ACTRONICS
ELECTRONIC AUTOMOTIVE COMPONENTS

Dis-/assembly instruction

TCU (mechatronic) DSG 7 DQ200 (0AM)



Brand	VAG
Product	TCU
Model	(mechatronic) DSG 7 DQ200 (0AM)
Version	1.0

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Disclaimer:

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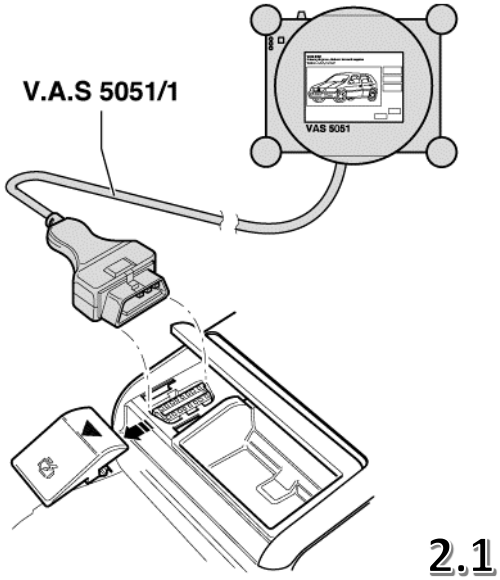
1. Required Tools and tips beforehand

Required Tools	Measurement
Electronics tester	VAS diagnostic tester / ODIS diagnostic tester or alternative equipment, such as VCDS
Mounting lever	VAG T10407
2x guide bolt	VAG T10406
Cap	13 mm (M8)
Cap	10 mm (M6)
Cap	Torx 30
Cap	Torx 45
Ratchet	-
Torque Wrench	5 Nm – 40 Nm
Oil drip tray	Min. 10L
Transmission oil	G 052 512A (1.9 litres needed)
Motor lift	-
Suction pump	VAS 5226

Tips beforehand	
1.	Remember the radio code, if there is any. Since the battery will be disconnected during the procedure, the radio will need to be restarted using the code.
2.	Always put the gear selector in position 'P' before starting the procedure.
3.	During disassembly, fluids can leak from the gearbox. Therefore, always put an oil drip tray under the gearbox.
4.	Make sure to create enough room in front of the gearbox before starting disassembly. In order to do this, it is possible that parts such as hoses and air filter housing need to be removed. To create more room during dis-/assembly it is possible to remove the engine mount under the engine block. When this is gone it will be possible to pull the engine block to the rear and thus create more room in front. Always use a motor lift during this procedure.

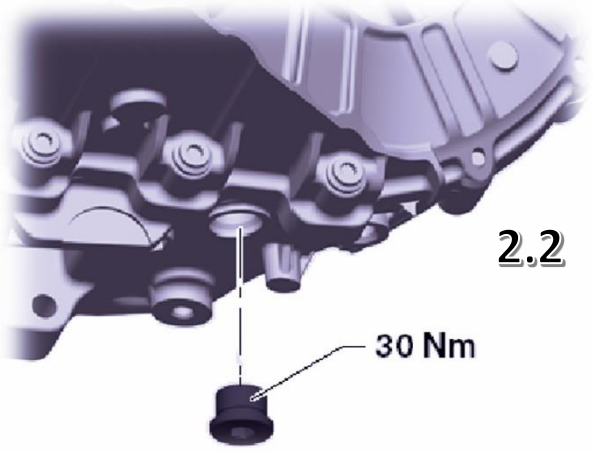
2. Disassembly instruction

Step	Instruction
2.1	Use VAS or ODIS diagnostic tester to put the shifting mechanism in the 'neutral' position:
	On the diagnostic tester, first choose [interactive functions-02] and then [shifting mechanism position –neutral-].
	This step is not possible when using alternative equipment, such as VCDS. Then this action needs tob e performed manually. See step 2.14 for procedure.



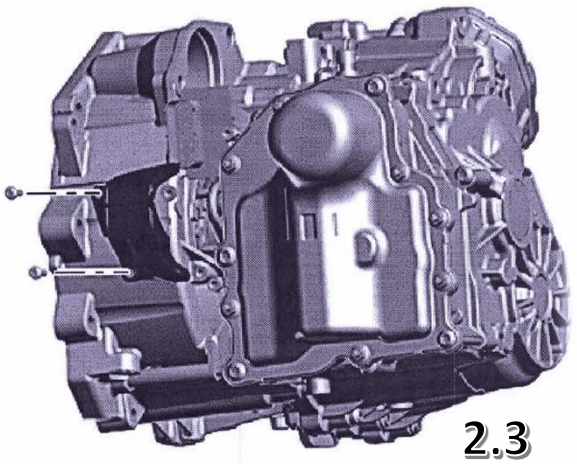
2.1

2.2	Drain the transmission oil before starting disassembly of the mechatronic unit.
	After draining, the plug needs to be refitted with 30 Nm.

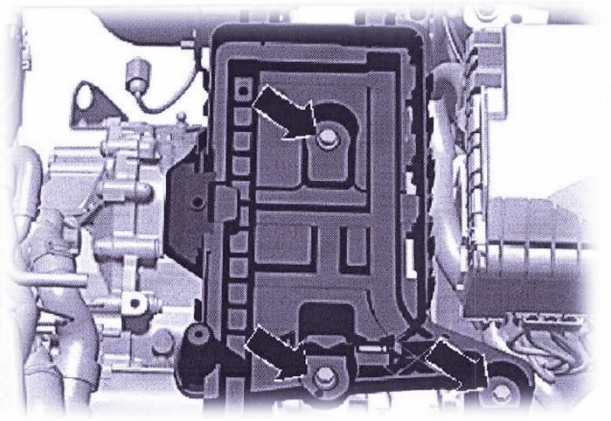


2.2

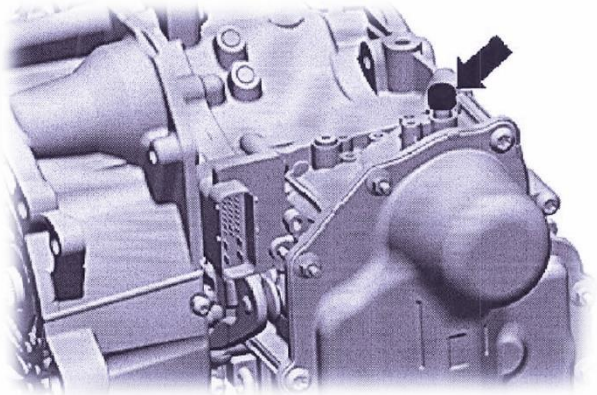
Step	Instruction
2.3	If present, the cover above the selector forks needs to be removed.



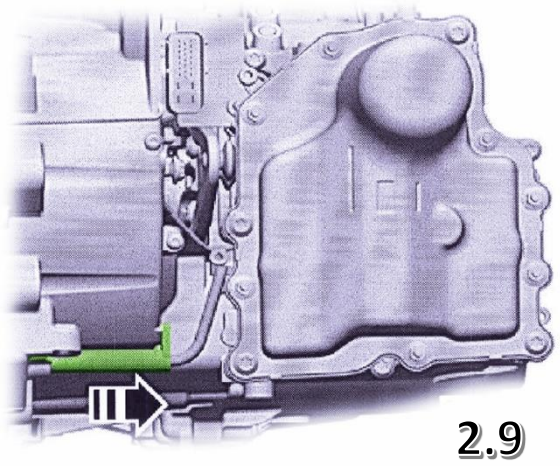
2.4	Remove the battery and battery support (see arrows).
2.5	Remove the starter motor.
2.6	Release (pull) the connector from the mechatronic unit and remove it.



2.7	Remove the vent cap and plug the vent hole with an oil tight plug (see arrow).
	NOTE: Step 2.7 is very important, since the oil level in the mechatronic unit can't be checked and therefore also can't be refilled properly. There can be absolutely no hydraulic oil leakage from the mechatronic unit, even after disassembly!
2.8	Remove all cable brackets.

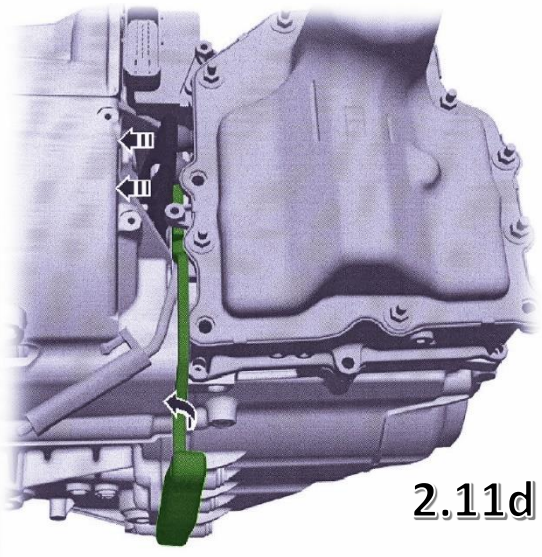


Step	Instruction
2.9	Carefully push speed sensor 3 (input shaft) out of the housing with a screw driver (see arrow).

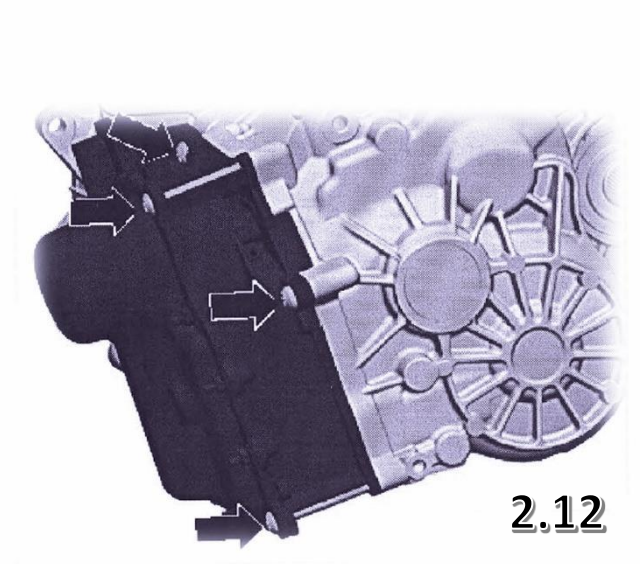


2.10	Push away both selector forks from the tappets: read step 2.11 completely before starting.
2.11a	Insert the mounting lever T10407 to the right of the selector forks (see picture).
2.11b	Slide the mounting lever all the way through to the back, until it reaches the gearbox housing.
2.11c	The groove of the mounting lever should form a straight line with the edge of the housing.
2.11d	Turn the mounting lever slowly counter clockwise to free the selector forks from the tappets (see picture).
	TIP: To prevent slipping, use slight downward force when turning the mounting lever.
	NOTE: Leave the mounting lever in exactly the same position. Removing it can have a negative effect on the clutch adjusting mechanism.

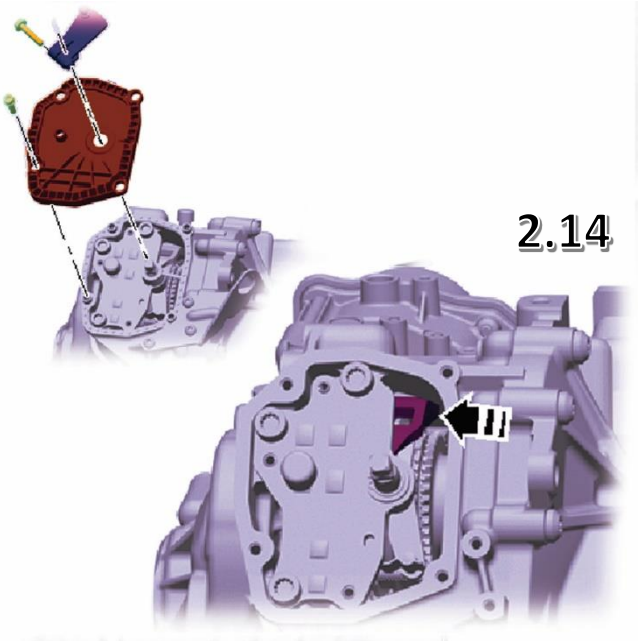




Step	Instruction
2.12	Remove all 7 bolts that hold the mechatronic unit in place (see arrows – 4 x long, 3 x short, Torx 45).
2.13	Remove the mechatronic from the gearbox with a straight motion.
	NOTE: Once again, do not let any oil leak from the unit.



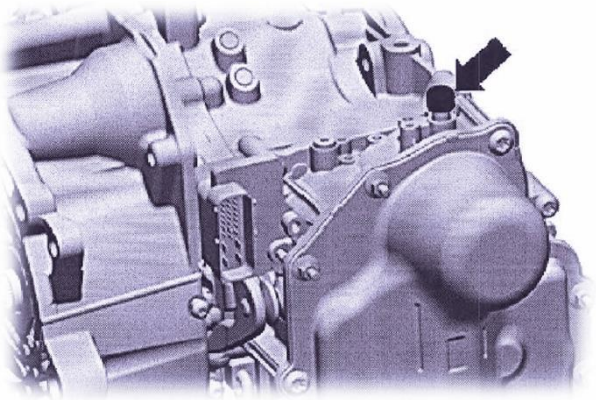
2.14	If the mechatronic clamps and can't be removed, re-fasten it with a bolt. This means that the shift cable needs to be disconnected from the gearbox and the cover cap (red) under the shift fork (blue) needs to be removed. The selector fork (purple) then becomes visible. This can be pushed aside by hand. After this it should be possible to remove the mechatronic unit. For more information about this procedure, see chapter 4.



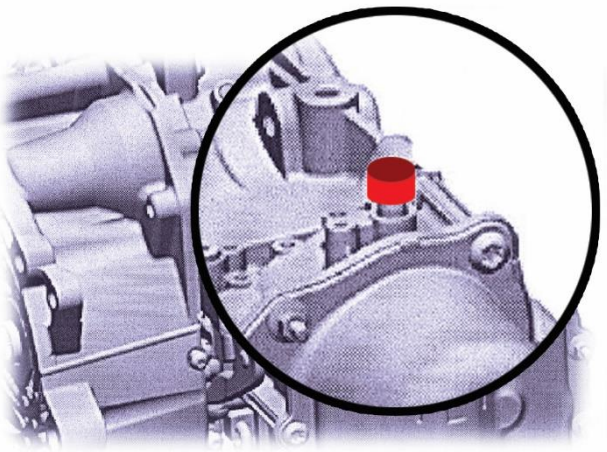
3. Transport

Step	Instruction
3.1	**If not already done during disassembly:**
3.1a	Remove the vent cap from the mechatronic unit.
3.1b	Plug the vent hole with an oil tight plug.
	NOTE: Keep the vent plug since it will be needed again during re-assembly.
3.2	Package the mechatronic so that no oil whatsoever can leak during transport. It is very important that the oil level remains the same.

3.1a

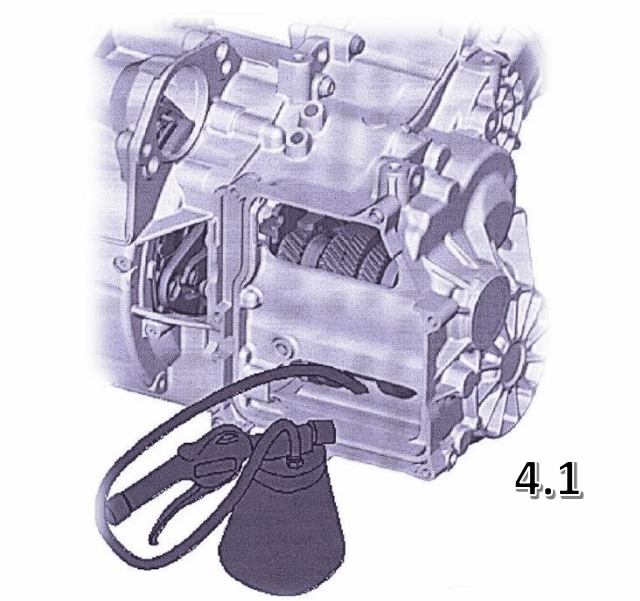


3.1b

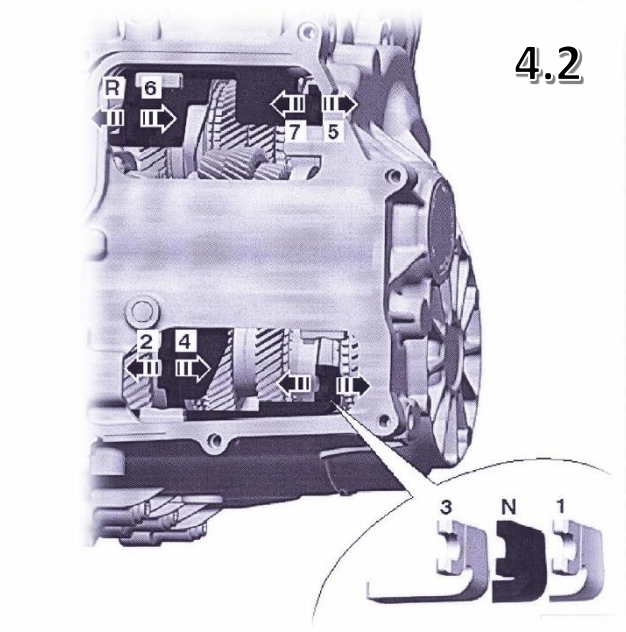


4. Assembly instruction

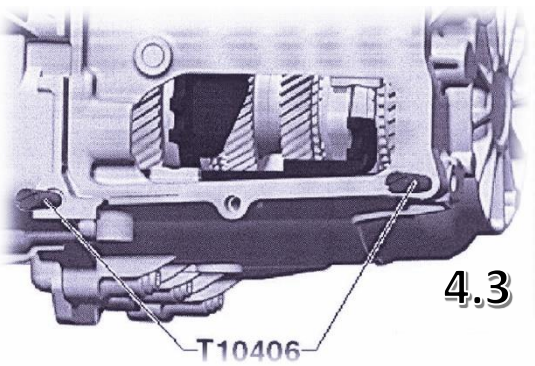
Step	Instruction
4.1	Drain the remaining oil with suction pump VAS 5226.



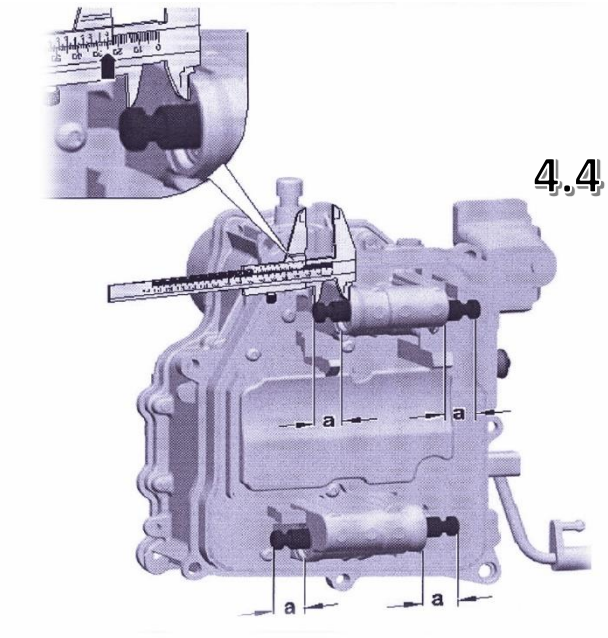
4.2	Make sure that all shift forks (4x) are still in the neutral position. Every fork has 3 positions: gear-neutral-gear. Thus, all forks need to be in mid position.



4.3	Place 2x guide bolt T10406

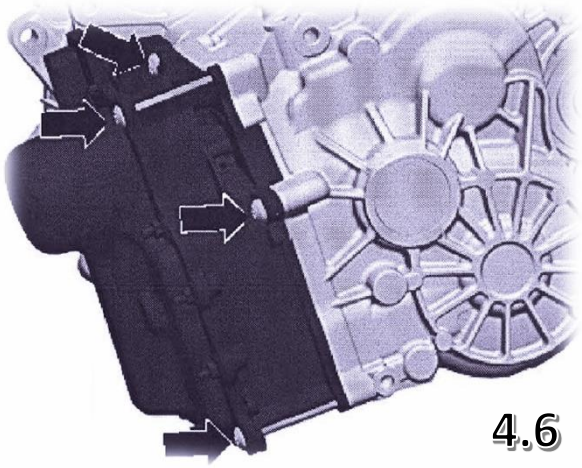


Step	Instruction
4.4	Make sure that the 4 tappets of the mechatronic unit are only protruding 25 mm (see measurement ‘a’ in picture).
4.5	Make sure that the seal of the mechatronic unit is undamaged and not leaking.

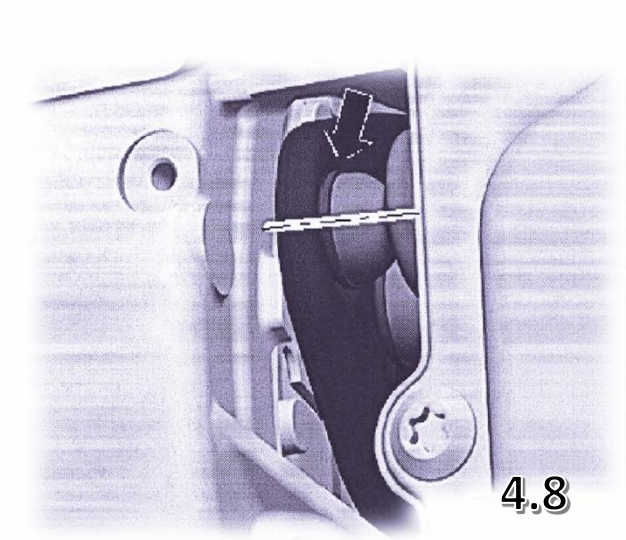


4.4

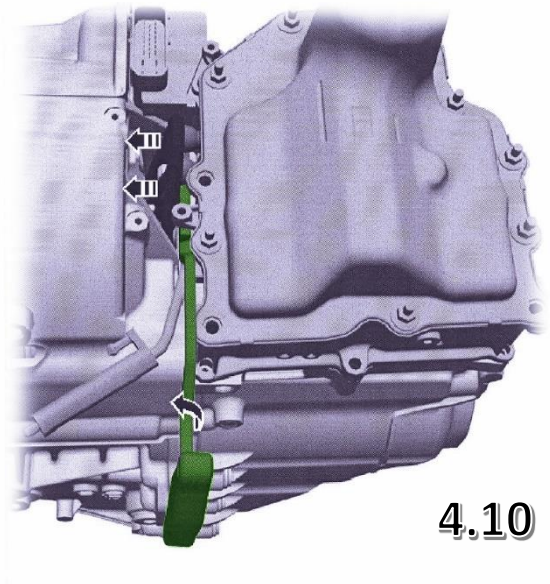
4.5	Carefully place the mechatronic unit over the guide bolts into the right position.
4.6	Put the mechatronic unit in place by (firmly!) fastening the 7 bolts (see arrows).


4.6

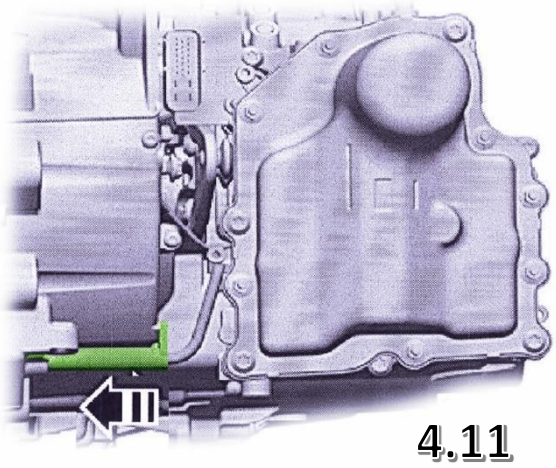
Step	Instruction
4.7	Remove both guide bolts.
4.8	Check the position of the tappets in relation to the shift forks. Wrongly positioned tappets can cause damage to the mechatronic unit.
4.9	Fasten the 7 mounting bolts crosswise with 10 Nm.



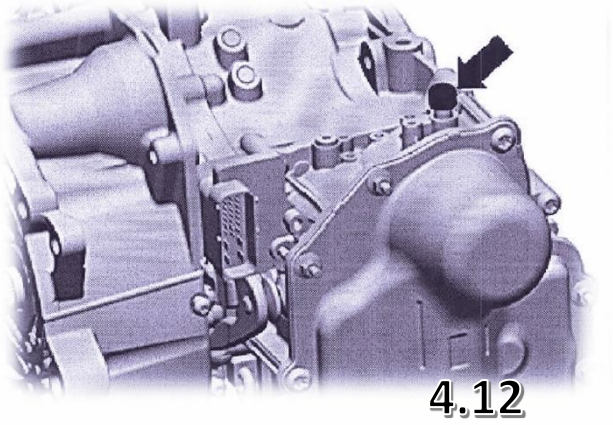
4.10	Turn the mounting lever clockwise and remove it from the shift mechanism (opposite direction from the arrows).
	NOTE: It is important that the clutch cylinders are positioned correctly in the clutch levers. That is why it is recommended to use this tool.



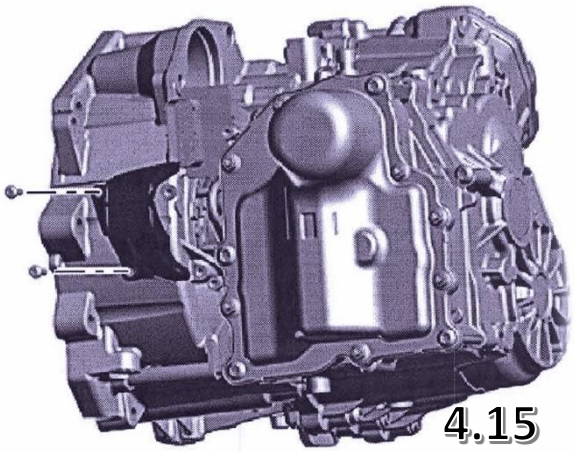
Step	Instruction
4.11	Put speed sensor 3 back in the right position. The clip may not be broken and the sensor must be complelety fixed against the housing (see arrow).



4.12	Remove the seal from the vent and put the original vent cap back (see arrow).
4.13	Refit the connector

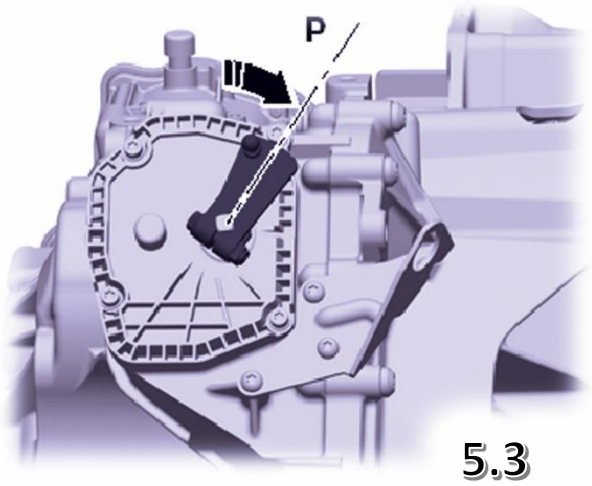


4.14	Assemble the cable supports
4.15	If present, refit the cover above the selector forks. Fasten the bolts with 8Nm.

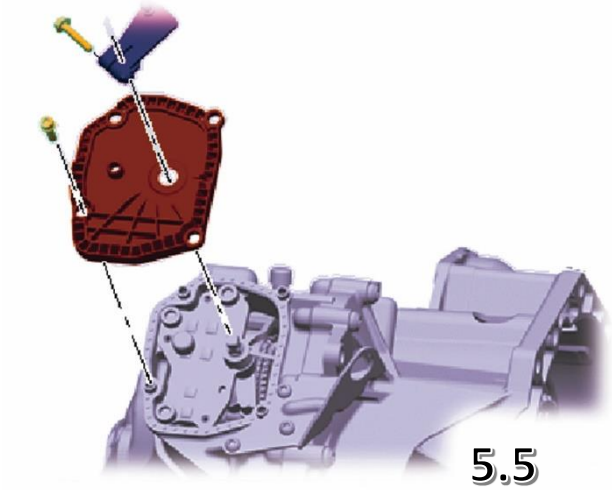


5. Procedure after assembly

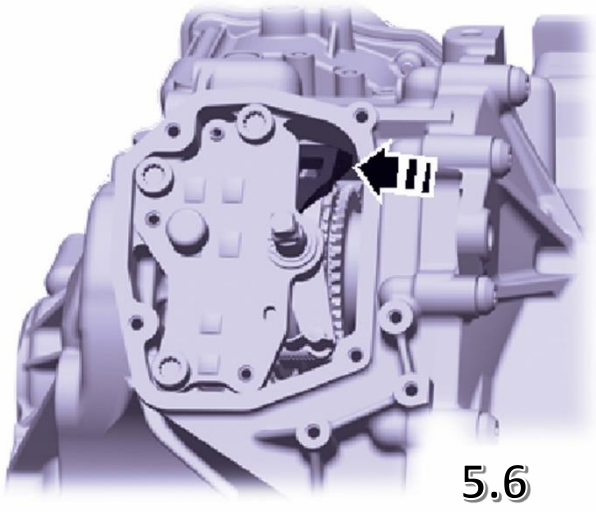
Step	Instruction
5.1	Remove the fastening clip from the shift cable.
5.2	Seperate the shift cable from the ball on the fork.
5.3	Move the fork into the correct position (see arrow).



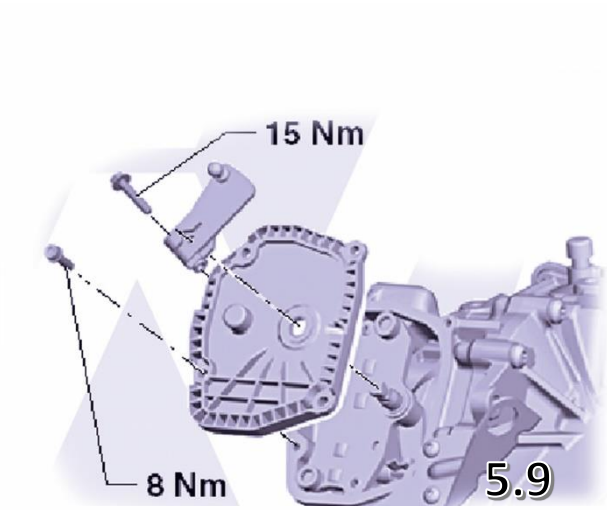
5.4	Remove the fork.
5.5	Remove the cover.



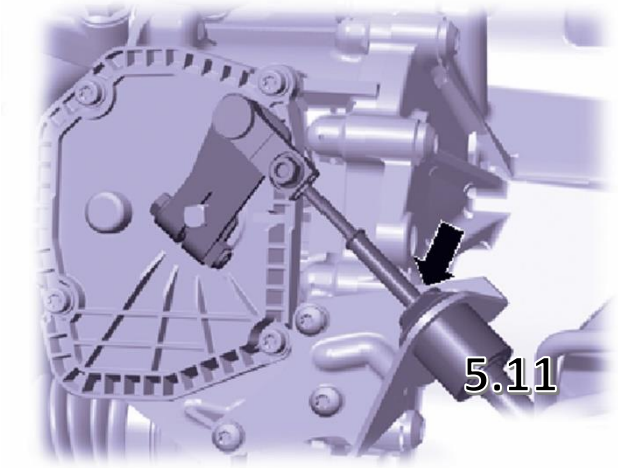
5.6	Pour exactly 1.9 litres of the recommended official transmission oil in the opening by the arrow.
5.7	Also apply some transmission oil to the O-ring before putting the cover back on.



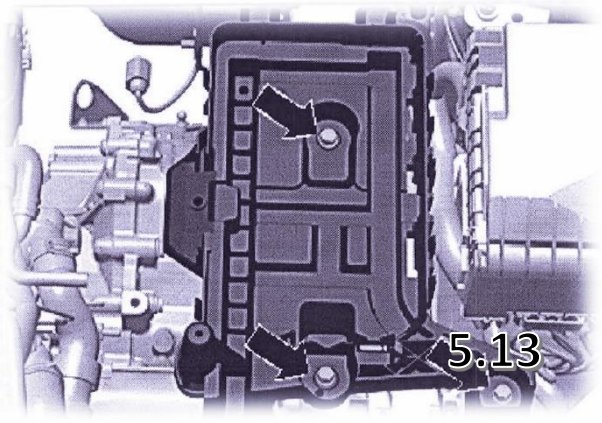
Step	Instruction
5.8	Put the cover back on. The bolts should be fastened with 8Nm.
5.9	Put the fork back. The bolt should be fastened with 15Nm.



5.10	Re-fasten the shift cable to the fork by clicking it onto the ball.
5.11	Place a new fastening clip to secure the shift cable to the mounting point (see arrow).



5.12	Put the starter motor back.
5.13	Put the battery support and battery back (see arrows).
5.14	Put all components that previously had been removed back in place.



Step	Instruction
5.15	Finally, use the VAS diagnostic tester or the ODIS diagnostic tester to reset the basic settings:
5.16a	Choose [adapt installation information] on the electronic tester to clear the memory of the mechatronic unit. Follow the steps as shown on the tester.
5.16b	Choose [DSG Mechatronic –J743- performing basic measurement] on the electronic tester to adapt all settings and reference points once again. Follow the steps as shown on the tester.
5.17	Now turn on the ignition, but wait 1 minute before starting the engine.
	TIP: The basic settings can usually also be performed with alternative equipment, such as VCDS. Find the function that performs basic settings and follow the instructions as shown on the tester.