FAULTCODE DECODER
remote diagnostics by a mechanic

FAULT CODE REPORT · SAMPLE
Fault code report

Free sample – fictional example case, no real customer · code submitted: P0420 · the full report goes into more detail

CAR	ENGINE	YEAR / MILEAGE (EXAMPLE)
Volkswagen Golf Mk7 (5G)	**1.4 TSI, 92 kW – EA211 family** [1]	**2015 · 165,000 km**
GEARBOX (EXAMPLE)	CODE READER (EXAMPLE)	MODEL CONFIRMED
manual	**ELM327 + phone app**	**with a VIN decoder (the VIN is not printed in the report)**

SUMMARY

P0420 rarely means you need a new catalytic converter straight away. First rule out the rear oxygen sensor, exhaust leaks and the root causes, and only decide on the converter after a live-data test.

WHAT THIS MEANS FOR YOU, IN PLAIN WORDS

Your car watches the catalytic converter with two sensors (one before, one after), and it now thinks the converter is not cleaning well enough. Besides a worn converter, an ageing sensor or a small exhaust leak can cause the same message – so don't start with the most expensive part.

IS THE CAR SAFE TO DRIVE?

Yes, but don't put it off

P0420 on its own is usually not an immediate danger, and the car can be driven short term. **Stop and go easy on it** if the warning light flashes (severe misfire, which quickly ruins the converter), if the car loses power, or if you notice a rotten-egg smell or rattling from underneath.

1 What the code(s) mean

CODE	SYSTEM	MEANING	URGENCY
P0420	Engine – exhaust after-treatment	Catalyst efficiency below threshold (bank 1). The rear oxygen sensor signal looks too much like the front one, meaning the converter is no longer 'smoothing out' the exhaust gas. In VW diagnostics the same fault reads P042000 / 16804 [2,3].	Medium

An inline four-cylinder only has bank 1 (P0430 cannot occur here). The test only runs with a fully warm engine at steady load, and the light usually comes on after two failed tests [2]. Example symptom: warning light only.

2 Likely causes – in order

The order is based on how the code works and on public, VW-specific workshop and forum material. Estimated costs are in the full report.

1. Aged, worn-out catalytic converter

Medium · Common at high mileage

- **WHAT IT IS** The inner coating gradually loses its ability to store oxygen.
- **WHY SUSPECT IT** This is exactly what P0420 monitors; VW sources list it as a common cause, but it should only be condemned after testing [2,5,3].
- **WHAT TO CHECK** Compare both sensor signals in live data with a warm engine (step 2).

2. Lazy or faulty rear oxygen sensor, connector or wiring

Medium · Cheaper – rule out first

- **WHAT IT IS** If the sensor after the converter reacts slowly or has a poor connection, it can flag a fault even with a good converter.
- **WHY SUSPECT IT** VW-specific sources mention it specifically for TSI engines [5,3,2].
- **WHAT TO CHECK** Connector and wiring next to the hot exhaust; any other sensor codes. After replacement, clear codes and reset the oxygen-sensor adaptation [9].

3. Exhaust leak between or ahead of the rear sensor

Medium · Often overlooked

- **WHAT IT IS** Air drawn in through a cracked gasket or flange upsets the sensor reading.
- **WHY SUSPECT IT** A small leak is enough for a false signal if it is close to the rear sensor [2,3].
- **WHAT TO CHECK** Puffing or ticking noise when cold; soot marks at the flanges.

4. Root cause: misfire, mixture fault, carbon build-up

High · Fix this first

- **WHAT IT IS** Unburnt fuel burns inside the converter, overheats it and destroys it.
- **WHY SUSPECT IT** If it remains, a new converter will fail too [7,6]. On the direct-injection EA211, intake-valve carbon build-up is also mentioned [4].
- **WHAT TO CHECK** Any P030x (misfire) or P0171/P0172 (mixture) codes; fuel trims, oil consumption.

SAMPLE

3 Test and check steps – cheapest first

Goal: rule out cheap causes and root causes before anyone orders a converter.

1. Full code read and freeze frame (free, 5 min)

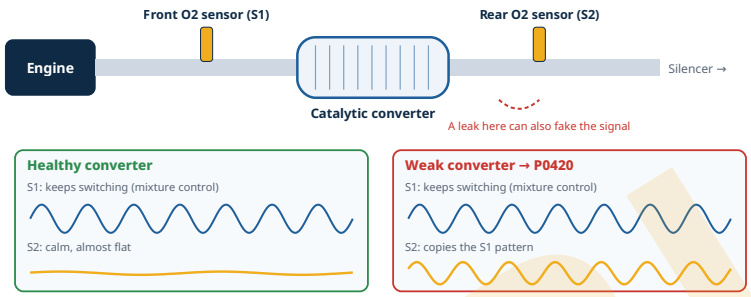
- If there is also a misfire or mixture code, fix that first – P0420 is then only a consequence [2,4].
- Don't clear the code yet: the freeze frame is needed, and clearing resets the readiness status for the roadworthiness test.

2. Live data: front and rear sensor on a graph (OBD reader, 10 min)

- Fully warm engine, car stationary, idle, then a steady approx. 2,000–2,500 rpm [2,10].
- With a good converter the front sensor keeps switching while the rear stays calm and almost flat. If the rear switches along with the front, the converter is weak (diagram below) [2,10].
- The front sensor may be wideband and read in other units [2]; a phone reader mostly shows the trend.

3. Exhaust leaks and rear sensor wiring (visual check)

- Flanges, gaskets, the area around the rear sensor and its connector [2,3]. At a workshop, VW diagnostics can also run a dedicated catalyst test [4].



Own schematic · how catalyst monitoring works, based on general OBD knowledge; not to scale, not the factory layout.

💡 **TIPS**

- **Don't start by replacing the converter:** it is the most expensive item [5].
- **Conflicting sources:** one UK site lists timing-chain stretch [6], but the EA211 is belt-driven [1]; the chain issue was the older EA111's [4]. We used the better-supported version.
- **O2 sensor spacers, software deletes:** emission-system tampering – not recommended, not covered.

What the full report contains

1	Summary and can I drive it? ✓ **in this sample**	2	Code meaning, freeze-frame reading ✓ **in this sample**
3	Likely causes ranked for your car ✓ **in this sample**	4	Test and check steps ✓ **in this sample**
5	Own explanatory diagram ✓ **in this sample**	6	Estimated repair costs (with sources)
7	Suggested order, what to tell the mechanic	8	Sources and model-specific repair videos ✓ **in this sample**

€9.99

Send us your own fault code!
What to send: VIN (17 characters, required), make/model, year, engine, fault codes for the report
Add the symptoms too – a mechanic reviews them and you get a PDF report for your own car within 24 hours.
faultcodedecoder.pages.dev

Sources

1. Volkswagen EA211 engine – Wikipedia (EN) https://en.wikipedia.org/wiki/Volkswagen_EA211_engine
2. The Car Lane: P0420 Code (P042000) VW/Audi/Skoda/SEAT https://thecarlane.com/p0420-code/
3. VAG-wiki: P0420 (VAG 16804) Catalyst System Efficiency Below Threshold https://vag-wiki.com/obd/auxiliary-emissions/p0420-catalyst-efficiency-below
4. Kfz Dietrich (DE): Fehlercode P0420 bei VAG https://kfz-dietrich.com/blog/fehlercode-p0420-bei-vag-golf-passat-tiguan-werkstatt/
5. Faultpedia: VW Golf P0420 https://faultpedia.com/vehicle/volkswagen/golf/p0420/
6. Bob's Mechanical Repairs (UK): Volkswagen P0420 https://bobsmechanicalrepairs.co.uk/fault-code/volkswagen/p0420
7. Autotechnician: Oxygen Sensors – Part 2 https://autotechnician.co.uk/oxygen-sensors-part-2/

Videos used (description/captions only, written in our own words; no images taken)

1. "16804 P0420 VW Golf Trouble Code Diagnose Engine Light" – YouTube: 16804/P0420 read on a Golf; first step is checking the sensors https://www.youtube.com/watch?v=dU3R0bEjclY
2. "VW Golf 7 oxygen sensor b1 s2 removal p0036, p0136, p0141" – YouTube: Golf 7 rear sensor: clear codes and reset adaptation after replacement https://www.youtube.com/watch?v=ObiRPZLLZiw
3. "Catalytic Converter Testing – How To Test A Catalytic Converter Like A Professional" – YouTube: generic: S1/S2 graph at idle and 2,000 rpm https://www.youtube.com/watch?v=mA7uvFn0E5U

Free sample for a fictional case. Remote, informational assessment; it does not replace hands-on diagnostics. Written in our own words from public sources (VW-specific workshop sites, Wikipedia, public repair-video descriptions/captions) and general OBD knowledge – nothing from paid workshop databases or factory repair material. Own diagram.