



Dye Test Procedure; Fuel System Leak Check - Common Rail Fuel System - US17+OBD16 And Newer Emissions, Common Model Year 2018 And Newer



> Internal Content

****READ FIRST:** The presence of any of the DTCs listed below in active status will cause an exception in PTT and not allow the test to run. **This article is not a diagnostic procedure for electrical codes.**

DTC	Description
P0259	Injection Pump Fuel Metering Control "B" High
P0256	Injection Pump Fuel Metering Control B
P2A16	Injection Pump Fuel Metering Control "D" (Cam/Rotor/Injector)
P2A19	Injection Pump Fuel Metering Control "D" High (Cam/Rotor/Injector)
P2A1E	Injection Pump Fuel Metering Control "F" (Cam/Rotor/Injector)
P2A21	Injection Pump Fuel Metering Control "F" High (Cam/Rotor/Injector)
P009D	Fuel Pressure Relief Control Circuit High
P009C	Fuel Pressure Relief Control Circuit Low
P009B	Fuel Pressure Relief Control
P0191	Fuel Rail Pressure Sensor Circuit Range/Performance Bank 1
P0192	Fuel Rail Pressure Sensor Circuit Low Bank 1
P0190	Fuel Rail Pressure Sensor Bank 1

For the Common Rail, Fuel Leak Test and Fuel Leak Test Valve Cover Removed, test procedures refer to [Impact](#) under function group 237.

Tags

- k12213022 p0256-14 p0259-00 p2a16-14
- p2a19-00 p2a1e-14 p2a21-00 leak check
- p025614 p025900 p2a1614 p2a1900
- p2a1e14 p2a2100 dye test common rail
- fuel leak volvo mack

Live UI

Related links and attachments

No links or attachments available



Feedback

[Give feedback](#)

to help improve the content of this article

23051-2 Common Rail, Fuel Leak Test



Illustrations may differ slightly from the actual vehicle being serviced. However, key components addressed in this information are represented as accurately as possible.



All threaded fasteners that do not have a tightening torque specification in the information are tightened to a standard torque. Standard torques are available in the following specification. ➔ [Standard Tightening Torques](#)



WARNING

Hot engine warning.

A hot engine and / or fluids can cause burns or can permanently damage test equipment.

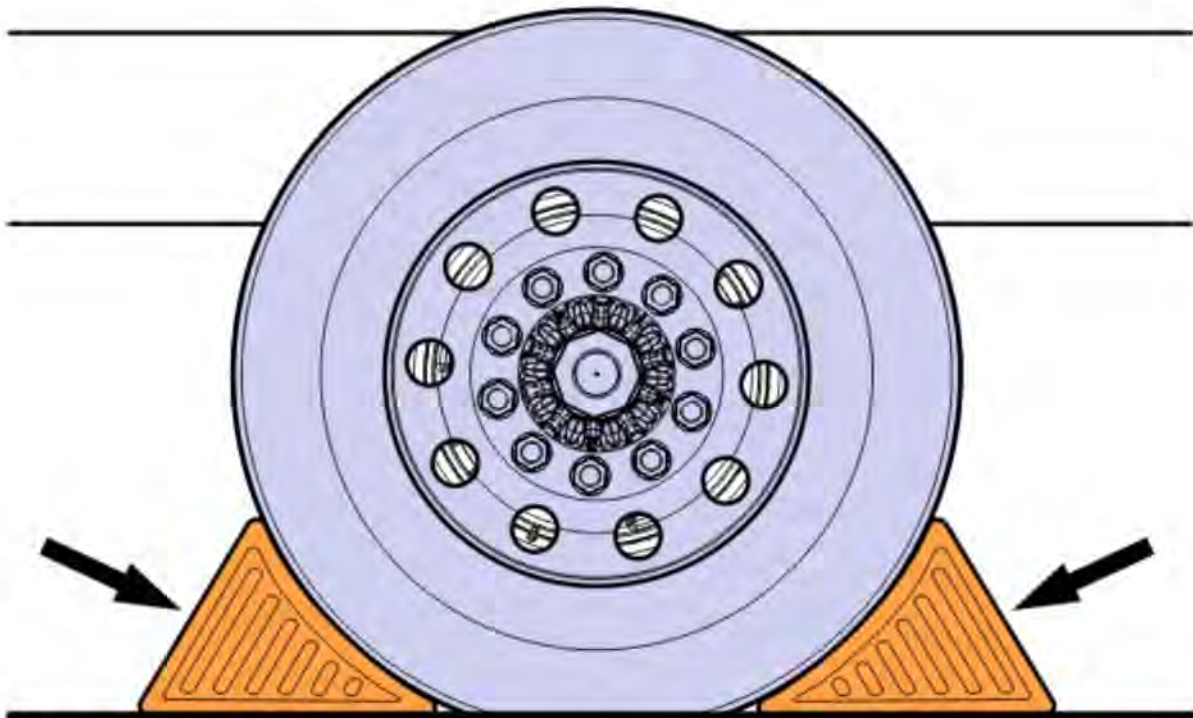
- ▶ Keep yourself and your test equipment clear of all moving parts or hot engine parts and / or fluids.

Special tools

[88800632](#)

[9998313](#)

- 1 Install the wheel chocks.



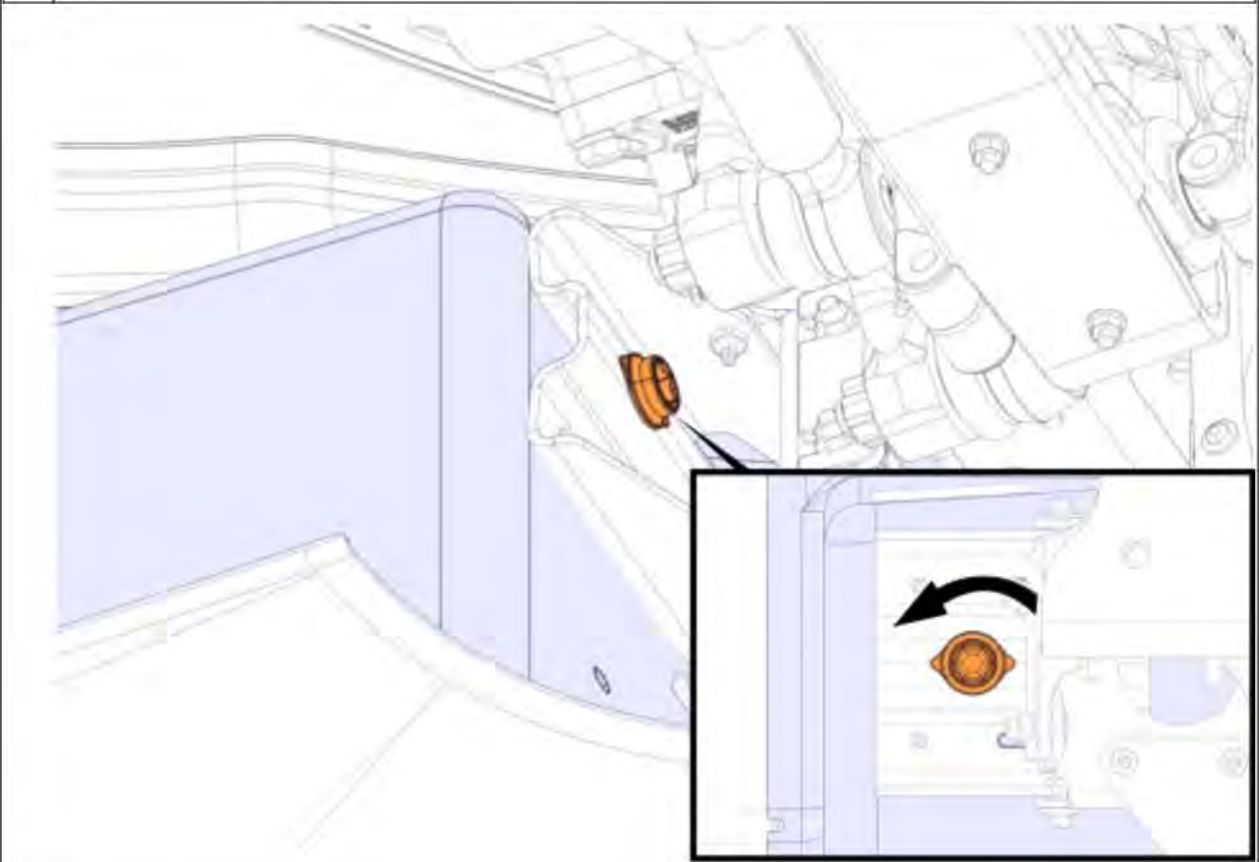
- 2 Unlatch and raise the hood.

3 Perform this procedure when the condition below is met.

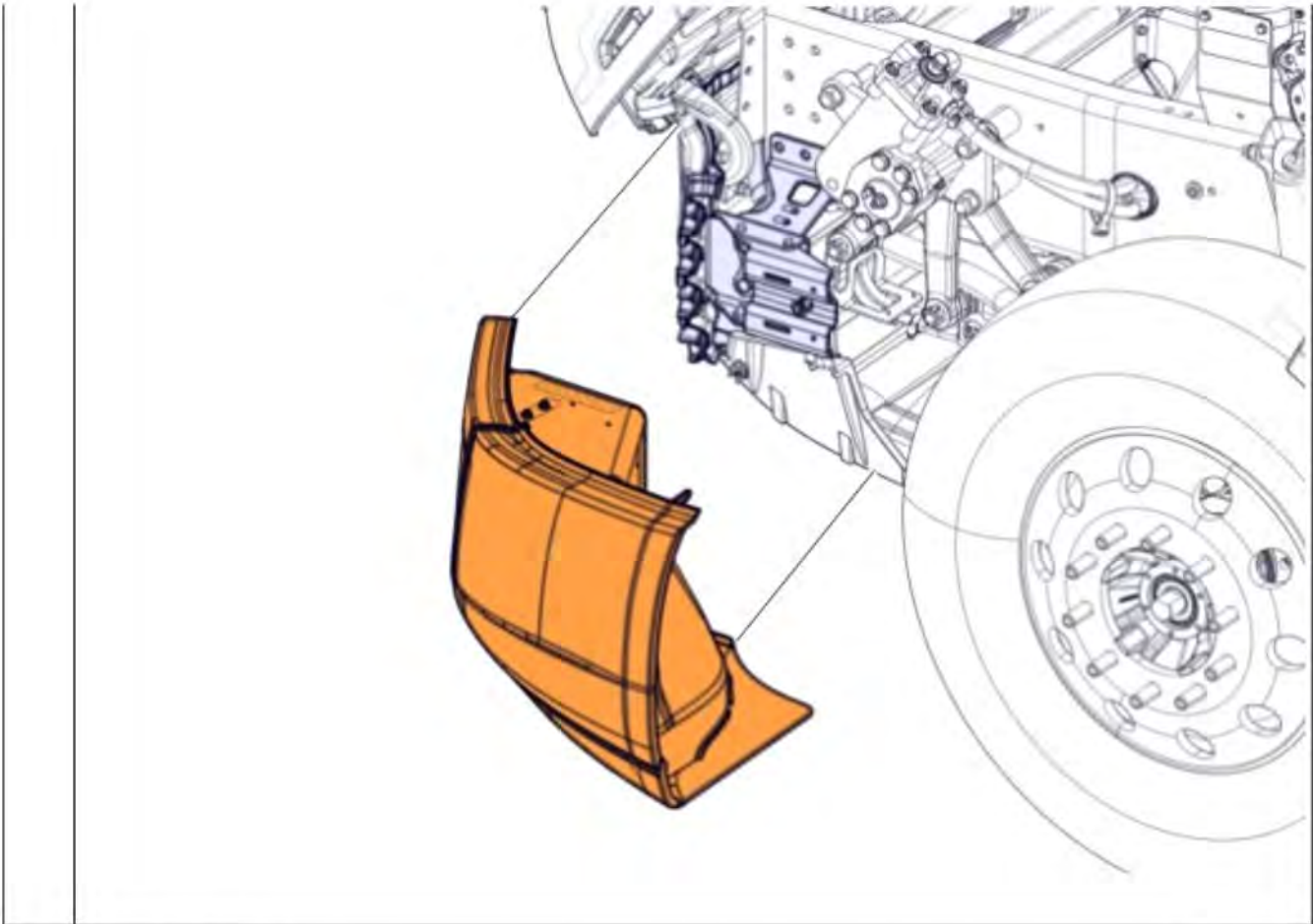
Conditions

- If the vehicle is equipped with a removable end cap.

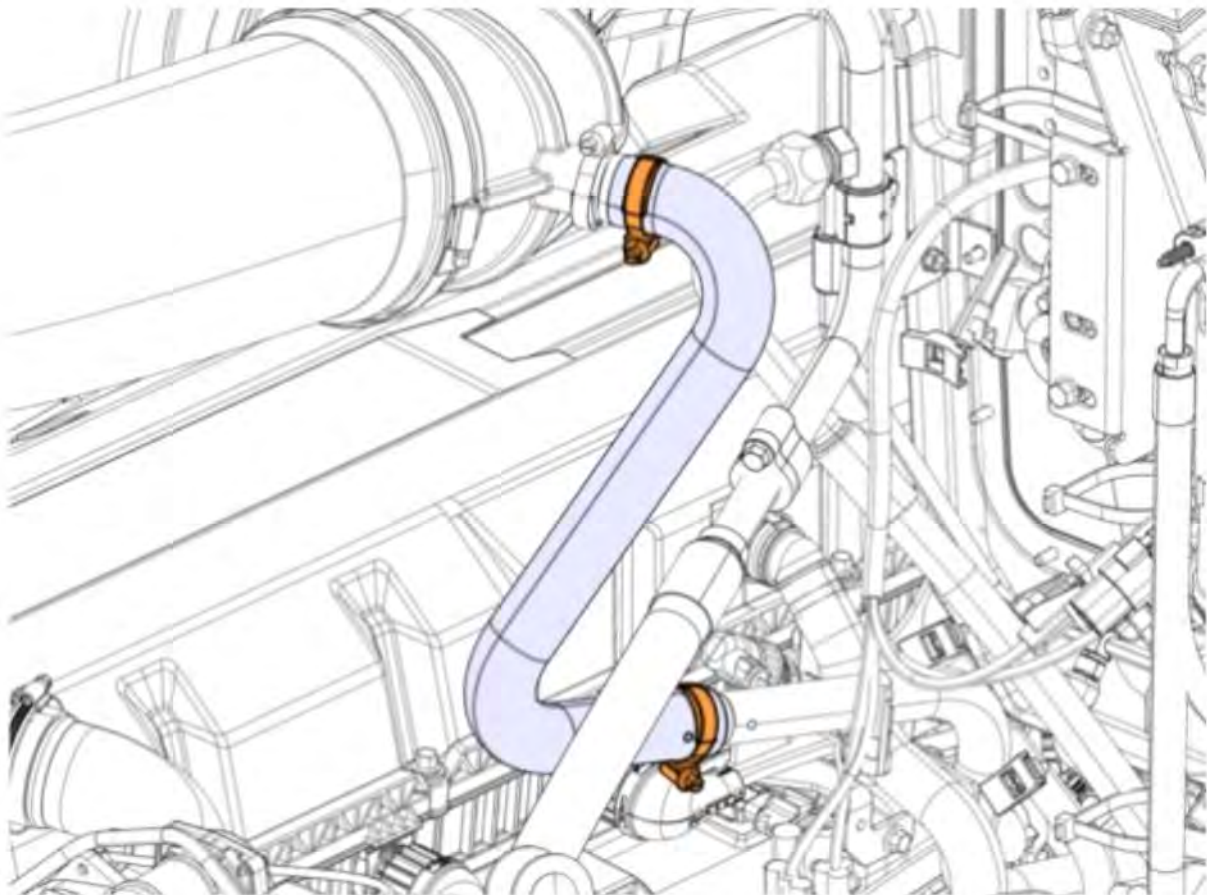
▶ Unlatch the end cap.



▶ Remove the end cap.



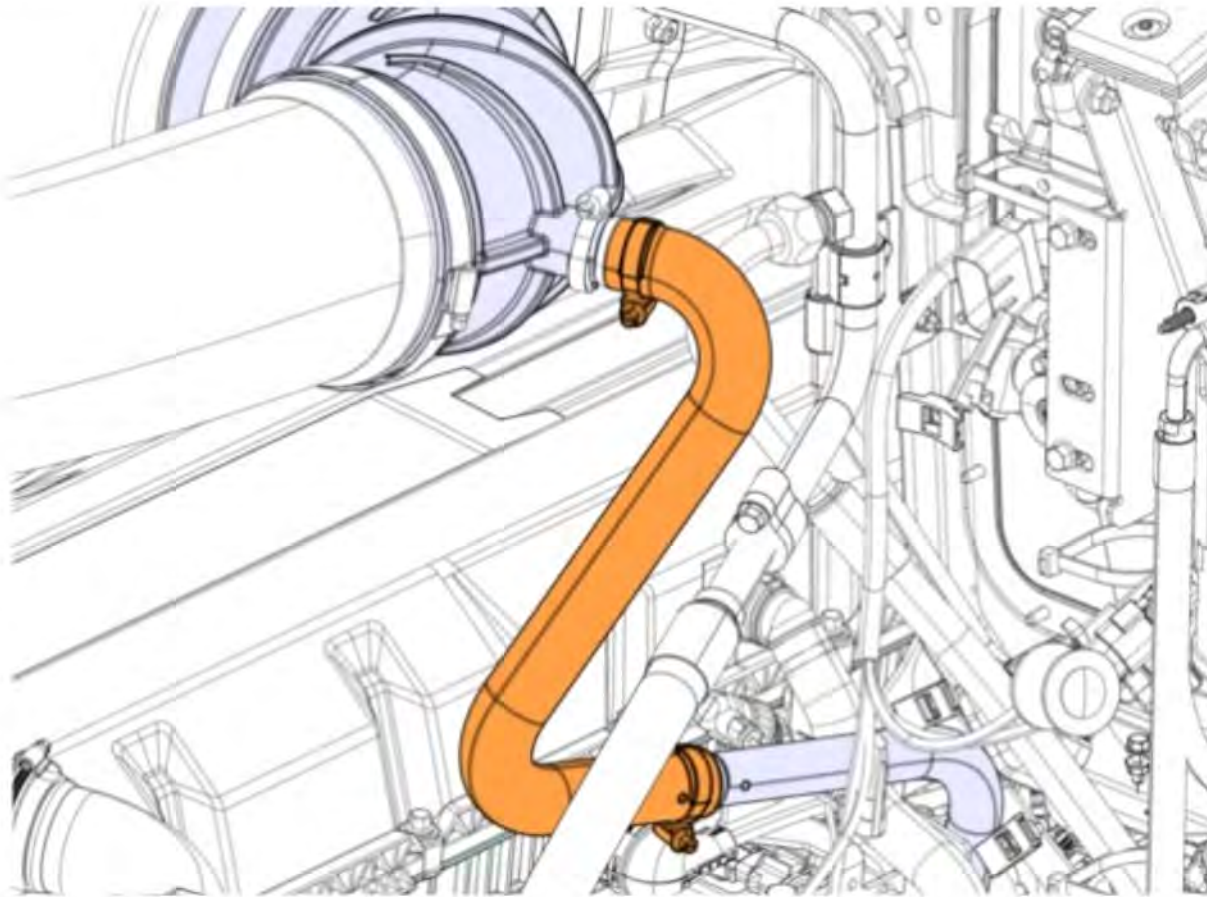
4 Loosen the clamps.



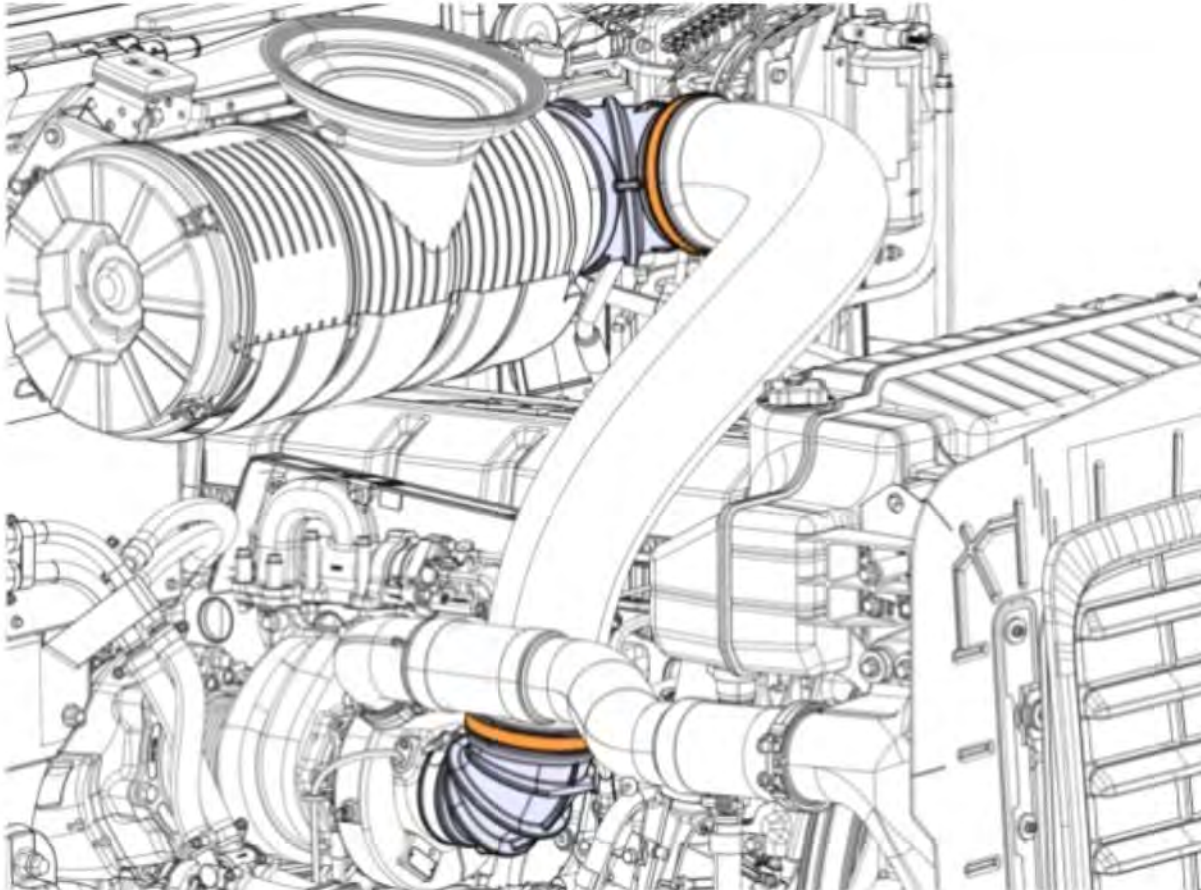
5 Remove the hose.

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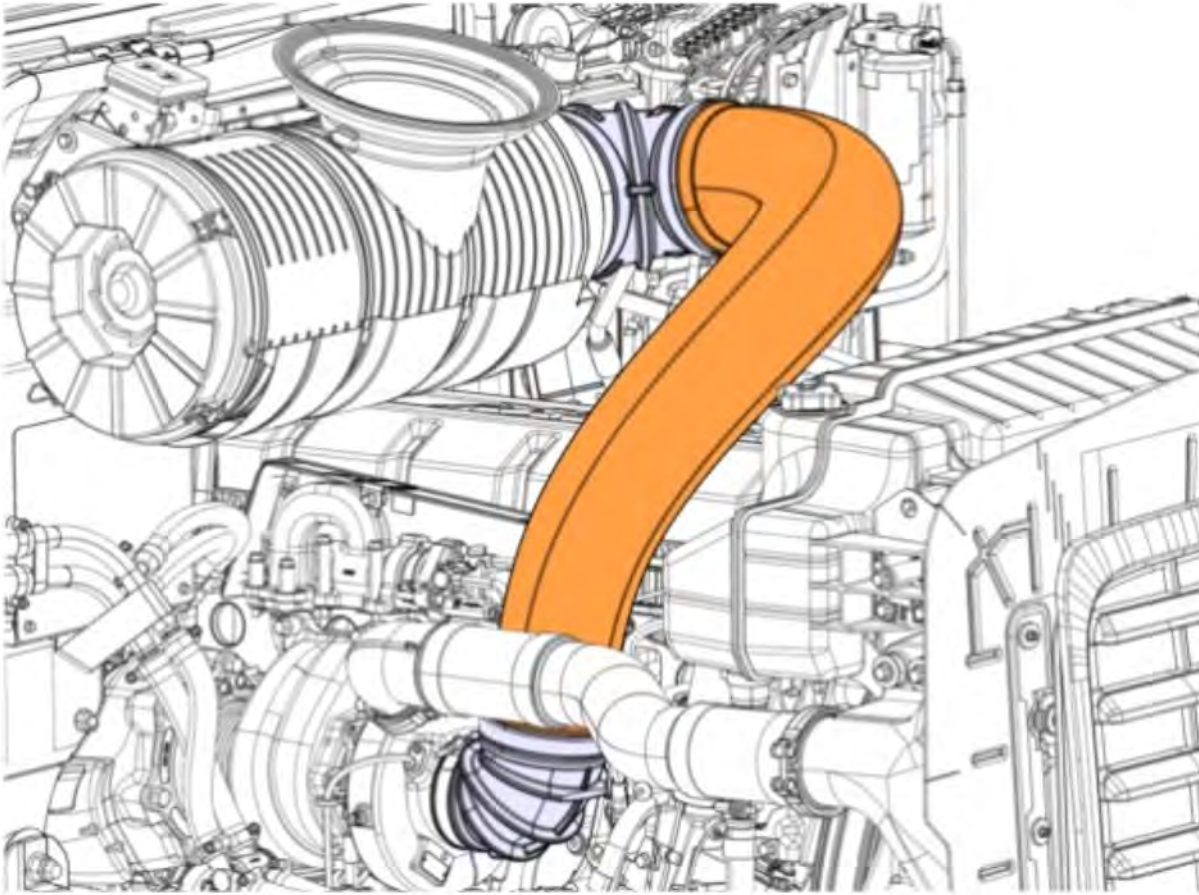
6	Loosen the clamps.
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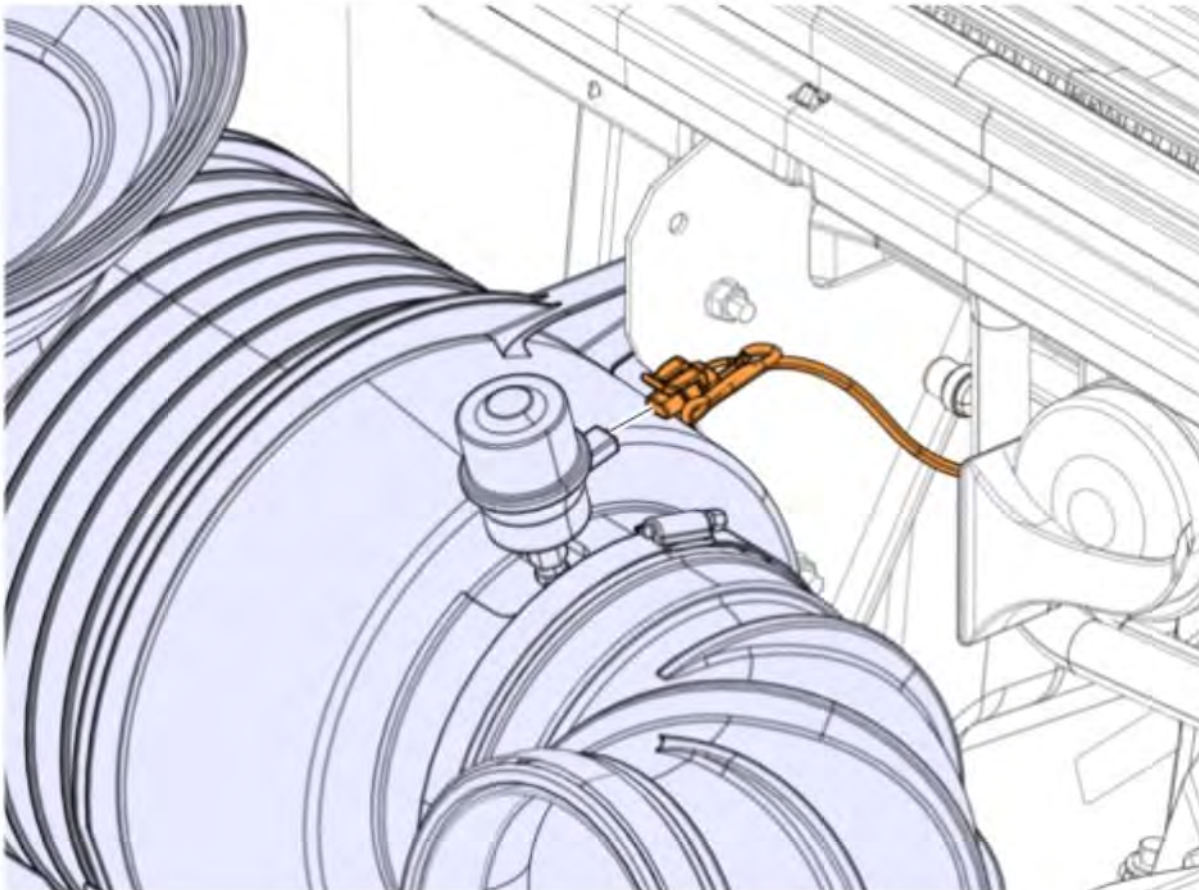
7	Remove the duct.
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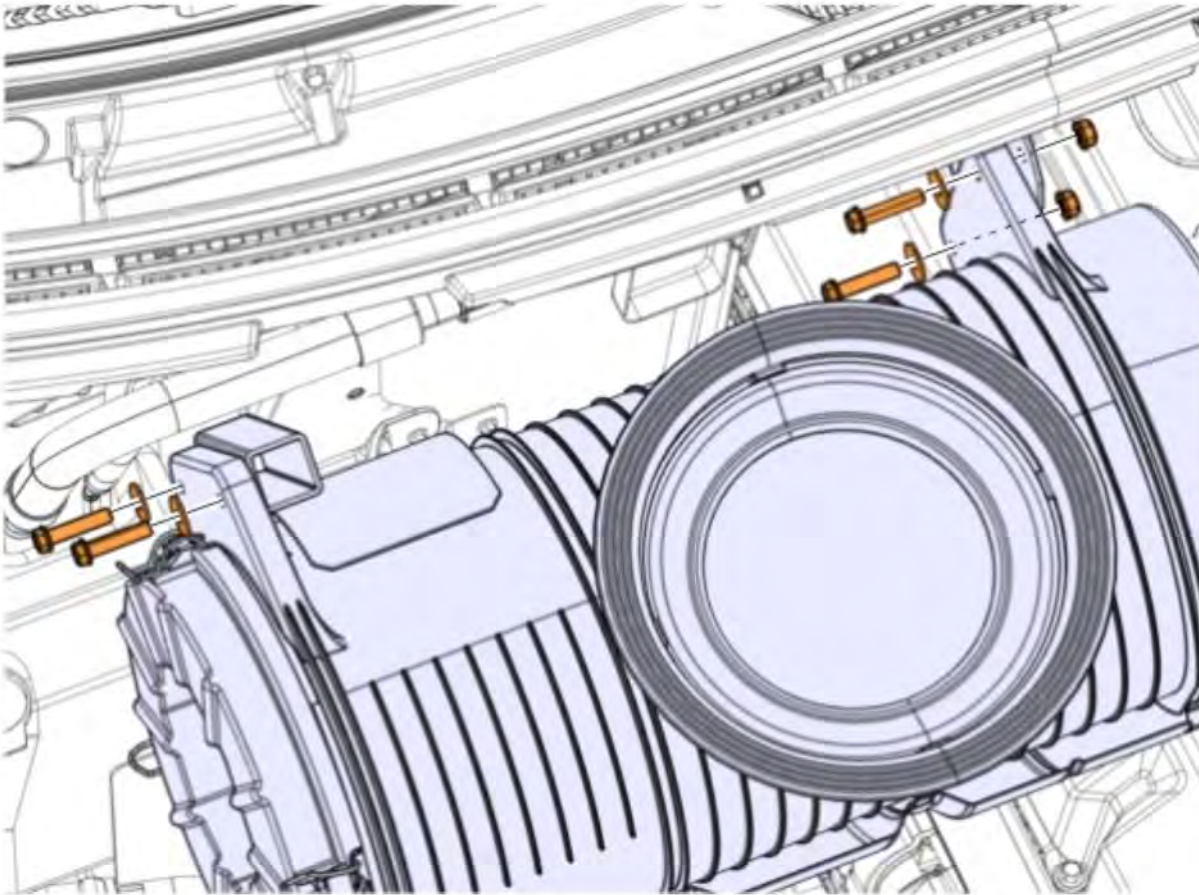
8	Disconnect the connector.
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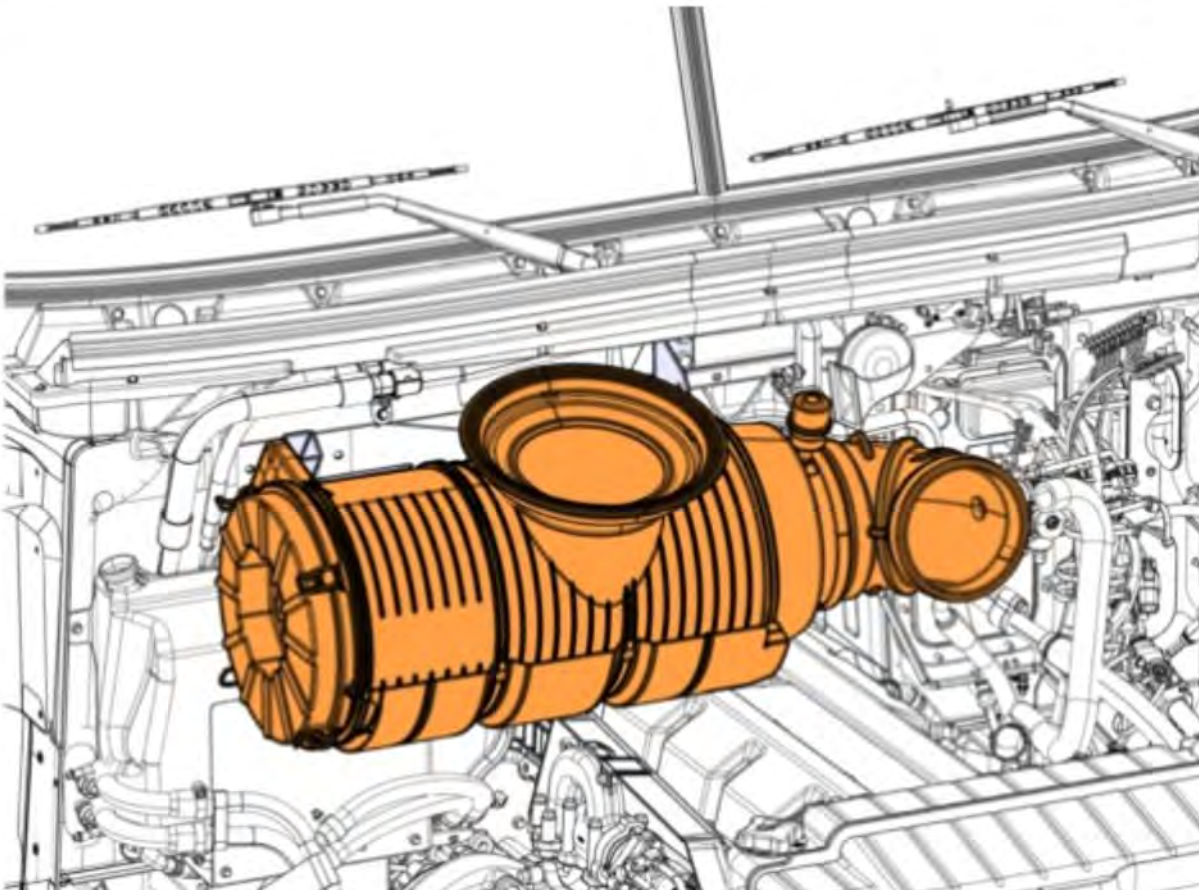
9	Remove the screws and nuts.
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10 Remove the housing.



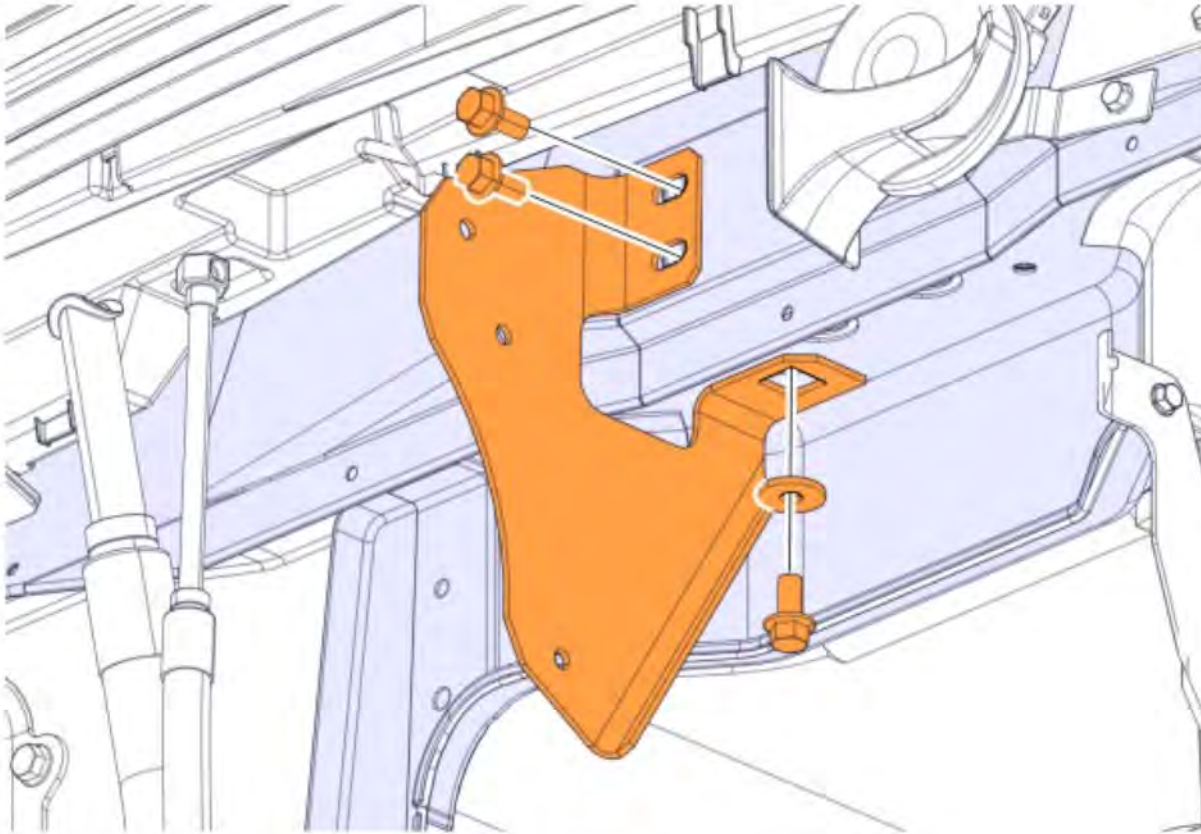
11 Remove the screws.

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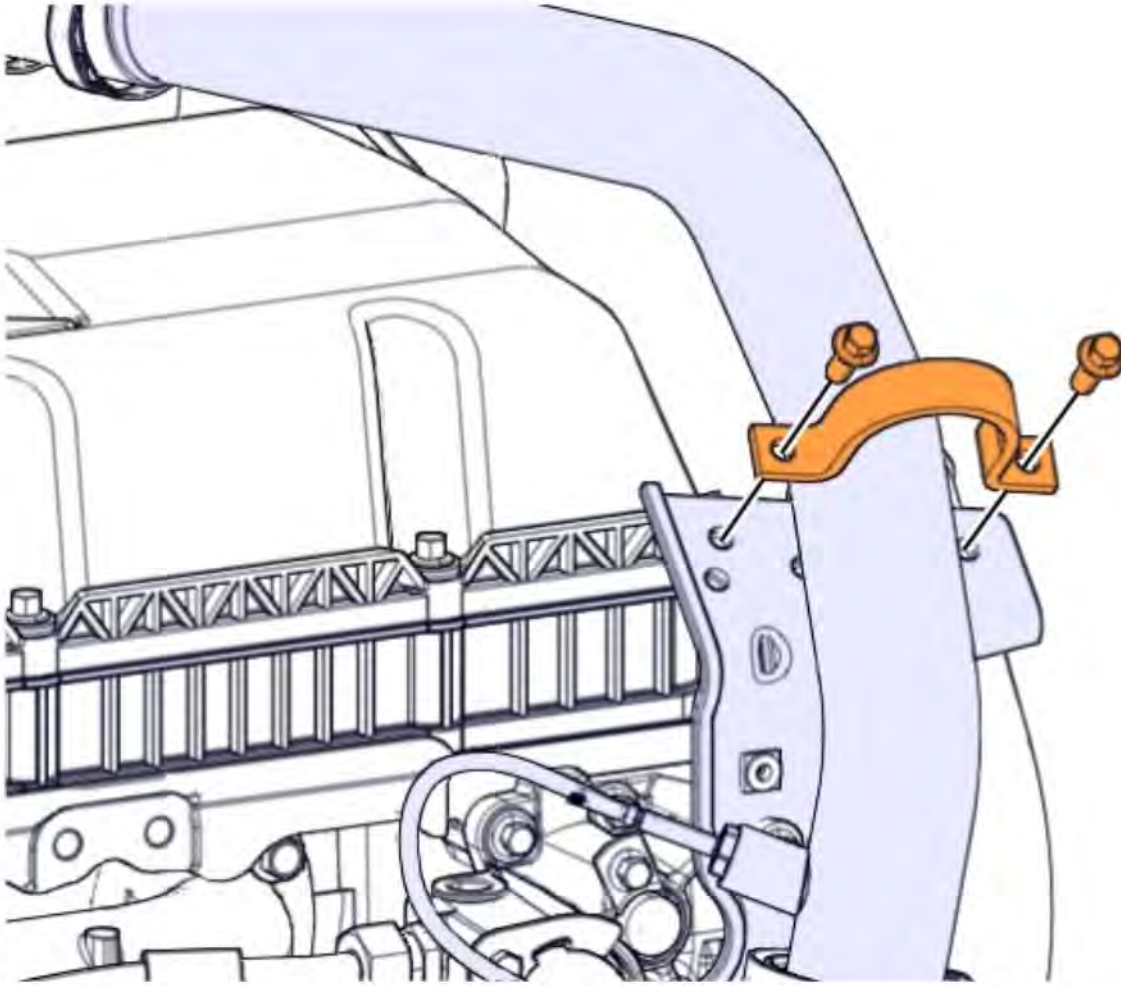
12	Remove the washer.
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13	Remove the bracket.
----	---------------------

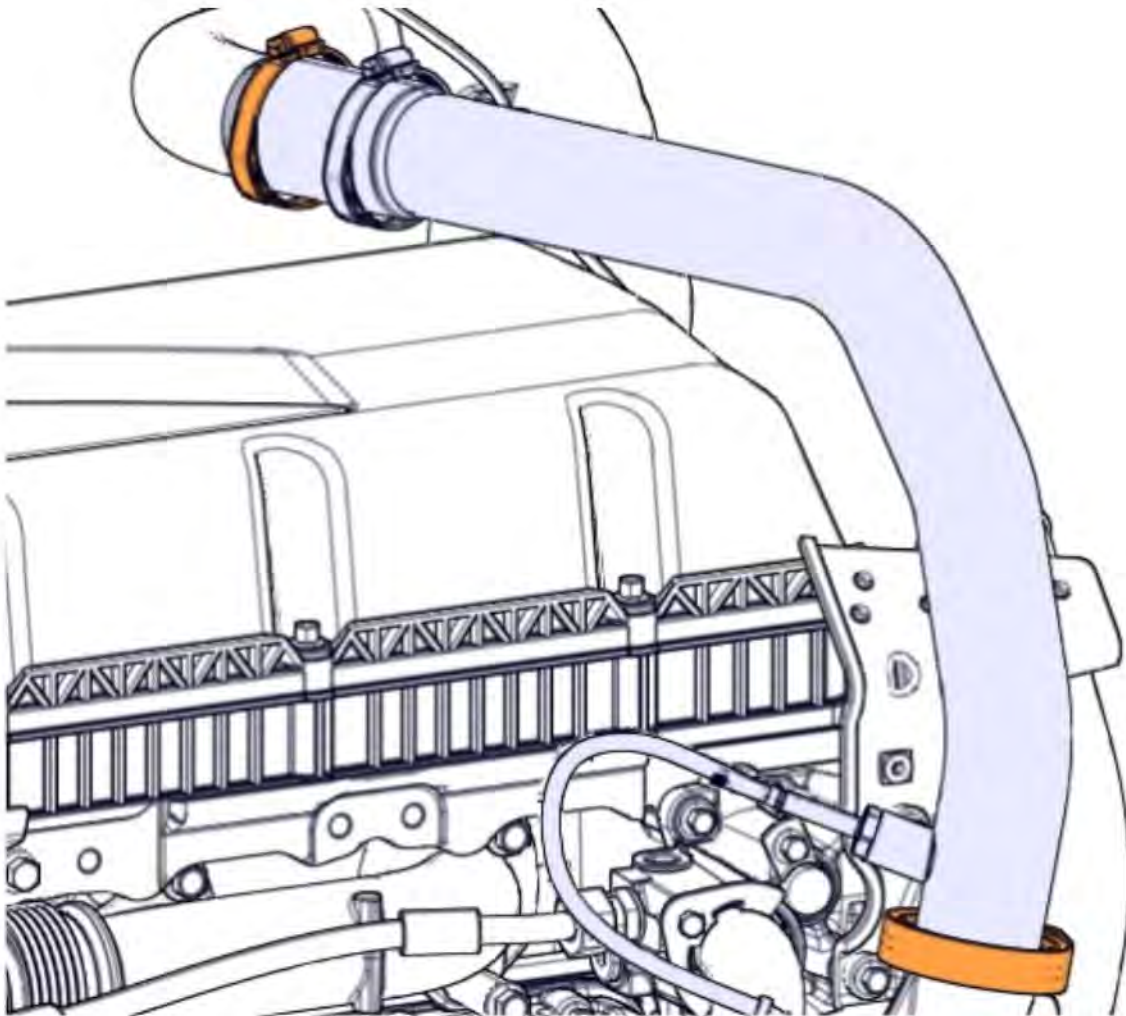


14	Remove the screws.
----	--------------------

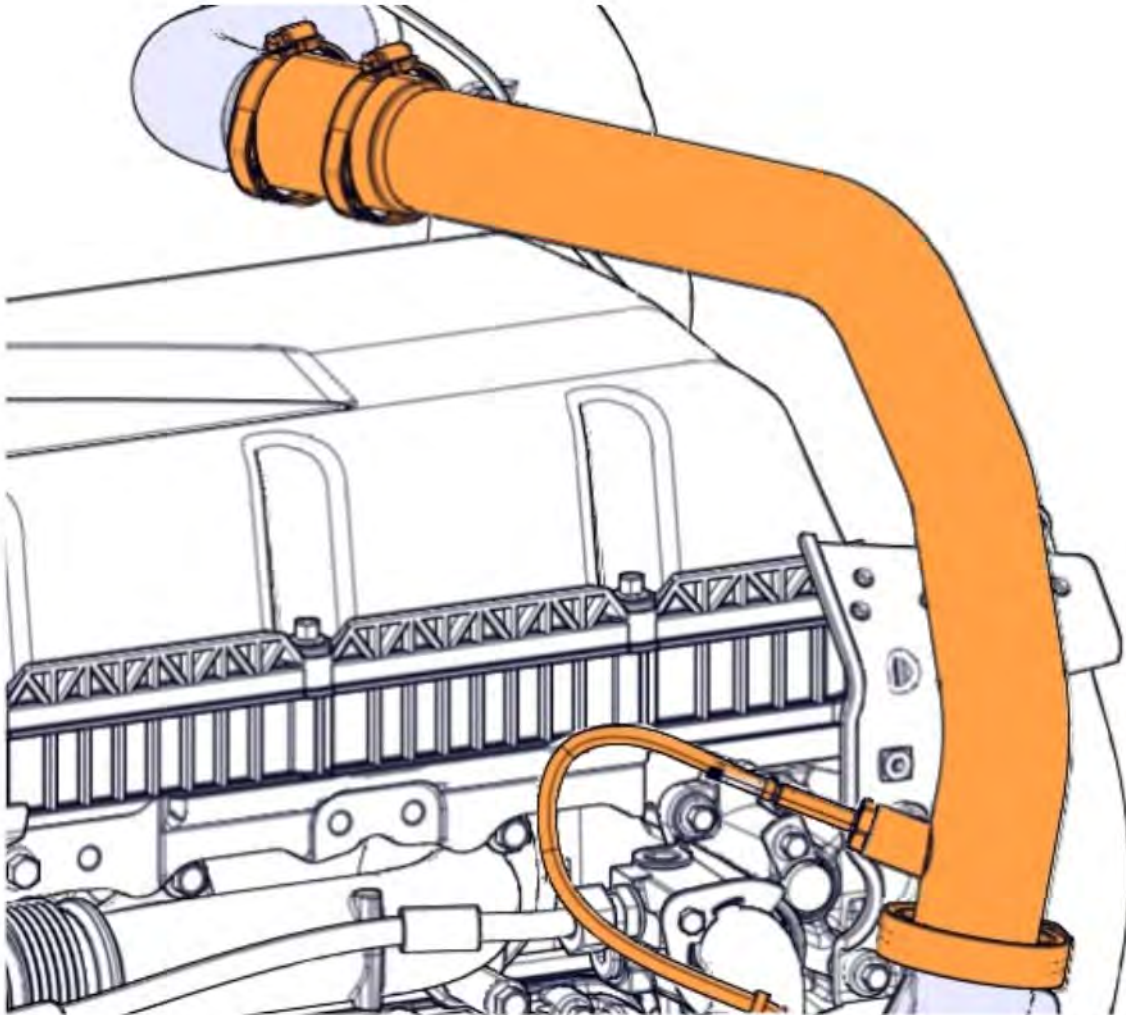
15	Remove the bracket.
----	---------------------



16	Loosen the clamps.
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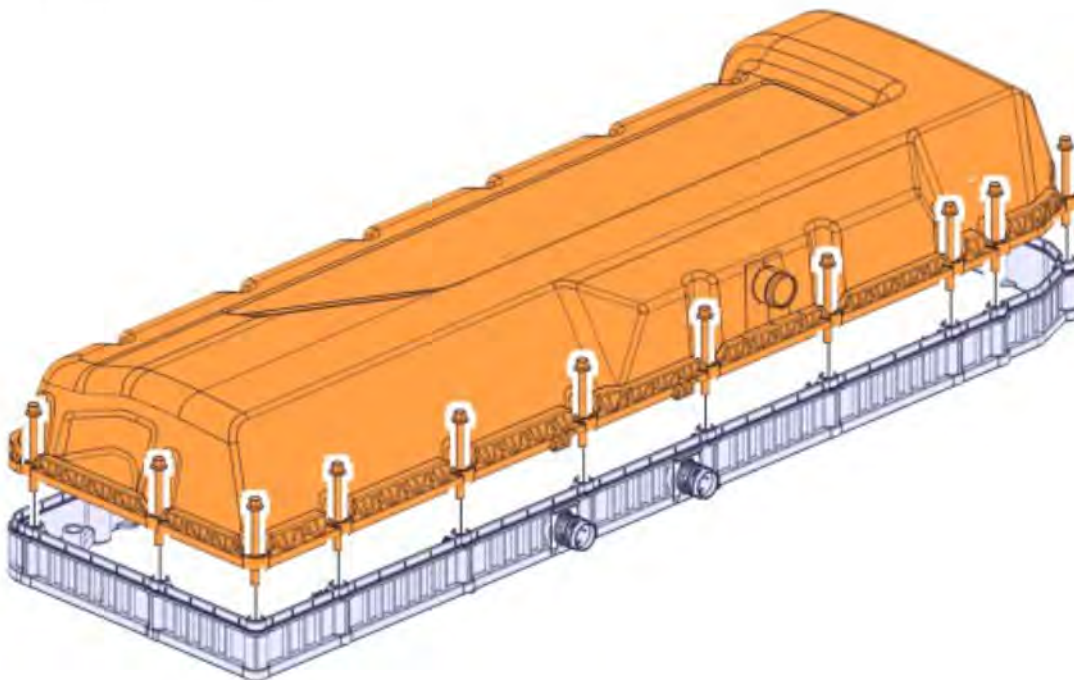


17	Remove the pipe.
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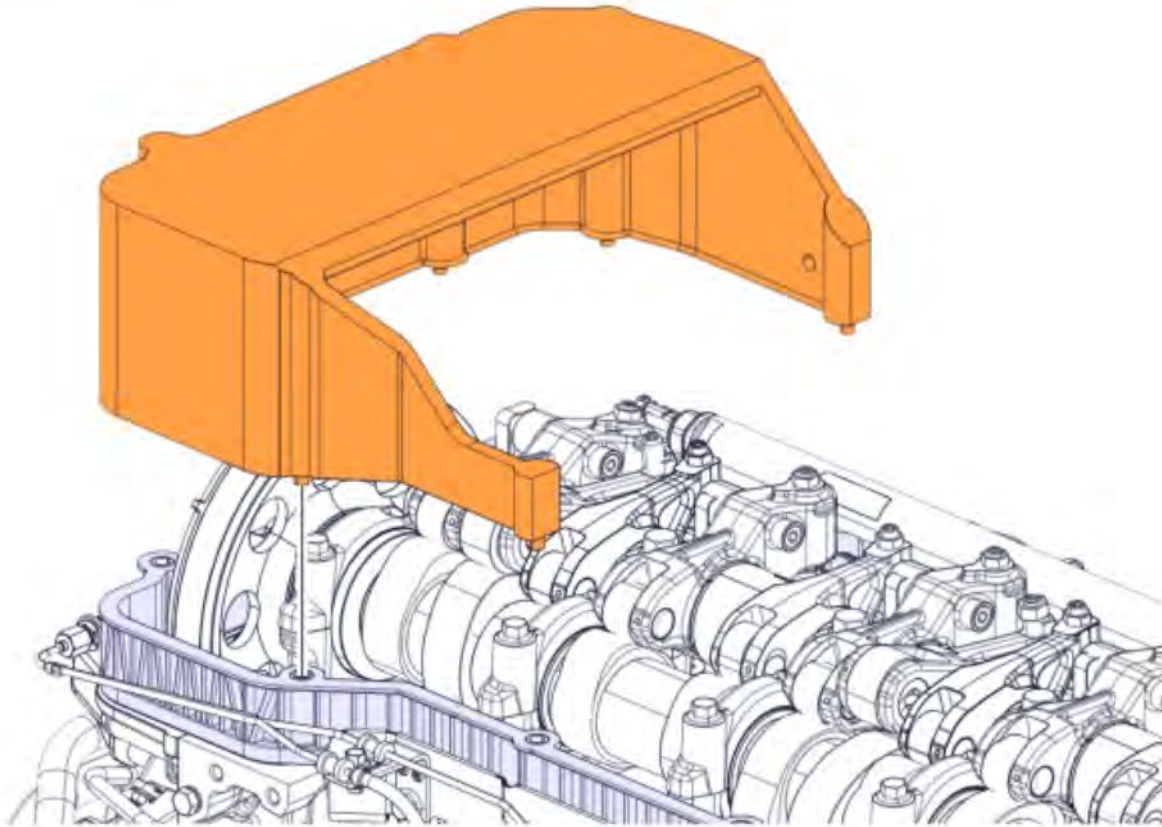
18	Remove the screws.
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19	Remove the valve cover.
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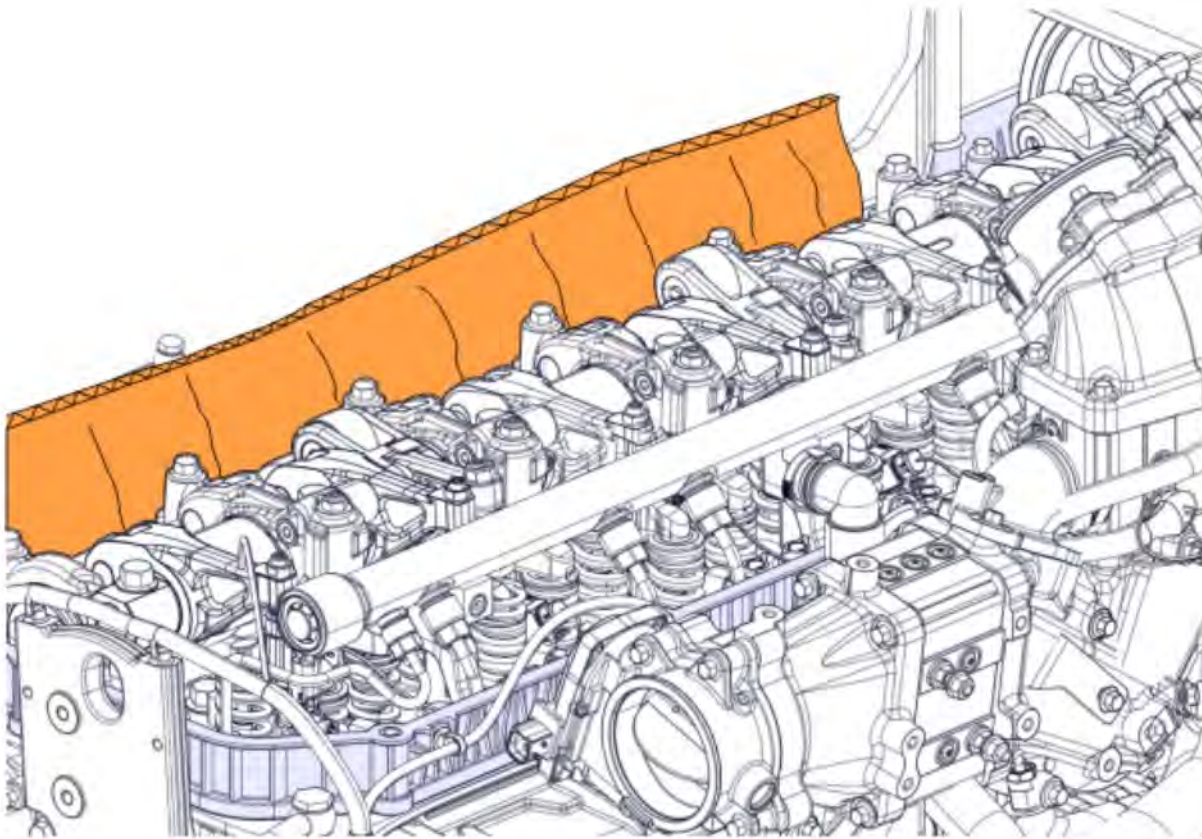


20	Install the splash shield.
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Required material	
SPLASH SHIELD	88800632



21	Install a protecting cover.
	Note The protecting cover is not supplied.

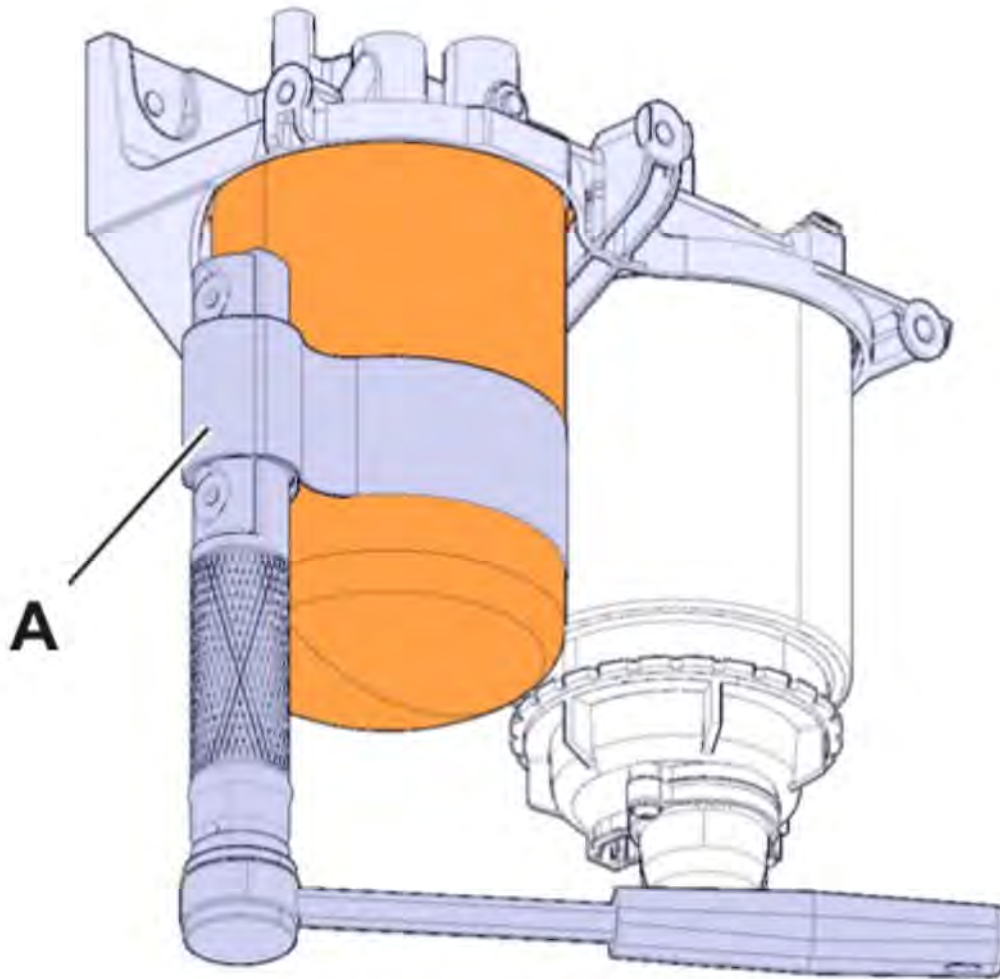


22	Start the engine and let it idle until the coolant reaches the following temperature.	
	Tech data	
	Coolant, temperature	≥75 °C (≥167 °F)

23	Stop the engine.
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24	Remove the secondary fuel filter.	
	i	Note Use caution not to damage the fuel filter.

25	Use the tool (A).	
	Required material	
	FILTER SPANNER	9998313





26	Drain a small amount of fuel from the filter.
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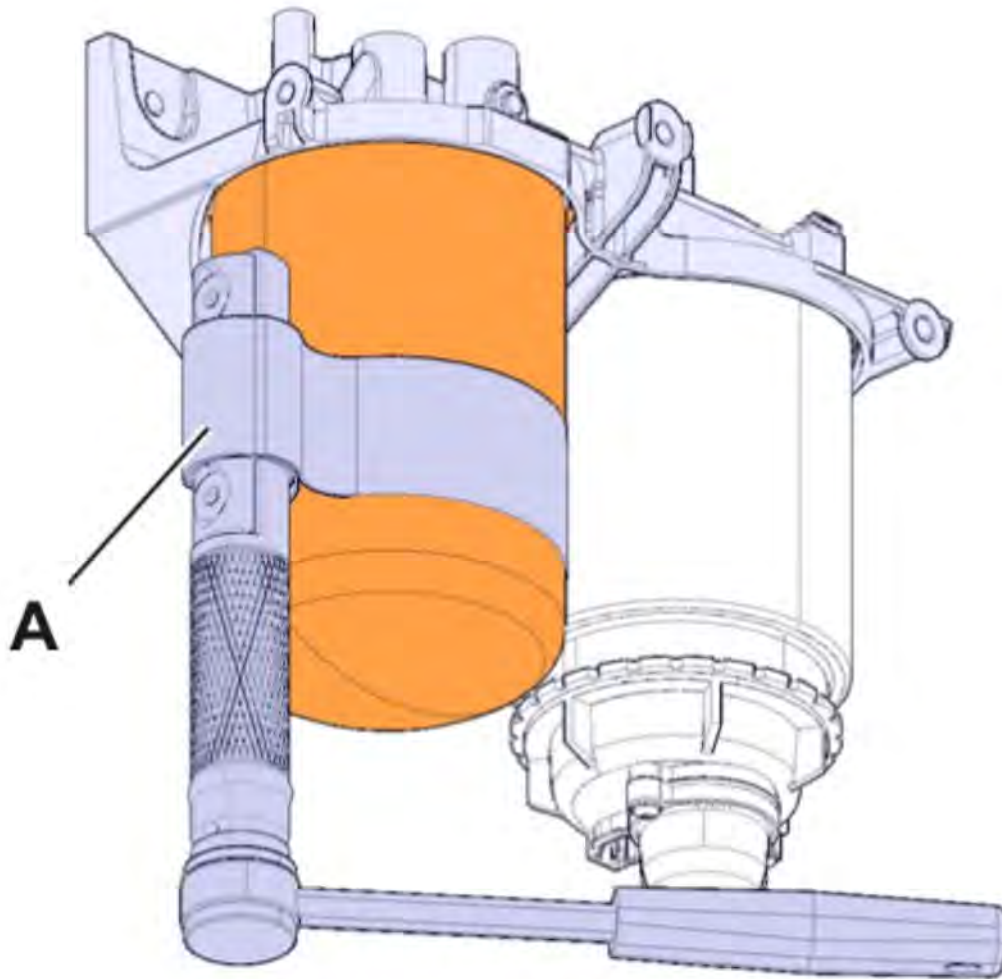
27	Add recommended diesel fuel compatible dye to the secondary fuel filter.
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**Note**

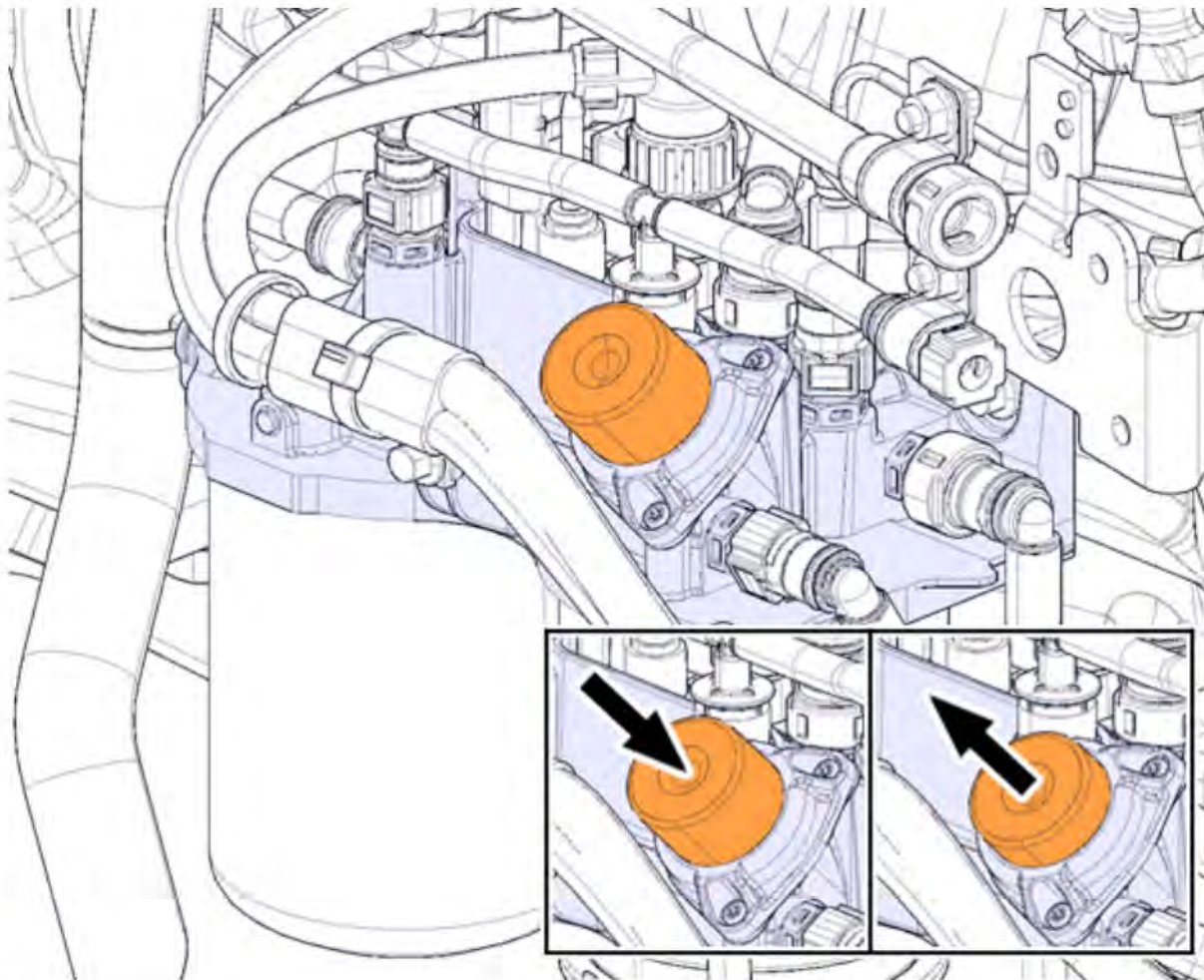
Use the UV light to verify the color of the dye once it is mixed with fuel.



28	Install the secondary fuel filter.
29	<p>Use the tool (A).</p> <div style="border: 1px solid black; padding: 2px;"> <p> Note</p> <p>Tighten securely.</p> </div> <div style="border: 1px solid black; padding: 2px; margin-top: 10px;"> <p> Note</p> <p>Use caution not to damage the fuel filter.</p> </div>



30	<p>Prime the fuel system.</p> <div style="border: 1px solid black; padding: 5px;"> <p>i Note Pump the primer until the pressure is felt against the plunger.</p> </div>
----	---



31 Start the engine.

32	Check the coolant temperature.	
	Tech data	
	Coolant, temperature	≥75 °C (≥167 °F)

33 Using tech tool, run the common rail fuel leak test (2373-08-03-02).

i Note
Use caution to prevent debris from entering the turbocharger inlet, EGR venturi tube, or air compressor inlet during engine operation.

i Note
Check for leaks as soon as the common rail fuel system test is started.

i Note
Test is done with the engine at idle.

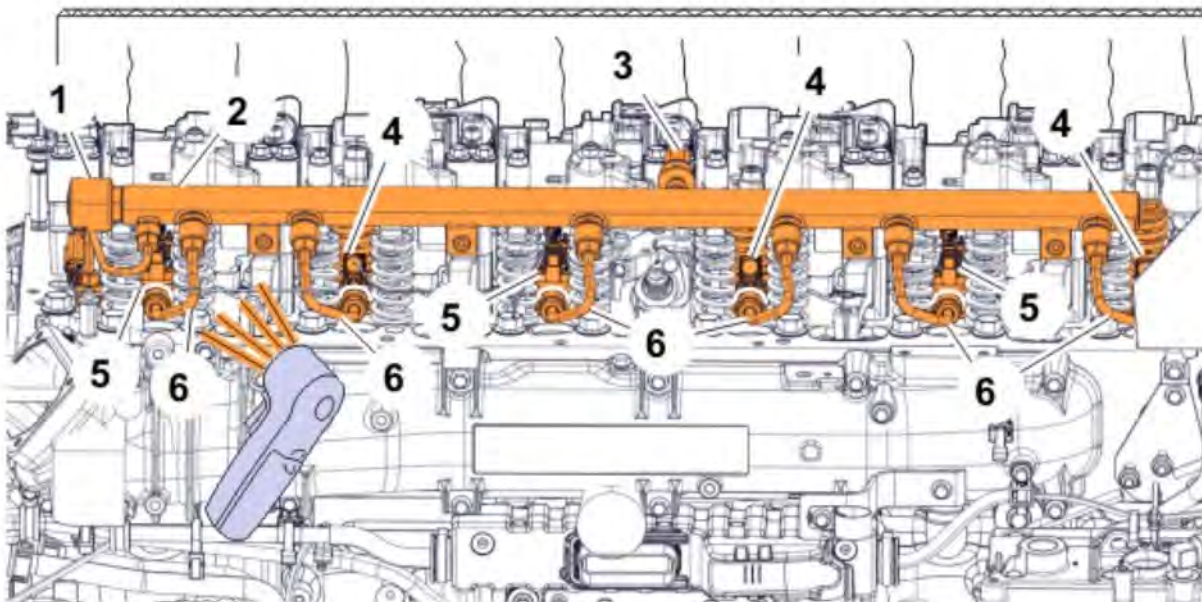


34 Check the under valve cover components for leaks.



Note

Use an UV light to check for leaks.



35 Check for fuel leaks.

Check fuel leak

NUMBER	CHECK

1	Pressure relief valve + Fitting in head.
2	Common Fuel Rail
3	Fuel pressure sensor
4	Pumping injectors (2,4,6)
5	Non-pumping injectors (1,3,5)
6	Fuel lines

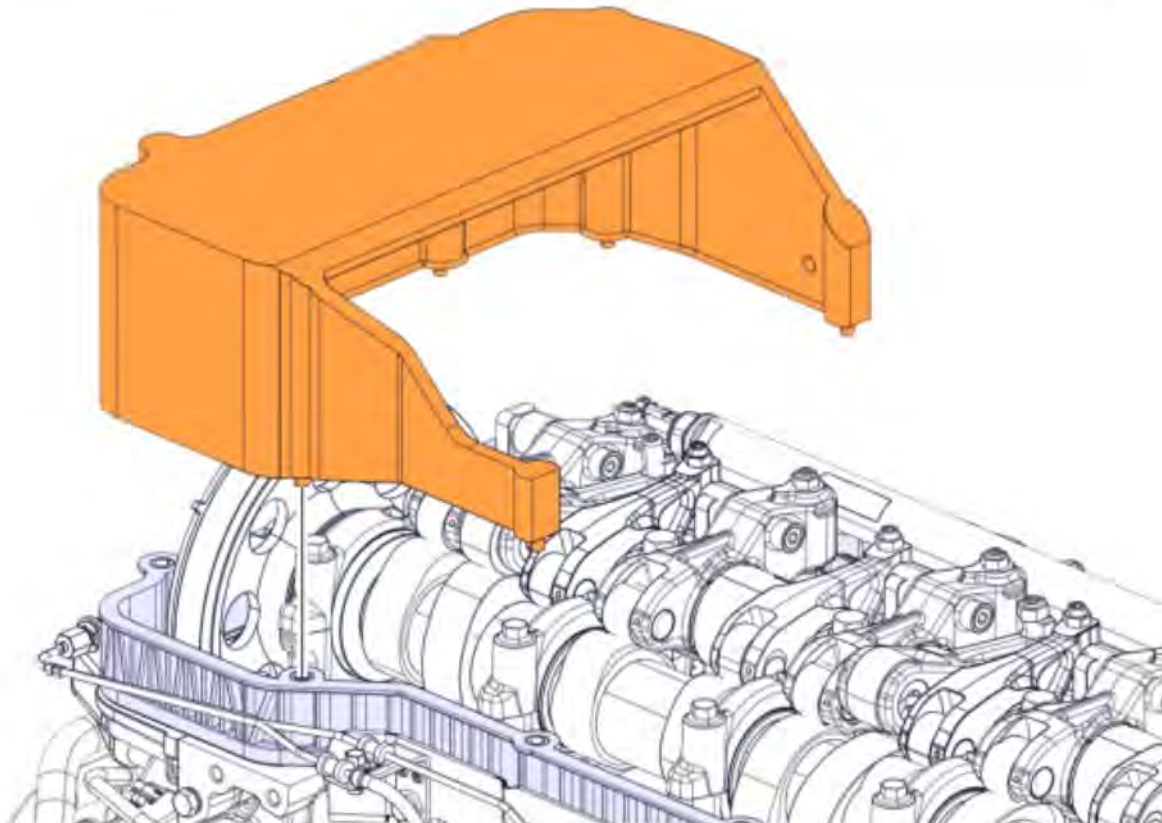
i Note
If no leak is found on the first attempt, repeat the test.

i Note
Adding dye is not necessary to repeat the procedure.

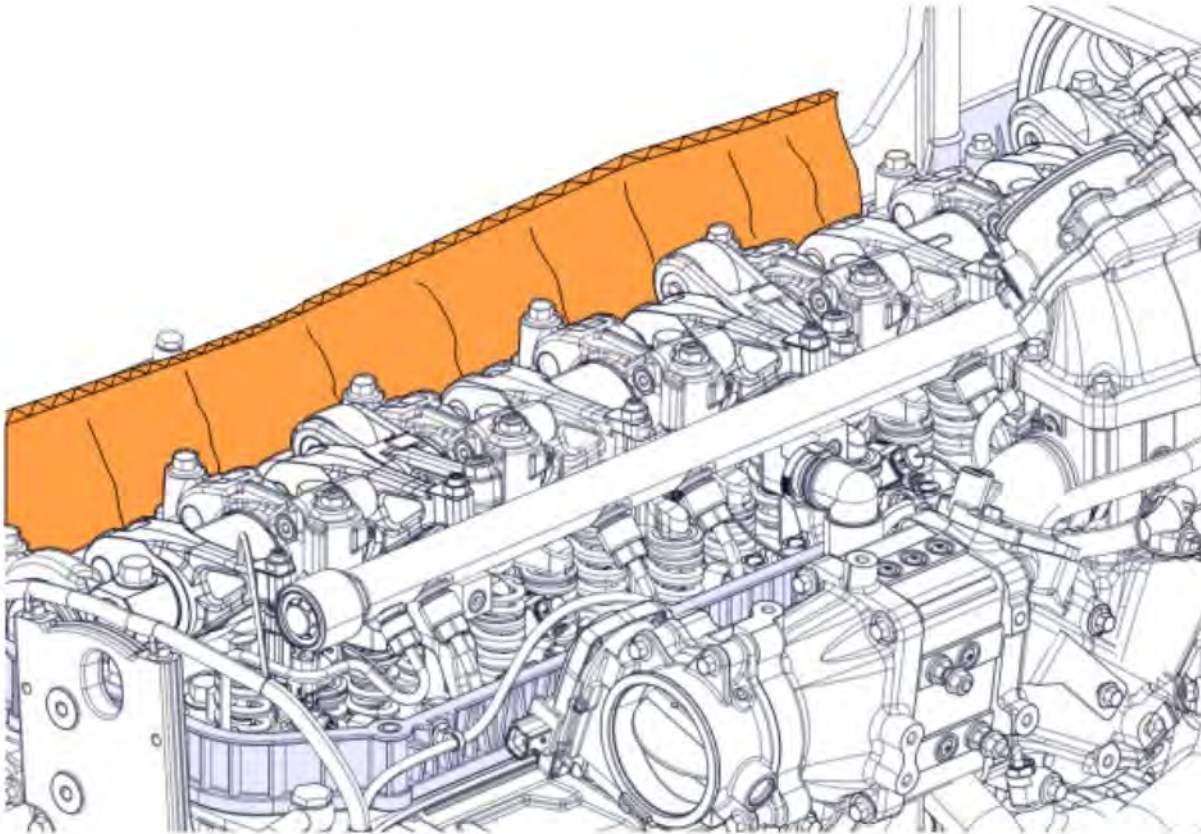
36 Stop the engine.

37 Remove the splash shield.

Required material	
SPLASH SHIELD	88800632



38	Remove the protecting cover.
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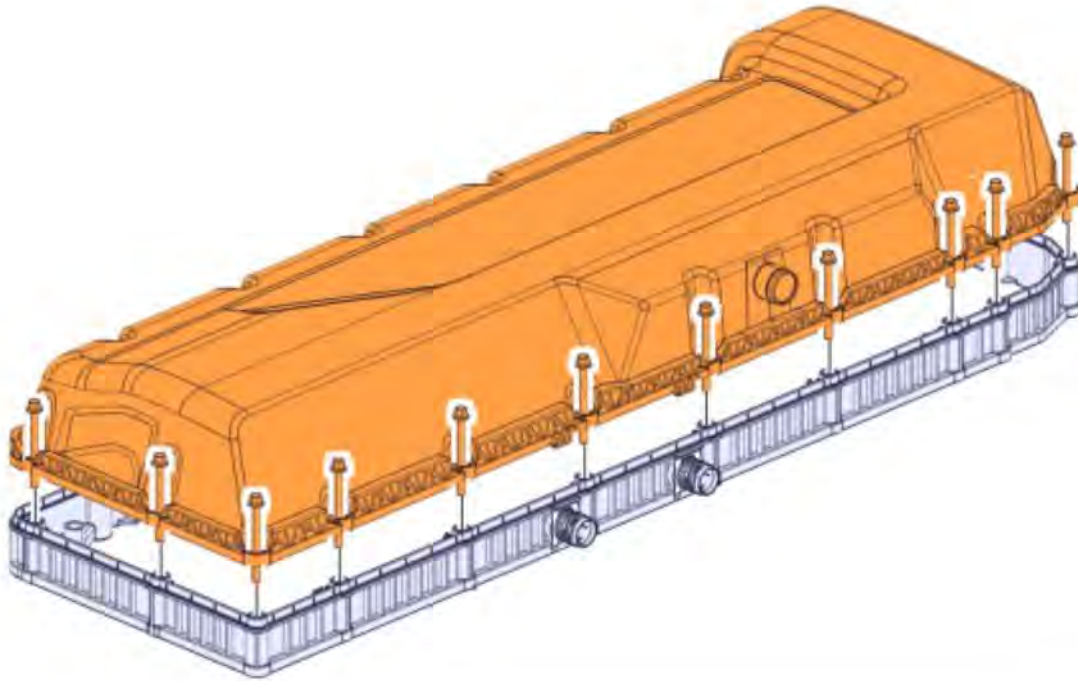
39	Install the valve cover.
----	--------------------------



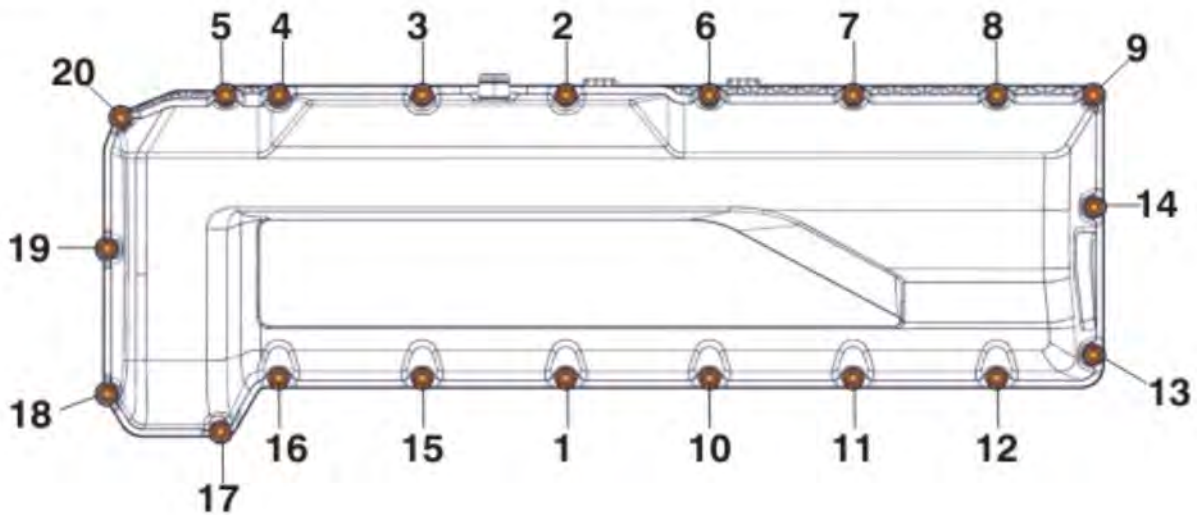
Note Inspect the gasket, replace as needed.

40	Install the screws.
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41	Torque tighten the screws.
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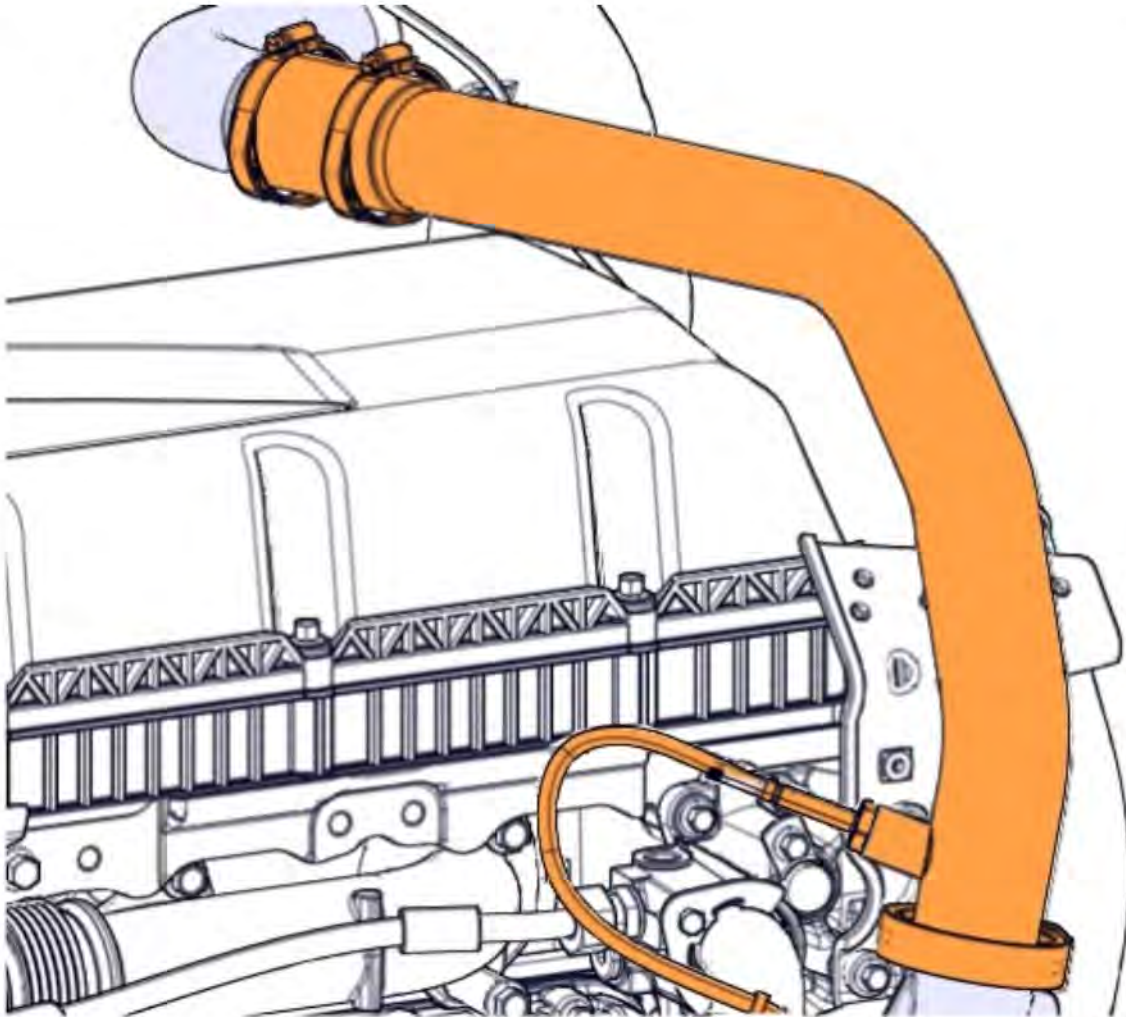
Tightening torque	
Valve cover, screw	Tightening sequence: 1–20
	24 ±4 Nm (18 ±3 lb _f .ft)



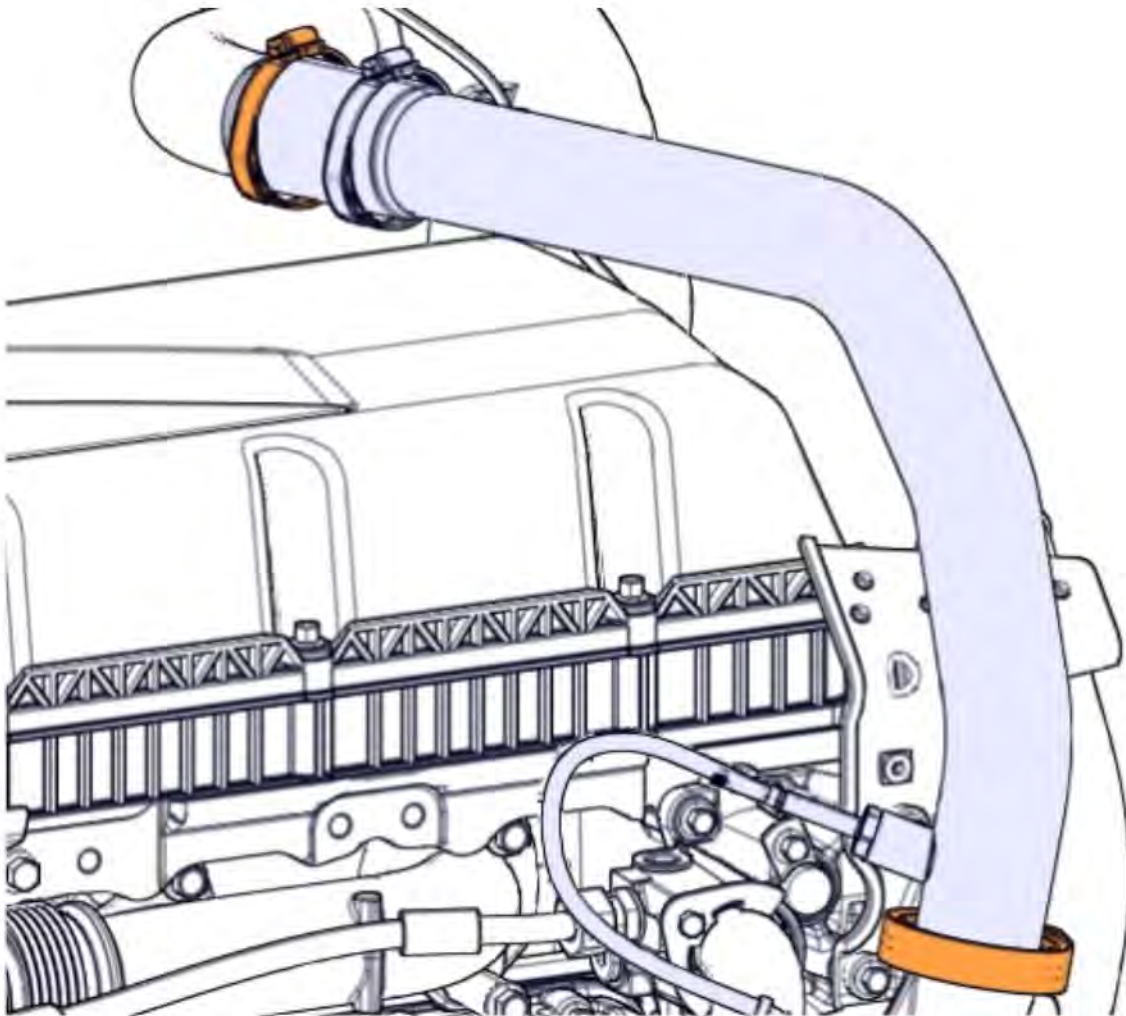
42	<p>Install the pipe.</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>i Note Inspect the hose, replace as needed.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>i Note Inspect the seals, replace as needed.</p> </div>
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**Note**

Inspect the clamps, replace as needed.

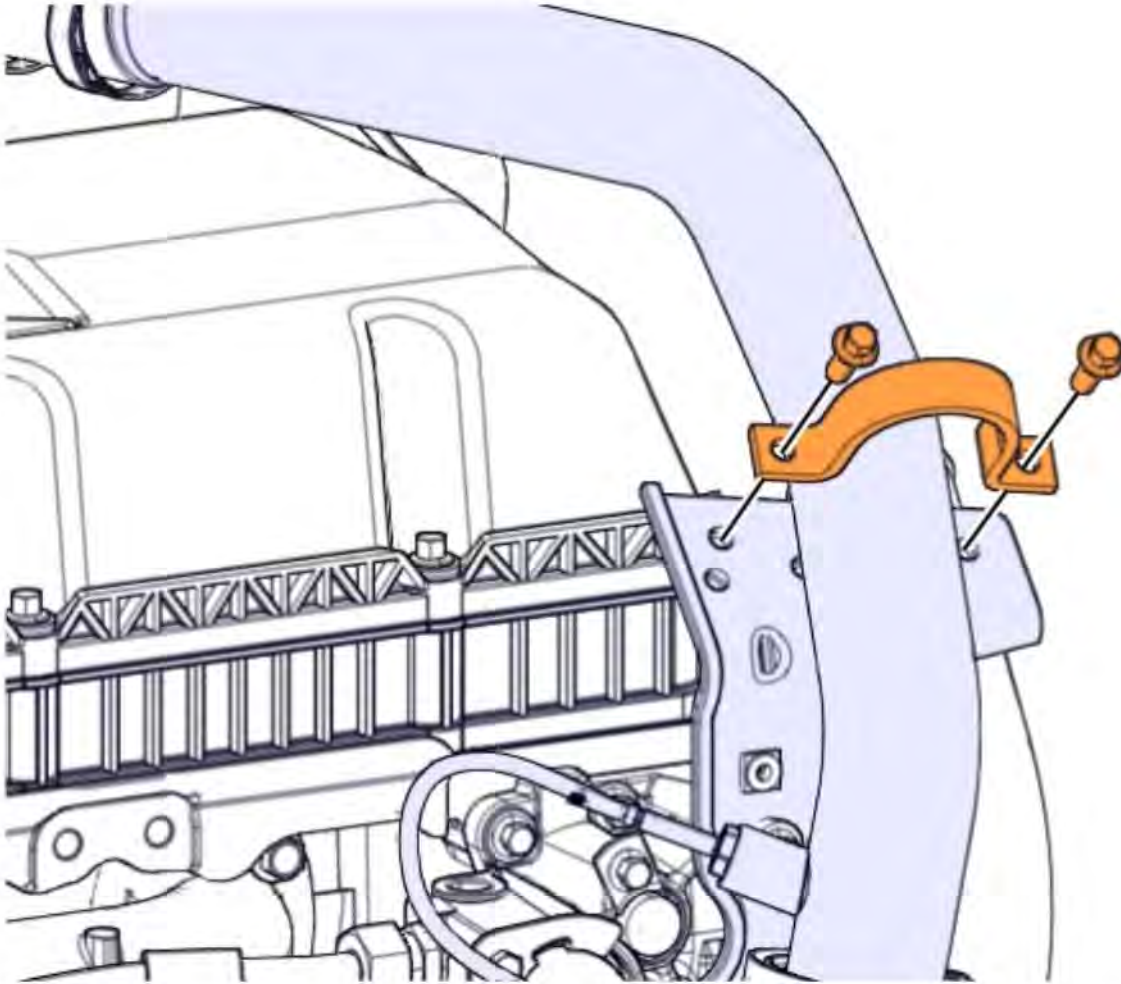


43 Tighten the clamps.



44	Install the bracket.
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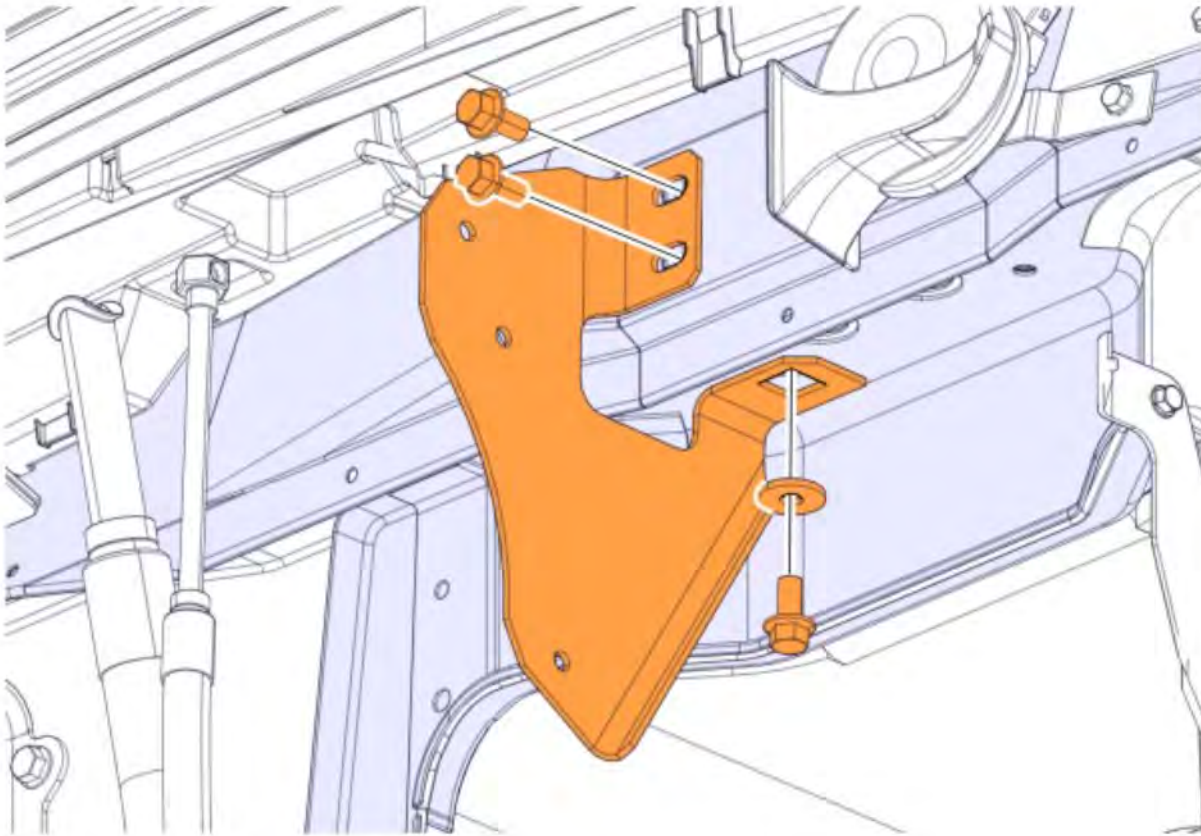
45	Install the screws.
----	---------------------



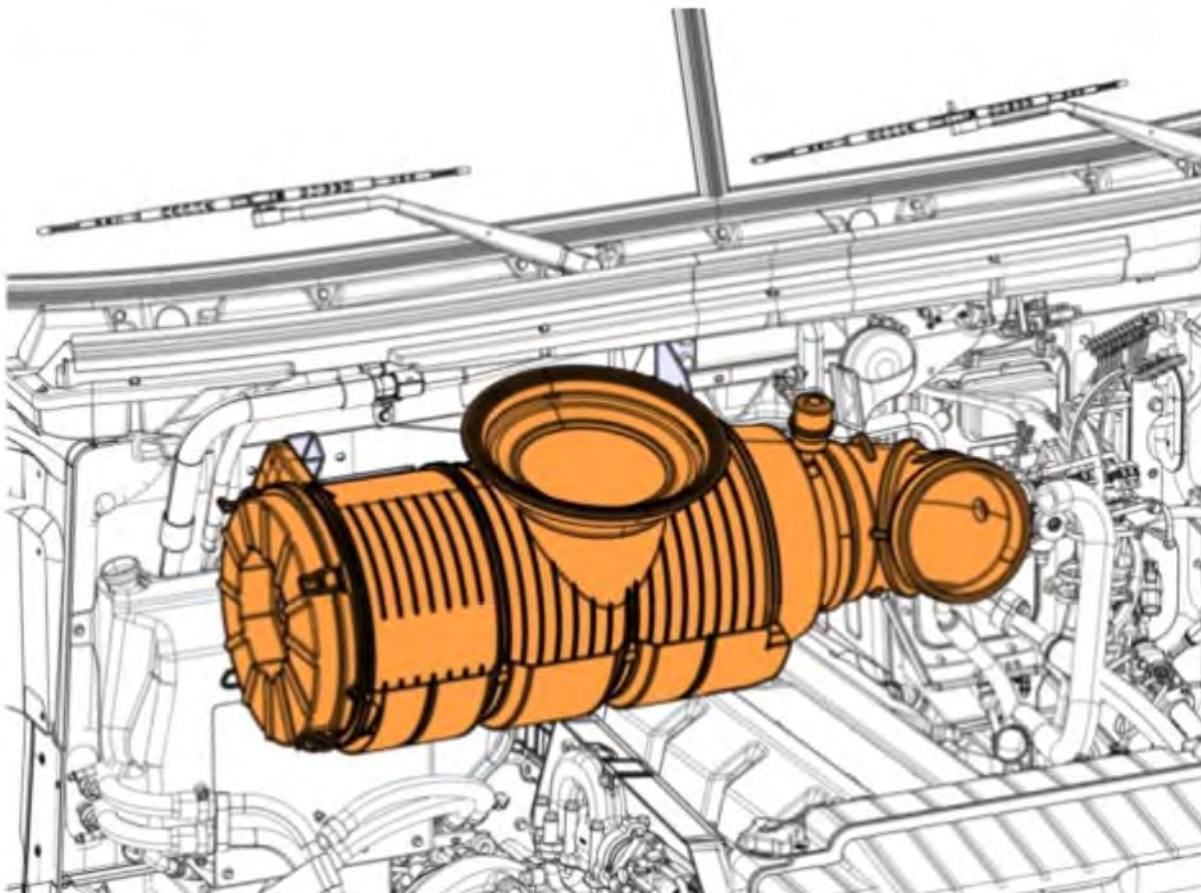
46	Install the bracket.
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47	Install the washer.
----	---------------------

48	Install the screws.
----	---------------------



49	Position the housing.
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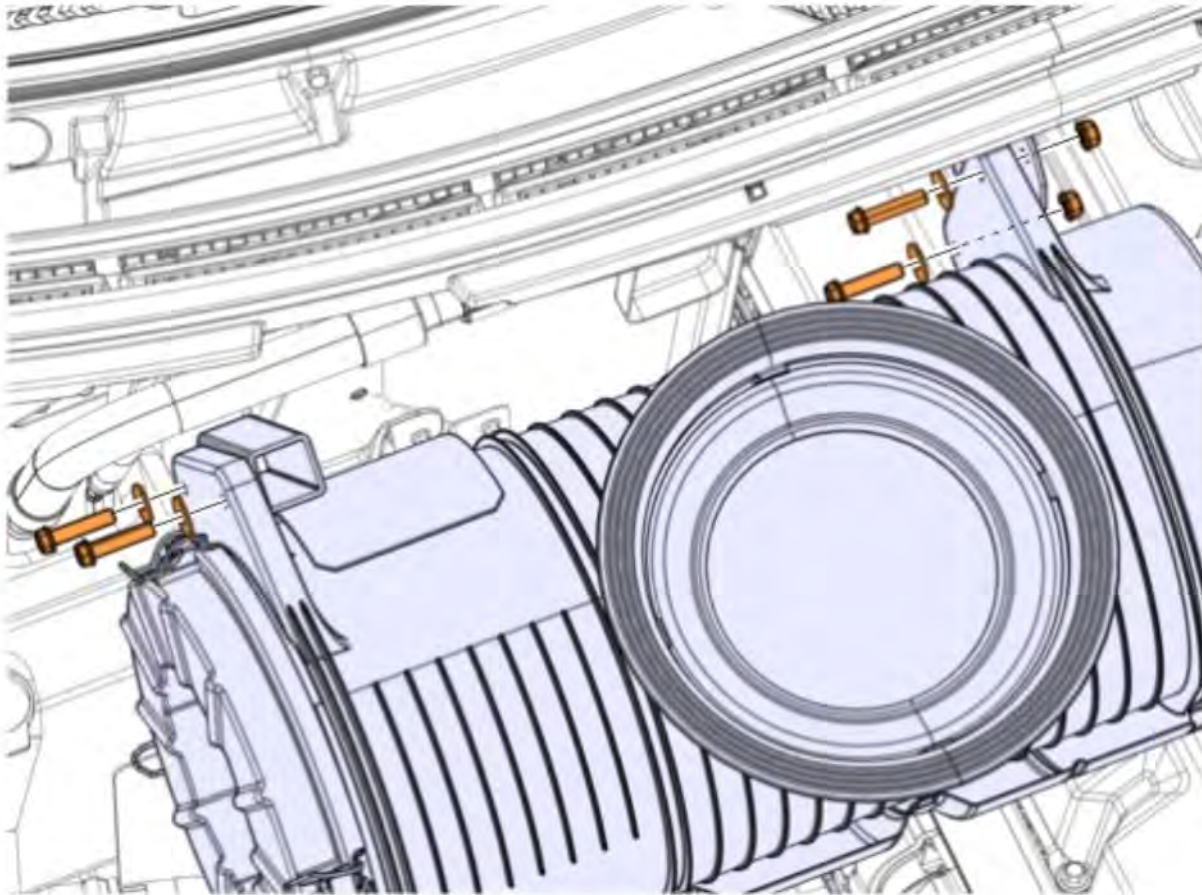
50	Install the screws and nuts.
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51	Tighten the screws and nuts to torque.
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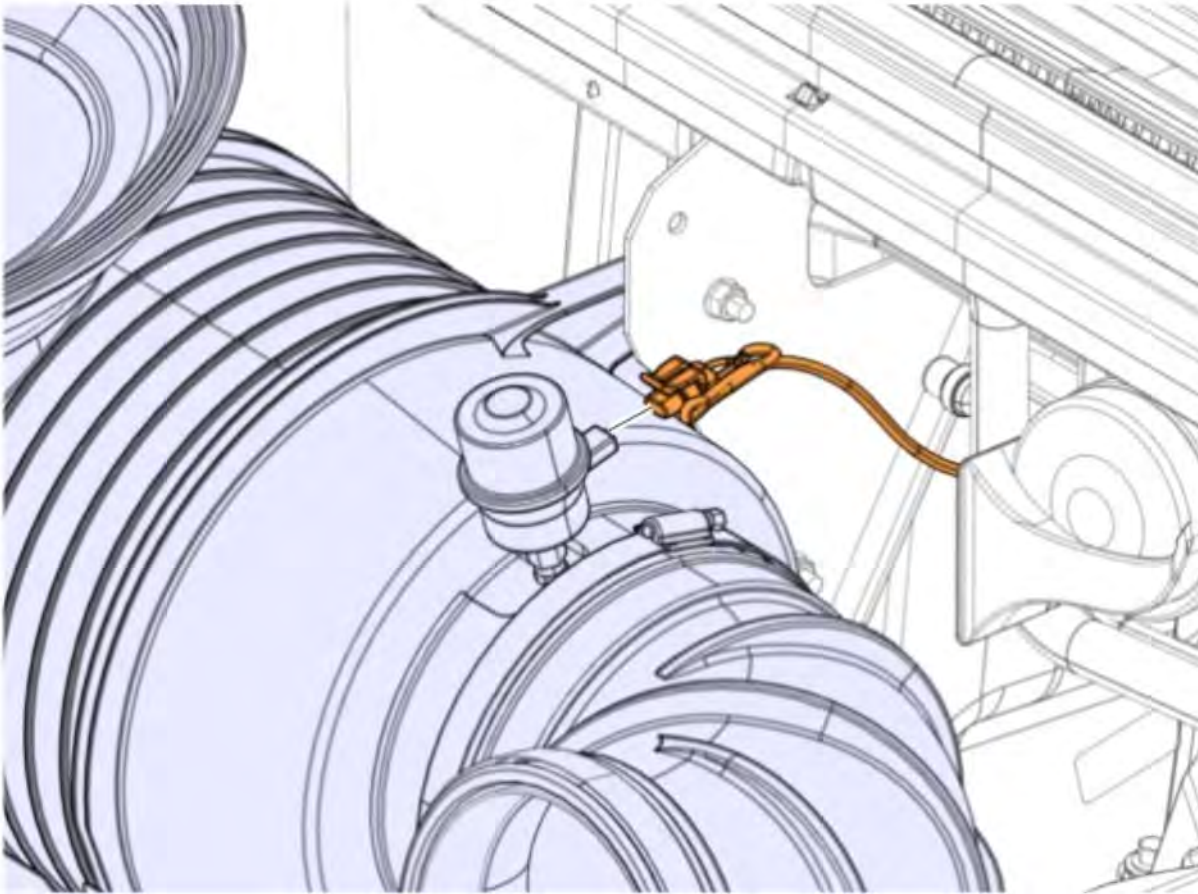
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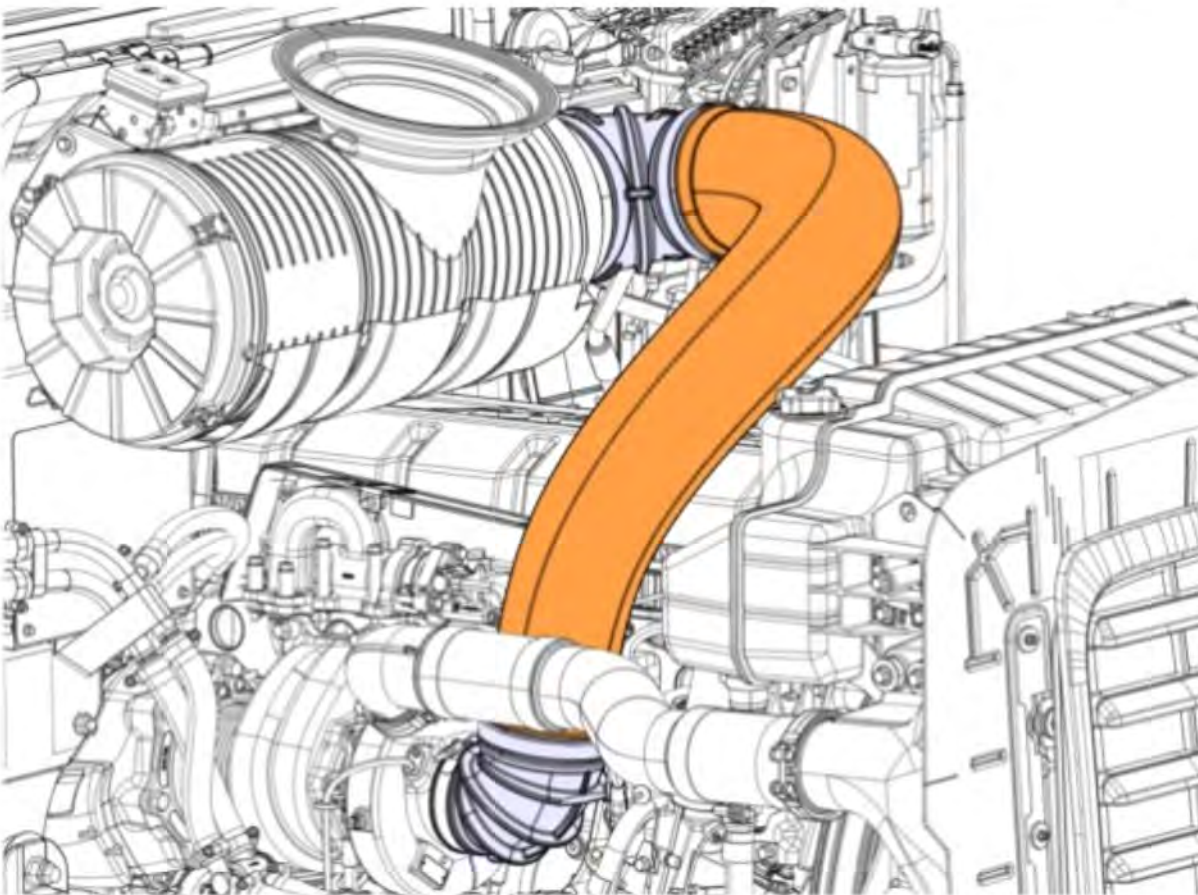
Tightening torque	
Air filter housing screws	M8 screws.
	5.6 ±0.6 Nm (50 ±5 lb _f ·in)



52	Connect the connector.
----	------------------------



53	Install the air duct.
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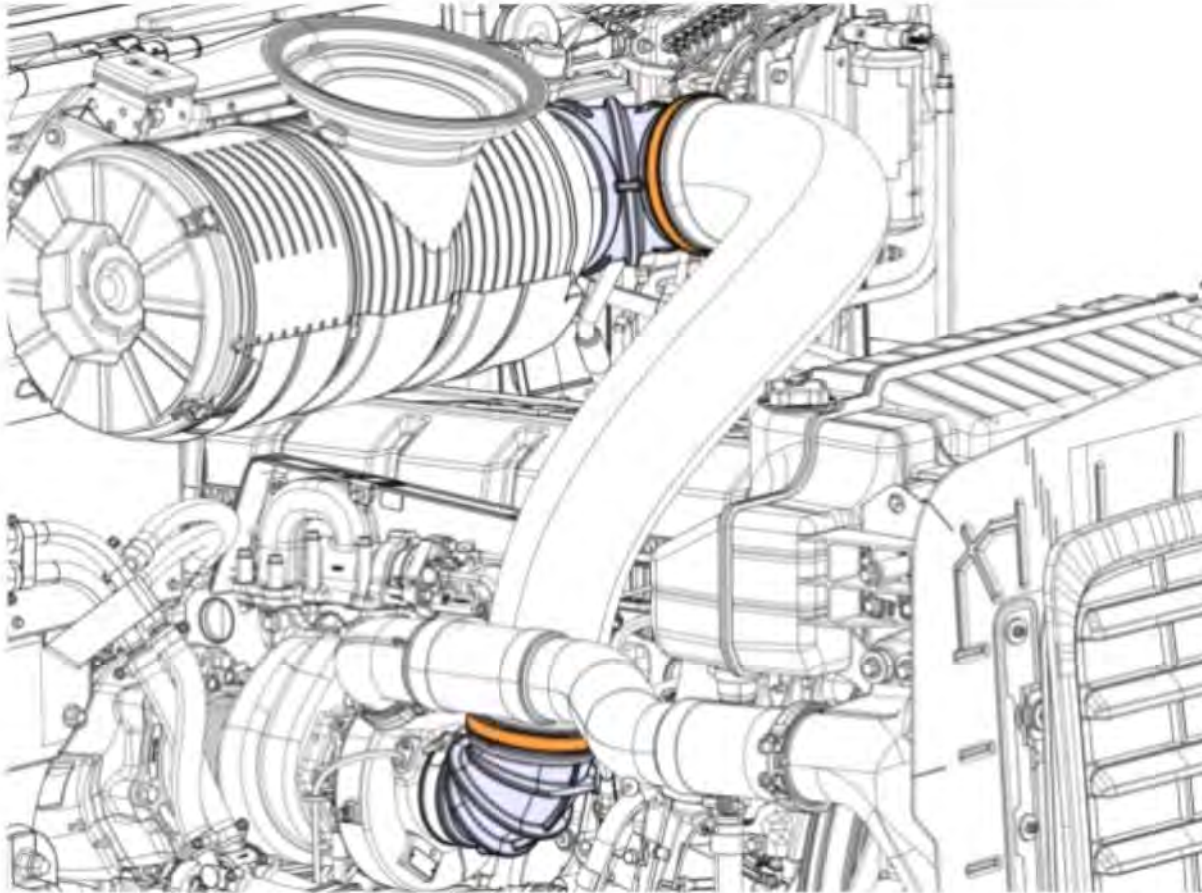


54	Tighten the clamps to torque.
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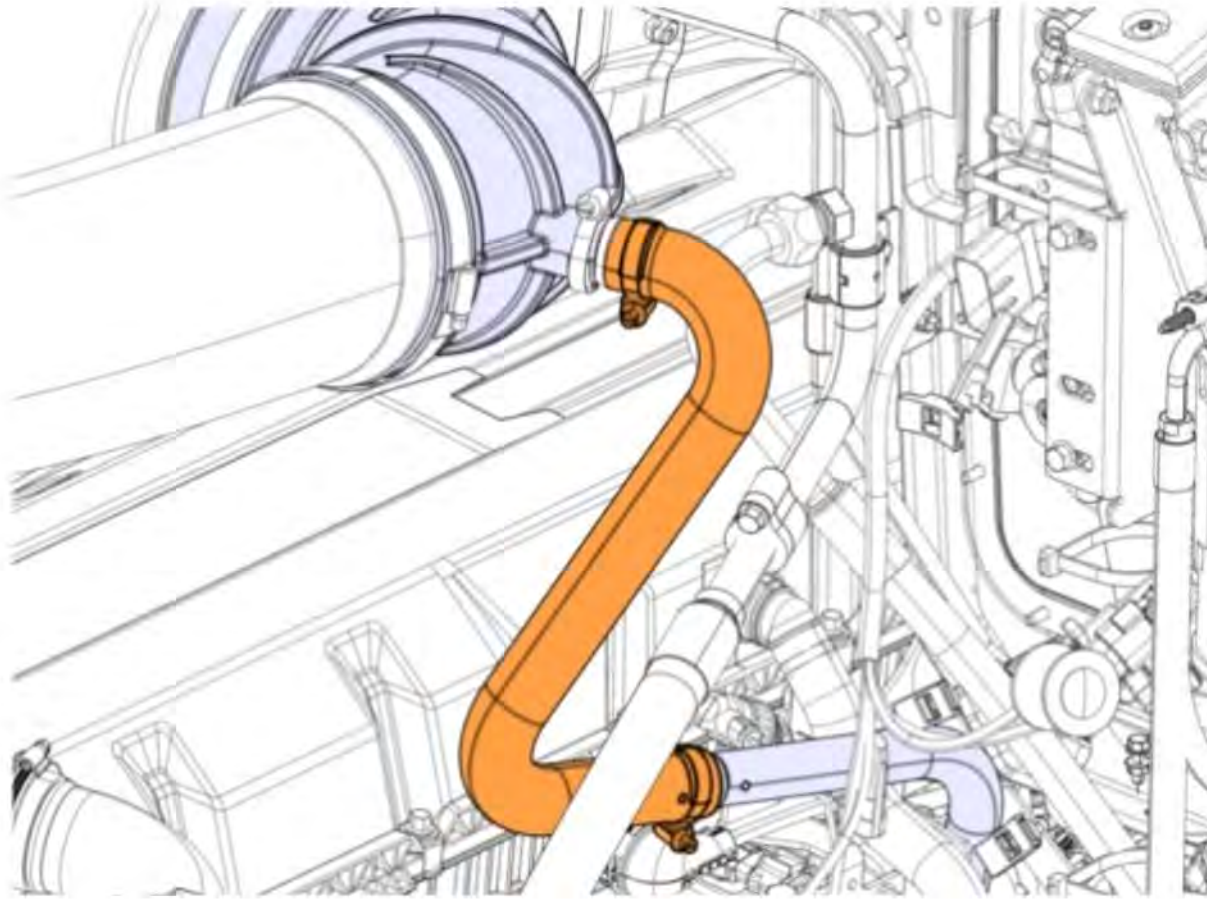
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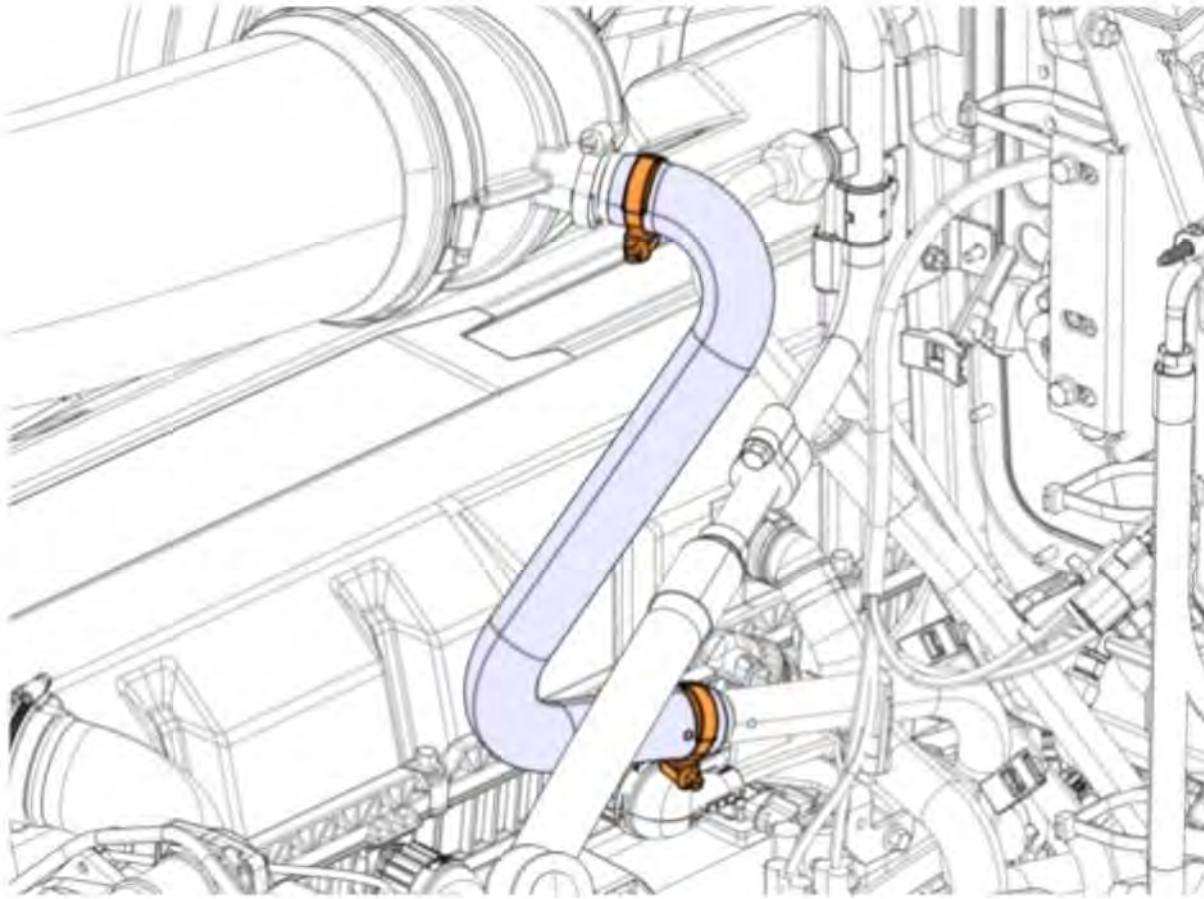
Tightening torque	
Air duct clamp	9 ± 1 Nm (80 ± 9 lb _f ·in)



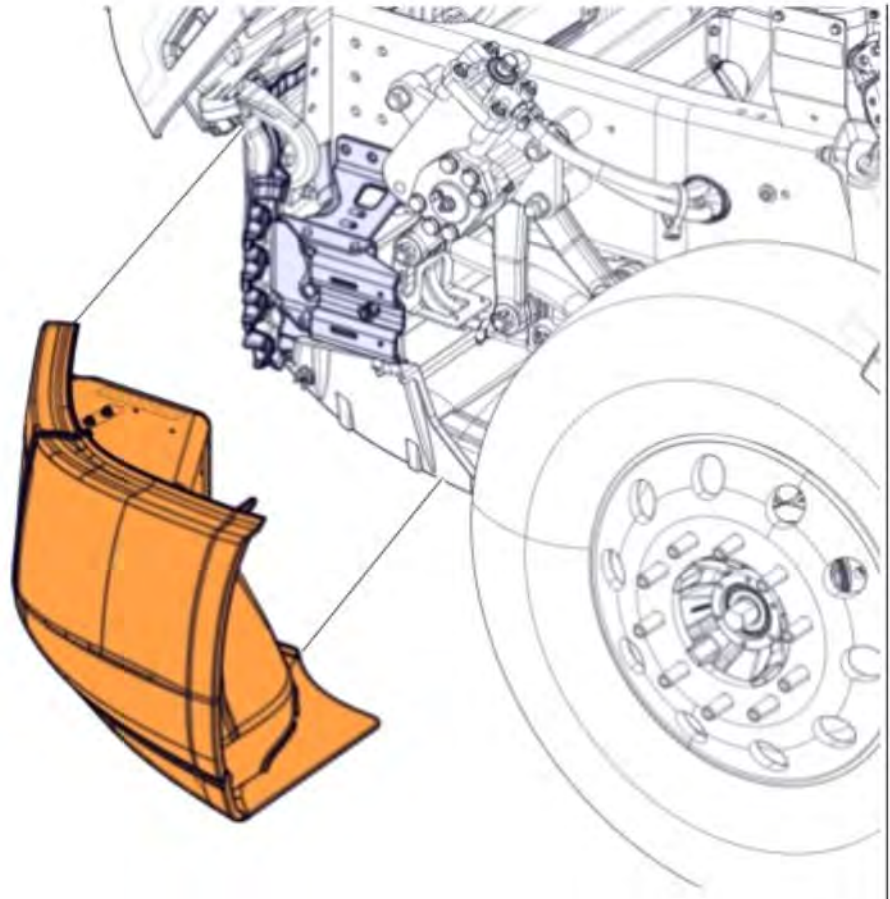
55	Install the hose.
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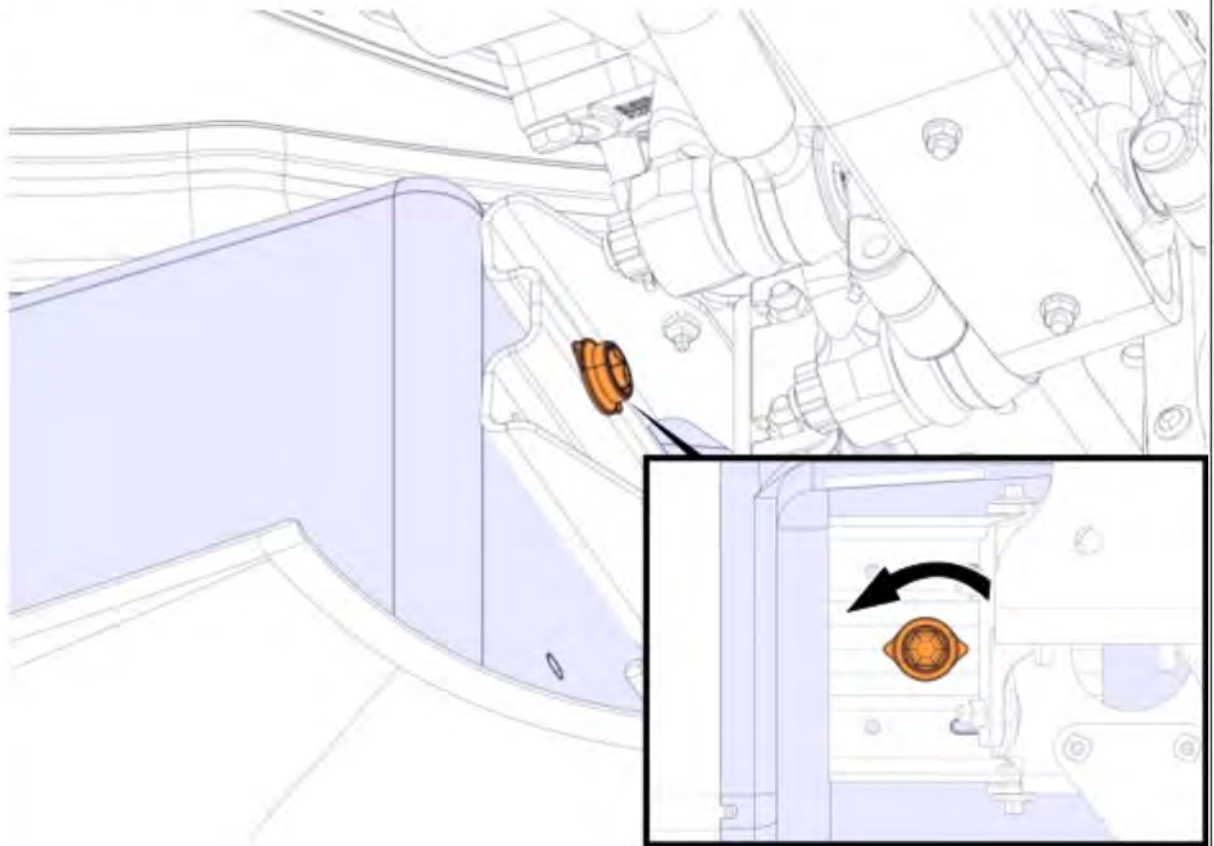
56	Tighten the clamps to torque.	
	Tightening torque	
	Clamp, screw	$3.95 \pm 0.6 \text{ Nm}$ $(35.0 \pm 5 \text{ lb}_f\text{-in})$



57	<p>Perform this procedure when the condition below is met.</p> <p>Conditions</p> <ul style="list-style-type: none"> • If the vehicle is equipped with a removable end cap. <ul style="list-style-type: none"> ▶ Install the end cap.
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► Latch the bumper end cap.



58 Lower the hood.

**Note**

Ensure that the hood is latched.

59 Remove the wheel chocks.

