SURFACE VEHICLE STANDARD

J1168™	APR2021

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Motorcycle Bank Angle Measurement Procedure

RATIONALE

SAE J1168 has been revised to reclassify it as an SAE Standard, correct minor errors, and provide clarification in some areas.

1. SCOPE

1.1 Purpose

The purpose of this SAE Standard is to specify the procedure for measuring the bank angle of motorcycles.

1.2 Application

This document applies to all motorcycles as defined in 3.526 of SAE J3133.

2. REFERENCES

2.1 Applicable Documents

The following publication forms a part of this specification to the extent specified herein. Unless otherwise specified, the latest version 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 J3133 Motorcycle Terminology

3. DEFINITIONS

3.1 LONGITUDINAL PLANE OF SYMMETRY

The plane which bisects the front and rear wheels and is perpendicular to their respective axes of rotation with the steering centered.

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3.2 BANKING PLANE

The longitudinal plane of symmetry as deflected from vertical by the tilting motion of the motorcycle (see Figure 1).

3.3 BANK ANGLE

The angle included between the longitudinal plane of symmetry and the banking plane (see Figure 1).

4. MOTORCYCLE PREPARATION

4.1 The front and rear suspension systems on the test motorcycle shall be compressed to 75% of their maximum travel. This shall be accomplished by any method that will ensure that the suspension systems are positively held in the 75% compressed location.

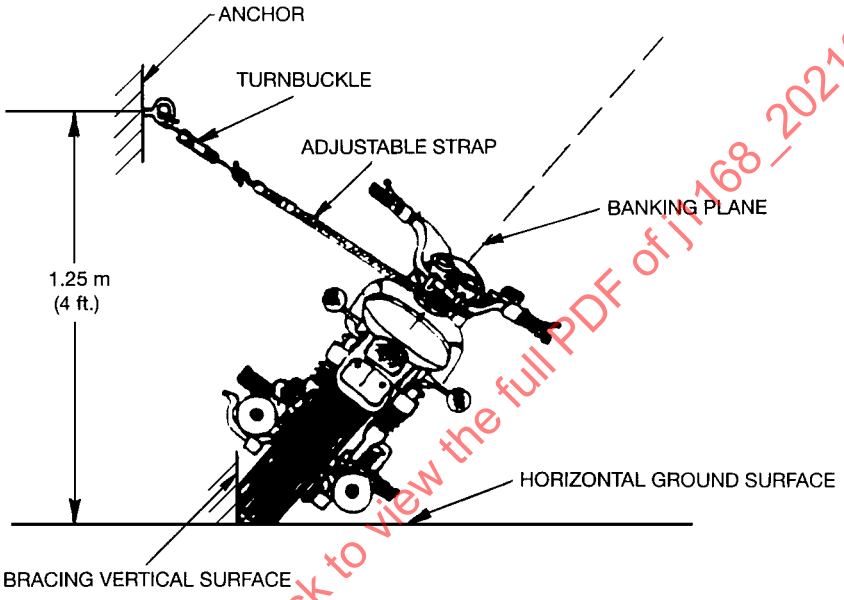

Figure 1 - Procedure set-up

4.2 If equipped, adjustable components in the suspension systems shall be so adjusted as to yield the worst possible case of ground clearance during banking.

4.3 The motorcycle manufacturer's recommended tires shall be installed on the test motorcycle.

4.4 Tire pressures throughout the test shall be maintained at the motorcycle manufacturer's lowest recommended pressure.

4.5 The wheels of the motorcycle shall be aligned according to the manufacturer's specifications.

5. MEASUREMENT PROCEDURE

5.1 The test motorcycle, prepared in accordance with Section 4, shall be placed against a rigid straight smooth vertical surface with height sufficient to brace both tires from their sides at all times during the measurement procedure (see Figure 1).

5.2 One end of an adjustable strap and turnbuckle shall be attached to a rigid point anchored approximately 1.25 m (4 feet) above the horizontal ground surface. The other end shall be attached to the frame of the motorcycle or to a component rigidly connected to the frame of the motorcycle (see Figure 1).

5.3 The adjustable strap shall then be used to lower the motorcycle away from the wall until contact with the ground by some component of the test motorcycle other than the tires is imminent.

5.4 The turnbuckle shall then be adjusted until contact with the ground by any component of the test motorcycle can be visibly observed.

5.5 The bank angle shall then be determined by measuring the angle between the rear tire edge or centerline (banking plane) and the horizontal ground surface, and subtracting from 90 degrees.

5.6 Sections 5.3, 5.4, and 5.5 shall be repeated at least three times on both RH and LH sides of the test motorcycle.

5.7 The bank angle shall be determined by averaging the three lowest values which are within 1 degree of each other on that side of the test motorcycle that yields the lowest values.

6. OPTIONAL MEASUREMENT PROCEDURE

6.1 In lieu of the measurement procedure specified in Section 4, the following optional measurement procedure may be used.

6.2 The test motorcycle, prepared in accordance with Section 4, shall be placed on a rigid, tiltable surface as illustrated in Figure 2. The tiltable surface shall be of sufficient rigidity and size to yield results equivalent to those obtained in Section 5.

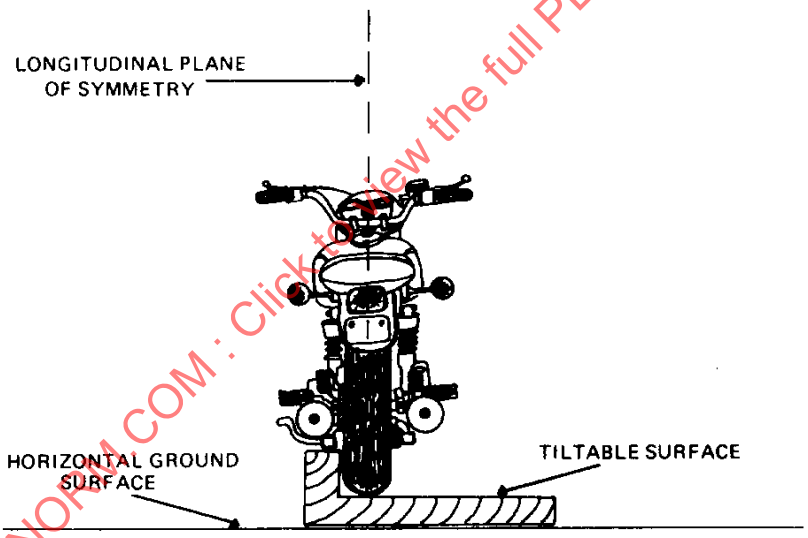

Figure 2 - Optional procedure set-up

6.3 The tiltable surface shall then be inclined until contact between any component of the test motorcycle and the tiltable surface can be visibly observed, as illustrated in Figure 3.

6.4 The test motorcycle shall be positively held in place such that the longitudinal plane of symmetry forms a right angle (90 degrees) with the horizontal plane.

6.5 The bank angle shall then be determined by measuring the angle between the tiltable surface and the horizontal.

6.6 Sections 6.3, 6.4, and 6.5 shall be repeated at least three times on both RH and LH sides of the motorcycle.

6.7 The bank angle shall be determined by averaging the three lowest values which are within 1 degree of each other on that side of the test motorcycle that yields the lowest values.