

American National Standard

*for Personal Transport Vehicles –
Safety and Performance Specifications*



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Revision and redesignation of
ANSI/ILTVA Z135-2012

American National Standard
for Personal Transport Vehicles –
Safety and Performance Specifications

Sponsor

Outdoor Power Equipment Institute

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Foreword (This foreword is not part of American National Standard ANSI/OPEI Z135-2020.)

This is the third edition (second revision) of *American National Standard - Personal Transport Vehicles - Safety and Performance Specifications*, ANSI/OPEI Z135-2020. The first edition of the standard was published in 2004. The first two editions were developed under the auspices of the International Light Transportation Vehicle Association (ILTV). This revision was prepared by the OPEI Z130.1 / Z135 Golf Car and PTV Committee, as part of OPEI's continuing work on standards.

A summary of the principal changes included in this revision follows:

- Several definitions were added or revised;
- The vehicle identification number requirements were revised;
- Safety warnings were revised to specify warnings for both occupants and operators;
- Lighting and Markings, Horns and Mirrors, and General Configuration requirements were revised;
- Previous fuel system requirements were replaced with the requirement to comply with ANSI/OPEI B71.10.

The standard contains no normative annexes. The standard contains one informative annex, Annex A, Rationale.

Consensus for this standard was developed by use of the Canvass Method, as well as through public consultation in ANSI Standards Action.

Suggestions for improvement of the standard are welcome. They should be sent to the Outdoor Power Equipment Institute, 1605 King Street, Alexandria, VA 22314, or via e-mail to info@opei.org.

The persons listed below were recognized as having an interest in the standardization of Personal Transport Vehicles and were included on the consensus body. Additional stakeholders were recognized as having an interest, however OPEI was unable to make contact with these stakeholders, or they declined to participate. Inclusion in this list does not necessarily imply that all organizations concurred with the submittal of the proposed standard to ANSI.

Geoff Stewart, Chair
(Club Car, LLC)

Z130.1-2020 Consensus Body

User Interest Category

Jimmy Eavenson

Dennis Hurst

Producer Interest Category

Vick Hall (Trojan Battery)

Steve Nissen (Club Car, LLC)

Dan Ostroksy (Yamaha Motor Company)

Chris Spencer (Textron Specialized Vehicles)

General Interest Category

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American National Standard

for Personal Transport Vehicles – Safety and Performance Specifications

PART I: INTRODUCTION

1 Scope and purpose

1.1 Scope

This standard provides safety and performance specifications relating to personal transport vehicles (PTVs), driven by electric motors or internal combustion engines to be operated on designated roadways, or within a closed community where permitted by law or by regulatory authority rules.

This standard does not apply to:

- golf cars, which are covered by ANSI/OPEI Z130.1 (formerly ANSI/ILTV Z130.1);
- personnel and burden carriers, which are covered by ANSI/ITSDF B56.8;
- low speed vehicles, which are covered by SAE J2358;
- autonomous vehicles;
- hybrid electric vehicles (powered by a combination of an internal combustion engine and a battery with an electric motor);
- vehicles designed for the transportation of persons with disabilities.

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. Newly manufactured PTVs may also comply with the requirements of this standard any time after the publication date.

NOTE – The units in this standard are given in metric. English units are included in parentheses for information only.

1.2 Purpose

The purpose of this standard is to promote safety in the design, manufacture, maintenance and operation of PTVs. This standard may be used as a guide by regulatory authorities desiring to formulate safety rules and regulations. This standard is also intended for voluntary use by others associated with manufacturing, maintaining or utilizing PTVs.

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 of this standard, the editions indicated were valid. However, all publications and standards are subject to revision and obsolescence. Accordingly, users are encouraged to investigate the possibility of applying the most recent editions of the standards referenced herein.

ANSI Z535.1, *Safety colors*

ANSI Z535.3, *Criteria for safety symbols*

ANSI Z535.4, *Product safety signs and labels*

ANSI/OPEI Z130.1, *Golf cars – Safety and performance specifications*

ANSI/NFPA 30, *Flammable and combustible liquids code*

ANSI/NFPA 58, *Storage and handling of liquefied petroleum gases*

ANSI/OPEI B71.10, *Off-road ground-supported outdoor power equipment – Gasoline fuel systems – Performance specifications and test procedures*

NASA-STD-3000, Revision B, July 2003, *Man-systems integration standards, Volume I, Section 3, Anthropometry and biomechanics*¹

ISO 3864, *Graphic symbols – Safety colours and safety signs – Part 1: Design principals for safety signs and safety markings*

US Environmental Protection Agency Urban Dynamometer Drive Cycle (UDDS)

SAE J1718, *Measurement of hydrogen gas emission from battery-powered passenger car and light truck during battery charging*

SAE ICS 1000, *Recreational off-road vehicle product identification numbering system*

SAE J1163, *Determining seat index point*

SAE J585, *Tail lamps (rear position lamps) for use on motor vehicles less than 2032 mm in overall width*

SAE J586, *Stop lamps for use on motor vehicles less than 2032 mm in overall width*

SAE J588, *Turn signal lamps for use on motor vehicles less than 2032 mm in overall width*

SAE J592, *Clearance, side marker and identification lamps*

SAE J594, *Reflex reflectors*

SAE J377, *Performance of vehicle traffic horns*

SAE J2358, *Low speed vehicles*

¹ Available from National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

3 Definitions

For purposes of this standard, the following definitions apply:

- 3.1 accessory:** A manufacturer-approved device installed on the PTV to enhance its usability and functionality.
- 3.2 adequate clearance:** The clearance necessary to avoid damage to components during use.
- 3.3 authorized persons:** Persons determined by the controlling party to be knowledgeable about PTVs and capable of operating them for their intended use consistent with these safety standards and regulatory authority rules governing PTV operation.
- 3.4 braking system:** A system used to slow, prevent, or stop the movement of the PTV.
- 3.5 center of gravity of the test load:** The point at which the load mass is concentrated, located horizontally in the center of the load-bearing surface and vertically by its distance above the surface.
- 3.6 closed community:** A private residential area, resort or other private facility, the facility's ingress and egress being controlled by its owners or an association representing the owners or its members.
- 3.7 controlling party:** The person responsible for the management and maintenance of a PTV.
- 3.8 fire hazard:** Any condition that presents the possibility of creating a fire by ignition of a combustible material.
- 3.9 fire protection equipment:** Equipment used to prevent, control or extinguish a fire in accordance with state and local fire protection codes.
- 3.10 fuel system:** All tanks, lines, hoses, pumps, filters, connections, caps and fittings and other components necessary to store and carry fuel from the fuel tank to the engine.
- 3.11 fully charged batteries:** A battery or battery set that has been charged using the manufacturer's approved charger and charging algorithm where the charging cycle terminated normally, and that can achieve over 80% state of rated ampere-hour capacity at 27°C (80.6°F).
- 3.12 hand hold:** A device connected to the vehicle that can be encircled by the fingers of one hand for the purpose of improving personal stability.
- 3.13 headlamp:** A lighting device mounted on the front of the vehicle to provide illumination ahead of the vehicle.
- 3.14 hip restraint:** A device, anchored securely to the PTV, creating a barrier or impediment to help keep the occupant within the PTV.
- 3.15 horn:** An audible warning device used to signal the presence of the vehicle.
- 3.16 insulated tools:** Those tools that are covered with a non-conducting material to prevent an inadvertent electrical short circuit and to protect the user from the dangers of electrical shock.
- 3.17 newly manufactured:** Either a completely new vehicle or a vehicle modified to meet the definition of a PTV where it did not do so prior to the modification.
- 3.18 occupant:** Any person occupying the PTV.
- 3.19 occupant protective structure (OPS):** A frame or other structural enclosure for the protection of occupants of PTVs.

- 3.20 occupant test weight:** A test weight approximately 305 mm (12 in) square and weighing 91 kg (200 lb) $\pm$ 2% with the center of gravity at the geometric center of the weight. The vertical height of the test weight center of gravity should be between 125 mm (5 in) and 177.8 mm (7 in).
- 3.21 operator:** The occupant controlling the operation of the PTV from the operator's seat.
- 3.22 operator seat:** The seat located directly behind the steering wheel.
- 3.23 parking brake:** A device that, when properly engaged, prevents movement of the parked vehicle.
- 3.24 PIN:** A 17-digit Product Identification Number for off-road recreation vehicles governed by the Society of Automotive Engineers.
- 3.25 PTV:** A self-propelled vehicle with a minimum of 4 wheels, capable of a maximum level ground speed of less than 32 km / h (20 mi / h), with a manufacturer's maximum gross vehicle weight rating (GVWR) of up to 1,814 kg (4,000 lbs) operating on designated roadways or property where permitted by law, or the applicable regulatory authority.
- 3.26 rear view mirror:** A device having a reflecting surface used to provide a view to the rear of a vehicle.
- 3.27 reflex reflector:** A device used on a vehicle to indicate its presence by reflecting light.
- 3.28 regulatory authority:** The person(s) establishing the rules for use of PTVs, e.g., a closed community or local, state or federal governing authority, as applicable.
- 3.29 reverse warning device:** A sound-producing device to alert of reverse or pending reverse operation.
- 3.30 roll-over:** A rotation of the PTV of at least 90° along the longitudinal axis in any direction from its normal upright position.
- 3.31 service brake:** The primary braking system of the PTV used to reduce the speed or stop movement of the PTV.
- 3.32 shall:** Indicates a mandatory requirement.
- 3.33 should:** Indicates a permissive condition (a recommendation).
- 3.34 side marker lamp:** A lamp used to indicate the presence and orientation of a vehicle by marking its overall length.
- 3.35 speed control device:** An actuator used by the operator to vary or fix the rate of travel of the PTV.
- 3.36 stop lamp:** A red lamp that provides steady light to the rear of the vehicle, activated when the brake is applied, to indicate the intention of the operator of the vehicle to diminish speed or stop.
- 3.37 stopping distance:** The distance traveled between the point of service brake application and where the PTV comes to rest.
- 3.38 tail lamp:** An energized red lamp that provides rear marking of the vehicle.

- 3.39 test vehicle:** A PTV used for testing which conforms to the manufacturer's specifications for optimum performance. All optional and accessory items offered by the manufacturer shall be considered in performing each test, which shall be conducted with optional and accessory items installed, or not installed, so as to create the most severe test conditions.
- 3.40 tilting platform:** A platform that is rigid, flat and constructed to be a single plane, with adjustable slope.
- 3.41 turn signal:** A flashing lamp indicating the vehicle operator's intention to change direction.
- 3.42 wiring system assemblies:** All wires, terminals, and connectors required to conduct electrical current to the motor, starter/generator or any other electrical devices.