OFF-ROAD VEHICLES

HANDBOOK

Newfoundland & Labrador

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INTRODUCTION

Off-road vehicle usage plays a significant role in the lives of many people throughout Newfoundland and Labrador. For some it provides a valuable form of recreation and relaxation, contributing to overall good physical, emotional and mental health. For others, it can serve as the primary means of transportation in all aspects of life and culture, supporting the delivery of vital health and social programs, as well as the means to earn a living and provide for one's family.

Safety should be a top priority for all off-road vehicle users, regardless of purpose. Safety is the responsibility of every off-road user, as well as the collective effort of those who enforce and uphold the legislation. It is through stronger safety requirements and updated legislation that we can help ensure ourselves, our children, partners, friends and family enjoy using off-road vehicles without incident.

On May 19, 2022, the new Off-Road Vehicles Act and Regulations came into effect, following extensive consultations with Indigenous governments and organizations, a variety of experts in safety, health and enforcement, and off-road vehicle enthusiasts. The new legislation brings into effect several additional safety features, including the requirement for mandatory training for operators who are under the age of 16 years, those who are registering an off-road vehicle with Motor Registration for the first time, or as a condition of registration reinstatement, in those cases where registration has been suspended or cancelled. The new legislation strengthens and modernizes safety requirements and aligns with practices in other jurisdictions throughout Canada. Provisions of the Off-Road Vehicles Act and Regulations related to training did not come into force at the time, pending development of this training module.

LEGISLATION

The Off-Road Vehicles Act and Regulations replaced the Motorized Snow Vehicles and All-Terrain Vehicles Act and its associated Regulations.

The introduction of the new Act and Regulations included modernizing legislation to add new types of off-road vehicles and incorporate newer safety practices for the operation of these vehicles. The following highlights important safety features of the new Act and Regulations:

- Types of off-road vehicles
- Operator safety training
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Types of off-road vehicles

The definition of an off-road vehicle is a wheeled or tracked motorized vehicle, designed or adapted for cross-country travel on land, water, ice, snow, marsh, swamp land or other natural terrain, and includes:

- a motorized snow vehicle
- an all-terrain vehicle
- a mini-bike, dirt bike and trail bike
- a miniature vehicle such as a dune or sport buggy
- an off-road maintenance machine
- an amphibious vehicle

The following equipment does not meet the definition of an off-road vehicle:

- agricultural equipment
- infrastructure equipment
- garden lawn mower
- lawn tractor
- golf cart

Operator safety training

Training will be required for:

- anyone under 16 years of age
- anyone registering an off-road vehicle for the first time
- anyone convicted of an offence under the Act or Regulations and has had their registration suspended or cancelled

The owner of an off-road vehicle must ensure that anyone operating the off-road vehicle has completed the training approved by the Registrar of Motor Vehicles, where the Act requires that the person complete training.

Travelling on highways and roadways

The following restrictions are in place for operating an off-road vehicle on or across public roadways and highways.

A person who holds a class of driver's licence issued under the Highway Traffic Act, or who is supervised in accordance with subsection 22(1) of the Off-Road Vehicles Act may operate an off-road vehicle:

- across a highway where the operator has not less than 150 metres visibility in both directions along the highway
- along a highway to access a trail where:
  - the off-road vehicle is operated on the shoulder of the highway for a maximum distance of one kilometre, and yields to motor vehicle traffic
  - the off-road vehicle is operated at a speed of not more than 20 kilometres per hour
  - along a highway where, because of adverse weather conditions the highway is incapable of being used by motor vehicles

NOTE: When a person operates an off-road vehicle along a highway where, because of adverse weather conditions, the highway is incapable of being used by motor vehicles, the off-road vehicle shall not interfere with snow clearing or other operations being carried out.

An operator of an off-road vehicle must yield the right of way to:

- drivers of all classes of motor vehicles on a highway
- pedestrians on a highway
- persons riding bicycles on a highway

For purposes of travelling on a highway to access a trail, a trail includes managed and unmanaged trails and both public and private trails, such as:

- abandoned railway corridors
- highways abandoned under the Works, Services and Transportation Act
- forest access roads as defined in the Forestry Act
- roads constructed under a licence issued under the Lands Act and any other road constructed for the purpose of providing vehicular access to resources, including forestry, agriculture, hydroelectric, recreation, mining, industrial and similar developments

Highway use

Before operating an off-road vehicle, the owner must register the vehicle with the Motor Registration Division.

Registration of an off-road vehicle is required only upon initial purchase. The registration does not expire and is valid for as long as you own your vehicle.

Any change in ownership requires a notice of transfer/sale be submitted to the Registrar of Motor Vehicles within 10 days.

An off-road vehicle must be insured to cover public liability and property damage to the minimum limit prescribed in Section 21 of the Automobile Insurance Act under the following circumstances:

- across a highway
- along a highway to access a trail
- along a highway, where because of adverse weather conditions the highway is incapable of being used by motor vehicles

While operating on or across a highway, an owner or operator of an off-road vehicle must provide proof of a valid insurance policy when requested by a peace officer.

Age limits and supervision

A person under 16 years of age cannot operate an off-road vehicle unless they are supervised by an individual who:

- is 18 years of age or older
- has a valid driver's licence
- has completed the training approved by the Registrar of Motor Vehicles

A person under 16 years of age cannot operate an off-road vehicle with an engine size that exceeds the manufacturer's recommendation for an operator of their age and weight.

The operator of an off-road vehicle is supervised when the person supervising the operator, at all times, is able to:

- see the operator and be seen by the operator
- provide immediate direction to the operator

Seatbelt use

The operator and all passengers riding an off-road vehicle must wear a seatbelt where the off-road vehicle is equipped with manufacturer installed seatbelts.

A person cannot operate a side-by-side unless the person is able to sit with the seatbelt fastened and both feet flat on the floor, or the off-road vehicle is equipped with an approved disability-related modification.

Mandatory helmet use

The operator and all passengers riding an off-road vehicle and a passenger being towed in a trailer must wear a helmet that:

- conforms to the requirements prescribed in the Regulations
- is properly fitted with a secured fastening device

For the purposes of the Act, a helmet shall conform to the following requirements:

- Canadian Standards Association Standard D 230, Safety Helmets for Motorcycle Riders, as amended, and the helmet shall bear the monogram of the Canadian Standards Association Testing Laboratories.
- United States Federal Motor Vehicle Safety Standard 218, as amended, and the helmet shall bear the DOT symbol as used by the United States Department of Transportation.
- United Nations Economic Commission for Europe, ECE Regulation 22 incorporating the 05 series of amendments, as amended, and the helmet shall bear the approval mark as required by that regulation.

The following exemption applies to helmet usage:

An operator of an off-road vehicle, a passenger riding an off-road vehicle and a passenger being towed in a trailer are not required to wear a helmet where the off-road vehicle is being operated during hunting and trapping activities involving frequent stops and where the speed of the vehicle is less than 20 kilometres/hour.

Both feet references

A person cannot operate an off-road vehicle such as a mini-bike, dirt bike or trail bike unless the person is able to keep both feet on the pedals or footrests that are designed for use by the operator, or the vehicle is equipped with an approved disability-related modification.

Approved areas

A person cannot operate an off-road vehicle outside an approved area, except in accordance with the Regulations.

An approved area means:

- Forested lands underlain by mineral soil.
- A trail constructed under a licence issued under the Lands Act.
- Beaches, unless otherwise prohibited by the Minister.
- Abandoned railway corridors, highways abandoned under the Works, Services and Transportation Act, forest access roads as defined in the Forestry Act, roads constructed under a licence issued under the Lands Act and any other road constructed for the purpose of providing vehicular access to resources including forestry, agriculture, hydroelectric, recreation, mining, industrial and similar developments.
- Privately-owned lands less than 10 hectares.
- Working farms.
- Lands in Labrador, north of 54° latitude.
- Any lands snow covered and frozen below the ground surface.

Some off-road vehicle trails are constructed, maintained or operated by a managed trail operator. Persons operating off-road vehicles on a managed trail may be required to obtain managed trail permits for a fee, and carry or display a sticker or other identifying marker. Questions can be directed to the managed trail operator.

A person cannot use motorized vehicles or equipment within a wilderness reserve, provisional wilderness reserve or emergency wilderness reserve.

This is a prohibited activity under the Wilderness and Ecological Reserves Act.

There may also be restrictions on the use of off-road vehicles in national parks or national park reserves.

Questions can be directed to Parks Canada.

Operating on a First Nations Reserve

The regulation of traffic on reserve is a bylaw making power of a Band under the federal Indian Act.

To the extent the Band Councils can exercise this power to make a bylaw that is inconsistent with the provincial law, the Band can displace the provincial law on the reserve via the Indian Act.

This jurisdiction would be exercisable by the Band Councils of the Mushuau Innu First Nation (Natuashish), Sheshatshiu Innu First Nation, and Miawpukek First Nation (Conne River).

Members of these First Nations should consult their local Band Council to determine whether there are any relevant bylaws related to operating an off-road vehicle on reserve lands.

Operating on Labrador Inuit Lands or in an Inuit Community

The Nunatsiavut Government has jurisdiction, pursuant to the Labrador Inuit Land Claims Agreement (LILCA), to make laws in relation to "the operation of recreational vehicles and other vehicles not licensed under the Highway Traffic Act, including the requirement for licences" on Labrador Inuit Lands outside the five Inuit Communities.

By virtue of LILCA, these laws would prevail to the extent of any conflict with provincial laws. The Inuit Community Governments of Nain, Hopedale, Postville, Makkovik and Rigolet have the same noted jurisdiction in the Inuit Communities and the same paramountcy, by virtue of LILCA. Therefore, in Labrador Inuit Lands the Nunatsiavut Government could make an Inuit Law, and in Community Lands, one, more, or all of the Inuit Community Governments could make a law to displace a provincial law in relation to the operation of a vehicle not licensed under the Highway Traffic Act.

Inuit Beneficiaries should consult the Nunatsiavut Government and their local Inuit Community Government to determine whether there are any differing laws or bylaws related to operating an off-road vehicle on Labrador Inuit Lands and/or in their community.

Operating within a municipality

A municipal council may make regulations prohibiting or controlling the operation of off-road vehicles or types of off-road vehicles on a highway or part of a highway in a municipality. An adopted regulation made under this Act is required to be sent to the Minister of Municipal and Provincial Affairs within 14 days of adoption.

Where the management and control of the highway or a part of it is the responsibility of the Minister of Digital Government and Service NL, the approval of this Minister is required before making the regulations.

All municipal regulations are publicly available.

Many municipalities have enacted regulations limiting the operation of off-road vehicles within their boundaries. There are also municipalities that have enacted regulations prohibiting the operation of all off-road vehicles. Operators should be familiar with all restrictions within a municipality for all seasons. Operators are encouraged to consult with their local municipal council if they have any questions and are also encouraged to ensure their awareness of any relevant existing municipal bylaws specifically related to operating an off-road vehicle in their community or in a different community to ensure compliance and safety.

Safe riding

The safe operation of an off-road vehicle takes a considerable amount of skill and practice given the terrain and other conditions the operator may encounter in rugged landscapes.

Alcohol and drugs are a leading cause of off-road vehicle accidents.

Operating an off-road vehicle under the influence of drugs and alcohol can lead to a conviction under the Criminal Code of Canada, licence suspension and seizure of the vehicle.

Other restrictions

A person cannot operate an off-road vehicle in a manner that may cause damage to property, creates or constitutes a danger to operators or passengers of other off-road vehicles being driven in the same area, or creates or constitutes a danger to persons engaged in skiing, skating, tobogganing or other outdoor recreational activities in the same area.

A person cannot operate an off-road vehicle that:

- is not registered in accordance with the Act and the Regulations
- is not insured in accordance with the Regulations
- does not have a plate or decal affixed to and is clearly visible on the off-road vehicle

A person cannot operate an off-road vehicle:

- without having completed the training approved by the Registrar of Motor Vehicles where the Act requires that the person complete training
- without due care and attention
- without reasonable consideration for other persons or property
- while under the influence of alcohol and/or drugs
- to chase, harass, injure or kill wildlife

Other safety equipment

The operator and all passengers riding an off-road vehicle shall wear a face shield, safety glasses or goggles where the off-road vehicle is not equipped with a windshield that is of a height to afford adequate protection to eyes.

NOTE: The operator and all passengers do not need to wear a face shield, safety glasses or goggles where the off-road vehicle was manufactured with a roll bar and is fully enclosed or when wearing protective eye wear in accordance with the Occupational Health and Safety Act.

A passenger being towed in a trailer must wear a face shield, safety glasses or goggles.

OFF-ROAD VEHICLES

Risks and hazards

Serious injury or death may result when an off-road vehicle is not operated according to the manufacturer's instructions. Specific risks and hazards include:

- Serious injuries to the body (especially the head and back) caused by collisions, overturning or lifting an off-road vehicle.
- Crashes, flips or collisions caused by:
  - riding too fast for trail conditions or turning corners too fast.
  - lack of training and lack of skill to handle difficult terrain or obstacles.
  - overloading racks or trailers.
  - towing trailers too fast for ground conditions.
  - encountering other vehicles at blind corners or on narrow trails.
  - wildlife encounters.
  - encountering trees fallen across the trail.
  - Becoming stranded caused by mechanical breakdown or running out of gas or oil.
- Getting lost caused by lack of appropriate navigation equipment or training.
- Capsizing during a stream crossing caused by riding too fast or in deep water.
- Hypothermia caused by riding in cold or wet conditions with inadequate clothing.
- Burns caused by hot engine parts.
- Driver distraction, which can quickly turn into an incident.

Use off-road vehicle racks to carry all equipment, including backpacks. When a rider wears a backpack, it significantly changes the centre of gravity of the machine. Avoid overloading the racks.

Pre-ride checklist

Off-road vehicle inspection before each ride is essential because the environment and terrain can be harsh. An inspection can minimize the chance of being injured or stranded, ensure long-term enjoyment of your off-road vehicle and should only take five to 10 minutes. The operator's manual will show you what equipment to check for your specific machine.

T-CLOC check

The acronym T-CLOC will help you remember the checklist.

T Tires and wheels
C Controls and cables
L Lights and electrics
O Oil and fuel
C Chain/driveshaft and chassis

It is also recommended that you carry a First-Aid kit and tool kit in case you encounter any problems. Examine the tool kit that came with your machine. You may want to add a few spare items – a spark plug, electrical wire and tape, strong towrope, flashlight and headlight bulb. Prepare for the unexpected and carry what you need to handle any emergency. Inspect the vehicle before you set out each day. Use a two-part inspection process before and after starting the engine.

1. Before starting the engine, inspect the following:
    - Ensure the required and recommended equipment is present and functioning (e.g., tire repair kit, radio, operator's manual, First-Aid kit, survival kit, log book).
    - Tires, if equipped. Incorrect tire pressure can significantly affect off-road vehicle handling. Check the air pressure and the condition of the tires. Make sure they are free of cuts and gouges. To inflate tires, always follow the directions in the operator's manual. The air pressure and tire circumference should be equal on both sides of the machine for safe handling. Off-road vehicle tires are designed for low pressure, so use a manual tire pump and a low-pressure gauge rather than a high-pressure system to control inflation. Tires go flat if not seated correctly.
    - Wheels, if equipped. Make sure the wheel lug nuts are tight, the axle nuts are tight and the cotter pins are secure. Rock each wheel to check for worn wheel bearings and loose lug nuts. There should be no free play.
    - For vehicles equipped with tracks, check for worn or broken lugs, track clips and inner drive lugs. Check for tiny cracks in the material indicating dry rotting. Any of these conditions will mean that the tracks need to be replaced to ensure safe operation.

- Check the oil level, fuel level and filters according to the operator's manual. Check for leaks. Check that the air filter is not damaged or blocked. Check the fuel filter as recommended. Start each trip with a full fuel tank. Know the range to expect from the fuel tank for the conditions where the off-road vehicle will operate and carry extra fuel and oil, as required.
- Check the brake fluid level in the reservoir if your off-road vehicle uses it.
- Radiator, if equipped. Check the coolant level. Maintain the correct ratio of water and coolant.
- Check that the chain is properly adjusted, adequately lubricated and is not worn. Chains stretch with age and use, and it is important to keep them tight. Check for oil leaks if your machine has a drive shaft. Check for and remove any build-up of debris around the drive shaft, chain housing, cables, steering linkages and wheels. Look and feel for loose parts when the engine is off. Test the handlebars and footrests for looseness or excessive play. Check the major fasteners with a wrench at regular intervals. Some new off-road vehicles have drive belts similar to those on snowmobiles. Check the shock absorbers.
- Make certain that the foot shifter is correctly attached and in the right position. If there is a pull start rope, make sure it is not cut or frayed.

2. After starting the engine, inspect the following:
- Check that the throttle operates smoothly with the handlebars in all positions.
- Ensure all lights are clean, undamaged and in working order.
- Check that all hand, foot and parking brakes operate properly and ensure they do not grab or pull the off-road vehicle to one side when applied.
- Ensure all switches work properly.
- Ensure the engine stop switch turns the engine off smoothly.

Fueling procedures

- Fuel at a designated fuel site whenever possible.
- Fuel an off-road vehicle on the ground, not in the back of a pickup with a vinyl bed liner.
- Fuel only in an open, well-ventilated area with the engine stopped.
- Do not fuel a machine near another machine that has its engine running.
- Do not smoke. Do not allow open flames or sparks in a fueling area.
- Use the correct fuel.
- Check the fuel level with a dipstick or flashlight. Never use a lighted match as fuel fumes are explosive.
- Do not overfill the tank. Close the tank cap securely when fueling is complete.
- Clean up any fuel spills using spill kit materials as required. Dispose of contaminated materials in appropriately marked containers.
- Portable containers for fuel must be CSA approved. When filling portable containers always place them on the ground outside a pickup bed, an enclosed vehicle or a trailer so the containers are properly grounded. The vinyl bed liners in pickups prevent proper grounding. Fuel flowing into a container or fuel tank can create static electricity where sparks can generate, causing fuel vapors to explode if the container or off-road vehicle is not grounded. Only fill the container to 95 per cent capacity because fuel expands as it warms. Mark containers with a line to indicate full. If possible, store fuel containers in a cool location out of direct sunlight.

SAFETY PRECAUTIONS

General prevention and preparation

Be alert to weather conditions and possible changes when planning a trip. A firm trail in the morning may become an impassable trail later in the day. Leave your itinerary and estimated time of return on a map with someone who knows how to respond if you do not return. Carry communication equipment to notify your contact of changes in plans. Avoid travelling alone. Use the buddy system with separate off-road vehicles whenever possible. Ride to your ability.

Personal Protective Equipment (PPE)

Helmets

- Wear the correct helmet and fasten the chinstrap securely. Full-face helmets offer the best protection. Helmets should be in good condition with no dents or cracks and the inner foam padding should be in good shape. Helmets must comply with federal standards and have a certification sticker from one of the following:
  - Canadian Standards Association Standard D 230, Safety Helmets for Motorcycle Riders, as amended, and the helmet shall bear the monogram of the Canadian Standards Association Testing Laboratories.
  - United States Federal Motor Vehicle Safety Standard 218, as amended, and the helmet shall bear the DOT symbol as used by the United States Department of Transportation.
  - United Nations Economic Commission for Europe, ECE Regulation 22 incorporating the 05 series of amendments, as amended, and the helmet shall bear the approval mark as required by that regulation.

- Replace any helmet that has been worn in an accident and/or damaged.
- Consider replacing helmets after five years. Safety features deteriorate over time and may not offer the same protection as new. Helmets are stamped with the month and date of production.

Eye protection

Goggles or visors should be worn to protect your eyes from whipping branches, insects, dust or debris. Goggles should be free of scratches, shatterproof and well ventilated so they do not fog up. Accidents can happen when something hits a rider in the face or eyes.

Boots

Your feet are at risk because of the vehicle design. Wear leather boots and place your feet on the footrests close to the machine and keep them there at all times. Point feet inwards so they do not catch on rocks, stumps or branches.

Clothing

Wear long pants and a long-sleeved shirt or jacket to protect your skin in an accident and from branches. Do not wear loose clothing such as scarves, which may get caught in moving parts of the off-road vehicle or on vegetation.

Gloves

Wear comfortable gloves to protect your hands from trail hazards and for warmth.

Safety equipment

Carry a First-Aid kit, a survival kit, a tire repair kit, a tool kit with appropriate spare parts, as well as a copy of the operator's manual and appropriate communication equipment for the area (e.g., radio, satellite phone, mobile/cell phone). Depending on the location it may be necessary to carry extra water and food, an axe, towing rope and signal flares.

Speed

Ride at a safe speed appropriate for current operating conditions, the type of machine, your ability and trail visibility. Be able to stop within the distance you can see. A safe speed may differ day-to-day depending on ground, weather and visibility conditions.

Excessive speeding is dangerous and contributes to most accidents as a rider cannot respond quickly enough to unexpected situations. Rapid acceleration may cause the front wheels to lift off the ground and the off-road vehicle to flip backwards, pinning you underneath. Go slowly to maintain control.

Slow down when travelling in rough terrain, confined areas with limited visibility or where you might expect to encounter traffic or wildlife.

Terrain

Learn to identify terrain that is unsafe for operating off-road vehicles. Some hills are too steep. Some ground is too soft, too wet or too rough. Remember, off-road vehicles have limitations. Know them and consider walking when ground conditions become too demanding. Use good judgement and avoid risky situations.

Look ahead for hazards and changing terrain. Note the quality of the ground surface and observe upcoming obstacles as you approach them. These include ruts, holes, protruding rock surfaces, overhanging tree branches, wildlife, oncoming traffic, streams, swampy or muddy ground and fallen trees.

When approaching unknown terrain, reduce your speed so you can completely stop the off-road vehicle in less than the distance you can see. If terrain is very rough or steep, scout the route on foot in advance.

Get to know the terrain you frequently travel and keep to planned routes. Do not take spontaneous short cuts.

BASIC RIDING SKILLS

Correct riding posture

- Ride with your head and eyes up and look well ahead at the path you will take.
- Keep both hands on the handlebars at all times.
- Keep your knees in close to the gas tank.
- Keep your feet on the footrest and point your toes inwards.

Vehicle controls

Refer to the off-road vehicle operator's manual for information and guidance specific to the vehicle model.

- Know the location and operation of all controls such as brakes, ignition switch, starter and choke. Be able to locate and use the controls without searching for them. Your actions should be automatic.
- Know how to start the off-road vehicle correctly. Follow procedures outlined in the operator's manual. Manual and fully automatic transmissions require different starting procedures.
- Know how to start a flooded engine. Know emergency starting procedures.
- If the off-road vehicle is equipped with a winch, follow instructions in the operator's manual and use the correct accessory equipment. Wear Personal Protective Equipment (PPE). During the winching process, ensure no one sits on the off-road vehicle or stands in the path of a potentially whipping winch cable.

Shifting gears

- Learn to shift correctly. Shifting procedures differ by machine and whether the off-road vehicle has a manual or fully automatic transmission. Refer to the operator's manual.
- Learn how to prevent a stall if the off-road vehicle has a manual clutch. This includes learning to recognize the sound of the off-road vehicle engine in order to shift gears efficiently and smoothly.
- Release the throttle before shifting gears so the off-road vehicle remains stable, and the front wheels do not lift off the ground.
- If the off-road vehicle has reverse gear, carefully follow the procedures outlined in the operator's manual. The improper use of reverse gear may result in serious injury and/or damage to the vehicle.

Braking

- Follow braking instructions in the operator's manual. Know how the braking system works and use the correct braking techniques to prevent mishaps.
- Release the throttle before applying the brakes.
- Apply the hand brakes and foot brakes equally, if equipped.
- Shift to a lower gear, allowing the engine to slow the off-road vehicle.
- Brake while travelling in a straight line.
- Brake before entering a turn. Never brake while swerving to avoid an object. The off-road vehicle may overturn more easily if you brake while cornering, swerving or applying too much brake pressure. Brake gently if the ground is slippery.
- If you unintentionally lock the wheels or tracks when braking, briefly release the brakes and reapply them gradually.
- Never use your feet to slow the vehicle or brace against a rollover. Always keep your feet on the footrests.

Parking

- Park completely off a trail and in a safe place when you stop.
- Park on flat ground. Avoid parking on soft or sloping ground as the off-road vehicle may overturn.
- Set the parking brake or place the shifter in park if the off-road vehicle has a fully automatic transmission.
- If there is no parking brake, shift into a low gear when the motor is turned off to keep the machine from rolling.
- Chock the wheels to park on sloping ground.

Loads

- Any load on an off-road vehicle – rider, passenger, backpacks or equipment on racks – raises the centre of gravity. This makes the off-road vehicle less stable, more difficult to handle and easier to roll over.

- Do not overload off-road vehicle racks. Loads should not exceed the manufacturer's weight limits. Distribute the load between the front and rear racks according to the guidelines in the operator's manual. Poorly distributed loads make the off-road vehicle difficult to control.
- Thoroughly secure all loads to the racks. Loads should not extend beyond the off-road vehicle where they might catch on rocks or vegetation.
- Do not place sharp objects on the front rack. Do not place loads so they obscure the operator's ability to see the trail and ride safely.

Place all backpacks on racks. Riders and passengers should not wear a backpack while riding so they can dismount quickly in the event of an emergency.

Carry a passenger only if the off-road vehicle is designed for two people. The operator should use extra caution as the passenger's weight will affect the stability of the machine.

A passenger should wear all required Personal Protective Equipment (PPE) and be instructed where to correctly position their feet on the footrests.

Towing trailers

Passengers should not ride on an off-road vehicle that is towing a trailer, even if the machine is designed for two people as the stability is affected by the loaded trailer.
When towing a trailer, follow the manufacturers Gross Vehicular Weight Rating (GVWR). Check the operator's manual regarding the maximum allowable tongue weight and the maximum allowable load limit.

- Ensure the hitch on the off-road vehicle is compatible with the trailer hitch.
- Use a trailer with a low centre of gravity and a wide wheelbase.
- The off-road vehicle and the trailer must be level. It may be necessary to install a special extension to achieve this.
- Use tow chains for added security.
- Place loads slightly forward of the center and equal distances from the sides of the trailer.
- Load and secure the cargo to prevent movement while underway; any movement is hazardous to riders. Loads that shift can cause injuries.
- Use caution when disconnecting a trailer as the load may shift.

- When towing a trailer or carrying heavy loads:
  - Slow down. The heavier the load, the slower the speed should be. It is harder to control an off-road vehicle with body movements when towing loads.
  - Use an off-road vehicle with four-wheel drive capability if possible.
  - Towing greatly increases the risk of roll over. Avoid sharp turns, hills and rough terrain. Carry less than the maximum load if it is necessary to haul on slopes or uneven ground.
  - Allow more distance to brake and stop. Do not skid or slide.
  - Block the wheels when parked.
- Pull loads using only the hitch or a tow bar. Do not drag loads using chains or ropes attached to rear racks because the vehicle may flip backwards on a slope or with sudden acceleration. Chains or ropes may become entangled with rear wheels or brake cables.
- If an off-road vehicle must tow another, use a rigid straight bar whenever possible. If necessary, a towrope or strap may be used. Secure the off-road vehicle being towed at the lowest point on the frame but avoid the steering components.
- If possible, a rider should control the steering and brakes on the disabled off-road vehicle. This must be done with utmost caution. Tow the disabled vehicle as close as possible to the lead off-road vehicle. If a sudden stop is necessary, this will help prevent the vehicle undertow from hitting the lead off-road vehicle with force.

TRANSPORTATION OF OFF-ROAD VEHICLES

Use appropriate means to transport off-road vehicles, such as flatbed trailers or pickup trucks. Use caution when loading and unloading and use a winch whenever possible.
Depending on the terrain, it may be possible to back a pickup truck or trailer into the side of a bank, if the height is right. An off-road vehicle can then be driven carefully onto the truck bed or trailer.

It is safer to load and unload off-road vehicles using a trailer rather than a pickup truck, as the ramp angle is lower.

Loading ramps must be secure and have cleats or brackets so they can be securely attached to the truck or trailer, and then secured with straps. Use proper ramps that have sideboards to assist the tires in staying on the ramp. Ramps should provide good traction (e.g., metal ramps with perforations, plywood ramps with cross-wise lathe). It is very easy for an off-road vehicle to slide off when ramps are wet or muddy. Using wooden planks as ramps to load off-road vehicles is unsafe. They cannot be securely fastened, and it is very easy to flip a vehicle during loading, which may result in a serious crush injury or even death.

Inspect the trailer wheels, tires, floor, welds, anchor hooks and electrical hook-ups.
Ensure additional cargo is secured on the truck or trailer and will not shift on route and damage the off-road vehicle.

Loading

- Choose a flat unobstructed site to load an off-road vehicle onto a truck or trailer.
- Keep the off-road vehicle under control at all times to prevent it from rolling and hitting the back window or slipping off the ramps.
- Remove all cargo from the off-road vehicle before loading onto a truck or trailer.
- Check that the wheels or tracks are centered over the ramps and use low gear or four-wheel drive.
- Winch the off-road vehicle onto the carrier. If this is not possible, ride it slowly and carefully up the ramp and onto the truck or trailer.
- Check that the off-road vehicle is centered on the trailer or bed of the truck.
- Check that the off-road vehicle is in gear, the parking brake set and the fuel line is shut off.
- Secure the front and back of the vehicle with approved straps, harnesses, blocks and/or chains that are in good condition to prevent it from shifting while on route, or being ejected during a collision.

Off-loading

- Winch an off-road vehicle down the ramps. Never ride it backwards off a trailer or pickup truck.
- If this is not possible, keep your hands on the controls and roll it out to the ramps. Walk on the ground while controlling the brake as you move the off-road vehicle down the ramps.

SAFE RIDING STRATEGIES

Follow the riding instructions in the off-road vehicle operator's manual for negotiating turns, slopes and obstacles. Safe operation of off-road vehicles requires the rider to be 'rider active' and shift their body when turning, going uphill and downhill and riding over obstacles. Correct body actions should become automatic.

SIPDE

Experienced riders are aware of what is going on around them and ensure safe operation of their off-road vehicle by using a system known as SIPDE. SIPDE is an acronym for a five-step process used to make judgements. The steps are as follows:

S = Scan/search

- Continually search the terrain and surroundings.
- Look several seconds ahead on the trail.
- Watch for wildlife.

I = Identify dangers

- Pinpoint objects and obstacles that could pose a danger.

P = Predict

- Anticipate how the hazard may affect you. The moving direction of a potential hazard is important. A hazard moving away from you is not as critical as a hazard moving in your path.
- Determine the effect of the hazard – How critical is the hazard? How probable is a collision? This is the phase of SIPDE that depends on your knowledge and experience. What if…? Now, estimate the consequences of the hazard. How might the hazard or your effort to avoid it, affect you and others?

D = Decide

- Determine how to reduce the hazard.
- Do not rely on the actions of others.
- Adjust your speed. Adjustments of speed can be acceleration, slowing or stopping.
- Adjust your position. Adjustments of position can be changing your direction of travel on the trail or finding an alternate route.
- The degree of adjustment depends on how critical the hazard is and how much time and space you have. The more time and space you have to carry out your decision, the less amount of risk you will encounter.

E = Execute

- Carry out your decision. This is when your riding skills come into play, and this is where they must be second nature. The best decision will be meaningless without the skills to carry it out. Know your limits and ride within them.

General strategies

- Ride within your ability. Choose another route if there is any doubt whether you can safely cross specific terrain or an obstacle.
- Keep your eyes up and continuously scan for approaching hazards. Modify your speed, your riding techniques and your path of travel to accommodate hazards.
- Always be able to stop within the distance you can see. This is very important when climbing hills or riding in unfamiliar terrain.
- Do not tailgate. If the route is dusty, leave extra space to maintain good visibility in order to assess approaching trail conditions and traffic. Remember that off-road vehicle models built before 2004 do not have brake lights.
- Never put your feet down to try to stabilize an off-road vehicle. You may injure your foot or leg.
- Always dismount on the uphill side if the off-road vehicle is about to tip over.
- Do not stand on the foot pedals while travelling on flat terrain.
- When travelling in confined areas, watch for branches that might strike your head or body. Be aware of situations where you might wedge your hands or handlebars against a tree or rock. Do not use a whip and antenna flag in confined areas.

- Avoid rider fatigue. Wear suitable clothing for the weather, eat enough food to keep up your endurance and drink plenty of water to avoid dehydration. Take rest breaks. Know your limits and do not exceed them.
- Yield the right-of-way when you encounter uphill traffic.
- If you encounter mud, do not spin the tires or tracks as you will dig in the vehicle and become covered in mud. Each day, clean out any mud build-up from the machine.
- Stay on existing paths and trails. Do not take shortcuts. Preserve the environment as off-road vehicles are capable of doing severe damage to the land.
- It is not advisable to use a wheeled off-road vehicle on snow. A snowmobile, which has a lower environmental impact, is designed to operate under cold conditions. When circumstances allow for off-road vehicle use in winter conditions, riders should follow the applicable training and basic safe operating guidelines for snowmobiles travelling on ice (refer to section on snowmobiles).
    - Use off-road vehicles only where they will not adversely impact the environment. In snow, off-road vehicle vehicles can dig up the path when wheels are spun to regain traction. This is likely to happen when riding on soft snow; therefore, vehicles are best driven on firm snow.
    - Measure the ice thickness before crossing frozen lakes or streams to make sure it will support your weight plus your equipment. Continue to measure the ice thickness on a regular basis, as the thickness can change rapidly and unpredictably.
    - Be trained to recognize and treat hypothermia and other cold injuries.

- To cross a road or railroad tracks, come to a full stop in a place with clear visibility. Never assume that drivers on a road see you. Motorists are looking for other vehicles, not for off-road vehicles. Check carefully in both directions. Cross at 90 degrees. It is not advisable to ride along railroad tracks or railway right of ways, and it is often illegal to do so.
- If you encounter wildlife on a trail, yield the right of way and shut off the engine so they are not frightened by the noise.
- Wildlife is extremely unpredictable, so maintain a safe distance and be prepared to exit the area quickly. Stay away from all animals both domestic and wild that are rearing their young as they can become very aggressive and defensive.
- If you are an experienced rider but unfamiliar with a particular off-road vehicle, make a test run to become familiar with its controls and handling features.

Crossing obstacles

Refer to the operator's manual for specific maneuvering instructions. Avoid crossing obstacles and ruts unless it is safe to do so. Some are too large to attempt. If only two wheels on one side of the off-road vehicle cross the obstacle, shift your body to maintain stability.

- Cross obstacles and ruts as close to 90 degrees as possible. Adjust the speed to maintain momentum.
- Stand on the footrests. Hold the handgrips firmly while keeping your knees and elbows flexed.
- Move your body weight slightly to the rear as the front rises over the obstacle.
- As the rear wheels contact the obstacle, move your body weight forward and centre yourself on the vehicle.

Turning

Follow the specific turning techniques recommended in the operator's manual. Some models have a solid rear axle, and some have unlocked differentials. Know your machine and the techniques required for safe turning.

- Slow down before entering a turn.
- Turn the handlebars and look in the direction of the turn.
- Move your body weight forward and lean to the inside of the turn.
- If your off-road vehicle begins to roll during a turn, lean your body farther into the turn. Gradually reduce speed and widen the turn if possible.
- Avoid sharp turns when carrying loads or pulling a trailer. Go slowly.
- Do not brake while swerving to avoid an obstacle.

Climbing hills

Refer to the operator's manual for specific instructions. Some off-road vehicles can climb a steeper hill than they can safely descend. Analyze the slope carefully. When approaching a hill, keep your weight uphill.

- Keep both feet firmly on footrests.
- Shift the off-road vehicle into a low gear and increase speed before ascending a hill. For small hills, shift your body weight forward by sliding forward on the seat. For steep hills, stand on the footrests and lean well over the front wheels in order to shift your weight forward. Always keep as much of your weight uphill as possible.
- If the hill is steep and you need to downshift on the slope to prevent stalling, release the throttle and shift quickly and smoothly while always keeping your body weight as far forward as possible. Do not allow the front wheels to lift, which may cause the off-road vehicle to flip backwards.

- If you lack power to continue uphill yet have enough forward momentum and enough space to turn around safely, do a U-turn before you lose speed and then proceed downhill.
- If you are riding uphill and you lose all forward momentum, apply the parking brake before you roll backwards and dismount to the uphill side (or to one side if pointing straight uphill). You need to understand the capabilities of the off-road vehicle you are riding and follow procedures in the operator's manual. Not all off-road vehicles maneuver the same.
- Never attempt to ride downhill backwards. If you apply the rear brake the off-road vehicle could flip over backwards and land on you.
- Do not attempt to climb steep hills while carrying a passenger. They should walk up the hill.
- If the hill is steep, consider transferring some cargo to the front racks to add weight to the uphill side of the off-road vehicle.
- Practice on small hills and gentle slopes before attempting higher, steeper hills.

Descending hills

Refer to the operator's manual for specific instructions. Some off-road vehicles can climb a steeper hill than they can safely descend. Generally, when descending a hill, you should:

- Analyze the slope and check the terrain carefully. Choose the best route that goes directly downhill as possible yet avoids obstacles.
- Avoid riding downhill at an oblique angle.
- Keep both feet firmly on the footrests. Never use your feet to slow an off-road vehicle.
- Shift your body weight to the rear by sliding back on the seat. Keep your weight uphill.
- Use low gear – do not use neutral. Descend with the throttle closed and let the engine slow down. Apply the brakes gradually to reduce speed as necessary.
- If the hill is steep, consider transferring some cargo to the rear racks to add weight to the uphill side of the off-road vehicle.
- Practice on small, gentle slopes before attempting to ride down long or steep slopes.

Traversing slopes

Avoid traversing slopes if other safe routes are available. Off-road vehicles are less stable and more likely to roll over on a traverse slope than when going straight up or down a slope. When you traverse a slope, it is very important to keep your weight uphill. Refer to the operator's manual for specific instructions.

- Avoid traversing slopes with slippery, excessively rough or loose terrain.
- Keep both feet firmly on the footrests.
- Lean toward the uphill side of the off-road vehicle. You may put weight on the downhill footrest to increase traction, but it is most important to lean your upper body into the hill.
- Travel on the inside of a trail that traverses a hill as the outer edge of the trail may be loose or unstable.
- Steer slightly uphill to keep the vehicle moving in a straight line.
- Avoid obstacles, ruts and holes as much as possible. This may increase the tilt of the off-road vehicle in the downhill direction, thus increasing the likelihood of a rollover.
- If the off-road vehicle begins to tip, turn the front wheels/tracks downhill if the terrain permits. If the terrain does not permit turning downhill, dismount on the uphill side immediately.

OFF-ROAD VEHICLE RETRIEVAL TIPS

Off-road vehicles are heavy machines and are labour intensive to extract. To avoid injury, learn safe retrieval methods and use care when recovering a vehicle that is overturned or bogged down.

- Off-road vehicles may be very difficult to extract from mud, muck or deep snow. Dig the mud or snow away from the wheels or tracks to break the suction before trying to move the machine.
- Install a winch. Carry a hand-operated ratchet winch or come-along if you travel in swampy areas or in terrain where it is difficult to retrieve an off-road vehicle. A come-along is very useful for pulling off-road vehicles out of mud or a ditch. A come-along winch only has about three metres of cable so an additional tow strap or recovery strap may be required. Follow the directions in the winch manual, which should always be kept in the off-road vehicle toolbox. Whenever possible, extract an off-road vehicle using a winch cable or tow strap. Secure the strap or cable at the lowest point possible on the vehicle, which may be difficult if the vehicle is mired deeply in muck. Do not hook two winch cables together as one of the towing hooks may fail and then whip backwards causing serious injury.

SNOWMOBILES

Snowmobiles are part of a specialized class of off-road vehicles. They are powered by a two- or four-stroke gasoline engine and move on a continuous rotating track and skis.

Snowmobiles are commonly used in weather conditions with sub-zero temperatures. Snowmobile safety relies heavily on their dependability. Snowmobiles should be kept in good operating condition and equipped with emergency supplies.

Risks and Hazards

Serious injury or death may result if a snowmobile is not operated according to the manufacturer's instructions. Statistics associated with general snowmobile use indicate that collisions with a stationary object are the leading cause of death, followed by drowning if a rider breaks through ice.

Specific risks and hazards associated with snowmobile use include:

- Injuries:
  - Back strains caused by lifting a snowmobile stuck in slush or righting an overturned machine.
  - Impact injuries caused by excessive speed, not wearing a helmet, collisions with objects or other snowmobiles.
  - Slips, trips and falls on slippery surfaces.
- Cold injuries like hypothermia, frostbite, cold-water immersion hypothermia caused by wearing inadequate clothing, excessive speed that increases the effect of wind chill, extracting a snowmobile stuck in overflow or slush.
- Thin ice caused by unrecognized variable ice thickness due to underwater currents, temperature variations, pressure ridges or undetected cracks (snow covered).
- Breaking through ice caused by lack of local knowledge regarding hazards, location of thin ice, inaccurate measurement of ice thickness or inaccurate measurement of the total load.
- Becoming stranded by mechanical breakdown, running out of gas or oil, whiteouts or avalanches blocking the route.
- Getting lost caused by loss of battery power of GPS and/or communication equipment, whiteout conditions or wrong type of equipment for the area.
- Death or injury caused by using snowmobiles in avalanche prone terrain, lack of expert advice, lack of avalanche safety equipment, lack of training, not following Standard Operating Procedures (LINK) and Emergency Response Plans (LINK), poor planning.

Safe operating guidelines

The following guidelines may be used in conjunction with an operator's manual.

- Comply with safe operating procedures in the operator's manual. Most manufacturers supply comprehensive operation and maintenance procedures. Some manufacturers also supply safety videos for their off-road vehicles.
- Obey the laws of the province, territory and municipality that apply to snowmobiles. Snowmobiles should carry valid registration and insurance.
- Riders and passengers should wear appropriate Personal Protective Equipment (PPE). This includes a Canadian Standards Association (CSA), Department of Transport (DOT) or Snell approved helmet, face visor and/or goggles, good quality boots (preferably with felt liners), warm gloves or mitts and appropriate winter protective clothing. If conducting activities on ice, riders and passengers should wear a floater snowmobile suit or a Personal Flotation Device (PFD) if there is any possibility of breaking through ice.
- Snowmobile operators should carry required and appropriate safety equipment.
    - The machine should be equipped with a First-Aid kit, tools and spare parts, communication and safety equipment appropriate for the trip.
    - Each rider and passenger should carry an essential survival kit including a knife, fire starter kit, whistle and compass, as well as ice rescue picks when working on ice.
    - Carry appropriate navigation and communication equipment (radio, satellite phone or cell phone), a GPS (Global Positioning System) unit with extra batteries and be trained to use them.
- Travel using the buddy system whenever possible.
- Maintain safe speed and control.
- Obtain permission to cross private land. Leave gates as they are found.
- Do not ride a snowmobile if you have consumed alcohol or taken medication or drugs that might affect your ability to ride. Consumption of alcohol and exposure to cold temperatures increase the chance of developing hypothermia and frostbite. Alcohol is a major contributing factor in many snowmobile accidents.
- Snowmobiles should not be used for chasing or harassing wildlife. Provincial and territorial legislation prohibits these actions.
- Use caution when riding along the edge of paved roads or railroad right of ways. Check local regulations, as it may be illegal to do so.
- Ride to protect the environment. Do not ride over shrubs, young trees or fragile environments without sufficient snow depth. Use dedicated paths for snowmobiles when possible.

Inspections

Only use snowmobiles in good repair. Your life may depend on the snowmobile being in good working order. Record all defects and have them repaired before use.

Pre-ride inspection

Inspect the snowmobile before each trip. Do a two-part inspection – before and after starting the engine.

Before starting the engine:

- Remove any snow and ice from the lights, controls, footrests and seat.
- Open the engine cowling and remove any buildup of snow or ice in the engine compartment.
- Check all cables for damage; remove accumulated ice or snow that might restrict movement.
- Check that the track and runners are in good working condition.
- Check that the tracks are not frozen and that no debris is caught in the tracks (e.g., sticks, grass). Clean the tracks after each use to remove embedded snow or ice using the method described in the operator's manual.
- Ensure the fuel and oil tanks are full, including any reserve tanks. Check for leaks. Carry extra fuel in certified containers.
- Check that the steering linkages are tight and function correctly.
- Verify that the handlebars easily steer the skis and that the throttle and brakes operate smoothly with the handlebars in all positions. The throttle must move freely before starting the machine. Do not operate a snowmobile if the throttle malfunctions.
- Check the condition of the drive belt.
- Check the air filter and remove ice or snow.
- Check the radiator regularly if the machine has one.
- Check that all required equipment is present and in good working order.
- Check that the hood and storage compartments are latched.

Start the snowmobile engine:

- Follow the correct starting procedure described in the operator's manual. Start the snowmobile outdoors – not inside a building or enclosed space. Exposure to carbon monoxide (CO) in exhaust fumes is dangerous, even for a short time.
- Warm the snowmobile for the time recommended in the operator's manual, which will depend on the outside temperature. If this is not followed, the belts or other parts may wear out quickly and break, even when new.
- Check that the throttle and all switches work properly, including the emergency stop.
- Check that the brakes, headlights and taillights work properly.
- Clear the track. If the track is raised off the ground, make sure it rotates at the slowest possible speed. Make sure no one is nearby as blocks of ice and snow may be ejected. It is not advisable to lift the rear of the snowmobile and spin the tracks, as you may injure your back or be struck by chunks of snow or ice. Operator's manuals usually recommend that to clear or inspect the track you should tilt the sled on its side and remove a blockage with a piece of wood or a branch.

Personal Protective Equipment (PPE)

- Wear the correct helmet and fasten the chinstrap securely. Full-face helmets offer the best protection. A safe helmet is one that is in good shape (no dents or cracks) with the inner foam padding also in good condition. Choose one large enough to wear a toque or balaclava under it. Snowmobile helmets should comply with federal standards and have a certification sticker from one of the following:
  - Canadian Standards Association Standard D 230, Safety Helmets for Motorcycle Riders, as amended, and the helmet shall bear the monogram of the Canadian Standards Association Testing Laboratories.
  - United States Federal Motor Vehicle Safety Standard 218, as amended, and the helmet shall bear the DOT symbol as used by the United States Department of Transportation.
  - United Nations Economic Commission for Europe, ECE Regulation 22 incorporating the 05 series of amendments, as amended, and the helmet shall bear the approval mark as required by that regulation.
  - Replace any helmet that has been worn in an accident and/or damaged. Consider replacing helmets after four or five years as safety features (padding and construction materials) deteriorate over time and do not offer the same protection as new. Helmets are stamped with the month and date of production.
- Goggles or a visor should be worn to protect your eyes. Goggles should be free of scratches, shatterproof and well-ventilated to prevent fogging. Replace visors when scratched or cracked.
- Wear boots that keep your feet warm. Boots with thick felt liners are recommended. Take extra liners in case they get wet. Used, worn liners will not provide good insulation.

- Wear a comfortable, warm snowmobile suit that is not too tight. Tight clothing restricts blood circulation, which will increase the potential for frostbite and hypothermia. Dress in layers starting with long underwear that wicks moisture away from your skin. Choose polyester or microfiber rather than cotton, which takes longer to dry once it is wet. The middle layers should be fleece, wool or pile for insulation. The outer layer should provide protection from wind and moisture, but breathable to allow sweat to evaporate through the fabric. Wearing layers makes it easier to cool down by removing one layer at a time. Have a toque or balaclava available to protect against frostbite. Do not wear loose clothing that may get caught in moving parts of the machine, such as a scarf. Keep clothing as dry as possible. Dry out boots and clothing once indoors.
- Wear proper insulated snowmobile gloves or mitts. They should be comfortable, allowing the use of your fingers and thumb. Wearing thin inner gloves will protect your hands when you remove mitts to do precise work.
- If travelling on/over ice, a floater snowmobile suit is the safest suit to wear. It is very buoyant and will not absorb much water if you fall through ice, in contrast to a regular snowmobile suit. While more costly, it can save your life. At the very least, wear a snowmobile suit that contains some material that is buoyant, as well as a Personal Flotation Device (PFD).

Passengers

Operators are responsible for the safety of passengers.

- It is advisable to carry a passenger, only when a snowmobile is designed to carry two people. Do not carry more than one passenger at a time.
- It is not advisable to carry a passenger when towing a toboggan, even if the machine is designed for two people. The towed load will affect the safe handling of the snowmobile and the additional weight of a passenger will make handling both the machine and toboggan extremely difficult.
- Passengers should wear the same Personal Protective Equipment (PPE) as riders.
- Instruct passengers to hold on tightly to straps or grab handles, where to safely place their feet on the footrests and how to lean into turns. Always check to make sure the passenger is seated and ready before proceeding. The operator should remember that a passenger only has grab handles or a strap to grip, rather than handlebars.
- Always reduce speed significantly when carrying a passenger. The extra weight greatly affects the braking and steering control of the machine. The suspension of the snowmobile may need adjusting to compensate for the extra weight. Ride at a speed so the passenger is comfortable and safe.
- The operator and passenger should have mutually agreed upon nonverbal signals so a passenger can tell an operator to slow down or stop. A passenger cannot see approaching bumps or curves. They cannot anticipate them with body movements and risk being injured or even thrown off the snowmobile. The engine is too loud to communicate using your voice, so nonverbal signals should include stop, slow down, accelerate, bump and slope.

- When approaching hazards, such as an embankment or a large bump, the driver should slow down significantly and signal a warning so the passenger can adjust their body weight or even get off the machine. It may be better for a passenger to walk rather than ride over some hazards.
- When it is necessary to tow passengers in a sleigh, confirm signals for communication between the operator and passengers. Agree on a set of signals so the operator can inform the passengers of an approaching bump or obstacle. Passengers should be able to signal the operator to stop and slow down. Consider carrying a whistle loud enough to be heard over the sound of the engine. Make sure passengers are suitably clothed and have a blanket to keep warm. Check on passengers frequently.

Safe riding skills

The position of the operator's body helps balance and control the machine. When turning corners, it is important to shift the body toward the inside of the curve. Check the operator's manual for detailed instructions on correct riding positions.

Riding positions

- Sitting is the most frequent position for riding. Keep your feet on the running boards and your body in the middle of the seat.
- Posting is a semi-sitting position where you rise up from the seat and keep your feet under your body with the knees bent. Your legs will absorb the shock of travelling over rough terrain.
- Stand to see the terrain ahead and anticipate necessary weight shifts.
- Kneel to climb hills when using the side hill approach. You can transfer more body weight to the uphill side of the snowmobile for stability.
- Do not extend your legs or feet outwards to help the snowmobile maneuver, whether during a turn or to stop it rolling over. You may seriously injure your legs or feet.
- Travel up and down hills with caution. It is possible to roll over, especially if you cannot ride straight up or down, but must traverse the slope at an angle. Be prepared to shift your weight to the uphill side of the machine. Always dismount on the uphill side so the machine does not roll on top of you, especially if a rollover is imminent.

Visibility and light conditions

- Always ride so you can stop within the distance you can see.
- When riding at night, make sure the headlights are clean and clear of snow and ice. Reduce your speed. Be able to stop within the illuminated distance. Do not ride in unfamiliar territory at night.
- Snow blindness may develop if your eyes are not protected from ultraviolet (UV) radiation. Wear high quality UV protective sunglasses or goggles to cut down on direct and reflecting sunlight. In the Arctic, UV protection is more important during late winter and spring when the sun is higher in the sky.
- Some light conditions make it difficult to see hazards.
    - Reduce speed in flat light conditions. When daylight is gray or without sunshine to provide shadows, the landscape may appear deceptively flat. It is hard to see ditches, ice ridges, snowdrifts, drop-offs or uneven ground. In bright sunlight, it can be hard to distinguish obstacles and small changes in topography such as ditches. Wear coloured, polarized lenses to counteract glare.
    - Consider the different types of available lenses and choose colours appropriate for the conditions you will most likely encounter. Gray or dark green lenses are useful on bright sunny days. Wear amber or yellow lenses on dark days, late afternoon or for flat light conditions. Do not wear sunglasses or tinted lenses at night.

Towing

Towing a load greatly affects the handling and stopping characteristics of a snowmobile. Proceed with caution and reduce speed.

- When pulling a sleigh, sled, toboggan or komatik, make sure it is correctly attached to the snowmobile hitch with a rigid tow bar.
- Only the operator should ride while towing, even if the snowmobile is a two-seater.
- Secure all loads in sleds or sleighs to prevent shifting while underway. Loads should not project outward for risk of becoming snagged or causing a hazard to others.
- When towing another snowmobile, check the operator's manual for requirements (e.g., removing the drive belt to avoid damaging the machine in tow). Use a rigid tow bar or attach a towline to the second snowmobile so the towline forms a Y or V shape (two points of attachment on the disabled sled). This configuration makes towing much easier. If towing with a rope, have someone sit on the second snowmobile to operate the brakes.

Transporting snowmobiles

Transport snowmobiles carefully by trailer or in the back of a pickup truck. Tilt bed trailers are usually safest.

- Choose a flat unobstructed site to load the snowmobile.
- Sometimes a stable snowbank can be used instead of a ramp by backing a trailer or pickup into the bank and driving the snowmobile onto the bed.
- Use the correct hitch and safety chains with a trailer. Make sure all trailer brake lights and turn indicators function properly.
- To avoid spills, make sure the snowmobile oil reservoir and fuel tank caps are secure and the fuel line is shut off.
- If using detachable loading ramps, use cleats or brackets and straps that attach to the truck or trailer to ensure the ramps do not come off during loading procedures.
- When transporting a snowmobile in an open truck or trailer, the windscreen should be removed to prevent loss or damage.
- Load the machine with skis forward and centered over the loading ramps. If possible, winch the snowmobile onto the carrier as accidents may happen when riding onto the truck or trailer. Ride the snowmobile slowly and carefully up the ramp.
- If only one machine is transported, make sure it is centered on the trailer or pickup bed.
- Secure the snowmobile to the vehicle or trailer with approved straps, harnesses, blocks or chains that are in good condition. Make sure the snowmobile will not shift while on route, hit the back window or come free in an accident. Cover the snowmobile to protect it.
- Make sure any additional cargo will not shift on route and damage the snowmobile.

Safe riding strategies

Weather and terrain tips:

- Check forecasts and current weather conditions and ride accordingly. Postpone a trip if weather threatens to deteriorate or if there is a significant risk of avalanche.
- The combination of speed and weather conditions may lead to severe wind chill and cause frostbite and hypothermia. Dress appropriately and stay dry.
- If it is necessary to operate a snowmobile in fog, heavy snow or near whiteout conditions, use the headlights on low beam and proceed slowly. Be extra alert for approaching hazards. Check your GPS frequently to confirm your location. If unsure, stop until you can determine your location.
- Avoid travel during whiteout conditions. Whiteouts may occur in the Arctic, open areas without trees (especially on plains) or in mountain regions.
- In barrens or tundra, mark the regularly traveled trails.

- In mountain country, be prepared for avalanche dangers. When avalanches are a potential risk:
  - Regularly check avalanche bulletins for the area, especially when planning travel routes.
  - Each snowmobile should carry avalanche safety equipment including shovels, probe poles and appropriate communication equipment (with spare batteries) for summoning help. Riders should be trained to use the equipment correctly.
  - Each rider should wear an avalanche beacon. The beacon should be turned on when riding in any terrain where there is a potential for an avalanche.
  - It is critically important that riders never travel alone. Use the buddy system in separate machines.
- Avalanche terrain: Avoid riding snowmobiles on slopes where avalanches are most likely to occur (between 25 degrees and 45 degrees), avalanche chutes, run out paths and areas prone to snow slides. Avoid gullies, creek beds and steep valleys, which minimize your chance of escape. Be alert to changing weather conditions that increase the risk of avalanches. These can increase in a short time span – overnight or during the day. The safest routes to travel are along ridge tops (watch out for cornices), in heavily treed areas and along flat areas or broad valley floors away from the runout paths of avalanches.
  - Do not allow more than one person at a time to cross a slope where an avalanche may be triggered.
  - Watch for and be able to recognize signs of avalanche activity (e.g., small trees bent over in a downhill direction, scars and missing branches on the uphill side of trees, snow containing broken branches, rocks and debris).
  - Check avalanche warnings and heed them. Be familiar with the Avalanche Danger Scale used where you ride. Know how and where to obtain up-to-date avalanche hazard warnings for the project area.

HAZARDS

Retrieving a snowmobile

Retrieving a bogged down snowmobile can result in injury, particularly back strains. If your snowmobile becomes bogged down in snow or slush:

- Turn off the snowmobile. Never try to dig out a machine with the motor running.
- Dig the machine out using a snowshoe or ski rather than lifting it out.
- If the snowmobile has stopped heading uphill, it will have to be turned downhill.
- Pack down the snow in front of the snowmobile to create a riding trail.
- If the machine is bogged down in slush, try not to become so fatigued and wet that you develop hypothermia and/or frostbite. Freeing a machine from slush usually means removing slush from the tracks. Move ahead a short way (until it bogs again) and repeat this procedure until you reach good ground.

If the snowmobile is bogged down in slush and you cannot retrieve it until the next day, follow this procedure:

- The track must be elevated enough to prevent it from freezing to the slush. To do this, build a crib under the track using branches or twigs from nearby trees. A snowmobile weighing 350 lbs. (130 kg) will almost double its weight when submerged in slush.
- Use a lever to elevate the snowmobile to get the crib under the track.
- Once the crib is placed under the track, pack down a path in front of the snowmobile with snowshoes so the path freezes overnight.
- The next day, carefully use an axe to chop the ice away from the skis.

Hazards on land

Hazards may be hidden by deep snow along trails and around work sites.

- Watch for rocks, logs and tree stumps. Keep away from fence posts and telephone poles. Barbed wire and hidden wires are hazardous (e.g., guy wires, cables that support poles).
- Watch for depressions hidden by deep snow as it may be difficult to retrieve the snowmobile, especially if there is a stream in the depression.

Hazards on ice

Specific risks and hazards associated when travelling on ice or when conducting winter activities such as ice fishing include:

- Death from drowning or cold-water immersion hypothermia, caused by breaking through ice.
- Breaking through ice caused by:
  - Thin ice due to underwater currents or bottom topography, temperature fluctuations.
  - Lack of knowledge regarding local hazards, lack of training, unrecognized variable thickness of ice, undetected cracks (covered by snow), crossing pressure ridges, not following Standard Operating Procedures (LINK), risky behaviour.
  - Inaccurate measurement of ice thickness, inaccurate measurement of the total load.
- Injuries caused by:
  - Cuts from using ice augers, ice chisels, axes, inadequate Personal Protective Equipment (PPE).
  - Slips, trips and falls on icy, slippery surfaces.

Be informed about local hazards and be able to recognize general hazards and potentially dangerous conditions when travelling on ice.

- Ice thickness is never uniform, even though it appears as a smooth even surface. The underside of any ice sheet is rough and uneven due to water currents, unseen obstacles, springs or outlets and inlets to the body of water. Unless the ice is tested frequently it may not be evident that the ice is too thin to support a specific load.

Based on average equipment weight (assuming solid, clear ice) minimum ice thickness should be:

- 10 centimetres for walking or skating alone
- 12.5 centimetres for multiple skaters
- 15 centimetres for snowmobiles
- 20 centimetres for side-by-sides
- 25 centimetres for small car or SUV

- Many factors other than thickness affect ice strength, including air temperature, wind, snow, streams, narrow areas or bottlenecks, sun, shade, fish communities, plant decay and more. When a layer of snow melts and refreezes on top of lake ice, it creates white ice, only about half as strong as new, clear ice. Double the above thickness guidelines when traveling on white ice.
- Ice must be floating on water to be safe. Ice that slopes steeply on banks of lakes or rivers indicates fluctuations in water level, and there may be air under the ice. Keep off ice that sounds hollow.
- Beware of fog. On cold days, local fog may be an indication of open water. Slow down.
- A rapid large drop in the air temperature will cause ice to become brittle and less safe due to internal stresses. It may require 24 hours or more to be safe again.
- If the temperature goes above freezing for 24 hours, the ice may not be safe.

Ice terminology and features

Ice develops various characteristics that are determined by conditions when it forms, whether it is lake ice, river ice or sea ice. The colour of ice indicates its strength and quality. Recognize the colour and type of ice to accurately determine the safe load bearing capacity.

- Clear blue ice is strongest. It forms when water freezes over a long period when the air temperature is below freezing. It is chunky, not flakey, when tested.
- White opaque ice (snow ice) is generally rated as half as strong as clear blue ice. This ice contains air, which weakens the ice. It forms when wet snow freezes or when snow on ice freezes.
- Frazil ice (newly formed) is clear in colour and composed of loosely amalgamated crystals that make it weak and porous. It is flakey, not chunky, when tested.
- Candled ice or gray ice is least strong. The gray colour indicates that water is present in the ice. As ice melts, lines of weakness containing water and impurities effectively separate individual ice crystals and weaken an ice sheet so it will disintegrate easily. Ice prisms form perpendicular to the surface of the sheet – hence the term candling. Even before it candles, the strength of gray ice is diminished and will not support the weight of people or snowmobiles. Never go out on candled or gray ice.

- Overflow conditions or melting are the usual causes of slush. Overflow results when a layer of snow depresses ice causing it to crack. Water rises up and over the ice but remains under the snow. The overlying snow insulates the water, so the water does not freeze, which forms a slush layer despite cold temperatures.
- Dry and wet cracks form when ice moves and when it contracts. Cracks may or may not indicate weakening of the ice. Locate cracks and recognize the different types to determine the safe load bearing capacity of ice.
    - Dry cracks develop when ice expands at the top of ice layers as it builds up and thickens from the bottom. Dry cracks can be repaired with water or slush.
    - Wet cracks are dangerous. They indicate the ice has fractured completely through to the water below. The ice bearing load must be reduced depending on the size, location and configuration of the cracks. Wet cracks will often refreeze and heal. After healing, the ice may be as strong as before, but it must be tested by drilling a core sample to tell how deep the crack has healed.
    - Radial cracks form when ice is overloaded. The cracks radiate outwards from the load.
    - Circumferential cracks form when ice is overloaded. They form surrounding the load and when circumferential cracks join radial cracks, ice failure is imminent.
    - Hinge cracks form along river or stream banks or lakeshores where water levels fluctuate.
    - Tidal cracks form near the shoreline on sea ice due to tidal action.
- Pressure ridges may be due to ice movement, wind or currents. They contain piles of broken ice, cracks and perhaps hidden open water. Ice pressure ridges are very unstable.

RESPONSIBLE OPERATORS

Care for the environment

Off-road vehicles have considerable impact on the environment due to their large knobby tires, tracks and ability to negotiate rough terrain. Fragile ecosystems are easily impacted when new trails are created or off-road vehicles get bogged down or stuck, whether in wetlands, alpine areas or forests. Thin soils are easily broken by driving over the surfaces so that ruts and gouges rapidly expand in size.

Follow existing paths and trails whenever possible and avoid making new ones.

Remember that all surface runoff, including flash floods, increases erosion caused by off-road vehicle damage to the terrain – no matter what the climatic conditions.

Do not spin tires to get out of mud. This will only dig your machine in deeper.

Whenever possible, avoid crossing swamps, marshes and streams, and ride back from lakeshores when possible.

Avoid severe damage to surface terrain and decrease erosion to the vegetation and soil by placing crosswise corduroy logs on paths that are used continuously.

Stay on established groomed trails. Consider the impact of off-road vehicles on the environment. It may be illegal to use them in environmentally sensitive areas. Know the laws.

Wetlands and bogs are especially sensitive to damage from all-terrain vehicles (ATVs) and utility task vehicles (UTVs) and are not considered approved areas for use. Exceptions are granted for holders of a valid big game licence for the purpose of retrieving harvested animals.

Off-road vehicles should not be used for chasing or harassing wildlife. Provincial and territorial legislation prohibits these actions.

Obtain permission to cross private land. Leave gates as they are found.

Littering

Pack it in, take it out or leave it in a better condition then when you found it. As off-road vehicle use increases and more people enjoy the natural beauty of the province, there has been an increase in what is being left behind in our forest, wetlands, rivers and streams. Every off-road vehicle user has the responsibility to protect and care for our natural habitats.

Riding in water

Keep stream crossings to a minimum as off-road vehicles can cause severe environmental degradation. Consider constructing a bridge if a stream must be crossed more than a few times or more frequently than twice a month. Determine the most suitable structure for the type of stream to be crossed. If traffic is restricted to off-road vehicles, a bridge may be relatively simple, although it needs to be safe and secure.

- Obtain permission to cross a stream from the landowner or government agency, if required. Some jurisdictions require a permit from government fisheries authorities. Otherwise stream crossings by off-road vehicles or other vehicles may be illegal.
- When crossing a stream, choose a place to navigate where both banks have a gradual slope. Do not ford where it will damage the banks, the streambed or the location of fish spawning grounds.

- Check the stream depth, streambed conditions and the current before entering the water. Walk through the stream if necessary.
- Most off-road vehicles can safely operate in a river or creek up to 30 centimetres (one foot) deep. Water should not come up higher than the footrests. Use caution as off-road vehicles overturn easily in deep water. Avoid riding in fast flowing water as the large tires may float causing you to lose control of the machine. Proceed at a slow steady speed to avoid submerged obstacles and slippery rocks. If you enter water at high speed, an off-road vehicle may slow down so suddenly that you are thrown off. Keep both feet firmly on the footrests and be prepared to shift your weight to prevent overturning.
- Test the brakes several times after crossing a stream. To dry the brakes, apply light pressure until they feel normal again.
- If an off-road vehicle is driven through salt water, wash using fresh water to prevent corrosion.

Fire safety

The number people using off-road vehicles to access forested areas has increased over the last number of years. Unfortunately, the number of wildfires caused by off-road vehicles has also increased.

Some of the most common causes of off-road vehicle fires include:

- Solenoids on winches. These activate the winch motor when current from the battery is directed to the solenoid by pressing the switch of activation. Fires have been ignited when solenoids have exploded.
- In a forest environment, grass and other fine fuels such as muskeg vegetation, regularly come into contact with the exhaust systems. In some cases, this material accumulates on a heat source, either the exhaust system or the brakes. Smoldering combustion can occur at temperatures as low as 272 C. The temperature of the exhaust system of ATVs can easily reach the ignition point for grass. Fine fuels on the machine may ignite and fall to the ground, causing a surface fire. Hot gas coming from the exhaust may also ignite these fuels.
- Sparks from the exhaust system. Almost all muffler systems can produce sparks. While these do not ignite as many fires as direct contact, they are an occasional cause. Spark arresters are used on some vehicles and work effectively.

In accordance with the Section 11, of the Forest Fire Regulations under the Forestry Act:

11. (1) A person shall not travel through forest land during the forest fire season on an all-terrain or motorized vehicle unless the exhaust pipe of that vehicle is fitted in accordance with the manufacturer's original specifications with muffler and proper screening or baffling devices to prevent the escape of sparks or particles of burnt carbon and the exhaust system is kept clean of all debris.

(2) The unit or operator shall be equipped with a fire extinguisher containing a minimum of 225 grams of ABC class dry chemical.

Summary

The safe operation of an off-road vehicle is paramount to enjoying our beautiful province and its varying landscapes. All off-road vehicle operators and passengers are required to follow the legislation and educational material provided here.

Operating an off-road vehicle in a reckless manner can be dangerous and deadly.

Abide by the principles contained in this manual to ensure that your experience in our wilderness and on our trails is safe and enjoyable.

TAKE THE QUIZ

Visit MyGovNL to Take the Quiz.

For more information:

Prospectors & Developers Association of Canada (pdac.ca)

All-Terrain Vehicles (pdac.ca)

Snowmobiles (pdac.ca)