

American National Standard

*for Snow Throwers –
Safety Specifications*

ANSI/OPEI B71.3-2014

Revision and redesignation of
ANSI B71.3-2005

American National Standard

for Snow Throwers –
Safety Specifications

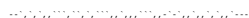
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Contents

	Page
Foreword	iv
Part I: General	
1 Scope	1
2 Normative references	1
3 Definitions	2
Part II: Walk-behind snow throwers - Requirements and test procedures	
4 Machine Identification	5
5 Controls	5
5.1 General requirements	5
5.2 Specific requirements	5
6 Guards, shields, chutes, deflectors, and housings	6
6.1 Installation	6
6.2 Snow discharge chutes and deflectors	6
6.3 Collector and/or impeller housing	6
6.4 Power drives	7
6.5 Hot surfaces	7
6.6 Engine exhaust	8
6.7 Snow clean-out tool	8
7 Servicing	8
8 Electrical requirements	8
8.1 General	8
8.2 Line voltage	9
8.3 Low-voltage battery-powered circuits (not including magneto grounding circuits)	9
9 Label durability requirements	9
9.1 General	9
9.2 Additional requirements	9
9.3 Types considered durable	9
9.4 Silk screening	10
10 Tests for power snow throwers	10
10.1 Test conditions	10
10.2 Controls test	10
10.3 Non-metallic snow discharge chutes and deflectors - Structural integrity test	10

	Page
11	Safety instructions and signs - Machine 11
11.1	Safety instructions 11
11.2	Safety signs 11
12	Safety instructions - Operator's manual..... 11
Part III: Ride-on machines with snow thrower attachments - Requirements and test procedures	
13	Machine Identification 12
14	Controls 12
14.1	General requirements 12
14.2	Specific requirements 12
15	Guards, shields, chutes, deflectors and housings 16
15.1	Installation..... 16
15.2	Snow chutes and deflectors..... 16
15.3	Collector and/or impeller housing 17
15.4	Power drives 17
15.5	Hot surfaces..... 18
15.6	Engine exhaust..... 18
16	Servicing 18
17	Electrical requirements 18
17.1	General 18
17.2	Low-voltage battery-powered circuits (not including magneto grounding circuits)..... 19
18	Label durability requirements..... 19
18.1	General 19
18.2	Additional requirements 19
18.3	Types considered durable 19
18.4	Silk screening 20
19	General requirements 20
19.1	Slip-resistant surface 20
19.2	Reflectors..... 20
20	Tests for power snow throwers 20
20.1	Test conditions..... 20
20.2	Controls test..... 21
20.3	Non-metallic discharge chutes and deflectors - Structural integrity test..... 21
20.4	Stability 21

	Page
20.5	Braking requirements and tests 22
20.6	Tilt test - Controls 24
21	Safety instructions and signs - Machine..... 24
21.1	Safety instructions 24
22	Safety instructions - Operator's manual 24
Tables	
1	Method for the use of the test cone..... 8
2	Method for the use of the test cone..... 18
Figures	
1	Test cone for the determination of hot parts accessibility 25
2	Arctic mitten 25
3(a)	Walk-behind snow throwers, two stage, top view - Operator position, operator control position, and hazard zones .. 26
3(b)	Walk-behind snow throwers, single stage, top view - Operator position, operator control position, and hazard zones .. 27
3(c)	Ride-on snow throwers - Operator position, operator control position, and hazard zones 28
4(a)	Pictorials for safety labels - Snow discharge opening, Single- or multiple-stage machines 29
4(b)	Pictorials for safety labels - Snow discharge opening, Single-stage machines..... 29
4(c)	Pictorials for safety labels - Collector and/or impeller housing..... 29
5	Snow thrower housing..... 30
6	Finger probe 31
7	Safety instructions for walk-behind snow throwers 32
8	Safety instructions for ride-on snow throwers 35
Annexes	
A	Rationale 38
B	Bibliography 43

Foreword (This foreword is not part of American National Standard ANSI/OPEI B71.3-2014.)

This standard is a revision and redesignation of *American National Standard for Snow Throwers - Safety Specifications*, ANSI B71.3-2005. The first edition of this standard was approved and published by the American National Standards Institute in 1975. It has been revised four times since initial publication, including this revision.

The present revision was prepared by the Outdoor Power Equipment Institute's Snow Throwers Committee. A summary of the principal changes included in this revision is as follows:

- Scope revised to include statement of standard effectivity;
- Addition of Machine Identification requirement (Clause 4);
- Impact test requirements modified for nonmetallic discharge chutes and deflectors;
- Hot surface testing requirements revised;
- Fuel line and fuel overfill testing removed, now covered by ANSI/OPEI B71.10-2013;
- Unbalance test requirements have been removed;
- Engine speed control on walk-behind units modified;
- Collector housing dimension requirements modified;
- Foot-operated attachment lift control direction modified;
- Service brake "proof load test" harmonized with ANSI/OPEI B71.1-2012;
- Longitudinal stability test changed to allow for "positive stop";
- 5-second stopping time test acceptance has been clarified;
- Placement of safety label(s) on single-stage walk-behind units modified.

Consensus for this standard was achieved by the use of the Canvass Method.

There are two annexes in this standard. Annex A and B are informative and not considered part of this standard.

Suggestions for improvement of the standard will be welcome. They should be sent to the Outdoor Power Equipment Institute, 341 South Patrick Street, Alexandria, VA 22314 or www.opei.org.

The following organizations, recognized as having an interest in the standardization of safety requirements for snow throwers, were contacted prior to the approval of this revision of the standard. Inclusion in the list does not necessarily imply that the organization concurred with the submittal of the proposal to ANSI.

Producer

American Honda Motor Company, Inc.
Ariens Company
Husqvarna
MTD Products Inc.
The Toro Company

User

Accredited Snow Contractors Association
KCG Management
Snow and Ice Management Association
Troy Clogg Landscape Associates

General Interest

American Society of Agricultural and Biological Engineers
CSA International
Dan Nielsen, Independent Consultant
Underwriters Laboratories Inc.



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American National Standard

for Snow Throwers – Safety Specifications

Part I: General

1 Scope

The specifications in this standard apply to (a) walk-behind power snow throwers, (b) ride-on power snow throwers, (c) lawn ride-on tractors with snow thrower attachments, (d) lawn and garden tractors with snow thrower attachments, and (e) lever-steer ride-on machines with snow thrower attachments. These specifications are not intended to apply to hand-held snow throwers nor to airport, highway, and agricultural types of snow removal machines and equipment. This standard does not cover all of the specifications that apply to electrically-powered snow throwers.

The effective implementation date of this standard shall be two (2) years after the publication date and shall apply to all products built after that date. Manufacturers may also comply with the requirements of this standard anytime after the publication date.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI/NEMA Z535.4-2011, *Product safety signs and labels*¹

ANSI/OPEI B71.1-2012, *Consumer Turf Care Equipment – Pedestrian-Controlled Mowers and Ride-On Mowers – Safety Specifications*

ANSI/UL 73-SEP2012, *Standard for Motor-Operated Appliances*

ASTM G152-2013, *Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Non-metallic Materials*²

ASTM G155-2013, *Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-metallic Materials*

ISO 3411:2007, *Earth-moving machinery - Physical dimensions of operators and minimum operator space envelope*³

ISO 3767-1:1998, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays – Part 1: Common symbols*

ISO 3767-1:1998 / Amd 1:2008, *Additional symbols*

¹ ANSI standards available from the American National Standards Institute, 25 West 43rd St., New York, NY 10036; (212) 642-4900; www.ansi.org

² ASTM standards are available from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428; (610) 832-9585; www.astm.org

³ ISO standards are available from the American National Standards Institute, 25 West 43rd St., New York, NY 10036; (212) 642-4900; www.ansi.org

ISO 3767-1:1998 / Amd 2:2012, *Additional symbols concerning the engine emissions system and diesel exhaust fluid*

ISO 3767-2:2008, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays – Part 2: Symbols for agricultural tractors and machinery*

ISO 3767-3:1995, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays – Part 3: Symbols for powered lawn and garden equipment*

ISO 11684:1995, *Tractors, machinery for agricultural and forestry, powered lawn and garden equipment – Safety signs and hazard pictorials – General principles*

ISO 17398:2004, *Safety colours and safety signs – Classification, performance and durability of safety signs*

SAE J156-OCT2012, *Fusible Links*⁴

SAE J553-JUN2004, *Circuit Breakers*

SAE J554-AUG1987, *Electric Fuses (cartridge type)*

SAE J594-FEB2010, *Reflex Reflectors*

SAE J1127-OCT2012, *Low Voltage Battery Cable*

SAE J1128-OCT2012, *Low Voltage Primary Cable*

SAE J1284-APR1988, *Blade Type Electric Fuses*

SAE J1292-JAN2008, *Automobile and Motor Coach Wiring*

SAE J1362-APR2012, *Graphical Symbols for Operator Controls and Displays on Off-Road Self-Propelled Work Machines*

SAE J2031-FEB2012, *High Tension Ignition Cable*

3 Definitions

3.1 arctic mitten: A large insulated mitten (see figure 2).

3.2 barrier: The vertical plane determined by an obstruction, such as a handle or steering wheel, that restrains the operator (see Figures 3(a) and 3(b)).

3.3 brake: The mechanism used to: (a) decelerate, (b) stop, or (c) hold a vehicle or components.

3.4 braking distance: The distance traveled between the point of the first application of the brake control and the point at which the machine or combination comes to rest.

3.5 clutch: A device used for engaging or disengaging the load from the power source.

3.6 collector: An auger or similar device used to gather snow.

3.7 collector housing: The structure, framework, or integral shields that limit access to, and egress of, material from the collector.

3.8 durable label: A label used as a safety sign or for instruction or identification and that meets or exceeds the requirements of clauses 9 and 18 of this standard.

3.9 engine (motor) kill switch: A normally off, shutoff control for the engine (motor).

3.10 engine (motor) start: The change of engine (motor) state from not producing power to producing power.

⁴ SAE standards are available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096; (724) 776-4970; www.sae.org

- 3.11 guard or shield:** A part or an assembly that restricts access to hazard areas.
- 3.12 hazard zone:** A three-dimensional area that might be hazardous for a person to occupy (see figures 3(a), 3(b), and 3(c)). The hazard zone moves with the discharge chute and does not include the space behind the discharge chute that is guarded by the discharge chute.
- 3.13 impeller:** A power-driven device that imparts energy to discharge the snow. For the purposes of this standard, when the collecting function of a device is combined with the impelling function, the device will be called an “impeller.”
- 3.14 impeller housing:** The structure, framework, or integral shield that limits access to, and egress of, material from the impeller.
- 3.15 line voltage circuit:** A circuit involving a potential that is not to exceed 600 volts and is in excess of those of a low-voltage circuit. (See 2.18 of ANSI/UL 73.)
- 3.16 low-voltage circuit:** A circuit involving a peak open-circuit potential of not more than 42.4 volts supplied by a primary battery, by a standard Class 2 transformer, or by a suitable combination of a transformer and a fixed impedance, which, as a unit, complies with all performance requirements for Class 2 transformers. (See 2.19 of ANSI/UL 73.)
- 3.17 manual start:** Utilization of operator force to rotate engine for starting purposes.
- 3.18 neutral return:** A device that will return the ground speed control selector to the neutral position from either the forward or reverse ground travel positions.
- 3.19 normal operation:** Use of the machine which is reasonably foreseeable and which is consistent with such activities as starting, stopping, fueling, and connecting to (or disconnecting from) a power source, and mounting and dismounting of ride-on tractors.
- 3.20 operating control:** Any device for operating the snow thrower. Included are the engine or motor starting and stopping controls (excluding choke and primer), all drive engaging controls, the drive-speed-changing controls, and the snow discharge movable-guide control. A rope or recoil starter shall not be considered a control.
- 3.21 operator control position:** The area within which all controls requiring operation from the operator position shall be located (see figures 3(a) and 3(b)).
- 3.22 operator position:** The area occupied by the operator during normal operation of the machine (see figures 3(a), 3(b), and 3(c)).
- 3.23 operator-presence control (OPC) (normally off control):** A control designed so that it will automatically stop power to a drive when the operator's actuating force is removed.
- 3.24 parking brake system:** A system used to hold one or more brakes (or braking means) continuously in an applied position.
- 3.25 retard:** A delay in the motion of the machine speed control or directional control, or both, or a delay in the machine response to control movement.
- 3.26 right, left:** The designation that refers to the orientation of the machine or snow thrower when the operator is at the operator's position, facing forward in the intended direction of machine operation.
- 3.27 service brake system:** The primary brake system used for decelerating and stopping a machine.
- 3.28 shall:** The word “shall” is to be understood as a requirement.
- 3.29 should:** The word “should” is to be understood as a recommendation.
- 3.30 snow discharge deflector:** A movable component used to direct snow discharging from a snow discharge chute.
- 3.31 snow discharge chute:** A movable or fixed component that directs snow discharging from the impeller housing.

3.32 snow thrower

3.32.1 hand-held: A snow thrower that, at some time during normal operation, is intended to be completely supported by the user.

3.32.2 lever-steer ride-on: A machine in which steering, traction-drive engagement, and speed-control functions are combined and controlled by hand-operated lever(s). These lever(s) may also control the braking function. (Also called *lever-steer machine*.)

3.32.3 ride-on: A self-propelled ride-on machine that is designed for throwing snow.

3.32.4 self-propelled: A snow thrower equipped with a means for powered propulsion, other than the collector or impeller, such as wheels or tracks.

3.32.5 walk-behind: A snow-throwing machine, either pushed or self-propelled, normally controlled by the operator walking behind the unit.

3.33 snow thrower attachment: A detachable snow-throwing machine designed for use with a propulsion machine.

3.34 starting device: A handle, lever, switch, or similar device required to actuate a starting mechanism.

3.35 test operator: The physical dimensions of an adult male as defined in ISO 3411 for a large operator.

3.36 tiller bar steering: A steering means that extends from one side or opposite sides of the axis of steering control rotation, the use of which tends to cause the operator's weight to shift opposite to the direction of turn.

3.37 tractor

3.37.1 lawn and garden ride-on: A self-propelled machine, designed and advertised for general-purpose lawn and garden work, having the following characteristics:

- a) Designed to supply power for home lawn, home garden, and yard maintenance implements;
- b) Generally designed for mowing lawns;
- c) Shall have all implements separate from the tractor;
- d) Provides means to lift an implement such as a moldboard plow, tiller, cultivator, snow thrower, sweeper, or dozer blade.

3.37.2 lawn ride-on: A self-propelled machine, designed and advertised for general-purpose lawn work, having the following characteristics:

- a) Designed to supply power for home lawn and yard maintenance implements;
- b) Generally designed for mowing lawns;
- c) May have implements separate from the tractor;
- d) May provide for means to lift an implement such as a sweeper or snow thrower.

Part II: Walk-behind snow throwers – Requirements and test procedures

4 Machine Identification

The snow thrower shall be provided with identification giving:

- a) Name of the manufacturer or supplier;
- b) Markings that uniquely identify the machine (such as, model and/or serial number); and
- c) Contact information for a source of replacement parts.

The label shall meet the durability requirements of clauses 9 and 18

5 Controls

5.1 General requirements

5.1.1 Control identification

Durable labels shall be used to identify and show the direction of operation of all operating controls except the snow discharge chutes, for which identification is optional. Labels shall be located near control positions and shall be legible to the operator when in position to use the control. Legible lettering shall be used with a minimum letter height of not less than 3 mm (0.12 in). Universal symbols, as illustrated in SAE J1362 or ISO 3767-1, -2, or -3, may be used with, or in place of, words to convey the message.

5.1.2 Control location

5.1.2.1 Engine (motor) controls and snow discharge chute controls shall not be located in the hazard zones (see figures 3(a) and 3(b)).

5.1.2.2 All other operating controls shall be located in the operator control position (see figures 3(a) and 3(b)).

5.1.3 Operability

All operating controls shall be operable by an operator wearing arctic mittens (see figure 2).

5.1.4 Control design

Controls shall be designed to prevent hazardous conditions, such as pinching or cutting the operator, during normal operation of the control with or without arctic mittens.

5.1.5 Resistance to movement

Controls shall have sufficient resistance to movement to meet the requirements of 10.2.

5.2 Specific requirements

5.2.1 Shutoff control device

A shutoff control device shall be provided to stop operations of the engine (motor). This device shall require manual and intentional activation in order to start the engine (motor). A key switch, or similar device, shall be provided to prevent unauthorized starting of the engine (motor), unless manual start is the only means of starting the engine. The shutoff control device and the key switch or similar device may be combined in one control.

5.2.2 Engine speed control

The direction of motion for a handle-mounted engine (motor) speed control shall be generally forward or upward, or both, to increase speed, and generally rearward or downward, or both, to decrease speed.

5.2.3 Drive interlock

A means shall be provided to prevent the starting of the engine (motor) when either the traction drive or impeller drive is engaged. Such means shall not be required on a traction drive or

impeller drive that is equipped with operator-presence (normally off) controls. If the engine (motor) can be started from behind the barrier (see figures 3(a) and 3(b)), the impeller drive need not be disengaged.

5.2.4 Impeller and collector control

5.2.4.1 A means shall be provided that automatically stops the impeller and collector within 5 seconds when the operator leaves the operator position. It shall require intentional reactivation after stopping and shall comply with the torque requirement of 5.2.4.3.

5.2.4.2 The impeller and collector shall stop within 5 seconds, and meet the requirements of 10.2 when the control is disengaged.

5.2.4.3 With the engine (motor) stopped, the impeller and collector shall resist a torque of at least 1.13 N • m (10 in • lb) at completion of the test given in 10.2, measured at the impeller and collector shaft in the direction of normal rotation. If an engine (motor) kill control is the only control used, the impeller and collector shall stop in 5 seconds and the torque requirement shall not apply.

5.2.5 Self-propelled walk-behind snow throwers

5.2.5.1 A traction drive engagement control shall be provided. If the control is not a squeeze-grip control, it shall move in the direction of intended travel for engagement. A means shall be provided to permit the machine to be transported under its own power without impeller engagement.

5.2.5.2 The traction-engagement control shall be an operator-presence (normally off) control.

5.2.5.3 A means shall be provided to permit engagement of the impeller without engagement of traction drive.

6 Guards, shields, chutes, deflectors, and housings

6.1 Installation

All guards, shields, chutes, deflectors and housings which are required to meet this standard shall be designed to prevent their removal from the machine without tools.

6.2 Snow discharge chutes and deflectors

6.2.1 Snow discharge chutes shall be provided to control the direction of discharge. The control for adjustment of the chute, if provided, shall not be located in the hazard zone or cause the operator to enter the hazard zone (see figures 3(a) and 3(b)).

6.2.2 Snow discharge deflectors shall be provided to direct the flow of discharge leaving the discharge chutes. The deflector may be part of the discharge chute.

6.2.3 The discharge limit shall not intersect the operator position, as illustrated in figure 3(a) and 3(b).

6.2.4 Nonmetallic snow discharge chutes and nonmetallic snow discharge deflectors shall comply with the test requirements of 10.3.

6.2.5 A durable label with a pictorial, such as shown in figures 4(a) or 4(b), warning of impeller contact, shall be located near the snow discharge opening. The pictorial or text should convey the message to shut off the engine before unclogging the discharge chute. If a signal word is used, it shall be "DANGER." (See clauses 9 and 11.)

6.3 Collector and/or impeller housing

6.3.1 The sides shall cover the extremities of the collector/impeller except as shown in figure 5. The housing opening limits shall not intersect the operator position (see figures 3(a), 3(b), and 5).