The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
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SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J46

REAF. OCT93

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Superseding J46 JUN80

Submitted for recognition as an American National Standard

WHEEL-SLIP BRAKE-CONTROL SYSTEM ROAD TEST CODE

Foreword—This reaffirmed document has been changed only to reflect the new SAE Technical Standards Board format.

1. Scope—The test code establishes wheel-slip brake-control system capabilities with regard to:

1.1 Vehicle stability, maneuverability, and system function on various road surface conditions, including variable friction surfaces as well as uniform friction surfaces.

1.2 Vehicle stopping distance on various road surface conditions.

1.3 Not covered by this SAE Recommended Practice are:

a. Radio frequency interference testing
b. Extensive power consumption testing

1.4 Purpose—This document establishes a uniform procedure for the road test of wheel-slip brake-control systems on passenger cars, trucks, buses, and combination vehicles.

2. References—There are no referenced publications specified herein.

3. Instrumentation and Equipment

3.1 Decelerometer.

3.2 Brake temperature instrumentation.

3.3 Vehicle velocity and wheel-speed instrumentation.

3.4 Odometer.

3.5 Tire pressure gage.

3.6 Stopping distance instrumentation.

3.7 Vehicle yaw measuring device.

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3.8 Articulation restraints for trailers (optional where applicable).

3.9 Means for disabling wheel-slip control system.

3.10 System pressure instrumentation (optional where applicable).

3.11 Vehicle stabilizer (optional when needed for vehicle stability).

3.12 Means to designate the point at which the brakes are applied (such as a detonator).

4. ***Facilities***—3.7 m (12 ft) wide road surfaces of various friction levels are required with sufficient space on all sides for approach, spin-out, and recovery conditions. See Figures 1, Figure 2 and Figure 3.

4.1 Road surface description and suggested (guidelines only) lengths of uniform surface facilities assuming that all the brakes are working normally and the maximum speed is as indicated in Table 1.

4.2 Pylons as required.

TABLE 1—MAXIMUM SPEED

Surface	Suggested Length m	Suggested Length ft	Assumed Max (1) Speed km/h	Assumed Max(1) Speed mph
Very low friction—smooth ice or equivalent	122	400	32	20
Low friction—wet jennite or equivalent	122	400	48	30
Medium friction—wet asphalt or wet concrete	91	300	64	40
High friction—dry asphalt or dry concrete	122	400	97	60
Special—graded loose gravel	76	250	48	30

1. Recommend moving up to speed in steps.

5. ***Vehicle Preparation***

5.1 Inspect the brake-friction elements and replace if over 25% are worn or if any abnormal condition exists. Severity of test sequences may require frequent checks to avoid overadjustment of the brakes.

5.2 Install and calibrate equipment. See Figure 4 for brake thermocouple installation method.

5.3 Install ballast if necessary to simulate the desired vehicle loading condition.

5.4 Inspect tires and replace if an objectionable wear condition exists. Adjust tire pressure per vehicle manufacturer's load recommendations on vehicles 4500 kg (10 000 lb) GVWR or under. For vehicles with GVWR greater than 4500 kg (10 000 lb), use maximum vehicle manufacturer's recommended pressure.

5.5 On vehicles equipped with adjustable power systems, adjust the system to maximum recommended cutout pressure.

5.6 On articulated vehicles, install articulation restraints.

$$P = \frac{V_b}{V_d}$$

FIGURE 1—SPLIT-FRICTION SURFACE TEST FACILITY

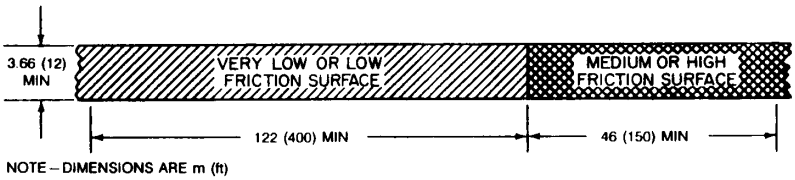

FIGURE 2—CHANGING-FRICTION SURFACE TEST FACILITY

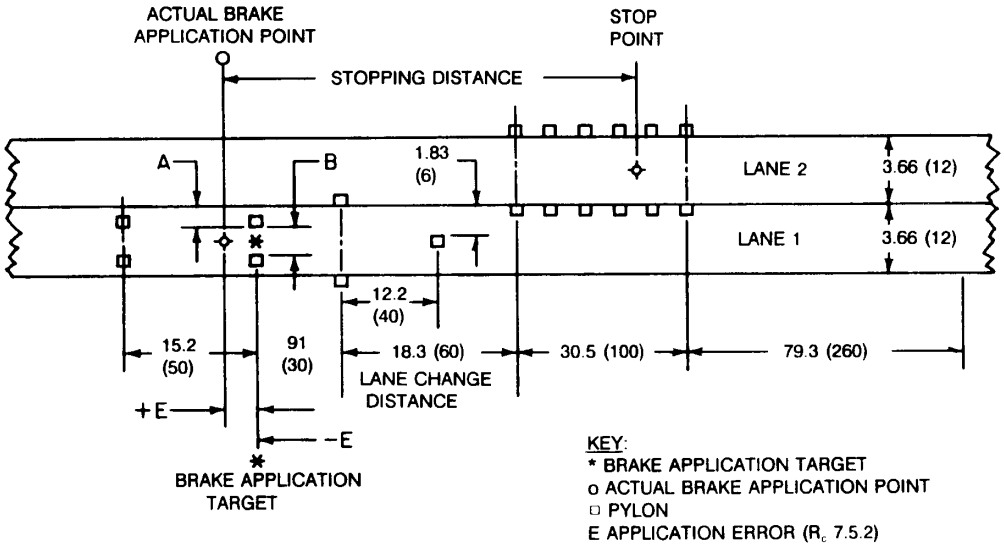

FIGURE 3—LANE CHANGE TEST FACILITY (LOW-FRICTION SURFACE)