

**Noise Symptom - Rattling Noises from Engine Compartment (SY 120/19)**

Vehicle Types: **Panamera (971)/Panamera 4 (971)/Panamera 4S (971)/Panamera 4 E-Hybrid (971)/Panamera 4 Sport Turismo (971)/Panamera 4S Sport Turismo (971)/Panamera 4 E-Hybrid Sport Turismo (971)**

Model Year: **As of 2017 up to 2019**

Subject: **High-pressure pump or balance shaft bracing wheel**

Symptom: Customer complaint: Annoying rattling noises from the engine compartment, particularly at an engine speed of between 1,200 and 2,000 rpm (partial load operation, engine at operating temperature).

Remedial Action: Find the source of the noise and replace high-pressure pump or balance shaft bracing wheel, depending on the result of the check.

**Required Tools**

Required tools: • **Nr.172 - Stethoscope**

**Preparatory Work**

- Work Procedure: 1 Remove engine cover, see ⇒ *Workshop Manual '108319 Removing and installing engine cover (design cover) (V6 Turbo)'*
- 2 Remove turbocharger heat shield, see ⇒ *Workshop Manual '261219 Removing and installing turbocharger heat shield (V6 Turbo)'*

**Distinguishing between high-pressure pump and balance shaft bracing wheel**



**Hot components**

- Risk of burns
- ⇒ Let hot components cool down.
- ⇒ Wear personal protective gear.

**Information**

- To prevent unnecessary repairs, it is important to distinguish between the high-pressure pump and balance shaft bracing wheel when trying to pin-point the source of the noise.
- A **Nr.172 - stethoscope**, for example, can be used to pin-point the noise sources.
- **If you cannot be sure that the high-pressure pump is causing the noise, the noise analysis must be carried out using the stethoscope on the high-pressure pump of a comparable vehicle.**

Work Procedure: 1 Start the engine.

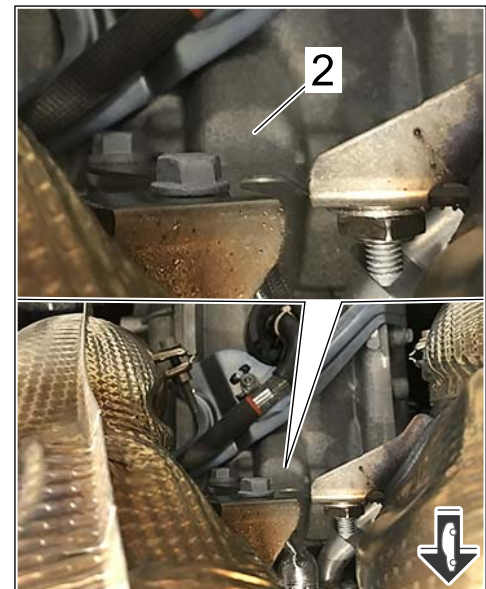
- 2 **Nr.172 - Stethoscope** must be positioned at ⇒ *Contact point on high-pressure pump -1-* and ⇒ *Contact point on engine housing -2-* one after the other in order to find the rattling noise.

If you can clearly hear the rattling noise at ⇒ *Contact point on high-pressure pump -1-*, stop the engine and continue with Step 3.

If you can clearly hear the rattling noise at ⇒ *Contact point on engine housing -2-*, stop the engine and continue with Step 4.



*Contact point on high-pressure pump*



Contact point on engine housing

- 3 Replace high-pressure pump, see ⇒ *Workshop Manual '246319 Removing and installing high-pressure pump (V6 Turbo)'*
- 4 Replace balance shaft bracing wheel, see ⇒ *Workshop Manual '138019 Removing and installing balance shaft bracing wheel (V6 Turbo)'*

Required spare parts for bracing wheel:	Part No.	Designation - Use	Qty.
	9A710344810	⇒ Fastening part — Balance shaft bracing wheel	1
	9A7103293A	⇒ Gear wheel — Balance shaft	1
	95810115320	⇒ Shaft sealing ring — Lower chain housing cover	1
	9A714511320	⇒ Seal — Vacuum pump	1
	N90365302	⇒ O-ring — Coolant pipe	1
	9A712107000	⇒ Seal — Coolant pipe	1
	N10124306	⇒ Internal hexagon round/oval-head screw — Upper chain housing cover	13
	9A710942600	⇒ Axle — Tensioning rail	1

9A710942610	⇒ Axle	2
	— Guide rail	
95810547000	⇒ Chain tensioner guide rail	1
9A710942600	⇒ Axle	1
	— Tensioning rail	
95810547000	⇒ Guide rail	1
9A710923500	⇒ Sealing ring	4
	— Control valves	
WHT004955A	⇒ Internal hexagon round cheese head bolt	1
	— Lower steering column universal joint	
N10156206	⇒ Internal hexagon round cheese head bolt	6
	— Lower chain housing cover	

### Concluding work

- Work Procedure: 1 Install turbocharger heat shield, see ⇒ *Workshop Manual '261219 Removing and installing turbocharger heat shield (V6 Turbo)'*
- 2 Install engine cover, see ⇒ *Workshop Manual '108319 Removing and installing engine cover (design cover) (V6 Turbo)'*

### Invoicing

Invoicing: For documentation and warranty invoicing, enter the labor operations, PQIS coding and part numbers specified below in the warranty claim:

APOS	Labor operation	I No.
13800110	Checking balance shaft bracing wheel (971) (63 TU)	

APOS	Labor operation	I No.
13805510	Checking and replacing balance shaft bracing wheel (97AAA1, 97AAY1, 97ABA1, 97ABY1, 97CBA1, 97CBY1) (1,328 TU)	

APOS	Labor operation	I No.
13805515	Checking and replacing balance shaft bracing wheel (97ADB1, 97CDB1) (1,509 TU)	

APOS	Labor operation	I No.
13805520	Checking and replacing balance shaft bracing wheel (97ABE1, 97CBE1) (1,354 TU)	

PQIS coding:

<b>Location (FES5)</b>	10000	Crankcase, bracket
<b>Damage type (SA4)</b>	2014	rattling

Part No.:	Part No.	Designation	Qty.
		<b>- Use</b>	
	9A710344810	⇒ Fastening part	1
		— Balance shaft bracing wheel	
	9A7103293A	⇒ Gear wheel	1
		— Balance shaft	
	95810115320	⇒ Shaft sealing ring	1
		— Lower chain housing cover	
	9A714511320	⇒ Seal	1
		— Vacuum pump	
	N90365302	⇒ O-ring	1
		— Coolant pipe	
	9A712107000	⇒ Seal	1
		— Coolant pipe	
	N10124306	⇒ Internal hexagon round/oval-head screw	13
		— Upper chain housing cover	
	9A710942600	⇒ Axle	1
		— Tensioning rail	
	9A710942610	⇒ Axle	2
		— Guide rail	
	95810547000	⇒ Chain tensioner guide rail	1
	9A710942600	⇒ Axle	1
		— Tensioning rail	
	95810547000	⇒ Guide rail	1
	9A710923500	⇒ Sealing ring	4
		— Control valves	
	WHT004955A	⇒ Internal hexagon round cheese head bolt	1
		— Lower steering column universal joint	
	N10156206	⇒ Internal hexagon round cheese head bolt	6
		— Lower chain housing cover	

References: ⇒ *Workshop Manual '108319 Removing and installing engine cover (design cover) (V6 Turbo)'*  
 ⇒ *Workshop Manual '261219 Removing and installing heat shield for turbocharger (V6 Turbo)'*  
 ⇒ *Workshop Manual '138019 Removing and installing balance shaft bracing wheel (V6 Turbo)'*

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