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SAE J1168 MAY89

Motorcycle Bank Angle Measurement Procedure

SAE Recommended Practice
Reaffirmed May 1989

Submitted for Recognition as an American National Standard

The Engineering Society For Advancing Mobility Land Sea Air and Space®
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SPECIALIZED VEHICLE PRACTICE

Submitted for recognition as an American National Standard

SAE J1168

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Reaffirming J1168 MAY84

MOTORCYCLE BANK ANGLE MEASUREMENT PROCEDURE

1. SCOPE:

1.1 Purpose: The purpose of this SAE Recommended Practice is to specify the procedure for measuring the bank angle of motorcycles.

1.2 Application: This recommended practice applies to all 2-wheeled motorcycles as defined in SAE Recommended Practice J213 MAR72 Definitions - Motorcycles.

1.3 Definitions:

1.3.1 Longitudinal Plane of Symmetry: A vertical plane which passes through the centerline of the front and rear wheels. (Ref. SAE J213 MAR72.)

1.3.2 Banking Plane: The longitudinal plane of symmetry as deflected from the vertical by the tilting motion of the motorcycle. (See Fig. 1.)

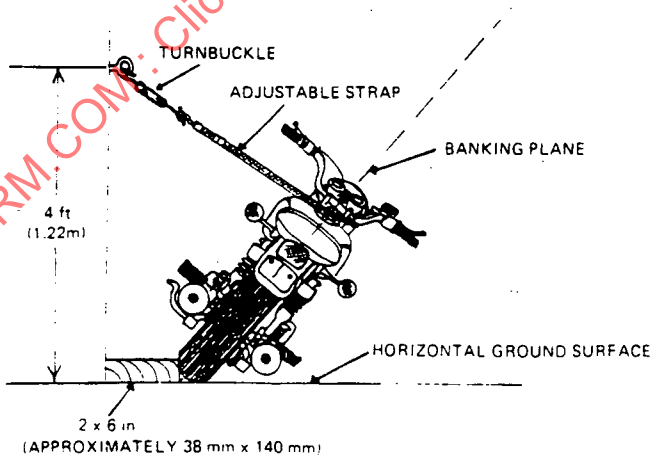

FIGURE 1

1.3.3 Bank Angle: The angle included between the longitudinal plane of symmetry and the banking plane. (See Fig. 1.)

2. MOTORCYCLE PREPARATION:

2.1 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.

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

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

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

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

2.6 The test motorcycle shall be unladen.

3. MEASUREMENT PROCEDURE:

3.1 The test motorcycle, prepared in accordance with Section 2, shall be placed adjacent to a rigid wall, such that both wheels are in contact with a single piece of finished 2 x 6 in (approximately 38 x 140 mm) lumber (or the equivalent) laid flat at the intersection of the wall and the horizontal ground surface at all times during the measurement procedure. (See Fig. 1.)

3.2 One end of an adjustable strap and turnbuckle shall be attached to a rigid point on the wall 4 ft (1.22 m) from the horizontal ground surface. The other end shall be attached to the motorcycle handlebar on that side of the motorcycle that is not adjacent to the wall as close as possible to the handlebar mounts. (See Fig. 1.)

3.3 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.

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

3.5 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 deg.

3.6 Sections 3.3, 3.4, and 3.5 shall be repeated at least 3 times on both RH and LH sides of the test motorcycle.

3.7 The bank angle shall be determined by averaging the 3 lowest values which are within 1 deg of each other on that side of the test motorcycle that yields the lowest values.

4. OPTIONAL MEASUREMENT PROCEDURE:

4.1 In lieu of the measurement procedure specified in Section 3, the following optional measurement procedure may be used.

4.2 The test motorcycle, prepared in accordance with Section 2, shall be placed on a rigid, tiltable surface as illustrated in Fig. 2. The tiltable surface shall be of sufficient rigidity and size to yield results equivalent to those obtained under Section 3.

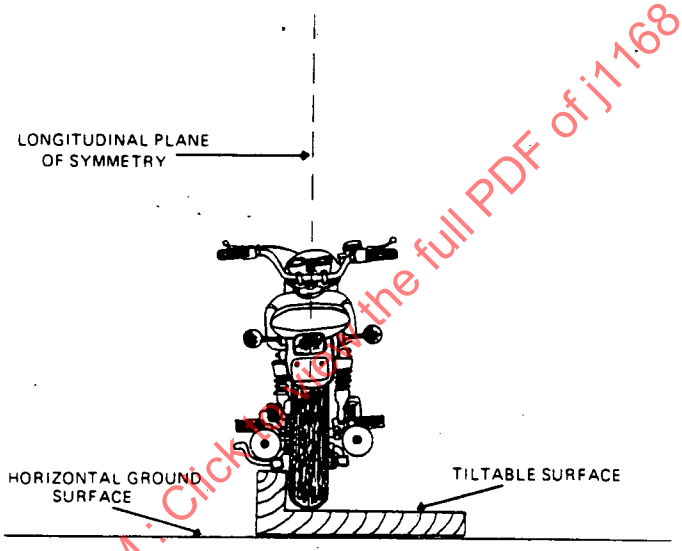

FIGURE 2

4.3 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 Fig. 3.

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

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

4.6 Sections 4.3, 4.4, and 4.5 shall be repeated at least 3 times on both RH and LH sides of the motorcycle.

4.7 The bank angle shall be determined by averaging the 3 lowest values which are within 1 deg of each other on that side of the test motorcycle that yields the lowest values.

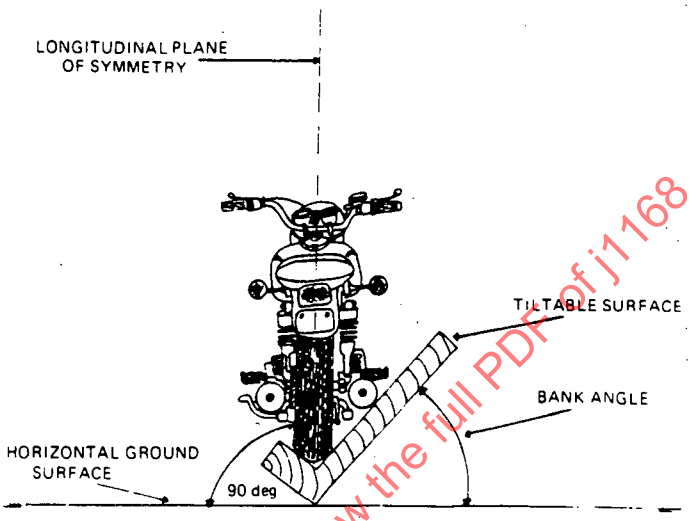

FIGURE 3