PORSCHE

Service Information Technik

Taycan Turbo/Turbo S MY 2020 (Y1A)

Taycan Turbo/Turbo S
MY 2020 (Y1A)

Foreword

The Taycan is the first vehicle from Porsche AG that is entirely electrically powered. It is characterised by the typical sporty driving behaviour of a Porsche. The low centre of gravity of the HV battery and the enormous power of the electric drive in the Taycan Turbo/Turbo S make the Taycan a true Porsche. During the development of the Taycan, Porsche was able to utilise its many years of experience with electrified engines in motor sports. Thus, the 800 volt technology developed for racing enables not only the enormous power density but also a compact design of the high-voltage components.

The Service Information Technik aims to provide you with a system understanding of the Taycan Turbo/Turbo S. The appropriate instructions for diagnostics and repairs can be found in the PCSS.

All information is correct as of July 2019

Caption

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Taycan Turbo/Turbo S
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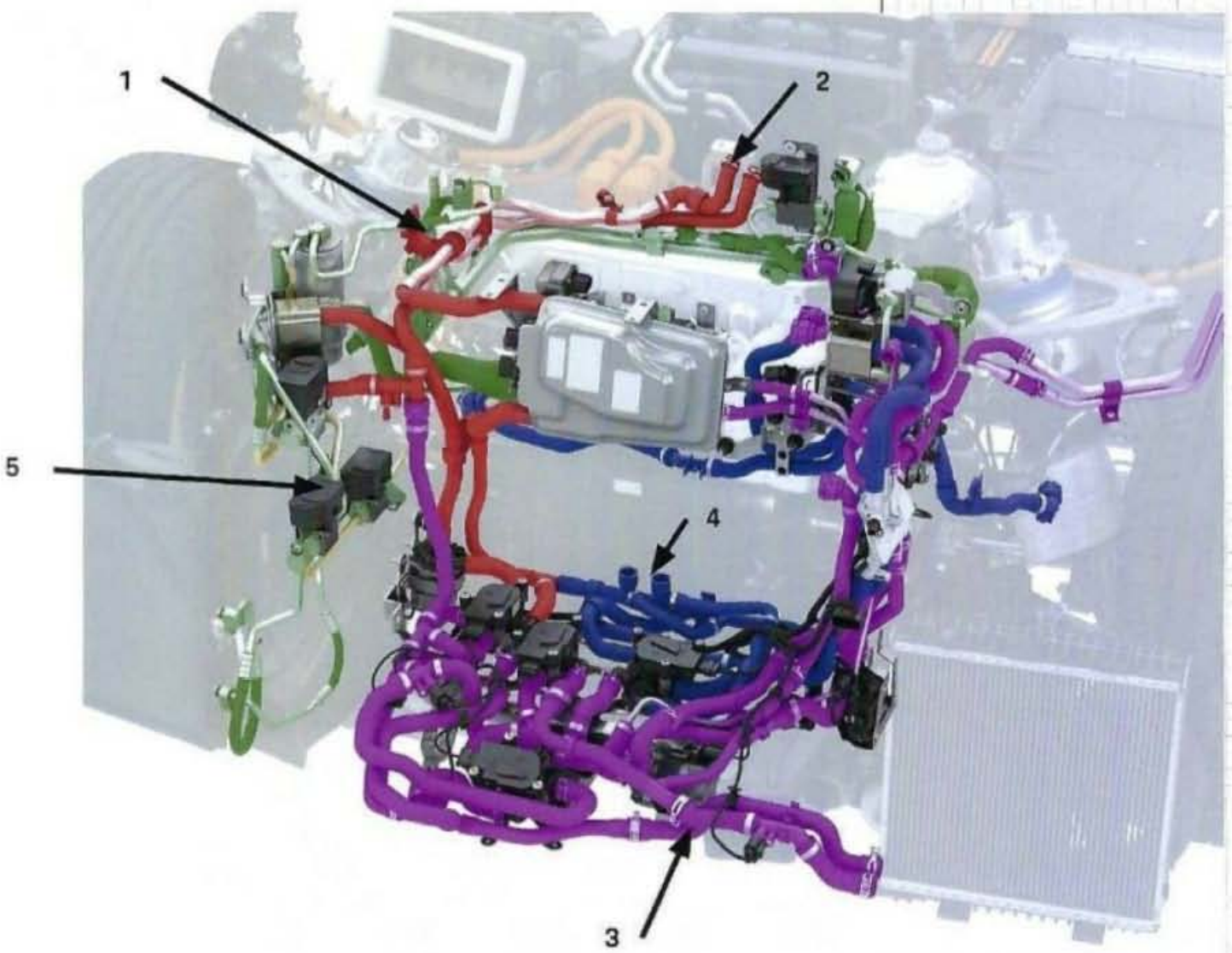
1.3.2 Cable assignment in the front section

The following graphic is intended to simplify the assignment of the cables in the front section to the individual circuits.



Assignment of the cables front view in front of the front axle

1_08_2

1	green	Refrigerant circuit
2	red	High-temperature circuit
3	pink	Medium-temperature circuit
4	blue	Low-temperature circuit
5	orange	Valve unit for heat pump function (optional)

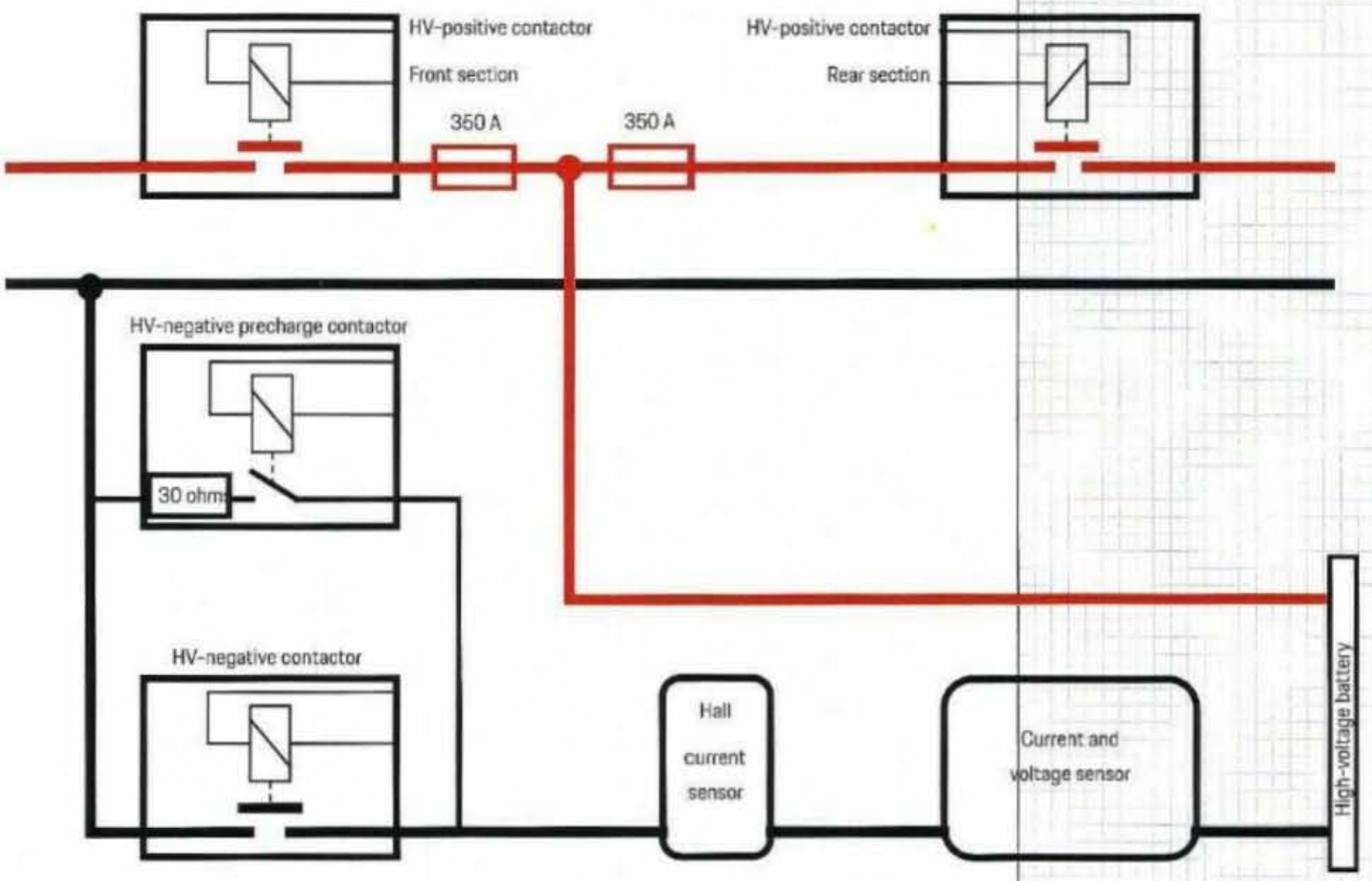
2.6.3 E-box and battery control unit

E-box

The E-box is the switching box of the high-voltage battery and is the isolating unit between the high-voltage battery and high-voltage system of the vehicle.

Among other things, the E-box contains the following components:

- Controllers for current and voltage measurement
- Fuses for front and rear traction lines
- Hall current sensor
- Contactors for the high-voltage positive and high-voltage negative sides
- Precharge contactor with 30 ohm precharge resistor



Contactor circuit in the E-Box

The switching sequence of the contactors when the high-voltage system is started is as follows:

HV Positive front end, HV Positive rear end, HV Negative precharging, HV Negative.

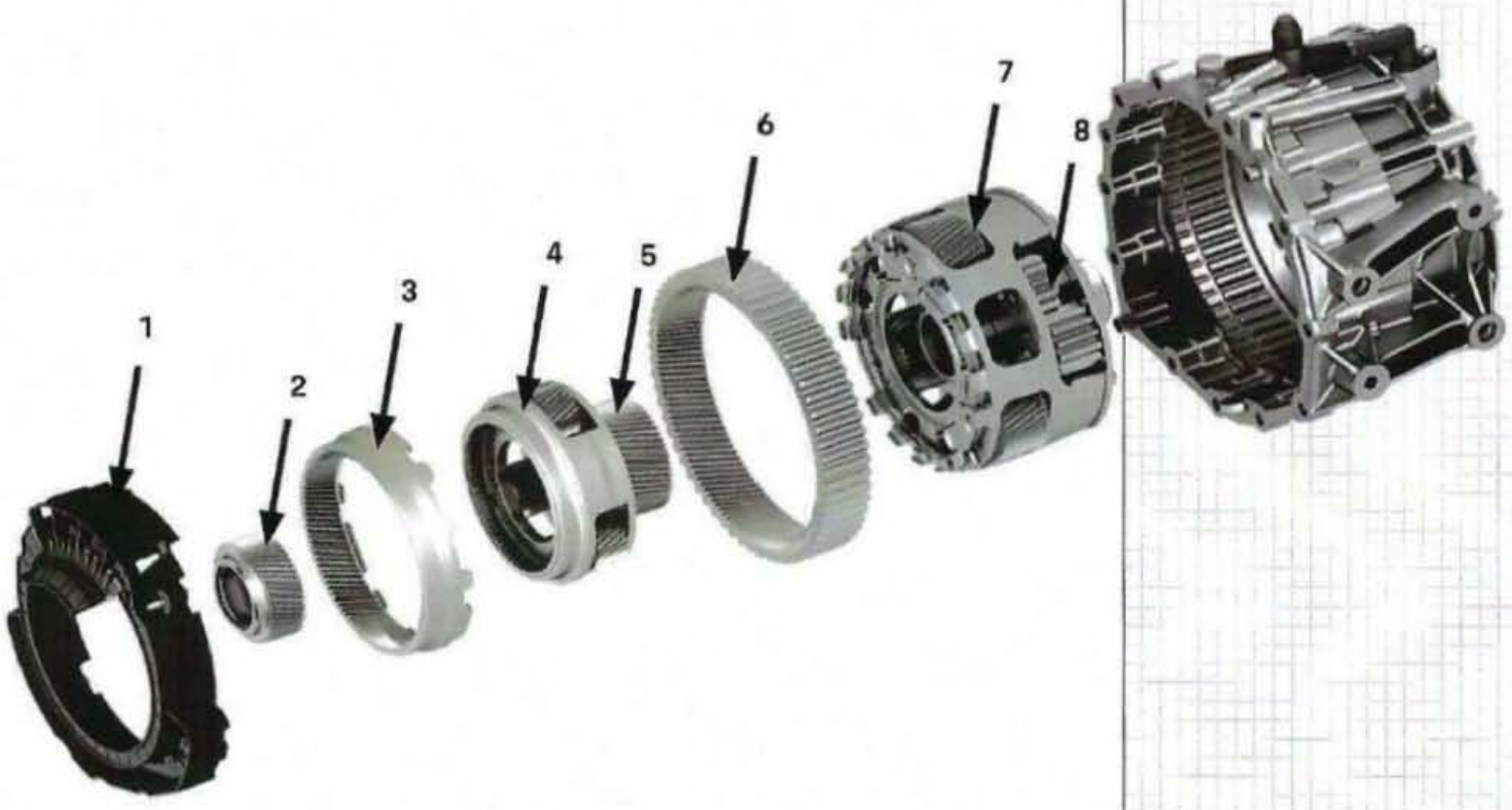
When the contactors are opened, the switching sequence takes place in reverse order.

All contactors are opened simultaneously only in the case of crash tripping.

3.3.2 Design

The front-axle transmission consists of three assemblies arranged axially one behind the other:

- Input-stage planetary gear set
- Load-stage planetary gear set
- Spur gear differential



Exploded view of the front-axle transmission

1. Oil collecting pan
2. Input-stage sun gear
3. Input-stage ring gear
4. Input-stage planetary gear carrier
5. Load-stage sun gear
6. Load-stage ring gear
7. Load-stage planetary gear carrier and planetary gears
8. Spur gear differential

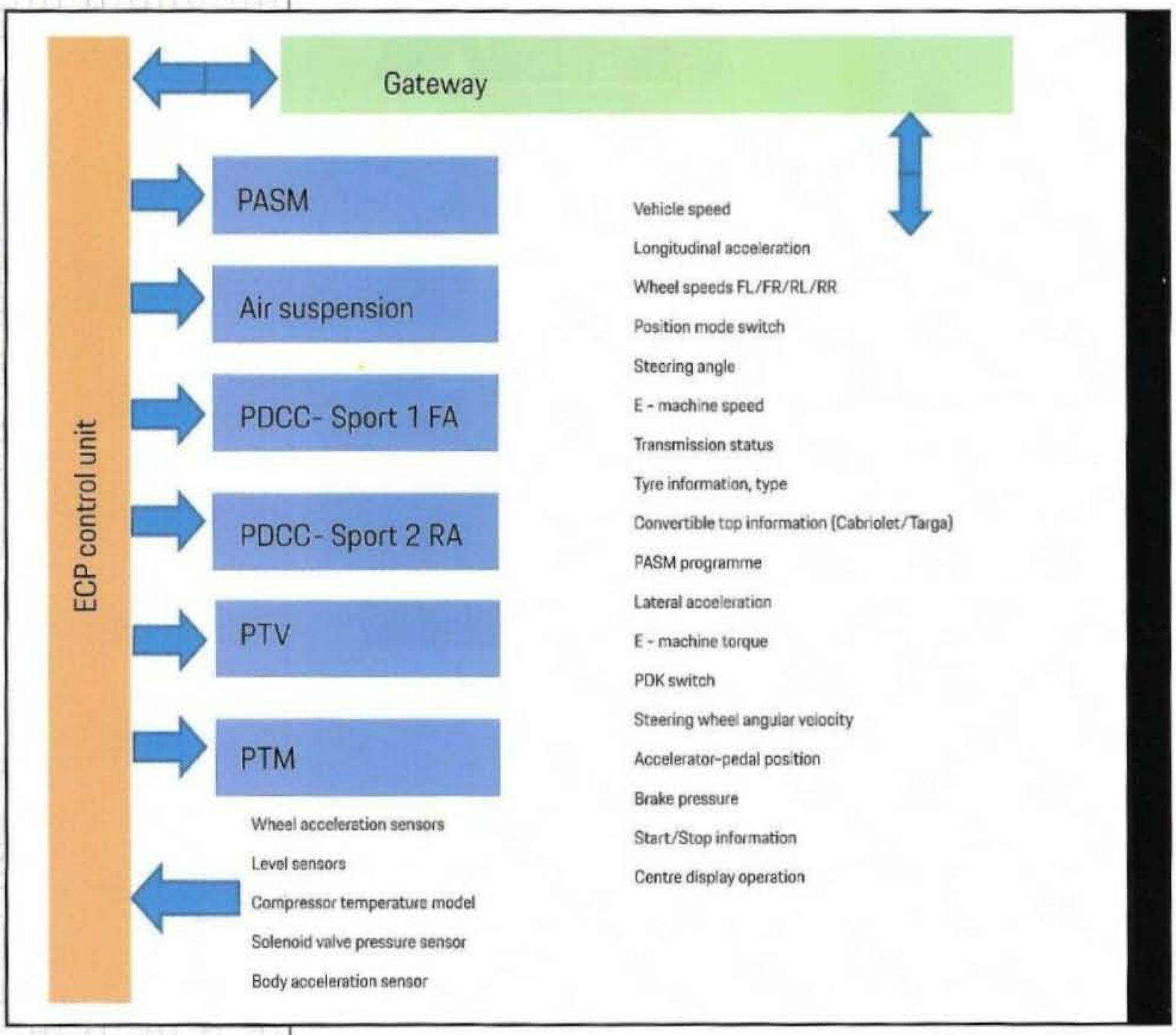
Input-stage planetary gear set

The rotor shaft of the electric motor is non-rotatably connected to the input-stage sun gear via toothing. The input-stage planet gear carrier is, in turn, permanently welded to the load-stage sun gear.

4.4.5 Operating principle

The signal data of the compressor control unit temperature model and the solenoid valve pressure sensor are processed directly in the ECP control unit. Important inputs are the data of the level sensors and acceleration sensors (of the wheel and body) on the vehicle as well as the vehicle speed. This additional information allows the ECP control unit to activate each wheel separately for control of the vehicle height and the air suspension as well as the PASM (Porsche Active Suspension Management) damper control system. Important sensor signals are emitted by the control units:

- PSM
- Drive control unit
- Front axle steering
- Centre display



8.3.3 Temperature zones

The air can be actively heated or cooled in the air chamber mixing module. The following illustration shows a sectional view of the 4-zone module to explain this.

Sectional view in X-axis from left

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The air is routed via the blower to in front of the evaporator unit (1). From here, the air is routed to the desired air outlets corresponding to the setting.

1. Evaporator
2. Variable control element
3. Front air mix flap
4. Heating heat exchanger
5. Rear air mix flap
6. Defrost output
7. Air mixing unit
8. Footwell bypass flap
9. Footwell outlet (shown here on right)
10. Heat pick-up flap