ATU (Audi Technical Update)

Summer 2018

Electrical

Summer 2018

ATU topic

New MIB2+ navigation features

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01. New MIB2+ Navigation Features

1.1 Map update

- With MMI navigation plus in the Audi A8 (D5), the customer receives lifetime[1] map updates.
- In the future, free map updates will be released quarterly.
- If the vehicle has an Audi connect license, the car receives the update directly online.
- Without an active license, the customer can upload the map data into the vehicle via an SD card which was downloaded from myAudi.

1) Lifetime: up to 5 years after end of production of the corresponding infotainment generation, in this case MIB2+.

01. New MIB2+ Navigation Features

1.1 Map update

- The online update in the vehicle runs automatically in the background.
- The data are predominantly updated for the area in which the vehicle is mainly driven.
- The data is uploaded to the vehicle in a new format (.nds – navigation data standard); this allows incremental updates.
- Only data which has been changed are updated (this is on average 10% of the previous update).

01. New MIB2+ Navigation Features

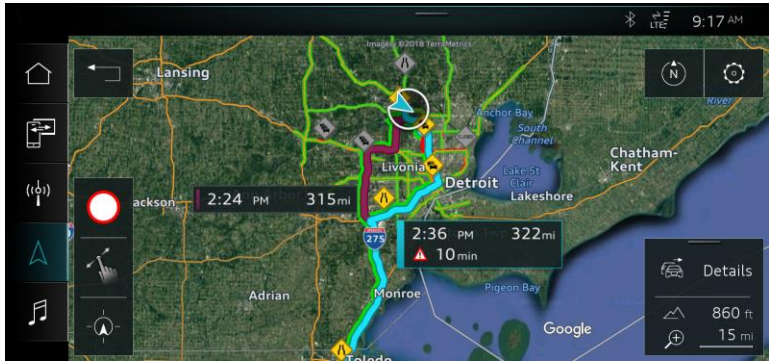
1.2 Online routing (cloud-based route calculation)

- The calculation takes place in the vehicle (on-board) and, at the same time, online via an external database.
- There are various data versions in the online database.
- The calculation is made with the same data version as in the vehicle.
- The quickest calculation is used for the route calculation.
- The online calculation is quicker than the on-board calculation, particularly when destinations are a long distance away (this also depends on the transfer rate and the mobile phone reception strength).

01. New MIB2+ Navigation Features

1.2 Online routing (cloud-based route calculation)

- If the online routing is used, the map data is compared with the data version present in the vehicle to ensure that the navigation data can be processed by the assist systems dependent on them.
- If there is not a 100% match, the online data version is not used (other systems such as ACC etc. depend on the predictive route data).
- The result is that the driver is offered up to three routes.



- It is no longer possible to select route settings such as “short”, “fast” or “economical”.

01. New MIB2+ Navigation Features

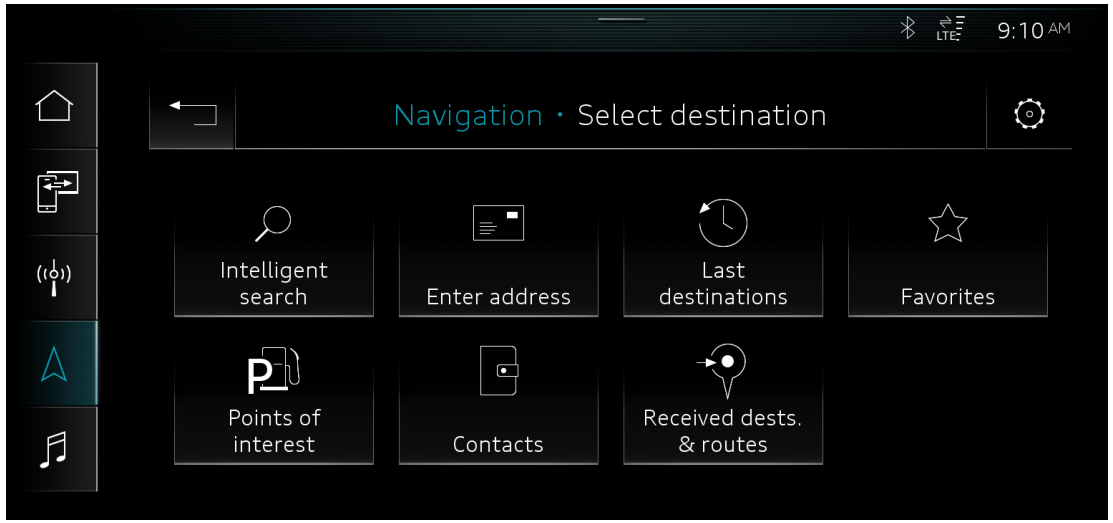
1.2 Online routing (cloud-based route calculation)

› Due to the online routing, traffic data can be included when calculating the best route. This information does not only refer to the areas nearby like in previous systems, but is available for the complete route, regardless of how long it is (permanent road closures, traffic jams with longer term effects, etc.).

01. New MIB2+ Navigation Features

1.3 Online search

› When entering the destination, several options are available to the customer.

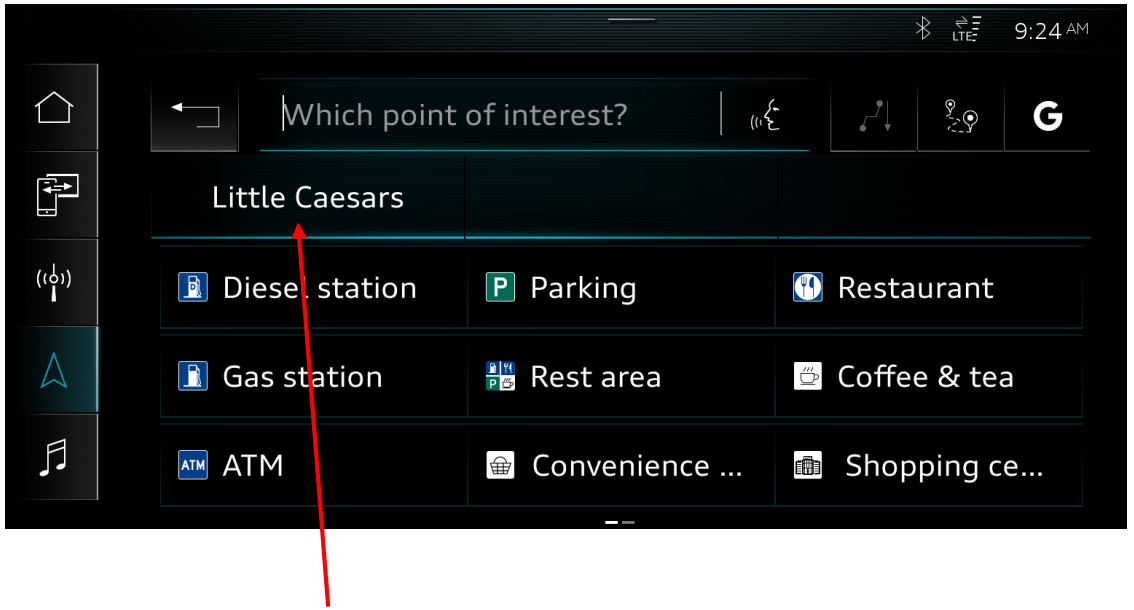


› With some functions, online data is partially used even though they cannot always be recognized as such.

01. New MIB2+ Navigation Features

1.3 Online search

› The special destination search is performed online when route guidance is inactive.



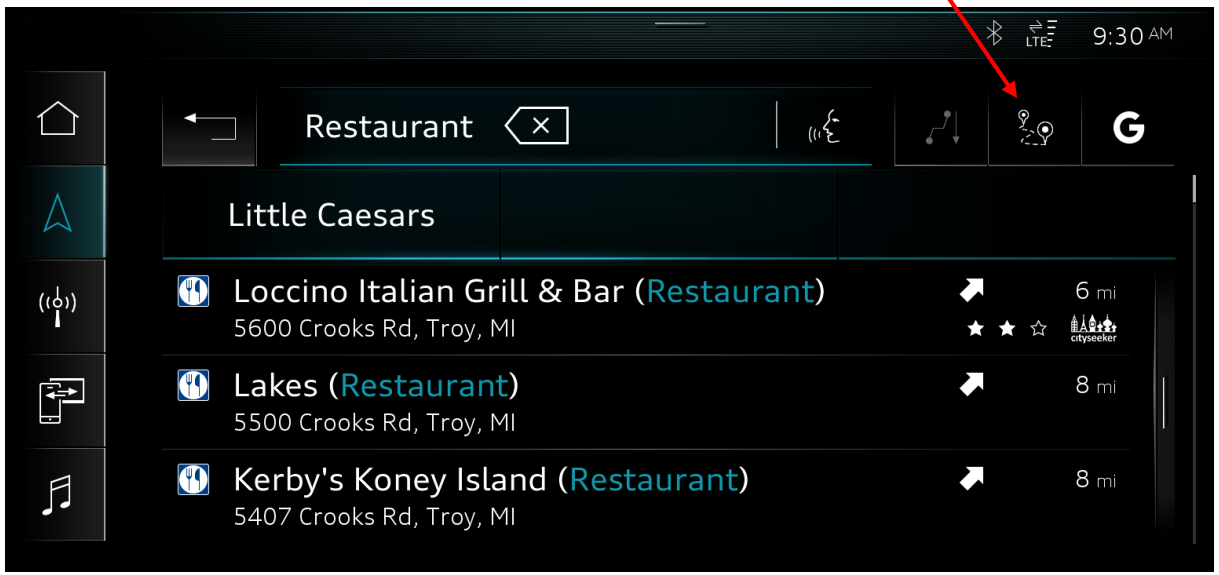
› If the same searches are made often, the system automatically displays the result.

In this case, the user has regularly searched for “Little Caesars”.

01. New MIB2+ Navigation Features

1.3 Online search

- The intelligent search automatically takes Internet results into account if the MMI is online.
- In this case, the system is set to search along the route. Pressing this button allows the user to select the search area: in immediate vicinity, along the route or at the destination/stopover.



01. New MIB2+ Navigation Features

1.3 Online search

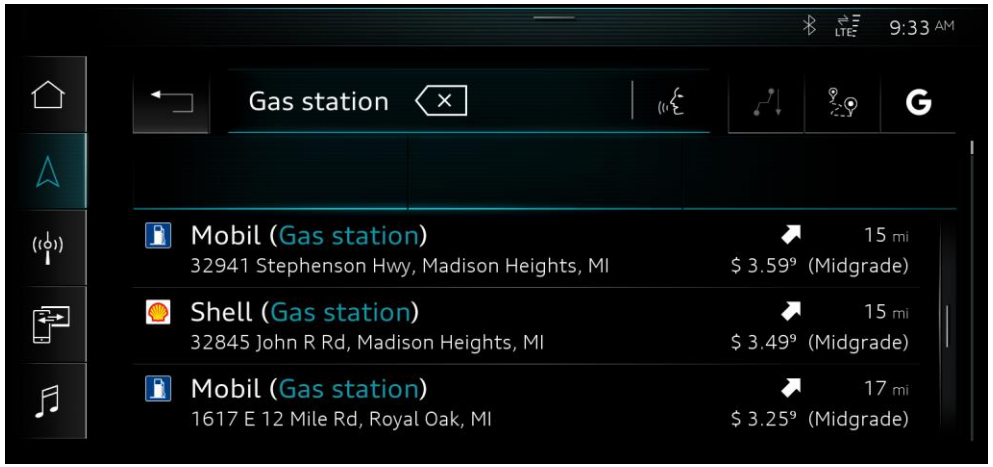
Google search:

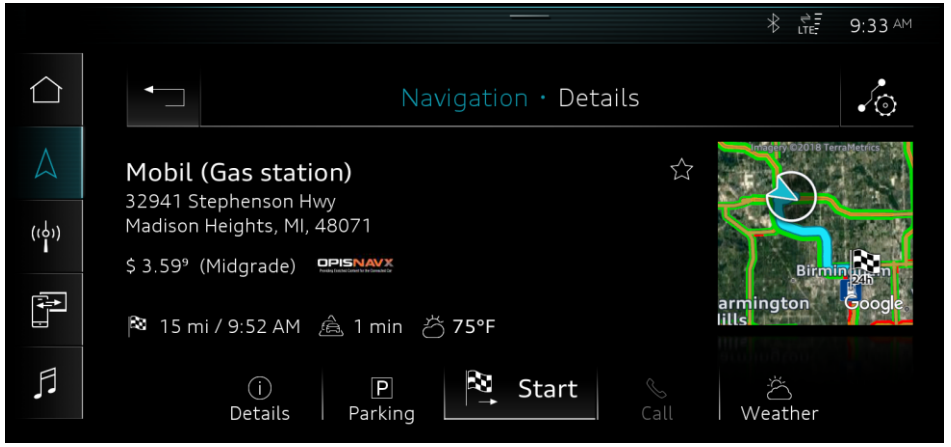
› The magnifying glass shows Google suggestions, the water drop shaped symbol shows the results. It may be necessary to scroll up to see the results if there are more than three suggestions.

01. New MIB2+ Navigation Features

1.3 Online search

Gas station list with dynamic online information (fuel prices):

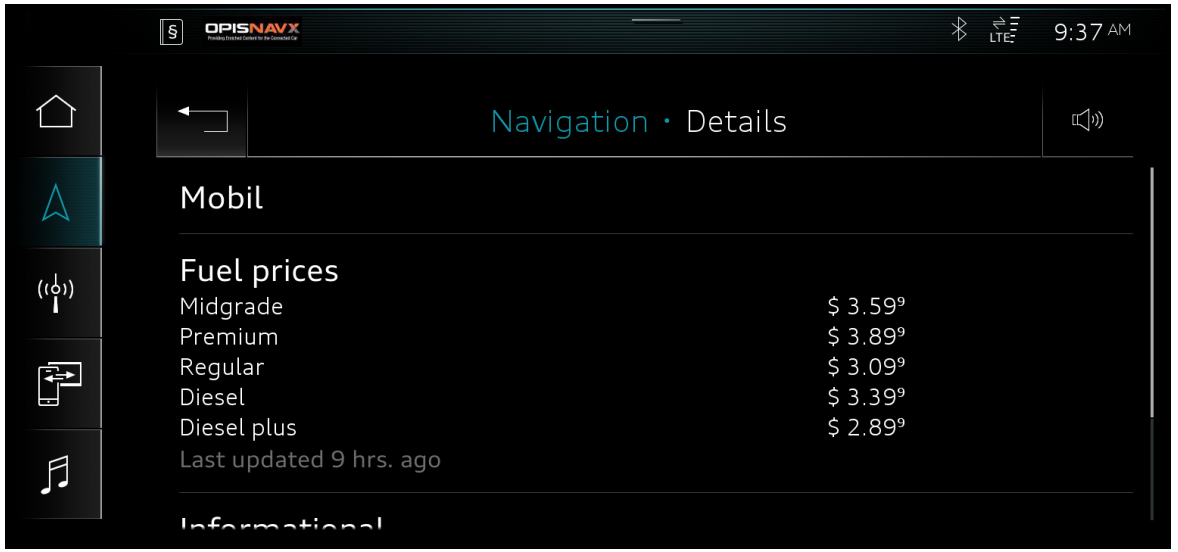




01. New MIB2+ Navigation Features

1.3 Online search

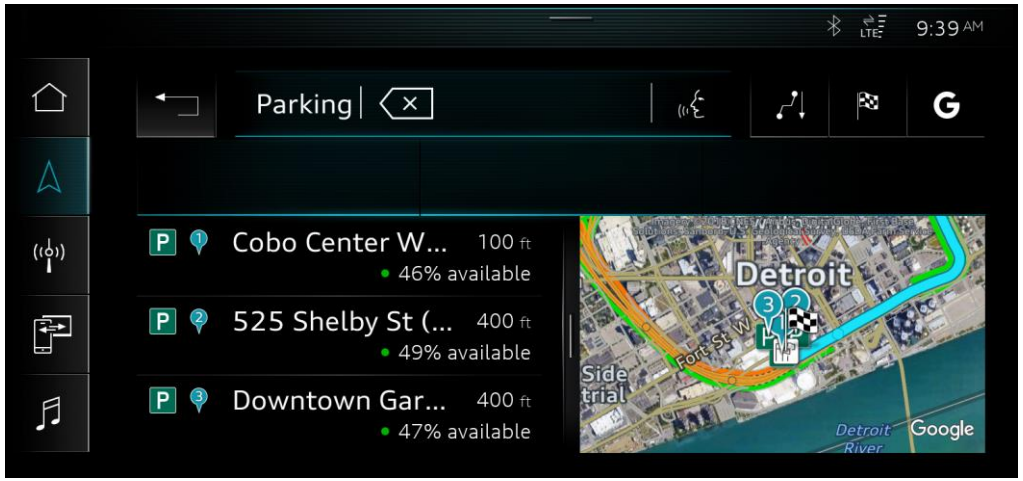
Gas station list with dynamic online information:

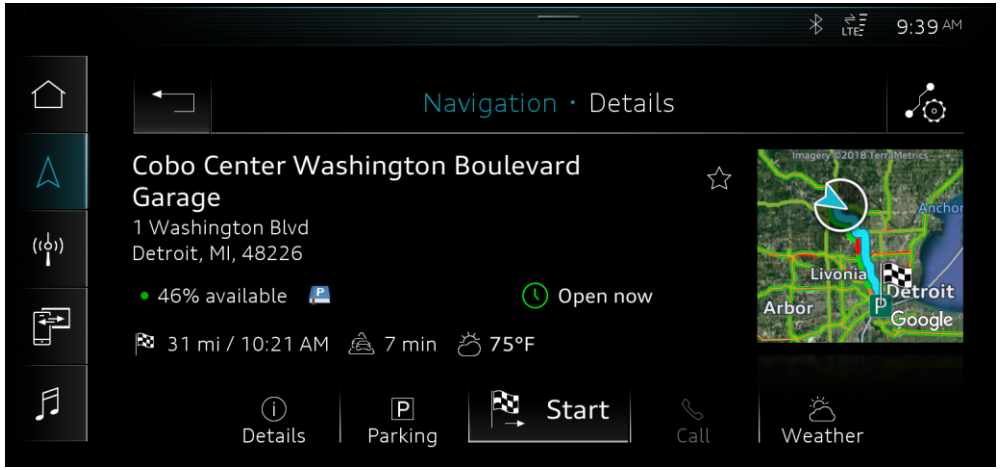


01. New MIB2+ Navigation Features

1.3 Online search

Parking search with dynamic online information (availability; possible status = available, occupied, and unknown):

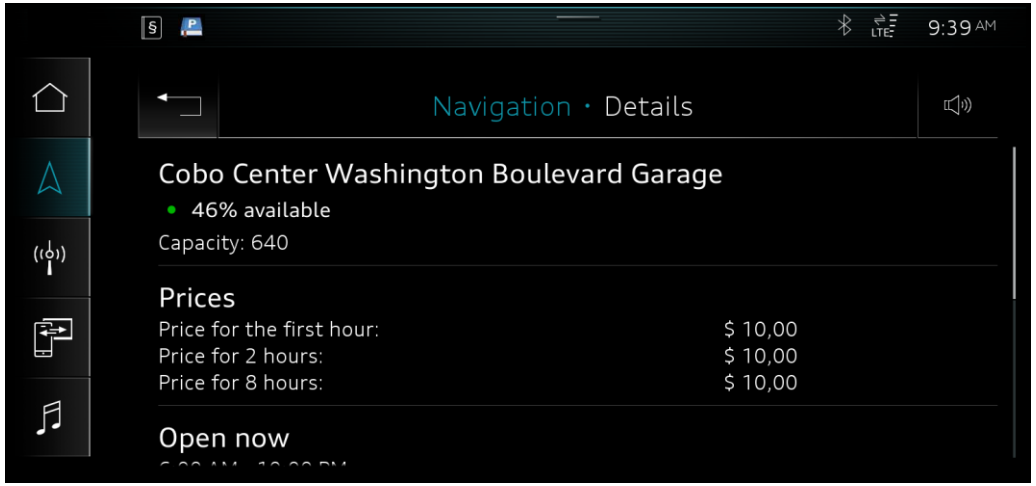


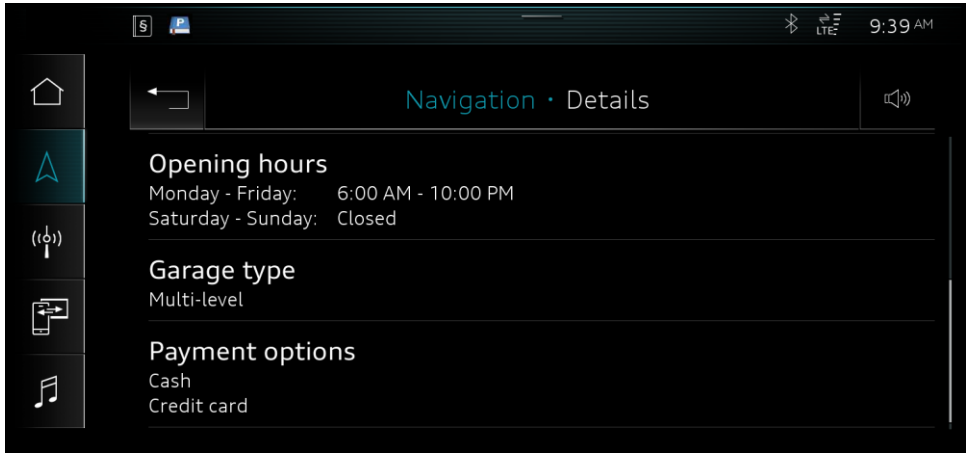


01. New MIB2+ Navigation Features

1.3 Online search

Parking search with dynamic online information (availability; possible status = available, occupied, and unknown):





01. New MIB2+ Navigation Features

1.4 Audi connect navigation function changes

- Some Audi connect functions are also integrated in the new operating concept for destination searches/online searches:
  - Fuel prices.
  - Point of interest search (Google).
  - myAudi contacts.
- There are no separate menu items for these functions.
- The remaining Audi connect functions appear separately in the main menu:
  - News (also includes Twitter).
  - Weather.

ATU topic

Driver Assistance Systems (DAS) - Vehicle Brakes when Customer Believes it Should not

Table of Contents

01. Problem Reported by Customer

- Customer states that the driver assist systems are making braking interventions when they should not.
- Vehicle models: A4 (8W), A5 (F5), Q5 (FY), and Q7 (4M).

What should you do?

- Do not make a TAC ticket at this time.
- Please do a pre-analysis first.
- We cannot offer you any repair support without a technical analysis from your workshop.
- This ATU information serves as a manual to analyze a problem reported by the customer.

01. Problem Reported by Customer

Customer statement:

Vehicle brakes when it should not

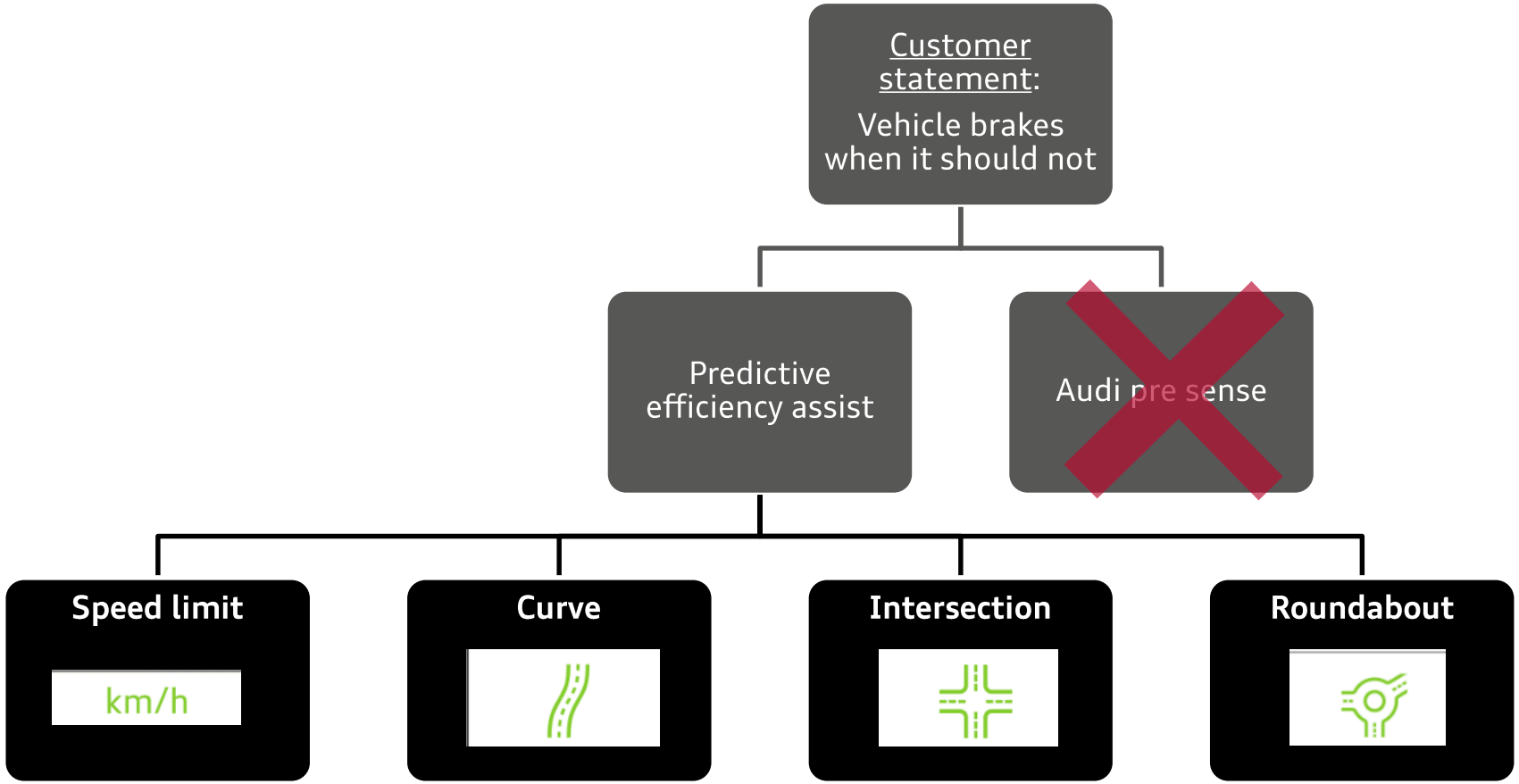
ACC: predictive efficiency assist

Audi pre sense

- Step 1: Which system is the cause?
  - Specific customer information/equipment check necessary.

02. ACC - Predictive Efficiency Assist

2.1 Overview

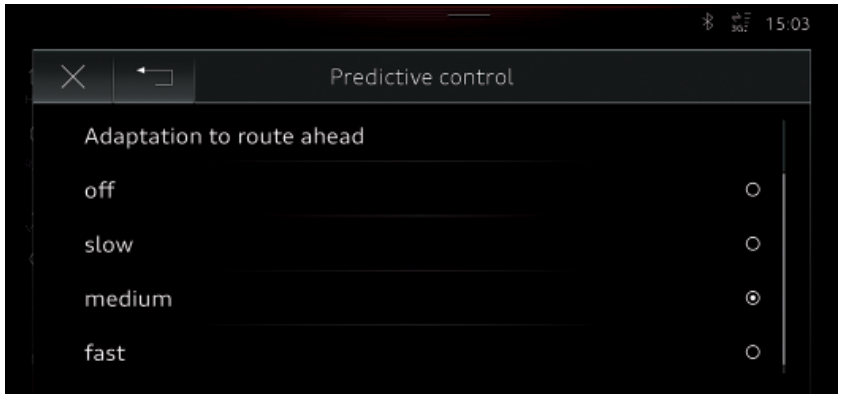


- Step 2: Which event was the system regulating for?
  - Specific customer information necessary.

02. ACC - Predictive Efficiency Assist

2.2 Type and setting of the predictive control

Other influencing factors:

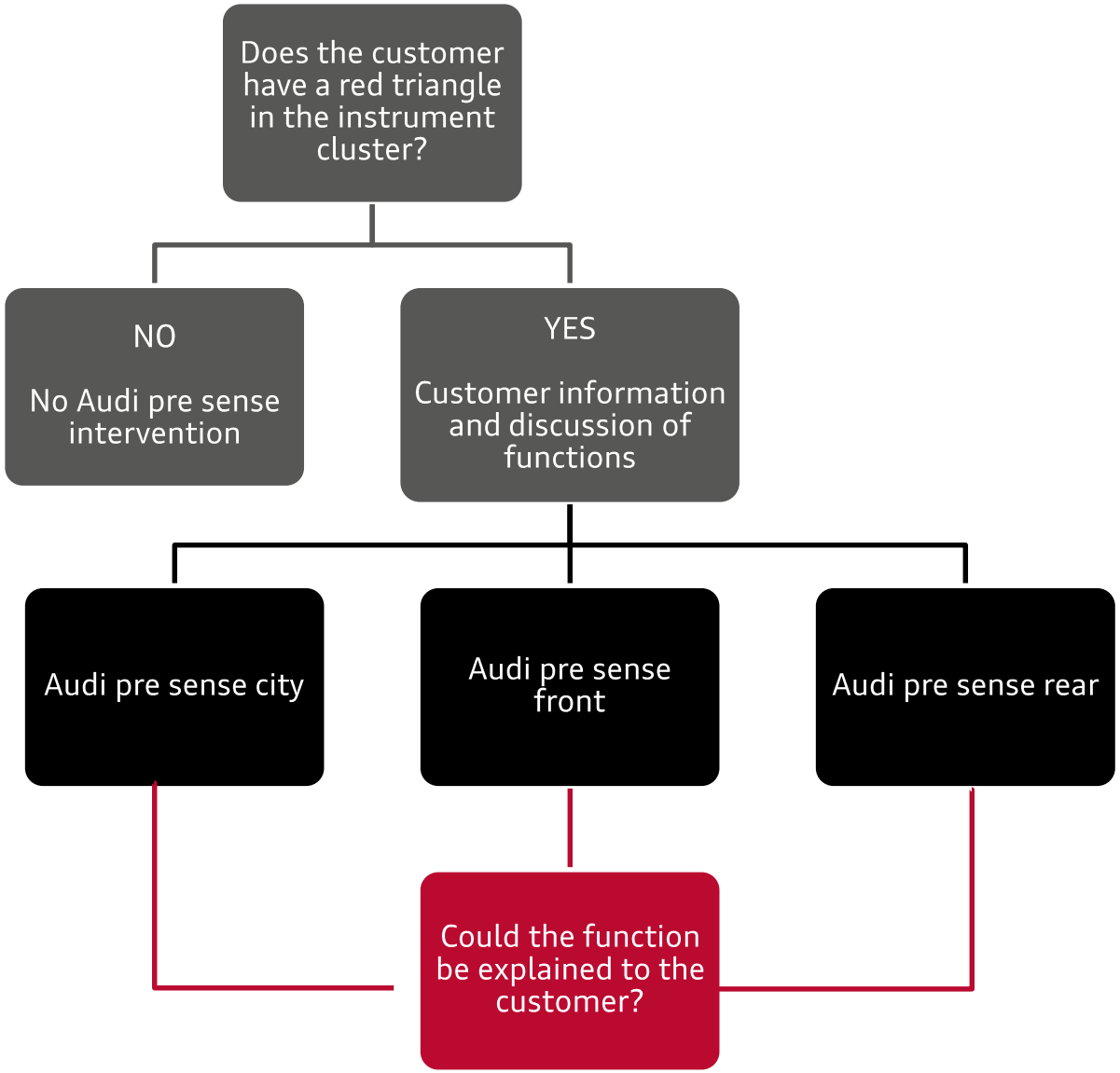


- Options for settings in the MMI:
  - Adaptation to route ahead activated?
  - Regulation to speed limit activated?
- Check navigation data:
  - Which version is the customer using?
  - If necessary, update navigation data to newest version.
- Route guidance:
  - Did the customer have route guidance active?
  - Did the customer follow the route guidance?

- Step 3: Vehicle settings when problem occurred?
  - Customer information and evaluation of vehicle data version.
  - Navigation data version update.

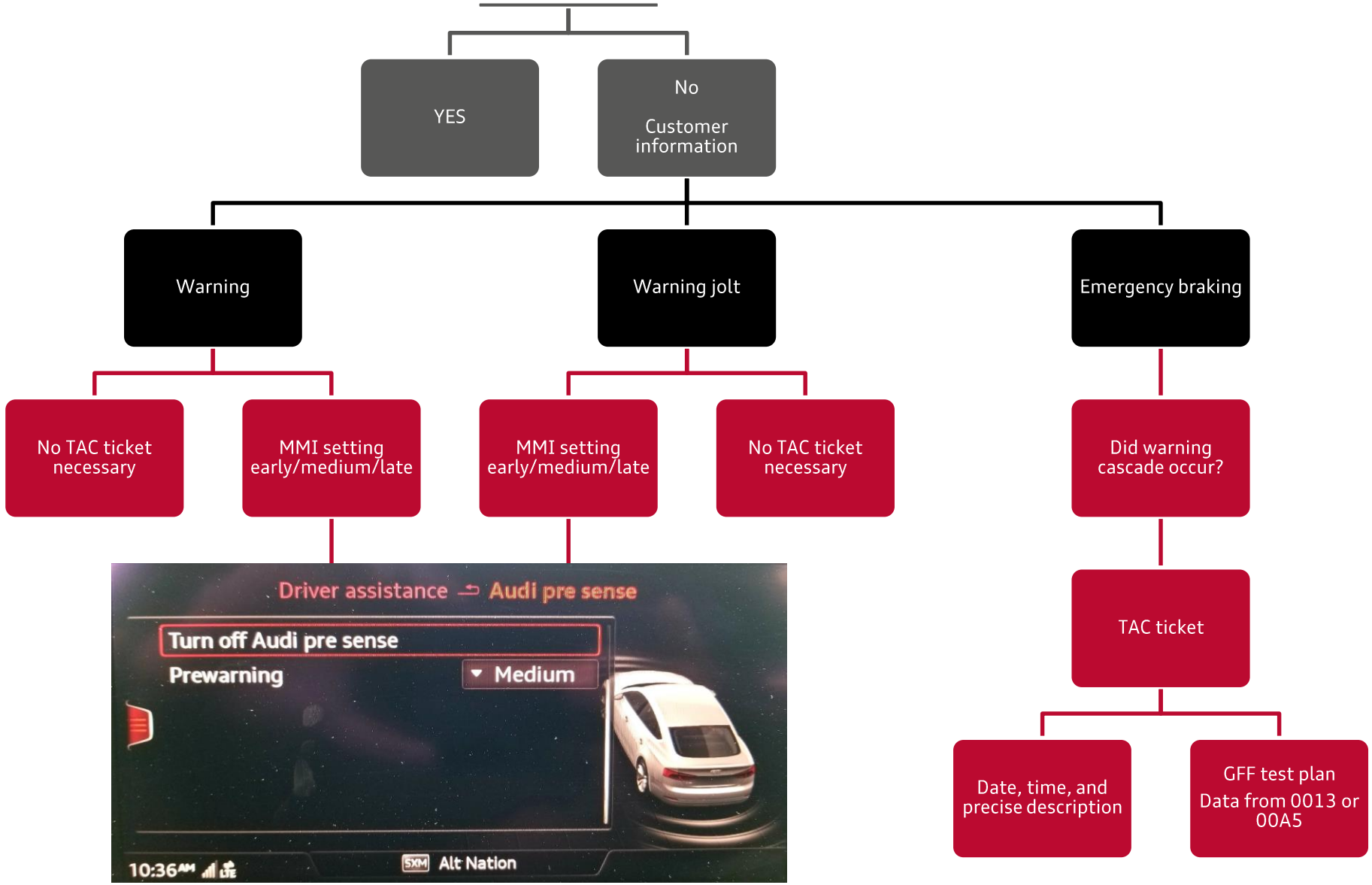
02. ACC - Predictive Efficiency Assist

2.2 Type and setting of the predictive control



02. ACC - Predictive Efficiency Assist

2.2 Type and setting of the predictive control



02. ACC - Predictive Efficiency Assist

2.2 Type and setting of the predictive control

- Can the problem be reproduced?
- In your view, is there a deviation from the system’s intended behavior within its limitations?
- Self-study program 668, Audi A8 (4N), see predictive efficiency assist section.
- Step 4: Independent analysis, collect the following information:
  - GPS data.
  - Date and time.
  - Precise description of the analysis results and steps.

02. ACC - Predictive Efficiency Assist

2.3 TAC Ticket

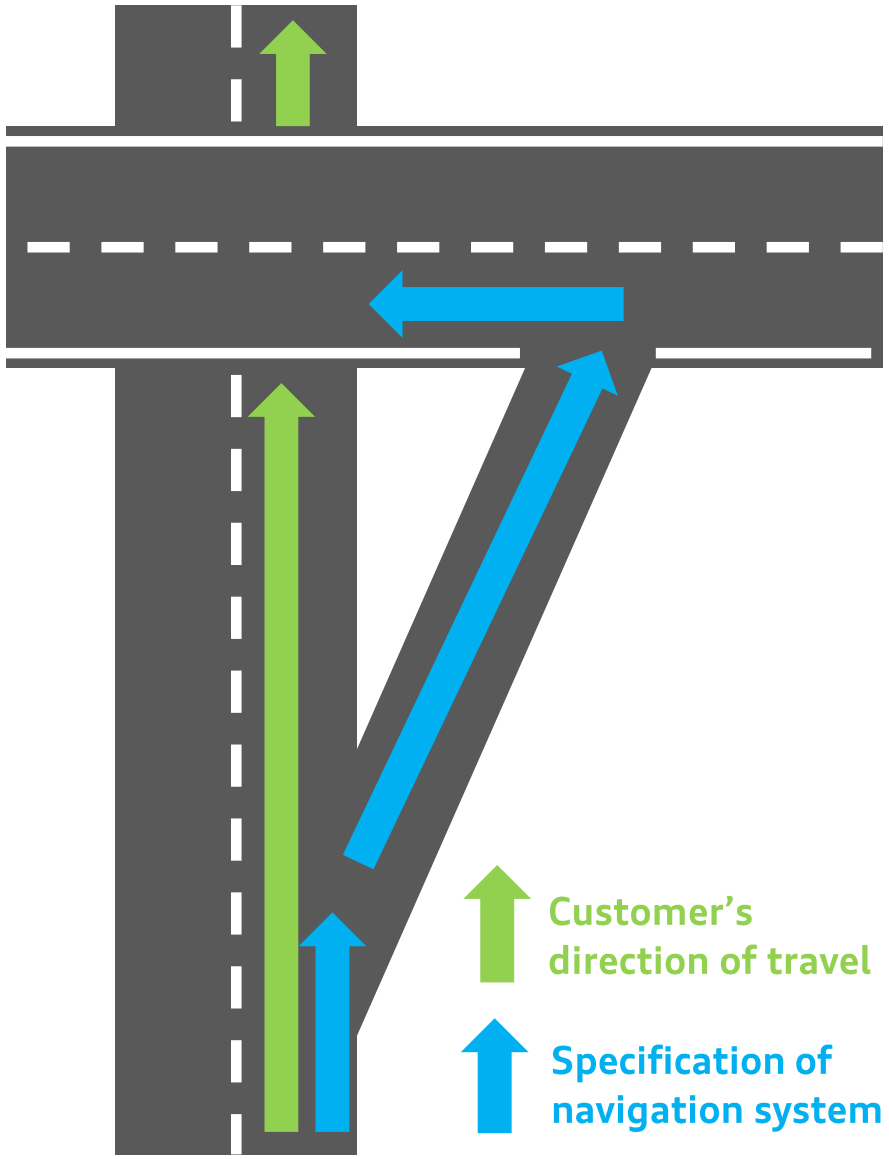
- Only create a TAC ticket if necessary, and when doing so it is imperative that you provide the following information:
  - Step 1: Braking due to the predictive efficiency assist.
  - Step 2: Which event was the system regulating for?
  - Step 3: Vehicle settings: navigation data status, route guidance active, and MMI settings.
  - Step 4: Results of your own analysis:
    - GPS data.
    - Date and time.
    - Precise description of the analysis results and steps.
- If any of this information is missing, the resolution will be delayed until all information is provided.

03. ACC - Predictive Efficiency Assist Examples

Example: Speed adjustment when route guidance is active

03. ACC - Predictive Efficiency Assist Examples

Example: Speed adjustment when route guidance is active



- Customer has set ACC to 50 mph.
- According to route guidance, the vehicle should leave main road.
- No traffic sign is visible ahead.
- Vehicle brakes.
- How would you diagnose this?

03. ACC - Predictive Efficiency Assist Examples

Example: Speed adjustment when route guidance is active

Step 1: Which system is the cause?

- Braking due to the predictive efficiency assist.

Step 2: Which event was the system regulating for?

- Intersection.

Step 3: Vehicle settings when problem occurred

- Navigation data up to date.
- Adaptation to route ahead active.
- Speed adjustment to speed limit active.
- Route guidance active.

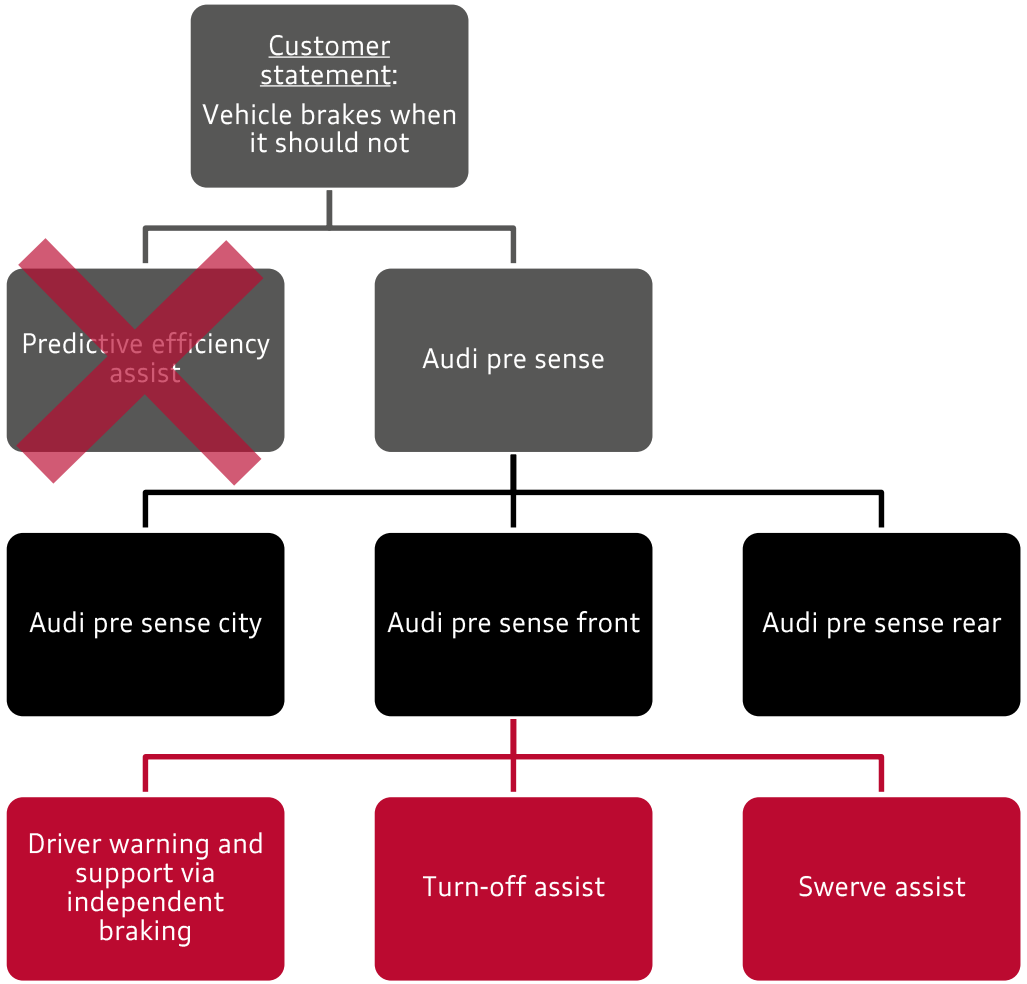
Step 4: Independent analysis

- Problem could be reproduced.
- System working according to specifications.
- Customer did not follow the route guidance.

- **TAC ticket is <u>not</u> necessary.**

04. Audi pre sense

4.1 Overview



Self-study program 637
Audi Q7 (type 4M) - Occupant protection and infotainment

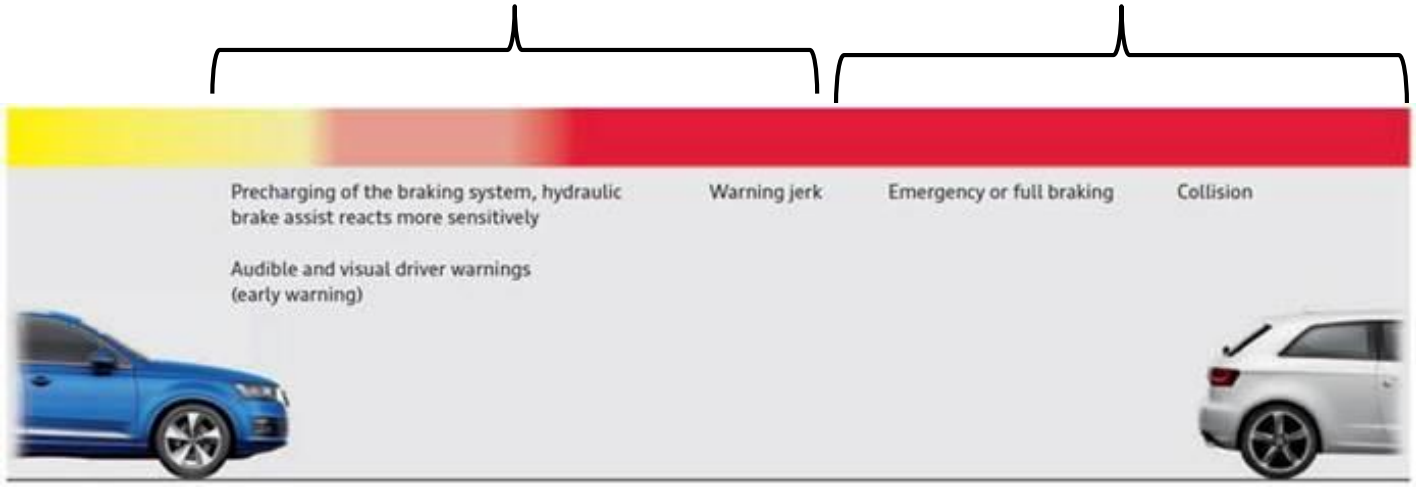
04. Audi pre sense
4.2 Audi pre sense city

Front camera-based system:

- Reaction to:
  - Vehicles: Warning and warning jolt up to 155 mph, braking up to 45 mph.
  - Pedestrians: Warning and warning jolt up to 45 mph, braking up to 25 mph.

- Warning jolt is a very short yet easily noticeable brake application.
- Warning jolt is **not** intended to reduce the vehicle's speed.

- Warnings (optical/acoustic/**warning jolt**).
- MMI setting (early/medium/late).
- Braking.

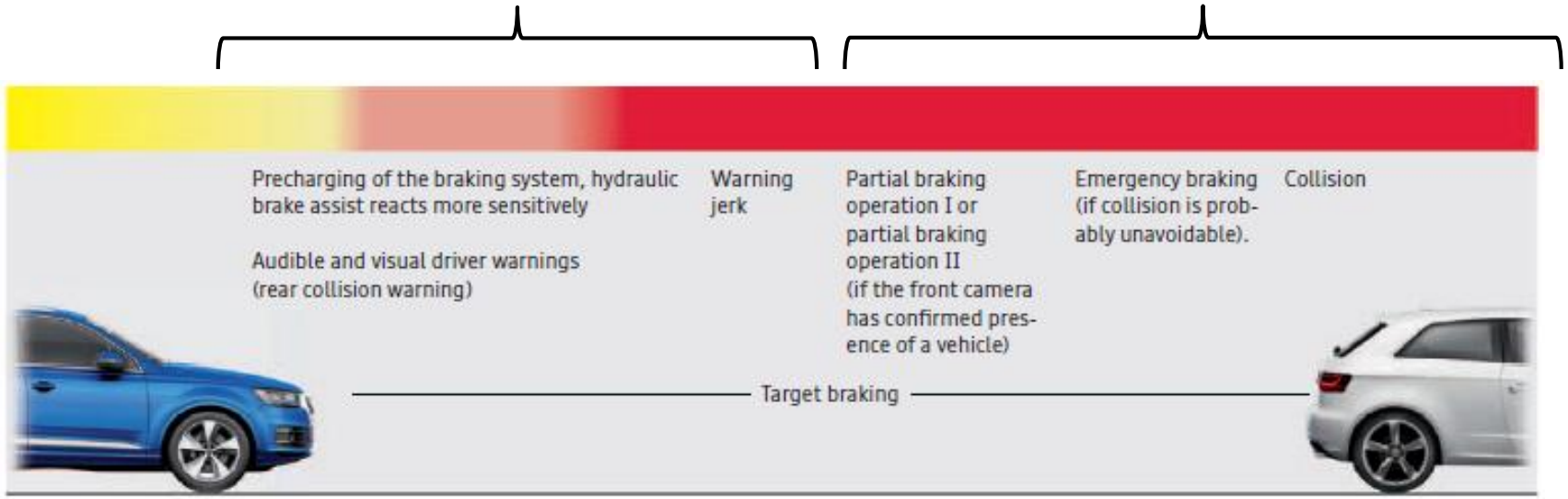


04. Audi pre sense
4.3 Audi pre sense front

- Radar sensor and front camera.
- Only reacts to vehicles.

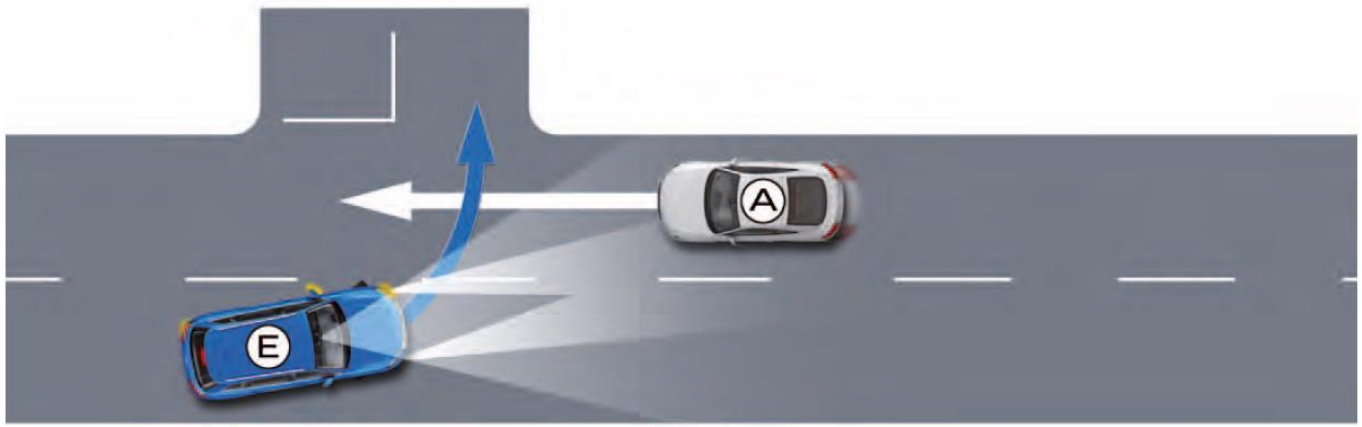
Function A: Driver warning and assistance via automatic braking or increasing the power of the driver's brake application.

- Warnings (optical/acoustic/**warning jolt**).
- MMI setting (early/medium/late).
- Braking.



04. Audi pre sense
4.3 Audi pre sense front

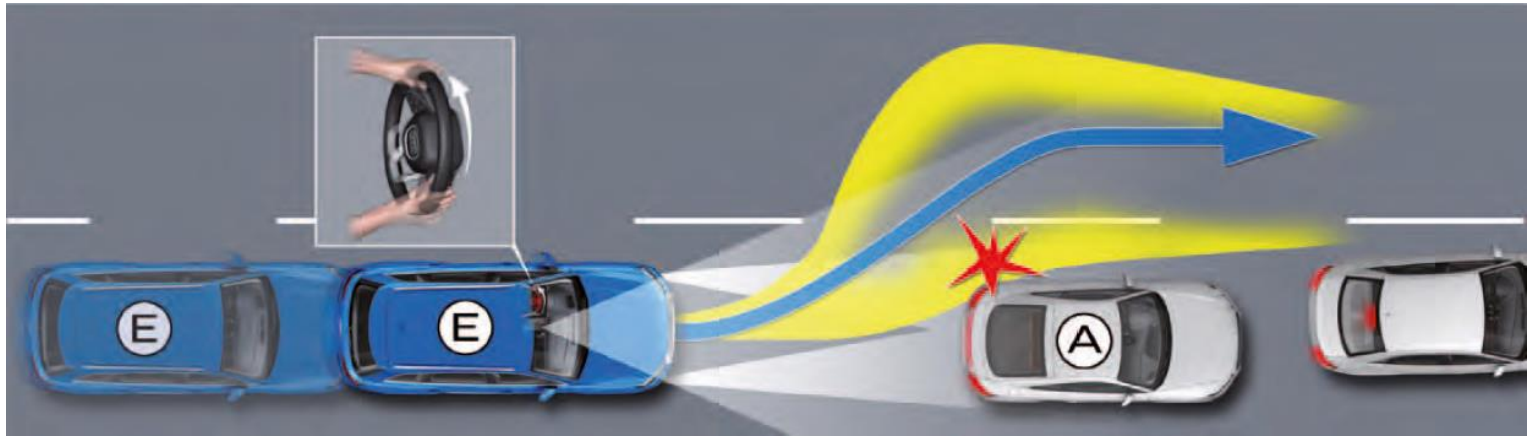
Function B: Turn assist for oncoming vehicles.



- Vehicle speed below 7 mph.
- Turn signal active.
- Very fast brake response.
- Vehicle should come to a standstill in its own lane.

04. Audi pre sense
4.3 Audi pre sense front

Function C: Swerve assist for moving, stopped or stationary vehicles.



- If the driver swerves after the warning jolt from Audi pre sense front.
- Swerve assist helps with the steering torque if necessary.
- Available at speeds of between 20 and 90 mph.
- No steering assistance if driver does not actively steer.

04. Audi pre sense
4.4 Audi pre sense rear

- Radar sensors for lane change assist.

Vehicle reactions:

- Activities:
  - Phase 1:
    - Hazard warning lights for approximately 3 seconds.
  - Phase 2:
    - Side windows and panorama sunroof (if equipped) are closed.
    - Side bolsters of driver and passenger seat are pumped up (if equipped).
    - Audi pre sense instrument cluster message.

    - Depending on the situation, the front seat belts may be tensioned electrically.

- There is always a pre sense basic or rear intervention if seat belts are tensioned.

05. Summary

Customer statement:
Vehicle brakes when it should not

Predictive efficiency assist

Speed limit | Curve | Intersection | Roundabout

Audi pre sense

Audi pre sense city | Audi pre sense front | Audi pre sense rear

Check vehicle settings
(navigation data status, MMI settings)

Discussion of functions and system limitations

Independent analysis:
Can the problem be reproduced?
Consider system limitations

MMI settings for warnings and warning jolts

Optional: TAC ticket with all information below:
GPS, date, time, and symbol in the instrument cluster

Thank you!