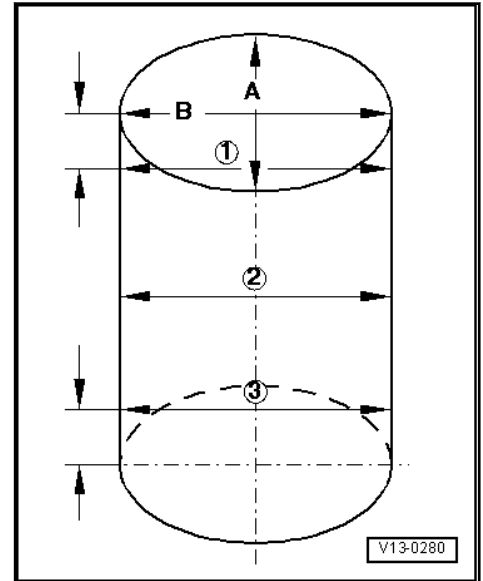




Engines	⇒	Petrol engine	Petrol engine	Petrol engine	Petrol engine
Displacement	l	1.6	2.0	1.5	1.0
Engine code		CWVB	CZPC	DADA	DBYA
RON unleaded, at least		95	95	95	Natural gas and 95
Petrol engine particulate filter		no	no	yes	no
Belt-driven starter-alternator		no	no	no	no
Camshaft drive		Toothed belt	Chain	Toothed belt	Toothed belt

Engines	⇒	Petrol engine	Petrol engine	Petrol engine	Petrol engine
Displacement	l	1.0	1.0	1.0	1.0
Engine code		DFNA	DFNB	DKJA	DKLA
No. of cylinders/valves per cylinder		3/4	3/4	3/4	3/4
Power	kW at rpm	59/6200	48/5500-6200	85/5000-5500	70/5000-5500
Torque	Nm at rpm	93/3000-4000	93/3000-4000	200/2000-3500	175/2000-3500
Bore	Diameter in mm	74.5	74.5	74.5	74.5
Stroke	mm	76.4	76.4	76.4	76.4
Compression ratio		11.5	11.5	10.5	10.5
Injection/ignition		Magneti Marelli PFI	Magneti Marelli PFI	Motronic Bosch ME 17 TSI	Motronic Bosch ME 17 TSI
RON unleaded, at least		95	95	95	95
Petrol engine particulate filter		no	no	no	yes
Belt-driven starter-alternator		no	no	no	no
Camshaft drive		Toothed belt	Toothed belt	Toothed belt	Toothed belt

Engines	⇒	Petrol engine	Petrol engine	Petrol engine	Petrol engine
Displacement	l	1.0	1.0	2.0	1.0
Engine code		DKRA	DKRF	DKZC	DLAA
No. of cylinders/valves per cylinder		3/4	3/4	4/4	3/4
Power	kW at rpm	85/5000-5500	85/5000-5500	147/4900-6000	81/5500
Torque	Nm at rpm	200/2000-35000	200/2000-3500	320/1500-4800	200/2000-3000
Bore	Diameter in mm	74.5	74.5	82.5	74.5
Stroke	mm	76.4	76.4	92.8	76.4
Compression ratio		10.5	10.5	11.65	11.5
Injection/ignition		Motronic ME 17 TSI	Motronic ME 17 TSI	Motronic SIMOS TSI turbocharger	Hitachi TSI



! NOTICE

Risk of damage to the surface of the cylinder bore caused by incorrect machining.

- Do not machine cylinder bore (reboring, honing, grinding) with workshop equipment.
- Using cylinder gauge -VAS 6078- take measurements at 3 positions diagonally in lateral direction -A- and longitudinal direction -B-.
- Maximum deviation from nominal dimension: 0.08 mm.
- Nominal dimension ⇒ [page 105](#)
- Permissible deviation ⇒ [page 105](#)

Piston and cylinder dimensions

Piston dimensions

Honing dimension	Piston diameter ²⁾
Basic dimension mm	74.454 ... 74.482 mm

2) Measure pistons approx. 10 mm from lower edge.

Cylinder dimensions

i Note

Do not measure cylinder bores when cylinder block is mounted on engine and gearbox support -VAS 6095-, as measurements may be incorrect.

Honing dimension	Inner diameter of cylinder
Specification m	74.505 ... 74.515 mm
Permissible deviation	-15 ... +30 µm



5 Senders and sensors

⇒ [a5.1 nd installing intake manifold senderGX9", page 334](#)

⇒ [a5.2 nd installing fuel pressure sender for low-pressureG410", page 335](#)

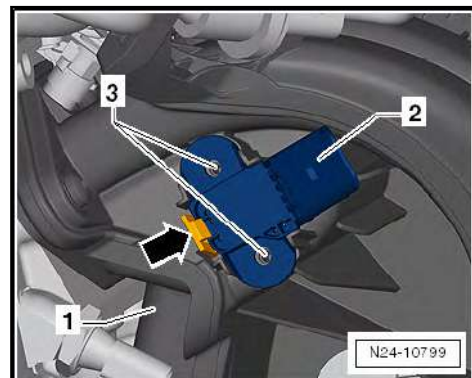
5.1 Removing and installing intake manifold sender -GX9-

Intake manifold sender -GX9- consists of:

- ◆ Intake air temperature sender 2 -G299-
- ◆ Intake manifold pressure sender -G71-

Removing

- Release and disconnect connector from intake manifold sender -GX9-.
- Carefully release locking lug -arrow-, and remove intake manifold sender -GX9- -2-.



Note

- ◆ If lug -arrow- breaks off, securing bolts ⇒ *Electronic Parts Catalogue (ETKA)* may be used for securing instead.
- ◆ The intake manifold sender -GX9- may then also be bolted to intake manifold -2-.
- ◆ In this case unscrew the bolts from holes -3-.

Installing

Install in reverse order of removal, observing the following:

- Check seal for damage and renew if necessary.

Ensure that intake manifold sender -GX9- is properly seated and securely engaged in intake manifold.



Note

- ◆ The intake manifold sender -GX9- may also be bolted to intake manifold -2-.
- ◆ Observe allocation of bolts ⇒ *Electronic Parts Catalogue (ETKA)*.



1 - Clip

2 - Air intake hose

3 - Clip

- 3.5 Nm

4 - Bolt

- For vehicles with air mass measurement module -GX35-
- Thread-cutting
- 1.5 ± 0.2 Nm

5 - Air mass measurement module -GX35-

- Does not apply for all vehicles
- Consisting of
 - Air mass meter -G70-
 - Temperature sender -G1005-

6 - Seal

- For vehicles with air mass measurement module -GX35-
- Check for damage, and renew if necessary
- Not available separately, see \Rightarrow Electronic parts catalogue (ETKA)

7 - Air filter upper part

- For vehicles with air mass measurement module -GX35-

8 - Air filter upper part

- For vehicles without air mass measurement module -GX35-

9 - Bolt

- Thread-cutting
- Fitted firmly
- Qty. 7
- 2 Nm

10 - Air filter element

- Remove dirt, leaves and salt residues
- Use only genuine air filter elements \Rightarrow Electronic Parts Catalogue
- For change intervals refer to \Rightarrow Maintenance tables
- Removing and installing \Rightarrow Maintenance; Booklet

11 - Louvre

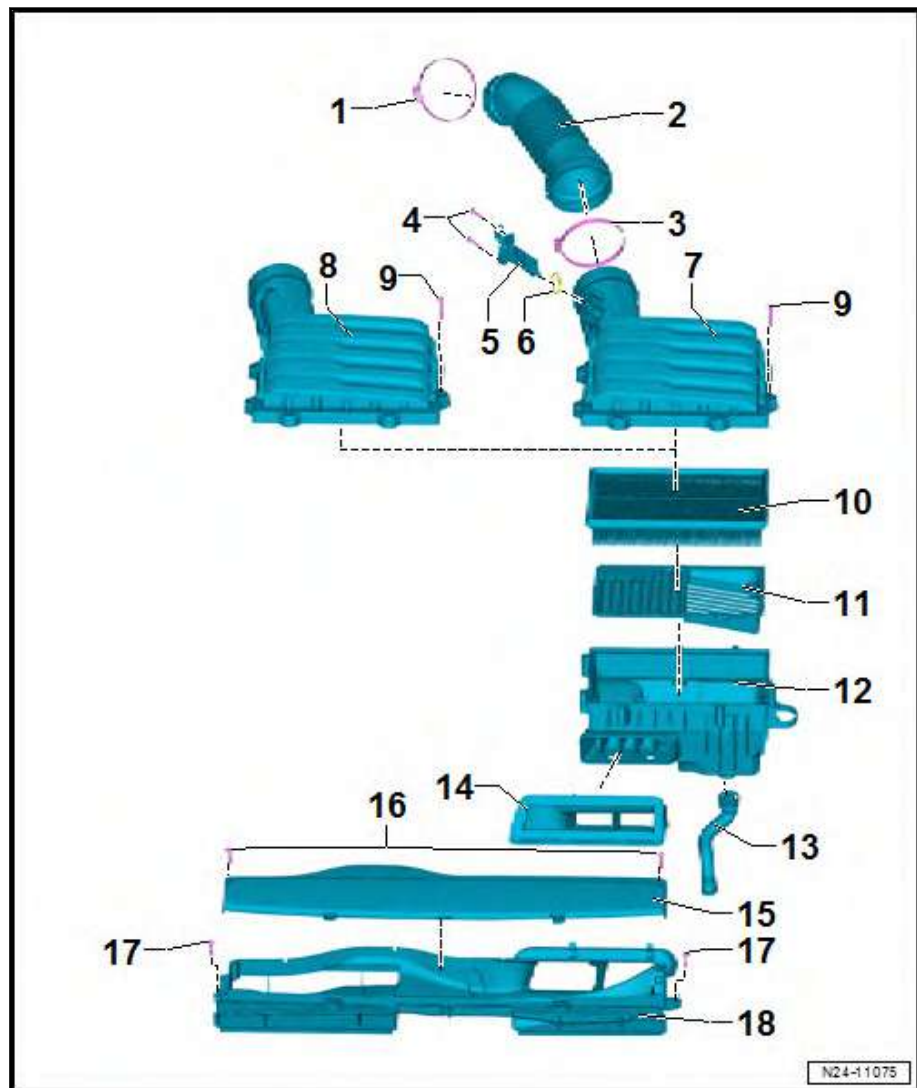
- Remove dirt, leaves and salt residues

12 - Air filter lower part

- Remove dirt, leaves and salt residues

13 - Water drain hose

- Remove dirt, leaves and salt residues





1 - Bolt

- Pressed into holder

2 - Bracket

- For catalytic converter
- Bracket to cylinder block: 20 Nm

3 - Catalytic converter

- With front exhaust pipe
- Protect catalytic converter from damage by knocks and impact
- Removing and installing ⇒ [page 471](#)
- Aligning exhaust system free of tension ⇒ [page 459](#).

4 - Screw-type clamp

- Renew
- Fitting position ⇒ [page 469](#)
- Specified torque and tightening sequence ⇒ [page 469](#)

5 - Seal

- Renew

6 - Turbocharger

- Removing and installing ⇒ [page 342](#)

7 - Bolt

- 20 Nm

8 - Bracket

- Renew if damaged
- Removing and installing bracket with lock washers ⇒ [page 462](#)

9 - Securing clip

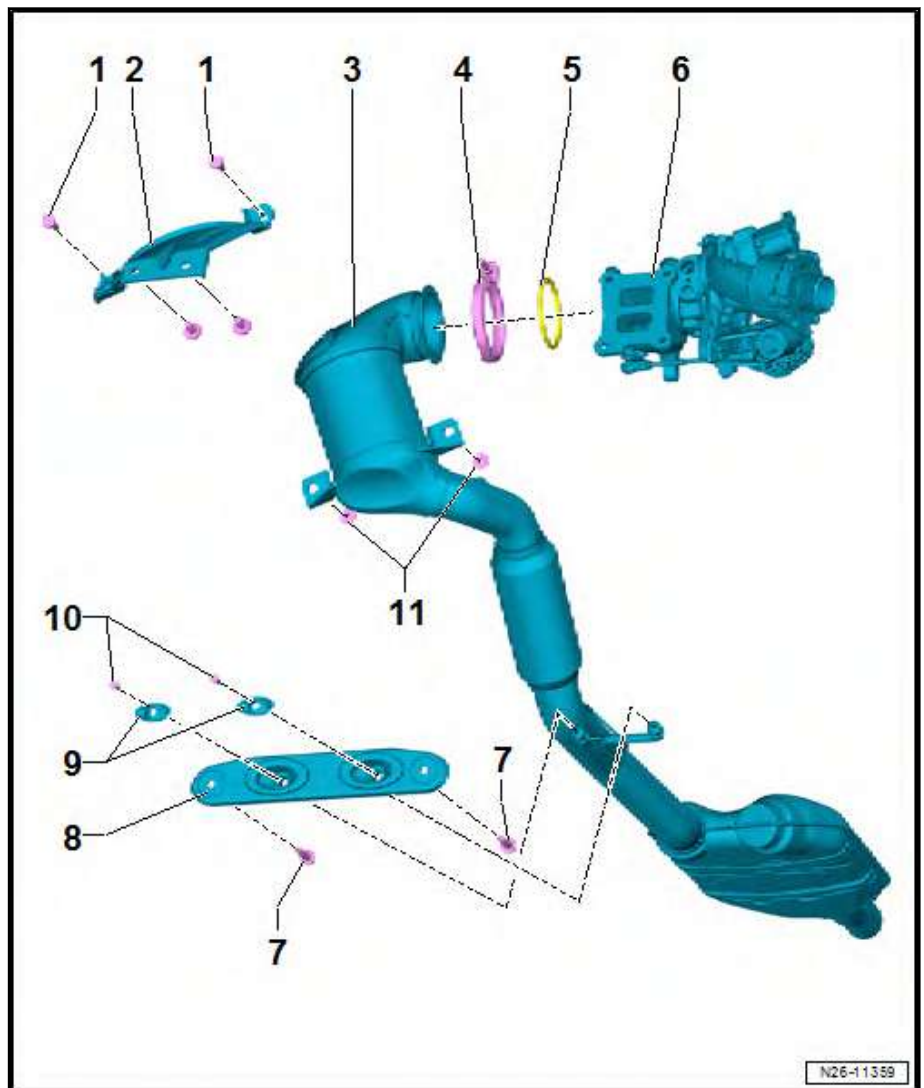
- Not fitted in all vehicles
- Removing and installing lock washers ⇒ [page 462](#)

10 - Pop rivet

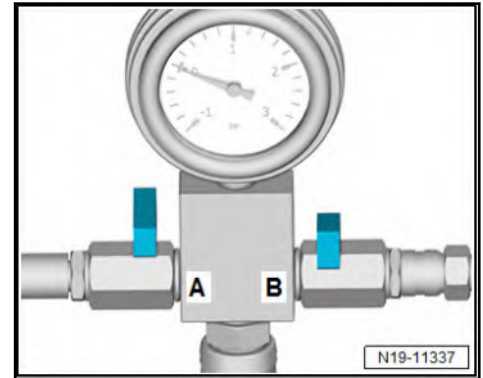
- If bracket is to be renewed, drill out pop rivet ⇒ [page 462](#)

11 - Nut

Specified torque and tightening sequence ⇒ [page 469](#)



Installation position of front clamping sleeve

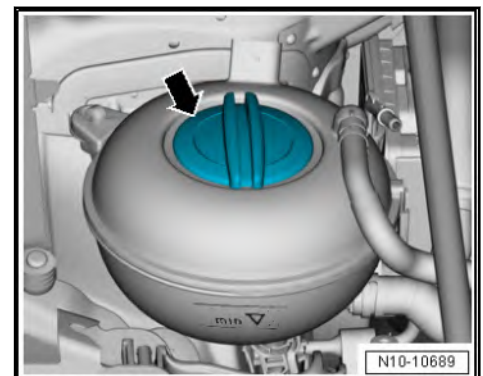


i Note

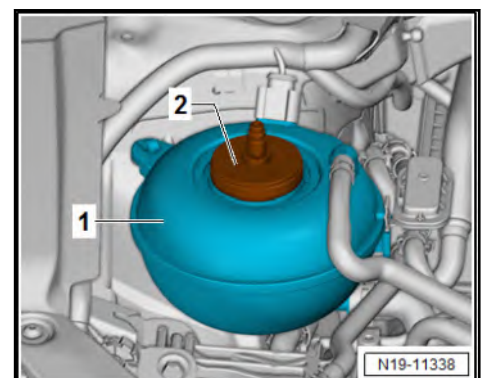
*Do not fit the valve block onto the test adapter -VAS 691 005/5-.
The filler hose must be bled first.*

- Switch on pump for -VAS 531 007-.
- Open cut-off tap -A-.
- Open shut-off tap -B- briefly to bleed filler hose.
- Close shut-off taps -A- and -B-.

Connecting coolant flushing and filling device -VAS 531 007-:



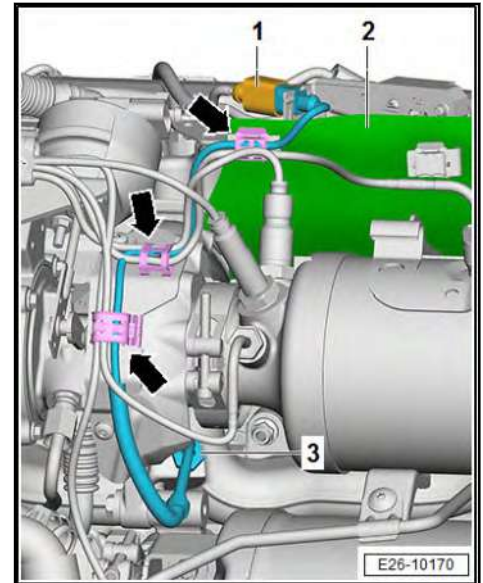
- Open cap -arrow- for coolant expansion tank.
- Screw test adapter -2- (-VAS 691 005/5-) onto coolant expansion tank -1-.



- Pull drain hose -arrow- off plug-in connector -B- on valve block.



Continuation for all other vehicles



- Open heat insulation sleeve -2-.
- Remove connector -1- from retainer, release it, and pull it off.
- Lay wiring harness to one side -arrows-.

Continued for all vehicles:

- Unscrew exhaust gas temperature sender 1 -G235- -2-.
- To do this, use a suitable tool from the list of tools.

Installing

Install in reverse order of removal, observing the following:

- Attach cable ties in all the same places when installing.
- Specified torque ⇒ [o4.1 verview – exhaust gas temperature regulation”, page 695](#)

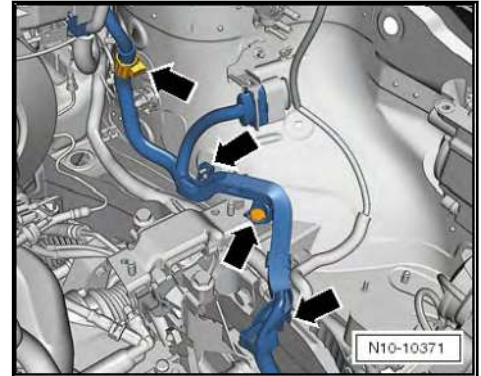
Note

- ◆ *Take care to protect exhaust gas temperature sender from knocks and impact; if dropped, the exhaust gas temperature sender can no longer be used.*
- ◆ *Coat thread with high-temperature paste; high-temperature paste ⇒ Electronic Parts Catalogue.*

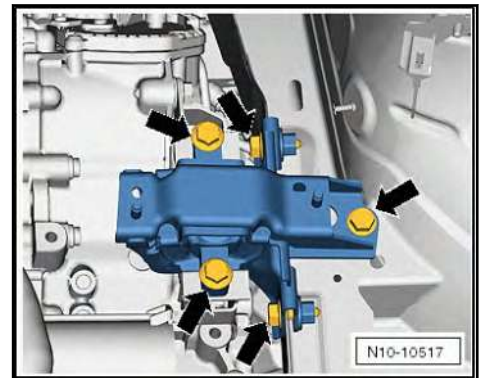
Installation position of exhaust gas temperature sender -G235-.



- Support engine in its installation position ⇒ [page 74](#) .
- Tighten spindle slightly to take up weight of engine/gearbox assembly; do not lift.
- Carefully loosen wiring harness at its fastening points -arrows-.



- Unscrew securing bolts -arrows- from gearbox mounting.



Installing

Install in reverse order of removal. During this procedure, observe the following:

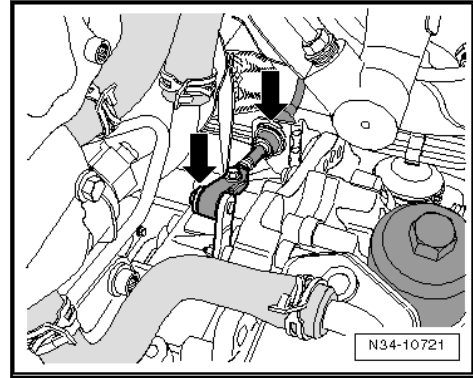
Note

- ◆ *Risk of damage to threads in gearbox support by starting bolts at an angle.*
- ◆ *Do not remove support bracket -10 - 222 A- until the bolts securing the assembly mounting have been tightened to specified torque.*
- ◆ *Replace bolts that are tightened with specified tightening angle.*

- Remove support bracket -10 - 222 A- from engine.

Specified torques

- ◆ ⇒ [o2.1 verview – assembly mountings”, page 62](#)
- ◆ Tightening sequence for gearbox mounting ⇒ [page 67](#) .
- ◆ ⇒ [o3.1 verview - air filter housing”, page 364](#)
- ◆ ⇒ Electrical system; Rep. gr. 27; Battery; Assembly overview - battery



- Install air pipe ⇒ Rep. gr. 21; Charge air system; Assembly overview - charge air system.
- Fit coolant hoses on gear oil cooler.
- Install wire retainer on sump.

Battery in engine compartment

- Install battery tray and battery ⇒ Electrical system; Rep. gr. 27; Battery; Removing and installing battery.
- Install air filter housing ⇒ Rep. gr. 23; Air filter; Removing and installing air filter housing.

Battery in luggage compartment

- Connect battery ⇒ Electrical system; Rep. gr. 27; Battery; Disconnecting and connecting battery.
- Adjust selector lever cable ⇒ [page 134](#) .
- Install air filter housing and bracket located below it ⇒ Rep. gr. 24; Air filter; Removing and installing air filter housing.

Continued for all vehicles

- Install engine cover panel ⇒ Rep. gr. 10; Engine cover panel; Removing and installing engine cover panel.
- Check coolant level and top up if necessary ⇒ Rep. gr. 19; Cooling system, coolant; Draining and filling coolant.
- Check oil level and top up if necessary ⇒ [page 313](#) .
- Install front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66; Wheel housing liner; Removing and installing front wheel housing liner.
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Assembly overview - noise insulation.

Specified torques

- ◆ Gearbox to engine ⇒ [page 287](#)
- ◆ Gearbox bracket to gearbox ⇒ [page 290](#)
- ◆ Selector cable support bracket to gearbox ⇒ [page 81](#)
- ◆ Wiring retainer to sump ⇒ [page 287](#)
- ◆ Assembly mounting to gearbox bracket ⇒ Rep. gr. 10; Assembly mountings; Assembly overview - assembly mountings



- Unscrew bolt -3-.



Note

Disregard items -1- and -2-.

- Remove refrigerant line -4-.



NOTICE

Risk of damage to refrigerant lines from rupture of inner foil.

- **Never bend refrigerant lines to a radius less than 100 mm.**

- Remove refrigerant line -4-.

Installing

Install in reverse order of removal, observing the following:

- Engage refrigerant line so that it is positioned between clip mounting and support.



NOTICE

Risk of damage to air conditioner compressor if refrigerant circuit is empty.

- **Never start the engine if the refrigerant circuit is empty.**

Vehicles with R134a refrigerant

- Charge refrigerant circuit ⇒ Air conditioning system with R134a refrigerant; Rep. gr. 00 ; Working with air conditioner service station .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning system with refrigerant R134a; Rep. gr. 00 ; Detecting leaks in refrigerant circuit .

Vehicles with R1234yf refrigerant

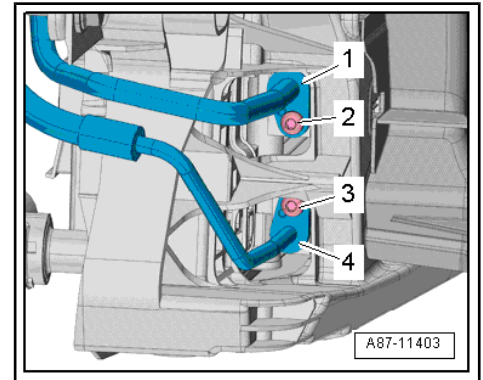
- Charge refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Working with air conditioner service station; Charging refrigerant circuit .
- Perform leakage test on re-established line connections of refrigerant circuit ⇒ Air conditioning systems with refrigerant R1234yf - general information; Rep. gr. 87 ; Refrigerant circuit; Detecting leaks .

Continued for all vehicles

- Commissioning air conditioning system after charging refrigerant circuit ⇒ [page 42](#) .

Specified torques

- ◆ Front bumper; Assembly overview - front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper; Assembly overview - front bumper cover .
- ◆ Assembly mountings; Assembly overview - assembly mountings ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - assembly mountings .
- ◆ Install bulkhead and insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing bulkhead .
- ◆ ⇒ [“2.2 Assembly overview - condenser”, page 23](#)





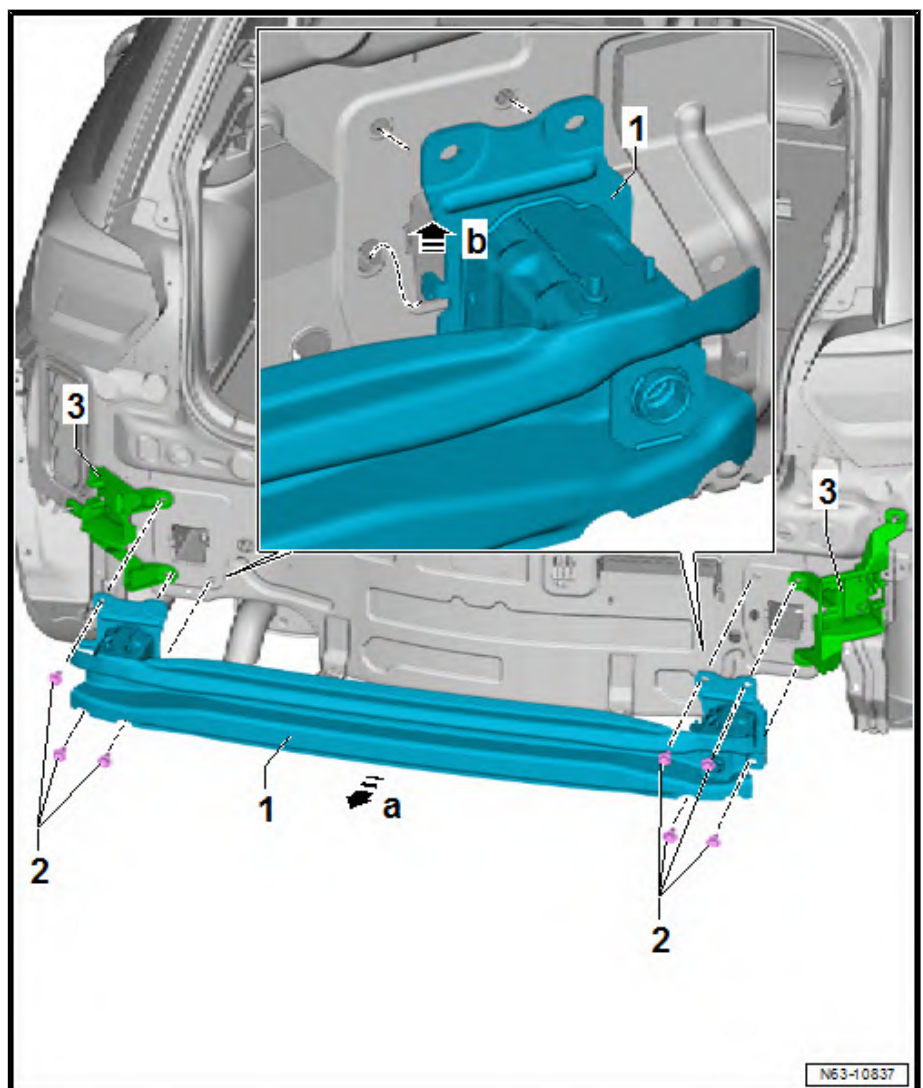
- Guide bumper cover -1- onto vehicle in a parallel movement -arrows a-.
- Press bumper cover -1- onto guide profiles on left and right -5- of side panel until they engage with each other -arrows b-.
- Observe gaps/shut lines ⇒ Body Repairs; Rep. gr. 00 ; Panel gaps; Body – rear .
- Clip in spreader rivets -4- from underneath.
- Install tail lights in side panel ⇒ Electrical system; Rep. gr. 94 ; Tail lights; Removing and installing tail lights .
- On vehicles with lane change system, calibrate lane change assist control unit - J769 / J770- every time bumper cover is removed and installed ⇒ Electrical system; Rep. gr. 96 ; Lane change system; Calibrating lane change system .

Specified torques

◆ ⇒ ["2.1 Assembly overview - bumper cover", page 261](#)

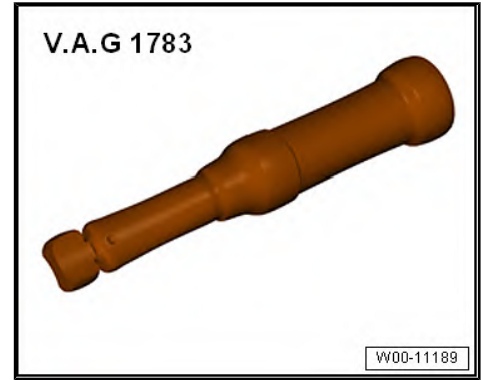
2.4 Removing and installing impact bar

Removing





- ◆ Torque wrench - V.A.G 1783-

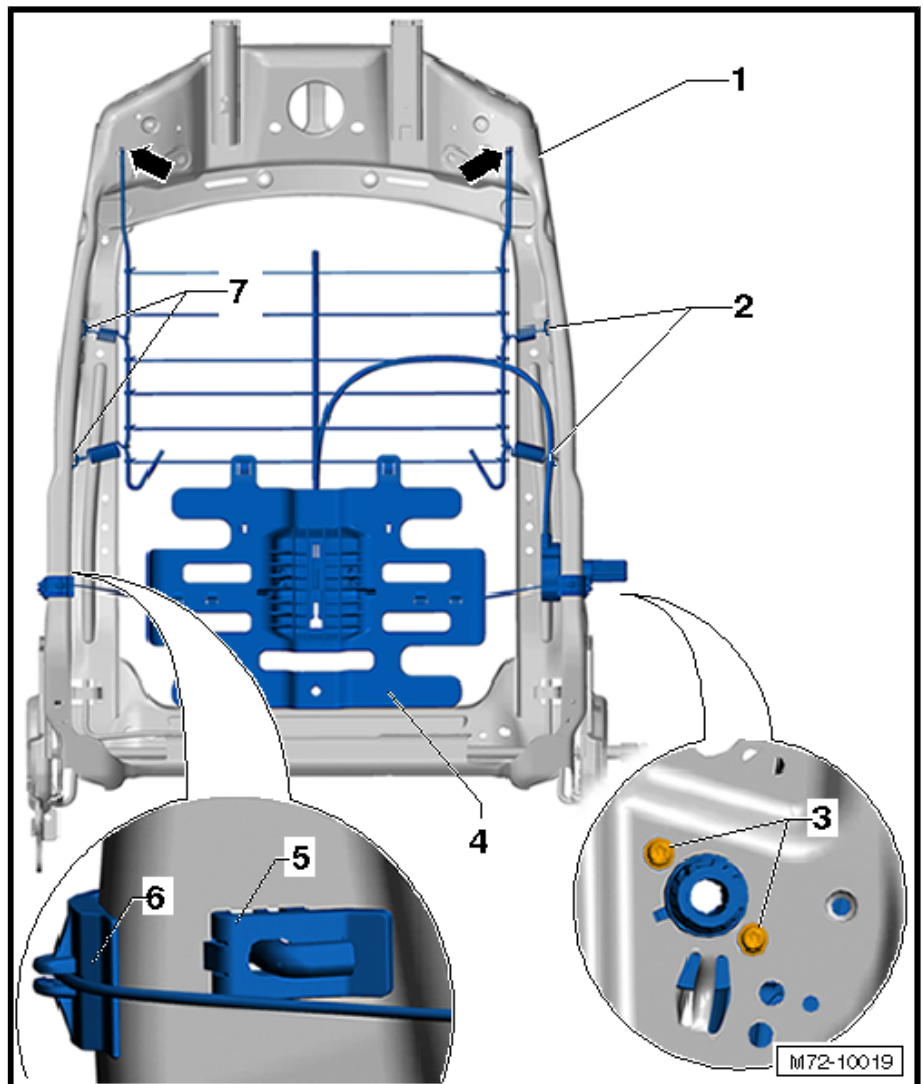


i Note

Removal and installation is described for the left seat. Removal and installation for the right seat is analogous.

Removing

- Remove front seat backrest cover and padding => [page 248](#) .





91 – Communication

1 Infotainment system

⇒ [“1.1 Components of infotainment system”, page 3](#)

⇒ [“1.2 Overview of fitting locations - Infotainment system”, page 4](#)

⇒ [“1.3 Removing and installing infotainment system display”, page 6](#)

⇒ [“1.4 Removing and installing control unit 1 for information electronics J794”, page 7](#)

⇒ [“1.5 Removing and installing CD player R89”, page 8](#)

⇒ [“1.6 Renewing rotary knobs of display unit for front information display and operating unit control unit J685”, page 8](#)

1.1 Components of infotainment system

⇒ [“1.1.1 Components of infotainment system, Composition Colour”, page 3](#)

⇒ [“1.1.2 Components of Infotainment system, Composition Media, Discover Media”, page 4](#)

1.1.1 Components of infotainment system, Composition Colour

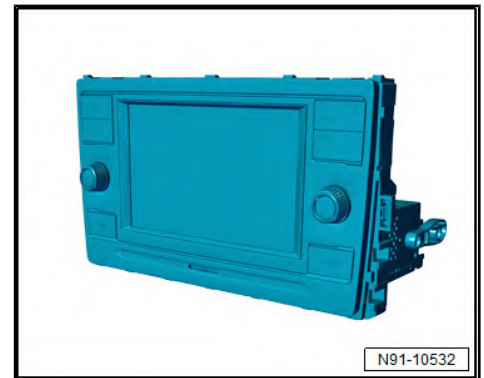
Control unit 1 for information electronics - J794- with display unit for front information display and operating unit control unit - J685-

Features of Infotainment system Composition Colour

- ◆ 6.5 inch display with touchscreen
- ◆ Integrated SD memory card reader
- ◆ Integrated DAB tuner for digital radio reception (optional)
- ◆ Integrated Bluetooth hands-free system (optional)
- ◆ FBAS input for reversing camera (optional)
- ◆ Input for USB port for connection of external multimedia devices (optional)
- ◆ Input for external CD drive (optional)

Note

- ◆ *To deal with complaints it is paramount that the function and operation of the Infotainment system is understood.*
- ◆ *Additional information can be found in the ⇒ Operating manual .*
- ◆ *Other systems in the vehicle are connected via CAN bus (infotainment) and data bus diagnostic interface - J533- .*
- ◆ *Fault finding is performed using ⇒ Vehicle diagnostic tester.*





4 Starter motor

⇒ [“4.1 Assembly overview – starter”, page 47](#)

⇒ [“4.2 Removing and installing starter”, page 49](#)

⇒ [“4.3 Checking starter”, page 54](#)

4.1 Assembly overview – starter

⇒ [“4.1.1 Assembly overview – starter, vehicles with manual gearbox”, page 47](#)

⇒ [“4.1.2 Assembly overview - starter, vehicles with 7-speed dual clutch gearbox”, page 48](#)

⇒ [“4.1.3 Assembly overview - starter, vehicles with 6-speed dual clutch gearbox”, page 49](#)

4.1.1 Assembly overview – starter, vehicles with manual gearbox

1 - Starter motor - B-

- Removing and installing
⇒ [page 49](#)
- Checking ⇒ [page 54](#)

2 - Bolt

- Qty. 2
- 80 Nm

3 - Earth cable

- Depending on equipment

4 - Nut

- Depending on equipment
- 20 Nm

5 - Electrical connector

6 - Nut

- Qty. 2
- 20 Nm

7 - Cover

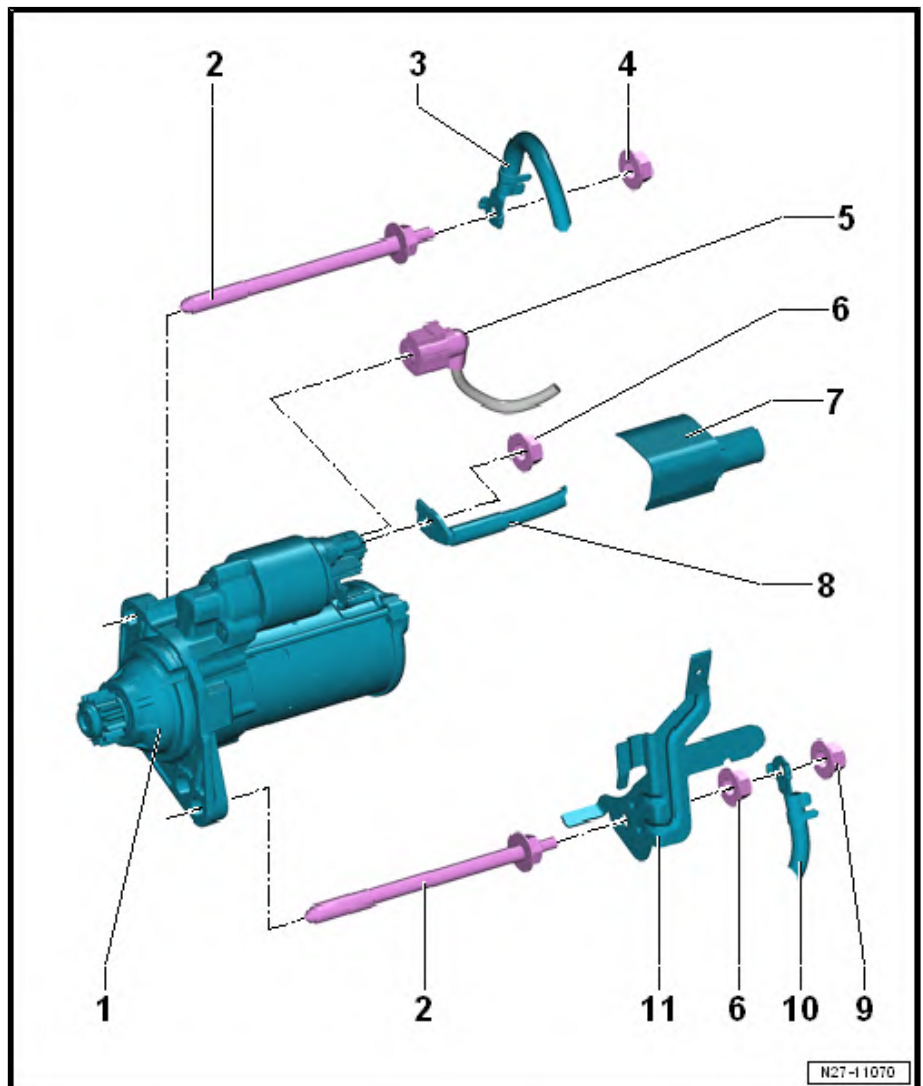
8 - 30/B+ wire

9 - Not fitted

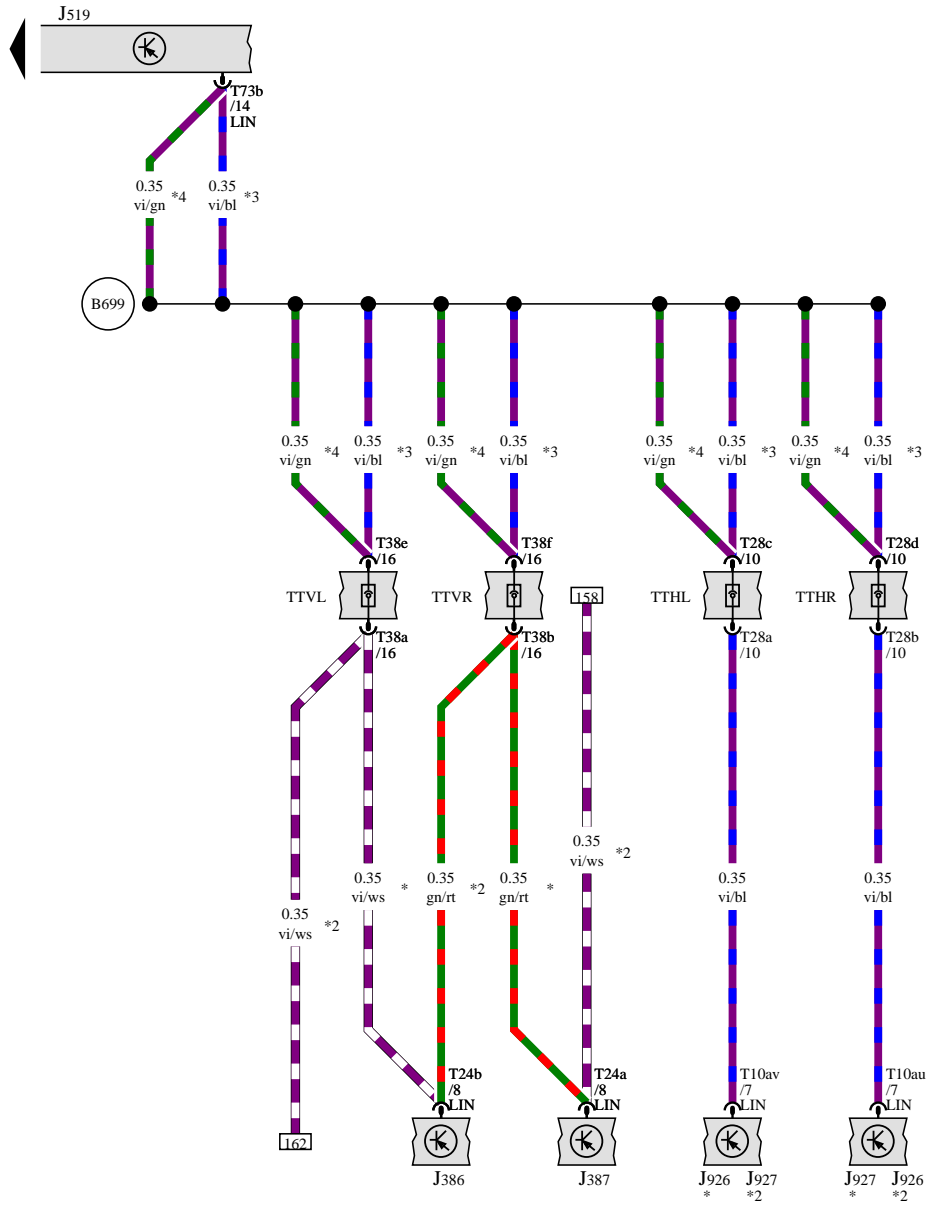
10 - Not fitted

11 - Bracket

- For wiring harness



Driver door control unit, Front passenger door control unit, Onboard supply control unit, Rear driver side door control unit, Rear passenger side door control unit



- J386 Driver door control unit
- J387 Front passenger door control unit
- J519 Onboard supply control unit
- J926 Rear driver side door control unit
- J927 Rear passenger side door control unit
- T10au 10-pin connector, black
- T10av 10-pin connector, black
- T24a 24-pin connector, black
- T24b 24-pin connector, black
- T28a 28-pin connector, black
- T28b 28-pin connector, black
- T28c 28-pin connector, grey
- T28d 28-pin connector, grey
- T38a 38-pin connector, black
- T38b 38-pin connector, black
- T38e 38-pin connector, black
- T38f 38-pin connector, black
- T73b 73-pin connector, black
- TTHL Coupling point for rear left door
- TTHR Coupling point for rear right door
- TTVL Coupling point for front left door
- TTVR Coupling point for front right door

B699 Connection 4 (LIN bus) in main wiring harness

- * For left-hand drive models
- *2 For right-hand drive models
- *3 Up to July 2018
- *4 From July 2018

- ws = white
- sw = black
- ro = red
- rt = red
- br = brown
- gn = green
- bl = blue
- gr = grey
- li = purple
- vi = purple
- ge = yellow
- or = orange
- rs = pink

155 156 157 158 159 160 161 162 163 164 165 166 167 168

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