

Professional Driver Improvement Course
PARTICIPANTS WORKBOOK

Canada Safety Council Professional Driver Improvement Program
A quality Canadian product by the "CANADA SAFETY COUNCIL"

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The Canada Safety Council's Professional Driver Improvement Course has been designed to help you become a better and safer driver.

As you go through this course, there is space in this Participant Workbook to take notes on the valuable information you are learning. There is also an Exercises and Review section at the end with exercises to help reinforce the concepts presented.

How Is Your Image

- I** Inspect the vehicle before and after each trip, and maintain a record.
- M** Manage yourself and the driving environment by which you are surrounded.
- A** Always adjust speed to conditions.
- G** Give others the right of way to avoid collisions.
- E** Exhibit courtesy towards other highway users.

Image is important, to you, your employer and to the industry.

This Professional Driver Improvement Course will enhance your Image by teaching the techniques of defensive driving and promoting a positive attitude towards the task of driving as a professional. It will enable you to better avoid the problems other road users create.

Many kilometres of driving experience are behind you. All drivers have had the irritation of coping with others on the roads. This course will put you ahead of the others because of the techniques it teaches and because of the attitude towards driving that you have as a professional.

You will find that it is attitude that makes the techniques work. A positive attitude towards driving as a professional enables you to compensate for the errors of others, protect the vehicle and cargo, protect the safety of yourself and others and protect your income by helping you to maintain your safe driving record.

What do we mean by a "positive attitude" as a requirement for a professional driver?

Non-combative on the road. A person not in control of anger is not in control of the vehicle. Driving non-combatively means choosing a safe driving speed and not minding if other vehicles pass. In fact, this driver will slow down when necessary, to facilitate passing. This driver is always ready to yield to aggressive drivers who may not be obeying the rules.

Knowledgeable. It takes knowledge to be a professional driver today. Taking this course, knowing the laws, knowing the equipment, the route, potential hazards and emergency responses are all essential as a professional.

Using skill. A positive attitude means you "do it right" all the time. There is no room for complacency in the task of driving.

Driving a heavy motor vehicle requires a special person who respects other users of the roadway. The passenger vehicle operator is several times more likely to suffer severe injury or death in a collision with a commercial vehicle.

THIS MANUAL BECOMES THE PROPERTY OF THE STUDENT ENROLLED IN THIS COURSE.

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Defensive Driving - Principles and Foundations

Defensive Driving:

Driving to prevent collisions in spite of the actions of others and the conditions around you.

A Preventable Collision:

One in which you failed to do everything reasonable to prevent it.

Defensive driving is a skill you master through study, training, practice and above all else – consistent application. It requires knowledge, alertness, foresight, and good judgement.

Defensive drivers recognize that driving is a privilege – not a right. Consequently, they make it a point to know, and respect the rules and regulations that govern our roads and highways. The Provincial Drivers Handbook is considered to be an integral part of your required study. Read it carefully, you may be surprised at what you have forgotten or never knew.

The Standard Accident Prevention Formula

Defensive driving is founded on this well proven three-part standard accident prevention formula:

Recognize the Hazard

Think about what is going to happen or what might happen as far ahead of encountering the situation as possible. Never assume everything will be “all right”.

Understand the Defence

There are specific ways of handling specific situations. Learn them well so you can apply them when the need arises.

Act in Time

Once you have recognized the hazard and you understand the defence against it, act! Never take a “wait and see” attitude.

The Six Categories of Driving Conditions

The six categories of potential conditions that influence your driving are:

Driver

Light

Weather

Road

Traffic

Vehicle

Using the Eye-Lead Time Technique

Once underway you depend on your eyes, ears, hands and feet to keep you safe. The eyes are the first line of defence.

Defensive drivers employ the concept of Eye-Lead Time.

The technique is straightforward and extremely effective:

- Keep your eyes **moving**, to the front, to the sides, and behind.
- When driving in **urban areas**, scan the road 12 to 15 seconds ahead - approximately the distance of one city block.
- When driving on the **highway**, use 20 to 30 seconds eye-lead time or as far as you can see.
- Check rear view mirrors every 3 to 5 seconds.

Eye-lead time allows you to anticipate hazards so that you can react before they turn into collisions.

Stopping Distance

Total stopping distance is the distance travelled from the point you perceive a need to stop to the point where your vehicle comes to a halt.

The three factors involved in stopping distance are:

- Perception time _____
- Reaction time _____
- Braking distance _____



If you are operating a vehicle that is equipped with air brakes, then brake lag and brake fade may also add to your total stopping distance.

Brake Fade: _____

Brake Lag: _____

As a professional driver you must be aware that all these factors have a bearing on your ability to stop.

Failure to allow sufficient time to react and brake is a frequent and serious driver error.

But there is a formula that will allow you to eliminate this error!

Following Distance

Commercial vehicles require a lot of space to stop because of how large and heavy they are.

Following distance can be calculated using the Time-Interval Formula.

The Time-Interval Formula determines whether the distance between two vehicles is safe.

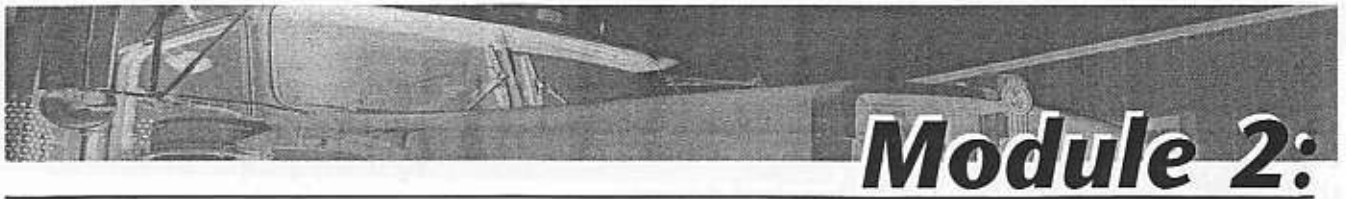
UNDER NORMAL CONDITIONS

This formula has a three-second base.

Under Ideal conditions most power units or small trucks should follow in front by at least three seconds.

***To calculate the minimum following distance
under ideal conditions,
divide your total vehicle length
(in metres) by three.***

When driving under adverse light, weather, road, or traffic conditions, add more seconds to your following distance.



The Driver

Driver Attitude

Driver attitude is linked to performance and crash risk.

Extremes in attitude can be dangerous on the roads. Being too passive can be just as dangerous as being too aggressive.

The most important thing you can do before getting behind the wheel of a vehicle is to check your attitude.

You must:

⇒ **RECOGNIZE THE HAZARD** ⇒ **UNDERSTAND THE DEFENCE** ⇒ **ACT IN TIME**

The Pre-Trip Mental Inventory

The first step in "recognizing the hazard" is taken before starting the vehicle. This first step is called a pre-trip mental inventory.

Make a mental check of all the factors that will affect your driving.

Before starting your vehicle:

Ask Yourself:

- _____ ?
- _____ ?
- _____ ?

If you, or your vehicle, are not prepared for the trip ahead, make alternate arrangements. **DO NOT** turn on the ignition. Remember, you must do everything **REASONABLE** to prevent collisions.

Alcohol

Estimates are that roughly 1,000 people are killed in collisions involving alcohol in Canada each year. That is 33% of all deaths. Last year alcohol was a factor in more than 40,000 collisions resulting in injuries. These tragic statistics have prompted many people to demand that tough action be taken against impaired drivers.

On June 30, 2000, the Federal Government amended the Criminal Code, introducing stiffer penalties for impaired driving. Here are some facts:

The Law

The law applies to all types of motorized vehicles – cars, trucks, motorcycles, snowmobiles, all-terrain vehicles and heavy equipment. It covers boats – sailboats, motorboats and other pleasure and commercial vessels. For aircraft, the law not only covers the pilot but anyone assisting in its operation.

The Penalties

The convicted driver can be fined, sent to jail and prohibited from driving.

On First Conviction

- Fine of \$ _____
- Prohibition from driving for _____ months

On Second Conviction

- Minimum of _____ days in jail
- Prohibition from driving for _____ months

On Third Conviction

- Minimum of _____ days in jail
- Prohibition from driving for _____ months

These are the minimum penalties. A judge may sentence the person to pay a higher fee or to serve a longer jail term. The judge may also prohibit him or her from driving for up to three years.

If impaired drivers kill or injure people the penalties are:

Impaired Driving Causing Bodily Harm

Up to _____ years in prison

Up to _____ years prohibition from driving

Impaired Driving Causing Death

Up to _____ years in prison

Up to _____ years prohibition from driving

Criminal Negligence Causing Bodily Harm

Up to _____ years in prison

Up to _____ years prohibition from driving

Manslaughter and Criminal Negligence Causing Death

Up to _____ years in prison

Up to _____ years prohibition from driving

Here Are the Facts:

Alcohol is the same in beer as it is in wine and hard liquor. People do not like to accept the fact – but a 341 ml (12 oz.) bottle of beer (at 5% alcohol) contains the same amount of alcohol as a 43 ml (1.5 oz.) drink of hard liquor (at 40% alcohol) or one 85 ml (5 oz) glass of table wine (at 12% alcohol).

Only time can eliminate alcohol from the blood. It is a slow process that is not speeded up by exercise, cold showers, or coffee.

The more alcohol a person consumes, the greater the impairment of his or her physical activities and mental faculties.

Do Not Drink and Drive!

Over the Counter/Prescription/Illegal Drugs

Amphetamines and Other Stimulants

These drugs stimulate the central nervous system to keep a person awake and alert. Some drivers, particularly long-haul truckers, may take stimulants to prolong the time they can remain behind the wheel without rest. Amphetamines are also found in decongestants, cold remedies and diet aids.

Stimulants can give a driver a false sense of alertness and self-confidence, which may encourage a willingness to take risks. They will mask fatigue, preventing a driver from being aware of its affects. When the drug wears off, dizziness or exhaustion often occur.

Sedatives and Tranquillizers

These drugs depress the central nervous system, slowing heartbeat and breathing. They are used in the treatment of tension, nervous disorders, emotional problems, alcoholism, high blood pressure, epilepsy, and insomnia. They may also be found in muscle relaxants.

Sedatives and tranquillizers can cause drowsiness, and can severely limit a driver's ability to concentrate. Lack of coordination, dizziness, blurred vision, and confusion are potential side effects. In combination with alcohol, they can cause severe depression, dangerously slow heart rate, and even kill.

Narcotics

Narcotics are depressants, and are used to relieve pain and induce sleep. Continued use may lead to addiction. Many non-prescription cough and cold remedies sold in Canada contain the common narcotic, codeine.

Drowsiness, visual impairment, confusion of thought, lack of concentration, and delayed response are all side effects of narcotics.

Antihistamines

Antihistamines are used to treat allergies, colds, flu, and skin conditions. Many common preparations contain an antihistamine. If in doubt as to the contents or possible side effects of a drug, ask your doctor or pharmacist for advice.

Many antihistamines cause drowsiness, blurred vision, lack of coordination and fatigue.

Antibiotics

Antibiotics are widely used to treat many kinds of infections, from skin rashes to sore throats.

Potential side effects include dizziness, drowsiness, ringing in the ears, headache, nausea, and vomiting.

Illegal Drugs

- Drugs that keep drivers awake such as "Uppers" and Speed.
- LSD and mescaline are strong hallucinogens, which can produce drastic mind-altering effects.
- Marijuana is a mild hallucinogen, which can act either as a stimulant or a depressant depending on the strength of the dose, the user's mood, and his/her experiences with the drug.
- Cocaine acts as a stimulant, producing a feeling of euphoria in small doses and violent stimulation and hallucination in greater quantities.

Not only is it illegal to possess and use such drugs, it is also against the law to drive while under their influence.

Drinks, Drugs and Driving: A Losing Combination

Some drugs taken alone have an impairing effect on driving ability. Other drugs have no detrimental effect when used alone and in recommended doses. There is, however, a considerable danger to driving ability when certain drugs are mixed with alcohol.

Do not mix alcohol with any drug. Always ask your doctor or pharmacist for advice on whether you should be driving after consuming a prescribed drug.

Fatigue

Excessive fatigue behind the wheel can be a killer. When fatigue and drowsiness get to the point where a driver notices them, fatigue has reached the acute stage. If you have to fight to keep your eyes open, you can bet you will lose the fight.

Emotions

Your emotions can also be a cause of impairment.

You must have your full attention for the road. Take a deep breath; take a quick walk to calm down. Make a phone call to say you will be late. Do not get behind the wheel before getting your emotions under control.

The four categories of impairment are:

- _____
- _____
- _____
- _____

DO NOT DRIVE WHEN YOU ARE IMPAIRED.

Taking Care of Your Vehicle

A systematic circle check must be done in accordance with provincial legislation and your company policy before you begin driving a vehicle daily. Details of the check will vary according to the type of vehicle you are driving but the principle of making a complete circle check should be followed in all cases.

Most provinces and states have laws, which regulate pre-trip inspection components - these are the components that must be checked. Knowledge of the laws and compliance with those laws is a driver's responsibility.

A true professional carries out a pre-trip inspection on any vehicle s/he operates.

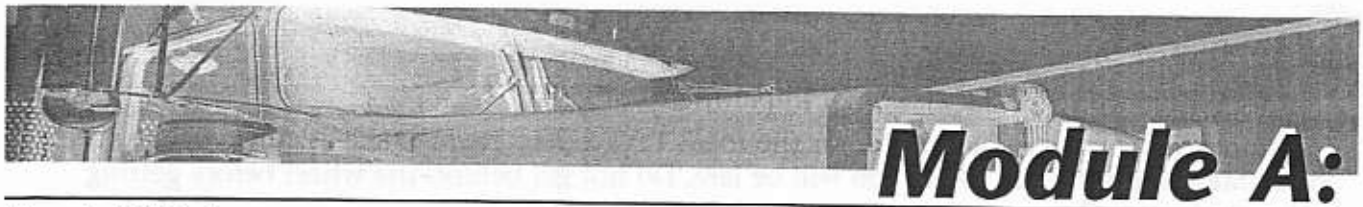
Professional Driver Responsibilities

Commercial vehicles are like traveling billboards advertising their company. A professional driver's actions must be a good reflection on that company.

Professional drivers are also driving bigger, heavier vehicles than most passenger vehicles. Your vehicle is slower to stop and harder to maneuver. Never take chances - the consequences could be tragic.

Drivers who believe in professionalism in the industry will be more employable and reliable.

Drivers who are non-combative while behind the wheel tend to operate their vehicle in a safer manner.



Module A:

Fuel Efficiency

Exhaust emissions are a major contributor to smog and global warming. Every litre of diesel fuel burned produces approximately 2.7 kg of carbon dioxide (CO₂), a greenhouse gas that makes a significant contribution to global warming.

With more trucks on the road travelling further each year, reducing fuel consumption is one way to reduce the environmental impact of the trucking industry.

Diesel emissions are influenced by engine design, maintenance and, to a lesser extent, fuel quality. As a driver, you directly affect the amount of these emissions by:

- The amount of time the engine is running
- Driving technique

Diesel Fuel

Diesel fuel is a blend of petroleum-derived compounds called middle distillates that contain additives. This fuel is heavier than gasoline but lighter than lube oil.

The cetane number reflects the ignition quality of diesel fuel. Cetane numbers generally range from 40 to 60.

Follow the recommendations of your engine manufacturer and a reputable fuel supplier.

Winter and Summer Fuels

Premium diesel

Alternative fuels

Environmental Factors that Impact Fuel Efficiency

When the vehicle moves, it encounters "rolling resistance". The vehicle has to "push" against this resistance to keep moving. There are many factors that affect resistance and, in turn, affect fuel efficiency.

Weather

Driving on snow-covered roads can increase fuel consumption 15% to 20% since the vehicle has to push harder through the snow.

Driving in heavy rain can increase fuel consumption by 10%.

Wind can also reduce fuel efficiency.

Seasons

According to TMC's 1997 study Relationships Between Truck Components and Fuel Economy, fuel economy improves between 8% and 12% in summer compared to winter since a high proportion of the energy available in diesel fuel is wasted with greater heat loss through the radiator and engine block in winter.

Roads/Terrain

Different road surfaces create different rolling resistances and therefore affect fuel efficiency.

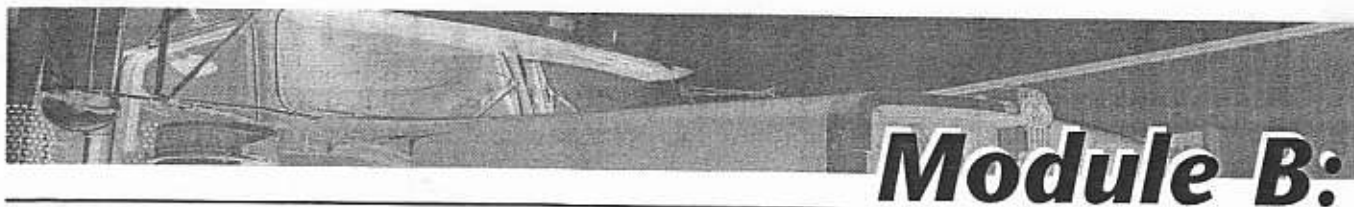
- **Flat routes** are more fuel-efficient and are not as hard on brakes as mountainous routes.
- **Mountainous routes** are subject to frequent weather changes and patterns that adversely affect your fuel efficiency and safety.
- Driving **around town** affects fuel use since stoplights, road junctions and pedestrian traffic all mean multiple "stop-starts."
- **Road maintenance** directly affects your fuel economy either through waiting or detours.
- **Unplanned events**, such as accidents, can create traffic congestion with consequent idling time. Listen to your radio and CB radio, so you can bypass these incidents.

Route Planning Tips

- _____
- _____
- _____
- _____

Proper route planning can save a lot of time, fuel and money. Different companies have different ways of finding the best route.





Vehicle Care and Inspection

Vehicle care and regular inspections are key factors in both vehicle safety and fuel economy.

A well maintained vehicle runs smoothly and functions the way it is supposed to.

Regular inspections give the driver the chance to identify potential problems before s/he gets out on the road where unexpected problems can result in collisions.

Preventive Maintenance

No one should carry out maintenance on a vehicle unless they have been trained properly.

Drivers can do routine service items such as adding fuel, oil, coolant, windshield washer, and draining moisture from fuel and air systems.

Tire Maintenance

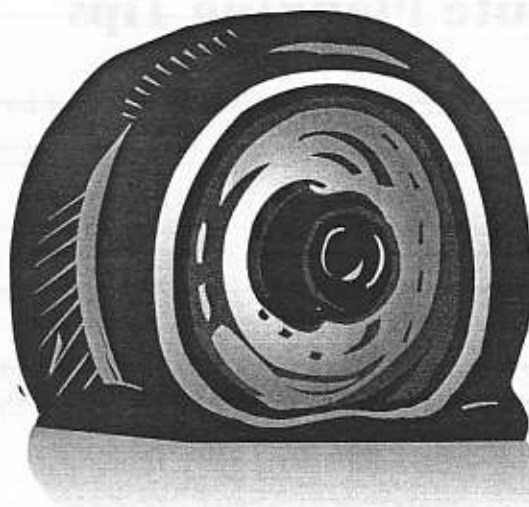
Proper tire inflation must be done in accordance with the **manufacturer's recommendations**. For the correct tire pressure, refer to the vehicle manual.

You should check and adjust the tire pressure at least once a week, with an accurate tire gauge, and when the tires are cool.

Remember to replace the valve stem covers to prevent slow leaks.

Under inflation can cause tire failure, and blowouts – both of which have been linked to many vehicle crashes. Be sure your tires are properly inflated!

Another cause of tire damage is **hitting the curb** when parking. Some of these tires have 50–70% tread left on them, but cannot be recapped because of **sidewall damage**. This is a waste of time and money for the driver and the company, as tires have to be replaced more often. The environment also suffers as more tires are sent to dump sites.



There are five things you should check for when checking your tires:

- _____
- _____
- _____
- _____
- _____

When you are testing the tires, you should feel the hub to see if it is hot. This could indicate problems with the brakes or the wheel bearing.

Tires and wheels must always be of a matching size.

Never mix radial and bias tires, as they have different traction properties. This means that they have different handling characteristics. Mixing radial and bias tires can make the handling of the vehicle unpredictable - a hazard in an emergency situation.

Vehicle Manuals

Find out about your equipment's capabilities and limitations by reading your manual so that you can handle the vehicle more easily.

You should understand such items as:

- The manufacturer's recommendations
- Shift pattern
- Peak torque
- Peak horsepower

You should also know what the Electronic Control Module (ECM) has been programmed to do, since operators have the ability to adjust settings.

Some of the settings that can be programmed into the ECM are:

- **Road speed governor** – limits top speed on level ground.
- **Gear down protection** – limits available road speed in gears to encourage the use of the top gear.
- **Cruise control** – maintains vehicle speed without depressing the accelerator.
- **Progressive shifting** – limits engine rpm when driving in lower gears or at lower road speeds.
- **Engine idle speed.**
- **Idle shutdown** – a fuel saving feature that automatically turns the engine off when there is no clutch or throttle activity for a certain period of time.
- **Maintenance monitor.**
- **Engine shutdown.**
- **Power take-off (PTO).**

Knowing your vehicle and its operating capacity increases your safety on the road.

Your knowledge will make the vehicle easier to drive because you will be operating it the right way. The engine will run more smoothly and the transmission will be easier to shift because you will hit the right gear at the right time.

Inspections

An inspection helps you find problems that can cause collisions, breakdowns and poor performance from the equipment.

When vehicles perform poorly, they use more fuel and their handling may become unpredictable. Each inspection must be thorough so no item is missed.

Vehicle Inspection Checklist

Inside the cab:

1. Check engine rpm by tachometer and record rpm, idle _____ & max. _____
2. Check operation of all instruments.
3. Check operation of all horns, air and electrical.
4. Record water temperature _____ and oil pressure _____ lb.
5. Check operation of wiper, washer, and condition of blades.
6. Check operation of doors, glass, mirrors and seat.
7. Check operation of heater, defroster and air conditioner controls.
8. Check operation of service and emergency brakes.
9. Check air governor, cut out _____ lb, cut in _____ lb.
10. Check air pressure for brakes.
11. Check odometer.
12. Check electronic control unit.
13. Check safety equipment.

Under the Hood:

14. Check the radiator, open shutters, check rad core for bugs/dirt.
15. Check intake and exhaust system mounting.
16. Check coolant level and antifreeze strength, record.
17. Pressure test coolant system and lubricate shutters.
18. Check all hoses.
19. Check and adjust all belts.
20. Check air conditioner and mountings.
21. Check fan hub for looseness.
22. Check engine for oil leaks.
23. Check exhaust systems for leaks.



24. Check fuel line and filters.
25. Check water filter.
26. Check engine shut-off for unusual noises, surging or missing.
27. Check throttle control and lubricate.
28. Remove and check air filter.
29. Check engine-mounting bolts.
30. Check steering box, front wheel bearings, and kingpins.

Around the vehicle:

31. Check lights and signals.
32. Check body for damage and corrosion.
33. Check inner and outer hubs, rear wheel bearings.
34. Check fuel tank mounting brackets.
35. Check fifth wheel mounting.
36. Check tire wear and alignment. Tighten wheel nuts (torque wrench).
37. Check tire pressure with gauges; record tire pressure (before making necessary correction) and tread depth.

/lb	/32	/lb	/32	/lb	/32
/lb	/32	/lb	/32	/lb	/32
/lb	/32	/lb	/32	/lb	/32
/lb	/32	/lb	/32	/lb	/32

38. Check hub odometer.
39. Check battery box mounting. Clean battery and cables (check water levels).
40. Check the operation of the cranking system and starter.
41. Check the operation of the power tailgate and loading ramp.
42. Check van body condition and operation of doors if equipped.

Under the vehicle:

43. Check transmission mounting.
44. Check driveline, U-joints and bearings.
45. Check front and rear suspension for looseness.
46. Lubricate complete unit and grease U-joints.
47. Check transmission for leaks.
48. Check rear axle.
49. Check brake linings – report if 7/16" or less.
50. Adjust brakes.
51. Check clutch operation and linkage.
52. Change engine oil and all filters.

Road Test:

53. Prior to road test.
54. During the road test.
55. After the road test.

Pre-Trip Inspections

Safety starts with the pre-trip inspection. The driver must ensure that it is done properly – according to regulations and the manufacturer's recommendations. As a driver, you must sign the paperwork to say you have properly carried out the inspection.

A high percentage of all breakdowns are created by problems that could have been found on a thorough pre-trip inspection – items such as fan belts, radiator hoses, low oil, flat tires, etc.

There are three stages of the pre-trip inspection:

- _____
- _____
- _____

En route Inspections

Carry out the first en route inspection within 50 kilometres of the start of the trip. Inspect the cargo and load-securing devices.

Circle checks should be done every 3 hours or 250 kilometres whichever comes first.

If you carry dangerous goods, you must check tires and wheel components every 2 hours or 150 kilometres whichever comes first.

Make sure you know the inspection regulations of the provinces or states you are driving in since there are differences between them. You should also follow your company's policy.

When carrying out your en route inspection, do a circle check similar to your pre-trip inspection:

- **Tires** – check for heat
- **Wheels** – is the wheel hub too hot?
- **Brakes** – check temperature by sight and by placing your hands close to them
- **Leaks** – coolant/oil/fuel
- **Cargo** – check doors/load securement
- **Lights**

Post-Trip Inspections

- Check the complete vehicle for damage.
- Check fastening devices.
- Complete a **post-trip report**, which may be mandatory in some jurisdictions.

On your daily vehicle condition report, record any maintenance requirements or problems that you find.



Module C:

Recommended Practices

Starting Techniques

Proper starting techniques save money on fuel and maintenance. There are four things you should know if you want to practice good starting technique.

- _____
- _____
- _____
- _____

Ether

Ether is sprayed directly into the air cleaner where it is drawn in when the piston is on a downward stroke. This causes the ether to dry the cylinder walls and dry out the lubricant when the piston starts upward again. The more you use it during start-up, the more you will have to use it.

Do not use ether on engines with electric pre-heaters.

Revving

Do not rev the engine when it is cold. Revving the engine on start-up can cause damage because some of the oil does not get to the top of the engine. This can score the cylinder walls.

Start the engine and let it idle. Increase the rpm of the engine when the pressure gauge shows the oil pressure dropping, but only to around 900 rpm for the oil to warm and circulate.

If the oil pressure remains high, it means that the oil has not yet reached the top of the engine.

On some engines, it could take up to 5 minutes for the oil to reach the top, depending on the temperature.

Idling

Cold starting and idling can be costly because of the premature engine wear. With high rpm, the cold engine is also expensive to operate because of excessive fuel usage.

Idle 3–5 minutes to allow the oil in the engine to warm up. If it is below 0°C, you may have to wait up to 7–10 minutes.

Accessories such as oil pan heaters and oil-circulating pumps can be used when the temperature is at -20°C to ensure a quicker start.

Once the initial idle time has passed, you can easily warm up the vehicle further, under load, providing you use gentle throttle control and do not try to get too much speed out of the engine by pushing the throttle down harder. Remember that the engine oil is very sluggish at this point.

Smoke

If the smoke from the engine is blue or grey, this is the result of burning lubricating oil and is an indication that the engine is in poor mechanical condition.

If you see black smoke, back off the throttle. This will produce more power because the fuel going through the engine will be properly burned. You will get the most out of the fuel and unburned fuel will not have to be pushed through the engine, which can damage the valves, the turbocharger and other components affected by heat and exhaust.

Managing Your Idling Time

Idling an engine wastes up to 4 L of fuel per hour at 900 rpm. The wear and tear on the vehicle equals 3–5 hours of engine operating time on the road at cruising speeds.

Fuel injectors can easily become clogged when the vehicle is idling for too long. This means they will be less efficient, with more downtime and maintenance costs.

Horsepower/Torque

Horsepower is a unit of measurement defined as “the rate of doing work.” It measures the engine’s ability to accelerate and climb grades at higher road speeds.

Today’s engines reach a high power level at low rpm and stretch the power out over a wide rpm range. The result is more power in the rpm range where you drive the most – at cruising speeds.

Torque is the measure of twisting force produced by the engine. Torque starts the load moving and provides the engine with the ability to climb grades.

Engines today spread the maximum torque over a wide rpm range. More torque at a lower rpm means you climb hills more easily with less shifting.

Clutching

Professional shifting means a smooth and accurate use of the transmission. It takes practice and is the key to minimizing unscheduled stops or downtime due to a damaged transmission.

Some new transmissions are designed to synchronize engine rpm to road speed. This means that the clutch is used for only starts and stops.

Double-clutching is done by pushing in the clutch enough to break torque in the transmission and moving the gear shift lever to neutral, releasing the clutch, pressing the clutch in again, and moving the gear shift lever to the next gear.

You may have heard that some drivers do not use the clutch. You should always use the clutch. Failure to use the clutch, together with each miss of a gear change, progressively wears the gear teeth down in the transmission, which will cause problems later on.

Progressive Shifting

Progressive shifting is shifting before you reach the maximum governed rpm.

Progressive shifting requires only enough throttle to get the transmission to the next higher gear without lugging the engine. This reduces wear on the equipment, decreases noise levels, and saves fuel.

By using progressive shifting, you extend the life of your vehicle and you save fuel. Running the engine in the highest gear possible keeps the engine in a lower rev range. Using lower revs cuts down on the number of strokes the engine has to make and this means less fuel is used.

Remember to read the recommended driving tips from the engine manufacturer in the vehicle manual.

Skip Shifting

Progressive shifting can sometimes mean skipping gears if they are not needed. Use as high a gear as possible without lugging the engine. If you are starting on a downgrade, start in a higher gear, but remember that if any throttle is needed, you are in a gear that is too high for starting, regardless of the grade. This is hard on the clutch and drive train.

Lugging the Engine

Lugging occurs when the driver fails to downshift as the engine speed starts to fall below the normal operating range. At this point, the engine is producing too little power and struggles or lugs to maintain speed. The strain on the engine can cause overheating and damage to the drive train.

Speed

Maximum engine speed can be programmed into the ECM (Electronic Control Module).

Consistent speed can also be achieved using **cruise control**. Cruise control is the most efficient way of saving fuel on the highway, provided that cruise is set at a reasonable speed. However, using cruise control in slippery conditions can cause the wheels to spin and can destabilize the vehicle. Cruise control is best used in ideal conditions and low-density traffic.

When climbing hills, use the vehicle speed and the transmission gear that will best use the available torque in the engine to get you economically up the hill. If you increase your speed to try to "get a run" at the hill, you will use more fuel. Invariably, you will need to go down through the gears to climb it.

Curves

Remember that a curve taken safely by one vehicle at a certain speed may not be safe for another. Keep in mind the affects of centrifugal force and the following:

- Height of the centre of gravity, load and weight.
- Hanging or liquid loads may shift.
- Springs in relation to the load.
- Sharpness of the curve (the tighter the curve, the greater the outward force).

Slow down before entering the curve. Approach at a speed that will not require braking, but will permit safe application of power.

For right curves: _____

For left curves: _____

Retarders

Retarders slow the vehicle down without using the service brake. They use the compression of the engine to slow the vehicle. When the driver's foot comes off the throttle, no fuel is supplied to the engine. With no combustion, the engine rpm falls and the engine acts as a brake.

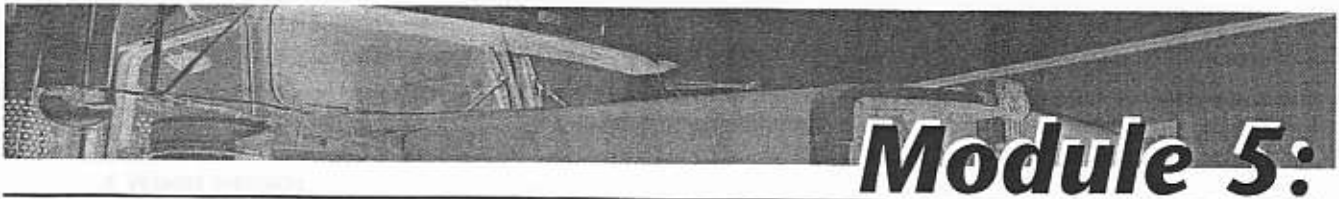
Engine retarders have the highest amount of holdback power at higher rpm.

Engine Cool Down

If the vehicle has been working under power, it needs a period of 3-5 minutes idling to allow the turbocharger to cool down to prevent burning the oil. Any idling time above 3 - 5 minutes is unnecessary and wasteful, especially if you are running accessories such as air conditioning.

Anticipate stops such as a rest stop.

Let the engine cool down while you are still on the road by backing off the throttle and using the momentum you have already gained until you exit the highway.



The Road and Other Users

Vehicle/Pedestrian Collisions

The hazards associated with pedestrians in traffic are many and varied. A driver must learn to recognize these hazards and avoid them wherever possible. Some of the more common are:

- **Buses and Street Cars.** Pedestrians may be running from any direction to board them or may dart across the street in front of a transit vehicle after alighting from it.
- **Parked cars.** Adults can be seen over the hood of a parked car, a child cannot. However, their legs and feet can be seen through the underside of parked vehicles.
- **Children.** Children are completely unpredictable. Remember this and drive accordingly when in their vicinity. A friendly tap on the horn will get their attention. If you see a ball bounce on the road you can be sure a child is close behind.
- **Senior Citizens.** Elderly people may have their physical abilities impaired by age. Give them the respect they deserve. Reduce your speed and be prepared to stop.
- **Impaired Person.** A large number of fatal pedestrian collisions occur when the driver strikes an impaired person. Be especially cautious if you suspect a pedestrian of being impaired.
- **Lighting.** It is very difficult to see pedestrians at night. Always encourage family and friends to wear bright retro-reflective material at night.
- **Pedestrian Crosswalks.** Right-of-way must be given to pedestrians in the crosswalk and they must be allowed free and uninterrupted passage. It is unlawful to pass another vehicle within 30 m (100 ft.) of a pedestrian crosswalk.

Remember; always drive in the manner in which you would like others to drive if you were walking.

Vehicle/Motorcycle Collisions

Many of the collisions, which occur between the vehicle driver and the motorcyclist, are the fault of the motorist.

Many motorists think motorcycles require less space on the road than other vehicles, just because the motorcycle is smaller. That is not true. A motorcyclist is entitled to a full lane.

Hazards for the motorcyclist can entrap you too. A motorcyclist ahead can lose control of the machine when sand, gravel, wet leaves or water are on the pavement. Always be aware of conditions that may cause a spill. Leave plenty of room, and slow down.

Vehicle/Train Collisions

How can you ensure your safety when you approach a rail crossing?

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Vehicle/Bicycle Collisions

Collisions with bicycles represent another type of fatal traffic collision.

Many cyclists are children, and they may not know or obey the rules. So protect them by slowing down, tapping the horn, and giving them plenty of room when over-taking or passing them.

Watch for cyclists slipping between you and the curb when making a right turn, and be especially watchful for cyclists riding at night, since many cyclists will have ineffective lights and reflectors, or none at all.

Vehicle/Animal Collisions

Every year a number of people die as a result of collisions with animals. Damage to the vehicle and its occupants can be serious.

Animals that stand high on their legs (moose, deer, etc.) can roll onto the hood and into the windshield of a vehicle after they have been hit. Be alert for animals, especially in wildlife areas and on open highways in farm or range country.

How can you avoid collisions with animals?

- _____
- _____
- _____
- _____
- _____

Vehicle/Train Collisions

How can you ensure your safety when you approach a rail crossing?

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

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How can you avoid collisions with animals?

- _____
- _____
- _____
- _____
- _____

Passing

Before passing, ask yourself:

- _____ ?
- _____ ?
- _____ ?

Passing is unsafe...

...while driving on hilly or winding roads with poor visibility.

...when approaching intersections or railway crossings.

...in "No Passing" zones.

IF IN DOUBT - DON'T

The On-Coming Vehicle

The deadliest of all collisions is one that occurs with an oncoming vehicle.

The Four "Rs"

Whatever the reason, an oncoming vehicle in your lane presents a truly dangerous situation. Here is a prescription for you to learn, and practice to prevent collisions with oncoming vehicles.

READ the Road Ahead

REDUCE Speed

Ride to the RIGHT

RIDE Right Onto the Shoulder

If you are forced to drive off the road:

The main thing is – do not panic.

In an emergency, never give up. Ride it out and keep control.

Recovering from a Pavement Drop-off

Your efforts to steer back onto the road if your front wheel has dropped off the pavement can send you swerving into the path of an oncoming vehicle unless you follow these steps:

- Do not panic and do not brake.
- Slow down to a safe speed by taking your foot off the gas.
- Keep your vehicle on a **straight course**.
- Check for an opening in traffic and **steer slowly** back onto the pavement at a slight angle.
- Straighten the wheel position as soon as the front wheels contact the pavement.

The Art of Passing

Preparing to Pass

- _____
- _____
- _____
- _____
- _____

Making the Pass

- _____
- _____
- _____
- _____
- _____

Completing the Pass

- _____
- _____
- _____
- _____
- _____

When you are Being Passed

There are things you can do to prevent a collision when others pass you:

- _____
- _____
- _____

IN THE EVENT OF A COLLISION...

56. Park off the highway 15 to 30 metres (50 to 100 feet) from the nearest vehicle.
57. Protect the scene with flares, lanterns or flags and get others to warn traffic in both directions.
58. Help the injured and account for occupants of all vehicles.
 - Call for medical aid if needed.
 - Administer first aid to the extent that you are qualified.
 - Do not move the injured unless they are endangered by traffic, fire or bleeding.
59. Call 911 or your emergency authority – your call will be referred to the proper jurisdiction.

The Collision Information You Should Record

Time: _____ am OR _____ pm

Date: _____

Place: _____

Street: _____

Intersection: _____

Your Speed: _____

Posted Speed Limit: _____

How / Why did the collision happen?

Damage to your vehicle?

Damage to other vehicle (if applicable)?

Other Driver Information:

Name: _____

Address: _____

Phone Number: _____

Home - (_____) _____ Work - (_____) _____

Vehicle Type, Colour and Year:

Vehicle Licence Number:

Number of Vehicle Occupants: _____

Driver License Number: _____

Insurance Agent Name: _____

Insurance Policy Number: _____

Any Injuries to Vehicle Occupants: _____

Your Vehicle:

Other Vehicle:

Witnesses #1:

Name: _____

Address: _____

Phone Number: _____

Home - (_____) _____ Work - (_____) _____

Witnesses #2:

Name: _____

Address: _____

Phone Number: _____

Home - (_____) _____ Work - (_____) _____

Did You Know?

1. Even before the arrival of police, it is permissible to move vehicles if they are a traffic hazard. But only if there are no deaths or injuries involved and no suspicion of alcohol involvement.
2. You are required to give your name and address and show your driver's licence and vehicle registration upon request by police. There is no responsibility to say more. The law recognizes that you may be in a condition of shock. You may not be competent to make a statement.
3. You do not have to sign anything for anybody if you are unsure.
4. See a doctor - you might be injured and not know it.
5. Report to your insurance company immediately.
6. File an official collision report.

First Aid in Traffic Collisions

At some time or other you may come upon a traffic collision where the persons involved need help quickly. There are things you can do even if you are not trained in first aid.

1. If a first-aider, nurse or doctor arrives on the scene, turn the responsibility over and offer your help.
2. If you are the only one who can help, here are some things to do. As others arrive on the scene, ask them to assist you. Quickly examine the injured and help each in order of priority: stopped breathing, severe bleeding, and unconsciousness. Try to help the injured where they lie.
 - If a person has stopped breathing, attempt artificial respiration at once.
 - To stop bleeding, a compress made from any clean cloth should be pressed directly over the wound. If necessary use your bare hand. Elevate the limb and when the bleeding has subsided, bandage over the dressing snugly, but not too tightly. Articles of clothing can be used as bandages if necessary.
 - Unconscious casualties may suffocate if left on their back. **When injuries permit**, turn them on their side.
3. Do not move the injured unless there are life-threatening conditions. Unnecessary movement of a person with an injured neck or spine can complicate the injury, or even cause death.
4. If removal is necessary, the injured should be moved in the direction of the long axis of the body by the arms or shoulders, or by the feet. Move them carefully and as gently as possible. Use any available blanket, coat or similar item as a skid if time permits.
5. Make the injured as comfortable as possible. The best position is usually flat on the back. Do what you can to prevent shock. Keep them warm. Put a blanket or heavy garment down. Elevate the legs 20 to 25 cm (8 to 10 inches). In case of bleeding from the lower part of the face and jaw, turn the injured on their side. Do not give fluids, stimulants or alcohol.
6. The transportation of a seriously injured person to the hospital should be under-taken with care and only when medical aid cannot come to the scene. The victim must be prepared and handled properly, usually a task for more than one person.
7. If you are first on the scene, do what you can for the injured, but wait for the authorities and ambulance to proceed with any situation where you are unsure. The victims should only be moved if they are in danger of further injury (i.e. vehicle fire, gasoline leak, traffic, etc.).
8. Cooperate fully with authorities, giving them any information, names and addresses you may have obtained, as well as your knowledge of the circumstances of the collision.
9. If there are fatalities do not move or permit the bodies to be moved until the authorities arrive and take over.

Coming upon a crash scene can be a frightening experience. The Canada Safety Council recommends that you invest 4 hours of your time and take FIRST AID FOR DRIVERS, a course specifically designed by St. John Ambulance with the motorist in mind. This course will give you the confidence and the skills needed to know what to do at the scene of a collision. For more information contact your local St. John Ambulance office or National Headquarters at 1900 City Park Drive, Suite 400, Ottawa, Ontario, K1A 1A3, (613) 236-7461.

What Should a First Aid Kit Contain?

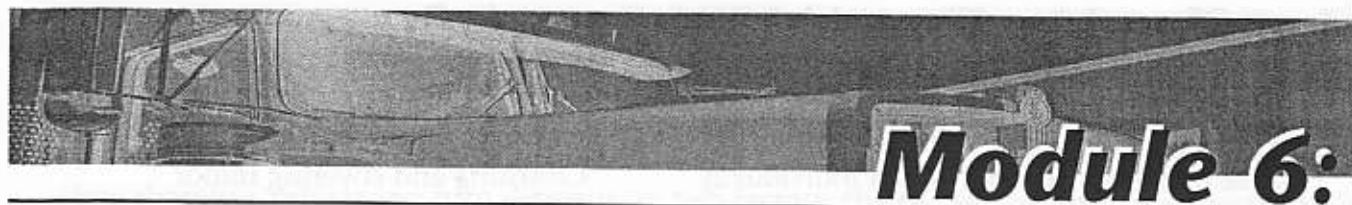
QTY	ITEM	PURPOSE
1	Package of assorted self-adhesive dressings	Covering small cuts and abrasions
12	Gauze dressings, 10 cm x 10 cm individually packed sterile	Cleansing and covering minor wounds
4	Pressure dressings	Controlling severe bleeding
1	Burn dressing	Covering major burns
1	Adhesive tape, 2.5 cm roll	Securing gauze dressings
2	Roller bandages, 7.5 cm cling-type	Securing gauze dressings
6	Triangular bandages immobilizing fractures	Slings, securing dressings and
10	Cleansing wipes	Cleaning wound areas
6	Safety pins, large	Securing bandages and slings
1	Scissors, heavy-duty, serrated	Cutting dressings and seatbelts
1	Rescue blanket, weatherproof foil or plastic	Covering the casualty
4	Pairs of latex gloves	Protect you from contaminated blood
	Plastic bags	For various uses
	Small change	For pay telephones
	First aid manual	Emergency First Aid Safety Oriented, St. John Ambulance
	Containers, waterproof	Storage of first aid items.

Additional Suggestions

- Suggested contents may be supplemented, or some items may be substituted with articles found around the home (e.g. clean white towels, pads of facial tissues and sanitary napkins make good improvised dressings; opened garbage bags may be used as a weatherproof blanket).
- The contents of a first aid kit should be checked periodically and replenished after each use.
- Remember that a first aid kit is only as effective as your ability to use it; every driver should take a St. John Ambulance First Aid Course.

Courtesy St. John Ambulance





Module 6:

Intersections

Of all the driving situations you will have to deal with, the intersection is the most complicated. It will test your ability as a driver to the limit because there is so much going on.

The basic, overriding rule that you should follow when approaching an intersection is:

ALWAYS BE 100% PREPARED TO YIELD.

"Yield" means prepare to slow down. Sometimes it means to stop. It always means having your foot off the accelerator and covering the brake when you see that conditions are unfavourable.

Defensive driving is not a 50:50 proposition. It is really 100:0. The defensive driver is willing to be 100% responsible for what happens to him/her by being 100% prepared to yield to another driver.

Who Goes First?

Forty percent of all traffic collisions happen at intersections and most intersection collisions occur because drivers fail to follow right-of-way regulations.

Because not all drivers understand or follow right-of-way rules, it is up to you to approach all intersections with caution. Keep your foot off the accelerator and cover the brake pedal whenever you see that conditions are unfavourable. Be ready to yield and to stop whenever necessary to prevent a collision.

Before proceeding through an intersection, check for cross traffic. Look first to the left, then to the right, then back to the left. Keep scanning left to right as you drive through the intersection.

Be sure to scan what is ahead also. Correct eye-lead time is essential at intersections. A situation may be developing in the lanes ahead.

Before you enter an intersection, have a total picture of what to expect.

Right-of-Way Regulations

Stop Signs

Stop signs do not detail where to stop. Where you stop depends on what signs are present.

- You must come to a full stop and yield the right-of-way to anyone in or closely approaching the intersection.
- Failing to stop properly (i.e. a rolling stop) is a chargeable offence.
- If there is a stop line, stop so the bumper of your vehicle does not cross the stop line.
- If there is a crosswalk painted on the road but **no stop line**, stop before passing the crosswalk.
- If there are **no stop lines or crosswalks**, stop before the beginning of the sidewalk or before crossing or entering the street.
- If two vehicles stop at the same time, the vehicle to the left must yield to the vehicle on the right.

ALWAYS BE 100% PREPARED TO YIELD.

Four-Way Stops

The first person to approach the intersection has the right-of-way. Others should proceed, one at a time.

- Communicate with other road users by establishing eye contact.
- Make sure others know your intentions.
- When turning, signal well in advance.

ALWAYS BE 100% PREPARED TO YIELD.

Police Regulated Intersections

- When you approach police regulated intersections, you must obey police officer.
- Continue to follow police directions until it is indicated that normal driving can be resumed.

Yield Sign Intersections

- "Yield" means that you may have to slow or stop.
- Drivers should always yield and give right-of-way to approaching traffic and pedestrians.

Uncontrolled Intersections

An uncontrolled intersection has no traffic sign or signal.

- When two vehicles approach at the same time, neither has the right of way.
- The law says that the vehicle on the left shall yield to the vehicle on the right.
- If a collision occurs, the driver of the vehicle on the left can be cited for failure to yield the right-of-way.

Merging at Intersections

When merging with moving traffic:

- Switch lanes - to one that allows merges.
- Increase vehicle speed to that of the surrounding traffic.
- Monitor traffic in order to check for a spot to merge into.
- Use your turn signal
- Merge when it is safe and legal.

If possible, move to the left to allow others to merge from the right (or vice versa).

Traffic Device Controlled Intersections

- Making right turns on red lights is prohibited in some jurisdictions, and whenever it is indicated.
- Flashing and regular amber lights mean to slow and prepare to stop if necessary.
- Always be prepared to yield, even on green lights, as others may not notice light changes.
- Be familiar with rules and regulations concerning traffic control devices.
- Traffic control devices and signs may differ from province to province and from one country to another.

ALWAYS BE 100% PREPARED TO YIELD

Turning

Whenever possible, turns must be made from the proper lanes. When it becomes necessary for the driver to direct a vehicle over lane lines or centre lines to negotiate sharp turns, it is your responsibility to be sure movement can be made in safety, without interfering with other traffic.

How sharply a vehicle can turn depends on two factors, the **turning radius** of the front wheels and the amount of **off-track** of the rear wheels.

Turning radius

The area in which the length of your vehicle turns – or the minimum arc required. The number of degrees the front wheels will pivot to the left or to the right varies in different makes and types of vehicles. The wheel on the inside of the turn must pivot more sharply, to travel on the shorter radius, than the wheel on the outside of the turn.

Off-track

The rear wheels of the vehicle do not pivot and therefore, will not follow the same path as the front wheels. The greater the distance (wheel base) between the front wheels and the rear wheels of the vehicle, the greater the amount of "off-track". The off-track path of rear wheels is a shorter radius than the path of the front wheels.

The combination vehicle, such as a semi-trailer unit, has an off-track by the rear wheels of the tractor unit, and a greater off-track by the rear wheels of the semi-trailer.

The combination units of a truck-tractor and "Pup" trailer have a different turning radius and off-track pattern within each unit, but the amount of off-track is dependent upon the length of the draw bar and the wheel base of the units.

Wheel Base:

The distance between axles on a straight truck, or between the king pin and the centre of the rear axle assembly on a semi-combination vehicle.

Remember that while the difference in wheel path travel appears on one side of the vehicle, the body-swing and load overhang appear on the opposite side.

Positioning For a Turn

- Know which lane you need to be in to make the turn you wish to make (i.e. right, left or designated turn lanes).
- Check mirrors before changing lanes to ensure the way is both safe and clear.
- Use turn signals to indicate your intentions.
- Perform shoulder checks to ensure that no one is in your blind spot.
- Keep your vehicle's speed within the legal limit. Avoid greatly reducing or increasing speed.
- Change lanes.

Keep your indicator switched on until you have made your turn so that other drivers know your intentions.

Right Turns

Right turns are made into the right-most lane of the street you enter.

Right angle turns at intersections with vehicles, which have an appreciable amount of off-track, require you to lead the turning arc in accordance to the amount of off-track. Running the rear wheels of the unit over curbing and sidewalks not only causes tire damage, but also is hazardous to pedestrians.

If the streets are narrow, it will be necessary for you to proceed well into the intersection before commencing a turn. It may be necessary to travel over the centre line of the street being entered or into the second traffic lane. You must use extreme caution and ensure the movement can be made in safety.

When it is necessary to "block off" other traffic lanes, ensure that smaller vehicles, motorcycles, or cyclists are not attempting to proceed on your right.

- **Stay near the right** side of the road to ensure others do not squeeze between you and the curb.
- Activate your **turn signal** well in advance.
- Once in position, **check** for cars and cyclists between your vehicle and the curb.
- **Turn.** Always turn into the lane directly beside the one you leave – **do not jump lanes** as you are turning.

Right turns can almost always be made without having your vehicle cross the centre line of the lane you are leaving.

For long wheel-based units, the rear wheels should be within 1.2 metres (four feet) of the right curb, always staying close to the right curb.

If extra space is required to complete a turn, take it from the street you are entering, not the street you are leaving.

Left Turns

When turning into two-way streets, left turns should be made as close as possible to the centre line.

- Activate your **turn signal**.
- **Check** the rear, using vehicle mirrors, before changing lanes.
- Position your vehicle as close to the centre line as possible.
- **Keep your wheels facing straight** ahead while waiting to turn. If you are hit from behind, you will travel straight ahead and not at an angle into oncoming traffic.
- Stay to the right of, but as close as possible to, the **centre line** of the road you are entering. Do not let the rear wheels cross the centre line before attempting to make the turn.

Left Turns onto One-way Streets

- Left turns made into one-way streets should be made into the closest available legal lane.

Left Turns from a One-way to a One-way

- Left turns made from a one-way street into a one-way street should be made from the furthest left side into the closest available legal lane.
- In some jurisdictions, it is legal to make a left turn at a red light when turning from a one-way street to another one-way street.

The Four-Point Plan for Intersection Safety

Here is an easy formula for intersection safety:

Know

- ...that the unexpected can happen. Stay alert.
- ...the right-of-way rules but do not expect others to know or obey them. Be prepared to yield.
- ...your plans in advance and indicate them to other road users.
- ...what is happening around you – use your eye-lead time.

Show

- ...other drivers your intentions by using turn signals, vehicle speed and your vehicle position as indicators.

Slow

- ...down well in advance and be 100 % prepared to yield.
- The slower you move, the more time you have to react to unexpected hazards.

Go

- ...with care and without delay. Hesitation can tempt other drivers to take risks.

Intersections Quiz

Turn to the Exercises and Review section for this module, and, in your groups, complete the Intersections quiz.

Safe Backing

Backing, like intersections, presents drivers with a host of possible hazards.

Poor backing technique causes expensive damage to property and can affect your good driving record.

The defensive driver can improve backing technique and avoid backing collisions by observing some basic rules.

- Get out of the vehicle. Always physically inspect the area before backing.
- Back from the driver's side.
- Back slowly.
- Check both sides. Look to the back, and to the front also.
- Use a reliable guide.
- Tap the horn if the vehicle you are driving lacks a backing alert device. This will warn others that you will be backing.

Notes from "Backing in the Real World" video:



Supplemental Information

Load Distribution

Overloading a vehicle and the weight distribution of a cargo affects the handling characteristics of the vehicle, as well as the life of the tires, frame, springs, axles, and bearings.

Even though the total load may not be over the total carrying capacity of the vehicle, poor distribution of weight could be overloading an axle or a set of tires. Undue stress could be placed on the frame resulting in permanent damage and steering misalignment.

Distribution of weight will depend on the nature of the load. The loading of one piece of cargo, which comprises the full load, will present different problems from a load made up of a number of pieces of cargo.

Securing Loads

Secure the entire load to prevent shifting or loss of any portion of the load. Frequent checks must be made to ensure lashing ropes or binder cables have not become slack or chaffed.

Loads consisting of loose materials hauled in open boxes, such as wood chips, paper, refuse, etc., must be covered to prevent littering the highway. Tarpaulins must be checked for security.

First Aid

The drivers of commercial vehicles traditionally spend a large amount of their time on the nation's highways. As a result they are very often first on the scene of traffic collisions.

The following is designed to be a reminder of the basic necessities of first aid. Review these steps and ensure that you are prepared to handle any emergency situations that may arise.

Professional drivers should be trained in first aid. The driver of a vehicle could find himself or herself in a situation where immediate assistance is not available. In such a situation, the driver may give aid to an injured person until help arrives or until the injured person can be taken to a hospital. As a minimum you should be able to do the following,

Artificial Respiration

When breathing stops for any reason, begin mouth-to-mouth artificial respiration at once:

Lift the neck with one hand and press on the forehead with the other so that the chin is pointed vertically. This opens the airway. Maintain this position through the procedure.

Pinch the nostrils tightly, take a deep breath and seal the patient's mouth securely with your own. Give 4-full, quick breaths. Do not allow the lungs to deflate between breaths. Take in a breath between ventilation.

If the chest fails to rise, air is not getting into lungs. Check for and remove any obvious obstruction.

After 4-quick breaths, give a full breath every 5 seconds. Lift your mouth from the face after each breath to allow air to escape. Listen for air being expelled and watch for the chest to fall.

For infants, extend the neck gently and blow puffs of air into both the mouth and nose every 3 seconds.

Bleeding

To control bleeding wounds:

Apply direct pressure; elevate wound above heart level; keep the casualty at rest.

Cover with a clean dressing held firmly in place with a bandage.

If blood soaks through, cover with more dressings.

Embedded objects should not be removed as this may cause bleeding. Loosely cover the object to prevent contamination and apply pressure around the wound.

Shock

Bleeding, burns, pain, cold and anxiety can cause shock. Shock can be fatal - prevent shock by treating the cause.

Shock can be recognized by restlessness, pallor, cold and clammy skin with sweating, rapid breathing and pulse, nausea, vomiting and unconsciousness.

Treatment for shock:

- Reassure the casualty.
- Keep the casualty at rest, feet elevated.
- Prevent loss of body heat.
- Obtain medical aid.

Carry a first aid kit in your vehicle!

Winter Survival

The winter season involves additional hazards for the careless or unwary motorist. Each year the use of "summer judgment" leads to many needless deaths under winter road and weather conditions. Even careful drivers may find themselves stranded in a sudden or localized blizzard with a frozen gas line or involuntarily in the ditch on some side road. However, the sensible driver has developed the knowledge and acquired the equipment to come safely through such situations. S/he has developed "winter judgment" in order to ensure survival, for without preparation, even an elementary driving error or a simple mechanical failure may lead to a fight for life in frigid temperatures.

Winter judgment is simply a matter of common sense in preparing for the road and weather conditions that are likely to be encountered. It involves two things, knowing what to do and knowing what to take along. Knowing what to do includes: how to prepare your vehicle by winterizing it; how to drive under winter conditions; and what to do in an emergency. The following sections elaborate on each of these procedures.

Prepare you vehicle

- **Battery** - Do not simply assume that your battery will last another winter. Battery power drops substantially in cold weather so have yours tested. Get a charge or new battery if necessary. A hot box helps with cold winter starts if you operate a diesel engine.
- **Brakes** - Faultless brake are a MUST for winter safety. Have your mechanic check for equalization and brake adjustment. A pull to either side may cause a dangerous skid.
- **Cooling System** - To avoid overnight freeze ups, install anti-freeze for protection against the coldest expected weather. Check your heater operation at the same time. Use an anti-freeze solvent in the windshield washer system and keep it full.
- **Gas Tank** - Keep fuel tanks filled to reduce condensation.
- **Muffler and Exhaust System** - A faulty exhaust system may allow deadly carbon monoxide gas to seep into the vehicle. Have the entire system checked for leaks.
- **Tires** - To avoid trouble with surprise snowfalls, install snow tires early. Studded snow tires are better than unstudded ones, and for very severe conditions chains are best. Remember, some jurisdictions do not allow the use of studded tires or chains - be sure to check before you use them. Depending on the particular tread design, radial tires usually offer better traction on slippery surfaces than conventional "summer" tires. However, they will NOT take the place of snow tires in mud or snow. Check the legal requirements of the Provinces or States you drive through before installing studded tires.

Radial snow tires may be expected to offer better traction than either regular radials or conventional snow tires. Therefore, the best possible traction (without using tire chains) should be given by studded radial snow tires. NEVER mix radial tires and conventional tires on the same vehicle. This can lead to unstable handling.

- **Windshield** - Your windshield should be clean and in good condition. Wipers should have adequate arm tension and worn blades should be replaced. Make sure that defrosters are able to keep the entire window clear.

Survival in any hostile environment depends upon being equipped to handle ALL demands that the situation may impose. Therefore, all vehicles should carry the following basic equipment for winter operation:

- Properly inflated spare tire
- Wheel wrench
- Suitable jack for the load weight
- Lightweight shovel
- Reinforced tire chains
- Tire wedges (to prevent rolling)
- Bag of sand, wire traction mat or some other suitable abrasive substance
- Windshield scraper
- Snow brush
- Flashlight
- Tow chain
- Flares
- Supply of fuel line de-icer
- A set of battery booster cables
- Spare fuses
- Warm clothing
- First aid kit
- A SECOND SET of vehicle keys located OUTSIDE the passenger compartment. Keys can be easily lost in deep snow... SO BE PREPARED.

FOR OUT OF TOWN trips the above equipment should be supplemented with:

- Blankets or sleeping bags
- Lined winter boots and hat
- A supply of rags
- Twelve wide candles
- A fire extinguisher
- A Blizzard or Emergency Ration Kit

A Blizzard or Emergency Ration Kit includes:

- Several candles or small cans of Sterno (canned heat) USE WITH CARE! ENSURE ADEQUATE VENTILATION
- Several packs of safety matches (WOODEN MATCHES ARE BEST)
- An aluminum mug
- A small aluminum pot
- Knife, fork and spoon
- A pair of woolen mitts and two pairs of woolen socks
- Sources of high-calorie, non-perishable food energy such as nuts, candy, gum drops, biscuits, crackers, cookies, dried soups, dried beef, sweet bakers chocolate, honey, gum sugar, powdered milk, tea bags, instant coffee.

Drive for Winter Conditions

Make Sure You Can See - Before starting the vehicle, clear ALL windows. Do not be a "peephole" driver—remember, danger can come from any direction. Brush all snow off before you start, and do not forget to clear the intake in the front of the windshield and free frozen wiper blades. Check the radiator shutter for free movement.

Road spatter from slush and salted wet roads can substantially reduce visibility. To maintain clear vision, use windshield wipers often. If the interior of the vehicle is cold, turn on the defroster for a few minutes after the engine is warmed up to avoid freezing or smearing of windshield washer fluid. Stop occasionally to clean headlights and taillights to improve their efficiency.

Know How To Go In The Snow

Use a very light touch on the accelerator. Heavy acceleration will only spin your wheels, and prolonged spinning can cause overheating and clutch or transmission damage.

Keep your wheels straight ahead and ease forward gently.

If the above steps meet with no success get out your tow chain and ask for help.

Know How To Steer

Excessive speed and hard braking cause most skids, but steering errors are close behind. Remember to make no sudden movements on slippery surfaces. Change directions gradually, anticipate turns and slow down well ahead of time. Be sure to signal your intentions well in advance to avoid collisions with the vehicle behind. Watch for warming temperatures. Wet ice is MORE slippery than at cold temperatures.

If you happen to run into an unexpected ice patch on the road, hold the wheel and the accelerator steady and roll over it.

Know How To Stop In Winter

Allow extra stopping distance in winter driving. You will need it to stop safely. Anticipate stops, flash brake lights to warn the driver behind, and slow down gradually, especially when approaching intersections. Intersections are doubly hazardous because of the polishing effects stopping and starting traffic has on snow and ice.

- Frozen locks on doors can be freed by heating the key with a match or lighter.
- Before turning on the defroster, remove any ice and snow from the **intake vents**.
- Avoid **overloading** to the rear. This may reduce steering efficiency or traction on slippery surfaces.
- Always **dress for winter conditions and carry extra clothing** for emergencies.
- Avoid **over-exertion or over-exposure**. Work slowly, and take frequent rests in a sheltered area. Exertion from attempting to push a vehicle manually or shovel heavy drifts during critical winter weather may lead to a heart attack.
- If you plan to drive outside a city or town, **phone ahead** and give someone your route, destination and expected time of arrival. Then if you fail to arrive on time, the dispatcher or your friends will know where to look for you.
- **Listen to weather forecasts** before you leave town, or phone your local police station for information. If travel seems hazardous, postpone your trip.
- **BE PREPARED!!!**

Because of different wind and weather patterns in different areas, drivers may suddenly unexpectedly find themselves completely enveloped in a blizzard. These storms involve high winds, fine snow, and low temperatures and result in a substantial "chill factor". The combined cooling effect of the elements leads to a penetrating, quick freeze type of cold which can freeze people to death within a few hundred feet of their vehicle.

If you are caught in a blizzard, follow these procedures:

- **STAY INSIDE THE VEHICLE AND KEEP DRY!**
- **Pull completely off the travelled portion of the road.** Turn off your headlights and turn on your dome light and four-way flashers. Other large vehicles may still be travelling and you must warn them that your vehicle is stopped.
- **Run the motor occasionally** to warm the vehicle and open the window slightly to maintain air circulation.
- If you have become **drowsy** **TURN OFF THE ENGINE IMMEDIATELY!**
- If **snow piles up** or the vehicle runs out of fuel, close all windows immediately and **KEEP THEM CLOSED**. Stuff rags, paper or whatever is available into any cracks or openings around the windows and doors. If you can close out the weather, an ordinary candle can provide enough warmth to keep you from freezing when you are dressed for winter. Do not forget to allow adequate ventilation by making use of the vents.
- **KEEP THE DOORS CLOSED!**
- **Exercise.** Stamp your feet. Slap and rub your feet and hands. Remove your shoes and sit on your feet to warm them.
- **AT LEAST ONE PERSON** should **stay awake** at all times in order to maintain sources of heat (candles, etc.). Keep watch for the arrival of other motorists who may be able to offer help.
- **Remain calm.** Dispatch will miss you eventually, particularly if you make prior arrangements to arrive at a certain time.

Winter Injuries – Symptoms and Treatments

Non-Freezing Injuries may result from 24 to 48 hours of exposure to above freezing temperatures. Limbs affected may:

- Be swollen
- Suffer from loss of function

Treat by:

- Warming the victim.
- Elevate, immobilize and rest the injured part, if swollen.
- Supply a warm liquid to drink, such as coffee, tea, etc.
- Transport to medical aid as soon as possible.

Superficial Freezing Injuries will involve only the skin and tissue immediately beneath. Fingers, toes, nose and earlobes are usually first to be affected.

Symptoms are:

- Tingling of the affected area and some pain
- Feeling with disappear as the nerves become frozen.
- The affected area will appear white and waxy, and will feel firm on the surface but resilient underneath.

Treat by:

- Warming the victim.
- Supply a warm liquid to drink such as coffee, tea, etc.
- Re-warm the affected parts as soon as tingling occurs. This may be accomplished by applying a firm steady pressure with warm hands. The victim may warm hands by holding them motionless in armpits under clothing.
- On re-warming, injured areas will become swollen, warm and tender. Elevate, immobilize and rest the injured parts. Discolouration or blisters at this point indicate a deeper injury.
- Transport the victim to a doctor as soon as possible.

Caution, DO NOT:

- Rub injured areas.
- Apply snow.
- Use excessive heat in warming.

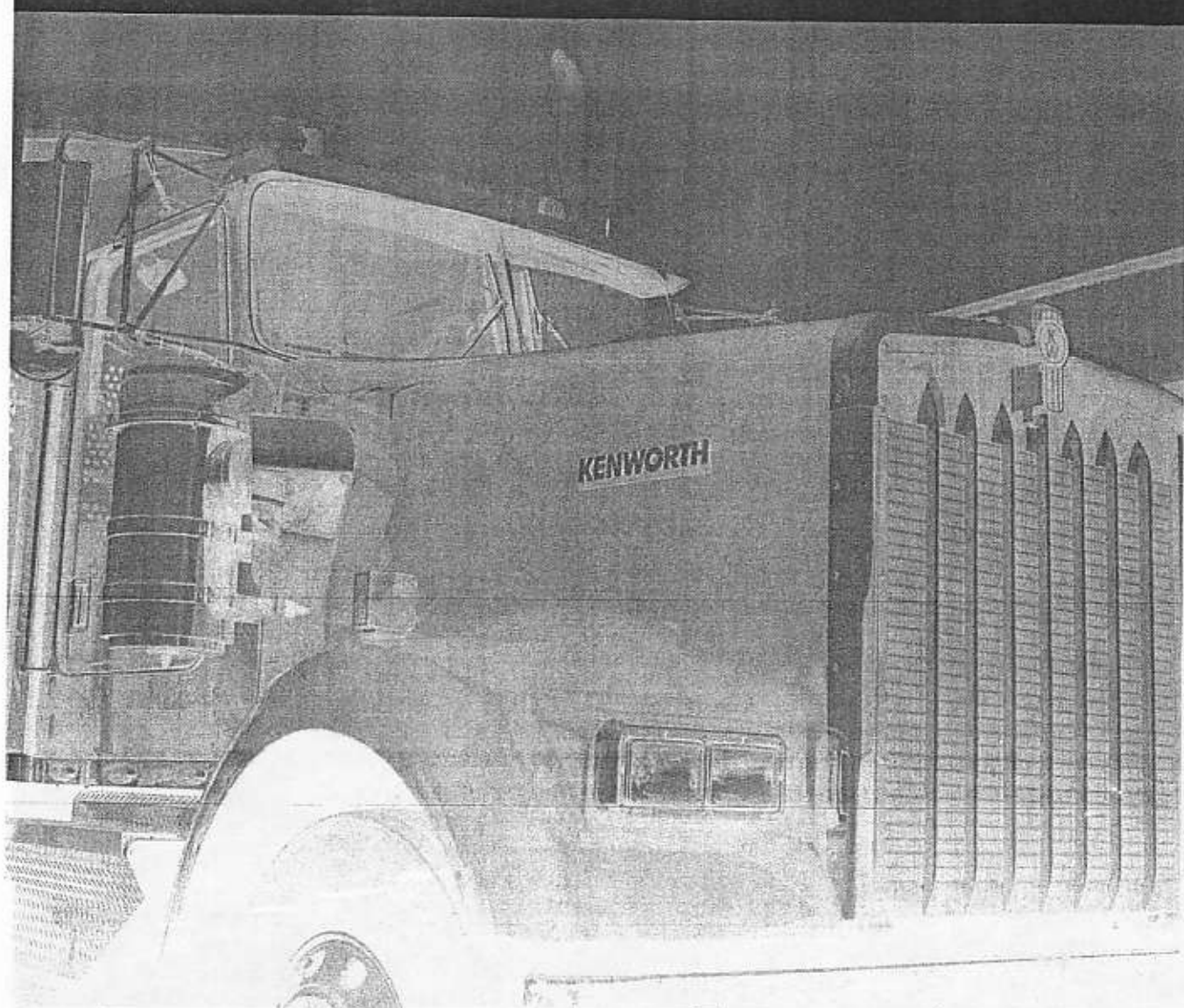
Deep Freezing Injuries will involve serious damage to muscles, nerves and tissues, which may include the whole body. It is impossible to assess the extent of injury.

Symptoms are:

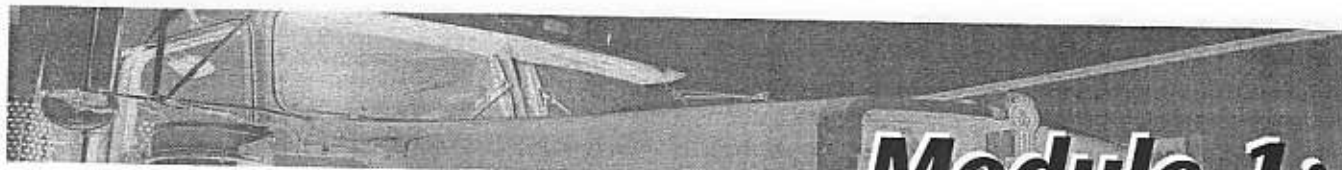
- The affected area will appear white and will feel firm and non-resilient.
- A decline in central body temperature will be followed by progressive drowsiness and death.
- Do Not Attempt to Treat These Injuries!

If and when possible:

- Supply a warm drink if available, to maintain central body temperature.
- Transport IMMEDIATELY to a doctor to maximize chances of survival.
- If transportation of the victim is impossible or lengthy, contact the nearest hospital by telephone or radio for instructions.



Exercises and Review



Module 1:

Principles and Foundations

Collision Reports

Collision Report #1

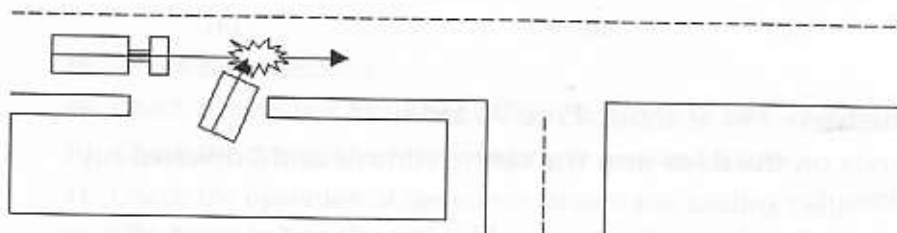
I was turning right out of a parking lot.

There was a truck approaching with his right-turn signal flashing.

I assumed that he was turning into the parking lot, and pulled out.

However, he did not turn, and as I pulled out I hit his right front side just above the front wheel.

He said afterwards that he was turning right onto the side street just past the parking lot.

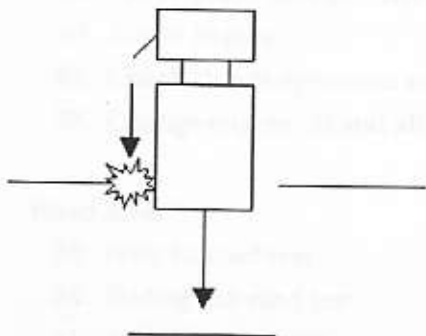


Collision Report #2

I was backing into a loading dock.

I could not see very well so I opened the driver's side door.

As I got close to the building I applied the brakes but the truck slid and I hit the building.



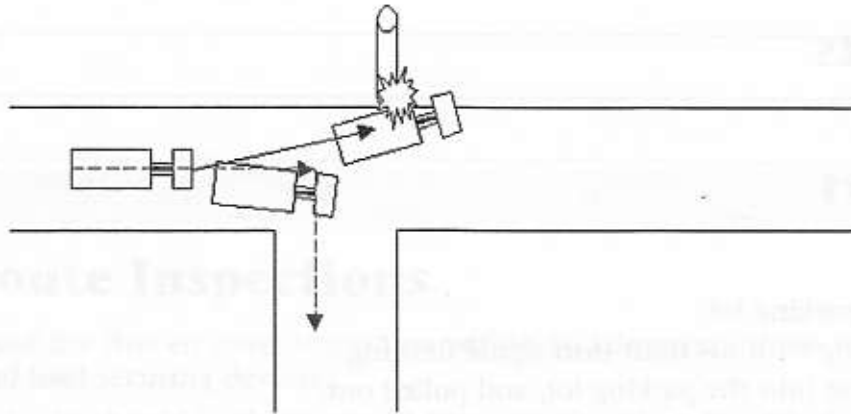
Collision Report #3

I was driving west at 30km/h along Bush Road.

I attempted to turn right but the vehicle would not turn.

Instead it slid straight about 1-2 metres and into a tree stump on the left.

The road was level and banked slightly to the right.



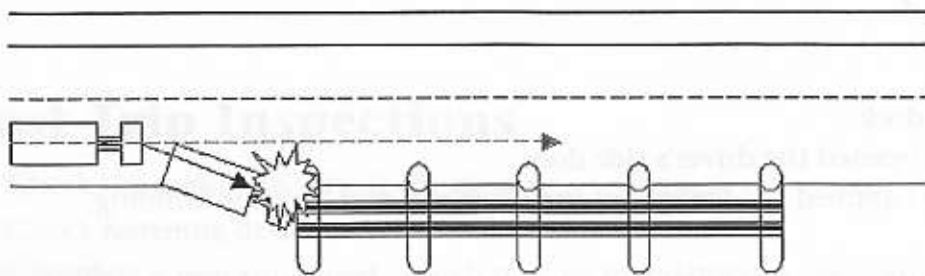
Collision Report #4

I was driving north bound on highway 144 at about 85 or 90 km/h.

I leaned down to put a can of soda on the floor near the centre console and I diverted my attention from the road for a moment.

In that instant, I dropped off the paved surface onto the shoulder (gravel) and glanced off a guardrail.

The front right tire was ripped open and there were a few small scratches and dents on the passenger door as a result of the impact.



Collision Report #5

I was stopped, in the centre lane, at a red light at the corner of Somerset and Preston.

The light turned green, but I was unable to proceed because the vehicle in front of me made no attempt to accelerate or indicate a turn direction.

I sounded my horn, with no results.

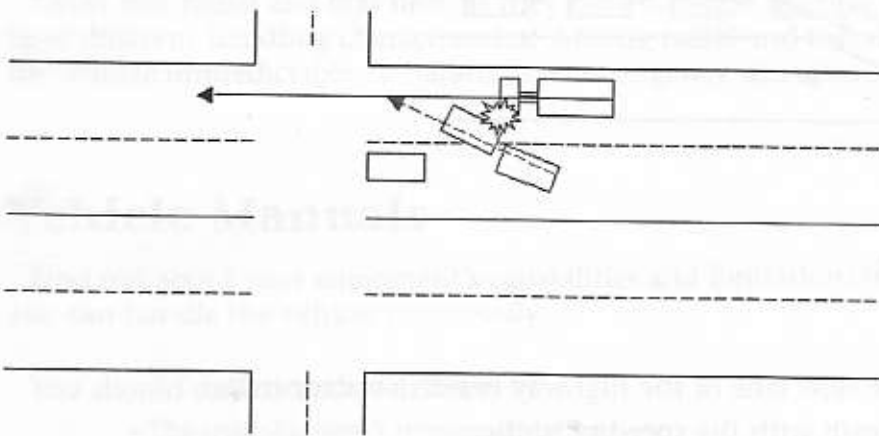
This forced me to make a lane change from the centre lane to the curb lane.

I attempted this after signaling my intention to do so.

I checked oncoming traffic to the rear using my mirrors and saw nothing there.

I began my lane change only to find another car to my immediate right and too close to avoid contact.

This car was completely obscured by a blind spot.

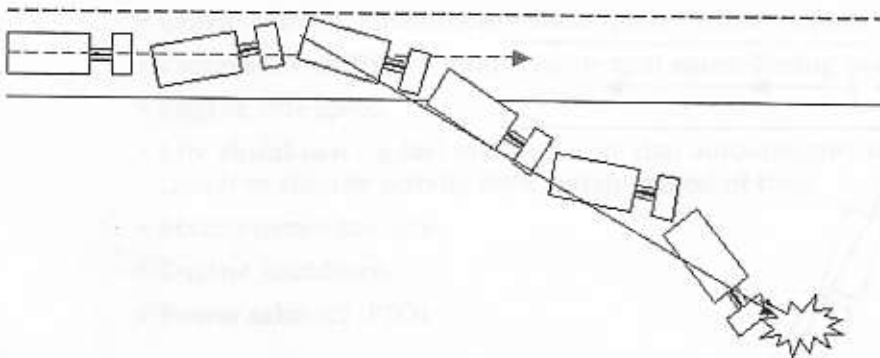


Collision Report #6

I was coming over a hill on a snowy, icy road, at about 50 km/h.

I lost control and my truck started to slide.

The truck hit a snow bank on the right side of the road and tipped over on its side.



Collision Report # 7

I was travelling on a straight stretch of highway at about 80 km/h.

It was about 5:15 in the afternoon.

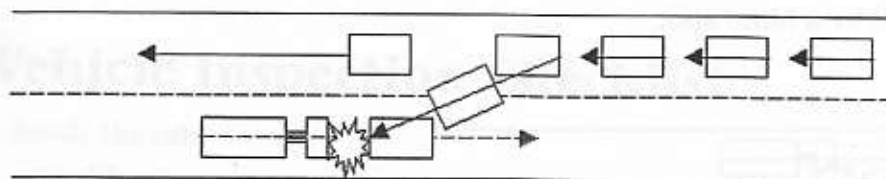
Approaching from the opposite direction was a long line of cars.

One car had pulled out of the line and was trying to pass the others.

I thought he would see me and pull back into his lane, but he kept coming.

I pulled over to the right and had my two right wheels off the road, but I still hit the oncoming car and my car went into the ditch.

The other driver said later that he could not see me because the afternoon sun was in his eyes.



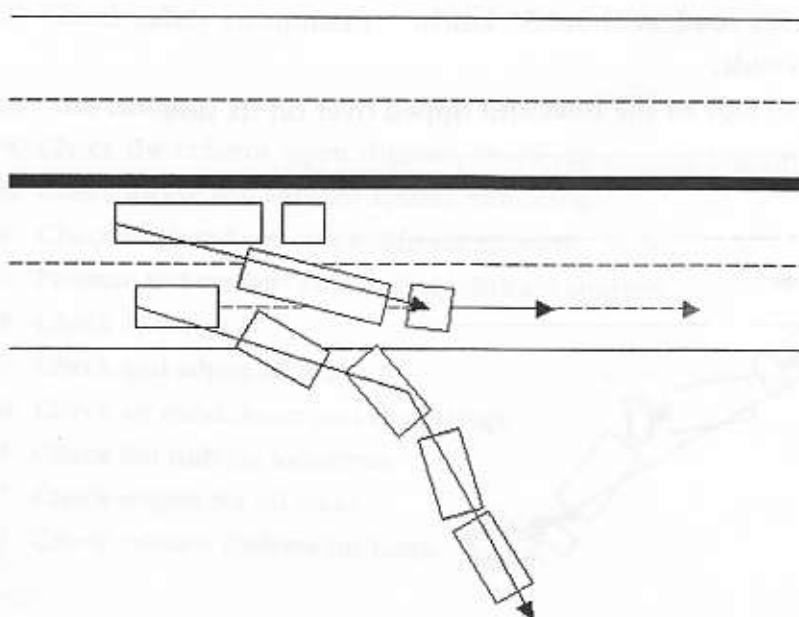
Collision Report #8

I was driving westbound in the slow lane of the highway beside a tractor-trailer.

I was travelling at about 110 km/h with the speed of traffic.











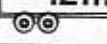
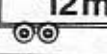






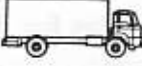
The truck suddenly changed lanes and forced me off the road.

My car rolled down the embankment and ended up upside-down in the ditch.



Following Distance

The vehicles in the seven drawings below are all traveling 50 km/h (30 mph). You are driving the black vehicle. Decide the following distance time-interval (in seconds), which you would allow in each situation. Write your answer on the line before the black vehicle.

1		_____	
2			
3			
4		_____	
5			
6		_____	 
7		_____	 

Review Questions

1. Define "defensive driving": _____

2. Define a "preventable collision": _____

3. What is the Standard Accident Prevention Formula?

_____ the hazard.

_____ the _____.

_____ in _____.

4. What are the six categories of driving conditions:

- _____
- _____
- _____
- _____
- _____
- _____

5. What are the two key defences?

- _____
- _____

6. What are some of the rules for maximizing eye-lead time?

- _____
- _____
- _____
- _____

7. The 3 factors that influence stopping distance are:

- _____
- _____
- _____

8. To calculate the correct number of seconds required for safe following distance, the Time-Interval Formula requires you to divide your _____ by _____.

YOU BE THE TRAFFIC JUDGE IN THE CASES BELOW

"It was raining hard, and I was following a bus and two cars. We were approaching a town. The bus stopped without pulling off the pavement. The two other cars in front stopped too. I applied my brakes but began to skid. I tried to pull to the left but the front wheels skidded and I ran into the rear of the car ahead."

- | | True | False |
|--|-------|-------|
| 1. The collision was non-preventable because weather conditions made it impossible to stop. | _____ | _____ |
| 2. The collision was non-preventable because the vehicle in front was closer to the situation and should have signalled that he was going to stop. | _____ | _____ |
| 3. The collision was preventable because your vehicle should have been equipped with chains. | _____ | _____ |
| 4. The collision was non-preventable because the bus stopping on the pavement caused it. | _____ | _____ |
| 5. The collision was preventable because rear-end collisions are always preventable by the driver behind. | _____ | _____ |

"I was making deliveries in a residential district, proceeding down the street at a slow speed looking for a street name. I suddenly spotted the street I was looking for, signalled, and moved over to the centre line to make a left turn. A vehicle attempting to pass on my left ran into the front of my vehicle as I was turning left."

- | | True | False |
|--|-------|-------|
| 1. The collision was non-preventable since you had given the proper signal. | _____ | _____ |
| 2. The other driver caused the collision because he did not heed your signal. | _____ | _____ |
| 3. The collision could have been prevented if you had allowed the other vehicle to pass. | _____ | _____ |
| 4. If you had checked to the rear you would have seen the other vehicle and waited. | _____ | _____ |
| 5. The crash was non-preventable because the other driver ignored your signal. | _____ | _____ |



5. True or False. Flat routes are more fuel-efficient than mountainous routes.

6. True or False. Driving in town is more fuel-efficient since you have to stop and start more often.

7. How can you plan your route to increase fuel efficiency?

- _____
- _____
- _____
- _____

Activities

After a lesson on fuel efficiency, students can be divided into groups to research and present on different factors that affect fuel efficiency. Each group can be assigned a different factor to research and present on.

Illegal Drugs

- Drugs are substances that alter the mind or body.
- Drugs can be legal or illegal.
- Marijuana is a mild drug.
- Cocaine is a hard drug.
- Heroin is a hard drug.
- Alcohol is a hard drug.

Not only is it illegal to possess and use drugs, it is also illegal to sell them. Selling drugs is a crime.

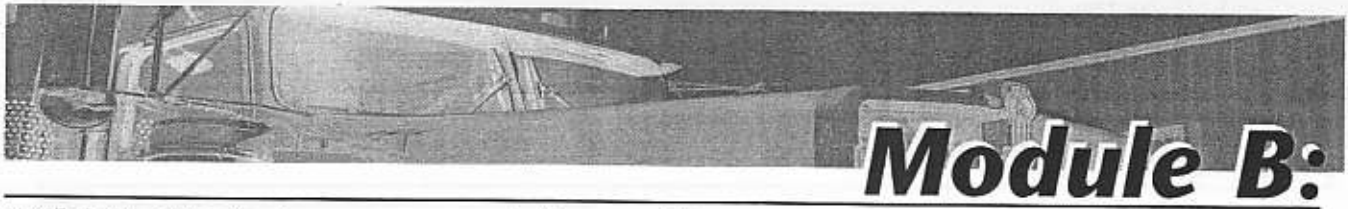
Drinks, Drugs and Driving & Having a Blood Alcohol Test

Drugs and alcohol can impair your ability to drive. It is illegal to drive with a blood alcohol concentration (BAC) of 0.08 or higher. A BAC of 0.08 means that you have 0.08 grams of alcohol per 100 milliliters of blood.

It is also illegal to drive with a BAC of 0.04 or higher if you are under 21 years old. A BAC of 0.04 means that you have 0.04 grams of alcohol per 100 milliliters of blood.

Fatigue

Fatigue is a state of extreme tiredness. It can be caused by a lack of sleep, a long drive, or a combination of these factors. Fatigue can impair your ability to drive and increase the risk of an accident.



Module B: **Vehicle Maintenance and Inspection**

Review Questions

1. Vehicle care and regular inspections are key factors in _____
and _____.

2. Why is it dangerous to under inflate your tires?

3. What are the 5 things you should check when checking your tires?

- _____
- _____
- _____
- _____

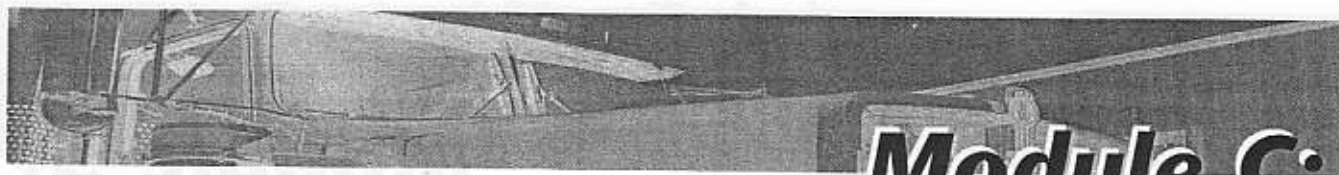
4. Why is it advantageous to read the manufacturer's vehicle manual?

5. What are the 3 stages of the pre-trip inspections?

- _____
- _____
- _____

6. How often should you check your tires and wheel components if you carry dangerous goods?

7. True or False. Once a trip is completed, you should carry out a circle check of the vehicle as systematically as you did in the pre-trip inspection.



Module C:

Recommended Practices

Review Questions

1. What are the 4 things you should know if you want to practice good starting techniques?

- _____
- _____
- _____
- _____

2. Why should you try not to use ether as a starting aid any more than you absolutely must?

3. True or False. Always rev the engine when it is cold.

4. What can you do to speed up the starting of the engine without putting extra wear and tear on it?

5. What does black smoke mean? _____

6. Newer engine designs allow maximum horsepower and torque within the operating range. This means drivers down shift at around _____ rpm, and up shift at around _____ rpm.

7. True or False. It is okay not to use the clutch to change gears if you are an extremely experienced driver.

8. What is progressive shifting and why is it better for your engine?



Module 5:

The Road and Other Road Users

Review Questions

1. Who else uses the road?

- _____
- _____
- _____
- _____
- _____

2. The **THREE** questions you must always ask before passing another vehicle are:

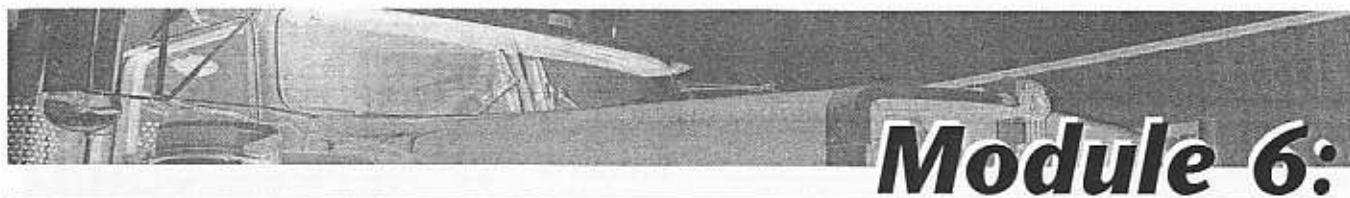
- _____
- _____
- _____

3. Passing is unsafe in the following situations:

- _____
- _____
- _____

4. List the four R's you should follow to prevent a collision with an oncoming vehicle.

- _____
- _____
- _____
- _____



Intersections

Intersections Quiz

1. When checking for cross traffic at an intersection you should look first to the _____ and then to the _____ and then back to the _____ again.
2. To whom should you yield the right-of-way at a yield sign intersection?

3. Who has the right-of-way at an uncontrolled intersection?

4. What are the steps for safe merging at intersections in urban areas?
 - _____
 - _____
 - _____
 - _____
 - _____
5. What does a green light mean (to a defensive driver)?

Turning at intersections in urban areas

6. When it is necessary for a vehicle to cross lane lines or centre lines while making a sharp turn, whose responsibility is it to be sure the movement can be made safely?

7. What factors influence how sharply a vehicle can turn?

8. Define turning radius.

9. Define off-track.

10. Define wheelbase.

11. If you are making a right turn, on which side will your wheel path travel appear, and on which side will your body-swing (or load overhang) appear?

12. What are the steps for making a safe right turn?

- ---
- ---
- ---
- ---

13. How far from the curb should the rear wheels of a long wheelbase unit be when making a right turn?

14. If extra space is required to complete the turn, which street should you take it from?

The one you are leaving or The one you are turning into

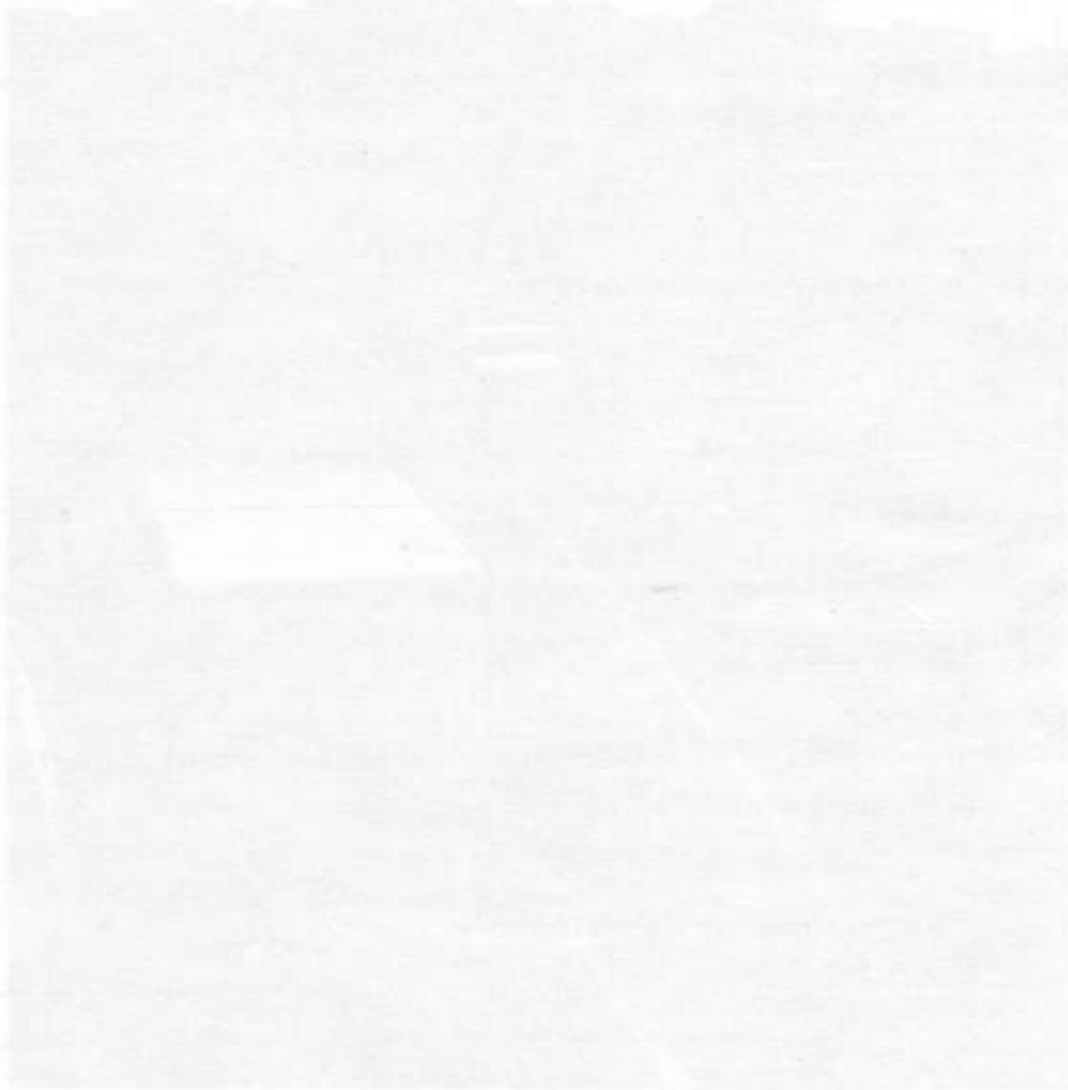
15. What are the steps for making a safe left turn?

- ---
- ---
- ---
- ---

16. What is the four-point plan for intersection safety?

- _____
- _____
- _____
- _____

17. In your group, examine the following 5 traffic collision reports and discuss how the collisions could have been avoided.



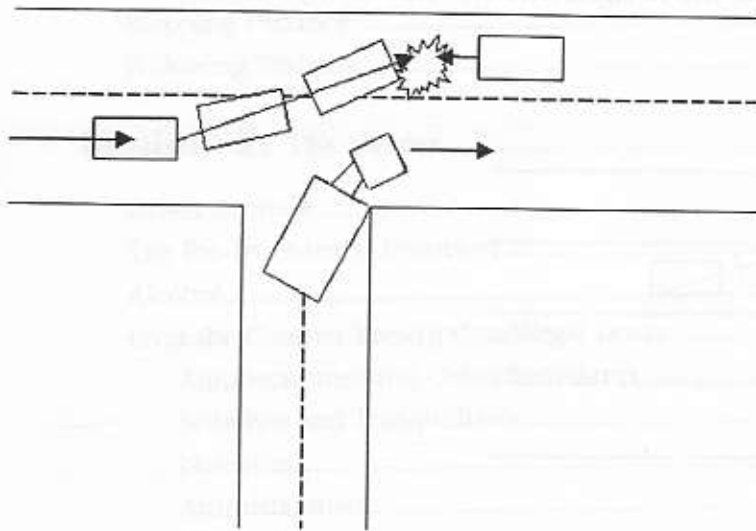
Collision Report #1

While travelling north on Park Avenue, a pick-up truck pulled out in front of me on a blind 90-degree corner.

I was travelling about 60 km/h. I braked to slow down. The icy road conditions caused my vehicle to slide. The pickup was still in front of me. I proceeded to take action to avoid the pick-up. I moved to the left to pass. Mrs. Murray was approaching from the north.

I applied the brakes and slid to a near stop. Mrs. Murray did likewise.

Both vehicles were travelling less than 10 km/h when they collided head-on.

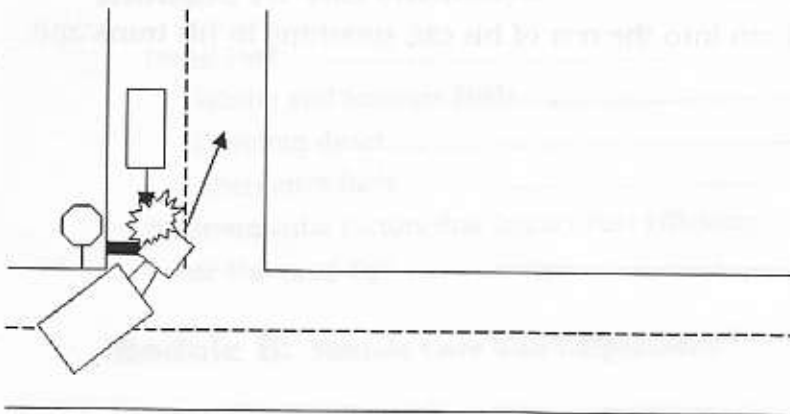


Collision Report #2

I was travelling south on Railway Street, approaching the stop sign.

A dump truck travelling east on Moneta turned left onto Railway and cut the corner.

Because of the icy conditions, I was not able to stop when the dump truck turned into my lane, and we collided.



Collision Report #3

I was waiting in the left lane to make a left turn.

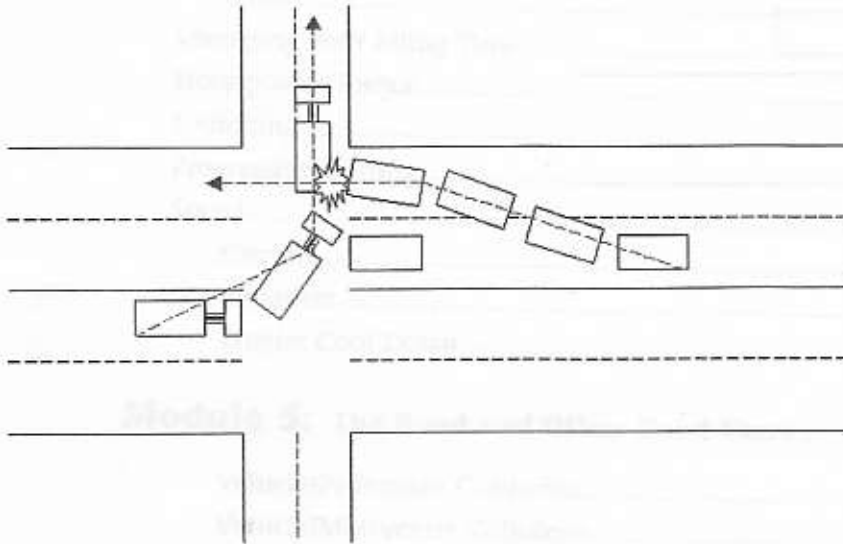
A convertible full of young people was in the opposing lane of traffic waiting for the light to change.

There were some other people standing on the corner talking to the occupants of the car.

When the light changed, the car sat there while they continued their discussion.

I decided to go ahead and make my turn.

Just as I started to make the turn, someone pulled to the right of the convertible and, without looking, tried to drive straight through. He drove right into the side of my vehicle.



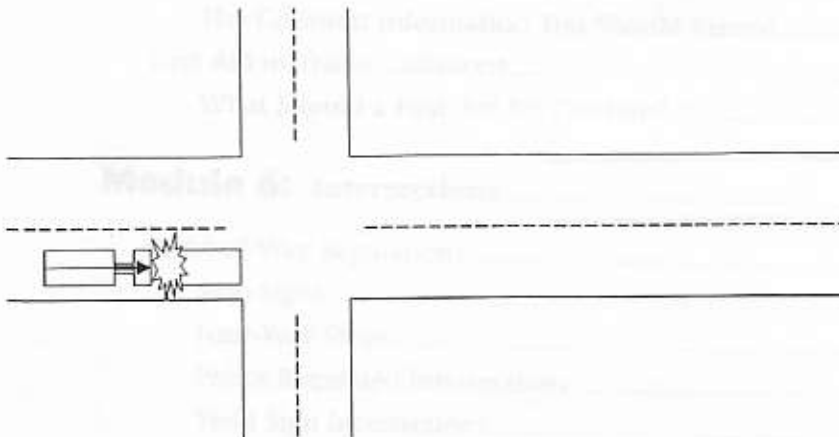
Collision Report #4

I was following a car and we were approaching an intersection.

As the light up ahead changed from green to yellow, I thought the driver ahead would just keep moving through the intersection.

I was prepared to follow him, but, at the last second, he changed his mind and hit his brakes.

I tried to stop as soon as I could, but I ran into the rear of his car, smashing in his trunk and breaking both of my headlights.



Collision Report #3

I was waiting in the left lane to make a left turn.

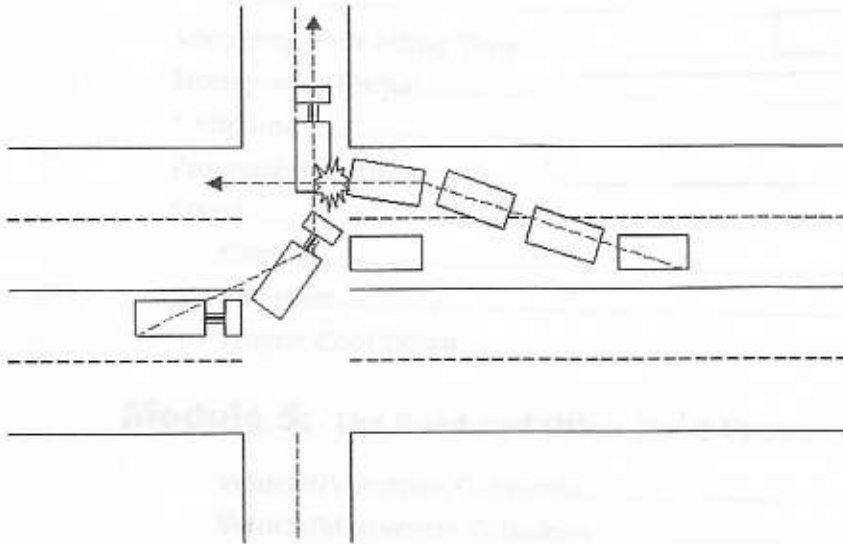
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I decided to go ahead and make my turn.

Just as I started to make the turn, someone pulled to the right of the convertible and, without looking, tried to drive straight through. He drove right into the side of my vehicle.



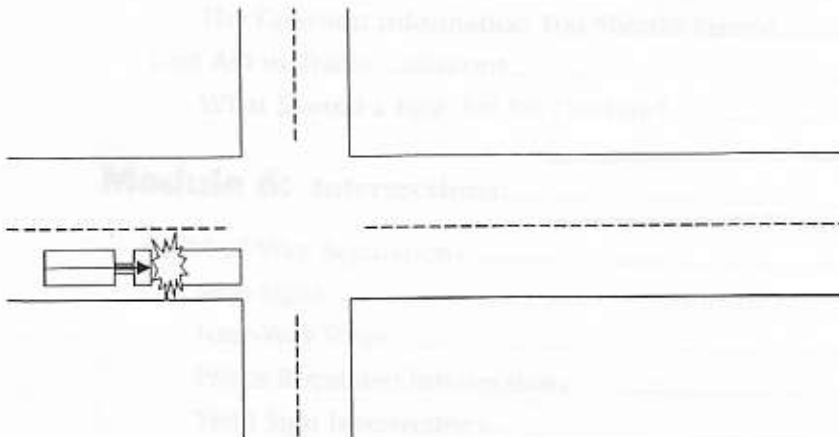
Collision Report #4

I was following a car and we were approaching an intersection.

As the light up ahead changed from green to yellow, I thought the driver ahead would just keep moving through the intersection.

I was prepared to follow him, but, at the last second, he changed his mind and hit his brakes.

I tried to stop as soon as I could, but I ran into the rear of his car, smashing in his trunk and breaking both of my headlights.



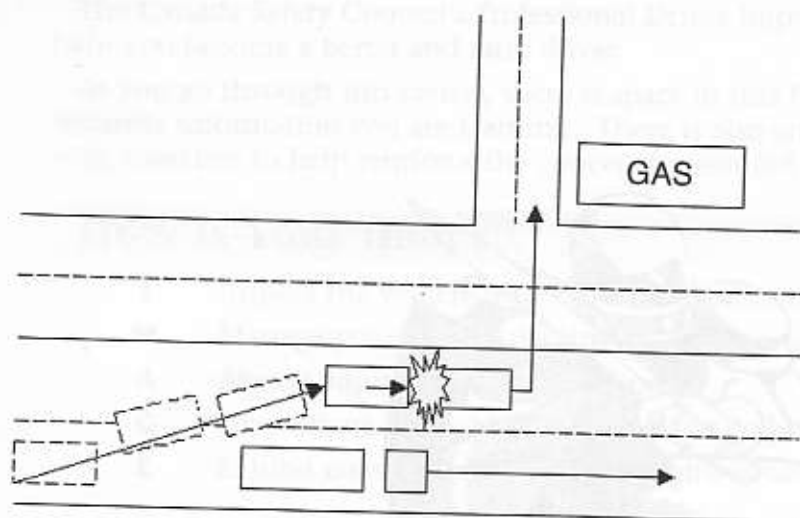
Collision Report #5

I was driving eastbound on Algonquin Blvd. at approximately 60 km/h.

I changed lanes (from the right to the left lane) to get around a large flat bed truck.

I was watching the truck (now on my right hand side) when the car in front of me stopped in order to make a left turn into a gas station.

I braked and managed to slow almost to a stop but I still rear-ended the car ahead of me.



THE OLD ADAGE

If you use drugs, don't drive, is still valid. But here are some additional rules that may save a life.

1. If ill, see a doctor.
2. If the doctor prescribes drugs, ask about driving while on the medication. Double check with the pharmacist.
3. If you drink, even occasionally, ask the doctor about the combined effect of alcohol and any medicine prescribed.

The following list contains some of the various types of drugs, what they are usually taken for, and their effect relevant to driving.

TYPE OF DRUGS AND EXAMPLES	REASON FOR ADMINISTERING	POTENTIAL SIDE EFFECTS OF DRIVING
Analgesics (indocin)	Arthritis and Rheumatism	Drowsiness, inability to concentrate, ringing in ears
Antihistamines (chlorphenamine, actifedo, asperin cold pills)	Allergies Common Cold	Drowsiness, confusion, reduced reaction time, blurred vision, dizziness
Oral hyperglycemics (orinase, tolbutamide)	Diabetes	Drowsiness, inability to concentrate
Antihyperactives (hydrochlorathiazide, reserpine)	Hypertension	Drowsiness, dizziness, blurred vision
Stimulants (fastin, phentermine)	Weight control	False feeling of alertness, over-excitability
Antibiotics	Infections	Dizziness, drowsiness inability to concentrate
EMOTIONAL STATES		
Sedatives (valium, diazepam)	Anxiety	Dizziness, staggering, blurred vision
Stimulants (ritalin, methylphenidate)	Depression, Fatigue	Over-excitability, false sense of alertness, dizziness