutive hours of off-duty time;
- Records are accurate and legible and show for each day, the driver's duty status and elected cycle, the hour at which each duty status begins and ends and the total number of hours spent in each status;
- The carrier keeps those records for a minimum period of 6 months after the day on which they were recorded; and
- When a driver is not required to keep a daily log, they must (as noted above) still maintain time records showing, for each calendar day, the driver's duty status and elected cycle, the hour at which each duty status begins and ends and the total number of hours spent in each status. A sample of what a 160-kilometer radius record may look like is on the next page.

Examples of Record Radius:

160 Kilometer Radius Record					
Driver name:_____ Date:_____ Elected Cycle: ☐ 1 ☐ 2					
Start Time	**End Time**	**Off-Duty**	**Driving**	**On-Duty Not Driving**	**Remarks**
Total Hours					

Tampering

It is against the law to tamper with a daily log. Tampering with the daily log includes any of the following activities:

- Driver keeps more than one daily log for any day.
- Driver records inaccurate information in a daily log, whether it is handwritten or produced using an electronic device.
- Anyone falsifies, mutilates or defaces a daily log or supporting documents.
- Safety officer or any other individual alters or tampers with original daily logs.

According to Section 86(2) of the *Commercial Vehicle Drivers Hours of Service Regulations* (SOR/2005-313), a carrier is responsible for ensuring their drivers do not falsify their logs.

Daily logs must be signed at the end of each day to confirm that all of the information recorded in a daily log is accurate. If a log contains false information, a peace officer can still charge a driver with a violation even if the driver has not signed the daily log. They may also issue an out-of-service declaration for any of the violations listed above.

Penalties

According to the *Motor Vehicle Act 18(1)*, every person who contravenes or fails to comply with any provision of this Act or any regulation or order made under this Act is guilty of an offence punishable on summary conviction. Individuals who are convicted of an offence under this Act are liable to a fine not exceeding five thousand dollars. Corporations who are convicted of an offence under this Act are liable to a fine not exceeding twenty-five thousand dollars ($25,000).

Out of Service Violations

Peace officers can issue tickets to drivers on the road if hours of service records cannot be produced by the driver. Drivers who exceed the hours of service limitation may be prohibited from driving until they have enough hours to drive again. Administrative penalties can also be enforced for not following hours of service laws.

Module 8 Key Points

- Hours of Service Regulations were developed to ensure driver's get opportunities for adequate rest. Drivers cannot drive if, within a day, they have driven for 13 hours or have been on duty for 14 hours (if they fall into federal legislation) or 15 hours (carriers and drivers who operate solely within Alberta
- The Log is a legal document and tracks the driver's daily activity, therefore, all information should be recorded accurately and legibility.
- Log books must be retained for a minimum period of 6 months after the day on which they were recorded.

NOTES:

MODULE 9 – CARGO SECURMENT AND LOSS PREVENTION

Purpose

The purpose of this module is to familiarize trainees with the cargo securement procedures. This module will be delivered in the classroom. It should take 4 hours, 30 minutes to complete this module.

General Learning Outcomes

At the end of this module, the trainees should be able to:

- Understand the importance of safe cargo securement
- Understand the laws regarding cargo securement
- Understand how to safely distribute cargo weight during loading

Habits of mind

Trainees will:

- Recognize the importance of safe and secure cargo prior to moving tractor-trailer

Knowledge and Understanding

Trainee will:

- Understand requirement to secure cargo including any material, equipment or other loose article carried on the vehicle

Skill and Processes

Trainees will be able to:

- Determine the aggregate (combined) working load limits
- Determine the minimum number of tie downs to secure a cargo

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
4		**0.5**					**4.5**

Introduction

A professional tractor-trailer driver is responsible for the safe transporting on goods while they are in transit. In addition to sound driving skills, professional tractor-trailer drivers are required to have basic skills on how to properly handle a cargo. While many drivers do not load or supervise cargo loading, they are responsible to verify that the cargo they will be transporting is properly secured.

To ensure safety of drivers when participating in load and unloading cargo, the driver should:

- Be familiar with the flow of work at the loading/unloading environment

- Be fully alert and not distracted during loading/unloading.
- Maintain good communication with the individual handling equipment used to load and unload the cargo
- Be aware and follow the workplace loading and unloading procedures. The driver should know the workplace site safety attire requirements in terms of the use of personal protective equipment such as protecting hands, eyes, and feet, high visibility clothing and sound dampening headphones.
- Ensure that the cargo is secured with the appropriate securing devices or equipment.

Prior to moving the vehicle, it is recommended that the driver conduct a cargo pre-trip inspection. Depending on the location of and accessibility to the cargo, the driver's check should include:

- Visual check of the vehicle's spring and tires for any sign of overloading. Another sign of overloading is sagging and bowing of the trailer.
- Check if there is enough power to pull the loaded vehicle
- Check handling characteristics of the vehicle including the ability to turn the steering wheel
- Walk around the vehicle to check for any leaks that may indicate that the cargo is damaged.
- Ensure that you know the weight of the cargo you intend to transport. This can be done by adding all weight outlined on the shipping paper
- Weight distribution is as low as possible with the centre of gravity and as close as possible to the centre of the trailer
- Regulated or restricted materials or materials that is fragile or hazardous.
- Ensure that there is no loose freight. Ensure that the cargo is properly secured by holding devices
- Ensure that heavy loads are not loaded high in the trailer or positioned where it could fall on other cargo when transporting.
- Ensure that all part necessary for hauling, containing and protecting the cargo are secured including- tailgates, tailboards, doors tarpaulins, and headboards

Cargo can be in form of- any type of freight (including dangerous goods/hazardous materials), intermodal containers and the content, and any type of equipment carried for vehicle operation. Specific types of cargo are regulated under certain laws.

It is important for drivers to be familiar with the laws and regulations regarding general freight transportation. Drivers are to ensure that all cargo carried by a commercial vehicle is properly secured according to the requirements of the Canadian National Safety Code (NSC) Standard 10, adopted in Alberta's Commercial Vehicle Safety Regulation. NSC standard 10 provides guidelines for drivers and carriers on how to safely secure a cargo in a way to ensure the safety of drivers, employees and other road users. This standard was created to:

- Reduce the number of accidents caused by cargo shifting or falling from commercial vehicles; and
- Harmonize the U.S., Canadian, and Mexican cargo securement regulations.

Depending on the type of cargo, cargo must be secured in way that it does not leak, spill, blow off the vehicle, fall from the vehicle, fall through the vehicle, dislodge from the vehicle or shift upon or within the vehicle in a way that may adversely affect the vehicle's stability or maneuverability.

A cargo that is not properly secure may result in:

- Loss of life
- Loss of goods
- Damage to the cargo
- Possible collision with other road users
- Injury to other road users
- Damage to the vehicle you are driving and or other vehicle(s) you are sharing the roadways with.
- Fines and the vehicle may be placed Out-of-Service

Cargo securement in Alberta is regulated under the *Commercial Vehicle Safety Regulation* (AR121/2009). Section 17(3) of the regulation states that all cargo must be properly secured by a carrier according to the requirements found in NSC Standard 10. In addition, Section17(4) of the regulation further states that cargo must not leak, spill, blow from, fall from, fall through or otherwise be dislodged from a commercial vehicle.

It is required of carriers to ensure that all drivers are trained in how to properly secure a cargo (Section 41 of the *Commercial Vehicle Certificate and Insurance Regulation* (AR314/2002)).

North American Cargo Securement Standard

According to the North American Securement Standard, prior to operating a commercial vehicle, the following conditions must be met by the driver:

- Adequate securement and proper distribution of the cargo
- Securement of the following vehicle structure and equipment
    - Doors
    - Tarpaulins
    - Spare tire
    - Tailgate
    - Cargo securing equipment
    - Other equipment used in the vehicle's operation
- The cargo or any other object must not:
    - Interfere with the driver's ability to drive the vehicle safely (such as free movement of the driver's arm and leg), and does not block vehicle entry or exit
    - Obstruct the driver's view to the front, right or left sides
    - Prevent easy access to accessories required for emergencies

It is important that you as a professional driver understand the following:

Commercial trucks registered over 4500 kg are required to ensure the cargo they carry is secure:

- A carrier shall not permit a driver to operate a commercial vehicle where the cargo transported in or on the vehicle is not contained, immobilized, or secured in accordance with the NSC Standard as it relates to the particular type of commercial vehicle.
- A driver shall not operate a commercial vehicle where the cargo transported in or on the vehicle is not contained, immobilized, or secured in accordance with the NSC Standard as it relates to the particular type of commercial vehicle.
- A driver or carrier must ensure that cargo transported by a commercial vehicle is contained, immobilized or secured so that it cannot:
    - Leak, spill, blow off, fall from, fall through or otherwise be dislodged from the vehicle
    - Shift upon or within the vehicle to such an extent that the vehicle's stability or ability to move is adversely affected.
- Drivers must regularly inspect the vehicle's cargo and cargo securement systems and make necessary adjustments before driving the vehicle and not more than 80 kilometres from where the cargo was loaded
- Drivers must re-inspect cargo and the cargo securement system and make any necessary adjustments at specified intervals (which ever of the below occurs first):
    - There is a change in duty of the driver
    - The vehicle has been driven for 3 hours
    - The vehicle has been driven for 240 kilometres
- The two bullets immediately above do not apply if the cargo is sealed and the driver has been ordered not to open it to inspect the cargo or if the cargo was loaded in a way that makes the cargo, or portions of the cargo, inaccessible
- If cargo is not properly secured, the driver, carrier, or shipper could face fines and penalties.

Securement System

This is a system that combines the use of one or combination of the following three components:

1. Vehicle structure – this includes floors, walls, decks, tie-down anchor points, headboards, bulkheads, stakes, posts, anchor points. A driver must ensure that all these vehicle elements are in good working.
2. Securing devices- these are devices that are specifically designed and manufactured for cargo securement to a vehicle or a trailer. This includes synthetic
    - Webbing
    - Chain
    - Wire rope
    - Manila rope
    - Synthetic rope
    - Steel strapping
    - Clamps and latches
    - Blocking
    - Front-end structure
    - Grab hooks
    - Binders
    - Shackles
    - Winches
    - Stake pockets
    - D-rings
    - Pocket
    - Webbing ratchet
    - Bracing
    - Friction mat

3. Blocking and bracing equipment- structure, device or article placed against or around cargo to prevent horizontal movement or tipping. To withstand splitting or crushing by the cargo, the materials used for blocking or bracing must be strong. When wood is used, it must be a hardwood that has been properly seasoned and is free from rot, knots and splits.

Securement Devices

According to Division 2 of NSC Standard 10, all vehicle structures, systems and parts used to secure cargo must:

- Be in proper working order;
- Be used on the correct type of cargo;
- Not have knots, damaged, or weakened part that may affect performance;
- Not have any cracks or cuts;
- Be secured in a way that ensures they will not come unfastened while the vehicle operates on a highway; and
- Be able to withstand specified amount of force in the forward (0.8g deceleration), rearward (0.5 g deceleration), sideways (0.5 g acceleration) and downward directions

Tie down

Securing devices are combined for an assembly used to attach or restrain cargo to a vehicle or vehicle structure such as anchor points. The assembly is called the **Tie down.** A tie down must be designed, constructed and maintained in a way that the driver can tighten it. To function properly, tie downs must not:

- Have knots or obvious damage;
- Be in distress; or
- Have any weakened part or weakened section

Tie downs and other securement devices must be strong enough to properly secure a load. Manufacturers test these devices to determine how much force can be applied to them before they will break. The “working load limit” of a securement device refers to the maximum load that may be applied to that device during normal service. The aggregate (combined) working load limit is the sum of the working load limits of all devices that are used to secure an article on a vehicle.

To calculate aggregate (combined) working load limits:

- For tie downs that go from one anchor point to another on the vehicle, add the WLLs of each tie down to get the aggregate WLL of the load.
- For tie downs that go from one anchor point on the vehicle to an attachment point on the cargo itself, add together: - 50% of the WLL of each end section of a tie down that is attached to the cargo.

The total working load limit of any cargo securement system must be at least half of the weight of the load being secured.

Use of Unmarked Tie downs

Current standards forbid the use of unmarked tie downs. Tie downs must be marked by the manufacturer with respect to their Working Load Limit (WLL). This ensures that all drivers use the proper equipment for securing a load.

How to Properly Use a Tie Down

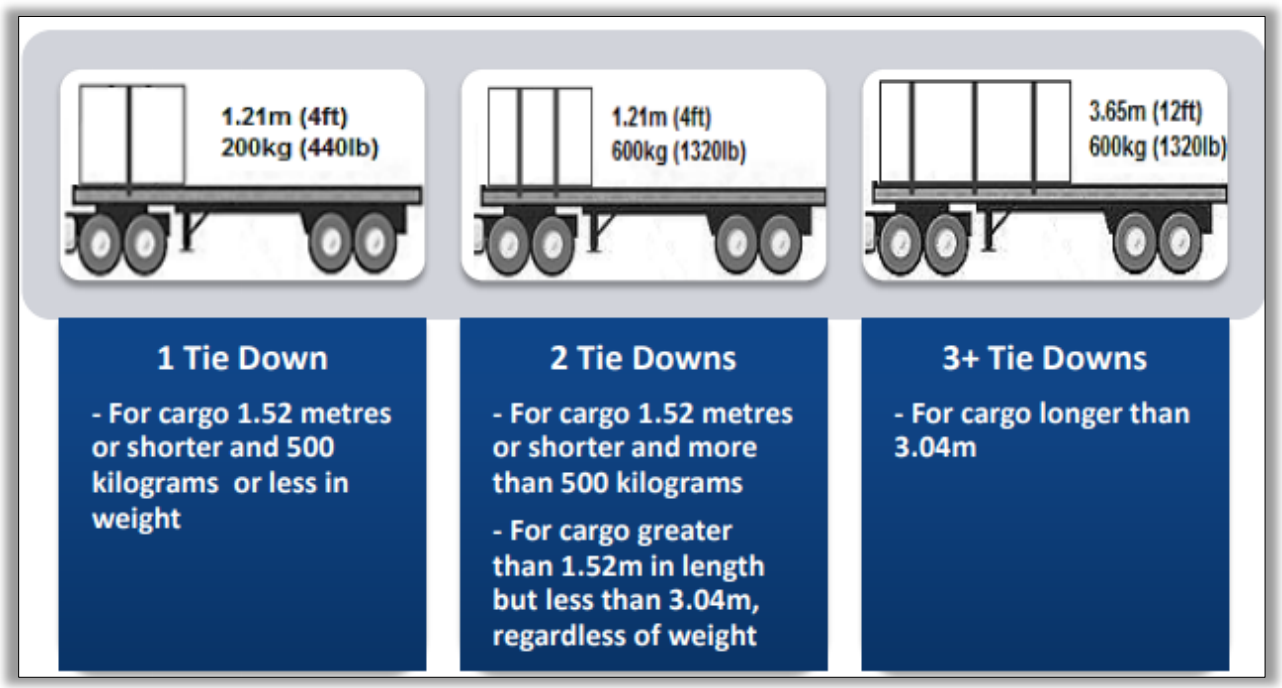
Ensure that each tie down are secured so that it does not come loose, unfastened, opened or released while the vehicle is moving. This implies that the driver of a vehicle must be able to securely tighten a tie down before transporting their cargo on a highway.

All tie downs and other parts of a cargo securement system must be located inside any rub rails whenever practical. Edge protection must also be used whenever a tie down would be subject to wear or cutting at the point where it touches an article of cargo. The edge protection must resist wear, cutting and crushing.

Some tie downs are passed over or through the cargo. When they are properly used, a downward force is created to increase the friction between the cargo and the vehicle's deck. The friction created restrains the cargo.

Minimum Number of Tie downs

You may need a certain number of tie downs to keep your cargo secure. When a piece of cargo is not blocked or positioned to prevent movement in the forward direction, the number of tie downs needed depends on the length and weight of that cargo.



Minimum Number of Tie Downs

When a piece of cargo is not blocked or positioned to prevent forward movement and the item is longer than 3.04 metres (10 feet) in length, then it must be secured by:

- Two tie downs for the first 3.04 metres of length; plus
- One extra tie down for every 3.04 metres of length, or fraction of, beyond the first 3.04 metres.

If cargo is blocked or braced to prevent forward movement by a header-board, bulkhead, or by other means, then it must be secured by at least:

- one tie down for the first 3.04 metres of length; plus
- One extra tie down for every 3.04 metres of length, or fraction of, beyond the first 3.04 metres (if cargo is longer than 3.04m).

Note: Before a securement system is selected, the driver must ensure that it is appropriate for the cargo size, shape, strength, and characteristics.

Front End Structure on Commercial Vehicles

Some vehicles transport cargo that is contact with the front-end structure of the vehicle. A "front-end" structure, according to NSC Standard 10, is a vertical barrier that is placed across the front of a deck that prevents cargo from moving forward. Front end structures must meet the following requirements:

Height and Width

The height of the front-end structure of a vehicle cannot be shorter than:

a. The height at which it prevents cargo from moving forward; and
b. 122 centimetres above the deck.

The width of the front-end structure of a vehicle cannot be narrower than:

a. The width of the vehicle; and
b. The width at which it prevents cargo from moving forward.

Strength

The front-end structure of a vehicle must be able to withstand a horizontal forward static load equal to 50% of the total weight of the cargo where:

a. The height of the front-end structure is shorter than 1.83 metres; and
b. The cargo is uniformly distributed over all of the front-end structure.

The front-end structure of a vehicle must be able to withstand a horizontal forward static load equal to 40% of the total weight of the cargo where:

a. The height of the front-end structure is 1.83 metres or higher; and
b. The cargo is uniformly distributed over all of the front-end structure.

Penetration Resistance

The front-end structure of a vehicle must be able to resist penetration by an article of cargo that contacts it when the vehicle decelerates at a rate of 6.1 metres per second per second (m/s^2).

It is important to note that a cab shield is not a front-end structure or part of the cargo system

9.3. Cargo Placement and Restraint

There are three ways cargo may be transported. A carrier must use one of these methods for general cargo securement.

1. Fully Contained Cargo
   - Cargo must be contained in a vehicle of adequate strength;
   - Cargo is restrained against horizontal movement by the vehicle structure, other cargo, or by other devices such as tie downs or webbing;
   - Cargo cannot shift tip, leak, spill, blow off, fall from, fall through or otherwise be dislodged from the vehicle.

2. Immobilized Cargo
   - Cargo must be secured by proper tie downs, blocking or bracing;
   - Cargo cannot shift, tip, leak, spill, blow off, fall from, fall through or otherwise be dislodged from the vehicle.
   - It involves the combination of vehicle structure, blocking and bracing to safety secure a cargo from shifting or tipping.

3. General Securement
    - All cargo must be secured on or in a vehicle with tie downs along with:
    - Blocking, bracing, friction mats, other cargo, or a combination of these things;
    - Cargo cannot shift, tip, leak, spill, blow off, fall from, fall through or otherwise be dislodged from the vehicle.

Articles of cargo that are likely to shift, tip or roll must be restrained by chocks, wedges, or a cradle to prevent movement. These restraints must stay fastened or secured while the vehicle is moving.

The proper securement of cargo is important not only for the protection of the cargo itself, but also for ensuring the safety of a driver and the motoring public. Cargo that shifts or tips may cause a vehicle to tip or operate in an unsafe manner.

Weight Distribution

For easy handling of the truck, it is important that the cargo weight is properly or evenly distributed. Apart from affecting vehicle handing, improper cargo weight distribution may also affect the durability of the tire, frame, spring, bearing, and axle. Too much weight on the steering axle can damage the axle and tire and can also cause hard steering.

An unbalanced vehicle is harder to control in the event of an evasive maneuver. When the front axles are underweight, it can make steering weight too light, thereby affecting safe steering of the truck. When the weight is tractor-trailer is balanced, it reduces the possibility of rollover. When the center of gravity of a flatbed is too high due too unbalanced weight distribution, the flatbed will shift to the side and may fall off. In addition, when the weight is equally distributed on the tires, it eliminated tension on the frame.

It is your responsibility as a professional truck driver to ensure that each load is balanced and the weight is distributed evenly between the tractor's drive axles and the trailer's rear axles prior to transporting the cargo.

On every trip, the driver is responsible for knowing:

- The legal weight of the tractor- trailer;
- The overall length of the vehicle for safe maneuvering of a loaded tractor-trailer;
- The amount of weight per axle; and
- All federal, provincial and municipal laws and restrictions.

To evenly distribute the load in a trailer:

- Ensure you know the total weight of the cargo, and if possible, load half in front and half in the rear
- Adjust according to axle weight limitations.
    - Load should be evenly spread over the trailer floor from side to side to prevent shifting.
    - Heavy cargo should be spread out to prevent intense stress on the trailer's floor.

    - Ensure that heavy freight is loaded on bottom.
    - After part of the cargo has been unloaded, ensure that heavy freight is moved as needed for even weight distribution.
- Trailer weight can be adjusted by sliding the rear axles of the tractor (if the rear axle is adjustable)
    - When the axle is moved forward, more weight is shifted to the trailer axle and shifted off the tractor drive axle.
    - When the axle is moved backward, most weight is shifted on the tractor drive axle.

Specific Cargo Securement

Requirements to secure specific cargo are available for:

- Logs;
- Dressed lumber;
- Metal coils;
- Paper rolls;
- Concrete pipe;
- Intermodal containers;
- Vehicles (small, large, crushed);
- Crushed vehicles;
- Roll-on/roll-off or hook lift containers;
- Large boulders.

A. Logs

There are many rules for the transportation of logs. A carrier must not only have a vehicle that was built specifically for hauling logs, but must also secure those logs according to the requirements in Division 1, NSC Standard 10.

The rules for the transportation of logs apply to the transportation of almost all logs except:

- Loads of no more than four logs;
- Firewood, stumps, log debris or logs that are transported in a vehicle or container that is enclosed on all sides and strong enough to contain them.

In these special cases, logs may be transported using the general cargo securement rules.

B. Dressed Lumber

Dressed lumber is lumber that has been surfaced or planed smooth on four sides. Special rules for the securement of dressed lumber apply to:

- Bundles of dressed lumber and packaged lumber;
- Building products including plywood, gypsum board or other materials of similar shape.

These items must be secured according to the requirements in Division 2, NSC Standard 10. Lumber or building products that are not bundled or packaged must be treated as loose items and transported using the general cargo securement rules.

C. Metal Coils

Special rules for the transportation of metal coils apply to a vehicle that is transporting one or more metal coils that, individually or grouped together, have a total weight of 2,268 kg or more. These coils must be secured according to the requirements in Division 3, NSC Standard 10.

Shipments of metal coils that weigh less than 2,268 kg may be secured using the general cargo securement rules.

D. Paper Rolls

Special rules for the transportation of paper rolls apply to a vehicle that is transporting one or more paper rolls that, individually or grouped together, have a total weight of 2,268 kilograms or more. These rolls must be secured according to the requirements in Division 4, NSC Standard 10.

Shipments of paper rolls that weigh less than 2,268 kg may be secured using the general cargo securement rules.

E. Concrete Pipe

Special rules may apply to vehicles, flatbed trailers and lowboy trailers that are transporting concrete pipe. The pipe being transported must be secured according to the requirements in Division 5, NSC Standard 10.

Concrete pipe that is bundled tightly together into a single rigid piece with no tendency to roll and concrete pipe loaded into a sided container must be secured using the general cargo securement rules.

F. Intermodal Container

Intermodal containers are freight containers that are designed to be transported in more than one way (for example, by road, rail or sea). These containers must either be transported on a chassis vehicle or must be secured on a different vehicle according to the requirements in Division 6, NSC Standard 10.

Cargo that is inside an intermodal container may be secured using the general cargo securement rules unless another commodity specific rule applies.

G. Vehicles as Cargo

Special rules apply to the transportation of light vehicles, heavy vehicles and flattened or crushed light vehicles. These vehicles must be secured according to the requirements in Division 7, NSC Standard 10.

“Light” vehicles are vehicles that weigh 4,500 kg or less. “Heavy” vehicles are vehicles that weigh more than 4,500 kg.

H. Roll-On/Roll-Off and Hook Lift Containers

Special rules apply to the transportation of roll-on/roll-off containers and hook lift containers. Hook lift containers are primarily used to transport materials in the waste, recycling, construction, demolition and scrap industries. These containers are handled by specialized

vehicles in which the container is loaded and unloaded onto a tilt frame body by a moveable hook arm.

These containers must be secured according to the requirements in Division 8, NSC Standard 10.

I. Boulders

Special rules apply to the transportation of:

- Boulders on a flatbed vehicle;
- Boulders in a vehicle that is not designed to contain them;
- A piece of natural, irregularly shaped rock that weighs more than 100 kg but less than 5,000 kg;
- A piece of natural, irregularly shaped rock of any size that may be contained within a vehicle that is designed to carry it;
- A piece of rock of any size that is artificially formed or cut into shape and has a stable base for securement.
- These boulders must be transported according to the requirements in Division 9, NSC Standard 10. Some exemptions may apply to boulders that may be secured using the general securement rules.

For the complete requirements for these specific commodities, see NSC Standard 10. A carrier must secure each of these commodities according to the rules found in the standard.

It is expected that the actual practical training will be delivered by the employer especially for training relating to specific cargo such as logs, dressed lumber and similar building materials, metal coils, paper rolls, concrete pipe, inter-modal containers, automobiles, light trucks and vans, heavy vehicles equipment and machinery, flattened or crushed cars, roll-on/roll-off and hook-lift containers, boulders etc.

Glossary of Terms

- **Anchor point** - This is the part of the structure, fitting or attachment on a vehicle, cargo to which a tie down is attached
- **Cab shield** - This is a vertical barrier placed directly behind the cab of a tractor-trailer which is capable of protecting the driver in case cargo moves forward.
- **Deck** - This is the floor of a vehicle onto which the cargo is loaded
- **Tarpaulins**- they are used to protect the cargo by covering. They are tie down with rope, webbing or elastic hooks.
- **Rub rails** - this is a rail along the side of a vehicle that protects the side of the vehicle from impact.

NOTES:

Alberta Government

MODULE 10- HANDLING EMERGENCIES

Purpose

The purpose of this module is to educate trainees on proper procedures to be followed in the unlikely event of a variety of emergencies and incidents. This module will be delivered in the classroom. It should take 1 hour, 30 minutes to complete this module.

General Learning Outcomes

At the end of this module, the trainees should be able to:

- Understand how to handle minor emergency incidents in a professional manner
- Understand how to handle situations where they are involved in a vehicle collision
- Understand how to handle fire incidents
- Understand how to manoeuvre the tractor-trailer in a safe manner in the event of a mechanical breakdown

Habits of Minds

Trainees will:

- Recognize the importance of remaining conscious and alert in emergency situations
- Be prepared to take control in emergency situations
- Understand the importance of remaining calm at all times

Knowledge and Understanding

Trainees will:

- Understand the priorities that determine response in emergency situations
- Identify the type of safety equipment found on truck
- Understand the reasons for deploying approved warning devices
- Understand the correct procedures in which warning devices are employed
- Know the location and capabilities of fire extinguishers

Skill and Processes

Trainees will be able to:

- Organize bystanders to assist in bringing the collision scene under control
- Demonstrate the correct procedure when using approved warning device
- Demonstrate the correct procedure when using fire extinguishers

Learning Environment (hours)							
Classroom			In-yard		In-cab		Total
Deliver (lecture, pairs, group, demo etc.)	**Apply** (practice, perform, etc.)	**Assess** (show, do, quiz, test etc.)	**Observe Trainer** (watching instruction)	**Apply** (practice, performance etc.)	**On-Road** (driving along)	**Off-road** (backing)	
1		**0.5**					**1.5**

Breakdowns

In the event of a breakdown in a rural area, stop the vehicle in safe place as far off the roadway as practical. Analyze the situation, activate the emergency hazard warning lights and place approved warning devices on the highway approximately 30 metres in front of and behind the vehicle. During sunset and sunrise and any time where there is not sufficient light to clearly see persons or vehicles on a highway at a distance of 150 metres, warning devices must be placed 75 metres in front of and behind the vehicle. In the case where the lighting equipment on the vehicle is not functioning, approved warning devices must be placed as described above within 10 minutes of the vehicle becoming stationary.

In general, the procedures for a breakdown will apply in the event of a collision. However, depending upon the circumstances, location, degree of injury, the following procedures are recommended.

Animals

To reduce the chance of a collision with an animal, do the following:

- Reduce your speed, look well ahead, and use caution in areas with wildlife warning signs.
- Scan the sides of the road and ditches for animals.
- Be careful at dusk and dawn since animals tend to be more active at these times
- When driving through wooded, rural or mountainous areas be especially careful of animals during the spring and fall when animals are most active. During the winter animals may roam on highways to lick salt off roads.
- Watch for sudden, unusual spots of light on or near the road at night. This may be the reflection of your headlights from an animal's eye, but be aware that moose eyes do not reflect lights
- Honk in a series of short bursts to chase animals away
- Flashing lights and honking a horn may divert a deer from crossing the road, but it will not have the same effect on a moose.
- Animals sometimes move in groups. If you see one animal, there may be more.
- If you encounter an animal, brake firmly and don't swerve to avoid it

Collisions

Minor Collision without Injury

- Stop the vehicle
- It is a general rule, under most conditions, that a driver NOT MOVE the vehicle until directed by a police officer. However, if there is a danger to other motorists, do not hesitate to move the vehicle off the roadway, where possible. An example of unsafe position is if the vehicle is positioned across both lanes of traffic on a blind curve
- Assess the scene. Check on the condition of everyone involved and check the vehicle(s) to ensure that there is no danger of fire. Fire may be likely if there is fuel leak, you see

smoke emitting from vehicles involved or if the collision occurred near flammable material.

- Place approved warning devices as required (see Breakdowns section)
- Summon assistance and the police.
- Obtain the information required by the carrier and insurance company. This may include licence numbers, names and addressed of occupants of other vehicles involved in the collision, names and addresses of any witnesses or anyone photographing the scene.
- Do not discuss who was at fault.
- Note the time and place of the collision, vehicle positions and any marks on the pavement.
- Check with local policy to ensure you are aware of what is required of you in the event of a collision.
- Report the particulars in accordance with local policy and procedures.

You are required to report all collisions to the police or local law enforcement if:

- anyone has been injured
- anyone has been killed
- overall damage exceeds $2,000
- Any damage has been done to any traffic control device, parking meter or public if police are called to the scene, all drivers must remain

Major Collision

- The severity of the collision will determine the order in which you proceed.
- Quickly assess the situation and evacuate if necessary.
- Assign someone to protect the scene to prevent other motorists from becoming involved
- Set out approved warning devices as required.
- Treat the injured in order of seriousness with the most serious first. Start with those who have stopped breathing, then to those who are bleeding but still have a chance for survival. Treat for shock and more minor injuries last.
- Summon help to the scene as required (police, ambulance, fire department).
- Follow the last three steps of minor collision procedures.

Organize Bystanders to Render Assistance

A collision scene is frequently chaotic. In addition to those who are actually involved, there will likely also be bystanders around curious to see what is happening. In a very short time, bedlam and confusion could reign.

It is hardly the type of situation conducive to cool, calm thinking. Yet, that is exactly what is required. Most people who find themselves at the scene of a collision, excluding the injured, would like to help, but often do not know what to do.

Unorganized, they tend to cause congestion and confusion at the scene. However, if you take charge and approach them in a calm, assertive manner, they can help you bring the collision scene under control by performing the following tasks:

- Rendering first aid assistance
- Finding witnesses
- Directing traffic
- Setting out emergency devices to protect the scene
- Obtaining blankets, bandages, etc.
- Notifying medical, police and fire department

There are many ways in which you could recruit others to help you. To maximize your chances of gaining cooperation and getting the job at hand done, the following points are suggested for organizing others to help you.

- Remain calm at all times, this will instill confidence and increase the chances that they will be willing to follow your instructions
- Select responsible individuals to help
- Ask for their cooperation to carry out specific tasks
- Outline the directions for your request briefly, but clearly, keeping to the point
- Ask your assistant to repeat the directions back to you to ensure they clearly understand what is required.

This may seem somewhat formal and unnecessary, but rest assured that it is important. The extra few seconds it may take is a good investment. This is not a time for people to be coming back with the right solution to the wrong problem

- Upon completion of the task, have the assistants report back to you on the successful completion, or other relevant information. This is important to avoid assumptions that certain tasks may have been done when, in fact, they have not.

The following is an example of how you might give instructions to others to obtain their assistance in directing traffic around the scene.

“I need your help to direct traffic around the scene. I would like you to:

- Go about half a kilometre back down the road”
- Begin to direct traffic around the crash”
- Instruct people that everything is being handled and to keep moving slowly past the scene”
- Would you repeat what I have just asked you to do?”

Emergency Equipment

Approved Warning Device

Emergency warning triangles must comply with the specifications established by the Society of Automotive Engineers J774.

All commercial vehicles must have a minimum of two of emergency warning devices in the vehicle. They are used to warn other drivers of a problem or collision ahead, and this helps avoid any further problems at the collision or breakdown scene.

Properly placed and utilized warning devices protect you and other drivers. Whenever a collision or breakdown occurs, you must put out the devices you have on your vehicle to mark and protect the scene.

Placement of these warning devices is most important. They provide a warning to drivers approaching from both directions to give these drivers ample time to slow down and make any necessary lane changes. In the event of an emergency, place approved warning device on the highway in line with the vehicle at a distance of approximately 30 metres (100 feet) to the rear of the vehicle and at a distance of approximately 30 metres (100 feet) in front of the vehicle. When visibility is reduced to 150 metres, warning devices must be placed 75 metres in front and behind the vehicle.

Hazard Warning Lights

When involved in a collision or other emergency situations, you must use the hazard warning lights on your vehicle as a further warning device in addition to the warning devices placed on front of and to the rear of your vehicle.

Fire and Fire Extinguishers

A fire can start from several causes. The following are tips to prevent fires.

- Never start a vehicle with a fuel leak.
- Repair the leak and use an approved absorbent material to soak up the fuel spill.
- Shut off the engine when refueling.
- Touch the fuel hose nozzle against the filler pipe of the vehicle tank before filling to ground it. This prevents sparks caused by static electricity.
- Do not smoke near the fueling areas.
- Check your tire pressure often. Soft tires build heat and can cause a fire.
- Ensure that all your vehicle's brakes are fully released when the vehicle is moving. Dragging brakes generate heat that can ignite grease in the hubs when the vehicle stops.

Fire extinguishers are carried in the driver's compartment in most commercial vehicles. While the types may vary, all are reasonably effective in putting out the fires you may encounter.

The dry chemical extinguisher

This is the type of extinguisher has a pin release and gives off a snow like powder. This powder is forced from the extinguisher by pressurized gas. It is advisable during your pre-trip inspections to remove the extinguisher from the bracket and shake it once a week.

The range of these extinguishers, in the size likely to be on a vehicle, is four to five metres. If you have an extinguisher of this type on your vehicle, be familiar with it so you know its range.

Direct the discharge at the base of the fire using a sweeping motion to cover the flames. For maximum coverage and personal protection, try to be upwind from the fire when using the extinguisher. An extinguisher of the type generally carried on a commercial vehicle will totally discharge in approximately eight to 10 seconds. Therefore, proper technique is extremely important.

Even when the fire appears out, do no turn your back on it. Keep watch for flashback until the area on fire has completely cooled.

Extinguisher operation

While you encounter many extinguisher types, they are all used in basically the same way. The procedure is to:

- remove it from the bracket
- pull the safety pin by breaking the seal
- approach the fire from upwind if possible
- hold the extinguisher in an upright position
- point the discharge apparatus (hose, horn, nozzle) at the base of the fire, approximately two to three metres (six to eight feet) away
- do not allow the flames to come between you and the exit
- squeeze the handle
- continue to use until fire is out and extinguisher is fully discharged
- ensure all discharged fire extinguishers are replaced with fully charged ones before the vehicle is used again.
- Once the fire is out, do the following:
    - Replace the safety pin and return the fire extinguisher to its storage compartment.
    - Note on the post-trip inspection that the extinguisher has been used and have the extinguisher recharged immediately or replaced.

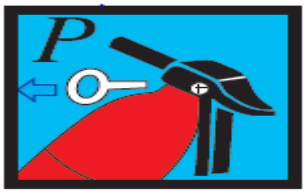
Remember the word PASS

P – Pull the pin

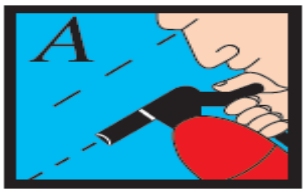
A – Aim low

S – Squeeze lever

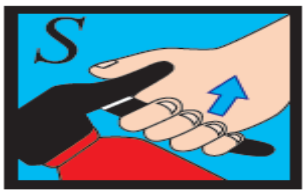
S – Sweep from side to side



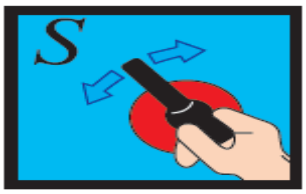
Pull the pin and point the nozzle away from you.



Aim low and direct the extinguisher at the base of the fire.



Squeeze the handle slowly and evenly. Continue to squeeze until the fire is out and/or the fire extinguisher is empty.



Sweep the extinguisher from side-to-side. Start at one side of the fire and slowly work to the other side. Do not start in the middle of the fire.

Fire Extinguisher Certification

Fire extinguishers expire 6 years from the manufacturer date (located on the bottom of the fire extinguisher) and require an annual re-certification, which includes a 14-point inspection.

Potentially Hazardous Traffic Situations

Narrow Bridges and Underpasses

When approaching a narrow bridge or narrow underpass, turn on four-way flashers, slow down and yield to oncoming traffic. Before entering an underpass, check all posted clearance signs and ensure there will be proper clearance. When it is safe to proceed, cross the bridge or go under the narrow underpass. Turn flashers off when the tractor trailer unit is across the bridge or through the narrow underpass.

Pedestrian Awareness

Always yield to pedestrians. Allow pedestrians to finish crossing the street and do not crowd them in the crosswalk. Be especially alert to pedestrians stepping from between parked cars, persons getting out of parked cars and children who might dart into the street. Cover the brake and be prepared to stop in all of the above situations. Halfway through any turn at an intersection, continually check the blindspots, off-track and tail swing area for pedestrians.

Cyclists

Due to the size of these vehicles, they can easily be hidden in your vehicle's blind spots and are even quite difficult to spot in a wide-angle mirror. They are far too often only seen at the last moment. Extra caution needs to be taken around bicycles.

There are large blind spots both behind and to the side of large vehicles. The "right turn squeeze" could occur if a motorcycle or bicycle rider is positioned between a large vehicle that is turning right and the curb. In this position, the driver of the large vehicle may not see the cyclist.

Overtaking and Passing

When passing a stalled vehicle, treat it the same as passing a moving one. When approaching the stalled vehicle from behind, look for any sign that the vehicle may move or discharge passengers. When possible, and as a courtesy, attempt to move over one lane to provide a safety cushion. Check clearance and determine if it is safe to change lanes, signal at least four flashes and change lanes. If changing lanes is not possible, slow down and keep the brake covered, while carefully watching for any movement such as wheels turning out, lights coming on or exhaust coming out of the vehicle. After passing the danger, center the vehicle back in the lane or pull back into the original lane.

The driver should pass moving vehicles on two lane roads only when absolutely necessary and without exceeding the posted speed limit. When passing moving vehicles, choose a safe place to pass (poor visibility and the possibility of conflict with other vehicles are the main considerations). Always wait until the pass can be made safely. Check oncoming traffic and use both mirrors to check the traffic behind the vehicle Signal intent with at least four flashes. Maintain a six second following distance when initiating the pass on a four-lane highway.

Module 10 Key points

- In the event of a collision, the vehicle should be moved to a safer location if the stopping position of the vehicle will cause imminent danger to yourself or other motorists;
- When in an emergency situation, treat injuries in the following order of seriousness. First are those who have stopped breathing, followed by those who are bleeding but have a chance for survival. Treat for shock and minor injuries last

NOTES:

Alberta Government