

# **CROSSOVER ACE SERIES**



# **A WARNING**

Read this guide thoroughly. It contains important safety information. Minimum recommended operators age: 16 years old. Keep this operator's guide with the vehicle at all times.

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Original Instructions

#### **A WARNING**

This vehicle may exceed the performance of other vehicles you may have ridden in the past. Take time to familiarize yourself with your new vehicle.

#### CALIFORNIA PROPOSITION 65 WARNING

# **⚠** WARNING

Operating, servicing and maintaining an off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to

www.p65warnings.ca.gov/products/passenger-vehicle.

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#### OPERATOR'S GUIDE

Model	Package	Engine
	Sport	600 ACE
		900 ACE
	LE 20/ 24 in. SE 20 in.	900 ACE
		900 ACE Turbo
Expedition		900 ACE Turbo R
		900 ACE
		900 ACE Turbo
		900 ACE Turbo R
	Extreme	900 ACE Turbo R

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# GENERAL INFORMATION

#### GENERAL INFORMATION

Congratulations on your purchase of a new BRP snowmobile. Whatever model you have chosen, it is backed by the Bombardier Recreational Products Inc. (BRP) warranty and a network of authorized BRP snowmobile dealers ready to provide the parts, service or accessories you may require.

Your dealer is committed to your satisfaction. He has taken training to perform the initial set-up and inspection of your snowmobile as well as completed the final adjustment required to suit your specific weight and riding environment before you took possession.

At delivery, you were informed of the warranty coverage and signed the Pre-delivery Check List to ensure your new vehicle was prepared to your entire satisfaction.

# Know Before you Go

To learn how to reduce the risk for you, your passenger or bystanders being injured or killed, read the following sections before you operate the vehicle:

- Safety Information
- Vehicle Information.

Also read all safety labels on your snowmobile and watch attentively the safety video located at:

www.ski-doo.com/safety.

Or, use the following QR code.



# Safety Messages

This operator's guide utilizes the following symbols and words to emphasize particular information:

The safety alert symbol indicates a potential injury hazard.

#### ⚠ WARNING

Indicates a potential hazard which, if not avoided, could result in serious injury or death.



Indicates a hazard situation which, if not avoided, could result in minor or moderate injury.

# NOTICE

Indicates an instruction which, if not followed, could severely damage vehicle components or other property.

# About this Operator's Guide

This operator's guide has been prepared to acquaint the owner, operator and passenger with this snowmobile and its various controls, maintenance and safe riding instructions.

The following terminology in regards to operator, passenger and vehicle configuration is used as follows throughout this guide:

- Operator: refers to the person being behind the controls and driving the snowmobile.
- Passenger: refers to a person sitting behind the operator.
- 1-UP: refers to a model designed for an operator only.
- 2-UP: refers to a model designed to accommodate one passenger.

Keep this operator's guide in the vehicle as you can refer to it for the operation, instructing others, maintenance and troubleshooting.

Note that this guide is available in several languages. In the event of any discrepancy, the English version shall prevail.

If you want to view and/or print an extra copy of your operator's guide, simply visit the following website:

# www.operatorsguides.brp.com

The information contained in this document is correct at the time of publication. BRP, however, maintains a policy of continuous improvement of its products without imposing upon itself any obligation to install them on products previously manufactured. Due to late changes, some differences between the manufactured product and the descriptions and/or specifications in this guide may occur. BRP reserves the right at any time to discontinue or change specifications, designs, features, models or equipment without incurring any obligation upon itself.

This operator's guide should remain with the vehicle when it's sold.

## Respect of the Environment

The guidelines that we support are not designed to limit your snow-mobiling fun, but to preserve the beautiful freedom that you can experience only on a snowmobile! These guidelines will keep snowmobilers healthy, happy and able to introduce others to what they know and enjoy about their favorite winter pastime. So, the next time you hit the trails on a cool, crisp and clear winter day, we ask you to remember that you are paving the way for the future of our sport. Help us lead it down the right path! From all of us at BRP, thank you for doing your share.

There is nothing more exhilarating than snowmobiling. Venturing onto snowmobile trails that cross wild areas is an exciting and healthy winter sport. However, as the number of people using these recreational parks increases, so does the potential for damage to the environment. Abuse of land, facilities and resources inevitably leads to restrictions and closures of both private and public land.

In essence, the greatest threat to our sport, is all around us. Which leaves us with one logical choice. When we snowmobile, we must always ride responsibly.

The vast majority respect the law and the environment. Each of us must set an example for those who are new to the sport, young and old alike.

It is in every one's best interest to tread lightly into our recreational areas. Because, in the long run, to protect the sport we must preserve the environment

Recognizing the importance of this issue and the need for snowmobilers to do their share in preserving areas that make it possible to enjoy our sport, BRP has developed the "Light Treading Is Smart Sledding" campaign for snowmobilers.

Light Treading refers to more than the thread of our tracks. It's a statement of concern, respect and willingness to take the lead and take action. It applies to the environment in general, its proper care and maintenance, its natural inhabitants and all enthusiasts and the public at large who enjoy the great outdoors. With this theme, we invite all snowmobilers to remember that respecting the environment is not only critical to the future of our industry but to future generations.

Light Treading in no way suggests you should curb your appetite for snowmobiling fun! It simply means tread with respect!

The fundamental objective of Light Treading is one of respect for where and how you ride a snowmobile. You're a light treader when you follow the principles below.

Become informed. Obtain maps, regulations and other information from the Forest Service or from other public land agencies. Learn the rules and follow them and that goes for speed limits, too!

**Avoid** running over young trees, shrubs, and grasses and don't cut wood. On flatlands or areas where trail riding is popular, it's important to ride only where authorized. Remember, there is a link between protecting your environment and your own safety.

Respect wildlife and be particularly sensitive of animals that are rearing young or suffering from food shortage. Stress can sap scarce energy reserves. Refrain from riding in areas where only animals are intended to tread!

**Obey** gate closures and regulatory signs and remember, light treaders don't litter!

Stay out of wilderness areas. They're closed to all vehicles. Know where the boundaries are.

**Obtain permission** to travel across private land. Respect the rights of landowners and other people's privacy. Remember, snowmobile technology has lowered the noise factor considerably, but you still shouldn't rev your engines where quiet "is the order of the day".

Snowmobilers know all too well the efforts that have been made throughout the sport's history to enjoy access to areas where people can snowmobile safely and responsibly. This effort continues today, as strong as ever.

Respecting the areas where we ride... wherever they may be... is the only way to ensure their future enjoyment. That's one major reason why we know you'll agree that Light Treading is smart sledding! And there are more.

Enjoying the opportunity to see winter and all its natural majestic wonders, is an experience cherished by snowmobilers. Light Treading will preserve this opportunity and will make it possible for us to expose others to the beauty of winter and the unique thrill of our sport! Light Treading will help our sport to grow!

Finally, Light Treading is the sign of a smart snowmobiler. You don't have to leave big tracks or careen through a virgin forest to show you can ride. So whether you're driving a high performance BRP snowmobile or any other make or model, show you know what you're doing. Show you know how to send snow flying and make tracks with a light touch!

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# **SAFETY INFORMATION**

#### **BEFORE YOU GO**

#### **!** WARNING

Disregarding any of the safety precautions and instructions contained in this section could cause injury including the possibility of death.

# **Operating Age and Ability**

Operators must be qualified. Make sure the operator is 16 or older. Your state (or province) may have additional requirements. Laws regarding the minimum age and licensing requirements vary from one jurisdiction to another. Be sure to contact the local authorities for information regarding the legal operation of a snowmobile in the intended jurisdiction of use. BRP highly recommends that you take a safety riding course. Basic training is required for the safe operation of any snowmobile.

Operation of this snowmobile with a disability that impairs vision, reaction time, judgment, or operation of the controls is not recommended. The safe use of your snowmobile depends on many conditions such as visibility, speed, weather, environment, traffic, vehicle condition and the condition of the operator. The performance of some snowmobiles may significantly exceed that of other snowmobiles you have operated. Therefore, use by novice or inexperienced operators is not recommended.

Each passenger must be able to simultaneously place both feet firmly flat against each footboard when properly seated.

# **Drugs and Alcohol**

Never ride after consuming alcohol or drugs. Riding on a snowmobile requires the operator and passenger (s) to be sober, attentive and alcohol, singly or in combination, decreases reaction time, impedes judgment, impairs vision, and inhibits your ability to safely ride on a snowmobile.

## **Avalanche Safety Training Courses**

We recommend that all mountain riders take a local avalanche safety training course to become more familiar with snow conditions and learn how to properly use their equipment. Here are some web sites that can help you finding important information:

- US: www.avalanche.org
- Europe: www.avalanches.org
- Canada: www.avalanche.ca

#### **Protective Gear**

Proper snowmobile clothing should be worn by all riders. It should be comfortable and not too tight. Always check the weather forecast before going on a ride. Dress for the coldest weather expected. Thermal underwear next to the skin also provides a good insulation.

Always wear an approved helmet at all times for safety and comfort. They provide both warmth and reduce injury. A stocking type cap, balaclava and face mask should always be carried or worn. Goggles or a face shield that attach to the helmet are indispensable.

Hands should be protected by a pair of snowmobile gloves or mitts which have sufficient insulation and allow use of thumbs and fingers for operation of controls.

Rubber bottom boots with either a nylon or a leather top, with removable felt liners are best suited for snowmobiling.

You should keep yourself as dry as possible when snowmobiling. When you come indoors, take your snowmobile suit and boots off and make certain they dry properly.

Do not wear a long scarf or loose apparels that could get caught in moving parts.

Carry colored lens goggles.

# Required Equipment

As the owner of the snowmobile, you are responsible for ensuring that all required safety equipment is aboard. Check your local regulations about requirements.

First aid kit	Provided tool kit
Mobile phone	Knife
Spare spark plugs	Flashlight
Adhesive tape (duct tape)	Trail map
Spare drive belt	Snack
Probe*	Shovel*

#### BEFORE YOU GO

Avalanche beacon*	-
*When riding in an area with avalanche risk	

#### GET FAMILIAR WITH THE SNOWMOBILE

This vehicle may exceed the performance of other vehicles you may have ridden. Take time to familiarize yourself with your new vehicle.

Inexperienced riders may overlook risks and be surprised by vehicle's specific behavior and terrain conditions. Ride slowly. Excessive speed and reckless driving can kill.

Make sure you read and understand the content of this operator's guide to become completely familiar with the controls and operation of the snowmobile before embarking on your first trip or taking on a passenger(s). If you have not had the opportunity to do so, practice driving solo in a suitable traffic-free area to become accustomed to the feel and response of each control.

It is very important to inform any operator, regardless of his experience, of the handling characteristics of this snowmobile. The snowmobile configuration, such as ski stance, ski type, suspension type, track length, width and type vary from a model to another. The snowmobile handling is greatly influenced by these characteristics.

# Track Propulsion System

Your snowmobile features a track propulsion system. The track grips on the snow-covered surface and pushes the snowmobile in the opposite direction of the force applied on the surface. Stay away from the track. Personal injury will result if contact is made with the revolving track.

# **WARNING**

Never stand behind or near a rotating track. Debris could be projected causing severe injuries.

The grip of the track will vary depending on the surface conditions. The grip may be reduced on hard-pack snow or ice. Reduce your speed and allow more space to turn. Refer to the *TRACTION ENHANCING PRODUCTS* subsection of this guide to learn how to balance the grip of the ski vs the grip of the track. If the front and rear of the snowmobile are out of balance due to an incorrect combination of traction enhancing products, the snowmobile may tend to oversteer or understeer, which could lead to a loss of control.

#### Steering

Skis are used to steer the snowmobile through the handlebar. The performance to steer will vary depending of the grip of the skis on the surface. Steering control ability may be reduced on hard-pack snow, ice or roads. Reduce speed and allow more space to turn. Refer to the TRACTION ENHANCING PRODUCTS subsection of this guide to learn how to balance the grip of the ski versus the grip of the track. If

the front and rear of the snowmobile are out of balance due to an incorrect combination of traction enhancing products, the snowmobile may tend to oversteer or understeer, which could lead to a loss of control.

Riding with a passenger or when carrying loads, the steering control will also be reduced. Reduce speed and allow more space to turn.

#### **Tether Cord**

Always attach tether cord eyelet to clothing before starting the engine to help ensure the engine stops should the operator fall off.

After riding, always remove the tether cord from the engine cut-off switch to avoid unauthorized use by children or others and to prevent starting in a closed environment (ex: garage).

# **Braking**

Braking performances may vary suddenly under certain conditions. Always remember that the snowmobile braking distance may be affected when riding with a passenger and when loaded with cargo at the rear. Never jam the brake and lock the track. Be sure to use restraint in braking to keep from blocking the track in order to avoid surprises that could lead to a loss of control.

Using studs on the track will give you better braking capacity on packed snow or ice but will have no noticeable effect on soft snow. Refer to *Enhancing Traction Control Products* subsection for track studding application.

# Parking Brake

Always engage parking brake before starting the engine. Parking brake should be used whenever snowmobile is parked.

Make sure parking brake is fully disengaged before operating the snowmobile. When you ride the vehicle, brake pads that are caused to drag by a continuous pressure on the lever may cause damage to the brake system and cause loss of braking capacity or fire.

## Programmable D.E.S.S. Key

The Programmable D. E. S. S. Key can be programmed to limit the speed of the snowmobile and the engine torque. Enabling first time users and less experienced operators to learn how to operate while gaining the necessary confidence and control.

Visit your BRP authorized dealer to see if this accessory is available for your model.

# **Carrying Loads**

Carrying loads affects the vehicle handling, stability and braking distance. Appropriate loading and weight distribution are therefore important.

When carrying loads it is very important to follow the recommendations:

- Never exceed the maximum cargo capacity. Refer to Safety Information on the Vehicle or Technical Specifications subsections for the applicable cargo load capacity of your snowmobile.
- Always adjust the suspensions according to the cargo load. Refer to *Tune Your Ride* subsection for more details.
- Never carry a load unless it is properly secured using a BRP LinQ certified accessory. Compatible accessories which are not BRP certified may not be considered as fit for this purpose.
- Always reduce your speed, turn gradually and allow longer braking distance when carrying loads.

#### ⚠ WARNING

Failure to follow these recommendations when carrying or towing loads could lead to a loss of control and possibly in a tip over.

## **Towing Loads**

Towing loads affects the vehicle handling, stability and braking distance. Appropriate loading and weight distribution are therefore important.

When towing a load it is very important to follow the recommendations:

- Always use a rigid tow bar to tow a cargo carrier or an accessory.
- Never tow a load using a rope. Using a rope would result in a collision between the load and the snowmobile and possibly in a tip over in case of a rapid deceleration or on a downward slope.
- Never tow a load by attaching it directly to the bumper. Use only
  the hitch to tow a load. Make sure that the cargo carrier hitch is
  compatible with the one on the vehicle. Use security chains or cables to secure the cargo carrier with the vehicle. Avoid excessive
  slack in the chains or cables, it could break and snap back.
- Never exceed the vehicle maximum tow capacity. Refer to Safety Information on the Vehicle or Technical Specifications subsections for the applicable towing capacity of your snowmobile.
- Never exceed the tongue weight capacity, if applicable.
- Always make sure load is evenly distributed and safely secured on the cargo carrier. Make sure there is at least some weight on the tongue, if applicable.

#### GET FAMILIAR WITH THE SNOWMOBILE

- Always adjust the suspensions according to the weight on the tongue, if applicable. Refer to *Tune Your Ride* subsection for more details.
- Reduce your speed and turn gradually. Avoid hills and rough terrain. Riding this vehicle with a cargo carrier substantially increases the risk of toppling, especially on inclined slopes. Never attempt steep hills.
- Allow more distance for braking, especially on inclined surfaces and when a passenger is on board. Be careful not to skid or slide.
- Use caution when disconnecting a loaded cargo carrier; its load may topple on you or others.

#### **⚠ WARNING**

Failure to follow these recommendations when carrying or towing loads could lead to a loss of control and possibly in a tip over.

On vehicle equipped with a gearbox, always put the shift lever to L (low range) when towing a cargo carrier.

Any towed accessory should have reflectors on both sides and at the rear.

Check country transport regulations for brake light(s) requirements.

## **Towing Another Snowmobile**

If a snowmobile is disabled and must be towed, in an emergency situation only, a rope can be used

- Remove the drive belt. Refer to Maintenance Procedures for more details.
- Attach the rope to the ski legs (spindles), not to the skis. If the ski legs are not accessible, attach the rope to the bumper.
- Have someone sit on the towed snowmobile to steer and activate the brake if needed
- Tow at low speed with extra caution.

#### NOTICE

Always remove the drive belt of the snowmobile that is to be towed to prevent damage to its belt and drive system.

In some areas, it may be illegal to do so. Check with state or local authorities.

#### **Accessories and Modifications**

Any modifications or addition of accessories approved by BRP may affect the handling of your vehicle. It is important to take the time to get familiar with the vehicle once modifications are made to understand how to adapt your driving behavior accordingly.

Avoid installing equipment not specifically approved by BRP for the vehicle and avoid unauthorized modifications. These modifications and equipment have not been tested by BRP and may create hazards. For example, they could:

- Create a loss of control and increase risk of crash
- Cause overheating or short circuits increasing the risk of fire or burn injuries
- Affect the protection features provided by the vehicle
- Affect the behavior of the trailer when the vehicle is transported
- Cause a risk of losing objects on the road when transported.

Your vehicle may also become illegal to ride.

Ask your authorized BRP dealer for suitable available accessories for your vehicle.

# **Traction Enhancing Products**

#### NOTF:

This section is applicable to all snowmobile models that are either equipped with a:

- Factory installed track approved by BRP for special studs installation.
- Factory pre-studded track.

or that can received one of these tracks.

Always refer to your authorized BRP snowmobile dealer to learn more on traction enhancing products and applicability on your snowmobile.

Using traction enhancing products such as, adjustable or more aggressive ski carbide runners and / or track studs on your snowmobile will change its behavior, particularly in terms of maneuverability, acceleration, and braking.

Using traction enhancing products gives a better grip on hard packed snow and ice, but has no noticeable effect in deep snow. For this reason, driving a snowmobile equipped with traction enhancing products requires a certain adaptation period. If your snowmobile is equipped with traction enhancing products, be sure to take plenty of time to get used to the way it handles when turning, accelerating, and braking.

#### GET FAMILIAR WITH THE SNOWMOBILE

The use of track studs can increase the load and the stress on certain snowmobile components, as well as the vibration level. This can cause premature wear on parts such as belt, brake linings, bearings, chain, chain sprockets, and shorten track life.

Track studs can also cause serious damage to your snowmobile if it is not equipped with the appropriate tunnel protectors.

Check local regulations concerning the use of traction enhancing products on snowmobiles.

Studding an unapproved track or using unapproved studs increase the risk of the track tearing or severing

Installing track studs and tunnel protector(s) requires technical knowledge. To ensure safe and proper installation, BRP recommends to have the studs installed by your dealer.

For maintenance and replacement refer to *Track* in *Maintenance Procedures*.

#### Maneuverability

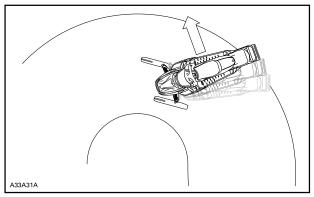
Using traction enhancing products such as, more aggressive ski carbide runners and/or studs makes the snowmobile grip the ground better at both the front and at the rear. The use of carbide runners is therefore required to give the skis a better grip, so that the front and rear of the snowmobile are in balance. While off-the-shelf carbide ski runners are adequate, they don't necessarily give you optimal control, since that depends on your personal preferences, your riding style, and how your suspension is adjusted.

#### ⚠ WARNING

If the front and rear of the snowmobile are out of balance due to an incorrect combination of traction enhancing products, the snowmobile may tend to oversteer or understeer, which could lead to a loss of control.

## Oversteering

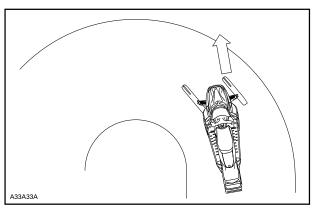
In certain conditions, using more aggressive ski carbide runners without studs on the rear track could make the snowmobile prone to oversteering, see illustration.



#### **OVERSTEERING**

# Understeering

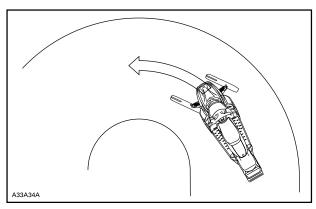
In certain conditions, the use of studs on the track could make the snowmobile prone to understeering if the skis are not equipped with more aggressive ski carbide runners, see illustration.



**UNDERSTEERING** 

## **Controlled Driving**

A balanced combination of carbide ski runners and studs on the track ensures adequate control and better handling, see illustration.



#### CONTROLLED DRIVING

#### Acceleration

Using studs on the track will allow your sled to accelerate better on packed snow and ice but will have no noticeable effect on soft snow. This can cause sudden variations in traction under certain conditions.

Always go easy on the throttle and never try to spin the track to make the rear of the snowmobile skid. This could cause debris or ice to be thrown violently backwards, possibly injuring others nearby or on snowmobiles behind you.

#### Braking

As in the case of acceleration, using studs on the track will give you better braking capacity on packed snow or ice but will have no noticeable effect on soft snow. Braking may thus vary suddenly under certain conditions. Be sure to use restraint in braking to keep from blocking the track in order to avoid surprises that could lead to a loss of control.

#### RIDE SAFELY

# Rider Position (Forward Operation)

Your riding position and balance are the two basic principles of making your snowmobile go where you want it to. When turning on the side of a hill, you and your passenger must be ready to shift body weight to help it turn in the desired direction. Operator and passenger must never attempt this maneuvering by placing feet outside of the vehicle. Experience will teach you how much lean to put into turns at different speeds and how much you will have to lean into a slope to maintain proper balance.

Generally, the riding position for best balance and control is sitting. However, the posting, kneeling or standing positions are also used under certain conditions.

#### **⚠** WARNING

Do not attempt any maneuvers if they are beyond your abilities.

#### Sitting

Feet on the running boards, body midway back on seat is an ideal position when operating the snowmobile over familiar, smooth terrain. Knees and hips should remain flexible to absorb shocks.



#### Posting

A semi-sitting position with the body off the seat and the feet under the body in a sort of squatting posture, thus allowing the legs to absorb the shocks when traveling over uneven terrain. Avoid abrupt stops.



#### Kneeling

This position is achieved by placing one foot firmly on the running board and the opposite knee on the seat. Avoid abrupt stops.



#### Standing

Place both feet on the running boards. Knees should be flexed to absorb the shock from surface bumps. This is an effective position to see better and to shift weight as conditions dictate. Avoid abrupt stop.



### Rider Position (Reverse Operation)

When operating in reverse:

- Ensure the path behind is clear of obstacles or bystanders before proceeding in reverse.
- BRP recommends sitting on your snowmobile when operating in reverse.
- Avoid standing up. Your weight could shift forward against throttle lever while operating in reverse, causing an unexpected acceleration. Unexpected acceleration when snowmobile operates in reverse can cause a loss of control.

Fast reverse while turning, could result in loss of stability and control.

## Riding with Passenger(s)

This vehicle is designed for one (1) operator and as many passengers as there are seats with straps or handholds installed on the vehicle conforming to SSCC standards. Passenger must only sit on designated passenger seat.

#### ♠ WARNING

- Never carry a passenger on a seat not approved by BRP.
- Never allow anyone to sit between the handlebar and the operator.

#### RIDE SAFELY

Even when a passenger is allowed, this person must be physically fit for snowmobiling.

Any passenger must always be able to firmly lay his feet on the footrests and keep his hands on the handholds or seat strap when seated. Respecting those physical criteria is important to ensure that the passenger is stable and to reduce the risks of ejection. Falls can result in severe injury or death.

The operator has a responsibility to ensure the safety of his passenger and should inform the passenger about snowmobiling basics.

Before riding the vehicle, adjust suspension according to weight. Refer to *Tune Your Ride* subsection for more details.

Ask your passenger to inform you to slowdown or stop immediately if he feels uncomfortable or insecure during the ride.

When going over bumps, riders(s) may raise their body slightly off the seat to absorb the shocks with their legs.

An unforeseen bump can leave you passenger-less. Remind your passenger to lean into the turn with you, without causing the vehicle to topple. Be extremely careful, go more slowly and check the passenger frequently. Keep a watchful eye on your passenger while riding.

Braking ability and steering control are reduced when riding with a passenger. Decrease speed and allow extra space to maneuver.

#### Riding Alone

Venturing out alone with your snowmobile could also be hazardous. You could run out of fuel, have an accident, or damage your snowmobile. Remember, your snowmobile is capable of traveling further in half an hour than you may be able to walk in a day. Use the "buddy system". Always ride with a friend or member of your snowmobile club. Even then, tell someone where you are going and the approximate time you plan to return.

## Riding in a Group

Before starting out, designate a "trail boss" to lead the party and another person to follow-up at the end of the party. Ensure that all members of the party are aware of the proposed route and destination. When riding with others, limit your abilities to the experience of others. Never overtake the trail boss or, for that matter, any other snowmobile. Use down-the-line hand signals to indicate hazards or intent of direction change. It's important to keep a safe distance between each snowmobile but each one behind the leader should know the position of the machine ahead.

#### Hand Signals

Every snowmobiler should relay any signal to the ones behind.

#### STOP

Raise either hand straight above your head.



# LEFT TURN

Extend your left hand straight out in the proper direction.



#### RIGHT TURN

Extend the left arm and raise the hand to a vertical position so it forms a right angle at the elbow.



#### SLOWING DOWN

Left hand extended out and down from the side of the body with downward flapping motion of hand to signal warning or caution.



#### FOLLOWING SNOWMO BILES Arm raised, elbow bent with thumb

Arm raised, elbow bent with thumb pointing backward, in hitch-hicking motion move arm forward to backward over your



# ONCOMING SNOWMO

BILES
Left arm
raised at
shoulder
height, elbow
bent and
forearm
verticl, wrist
bent, move
arm from left
to right over
head pointing
to right side of
trail



#### LAST SNOWMO BILE IN LINE

shoulder.

Left arm raised at should height, elbow bent and forearm vertical with hand clenched in a fist.



## Light Signals

As an alternative to the hand signals, a light signal system can be installed on your snowmobile. Whether it is an OEM or after-sales system, it consists basically in a 2 colors LED light that signals you are followed by other riders, or you are the last rider. It allows the rider to keep both hands on the handlebar for more safety while crossing other riders.

Visit you BRP snowmobile dealer for more information.

FOLLOWING SNOWMOBILES	YELLOW light
LAST SNOWMOBILE IN YOUR GROUP LINE	GREEN light

## **Avoiding Collisions**

Wherever riding your vehicle always be on the look-out for the unexpected. Operate defensively. Scan constantly for people, objects, conditions and upcoming vehicles. In the trail, always stay on the appropriate side - as per country regulation - to avoid collision, especially when the field of vision is reduced. E.g.: Before a hilltop and a curve. Use extra caution whenever off-trail.

Always keep a safe distance from other snowmobiles and bystanders. Tailgating another snowmobile should be avoided. If the snowmobile in front of you slows for any reason, its operator and passenger could be harmed through your neglect. Maintain a safe stopping distance between you and the snowmobile in front of you. Depending on the terrain condition, stopping may require a little more space than you think. Play it safe. Be prepared to use evasive driving.

On land or water, fog or visibility-limiting snow can form. If you must proceed into the fog or heavy snow, do so slowly with your lights on and watch intently for hazards. If you are not sure of your way, do not proceed. Keep a safe distance behind other snowmobilers to improve visibility and reaction time.

## Riding Behaviors

Injury or death may result to the snowmobile operator, passenger or bystander if the snowmobile is used in risky conditions which are beyond the operator's, passenger's or snowmobile's capabilities or intended use

Remember, promotional material may show risky maneuvers performed by professional riders under ideal and controlled conditions. You should never attempt any such risky maneuvers if they are beyond your level of riding ability.

Jumping can be a hazardous situation. It requires practice and should be done in a known and controlled environment. Never attempt jumping in a trail. A loss of control could lead to an impact with different elements like rock or tree, or with another snowmobile. When jumping be prepared for landing to absorb the shock. Brace yourself for the impact and your knees must be flexed to act as shock absorbers.

Also, an uneven or mined surface in the trail could be enough to kick upward the snowmobile and generate an impact or a loss of control. When "gunning" the throttle, the vehicle digs into and leaves an irregular snow surface for others. So protect the other users by not spinning the track in the middle of the trail.

## Speeding

Excessive speed and reckless driving can be fatal. Always adjust your speed according to snow conditions and circumstances. In many cases, you cannot react or respond quickly enough to the unexpected. Always ride at a speed which is suitable to the trail, weather conditions and your own ability. Know your local rules. Speed limit may be in effect and meant to be observed.

## Moving Parts

Stay away from the track. Personal injury will result if contact is made with the rotating track.

To prevent serious injury to individuals near the snowmobile:

- Never stand behind or near a moving track
- Always use a wide-base snowmobile stand with a rear deflector
- panel if it is necessary to rotate track When the track is raised off the ground, only run it at the lowest possible speed. Centrifugal force could cause debris, damaged or loose studs, pieces of torn track, or an entire severed track to be violently thrown backwards out of the tunnel with tremendous force
- Never operate the engine without the belt guard securely installed
- Never operate the vehicle without the brake disk guard securely
- Never operate the vehicle with the side panels opened, or the hood removed

## **Know Terrain and Riding Variations**

#### Groomed Trail

On a maintained trail, sitting is the most preferred riding position. Do not race and, above all, keep to the right hand side of the trail. Be prepared for the unexpected. Observe all trail signs. Do not zigzag from one side of the trail to the other.

## Unaroomed Trail

Unless there has been a fresh snowfall you can expect "washboard" and snowdrift conditions. Taken at excessive speeds, such conditions can be physically harmful. Slow down. Hold on the handlebar and assume a posting position. Feet should be under the body assuming a crouched position to absorb any jarring effect. On longer stretches of "washboard" trails, the kneeling position of one knee on the seat can be adopted. This provides a certain amount of comfort, while at the same time keeps the body loose and capable of vehicle control. Beware of hidden rocks or tree stumps partially hidden by a recent snowfall.

#### Deep Snow

In deep "powder" snow, your vehicle could begin to "bog" down. If this occurs, turn in as wide an arc as possible and look for a firmer base. If you do get "bogged", and it happens to everyone, do not spin your track as this makes the vehicle sink deeper. Instead, turn the engine off, get off and move the back of the vehicle onto new snow. Then tramp a clear path ahead of the vehicle. A few feet will generally suffice. Restart the engine. Assume the standing position and rock the vehicle gently as you steadily and slowly apply the throttle. Depending on whether the front or rear end of the vehicle is sinking, your feet should be placed on the opposing end of the running boards. Never place foreign material beneath the track for support. Do not allow anyone to stand in front of, or to the rear of, the snowmobile with the engine running. Stay away from the track. Personal injury will result if contact is made with the revolving track.

#### Frozen Water

Traveling frozen lakes and rivers can be fatal. Avoid waterways. If you are in an unfamiliar area, ask the local authorities or residents about the ice condition, inlets, outlets, springs, fast moving currents or other hazards. Never attempt to operate your snowmobile on ice that may be too weak to support you and the vehicle. Operating a snowmobile on ice or icy surfaces can be very dangerous if you do not observe certain precautions. The very nature of ice is foreign to good control of a snowmobile or any vehicle. Traction for starting, turning or stopping is much less than that on snow. Thus, these distances can be multiplied manyfold. Steering is minimal, and uncontrolled spins are an ever present danger. When operating on ice, drive slowly with caution. Allow yourself plenty of room for stopping and turning.

#### Slush

Slush should be avoided at all times. Always check for slush before starting across any lake or river. If dark spots appear in your tracks, get off the ice immediately. Ice and water can be thrown rearward into the path of a following snowmobile. Getting a vehicle out of a slush area is strenuous and in some cases, impossible.

#### Uphill

There are two types of hills you can encounter — the open hill on which there are few trees, cliffs or other obstacles, and a hill that can only be climbed directly. On an open hill, the approach is to climb it by side hilling or slaloming. Approach at an angle. Adopt a standing position with both feet on the same running board. Keep your weight on the uphill side at all times. Maintain a steady, safe speed. Continue as far as you can in this direction, then switch to an opposite hill angle and riding position.

#### RIDE SAFELY

A direct climb could present problems. Choose the standing position, accelerate before you start the climb and then reduce throttle pressure to prevent track slippage.

In either case, vehicle speed should be as fast as the incline demands. Always slow down as you reach the crest. If you cannot proceed further, don't spin your track. Apply the parking brake, turn the engine off, free the skis by pulling them out and downhill, place the rear of the snowmobile uphill, restart the engine, release the parking brake and ease it out with slow even throttle pressure. Position yourself to avoid tipping over, then descend.

#### Downhill

Downhill driving requires that you have full control of your vehicle at all times. On steeper hills, keep your center of gravity low and both hands on the handlebar. Maintain slight throttle pressure and allow the machine to run downhill with the engine operating. If a higher than safe speed is reached, slow down by braking but apply the brake with frequent light pressure. Never jam the brake and lock the track.

#### Side Hill

When crossing a side hill or traversing up or downhill, certain procedures must be followed. All riders should lean towards the slope as required for stability. The preferred operating positions are the standing position, with both feet on the running board that is facing uphill. Be prepared to shift your weight quickly as needed. Side hills and steep slopes are not recommended for a beginner or a novice snowmobiler.

#### Avalanche Hazard

When riding on mountainous terrain, you should be aware of the risk of avalanches. Avalanches vary in size and shapes and generally occur in steep terrain and on unstable snow.

New snow, animals, people, wind and snowmobiles can all trigger an avalanche. Avoid high marking or traversing steep terrain when avalanche conditions are possible. When in unstable snow conditions, travel should be restricted to lower angle slopes. Wind formed cornices should be avoided. Staying off unstable conditions is the key to safe mountain riding. Probably most important is to be aware of the conditions and dangers on a daily basis when in the mountains. Check local avalanche forecasts and threats each day before heading out to ride and heed forecasters advice.

You should always carry a snow shovel, probe and avalanche beacon while riding on mountains.

#### **Bright Sunshine**

Bright sunny days can considerably reduce your vision. The glare from sun and snow may blind you to the extent that you cannot easily distinguish ravines, ditches or other obstacles. Goggles with colored lenses should always be worn under these conditions.

#### Night Rides

The amount of natural and artificial light at a given time can affect your ability to see or to be seen. Be extra cautious. Drive at speeds that will allow you to stop in time when you see an unknown or dangerous object ahead. Stay on established trails and never operate in unfamiliar territory. Be sure both headlights and taillight are working and clean.

## **Unfamiliar Territory**

Whenever you enter an area that is new to you, drive with extreme caution. There may be obstructions hidden beneath the snow. Go slow enough to recognize potential hazards such as fences or fence posts, brooks crossing your path, rocks, sudden dips, guy wires and countless other obstacles which could result in a termination of your snow-mobile ride.

Driving off established trails and in the woods requires reduced speed and increased vigilance. Driving too fast in an area can make even minor obstacles very hazardous. Even hitting a small rock or stump could throw your snowmobile out of control and cause injury to its riders. Even when following existing tracks, be cautious. Travel at a speed so you can see what is around the next bend or over the top of the hill.

#### Hidden Wires

Always be on the lookout for hidden wires, especially in areas that may have been farmed at one time or another. Too many accidents have been caused by running into wires in the fields, guy wires next to poles and roads, and into chains and wires used as road closures. Slow speeds are a must.

## Riding Uneven Surfaces

Unplanned jumps of snowdrifts, snowplow ridges, culverts, indistinguishable objects or sudden drop in the trail can be dangerous. You can avoid them by wearing the proper color lenses or face shields and by operating at a lower speed.

A good way to help seeing these terrain variations is to wear the proper color lenses or face shields and by operating at a lower speed. Crouch (stand) towards the rear of the vehicle and keep the skis up and straight ahead. Apply partial throttle and brace yourself for the impact. Knees must be flexed to act as shock absorbers.

#### Road Crossing

Your snowmobile is not designed to operate or turn on pavement of public streets, roads or highways. Avoid road traveling. If you must do so, and it is permitted, reduce speed and stay on the edge of the way where you can find snow to help providing capabilities to maintain directional control.

As snowmobile trails often cross roadways it is important for riders to know the proper crossing procedures. When approaching a roadway, signal to others that you are stopping at the intersection and slowly come to a complete stop back from the road's edge. In some cases, you will be approaching the road from a ditch or snowbank. Choose a place where you know you can climb without difficulty. Stop completely at the top of the bank and wait for all traffic to clear. Then, look carefully in both directions before crossing at a 90° angle. If needed, assume a standing position to look both ways. Be wary of parked vehicles. When you are certain that the road is clear proceed straight across the intersection without hesitation. Each rider needs to come to a complete stop, look both ways and then proceed when the roadways is clear of oncoming traffic.

## Railroad Crossing

Never ride on railroad tracks. It is illegal. Railroad tracks and railroad rights-of-way are private property. A snowmobile is no match for a train. Before crossing a railroad track, stop, look and listen.

## Respect of the Wildlife

Wildlife compliments your snowmobiling day. Snowmobile tracks provide firm ground over which animals can travel from area to area. Do not violate this privilege by chasing or harassing wildlife. Fatigue and exhaustion can lead to animal's death. Avoid areas posted for the protection or feeding of wildlife. If you happen to be fortunate enough to see an animal, stop your snowmobile and observe quietly.

## Carbon Monoxide (CO) Poisoning

All engine exhaust contains carbon monoxide (CO), a deadly gas. Breathing carbon monoxide can cause headaches, dizziness, drowsiness, nausea, confusion and eventually death.

Carbon monoxide is a colorless, odorless, tasteless gas that may be present even if you do not see or smell any engine exhaust. Deadly levels of carbon monoxide can collect rapidly, and you can quickly be overcome and unable to save yourself. Also, deadly levels of carbon monoxide can linger for hours or days in enclosed or poorly ventilated areas.

If you experience any symptoms of carbon monoxide poisoning, leave the area immediately, get fresh air and seek medical treatment.

To prevent serious injury or death from carbon monoxide:

- Never run the vehicle in poorly ventilated or partially enclosed areas such as garages, carports or barns. Even if you try to ventilate engine exhaust with fans or open windows and doors, carbon monoxide can rapidly reach dangerous levels.
- Never run the vehiclé outdoors where engine exhaust can be drawn into a building through openings such as windows and doors.
- Never stand next to the vehicle while the engine is running. A person standing next to the vehicle when the engine is running may inhale high concentrations of exhaust fumes.

After riding, always remove the tether cord from the engine cut-off switch to avoid unauthorized use by children or others and to prevent starting in a closed environment (ex: garage).

#### Gasoline Fires and Other Hazards

Gasoline is extremely flammable and highly explosive. Fuel vapors can spread and be ignited by a spark or flame many feet away from the engine. To reduce the risk of fire or explosion, follow these instructions:

- Use only an approved gasoline container to store fuel.
- Strictly adhere to instructions in Vehicle Fueling Procedure.
- Never start or operate the engine if the fuel cap is not properly installed.
- Use only a BRP approved LinQ fuel caddy to carry extra fuel on the vehicle. It should be properly installed and secured.

Gasoline is poisonous and can cause injury or death.

- Never siphon gasoline by mouth.
- If you swallow gasoline, get any in your eye or inhale gasoline vapor, visit your doctor immediately.
- If gasoline spills on you, wash with soap and water and change your clothes.

## **Burns from Hot Parts**

Certain components may become hot during operation. Avoid contact during and shortly after operation to avoid burns.

## PRACTICE EXERCISES

Practice alone the following exercises after having done the entire Pre-ride inspection. Always start and stop the engine according to the instructions in ENGINE STARTING PROCEDURE and SHUTTING OFF THE ENGINE in BASIC PROCEDURES. Don't forget to attach the tether cord to your jacket.

#### Where to Practice Exercises

Find a suitable area to practice the exercises. Ensure the area meet the following requirements:

- No traffic
- No obstacles
- Hard packed snow
- Ample space to maneuver.

#### **Exercises to Practice**

Practice alone the following exercises after having done the entire Pre-ride inspection. Always start and stop the engine according to the instructions in ENGINE STARTING PROCEDURE and SHUTTING OFF THE ENGINE in BASIC PROCEDURES. Don't forget to attach the tether cord to your jacket.

#### Using the Emergency Engine Stop Switch

Purpose: Become familiar with the operation of throttle lever and to become familiar with using the engine stop switch.

#### Directions:

- With the parking brake engaged, start the engine and let idle until it reaches the operation temperature.
- Use the engine stop switch to shut the engine off. Press the switch with your right thumb while keeping your hand on the handgrip.
- Restart the engine and repeat the exercise. No idle time is required.

#### Tips for additional practice:

- Press the emergency engine stop switch without looking at it.

## Starting, Stopping and Basic Handling

#### Purpose:

- Learn throttle control and how to get the vehicle moving.
- Become familiar with low speed deceleration and braking.

If you feel like you are losing control while doing this exercise, release the throttle to stop accelerating and apply the brake as needed to slow down. You can also use the engine stop switch to cut power entirely.

Directions: At first, you will only use the throttle for a moment at a time, then release it and coast.

- Start the engine and release the parking brake lever.
- Slowly apply throttle until the vehicle starts to creep forward. As soon as you start moving release the throttle and coast, then press the brake lever to stop.
- Continue with this part of the exercise until you are comfortable with applying and releasing the throttle.

#### Engine Stop While in Motion

Purpose: Become familiar with using the emergency engine stop switch when in motion so you know how the vehicle will react if you need to use it later.

#### Directions:

- Partway down the straightaway, while operating at 8 km/h (5MPH), toggle the engine stop switch to OFF position and coast to a stop.
- Restart the engine and repeat the exercise. Try increasing your speed (to a maximum of 20 km/h (12MPH) before using the engine stop switch.

In an emergency, the snowmobile engine can be stopped by pressing down on the emergency engine stop switch or by pulling the tether cord cap from the engine cut-off switch, while applying brake.

#### Basic Turns

Purpose: Get comfortable turning in a controlled manner on both sides.

#### Directions:

- Roll in a straight line at low speed and make a wide arcing turn.
   Make sure there is enough space to perform the entire turn.
- Repeat right and left turns and maintain a steady speed bellow 8km/h (5MPH). Hold the throttle to maintain your low speed.
- Leaning forward and into the curve may help you to turn the handlebar more easily.

#### **Quick Stops**

#### Purpose:

- Become familiar with the vehicle braking ability.
- Learn to apply brakes with maximum efficiency.

This exercise is like what you did before, except you'll be applying the brake more firmly, working up to braking at the maximum without locking the track rotation. Always release the throttle completely for quick stops. If you apply throttle and brake at the same time, your stopping distance will be longer.

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#### PRACTICE EXERCISES

- Start at one end of the straightaway and accelerate to 8 km/h (5MPH). Partway down the straightaway, release the throttle completely and brake quickly.
- Keep head and eyes up, keep handlebar straight, and do not release the brake until fully stopped.
- Repeat, increasing your speed and braking harder. When you feel
  that the rotation of the track will be stopped you need to release
  the pressure on the break lever. To maintain control, you need to
  keep the track in rotation.

#### Operating in Reverse

Purpose: Become familiar with the vehicle handling and turning radius in reverse.

#### Directions:

- Shift into reverse and remain seated. Refer to SHIFTING IN RE-VERSE in BASIC PROCEDURES.
- Check that the area behind you is clear. While looking backwards, slowly reverse and stop by releasing throttle and using the brake, just like when operating normally.
- Keep your speed low and do not back up for long distances.
- Repeat the reverse and stop in straight line until you get comfortable.
- Once you are comfortable with reversing in straight line, you can slowly reverse while turning the handle bar.

## **FUFLING**

Fuel is flammable and explosive under certain conditions.

- Never use an open flame to check fuel level.
- Never smoke or allow flame or spark in vicinity.
- Always proceed in a well-ventilated area.

## **Fueling Procedure**

- Stop engine and engage the parking brake.
- 2. Have operator and passenger get off the vehicle. Do not sit or lean on seat when fuel tank cap is not properly installed.
- 3. Unscrew slowly the fuel reservoir cap counterclockwise to stabilize pressure before removing it.

#### NOTE:

A short whistling sound is normal.

- Insert the spout into the filler neck.
- Pour fuel slowly so that air can escape from the tank and prevent fuel flow back. Be careful not to spill fuel.
- 6. Stop filling after the release of the gas pump nozzle handle and wait a moment before removing the spout. Do not retract the gas pump nozzle to put more fuel into the fuel tank. **Do not overfill**.

  7. Reinstall the fuel cap and fully tighten clockwise.
- 8. Always wipe off any small fuel spillage from the vehicle. If a major spillage occurs, remove side panels to remove fuel vapors from engine compartment before starting.
- 9. Before getting on the way don't forget to disengage the parking brake.
- 10. Never top up the fuel tank before placing the vehicle in a warm area. As temperature increases, fuel expands and may overflow.

## TRANSPORTING THE VEHICLE

Make sure that oil reservoir and fuel tank caps are properly installed.

Many type of trailer can be used to transport a vehicle. Tilt-bed, flatbed or enclosed trailers, no matter the trailer used, always proceed with precaution when driving the vehicle on and off of it.

Always anchor the vehicle securely, front and rear, even on short hauls. Use appropriate tie-down straps only. Make sure all equipment is securely fastened. Cover the vehicle to prevent road grime from causing damage.

Make sure the trailer meets state or provincial requirements. Ensure the hitch and safety chains are secured, and the brake, turn indicators and clearance lights are functional.

## ♠ WARNING

Make sure all seats, accessories and cargo are properly secured, or remove it to prevent from falling on the road and creating a hazard for following vehicles.

## **⚠** WARNING

Do not tow the vehicle facing backwards. If the vehicle is towed facing backwards, the wind may cause damage to the windshield or even loss of the windshield.

# IMPORTANT ON-PRODUCT LABELS (CANADA/UNITED STATES)

## Vehicle Safety Labels

These labels are affixed to the vehicle for the safety of the operator, passenger or bystanders.

The following labels are on your vehicle and they should be considered permanent parts of the vehicle. If missing or damaged, the decals can be replaced free of charge. Visit an authorized BRP snowmobile dealer.

#### NOTE:

In the event of any discrepancy between this guide and the vehicle, the safety labels on the vehicle have precedence over the labels in this guide.

Shock Absorber - Warning Label



- This shock absorber is pressurized.
- An explosion may occur if heated or punctured.
- Do not disassemble.

SHOCK ABSORBERS - WARNING LABEL

## Pulley Guard and Drive Pulley Tightening Torque - Warning and Notice Label

# A WARNING / AVERTISSEMENT This guard must ALWAYS be in place when the engine is running. Beware of rotating parts, they could cause injuries or catch your clothing.

#### NOTICE

Drive pulley bolt recommended torque: 115-125 Nm ( 85-92 lbf-ft ) Not applying the recommended torque may result in a

# PULLEY GUARD AND DRIVE PULLEY TIGHTENING TORQUE – WARNING AND NOTICE LABEL

