

Brake Symptom – Brake Pedal Travel Perceived as “Too Long” Just Before the Vehicle Comes to a Standstill: Observe Specified Procedure (SY 90/21)

Revision: This bulletin replaces bulletin Group 4 SY 90/21, dated January 20, 2023.

Model Year: **As of 2020**

Model Series: **Taycan (Y1A/ Y1B/ Y1C)**

Concerns: **Brake system**

Symptom: The customer complains that the brake pedal travel is subjectively perceived as “too long” just before the vehicle comes to a standstill (< 12 km/h (7.5 mph)).

Possible causes:

- **Bedding-in routine not yet completed**

The new brake must be ground in on new vehicles or after replacing brake pads. The vehicle will take over this responsibility automatically by deactivating recuperation for a short time. The bedding-in routine can be up to 1,000 km, depending on driving style.

- **‘Brake Refresh’ function**

This function helps to retain the friction coefficient of the brakes. After the vehicle is parked for 6 hours or more, 500 kJ of energy produced during braking is exerted on the mechanical brake. Recuperation is deactivated briefly during this time.

- **‘Stiff Learning Routine’ function**

During regenerative braking (recuperation), the electric braking torque of the electric machine has to be replaced with the hydraulic braking torque of the wheel brakes (‘blending’) at least once during braking, usually shortly before the vehicle comes to a standstill.

In order to eliminate longitudinal deceleration fluctuations and brake pedal irritations during ‘blending’, the actual stiffness of the brake system must be known as accurately as possible to the control units involved (Porsche Stability Management (PSM) and Electric Brake Booster (eBKV)).

During charging, a defined pressure value of the electric brake booster (EBB) is approached and released again with the smallest possible gradient. During this build-up and reduction in pressure, the Porsche Stability Management (PSM) control unit learns the current rigidity of the wheel brake and stores the values. When the function is active, the footbrake moves by approx. 2-3 cm. The brake lights are not activated. This routine takes approx. 60 - 120 seconds.

- The routine not only learns every 200 - 300 km (124 — 186 miles), but every time the battery is charged.
- The learning process only takes about 10 seconds.
- No learning process when the brake is hot or when the steering is turned sharply.

- The teaching process only takes place if the temperature of the brake discs is $< 100\text{ °C}$ and the temperature of the brake callipers is $< 55\text{ °C}$.
- There is no minimum distance between the learning processes. The routine is started if the selector lever is moved from P to D and back to P before charging, for example.
- **Generally, pedal travel is longer when manoeuvring at slow speeds.**

In order to improve the metering action of the brakes while parking, a small brake master cylinder (HBZ) is installed in the Taycan compared with the PHEV vehicles, which extends the pedal travel in order to guarantee better metering when parking and manoeuvring. In addition, both brake circuits are opened fully at speeds of $< 12\text{ km/h}$ (7.5 mph) for noise, vibration and other comfort reasons, which also results in longer pedal travel. When beginning braking at speeds below 12 km/h (7.5 mph), no recuperation is possible.

- **Poor friction coefficient of Porsche Ceramic Composite Brake (PCCB) and Porsche Surface Coated Brake (PSCB) compared to grey cast iron brakes in wet and/or cold weather conditions.**

This effect can adjust when switching from electric to hydraulic braking. This can result in a change in brake pedal feel during braking with the same pedal pressure.

Furthermore, it must generally be ensured that after checking the possible causes listed above, the latest software for the vehicle in question is installed on the PSM control unit.

- **Old software version in the PSM control unit**

A new software version is available for the PSM control unit since June 16, 2023. This software update improves the functionality of the PSM hydraulic unit to optimize performance and enhance the brake pedal feel over a longer period of time.

Action required: • **Break-in routine not yet completed.**

The break-in routine must be completed. After completion, the relevant fault codes in the Porsche Stability Management (PSM) control unit are deleted automatically.

Further information can be found in the 'Braking' section of the Owner's Manual. ⇒ Betriebsanleitung

- **Generally, pedal travel is longer when manoeuvring.**

The state of the art has changed and driving seems unfamiliar at first. The new functions and corresponding behavior of the vehicle must be communicated to the customer. The Owner's Manual for the vehicle can be used here if necessary. ⇒ Betriebsanleitung

- **Poor friction coefficient of Porsche Ceramic Composite Brake (PCCB) and Porsche Surface Coated Brake (PSCB) compared to grey cast iron brakes in wet and/or cold weather conditions.**

The state of the art has changed and driving seems unfamiliar at first. The differences between the brake systems and their behavior in appropriate weather conditions must be communicated to the customer.

Section: 'Brake' ⇒ Betriebsanleitung

Further measures:

If an unsuitable brake pedal travel is still not suitable for comparison vehicles after processing and following notification of all listed items, the following steps must be carried out:

- 1 Bleeding brake system. ⇒ *Workshop Manual '470107 Bleeding brake system'*

After bleeding has been carried out, the vehicle must be charged for at least 60 seconds, in order to initiate the stiffness learning routine (SLR) described above.



Information

The bleeding routine must be performed in accordance with Step 1) in the table in the Workshop Manual '470107 Bleeding the brake system' even if the electric brake booster (eBKV) has not yet been replaced.

- 2 Check the PSM unit software version.

If the PSM control unit is at a software version older than 0190, please update the PSM control unit via automatic programming. NOTE: The PIWIS Tester must be updated to version 42.000.010 or newer before programming the PSM control unit.

- 3 If the complaint persists, contact Technical Support.

Required materials as needed

Materials:	Part No.	Designation	Number
	00004321086	⇒ Brake fluid	30-liter/ 7.92 gal container (approx. 1 liter/ 33.8 fl oz required per vehicle)

Invoicing:



Information

Invoicing is only possible if none of the specified causes were the reason for the complaint and repairs were carried out.

Invoicing:

Depending on the individually required measures to be carried out for documentation and invoicing in the event of a warranty claim, specify the respectively applicable work items from those given below and PQIS code and part no. in the warranty claim:

APOS	Labor operation	I No.
47010750	Bleeding brake system	

PQIS coding:

Location (FES5)	47010	Subjectively unpleasant
Damage type (SA4)	1615	brake system function

References: ⇒ Betriebsanleitung
 ⇒ *Workshop Manual '470107 Bleeding brake system'*

Important Notice: Technical Bulletins issued by Porsche Cars North America, Inc. are intended only for use by professional automotive technicians who have attended Porsche service training courses. They are written to inform those technicians of conditions that may occur on some Porsche vehicles, or to provide information that could assist in the proper servicing of a vehicle. Porsche special tools may be necessary in order to perform certain operations identified in these bulletins. Use of tools and procedures other than those Porsche recommends in these bulletins may be detrimental to the safe operation of your vehicle, and may endanger the people working on it. Properly trained Porsche technicians have the equipment, tools, safety instructions, and know-how to do the job properly and safely. Part numbers listed in these bulletins are for reference only. The work procedures updated electronically in the Porsche PIWIS diagnostic and testing device take precedence and, in the event of a discrepancy, the work procedures in the PIWIS Tester are the ones that must be followed.

© 2023 Porsche Cars North America, Inc.