



Technical Service Bulletin

21 Engine difficult to start, turbocharger damaged V8 4.0TFSI

21 18 30 2044640/5 November 28, 2018. Supersedes Technical Service Bulletin Group 21 number 18-29 dated May 22, 2018 for reasons listed below.

Model(s)	Year	VIN Range	Vehicle-Specific Equipment
A8, S7, S8, S8+, RS7, and RS7+	2016	All	4.0L
A8	2017	000001 - 019190	4.0L
S8	2017	000001 - 901368	4.0L
S7	2017	000001 - 115286	4.0L
RS7, RS7+	2017	000001 - 904264	4.0L

Condition

REVISION HISTORY		
Revision	Date	Purpose
5	-	Revised <i>Technical Background</i> (Added Note) Revised <i>Service</i> (Added QR code and updated Note) Revised <i>Warranty</i> (Updated Labor Operations)
4	05/22/2018	Revised header data (Added model years)
3	05/14/2018	Revised header data (Added VIN breaks for 2017 models) Revised <i>Production Solution</i> (Added information) Revised <i>Service</i> (Added Note and updated Step 7) Revised <i>Required Parts and Tools</i> (Added part numbers)

Customer statement:

- Engine cannot be started or only with difficulty.
- Engine makes unusual noises when accelerating.
- Engine has reduced performance.



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Workshop findings:

- Damage on turbocharger impeller fins, increased free play on impeller shaft of turbocharger, or broken impeller shaft.

Technical Background

Damage to the turbocharger is rarely directly the result of turbocharger failure. Therefore, it is important to perform further checks to find the root cause, to avoid repeat repairs.

Known causes for turbocharger damage:

- Performance increases by tuned ECM
- Non-compliance with service intervals
- Incorrectly fitted oil filter element
- Leaks in intake tract allowing outside unfiltered air and debris into the turbocharger
- Poor oil supply of turbocharger



Note:

If the vehicle has any DTCs related to the turbocharger boost/regulation the complete GFF Test plan must be completed and repairs performed before determining if further repairs are necessary.

Production Solution

Optimized oil strainer 079115175G for oil supply lines to turbochargers in the cover in the inner valley of engine. The oil strainer and check valve 079103175C must always be replaced to ensure proper oil flow to the turbochargers.



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Service

Watch the June Tech Tip before proceeding with the below repair at: <https://audi-academy.kzoplatfrom.com/player/medium/1186073779801953796> (Figure 1).



Figure 1. QR Code for supporting video.

1. Perform the Guided Functions with the diagnosis tester: "01 check warranty information." Then check for an entry with the vehicle data in ELSA under warranty code.
 - All information must be documented with pictures and the attached Checklist completely filled out and stored with the Repair Order.

2. Check the hardware version of the engine control unit. An X version indicates that the engine control module was replaced/or is modified (Figure 2).

First system test with DTC memory entries

Address: 0001 System name: 01 - Engine Electronics Protocol versions: UDS/ISOTP

ASAM base version:	BV_EnginContrModu1UDS
ASAM control module version:	EV_ECM20TFS0208W0906259C_001
Hardware part number:	06L907425
Software part number:	8W0906259C
Hardware version number:	H13
Software version number:	0004
Build group number:	

Figure 2. Correct hardware version number.

3. Check the intake tract for leaks. Review the repair history for possible previous repairs on the intake tract.
4. Measure the oil pressure at idle and 2000 rpm according to ElsaPro.
5. Visually assess the condition of the damaged turbocharger from both sides. No oil marks (charge air and exhaust side) could be another indication for a poor oil supply to the turbocharger.
6. Check the oil filter for correct installation and correct filter part number 079115561J. If the oil filter is not centrally fitted, the engine oil may not be filtered, entering the oil supply of the turbocharger due to the crooked position of the oil filter element.



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- Check the installation of the oil filter bypass valve according to service measure 17F2.
- Check the oil supply line for through flow and oil deposits.
- Check the oil drain hoses for through flow and oil deposits.

**Note:**

This TSB is not replacing any Repair Manual instructions, this TSB is meant to supplement the Repair Manual. See ElsaPro, *Engine >> 8-Cylinder Direct Injection 4.0L 4V TFSI Engine >> 21 Turbocharger >> Turbocharger, Removing and Installing.*

7. Replace both of the turbochargers as well as the **oil strainer** and **check valve** in the inner valley of engine according to ElsaPro and observe all instructions.
8. Change the engine oil including oil filter.
9. Follow the installation instructions in ElsaPro for the turbochargers exactly including:
 - Filling the turbocharger at the supply line connections with engine oil.
 - To ensure the turbocharger is supplied with enough oil, let the engine run at idle for approximately one minute after starting, do not increase rpm.

**Note:**

Failure to follow the TSB and ElsaPro instructions may lead to premature turbocharger failure which may be reviewed by Warranty.

Warranty may review the claim and both turbos. Documents and pictures may be requested to be sent to the Warranty Parts Return Center.

Warranty

Claim Type:	<ul style="list-style-type: none"> • 110 up to 48 Months/50,000 Miles. • G10 for CPO Covered Vehicles – Verify Owner. • If vehicle is outside any warranty, this Technical Service Bulletin is informational only. 		
Service Number:	2130		
Damage Code:	0010		
Labor Operations:	Turbocharger replace	2130 5671	See SRT
	Oil pressure check	1703 0199	80 TU



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	Check intake and exhaust system for debris, additional time is included in Turbocharger remove + reinstall	2130 0199	20 TU
	Remove + reinstall oil strain and check valve	1726 2099	70 TU
	Check that oil bypass valve is fitted correctly	1701 0199	10 TU
	Engine oil and filter change	1701 1799	40 TU
	Turbochargers remove + reinstall	2130 2071	See SRT
	Air intake distributor remove + reinstall without night camera and radar sensor	2446 1921	See SRT
	Air intake distributor remove + reinstall without night camera and radar sensor (RS7 only)	2446 1923	See SRT
Diagnostic Time:	GFF	0150 0000	30 TU
	Road test prior to service procedure	0121 0002	10 TU
	Road test after service procedure	0121 0004	10 TU
Claim Comment:	As per TSB # 2044640/5		



All warranty claims submitted for payment must be in accordance with the *Audi Warranty Policies and Procedures Manual*. Claims are subject to review or audit by Audi Warranty

Required Parts and Tools

Always check with your Parts Department and/or ETKA for the latest information and parts bulletins. Please check the Repair Manual for fasteners, bolts, nuts, and screws that require replacement during the repair.		
Part Number	Part Description	Quantity
079103175C	Check valve	01
079115175G	Oil strainer	01
Order by VIN	Left waste gate vacuum unit with actuator rod	01
Order by VIN	Right waste gate vacuum unit with actuator rod	01



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079103161Q	Cover Gasket	01
N 90303801	Lower oil supply o-rings 9x1.5 black	02
N 91056801	Upper oil supply o-rings 12x2 black	02
WHT006901A	Oil return o-rings 14.5x2	02
N 90465003	Water tube o-rings 23x2.6	03
N 90409501	Clamp breather hoses	04
079129717K	Intercooler housing gasket right side	01
079129717J	Intercooler housing gasket left side	01
079145818	Throttle body gasket	01
079103583	Breather seals	03
N 90686902	Spring clips 23x12 breather hoses	04
WHT006335A	Turbo coolant pipe o-rings lines (blue 2.0mm)  Note: Installed seals are based on which pipes are installed (see TSB 2036167).	04
WHT006537	Turbo coolant pipe o-rings lines (black 2.8mm)  Note: Installed seals are based on which pipes are installed (see TSB 2036167).	04
WHT001011A	Coolant supply pipe lower o-rings yellow 12.2x1.65	02
Order by VIN	Left turbocharger	01
Order by VIN	Right turbocharger	01
WHT005529	Inlet pipe o-rings	02
079253039M	Exhaust manifold gaskets	02
N 90894601	Manifold nuts M8	16
G 052112A3	Hot bolt paste 170G	01



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4G0253115D	Turbocharger outlet gaskets	02
N 91153902	Turbocharger studs	10
N 91130802	Manifold nuts	10
N 0138495	Drain plug gasket	01
079198405D	Oil filter kit	01
G 013A8J1G	Coolant additive	01
Outside material	Distilled water (obtained locally)	Shop supply

Tool Number	Tool Description
3371	Gauge – Gap adjustment tool
V.A.G 1342	Oil pressure gauge kit
V.A.G 1274/8	Adapter
V.A.G 1274/10	Adapter
VAS 6096	Cooling system charge unit
T10007 A	Refractometer
	Approved battery charger

Additional Information

More information can be found at the following resources:

- *ElsaPro, Engine >> 8-Cylinder Direct Injection 4.0L 4V TFSI Engine >> 21 Turbocharger >> Turbocharger, Removing and Installing.*

The following Technical Service Bulletin(s) will be necessary to complete this procedure:

- TSB 2028842, *01 Automatic detection of unauthorized chip tuning (TD1 warranty key).*
- TSB 2036167, *19 Coolant pipe seepage on turbocharger.*

All parts and service references provided in this TSB (2044640) are subject to change and/or removal.

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