

Tire to Body Clearance Check for Recreational Vehicles — SAE J1214

SAE Recommended Practice
Approved April 1978

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TIRE TO BODY CLEARANCE CHECK FOR RECREATIONAL VEHICLES—SAE J1214

SAE Recommended Practice

Report of On-Highway Recreational Vehicle Committee approved April 1978.

1. **Scope**—The purpose of this recommended practice is to set guidelines for tire to wheel house and body clearances on recreational vehicles.

2. Basic Requirements

2.1 Front Tire to Body Clearance

2.1.1 *Front Non-Driving Axle*—A minimum all around clearance of 0.50 in (13 mm) is recommended between tire and body and chassis when tire is positioned according to procedure described in paragraph 4.1.

2.1.2 *Front Driving Axle*—A minimum all around clearance of 0.50 in (13 mm) is recommended between tire and body and chassis when tire is positioned according to procedure described in paragraph 4.1. If it is desired to provide tire chain clearance, refer to SAE J683a, Tire Chain Clearance.

2.2 Rear Tire to Body Clearance

2.2.1 *Rear Non-Driving or Trailer Axle*—A minimum all around clearance of 0.50 in (13 mm) is recommended between tire and body and chassis when tire is positioned according to procedure described in paragraph 4.2.

2.2.2 *Rear Driving Axle*—A minimum all around clearance of 0.50 in (13 mm) is recommended between tire and body and chassis when tire is positioned according to procedure described in paragraph 4.2. If it is desired to provide tire chain, refer to SAE J683a, Tire Chain Clearance.

3. Method of Determining Clearances

3.1 **Design Layout**—Clearances may be checked by scale layout drawing using tire profile, of the size being used, developed according to Tire and Rim Association definition of maximum envelope dimensions for grown tires in service. (See current T&RA Handbook.)

3.2 **Vehicle Check**—Clearance may be checked by actually jouncing tire through geometry specified in Section 4 on the vehicle. It is recommended that a tire model made to Tire and Rim Association maximum envelope dimensions for grown tires in service (see current T&RA Handbook) be used for this type of check.

4. Design Check Procedure

4.1 Front Tires

4.1.1 *Independent Front Suspension*—Analysis of tire to body clearances to be made under the following conditions at front wheel geometry.

Steering Angle α (Inside Wheel) ¹	Ride Position
Fig. 1	Fig. 2
0 deg	Full jounce to full rebound (metal to metal)
10 deg	Full jounce (metal to metal)
20 deg	1/2 Ride jounce bumper compression
Full Turn	1/3 Ride jounce bumper compression

4.1.2 *Solid Axle Front Suspension*—Analysis of tire to body clearances to be made under the following conditions of front wheel geometry.

Steering Angle	Ride Position
Fig. 1	Fig. 3
0 deg	One wheel jounce
Full turn	Two wheel jounce

¹Outside wheel angle established by vehicle steering geometry.

The ϕ symbol is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.

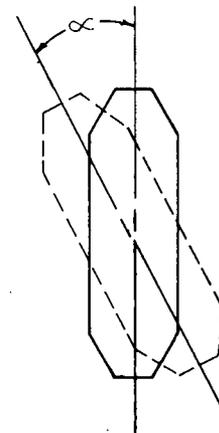


FIG. 1

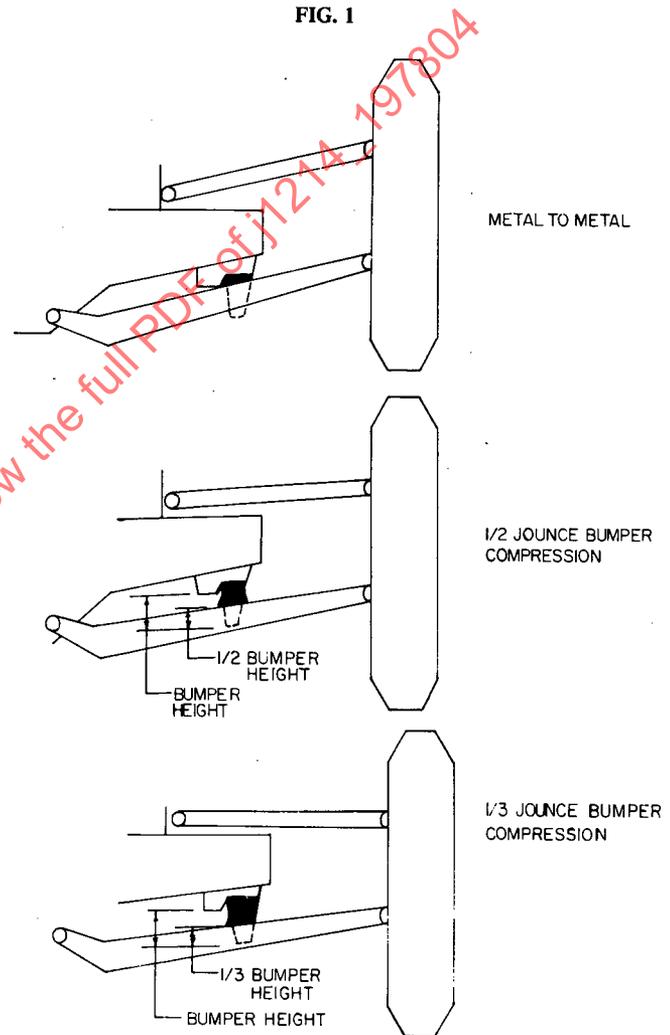


FIG. 2

4.2 Rear Tires

4.2.1 *Independent Rear Suspension*—Analysis of tire to body clearances to be made through complete range of rear wheel travel, full rebound to full jounce (metal to metal) position.

4.2.2 *Solid Axle Rear Suspension*,

4.2.2.1 *Two Wheel Jounce*—Analysis of tire to body clearances to be made through complete range of rear axle travel, full rebound to full jounce