

Misfiring at High Revs (59/15)

Change Overview:

Revision	Date	Change
0	06/27/2018	<ul style="list-style-type: none"> First publication
1	04/20/2026	<ul style="list-style-type: none"> Action revised (replacement of camshafts and valve levers instead of the entire engine) Required parts added Required tools added
2	04/23/2026	<ul style="list-style-type: none"> Update to Diagnostic path for systematic fault finding

Model Year: **As of 2014 up to 2016**

Vehicle Type: **911 GT3 (991)**

Concerns: **Engine malfunction (Misfiring at high revs)**

- Information:
- Diagnostic path for fault finding in the event of the complaint "Engine malfunction"
 - Required repair measures

Diagnostic path for systematic fault finding

Action:



Information

The following diagnostic path relates to the topic "**Engine malfunctions** (particularly misfiring) **at high revs** (approx. 7,000 rpm)" and is designed to help you to find possible fault causes quickly and effectively. In particular, this involves identifying possible wear on the valve levers, which usually occurs at high engine speeds.

If misfiring occurs even at **considerably lower engine speeds** or **over the entire rev range**, depending on the fault memory entries stored in the DME control unit fault memory, **the components that are usually affected by this type of fault** (spark plugs, ignition coils, injectors, etc.) must always be checked **first** in accordance with the instructions provided under Guided Troubleshooting in the Porsche Tester.

The recommended procedure for systematic troubleshooting in "Engine malfunction (misfiring) at high revs (approx. 7,000 rpm)" is described here in detail. For greater clarity, the detailed description includes a condensed overview of the information in the form of a table.

Customer complaint:

- Engine malfunctions occur during **full-load acceleration at high revs** (approx. 7,000 rpm).

- The **yellow warning message** "Reduced power – Driving permitted – Consult a workshop" is displayed on the multi-function display in the instrument cluster.
- The **engine warning light** ("Check Engine" symbol) also comes on in the instrument cluster.
- Engine runs in **limp-home mode**.
- The engine warning light and warning message disappear after switching off the ignition and then switching it back on again (ignition reset). The engine runs normally again.

Fault verification:

If these symptoms are present, the fault must be verified using the procedure described below.

**Information**

If misfiring occurs even at **considerably lower engine speeds** or **over the entire rev range**, depending on the fault memory entries stored in the DME control unit fault memory, **the components that are usually affected by this type of fault** (spark plugs, ignition coils, injectors, etc.) must always be checked **first** in accordance with the instructions provided under Guided Troubleshooting in the Porsche Tester.

- **Read out the fault memory using the Porsche Tester:** In the DME control unit memory, the fault entry **P0300 – Misfire totals error** is together with a fault entry **P0301 ... P0306 (Misfire cylinder 1 ... 6)** is stored.
- Create a **Vehicle Analysis (VAL)** using the Porsche Tester.
- **Test-drive the vehicle until the fault occurs:** Full-load acceleration in 3rd gear (manual drive mode) over a rev range of 4,000 – 8,500 rpm.
- **Reproduce the fault:** The fault can be reproduced again – always in the same rev range (+/- 300 rpm) – as described above.

Actions:

- 1 The fault **cannot** be reproduced:
 - There is a high probability that the malfunction is **not** caused by wear on a valve lever. Another component must be checked in order to determine the cause.
 - If necessary, talk to your contact person for technical enquiries at your importer's office in order to decide what to do next.
- 2 **The fault can be reproduced:**

- 2.1 Swap the ignition coil and spark plug from the problem cylinder with the ignition coil and spark plug from a cylinder that is working perfectly.
For procedure, see: ⇒ *Workshop Manual '282020 Removing and installing ignition coils'* and ⇒ *Workshop Manual '287020 Removing and installing spark plugs'*.
- 2.2 Test-drive the vehicle and try to reproduce the fault again under the conditions specified above.
- 2.3 Then read out the fault memory of the DME control unit using the Porsche Tester and check whether the same fault memory entry is stored again, i.e., whether, after swapping the ignition coil and spark plug, the cylinder that was previously the problem is now working perfectly and the fault occurs instead on the cylinder into which you installed the ignition coil and spark plug from the cylinder that was originally the problem.
 - If **YES** (the same fault is stored again): Remove the ignition coil from the cylinder that is now the problem and install it again in the cylinder that was originally the problem. Leave the spark plug in the cylinder that is now the problem. Then test-drive the vehicle again and reproduce the fault again in order to clearly identify the component that is causing the fault.
 - If **NO** (the cylinder that was originally the problem is still the problem): Remove the cylinder head cover on the problem cylinder bank and check the camshafts and valve levers for visible signs of wear. For procedure, see section ⇒ *Technical Information '287020 Checking camshafts and valve levers for wear'*.

Summary:

Customer complaint	
<ul style="list-style-type: none"> ▪ Engine malfunctions occur during full-load acceleration at high revs (approx. 7,000 rpm). ▪ The yellow warning message "Reduced power – Driving permitted – Consult a workshop" is displayed on the multi-function display in the instrument cluster. ▪ The engine warning light ("Check Engine" symbol) also comes on in the instrument cluster. ▪ Engine runs in limp-home mode. ▪ The engine warning light and warning message disappear after switching off the ignition and then switching it back on again (ignition reset). The engine runs normally again. 	
Fault verification	

- **Read out the fault memory using the Porsche Tester:** In the DME control unit memory, the fault entry **P0300 – Misfire totals error** is together with a fault entry **P0301 ... P0306 (Misfire cylinder 1 ... 6)** is stored.
- Create a **Vehicle Analysis (VAL)** using the Porsche Tester.
- **Test-drive the vehicle until the fault occurs:** Full-load acceleration in 3rd gear (manual drive mode) over a rev range of 4,000 – 8,500 rpm
- **Reproduce the fault:** The fault can be reproduced again – always in the same rev range (+/- 300 rpm) – as described above.

Fault can be reproduced	Fault cannot be reproduced
<ul style="list-style-type: none"> ▪ Swap the ignition coil and spark plug from the problem cylinder with the ignition coil and spark plug from a cylinder that is working perfectly. ▪ Test-drive the vehicle and try to reproduce the fault again under the conditions specified above. ▪ Check whether the same fault memory entry is stored again. ▪ If YES: Remove the ignition coil from the cylinder that is now the problem and install it again in the cylinder that was originally the problem. Leave the spark plug in the cylinder that is now the problem. Then test-drive the vehicle again and reproduce the fault again in order to clearly identify the component that is causing the fault. ▪ If NO: Remove the cylinder head cover on the problem cylinder bank and check the camshafts and valve levers for visible signs of wear. For procedure, see section ⇒ <i>Technical Information '287020 Checking camshafts and valve levers for wear'</i>. 	<ul style="list-style-type: none"> ▪ There is a high probability that the malfunction is not caused by wear on a valve lever. Another component must be checked in order to determine the cause. ▪ If necessary, talk to your contact person for technical enquiries at your importer's office in order to decide what to do next.

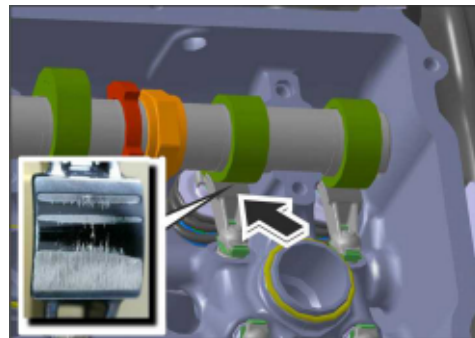
Checking camshafts and valve levers for wear

- Work Procedure: 1 Remove the cylinder head cover on the affected cylinder bank.
⇒ *Workshop Manual '158219 Removing and installing cylinder head cover'*

- 2 Check camshafts and valve levers for visible signs of wear.

The following problems indicate a worn valve lever:

- Rough surface on the cams of the cylinder in question. If there is a significant amount of wear, the contour of the tip of the cam will be "square" and will show significant tempering colors (blue/brown discoloration of the material caused by high temperatures).
- The valve lever shows significant signs of linear wear on the contact surface to cam ⇒ *Wear on valve lever -Arrow-* at the edge of hydraulic valve clearance compensating element ⇒ *Wear on valve lever -Magnifier-*. The black coating is worn down and the silver base material can be seen.



Wear on valve lever

- 3 **If there are visible signs of wear on the camshafts and/or valve levers:**
Create photo documentation and replace all camshafts and all valve levers.

- 3.1 Take photos of the damaged areas on the camshaft and associated valve levers ⇒ *Wear on valve lever -Arrow-*. Make sure that the photos clearly show the installation position of the valve levers in question.

Also indicate the installation position of the valve levers in question (e.g., cylinder 6 – intake) or identify the components by labelling them ⇒ *Marking valve levers*.

- 3.2 Document the **photos** together with the **Vehicle Analysis Log** and the **engine number** of the vehicle in the related PQIS job.

- 3.3 Replace camshafts and associated valve levers and **then** re-program the DME control unit. For procedure, see: ⇒ *Technical Information '158219 Repair measures'*.



Marking valve levers

Repair measures

- Work Procedure: 1 Replace camshafts and associated valve levers.
For procedure, see: ⇒ *Workshop Manual '150520B7 Removing and installing camshafts (includes setting timing)'*
- 2 **After** replacing the **affected camshaft and the associated valve levers**, re-program the **DME control unit** with the **Porsche Tester** and installed Porsche Tester test software **15.700** (or higher): **DME control unit** ⇒ **'Programming'** menu >> **'Automatic programming'** function.

- 3 Change engine oil and oil filter. ⇒ *Workshop Manual '170155A6 Engine oil and oil filter change'*
- 4 **After** completing the **work**, carry out a **test drive** until the **engine** reaches **operating temperature**.

**Information**

To confirm the successful repair, during the test drive, specifically drive in the rev ranges in which the original complaint occurred.

- 5 **After** carrying out the **test drive**, use the **Porsche Tester** to create a **Vehicle Analysis Log (VAL)** and select the function ⇒ **'Data management' > 'VAL data return'** using the Porsche Tester to **send it to Porsche AG**.

Parts
Information.:

Required parts for checking wear on the camshafts and valve levers:

Part No.	Designation – Location	Quantity
99907344301	⇒ Screw with washer assembly, M12 x 1.5 x 40 – Diagonal strut screw connection	2 pieces
99907286901	⇒ Hexagon-head bolt, M12 x 1.5 x 45 – Diagonal strut screw connection	2 pieces
99908412309	⇒ Hexagon nut, M10 – Screw connection securing anti-roll bar to connecting link	2 pieces
90007606402	⇒ Hexagon nut, M8 – Screw connection securing anti-roll bar to body	4 pieces
99907286801	⇒ Hexagon-head bolt, M12 x 1.5 x 80 – Screw connection securing rear-axle cross member	2 pieces
99907285901	⇒ Hexagon nut M12 x 1.5 – Screw connection securing rear-axle cross member	2 pieces
99908444501	⇒ Hexagon nut, M10 – Screw connection securing rear-axle cross member	4 pieces
99907605301	⇒ Hexagon-head bolt, M12 x 1.5 x 58 – Transmission carrier screw connection	2 pieces
99908600902	⇒ Hexagon nut, M12 – Transmission mount screw connection	1 piece
N 90848405	⇒ Hexagon nut M12 x 1.5 – Engine carrier screw connection	2 pieces

99610680103	⇒ O-ring – Coolant lines	3 pieces
99907351701	⇒ Cheese head bolt, M10 x 1 x 46.5 – Screw connection securing drive shaft to transmission	12 pieces
99711133690	⇒ Clamp – Front silencer fastening on catalytic converter flange	2 pieces
90038000501	⇒ Hexagon nut, M8 – Mounting for front silencer fastening	4 pieces
90006736201	⇒ Cheese head screw, M8 x 50 – Screw connection securing rear silencer tensioning straps	2 pieces
99965140101	⇒ Line bracket – Fastening for securing exhaust flaps control line to engine carrier	4 pieces
99951270700	⇒ Hose clamp – Fastening for securing exhaust flaps control line to vacuum unit	2 pieces
N 10098811	⇒ Hexagon-head bolt, M6 x 16 – Screw connection securing heat protection plate for engine carrier	3 pieces
98011156100	⇒ Seal – Exhaust manifold	2 pieces
99970755741	⇒ O-ring 11.00 x 2.50NX – Air-conditioning line in engine compartment	1 piece
9A757374903	⇒ O-ring 16.25 x 2.50 – Air-conditioning line in engine compartment	1 piece

Additional parts required if the camshafts and valve levers need to be replaced:

Part No.	Designation – Location	Quantity
9A1105275A2	⇒ Intake camshaft – Cylinders 1-3	1 piece
9A1105276A2	⇒ Intake camshaft – Cylinders 4-6	1 piece
9A1105277A2	⇒ Outlet camshaft – Cylinders 1-3	1 piece

9A1105278A2	⇒ Outlet camshaft - Cylinders 4-6	1 piece
9A110503591	⇒ Valve lever - Intake	12 pieces
9A110503691	⇒ Valve lever - Outlet	12 pieces
9A700834800	⇒ Sealing ring 42.0 x 51.8 x 4.9 - Actuator for camshaft control	4 pieces
9A700829900	⇒ Sleeve - Central valve for camshaft controller	4 pieces
9A700822400	⇒ Friction plate - Camshaft controller	4 pieces
OPB129119A	⇒ Sealing ring - High-pressure pump	2 pieces
9A110731301	⇒ Torx screw M6 x 25 - High-pressure pump to cylinder head	4 pieces
PAF108403	⇒ Sealing ring 12 x 16 - Stoppers on cylinder head	4 pieces
99970749540	⇒ O-ring - Spark plug bore	6 pieces
N 0138277	⇒ Sealing ring, 22 x 27 - Chain tensioner	2 pieces
PAF008646	⇒ O-ring 20.00 x 1.30 - Chain tensioner	2 pieces
OPB115351	⇒ Oil filter	1 piece

Use if necessary:

Part No.	Designation - Location	Quantity
9A110573190	⇒ Valve cover seal - Cylinders 1-3	1 piece
9A110573290	⇒ Valve cover seal - Cylinders 4-6	1 piece
94457314301	⇒ Dryer	1 piece
99970766040	⇒ O-ring - Dryer	2 pieces

Material: **Required materials** (usually already available in the Porsche Center, only order if additional materials are required):

Part No.	Designation – Location	Quantity
00004302000	Optimoly TA mounting paste – Wheel centring surface at wheel hub	100g tube (approx. 5–10 g required per vehicle)
00004320593	Grease Klüberplus Gel – Coating O-rings and coolant hoses	100g tube (approx. 5 g required per vehicle)
00004330516	Antifreeze	20-liter container (approx. 5 liters required per vehicle)
00004300400	Optimoly HT assembly grease – Clamp for securing front silencer to catalytic converter flange	90 g tube (approx. 10 g required per vehicle)
00004330522	⇒ Engine oil	20 ltr container (approx. 9.5 ltr required per vehicle)

Tools: **Auxiliary tool:**

Part No.	Designation – Location	Quantity
9A110121300	Transport eyebolt – Raising engine	1 piece per Porsche Center (only if not already available)

Special tools:

Designation/Comment	Location
P90999 - Porsche Tester 4 Battery charger (current rating of at least 40 A), e.g., battery charger 45 A	Creating VAL/on-board diagnosis
9453 - Access ramps Only if required (depending on type of lifting platform)	Move the vehicle onto the lifting platform

9794 - Assembly aid 9796 - Socket spanner Torque wrench, 150 – 800 Nm (111 – 592 ftlb.), e.g. Torque wrench, 150 - 800 Nm (111 - 592 ftlb.)	Removing and installing rear wheels
Suitable air-conditioning servicing unit, e.g., Air-conditioning service unit R134a	Draining and filling refrigerant in the air conditioning system
Disassembly tool, e.g., Disassembly tool	Disconnecting parking lock cable from Porsche double-clutch transmission
9822 - Assembly tool	Opening and fitting air conditioning lines
9443 - Oil filter wrench Oil collection container	Removing oil filter
Assembly pliers for spring band clamps, e.g., Spring band clamp pliers Master Gear unit elevating platform 9769 - Retainer plate 9769/1 - Support Suitable tension strap for securing the engine on the lifting platform during removal, e.g., 9454 - strapping belts	Removing and installing engine
Workshop crane, e.g., Workshop crane Suitable lifting equipment, e.g., cross member with carabiner hook and lifting straps	Raising engine
Clamping pliers	Removing and fitting hose clamps on control line for exhaust flaps
Coolant collection container	Draining coolant
9696 - Filling device	Filling with coolant and bleeding cooling system

9595/1 - Locating pins 9773 - Turning device 9863 - Socket wrench for camshaft 9863/2 - Counter-hold tool 9863/3 - Open-ended wrench, a/f 39 9875 - Chain tensioner 9876 - Mounting saddle 9877 - Holding-down device 9879 - Staking tool	Removing and installing camshafts (includes setting timing)
9792 - Insert part for torque wrench	Removing and installing solenoid hydraulic valve (actuator for camshaft controller)

▪ **Other tools:**

Torque screwdriver, 1.5 – 3 Nm (1 – 2 ftlb.)

Torque wrench, 4 – 20 Nm (3 – 15 ftlb.)

Torque wrench, 6 – 50 Nm (4.5 – 37 ftlb.)

Torque wrench, 40 – 200 Nm (30 – 148 ftlb.)

Torque angle torque wrench, 4 – 400 Nm (3 – 296 ftlb.)

Insert for torque wrench, Torx E18

Ring insert for torque wrench, a/f 18

PCSS encryption:

Location (FES5)	15050	Camshaft
Damage type (SA4)	1824	Severe wear

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.

© 2026 Porsche Cars North America, Inc.