

	SURFACE VEHICLE RECOMMENDED PRACTICE	SAE J1140 AUG2012
		Issued 1976-12 Cancelled 2012-08
		Superseding J1140 APR2000
Filler Pipes and Openings of Motor Vehicle Fuel Tanks		

RATIONALE

This SAE Recommended Practice was developed to ensure compatibility between vehicles and refueling vapor recovery nozzles. Developed primarily for gasoline-powered passenger car and truck applications but may be used in marine, industrial, and similar applications where refueling vapor recovery is required. This recommended practice was cancelled by the issuing SAE Fuel Systems Standards Committee in April 2000 because the information is harmonized with International Organization for Standardization ISO 13331:1995 Road vehicles - Filler pipes and openings of motor vehicle fuel tanks - vapor recovery systems.

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1. **Scope**—This SAE Recommended Practice was developed primarily for gasoline-powered passenger car and truck applications but may be used in marine, industrial, and similar applications where refueling vapor recovery is required.
 - 1.1 **Purpose**—The purpose of this document is to ensure compatibility between new vehicle designs and refueling vapor recovery nozzles by their dimensions and specifications.
2. **References**
 - 2.1 **Applicable Publications**—The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated, the latest revision of SAE publications shall apply.
 - 2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.
 - SAE J829 MAR78—Fuel Tank Filler Cap and Cap Retainer
 - SAE J1114 MAR78—Fuel Tank Filler Cap and Cap Retainer—Threaded Pressure-Vacuum Type
3. **Definitions**
 - 3.1 **Filler Pipe Face**—The gasket sealing surface as defined in SAE J829 MAR78, Figure 2 and SAE J1114 MAR78, Figure 2.
 - 3.2 **Test Nozzle Spout**—The rod with dimensions as shown in Figure 4, used to establish the reference lines around which the filler pipe access zone is defined.
 - 3.3 **Reference Plane**—The plane which contains the axial centerline of the filler pipe face, and is turned in the direction which the manufacturer of the automobile has determined to be the orientation in which the nozzle is to be inserted.
 - 3.4 **Normal Resting Position of Test Nozzle Spout**—The position the test nozzle spout is in when the following conditions are met:
 - 3.4.1 The test nozzle spout is inserted into the filler pipe, such that the axial centerline of the test nozzle spout lies in the reference plane.

- 3.4.2 The locking ring of the test nozzle spout is located immediately on the inside (that is, the vehicle tank side) of the locking lip.
- 3.4.3 Either the test nozzle locking ring rests upon the filler pipe wall, or the test nozzle spout shaft rests upon the locking lip as shown in Figures 1A and 2A, respectively.

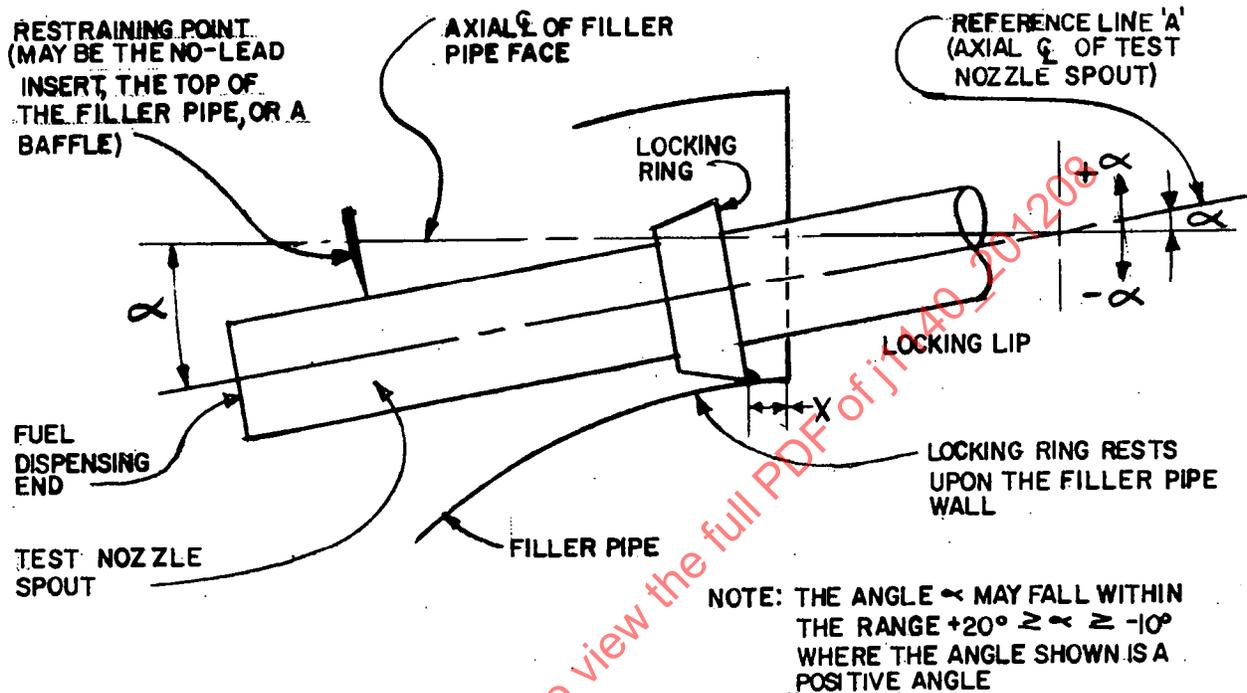


FIGURE 1A—SAE J1114, TYPE FILLER PIPE (NORMAL RESTING POSITION)

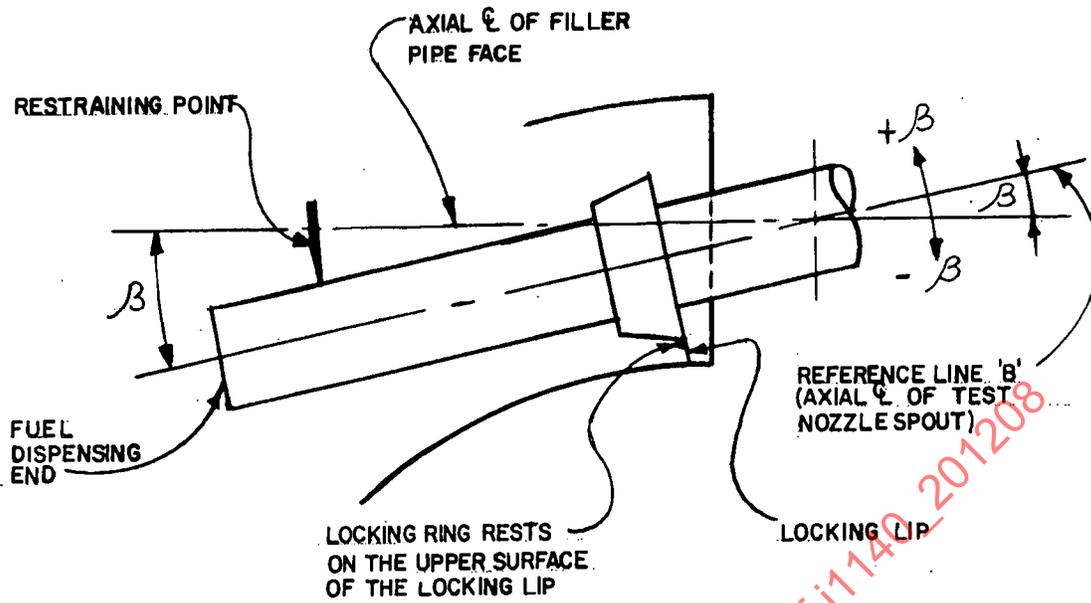
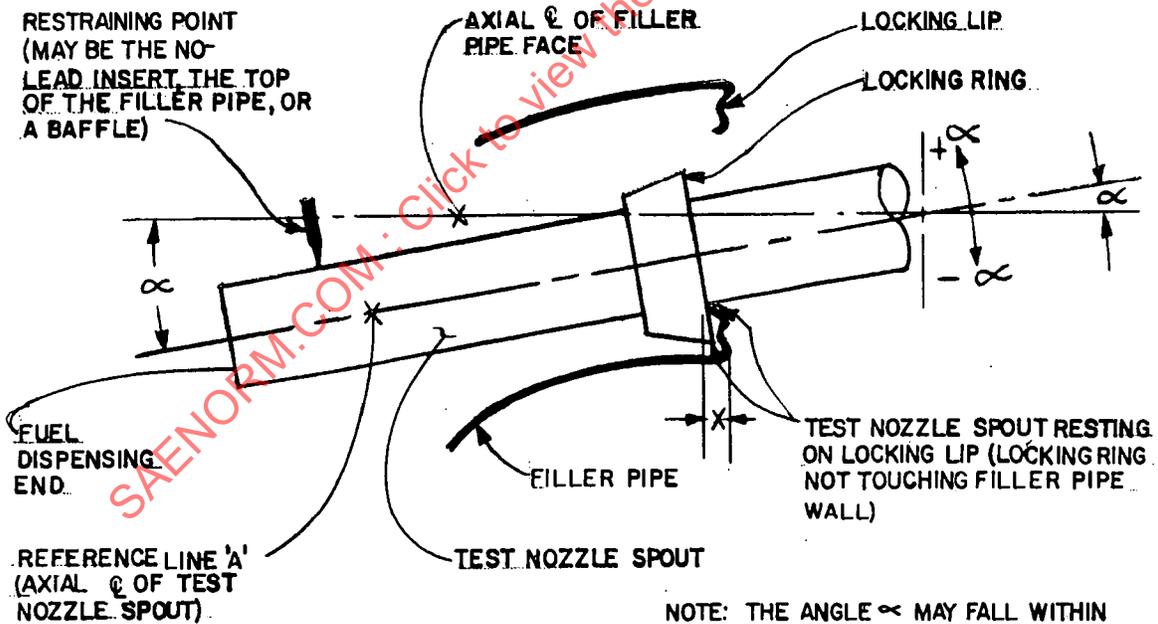


FIGURE 1B—SAE J1114, TYPE FILLER PIPE (INSERTION POSITION)



NOTE: THE ANGLE α MAY FALL WITHIN THE RANGE $+20^\circ \geq \alpha \geq -10^\circ$ WHERE THE ANGLE SHOWN IS A POSITIVE ANGLE.

FIGURE 2A—SAE J829, TYPE FILLER PIPE (NORMAL RESTING POSITION)

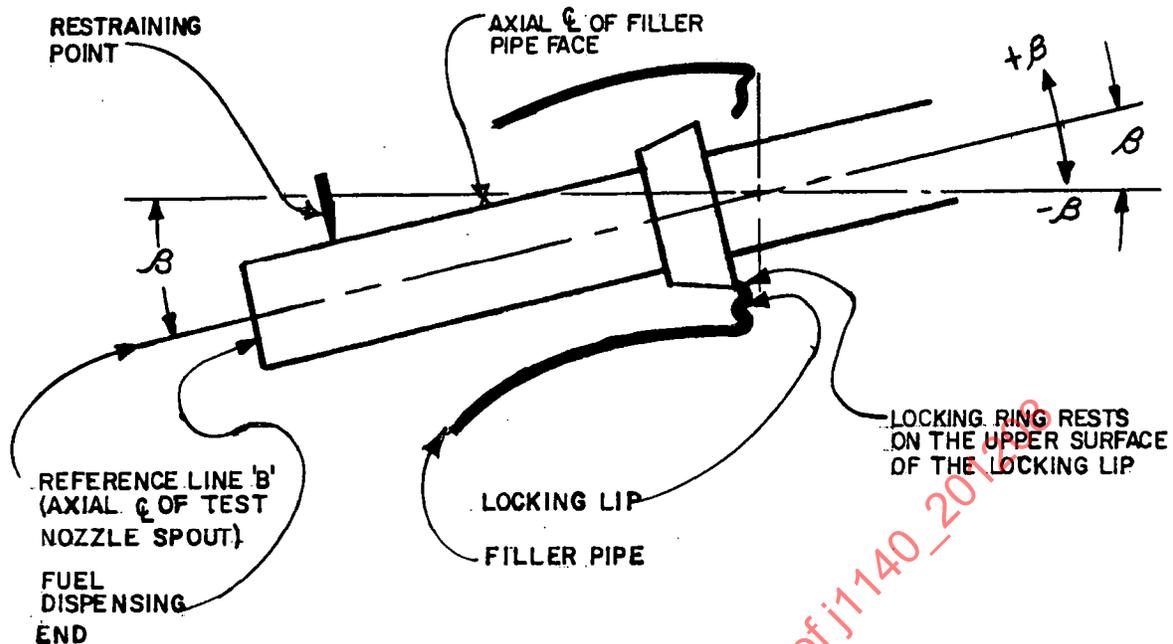


FIGURE 2B—SAE J829, TYPE FILLER PIPE (INSERTION POSITION)

- 3.4.4 The fuel dispensing end of the test nozzle spout (as indicated in Figures 1A and 2A) is in contact with a restraining point.
- 3.5 Insertion Position of the Test Nozzle Spout**—The position the test nozzle spout is in when the following conditions are met:
- 3.5.1 The test nozzle is inserted into the filler pipe with the axial centerline of the test nozzle spout contained in the reference plane.
- 3.5.2 The locking ring of the test nozzle spout is resting on the upper surface of the locking lip so as to raise the nozzle handle through the minimum angle (from the normal resting position) required to effect the test nozzle spout insertion into the filler pipe as shown in Figure 3 - Construction of Zone Top Line.
- 3.5.3 The fuel dispensing end of the test nozzle spout (as indicated in Figures 1A and 2A) is in contact with a restraining point.
- 3.6 Angle Alpha**—The angle between the axial centerline of the test nozzle spout when in its normal resting position and the axial centerline of the filler pipe face, expressed in degrees. Alpha is considered a positive angle when the dispensing end of the test nozzle spout is pointing down relative to the centerline of the filler pipe face as illustrated in Figures 1A and 2A.
- 3.7 Angle Beta**—The angle between the axial centerline of the test nozzle spout when in its insertion position, and the axial centerline of the filler pipe face, expressed in degrees. Beta is considered a positive angle when the fuel dispensing end of the test nozzle spout is pointing down relative to the axial centerline of the filler pipe face, as illustrated in Figures 1B and 2B.

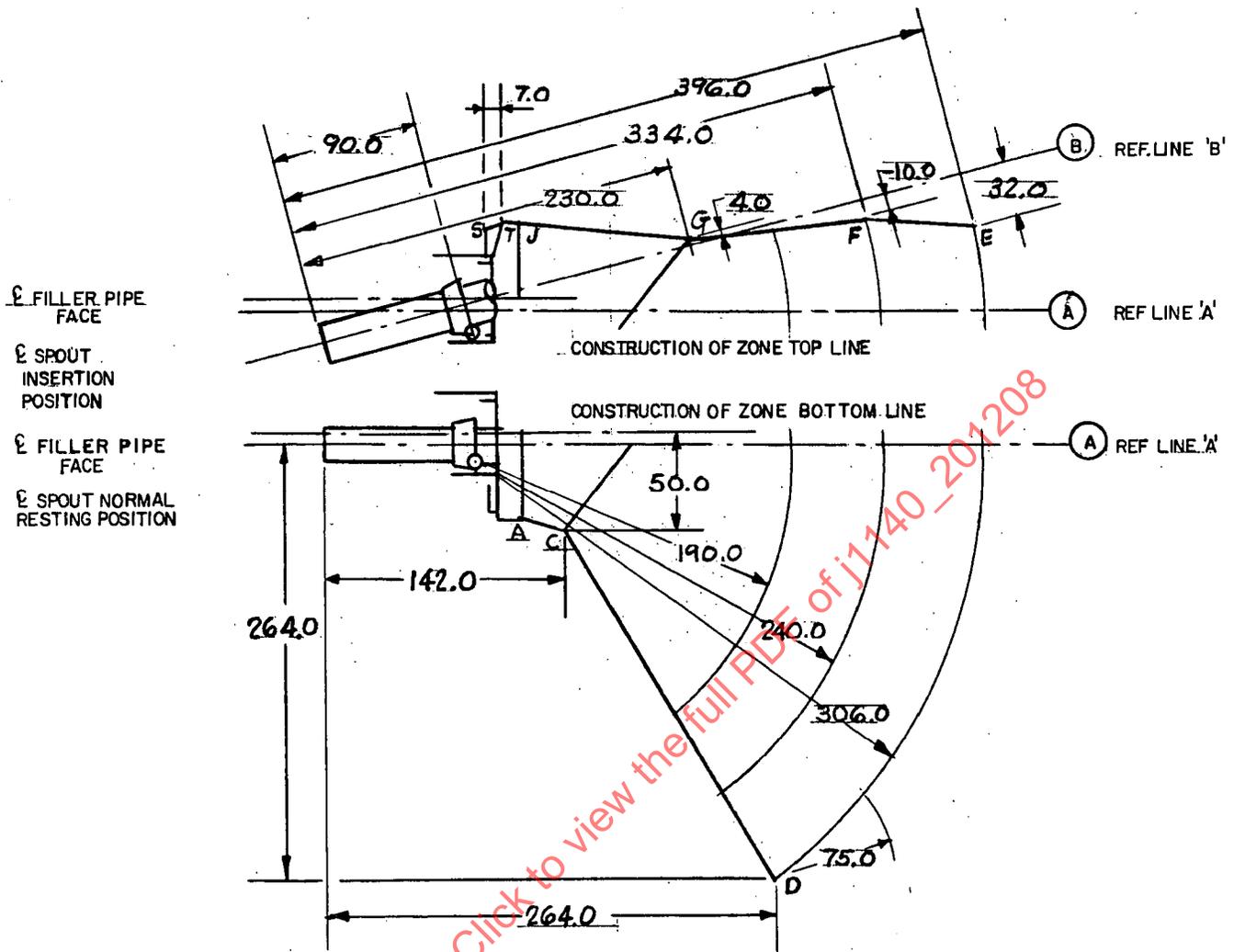


FIGURE 3—CONSTRUCTION OF FILLER PIPE ACCESS ZONE

4. Specifications

- 4.1 The filler pipe face shall be flat within 0.25 mm TIR and have a smooth surface against which a vapor recovery nozzle can effect a vapor-tight seal.
- 4.2 An internal locking lip shall be provided around at least 100 degrees of the inside circumference of the filler pipe. The locking lip shall be oriented such that it extends at least 35 degrees to either side of the reference plane. The height of the lip shall not be less than 2.5 mm as measured from the inside wall of the filler pipe or shall not be less than 8.5 mm as measured from the outside wall of the filler pipe if the outside diameter of the filler pipe is between 52.0 and 57.5 mm. The depth of the lip shall be not less than 4.0 nor more than 13.0 mm into the filler pipe as measured in the reference plane, from the filler pipe face.
- 4.3 The filler pipe sealing surface shall be round in cross section, and shall have a diameter not greater than 50.0 mm except as provided in SAE J829 MAR78.