



USARAK Snow Machine Safety and Training





Snow Machine Safety Agenda

- Purpose
- References
- Before You Ride
- Safety
- Riding
- Dangers to Avoid
- Emergencies
- Maintenance
- Performance Based Training
- Conclusion



Purpose

The purpose of this slide presentation is to provide a base line reference point for all USARAK Soldiers and their dependants, DOD civilians, contractors and others that have a need to use snow machines to perform their mission or ride for recreational purposes, both on and off Alaskan military reservations. **Unit trainers are encouraged to add to the presentation as required to enhance the training effect and better fit their units specific needs.**



References

Reference	Date
• USARAK FRAGO 8, to OPORD 06-013	14 February 2008
• Snow Machine Safety Training PPT	14 February 2008
• Army Regulation 385-10	23 August 2007
• Army Regulation 600-55	31 December 1993
• United States Army Alaska Regulation 190-13 Change #2	30 August 2006
• <i>USAG-AK 2007-2011 Integrated Natural Resources Management Plan Annex E Outdoor Recreation Management</i>	<i>Draft 17 January 2006</i>
• <i>USAG-AK 2007 – 2011 Integrated Natural Resource Management Plan Volume III Supplements</i>	<i>Draft 17 January 2006</i>
• USARAK MWR's 30 Minute Video & Hands on Familiarization Ride	TBD
• Applicable Owners/Operators Manual	TBD
• Unit SOP	TBP by each unit



Before You Ride

- In this section, you will find important base line information necessary to prepare yourself for safe snow machine operation and activities.
- Proper preparation and planning are critical steps to having a safe and enjoyable experience on a Snow Machine.
- Be sure to quiz yourself when you have finished to ensure you understand critical information before you ride.



Before You Ride

- Trailer and Towing Practices
- Loading and Unloading
- Tools and Parts Kits
- Emergency Kit
- Section Quiz



Trailer and Towing Practices





Trailer and Towing Practices

- For hauling snowmachines, use a trailer specifically designed for transporting snowmachines. Be sure you have all the proper equipment to attach the trailer to the prime mover, including safety chains, safety pins, electrical connections and check that all lights are serviceable and in operational condition. Check tires for condition and security, proper inflation, sidewall cracks before during and after heading out on the road.
- Before loading the snowmachine, always double check to ensure that the trailer is properly secured to the vehicle's hitch. Ensure that you check and tighten the bolt on the hitching mechanism if required. This will prevent the trailer from popping up off the hitch when the snowmachine is driven onto the trailer bed.



Trailer and Towing Practices (con't)

- Use the tie-down bars to secure snowmachine skis to the trailer.
- Ropes, tie-down straps, or ratchet straps can be used to secure freight sleds on the trailer.
- Confirm that all trailer lights are working properly. Check brake lights and turn signal indicators.
- Do a 360° walk around the entire prime mover and trailer, looking for anything unsafe or not properly loaded, secured or out of the ordinary.
- Plan to stop after travelling a short distance to spot check how well your load is secured, often things shift and work themselves loose in the first several miles of travel.
- When towing snowmachines in Alaska, you will often be using trailers that don't have brakes. A posted speed limit does not mean you have to drive that fast. Drive only as fast as conditions allow, realizing that stopping safely while towing a trailer will take more time and distance than normal.



Loading and Unloading

- Standard Operating Procedure (SOP) for loading/unloading snowmachine must be followed.
- Snowmachines should not be lifted by hand onto or off of trailer.
- Riding snowmachines on and off the trailers is the preferred method.
- Most trailers have ramps that are carried under the back of the trailer. These ramps are to be moved by a minimum of 2 people.
- The ramps have pins that must be replaced to keep the ramp from rolling out of its storage slot under the trailer. Make sure that pin is kept in a safe place when the ramp is in use and that it is replaced when the ramp is back in its storage configuration.
- When placing ramps for loading or unloading, make sure that ramps are properly aligned and that locking mechanisms or other alignment clips/pins/tabs are properly engaged. Watch for pinch points!



Loading and Unloading

- Before riding a snowmachine on or off trailers, make sure that all personnel are clear and no other person should be on the trailer when a machine is being loaded or unloaded.
- Ride the snowmachine at a controlled speed, but riders must be aware that traction on the ramps is often poor. Brakes must be applied soon after the snowmachines center of gravity has passed onto the trailer.
- If you are short on experience, listen to riders familiar with this operation and when you do your first up-load, ask to be observed and critiqued.



Loading and Unloading

- Tie-down bars must be used on all snowmachines. This will ensure that the snowmachines stay in position on the trailer.
- Replace bolts after unloading to keep the threads clear of snow and ice. Ratcheting tie-down straps are used in addition to the tie down bars. Ropes may be used if straps are unavailable and should be inspected prior to use.
- If tilt-trailers are used, use them carefully, and ensure only an experienced rider attempts the upload/download.



Tools and Parts Kits

- Most snowmachines have a location for tool storage just inside your hood/cowling, or the inside of the seat "trunk." Basic tools are generally included in a container for your machine. These tools will allow minor repairs and adjustments in a field environment.





Tools and Parts Kits

The tool kit of each machine should contain, at a minimum:

- Flathead screw driver
- Phillips head screwdriver
- Pliers
- Spark plug wrench
- Adjustable wrench
- Electrical tape
- Duct Tape
- Rag
- 550 Chord or Baling wire
- 1 Spare spark plug per cylinder
- Spare belt
- Tow strap
- Cable Ties
- Emergency Pull Rope



Emergency Kit

Each rider should carry at a minimum:

- 1 GPS unit with all pertinent hand-held information pre-loaded. Don't forget to record the prime mover and trailer location before taking off on waterproof paper.
- A laminated map of your area of operation.
- Hand-held radio with an extra battery.
- Any mission specific Personal Protective Equipment (PPE) needed for the task planned to include contingency operations.
- Combat Lifesaver Bag or equivalent First Aid Kit.
- Foot and hand warmer packets as required.
- Avalanche Beacon and Probe
- Helmet equipped with a visor or goggles for each team member.



Emergency Kit

At a minimum: Emergency/ Survival Kit should contain:

A folding saw

Gas stove

30 oz. fuel bottle with white gas

4 qt. aluminum fast heating kettle

1 - 8' plastic bag

2 cans sterno

Hand warmers

Signal mirror

Potable drinking water tablets

Waterproof match box with strike-anywhere matches and small propane match.

Fire Starter sticks

Emergency food bars

Cocoa and coffee crystals

Emergency lighting

Space blankets

Flashlight - "shake to work" variety

Combat Lifesaver bag or First Aid Kit

Small Shovel



Section Quiz

BEFORE YOU RIDE - SECTION QUIZ 1

1. What types of snowmachine trailers do we have in the unit?
 - a. Enclosed
 - b. Flatbed
 - c. Tilt bed
 - d. Triple-axle

2. When moving a loading ramp around a snowmachine trailer, how many people are recommended?
 - a. 1
 - b. 2
 - c. 3
 - d. As many as you have
 - e. All of the above

3. Snowmachines hauled on trailers should be secured with:
 - a. Hold-down bars
 - b. Large diameter nylon rope
 - c. Ratchet straps
 - d. Duct Tape
 - e. a and c
 - f. b and d

4. Lifting a snowmachine onto the trailer is okay as long as 2 people with good backs do it safely.
 - a. True
 - b. False



Section Quiz

BEFORE YOU RIDE - SECTION QUIZ 1

5. What should you check to make sure your trailer is secured safely to your truck?

- a. Safety chains hooked up properly
- c. Trailer foot jack locked in the up position
- c. Plug-in plugged in and locked in place
- d. Pintle hook locking pin in place
- e. All of the above

6. What kit should you carry with you even on short trips?

- a. Survival kit
- c. First Aid kit
- c. Tool kit
- d. All of the above

7. Your snowmachine tool kit:

- a. Allows you to make every possible repair to the snowmachine
- b. Contains a cell phone and handheld GPS unit
- c. Allows you to make minor repairs and adjustments
- d. Has only metric tools in it

8. Your survival kit should be stored:

- a. In the rider's backpack
- b. In a waterproof container on the snowmachine
- c. In the rider's car
- d. A kit is not necessary for every trip
- e. a or b



Safety

- Riding a snowmachine safely takes effort. The key to safe operation is knowing your snowmachine, using good judgment, and planning ahead.
- Ensure someone on the team is tracking the current and forecasted weather conditions thru out the teams mission profile.



Safety

Planning Your Trip



- All team members must know the concept of the operation and contingency plans as required.
- The team will meet as a group to discuss specific route(s) to follow and what possible hazards may be encountered.
- The risk assessment will be discussed and updated at this time.
- Now is when everyone should ask questions and determine exactly what they should do and where they should meet if anything goes wrong.
- Everyone needs to know where to meet if team members become separated following tracks, meeting at other rally points etc.
- It is important to follow the planned route so that you can be found if a breakdown or trouble develops.
- The teams mission and specific tasks to be accomplished that day should be discussed and back briefed.
- Leave a detailed trip plan with a responsible individual and your higher headquarters or Park Service that is responsible for the area of operation you are traveling thru.
- Use Latitude/Longitude coordinates if possible as many of the civilian search and rescue assets prefer this over UTM.
- **Ensure that you include the Alaska State Trooper dispatch at 1-(800) 811- 0911 or MATCOM Dispatch (907) 352-5401 and the Alaskan Rescue Coordination Cell (RCC) phone #'s on your trip plan (907) 428-7230 or 1- (800) 420 7230.**



Safety

Planning Your Trip

- The team leader or other designated team member will call the higher headquarters with the teams trip plan and details pertaining to the mission.
- This report will include the time that the team expects to depart and estimated time of arrival at the final destination.
- Contingencies for not meeting proposed time line will be discussed and agreed upon.
- The higher headquarters has to know when to start the units overdue snow machine drill.
- When working from snowmachines, two machines are the minimum (the buddy system) and three are preferred.
- If possible only tow freight sleds behind 2 of your machines, this facilitates 1 of your machines to be the lead element that can brake trail and confirm route clearance, corridor mobility and other safety factors before the machines towing the freight sleds committed.
- The third sled also can serve as your self extraction and recovery sled.

Safety



Alaska Search & Rescue Process

- If you are aware of an overdue snow machine team or individual you can contact the Alaska State Troopers (AST's) to report the overdue party or individual.
- The Alaska State Troopers, Dept. of Public Safety, have primary responsibility for civilian search and rescue in Alaska. Any search and rescue emergency should be reported to the nearest Trooper Detachment, Village Public Safety Officer, or to Trooper Dispatch in Anchorage 1-(800)811-0911, (907) 352-5401 or (907) 428-7200, if no contact dial 911 to start the search process.
- The will coordinate for additional ground and air assets as required to facilitate the recovery efforts.

Some examples of resources that the AST may task include:

- The Alaska Snowmachine Search and Rescue Recovery Team (ASSERT) Anchorage, AK (907) 566-2653.
- The Alaskan Civil Air Patrol Wing CAP Headquarters 552-5317.
- If they need additional Army or Air Guard assets the AST would contact the 11th Rescue Coordination Cell located at Fort Richardson Alaska Building # 49000.
- The 11th Rescue Coordination Center (RCC) Alaska Air National Guard RCC Controller (907) 428-7230 or 1 800 420 7230.



Safety

HAND SIGNALS

Giving clear, easy-to-see hand signals are vital to safe snowmachine riding. Don't be subtle with hand signals – make them plain and obvious. Be sure that the riders behind you can see any signal you make. Hand signals are a very reliable way to communicate while riding.

- Left arm raised from the shoulder and extended straight up over the head with palm of hand flat.
- Left arm extended out and down from the body with a downward flapping motion for hand to signal warning or caution.
- Each unit should standardize it's own specific hand and arm signals IAW it's SOP.





Safety

FIRST AID

- It is recommended that USARAK Soldiers and Department of Army Civilians that intend to use and travel by snowmobile both on and off duty should either be combat lifesaver qualified, or have the equivalent civilian First Aid and CPR training recognized by the Red Cross.
- However, it may be that not all members of a team will have up-to-date First Aid and CPR cards. Leaders should ensure that at a minimum each team will have at least one member who is current and proficient with his or her Combat Lifesaver Skills and or First Aid training.
- For basic First Aid, always be aware of the dangers of frostbite and take precautions to prevent it. Proper clothing will help reduce the risk of frostbite.
- Frostbite is the Number One danger while riding a snowmachine in Alaska. Prompt treatment for frostbite is imperative and requires that the injured team member get to a warm location as soon as possible.
- Each team member should also have a pair of sunglasses and or goggles to mitigate and reduce the effects of snow blindness.
- A First Aid kit should always be with you on your trip. The kit should be included in your Emergency Kit.



Safety

ICE SAFETY

- Besides the obvious danger of breaking through the ice, snowmachines have far less traction for starting, turning, and stopping on ice, than they do on snow. Always use extreme caution when riding on ice, traveling at slow, constant speeds. The machine is hard to control on ice, so fast stops are impossible and spins are far too common. To stop, let up on the throttle slowly allowing the machine to coast to a stop.
- The seated riding position is probably the best one for traveling on ice, but as always, each rider will want to decide for themselves what feels best and gives them the most control.
- Historically, collisions on lakes account for a significant percentage of accidents because riders too often believe that lakes are flat, wide open areas, free of obstructions, and that maximum speed is the way to go.
- Remember, if you can ride and turn in any direction while operating on a lake, so can other riders. Therefore, the threat of a collision can come from any direction.





Safety

ICE SAFETY

- If you choose to snowmachine on the ice, be absolutely certain that the ice is safely frozen. There are miscellaneous references as to a safe ice thickness for running snowmachines, but for general planning purposes and the safety of all USARAK assets, it is recommended not to run snowmachines on ice less than 6" thick. Remember that you are responsible for your own safety - if you are uncertain of ice thickness, drill it and be sure.
- All ice should be drilled before you cross it at the beginning of the winter riding season, or if you are unsure of the thickness.
- If you go through the ice, stay calm. Remember that your snowmachine suit and helmet may keep you afloat for several minutes. Extend your arms out forward in front of you on the unbroken ice surface to catch yourself. Kick your feet to propel you onto the ice. If the ice keeps breaking, continue moving towards the shore. Don't remove your gloves or mitts.
- Many Alaskans that travel extensively on the river systems tie an ice pick or screw driver to their wrists to serve as a grabbing mechanism to lift themselves out of the water if they should break thru the ice.
- Once you are on the ice, crawl or roll away from the hole. Don't stand up until you are well away from the hole and then head for warmth and shelter immediately.



Safety

ICE SAFETY

- When working to rescue someone who has broken through the ice, don't become another victim! Call for help, use throw bags or ropes, anything to get to the person in the water without getting close to the open water yourself. If a tree branch is around, lay it down to help your weight be distributed over a greater surface area.
- If you encounter overflow, continue to travel forward DO NOT STOP until you get up off the body of water/ice that you are travelling over.
- Momentum is your only friend and life line at this point!





Safety

SAFETY QUIZ

1. Who should be aware of your travel plans?
 - a. The higher headquarters
 - b. All crew members
 - c. Park Services
 - d. All of the above

2. Hand signals are a good way to communicate on a snowmachine trip.
 - a. True
 - b. False

3. A Stop signal is made by:
 - a. Holding your right arm up over your head, palm flat and vertical
 - b. Holding your left arm over your head, palm flat and vertical
 - c. Whistling as loud as you can
 - d. Slamming on the brakes

4. Snow conditions and changes in weather will influence the way you ride.
 - a. True
 - b. False



Safety

SAFETY QUIZ

5. Why is it important to plan your route and stick to your plan?
- a. So people can find you if you break down
 - b. It burns less fuel, time, energy
 - c. To stay off Native Allotments and Cultural Sites
 - d. So you can find your way back in bad weather
 - e. All of the above
6. How thick must ice be before we allow any snowmachine traffic on it?
- a. 4 inches
 - b. 6 inches
 - c. 8 inches
 - d. 10 inches
 - e. None of the above
7. Drilling for ice thickness is required the first time you go on a lake or river.
- a. True
 - b. False
8. What are the correct phone #'s that should be included on your trip plan?
- a. Alaska State Trooper Dispatch 1 (800) 811-0911
 - b. MATCOM Dispatch (907) 352-5401
 - c. State of Alaska's Rescue Coordination Center (RCC) (907) 428-7230 or 1-800 420-7230
 - d. All of the above



RIDING

- The purpose of this section is to familiarize you with the proper riding apparel for staying warm, how to start your snowmachine, riding techniques, how to interact with other riders, and how to prepare for riding in the dark.
- With the limited sunlight it is imperative that you become comfortable with riding in darkness.
- **The Number One safety issue** while riding a snowmachine in Alaska is frostbite, obviously caused by the cold temperatures and ever present wind. With extreme wind chills, dressing properly is a necessity, not a luxury.
- Nobody with any experience ever tries to “tough it out.” If you’re not properly dressed, you’re inviting frostbite and will become a liability to your Team.

MANDATORY PERSONAL

PROTECTIVE EQUIPMENT

& REQUIREMENTS



PPE

Goggles and Face Shields.

Impact- or shatter-resistant goggles or full-faced shield properly attached to helmet.

Helmets.

Certified to meet Department of Transportation (DOT) standards and properly fastened under the chin.

Garment Visibility

A brightly colored outer upper garment during the day and a reflective upper garment during the night. Outer upper garment shall be clearly visible and not covered.

Clothing

Long-sleeved shirt or jacket, long trousers, and full-fingered gloves or mittens designed for use on a snowmachine

Sturdy Footwear.

Leather boots or over-the ankle-shoes.

REMINDER: Snowmachines are intended for "Off Road Use Only" and are not authorized to be operated on paved roads.



STARTING MACHINE

First, read the owner's manual on how to start your snowmachine. This is the best guide for your machine. Always follow the recommendations in the owner's manual.

Second, to start it:

- Check gas and oil levels, point the snowmachine in a safe direction.
- Be ready to start it by kneeling or sitting on the machine, or by standing next to it.
- Check the throttle by depressing it at least once to be sure it isn't frozen. When released it should return quickly to the idle position. Remember that this will send gasoline to the engine though, so once should be enough.
- Check all important switches like key and safety switches, which should be in the "on" positions
- Depending on the machine, choke or prime the engine as is appropriate to the temperature
- If your machine starts electrically, turn the key to the "start" position and release the choke as soon as the engine starts.
- If your machine is a manual start, pull the recoil starter cord until you feel resistance, then pull vigorously, but don't let the handle snap back.



STARTING MACHINE (con't)

Don't flood the engine when starting the snowmachine. If the choke is used and the engine is resisting an "easy start", stop using it before so much gas accumulates in the cylinders that the spark plugs get wet. Wait a minute or two, and then try to start the engine again without the choke. With enough practice you will develop a feel for the proper amount of choke to use. If you think the engine is flooded, remove the spark plug and allow the cylinder to dry out. You can also warm up the sparkplug by removing it and using a lighter on it.

- **Caution Watch for unburned gasoline!**



RIDING POSITIONS

Riding positions will vary with the type of terrain you are riding on and also with your own style. Each position has its own advantages. It is important for you to be familiar with each position so that you can safely and confidently navigate the different terrain and snow conditions.



SITTING

This is the safest and most common riding position. Position yourself on the snowmachine with your feet flat on the running boards. This will help cushion the effects of bumps on the trail and also keep your feet safe from the tracks.

When sitting, keep your body weight low so it will be easier to shift from side to side. One down-side of sitting while riding is that you are less able to maneuver on bumpy, irregular snow. On the other hand, many snowmachines have the heat from the engine “piped” to the standard foot positions so you have help keeping your feet warm.





STANDING

This position can be used when you have visibility problems in the sitting position. Keep your knees slightly bent to absorb the bumps on the trail and keep your speed slow. Do not use this position for regular riding, as it can be hard to react to situations requiring quick reactions.





SEMI KNEELING

A semi-kneeling position, where one knee is up under you on the seat and the other foot is on the snowmachine's running board, can be useful when riding in deep powder snow while riding at slower speeds. This can help with visibility and also help to control the snowmachine. This is probably the position the majority of riders find themselves using most often. You can sit on your foot when you're tired and raise up again for more control.



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America's Arctic Warriors**



POSTING

This is a semi-sitting/semi standing position that is best suited for traveling over uneven terrain. Keep your feet flat on the snowmachine running boards and deeply bend your knees. This will help with visibility too. The down-side of this position is that it can be uncomfortable over long periods of time and can put a lot of strain on the arms and lower back.



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RIDING IN A GROUP

- Snowmachines should normally ride single file and not side-by-side. Follow the snowmachine in front of you at a safe enough distance that would allow you to stop or slow down in case the rider in front stops suddenly.
- A good rule to follow is the 3- Second Rule: When the person in front of you passes an object, note where it is and start counting. By the time you arrive at the same object, you should have counted no less than three seconds. If you counted to less than three, you need to slow down and allow more space between the rider in front of you to ensure time to stop safely.
- One situation where this is not necessary, is riding on open terrain. If you're riding where there are no obstructions, nothing to ride around and nothing that you could run into, then riding side-by-side is permissible so long as you are able to keep a safe distance between riders. 50' to 75' between riders should be enough room for comfort.
- It is NOT RECOMMENDED that anyone rides alone, and that the team travels together at all times. Be sure to visually check on the position of the other riders in group frequently. Know where your team members are.
- Having to retrace your tracks for a couple of miles because you weren't aware of a problem your fellow rider encountered, won't be necessary if you're checking on him often enough.

PASSENGERS

- Inform your passenger of how to ride with you on the snowmachine. Tell him/her to keep their feet flat on the running boards, firmly hold the handgrips, and to gently lean into the turns with you.
- Passengers will sometimes lean in an exaggerated motion and can really throw the driver's balance off.





RIDING WHILE PULLING A SLED

- When loading your sled, make sure that all cargo is properly stored and secured for the rough terrain. The tundra can look flat, but it isn't.
- Check back often to make sure that your sled is still along for the ride.
- As when trailering, stop after a few minutes of travel and do a 360° check to make sure that everything is still secure with the snowmachine/sled attachment, as well as checking to make sure your cargo isn't getting bounced around.
- Try to avoid hauling a sled over a steep bank. This kind of action could bend the trailer hitch and will certainly rearrange the cargo and probably not in any way that you will appreciate.



RIDING ON A THE SLED

There are occasional missions that require a team member to be standing on the back of the sled. This is a completely different situation than riding on the back of a snowmachine and can be exhausting.

- While riding on sleds be sure to position feet squarely and firmly on skis.
- Try not to lock your knees, use your legs as shock absorbers. Keep a firm grasp on the safety bar with both hands.
- Extra care must be taken by the driver to maintain as smooth a route as possible and to keep the speed under 10 mph.
- Driver must check on his/her sled-passenger often and the passenger should give his driver the “thumbs-up” if everything is okay.



RIDING ALONE



If at all possible avoid riding alone. However there are tasks that may be accomplished by one member safely.

- If you do have to ride alone ensure that you leave a detailed trip plan with a responsible party that can effect your recovery if something should go wrong.
- Plan the task and stay in your tracks on a marked trail out and back if at all possible.





RIDING IN THE DARK

- Riding in darkness is a fact of life during the Alaskan winter months.
- Be certain your headlights, taillights, and brake lights are working before you ride.
- Always drive at speeds that will allow you to stop safely if an obstacle appears in your path. Adjust your speed to snow conditions, other riders, and basic safety.
- It is important to ride at safe speeds under all conditions, not just while riding in the dark.
- Headlights can generally illuminate 200 feet. If you can't stop within that distance, you're riding too fast.
- Have a headlamp with you. If your headlight malfunctions, you'll need something to illuminate your path. Riding in the dark without any light source, is no fun.





SNOW & TUNDRA

The weather in Alaska produces unpredictable and varied snow and visibility conditions.

- Check with the weather service for both current conditions and an outlook weather forecast extending out into your mission profile before you leave.
- Wind blown snow can be rock-hard. To avoid injury to riders and damage to snowmachines, speeds must be kept low and a sharp lookout kept for unusual drifting. This bumpy travel can also lead to repetitive motion injuries by the constant wrist and forearm motions required to wrestle the snowmachine over the snowdrifts. Change your body position frequently and take rest stops often.
- There are times where you may have to travel across areas with very little snow. In these instances extra care must be taken to assure that no damage to the tundra or to the snowmachine occurs. Speeds at these areas must be kept to the bare minimum to ensure that no damage to the terrain and your snow machine is minimized.



OTHER SNOW CONDITIONS

ICE & HARDPACK

- Ice can form on trails and roads and can make the snowmachine difficult to operate. When you think you're riding on ice, be cautious by greatly reducing your speed, taking corners very slowly, and leaving sufficient space to safely stop. Wind scours, areas of ice/lakes where the wind has blown all snow off the ice, can be especially hazardous. You can be riding along on a layer of snow that gives you plenty of control, but you lose the "bite" when the snowmachine skis go from the snow to the ice.
- Use caution and try to cross any stream, rivers or lakes at a 90 degree angle.

Dirt

- When trails are well used, they can develop areas of snow and dirt mixed together. These areas can be hard on the snowmachine. Take care to not damage the machine when riding over these spots and check the snowmachine often for damage. Try to avoid bare areas of ground since snowmachines may damage the terrain.



OTHER SNOW CONDITIONS

POWDER

- Fresh, powdery snow can be ideal for riding. However, powdery snow can linger in the air after snowmachines pass over it, which can cut down on visibility for the other riders in trail. Your speed may need to be slower to accommodate for the powder, although there are instances where keeping your speed up to “float” on the powder will be necessary. Getting a feel for the snow will come with experience. Unfortunately, optimal snow conditions are not always found so use caution judging powder depths as it can hide rough terrain.

WET SNOW

- Start out by riding slow - wet snow can make steering your machine more difficult. Wet snow will also accumulate on your clothing. You should be wearing the proper PPE so the wet snow does not soak into your clothes.
- If snow and moisture gets into your clothing, you’re going to get cold and that’s the end of you enjoying the day.



RESPONSIBILTIES

- Please take all necessary precautions to avoid damaging the terrain both on and off military reservations.
- It is our goal to leave no permanent trace of our activities, while training or recreating.
- If on military reservation you find or cause any damage to a training area report it to the local range control office.
- Take a GPS reading of the damaged area if possible.
- Lets take care of both our precious state and valuable training areas here in Alaska!



RIDING QUIZ

1. What are some good practices to minimize injuries while snowmachining in Alaska?
 - a. Keep speeds low and keep watch for unusual drifting
 - b. Close your eyes and hope for the best
 - c. Change your body position frequently and take rest stops
 - d. a and c
 - e. b and c

2. Riding off a drop off in a whiteout is a concern riding in Alaska.
 - a. True
 - b. False

3. Frostbite is one of the biggest concerns while riding in Alaska.
 - a. True
 - b. False



RIDING QUIZ

4. When starting a snowmachine:

- a. Read owners manual and follow their recommendations
- b. Point snowmachine in a safe direction
- c. Check throttle and brake for proper working order
- d. Preheat spark plugs
- e. a, b and c
- f. All of the above
- g. None of the above

5. The four most common riding positions are:

- a. Sitting, one-handed, semi-kneeling and standing
- b. Posting, standing, sitting and hanging off the left side
- c. Sitting, standing, semi-kneeling and posting
- d. One-handed, hanging off one side, backwards and single

6. Snowmachines are most safely ridden by two people.

- a. True
- b. False

7. In the dark, when you ride faster than your headlights and faster than you can react to a hazard and stop before you hit it, you are:

- a. A safe rider
- b. A dangerous rider
- c. Over-riding headlights
- d. b and c



RIDING QUIZ

8. What can complicate riding in the dark?

- a. Wildlife
- b. Fog, snow and ice
- c. Other riders
- d. Extreme cold
- e. All of the above

9. Why is it important to learn and use the different riding positions?

- a. They help you to ride safely, see better and react quicker to situations
- b. They help your snowmachine run better
- c. They make riding more comfortable
- d. So fellow riders can see your signals
- e. a, c and d

10. Snowmachine helmets with face-shields keep the wind off your face and out of your eyes.

- a. True
- b. False

11. Dressing in layers is a good idea for riding because:

- a. It allows you to adjust to changing weather conditions
- b. You can add or remove layers to regulate your body heat
- c. The more layers you wear the less likely you are to get frostbitten
- d. Your ride will be more comfortable
- e. All of the above

DANGERS TO AVOID

In this section you will learn about what dangers to avoid while riding your snowmachine. Riders should exercise caution at all times!



United States Army Alaska
America's Arctic Warriors



SPEED

- Speed, sometimes mixed with riding in the dark, is a major factor in most accidents. Riders must always, day or night, be aware of their riding speed, maintaining a speed slow enough to ensure they are in control of the snowmachine. While traveling by snow machine in Alaska terrain plays a big part in the speed that you will be able to travel.
- Make sure you do not exceed the safe speed for snow, terrain and weather conditions.
- In darkness, the headlights illuminate your path out to a maximum of 200 feet in front of the snowmachine. Be careful not to over-ride the headlights. Always watch your speed where other motor vehicles operate such as at road crossings, on open roadways and road right-of-ways. Motor vehicles must always be given plenty of space for the safety of you, your team members and other motor vehicles.



RIDING TOO CLOSE

- Following too close is another contributing factor to accidents. Many happen when the lead rider has applied the brake and the person behind could not react fast enough to stop.
- A good rule to follow is the 3-second rule.
- When the person in front of you passes an object, note where it is and start counting. By the time you arrive at that same object, you should have counted no less than three seconds. If you counted to less than three, you need to slow down and allow more space between the riders in front of you so you'll have time and space to stop safely.
- Crashes between snowmachines can be deadly. Always allow extra distance between riders when riding in reduced visibility conditions from snow dust, fog, wind, snowstorms or during night conditions exist.

ICE

- Do not venture out onto lakes or rivers unless you are absolutely certain that it is safe. **"When in doubt, drill it out."**
- 6 inches is the minimum ice thickness that you should attempt to ride on!



TERRAIN



- Checking your topographic maps before you start out will assist you in avoiding problems, but don't depend on the maps for your safety.
- While riding your snowmachine, keep your eyes open for streams with cut-banks, for tussocks that will catch your skis. Running off a 10'-high cut-bank at 25 mph will certainly damage your snowmachine, but more importantly could cause serious injury to riders.
- Beware of avalanche conditions and your own capabilities.
- Check with the State of Alaska's Avalanche hot line for latest conditions in the area you plan to ride or travel.





AVALANCHE CONSIDERATIONS

- If you are planning on snowmobiling in mountainous areas, being prepared for the possibility of an avalanche is essential.
- For your safety and others, enroll in an avalanche safety course.
- Choose a leader within your group before you venture out as a group with a leader functions better than a group without a leader, particularly in the event of an emergency situation.
- Snowmobiles of any size or power and even if you are pointing in the right direction, cannot outrun many of the larger and faster avalanches.
- Learn to recognize avalanche terrain and heed avalanche warnings and avoid these areas.
- Check all transceivers each morning prior to your journey to ensure proper transmit and receive functions.
- Prepare to travel in a group at all times every member needs proper equipment including a transceiver, shovel and a probe.
- Plan your route prior to leaving to ensure your safety, plan a route that remains close to dense timber.
- Choose escape routes before beginning to cross unstable slopes.
- Cross slopes one at a time if there is any doubt about the stability of a suspect slope.
- Always ride in mountainous terrain with a group and maintain visual contact.



AVALANCHE CONSIDERATIONS

Escaping an Avalanche of Snow:

- If you become caught in an avalanche, try to:
Push yourself away from your sled to avoid being injured by it.
- Stay on the surface of the avalanche by using a swimming motion.
- Work yourself towards the side of the avalanche.
- Grab trees, rocks, etc. to avoid being tumbled down the slope.
- Keep your mouth closed and your teeth clenched.

When the avalanche slows, attempt to:

- Push yourself towards the surface.
- Make an air pocket in front of your face using one arm.
- Push the other arm towards the surface.
- When the avalanche stops, begin to:
- Dig yourself out if you are unhurt.
- Relax your breathing, particularly if you cannot dig yourself out.
- Stay calm and shout only when a searcher is near.



MOTOR VEHICLES

- There will be times when you have to cross roads.
- Check for vehicles and be sure not to surprise drivers. A snowmachine popping up onto a road unexpectedly can cause a driver to swerve off the road or into another driver.
- Reconnoiter the crossing on foot before using it. If possible, a rider should stand up on the crossing while the other riders cross, then change places to get the last rider across.
- Speed to see and avoid!



WEATHER

- Alaska is the largest state in the country. At one-fifth the size of the combined Lower 48 states, the land mass is 570,374 square miles, or about 365 million acres. Alaska's nearly 47,000 miles of coastline is about two-thirds of the total U.S. coastline. Alaska, also known as "The Great State" and "The Last Frontier," holds many records and unique landmarks such as North America's biggest earthquake - the 9.2 magnitude Good Friday Earthquake of 1964, the Nation's greatest concentration of glaciers, North America's tallest mountain - Mount McKinley at 20,320 feet, and the Nation's farthest-north city - Barrow. Since the Aleutian Island chain passes through the international date line, Alaska also has both the easternmost and westernmost land in the U.S.
- Alaska produces some of the most extreme weather conditions in the world and the impacts on your outdoor activities can be devastating if you are not prepared.



WEATHER

Alaska Weather Information Line:

- The National Weather Service Alaska Region established the Alaska Weather Information Line as a service to all Alaskans, providing toll-free telephone access to weather information throughout the state. This service is available outside of Alaska, but it is not toll-free.
- Weather Forecasts are issued on a regular basis, updated when required and either recorded by National Weather Service staff or automated by a NWS text-to-speech system providing accurate and timely weather information.
- Public Forecasts include area (zone) 7-day forecasts with information for major cities in Alaska.
- Marine Forecasts are available for all coastal marine areas with outlooks to 5 days.
- Observations from certain land stations and marine buoys are available.

This information is updated once per hour.

In Anchorage, call: 266-5145

In Fairbanks, call: 458-3745

In Juneau, call: 790-6850

Anywhere else in Alaska: 1-800-472-0391

Outside of Alaska: 1-907-266-5145

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WILDLIFE

- Moose, Caribou, Wolf, Coyotes, Fox, both Black & Brown Bears are some of the animals you can encounter while snow machining in Alaska. If traveling up near the North slope you may even encounter polar bear and occasionally musk ox.
- All wildlife should be given a wide buffer while traveling. If wildlife is encountered unexpectedly you should stop and allow the animal to escape and get well away from you before proceeding.
- Avoidance is your best Risk Mitigation!





DANGERS TO AVOID QUIZ

1. You should always watch your speed where other motor vehicles are present and may cross your path.

True

False

2. Over-riding your headlights is:

a. Using your headlights too much

b. Riding with the brights on

c. Dimming your lights as a courtesy to oncoming riders or drivers

d. Riding faster than your headlights can illuminate in front of you and not allowing you adequate reaction time

e. All of the above

•

3. The 3-second Rule is:

a. The time it takes a snowmachine to go from 0 to 60 mph

b. The normal reaction time to a situation

c. Once a snowmachine passes an object, you should count no less than 3 seconds before passing the same object to judge if you're following too closely

d. The length of time it takes you to bring your snowmachine to a stop

e. b and c

4. The best policy in crossing lakes and rivers is to avoid them if possible since you can't be certain of the ice thickness without drilling

True

False



DANGERS TO AVOID QUIZ

5. If you have to travel on ice, keep your speed:

- a. As high as possible
- b. As low as possible
- c. Constant while on the ice
- d. Full Throttle

6. Never travel above your riding partner while on a slope as this could cause an avalanche onto the partner below.

True

False

7. Careless snowmachine operation comes in many forms including:

- a. Passing on corners or blind hills
- b. Riding in prohibited areas
- c. Speeding
- d. Over-riding headlights
- e. All of the above

8. While traveling in Alaska by snow machine if you encounter wildlife you should try and avoid if at all possible.

True

False



EMERGENCIES

- Emergencies can happen to anyone, at any time and in any place. Creating and implementing a plan that you prepare in advance, will help if/when an emergency does occur.
- Practicing and discussing what needs to be done in an emergency can save your life.



LEARNING HOW TO READ THE SNOW

- Knowing the type of snow you are riding on will help avoid getting stuck. Your machine can easily sink if the snow is loose, light, deep powder.
- When these snow conditions occur, keep your RPMs and power high enough to keep momentum but don't overpower the machine; it can quickly dig the snowmachine's track into the loose snow and result in getting very stuck in a very deep hole.



IF YOU GET STUCK

- Be extremely cautious when trying to move your snowmachine. Overexerting yourself can lead to back injuries. At least 2 people are required to move a snowmachine by hand.
- Do not get on your machine and rev up the engine to drive it out of the situation. This can easily cause your machine to sink even further into the snow. Have 2 or more people lift the back of the snowmachine up out of the trench and onto the top of the snow. Be careful that you don't strain your back on this one!

Try these methods when stuck on flat ground:

- With your feet on the running boards, rock the snowmachine slowly from side to side while feathering the throttle.
- Shut off the engine, clear the loose snow from the track and try to pack the snow under the track for a firm base.
- Try walking ahead of the machine and trampling a path in the snow to help reduce drag on the machine.
- If you are carrying an avalanche shovel or small folding shovel, use the shovel to dig snow out from around and beneath the snowmachine, as well as to shovel a path in front of the machine.



GETTING STUCK GOING UPHILL

- Your machine may get stuck while you are riding uphill in certain snow conditions. Use 2 people to get the snowmachine unstuck.

Shut off the machine and get off on the uphill side, you will need to turn the snowmachine around, so assess which direction is the safest and easiest to turn it downhill.

- Trample the snow on the side of the snowmachine you choose to turn it toward and dig out the ski loop on that side if needed to gain a good hand-hold.
- Grasp the ski loop on the side of the snowmachine you are turning toward and begin easing the snowmachine around.
- Continue to turn the sled 180 degrees until it's facing downhill.
- Use caution when on steep slopes so the machine does not roll over on you or take off downhill uncontrolled.
- Start the snowmachine and drive it back down the hill.



STRANDED

- Sometimes, even with the best plan in place, a rider can get himself stranded.
- Your team may be stranded or an individual rider could be accidentally left behind.
- If you do get stranded, remain calm. A calm person in control of their emotions is much more likely to be able to look around, assess the situation and most importantly, attend to any injuries. If you are not able to walk for help, you must prepare to conserve energy and seek shelter.
- Use your emergency kit to assist you during the emergency. “Assess Your Situation.”
- In any emergency, you need to determine your best options. Your decisions should include all factors such as where you are, how far away help is, where you are in relation to the trail, if you are alone, and whether you or someone else is injured.
- This is where that contingency plan you did during the planning phase comes in handy.
- The right amount/type of food, water, clothing, etc., can save your life.



SUSTAIN

Communications

Although it might be obvious, try any means of communication you have to get assistance. Radios, cell phones and satellite phones can get you some help now that you need it. Remember that others will not be able to hear the radios or cell phones until they shut their snowmachines off.

Provisions

You will have at a minimum your personal survival kit. The team survival kit is much more robust; you have food and something to make a fire with. Warmth is incredibly important for you to be able to think clearly and to help determine your next move. When hungry, cold, shivering and shaking, no one's thought processes are at their clearest. Make sure to ration the food in case rescue is delayed.



SHELTER & WARMTH

- If bad weather dictates it, make yourself a shelter of some sort.
- You can make a snow cave by digging into a snowdrift. Building a snow shelter either in a drift or from cutting blocks of hard-pack snow serves two purposes.
- First, you're building someplace to get out of the wind and that your body heat can warm up, and second, while you're working you are moving and creating warmth.
- If possible line the cave or shelter with whatever insulating material you have. If a fire is needed, use the matches from your emergency kit to help start a fire.



LOCATION

Where are you?

Now that you've assessed the situation and found or built some shelter, ask yourself where am I? Exactly. Before your emergency, did you notice any snowmachine tracks, any rivers or anything else that might help? Are there any geological features that may point you back onto the trail? You should use your map, GPS unit, and/or compass to help you determine where you are and how to get back to the trail. Don't forget that trying to use your compass too close to the snowmachine will foul up your reading. Move 25' or so away from the snowmachine to eliminate the steel in your snowmachine from affecting the compass.

How far is help?

Once you have figured out your location, you can guess/estimate how far help is. This guess will also help you decide on whether you start walking or stay where you are. If it is close to nightfall or at night, the best choice is to stay by your snowmachine and build a shelter until daylight. Conserve your energy as much as possible to keep warm during the night. In nearly all instances, especially if you've made a plan, there will be others out looking for you. Your best bet is to stay with your snowmachine and the various supplies and materials you've carried with you.

Remember that by following a detailed planning process, getting stranded shouldn't happen, but being prepared for anything can be the most important key to survival.



SAFETY DEVICES

Cell Phones

- Before you begin your trip, be sure to charge the batteries in your cell phone. The cell phone should be kept warm, in an inside coat pocket, to help preserve the battery life. Cell phones often do not work in the remote areas around the state of Alaska so consider renting a satellite phone. So do not rely on a standard personnel cell phone as your only communication device.
- Be sure to have redundancy in your communication plan. Maybe your phone won't get a signal, but maybe your buddy's will.

GPS (Global Positioning System)

- A GPS unit can be extremely helpful during your trip. A GPS unit gives your exact location, which may be relayed to emergency personnel in the event that communication is established. A GPS runs on batteries, normally different than your cell phone's, so be sure to check them before you ride, bring some spares with you and keep them warm. It is helpful to review how the unit works before you ride so you are familiar with it. Just having a GPS unit isn't going to do you any good unless you know how to use it.
- At a minimum get a waypoint from your starting location before departing on your trip.



SAFETY DEVICES

Lights and Flares

You should never head out onto a trail without a flashlight in your emergency kit. A strobe light may also be helpful in an emergency situation. Even in the arctic there can be a lot of lights on the horizon from distant villages. The strobe affect of your light may cause it to stand out among the steady lights making it easier to find you. With flashlights and strobes running on batteries, always check the batteries for life before you ride, bring extra ones with you, and keep them warm in an inside pocket.

Flares or “pop-ups” can be taken along on your trip for emergency situations. Be sure to follow the instructions to avoid making your emergency worse.

Compass and Maps

A compass is a critical item to have on your trip. It can be used as a back-up to your GPS unit if the battery runs out. When reading a compass, do not hold it near metal objects. Your compass reading will be incorrect and could send you off in the wrong direction. Be sure you become familiar and comfortable using the compass before you ride.

A topographic map is helpful because it shows the landscapes in three dimensions to help you along the way. Once again, familiarizing yourself with what you have with you is all-important. Do you know how to read a map? Do you know what contour lines depict? Do you know the different lines showing different varieties of road? Spend a little time learning how to read a map if you're unsure.

Shovel

A small shovel can be helpful if you become stuck or stranded. Many shovels are small enough to store on your sled or to easily carry in a backpack. Always carry a shovel when riding in avalanche-prone areas.



KEEPING WARM

Proper Clothing

The correct clothing for the environmental conditions cannot be over emphasized while traveling in Alaska by snowmachine.

Fire Making Materials

In your safety kit, you should have matches in a waterproof container and some flammable material to help aid you in building a fire. There are limited amounts of willows and other brushes along creeks for firewood. A fire will obviously keep you warm, but also acts as a signal to show rescuers where you are. Keep the fire burning until someone finds you or you leave the area to walk for help. (If you leave your snowmachine behind, leave a note telling rescuers where you're going and what you're doing.)

Fire starter is provided in your survival kit. You can also dip a rag into your gas tank and let it absorb some gas. Just remember how volatile the gas is and don't make a bad situation worse by getting any gas on you. In extremely cold temperatures, remember that even though the gas is still liquid it also is the same temperature as the surrounding air and can cause instantaneous frostbite! Your snowmachine seat might also provide fire material.



KEEPING WARM

Moderate Exercise

Moderate exercise can be very helpful in the fight against frostbite. Try not to exert yourself to the point that you start to sweat. As the sweat dries on your body, you'll really start to cool down. And don't believe anyone who tells you that at -40°F it is impossible to exert yourself so much that you sweat.

Hand Warmers

There are products readily available that you can easily store on your snowmachine to help keep your hands warm. Some warmers use chemicals that are activated by squeezing the package, creating a chemical reaction and heating up. Hand warmers are also built into the handlebars on some snowmachines.

Wind Chill

Wind chill is the result of the combination of the wind and cold temperatures. The higher the wind speed, the colder the air feels. To avoid exposing yourself to excess wind chill and frostbite situations, check the weather before you ride, and outfit yourself with the correct clothing for your trip.



TOWING

Towing a disabled snowmachine

- Towing a disabled snowmachine behind your snowmachine calls for extra caution to avoid injuries to the people and damage to either snowmachine.
- Always remove the drive belt from the machine that will be towed. Some machines have a quick disconnect for the belt – familiarize yourself with the specifics of your snowmachine.
- Most manufacturers recommend you use a rigid tow bar instead of a rope or chain, but a rope or nylon strap is what you're most likely to have and you'll use whatever you have at hand in an emergency.
- If you must tow the disabled snowmachine with a tow rope or chain, hook up the tow rope to the A-arm or trailering arm and not the ski loop. This will keep the towed machine from wandering all over and causing more damage.
- Use a light weight plastic toboggan to slide under and secure to the dead sled.



TOWING

Towing a disabled snowmachine

- If possible, avoid allowing passengers to ride on the disabled snowmachine being towed since they can be injured if the snowmachine gets out of control.
- That's also a lot of extra weight that the towing machine is forced to haul and unless you're an expert on the clutch and the belt, you'll want to avoid an adjustment or belt replacement in the field.
- If passengers absolutely have to ride on the machine being towed, they should keep their feet on the running boards at all times and help steer and brake during towing.
- Always be sure the rear snow flap on the tow snowmachine is in place and properly functioning to reduce possibility of snow and ice chunks getting thrown back at the towed passenger.



INJURIES

This overview is no substitute for taking a Combat Life Saver or First Aid course!

- If an injury should happen to anyone during your trip, the first thing that needs to be done is to secure the accident scene to ensure that no one else becomes a victim.
- Then assess the situation, decide whether or not you need emergency services and if you do, call for or send someone for help immediately. If the victim is awake and responsive, ask them to tell you what is wrong. If what they say makes you suspect a spinal injury, do not move the victim. By moving them, you may risk injuring them even more. If the victim is not responsive, assume they do have a spinal injury and do not move them.
- If communication with emergency services is unavailable, it may become necessary for one person to ride his/her snowmachine for assistance. Provide as complete an assessment of the injuries as possible, then act only as your training tells you.





DO's & DON'Ts

Follow these do's and don'ts next:

Do – Remain Calm

Do – Treat the victim for major bleeding by applying direct pressure to the wound. This pressure will help slow or stop bleeding

Do – Evaluate and if necessary treat the victim for shock:

- Immediately following the crash or incident
- Anytime a victim is, or was unconscious
- Following blunt trauma or severe jarring of the body
- If a victim has broken bones

Do – Keep the victim as warm and dry as possible

Do – Stabilize

Do – Take precautions so that you do not become the victim of an accident yourself

Do – Travel with an adequately equipped first aid kit

Do – Take a basic First Aid/CPR course; it could save a life

Don'ts:

Do not take or give drugs or medications, legal or not. Let medical professionals prescribe medications

Do not attempt to set broken bones

Do not overstep your training

Do not move an unconscious victim unless there is no alternative



DO's & DON'Ts

Shock

To treat shock, have the victim lie flat on their back and elevate their legs. Keep them warm by covering them with extra clothing or a blanket. Don't forget to put everything possible under the patient to keep them insulated from the cold ground.

Frostbite

Frostbite occurs when your skin and/or the underlying tissue freezes. Things to watch out for are the skin becoming numb, a burning sensation, or a visible whitening of the tissue. When you feel frostbite coming on, it will hurt and you'll naturally be doing anything you can to avoid it. However as the tissue actually freezes, the sensation of pain goes away due to the nerves themselves freezing. If the skin is already frozen, warm the affected area gently. Do not let the skin refreeze once warmed. Seek medical attention immediately. Do not rub the skin with frozen snow. Do prevent frostbite by recognizing the danger signs and wearing the proper clothing.



DO's & DON'Ts

Hypothermia

Hypothermia is the loss of body heat to a point where the body can no longer generate its own heat, or heat escapes faster than the body can generate it. The first signs of hypothermia are uncontrollable shivering and slurred speech, followed by delirium and unconsciousness. If the person is not treated, they can ultimately die. Warming the victim is the only treatment. If someone shows signs of hypothermia, don't wait - warm them immediately. Build a fire, hug them or huddle close together. Do whatever you can to get the victim warm.

Shock

To treat shock, have the victim lie flat on their back and elevate their legs. Keep them warm by covering them with extra clothing or a blanket. Don't forget to put everything possible under the patient to keep them insulated from the cold ground.



EMERGENCIES QUIZ

1. Two signs of frostbite are:
 - a. Dizziness and drunken feeling
 - b. Headache and sweating
 - c. Skin becoming numb and a burning sensation
 - d. All of the above

2. The loss of body heat to a point that the body can no longer generate its own heat, or that heat escapes faster than the body can generate it is:
 - a. Wind Chill
 - b. Shock
 - c. Hyperthermia
 - d. Hypothermia

3. Wind chill is:
 - a. A warning that you should stay in the truck
 - b. The cooling effect and feeling of cold on your skin due to wind and cold
 - c. Generated by riding a snowmachine in the cold weather, thus creating your own wind
 - d. b and c

4. With any snowmachine crash resulting in injury, in assessing the most damaging possible situation, you must consider that the victim might have:
 - a. Frostbite
 - b. Spinal injury
 - c. Broken bones
 - d. Broken his cell phone



EMERGENCIES QUIZ

5. If you get your snowmachine stuck in the snow:
- a. Max out the throttle and power out
 - b. Clear the track of snow
 - c. Jump up and down on the snowmachine
 - d. Rock the snowmachine side to side and gently apply power
 - e. b and d
6. The best thing you can do in an emergency is:
- a. Review your map and plans
 - b. Ride as fast as you can to the nearest phone
 - c. To remain calm so that you can think clearly
 - d. To have a compass and GPS with you
7. Which answer below is a way to treat a person for shock?
- a. Keep the victim calm
 - b. Keep the victim warm
 - c. Raise the victim's legs
 - d. Seek help immediately
 - e. All of the above
8. Which of the following is NOT a good means of communication in case of emergency?
- a. Cell phone
 - b. Satellite phone
 - c. Incredibly loud yell
 - d. Radios
 - e. Smoke signals
 - f. c and e



MAINTENANCE

- Pay me now or pay me later!
- Your snowmachine has taken care of you all winter long.
- It got you where you needed to and back again safely.
- If you had mechanical problems with it, poor maintenance might have been the reason.
- Even if it wasn't, now is your time to try and avoid those breakdowns from happening again.





FALL PREP

Fall prep is nothing more than getting ready to ride. Take a good long look at the machine from the front and work your way back. Most mechanical problems should have been fixed as they happened or prior to spring storage, but there is always a chance something was overlooked. Lights, controls, and suspension are all common areas for wear and broken parts. Open the hood and check the drive belt for wear or flat spots. Replace the belt now while its warm and you're not out on some semi-deserted trail in the dark! Also pay close attention to the pull start cord as these will break from wear and using the manual emergency cord is absolutely no fun in sub-zero temperatures. Your tool kit should be checked for completeness, including a spare spark plug and drive belt.

A few items to check include:

Air Intake: Make sure nothing has clogged your intake

Throttle: Squeeze the throttle and make sure it moves freely

Brake: Squeeze the brake lever to ensure it works properly and does not go all the way to the handlebar grip

Other items to check:

- Track, Bogie Wheels, Slide Rail/High-Fax, Wear Bars on Skis, Lights, Drive Belt
- Injection Oil Mix on 2-strokes or Oil level on 4-strokes
- Gear Oil level, spark plugs
- Your snowmachine has taken care of you all winter long.
- It got you where you needed to and back again safely.
- If you had mechanical problems with it, poor maintenance might have been the reason.
- Even if it wasn't, now is your time to try and avoid those breakdowns from happening again.



EXTREME COLD WEATHER PROCEDURES

- When the temperature fall to -20°F or below there are several special procedures required to protect a snowmachine from damage caused by low operating temperature.
- You can add 6 ounces of 2-cycle oil to a full tank of gas (approximately 9 gals.) for oil injected machines only.
- Tape all hood vents to restrict cold air flow through the engine compartment.
- This should be done in a warm area if possible so that the tape has a chance to stick to the cowling.
- Warm up the moving parts, have another person assist with lifting the track off the ground, (2 people are needed to suspend the back of the machine). Increase and vary engine speed for approximately 2 minutes to warm the track, clutches, and gear-case just prior to use.





SPRING STORAGE PROCEDURES

- Prior to spring storage it is recommended that all machines be inspected and minor repairs completed. Machines are then prepared for storage. As a snowmachine operator you may be aware of minor items that should be repaired. You need to document them and be sure the snowmachine maintenance representative for your organization is aware of the repair needs.
- Writing out the needs in the maintenance log is the recommended procedure to be followed IAW operators manual.

Each machine will be inspected and prepared for summer storage.

- Put the recommended amount of gasoline stabilizer in the gas tank so the gas does not become stale. Turn off the gas with the inline gas valve. Start the snowmobile and run the carburetors dry by allowing the machine to run until it quits.

Other items to check:

Track

Bogie Wheels

Slide Rail/High-Fax

Wear Bars on Skis

Lights

Injection Oil Mix on 2-strokes or Oil level on 4-strokes

Gear Oil level

Spark Plugs

Drive Belt



MAINTENANCE QUIZ

1. What is an important thing you should do before any ride?
 - a. Wash the snowmachine
 - b. Make a visual inspection
 - c. Adjust the headlight
 - d. Change the spark plug
2. An important item to carry in a tool kit would be:
 - a. Gloves
 - b. Bungee Cord
 - c. Topographic map
 - d. Spare spark plug
3. It's O.K. to make your own repairs if:
 - a. You can do them at lunch
 - b. You have the ability and can do them quickly
 - c. They require tools
 - d. You have the ability and can do them safely
4. You're doing a visual inspection of the drive belt and you notice indentation or 'flat spots' on the side of the belt. You should:
 - a. Call the dealer and order a new belt
 - b. Use the machine and flag it at the end of the day
 - c. Forget about it
 - d. Replace the belt
5. The temperature is -28 degrees F and you're preparing your machine for the day's usage. You should:
 - a. Add oil to the gas on oil injected models
 - b. Warm the track
 - c. Tape the hood vents
 - d. All of the above Drive Belt

PERFORMANCE BASED TRAINING



Performance Evaluation Ride

- During the ride you will learn to accelerate, brake, ride in different positions, use hand signals and cross a road safely. Remember to maintain a safe speed and not to exceed your capabilities.





PERFORMANCE BASED TRAINING

- Welcome to the performance based training section where your unit trainer will help you become familiar with the How-To's of safe snowmachine operation.
- Everything discussed in this section will be demonstrated to you by your unit trainer in a field environment.
- You will also learn about the different types of snowmachines that are used here in Alaska and how they vary from one model to another.
- Basic PMCS preparation such as fueling, greasing checking and servicing fluid levels.
- Don't forget to wear your PPE while performing any task, check, or repair.
- This section of the Snowmachine Safety will be pretty much 100% hands-on training.
- You can and should learn a lot of this information by reading about it, but there is nothing to replace the experience of pulling the start cord, or actually changing a spark plug, or adding oil to the injector reservoir.
- Take the time to understand your snowmachine before you ride and be prepared should something go wrong.



PERFORMANCE BASED TRAINING

Things We'll Show You in the Performance Based Snowmachine Training

- Checking fuel and oil levels and fill up procedures.
- What are the liquid capacities of the snowmachines.
- Which models require mixed and non-mixed fuel.
- All of the MWR Snow Machines are oil injected so you do not have to mix fuel and oil.
- How to change a spark plug, watch out for cross-threading the plugs. That can happen pretty easily and can be expensive to fix.
- If you're having problems starting in extreme cold, sometimes you can pull the spark plug, heat it up with a lighter (watch it that you don't build up too much carbon/soot on the plug), then re-install the plug. This can make starting much easier. Don't put the fire anywhere near the spark plug hole or you could ignite any gas left from an unsuccessful start.
- How to start your snowmachine with electric start and manually with pull-cord.



PERFORMANCE BASED TRAINING

Things We'll Show You in the Performance based Snowmachine Shop

- Controls such as headlights, high beams, choke, starter for electric-start models, hand-warmers, reverse, primer, etc.
- Suspension adjustment, track warm up, this procedure requires a minimum of 2 people holding up the rear of the machine – no exceptions and we'll show you how.
- Hooking up a sled to the snowmachine.
- Locations for tool kits and spare parts.
- Check these to make sure you have what you need in case of an emergency.
- Hooking up a broken-down snowmachine so you can pull it back to the truck and trailer.
- Proper sizing and wearing of helmets and other required USARAK PPE.

MANDATORY PERSONAL

PROTECTIVE EQUIPMENT

& REQUIREMENTS



Goggles and Face Shields.

Impact- or shatter-resistant goggles or full-faced shield properly attached to helmet.

Helmets.

Certified to meet Department of Transportation (DOT) standards and properly fastened under the chin.

Garment Visibility

A brightly colored outer upper garment during the day and a reflective upper garment during the night. Outer upper garment shall be clearly visible and not covered.

Clothing

Long-sleeved shirt or jacket, long trousers, and full-fingered gloves or mittens designed for use on a snowmachine

Sturdy Footwear.

Leather boots or over-the-ankle-shoes.

REMINDER: Snowmachines are intended for "Off Road Use Only" and are not authorized to be operated on paved roads.



Performance Based Training

Riding Performance Quiz

1. What are some good practices to minimize injuries while snow machining in the arctic?

- a. Keep speeds low and keep watch for unusual drifting
- b. Close your eyes and hope for the best
- c. Change your body position frequently and take rest stops
- d. a and c
- e. b and c

2. Riding off a drop off in a whiteout is a concern riding in the arctic.

True

False

3. Frostbite is one of the biggest concerns while riding in the arctic.

True

False

4. When starting a snowmachine:

- a. Read owners manual and follow their recommendations
- b. Point snowmachine in a safe direction
- c. Check throttle and brake for proper working order
- d. Preheat spark plugs
- e. a, b and c
- f. All of the above
- g. None of the above



Performance Based Training

Riding Performance Quiz

5. The four most common riding positions are:

- a. Sitting, one-handed, semi-kneeling and standing
- b. Posting, standing, sitting and hanging off the left side
- c. Sitting, standing, semi-kneeling and posting
- d. One-handed, hanging off one side, backwards and single

6. Snowmachines are most safely ridden by two people.

True

False

7. In the dark, when you ride faster than your headlights and faster than you can react to a hazard and stop before you hit it, you are:

- a. A safe rider
- b. A dangerous rider
- c. Over-riding headlights
- d. b and c

8. What can complicate riding in the dark?

- a. Wildlife
- b. Fog, snow and ice
- c. Other riders
- d. Extreme cold
- e. All of the above



Performance Based Training

Riding Performance Quiz

9. Why is it important to learn and use the different riding positions?

- a. They help you to ride safely, see better and react quicker to situations
- b. They help your snowmachine run better
- c. They make riding more comfortable
- d. So fellow riders can see your signals

e. a, c and d

10. Snowmachine helmets with face-shields keep the wind off your face and out of your eyes.

True

False

11. Dressing in layers is a good idea for riding because:

- a. It allows you to adjust to changing weather conditions
- b. You can add or remove layers to regulate your body heat
- c. The more layers you wear the less likely you are to get frostbitten
- d. Your ride will be more comfortable

e. a, b and c



CONCLUSION

Important Phone #'s

Avalanche Information

Avalanche Recording Statewide

(800) 478-7675

Anchorage Avalanche and Mountain Weather Information

273-6037 (Road Closure)

Alaska State Troopers

Alaska State Troopers

(800) 478-9300 or contact

nearest local office

Emergency Operations Center Rescue Coordination Center (RCC)

Emergency Operations Center/Rescue Coordination Center (RCC)

Alaska Air National Guard

Alaska Div. of Emergency Services and

Alaska Dept. of Public Safety

428-7200 (Information)

Snowmachine Rescue

Alaska Snowmachine Search and Rescue Recovery Team (ASSERT)

Anchorage, AK

566-2653

*United States Army Alaska
America's Arctic Warriors*