

**Complaint - Brake Noises: Classifying Features and Procedure (122/20)**

Model Line: **Macan (95B)**  
**Panamera (971)**  
**718 Boxster / 718 Cayman (982)**  
**911 Carrera (992)**  
**Cayenne (9YA / 9YB)**  
**Taycan (Y1A)**

Model Year: **As of 2017**

Concerns: **Brake pads at front and rear**

Cause: Customers complain about brake noises from around the front or rear axle.

Action required: Classify the brake noise, document it and observe the relevant procedure.

**Talking to customers**

Work Procedure: 1 When talking to customers, ask about the operating conditions in which the noise occurs:

- Are the brakes warm or cold?
- Weather conditions dry or wet?
- Outside temperature warm or cold?
- Slight or hard braking?
- Slow, normal or sporty driving?



**Information**

- A groaning noise and creaking can be heard when the brakes are pressed slightly when the vehicle is nearly at a standstill, e.g. when manoeuvring or parking. These noises do not occur when driving normally.
- The groaning/creaking increases when driving on gradients, in wet conditions and in Sport+ drive mode as well as at low temperatures.
- Squealing can occur in all driving situations.
- Other brake noises may be scraping or clicking.

Braking noise	Conditions of occurrence
Groaning / creaking	<ul style="list-style-type: none"> <li>A groaning noise and creaking can be heard when the brakes are pressed lightly when the vehicle is nearly at a standstill, e.g. when manoeuvring or parking.</li> <li>These noises usually do not occur during normal driving.</li> <li>Slopes, wetness and Sport+ driving mode as well as low temperatures increase a groaning / creaking.</li> </ul>
Squealing	<ul style="list-style-type: none"> <li>Slopes, wetness and Sport+ driving mode as well as low temperatures increase a squealing.</li> </ul>
Scraping / chipping	<ul style="list-style-type: none"> <li>Usually occurs on PCCB brake systems when the brake is actuated shortly in front of the vehicle.</li> <li>Slight actuation of the brake can promote scraping / chipping.</li> </ul>

For better classification of the noises, see **3D information**.

## 2 Classification of customer description and deriving possible action:

The brake noise occurs shortly before the vehicle comes to a standstill or while creeping at slow speeds, **usually** when the brakes are cold (groaning or creaking):

Continue with ⇒ *Technical Information 'Cold brakes'*.

The brake noise is **generally** produced shortly before a standstill when the brake is warm and the vehicle has a PCCB brake system (scraping or chipping):

Continue with ⇒ *Technical Information 'brake noise (scraping/chipping)'*.

The brake noise occurs in every driving situation (squealing):

Continue with ⇒ *Technical Information 'Warm brakes'*.

The brake noise cannot be assigned to any of the noises specified above:

Continue with ⇒ *Technical Information 'Other brake noises'*.

3D Information: For better classification of the noises, use the sound file/video under the following link.

4600IN Brake - Checking and complementing brake mechanism

## Brake noise (groaning/creaking)



### Information

The noise complaint must be documented as follows.

Recreate the driving situation in which the noise occurs and repeat this several times if possible. Choose the quietest area possible to do this.

- At speeds < 10 km/h (6 mph) - Record the noise from outside and capture the brake that is causing the noise in the picture

- At speeds > 10 km/h (6 mph) - Record the noise from inside and capture the speedometer in the picture

File name of the video: Quality line ID\_Vehicle\_Noise\_DDMMYYYY

e.g.: 2200123456\_911 Carrera\_Groaning\_26082020

Work Procedure:



**Information**

A groaning noise or creaking usually occurs when the brakes are cold. Squealing can occur in all driving situations.

First classify the noise using the sound file. You will find this under "4636 - Sound file for TI (122/20)" in the information medium TI - Technical Information, Main group 4 - Chassis.

If the noise cannot be classified as groaning or creaking, continue with ⇒ *Technical Information 'Warm brakes'*.

Groaning		Creaking	
Create vehicle analysis log (VAL), reproduce the noise and record it on video.		Create vehicle analysis log (VAL), reproduce the noise and record it on video.	
Can the groaning noise be confirmed and is this the noise the customer complained about?		Can the creaking noise be confirmed and is this the noise the customer complained about?	
Yes	No	Yes	No
See section "Procedure with confirmed noise".	Continue as required for the detected noise, using the sound file to classify it. See <b>3D Information</b> .	See section "Procedure with confirmed noise".	Continue as required for the detected noise, using the sound file to classify it. See <b>3D Information</b> .

**Procedure with confirmed noise**

- Make meaningful documentation of the noise with sound and video material in PQIS.
- Check whether a suitable TI / SY is available for the reported noise in PCSS and work through it.
- If no remedial action is available and there is **no** technical defect in the brake system, explain the technical situation to customers with the help of the Driver's Manual of the vehicle (section: **Brakes – Footbrake – Brake pads and brake discs**).
- If necessary, contact Technical Support in order to agree on how to proceed.

3D Information: For better classification of the noises, use the sound file/video under the following link.

4600IN Brake - Checking and complementing brake mechanism

**Brake noise (squealing)****Information**

The noise complaint must be documented as follows.

Recreate the driving situation in which the noise occurs and repeat this several times if possible. Choose the quietest area possible to do this.

- At speeds < 10 km/h (6 mph) - Record the noise from outside and capture the brake that is causing the noise in the picture
- At speeds > 10 km/h (6 mph) - Record the noise from inside and capture the speedometer in the picture

File name of the video: Quality line ID\_Vehicle\_Noise\_DDMMYYYY  
e.g.: 2200123456\_911 Carrera\_Squealing\_26082020

Work  
Procedure:

**Information**

First classify the noise using the sound file. You will find this under "4636 - Sound file for TI (122/20)" in the information medium TI - Technical Information, Main group 4 - Chassis.

If the noise is not a squealing noise, continue with ⇒ *Technical Information 'Cold brakes'*.

<b>Squealing</b>	
Create vehicle analysis log (VAL), reproduce the noise and record it on video.	
Can the squealing noise be confirmed and is this the noise the customer complained about?	
Yes	No
Check wear condition of the brake pads, see ⇒ <i>Workshop Manual '463602 Checking front disc brake pads'</i> ⇒ <i>Workshop Manual '463402 Checking front PCCB brake pads'</i> ⇒ <i>Workshop Manual '463802 Checking rear disc brake pads'</i> ⇒ <i>Workshop Manual '463502 Checking rear PCCB brake pads'</i>	Continue as required for the detected noise, using the sound file to classify it. See <b>3D Information</b> .
<ul style="list-style-type: none"> <li>• The brake pads are &gt; 50% worn or the brake pad or disc shows signs of damage, continue with Step 1.</li> </ul>	
<ul style="list-style-type: none"> <li>• If the wear condition is unobtrusive:</li> </ul>	

- Make meaningful documentation of the noise with sound and video material in PQIS.
- Reference Group 4 ATI 1801 Brake Squeal for additional measures to address the squealing noises.
- If no remedial action is available and there is **no** technical defect in the brake system, explain the technical situation to customers with the help of the Driver's Manual of the vehicle (section: **Brakes – Footbrake – Brake pads and brake discs**).
- If necessary, contact Technical Support in order to agree on how to proceed.

1 Replace brake pads, see

- ⇒ *Workshop Manual '463656 Replacing front brake disc pads'*
- ⇒ *Workshop Manual '463456 Replacing front PCCB brake pads'*
- ⇒ *Workshop Manual '463856 Replacing rear disc brake pads'*
- ⇒ *Workshop Manual '463556 Replacing rear PCCB brake pads'*.

2 Check brake discs and replace them if necessary, see

- ⇒ *Workshop Manual '465002 Checking front brake discs (wear assessment)'*
- ⇒ *Workshop Manual '465102 Checking front PCCB brake discs (wear assessment)'*
- ⇒ *Workshop Manual '465302 Checking rear brake discs (wear assessment)'*
- ⇒ *Workshop Manual '465402 PCCB - Checking rear brake discs (wear assessment)'*

and

- ⇒ *Workshop Manual '465019 Removing and installing front brake disc'*
- ⇒ *Workshop Manual '465119 Removing and installing front PCCB brake disc'*
- ⇒ *Workshop Manual '465319 Removing and installing rear brake disc'*
- ⇒ *Workshop Manual '465419 Remove and install rear PCCB brake disc'*.

3D Information: For better classification of the noises, use the sound file/video under the following link.

4600IN Brake - Checking and complementing brake mechanism

### Brake noise (scraping/chipping)



#### Information

The brake noises covered in this section (scraping/chipping) usually occur only on PCCB brake systems.

**Information**

The noise complaint must be documented as follows:

Recreate the driving situation in which the noise occurs and repeat this several times if possible. Ensure that the environment is as quiet as possible to do this.

- At speeds < 10 km/h (6 mph) - Record the noise from outside and capture the brake that is causing the noise in the picture
- At speeds > 10 km/h (6 mph) - Record the noise from inside and capture the speedometer in the picture

File name of the video: Process line ID\_Vehicle\_Noise\_DDMMYYYY  
e.g.: 2200123456\_911 Carrera\_Scraping\_20200826

Equipment:

**PCCB front brake disc**

- **Macan (95B)** - M-no. 1LY
- **911 (992)** - M-no. 1LQ, 1LX, 1LZ
- **Panamera (971)** - M-no. 1LQ, 1LX
- **718 Boxster / 718 Cayman (982)** - M-no. 450
- **Taycan (Y1A / Y1B / Y1C)** - M-no. 1LQ, 1LX
- **Cayenne (9YA / 9YB)** - M-no. 1LX, 1ZV, 1ZW

Work

Procedure:

**Information**

Scraping or swapping generally occurs in warm brakes, cold and wet weather conditions in combination with "glazed" brake pad friction surfaces.

Glazing of the brake pad friction surfaces can be caused by a so-called "reduced load" on the brake system.

A "reduced load" occurs when the brake system is generally operated rather rarely and also only slightly. This behavior can be promoted by recuperation on BEV<sup>1</sup> and PHEV<sup>2</sup> vehicles.

If the noise complained about cannot be assigned to scraping or chipping, continue with ⇒ *Technical Information '465419 Further braking noises'*.

<sup>1</sup> Battery Electric Vehicle (BEV)

<sup>2</sup> Plug-in Hybrid Electric Vehicle (PHEV)

<b>Scraping/chipping</b>
Create vehicle analysis log (VAL), reproduce the noise and record it on video.
Can the scraping/chipping be confirmed and is this the noise the customer complained about?

Yes	No
See section "Procedure with confirmed noise".	Continue as required for the detected noise, using the sound file to classify it. See <b>3D Information</b> .

**Procedure with confirmed noise**

- Make meaningful documentation of the noise with sound and video material in PQIS.
- Check whether a suitable TI / SY is available for the reported noise in PCSS and work through it.
- If no remedial action is available and there is **no** technical defect in the brake system, explain the technical situation to customers with the help of the Driver's Manual of the vehicle (section: **Brakes – Footbrake – Brake pads and brake discs**).
- If necessary, contact Technical Support in order to agree on how to proceed.

1 Replace brake pads on the front axle.  
For work procedure, see:  
⇒ *Workshop Manual '463456 Replacing front PCCB brake pads'*

2 In a personal discussion, make the customer aware of the issue of "reduced load" and explain the special features of a ceramic brake system (PCCB).



**Information**

Please note that for the fault type "Brake pad rigging", invoicing is not possible under the New Vehicle or Porsche Approved Warranty.

3D Information: For better classification of the noises, use the sound file/video under the following link.

4600IN Brake - Checking and complementing brake mechanism

**Other brake noises**

Work Procedure: 1 Create vehicle analysis log (VAL), reproduce the noise and record it on video.

- 2 Check wear condition of the brakes, see
- ⇒ *Workshop Manual '463602 Checking front disc brake pads'*
  - ⇒ *Workshop Manual '463402 Checking front PCCB brake pads'*
  - ⇒ *Workshop Manual '463802 Checking rear disc brake pads'*
  - ⇒ *Workshop Manual '463502 Checking rear PCCB brake pads'*.

3 Check brake system for damage.

**Information**

If there are no signs of damage to the brake system, the brakes are not particularly worn and the brake noise cannot be assigned to any of the specified noises:

Document the noise using the relevant sound and video material in PQIS and contact Technical Support to agree on how to proceed.

**Information**

The noise complaint must be documented as follows.

Recreate the driving situation in which the noise occurs and repeat this several times if possible. Choose the quietest area possible to do this.

- At speeds < 10 km/h (6 mph) - Record the noise from outside and capture the brake that is causing the noise in the picture
- At speeds > 10 km/h (6 mph) - Record the noise from inside and capture the speedometer in the picture

File name of the video: Quality line ID\_Vehicle\_Noise\_DDMMYYYY  
e.g.: 2200123456\_911 Carrera\_Mooring\_26082020

**Invoicing**

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.

LO	Labor operation (Macan)	I-no.
46360250	Checking 4 front disc brake pads	
46365600	Replacing 4 front disc brake pads	
46380250	Checking 4 rear disc brake pads	
46385600	Replacing 4 rear disc brake pads	
46340250	Checking 4 front PCCB brake pads	
46345600	Replacing 4 front PCCB brake pads	
46350250	Checking 4 rear PCCB brake pads	
46355600	Replacing 4 rear PCCB brake pads	
46500250	Checking 2 front brake discs	
46502000	Replacing 2 front brake discs	
46530250	Checking 2 rear brake discs	
46532050	Replacing 2 rear brake discs	



46510250	Checking 2 front PCCB brake discs	
46512050	Replacing 2 front PCCB brake discs	
46540250	Checking 2 rear PCCB brake discs	
46542050	Replacing 2 rear PCCB brake discs	

LO	Labor operation (Panamera)	I-no.
46360200	Checking 4 front disc brake pads	
46365600	Replacing 4 front disc brake pads	
46380200	Checking 4 rear disc brake pads	
46385600	Replacing 4 rear disc brake pads	
46340200	Checking 4 front PCCB brake pads	
46345600	Replacing 4 front PCCB brake pads	
46385600	Checking 4 rear PCCB brake pads	
46385600	Replacing 4 rear PCCB brake pads	
46500250	Checking 2 front brake discs	
46502000	Replacing 2 front brake discs	
46530250	Checking 2 rear brake discs	
46532050	Replacing 2 rear brake discs	
46510250	Checking 2 front PCCB brake discs	
46512000	Replacing 2 front PCCB brake discs	
46540250	Checking 2 rear PCCB brake discs	
46542000	Replacing 2 rear PCCB brake discs	

LO	Labor operation (Boxster / Cayman)	I-no.
46360200	Checking 4 front disc brake pads	
46365650	Replacing 4 front disc brake pads	
46380200	Checking 4 rear disc brake pads	
46385650	Replacing 4 rear disc brake pads	
46340200	Checking 4 front PCCB brake pads	
46345650	Replacing 4 front PCCB brake pads	
46350200	Checking 4 rear PCCB brake pads	
46355650	Replacing 4 rear PCCB brake pads	
46500250	Checking 2 front brake discs	

46502050	Replacing 2 front brake discs	
46530250	Checking 2 rear brake discs	
46532050	Replacing 2 rear brake discs	
46510250	Checking 2 front PCCB brake discs	
46512050	Replacing 2 front PCCB brake discs	
46540250	Checking 2 rear PCCB brake discs	
46542050	Replacing 2 rear PCCB brake discs	

LO	Labor operation (911 Carrera)	I-no.
46360200	Checking 4 front disc brake pads	
46365650	Replacing 4 front disc brake pads	
46380200	Checking 4 rear disc brake pads	
46385650	Replacing 4 rear disc brake pads	
46340200	Checking 4 front PCCB brake pads	
46345650	Replacing 4 front PCCB brake pads	
46350200	Checking 4 rear PCCB brake pads	
46355650	Replacing 4 rear PCCB brake pads	
46500250	Checking 2 front brake discs	
46502050	Replacing 2 front brake discs	
46530250	Checking 2 rear brake discs	
46532050	Replacing 2 rear brake discs	
46510250	Checking 2 front PCCB brake discs	
46512050	Replacing 2 front PCCB brake discs	
46540250	Checking 2 rear PCCB brake discs	
46542050	Replacing 2 rear PCCB brake discs	

LO	Labor operation (Cayenne)	I-no.
46360250	Checking 4 front disc brake pads	
46365600	Replacing 4 front disc brake pads	
46380250	Checking 4 rear disc brake pads	
46385600	Replacing 4 rear disc brake pads	
46340250	Checking 4 front PCCB brake pads	
46345600	Replacing 4 front PCCB brake pads	

46350250	Checking 4 rear PCCB brake pads	
46355600	Replacing 4 rear PCCB brake pads	
46500250	Checking 2 front brake discs	
46502050	Replacing 2 front brake discs	
46530250	Checking 2 rear brake discs	
46532050	Replacing 2 rear brake discs	
46510250	Checking 2 front PCCB brake discs	
46512050	Replacing 2 front PCCB brake discs	
46540250	Checking 2 rear PCCB brake discs	
46542050	Replacing 2 rear PCCB brake discs	

LO	Labor operation (Taycan)	I-no.
46360250	Checking 4 front disc brake pads	
46365600	Replacing 4 front disc brake pads	
46380250	Checking 4 rear disc brake pads	
46385600	Replacing 4 rear disc brake pads	
46340250	Checking 4 front PCCB brake pads	
46345600	Replacing 4 front PCCB brake pads	
46350250	Checking 4 rear PCCB brake pads	
46355600	Replacing 4 rear PCCB brake pads	
46500250	Checking 2 front brake discs	
46502050	Replacing 2 front brake discs	
46530250	Checking 2 rear brake discs	
46532050	Replacing 2 rear brake discs	
46510250	Checking 2 front PCCB brake discs	
46512050	Replacing 2 front PCCB brake discs	
46540250	Checking 2 rear PCCB brake discs	
46542050	Replacing 2 rear PCCB brake discs	

Choose PQIS coding based on the fault cause defined above:

<b>Fault location (FES5)</b>	46360	Front disc brake pad
	46320	PSCB brake pad front

	46340	PCCB brake pad front
	46380	Disc brake pad rear
	46330	PSCB brake pad rear
	46350	PCCB brake pad rear

<b>Damage category (SA4)</b>	2019	Squealing
	2017	Grinding, Creaking
	2053	Groaning

- References:
- ⇒ *Workshop Manual '463402 Checking front PCCB brake pads'*
  - ⇒ *Workshop Manual '463456 Replacing front PCCB brake pads'*
  - ⇒ *Workshop Manual '463502 Checking rear PCCB brake pads'*
  - ⇒ *Workshop Manual '463556 Replacing rear PCCB brake pads'*
  - ⇒ *Workshop Manual '463602 Checking front disc brake pads'*
  - ⇒ *Workshop Manual '463656 Replacing front brake disc pads'*
  - ⇒ *Workshop Manual '463802 Checking rear disc brake pads'*
  - ⇒ *Workshop Manual '463856 Replacing rear disc brake pads'*
  - ⇒ *Workshop Manual '465002 Checking front brake discs (wear assessment)'*
  - ⇒ *Workshop Manual '465019 Removing and installing front brake disc'*
  - ⇒ *Workshop Manual '465102 Checking front PCCB brake discs (wear assessment)'*
  - ⇒ *Workshop Manual '465119 Removing and installing front PCCB brake disc'*
  - ⇒ *Workshop Manual '465302 Checking rear brake discs (wear assessment)'*
  - ⇒ *Workshop Manual '465319 Removing and installing rear brake disc'*
  - ⇒ *Workshop Manual '465402 PCCB - Checking rear brake discs (wear assessment)'*
  - ⇒ *Workshop Manual '465419 Removing and installing rear PCCB brake disc'*

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