

American National Standard

*for Multipurpose Off-Highway
Utility Vehicles*

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ANSI/OPEI B71.9-2012

American National Standard
for Multipurpose Off-Highway
Utility Vehicles

Sponsor

Outdoor Power Equipment Institute

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American National Standards Institute, Inc.

American National Standard

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Foreword (This foreword is not part of American National Standard ANSI/OPEI B71.9-2012.)

This standard is the first edition of the American National Standard for Multipurpose Off-Highway Utility Vehicles.

There are two normative annexes in this standard, both of which are considered part of this standard.

Suggestions for improvement of the standard are welcome. Suggestions or requests for interpretations should be sent to the Outdoor Power Equipment Institute, 341 South Patrick Street, Alexandria, VA 22314.

The following organizations recognized as having an interest in the standardization of equipment, configuration, and performance requirements for multipurpose off-highway utility vehicles (MOHUVs) were contacted prior to the approval of this standard. Inclusion in the list does not necessarily imply that the organization concurred with the submittal of the proposal to ANSI.

American Honda Motor Company
American Suzuki
AmSafe Commercial Products
Arctic Cat, Inc.
BlueRibbon Coalition, Inc.
Bush Hog, Inc.
Club Car
Custom Products of Litchfield, Inc.
Deere & Company
Dynamic Research Institute
FEMCO, Inc.
Golf Course Superintendents Association
HHR Services
Jacobsen, A Textron Company
Kawasaki Motors Corporation, USA
Kubota Corporation
MTD Products Inc.
National Off-Highway Vehicle Conservation Council, Inc.
Ohio State University
Polaris Industries, Inc.
SGS U.S. Testing Company, Inc.
Tire and Rim Association
The Toro Company
U.S. Consumer Product Safety Commission
U.S. Fish and Wildlife Service
U.S. Forest Service
Vialink/Seizmik
Yamaha Motor Corporation, USA

American National Standard

for Multipurpose Off-Highway Utility Vehicles

Part I: Scope, References & Definitions

1. Scope

This standard establishes requirements for equipment, configuration, and performance of Multipurpose Off-Highway Utility Vehicles (MOHUVs). The provisions of the standard shall apply to newly manufactured vehicles and become effective for MOHUVs produced for the 2014 model year.

A MOHUV has features specifically intended for utility use and has the following characteristics:

- 1) intended to transport persons and/or cargo, with a top speed in excess of 25 mph (40.2 km/h) but not more than 50 mph (80.4 km/h);
- 2) 2030 mm (80 in) or less in overall width;
- 3) designed to travel on four or more wheels;
- 4) using a steering wheel for steering control;
- 5) with a non-straddle seat;
- 6) with a Gross Vehicle Weight Rating of no more than 1814 kg (4000 lb), and
- 7) with a minimum cargo capacity of 159 kg (350 lb).

This standard does not apply to:

Vehicles defined by other standards, such as:

American National Standards Institute (ANSI)

Available from the American National Standards Institute, 25 West 43rd Street, New York, NY 10036.

ANSI/ITSDF B56.8, *Safety Standard for Personnel and Burden Carriers*

ANSI/ILTV Z130.1, *Golf Cars – Safety and Performance Specifications*

ANSI/ILTV Z135, *Personal Transportation Vehicles – Safety and Performance Specifications*

ANSI/SVIA-1, *Four-Wheel All-Terrain Vehicles – Equipment, Configuration, and Performance Requirements* (Vehicles known as ATVs)

ANSI/ROHVA 1-2010, *Recreational Off-Highway Vehicles* (Vehicles known as ROVs)

SAE International

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096.

SAE J2258, *Light Utility Vehicles*

SAE J2358, *Low Speed Vehicles*

ASTM International

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428.

ASTM F2011-02e1, Fun-Carts

ASTM F2007-07a, Go-Carts

Any vehicle that complies with Federal Motor Vehicle Safety Standards

Vehicles commonly known as “dune buggies” or industrial trucks

2. Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. 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.

2.1 The following publications form a part of this specification to the extent specified herein.

American National Standards Institute (ANSI)

Available from the American National Standards Institute, 25 West 43rd Street, New York, NY 10036.

ANSI/SAE Z26.1-1996, Safety Glazing Materials for Glazing Motor Vehicles and Motor Vehicle Equipment Operating on Land Highways

ANSI Z535.4-2007, Product Safety Signs and Labels

National Aeronautics and Space Administration (NASA) Man-Systems Integration Standards, Volume I, Section 3, ANTHROPOMETRY AND BIOMECHANICS.

Available from NASA Center for AeroSpace Information (CASI), 7115 Standard Drive, Hanover, MD 21076-1320, <http://msis.jsc.nasa.gov/sections/section03.htm>.

SAE International

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, www.sae.org.

SAE J1410-JUN95, Seat Belt Hardware Performance Requirements, Recommended Practice

SAE J383-JUN95, Motor Vehicle Seat Belt Anchorages; Design Recommendations; Recommended Practice

SAE J384-JUN94, Motor Vehicle Seat Belt Anchorages – Test Procedure, Recommended Practice

SAE J386-FEB2006, Operator Restraint System for Off-Road Work Machines

SAE J1287-MAY2008, Measurement of Exhaust Sound Levels of Stationary Motorcycles, Ground Vehicle Standard

SAE J1623-FEB2008, All-Terrain Vehicle Headlamps

ASTM International

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428.

ASTM E1337-90, Standard Test Method for Determining Longitudinal Peak Braking Coefficient of Paved Surfaces Using Standard Reference Test Tire

United States Department of Agriculture Forest Service Standard for Spark Arresters for Internal Combustion Engines, 5100-1

Available from USDA Forest Service, 1400 Independence Ave., SW, Washington, DC 20250
www.fs.fed.us/t-d/programs/fire/documents/5100_1c.pdf.

Tire and Rim Association (TRA) Year Book

Available from the Tire and Rim Association, 175 Montrose West Ave., Copley, OH 44321
www.us-tra.org/publications.html.

Japan Automobile Tyre Manufacturers Association (JATMA) Year Book

Available from the Japan Automobile Tyre Manufacturers Assn., No. 33 Mori Bldg., 8th Floor, 3-8-21 Toranomon, Minato-Ku, Tokyo, Japan www.jatma.or.jp/english/media

3. Interpretations, Terms, and Definitions

3.1 Mandatory and Advisory Rules. To carry out the provisions of this document, the word *shall* is to be understood as mandatory and the word *should* is to be understood as recommended.

3.2 Terms. For purposes of this document, the word *Vehicle* shall mean *Multipurpose Off-Highway Utility Vehicle (MOHUV)*.

3.3 Definitions

3.3.1 Accelerator Pedal. A device that controls the speed of a vehicle.

3.3.2 Accessory. Vehicle-manufacturer marketed device intended for installation on a vehicle (e.g., tire chains, lights, canopy, etc.) to enhance its utility or appearance (exclusive of attachments).

3.3.3 Attachment. Vehicle-manufacturer-marketed components designed primarily to perform a specific task and for mounting on a specific vehicle, utilizing the vehicle's power and control system. These components may be detachable (e.g., snowplow, etc.).

3.3.4 Cargo Area. Cargo Rack and/or Cargo Bed.

3.3.5 Cargo Bed. The large designated area, usually located behind the seating area, that is designed and intended to secure and carry cargo, not passengers. The cargo bed may be flat or equipped with sides and a tailgate.

3.3.6 Cargo Capacity. Maximum cargo load recommended by the manufacturer, not including attachments and/or accessories.

3.3.7 Cargo Load. The total weight of material or personnel to be transported, in addition to the vehicle operator and one passenger.

3.3.8 Cargo Rack. A designated area that is designed and intended to secure and carry a limited amount of cargo.

3.3.9 Center of Gravity (CG). The point at which an object's weight can be assumed to be concentrated for purposes of analysis and computations, and around which an object is in balance when acted upon by gravity.

3.3.10 Curb Weight. The total weight of an operational vehicle with original equipment as manufactured or marketed; filled to the maximum capacity of engine fuel, engine oil, transmission and differential fluids, and coolant; but not the weight of the driver, passenger(s), accessories, attachments, and cargo.

3.3.11 Engine Stop Device. The device used to stop engine operation.

3.3.12 Frontal View. As seen from directly in front, looking horizontally at the vehicle.

3.3.13 Fuel System. The combination of fuel tank, fuel lines, pump, filter, and vapor lines, carburetor or injection components, and all fuel system vents and evaporative emission controls systems or devices.

3.3.14 Gross Vehicle Weight Rating (GVWR). The maximum allowable total vehicle weight recommended by the manufacturer, including the vehicle's curb weight plus the combined weights of all vehicle occupants, any cargo loads, the trailer tongue weight, and the weights of any installed options, attachments and/or accessories. Installation of options, attachments and/or accessories may reduce the allowable cargo capacity below the stated limit.

3.3.15 Handholds. A readily accessible device mounted securely to a vehicle that can be encircled by the fingers of at least one hand for the purpose of holding on to the vehicle.

3.3.16 Multipurpose Off-Highway Utility Vehicle (MOHUV). A vehicle having features specifically intended for utility use and having the following characteristics: (a) intended to transport persons and/or cargo, with a top speed in excess of 25 mph (40.2 km/h) but not more than 50 mph (80.4 km/h); (b) 2030 mm (80 in) or less in overall width; (c) designed to travel on four or more wheels; (d) using a steering wheel for steering control; (e) with a non-straddle seat; (f) with a Gross Vehicle Weight Rating of no more than 1814 kg (4000 lb), and (g) a minimum cargo capacity of 159 kg (350 lb). Width shall be exclusive of accessories and attachments.

3.3.17 Occupant Protective Structure (OPS). A structure that provides a crush-resistant environment for the properly restrained occupants in the event of a vehicle tip-over or roll-over.

3.3.18 Occupant Protective System. A system that includes the Occupant Protective Structures, occupant restraints, occupant side retention devices, and handholds.

3.3.19 Occupant Restraints. Seat belts and other devices for the purpose of restraining the occupants in a vehicle.

3.3.20 Occupant Side Retention Devices. Physical barriers or design features intended to reduce the probability of entrapment of a properly belted occupant's head, upper torso and limbs, between the vehicle and the terrain in the event of a tip-over onto its side.

3.3.21 OPS Test Load Device. A device capable of securely positioning the platen at the required angles and applying the required load linearly while maintaining the platen angle throughout the entire load application phase, at a required rate of speed (mm per second), and for a specified distance.

3.3.22 Option. Alternative configuration of the vehicle as manufactured or marketed by the vehicle manufacturer.

3.3.23 Owner's/Operator's Manual. The publication, supplied by the manufacturer with a vehicle, which provides information and instruction regarding safe use, operation, loading (and towing, if applicable), care, and maintenance of the vehicle.

3.3.24 Parking Brake. The braking device that prevents movement of a stationary vehicle without the operator being present.

3.3.25 Parking Mechanism. The device that locks or restrains the vehicle's drive train to prevent movement of a stationary vehicle without the operator being present.

3.3.26 Plan View. As seen from directly above, looking vertically down at the vehicle.

3.3.27 Platen. A rigid, unyielding block with its lower surface formed as a flat rectangle.

3.3.28 Service Brake. The primary device designed to stop or slow a moving vehicle.

3.3.29 Service Brake Pedal. The foot-operated control that, when actuated, causes the service brake(s) to be applied.

3.3.30 Spark Arrester. An exhaust system component that limits the size of carbon particles expelled from a vehicle's tailpipe.

3.3.31 Test Occupant Equivalent Weight. A weight of 98 kg (215 lb) $\pm$ 1% equivalent to a 95th-percentile adult male per National Aeronautics and Space Administration (NASA) *Man-Systems Integration Standards*, Volume I, Section 3, ANTHROPOMETRY AND BIOMECHANICS.

3.3.32 Test Operator. The person who is exercising control over the vehicle under test. Testing for this standard requires a test operator weighing 98 kg (215 lb) $\pm$ 1%.

3.3.33 Test Vehicle. The test vehicle is a standard production model or a pre-production model representing the vehicle that will be produced and sold. Unless otherwise specified, the test vehicle shall conform to the manufacturer's recommended specifications and adjusted to the nominal configuration.

3.3.34 Tie-Down Fixture. The fixture is a rigid, horizontal surface and must be capable of supporting the vehicle's weight plus the loads applied, and prevent movement of the vehicle or the partial assembly during the test.

3.3.35 Two-Wheel Lift. The occurrence of more than 50.8 mm (2 in) of simultaneous lift of all inside wheels from the test surface.

3.4 Units of measure

This OPEI standard, in agreement with ANSI policy, uses the International System of Units (SI) as the primary measure (listed first) with these exceptions. The primary measure for speed will be miles per hour (mph), the primary measure for slopes or angles will be degrees, the primary measure for acceleration will be gravity (g), and the term “weight” will be used in place of “mass.”

Part II: Vehicle Configuration & Equipment Requirements

4. Vehicle Configuration

4.1 Maximum Width. Vehicles shall be 2030 mm (80 in) or less in overall width. Width shall be exclusive of accessories and attachments.

4.2 Maximum Speed. When tested as per the requirements of 8.1, the maximum vehicle speed shall be greater than 25 mph (40.2 km/h) but not more than 50 mph (80.4 km/h).

4.3 Minimum Number of Wheels. Vehicle shall have four or more wheels in contact with the ground.

4.4 Gross Vehicle Weight Rating (GVWR). The GVWR of the vehicle shall not exceed 1814 kg (4000 lb).

4.5 Cargo Capacity. Vehicles shall have a minimum cargo capacity of 159 kg (350 lb).

4.6 Designated Seating. Designated seating shall be provided for two or more occupants. Each designated seating position shall be equipped with occupant restraints and handholds, and shall conform to the requirements of 5.1. Outboard seating positions shall be equipped with occupant side retention devices meeting the requirements of 5.1.4. The seats shall be located within the Occupant Protective Structure envelope.

4.7 Stability. Vehicle stability shall conform to the requirements of 8.6, 8.7, and 8.8.

4.8 Sound Level. Vehicle sound level limits shall conform to the requirements of 8.10.

5. Equipment Requirements

5.1 Occupant Protective Systems. Vehicles shall be equipped with Occupant Protective Systems, consisting of Occupant Protective Structures (OPS), Occupant Restraints, Occupant Side Retention Devices, and handholds, and shall conform to the requirements of this clause.

5.1.1 General Requirements. All occupant protective devices, structures, restraints, etc. shall be designed to accommodate occupants, ranging in size from a 5th-percentile adult male to a 95th-percentile adult male, per the National Aeronautics and Space Administration (NASA) publication, *Man-Systems Integration Standards*, Volume I, Section 3, ANTHROPOMETRY AND BIOMECHANICS.

5.1.2 Occupant Protective Structure. An Occupant Protective Structure (OPS) shall be provided to maintain a crush resistant environment for all occupants in the event of a vehicle tip-over or roll-over and shall conform to the requirements of 8.9.

5.1.3 Occupant Restraints. The vehicle shall be equipped with seat belts and other devices intended to retain a belted occupant.