

South Carolina Department of Transportation
Traffic Engineering Guidelines

NUMBER: TG-6

SUBJECT: The Ball-Bank Indicator and Its Use

BACKGROUND: The ball-bank indicator (either conventional or digital) may be used to determine the maximum safe speed that a vehicle can comfortably travel around a curved section of roadway. Advisory speed limit plaques are used with the appropriate warning signs to advise motorists of the maximum safe speed.

GUIDELINE: To install either the conventional ball-bank indicator or the electronic digital ball-bank indicator, the automobile must be in a stationary level position.

The conventional ball-bank indicator must be mounted such that the arc of the tube is in a vertical plane and the steel ball is at the zero reading. The use of the conventional ball-bank indicator to measure the safe speed on curves involves the efforts of two people, one to drive and the other to observe the indicator.

The electronic digital ball-bank indicator instrument bracket must be mounted on the dash in a level position and the indicator positioned in the mounting bracket.

A test to determine the safe speed on a curve should be conducted as follows, regardless of the type of ball-bank indicator used:

1. The curve under observation should be first appraised by the driver to determine the approximate safe speed he may be able to maintain.
2. Test runs should be made, taking care to keep the car in the center of the lane and maintain a uniform trial speed from a point at least one-tenth of a mile in advance of the beginning of the curve, as follows:
 - a. The first test run should be made at a speed approximately ten miles per hour below the appraised speed but at a speed which is a multiple of five miles per hour, i.e., 25, 30, 35, etc.
 - b. Succeeding runs should continue to be made at a speed five miles per hour greater than the previous one until one of the following ball-bank indicator readings is exceeded.


<u>Test Run Speed</u>	<u>Reading</u>
Above 30 M.P.H.	12
20 to 30 M.P.H.	14
Below 20 M.P.H.	16

3. The location of the curve and any other information pertinent to the establishment of the safe speed shall be recorded.

The advisory speed to be posted will be five miles per hour below that speed at which the specified ball-bank indicator reading was exceeded; except the posted advisory speed may not be greater than the regulatory speed limit. Where the safe speed as established with a ball-bank indicator is greater than the regulatory speed limit, an Advisory Speed plate will not be erected.

The safe speed must be determined from each approach to a curve and may vary for each direction that the curve is traversed. It is recommended, however, that both approaches be signed with the lower advisory speed.

The sharpness of curvature and amount of superelevation are design factors whose influence on safe speeds will be reflected in the ball-bank indicator readings. Other factors or conditions may exist which influence the ability of the driver to safely negotiate a curve at the speed determined to be safe by tests with the ball-bank indicator. Examples of other conditions are narrow bridges on curves, narrow underpasses, and obstructions within the roadway. The above readings have been adjusted to better approximate new research as described in Section 2C.14 and 2C.56 of the MUTCD. Where unusual conditions exist, making the curve extremely hazardous when traveled at the speed established by the ball-bank indicator, the advisory speed may be modified as determined appropriate by engineering judgment and experience.

Approved: 
Director of Traffic Engineering

October 18, 2013
Date

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Revised and Signed again on January 24, 2008*