

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 September 27, 2021.

Model Year: **As of 2020**

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

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 $< 100\text{ }^{\circ}\text{C}$ and the temperature of the brake callipers is $< 55\text{ }^{\circ}\text{C}$.
- 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.

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 Driver's Manual. \Rightarrow Betriebsanleitung

- **'Brake Refresh' function**

Campaign WMA5 must be carried out on vehicles from model year 2020. \Rightarrow *Technical Information 'WMA500 WMA500 -WMA5 Workshop campaign - Updating software for various control units'*

- **'Stiff Learning Routine' function**

Campaign WMA5 must be carried out on vehicles from model year 2020. \Rightarrow *Technical Information 'WMA500 WMA500 -WMA5 Workshop campaign - Updating software for various control units'*

- **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 Driver's Manual for the vehicle can be used here if necessary. \Rightarrow 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'*



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 If the complaint persists, the electric brake booster (EBB) including brake master cylinder (HBZ) must be replaced.

For instructions, see:

⇒ *Workshop Manual '477019 Removing and installing brake booster'*

⇒ *Workshop Manual '471519 Removing and installing brake master cylinder'*

- 3 If the complaint persists, contact Technical Support.

Required parts and materials as needed



Information

All listed **parts** will only be required if the electric brake booster (eBKV) and the brake master cylinder have to be replaced.

If the brake booster (eBKV) and brake master cylinder are replaced **after bleeding** the hydraulic system, you will need **double the specified amount** of brake fluid.

Parts Info:

Part No.	Designation - Location	Number
9J1612161	⇒ Seal - Brake booster	1 piece
PAF912040	⇒ Hexagon-head bolt, M8 x 50 - Strut	4 pieces
Only for left-hand drive (LHD) vehicles:		
9J1614105F	⇒ Brake booster - M-no. LOL	1 piece

9J1614105H ⇒ Brake booster 1 piece
– M-no. K8S, K8X+LOR

Only for right-hand drive (RHD) vehicles:

9J1614105G ⇒ Brake booster 1 piece
– M-no. LOR

9J1614105J ⇒ Brake booster 1 piece
– M-no. K8S, K8X+LOR

Materials:

Part No.	Designation	Number
00004321086	⇒ Brake fluid	30-litre container (approx. 1 litre 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	
47151900	Removing and installing brake master cylinder	
47701900	Removing and installing brake booster	

PQIS coding:

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

References: ⇒ Owner's Manual

⇒ *Technical Information 'WMA500 WMA500 -WMA5 Workshop campaign - Updating software for various control units'*

⇒ *Workshop Manual '470107 Bleeding brake system'*

⇒ *Workshop Manual '471519 Removing and installing brake master cylinder'*

⇒ *Workshop Manual '477019 Removing and installing brake booster'*

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