

**Noise Symptom - Rattling Noises from Engine Compartment: Checking Balance Shaft Bracing Wheel and Replacing it if Necessary (SY 120/19)**

Change  
Overview:

Version	Date	Change
0	02/17/202	• First publication
1	11/18/2020	• Update of order types
2	04/30/2024	• Update of order types and MY

Model Year: **As of 2017**

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)**

Subject: **Balance shaft bracing wheel**

Symptom: 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: Check balance shaft bracing wheel using a stethoscope and replace it if necessary.

**Required tools and parts**

Tools: **• Nr.172 - Stethoscope**

Parts Info: <sup>1)</sup>	Part No.	Designation – Use	Qty.
	9A710344810	⇒ Fastening part – Balance shaft bracing wheel	1 ea.
	9A7103293A	⇒ Gear wheel – Balance shaft	1 ea.
	95810115320	⇒ Shaft sealing ring – Lower chain housing cover	1 ea.
	N 10156206	⇒ Internal hexagon round cheese head bolt – Lower chain housing cover	6 ea.
	N 10413405	⇒ Internal hexagon round cheese head bolt – Lower chain housing cover	19 ea.

9A714511320	⇒ Seal – Vacuum pump	1 ea.
N 90365302	⇒ O-ring – Coolant pipe	1 ea.
9A712107000	⇒ Seal – Coolant pipe	1 ea.
9A700565200	⇒ O-ring – Coolant pipe	1 ea.
N 10124306	⇒ Internal hexagon round/oval-head screw – Upper chain housing cover	14 ea.
N 91004802	⇒ Double hexagon-head bolt – Upper chain housing cover	2 ea.
N 10451405	⇒ Internal hexagon round/oval-head screw – Fuel high-pressure line	5 ea.
9A710942600	⇒ Axle – Tensioning rail	1 ea.
9A710942610	⇒ Axle – Guide rail	2 ea.
95810547000	⇒ Guide rail – Timing chain	2 ea.
9A709493000	⇒ Friction plate – Camshaft actuator	4 ea.
9A710923500	⇒ Sealing ring – Control valves	4 ea.
WHT004955A	⇒ Internal hexagon round cheese head bolt – Lower steering column universal joint	1 ea.

<sup>1)</sup> The parts are only required for replacing the balance shaft bracing wheel.

## Preparatory work

Work Procedure: 1 Remove engine cover, see ⇒ *Workshop Manual '108319 Removing and installing engine cover (design cover) (V6 Turbo)*'.

2 To 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.

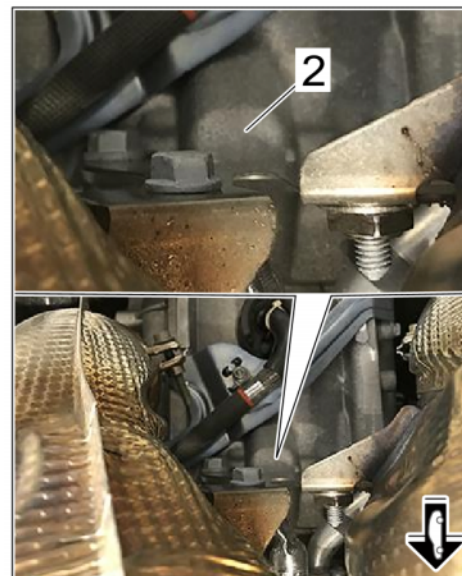
- 2 **Nr.172 - Stethoscope** must be used on the high-pressure pump ⇒ *Contact point on high-pressure pump -1-* and then on the engine housing ⇒ *Contact point on engine housing -2-* in order to find the rattling noise.

If you can clearly hear the rattling noise at the contact point on the high-pressure pump ⇒ *Contact point on high-pressure pump -1-*, stop the engine and continue fault finding. Something else is causing the fault.

If you can clearly hear the rattling noise at the contact point on the engine housing ⇒ *Contact point on engine housing -2-*, stop the engine and continue with Step 3.



*Contact point on high-pressure pump*



Contact point on engine housing

- 3 Replace balance shaft bracing wheel, see ⇒ *Workshop Manual '138019 Removing and installing balance shaft bracing wheel (V6 Turbo)'*.

### Concluding work

Work Procedure: 1 To install the 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)	

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

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

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

PQIS coding:

<b>Location (FES5)</b>	1380	Drive wheel for balance shaft
<b>Damage type (SA4)</b>	2014	Rattling

Parts: <sup>1)</sup>	Part No.	Designation	Qty.
		<b>- Use</b>	
	9A710344810	Fastening part	1 ea.
		- Balance shaft bracing wheel	
	9A7103293A	Gear wheel	1 ea.
		- Balance shaft	
	95810115320	Shaft sealing ring	1 ea.
		- Lower chain housing cover	
	N 10156206	Internal hexagon round cheese head bolt	6 ea.
		- Lower chain housing cover	
	N 10413405	Internal hexagon round cheese head bolt	19 ea.
		- Lower chain housing cover	
	9A714511320	Seal	1 ea.
		- Vacuum pump	
	N 90365302	O-ring	1 ea.
		- Coolant pipe	
	9A712107000	Seal	1 ea.
		- Coolant pipe	
	9A700565200	O-ring	1 ea.
		- Coolant pipe	
	N 10124306	Internal hexagon round/oval-head screw	14 ea.
		- Upper chain housing cover	
	N 91004802	Double hexagon-head bolt	2 ea.
		- Upper chain housing cover	
	N 10451405	Internal hexagon round/oval-head screw	5 ea.
		- Fuel high-pressure line	
	9A710942600	Axle	1 ea.
		- Tensioning rail	

9A710942610	Axle – Guide rail	2 ea.
95810547000	Guide rail – Timing chain	2 ea.
9A709493000	Friction plate – Camshaft actuator	4 ea.
9A710923500	Sealing ring – Control valves	4 ea.
WHT004955A	Internal hexagon round cheese head bolt – Lower steering column universal joint	1 ea.

<sup>1)</sup> The parts are only required for replacing the balance shaft bracing wheel.

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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