



# Technical Service Bulletin

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## 90 Audi pre sense warning, warning jolt, and/or brake engagement

90 21 03 2058077/5 May 13, 2021. Supersedes Technical Service Bulletin Group 90 number 20-51 dated June 17, 2020 for reasons listed below.

Model(s)	Year	VIN Range	Vehicle-Specific Equipment
All	2010 - 2023	All	Not Applicable

## Condition

REVISION HISTORY		
Revision	Date	Purpose
5	-	Revised header (Added models and model years)
4	6/17/2020	Revised header (Added models and model years) Revised <i>Service</i> (Added Q3 procedure)
3	01/28/2020	Revised header (Added PR Code)

### Customer states:

The customer is concerned about an unexpected **Audi pre sense city** front intervention:

- Audi pre sense city warning.

Or

- Audi pre sense city warning jolt.

Or

- Audi pre sense city emergency stop.

Or

The customer is concerned about an unexpected **Audi pre sense** front intervention:

- Audi pre sense front warning.

Or

- Audi pre sense front warning jolt.

Or

- Audi pre sense front partial braking.

Or



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- Audi pre sense emergency braking.
- Or
- The intervention of emergency steer assist.
- Or
- The intervention of turning assistant.

The Audi pre sense symbol appears in the instrument cluster and an audible warning is issued at the same time (Figure 1). At the same time, neither of the blinkers was active nor the side window closed.



*Figure 1. Audi pre sense symbol.*

## Workshop findings:

- In a test drive, the concern cannot be reproduced.

## Technical Background

Be aware of the safety instructions and the system limits of the supporting systems, sensors, and cameras (see the owner's manual and self-study program 637, Audi Q7 type 4M: passenger protection and infotainment).

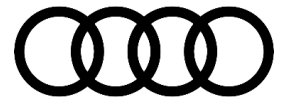
## Production Solution

Not applicable.

## Service

### Ask the customer the following questions:

- When did the Audi pre sense city or Audi pre sense front intervene? [Day, month, and year].
- Was the red Audi pre sense triangle displayed in the instrument cluster during the concern? [Yes/No].
- Did a warning tone sound at the same time a red Audi pre sense triangle was displayed? [Yes/No].
- Did the hazard warning lights turn on or did the side windows close at the same time? [Yes/No].



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## Note:

Please follow all the criterions that apply to your vehicle in order!

- **Criterion 1:** For all A4/A5/Q5 vehicles (All MY), and Q7 vehicles MY 2019 and earlier.
- **Criterion 2:** For all A3/TT/Q3 vehicles (All MY), and A6/A7/A8 vehicles MY 2018 and earlier.
- **Criterion 3:** For all A6/A7/A8/Audi e-tron quattro MY 2019 and later, and Q7 vehicles MY 2020 and later.
- **Criterion 4:** For all Q3 MY 2019 vehicles and later.

### Criterion 1: For all A4/A5/Q5 vehicles and Q7 vehicles MY2019 and earlier.

1. Perform the **Audi pre sense test program**. Depending on the vehicle options the test program can be found under:

*Test plan >> select self-test ... >> body >> electrical system >> 01 – self-diagnosis capable systems >> 0013 – adaptive cruise control – J428 >> 0013 – Technical Product Information >> Audi pre sense.*

**Or**

*Test plan >> select self-test ... >> body >> electrical system >> 01 – self-diagnosis capable systems >> 00A5 – front camera for driver assist systems – R242 >> 00A5 – Technical Product Information >> Audi pre sense.*

2. The test program asks you to enter the date of the customer concern.
3. The test program checks whether interventions of Audi pre sense city and Audi pre sense front took place three days before and three days after the above date.
4. At the end, the program provides a list of the Audi pre sense city and Audi pre sense front interventions in this period.

Depending on the result of the test program proceed as follows:

Result of the ODIS test program Audi pre sense:	Explanation	Proceed as follows:
The customer had no Audi pre sense intervention.	The customer did not see the Audi pre sense symbol in the instrument cluster.	Continue your analysis. This TSB does not apply.
Audi pre sense basic event	The customer saw the Audi pre sense symbol, but a warning tone did not sound at the same time.	<ul style="list-style-type: none"> <li>• Explain to the customer the operation and limits of Audi pre sense basic.</li> <li>• Use the owner's manual and the self-study program.</li> </ul>



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		<ul style="list-style-type: none"> <li>Continue your analysis. This TSB does not apply.</li> </ul>
Audi pre sense rear event	<p>The radar sensors of the lane change assist permanently record the traffic behind the vehicle, even if Audi side assist is not activated. The J769 and J770 control modules evaluate the received signals, process them and thus detect the distance of the following vehicles within the detection range.</p> <p>If a control module for the lane change assist J769 detects a critical pre sense rear situation, it sends various information to the data bus diagnostic interface J533. The definition of a critical situation is that the following vehicle could drive into its own rear end without further action by the following driver.</p> <p>The data bus diagnostic interface J533 sends these signals to the airbag control module J234. On the basis of the available information, the J234 decides which actuators are activated and sends this information to different control modules.</p>	<ul style="list-style-type: none"> <li>Explain to the customer the operation and limits of Audi pre sense rear.</li> <li>Use the owner's manual and the self-study program.</li> <li>Continue your analysis. This TSB does not apply.</li> </ul>
<p>Audi pre sense city intervention</p> <p><b>And</b></p> <p>No Audi pre sense front intervention</p>	<p>Audi pre sense city warnings and warning jolts on <b>pedestrians</b> are not saved.</p> <p>Only a limited number of interventions are stored. The intervention mentioned by the customer may be too far back and been overwritten by further interventions.</p>	<ul style="list-style-type: none"> <li>Explain to the customer the operation and limits of Audi pre sense city and Audi pre sense front.</li> <li>Use the owner's manual and the self-study program.</li> <li>Observe the Audi pre sense adjustment options (early/medium/late/off) in the MMI. This can influence the timing of the <b>warning</b> and of the <b>warning jolt</b>.</li> </ul>
<p>Audi pre sense city warning</p> <p><b>Or</b></p> <p>Audi pre sense front warning</p>	<p>If the vehicle approaches a preceding or stationary vehicle in a critical situation, the instrument cluster can optically and</p>	<ul style="list-style-type: none"> <li>Explain to the customer the operation and limits of Audi pre sense city and Audi pre sense front.</li> </ul>



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	acoustically warn the driver within certain limits.	<ul style="list-style-type: none"> <li>• Use the owner's manual and the self-study program.</li> <li>• Observe the Audi pre sense adjustment options (early/medium/late/off) in the MMI. This can influence the timing of the <b>warning</b> and of the <b>warning jolt</b>.</li> </ul>
Audi pre sense judder	But if the driver does not respond to the warnings, the ABS control module J104 issues an urgent warning with a judder. The judder is a very short, clearly perceivable brake activation that does not slow down the vehicle. It aims to bring the attention of the driver back to the traffic situation and to signal that an immediate reaction is necessary to prevent a collision.	<ul style="list-style-type: none"> <li>• Explain to the customer the operation and limits of Audi pre sense city and Audi pre sense front.</li> <li>• Use the owner's manual and the self-study program.</li> <li>• Observe the Audi pre sense adjustment options (early/medium/late/off) in the MMI. This can influence the timing of the <b>warning</b> and of the <b>warning jolt</b>.</li> </ul>
Audi pre sense front emergency stop	In case of an emergency stop, Audi pre sense front calculates whether the driver brakes sufficiently to prevent a collision. If this is not the case, depending on the situation the necessary braking performance is increased up to a full deceleration.	Explain to the customer that they operated the brakes and Audi pre sense front supported him with the brake intervention.
The intervention of turning assistant.	<p>If Audi pre sense detects that a critical situation would arise when turning off, the hydraulic brake assistant is parameterized by the ABS control module J104. In addition, the triggering algorithms for the hydraulic brake assistant are changed. As a result of this action, the response time of the brake is very fast. If the vehicle continues turning and rolls/pulls away now, Audi pre sense front detects this with the speed sensors of the ABS control module J104.</p> <p>In this case, Audi pre sense front would initiate an automatic emergency braking</p>	<ul style="list-style-type: none"> <li>• Explain to the customer the operation and limits of Audi pre sense front.</li> <li>• Use the owner's manual and the self-study program.</li> </ul>



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	by the ABS control module J104 so that the vehicle stops in its own lane. The driver is notified visually and acoustically that the vehicle is braking automatically.	
Intervention of emergency steer assist	<p>If the driver evades another vehicle after a warning jolt, the evasion assistant supports him with steering torque if necessary. Audi pre sense front calculates a suitable evasion line on the basis of various data, such as the own speed and the lane of the vehicle ahead.</p> <p>If the own vehicle moves within certain limits too far away from the evasion line, the evasion assistant attempts to guide the vehicle along the evasion line by steering interventions. This helps the driver to steer past the obstacle. Within the physical limits, a loss of control can be prevented when evading an obstacle.</p>	<ul style="list-style-type: none"><li>• Explain to the customer the operation and limits of Audi pre sense front.</li><li>• Use the owner's manual and the self-study program.</li></ul>
Audi pre sense emergency brake <b>Or</b> Audi pre sense front emergency braking	<p>If the driver also ignores the judder or only releases the accelerator pedal, the ABS control module J104 brakes the vehicle. Depending on the vehicle speed the braking performance can be gradually increased up to a full deceleration (emergency stop).</p>	<p>If the customer feels that the vehicle has braked for no reason, contact TAC.</p>

5. Perform the **“Data logging” test program**. This test plan can be found under:

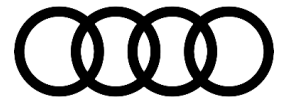
*Test plan >> select self-test... >> body >> electrical system >> 01 – self-diagnosis capable systems >> 00A5 – front camera for driver assist systems – R242 >> 00A5 – Technical Product Information >> Data logging.*

**Depending on the category only a limited number of the events are saved:**

6. Per concern, the test program "Audi pre sense" must only be performed once.

7. If the concern has occurred several times, the test program "Audi pre sense" must not be performed more than three times.

**Criterion 2: For all A3/TT vehicles (All MY), and Q3/A6/A7/A8 vehicles MY 2018 and earlier.**



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1. Perform the “**Data logging**” test program. Depending on the vehicle options the test program can be found under:

*Test plan >> select self-test... >> body >> electrical system >> 01 – self-diagnosis capable systems >> 0013 – adaptive cruise control – J428 >> 0013 – Technical Product Information >> Subsystems, marginal conditions >> data logging.*

### Criterion 3: For all A6/A7/A8/Audi e-tron quattro MY 2019 and later and Q7 vehicles MY 2020 and later.

1. Perform the “**Data logging**” test program. Depending on the vehicle options the test program can be found under:

*Test plan >> select self-test... >> body >> electrical system >> 01 – self-diagnosis capable systems >> 00A5 – front camera for driver assist systems – R242 >> 00A5 – Technical Product Information >> Data logging.*

2. Select all measured values and click OK to start the test.

### Criterion 4: For all Q3 vehicles MY 2019 and later.

1. Perform the **Audi pre sense test program**. Depending on the vehicle options the test program can be found under:

*Test plan >> select self-test ... >> body >> electrical system >> 01 – self-diagnosis capable systems >> 0013 – adaptive cruise control – J428 >> 0013 – Technical Product Information >> Audi pre sense.*

2. The test program asks you to enter the date of the customer concern.
3. The test program checks whether interventions of Audi pre sense city and Audi pre sense front took place three days before and three days after the above date.
4. At the end, the program provides a list of the Audi pre sense city and Audi pre sense front interventions in this period.

Result of the ODIS test program Audi pre sense:	Explanation	Proceed as follows:
Audi pre sense warning	If the vehicle approaches a preceding or stationary vehicle in a critical situation, the instrument cluster can optically and acoustically warn the driver within certain limits.	<ul style="list-style-type: none"> <li>• Explain to the customer the operation and limits of Audi pre sense front.</li> <li>• Use the owner's literature and the self-study program.</li> <li>• Observe the Audi pre sense adjustment options (early/medium/late/off) in the MMI. This influences the timing of the warning.</li> </ul>



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Audi pre sense judder	But if the driver does not respond to the warnings, the ABS control unit J104 issues an urgent warning with a judder. The judder is a very short, clearly perceivable brake activation that does not slow down the vehicle. It aims to bring the attention of the driver back to the traffic situation and to signal that an immediate reaction is necessary to prevent a collision.	<ul style="list-style-type: none"><li>• Explain to the customer the operation and limits of Audi pre sense front.</li><li>• Use the owner's literature and the self-study Audi.</li><li>• Observe the Audi pre sense adjustment options (early/medium/late/off) in the MMI. This influences the timing of the judder.</li></ul>
Driver-triggered emergency stop	In case of an emergency stop Audi pre sense front calculates whether the driver brakes sufficiently to prevent a collision. If this is not the case, depending on the situation the necessary braking performance is increased up to a full deceleration.	Explain to the customer that he himself operated the brakes and Audi pre sense front supported him with the brake engagement.
Audi pre sense braking	If the driver also ignores the judder or only releases the accelerator pedal, the ABS control unit J104 brakes the vehicle. Depending on the vehicle speed the braking performance can be gradually increased up to a full deceleration (emergency stop).	If the customer feels that the vehicle has braked for no reason, contact TAC.

**Depending on the category only the last two events are saved:**

6. Per concern, the test program "Audi pre sense" must only be performed once.
7. If the concern has occurred several times, the test program "Audi pre sense" must not be performed more than three times per instance.

## Warranty

Claim Type:	<ul style="list-style-type: none"><li>• 110 up to 48 Months/50,000 Miles.</li><li>• G10 for CPO Covered Vehicles – Verify Owner.</li></ul>
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	• If the vehicle is outside any warranty, this Technical Service Bulletin is informational only.		
<b>Service Number:</b>	9163		
<b>Damage Code:</b>	0039		
<b>Diagnostic Time:</b>	GFF	0150 0000	Time stated on the diagnostic protocol (Max 100 TU)
	Road test prior to the service procedure	No allowance	0 TU
	Road test after the service procedure	No allowance	0 TU
<b>Claim Comment:</b>	As per TSB #2058077/5		

All warranty claims submitted for payment must be in accordance with the *Audi Warranty Policies and Procedures Manual*. Claims are subject to review or audit by Audi Warranty.

## Additional Information

More information on this system can be found in the following resources:

- SSP: 637, Audi Q7 type 4M: passenger protection and infotainment.

All part and service references provided in this TSB (2058077) are subject to change and/or removal. Always check with your Parts Department and/or ETKA for the latest information and parts bulletins. Please check the Repair Manual for fasteners, bolts, nuts, and screws that require replacement during the repair.

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