



Standard Practice for Using Pneumatic Tubing for Roadway Traffic Counters and Classifiers¹

This standard is issued under the fixed designation E 1957; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the use of pneumatic road tube to detect axle hits used for recording vehicles or for the classification of vehicles as part of roadway traffic monitoring.

1.2 The practice applies only to pneumatic road tubes used for the detection of vehicle axles on a roadway.

1.3 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are for information only.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

E 1442 Practice for Highway Traffic Monitoring²

E 1572 Practice for Classifying Highway Vehicles from Known Axle Count and Spacing²

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *axle counter*—a device that receives signals from an axle sensor and indicates the cumulative number of axles that have passed over the sensor.

3.1.2 *axle hit*—an event in which the presence of a weight-bearing vehicle axle is sensed by a pneumatic road tube or other axle sensor.

3.1.3 *machine count*—automatic recording of axle counts, vehicle counts, or classifications, or all of these, by sensors attached to a recording device.

3.1.4 *manual count*—recording of vehicle counts or classifications, or both based on human observation.

3.1.5 *pneumatic road tube*—an elastic tube that is stretched across a roadway for the purpose of detecting a weight-bearing vehicle axle.

3.1.6 *traffic counter*—a device that records vehicles or vehicle axles, or both, that pass over a sensor.

3.1.7 *traffic recording device*—a unit that receives output from a sensor and registers an axle count, vehicle count, vehicle classification or speed, gap, or headway.

3.1.8 *validation count*—an independent count made for the purpose of insuring that the installation is operating properly.

3.1.9 *vehicle*—an assembly of one or more units coupled together for travel upon a roadway; vehicles include one power unit and may include one or more non-powered trailer or semi-trailer units.

3.1.10 *vehicle classification count*—the recording, summarization, and reporting of traffic volume by vehicle type.

3.1.11 *verification/test count*—comparison of sensor counts to a concurrently recorded validation count on the same segment of roadway.

4. Significance and Use

4.1 This practice addresses the recording of traffic characteristics, using pneumatic tubing with recording devices. This practice provides information for use with professional judgment by governmental agencies and private firms in the management of roads and roadway traffic.

4.2 Traffic monitoring is important to the safe and efficient movement of people and goods. The purpose of this practice is to ensure that traffic monitoring procedures produce traffic data and summary statistics that are adequate to satisfy diverse and critical traffic information needs.

5. Procedure

5.1 Installation Procedures and Techniques:

5.1.1 Select a relatively straight and smooth section of roadway with free flowing traffic throughout the duration of the data collection session. For example, in selecting the roadway section, attention should be given to avoiding proximity to driveways and intersections. The availability of a place to anchor the counting device is also important.

5.1.2 Install the tubing on the surface of the roadway, perpendicular to the flow of vehicular traffic. The end away from the recording device must be effectively sealed to prevent leakage of air and to prevent the intrusion of foreign matter and water. This end must be secured to the ground or pavement using a suitable anchoring device, such as a nail, clamp, or bracket.

5.1.3 Place a second anchoring device at the near edge of the pavement. This device must not restrict the flow of air. Pull

¹ This practice is under the jurisdiction of ASTM Committee E-17 on Vehicle-Pavement Systems and is the direct responsibility of Subcommittee E17.52 on Traffic Monitoring.

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² *Annual Book of ASTM Standards*, Vol 04.03.