SAE International™

SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J182

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Motor Vehicle Fiducial Marks and Three-dimensional Reference System

1. ***Scope***—This SAE Recommended Practice describes a procedure for locating the three-dimensional reference system on a motor vehicle as built.

1.1 Purpose—For complete motor vehicle dimensional checks, a method is required for locating the three-dimensional reference system on a motor vehicle so that points of interest (for example, driver eye location, seating reference point, centerline of motor vehicle, etc.) can be determined.

1.2 Rationale—This document has been reaffirmed to comply with the SAE 5-Year Review policy.

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

3. ***Definitions***

3.1 Three-dimensional Reference System—The relationship of three orthogonal planes established by the manufacturers in the initial design stages of the vehicle that remain permanent (see Figure 1). The planes are used to determine dimensional relationships for components in and around the vehicle and are defined as follows:

3.1.1 ZERO "Y" PLANE—Centerline body zero plane is a vertical plane which passes through the longitudinal centerline of the car.

3.1.2 ZERO "X" PLANE—Vertical body zero plane is a plane normal to the "Y" plane. This plane is typically in front of the vehicle to eliminate the use of negative numbers.

3.1.3 ZERO "Z" PLANE—Horizontal body zero plane is a plane normal to the "X" and "Y" planes. Its relationship to the horizontal is determined by the fiducial mark. This plane is typically slightly above the ground for all loaded conditions to eliminate the use of negative numbers.

3.1.4 NEGATIVE COORDINATE—The negative direction is forward of "X" plane, left of the "Y" plane, and below "Z" plane.

3.1.5 COORDINATE DIMENSION—All points of interest are described as coordinate dimensioned from the intersection of the zero planes in the three-dimensional reference system. X, Y, Z coordinates are dimensioned to their respective planes.

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Tel: 877-606-7323 (inside USA and Canada)
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: custsvc@sae.org
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