



SURFACE VEHICLE RECOMMENDED PRACTICE

J2638™

NOV2017

Issued 2003-10
Revised 2017-11

Superseding J2638 SEP2011

(R) Fifth Wheel and Gooseneck Attachment Performance Up to
13608/kg (30000/lb) Trailer Weight

RATIONALE

This document is intended as a recommended practice for manufacturers of fifth wheel and/or gooseneck trailers at or below 13608 kg (30000 pounds) gross trailer weight and of tow vehicles and components necessary to tow these trailers. This document may be used as a guide to formulate regulations

FOREWORD

This recommended practice was developed to establish minimum performance criteria for fifth wheel and gooseneck attachment systems in towing combinations at or below 13608 kg (30000 pounds) gross trailer weight. This cooperative effort was developed through SAE by industry representatives including tow vehicle, trailer and towing component manufacturers. The loads for this standard were derived through a real time testing matrix of various vehicle and load combinations.

The committee had two goals: The first goal was to identify design load criteria at the connection point of the tow vehicle and trailer. This load criteria may be used to evaluate the structure through the trailer or through the tow vehicle. The second goal was to create common industry terminology.

NOTE: Subsequent to initial publication of SAE J2638 as an information report, SAE J3085, Terminology for Light and Medium Duty Trailers and Components, has been published as a recommended practice.

1. SCOPE

This document establishes minimum performance criteria and definition of terms for the towing interface between a towing vehicle and fifth wheel or gooseneck trailer at or below 13608 kg (30000 pounds) gross trailer weight. This establishes criteria for the hitch, tow vehicle attachment structure, trailer attachment structure, and coupler.

1.1 Purpose

This document is intended as a guide for manufacturers of fifth wheel and/or gooseneck trailers at or below 13608 kg (30000 pounds) gross trailer weight and of tow vehicles and of components necessary to tow these trailers. Regulatory authorities desiring to formulate regulations may use this document as a guide. This document is also intended for voluntary use by others associated with manufacturing of these products.

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Documents
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2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

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.

SAE J670 Vehicle Dynamics Terminology

SAE J3085 Terminology for Light and Medium Duty Trailers and Components

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 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.

SAE J133 Fifth Wheel Kingpin Performance – Commercial Trailers and Semitrailers

SAE J684 Trailer Couplings, Hitches, and Safety Chains—Automotive Type

SAE J700 Upper Coupler Kingpin – Commercial Trailers and Semitrailers

2.2.2 United States Government Office of the Federal Register Publications

Available from US Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7954.

Title 49 CFR, Part 390.5 Definitions—The Code of Federal Regulations (CFR) is a codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government.

Title 49 CFR, Part 571.3 Definitions—The Code of Federal Regulations (CFR) is a codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government.

2.2.3 ISO Publications

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

ISO 3853 Road Vehicle, Caravans & Light Trailers

ISO 8717 Commercial Road Vehicles - 5th Wheel Couplings- Strength Test

2.2.4 Other Publications

Australian Standard AS 1773, Articulated Vehicles—Fifth Wheel Assemblies. Standards Australia 80 Arthur Street, North Sydney, Australia 2060

UNECE 55-01

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF:
MECHANICAL COUPLING COMPONENTS OF COMBINATIONS OF VEHICLES

3. DEFINITIONS

3.1 General

3.1.1 MOUNTING SYSTEM

A structure that supports the hitch and attaches to the towing vehicle.

3.2 Gooseneck

3.2.1 GOOSENECK TRAILER

A semi-trailer with a portion of the trailer, including gooseneck coupler, extending upward and forward over the tow vehicle.

3.2.2 GOOSENECK COUPLER

That part of the gooseneck trailer connecting mechanism by which the connection is made to a gooseneck hitch ball. This does not include any structural member or extension of the trailer frame.

3.2.3 GOOSENECK BALL

A spherically shaped pin designed to mate with a gooseneck coupler to form a connection between trailer and tow vehicle (see Figure 1).

a. 58.738 mm (2-5/16 inches) and 76.200 mm (3 inches) nominal ball diameters are typical in the industry.

b. Typical Tolerance for a gooseneck ball is +0.0/-0.762 mm (+0.0/-0.030 inch).

c. Ball and coupler configuration should allow for a minimum 8° pitch and roll angle from vertical.

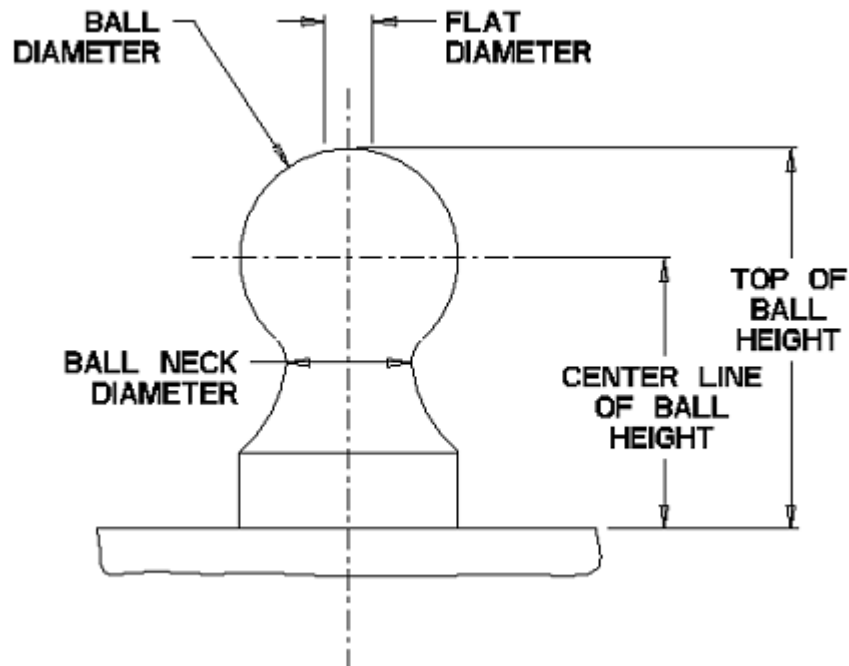


Figure 1 - Gooseneck ball

3.2.4 GOOSENECK STEM

A vertical structure on the trailer which may consist of upper and lower portions with adjustment hardware allowing the lower coupler stem to be adjusted to various heights.

3.2.5 GOOSENECK HITCH

A tow vehicle connecting mechanism which includes a structure with a mounted ball that engages a gooseneck coupler.

3.3 Fifth Wheel

3.3.1 FIFTH WHEEL TRAILER

A semi-trailer with a portion of the trailer, including the kingpin, extending upward and forward over the tow vehicle.

3.3.2 KINGPIN

An especially machined stub shaft which extends vertically from the lower surface of the upper trailer structure and locks into a fifth wheel hitch (see Figure 2).

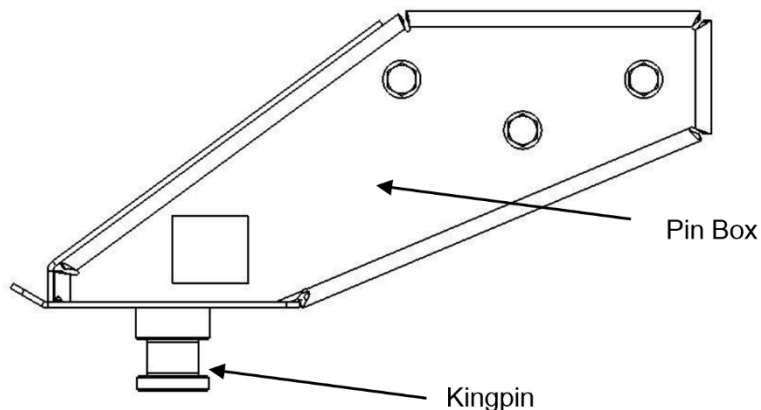


Figure 2 - Kingpin

3.3.3 PIN BOX

A structural component of a Fifth Wheel Trailer that includes and supports the Kingpin used for coupling to a tow vehicle. A Pin Box may provide adjustment of the kingpin location relative to the trailer (see Figure 2).

3.3.4 LUBE PLATE

A polymer disk that reduces friction and wear between the vertical load bearing surfaces of a fifth wheel hitch system.

3.3.5 FIFTH WHEEL HITCH

A tow vehicle connecting mechanism that engages a trailer kingpin (see Figure 3).