ATTACHMENT B

PROPOSED 15-DAY MODIFICATIONS TO THE AMENDMENTS TO CP-206: CERTIFICATION PROCEDURE FOR VAPOR RECOVERY SYSTEMS AT GASOLINE DISPENSING FACILITIES USING ABOVEGROUND STORAGE TANKS

[Note: The originally proposed modifications to the regulatory language are shown in underline to indicate additions and ~~strikethrough~~ to indicate deletions. The proposed 15-day modifications to the proposed regulations are shown in double underline to indicate additions and ~~double strikethrough~~ to indicate deletions. Only text with proposed 15-day modifications is included in this attachment. For all amendments to CP-206 approved by the Board during the October 25, 2018, hearing, refer to Staff Report: Initial Statement of Reasons Appendix C. The symbol "***" means that intervening text not amended is not shown. [Bracketed text] is not part of the proposed amendments.]

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5. PHASE II PERFORMANCE STANDARDS AND SPECIFICATIONS APPLICABLE TO AST PHASE II VAPOR RECOVERY SYSTEMS

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Table 5-1 [continued]
Phase II Performance Standards and Specifications
APPLICABLE TO AST PHASE II VAPOR RECOVERY SYSTEMS

Performance Type	Requirement	Sec.	Std. or Spec.	Test Procedure
***				
Coaxial Hose Routing Configurations	As Shown in Figure 5~~A~~G~~G~~H, 5B~~D~~D~~I~~, and 5~~C~~E~~E~~J	5.11	Spec.	Testing and Eng. Eval.

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5.7.1 Each Phase II EVR ~~vapor recovery~~ nozzle shall be capable of refueling any vehicle that complies with the fill pipe specifications (title 13, CCR, Section 2235) and can be fueled by a conventional nozzle.

5.7.~~1~~2 Each Phase II EVR ~~vapor recovery~~ nozzle shall be "dripless," meaning that no more than three drops shall occur following each refueling operation. This shall be determined in accordance with TP-201.2D (Post-Fueling Drips from Nozzles) with the exception that the minimum number of test nozzles be two.

5.7.~~1~~3 Each Phase II EVR ~~vapor recovery~~ nozzle shall comply with the ~~following:~~ nozzle spout assembly dimensions including nozzle bellows as specified in Table 5-2.

~~(a) The terminal end shall have a straight section of at least 2.5 inches (6.34 centimeters) in length;~~

~~(b) The outside diameter of the terminal end shall not exceed 0.840 inch (2.134 centimeters) for the length of the straight Section; and~~

~~(c) The retaining spring or collar shall terminate at least 3.0 inches (7.6 centimeters) from the terminal end.~~

Table 5-2
Phase II Nozzle Spout Assembly Dimensions Including Nozzle Bellows

(Figures 5A and 5B illustrate the dimensions and correspond to the symbols in Table 5-2.)

Symbol	Description	Dimension Range (Minimum/Maximum)
D_1	Spout Outside Diameter Minimum Length of D_1 Roundness of D_1	20.~~12~~50/21.34 mm (0.~~792~~807/0.840 in) $L_2 - A_1$ Within diameter limits
D_2 [(a)]	Nozzle Anchor Device Outside Diameter [(a)]	25.1/32.1 mm~~.~~ (0.988/1.264 in) [(a)]
C_t	Spout Tip Chamfer or Radius	2.0 mm max (0.080 in max)
C_α	Spout Tip Chamfer Angle	30° to 45°
A_r	Anchor Radius	1.5 mm max (0.059 in max)
A_α	Anchor minimum angle	45°
A_1	Overall Length of Anchor	6.5/20.2 mm (0.256/0.795 in)
A_2	Length of Anchor without Chamfer	~~9.5~~/12.5 mm max (~~0.020~~/0.500 in max)
A_H ~~A_F~~ [(b)]	Anchor Latch Height ~~Zone Flatness~~ [(b)]	Maximum for all styles constrained by D2 [(b)] Minimum for Balance Nozzles: 2.59 mm (0.102 in) Minimum for Assist Nozzles: 3.50 mm (0.138 in)
S_α [(c)]	Bend Angle of Nozzle Spout [(c)]	19.5° / 26.0° [(c)]
L_1	Length of Straight Part of Nozzle Spout	L2 + 5.0 mm min (L2 + 0.197 in min)
L_2	Distance Between Nozzle End and First Anchor Position	85.0/95.0 mm (3.346/3.740 in)
L3 [(d)]	Distance Between Nozzle End and Aspirator Port Centerline [(d)] (Aspirator can be in front face of tip)	18.0 mm max (0.709 in max) [(d)]
L_4	Clearance from Fuel Dispensing End to Spout Connection to Nozzle Body	150 mm min (5.906 in min)
B_1	Nozzle Bellows Face Outer Diameter	77 mm max (3.031 in max)
B_2	Nozzle Bellows Face Inner Diameter	29.0/45.0 mm (1.142/1.772 in)

Table 5-2 [continued]

Phase II Nozzle Spout Assembly Dimensions Including Nozzle Bellows

(Figures 5A and 5B illustrate the dimensions and correspond to the symbols in Table 5-2.)

Symbol	Description	Dimension Range (Minimum/Maximum)
B_3	Nozzle Bellows Face ~~Flatness~~ Profile	2.5 mm (0.098 in) ~~total indicator reading (TIR) max over seal surface~~ profile tolerance on seal surface
B_4	Nozzle Bellows Contact Angle	40° maximum angle
P (e)	Aspirator Port Diameter (e)	2.00/4.25 mm (0.079/0.167 in) (e)
H	Calibration Hole (f)	(f)

(a) If an offset anchor is utilized, anchor outside diameter measurement will be the effective length (greatest length) across the anchor surface.

(b) Measurement of anchor latch height ~~zone flatness~~ (A_{FH}) taken from ~~spout to virtual sharp~~ anchor largest diameter to spout diameter.

(c) If spout bend angle (S_α) is out of the recommended range, ~~full nozzle review is mandatory in the vehicle fill pipe clearance zone described in the SAE recommended practice document J1140~~ the nozzle spout assembly and body must be able to be inserted within the vehicle fill pipe access zone defined in Section 5.7.4.

(d) If L_3 is greater than 18.0 mm (0.709 in) the distance difference between L_2 and L_3 must be greater than 69 mm (2.72 in), and L_3 can be no greater than 25.4 mm (1.000 in).

(e) Reference only dimension. Aspirator (sensor) placement can be in spout end or along bottom of spout.

(f) Reference only dimension. Calibration holes may be present in nozzle bellows to avoid premature shutoff caused by excess vacuum during the refueling of ORVR equipped vehicles. Such holes shall be blocked/sealed during V/L ratio nozzle adjustments.

Figure 5A
Phase II Nozzle Spout Dimensions as Specified by Table 5-2

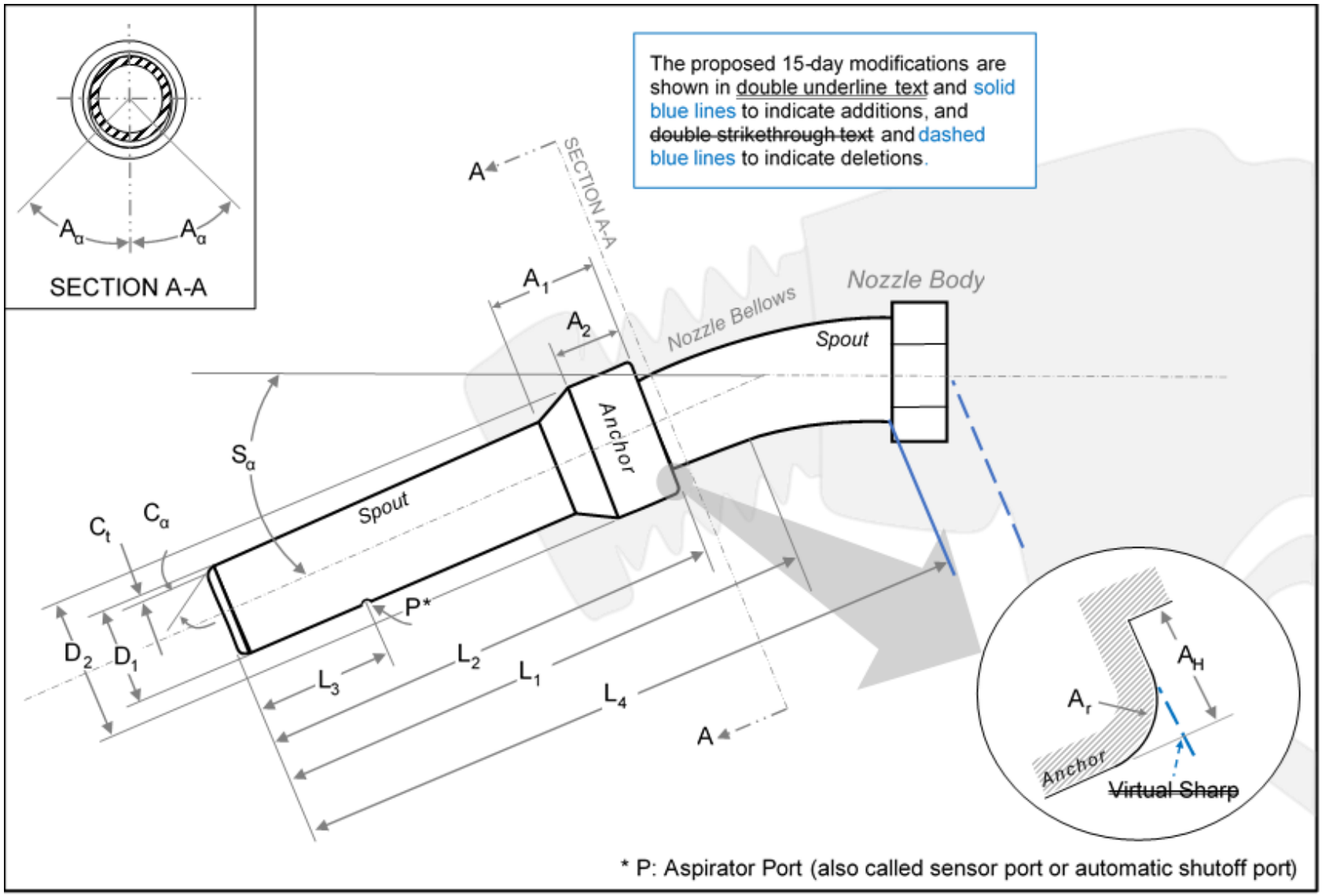
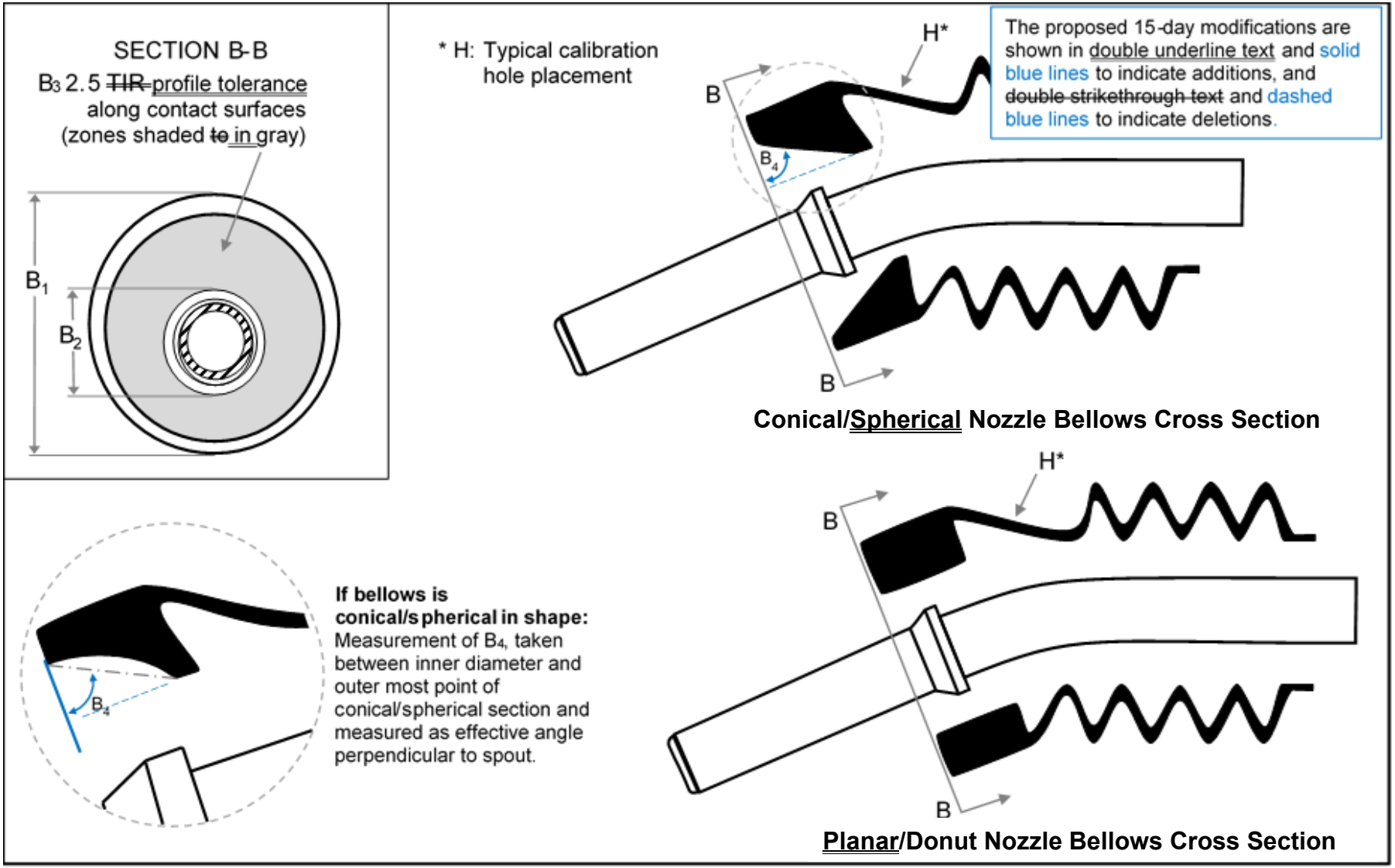


Figure 5B
Phase II Nozzle Bellows Dimensions as Specified by Table 5-2



5.7.4 If a Phase II EVR nozzle spout's bend angle is outside of the range specified in Table 5-2 (S_α of 19.5° to 26.0°), the nozzle spout assembly and body must be able to be inserted within the vehicle fill pipe access zone defined by the following geometries.

(a) Zone construction of fill pipe access zone (Figure 5C).

(b) A fill pipe face that is flat within 0.25 mm profile tolerance and has a smooth surface against which a Phase II EVR nozzle can affect a vapor-tight seal.

(c) The fill pipe and all surrounding bumpers, body parts, and factory-installed accessories designed and fabricated so that the fill pipe access zone allows for insertion of a Phase II EVR nozzle in at least one orientation within ±15 degrees swing of the upright or vertical position. It is recommended that the zone be based on the vertical since this is the primary customer filling position.

(d) Allowance must be made for production tolerances as these are not included in the access zone.

(e) The access zone consists of three parts as follows:

(1) A bellows interface zone with a fixed circular shaped cross section that is fixed relative to the sealing surface of the fill pipe and designed to accommodate the sealing portion of a Phase II EVR nozzle. Additional clearance for the Phase II EVR nozzle is prescribed per Figure 5D from the seal surface of the nozzle and pipe, a clearance inward of the pipe to a depth of 12 mm along a 40° cone to the seal surface of the fill pipe.

(2) A nozzle swing zone with a rectangular cross-section tapered at the bottom that accommodates the handle portion of a nozzle. This zone is the portion shown on Figure 5C, within the lines defined by points C, D, E, F, and G.

(3) A transition zone consisting of a smooth blend from the rectangular nozzle swing zone to the circular bellows zone. The top of this transition zone is the line G-H in Figure 5C and the bottom of this zone is Line A-C.

(f) Zone construction of fill pipe latching templates (Figure 5E). The templates shown in Figure 5E are for usage with nozzle insertion clearance review. There are nozzle resting and nozzle insertion position templates.

(1) The nozzle resting position template simulates a vehicle fill pipe with a minimum height locking lip, minimum depth locking lip, and a centered pipe expansion. A cross-

section and face view are shown with appropriate dimensions to simulate the worst case lower handle position when the nozzle anchor is placed into the latched position and nozzle spout end is installed into the centered expansion inner diameter.

(2) The nozzle insertion position template simulates a vehicle fill pipe with a maximum height locking lip, maximum latching lip depth and a maximum pipe inner diameter. A cross-section and face view are shown with appropriate dimensions to simulate the worst case upper nozzle swing position when the nozzle anchor is resting on the latching lip and nozzle spout end contacts fill pipe interior diameter.

(g) Zone placement (Figures 5F and 5G).

(1) For usage in vehicle clearance, align the centerline of the bellows interface zone with the centerline of the fill pipe-sealing surface. See Figure 5F for example.

(2) For usage with nozzle insertion clearance, the following steps apply:

(i) Align the centerline of the bellows interface zone with the centerline of the nozzle resting position template.

(ii) Superimpose the nozzle design into the model, positioning the nozzle spout into a resting position as shown in Figure 5G. No sections of nozzle can encroach the boundaries of the zone. Design should be reviewed with bellows compressed to seal surface of template.

(iii) Align the centerline of the bellows interface zone with the centerline of the nozzle insertion position template.

(iv) Superimpose the nozzle design into the model, positioning the nozzle spout into an insertion position as shown in Figure 5G. No sections of nozzle can encroach the boundaries of the zone. Design should be reviewed with bellows compressed to seal surface of template.

5.7.~~1~~5 Additional nozzle criteria are contained in Sections 6 and 7.

5.7.~~1~~6 Use of a nozzle certified per CP-201 shall be deemed to satisfy the requirements of Section 5.7.

Figure 5C
Fill Pipe Access Zone for Comparison to Nozzles with Spout Angles Outside of the Range Specified in Table 5-2 (S_α of 19.5° to 26.0°)

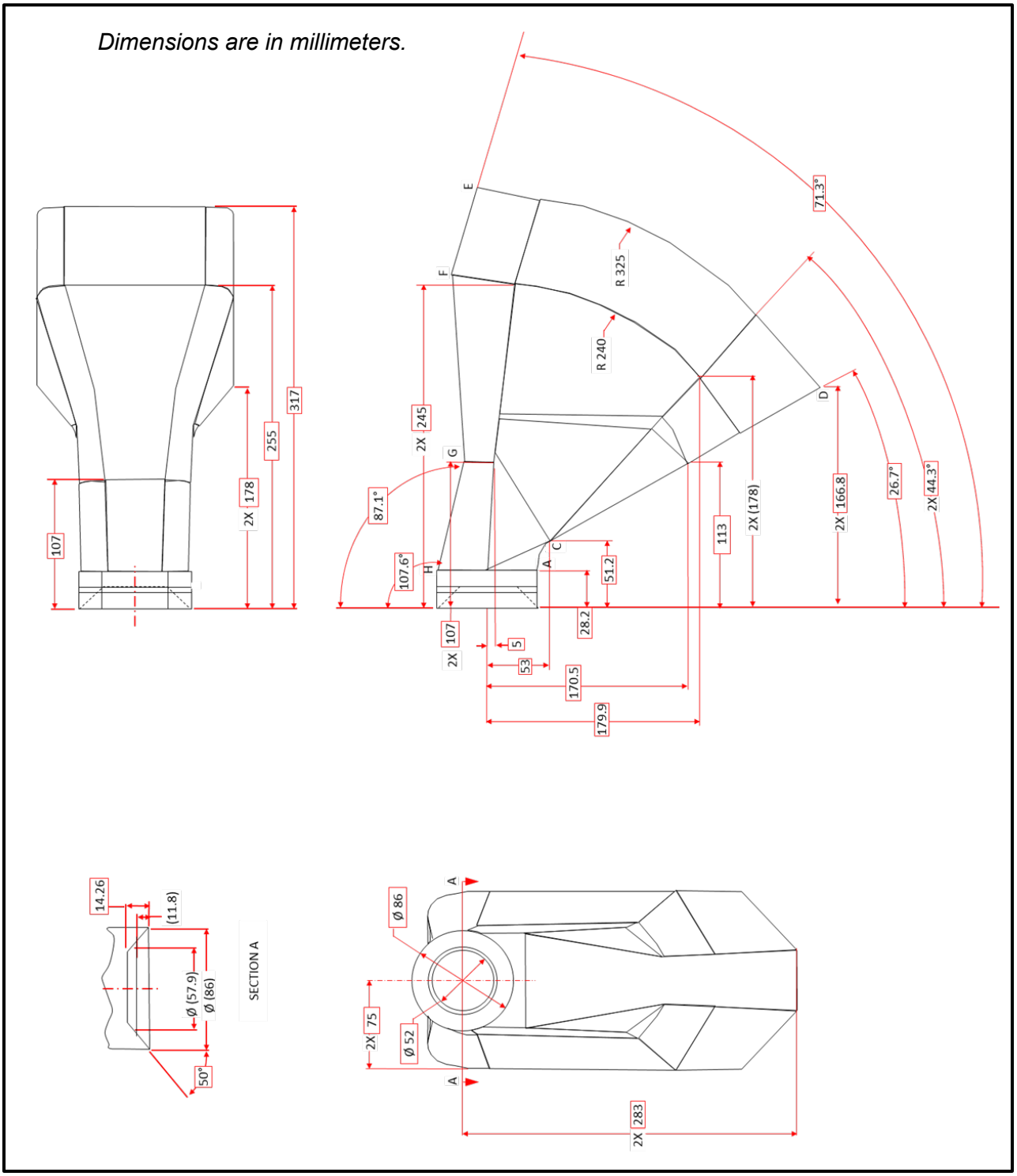
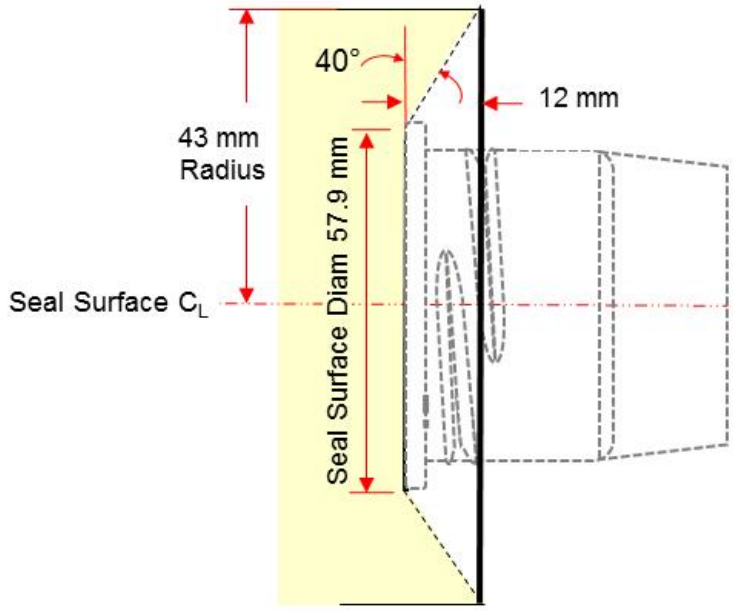


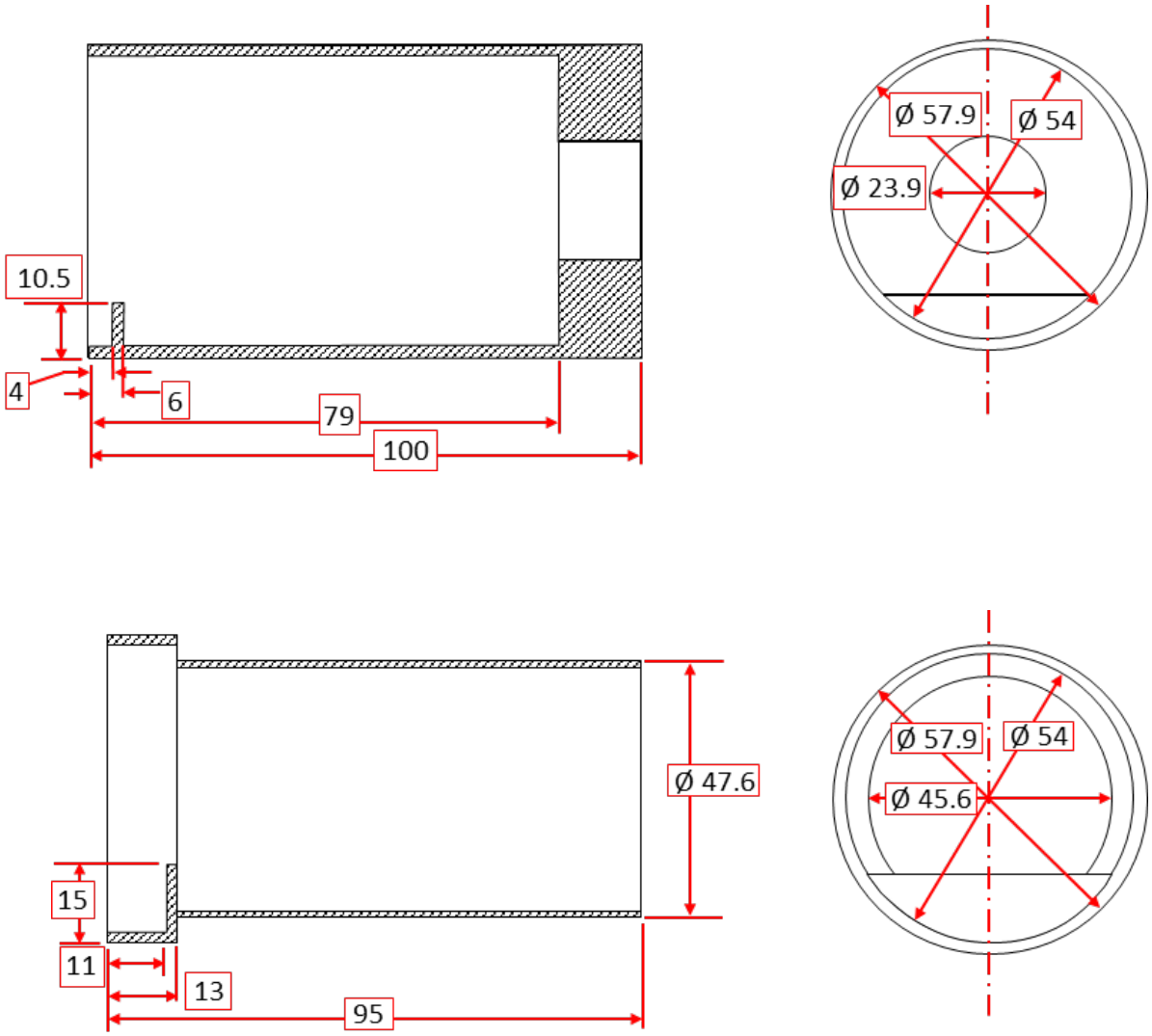
Figure 5D
Fill Pipe Access Zone for Comparison to Nozzles with Spout Angles Outside of the Range Specified in Table 5-2 (S_α of 19.5° to 26.0°)



Dimensions are in millimeters.

Figure 5E
Fill Pipe Latching Templates for Comparison to Nozzles with Spout Angles Outside of the Range Specified in Table 5-2 (S_α of 19.5° to 26.0°)

A. Nozzle Resting Position Template



Dimensions are in millimeters.

Figure 5F
Zone Placement for Vehicle Usage for Comparison to Nozzles with Spout Angles Outside of the Range Specified in Table 5-2 (S_α of 19.5° to 26.0°)

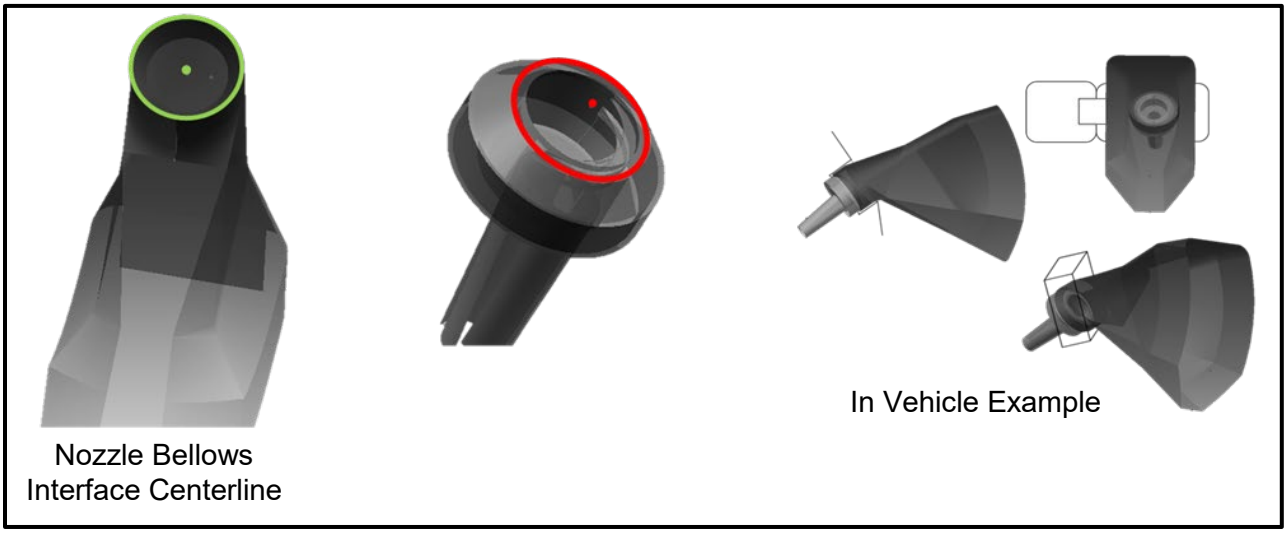
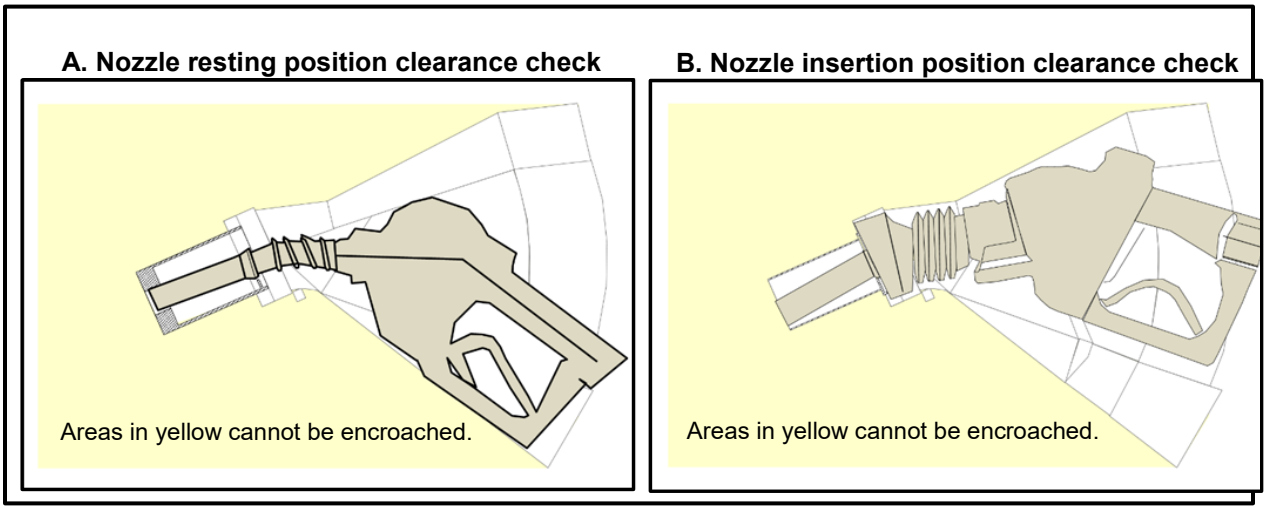


Figure 5G
Nozzle Vehicle Clearance for Comparison to Nozzles with Spout Angles Outside of the Range Specified in Table 5-2 (S_α of 19.5° to 26.0°)



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5.11 Coaxial Hose Routing Configurations

The routing of coaxial hoses shall be consistent with the configurations outlined in Figure 5~~A~~CH (top-mount dispenser), Figure 5~~B~~DI (end-mount dispenser), and Figure 5~~C~~EJ (ground-mounted dispenser with high-hang hose). A liquid removal system is not required if gasoline within the vapor passage of the coaxial hose can be cleared through natural drainage into the vehicle. In the case of top-mounted, side-mounted, and ground-mounted dispensers, natural drainage will be determined at a distance of 24 inches and a height of 30 inches from the outside plane of the dispenser.

Figure 5~~A~~CH
Top Mount Dispenser for Aboveground Tank
with Phase II Vapor Recovery System

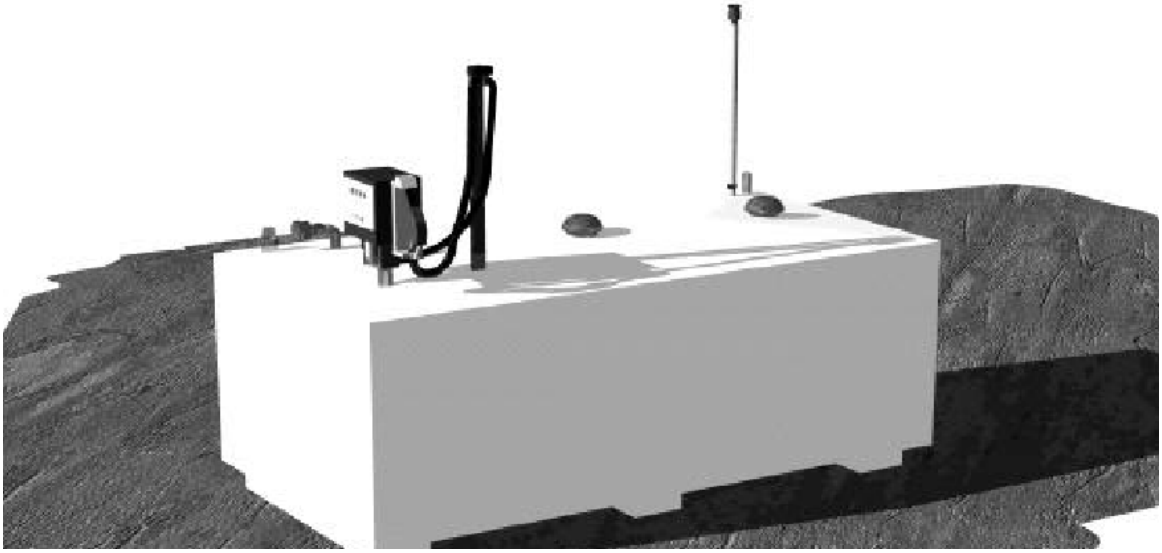

Figure 5~~B~~DI
End-Mount Dispenser for Aboveground Tank
with Phase II Vapor Recovery System

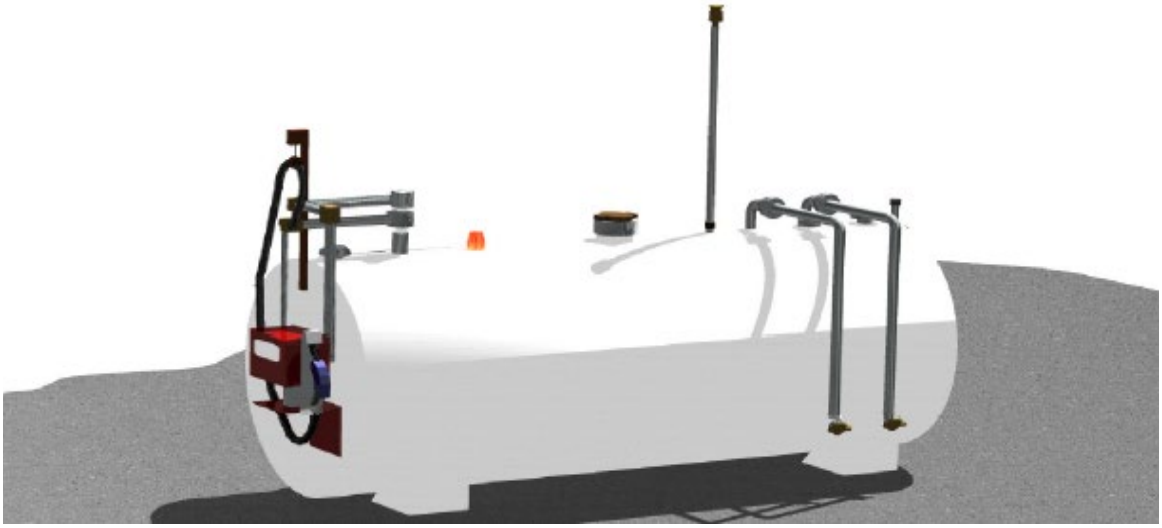

Figure 5~~C~~EJ
Tank with Ground-Mount Dispenser and High-Hang Hose
for Aboveground Storage Tank with
Phase II Vapor Recovery System