



AEROSPACE RECOMMENDED PRACTICE

ARP1328™

REV. D

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Superseding ARP1328C

Aircraft Ground Support Equipment - Wind Stability Determination

RATIONALE

Correction of units in Equations 2 and 5.

1. SCOPE

1.1 Purpose

This SAE Aerospace Recommended Practice (ARP) is intended to recommend:

- Uniform criteria for determination of wind loads that aircraft ground support equipment can encounter and yet allow personnel to work safely,
- Uniform systems for maintaining stability (i.e., stabilizers, outriggers, spring lockout devices),
- Standardization of specific types of interlock systems and actuation systems,
- A standard formula with its associated design criteria for calculating the steady-state wind stability (i.e., tip point) for aircraft ground support equipment,
- A standard method for testing these systems.

1.2 Field of Application

This document is intended to be applicable to mobile self-propelled or not self-propelled Ground Support Equipment (GSE) to be used for directly servicing transport aircraft.

It is not intended to apply to the following equipment:

- Ladders, stands, and scaffoldings not used as GSE to directly service an aircraft
- Airport passenger boarding bridges
- Any fixed facility or part thereof
- Fire fighting equipment

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Full document details: SAE ARP1328D

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Documents
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2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AIR1375 Minimum Safety Requirements for Special Purpose Airline Ground Support Equipment

2.1.2 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

Title 29 CFR Part 1910 Occupational Health and Safety Administration (OSHA)

2.1.3 ISO Publications

Copies of these documents are available online at <http://webstore.ansi.org/>.

ISO 11995:1996 Aircraft - Stability requirements for loading and servicing equipment

2.1.4 European Standards

Available from CEN, Comite Europeen de Normalisation, rue de Stassart 36, B1050 Brussels, Belgium, or any of the European national standardization institutes, members of CEN.

EN 1915-2:2001 Aircraft ground support equipment - General requirements - Part 2: Stability and strength requirements, calculations and test methods

NOTE: Applicable to equipment to be operated in Europe, as one recognized means to demonstrate compliance with the E.U. Machinery Directive.

2.1.5 IATA Publications

Available from International Air Transport Association, Publications Assistant, 800 Place Victoria, P.O. Box 113, Montreal, Quebec H4Z 1M1, Canada, Tel: 1-514-874-0202, www.iata.org.

Airport Handling Manual AHM 913 Basic safety requirements for aircraft Ground Support Equipment

2.2 Definitions

2.2.1 JET BLAST

The equivalent of a wind gust produced by the jet engines of an aircraft.

2.2.2 OUTRIGGERS

Stabilizer devices used to improve the stability of vehicles, applied within the envelope of the vehicle.

2.2.3 STEADY-STATE WIND

A wind which produces a constant force.

2.2.4 VEHICLE INSTABILITY

Deflection of vehicle due to a wind force, causing unsafe working conditions.

2.2.5 VEHICLE TIP POINT

Maximum vehicle instability where the vehicle center of gravity has been rotated by a wind force to a point directly above the vehicle pivot point.

2.2.6 VEHICLE PIVOT POINT

That point of the vehicle in contact with the ground on the opposite side of the vehicle from the side to which the wind force is applied and furthest from the wind's application point.

2.2.7 WIND

Movement of air which causes a force to be imposed on surfaces of aircraft ground support equipment.

2.2.8 WIND GUST

A temporary increased wind force that exceeds the steady-state wind force.

3. STABILITY INCREASE SYSTEMS

3.1 Integral Vehicle Chassis Methods

3.1.1 Heavy-Duty Springs and Auxiliary Overload Springs

These produce a harder ride, but provide increased side movement stability and assist in leveling off-center loads when the vehicle is moving or stationary.

3.1.2 Heavy-Duty Shock Absorbers

These produce a harder ride but provide increased side movement stability while the vehicle is moving.

3.1.3 Tire Pressure

High tire pressure on a vehicle increases the overall stability of either a slow moving or stationary vehicle but produces a harder ride.