



Standard Guide for Training for Snowmobile Operator's Endorsement¹

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1. Scope

1.1 This guide establishes the minimum training requirements, including general and field knowledge, skills, and abilities, for personnel who operate snowmobiles as part of their duties.

1.2 This guide applies only to snowmobiles as defined in Section 6.

1.3 A snowmobile operator's endorsement alone is not sufficient to indicate that an individual has the knowledge, skills, or abilities to perform any specific duties, including search and rescue operations, other than those defined within this guide.

1.4 Snowmobile operator endorsed individuals may, under qualified supervision, perform their normal duties safely and effectively on snowmobiles.

1.5 Snowmobile operator endorsed individuals operate on the surface of the land only, including urban or disaster areas that may be isolated or have lost supporting infrastructure.

1.6 This guide alone does not define the minimum training requirements for personnel to operate snowmobiles in a mountain or alpine environment or in areas prone to avalanche.

1.7 Personnel trained only to this guide are not qualified to operate in leadership positions.

1.8 Snowmobile operator endorsed personnel must work under qualified supervision, as deemed appropriate by the authority having jurisdiction (AHJ).

1.9 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.10 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

¹ This test method is under the jurisdiction of ASTM Committee F32 on Search and Rescue and is the direct responsibility of Subcommittee F32.03 on Personnel, Training and Education.

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2. Referenced Documents

2.1 ASTM Standards:²

F1773 [Terminology Relating to Climbing, Mountaineering, Search and Rescue Equipment and Practices](#)

F3068 [Guide for Contents and Use of a Position Task Book \(PTB\)](#)

F3072 [Guide for Intermediate Wilderness GPS/GNSS Use \(GPS/GNSS-IIW\) Endorsement](#)

F3103 [Specification for Testing Off-Road Motorcycle and ATV Helmets](#)

F3222 [Terminology Relating to F32 Land Search and Rescue Standards and Guides](#)

2.2 Other Documents:

S3CC/11 [Safety Standards for Snowmobile Product Certification](#)³

M2010 [Standard for Protective Headgear for Use with Motorcycles and Other Motorized Vehicles](#)⁴

2.3 State laws pertaining to operation of snowmobiles.

3. Terminology

3.1 Definitions:

3.1.1 *snowmobile, n*—a self-propelled vehicle intended for off-road travel primarily on snow, having a curb weight of not more than 453.59 kg (1000 lb); driven by track or tracks in contact with the snow; and steered by a ski or skis in contact with the snow.³

4. Significance and Use

4.1 This guide establishes the minimum training criteria for snowmobile operator endorsed personnel.

4.2 At no time will this standard supersede any established protocols of international, national, federal, state, tribal, local, or regional governments.

4.3 Every person who is identified as a snowmobile operator endorsed individual shall have met the requirements of this guide.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from the Snowmobile Safety and Certification Committee, Inc., 1640 Haslett Road, Suite 170, Haslett, MI 48840.

⁴ Available from the Snell Memorial Foundation, <http://www.smf.org/standards/m/2010/m2010final>.

4.4 Though this guide establishes only minimum standards, it does not imply that a snowmobile operator endorsed individual is a “trainee,” “probationary,” or other similarly termed member or employee of an agency or organization.

4.4.1 The AHJ is responsible for determining the requirements and qualifications for its team member or employee ratings.

4.4.2 Nothing in this guide precludes an AHJ from adding additional requirements for its own members or employees.

4.5 A person meeting the requirements of this guide does not necessarily possess adequate field skills and knowledge to make mission-critical decisions.

4.6 This guide by itself is not a training document. It is an outline of the topics required for training or evaluating snowmobile operator endorsed personnel.

4.7 This guide is an outline of the topics required for training or evaluating snowmobile operator endorsed personnel and may be used to assist in the development of a training document or program.

4.8 This guide can be used to evaluate a document to determine if its content includes the topics necessary for training individuals to be snowmobile operator endorsed personnel. Likewise, this guide may be used to evaluate an existing training program to see if it meets the requirements in this guide.

4.9 The knowledge, skills, and abilities presented in the following sections are not in any particular order and do not represent a training sequence.

4.10 This guide does not stand alone and must be used with other ASTM standards to identify the knowledge, skills, and abilities needed for snowmobile operator endorsed personnel to perform safely and effectively.

4.11 Snowmobile operator endorsed personnel shall record training by completion of a position task book, compliant with Guide [F3068](#), or with documented field demonstration under qualified supervision.

4.11.1 Where proficiency in a skill or ability must be demonstrated, unless stated otherwise it shall be demonstrated for initial qualification, and as often as required by AHJ.

4.11.2 Proficiency shall be demonstrated to a qualified evaluator as defined by the AHJ.

5. Operator’s Personal Equipment

5.1 A snowmobile operator endorsed individual shall wear the following personal protective equipment (PPE) while operating a snowmobile:

5.1.1 A full face or open face helmet⁵ which meets at least one of the following approvals or certifications:

5.1.1.1 Certified in accordance with Specification [F3103](#);

5.1.1.2 Approved by the Snell Memorial Foundation in accordance with their M2010 standard.

5.1.2 Protective clothing suitable for the anticipated weather conditions.

⁵ If an open face helmet is used, then safety goggles or a face shield must be worn. Colored lenses are recommended to match the lighting conditions.

5.1.3 Water and wind resistant gloves or mitts suitable for the weather conditions.

5.1.4 Water and wind resistant insulated boots also suitable for walking.

5.2 A snowmobile operator endorsed individual operating a snowmobile on any body of water shall carry a set of ice picks or awls for self-rescue.

5.3 A snowmobile operator endorsed individual operating a snowmobile in avalanche terrain shall wear an avalanche beacon and shall carry on his or her person (not on the snowmobile) an avalanche probe and shovel.

5.4 A snowmobile operator endorsed individual shall carry a means of long-range communications suitable for the normal area of operation.

5.4.1 If working with other snowmobile operators, a snowmobile operator endorsed individual may also carry a means of short-range communications.

5.5 If carrying passengers, a snowmobile operator endorsed individual shall be equipped with a helmet for each.

5.6 A snowmobile operator endorsed individual may carry additional mission-specific equipment, as determined by the AHJ.

6. Snowmobile Operator’s Vehicle

6.1 The snowmobile operated by a snowmobile operator endorsed individual must be certified to be in compliance with the requirements of SSCC/11: Safety Standards for Snowmobile Product Certification.

6.1.1 Snowmobiles defined in SSCC/11 as Class I (Competitive) and Class II (Children) may not be used.

6.2 The snowmobile operated by a snowmobile operator endorsed individual shall be provided with a registration, as required by the state or province in which the vehicle is registered.

6.3 The snowmobile operated by a snowmobile operator endorsed individual shall be provided with proof of insurance, as required by the state or province in which the vehicle is registered.

6.4 The snowmobile operated by a snowmobile operator endorsed individual shall be equipped with a basic first aid kit. Refer to [Appendix X1](#) for a list of recommended items.

6.5 The snowmobile operated by a snowmobile operator endorsed individual shall be equipped with a basic survival kit. Refer to [Appendix X2](#) for a list of recommended survival equipment.

6.6 The snowmobile operated by a snowmobile operator endorsed individual shall be equipped with a vehicle-specific tool kit. Refer to [Appendix X3](#) for a list of recommended onboard tools.

6.7 The snowmobile operated by a snowmobile operator endorsed individual shall be equipped with spare parts for field repairs. Refer to [Appendix X4](#) for a list of recommended onboard spare parts.

6.8 The snowmobile operated by a snowmobile operator endorsed individual shall be equipped with emergency equipment for use in the event that the vehicle is stuck or disabled in the field. Refer to **Appendix X5** for a list of recommended onboard emergency equipment.

7. General Snowmobile Operator Training

7.1 A snowmobile operator endorsed individual shall be trained to perform the following basic navigation skills:

7.1.1 Know the difference between topographic maps and road maps, and the advantages and disadvantages of each.

7.1.2 On a topographic map demonstrate the ability to:

7.1.2.1 Identify and explain the meaning of common symbols;

7.1.2.2 Describe legend information and its use;

7.1.2.3 Identify, and know the significance of, contour lines and spacing;

7.1.2.4 Identify, and know the significance of, true North, magnetic North, grid North, and declination;

7.1.2.5 Orient a map using terrain;

7.1.2.6 Orient a map using a compass;

7.1.2.7 Determine the distance between two points on a map;

7.1.2.8 Determine the heading, bearing, or azimuth between two points on a map.

7.1.3 Know how manmade and naturally occurring phenomenon affect the accuracy of a compass.

7.1.4 Demonstrate the ability to do the following in the field:

7.1.5 Using map and compass only, determine the individual's location;

7.1.5.1 Follow a compass heading, azimuth, or bearing;

7.1.5.2 Estimate distance traveled in the field;

7.1.5.3 Determine a heading, azimuth, or bearing with a compass in the field and plot it on a map.

7.2 A snowmobile operator endorsed individual shall be endorsed for intermediate wilderness GPS/GNSS use as defined in Guide **F3072**.

7.3 A snowmobile operator endorsed individual shall be trained to be aware of hazards to a snowmobile operator. Such hazards include:

7.3.1 Operator inexperience;

7.3.2 Traveling alone;

7.3.3 Unfamiliar country;

7.3.4 Deep and/or wet snow;

7.3.5 Effects of alcohol and drugs;

7.3.6 Excessive speed;

7.3.7 Careless or reckless operation;

7.3.8 Crossing roads or railroad tracks;

7.3.9 Ice on bodies of water;

7.3.10 Avalanches;

7.3.11 Unanticipated weather conditions;

7.3.12 Hypothermia.

7.4 A snowmobile operator endorsed individual shall be trained to survive overnight in the field in the event of operator injury or vehicle breakdown.

7.5 Snowmobile operator endorsed individuals operating in areas at risk for avalanches shall, at a minimum, have completed one of the following training programs:

7.5.1 American Institute for Avalanche Research and Education (AIARE) Level 1;

7.5.2 National Ski Patrol (NSP) Level 1;

7.5.3 American Avalanche Association Level 1;

7.5.4 Avalanche safety and rescue training equivalent to one of the above.

8. Training Specific to Snowmobile Operation

8.1 A snowmobile operator endorsed individual shall have successfully completed a federal, state, agency, or AHJ-approved snowmobile operator's safety training course.

8.1.1 If required by the state, province, or AHJ, a snowmobile operator endorsed individual shall possess a current state, province, or AHJ-recognized snowmobile operator's license or certificate.

8.2 A snowmobile operator endorsed individual shall demonstrate knowledge of common snowmobile operator's hand signals.⁶

8.3 A snowmobile operator endorsed individual shall demonstrate knowledge of standard snowmobile trail signs as defined by the International Association of Snowmobile Administrators (IASA).⁷

8.4 A snowmobile operator endorsed individual shall demonstrate the ability to perform a pre-ride inspection of a snowmobile, checking the following:

8.4.1 Air filter, if used, is clear, clean, and not damaged;

8.4.2 Throttle lever moves smoothly, closes when released, and works properly throughout the full range of motion of the handlebars;

8.4.3 Ignition switch works smoothly;

8.4.4 Engine stop switch works correctly;

8.4.5 Brake lever works smoothly and correctly, does not strike the handlebar, and is positioned to suit the operator;

8.4.6 Handlebars are secure and properly aligned, skis turn through their full range, and are positioned to suit the operator;

8.4.7 Headlights function properly, including high beams if so equipped;

8.4.8 Tail lights, including brake lights, function properly;

8.4.9 Track tension is properly adjusted;

8.4.10 Track studs or paddles, if installed, are not loose, bent, or broken;

8.4.11 Slide rails are in good condition;

8.4.12 Track slides or hi-fax are not excessively worn, as defined in the vehicle's operator manual;

8.4.13 Bogie and idler wheels are secure, in good condition, and turn freely;

8.4.14 Drive belt is properly tensioned and shows little or no wear, as defined in the vehicle's operator manual;

8.4.15 Skis are properly aligned;

⁶ Available from the American Council of Snowmobile Associations, 271 Woodland Pass, Suite 216, East Lansing, MI 48823 or the International Association of Snowmobile Administrators, <http://snowiasa.org/guidelines-resources/>.

⁷ Available from the International Association of Snowmobile Administrators, <http://snowiasa.org/guidelines-resources/>.

8.4.16 Ski wear bars or skeds show little or no wear, as defined in the vehicle's operator manual;

8.4.17 Vehicle has sufficient fuel and fuel system has no evident leaks;

8.4.18 Engine oil level is correct, oil is clean, and no leaks are evident;

8.4.19 Gear oil level is correct, oil is clean, and no leaks are evident;

8.4.20 For 4-cycle engines, coolant level is correct and no leaks are evident;

8.4.21 Spark arrestor or muffler is firmly attached and working properly;

8.4.22 Reverse gear works properly;

8.4.23 Windshield is clean, with no cracks;

8.4.24 Rear view mirrors are adjusted to suit operator.

8.5 A snowmobile operator endorsed individual shall demonstrate the ability to perform at least the following on a snowmobile in the field:

8.5.1 Adjust drive belt;

8.5.2 Replace a drive belt;

8.5.3 Replace a spark plug.

8.6 A snowmobile operator endorsed individual shall demonstrate the following skills abilities:

8.6.1 With assistance, safely and properly right:

8.6.1.1 A snowmobile on its side;

8.6.1.2 An overturned snowmobile;

8.6.2 Free a stuck snowmobile.

8.7 A snowmobile operator endorsed individual shall demonstrate the ability to properly unload, load, and secure a snowmobile for transport.

8.8 A snowmobile operator endorsed individual shall demonstrate the ability to start a snowmobile safely.

8.9 While riding a snowmobile, snowmobile operator endorsed individual shall demonstrate the following:

8.9.1 The four riding positions, for example, seated, kneeling, standing, and posting;

8.9.2 How to safely ride up a hill;

8.9.3 How to safely ride down a hill;

8.9.4 How to safely traverse a hillside;

8.9.5 How to safely stop on a hill;

8.9.6 How to safely cross a road.

8.10 A snowmobile operator endorsed individual shall be able to demonstrate how to ride safely at night.

8.11 A snowmobile operator endorsed individual shall be able to demonstrate how to ride in deep, loosely packed snow.

8.12 A snowmobile operator endorsed individual shall be able to demonstrate how to ride on hard-packed snow drifts.

8.13 A snowmobile operator endorsed individual shall be able to demonstrate how to safely cross frozen bodies of water.

8.14 A snowmobile operator endorsed individual shall be able to demonstrate how to escape after breaking through ice on a body of water.

8.15 A snowmobile operator endorsed individual shall be able to demonstrate how to ride in poor or zero visibility, such as in a whiteout.

8.16 A snowmobile operator endorsed individual shall demonstrate the ability to carry a passenger, or passengers, on a snowmobile intended for that use.

8.17 A snowmobile operator endorsed individual shall demonstrate the ability to brief a passenger, or passengers, on how to safely ride on a snowmobile.

8.18 A snowmobile operator endorsed individual shall demonstrate the ability to tow a sled.

8.19 A snowmobile operator endorsed individual shall have the ability, and shall be equipped (with the exception of fuel) to be self-supporting in the field for a minimum of 24 hours.

9. Keywords

9.1 GPS; snowmobile; wilderness

APPENDIXES

(Nonmandatory Information)

X1. FIRST AID KIT

X1.1 Recommended First Aid Kit Contents

X1.1.1 Bandages (2);

X1.1.2 2 in. compresses (2);

X1.1.3 4 in. compresses (2);

X1.1.4 Roll of 2 in. gauze;

X1.1.5 Roll of 1 in. adhesive tape;

X1.1.6 Thermal or space blanket;

X1.1.7 Scissors;

X1.1.8 Antibiotic ointment;

X1.2 Waterproof container for the above.

X2. SURVIVAL KIT

X2.1 Recommended Survival Kit Contents

- X2.1.1 Food and water for 24 hours;
- X2.1.2 Equipment or chemicals for water purification;
- X2.1.3 Weatherproof matches or other dependable means for starting a fire;
- X2.1.4 Headlamp;
- X2.1.5 Tarp for shelter;
- X2.1.6 Emergency blanket;
- X2.1.7 Knife;
- X2.1.8 Map;
- X2.1.9 Compass;
- X2.1.10 Plastic whistle;
- X2.1.11 Pocket mirror;
- X2.1.12 Signal flares.

X3. ONBOARD TOOLS

X3.1 Recommended Tool Kit for Field Repairs

- X3.1.1 Spark plug wrench;
- X3.1.2 Miscellaneous wrenches of sizes to suit the machine;
- X3.1.3 Adjustable wrench;
- X3.1.4 Flat head screwdrivers;
- X3.1.5 Phillips head screwdrivers;
- X3.1.6 Pliers or vise-grips with side-cutting ability;
- X3.1.7 Flashlight;
- X3.1.8 Owner's manual.

X4. ONBOARD SPARES

X4.1 Recommended Spare Parts Kit

- X4.1.1 Spark plugs (2);
- X4.1.2 Drive belt;
- X4.1.3 Headlight bulb (1);
- X4.1.4 Tail light bulb (1);
- X4.1.5 Anti-freeze: 2 qt (2 L) minimum (for water-cooled vehicles only);
- X4.1.6 Spare coolant hose (for water-cooled vehicles only);
- X4.1.7 Fan belt (for air-cooled vehicles only);
- X4.1.8 Gas line anti-freeze;
- X4.1.9 Motor oil, 1 qt (1 L) minimum;
- X4.1.10 Hose clamps, multiple sizes;
- X4.1.11 Nylon zip ties, multiple sizes;
- X4.1.12 Duct tape;
- X4.1.13 Electrical tape;
- X4.1.14 Emergency starting rope or strap for snowmobile with recoil start;
- X4.1.15 Spare ignition key.

X5. ONBOARD EMERGENCY EQUIPMENT

X5.1 Recommended Emergency Equipment

- X5.1.1 Tow strap or rope;
- X5.1.2 Straps or bungee cords for securing gear;
- X5.1.3 Fire extinguisher, ABC;
- X5.1.4 Horn, canned air;
- X5.1.5 Handheld spot lamp or equivalent;
- X5.1.6 Folding saw or hand ax;
- X5.1.7 Parachute cord, 50 ft (15 m);
- X5.1.8 Snowshoes;
- X5.1.9 Additional clothing suitable for overnight conditions in the normal area of operations;
- X5.1.10 For operation of snowmobiles in avalanche-prone areas the following onboard emergency equipment is recommended:
 - X5.1.10.1 Avalanche probe.
 - X5.1.10.2 Snow shovel.

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