



Workshop Manual

Golf Variant 2007 ➤

Golf Variant 2010 ➤

Jetta 2005 ➤

Jetta 2011 ➤

7-speed dual clutch gearbox 0AM

Edition 07.2010





List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 30 - Clutch
- 34 - Controls, housing
- 35 - Gears, shafts
- 39 - Final drive - front differential



Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.



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00 – Technical data

1 Gearbox identification

KHN - Gearbox code letters

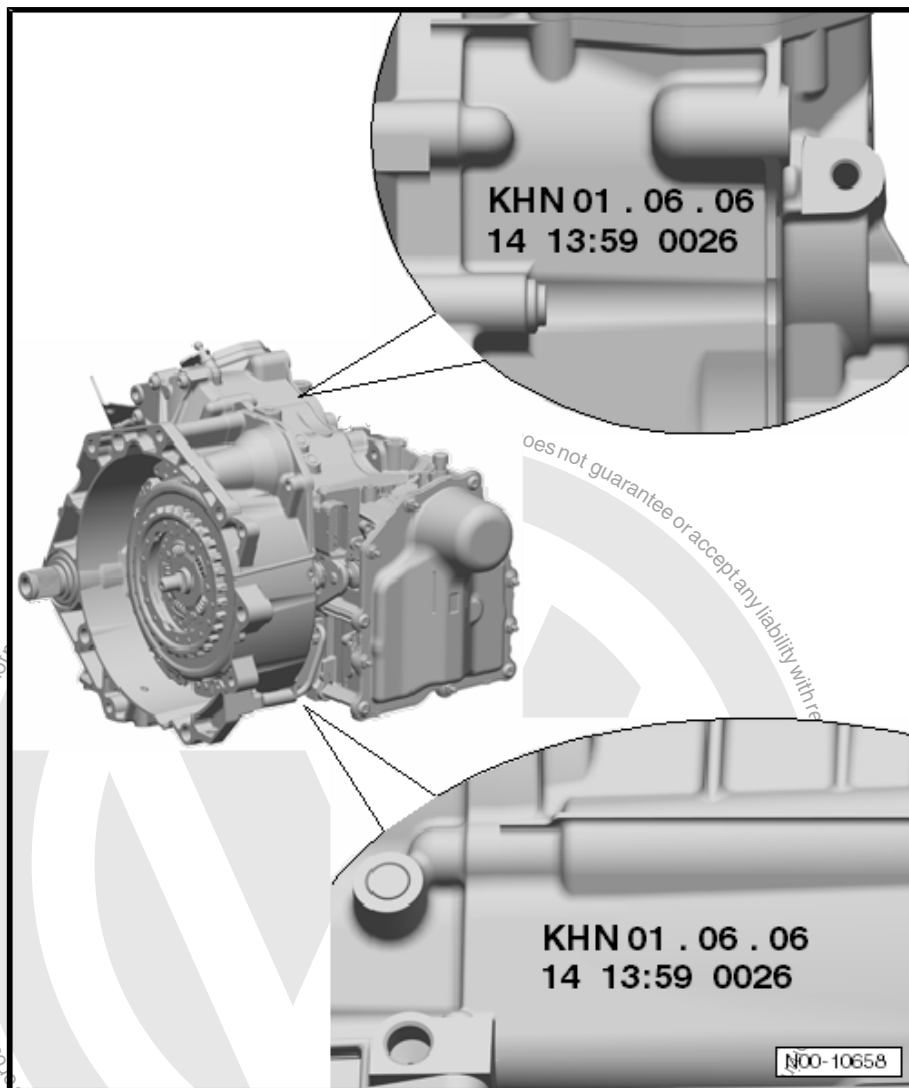
⇒ [page 2](#)

01.06.06 - Production date:
1 June 2006

14 - Factory code

14 15 - Time

0026 - Serial number





2 Code, engine allocation

Allocation: gearbox codes for petrol engines		
KHN, LKG, LKM	KUT, LPL	LSU
1.4 I/90 kW TSI	1.4 I/118 kW TSI	1.6 I/75 kW MPI

Allocation: gearbox codes for diesel engines		
KHM, LKL, LKF	LQN, LST	
1.9 I/77 kW TDI PD	1.6 I/77 kW TDI CR	





3 Capacities

Dual clutch gearbox 0AM	Mechatronic unit for dual clutch gearbox -J743-
1.7 l gear oil -G 052 171-	1 l central hydraulic oil and power steering oil -G 004 000-

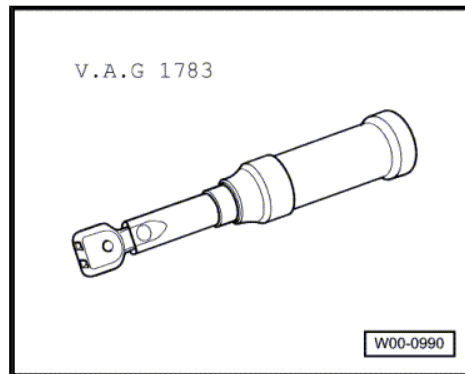
Further information in the part number designates the container size.



4 General repair notes

4.1 Tools

Uncertainty often occurs with smaller bolts having low tightening forces. Torque wrench 2...10 Nm -V.A.G 1783- can be used with these bolts.



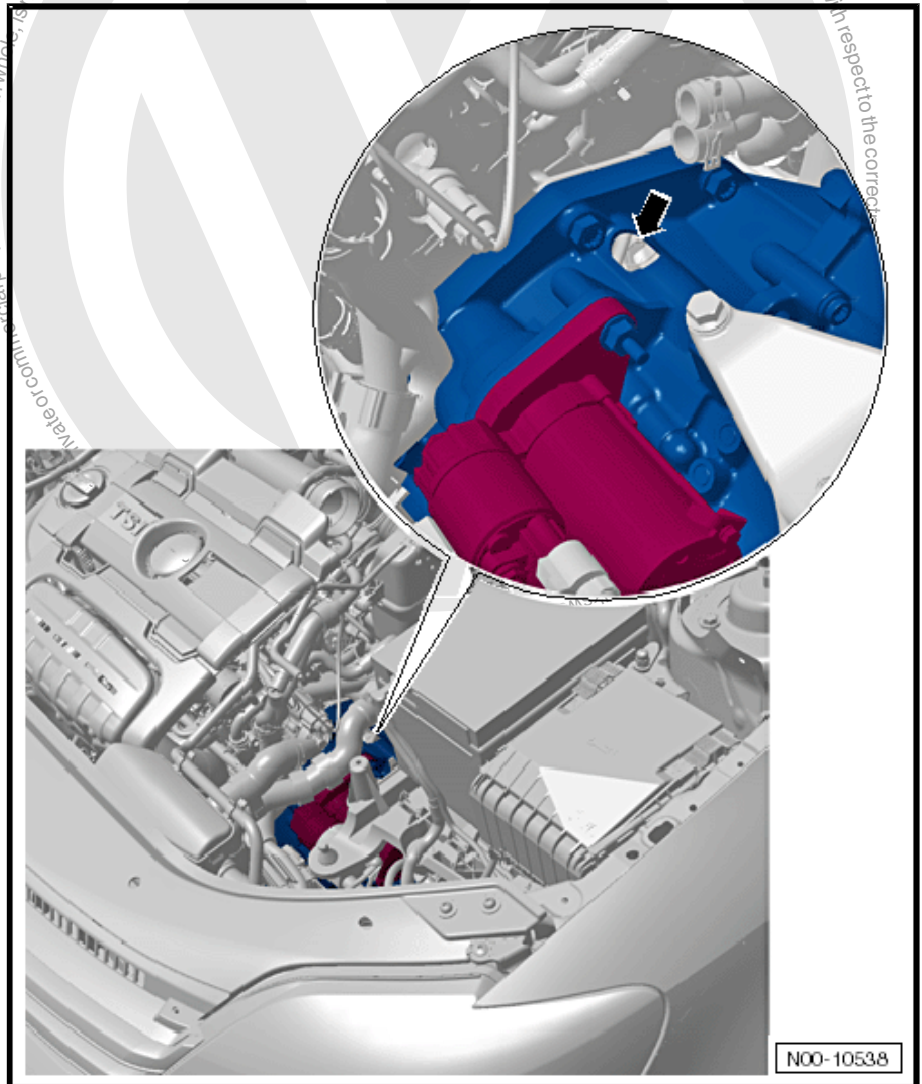
4.2 Gearbox

The gearbox has a hole in the housing.





- Make sure no small parts drop into this hole during installation work.



- Cover the hole with a cloth before installation work.

Make sure that no dirt can enter an “open” gearbox.

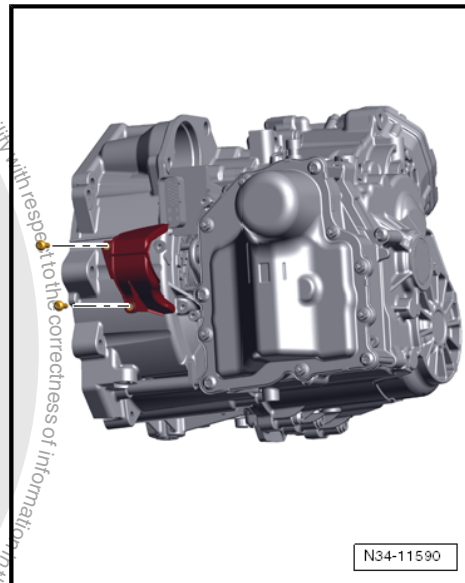
- ◆ If gearbox covers have been unbolted or gearbox has no fluid, do not run engine. Do not tow vehicle.
- ◆ First thoroughly clean connecting points and surrounding areas and then loosen bolts.
- ◆ During installation, ensure that the dowel sleeves between the engine and gearbox are correctly located.
- ◆ Place removed parts on a clean surface. Cover parts to prevent soiling. Use plastic sheeting and paper. Use lint-free cloths only!
- ◆ Install only clean parts; do not remove Genuine parts from packaging until immediately before installing.
- ◆ If repair work cannot be performed immediately, cover opened parts carefully.



In some vehicles, a cover is fitted over the engaging levers.

The cover prevents dirt getting in.

Torque setting: 8 Nm



4.3 Oil

The "0AM" gearbox has two oil circuits. One oil fill is for gears, shafts and differential. A 2nd oil fill is for mechatronic unit for dual clutch gearbox -J743-

Both oils are Genuine parts [page 3](#).

Do not mix "additives" in oil.

Oil which has been drained out cannot be added again.



Caution

Use caution when handling oil. Dispose of used oil properly. One drop of oil will contaminate 600 litres of water.

4.4 Working with vehicle diagnostic testers

- Only work with vehicle diagnostic testers from Volkswagen.
- ◆ Vehicle diagnosis and service information system -VAS 5052 A-
- ◆ Vehicle diagnosis, testing and information system -VAS 5051B-
- ◆ Vehicle diagnostic tester -VAS 5053-

Various functions are available in the operating modes guided functions and guided fault finding. The 3 most important functions are:

- ◆ Adapting installation information
- ◆ Reading measured values for mandatory reporting
- ◆ Initiating basic adjustment

4.4.1 Adapting installation information

The mechatronic unit detects other control units in the vehicle by means of signals on the data bus. Pressing the Adapt installation information lock button instructs the mechatronic unit to forget all communication partners.



All "active partners" are detected once again the next time the ignition system is switched on.

You cannot "generate" any faults using this function. Please always perform the Adapt installation information function after the following activities:

- ◆ After a selector lever has been installed.
- ◆ After another control unit has been installed, e.g. engine, ABS or gateway.
- ◆ After work on the steering wheel paddle.

4.4.2 Reading measured values for mandatory reporting

You must read these measured values before contacting your Technical Service Center or your importer.

Save the measured values in the diagnosis log so that all necessary gearbox data will be available for fault analysis.

4.4.3 Initiating basic adjustment

This teaches important settings into the mechatronic unit. Even important adjustments are taught in again, or reset to programmed points. These include, for example, the synchronisation points and "reference points" for the engaging lever and gear actuator.

- Press the button DSG Mechatronic -J743- performing basic measurement only:

- ◆ if you are prompted to do so in "guided fault finding"
- ◆ after you have processed a fault entry
- ◆ after you have installed another gearbox
- ◆ after you have installed a clutch
- ◆ or after you have installed a mechatronic unit



30 – Clutch

1 Removing and installing the dual clutch

Brief description

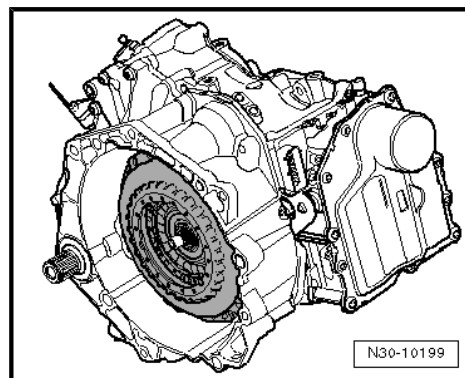
The clutch is installed “upwards” with the gearbox removed. The mechatronic unit remains on the gearbox.

If one new clutch is installed, the positions of the engagement bearings for “K 1” and “K 2” must be found and set. Then the clutch is pressed onto the input shaft.

When installing a clutch, “most” mechanics push the clutch onto the input shaft up to the stop. This is not the optimum position for the clutch!

For this reason, pull the clutch slightly “upwards” against the retaining ring after it has been installed.

After the gearbox has been installed, you must initiate a basic adjustment using the ➤ Vehicle diagnosis, testing and information system VAS 5051 ➤ [page 7](#) .



Note

The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Therefore, please do not drop the clutch. Do not left the clutch drop into the gearbox either when installing the clutch. Even if the mechatronic unit has been removed, “pulling out” the assembly lever -T10407- under the engaging levers can have a negative effect on the adjusting device.

Transporting gearbox and securing to assembly stand
➤ [page 111](#) .

Remove dual clutch ➤ [page 8](#) .

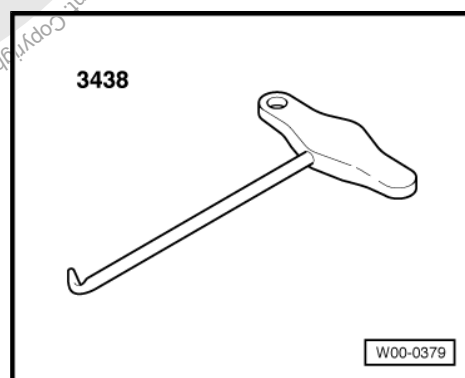
Adjust the position of the engagement bearings “K 1 and K 2”
➤ [page 12](#) .

Install dual clutch ➤ [page 22](#) .

1.1 Removing dual clutch

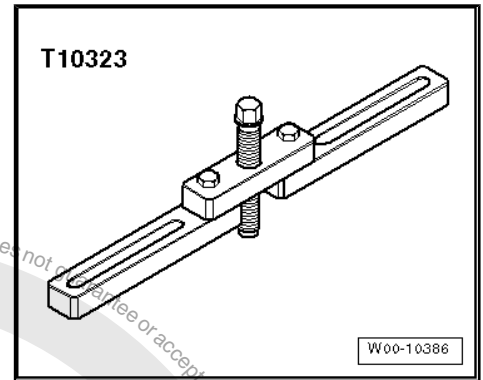
Special tools and workshop equipment required

- ◆ Hook -3438-

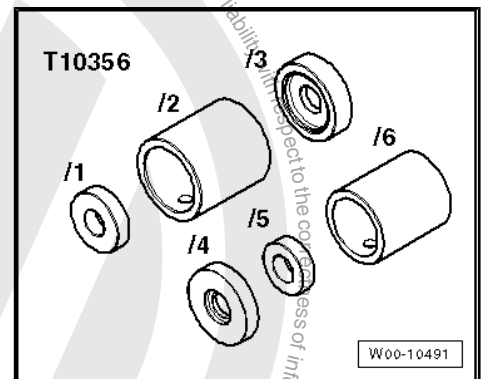




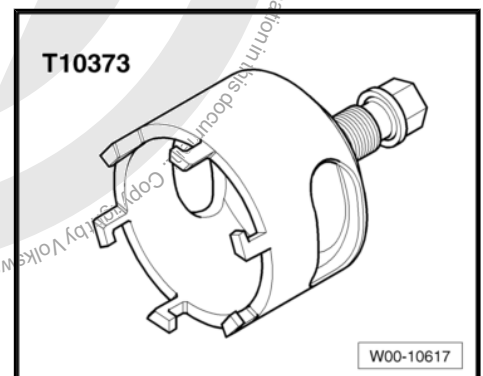
◆ Support device -T10323-



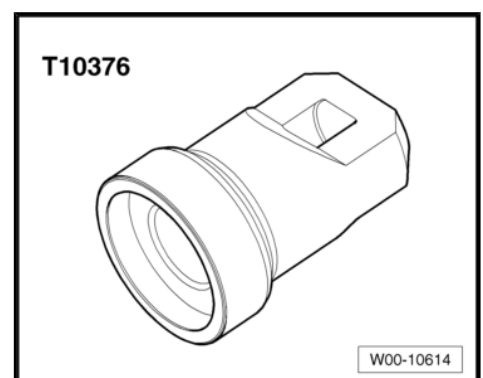
◆ Assembly tool -T10356-



◆ Puller -T10373-



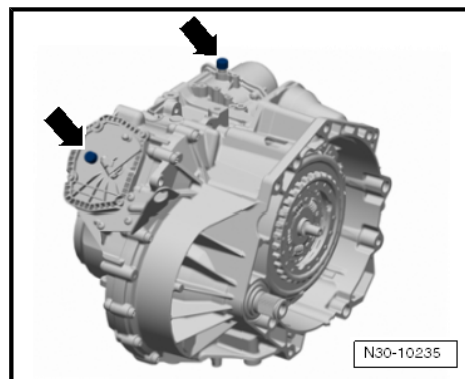
◆ Thrust piece -T10376-



– Remove gearbox ➔ [page 73](#) .

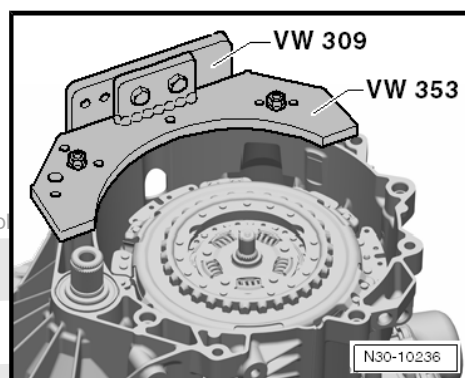


- Pull off both breather caps -arrows- and close using suitable plugs to achieve an oil-tight seal.

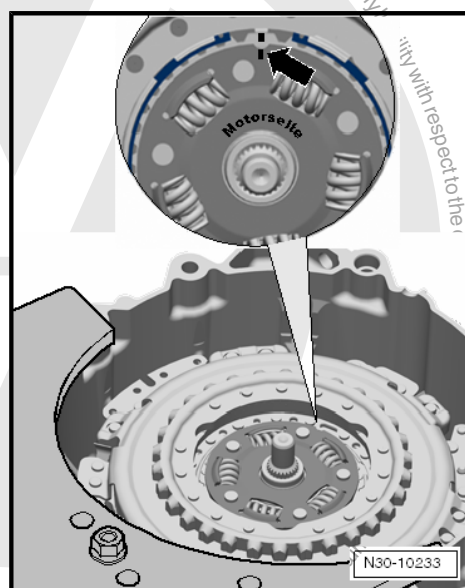


Turn gearbox with clutch upwards.

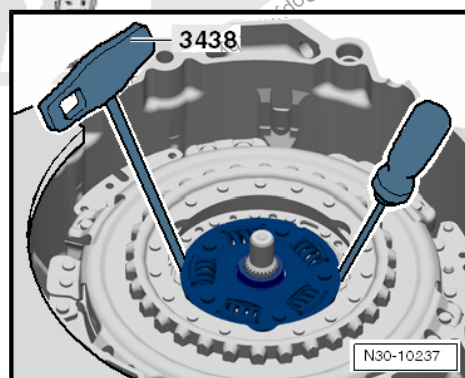
For information about how to transport the gearbox securely and attach it to the assembly stand ➔ [page 111](#) .



- Remove retaining ring of hub -arrow-.

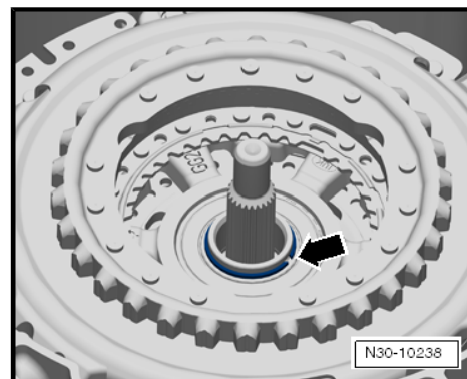


- Remove hub with hook -3438- and a screwdriver.



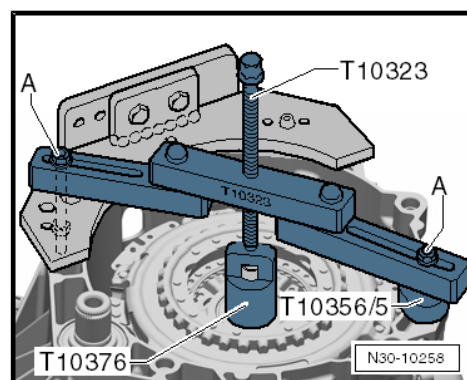


- Remove retaining ring of clutch -arrow-.



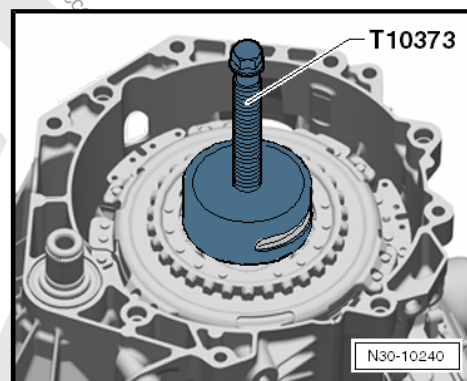
Note

- ◆ It is possible that the retaining ring is seated very tightly. The cause may be that the clutch is pressing so hard against the retaining ring that the ring is stuck.
- ◆ If you cannot get the ring out of the groove, press the clutch down slightly. Never strike the clutch or shaft with a hammer! Set up the tools that are shown in this illustration.
- ◆ Support bracket -T10323- fits on all 0AM gearboxes.
- ◆ Make sure that you place support bracket -T10323- in parallel to the gearbox flange.
- ◆ Secure engine support with bolts -A-, as required with nuts.
- ◆ Always renew retaining ring.

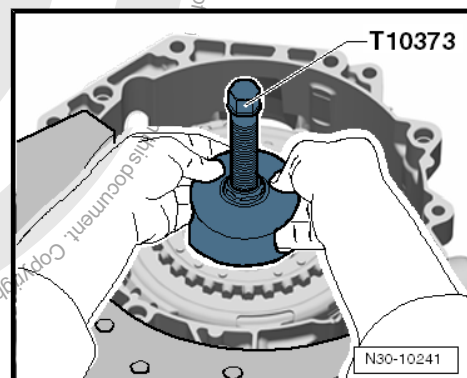


Clutch should only be pressed down slightly. Often, it is sufficient to rotate spindle against thrust piece -T10376- without pressing. This will "release" retaining ring.

- Pull off clutch.

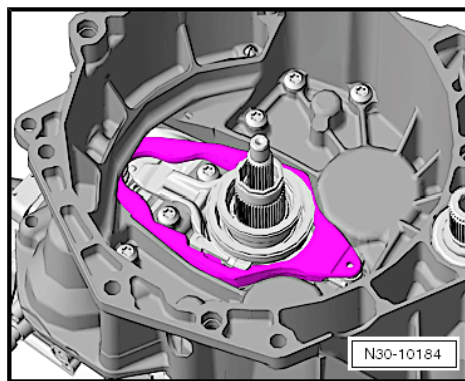


- Remove clutch together with puller -T10373-.

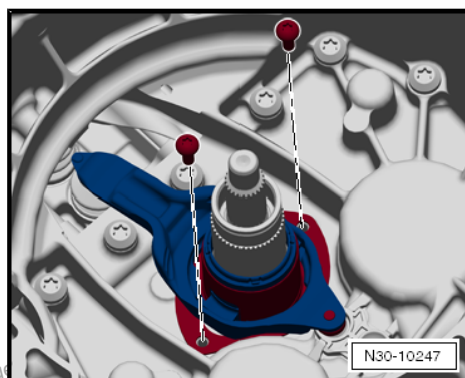




- Remove small engagement bearing.
- Remove large engaging lever.



- Remove bolts and remove small engaging lever.

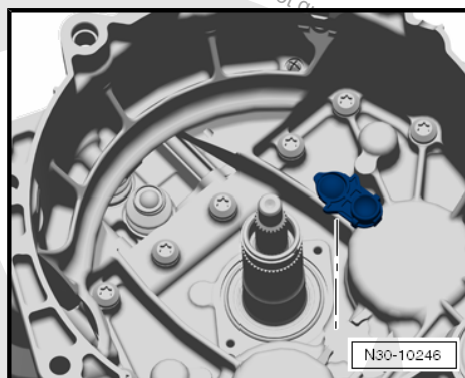


- Remove retainer for engaging lever.

Before installing clutch, please refer to ⇒ [page 12](#) to see whether “clutch needs adjusting during assembly or not.”

Adjusting ⇒ [page 12](#) .

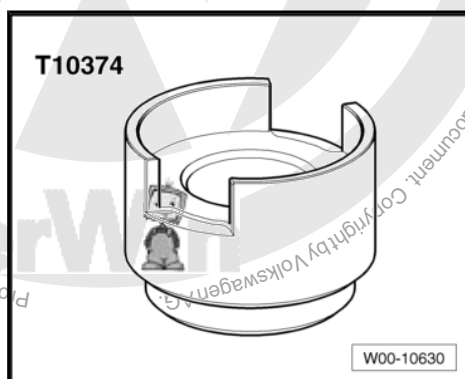
Install dual clutch ⇒ [page 22](#) .



1.2 Adjusting position of engagement bearings “K 1 and K 2”

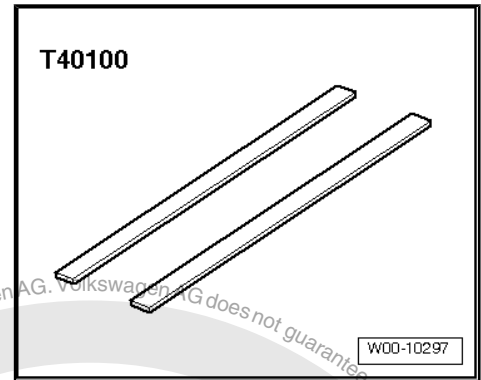
Special tools and workshop equipment required

- ◆ Gauge block -T10374-





◆ Ruler -T40100-



◆ Digital depth gauge e.g. -VAS 6594-

◆ Adhesive -AMV 195 KD1 01-

◆ Micrometer caliper

Position of engagement bearings must be set after clutch and its actuators have been renewed.

◆ Retainer also belongs to actuator.

There is no need to adjust anything if all the named parts have only been removed and reinstalled.

Conditions:

- Only use tools in perfect condition.
- Contact surface of “gearbox on engine” must be free from “irregularities”. This guarantees straight edge makes good contact.
- Mechatronic unit is installed.

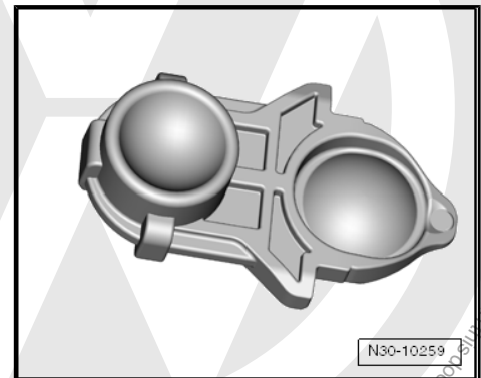
Perform the following steps:

Position of engagement bearings is comparable with clutch play of a manual gearbox. In this 0AM dual clutch gearbox, there are tolerances in engagement system of gearbox and in gearbox itself. There are also tolerances within the dual clutch. These tolerances must be considered separately when adjusting.

In the following procedure, you are first shown how to measure all necessary dimensions “on gearbox”, in order to determine what is the appropriate shim. Tolerances on gearbox and tolerances in clutch determine thickness of shim.

First find a dimension “B”. This dimension is required for both clutches “K 1” and “K 2”.

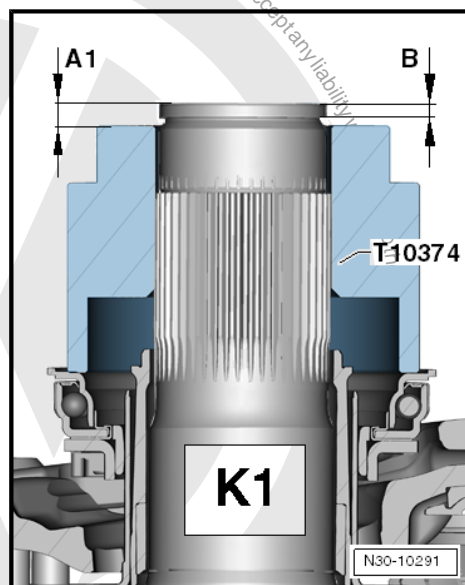
Then find a dimension “A” for each clutch. The following 2 illustrations show where to measure these dimensions.



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"K 1"



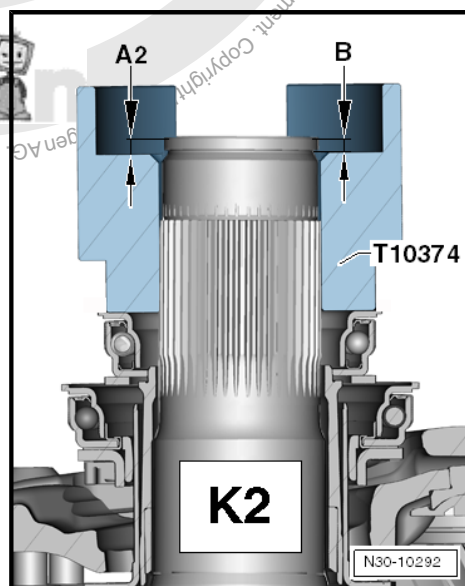
"K 2"



Note

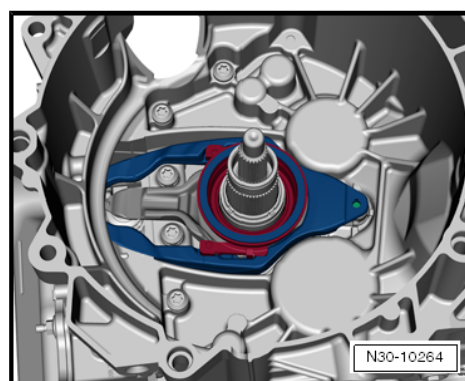
Perform the following steps "in sequence" and precisely.

Adjusting:



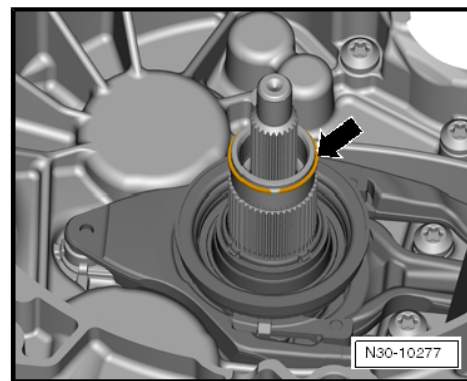
- Install parts of clutch as far as large engaging lever
⇒ [page 22](#) .

Do not install small engagement bearing, do not insert any shim.





- Install retaining ring of outer input shaft -arrow-.

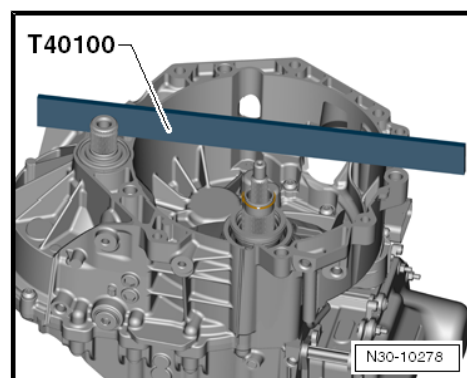


- Place a ruler -T40100- on its side on flange of clutch housing. It should lie sideways on shaft end.

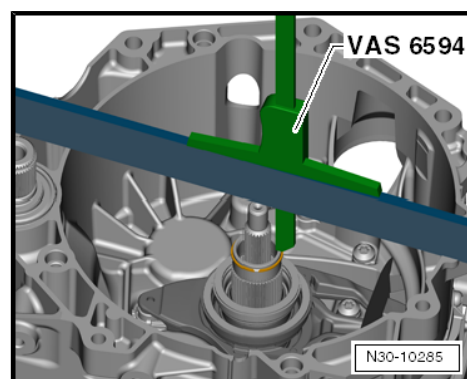


Note

Ruler -T40100- should remain in this position during subsequent measurements. Do not turn over, do not remove.

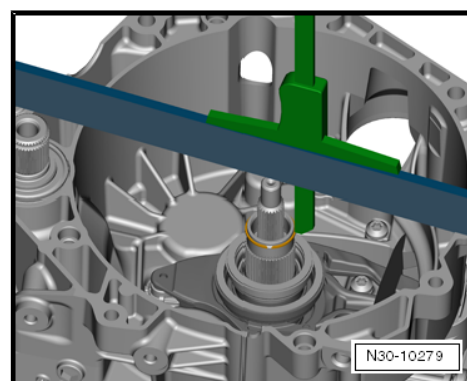


- Place digital depth gauge onto outer input shaft.
- “Zero” depth gauge.



- Measure distance from retaining ring.
- Note down result and call it “B”.

Example: “B” = 2.91 millimetres





- Measure dimension “B” again on opposite side.



Note

Do not measure on ring joint. This could force ring away at that point and falsify measuring result.

- Remove retaining ring again.

This ring is not allowed to be installed again!

- Calculate average of both measuring results.

Example:

$$\text{Dimension "B"} = B1+B22 = 2,91+3,02 = 2.96$$

This dimension “B” is needed in the following calculations.

In the following sample calculations, “B” should be 2.96 mm. The dimension given for “B” is and example. The value for “B” may be different in another gearbox.

There are 2 clutches, therefore there are 2 setting procedures to follow.

Each measurement requires different preparatory measures, as well as a few calculations. Please comply with the following working procedures.

Start by calculating shim for clutch “K 1”.

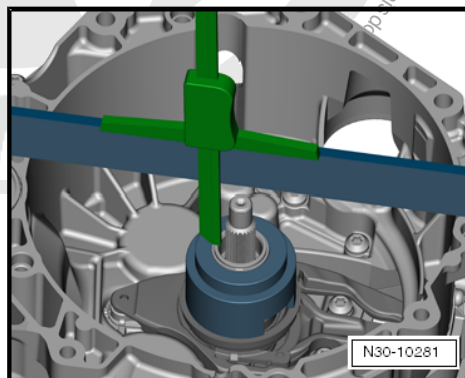
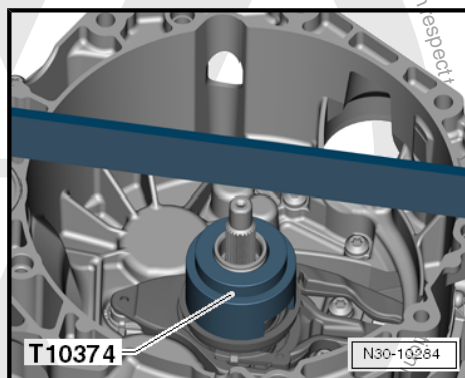
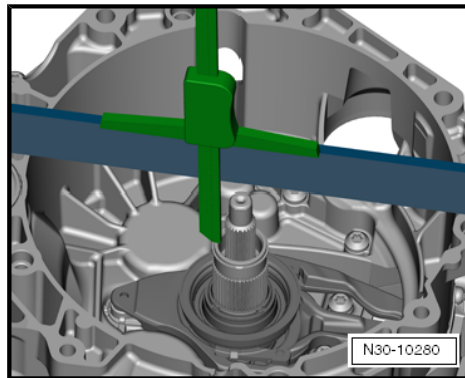
Do not insert any shim!

- Place gauge block -T10374- on “large” engagement bearing.
- Press once onto gauge block -T10374- whilst turning.

In this way, it is possible to observe how the engagement bearing turns. This means gauge block -T10374- also “sits” correctly on bearing.

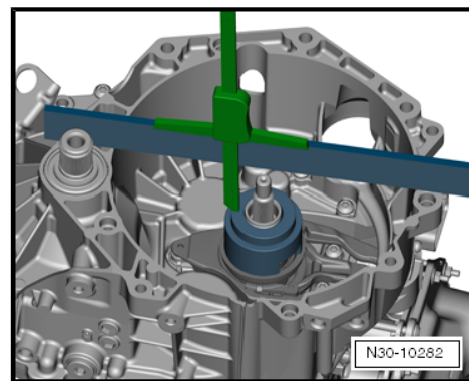
- Place digital depth gauge “at top” onto outer input shaft.

Ruler -T40100- is already “on its side” on gearbox flange
⇒ [page 15](#) .





- Measure distance from “shaft end” to gauge block -T10374- .





- To make sure this measurement is as accurate as possible, position digital depth gauge twice at opposite sides.

This allows the value to be found even more accurately, because the inaccuracy caused by "tilting" on the engagement bearing is minimised.

- Calculate average of both measurements onto gauge block - T10374- .
- Note down this value and call it "A1".

Example:

Dimension "A1" = 2,61+2,812 = 2.71

Example: "A1" = 2.71 millimetres

Next calculation:

"A1" minus "B" plus height of gauge block -T10374- = Depth of engagement bearing of clutch 1.

Height of gauge block -T10374- is always the same. It is: 51.81 mm.

Sample calculation:

2.71 mm minus 2.96 mm plus 51.81 mm = 51.56 mm.

You have now calculated value for how deep engagement bearing is actually seated inside gearbox.

Depth of bearing in each gearbox should be 50.08 millimetres.

Subtract nominal dimension "50.08 millimetres" from this actual value. This gives result for actual gap of clutch 1.

- Continue the calculation:

Calculated value (in example: 51.56 mm) minus nominal dimension = gap of clutch.

Sample calculation:

51.56 mm minus "50.08 millimetres" = gap of clutch 1 = 1.48 mm.

Now tolerances in dual clutch must be introduced into this calculation. Procedure for this is very simple:

- Please read off value of clutch tolerance of "new" clutch.

A value between minus 0.40 and plus 0.40 millimetres is provided with a new clutch.

- Make a note of this value.

Example 1: "- 0.40" is indicated on your clutch.

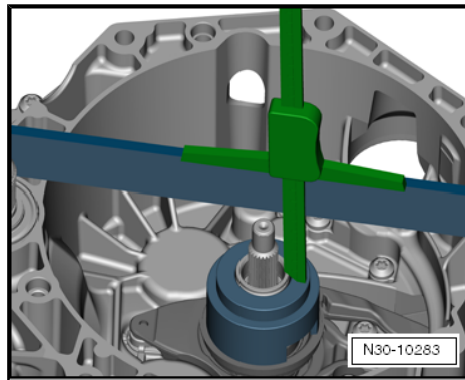
The previous calculation for "K 1": "your calculated" gap minus value of clutch 1 =

1.48 mm minus 0.40 = 1.08 mm.

Example 2: "+ 0.20" is indicated on your clutch.

Then, the last calculation of "K 1" is as follows: 1.48 mm plus 0.20 = 1.68 mm.

- Refer to table to find correct shim and install.





Calculated shim thickness		Shim to be installed (in millimetres)
from	to	
0.31	0.90	0.8
0.91	1.10	1.0
1.11	1.30	1.2
1.31	1.50	1.4
1.51	1.70	1.6
1.71	1.90	1.8
1.91	2.10	2.0
2.11	2.30	2.2
2.31	2.50	2.4
2.51	2.70	2.6
2.71	3.30	2.8

- From the supplied shims, select the one that is required.



WARNING

Later on, only insert this 1 shim. Not 2 shims.

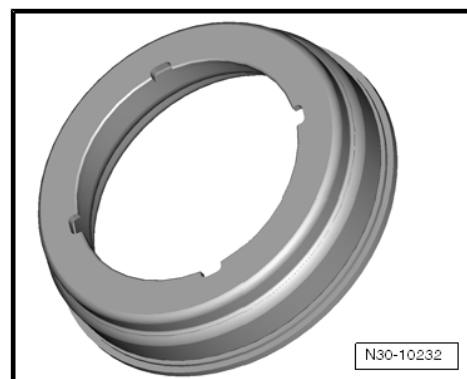
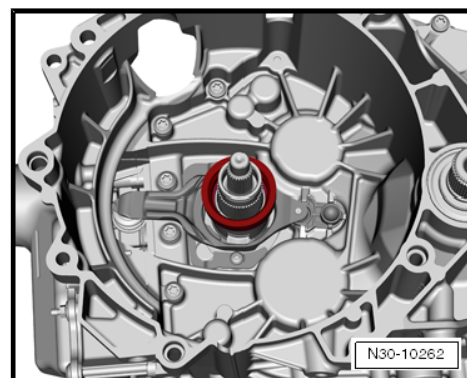
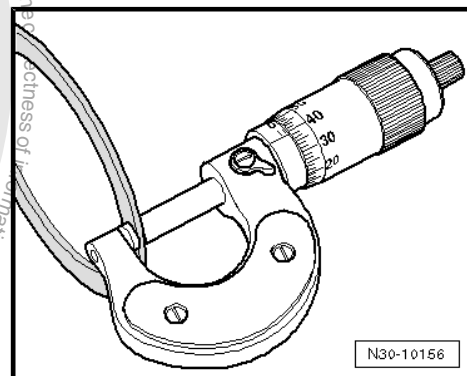
With this, you have found "correct" shim for "K 1". Please install this shim during subsequent clutch installation.

- Continue setting for clutch "K 2".

Calculate shim for clutch "K 2".

- Only insert small bearing.

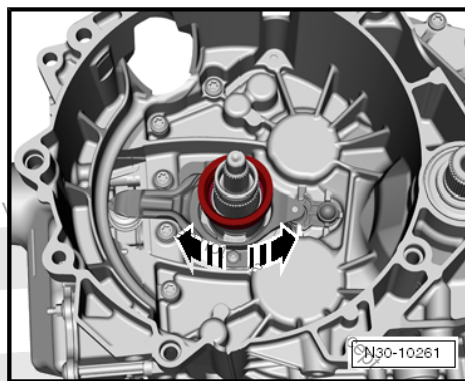
Do not insert any shim!



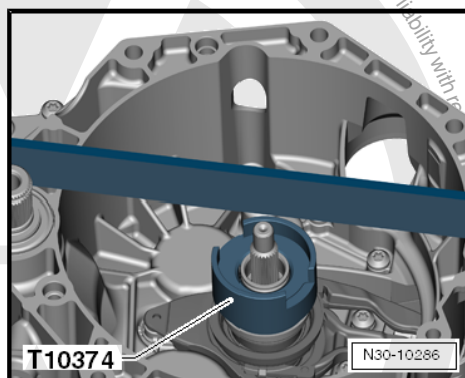
Small engagement bearing only fits in one position due to 4 grooves.



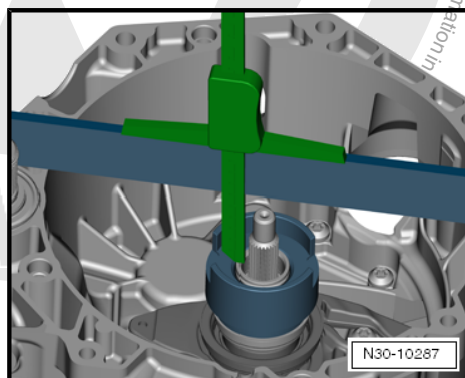
- By “turning”, check whether small engagement bearing is installed correctly and that grooves are seated correctly.



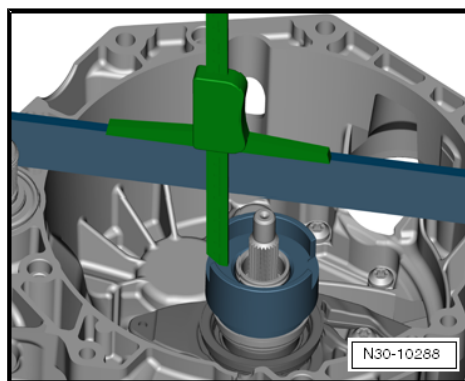
- Place gauge block -T10374- on small bearing “with large opening upwards”.



- Place digital depth gauge “at top” onto outer input shaft.
- “Zero” depth gauge.



- Measure distance from “shaft end” into gauge block -T10374- .





- To make sure this measurement is as accurate as possible, position digital depth gauge twice at opposite sides.

This allows the value to be found even more accurately, because the inaccuracy caused by “tilting” on the engagement bearing is minimised.

- Calculate average of both measurements onto gauge block - T10374- .
- Note down this value and call it “A2”.

Example:

Dimension “A2” = $2,50 + 2,542 = 2.52$

Example: “A2” = 2.52 millimetres

Next calculation:

“A2” minus “B” plus height of gauge block -T10374- = Depth of engagement bearing of clutch 2.

Height of gauge block -T10374- is always the same. On inside, it is: 36.20 mm.

Sample calculation:

$2.52 \text{ mm} \text{ minus } 2.96 \text{ mm} \text{ plus } 36.20 \text{ mm} = 35.76 \text{ mm}.$

You have now calculated value for how deep engagement bearing is actually seated inside gearbox.

Depth of bearing in each gearbox should be 34.35 millimetres.

Subtract nominal dimension “34.35 millimetres” from this actual value. This gives result for actual gap of clutch 2.

Continue the calculation:

Calculated value (in example: 35.76 mm) minus nominal dimension = gap of clutch.

Sample calculation:

$35.76 \text{ mm} \text{ minus } “34.35 \text{ millimetres}” = \text{gap of clutch 2} = 1.41 \text{ mm}.$

Now tolerances in dual clutch must be introduced into this calculation. Procedure for this is very simple:

- Please read off value of clutch tolerance of “new” clutch.

A value between minus 0.40 and plus 0.40 millimetres is provided with a new clutch.

- Make a note of this value.

Example 1: “- 0.40” is indicated on your clutch.

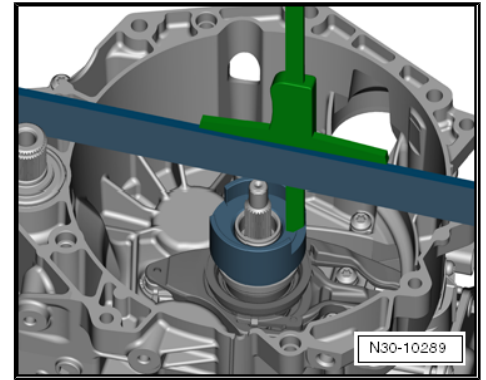
The previous calculation for “K 2”: “your calculated” gap minus value of clutch 2 =

$1.41 \text{ mm} \text{ minus } 0.40 = 1.01 \text{ mm}.$

Example 2: “+ 0.20” is indicated on your clutch.

Then, the last calculation of “K 2” is as follows: $1.41 \text{ mm} \text{ plus } 0.20 = 1.61 \text{ mm}.$

- Refer to table to find correct shim.





Calculated shim thickness		Shim to be installed (in millimetres)
from	to	
0.31	0.90	0.8
0.91	1.10	1.0
1.11	1.30	1.2
1.31	1.50	1.4
1.51	1.70	1.6
1.71	1.90	1.8
1.91	2.10	2.0
2.11	2.30	2.2
2.31	2.50	2.4
2.51	2.70	2.6
2.71	3.30	2.8

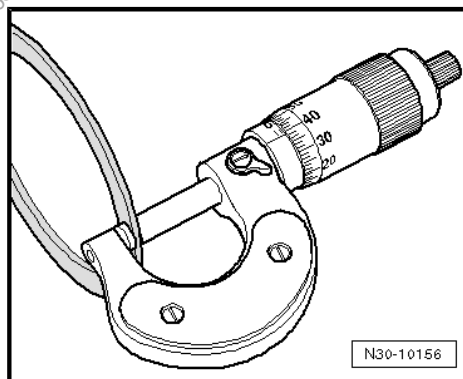
- From the supplied shims, select the one that is required.



WARNING

Later on, only insert this 1 shim. Not 2 shims.

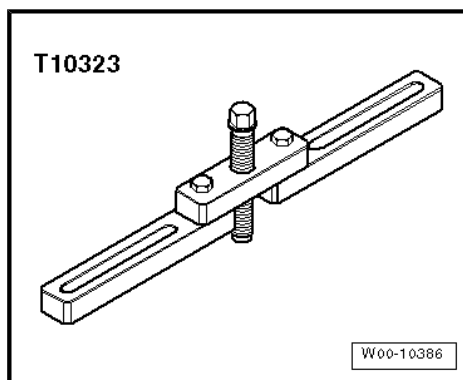
With this, you also have found “correct” shim for “K 2”. Please install this shim during subsequent clutch installation. This shim should be under small engagement bearing.



1.3 Installing dual clutch

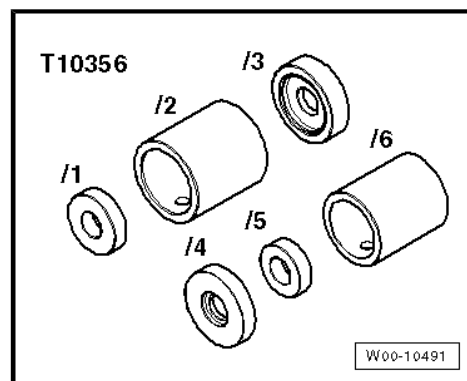
Special tools and workshop equipment required

- ◆ Support device -T10323-

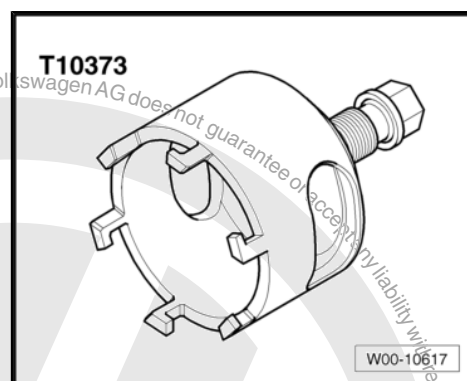




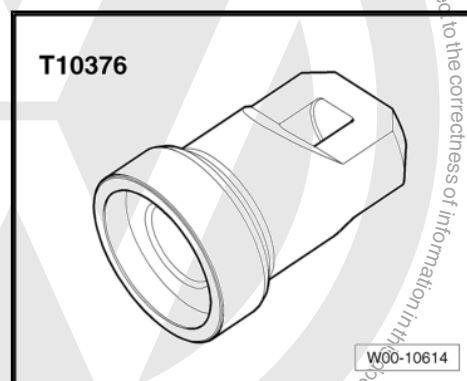
◆ Assembly tool -T10356-



◆ Puller -T10373-



◆ Thrust piece -T10376-



◆ Adhesive -AMV 195 KD1 01-

Perform the following steps:



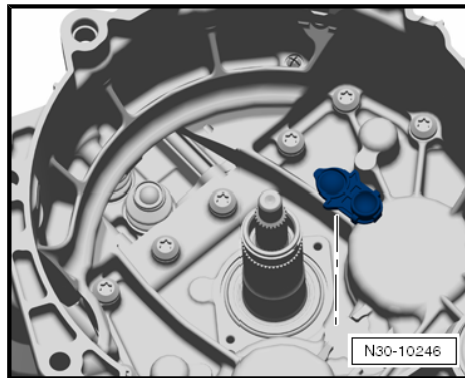
Caution

Do not oil or grease anything!

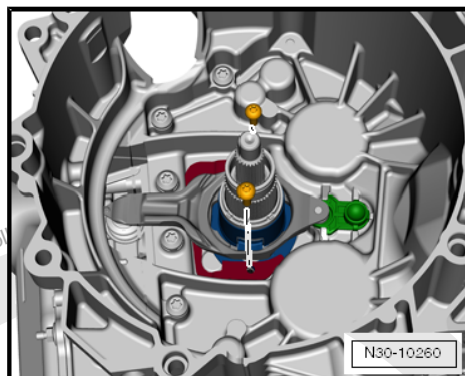
Before clutch is installed, position of engagement bearings "K 1 and K 2" must be set ➔ [page 12](#) .



- Insert plastic retainer of engaging lever and check for correct seating.



- Install small engaging lever with clip.
- Sleeve with its retaining plate fits only in one position.



Only a few, “older gearboxes” do not have a clip.

“New” clutches always have one clip.

- Check engaging lever is properly seated.
- Screw on engaging lever with 2 new bolts.

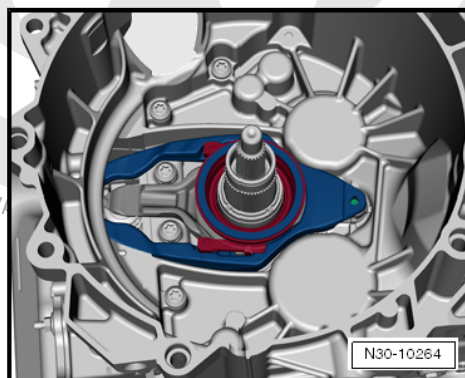
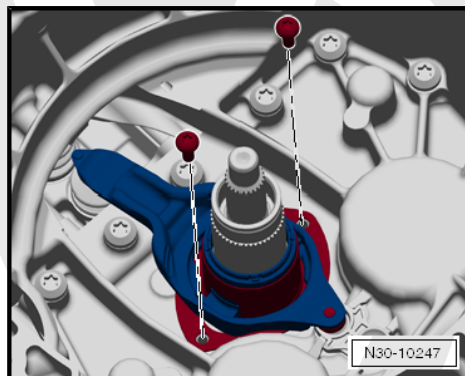
Torque setting: 8 Nm + 90°



Note

Mounting for engaging lever and entire mechanism of engagement bearing must be dry and free from oil or grease. If necessary, clean these components with a cloth.

- Insert 2nd, “larger” engaging lever.
- This “larger” lever is for clutch “K 1”.
- Check both engaging levers are seated correctly.



Caution

Before continuing with assembly, check whether clutch needs to be adjusted.

Do not continue with the assembly before the clutch has been adjusted!

Adjust positions of engagement bearings ⇒ [page 12](#).

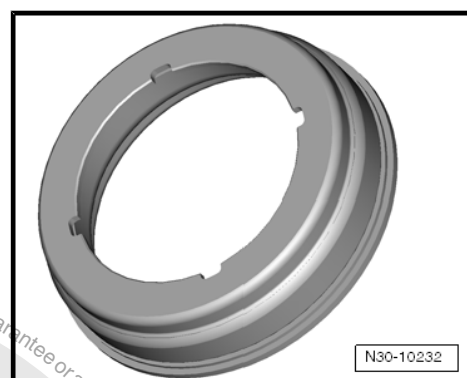
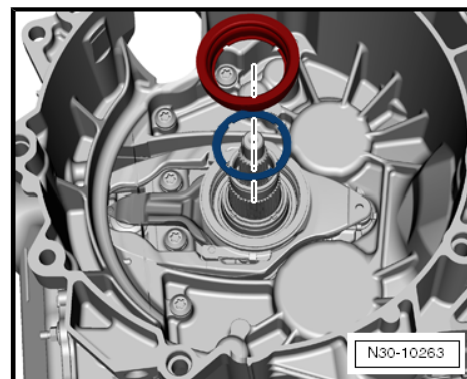


- Insert small engagement bearing with measured shim.

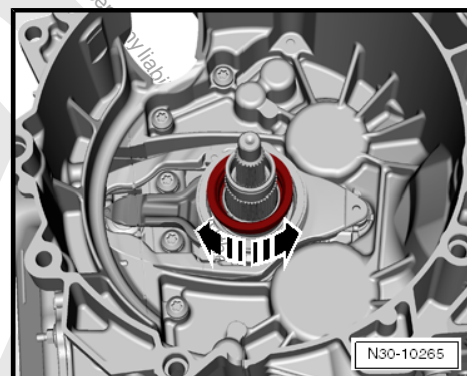
Shim should be under small engagement bearing. Therefore, insert shim first.

Small engagement bearing only fits in one position due to 4 grooves.

If clutch has been replaced, shim should also be under bearing.



- By “turning” bearing, check whether it is installed correctly and that grooves are seated correctly.

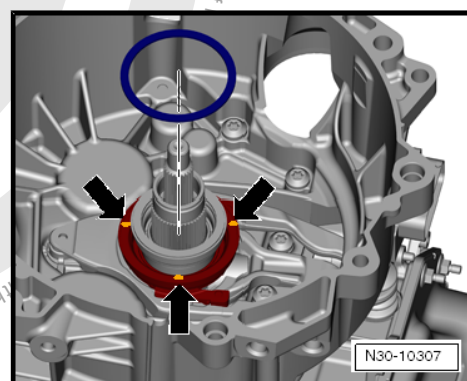


- Secure shim using 3 drops of glue -AMV 195 KD1 01- .

This prevents shim from slipping out of its seat when clutch is inserted.

Large shim is for clutch “K 1”, small one for clutch “K 2”.

- Turn back spindle of puller -T10373- .





- Insert clutch.
- Use puller -T10373- to insert clutch into gearbox.
- Turn spindle "back" first.



Note

The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Therefore, please do not drop the clutch. Do not left the clutch drop into the gearbox either when installing the clutch.

- Press clutch on onto stop.

Support bracket -T10323- fits on all 0AM gearboxes.

- Make sure that you place support bracket -T10323- in parallel to the gearbox flange.

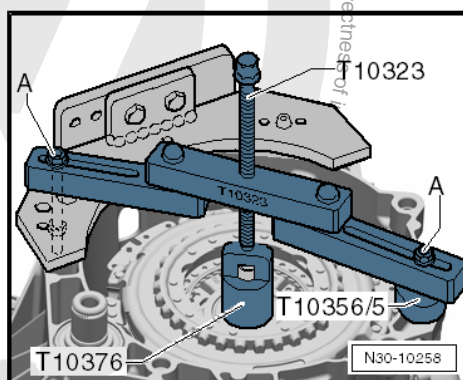
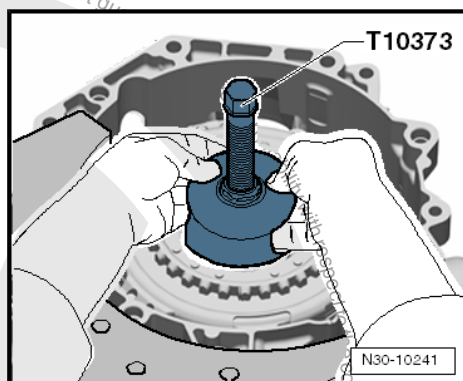
Secure engine support with bolts -A-, as required with nuts.

- Push clutch down via spindle.

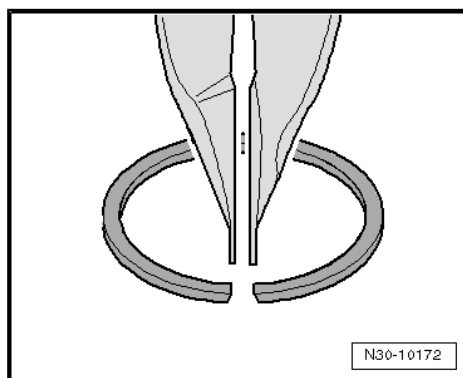


Note

Place a hand on clutch whilst pressing on. You will be able to feel a slight rattling. Rattling means the clutch is being pressed onto its press seat. In the same way, you can also "feel" the stop when the clutch has reached its seat.

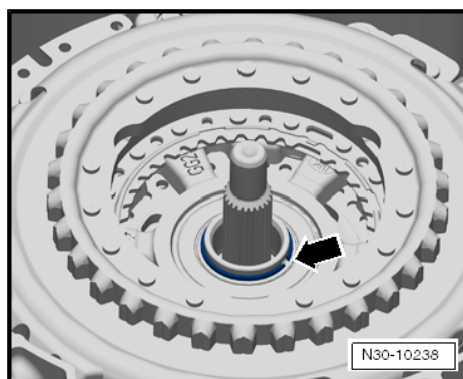


Installation position of retaining ring: Joint of retaining ring is "narrower at top".



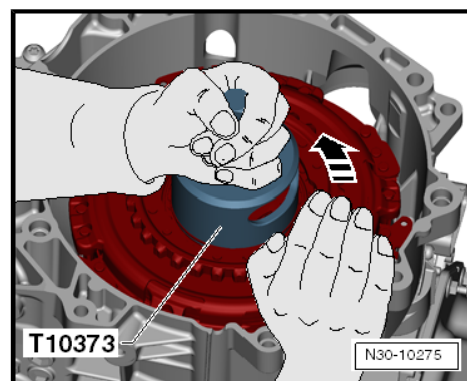
If you can insert retaining ring -arrow-, clutch is correctly pressed on to stop.

- Insert new retaining ring -arrow-.



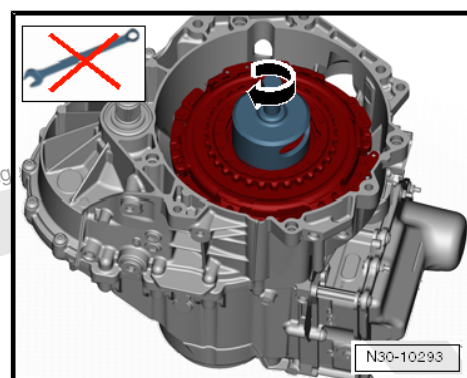


- To enable clutch to find its installation position already, turn clutch against puller -T10373- by hand.
- Now turn clutch by hand, without using a tool.



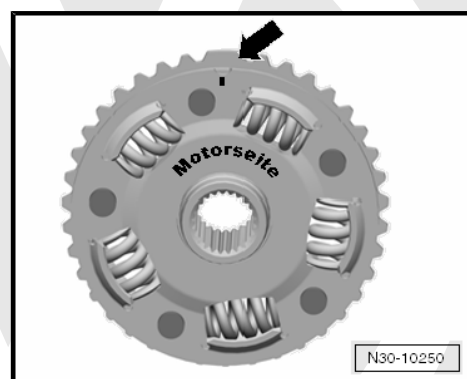
In this way, clutch slides against retaining ring. Do not use any other tool.

Pressing on causes "clutch to locate at bottom" on input shaft. Clutch should only be pulled up far enough for it to contact retaining ring.

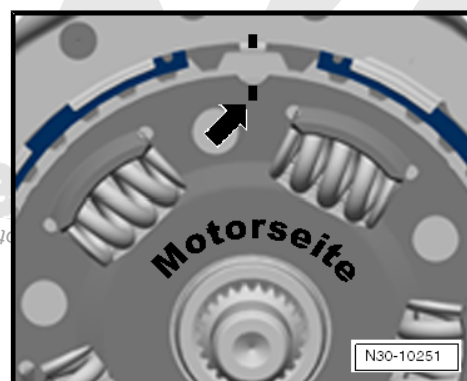


Then insert hub.

Hub has a "large" tooth and therefore only fits in one position.



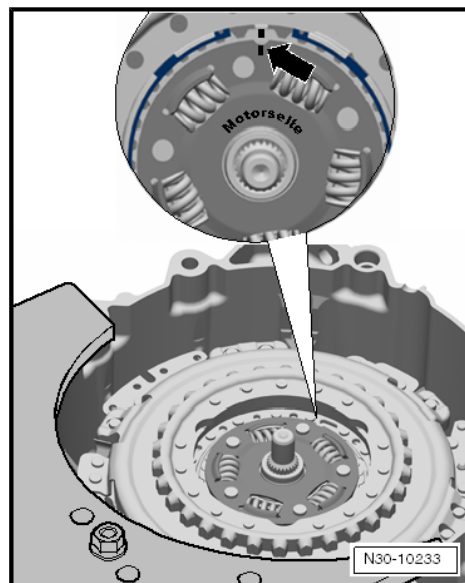
"Large" tooth has a mark on -engine end- -arrow-.



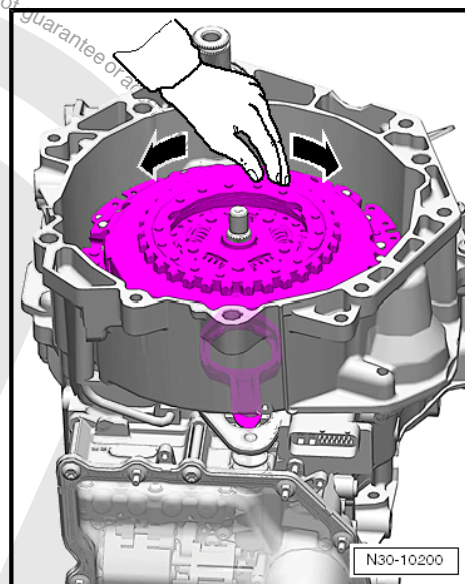


- Insert retaining ring for hub -arrow-.

Installation position: Joint of ring must point towards “hub” on clutch.

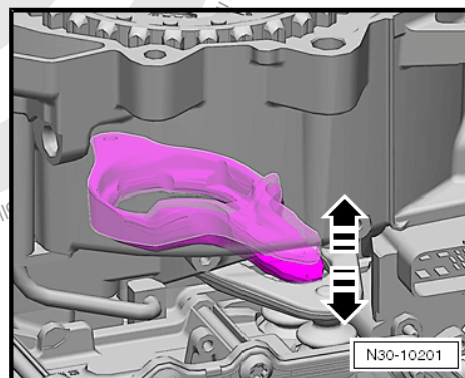


- Turn clutch by hand and observe “small” engaging lever whilst turning.



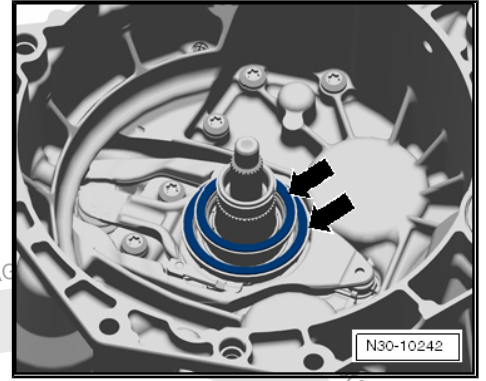
Engaging levers must remain “still” in their position whilst this is being done. They are not allowed to move up and down.

If an engaging lever moves up and down, then shim is not properly seated.



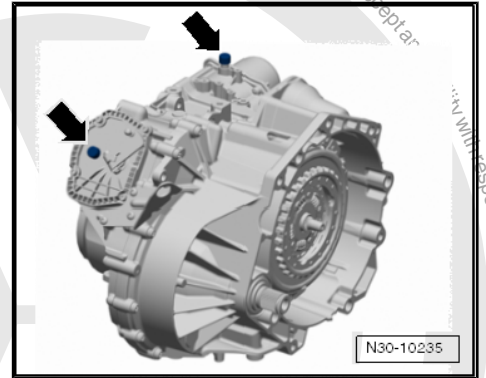


- Remove clutch again in this case ➔ [page 8](#) .
- Look at shims -arrows- precisely.
- Shims must be correctly seated. They must not be damaged.



- Remove plugs and put both breather caps -arrows- back on.

After the gearbox has been installed, you must initiate a basic adjustment using the ➔ Vehicle diagnosis, testing and information system VAS 5051 ➔ [page 7](#) .





34 – Controls, housing

1 Renewing gear oil

The gearbox is filled for life. Therefore, there is no need to check the oil level of this gearbox.

This explains why there is no oil level check.

In case of leaks on gearbox, find out what is the cause and rectify the faults.

- Raise vehicle.
- Place drip tray under gearbox.

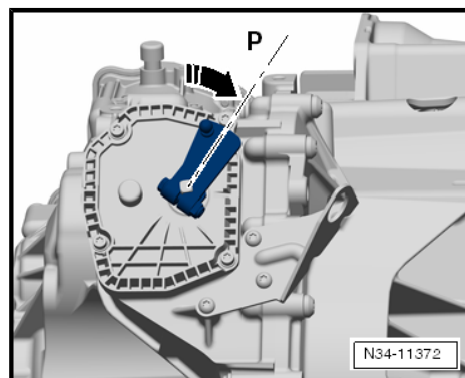
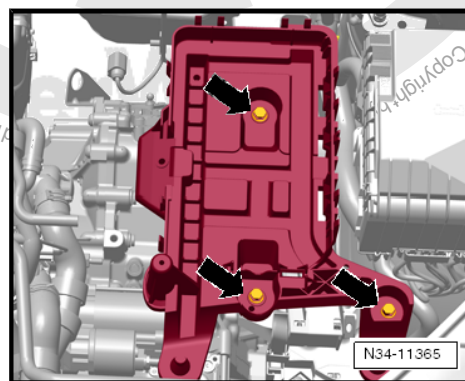
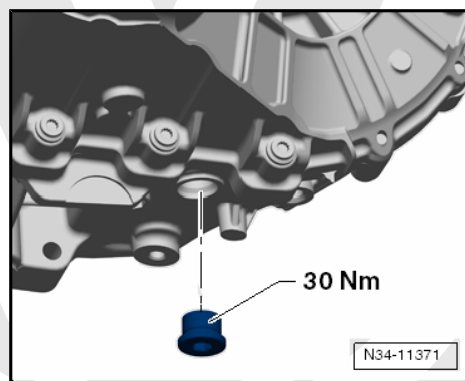
Then drain all gear oil and fill with new oil.

- Then install the drain plug again.

If the gearbox is installed, you must remove the battery and battery tray to add oil.

- Remove battery and battery tray -arrows- → Rep. Gr. 27 ; Battery; Removing and installing battery .

- Move selector lever to position “P” position.

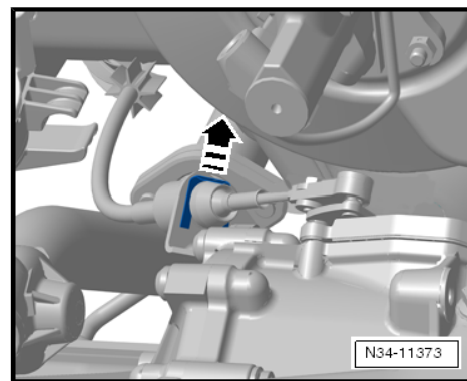




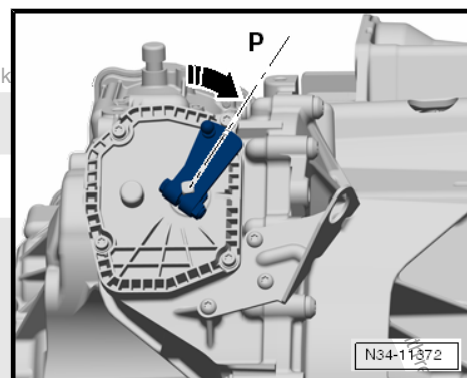
- Remove securing clip in -direction of arrow-.

Securing clips for selector lever cable must always be renewed.

- Remove Bowden cable from ball head.

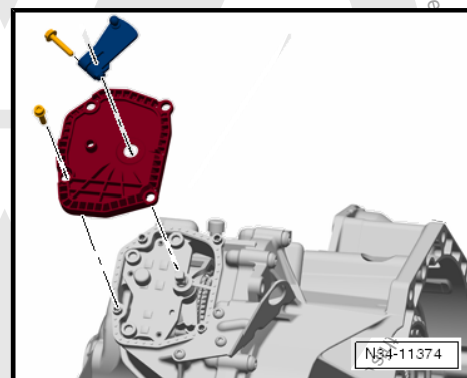


- Use your hand to press lever to stop in direction of cable support bracket.



- Note installation position of lever and remove it from selector shaft.
- If you are unsure, refer to this illustration for guidance.
- Unbolt cover.

Only leaking covers must be renewed. If the cover was not leaking, it does not need to be renewed.



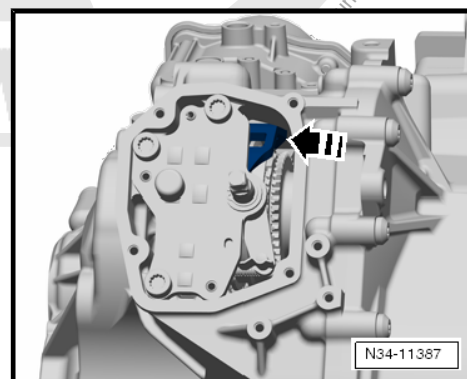
- Pour 1.7 l of oil in through opening -arrow-.
- Take care not to “spill” any. Gearbox must have precisely 1.7 litres of oil.



Caution

Do not fill any more or any less oil. Malfunctions would result!

- Clean sealing surface on gearbox and on cover.





Note

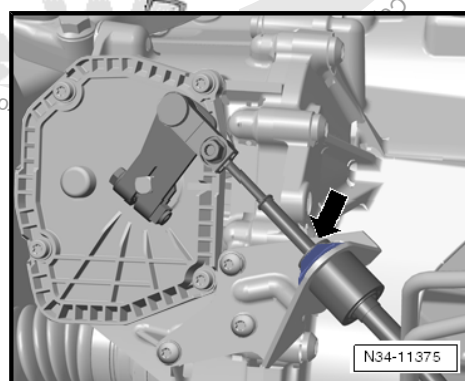
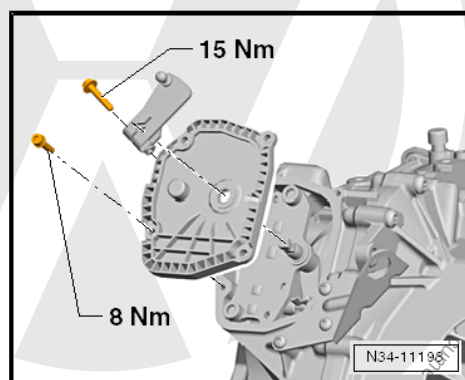
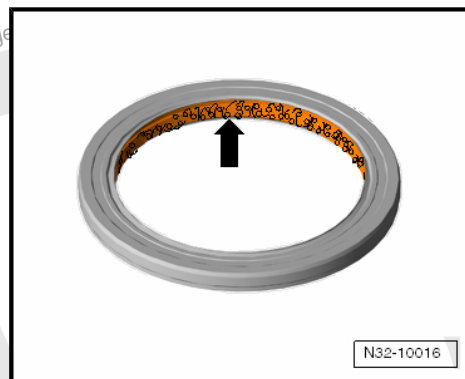
Grease oil seal in cover with sealing grease -G 052 128 A1- .

- Always renew bolt of lever.
 - Fit cover and lever again.
- Attach lever again in same position.

- If you are unsure, refer to this illustration for guidance.
- Press selector lever cable back onto ball head and install new securing clip.

A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

- Therefore, when installing, always use a “new” securing clip.
- Adjust selector lever cable ➔ [page 43](#) .





2 Selector mechanism



WARNING

Before working on vehicle with engine running, move selector lever into position "P" and apply handbrake.

2.1 Overview - selector mechanism in vehicles up to 02.2009

Selector mechanism from 03.2009 onwards ➔ [page 41](#) .

1 - Selector cover with handle

- ☐ Do not remove handle without reason. For emergency release, only the cover needs to be unclipped ➔ [page 46](#) .
- ☐ Before removal of handle, pull lock button out past its pressure point. Secure locking button with a cable tie or appropriate wire against being pressed in. This will prevent lock button from being accidentally pressed into the handle.
- ☐ Removing and installing selector lever handle ➔ [page 46](#)

2 - Selector mechanism with selector lever

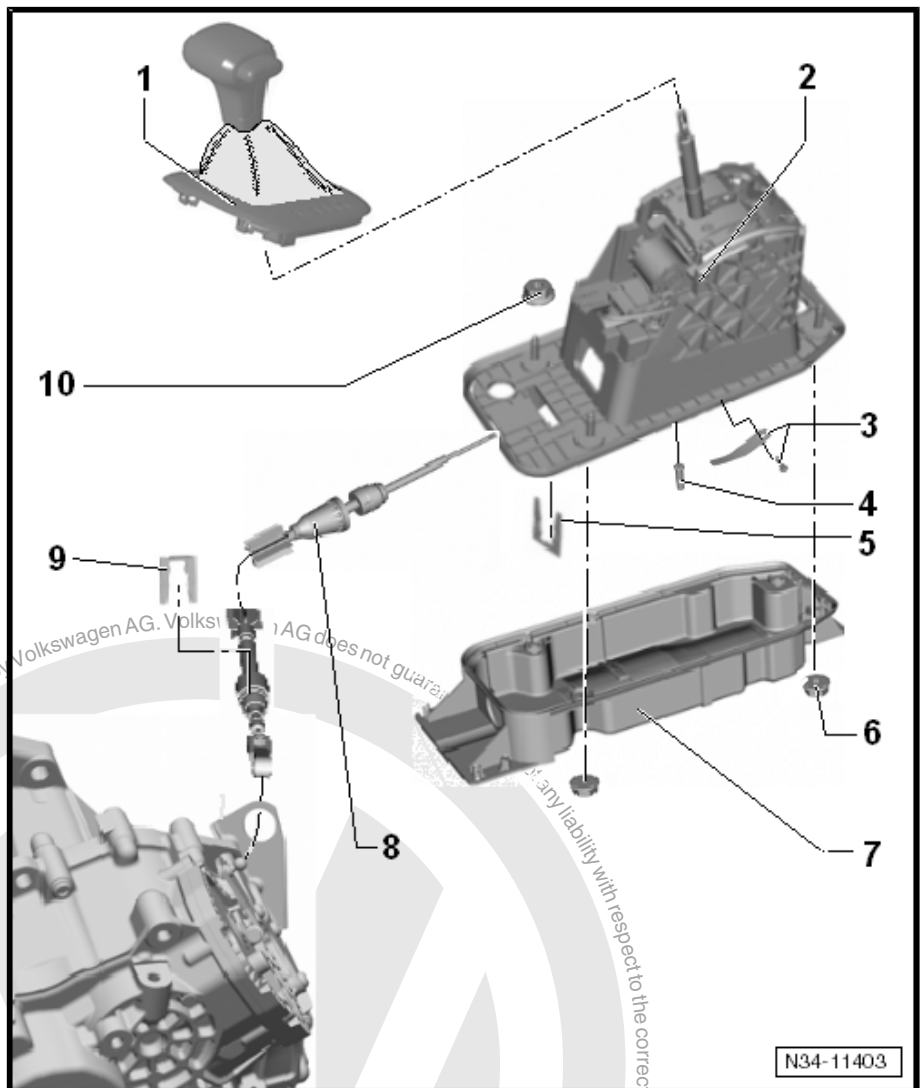
- ☐ With selector lever lock solenoid -N110-
- ☐ Emergency release ➔ [page 46](#) .
- ☐ Brief instructions for removing and installing:
 - Remove centre console.
 - Remove Bowden cable from gearbox ➔ [page 34](#) .
 - If necessary, disconnect or remove parts of exhaust system ➔ Rep. Gr. 26 ; Removing and installing parts of exhaust system .
 - Remove heat shield beneath selector mechanism.
 - Adjust selector lever cable after installing ➔ [page 43](#) .

3 - Bolt with spring

- ☐ 3 Nm

4 - Pin

- ☐ Removing ➔ [page 34](#)





- ☐ Do not grease

5 - Locking plate

- ☐ Always renew after removing

6 - Nut

- ☐ 9 Nm
- ☐ Qty. 4

7 - Selector housing

- ☐ With seal

8 - Selector lever cable

- ☐ Bowden cable is not greased
- ☐ Removing and installing ⇒ [page 34](#)
- ☐ Checking ⇒ [page 43](#)
- ☐ Adjusting ⇒ [page 43](#)

9 - Securing clip

- ☐ Always renew after removing

10 - Hexagon flange nut

- ☐ 8 Nm
- ☐ Qty. 4

Torque setting , selector lever to selector shaft ⇒ [page 30](#)

2.2 Removing and installing selector lever cable - vehicles up to 02.2009

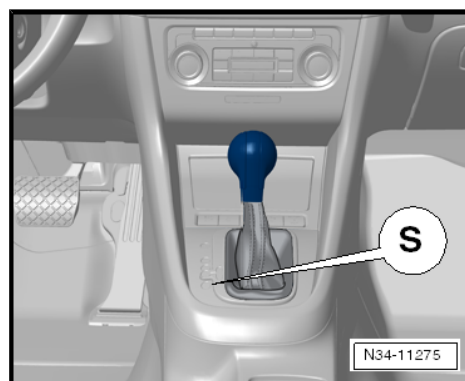


Note

Following installation, Bowden cable must be checked for ease of movement and be adjusted.

Removing

- Move selector lever to position “S” position.

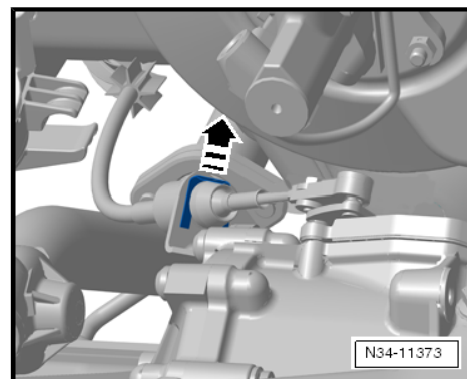




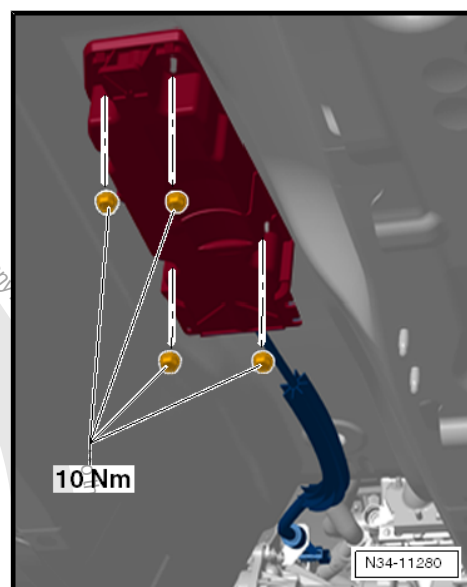
- Remove securing clip in -direction of arrow-.

Securing clips for selector lever cable must always be renewed.

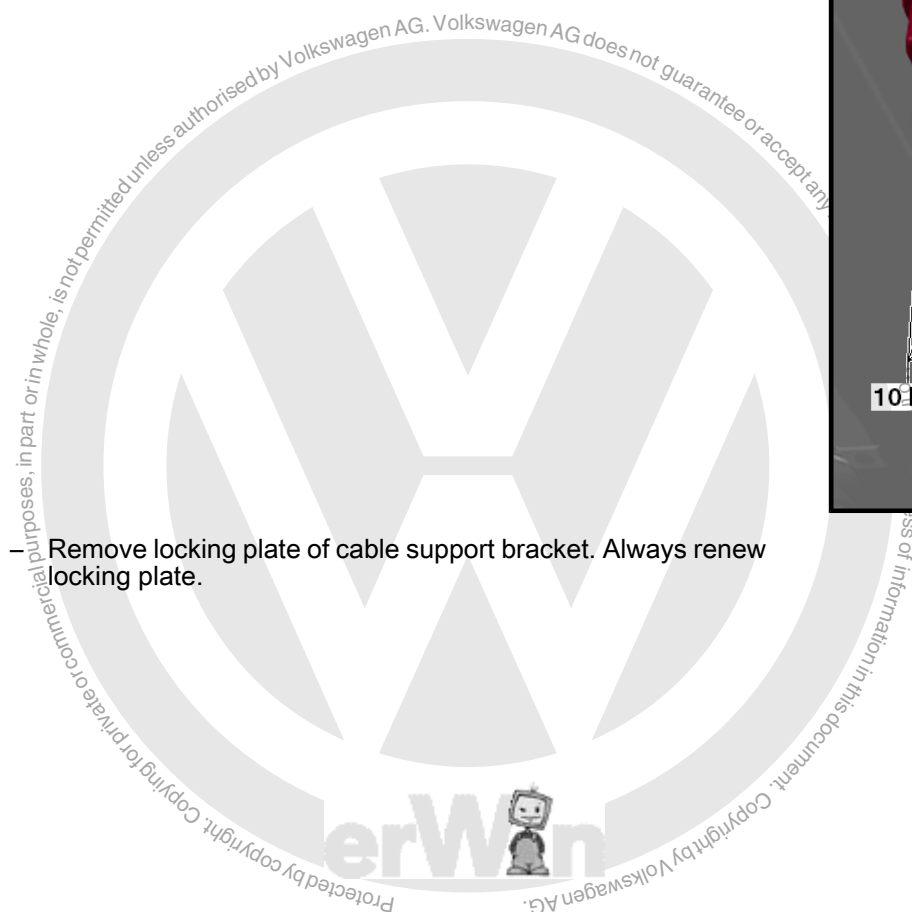
- Remove Bowden cable from ball head.
- Raise vehicle.
- To remove Bowden cable and/or selector mechanism, heat shield under selector mechanism and, if necessary, parts of exhaust system must now be removed ⇒ Rep. Gr. 26 ; Removing and installing parts of exhaust system .

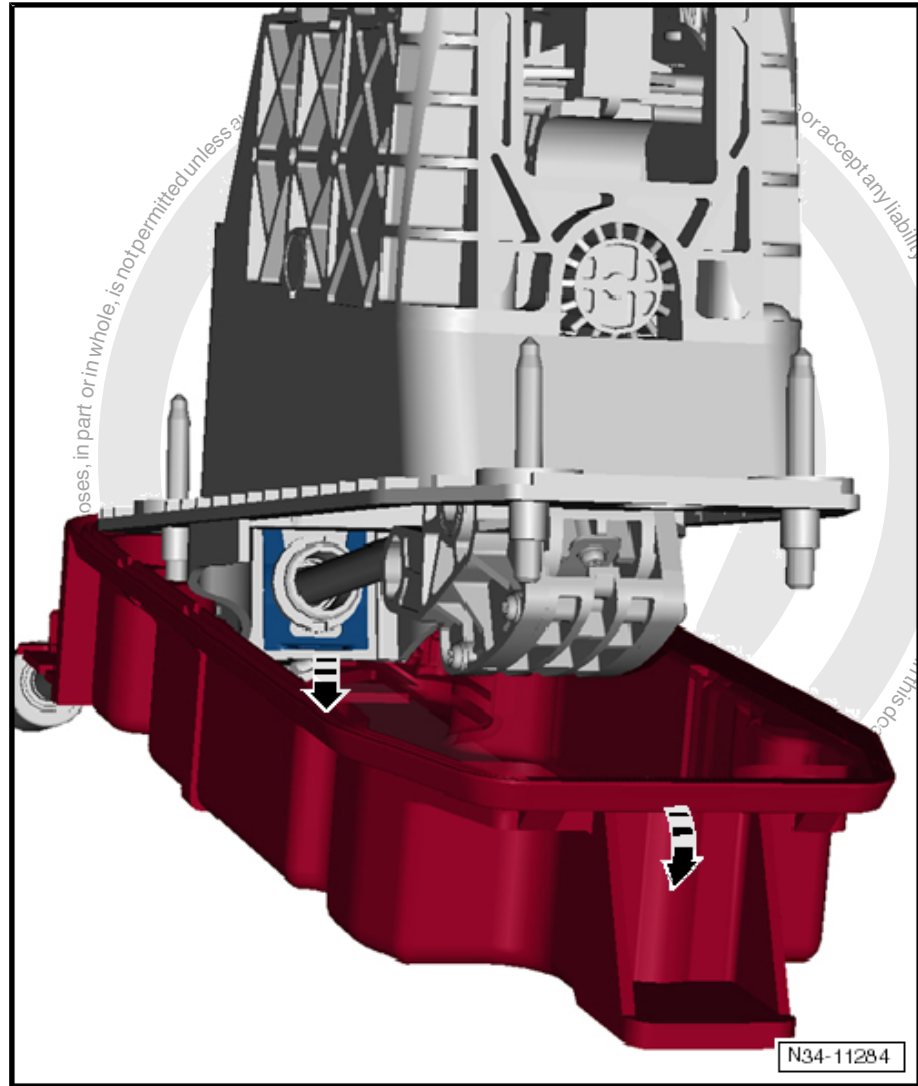


- Remove -selector housing- beneath selector lever.

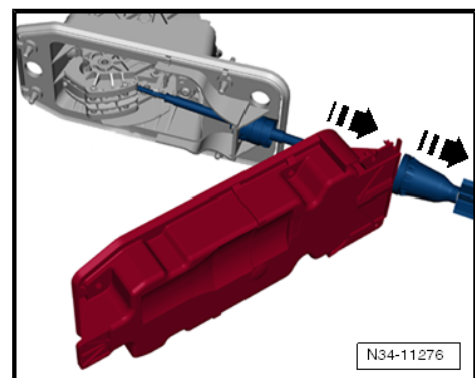


- Remove locking plate of cable support bracket. Always renew locking plate.





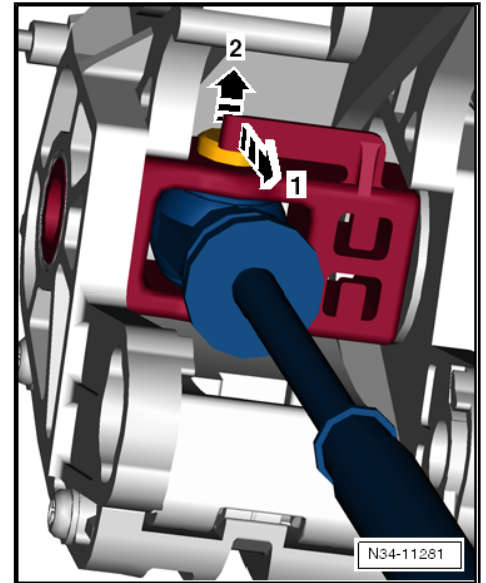
-Selector housing- is pushed forwards slightly on cable.



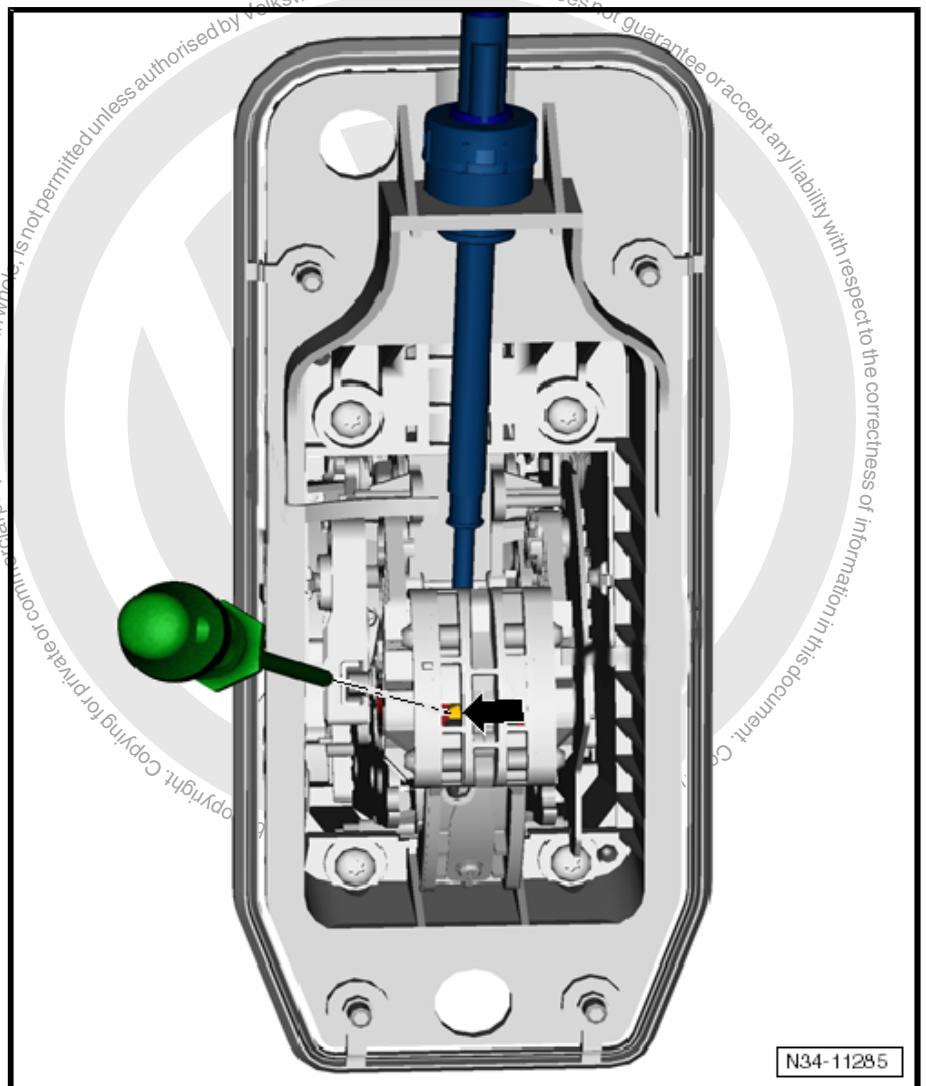


To remove cable, securing tab must be pushed forwards
-arrow 1-.

- At same time, push -pin- up with a screwdriver -arrow 2-.



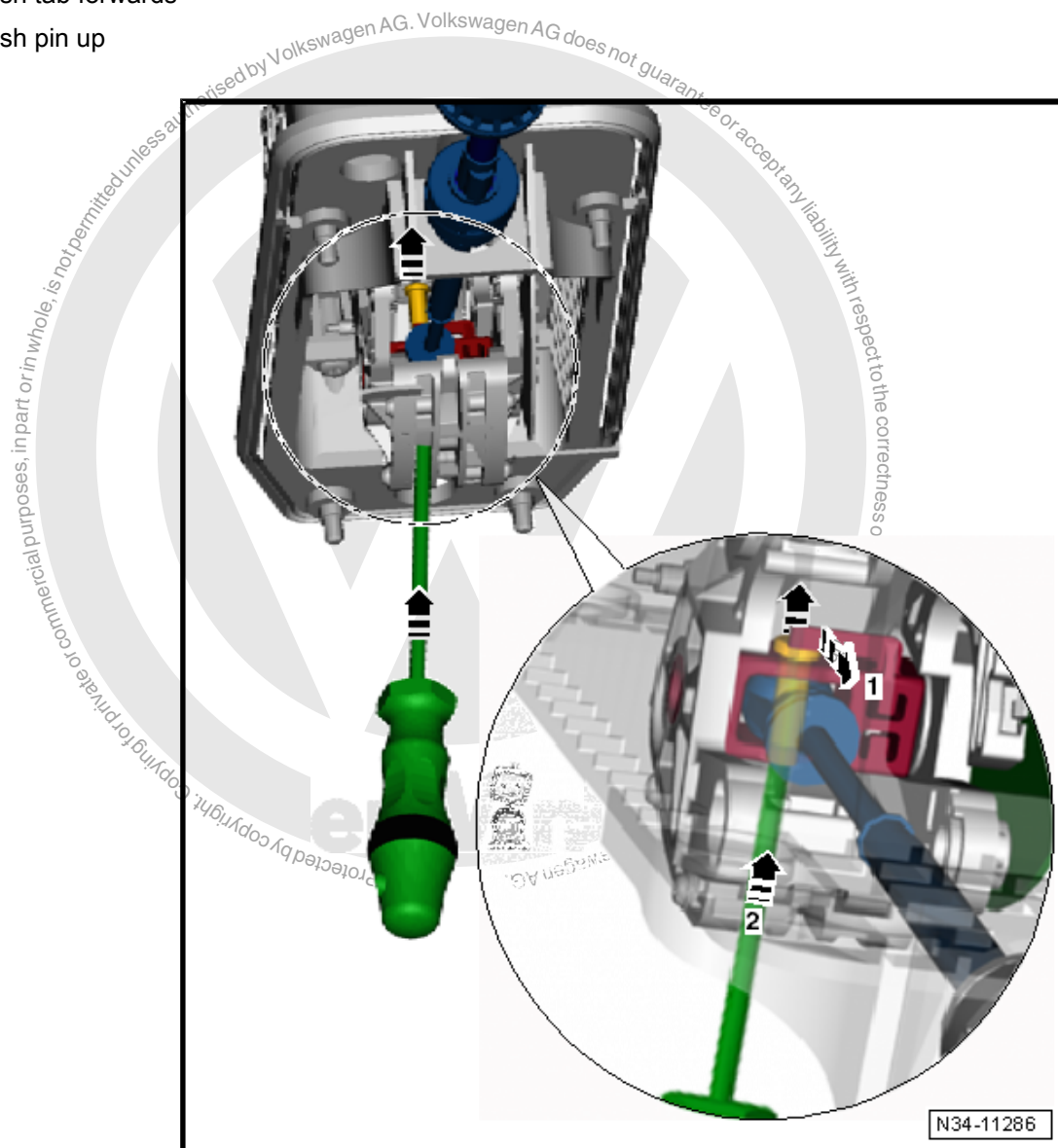
- Please insert -screwdriver- from underneath whilst pushing securing tab forwards.





Clarification:

- ◆ -Arrow 1- Push tab forwards
- ◆ -Arrow 2- Push pin up

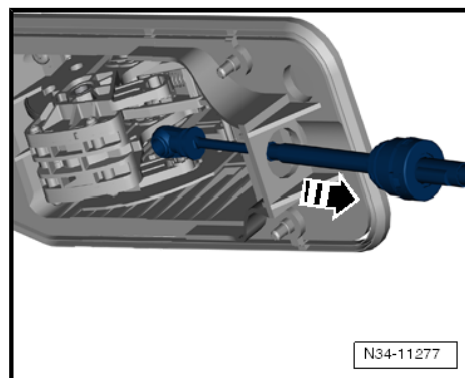


- Remove selector lever cable.

Remove selector housing from cable.

Installing

- Route selector lever cable without tension. Also insert into cable support bracket on gearbox. Do not secure with securing clips yet. Do not clip in ball head.





- Ensure that selector lever cable is properly routed during installation.

If the sheet metal is bent downwards, it may cause noises. The cable will vibrate against the sheet metal.

- Observe sheet metal. Press it back up in the tunnel during installation.

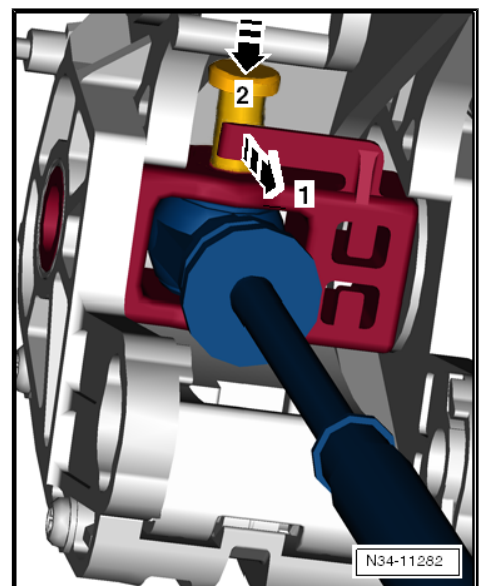
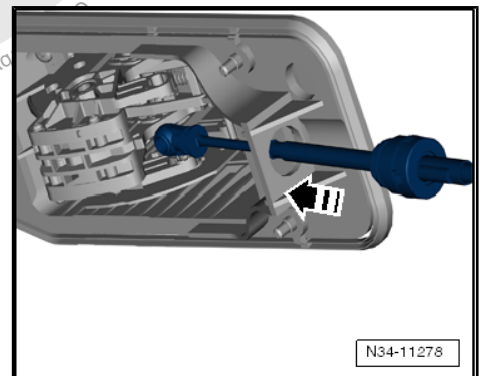
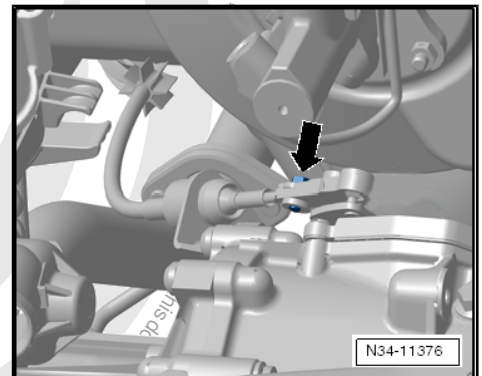
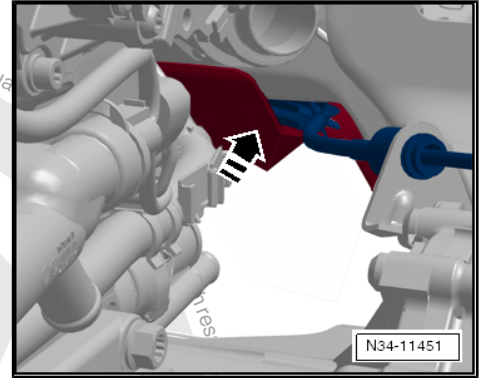
Loosen adjustment screw -arrow-.

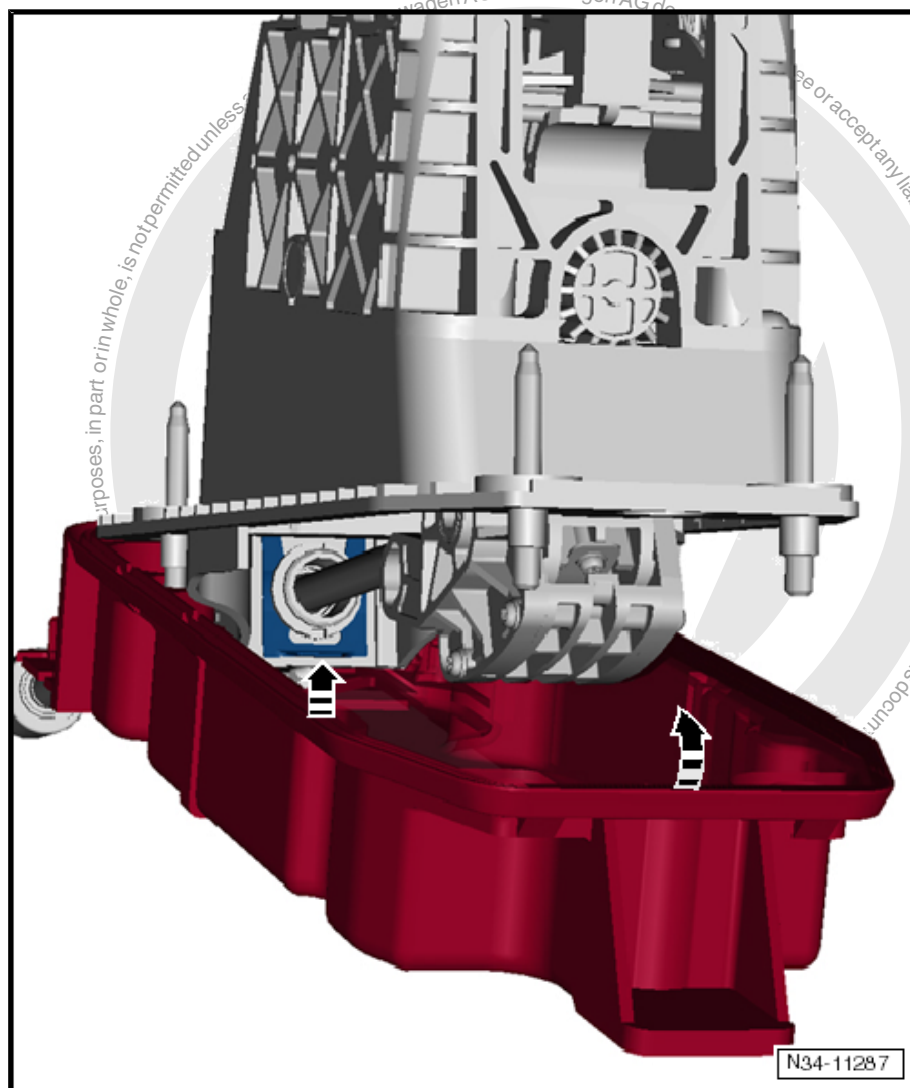
- Put selector housing onto cable.

- Insert selector lever cable into selector mechanism.
- Insert cable into bearing and insert pin from above, downwards through eye.

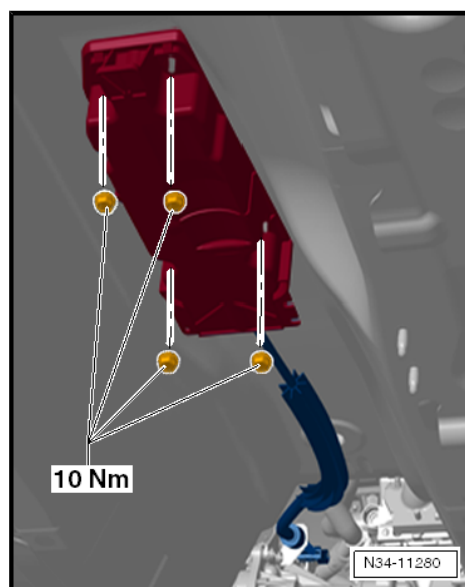
When you have checked freedom of movement of cable
⇒ [page 43](#) , insert locking plate.

- Attach cable with new locking plate on cable support bracket of selector mechanism.





- Remove selector housing, heat shield and exhaust system ⇒ Rep. Gr. 26 ; Removing and installing parts of exhaust system .
- Check cable ⇒ [page 43](#) .



2.3 Overview of selector mechanism - vehicles from 03.2009 onwards

1 - Selector cover with handle

- ☐ Do not remove handle without reason. For emergency release, only the cover needs to be unclipped ⇒ [page 46](#) .
- ☐ Before removal of handle, pull lock button out past its pressure point. Secure locking button with a cable tie or appropriate wire against being pressed in. This will prevent lock button from being accidentally pressed into the handle.
- ☐ Removing and installing selector lever handle ⇒ [page 46](#)

2 - Selector mechanism with selector lever and selector lever cable

- ☐ With selector lever lock solenoid -N110-
- ☐ Bowden cable must not be greased
- ☐ Removing and installing ⇒ [page 42](#)
- ☐ Checking ⇒ [page 43](#)
- ☐ Adjusting ⇒ [page 43](#)

3 - Bolt

- ☐ 8 Nm

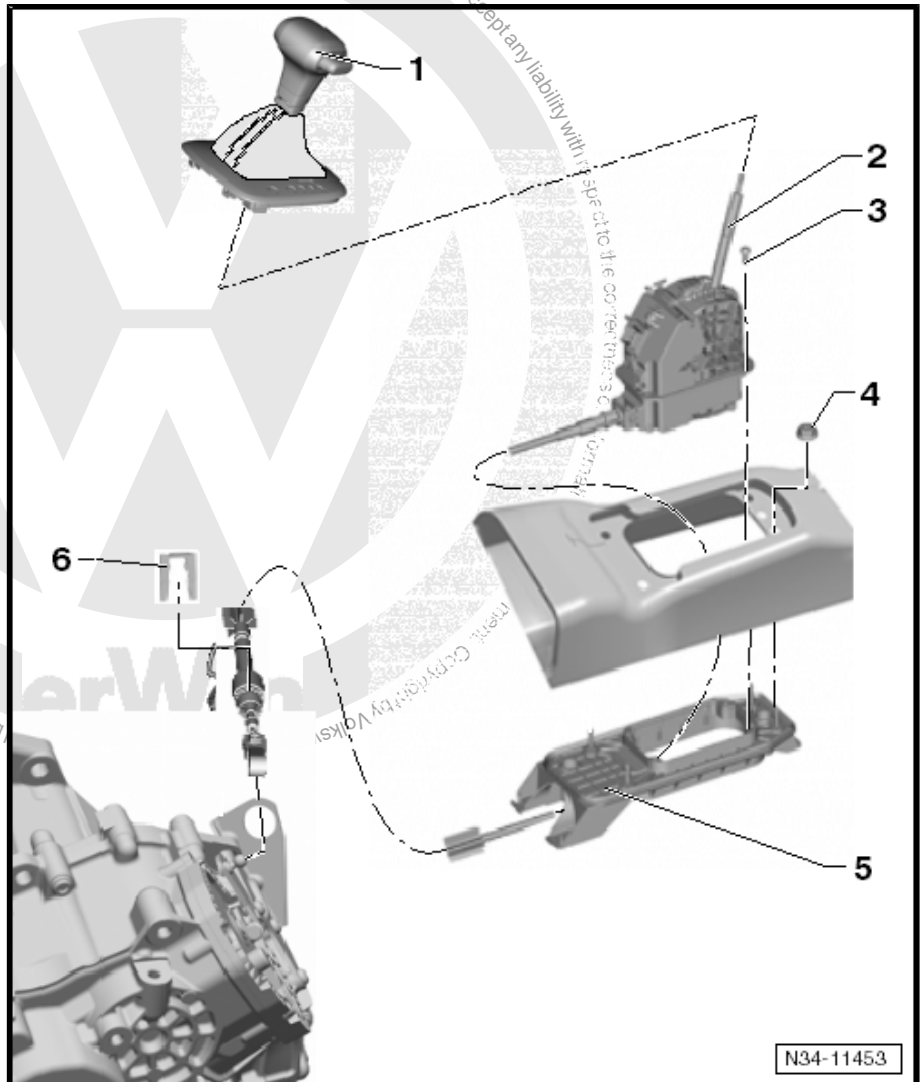
4 - Hexagon flange nut

- ☐ 8 Nm
- ☐ Qty. 4

5 - Selector housing

6 - Securing clip

- ☐ Always renew after removing





2.4 Removing and installing selector mechanism with selector lever and selector lever cable - vehicles from 03.2009 onwards

Perform the following steps:

Selector mechanism and selector lever cable are not allowed to be separated from one another. Both are removed together. In the engine compartment, it may be necessary to provide installation space. Often, it is necessary to remove air filter.

In the interior, it may be necessary to remove centre console.



Note

Following installation, Bowden cable must be checked for ease of movement and be adjusted.

- Move selector lever to position “P” position.
- Remove selector lever handle ⇒ [page 46](#) .
- Remove centre console ⇒ Rep. Gr. 68 .

- Remove 4 bolts.

Torque setting: 8 Nm

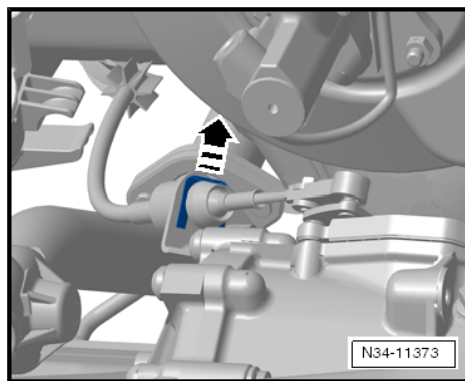
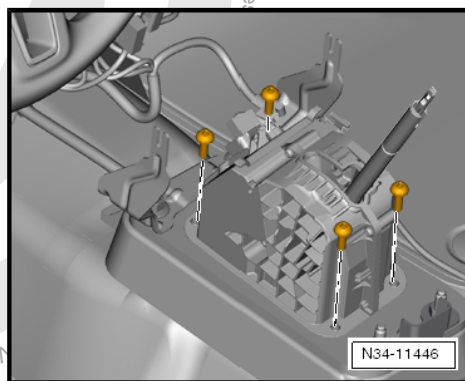
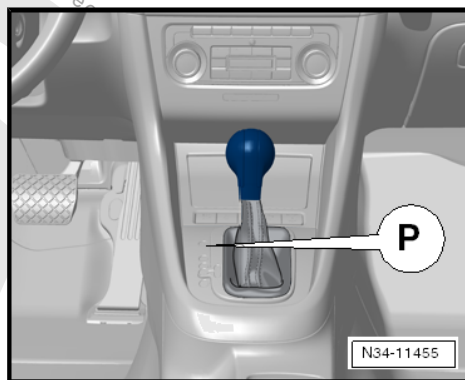
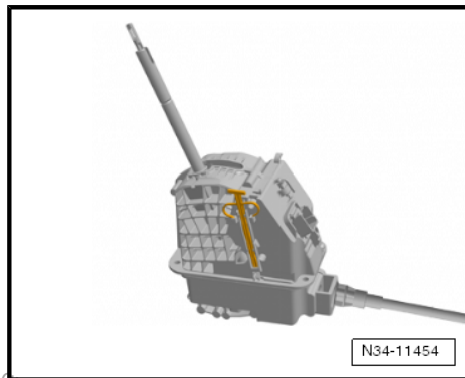
- Raise vehicle.
- Remove heat shield beneath selector mechanism. This makes subsequent removal of selector mechanism easier.

To do so, remove parts of exhaust system if necessary ⇒ Rep. Gr. 26 ; Removing and installing parts of exhaust system .

- Remove securing clip in -direction of arrow-.

Securing clips for selector lever cable must always be renewed.

- Remove Bowden cable from ball head.

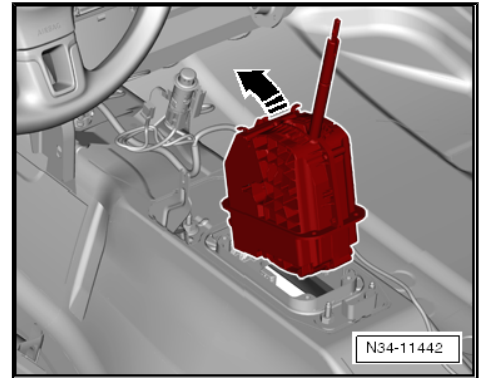




- Remove selector mechanism.

Install in reverse order of removal.

- Before you put on ball head: check cable ⇒ [page 43](#) .
- Install all parts of exhaust system which were removed ⇒ Rep. Gr. 26 ; Removing and installing parts of exhaust system .
- Install heat shield ⇒ Rep. Gr. 66 .
- Adjust selector lever cable after installing ⇒ [page 43](#) .



2.5 Checking selector lever cable

Brief description

Selector lever cable must be removed from gearbox so that its freedom of movement can be checked. Put removed end down so it does not rub against anything.

Then the selector lever must be moved and after that, the Bowden cable must be reattached to the gearbox.

Then the selector lever cable must be adjusted ⇒ [page 43](#) .

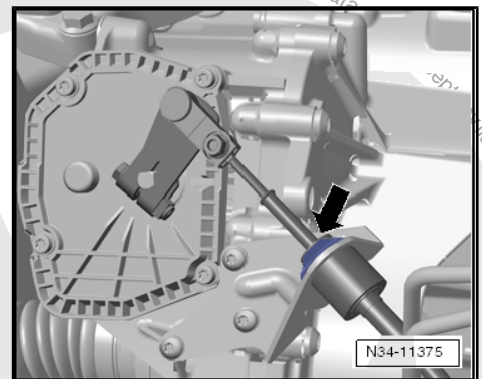
Do not grease connections of cable!

Checking

- Move selector lever to position “P” position.
- Remove cable from lever on gearbox.
- Move selector lever repeatedly from “P” to “S” and back to “P”.
- Selector lever must move easily.
- Reinstall cable with “loosened” adjustment screw.

If you remove the securing clip, you must always install a “new” securing clip.

- Adjust cable ⇒ [page 43](#) .

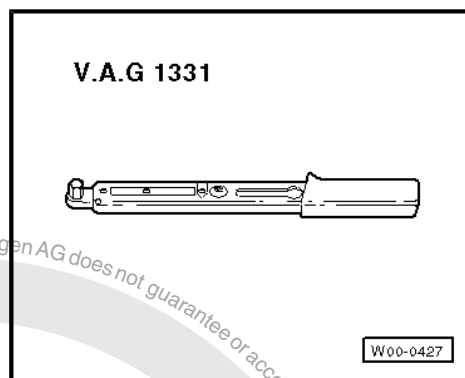


2.6 Adjusting selector lever cable

Special tools and workshop equipment required



- ◆ Torque wrench -V.A.G 1331-



The selector lever cable must always be adjusted whenever

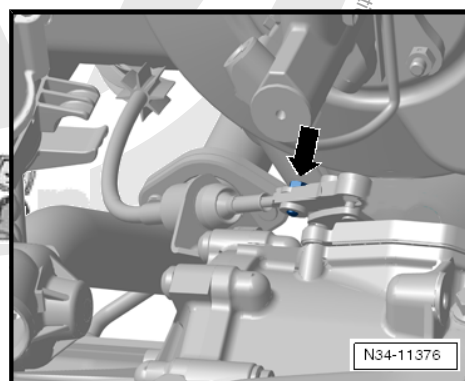
- ◆ The selector lever cable has been removed from the gearbox.
- ◆ The engine and/or gearbox has been removed and installed.
- ◆ Parts of the assembly mounting have been removed and installed.
- ◆ The cable itself or the selector mechanism has been removed and installed.
- ◆ The position of the engine and gearbox is shifted, for example to install it free of tension.

Adjusting

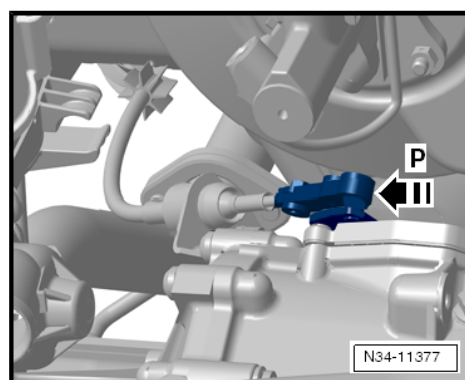
- Move selector lever in vehicle to “P” position.

Adjuster screw -arrow- must be “loosened”.

- Shift lever on gearbox to position “P”.

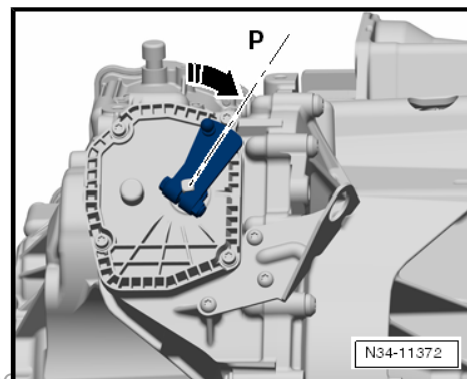


The gearbox lever must be pressed “completely to right side of vehicle” in the direction of selector lever cable support bracket.





This figure shows you the view of gearbox from “behind”. -P- in direction of cable support bracket.



- Install Bowden cable with loosened adjusting screw -arrow- and new securing clip.



WARNING

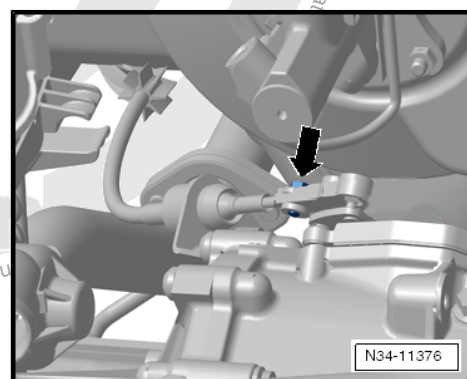
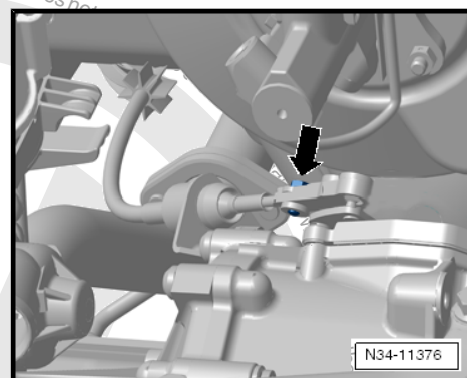
Be sure that the parking lock is engaged.

- To do this, turn both front wheels simultaneously “under the car” in the same direction until the parking lock can be head to engage.
- The parking lock is engaged when both front wheels cannot be turned in the same direction at the same time.
- Gently push handle of selector lever forwards and backwards but under no circumstances must you shift out of “P”.

In this way the inner cable of the Bowden cable finds it optimal position.

- Tighten adjusting screw -arrow- to 13 Nm.

This completes the adjustment.





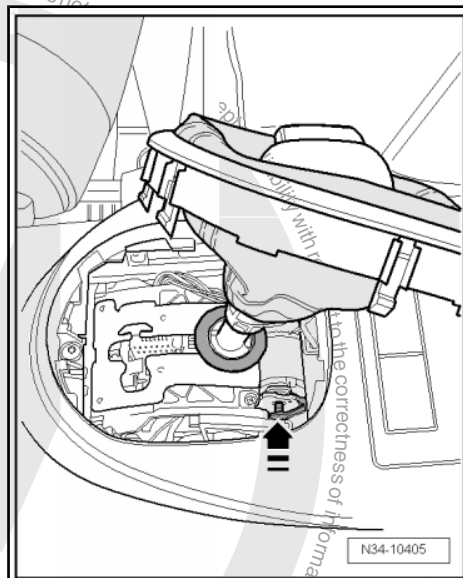
2.7 Emergency release of selector lever

Do not remove handle.

- Unclip selector cover and hold to side.
- Depress brake pedal or set handbrake.

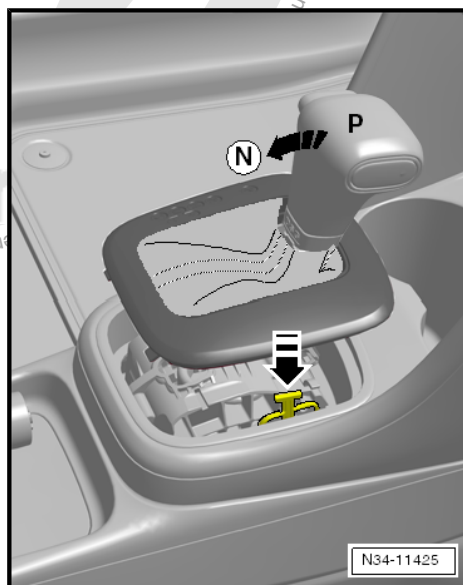
Vehicles up to 02.2009

- Press yellow plastic part -arrow- from right to left.
- Or press on the pin of the solenoid.



Vehicles from 03.2009 onwards

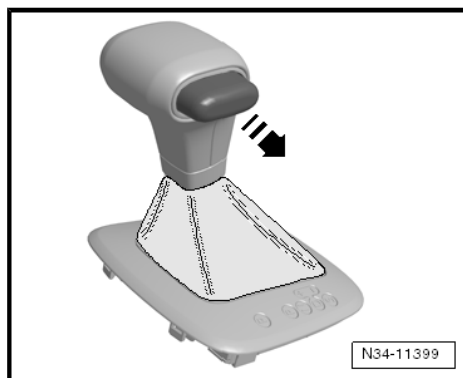
- Press onto yellow plastic part -arrow-.



2.8 Removing and installing selector lever handle

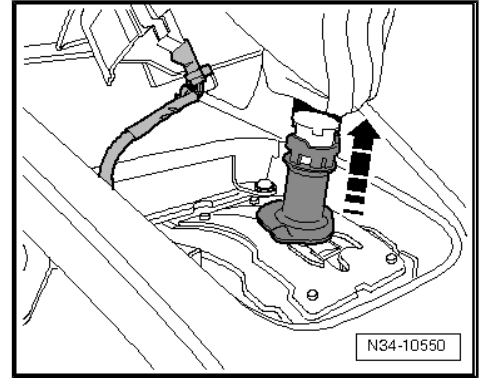
It is possible with all handles that lock button is pressed into handle. Do not install a handle with the locking button pressed in.

- Before removal, pull lock button out past its pressure point.
- Secure locking button with a cable tie or wire against being pressed in.
- Unclip cover.

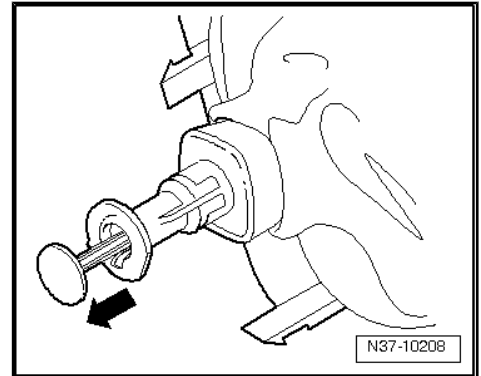




- Push sleeve upwards to release handle.
- Lock the handle again after installing. To do this, press the sleeve under the handle back down.

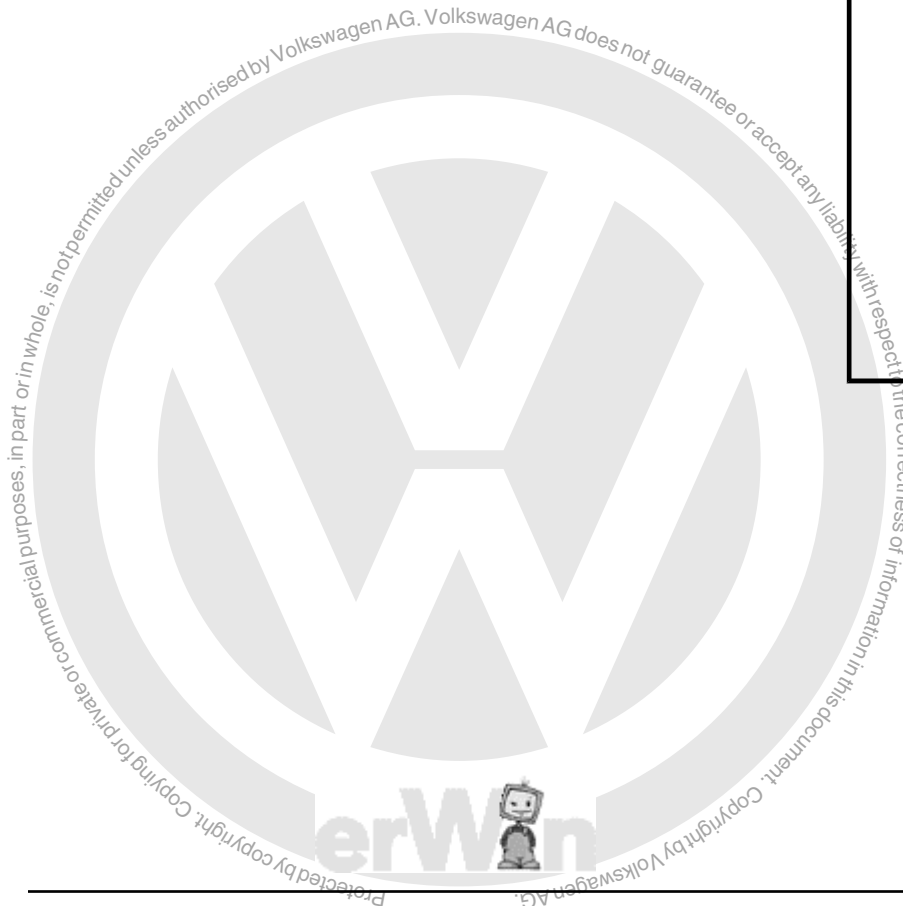
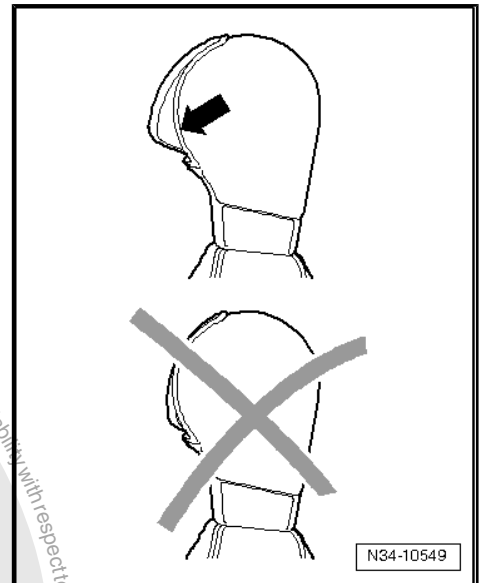


- You only have to remove transport guard from “new” handles. The locking button is already in installation position.
- Pull connector from cover.
- Pull off handle upwards.
- Lock the handle again after installing. Press the sleeve under the handle back down.



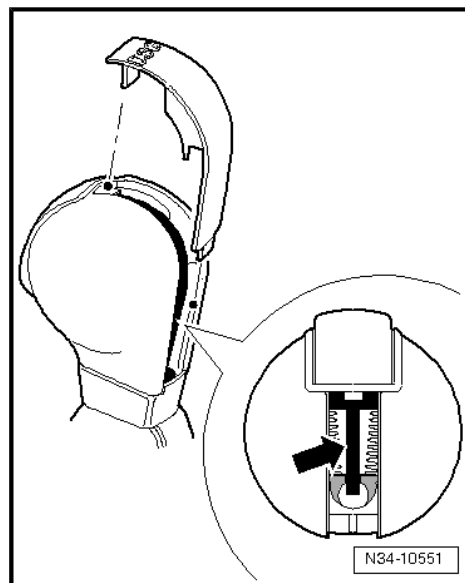
In vehicles with lock button at front on handle -arrow-

Lock button -arrow- is not allowed to be pressed in when handle is being fitted and removed.





- However, should this happen, unclip handle trim upwards.
- Press small lever for pull rod -arrow- back into groove before installing handle.



2.9 Checking selector mechanism

Faults which can be detected electrically can be determined with guided fault finding. In the case of mechanical faults, skill is required to localise and repair a faulty system or defective "part".

It must not be possible to start the engine in the selector lever positions "R", "D" or "S".

When selector lever is shifted to position "N" at speeds above 5 km/h, solenoid for selector lever lock must not engage and block selector lever. Selector lever can be shifted into a driving range.

When travelling at speeds below 5 km/h (almost stationary) and shifting into selector lever position "N", solenoid for selector lever lock should only engage after about 1 second. Selector lever cannot be shifted out of "N" position until brake pedal is depressed.

Selector lever in "P" position and ignition switched on

- Brake pedal not depressed:

Selector lever is locked and cannot be shifted out of "P" position with the lock button pressed. Solenoid for selector lever lock blocks selector lever.

- Brake pedal is depressed:

Solenoid for selector lever lock releases selector lever. It is possible to shift into a driving gear. Slowly shift selector lever from "P" through to "S", checking whether selector lever position in dash panel insert corresponds to selector lever position.

Selector lever in "N" position and ignition switched on

- Brake pedal not depressed:

Selector lever is locked and cannot be shifted out of "N" position with the lock button pressed. Solenoid for selector lever lock blocks selector lever.

- Brake pedal is depressed:

Solenoid for selector lever lock releases selector lever. It is possible to shift into a driving gear.

Selector lever in position "Tiptronic"

- Shift selector lever into Tiptronic gate.



Symbols must change from "P R N D S" to "7 6 5 4 3 2 1".

Ignition and light switched on

The respective symbol in the shift mechanism cover lights up.

Selector lever position display

Simultaneous illumination of all selector lever position display segments indicates gearbox emergency running mode.



3 Mechatronic unit for dual clutch gearbox -J743-

Safety note on mechatronic unit for dual clutch gearbox -J743-
⇒ [page 50](#)

Overview - mechatronic unit ⇒ [page 51](#)

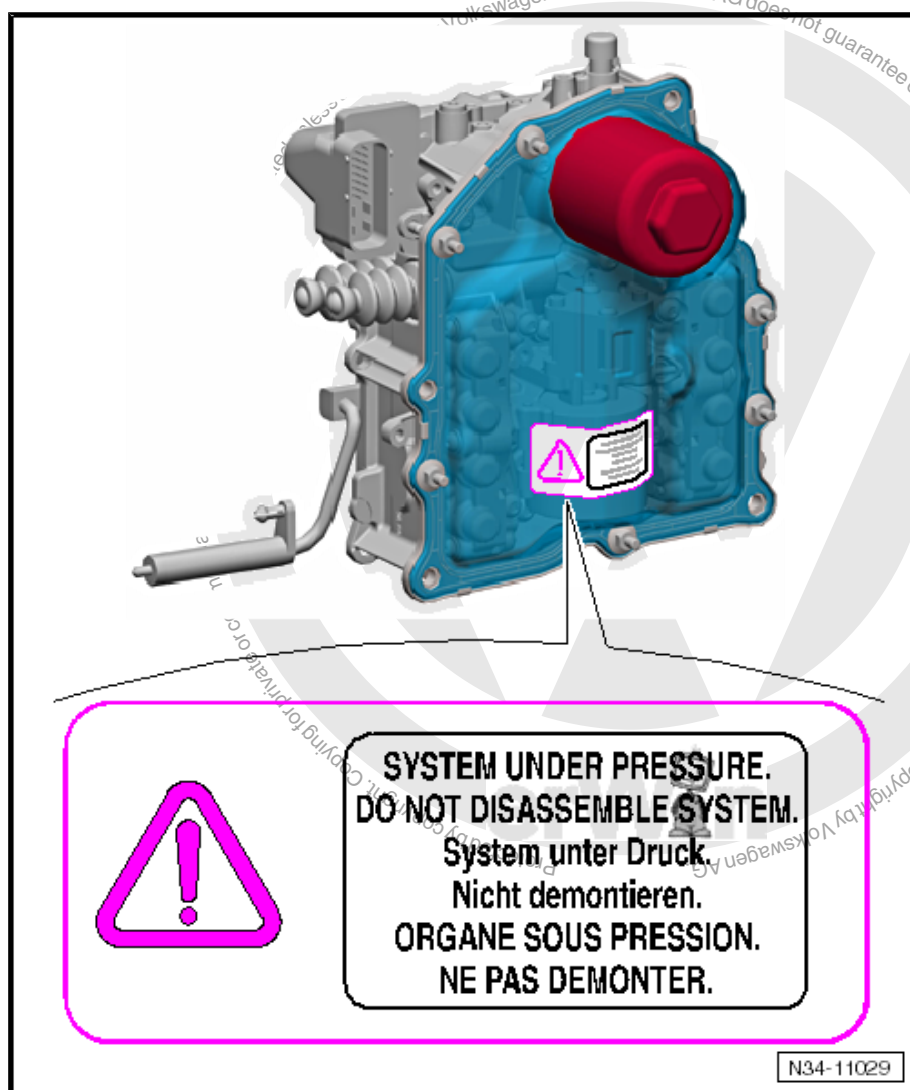
Remove mechatronic unit for dual clutch gearbox -J743-
⇒ [page 52](#) .

Move mechatronic unit for dual clutch gearbox -J743- into "re-
moval position" by hand ⇒ [page 62](#) .

Install mechatronic unit for dual clutch gearbox -J743-
⇒ [page 65](#) .

View of selector forks with mechatronic unit removed
⇒ [page 72](#)

3.1 Safety note on mechatronic unit for dual clutch gearbox -J743-





WARNING

Do not work on pressure accumulator. The accumulator is under pressure and is not allowed to be opened.

3.2 Overview - mechatronic unit

1 - Bolt

- ☐ 10 Nm
- ☐ M8 x 35
- ☐ Always renew



Note

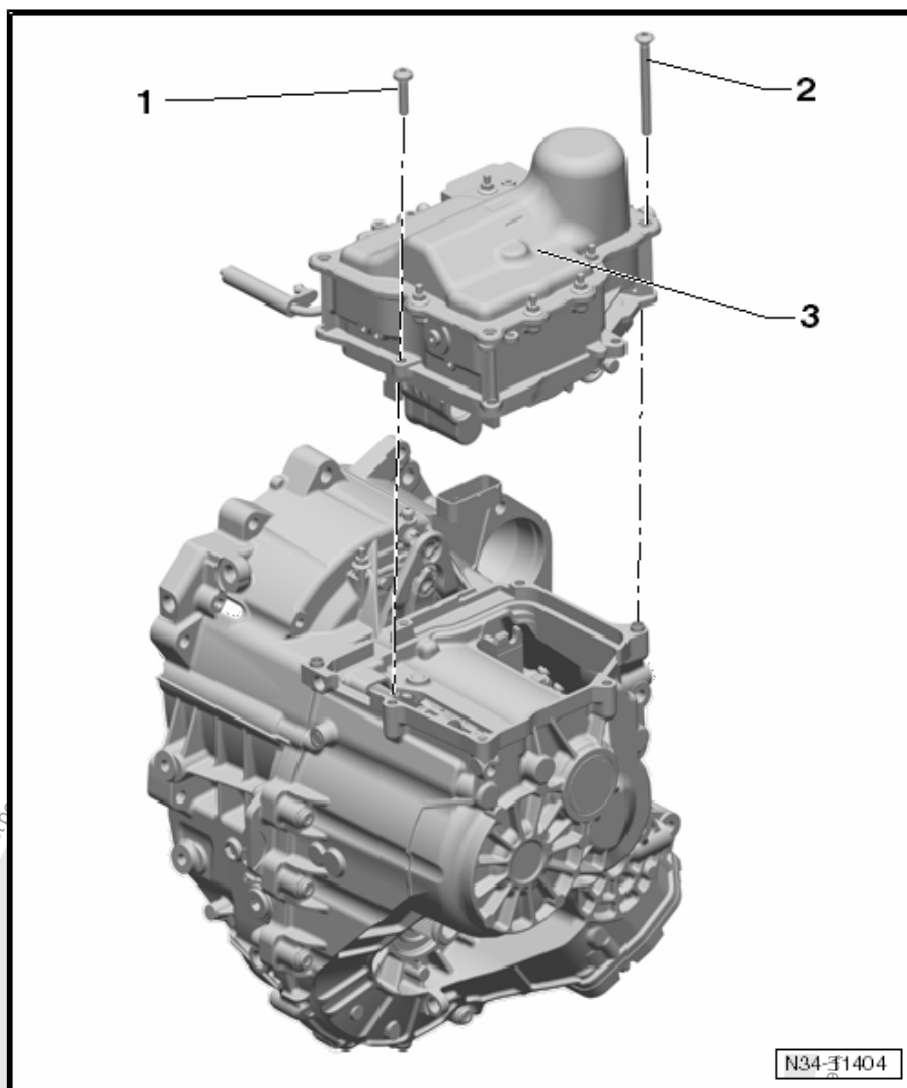
2 - Bolt

- ☐ 10 Nm
- ☐ M8 x 90
- ☐ Always renew

3 - Mechatronic unit for dual clutch gearbox -J743-



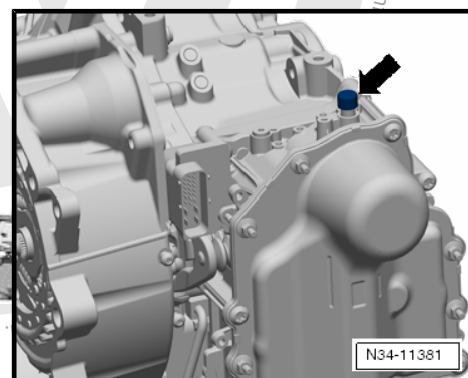
Note



Take care with the breather when handling the mechatronic unit.

- When doing any work on the mechatronic unit, please remove cap -arrow- from breather and seal with a suitable plug.

Protective cover -0AM 325 120- is well suited.





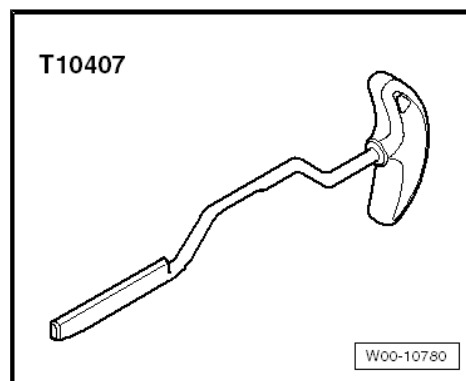
3.3 Removing mechatronic unit for dual clutch gearbox -J743- with gearbox installed

This description only applies to installed gearboxes. If gearbox has been removed, first remove clutch then mechatronic unit.

- ◆ Move mechatronic unit for dual clutch gearbox -J743- into “removal position” by hand ➔ [page 62](#) .

Special tools and workshop equipment required

- ◆ Assembly lever -T10407-



- ◆ Drip tray for workshop hoist -VAS 6208-



- ◆ Vehicle diagnostic tester

Perform the following steps:

In order to remove the mechatronic unit sufficient space must be available in front of the gearbox. Depending on the vehicle, parts must be removed which do not have anything to do directly with the gearbox. For example, the air filter housing and, if present, charge air lines or coolant lines.

Any retainers fitted on the cover of the mechatronic unit must also be removed.

The vehicle diagnostic tester brings the mechatronic unit into the correct position for removal. All gear actuators are moved “into neutral”.

In this position, insert assembly lever -T10407- between release lever and gearbox housing. This makes it possible to remove load from plungers of mechatronic unit so that they may be removed by hand from cups of engaging levers.

Mechatronic unit can be removed and inserted. When installing, make sure clutch plungers are correctly seated in cups of engaging levers.

Therefore, please follow description below step by step.



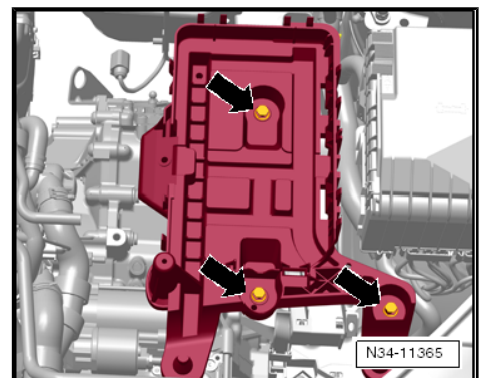
Note

- ◆ *The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Even if the mechatronic unit has been removed, the “sudden removal” of the assembly lever -T10407- from under the engaging levers can have a negative effect on the adjusting mechanism.*
- ◆ *In order to remove the mechatronic unit, sufficient space must be available in front of the gearbox. In some vehicles, parts must be removed which do not have anything to do directly with the gearbox. Remove any charge air lines or coolant lines that may be present.*
- ◆ *Any retainers fitted on the cover of the mechatronic unit must also be removed.*
- ◆ *A “new” mechatronic unit is correctly filled with oil.*
- ◆ *Do not drain oil. A “removed” mechatronic unit is sent back with its oil in.*

Mechatronic unit remains filled with oil.

Removing:

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position “P” position.
- Remove noise insulation ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .
- Connect vehicle diagnostic tester and then select “7-speed dual clutch gearbox”, Moving gear actuator into -neutral- position under Guided functions.
- Switch off ignition.
- Raise vehicle.
- Remove complete air filter housing.
- ◆ Vehicles with petrol engines ⇒ Rep. Gr. 24 ; Removing and installing air filter
- ◆ Vehicles with diesel engines ⇒ Rep. Gr. 23 ; Removing and installing air filter
- Remove battery and battery tray ⇒ Rep. Gr. 27 ; Battery; Removing and installing battery .





In some vehicles, a cover is fitted over the engaging levers.

The cover prevents dirt getting in.

Torque setting: 8 Nm

- If this cover is fitted, remove it.
- Remove starter ⇒ Rep. Gr. 27 ; Removing and installing starter .

- Release mechatronic unit connector by pulling in -direction of arrow- and pull off connector.
- Place drip tray under gearbox.
- Drain gear oil, then reinstall drain plug ⇒ [page 30](#) .

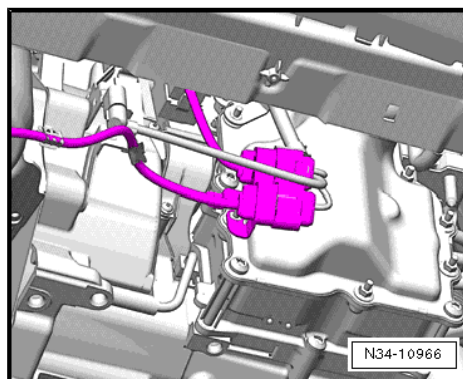
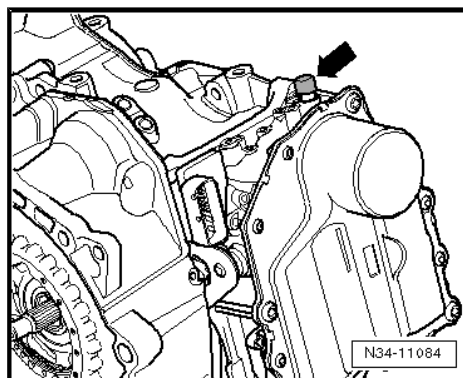
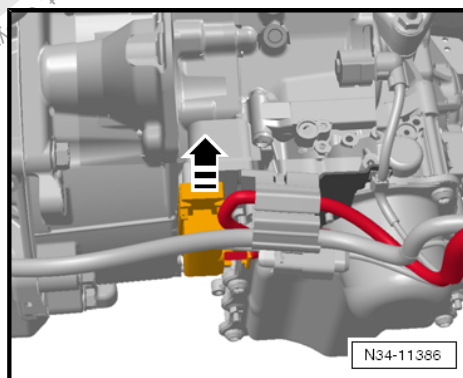
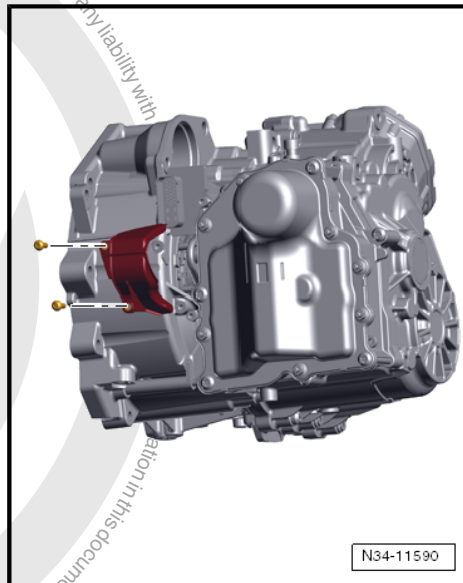
- Pull cap off breather and close using a suitable plug to achieve an oil-tight seal.



Note

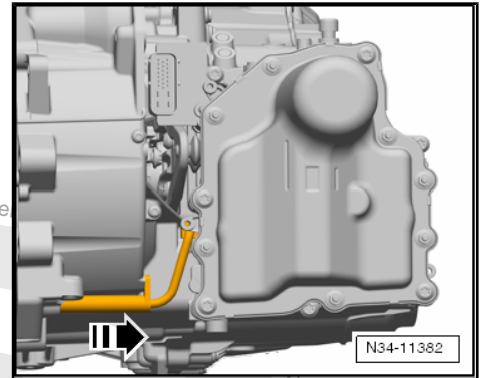
Protective cover -0AM 325 120- is well suited.

- Remove all retainers and brackets from front of gearbox.





- Using a screwdriver, carefully unclip gearbox input speed sender 3 -G641- from housing in -direction of arrow-.

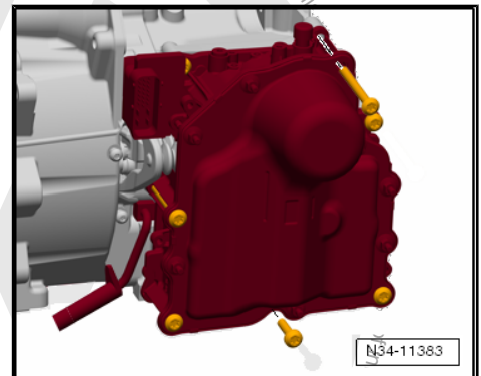


- Unscrew bolts of mechatronic unit for dual clutch gearbox - J743- “in diagonal sequence”.

“There are 4 long and 3 short bolts.”

Do not remove more than 7 bolts!

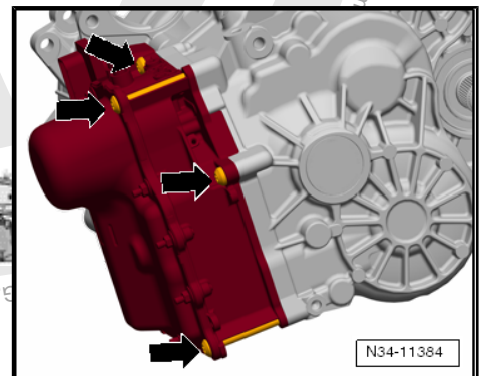
- Please look carefully to check which bolts you are unscrewing. Do not unscrew any cover bolts.



The gearbox is shown here again from the side to make this situation clearer.

The mechatronic unit must be removed. The cover does not have to be removed.

Therefore, do not remove more than 7 bolts!



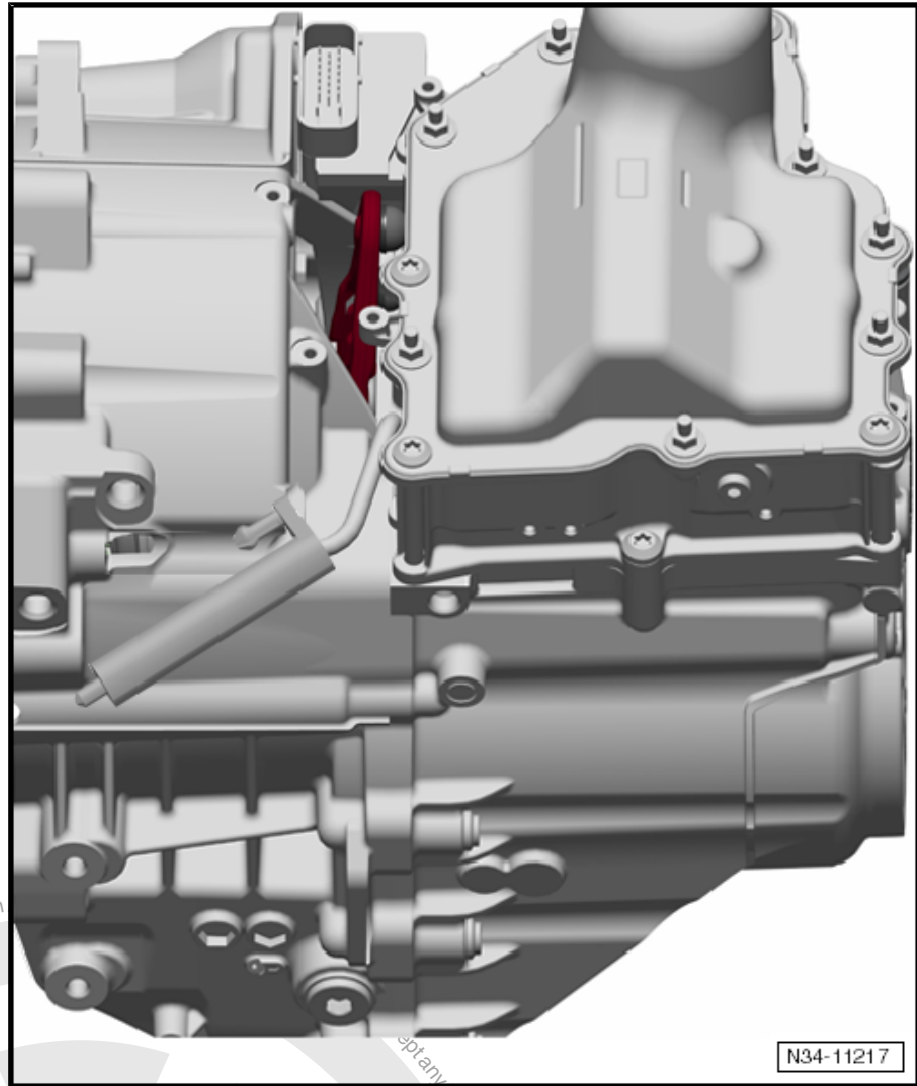
The next step is “difficult”:

Now press both engaging levers of dual clutch “away” from plungers of mechatronic unit. Otherwise, levers will jam mechatronic unit at plungers and prevent mechatronic unit from being removed.

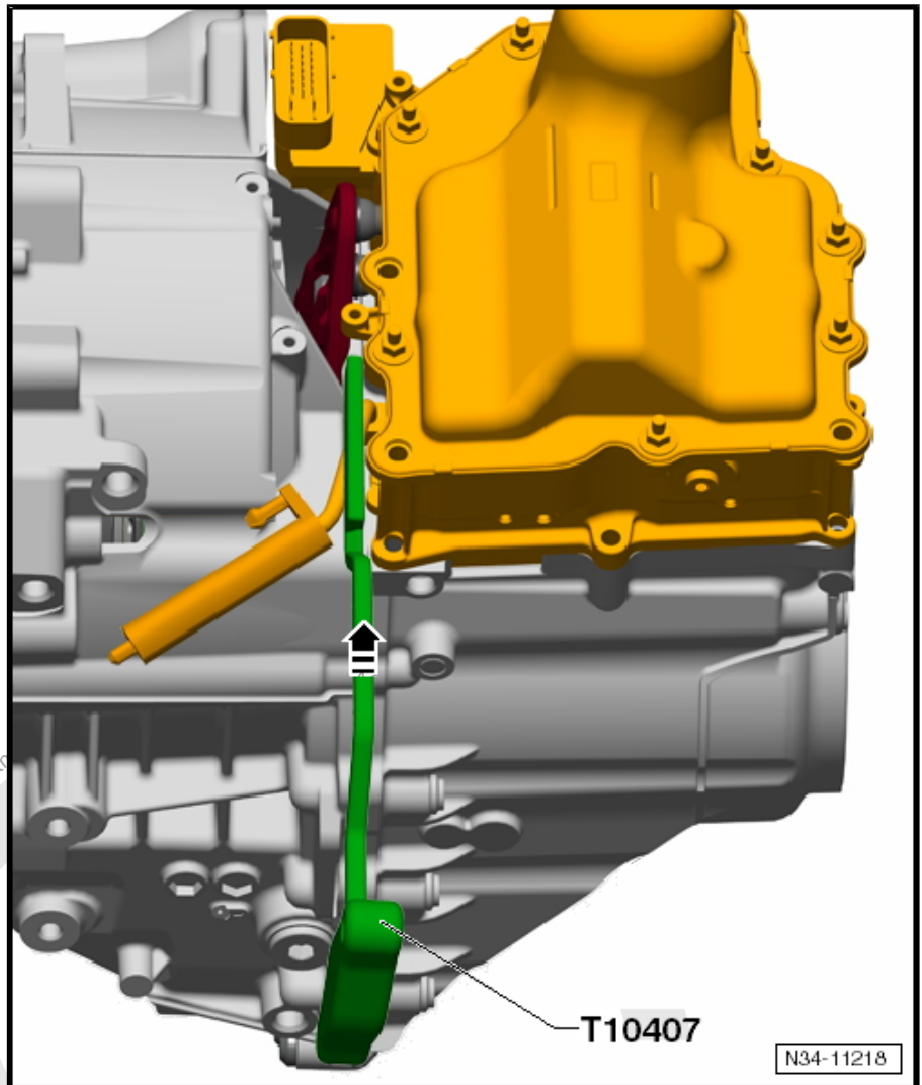
- Please read through this description all the way to the end first. This will help you to perform the following steps “correctly”.

Both levers must now be carefully pressed away from the plungers.

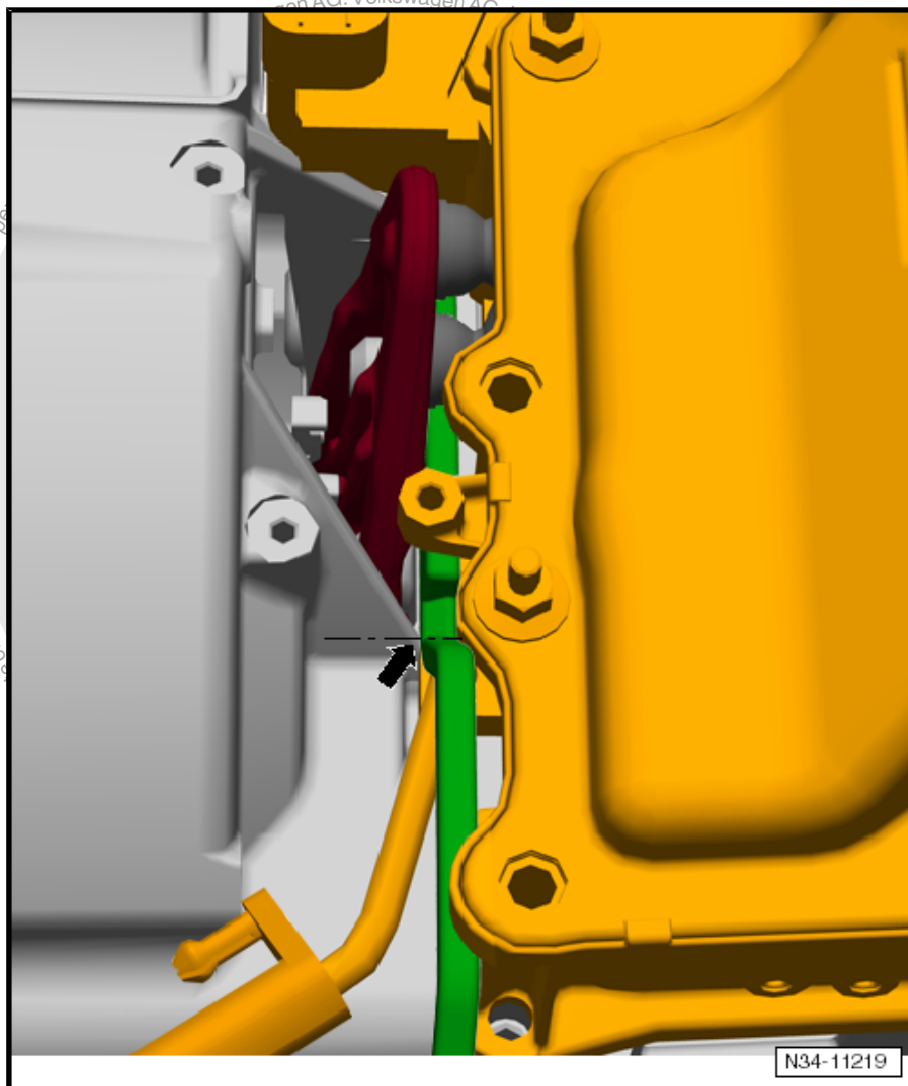
- First take a look at -reddish-brown- engaging lever in this picture.



- Insert assembly lever -T10407- to its right.



- Far enough until groove lines up with housing rib -arrow-.



No further.

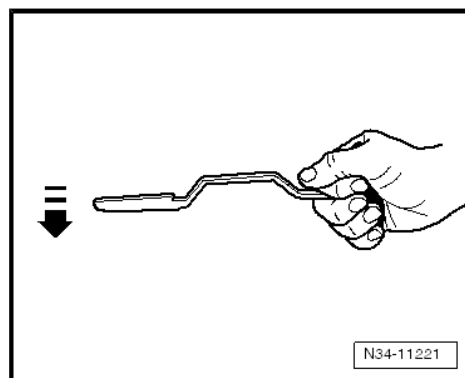
- Assembly lever -T10407- should make contact with gearbox housing with its entire “rear face”.



Caution

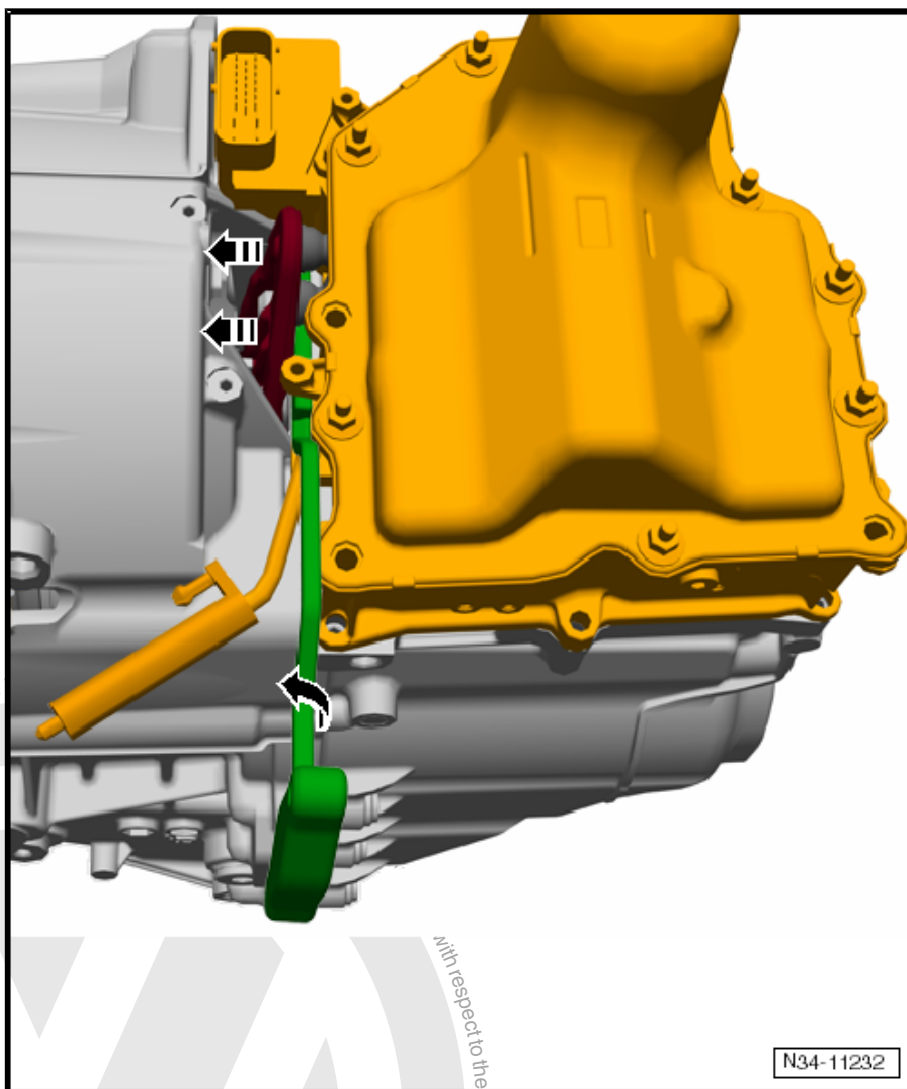
- *Housing rib and groove of lever must be flush with one another. Do not insert tool as far as stop.*

- Apply a bit of force to tip of lever when turning.
This stops lever from slipping out when turning.



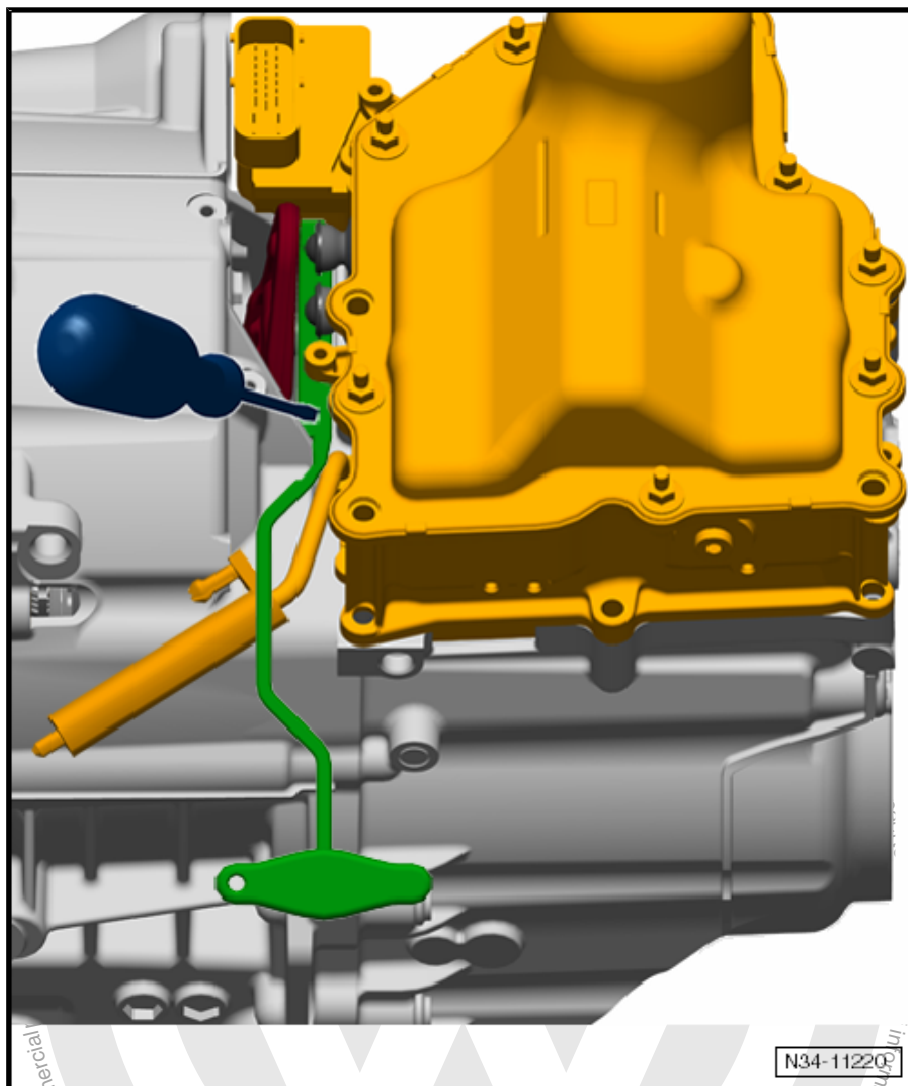


Turn assembly lever -T10407- anticlockwise. In this way, engaging levers are pressed away from plungers -direction of arrow-.

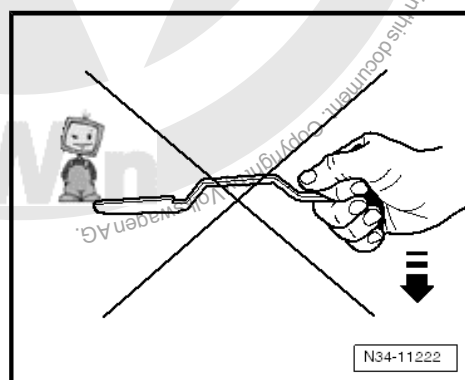


Do not take out assembly lever -T10407- . It must remain inserted between engaging lever and gearbox housing for the entire process.

- If necessary, press assembly lever -T10407- against gearbox using a screwdriver.



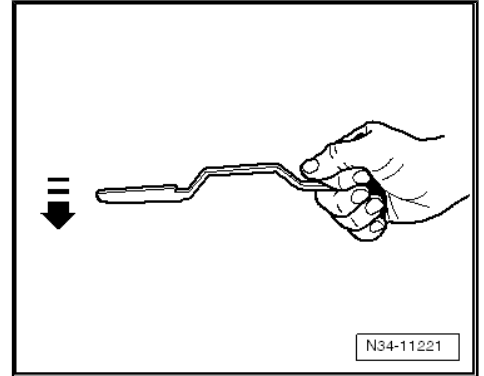
If lever slips off, this indicates you applied a bit of leverage to handle whilst turning.





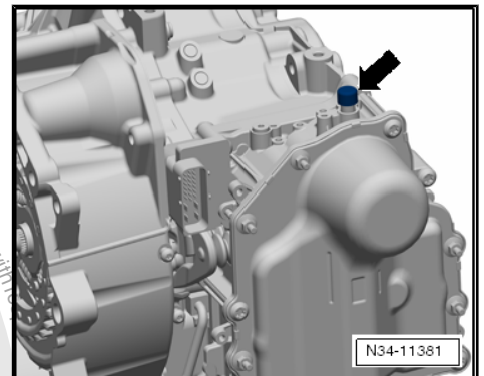
- Apply a bit of force to tip of lever when turning.
This stops lever from slipping out when turning.
- Remove mechatronic unit.

Mechatronic unit remains filled with oil.

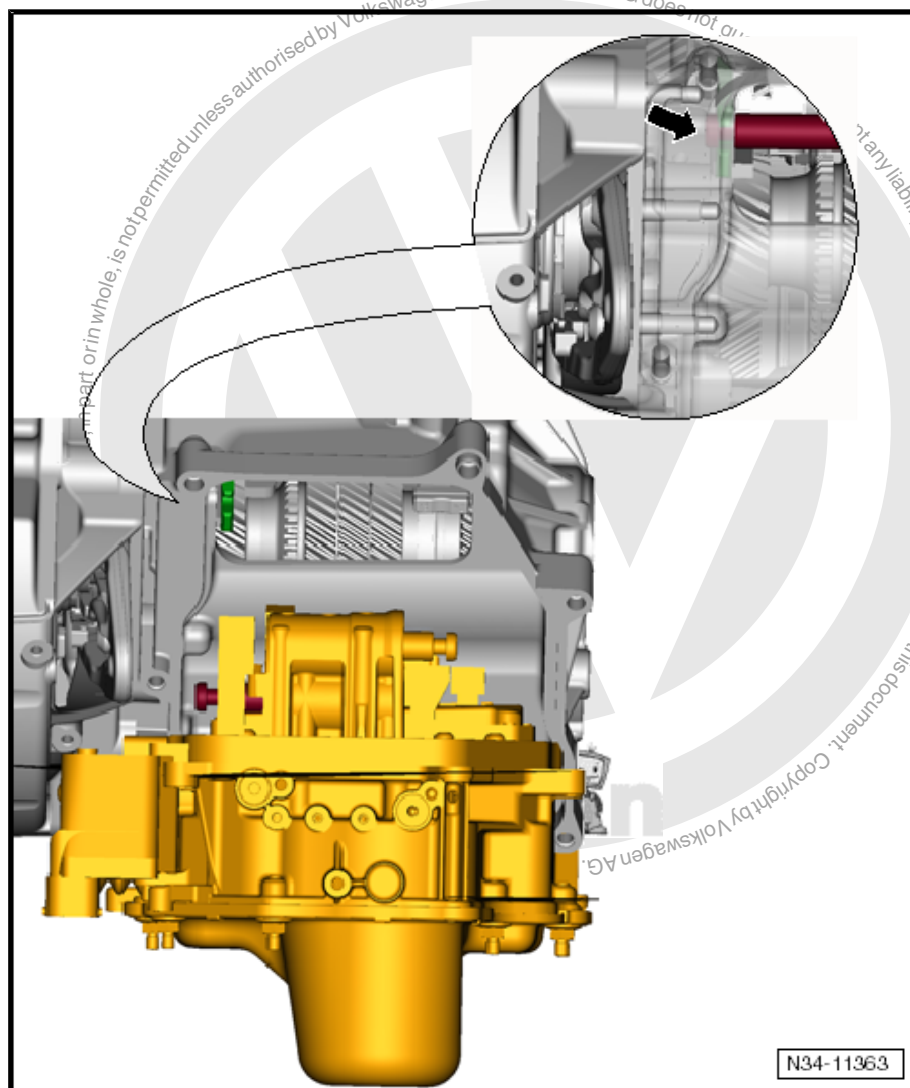


- Make sure no oil runs out of breather.

Mechatronic unit is to be sent for reconditioning with its oil in.



If mechatronic unit “jams” and cannot be removed:



Sometimes, the mechatronic unit cannot be removed. In this case, the gear actuator is “caught” at the “top left” of the gearbox housing.

In this case, mechatronic unit is not allowed to be removed with significant force.

- First reposition mechatronic unit on gearbox housing and secure it with one bolt.
- Move mechatronic unit into “removal position” by hand
⇒ [page 62](#) .

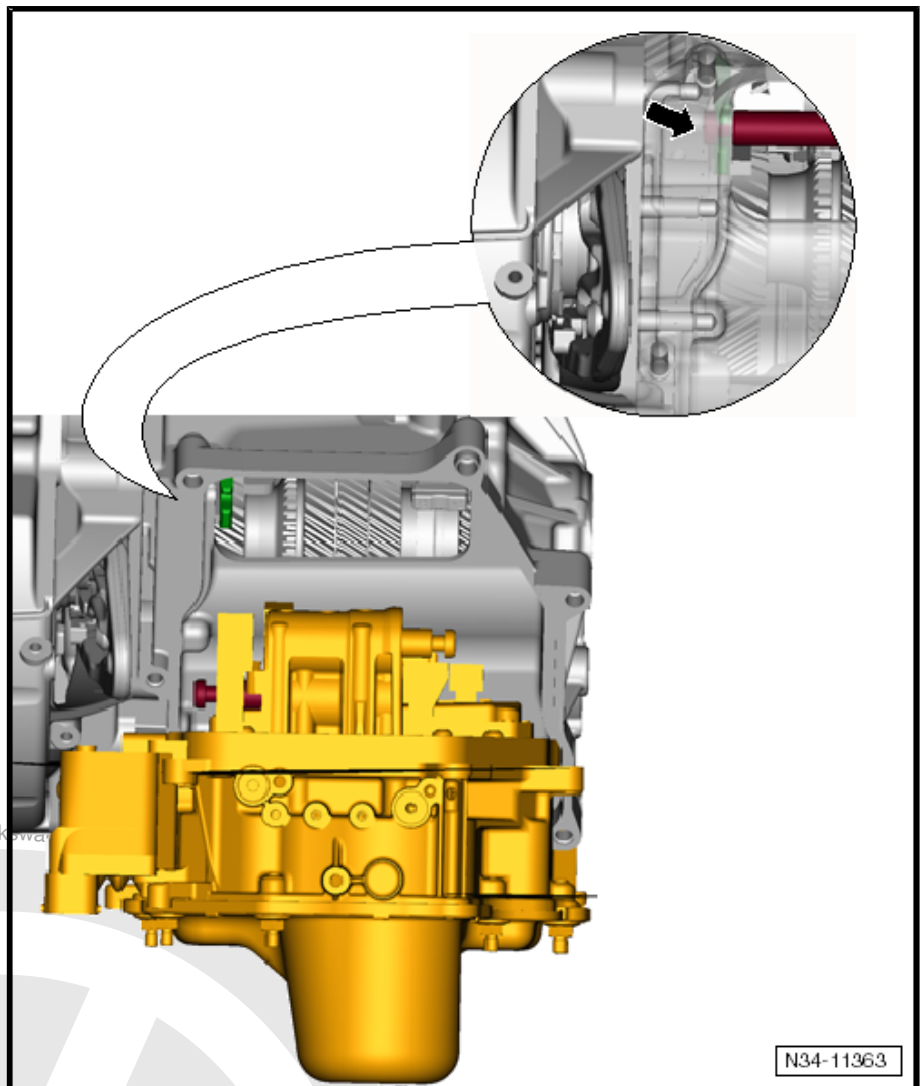
Installing mechatronic unit ⇒ [page 65](#) .

3.4 Moving mechatronic unit for dual clutch gearbox -J743- into “removal position” by hand

Sometimes, the mechatronic unit cannot be removed. In this case, the gear actuator is “caught” at the “top left” of the gearbox housing -arrow-.



- Only if you cannot set the mechatronic unit to removal position with the vehicle diagnostic tester , you must move the unit by hand to this position.



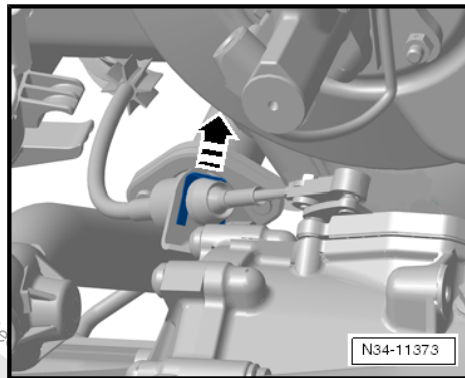
The “sticking” gear actuator -arrow- can be pressed by hand into its “removal position”. To do this, push a selector fork behind the parking lock cover. How to do this is described in the following work procedure:

- First reposition mechatronic unit on gearbox housing and secure it with one bolt.
- Move selector lever to position “P” position.

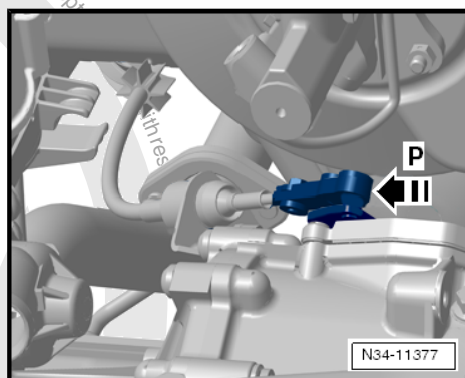


- Remove securing clip in -direction of arrow-.

Securing clips for selector lever cable must always be renewed.



- Remove Bowden cable from ball head.
- Use your hand to press lever to stop in direction of cable support bracket.

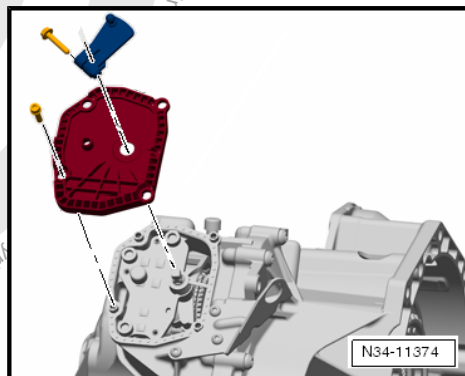


- Remove lever of selector shaft.
- Unbolt cover.



Caution

The mechatronic unit will not be "stuck" after the next step. That means that it could fall out. If not already done: Secure mechatronic unit on gearbox with a bolt to prevent it from falling down.

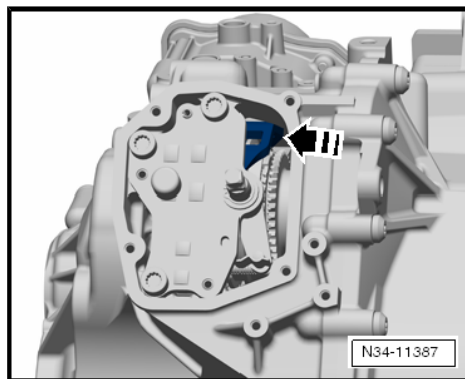


- Working through opening, push selector fork to side -direction of arrow-.

(Press to left in direction of travel.)

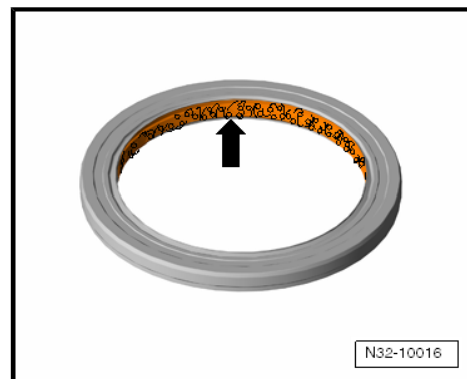
This presses back "sticking" gear actuator and mechatronic unit can be removed.

- Please do not assemble parking lock until you have filled oil.

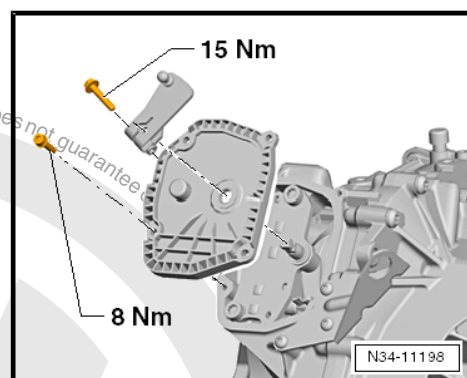




- Grease oil seal in cover with sealing grease -G 052 128 A1- .

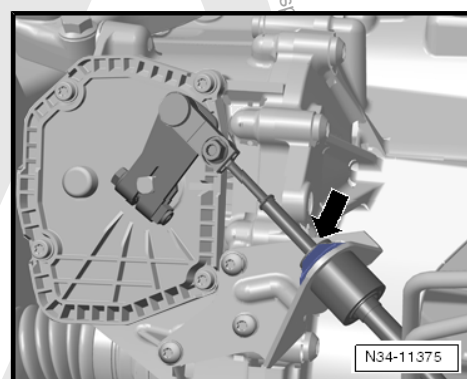


- Fit cover and lever again.



- Press selector lever cable back onto ball head and install new securing clip.
- Securing clips for selector lever cable must always be renewed.
- Add gear oil after completing work on mechatronic unit. Fill oil into gearbox ➤ [page 30](#) .
- Adjust selector lever cable ➤ [page 43](#) .
- Place plug on removed mechatronic unit.

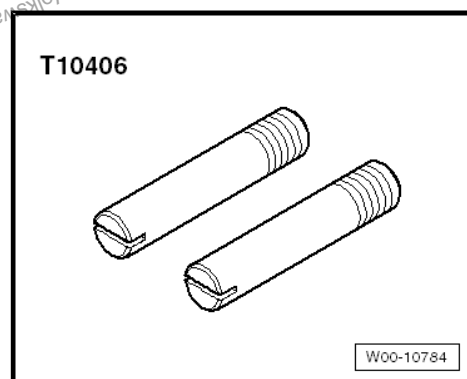
This way, the mechatronic unit can be sent sealed in oil-tight condition.



3.5 Installing mechatronic unit for dual clutch gearbox -J743-

Special tools and workshop equipment required

- ◆ Guide pin -T10406-





Note

- ♦ A “new” mechatronic unit is correctly filled with oil.
- ♦ Do not drain oil. A “removed” mechatronic unit is sent back with its oil in.

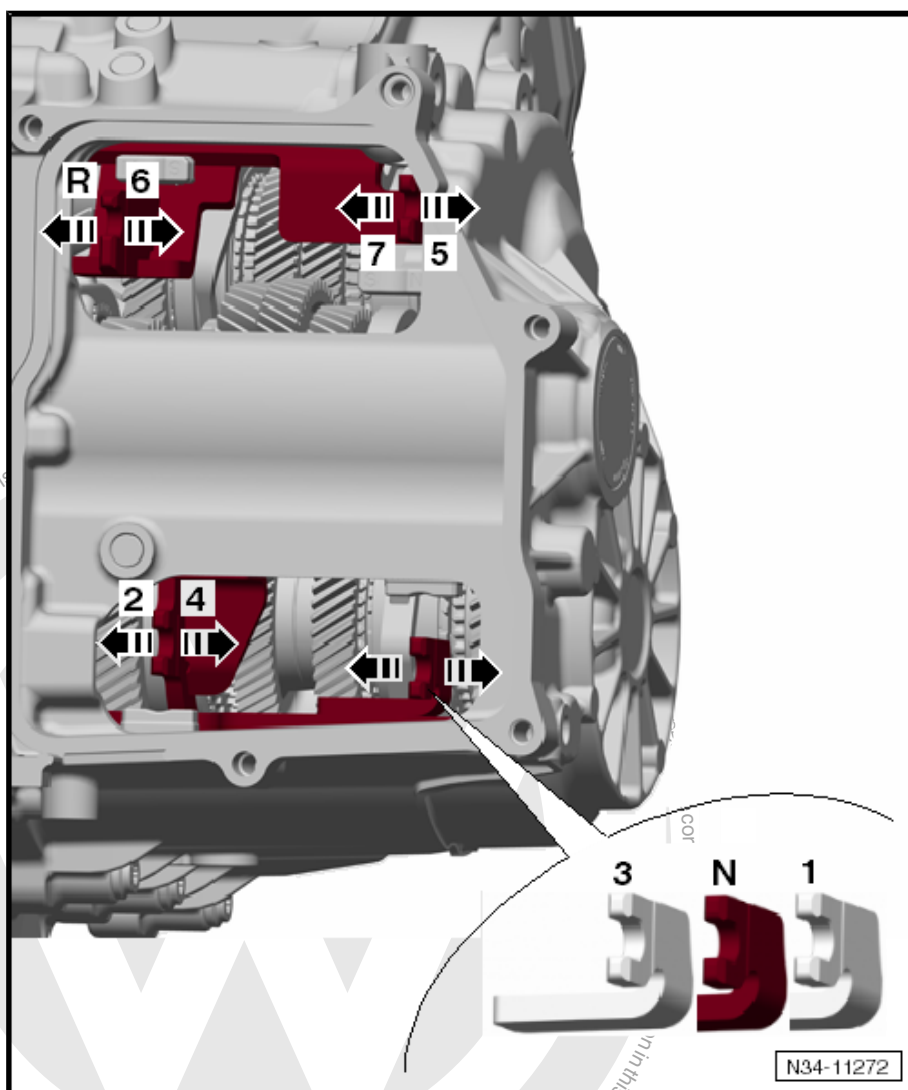
Installing

- All selector forks must be “in neutral” prior to installation of mechatronic unit



Note

Make sure that all selector forks are located in -N-, “in the middle”, and therefore that the gearbox is in neutral.



- Therefore, check each of 4 selector forks by hand.



Every selector fork has 3 positions: "gear selected - neutral - gear selected".

- Also, move each fork into each position in succession. Then disengage all gears and return selector forks to middle position "neutral".



Note

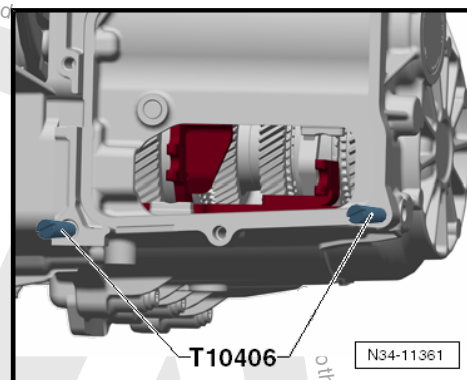
"Neutral, neutral, neutral", or gearbox will not function!

You can turn the front gear slightly for assistance. This makes it "easier" to shift the forks.

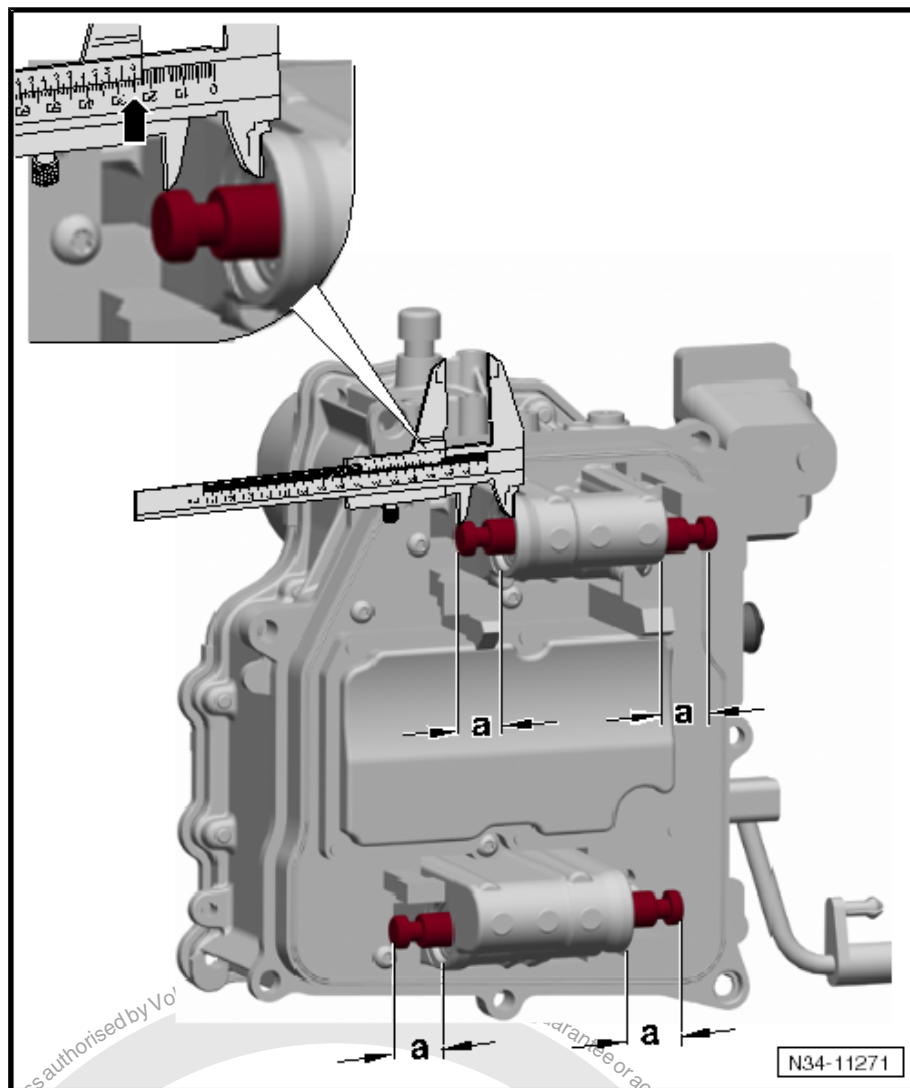
- Please clean sealing surface where mechatronic unit will make contact later on.

Oil residues on sealing surface will later result in a misdiagnosis of "leaking".

- Screw in guide pin -T10406- hand-tight.



Make sure that all 4 gear actuators project 25 millimetres -a-.



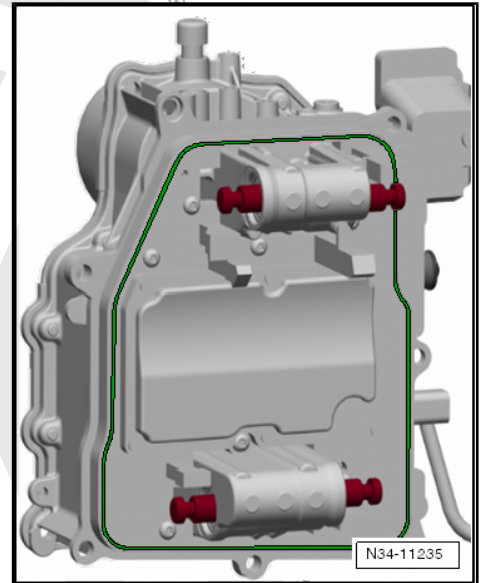
Caution

Handle with care. When levering the plungers out of the mechatronic unit, make sure that you do not brace yourself on the sensors.

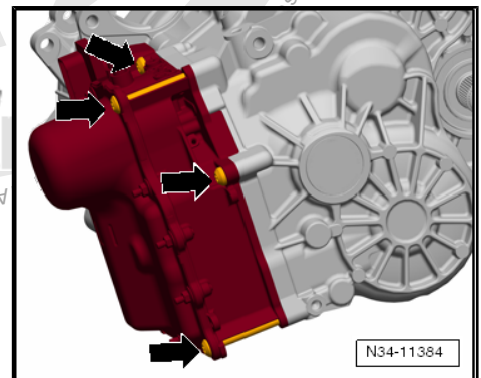
- Please clean sealing surface of mechatronic unit.



- Watch out for seal on mechatronic unit.
Seal must be pushed in all around.
- Look at sender. Clip must not be damaged.
- Put on mechatronic unit.
- When gripping and putting on, make sure selector forks are not inadvertently pressed out of their position.
- Also observe engaging levers and plungers on mechatronic unit.



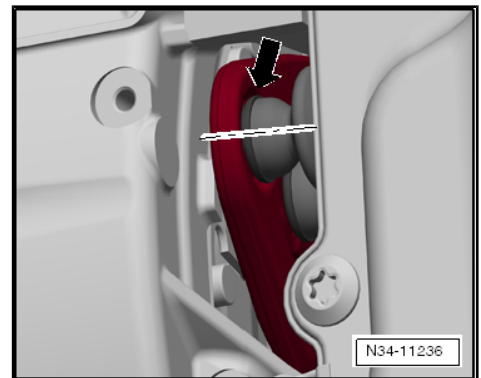
- Screw in 7 new bolts and tighten until finger-tight.
- Remove guide pins -T10406- again.



- Make sure that plungers meet up correctly in cups of engaging levers.
- Pull out plungers by hand until they are seated in cups.

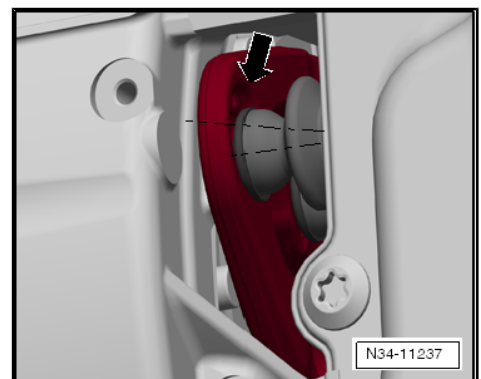
Plungers can be moved into position with a hook bent from a piece of welding wire (local manufacture).

- Now check seat of plungers again.



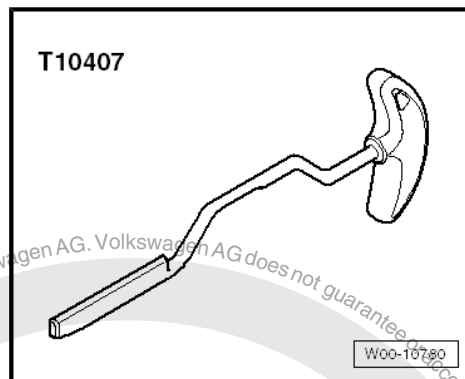
Plungers that are not seated correctly will damage mechatronic unit.

- Tighten mechatronic unit diagonally to 10 Nm.

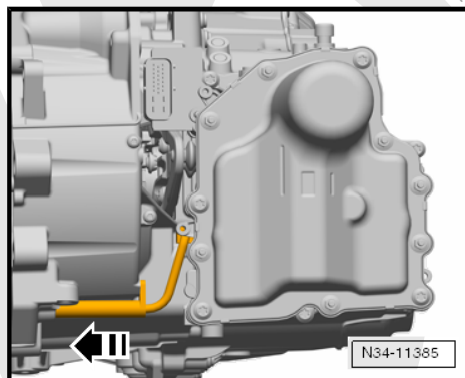




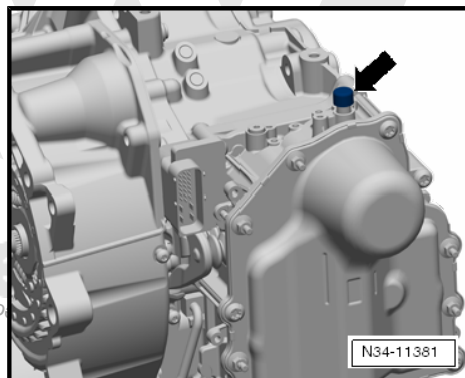
- Turn assembly lever -T10407- clockwise and remove it.



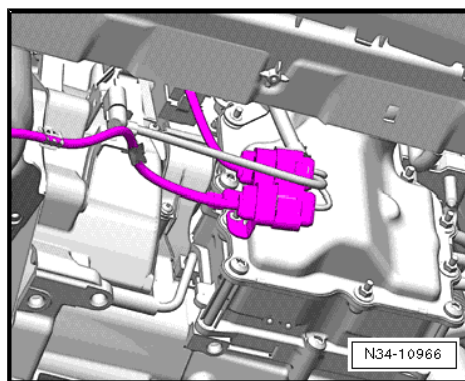
- Install gearbox input speed sender 3 -G641-
- Look at sender. Clip must not be damaged.
- Sender lug must be fully and firmly in contact with gearbox housing. If sender is “loose” or clip is broken, renew mechatronic unit.



- Remove plug and put breather cap -arrow- in place.
- Join connector of mechatronic unit.



- Attach all retainers and brackets to front of gearbox.





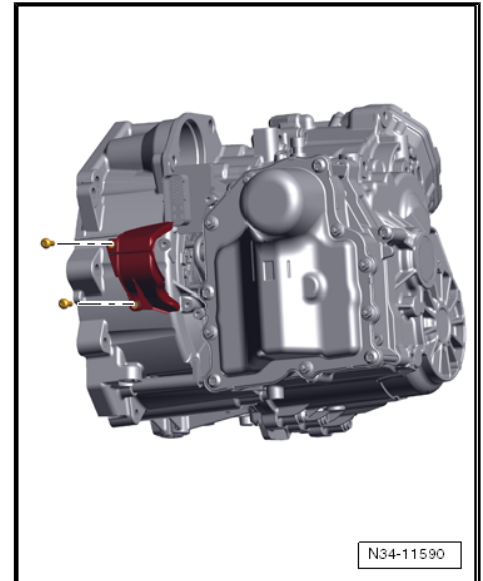
In some vehicles, a cover is fitted over the engaging levers.

The cover prevents dirt getting in.

Torque setting: 8 Nm

Now add gear oil ⇒ [page 30](#) .

- Install starter ⇒ Rep. Gr. 27 ; Removing and installing starter .



- Fit charge air or coolant hoses as necessary.
- Install battery and battery tray ⇒ Rep. Gr. 27 ; Battery; Removing and installing battery .
- Install complete air filter housing.
- ◆ Vehicles with petrol engines ⇒ Rep. Gr. 24 ; Removing and installing air filter
- ◆ Vehicles with diesel engines ⇒ Rep. Gr. 23 ; Removing and installing air filter
- If necessary, top up coolant ⇒ Rep. Gr. 19 ; Draining and filling coolant .
- Install noise insulation ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .
- Carrying out basic adjustment ⇒ [page 7](#) .



Mechatronic unit remains filled with oil.

- Place plug on “removed” mechatronic unit if necessary.

This way, the mechatronic unit can be sent sealed in oil-tight condition.



3.6 View of selector forks with mechatronic unit removed

N - Idling/gearbox neutral position "in the middle"

R - Reverse gear

- If reverse gear is engaged, extended plunger of mechatronic unit catches behind gearbox housing.

– Therefore, move mechatronic unit into removal position by hand
⇒ [page 65](#) .

1 - Gear

2 - Gear

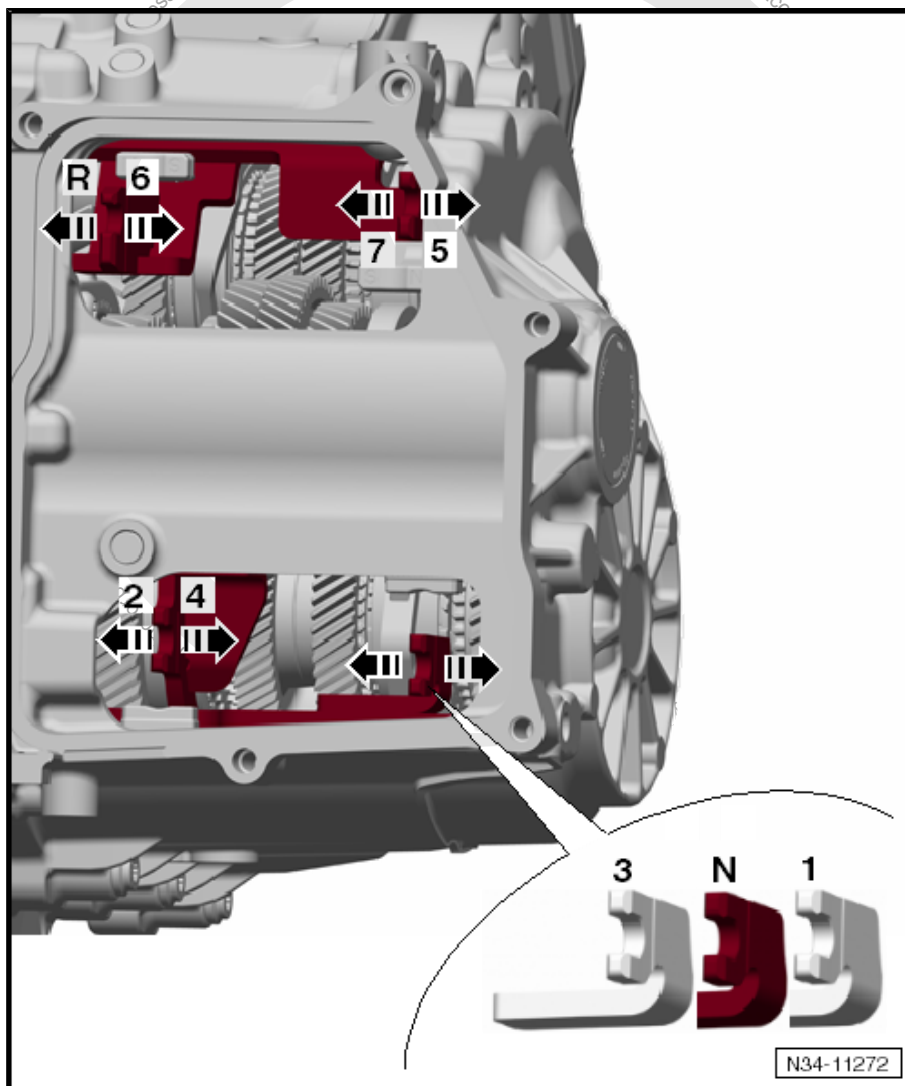
3 - Gear

4 - Gear

5 - Gear

6 - Gear

7 - Gear





4 Removing and installing gearbox

Information about gearboxes with different output shafts

⇒ [page 73](#)

Vehicles with petrol engines

1.4 I/90 kW TFSI engine and 1.4 I/118 kW TSI engine

⇒ [page 74](#)

1.6 I/75 kW MPI engine ⇒ [page 81](#)

Vehicles with diesel engine

1.9 I/77 kW TDI PD engine ⇒ [page 90](#)

1.6 I/77 kW TDI CR engine ⇒ [page 97](#)

4.1 Information about gearboxes with different output shafts

Gearbox with different output shafts.

A - Stub shafts "to 11.2008"

B - Flange shafts "from 12.2008"

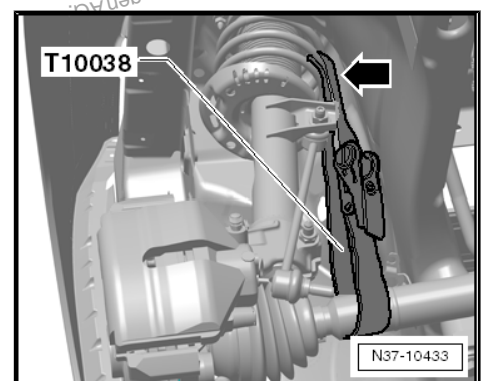
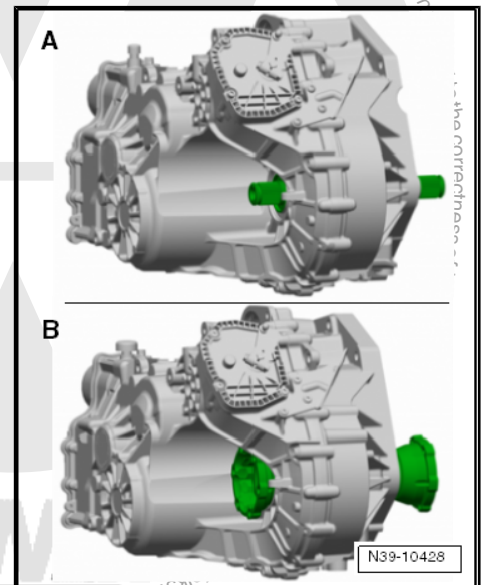
Vehicles with stub shafts on gearbox

To remove gearboxes with stub shafts, it is necessary to remove stub shafts. Only shafts with straight joints can be put back onto the output shafts safely. Therefore, these drive shafts must be removed.

Vehicles with flange shafts on gearbox

For gearboxes with flange shafts, the drive shafts must be unbolted from the gearbox. This way, the gearbox can be removed. In individual cases, it is necessary to remove right-hand flange shaft from gearbox. This gives you enough clearance for removing gearbox.

Secure both drive shafts to suspension struts using tensioning straps -T10038- .

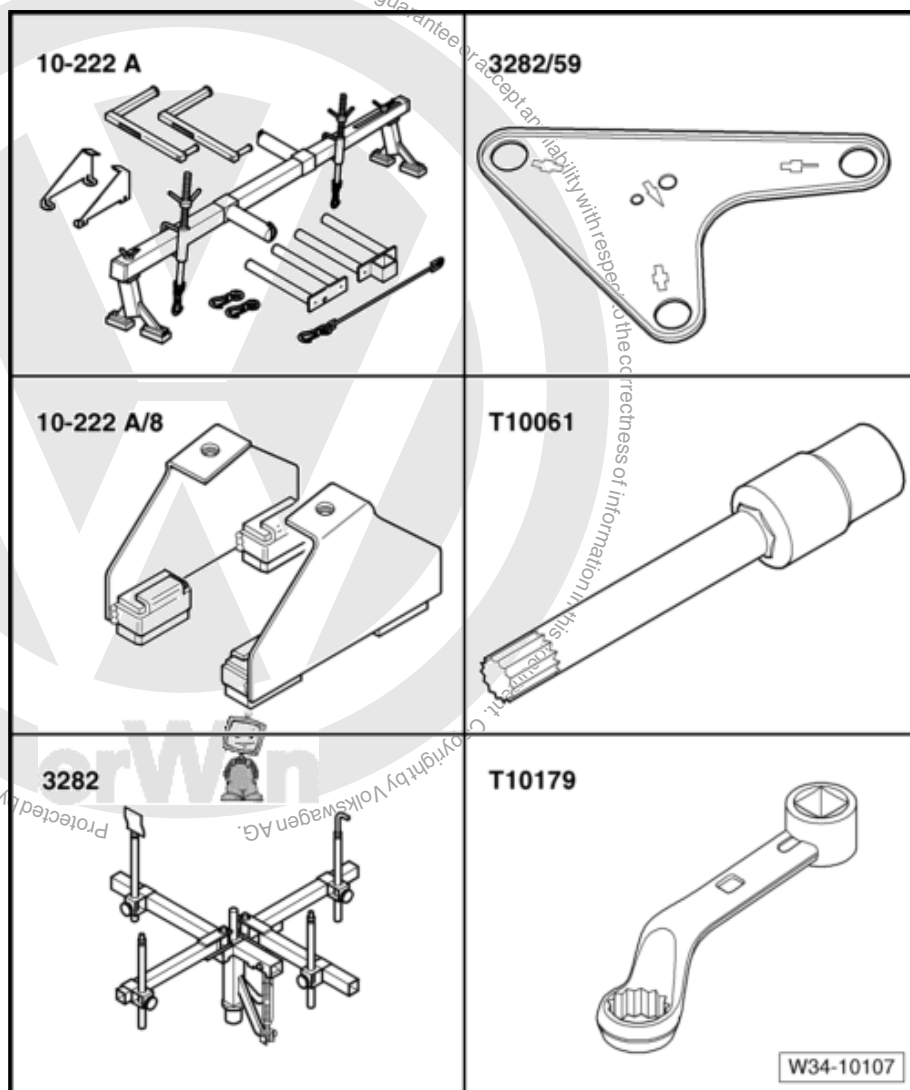




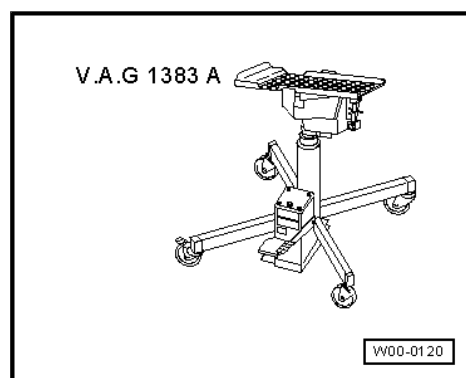
4.2 Removing gearbox, vehicles with 1.4 I/90 kW TFSI engine and 1.4 I/118 kW TSI engine

Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adjustment plate -3282/59-
- ◆ Adapter -10 - 222 A /8-
- ◆ Insert tool, 18 mm -T10179-
- ◆ Gearbox support -3282-
- ◆ Socket -T10061-



- ◆ Engine and gearbox jack -V.A.G 1383 A-



Brief description

The gearbox is removed downwards separately, without engine.

The battery, air filter and starter are removed "from above".



Noise insulation beneath engine/gearbox, lower cover in front left wheel housing and pendulum support are removed "from below".

Perform the following steps:

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position "P" position.

Only in vehicles with stub shafts



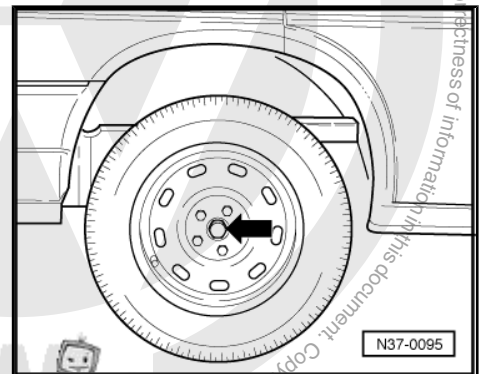
Note

After loosening centre bolt, do not lower vehicle to ground again.

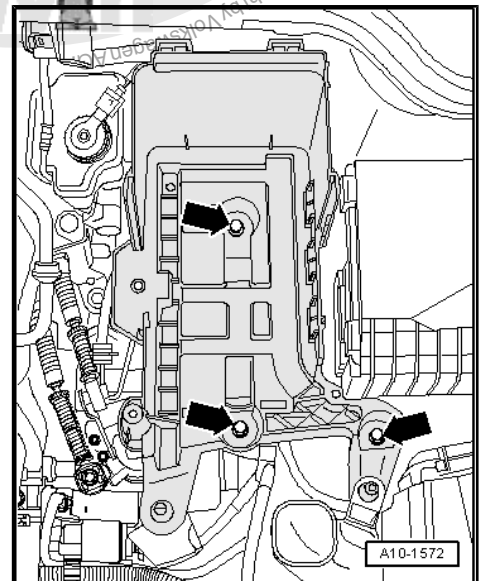
- Step on the brake pedal while a 2nd mechanic loosens the two drive shaft bolts -arrow-.
- Remove both front wheels.

Continuation for all vehicles

- Remove complete air filter housing ⇒ Rep. Gr. 24 ; Removing and installing air filter .



- Remove battery and battery tray ⇒ Rep. Gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Rep. Gr. 27 ; Removing and installing starter .

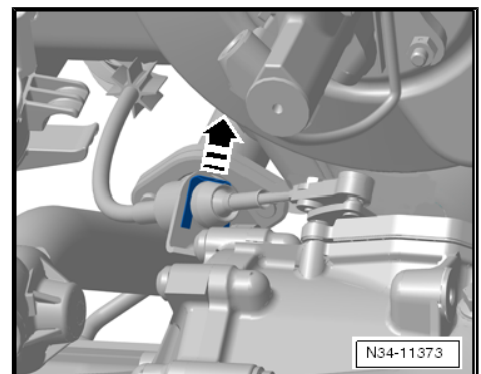


- Remove securing clip in -direction of arrow-.

Securing clips for selector lever cable must always be renewed.

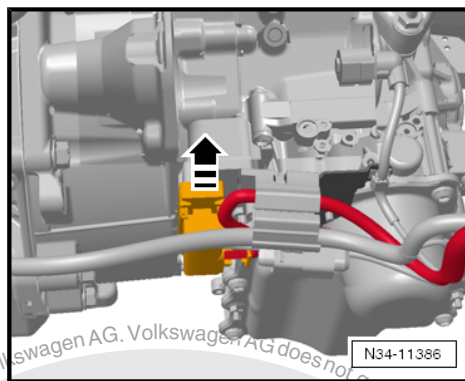
- Remove Bowden cable from ball head.

Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.

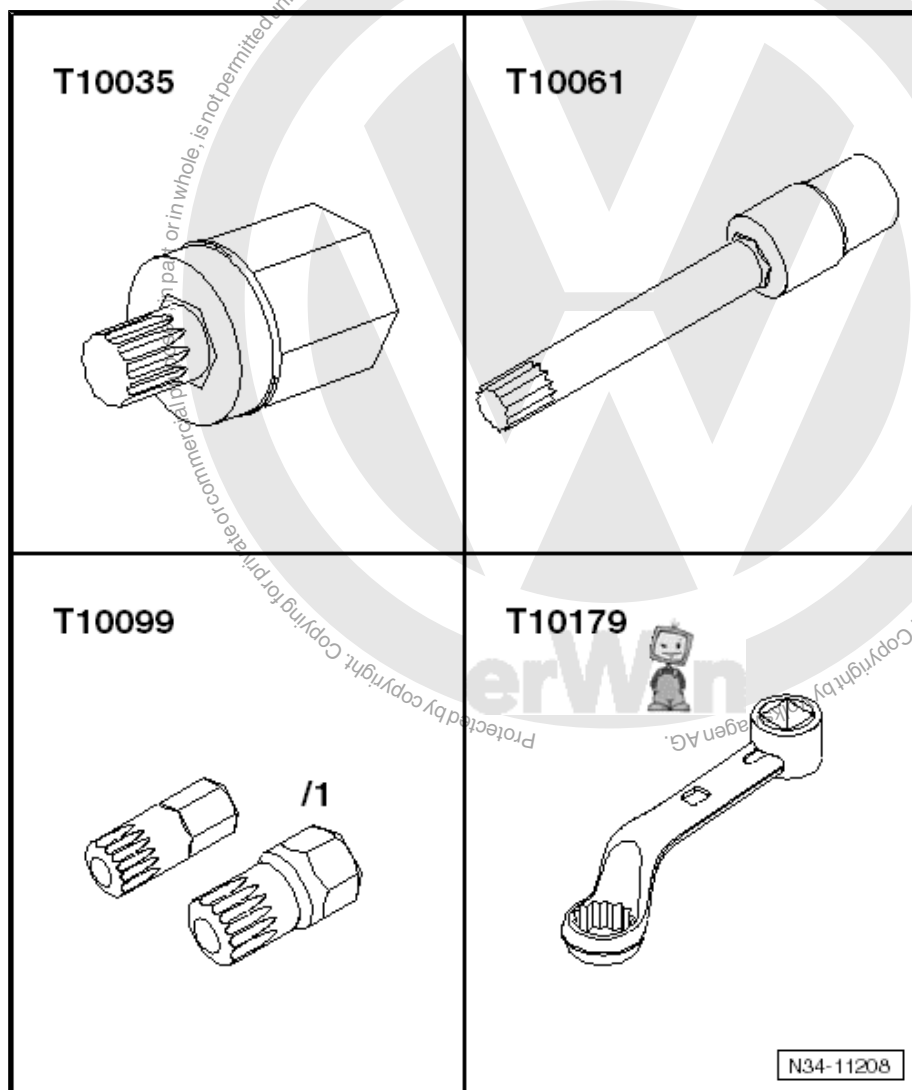




- Release mechatronic unit connector by pulling and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.



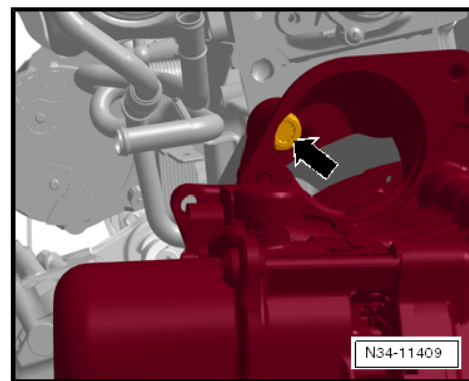
These tools are appropriate for this.



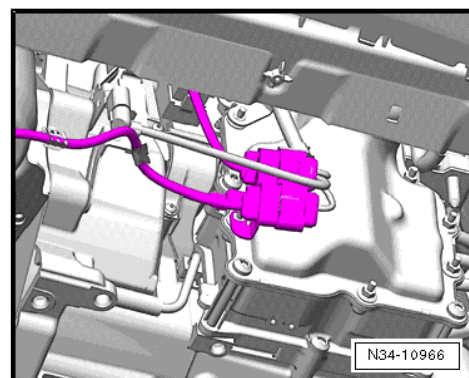


A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.

- Remove noise insulation ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing ⇒ Rep. Gr. 66 ; Assembly overview - front wheel housing .



- Remove all retainers and brackets from front of gearbox.

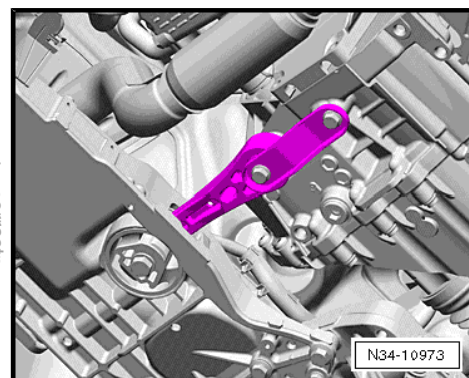


- Remove pendulum support.

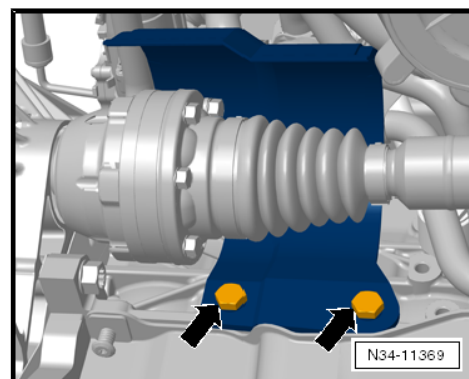
Only in vehicles with stub shafts

- Remove both drive shafts ⇒ Rep. Gr. 40 ; Removing and installing drive shafts .

Only in vehicles with flange shafts



- If fitted, remove the heat shield over the right-hand drive shaft. Tightening torque ⇒ Rep. Gr. 40 ; Repairing drive shafts

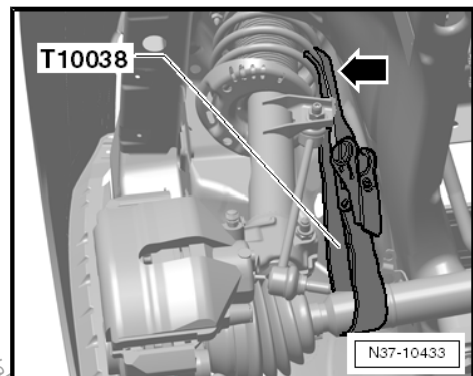
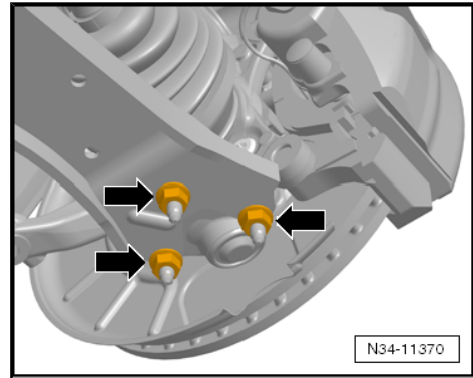




- Unbolt only left suspension link from swivel joint -arrows-.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.

Secure both drive shafts to suspension struts using tensioning straps -T10038- .

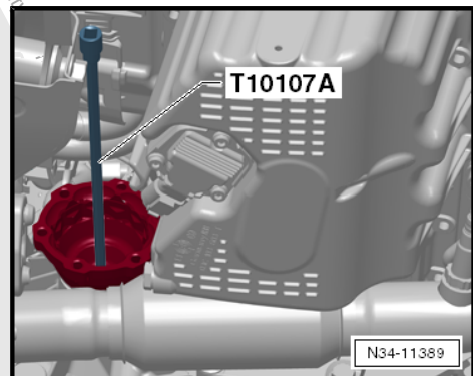


- Remove right flange shaft of gearbox.

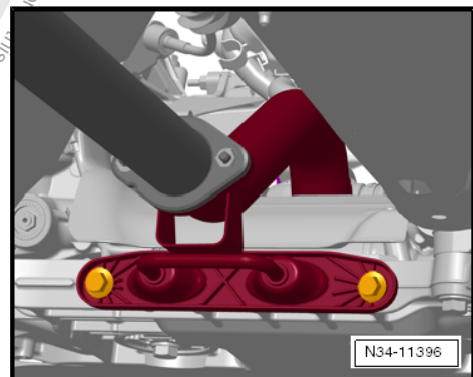
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

Torque setting: 30 Nm

Continuation for all vehicles

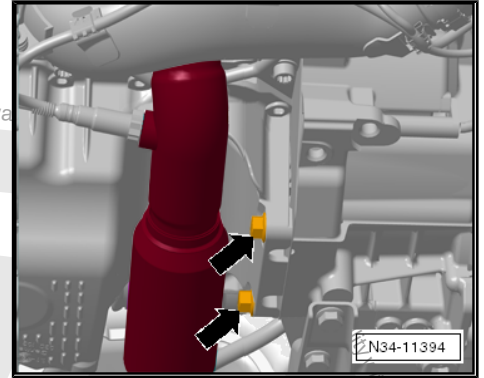


- Unbolt exhaust system bracket from subframe.

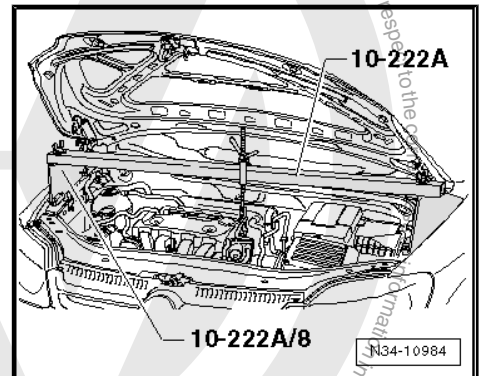




- Remove front exhaust pipe so that lower bolts can be removed -arrows-.
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222 A- , remove these now.



- Support engine and gearbox with support bracket -10-222 A- but do not raise.

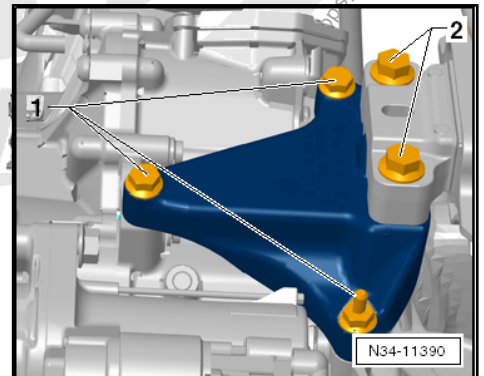


Remove all bolts -1- and -2- for bracket.

- Then lower engine and gearbox slightly using spindles of support bracket -10 - 222 A- so that bracket can be removed.

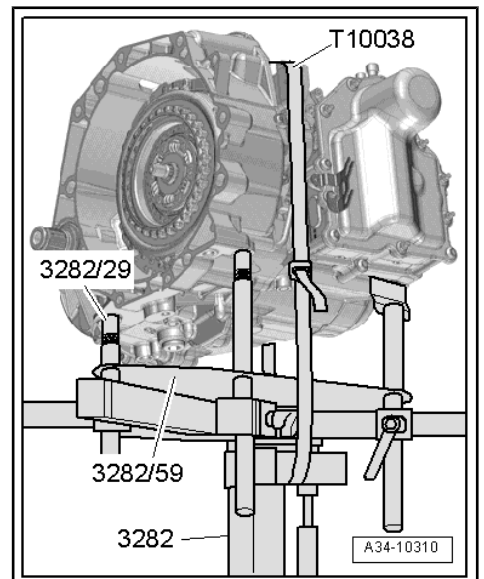
At most, 5 turns are sufficient to remove bracket.

In many cases, the spindle does not need to be lowered further for the later removal of the gearbox.



To remove gearbox 0AM, set up gearbox support -3282- with adjustment plate -3282/59- and push onto engine and gearbox support -V.A.G 1383 A- .

- Align arms of gearbox support according to holes in adjustment plate -3282/59- .
- Screw in support elements as illustrated on adjustment plate -3282/59- .
- Position engine and gearbox jack -V.A.G 1383 A- under vehicle.
- Arrow on adjustment plate -3282/59- points in direction of travel.
- Align gearbox support -3282- parallel to gearbox.
- Screw pin -3282/29- into “rear” hole for pendulum support.





- Place both remaining attachments onto gearbox as shown. When doing this, place sheet metal of drift under gearbox housing and not under mechatronic unit.
- Secure gearbox with tensioning strap -T10038- .
- Raise gearbox and engine support -V.A.G 1383 A- from below to support gearbox.

The gearbox is separated from the engine in this position.

- Remove remaining engine/gearbox connecting bolts.
- Press gearbox off engine, “observing selector lever cable” and lower gearbox.



Note

- ♦ *Distance between engine flange and gearbox flange should be about 50 mm before gearbox is lowered*
- ♦ *Be careful of all lines and coolant hoses when lowering gearbox.*
- Renew needle bearing in crankshaft -arrow- ➤ Rep. Gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .

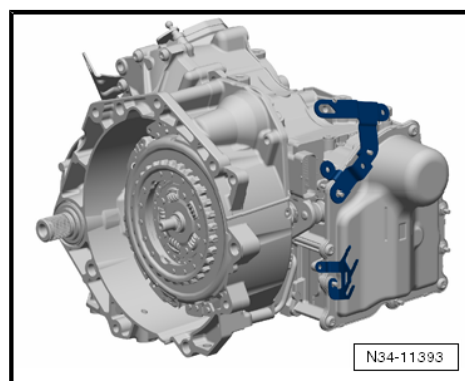
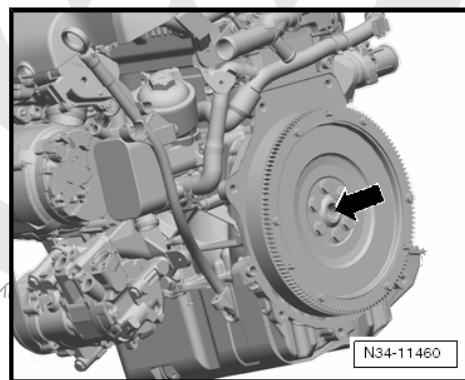
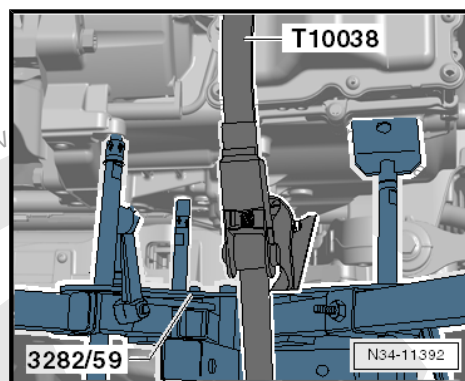
Transporting gearbox and securing to assembly stand
⇒ [page 111](#) .

Installing gearbox ⇒ [page 104](#) .

If gearbox is to be sent:

In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a “new” gearbox, because there are no retainers on a “new” gearbox.
- Install right flange shaft of gearbox with flange shafts
⇒ [page 118](#) .

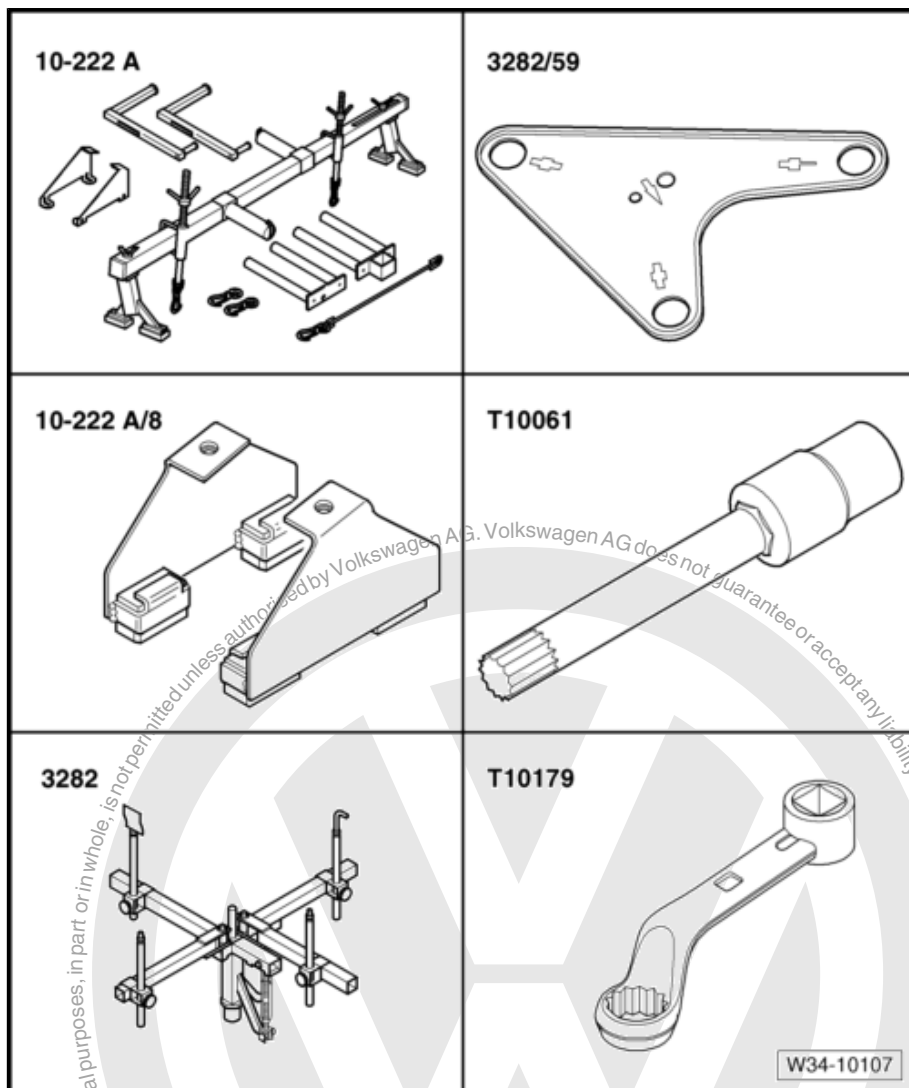




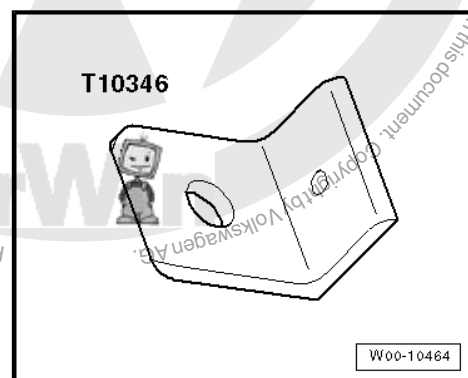
4.3 Removing gearbox, vehicles with 1.6 l/75 kW MPI engine

Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adjustment plate -3282/59-
- ◆ Adapter -10 - 222 A /8-
- ◆ Insert tool, 18 mm -T10179-
- ◆ Gearbox support -3282-
- ◆ Socket -T10061-

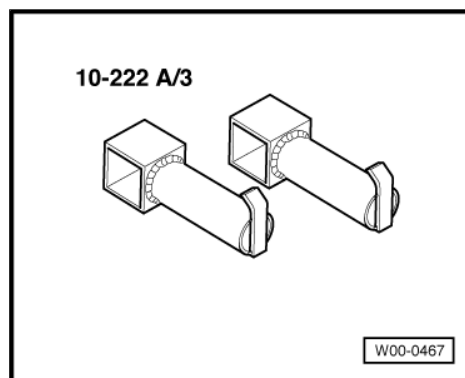


- ◆ Bracket -T10346-

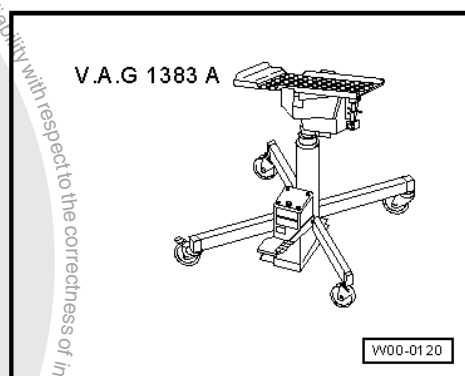




◆ Adapter -10 - 222 A /3-



◆ Engine and gearbox jack -V.A.G 1383 A-



Brief description

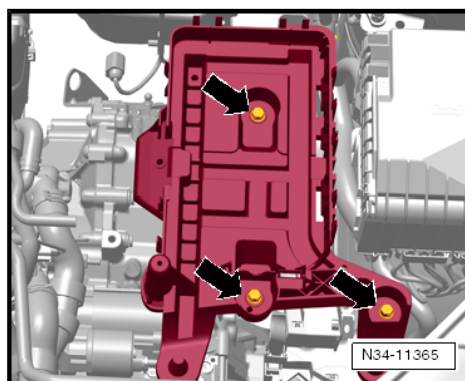
The gearbox is removed downwards separately, without engine.

The battery, air filter and starter are removed "from above".

Noise insulation beneath engine/gearbox, lower cover in front left wheel housing and pendulum support are removed "from below".

Perform the following steps:

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position "P" position.
- Remove complete air filter housing ⇒ Rep. Gr. 24 ; Removing and installing air filter .
- Remove battery and battery tray ⇒ Rep. Gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Rep. Gr. 27 ; Removing and installing starter .



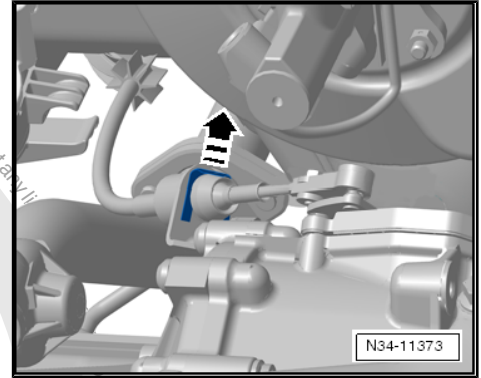


- Remove securing clip in -direction of arrow-

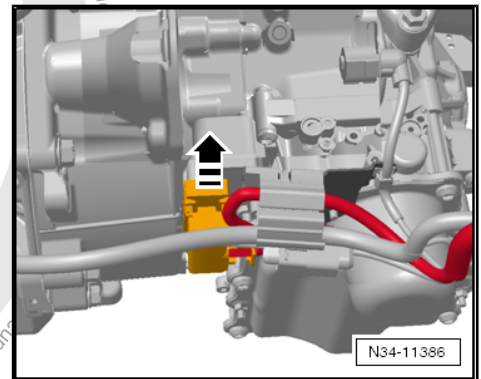
Securing clips for selector lever cable must always be renewed.

- Remove Bowden cable from ball head.

Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.

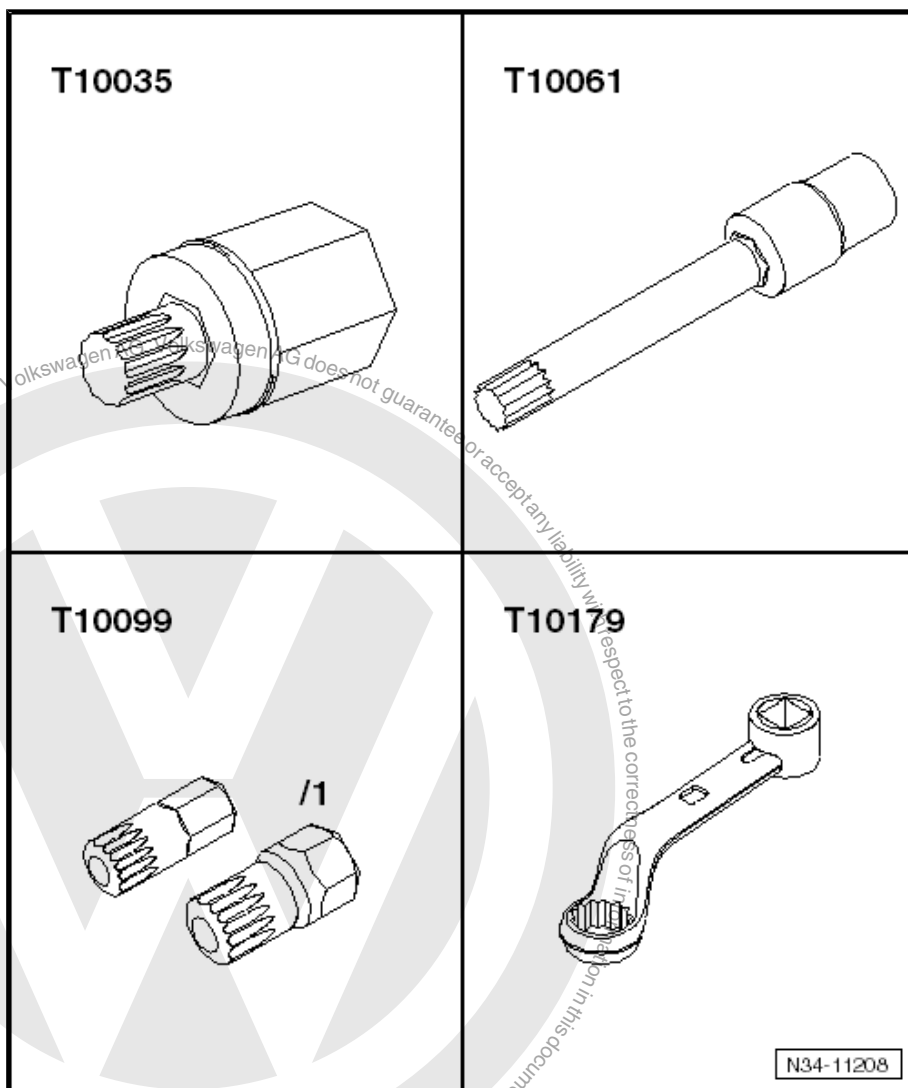


- Release mechatronic unit connector by pulling and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.



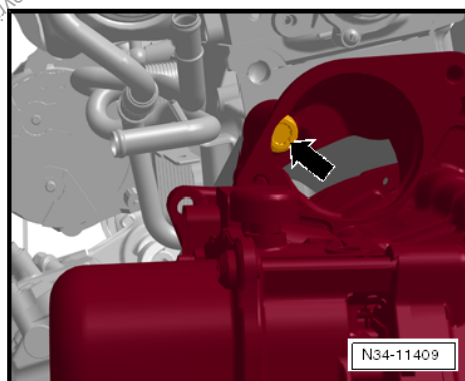
These tools are appropriate for this.





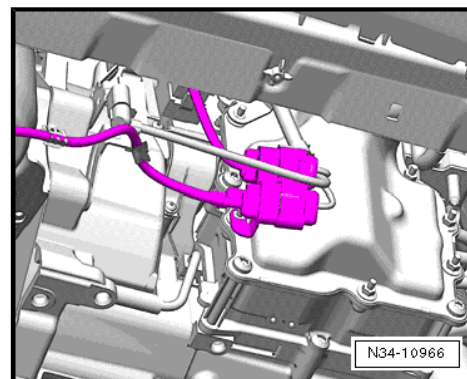
A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.

- Remove noise insulation ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing ⇒ Rep. Gr. 66 ; Assembly overview - front wheel housing .

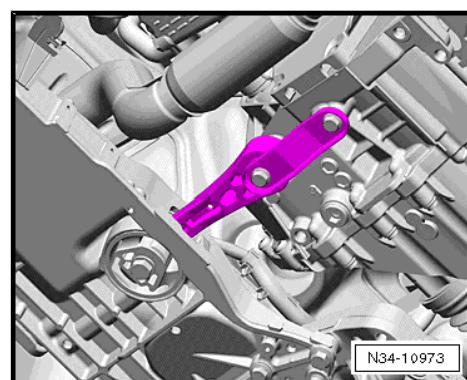




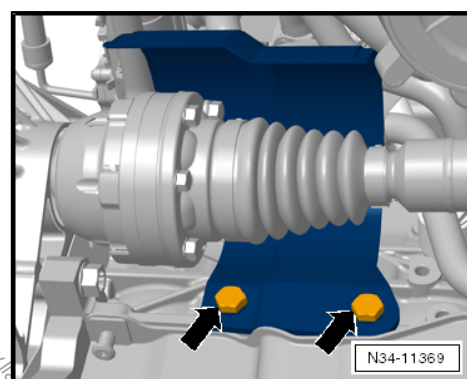
- Remove all retainers and brackets from front of gearbox.



- Remove pendulum support.

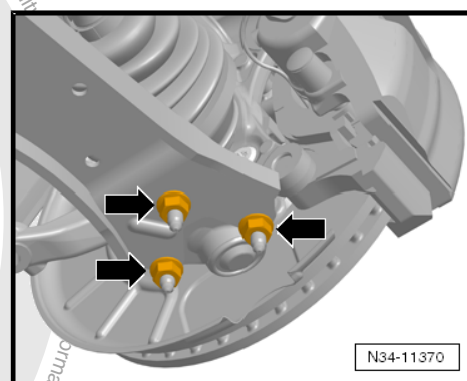


- If fitted, remove the heat shield over the right-hand drive shaft.
Tightening torque ⇒ Rep. Gr. 40 ; Repairing drive shafts
- Disconnect left and right-hand drive shafts from flanges on gearbox.



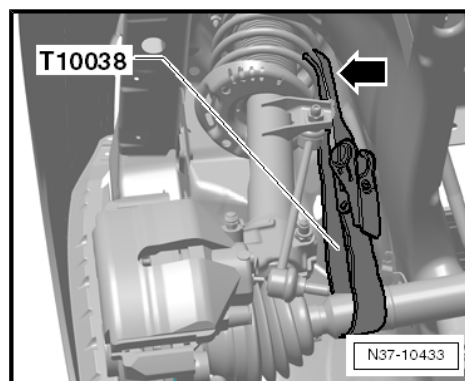
- Unbolt only left suspension link from swivel joint -arrows-.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.





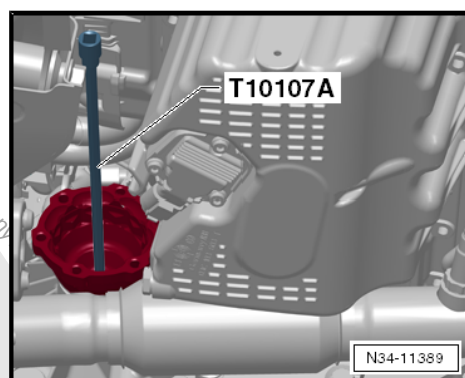
Secure both drive shafts to suspension struts using tensioning straps -T10038- .



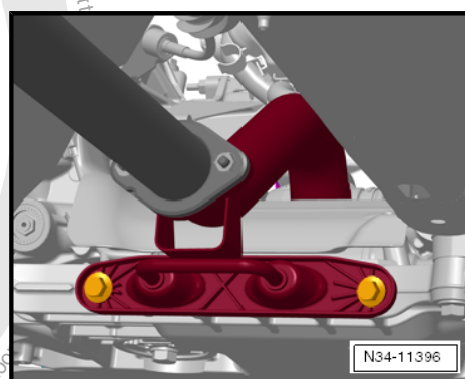
- Remove right flange shaft of gearbox.

Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

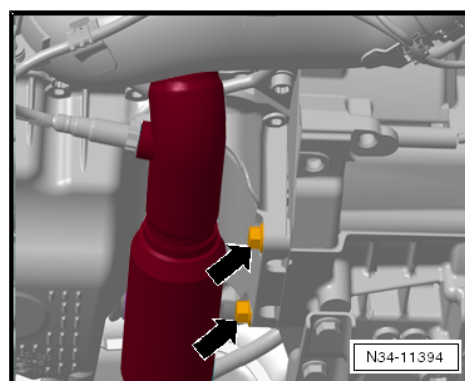
Torque setting: 30 Nm



- Unbolt exhaust system bracket from subframe.

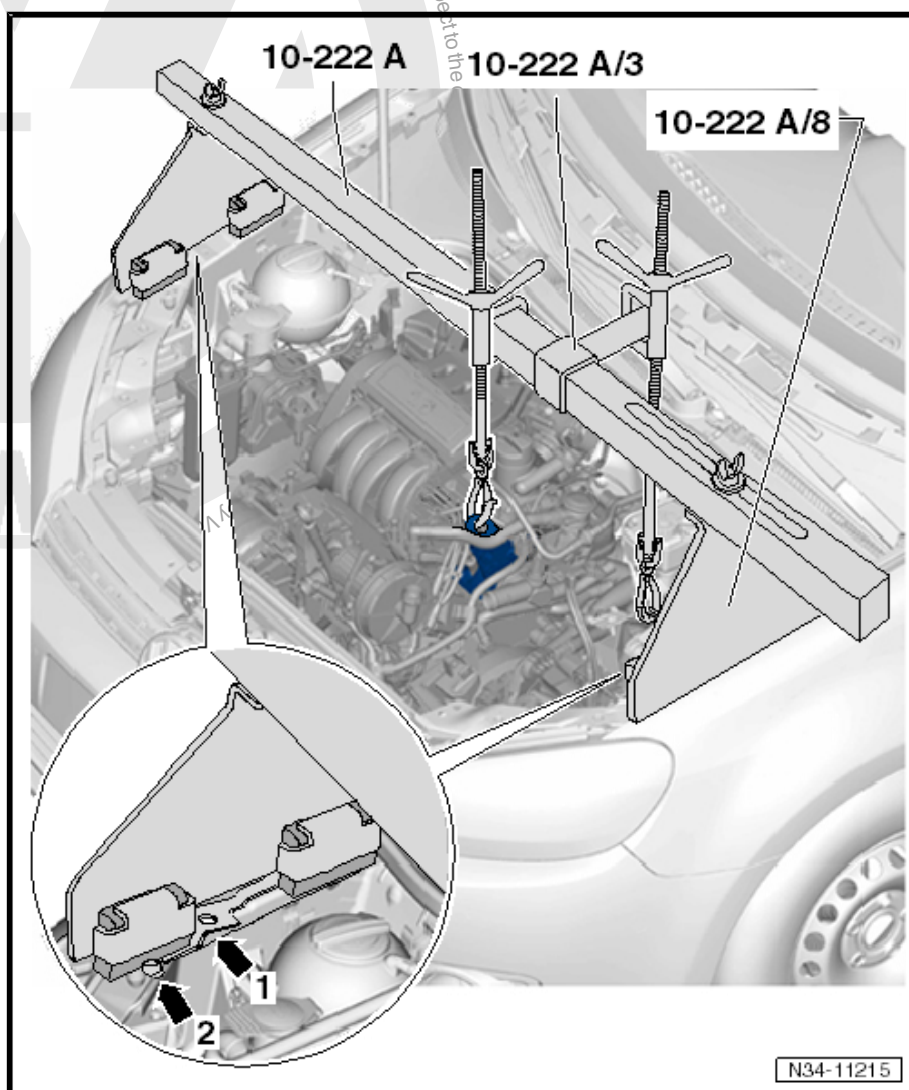
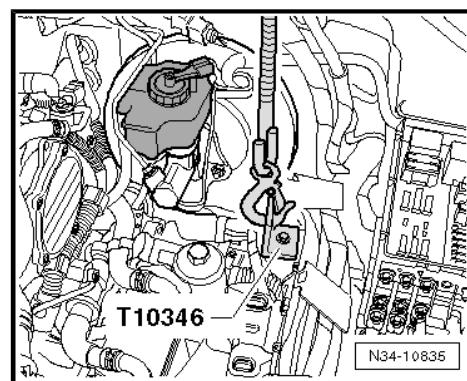


- Remove front exhaust pipe so that lower bolts can be removed -arrows-.
- Remove engine cover from cylinder head.





- Bolt bracket -T10346- to rear of the 3 mounting holes for battery tray.
- To do this, use a collar bolt M 6 or a securing bolt for battery tray.
- If there are hose and cable connections in area of engine support eye for support bracket -10 - 222 A- , remove these now.



- Set up support bracket -10-222 A- in front of bonnet support.
- Use:
 - ◆ Adapter -10 - 222 A /8-
 - ◆ Adapter -10 - 222 A /3-
- Place adapters -10 - 222 A /8- on upper longitudinal carriers, directly before the raised portion (-arrow 1-) next to bolt (-arrow 2-).

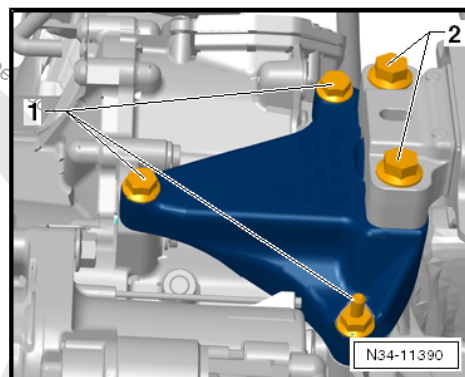


- Connect left support eye on engine to support bracket .
- Connect bracket -T10346- to support bracket (⇒ previous illustration).
- Take up weight of engine/gearbox assembly and support bracket on spindles.

Remove all bolts -1- and -2- for bracket.

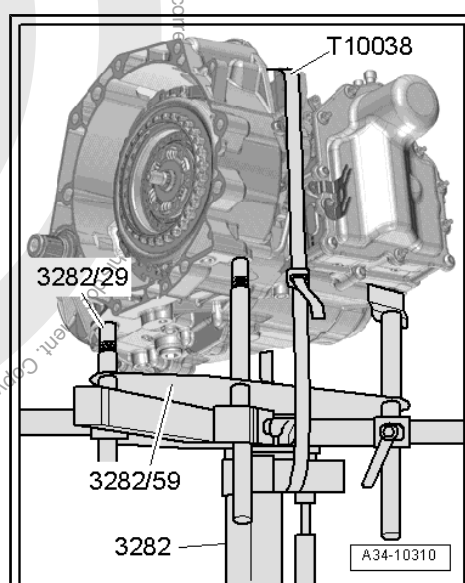
- Then lower engine and gearbox slightly using spindles of support bracket -10-222 A- so that bracket can be removed.

At most, 5 turns are sufficient to remove bracket.



To remove gearbox 0AM, set up gearbox support -3282- with adjustment plate -3282/59- and push onto engine and gearbox support -V.A.G 1383 A- .

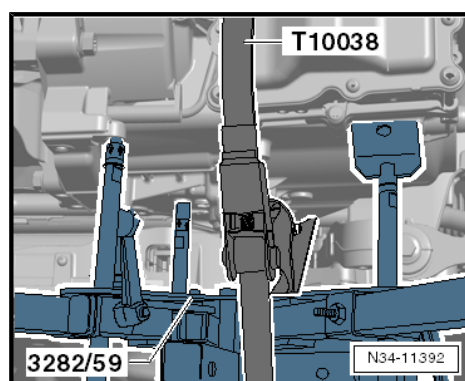
- Align arms of gearbox support according to holes in adjustment plate -3282/59- .
- Screw in support elements as illustrated on adjustment plate -3282/59- .
- Position engine and gearbox jack -V.A.G 1383 A- under vehicle.
- Arrow on adjustment plate -3282/59- points in direction of travel.
- Align gearbox support -3282- parallel to gearbox.
- Screw pin -3282/29- into “rear” hole for pendulum support.



- Place both remaining attachments onto gearbox as shown. When doing this, place sheet metal of drift under gearbox housing and not under mechatronic unit.
- Secure gearbox with tensioning strap -T10038- .
- Raise gearbox and engine support -V.A.G 1383 A- from below to support gearbox.

The gearbox is separated from the engine in this position.

- Remove remaining engine/gearbox connecting bolts.
- Press gearbox off engine, “observing selector lever cable” and lower gearbox.



Note

- ♦ Distance between engine flange and gearbox flange should be about 50 mm before gearbox is lowered.
- ♦ Be careful of all lines and coolant hoses when lowering gearbox.



- Renew needle bearing in crankshaft -arrow- ➔ Rep. Gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .

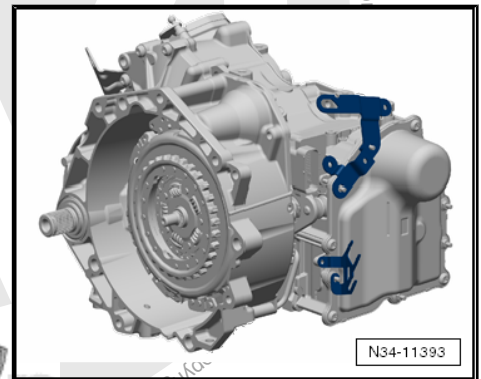
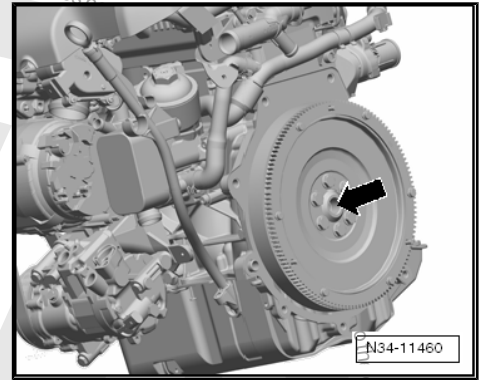
Transporting gearbox and securing to assembly stand
➔ [page 111](#) .

Installing gearbox ➔ [page 104](#) .

If gearbox is to be sent:

In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a “new” gearbox, because there are no retainers on a “new” gearbox.
- Install right flange shaft ➔ [page 118](#) .

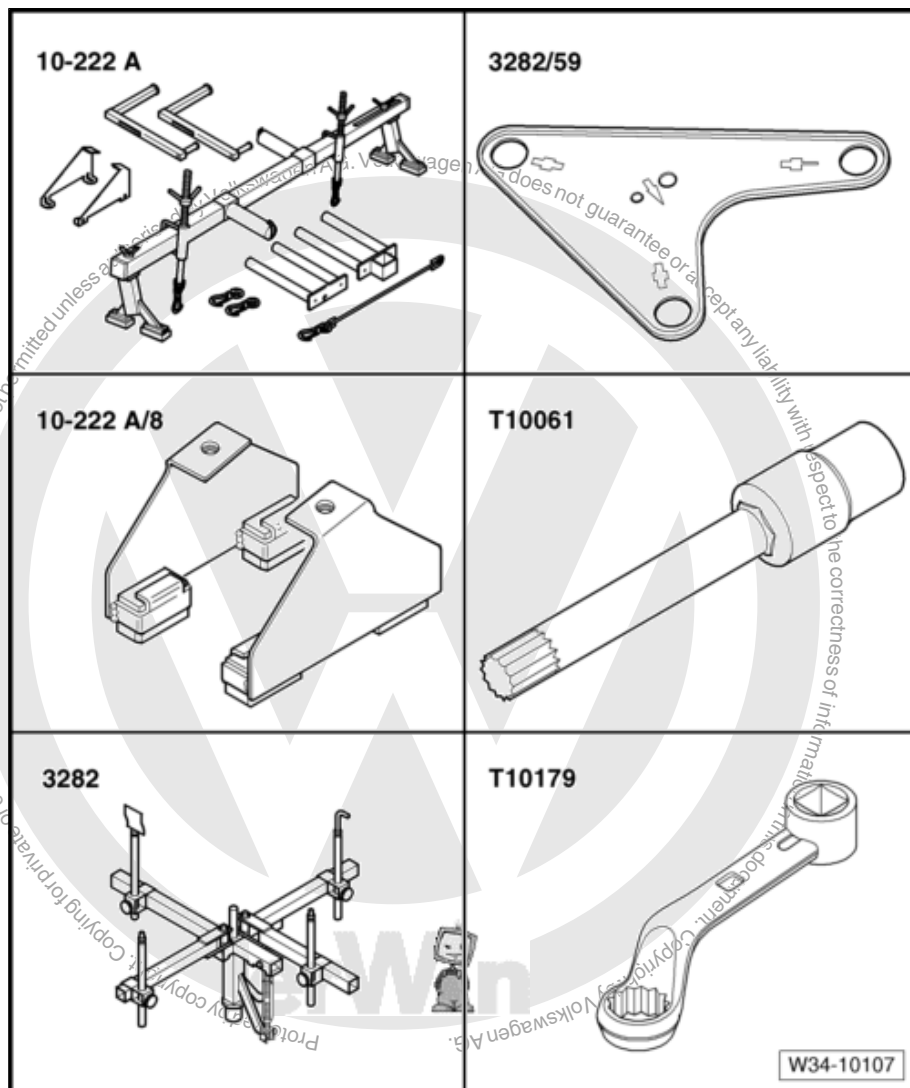




4.4 Removing gearbox - vehicles with 1.9 l/77 kW TDI PD engine

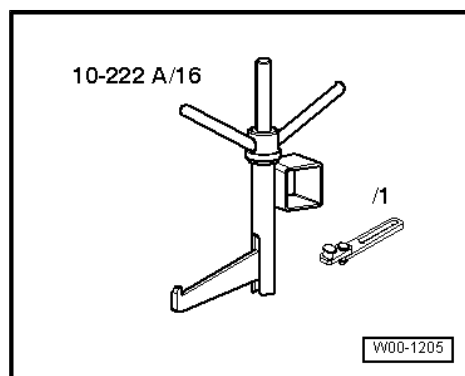
Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adjustment plate -3282/59-
- ◆ Adapter -10 - 222 A /8-
- ◆ Socket -T10061-
- ◆ Gearbox support -3282-
- ◆ Insert tool, 18 mm -T10179-



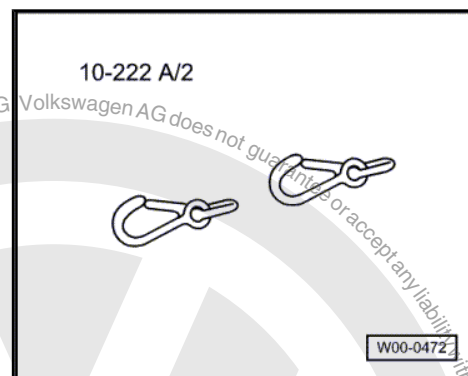
Special tools and workshop equipment required

- ◆ Adapter -10 - 222 A /16-

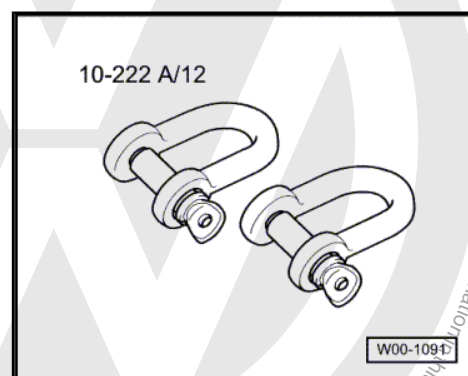




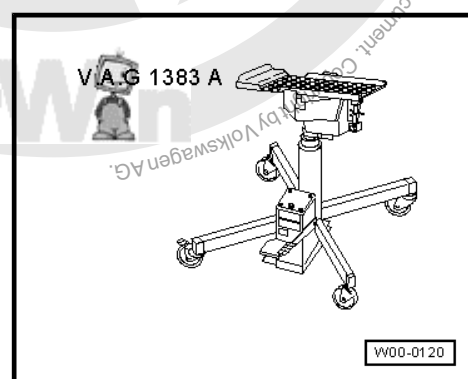
◆ Hook -10 - 222 A /2-



◆ Shackle -10 - 222 A /12-



◆ Engine and gearbox jack -V.A.G 1383 A-



Brief description

The gearbox is removed downwards separately, without engine.

The battery, air filter and starter are removed "from above".

Noise insulation beneath engine/gearbox, lower cover in front left wheel housing and pendulum support are removed "from below".

Perform the following steps:

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position "P" position.

Only in vehicles with stub shafts



Note

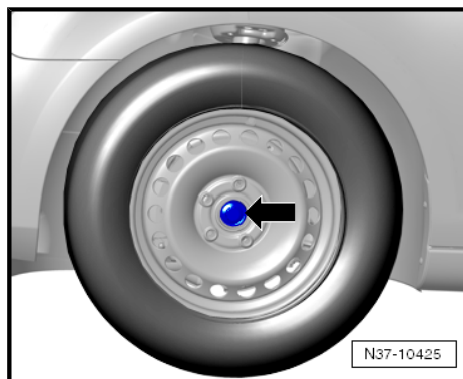
After loosening centre bolt, do not lower vehicle to ground again.



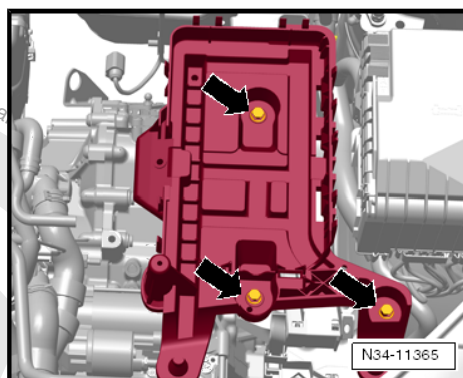
- Step on the brake pedal while a 2nd mechanic loosens the two drive shaft bolts -arrow-.
- Remove both front wheels.

Continuation for all vehicles

- Remove complete air filter housing ⇒ Rep. Gr. 23 ; Removing and installing air filter .



- Remove battery and battery tray ⇒ Rep. Gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Rep. Gr. 27 ; Removing and installing starter .

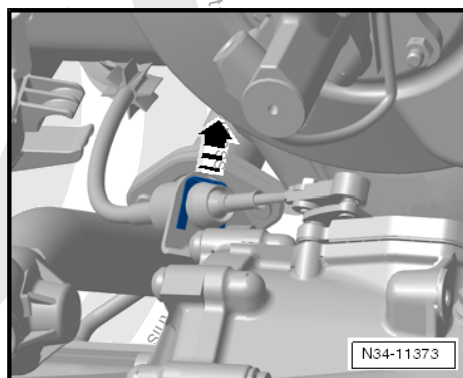


- Remove securing clip in -direction of arrow-.

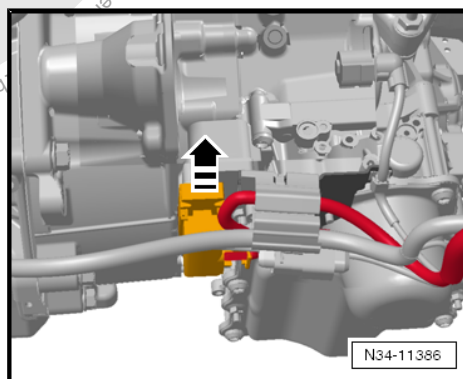
Securing clips for selector lever cable must always be renewed.

- Remove Bowden cable from ball head.

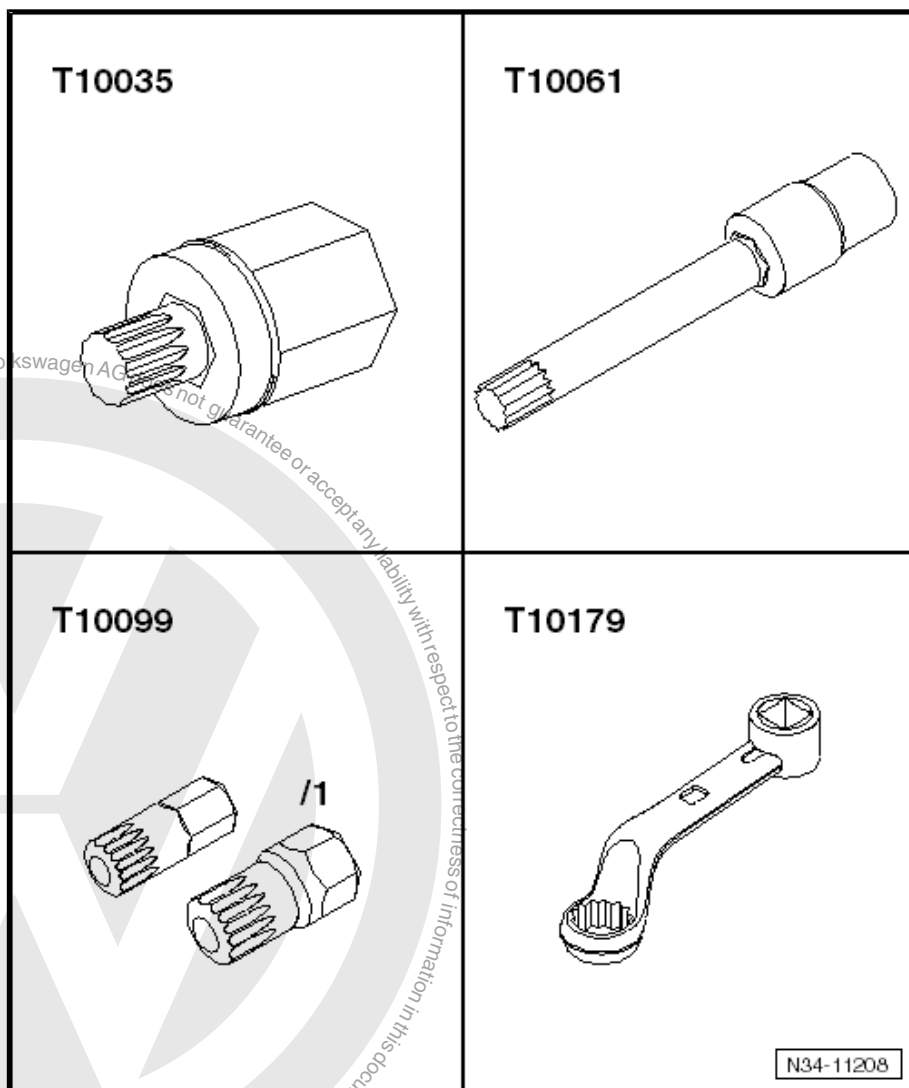
Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.



- Release mechatronic unit connector by pulling and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.



These tools are appropriate for this.



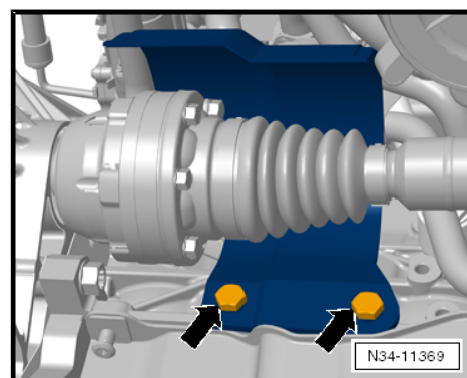
- Remove noise insulation ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing ⇒ Rep. Gr. 66 ; Assembly overview - front wheel housing .

Only in vehicles with stub shafts

- Remove both drive shafts ⇒ Rep. Gr. 40 ; Removing and installing drive shafts .

Only in vehicles with flange shafts

- If fitted, remove the heat shield over the right-hand drive shaft. Tightening torque ⇒ Rep. Gr. 40 ; Repairing drive shafts

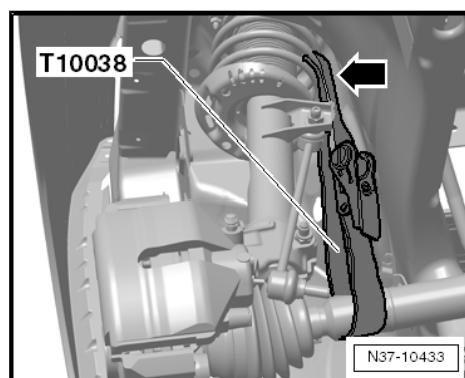
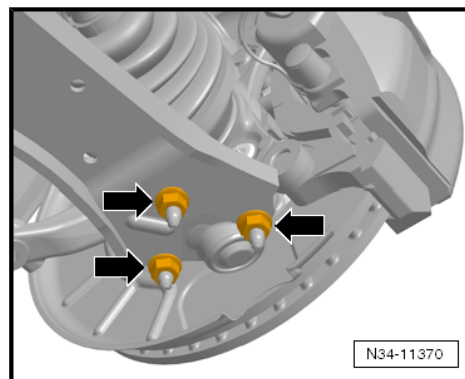




- Unscrew left suspension link from swivel joint.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.

Secure both drive shafts to suspension struts using tensioning straps -T10038- .

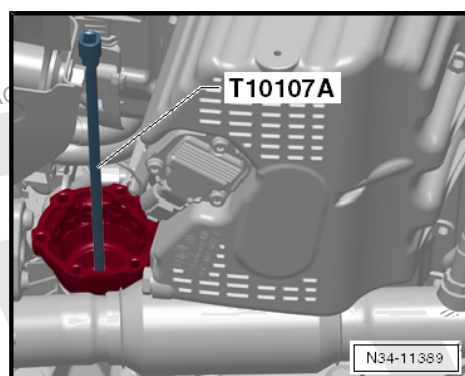


- Remove right flange shaft of gearbox.

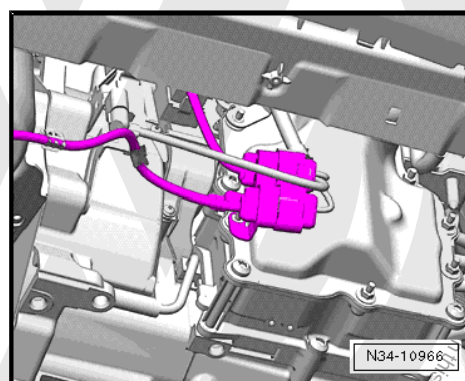
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

Torque setting: 30 Nm

Continuation for all vehicles

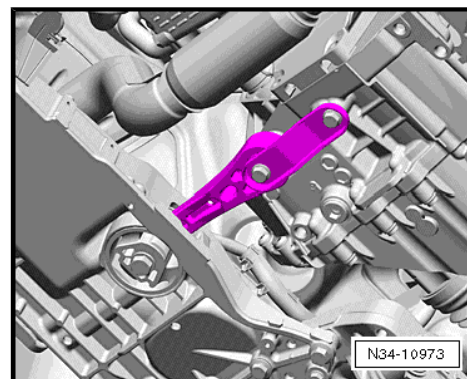


- Remove all retainers and brackets from front of gearbox.

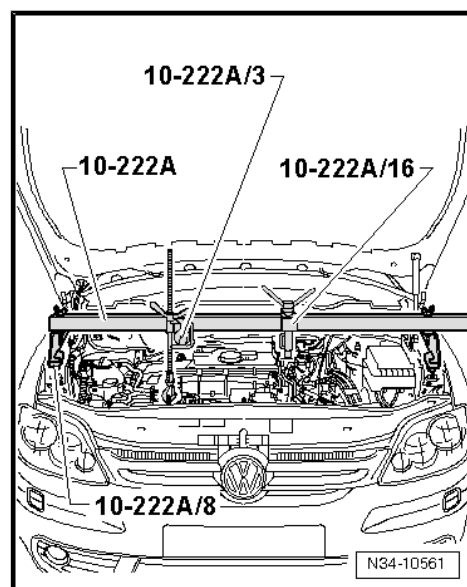




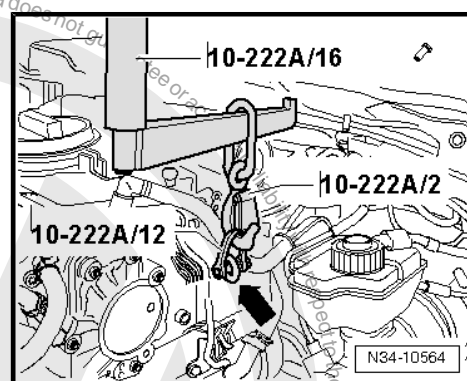
- Remove pendulum support.
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10 - 222 A-, remove these now.
- Remove filler pieces from upper edges of both wings.



- Support engine and gearbox with support bracket -10-222 A- but do not raise.



Secure shackle -10 - 222 A /16- to gearbox housing.

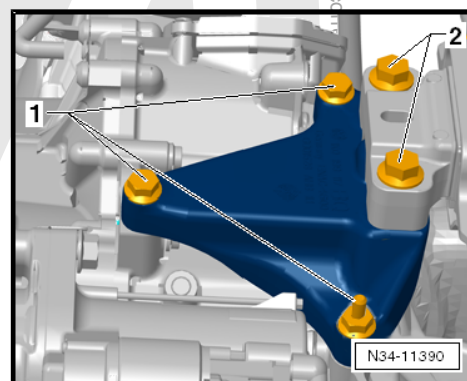


Remove all bolts -1- and -2- for bracket.

- Then lower engine and gearbox slightly using spindles of support bracket -10 - 222 A- or adapter -10 - 222 A /16- so that bracket can be removed.

At most, 5 turns are sufficient to remove bracket.

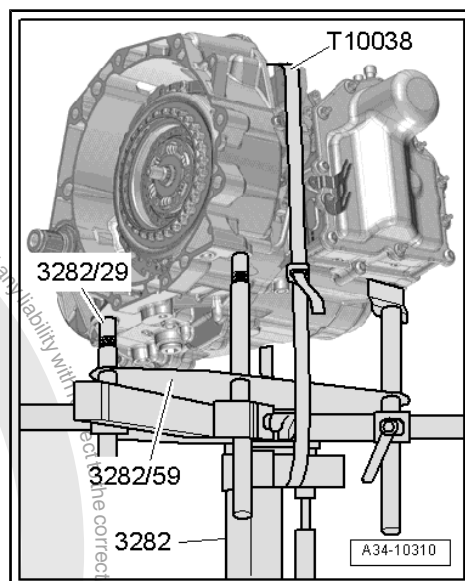
In many cases, the spindle does not need to be lowered further for the later removal of the gearbox.





To remove gearbox 0AM, set up gearbox support -3282- with adjustment plate -3282/59- and push onto engine and gearbox support -V.A.G 1383 A-.

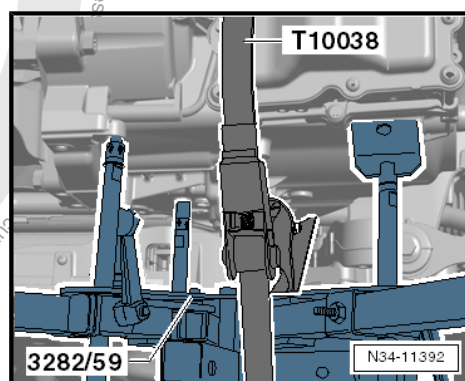
- Align arms of gearbox support according to holes in adjustment plate -3282/59-.
- Screw in support elements as illustrated on adjustment plate -3282/59-.
- Position engine and gearbox jack -V.A.G 1383 A- under vehicle.
- Arrow on adjustment plate -3282/59- points in direction of travel.
- Align gearbox support -3282- parallel to gearbox.
- Screw pin -3282/29- into "rear" hole for pendulum support.



- Place both remaining attachments onto gearbox as shown. When doing this, place sheet metal of drift under gearbox housing and not under mechatronic unit.
- Secure gearbox with tensioning strap -T10038-.
- Raise gearbox and engine support -V.A.G 1383 A- from below to support gearbox.

The gearbox is separated from the engine in this position.

- Remove remaining engine/gearbox connecting bolts.
- Press gearbox off engine, "observing selector lever cable" and lower gearbox.



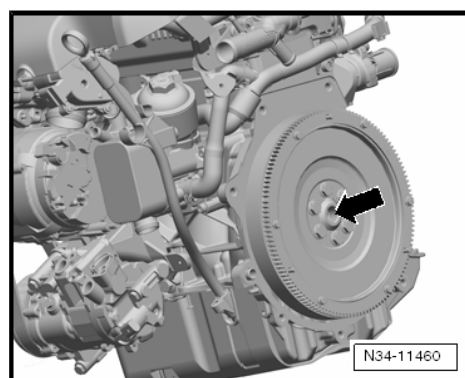
Note

- ♦ *Distance between engine flange and gearbox flange should be about 50 mm before gearbox is lowered.*
- ♦ *Be careful of all lines and coolant hoses when lowering gearbox.*
- Renew needle bearing in crankshaft -arrow- ⇒ Rep. Gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .

Transporting gearbox and securing to assembly stand
⇒ [page 111](#) .

Installing gearbox ⇒ [page 104](#) .

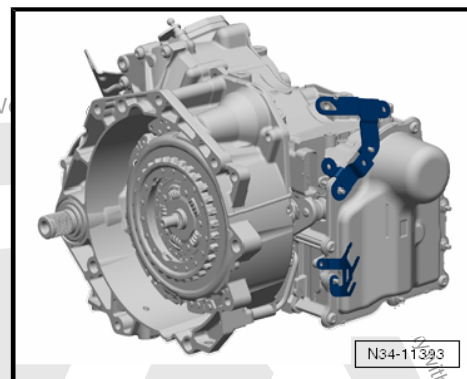
If gearbox is to be sent:





In some cases, there are retainers on the front of the gearbox.

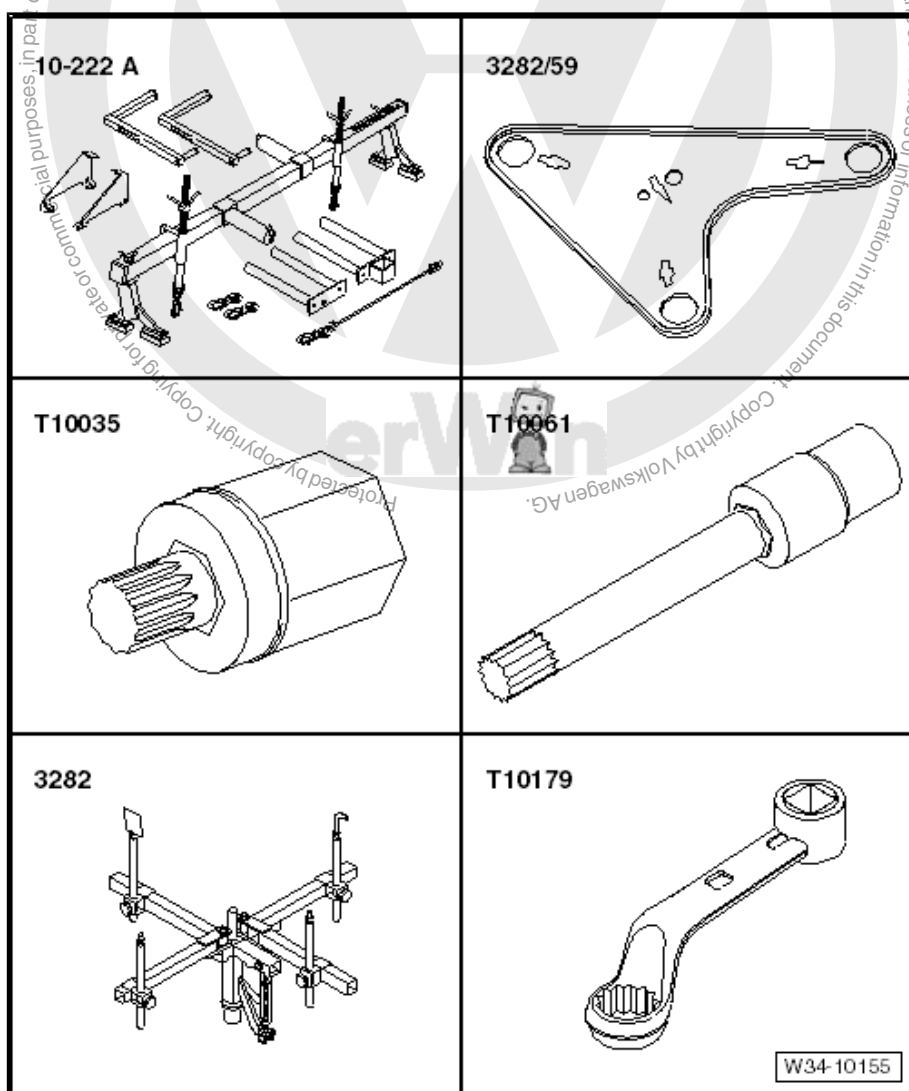
- Remove retainers if installing a “new” gearbox, because there are no retainers on a “new” gearbox.
- Install right flange shaft of gearbox with flange shafts
⇒ [page 118](#) .



4.5 Removing gearbox - vehicles with 1.6 l/77 kW TDI CR engine

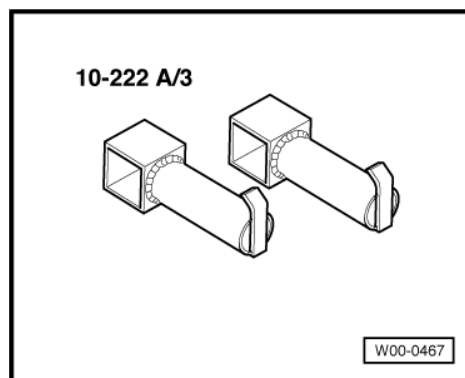
Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adjustment plate -3282/59-
- ◆ Socket -T10035-
- ◆ Socket -T10061-
- ◆ Gearbox support -3282-
- ◆ Insert tool, 18 mm -T10179-

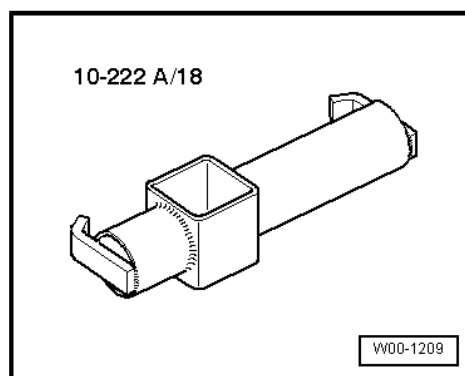




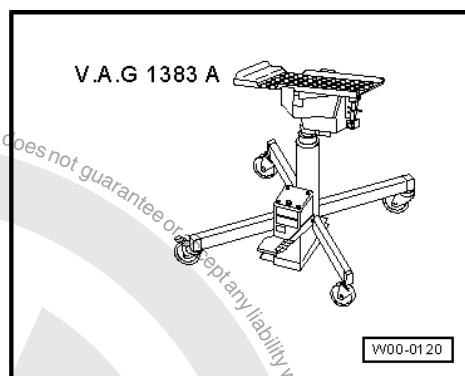
◆ Adapter -10 - 222 A /3-



◆ Adapter -10 - 222 A /18-



◆ Engine and gearbox jack -V.A.G 1383 A-



Brief description

The gearbox is removed downwards separately, without engine.

The battery, air filter and starter are removed "from above".

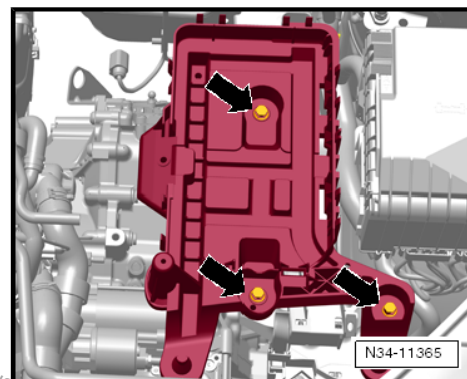
Noise insulation beneath engine/gearbox, lower cover in front left wheel housing and pendulum support are removed "from below".

Perform the following steps:

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position "P" position.
- Remove engine cover from cylinder head.
- Remove complete air filter housing ⇒ Rep. Gr. 23 ; Removing and installing air filter .



- Remove battery and battery tray ⇒ Rep. Gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Rep. Gr. 27 ; Removing and installing starter .

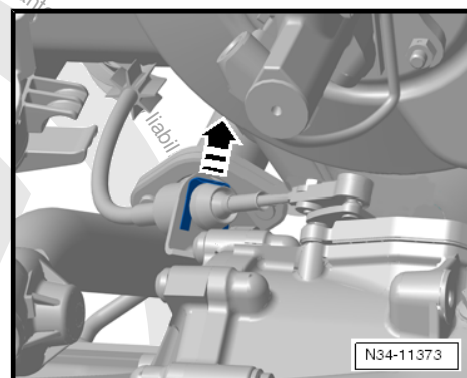


- Remove securing clip in -direction of arrow-.

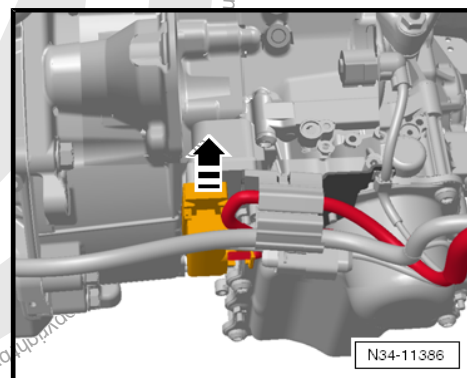
Securing clips for selector lever cable must always be renewed.

- Remove Bowden cable from ball head.

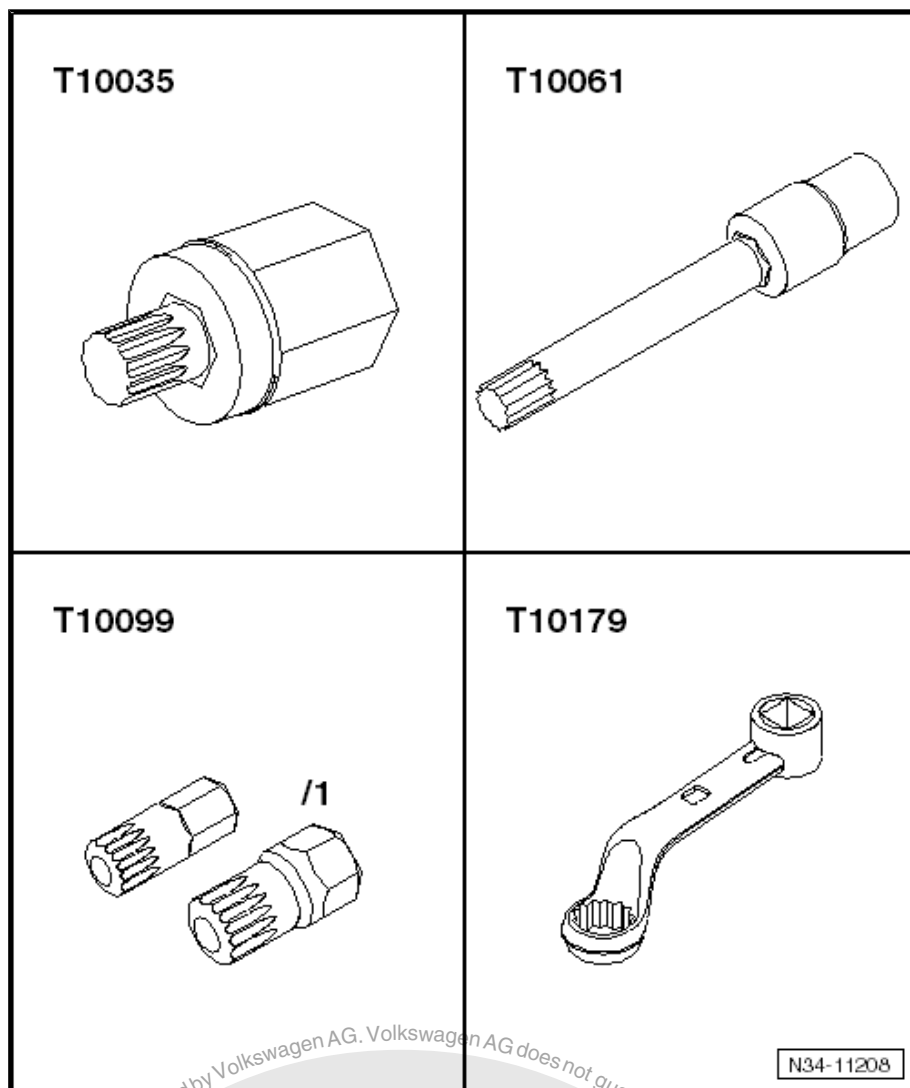
Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.



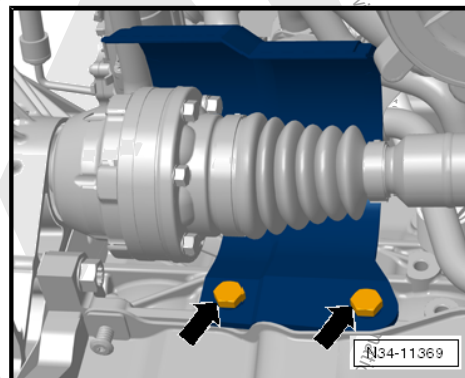
- Release mechatronic unit connector by pulling and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.



These tools are appropriate for this.



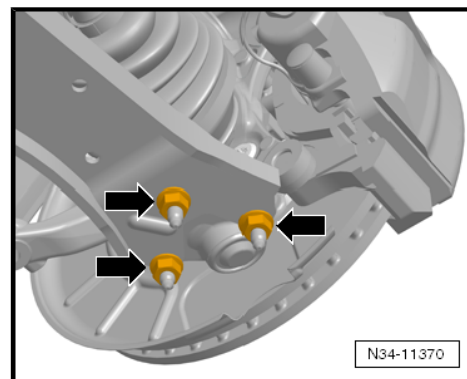
- Remove noise insulation ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing ⇒ Rep. Gr. 66 ; Assembly overview - front wheel housing .
- If fitted, remove the heat shield over the right-hand drive shaft.
Tightening torque ⇒ Rep. Gr. 40 ; Repairing drive shafts



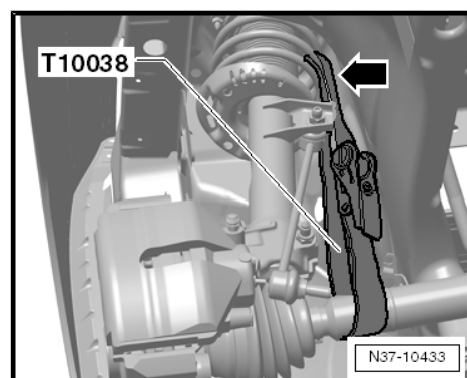


- Unscrew left suspension link from swivel joint.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.



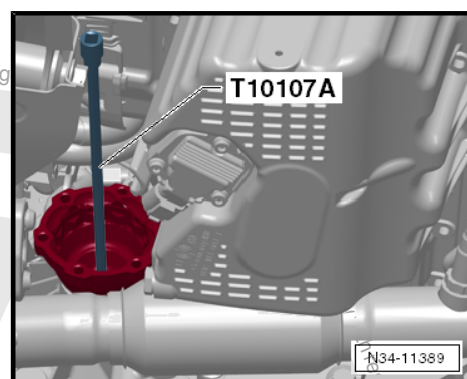
Secure both drive shafts to suspension struts using tensioning straps -T10038- .



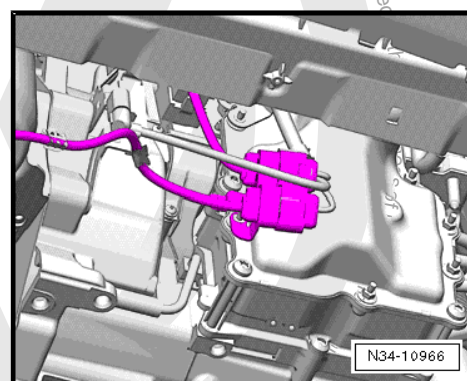
- Remove right flange shaft of gearbox.

Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

Torque setting: 30 Nm

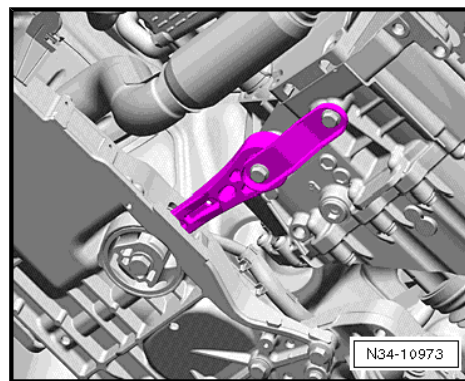


- Remove all retainers and brackets from front of gearbox.

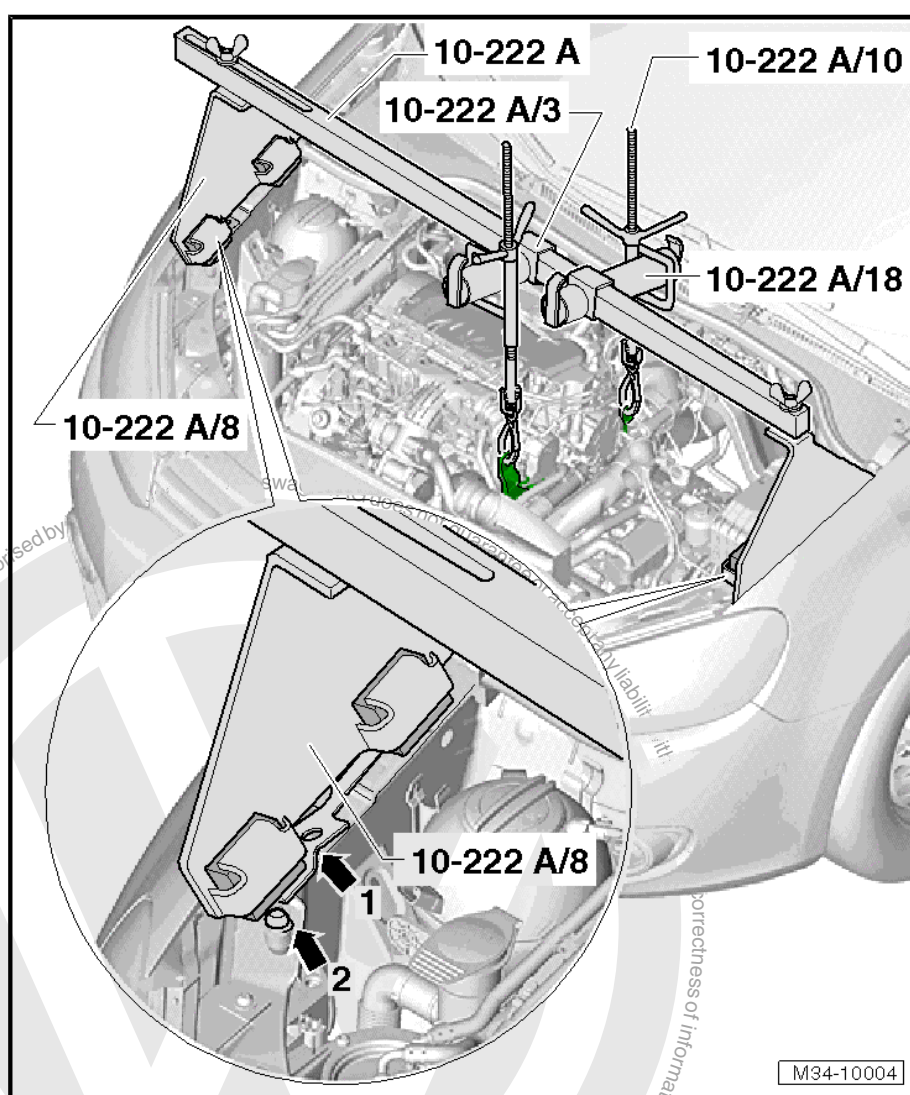




- Remove pendulum support.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222 A-, remove these now.
- Remove filler pieces from upper edges of both wings.



- Support engine and gearbox with support bracket -10-222 A- but do not raise.



- Place adapters -10 - 222 A /8- on upper longitudinal carriers, directly before the raised portion (-arrow 1-) next to bolt (-arrow 2-).

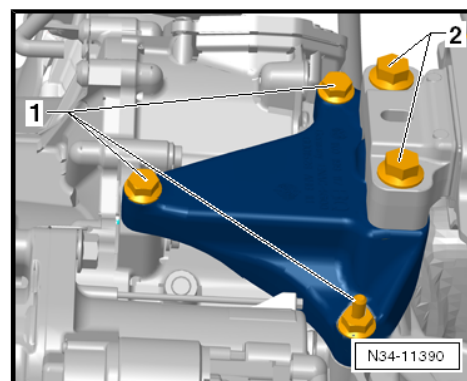


Remove all bolts -1- and -2- for bracket.

- Then lower engine and gearbox slightly using spindles of support bracket -10 - 222 A- so that bracket can be removed.

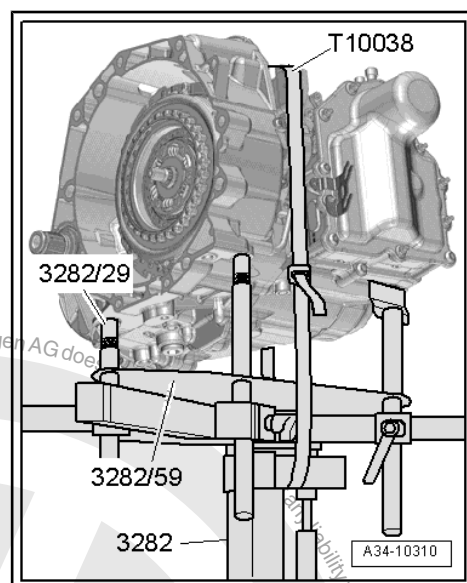
At most, 5 turns are sufficient to remove bracket.

In many cases, the spindle does not need to be lowered further for the later removal of the gearbox.



To remove gearbox 0AM, set up gearbox support -3282- with adjustment plate -3282/59- and push onto engine and gearbox support -V.A.G 1383 A- .

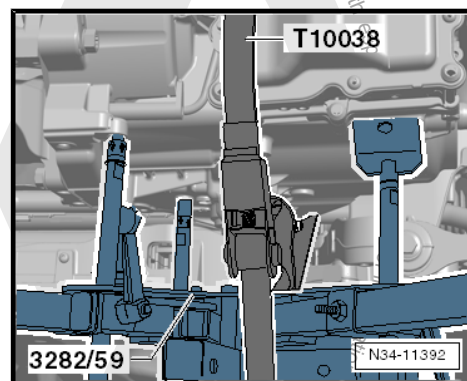
- Align arms of gearbox support according to holes in adjustment plate -3282/59- .
- Screw in support elements as illustrated on adjustment plate -3282/59- .
- Position engine and gearbox jack -V.A.G 1383 A- under vehicle.
- Arrow on adjustment plate -3282/59- points in direction of travel.
- Align gearbox support -3282- parallel to gearbox.
- Screw pin -3282/29- into “rear” hole for pendulum support.



- Place both remaining attachments onto gearbox as shown. When doing this, place sheet metal of drift under gearbox housing and not under mechatronic unit.
- Secure gearbox with tensioning strap -T10038- .
- Raise gearbox and engine support -V.A.G 1383 A- from below to support gearbox.

The gearbox is separated from the engine in this position.

- Remove remaining engine/gearbox connecting bolts.
- Press gearbox off engine, “observing selector lever cable” and lower gearbox.



Note

- ◆ Distance between engine flange and gearbox flange should be about 50 mm before gearbox is lowered.
- ◆ Be careful of all lines and coolant hoses when lowering gearbox.





- Renew needle bearing in crankshaft -arrow- ➔ Rep. Gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .

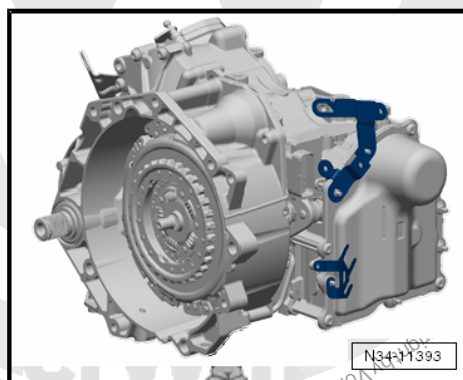
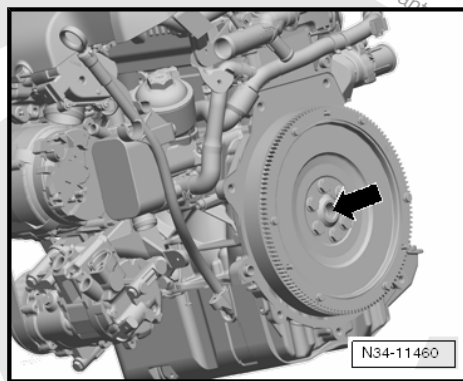
Transporting gearbox and securing to assembly stand
➔ [page 111](#) .

Installing gearbox ➔ [page 104](#) .

If gearbox is to be sent:

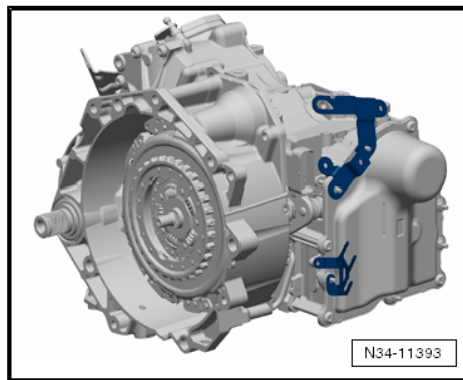
In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a “new” gearbox, because there are no retainers on a “new” gearbox.
- Install right flange shaft of gearbox with flange shafts
➔ [page 118](#) .



4.6 Installing gearbox

- Please read these important work steps before installing gearbox.
- In some cases, there are brackets on the front of the removed gearbox. Attach these brackets to the “new” gearbox.

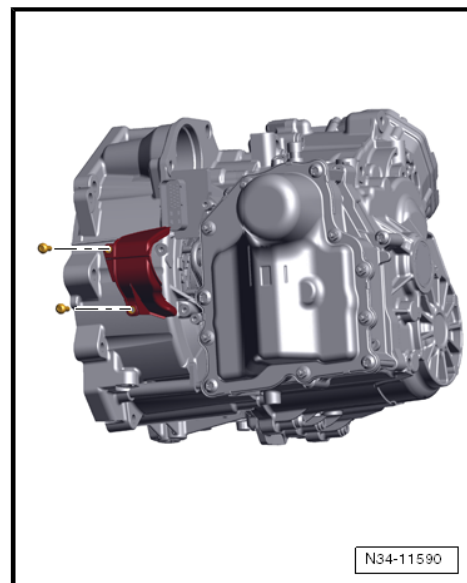




In some vehicles, a cover is fitted over the engaging levers.

The cover prevents dirt getting in.

Torque setting: 8 Nm



Gearbox with stub shafts -A-

Gearbox with flange shafts -B-

In gearboxes with flange shafts, flange shaft must be reinstalled on "new" gearbox in some cases ➔ [page 114](#) .



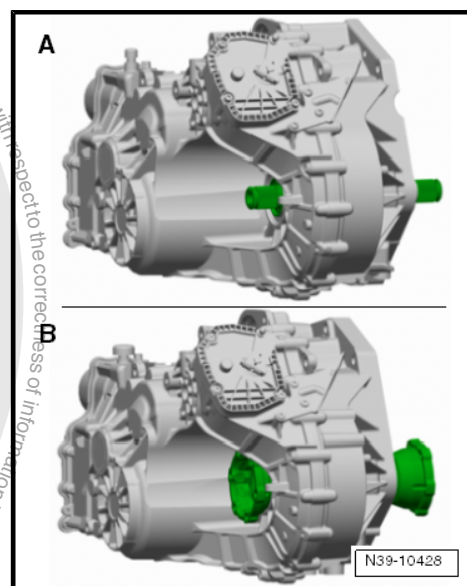
Note

There is no need to renew oil seal for flange shaft when doing this.

- Remove right-hand flange shaft of gearbox in order to install gearbox.

Gearbox with flange shafts, torque setting ➔ [page 118](#) .

Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .





- If it has not already been done, renew needle bearing in crankshaft -arrow- ⇒ Rep. Gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .
- Check for proper seating of both dowel sleeves between engine and gearbox.
- Check for proper seating of intermediate plate.
- Guide selector lever cable as soon as possible into its cable support bracket.

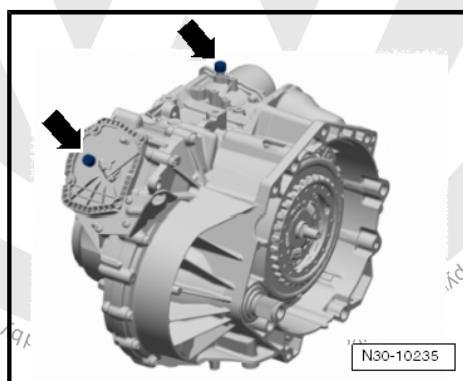
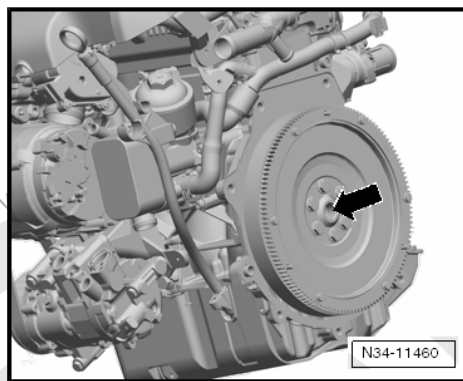
Check Bowden cable as soon as gearbox is raised. Be sure to insert it in cable support bracket "early".

Bowden cable must not be greased.

It must be possible to guide the engine and gearbox together by hand until the engine flange and gearbox flange make contact all around.

If not, "something has gone wrong"!

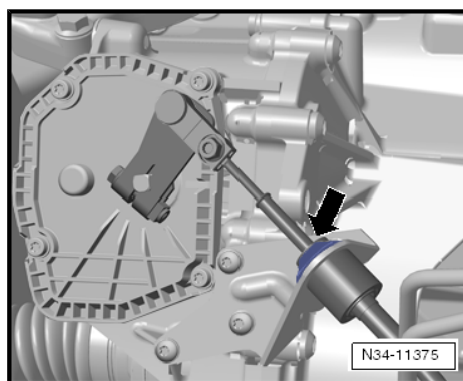
- Readjust gearbox support until engine and gearbox are "aligned with each other".
- Turn crankshaft slightly if necessary.
- After fitting starter motor, check that both breather caps are in place -arrows-!



- Securing clip for selector lever Bowden cable -arrow- must be renewed.

A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

- Therefore, when installing, always use a "new" securing clip.



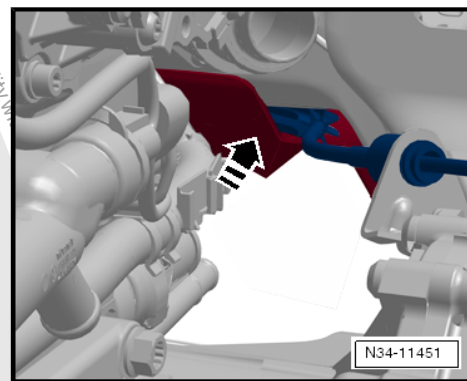


- Ensure that selector lever cable is properly routed during installation -arrow-.

If the sheet metal has been bent downwards when the gearbox was removed, it may cause noises. The cable will vibrate against the sheet metal.

- Observe sheet metal. Press it back up in the tunnel during installation.
- Always adjust selector lever cable ⇒ [page 43](#) .
- Carrying out basic adjustment ⇒ [page 7](#) .

Torque settings for gearbox installation ⇒ [page 107](#) .



4.7 Torque settings “Gearbox to engine” and notes on assembly mounting

The “next chapters” list the torque settings for gearbox installation.

There is also information about the “left” assembly mounting.

Threaded connections that are not directly assigned to the gearbox can be found in the associated assembly groups.

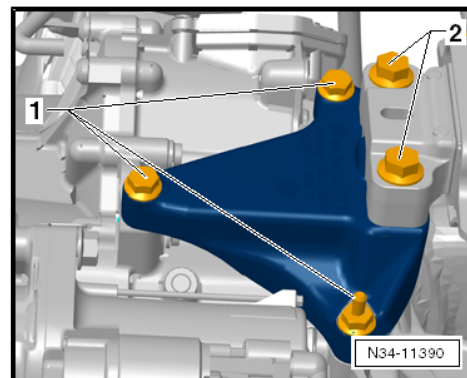
For example: subframe and pendulum support.

The pendulum support on the subframe is part of the running gear.

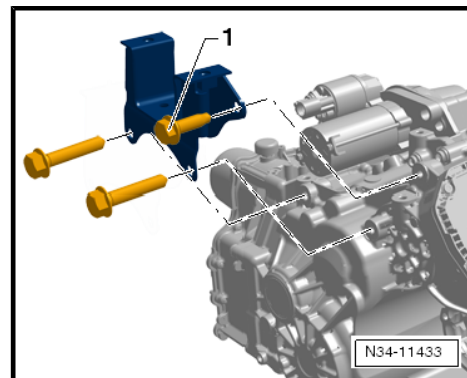
Consequently, further descriptions can also be found in ⇒ Running gear, axles, steering; Rep. Gr. 40 .

Left assembly mounting

- Renew all bolts on left assembly mounting.
- First screw in all bolts by hand.



- First bolt bracket to gearbox -1- with 40 Nm + 90° further turn.





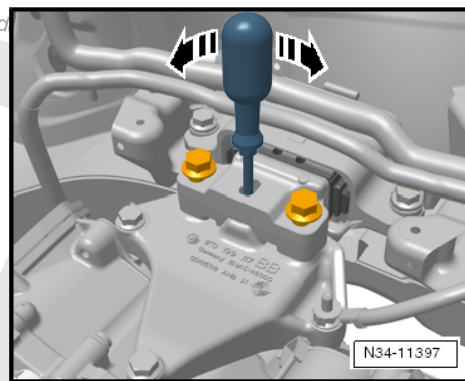
- The bracket can be moved within its seat with a screwdriver when bolts -2- are tightened. Torque setting of -bolts 2-: 60 Nm + 90°.

Starter to gearbox ⇒ Rep. Gr. 27; Removing and installing starter .

Pendulum support to subframe and gearbox ⇒ Rep. Gr. 40 ;
Assembly overview - subframe, anti-roll bar, suspension links .

Gearbox to engine:

- ◆ 1.4 I/90 kW TFSI engine ⇒ [page 108](#)
- ◆ 1.4 I/118 kW TSI engine ⇒ [page 108](#)
- ◆ 1.6 I/75 kW MPI engine ⇒ [page 108](#)
- ◆ 1.9 I/77 kW TDI PD engine ⇒ [page 109](#)
- ◆ 1.6 I/77 kW TDI CR engine ⇒ [page 110](#)



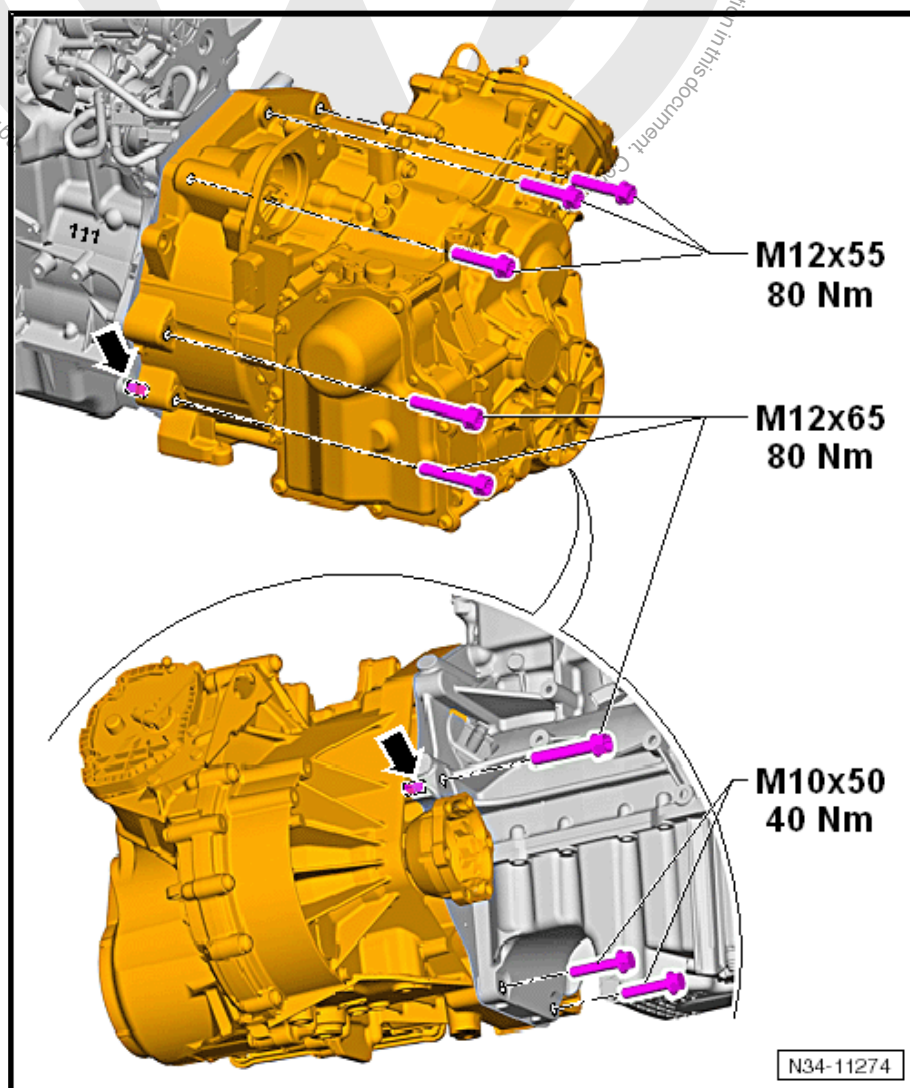
4.7.1 Engines: 1.4 I/90 kW TFSI, 1.4 I/118 kW TSI, 1.6 I/75 kW

M12 - 80 Nm

- If insert 18 mm -T10179- is used: 65 Nm.

M10 - 40 Nm

- Arrows point towards dowel sleeves





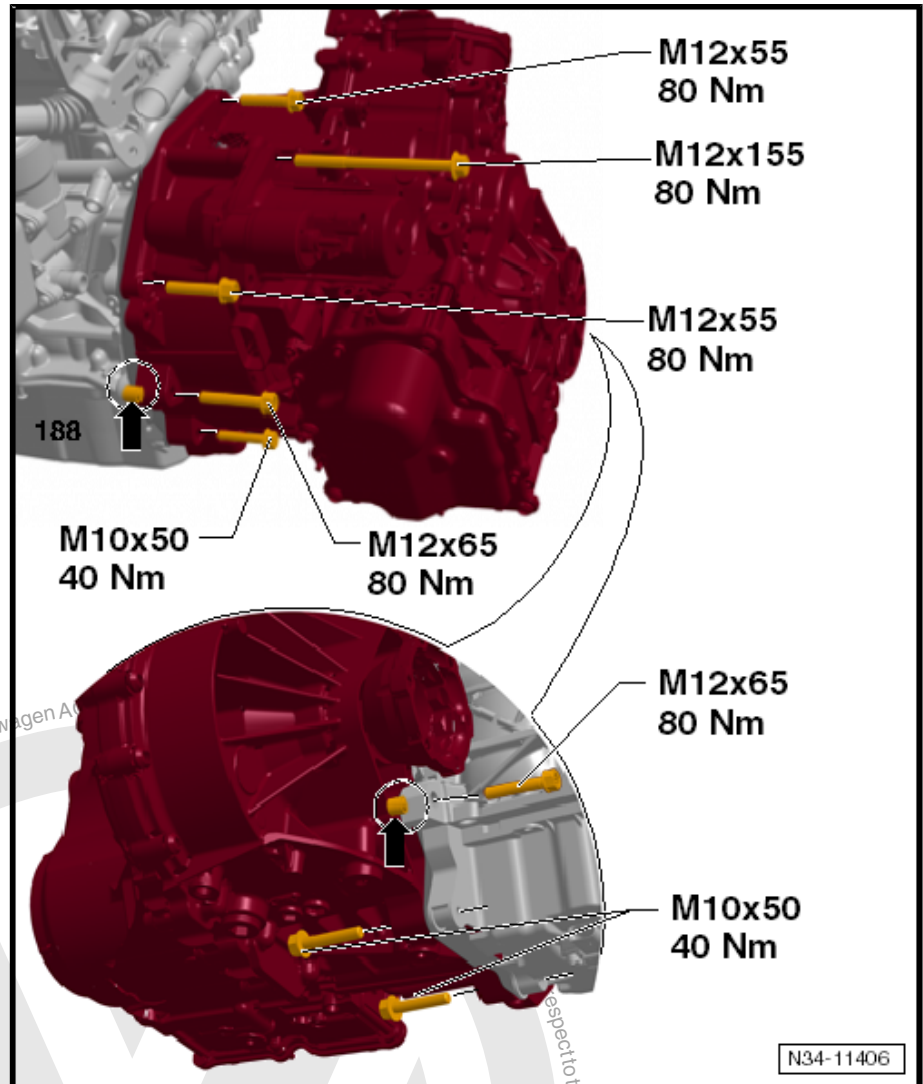
4.7.2 Engine: 1.9 I/77 kW TDI PD

M12 - 80 Nm

- If 18 mm insert - T10179- is used: 65 Nm.

M10 - 40 Nm

- Arrows point towards dowel sleeves





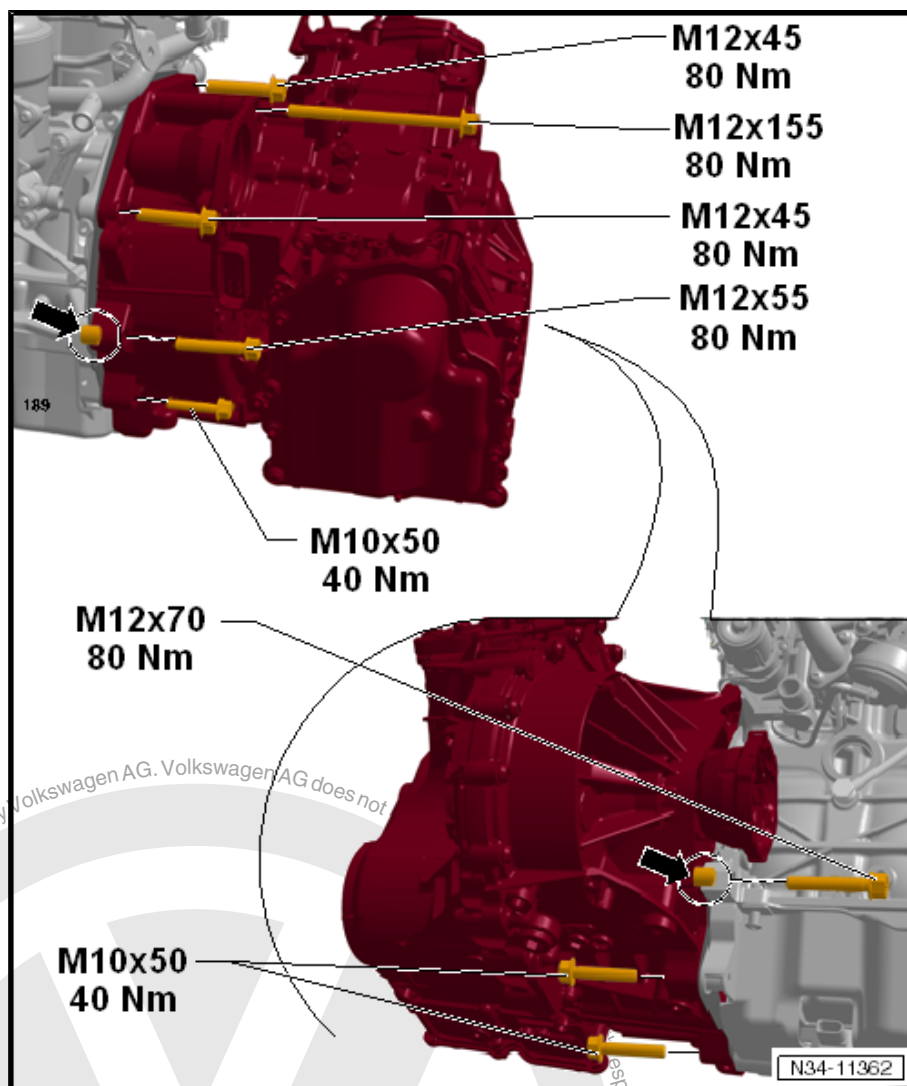
4.7.3 Engine: 1.6 I/77 kW TDI CR

M12 - 80 Nm

- If 18 mm insert -T10179- is used: 65 Nm.

M10 - 40 Nm

- Arrows point towards dowel sleeves

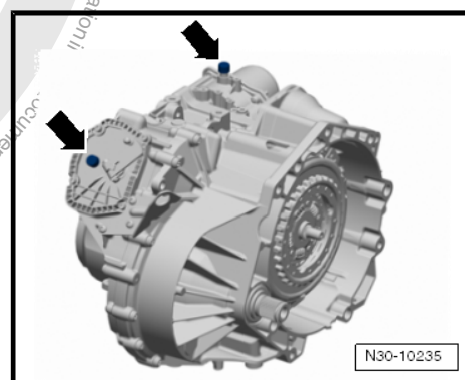
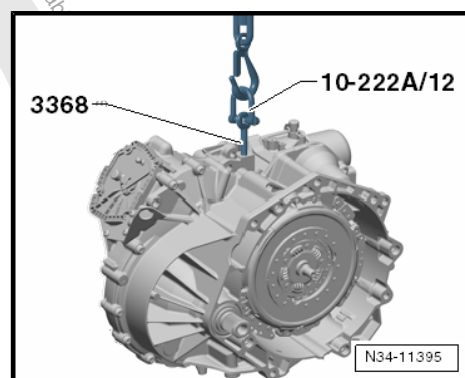




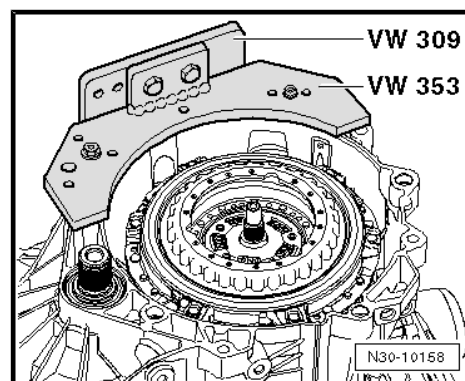
5 Transporting gearbox and securing to assembly stand

Transporting gearbox

- Pull off both breather caps -arrows- and close using suitable plugs to achieve an oil-tight seal.



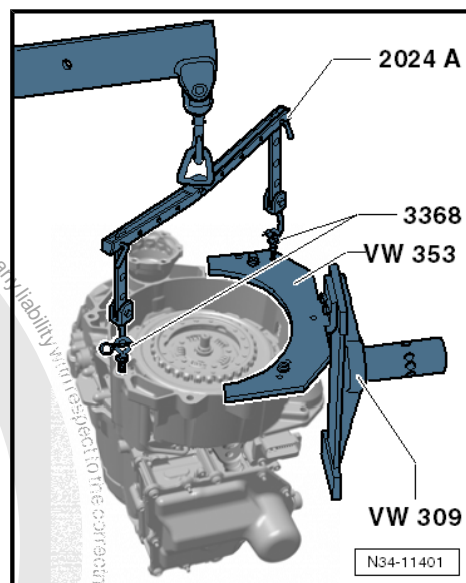
Secure gearbox on gearbox support -VW 353-





Lift gearbox into assembly stand.

The gearbox is lifted "into assembly stand" together with gearbox support -VW 353- .





35 – Gears, shafts

- 1 Currently, no repairs can be made to gears and shafts





39 – Final drive - front differential

1 Oil seals

Gearbox with stub shafts -A-.

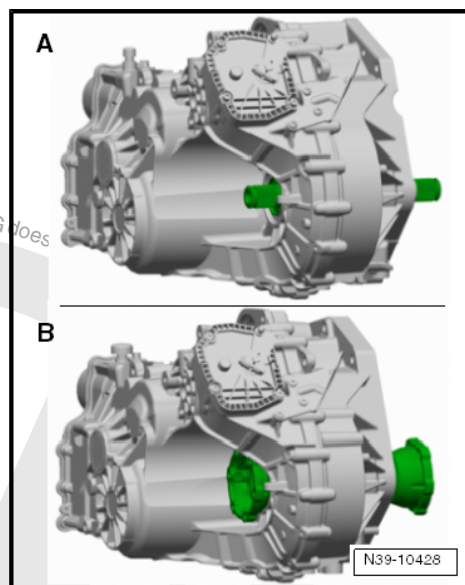
Right ➔ [page 114](#)

Left ➔ [page 116](#)

Gearbox with flange shafts -B-.

Right ➔ [page 118](#)

Left ➔ [page 120](#)

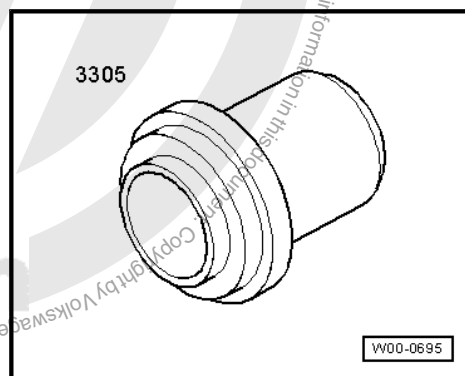


1.1 Renewing oil seal for right stub shaft

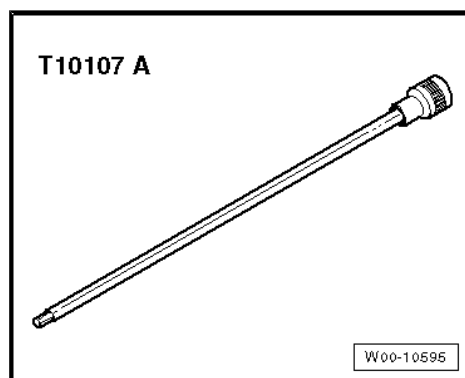
Left-hand side ➔ [page 116](#)

Special tools and workshop equipment required

- ◆ Thrust piece -3305-



- ◆ Hexagon key -T10107 A- or socket and extended bit -V.A.G 1669-



- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1332-



- ◆ Sealing grease -G 052 128 A1-
- ◆ Drip tray

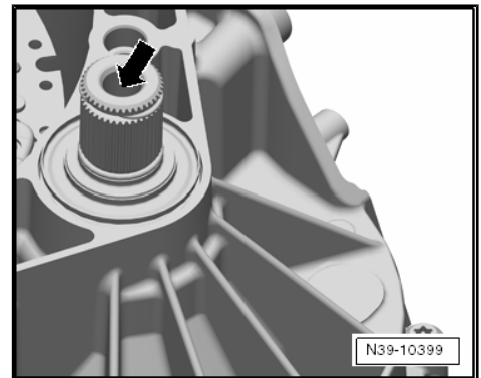
Perform the following steps:



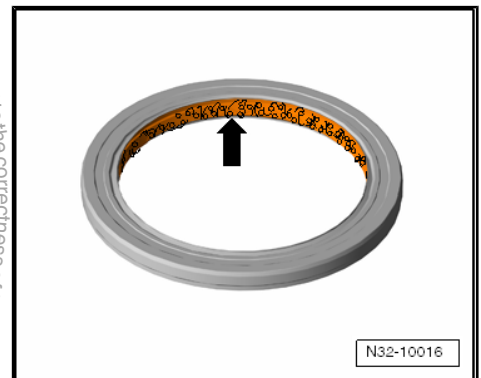
Note

- ◆ *Do not remove both drive shafts from gearbox at the same time. If you do so, it will no longer be possible to hold the opposite front wheel fixed for removing or installing the bolts of the stub shafts.*
- ◆ *Do not remove both stub shafts from gearbox at the same time. If the differential bevel gears turn, it is difficult to reinstall the securing bolts for the stub shafts.*

- Remove drive shaft ⇒ Rep. Gr. 40 ; Removing and installing drive shafts .
- Place drip tray under gearbox.
- Remove bolt -arrow- in stub shaft with socket -T10107 A- or socket -V.A.G 1669- .
- Pull out stub shaft.
- Pry seal out using assembly lever.
- Lightly oil outer circumference of new oil seal.



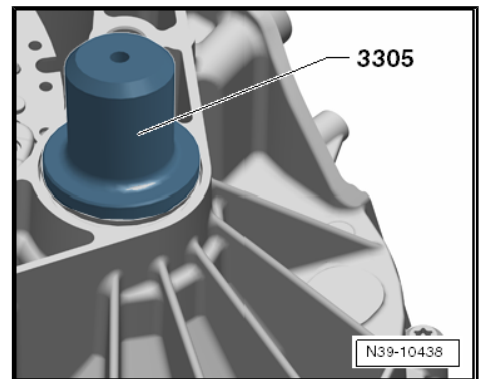
- Half fill space between sealing lip and dust lip with sealing grease -G 052 128- -arrow-.



- Drive in new seal to stop, being careful not to cant seal.

If necessary, it is possible to press a new dust ring onto the stub shaft using tube -2010- . Do not use a hammer.

- Insert stub shaft.
- Tighten new countersunk bolt for stub shaft to 30 Nm.
- Reinstall drive shaft ⇒ Rep. Gr. 40 ; Removing and installing drive shafts .
- Renew gear oil ⇒ [page 30](#) .
- Install noise insulation; torque settings ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .



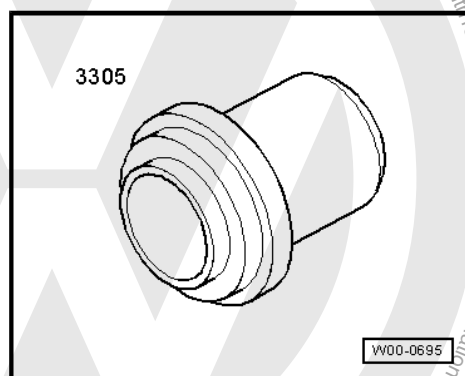


1.2 Renewing oil seal for left stub shaft

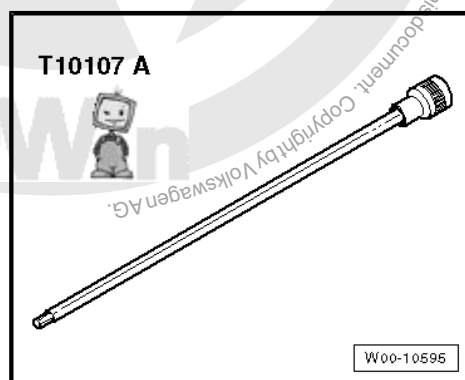
Right side ⇒ [page 114](#) .

Special tools and workshop equipment required

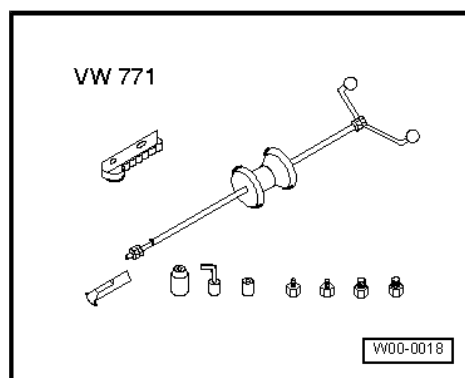
- ◆ Thrust piece -3305-



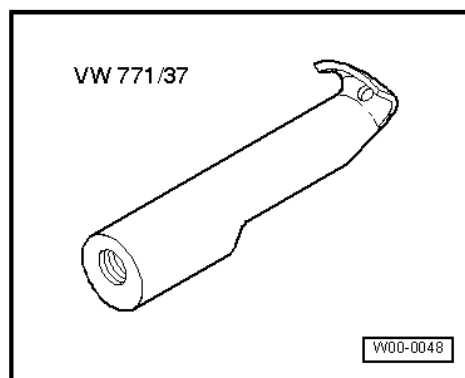
- ◆ Hexagon key -T10107 A- or socket and extended bit -V.A.G 1669-



- ◆ Multipurpose tool -771-



- ◆ Puller hooks -771/37-



- ◆ Torque wrench -V.A.G 1331-



- ◆ Torque wrench -V.A.G 1332-
- ◆ Sealing grease -G 052 128 A1-
- ◆ Drip tray

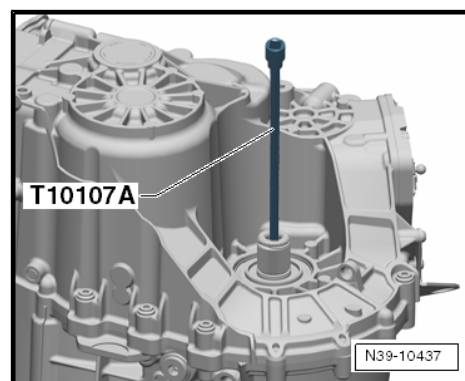
Perform the following steps:



Note

- ◆ *Do not remove both drive shafts from gearbox at the same time. If you do so, it will no longer be possible to hold the opposite front wheel fixed for removing or installing the bolts of the stub shafts.*
- ◆ *Do not remove both stub shafts from gearbox at the same time. If the differential bevel gears turn, it is difficult to reinstall the securing bolts for the stub shafts.*

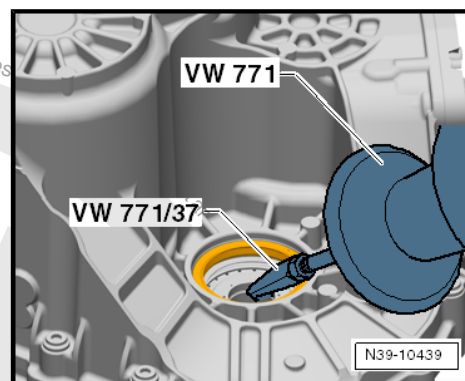
- Remove drive shaft ⇒ Rep. Gr. 40 ; Removing and installing drive shafts .
- Place drip tray under gearbox.
- Remove bolt -arrow- in stub shaft with socket -T10107 A- or socket -V.A.G 1669- .
- Pull out stub shaft.



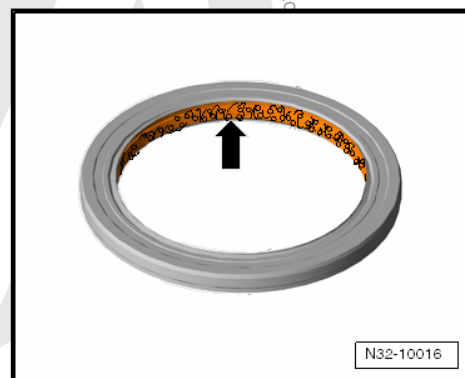
- Pull out stub shaft oil seal with multi-purpose tool -VW 771- and puller hooks -VW 771/37-.

Seal can also be removed using extractor tool -T20143- .

- Lightly oil outer circumference of new oil seal.



- Half fill space between sealing lip and dust lip with sealing grease -G 052 128- -arrow-.

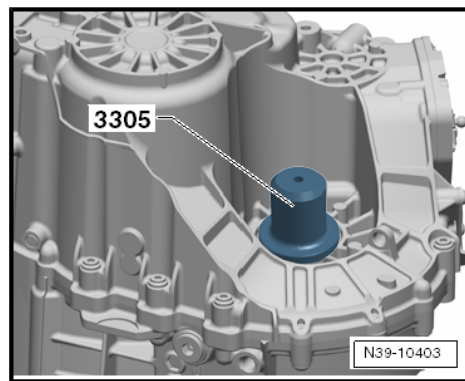




- Drive in new seal to stop, being careful not to cant seal.

If necessary, it is possible to press a new dust ring onto the stub shaft using drift sleeve -40 - 20-. Do not use a hammer.

- Insert stub shaft.
- Tighten new countersunk bolt for stub shaft to 30 Nm.
- Reinstall drive shaft ⇒ Rep. Gr. 40 ; Removing and installing drive shafts .
- Renew gear oil ⇒ [page 30](#) .
- Install noise insulation; torque settings ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .

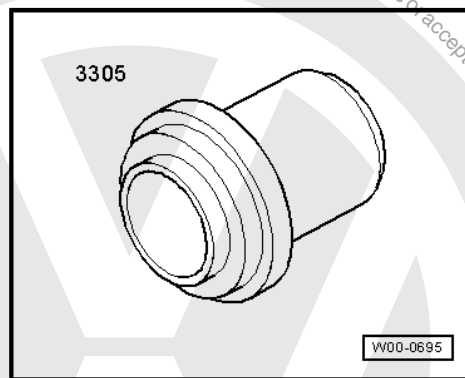


1.3 Renewing seal for right flange shaft

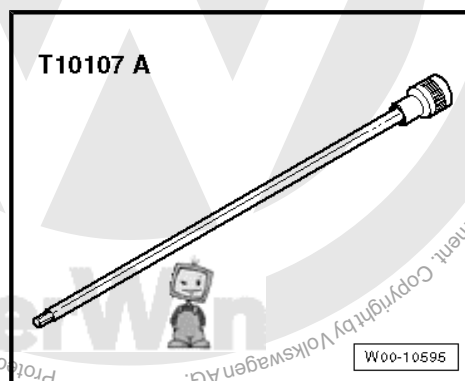
Left-hand side ⇒ [page 120](#)

Special tools and workshop equipment required

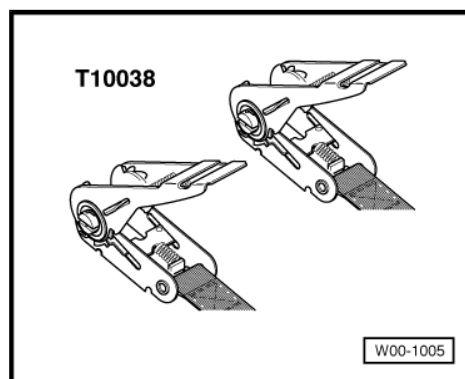
- ◆ Thrust piece -3305-



- ◆ Hexagon key -T10107 A- or socket and extended bit -V.A.G 1669-



- ◆ Tensioning strap -T10038-



- ◆ Torque wrench -V.A.G 1331-



- ◆ Torque wrench -V.A.G 1332-
- ◆ Sealing grease -G 052 128 A1-
- ◆ Drip tray

Perform the following steps:

Note

- ◆ *Do not remove both flange shafts from gearbox at the same time. If the differential bevel gears turn, it is difficult to reinstall the securing bolts for the flange shafts.*
- ◆ *Remove drive shaft from gearbox and lay to side. Drive shaft is fixed onto suspension strut with tensioning belt -T10038- .*
- ◆ *You do not need to remove the centre bolt of the drive shaft.*

– Remove noise insulation ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .

– Remove drive shaft heat shield from engine -arrows-, if fitted.

Unbolt drive shaft from gearbox.

– Place drip tray under gearbox.

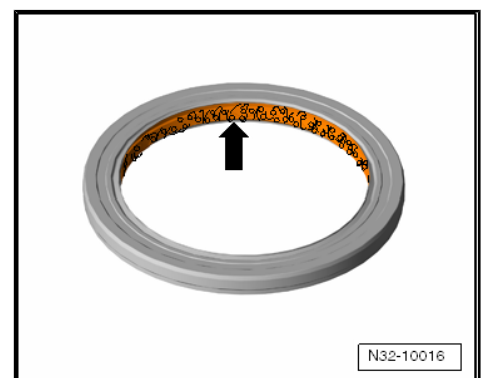
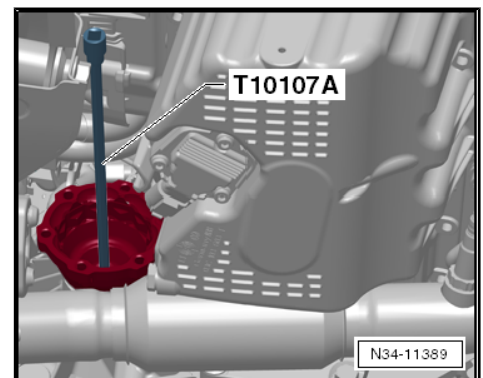
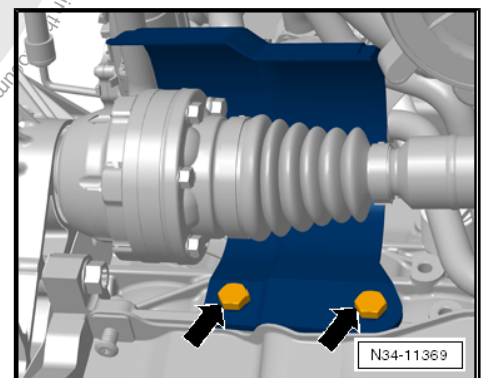
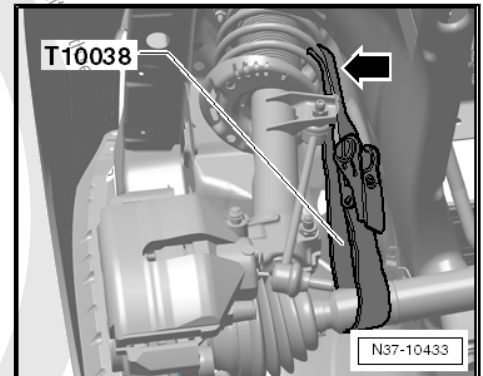
– Raise drive shaft as high as possible and secure. Take care not to damage paint on drive shaft in the process.

– Remove right flange shaft of gearbox.

Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

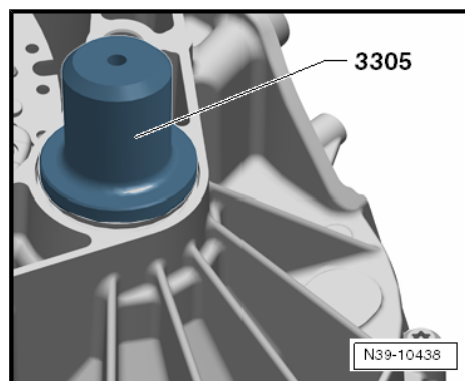
- Pull out flange shaft.
- Pry seal out using assembly lever.
- Lightly oil outer circumference of new oil seal.

– Half-fill space between sealing lip and dust lip of new seal with sealing grease -G 052 128- -arrow-.





- Drive in new seal to stop with thrust piece -3305-, being careful not to cant seal.
- Insert flange shaft.
- Tighten new countersunk bolt to 30 Nm. When doing this, press flange shaft against gearbox so that bolt engages in thread.
- Fit drive shaft back on ⇒ Rep. Gr. 40 ; Removing and installing drive shafts .
- Renew gear oil ⇒ [page 30](#) .
- Install noise insulation; torque settings ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .

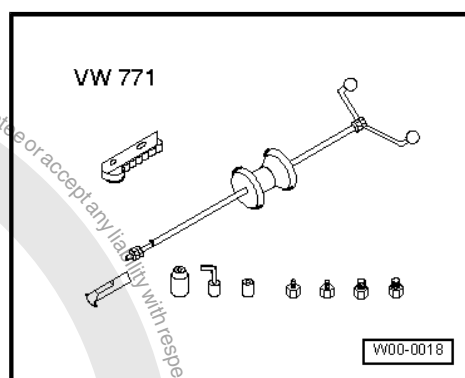


1.4 Renewing oil seal for left flange shaft

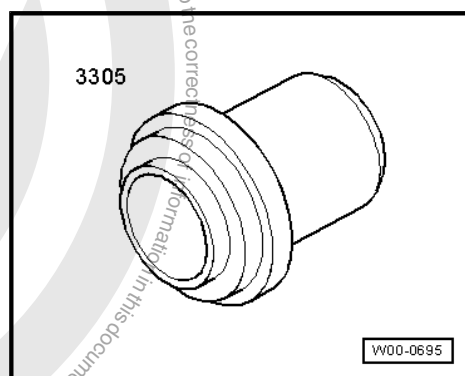
Right side ⇒ [page 118](#)

Special tools and workshop equipment required

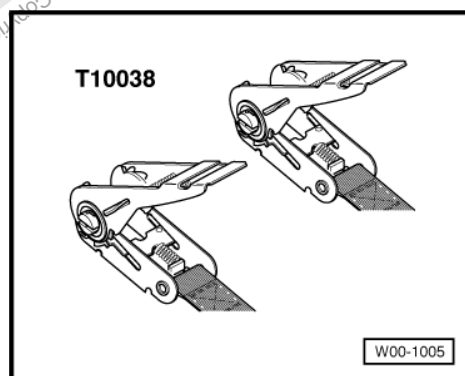
- ◆ Multipurpose tool -VW 771-



- ◆ Thrust piece -3305-

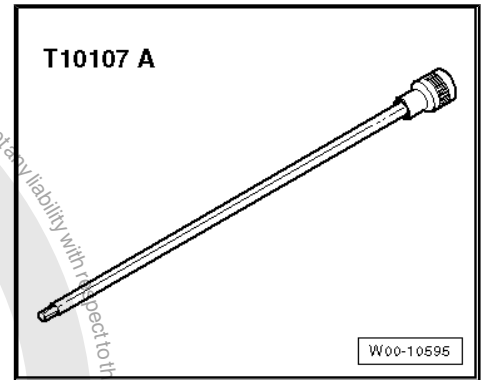


- ◆ Tensioning strap -T10038-





- ◆ Hexagon key -T10107-A- or socket and extended bit -V.A.G 1669-



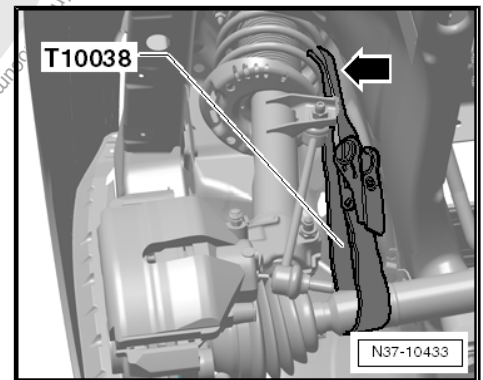
- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Sealing grease -G 052 128 A1-
- ◆ Drip tray

Perform the following steps:



Note

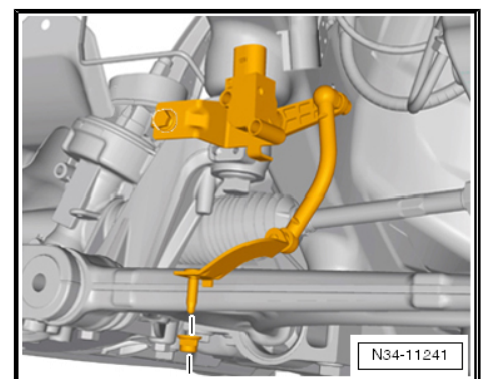
- ◆ *Do not remove both securing bolts in left and right flange shafts at the same time. If the differential bevel gears turn, it is difficult to reinstall the bolts.*
- ◆ *Remove drive shaft from gearbox and carefully lay to side. Drive shaft is fixed onto suspension strut with tensioning belt -T10038- .*
- ◆ *You do not need to remove the centre bolt of the drive shaft.*



- Remove noise insulation ⇒ Rep. Gr. 50 ; Assembly overview - noise insulation .
- Remove left wheel housing liner⇒ Rep. Gr. 66 ; Assembly overview - front wheel housing liner .
- If present: Unbolt front left vehicle level sender -G78- from suspension link.

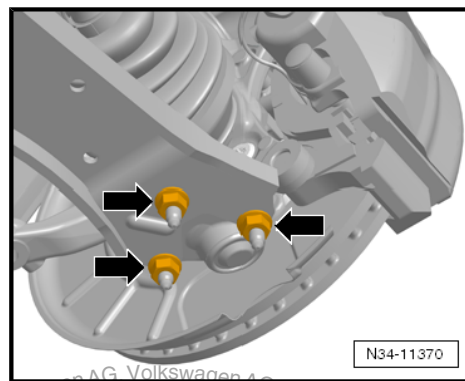
Torque setting for removing and installing ⇒ Rep. Gr. 40 ; front left vehicle level sender -G78- .

- Turn steering wheel to left lock and remove left drive shaft from flange shaft ⇒ Rep. Gr. 40 ; Removing and installing drive shafts .

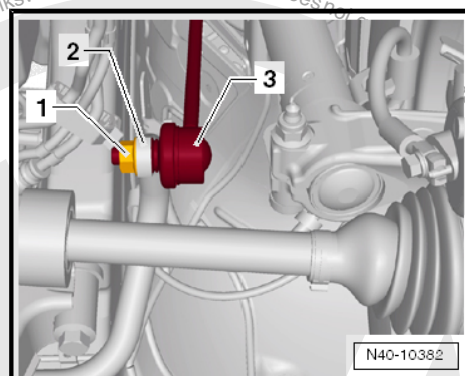




- Only unscrew left suspension link from swivel joint.



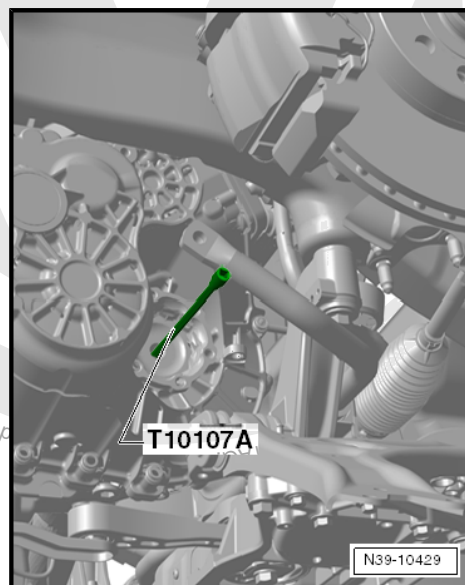
- Unscrew nut -1- from coupling rod -3- ⇒ Rep. Gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links.
- Pull off coupling rod and turn anti-roll bar -2- upwards slightly.
- Swing left drive shaft into wheel housing.
- Raise drive shaft as high as possible and secure. Take care not to damage paint on drive shaft in the process.
- Place drip tray under gearbox.



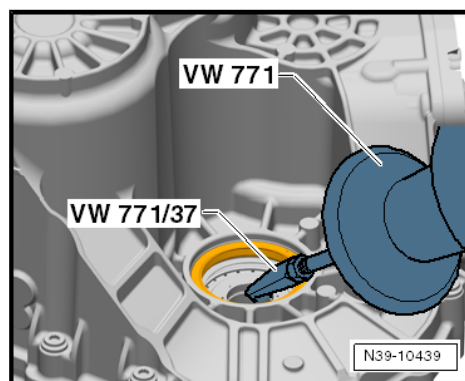
- Remove left flange shaft of gearbox.

Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

- Pull out flange shaft.

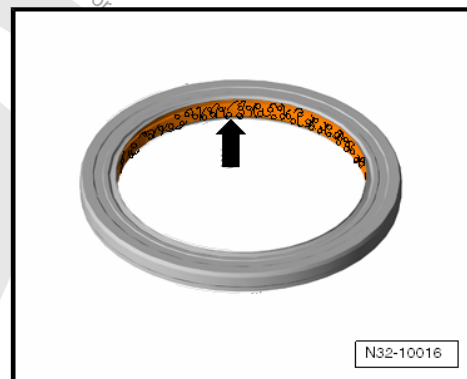


- Remove flange shaft oil seal.
- Lightly oil outer circumference of new oil seal.

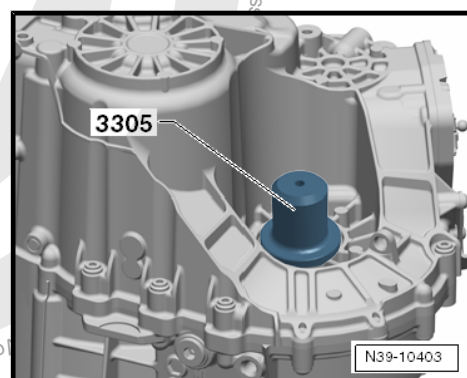




- Half-fill space between sealing lip and dust lip of new seal with sealing grease -G 052 128- -arrow-.



- Drive in new seal to stop with thrust piece -3305- , being careful not to cant seal.
- Insert flange shaft.
- Tighten new countersunk bolt to 30 Nm. When doing this, press flange shaft against gearbox so that bolt engages in thread.
- Fit drive shaft back on ➤ Rep. Gr. 40 ; Removing and installing drive shafts .



- Fit suspension link and coupling rod back on ➤ Rep. Gr. 40 ; Removing and installing drive shafts .
- Renew gear oil ➤ [page 30](#) .
- Install noise insulation; torque settings ➤ Rep. Gr. 50 ; Assembly overview - noise insulation .

