

21 – Turbocharging/supercharging

1 Turbocharger

⇒ [“1.1 Exploded view - turbocharger”, page 417](#)

⇒ [“1.2 Removing and installing turbocharger”, page 419](#)

⇒ [“1.3 Removing and installing turbocharger control unit J724 ”, page 425](#)

⇒ [“1.4 Removing and installing intermediate flange”, page 437](#)

1.1 Exploded view - turbocharger

1 - Connecting pipe

- To change-over flap for exhaust gas recirculation cooler

2 - Gasket

- Renew

3 - Intermediate flange

- ⇒ [page 437](#)

4 - Bolt

- 25 Nm

5 - Coolant pipe (rear right)

⇒ [page 371](#)

6 - O-ring

- Renew

7 - Bolt

- Tightening torque and ⇒ [page 419](#)

8 - Oil supply line

- From cylinder block

9 - Bolt

- Depending on version
- 9 Nm

10 - Bolt

- Depending on version
- Tightening torque and ⇒ [page 419](#)

11 - Seals

- Renew

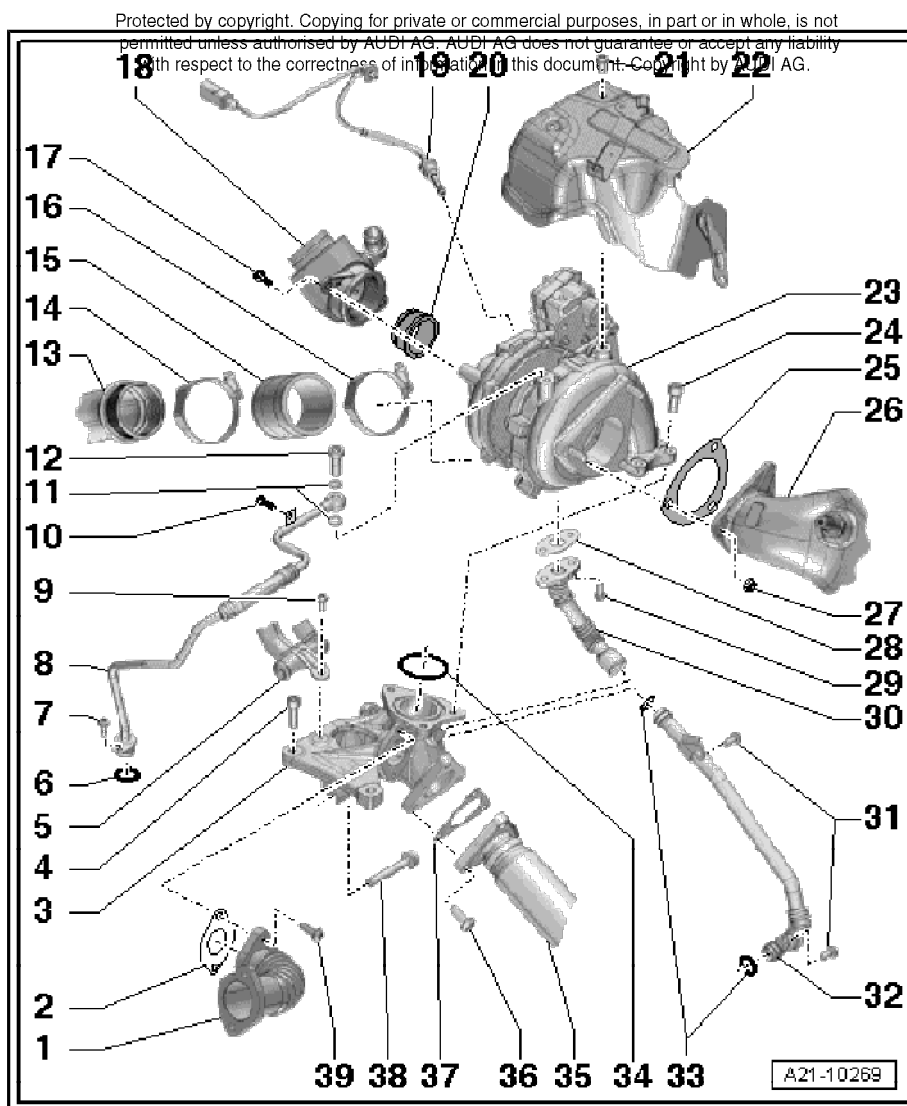
12 - Banjo bolt

⇒ [page 419](#)

13 - Air pipe (right-side)

14 - Hose clip

- Reinforced
- 5.5 Nm





15 - Air hose

- From turbocharger to air pipe (right-side)

16 - Hose clip

- Reinforced
- 5.5 Nm

17 - Bolt

- 9 Nm

18 - Connecting piece for air intake hose

- From air mass meter - G70- to turbocharger
- Must be free of oil or grease when installing

19 - Exhaust gas temperature sender 1 - G235-

⇒ page 608

20 - Seal

- Renew if damaged

21 - Bolt

- 9 Nm

22 - Heat shield for turbocharger

23 - Turbocharger

- With turbocharger 1 control unit - J724-

⇒ page 419

⇒ page 425

24 - Bolt

- Renew
- Coat with high-temperature paste; for high-temperature paste refer to ⇒ Electronic parts catalogue
- 30 Nm + turn 90° further

25 - Gasket

- Renew

26 - Particulate filter

-

⇒ page 576

⇒ page 574 ; A4 (all), A5 from

27 - Nut

⇒ Item 5 (page 558)

28 - Gasket

- Renew

29 - Bolt

- Coat with high-temperature paste; for high-temperature paste refer to ⇒ Electronic parts catalogue
- Initially tightened to 7 Nm
- 9 Nm

30 - Top section of oil return line

- From turbocharger

31 - Bolts

- 9 Nm

32 - Bottom section of oil return line

- To cylinder block

33 - O-rings

- Renew

34 - Seal

- Renew

35 - Intermediate pipe

⇒ [page 627](#)

⇒ [page 629](#)

36 - Bolt

⇒ [Item 5 \(page 625\)](#)

37 - Gasket

- Renew

38 - Bolt

- 25 Nm

39 - Bolt

⇒ [Item 21 \(page 615\)](#)

Oil supply line - tightening torque and sequence

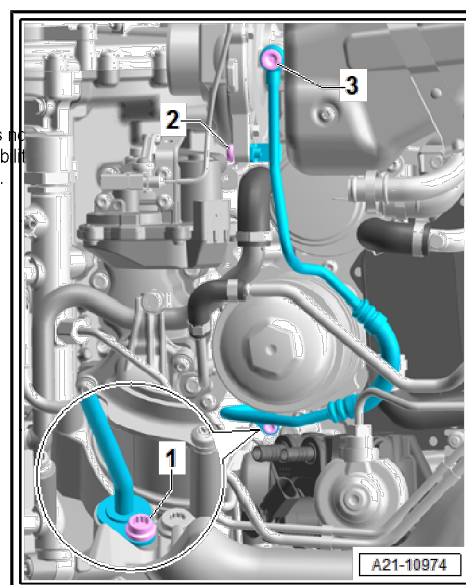


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When tightening bolts -2 and 3- ensure that the oil supply line and bracket are not subjected to torsional or bending stress.

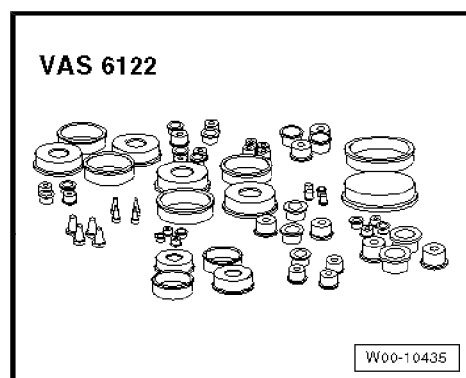
- Fit bolt -1- on mounting plate for engine oil cooler and tighten to 9 Nm.
- Fit bolt -3- on turbocharger.
- Fit bolt -2- for oil supply line bracket and hand-tighten.
- Tighten bolt -3- on turbocharger to 15 Nm.
- Tighten bolt -2- for oil supply line bracket to 9 Nm.



1.2 Removing and installing turbocharger

Special tools and workshop equipment required

- ◆ Engine bung set - VAS 6122-



Removing

⇒ [page 9](#) .

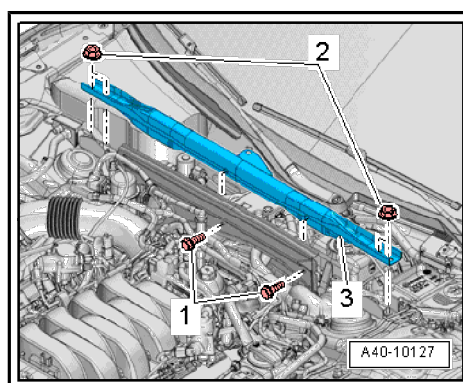


Caution

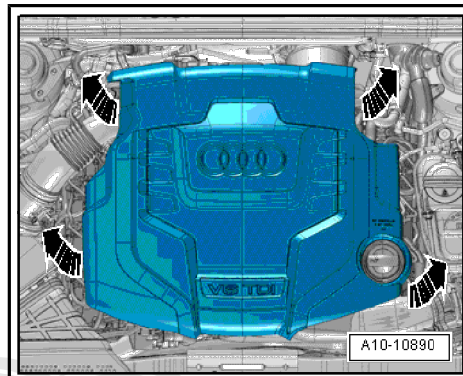
If the turbocharger has suffered mechanical damage (e.g. damaged compressor wheel), it is not sufficient merely to fit a new turbocharger. The following work must be performed in order to avoid further damage:

- ◆ *Check air cleaner housing, air filter element and air hoses for dirt and foreign particles.*
- ◆ *Check the entire charge air system (including the charge air cooler) for foreign matter.*
- ◆ *If foreign matter is found in the charge air system, clean all relevant ducts and hoses and renew charge air cooler if necessary.*

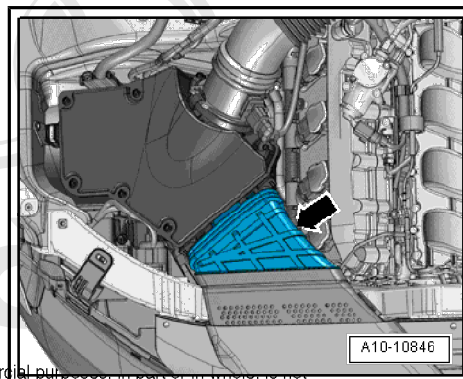
- For vehicles with auxiliary heating: Remove body brace => Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Removing and installing body brace , and => General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .



- Remove engine cover panel -arrows-.

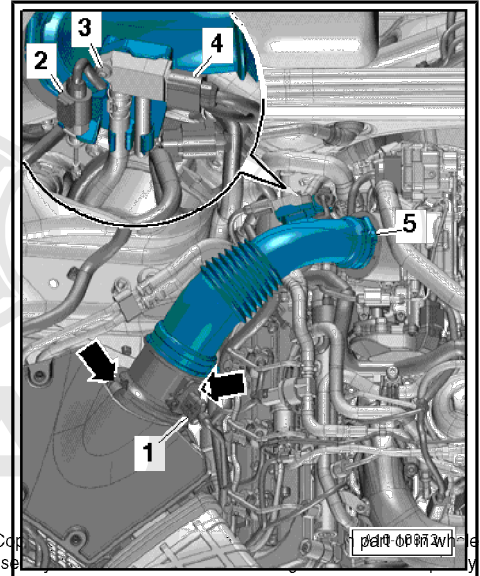


- Remove air duct -arrow-.



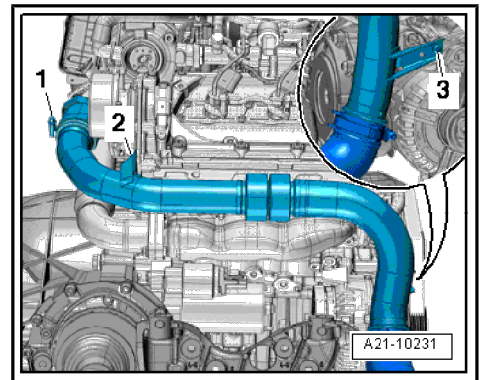
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- Unplug electrical connector -1- from air mass meter - G70- .
- Unscrew bolt -3- and move clear exhaust gas pressure sensor 1 - G450- -item 4- at air pipe.
- Unplug electrical connector -2- and move air pipe clear.
- Remove air hose and air mass meter - G70- . To do so, release hose clip -5- and clamps -arrows-.

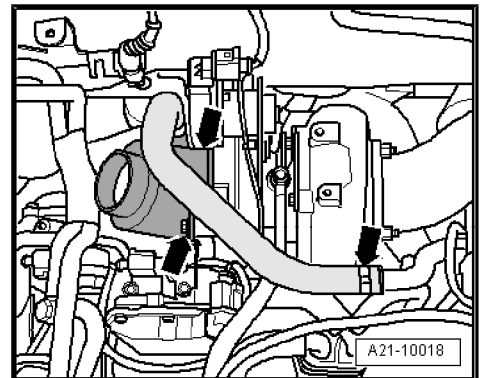


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- Remove bolts -2- and -3-.
- Release hose clip -1- and detach air pipe from air hose.

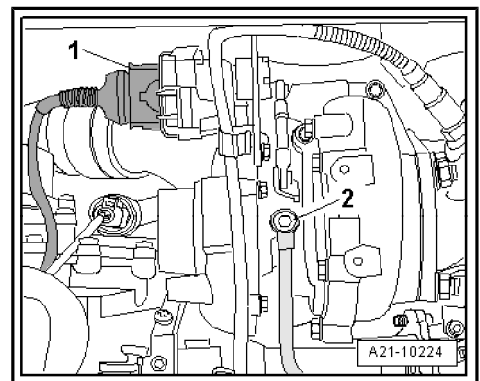


- Unbolt air intake connection -left arrows- and move it aside with air intake hose connected -right arrow-.



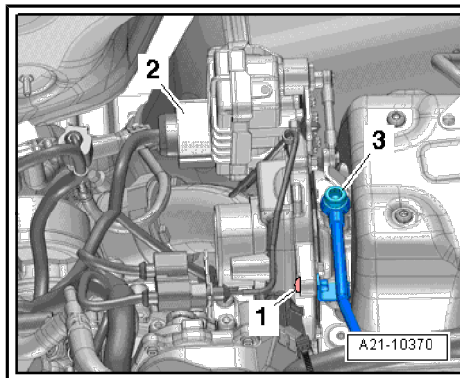
Engine codes CAMA, CAMB, CAPA:

- Unplug electrical connector-1- at turbocharger 1 control motor - V280- .
- Remove banjo bolt -2- for oil supply line at turbocharger.



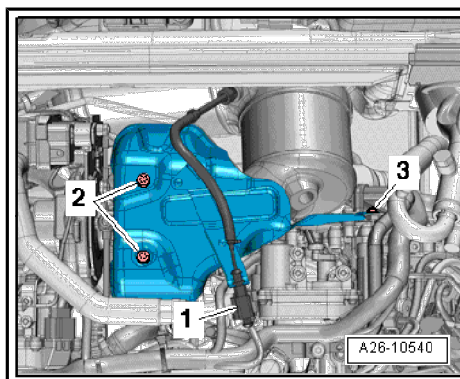
Engine codes CCLA, CCWA, CCWB, CGKA, CGKB:

- Unplug electrical connector-2- at turbocharger 1 control motor - V280- .
- Remove bolt -1- and banjo bolt -3- for oil supply line at turbocharger.

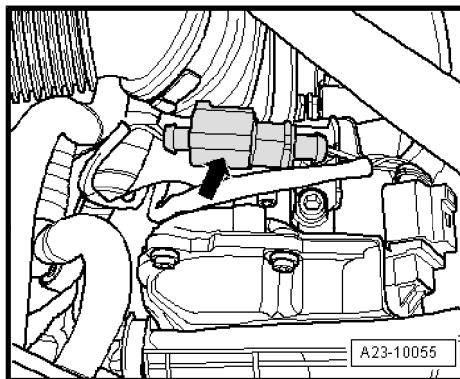


All vehicles (continued):

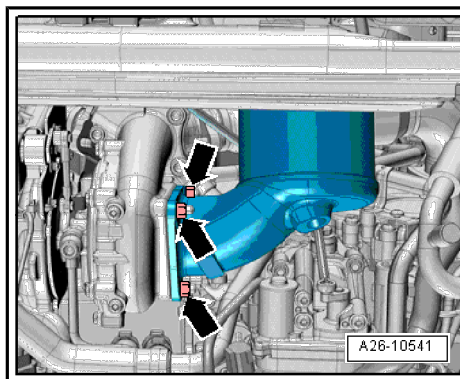
- Unplug electrical connector -1- for exhaust gas temperature sender and move wiring clear.
- Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorized by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG. Remove bolts -2- and -3-
- Detach heat shield for turbocharger.



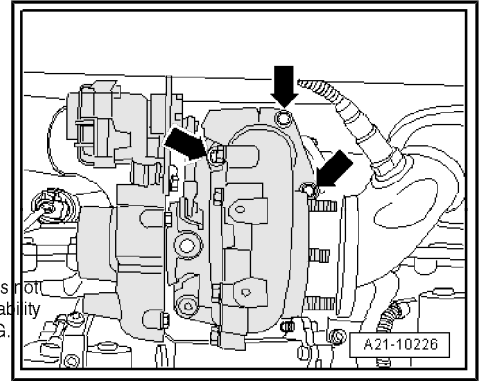
- If fitted, unplug electrical connector -arrow- for exhaust gas temperature sender 1 - G235- .



- Remove nuts -arrows- and detach particulate filter from turbocharger.



- Remove bolts -arrows- for turbocharger.



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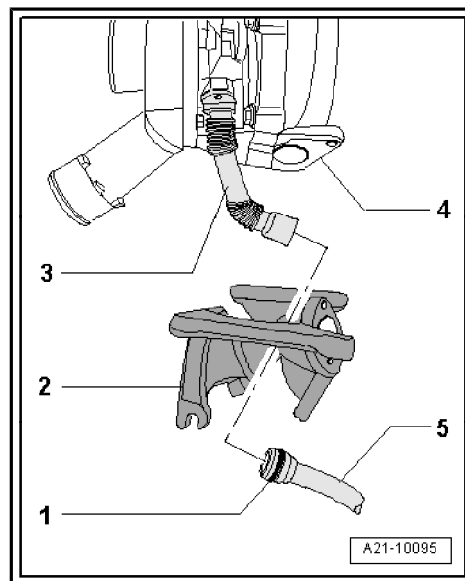


Caution

Make sure that the two pipes of the oil return line are not damaged/bent.

- ◆ **The top section of the oil return line -3- is secured to the turbocharger and must be detached carefully from the bottom section of the oil return line -5-.**
- ◆ **To avoid bending the two pipes of the oil return line, move the turbocharger -4- slightly backwards and forwards while pulling it off upwards and towards one side.**

- 1 - O-ring
- 2 - Intermediate flange
- Remove turbocharger.
- Seal openings on turbocharger and all relevant ducts and hoses of the charge air system with plugs from engine bung set - VAS 6122- .



Note

After removing the turbocharger, do not put it down so it rests on the top section of the oil return line – this could cause damage.

Installing

- => [“1.1 Exploded view - turbocharger”, page 417](#)




Note

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- ◆ **Renew gaskets, seals and O-rings.**
- ◆ **Fit all heat insulation sleeves in the original position when installing.**
- ◆ **Fill turbocharger with engine oil at connection for oil supply line.**
- ◆ **Hose connections and air pipes and hoses must be free of oil and grease before assembly.**
- ◆ **Secure all hose connections with the correct type of hose clips (same as original equipment) => *Electronic parts catalogue* .**
- ◆ **To ensure that the air hoses can be properly secured at their connections, spray rust remover onto the worm thread of used hose clips before installing.**
- ◆ **After installing the turbocharger, allow the engine to idle for approx. 1 minute without pressing the accelerator to ensure that the turbocharger is supplied with oil.**

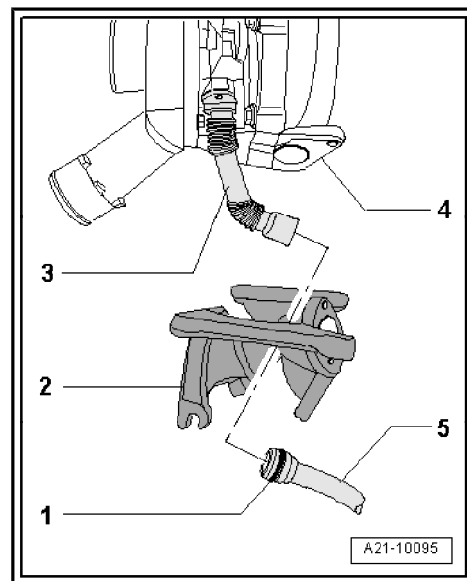
- Fit new O-ring -1- on bottom section of oil return line -5-.
- Lightly lubricate O-ring and internal sealing surface of top section of oil return line -3- with oil.
- When fitting turbocharger -4-, guide top section of oil return line -3- through intermediate flange -2- and towards bottom section of oil return line -5-.



Caution

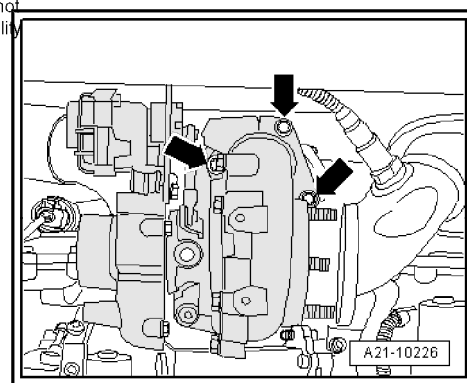
Make sure O-ring is not damaged.

◆ **Carefully push top section -3- of oil return line onto bottom section -5- of oil return line.**



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- **Secure turbocharger -arrows-**
- Remaining installation steps are carried out in reverse sequence; note the following:

- Install particulate filter: A5 up to vehicle identification no. ⇒ page 574 ; A4 (all), A5 from vehicle identification no. ⇒ page 576 .
⇒ page 542 .
- For vehicles with auxiliary heating: Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .



1.3 Removing and installing turbocharger control unit - J724-

Special tools and workshop equipment required

- ◆ Tester for E-positioner - VAS 6395- or -VAS 6395A-
- ◆ Connection lead - VAS 6395 /2-
- ◆ Bracket - VAS 6395 /5-

Removing

- Remove engine cover panel -arrows-.

