



Workshop Manual

CC 2010 ▶ , Eos 2006 ▶ , Golf 2004 ▶ ,
Golf 2009 ▶ , Golf Plus 2005 ▶ ,
Golf Plus 2009 ▶ , Passat 2006 ▶ ,
Passat CC 2009 ▶ , Polo 2010 ▶ ,
Scirocco 2009 ▶ , Touran 2003 ▶

7-speed dual clutch gearbox 0AM

Edition 07.2012





List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 30 - Clutch
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- 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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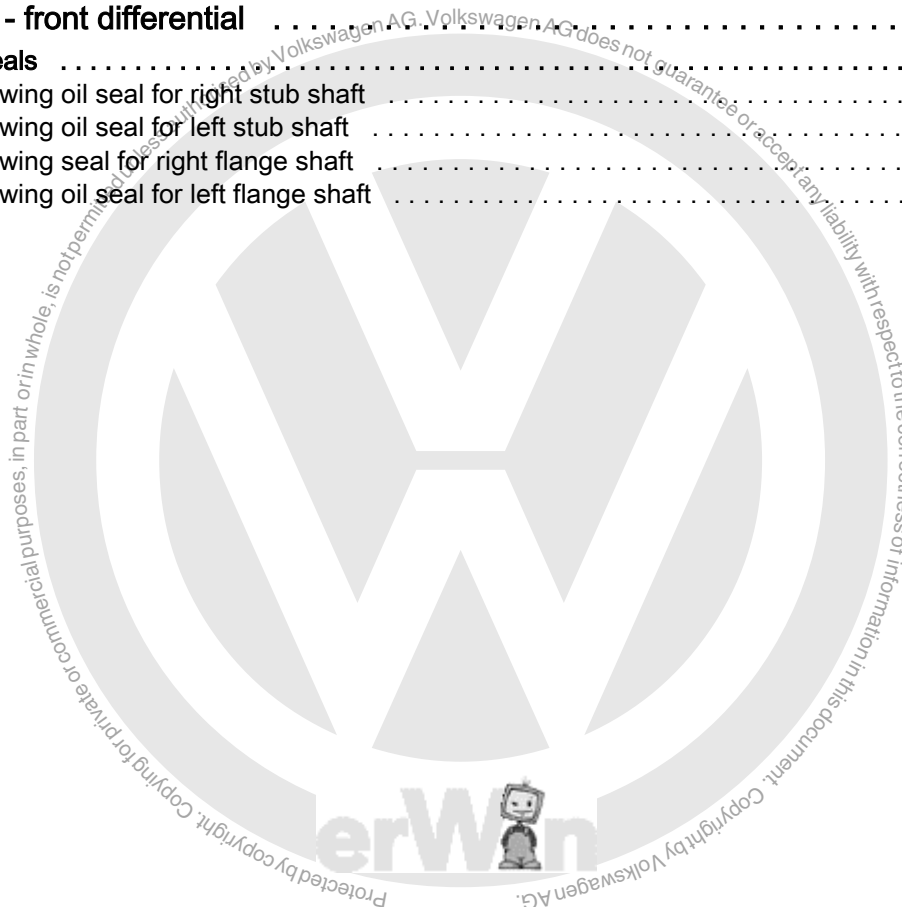
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00 – Technical data

1 Gearbox identification

(VRL004968; Edition 07.2012)

KHN - Gearbox code letters

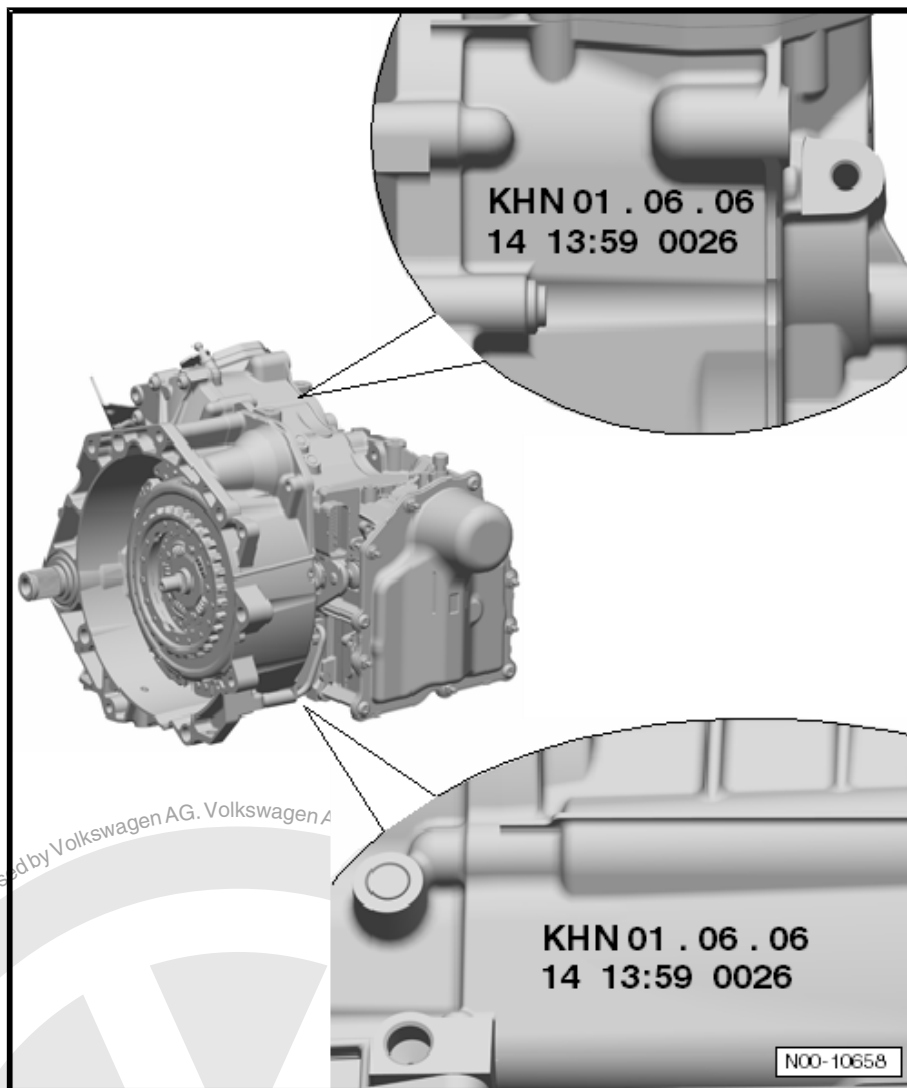
⇒ [page 5](#)

01. 06.06 - Production date:
1 June 2006

14 - Factory code

14 15 - Time

0026 - Serial number

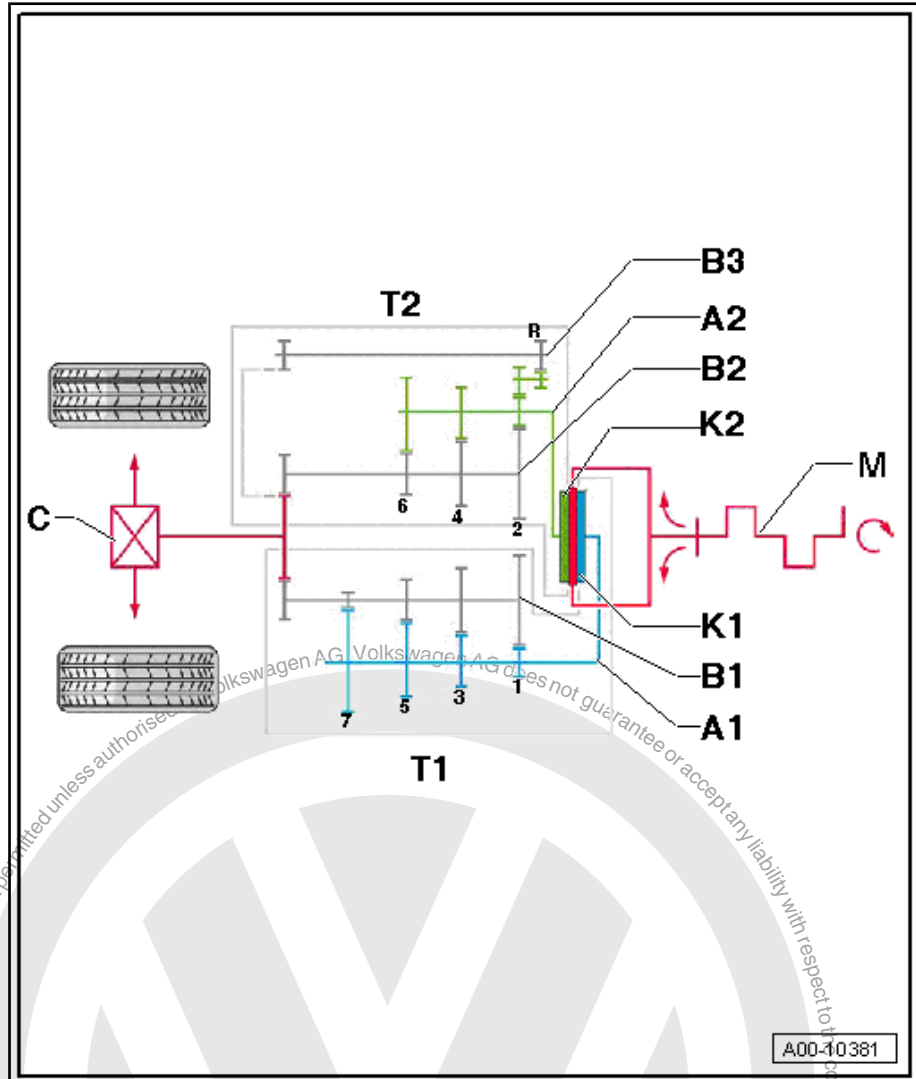




2 Overview - power transmission

The 7-speed dual clutch gearbox 0AM is configured as a 5 shaft gearbox. There are two input shafts and three output shafts.

- A1 - Input shaft 1
- A2 - Input shaft 2
- B1 - Output shaft 1
- B2 - Output shaft 2
- B3 - Output shaft 3
- C - Front final drive
- K1 - Dual clutch 1
- K2 - Dual clutch 2
- M - Engine
- T1 - Sub-gearbox 1
 - with gears 1, 3, 5 and 7
- T2 - Sub-gearbox 2
 - with gears 2, 4, 6 and reverse gear R





3 Code, engine allocation

3.1 Polo 2010 ►

Take account of the gearbox code if spare parts are required for a repair.


Allocation: gearbox codes for petrol engines		
»LWX«, MGQ, MLG, MPN, NAX, NBD, NQG, NTV	MGV, MLN, MPU, NBD, NQN, NUC	MPP, NAY, NTW, NQH
1.4 l - 63 kW	1.2 l - 63, 66, 77 kW	1.4 l - 132 kW

Allocation: gearbox codes for diesel engines		
»KJB«, MLM, MPT, NBC, NQM, NUB		
1.6 l - 66 kW		

3.2 Touran 2003 ►

Take account of the gearbox code if spare parts are required for a repair.

Allocation: gearbox codes for petrol engines		
LPL, LKP, LWW, MGM, MLD, MPK, MUV, NAU, NAZ, NQA	LQM, »LWW«, MGM, MLD, MPK, NAU	LKP, LPL, LWW, MGM, MLD, MPK, NAU
1.4 l - 103 kW	1.4 l - 110 kW	1.4 l - 125 kW

Allocation: gearbox codes for diesel engines		
LQN, MLE, MPL, NAV	KHM, LKF, LKL, LPH, LSR, MGJ	
1.6 l - 77 kW TDI	1.9 l - 77 kW TDI	

3.3 Golf 2004 ►

Take account of the gearbox code if spare parts are required for a repair.

Allocation: gearbox codes for petrol engines		
KHN, LKG, LKM, LWZ, MGK		
1.4 l - 90 kW FSI		

Allocation: gearbox codes for diesel engines		
KHM, LKL, LKF, LPH, LSR, MGJ		
1.9 l - 77 kW TDI		

3.4 Passat CC 2009 ►; CC 2010 ►

Take account of the gearbox code if spare parts are required for a repair.

Allocation: gearbox codes for petrol engines			
»KHN«, LKG, LKM	LKP	MLD, MPK, NAU, NQC	LKN, LPK, LSS, MLC, MGL



Allocation: gearbox codes for petrol engines			
1.4 l - 90 kW FSI	1.4 l - 110 kW	1.4 l - 118 kW	1.8 l - 112, 118 kW

3.5 Passat 2006 ▶

Take account of the gearbox code if spare parts are required for a repair.

Allocation: gearbox codes for petrol engines			
LKG, LKM, KHN, LPJ, LQK, LWZ, LXA, MLB, MPH	LKP, LQM, MLD	LKN, LPK, LSS, MLC, MLG	LWW
1.4 l - 90 kW FSI	1.4 l - 110, 118 kW	1.8 l - 112, 118 kW	1.4 l - 110 kW Eco-Fuel

3.6 Golf 2009 ▶

Take account of the gearbox code if spare parts are required for a repair.

Allocation: gearbox codes for petrol engines		
MLJ, MPQ, NBA, NQK, NTZ	MGU, MLJ, MPQ, NBA, NQK, NTZ	»LKG«, LKM, LPJ, LWZ, MGK, MLB, MPH, NBA, NQK, NTZ
1.2 l - 63 kW FSI	1.2 l - 77 kW FSI	1.4 l - 90 kW FSI

Allocation: gearbox codes for petrol engines		
»KUT«, LKP, LKJ, LPL, LWW, MGM, MLD, MPK, MSL, MUV, NAU, NAZ, NQA, NQJ, NTP, NTX	»LPN«, LYG, LKJ, LSU, MGP, MLF, MPM, NAW, NQF, NTU	LSS, MGL, MPJ
1.4 l - 118 kW TSI	1.6 l - 75 kW	1.8 l - 118 kW

Allocation: gearbox codes for diesel engines		
LYG, LST, LKQ, KTZ, LQN, MGN, MLE, MPL, NKA, NQE, NTT		
1.6 l - 77 kW		

3.7 Golf Plus 2009 ▶

Take account of the gearbox code if spare parts are required for a repair.

Allocation: gearbox codes for petrol engines			
MGU, MLJ, MPQ, NBA, NQK, NTZ	»LKM«, LPJ, LWZ, KHN, LKG MGK, MLB, MPH, NBA, NQK, NTZ	LYG, LKJ, LPN, LSU, MGP, MLF, MPM, NAW, NQF, NTU	»LKP«, LPL, LWW, KUT, MGM, MLD, MPK, MYR, NAU, NQA, NTP
1.2 l - 63, 77 kW TSI	1.4 l - 90 kW FSI	1.6 l - 75 kW TSI	1.4 l - 118 kW TSI



Allocation: gearbox codes for diesel engines	
KHM, LKQ, LPM, LST, LQN, MGN, MLE, MPL, NKA, NQE, NTT	LKL, LKF, KHM
1.6 l - 77 kW TDI	1.9 l - 77 kW

3.8 Golf Plus 2005 ►, Cross Golf

Take account of the gearbox code if spare parts are required for a repair.

Allocation: gearbox codes for petrol engines	
»KHN«, LKG, LKM	»KUT«, LKP
1.4 l - 90 kW FSI	1.4 l - 118 kW TSI

Allocation: gearbox codes for diesel engines	
KHM, LKF	KHM
1.6 l - 77 kW TDI	1.9 l - 77 kW TDI

3.9 Scirocco 2009 ►

Take account of the gearbox code if spare parts are required for a repair.

Allocation: gearbox codes for petrol engines	
»LKG«, LKM, NAS, NBA, NQK, NTZ	»KUT«, LKP, LKJ, LPL, LQM, LWW, MSL, MUV, MYQ, MYR, NAU, NAZ, NQA, NQJ, NTP, NTX
1.4 l - 90 kW FSI	1.4 l - 118 kW TSI

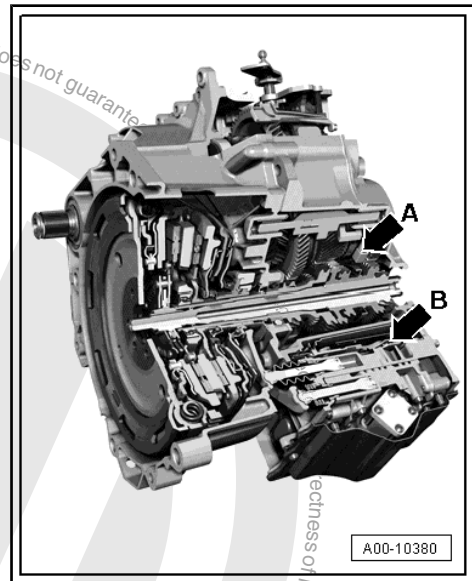


4 Capacities

The 7-speed dual clutch gearbox has two separate and different oil systems. One for the gear oil part -arrow A- and one for the hydraulic fluid part -arrow B-.

Capacities	Gear oil part
Initial filling	1.7 l
Change	No change necessary
Lubricant	Gear oil for dual clutch gearbox 0AM Part number ⇒ Electronic parts catalogue "ETKA"

Capacities	Hydraulic fluid part in mechatronic unit for dual clutch gearbox -J743-
Initial filling	1 l
Change	No change necessary
Lubricant	Hydraulic fluid Part number ⇒ Electronic parts catalogue "ETKA"



Further information in the part number designates the container size.



Caution

Risk of damage to gearbox:

- ◆ **Only the gear oil for the 7-speed dual clutch gearbox 0AM, which is available through the replacement parts system, may be used ⇒ Electronic parts catalogue "ETKA".**
- ◆ **Other oils will lead to malfunctions or failure of the gearbox.**
- ◆ **It is not possible to check the fill level of the hydraulic fluid part of the mechatronic unit for dual clutch gearbox -J743-. Before installation/removal work, the breather of the mechatronic unit for dual clutch gearbox -J743- must be sealed so that no oil can escape.**
- ◆ **If any oil escapes from the hydraulic fluid part of the mechatronic unit for dual clutch gearbox -J743-, it is not possible to replenish it or check the level!**
- ◆ **If oil escapes from the gear oil part, it can only be rectified by changing the gear oil. It is not possible to check the fill level.**
- ◆ **If the level of oil/fluid is too high or too low in either of the parts, the function of the gearbox will be impaired.**

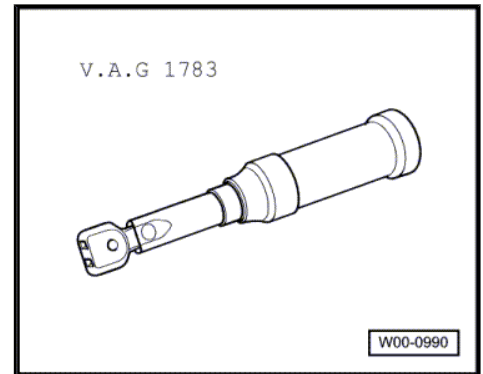


5 General repair notes

Edition 07.2012 version 23.0

5.1 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.



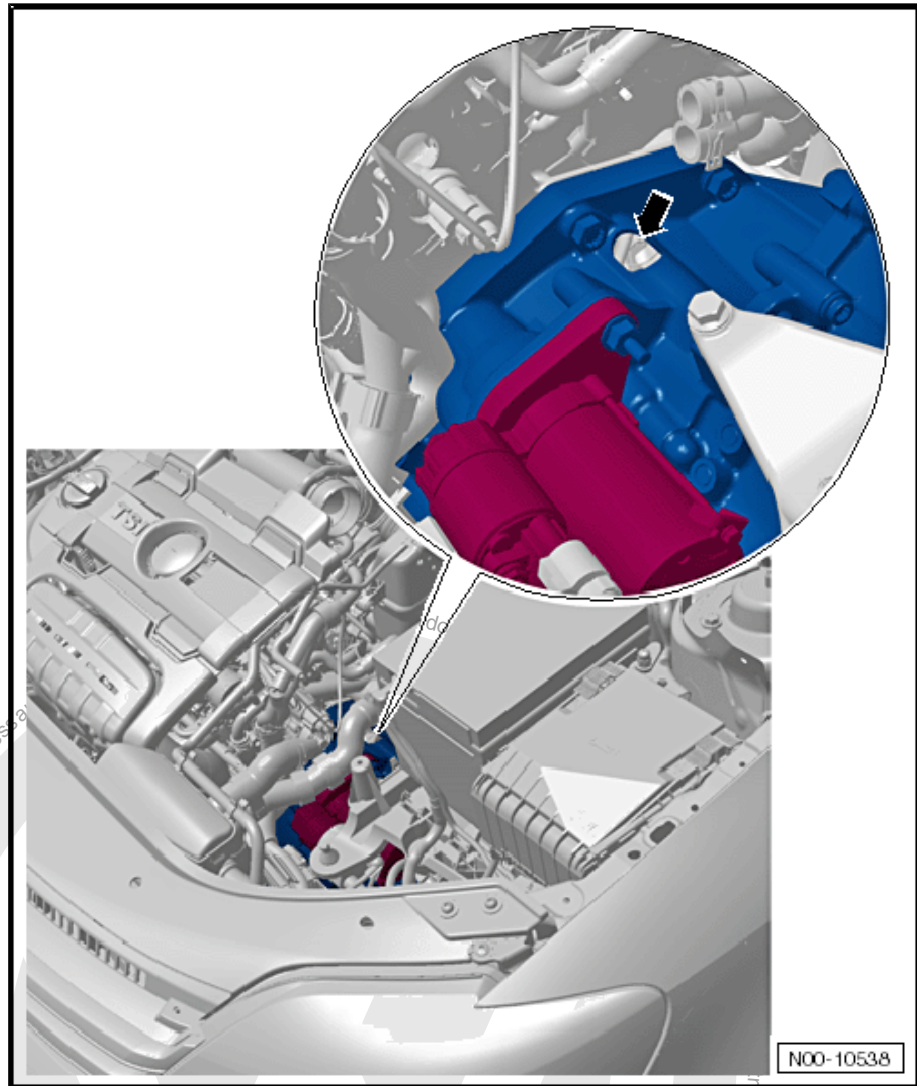
5.2 Gearbox

The gearbox has a hole in the housing.





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



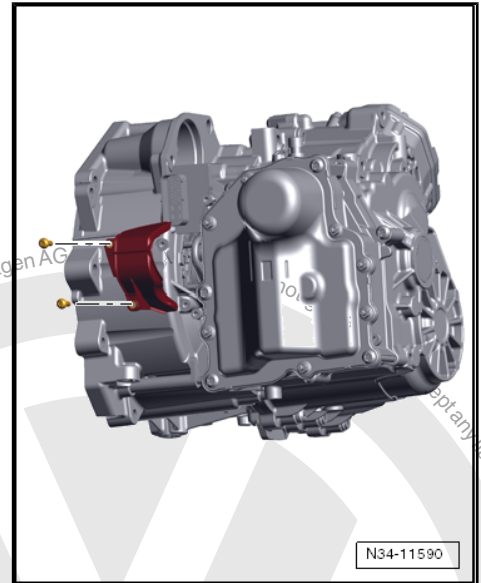
- Cover the hole with a cloth before installation work.
Always make sure that no dirt can enter an »open« gearbox.
- ◆ If gearbox covers have been unbolted or gearbox has no fluid, do not run engine. Do not tow vehicle.
- ◆ First thoroughly clean connecting points and surrounding areas and then loosen bolts.
- ◆ When installing, check for proper seating of dowel sleeves between engine and gearbox.
- ◆ 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, carefully cover opened components.



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

The cover prevents dirt getting in.

Torque setting: 8 Nm



5.3 Antifriction bearings

Never interchange bearing shells of tapered roller bearings. Never press ball bearings out or in using balls. Both these will cause irreparable damage to the bearings during operation of the gearbox.

5.4 Oil

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

Both oils are Genuine parts ⇒ [page 6](#) .

Do not mix »additives« in oil.

Oil which has been drained out cannot be added again.



Caution

Be careful when working with oil. Dispose of drained oil according to regulations. Remember: one drop of oil will contaminate 1,000 litres of water.

5.5 Working with tester

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

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

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



5.5.1 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 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.

5.5.2 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.

5.5.3 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.



WARNING

Do not carry out basic adjustment without a reason unless requested to do so!

- 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 a dual clutch
 - ◆ or after you have installed a mechatronic unit



30 – Clutch

1 Removing and installing dual clutch, gearboxes made up to 05.2011

Removing and installing dual clutch, gearboxes made from 06..2011 onwards ⇒ [page 36](#)

Overview:

- ◆ ⇒ [“1.1 Assembly overview - dual clutch”, page 11](#)
- ◆ ⇒ [“1.2 Removing dual clutch”, page 13](#)
- ◆ ⇒ [“1.3 Adjusting position of clutch engagement bearings K 1 and K 2”, page 17](#)
- ◆ ⇒ [“1.4 Installing dual clutch”, page 29](#)

1.1 Assembly overview - dual clutch



Caution

Risk of damage from clutch adjustment device.

- ◆ *The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Do not allow clutch to fall into gear-box during installation.*
- ◆ *A clutch that has fallen onto a hard surface or shows signs of damage must not be reinstalled.*





1 - Retaining ring

- Renew

2 - Hub

3 - Retaining ring

- Always renew after removing.

4 - Large engaging lever for "K 1"

- With large engagement bearing
- ⇒ ["1.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 17](#)

5 - Small engaging lever for »K 2«

6 - Bolts

- Always renew after removing.
- 8 Nm +90°

7 - Support

- For engaging lever

8 - Clip

- For small engaging lever
- No present in some older gearboxes

9 - Seal

- For inner input shaft
- Renewing ⇒ [page 61](#)

10 - Seal

- For outer input shaft
- Renewing ⇒ [page 61](#)

11 - Outer input shaft

12 - Shim "SK 1"

- Determining thickness
⇒ ["1.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 17](#)

13 - Shim "SK 2"

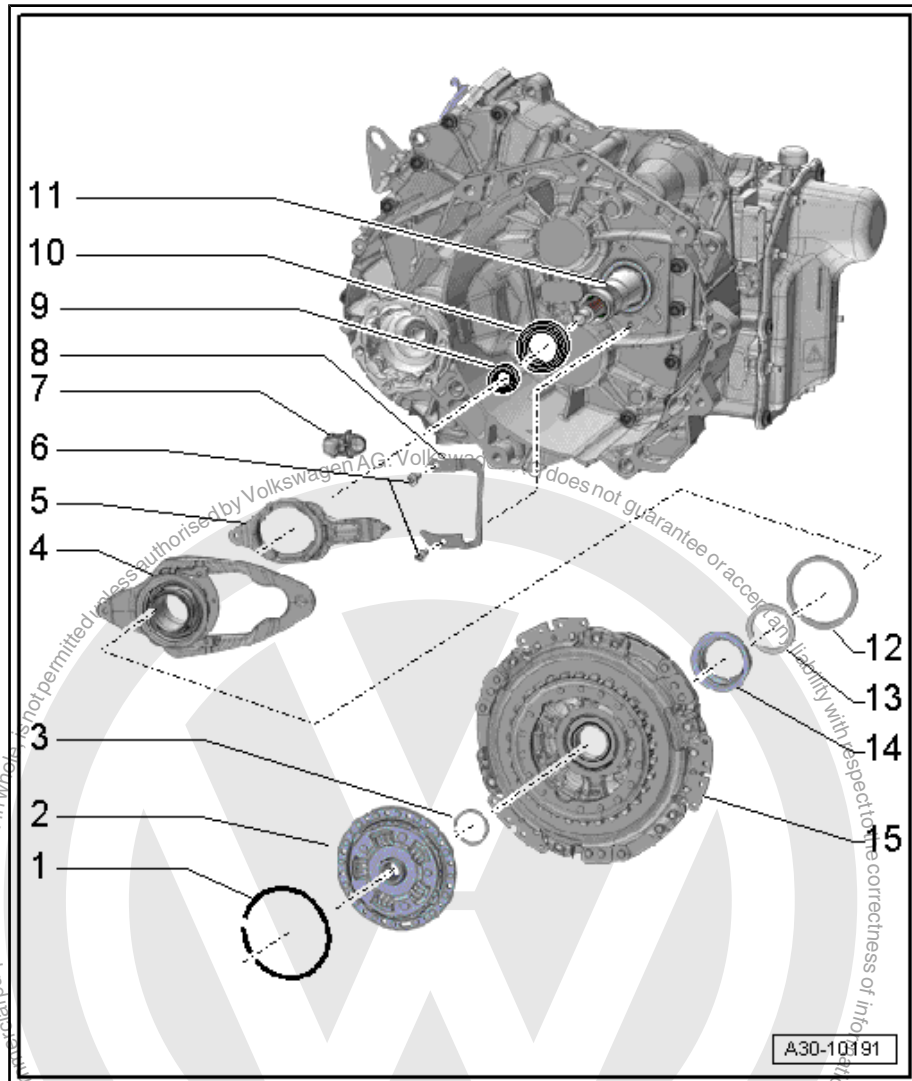
- Determining thickness
⇒ ["1.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 17](#)

14 - Small engagement bearings for »K 2«

- ⇒ ["1.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 17](#)

15 - Dual clutch

- Removing ⇒ [page 13](#)
- Installing ⇒ [page 29](#)

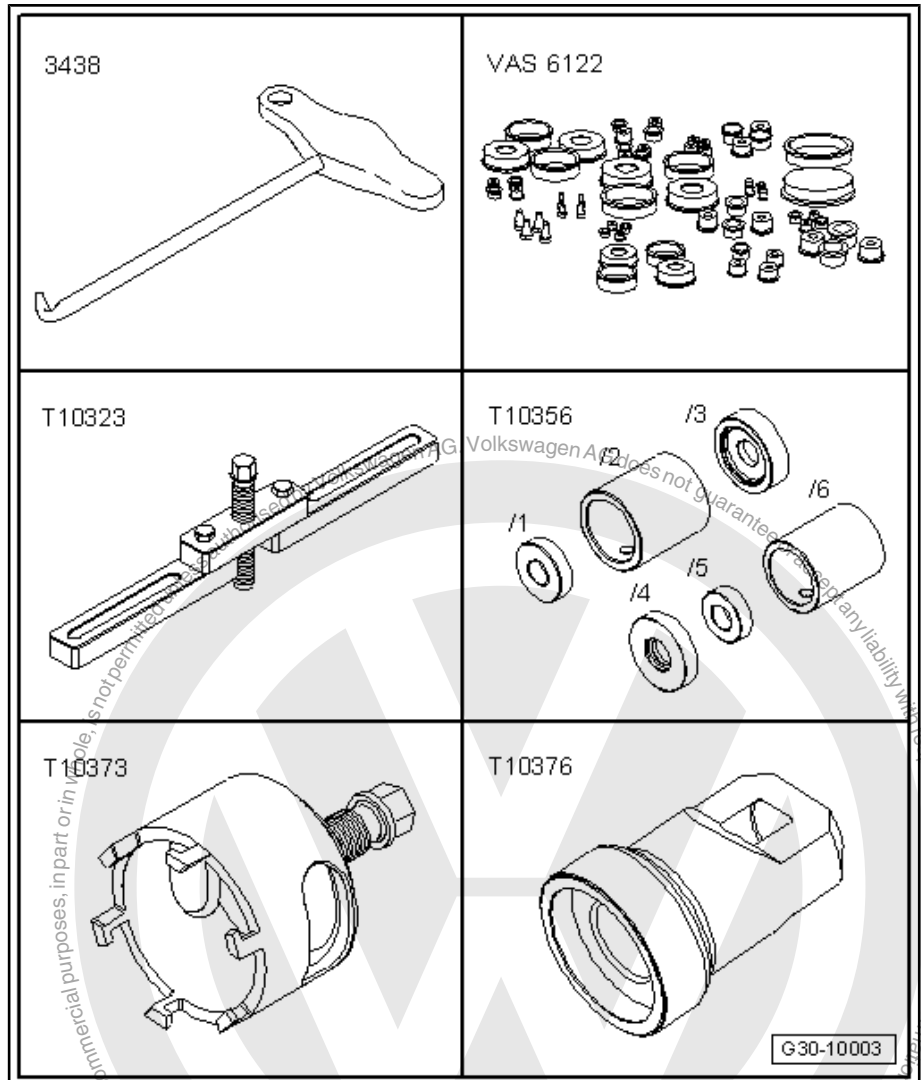




1.2 Removing dual clutch

Special tools and workshop equipment required

- ◆ Hook -3438-
- ◆ Engine bung set -VAS 6122-
- ◆ Support device -T10323-
- ◆ -T10356/5- from assembly tool -T10356-
- ◆ Puller -T10373-
- ◆ Thrust piece -T10376-



Requirement:

- Gearbox removed and secured to engine and gearbox jack
⇒ [page 286](#) .
- Mechatronic unit for dual clutch gearbox -J743- built into gear-
box.



- Pull off both breather caps -arrows- and close using clean plugs from engine bung set -VAS 6122- to achieve an oil-tight seal.

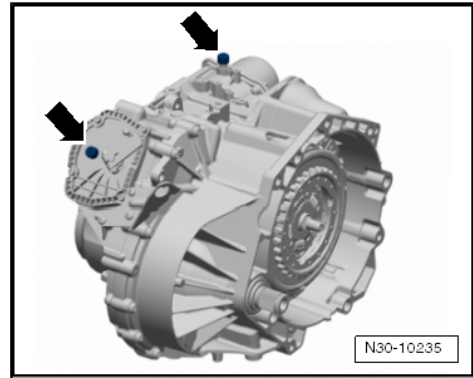


WARNING

For some gearboxes the breather cap on the mechatronic unit is destroyed during removal and must be renewed.

It is not possible to check the fill level of the hydraulic fluid section of the mechatronic unit. Before repairs, the breather of the mechatronic unit must be sealed so that no oil can escape.

If any oil escapes from the hydraulic fluid section of the mechatronic unit, it is not possible to replenish it or check the level! Renew mechatronic unit if any oil escaped!

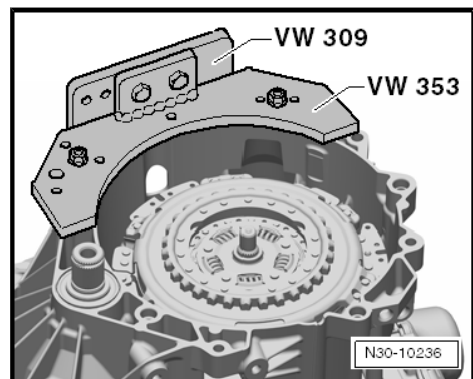


- Turn gearbox on engine and gearbox jack upwards together with clutch..

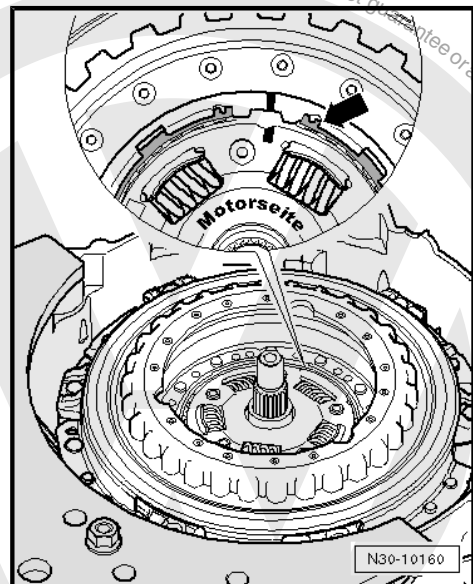


Note

The clutch is pulled off upwards. The mechatronic unit remains on the gearbox.

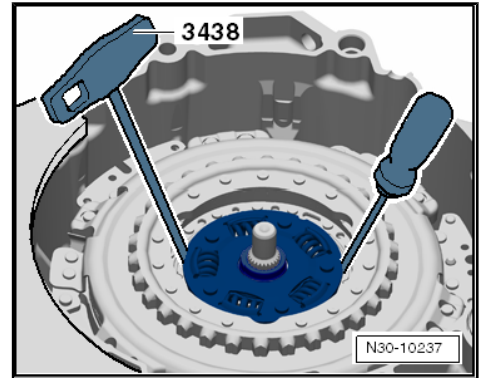


- Remove retaining ring of hub -arrow-.





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

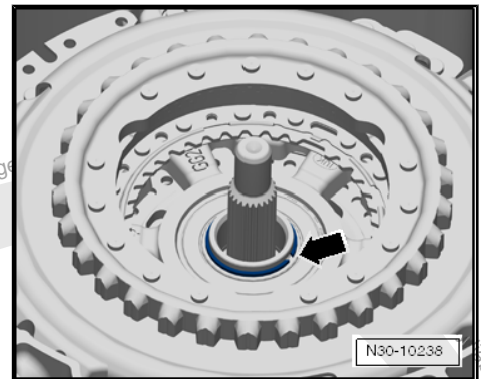


- Remove retaining ring -arrow- for clutch.

If retaining ring cannot be removed:

i Note

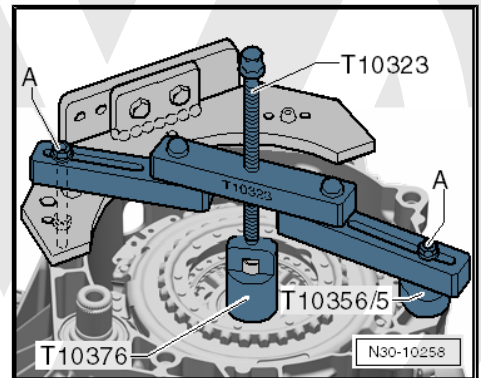
- ◆ If the retaining ring cannot be removed it is because the clutch has »clamped« the retaining ring at the bottom.
- ◆ In this case, push the clutch down slightly (see following description) and release the load on the retaining ring. Never strike the clutch or shaft with a hammer!
- ◆ Always renew retaining ring.



- Position support bracket -T10323- parallel to gearbox flange as shown in illustration.
- If necessary, balance out gaps using -T10356/5-, for example.
- Screw in bolts -A- hand-tight.

i Note

Bolts -A-, secure with nut as required.

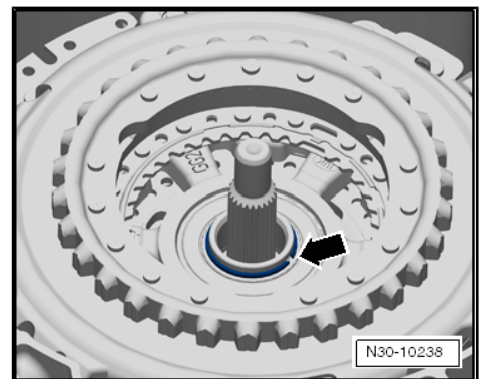


! Caution

Risk of damage to clutch and other components!

- Push down clutch using only very light force.

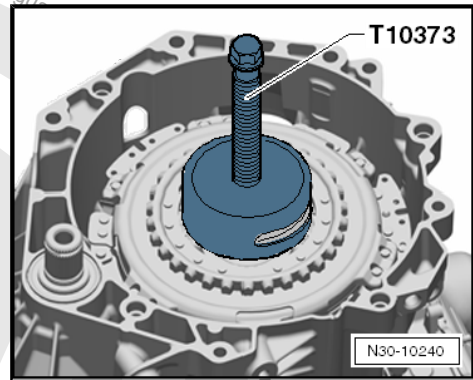
- To press down, turn spindle against thrust piece -T10376-
- Remove retaining ring -arrow- for clutch.



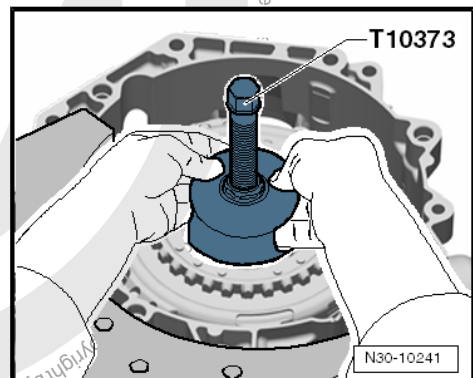


Continuation once retaining ring has been removed:

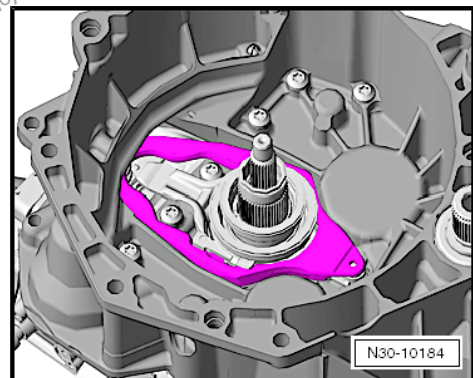
- Insert puller -T10373- into clutch and bore out clutch.



- Remove clutch together with puller -T10373-.



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

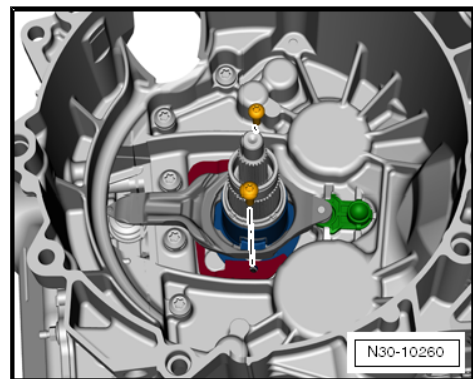


- Undo bolts and remove small engaging lever.



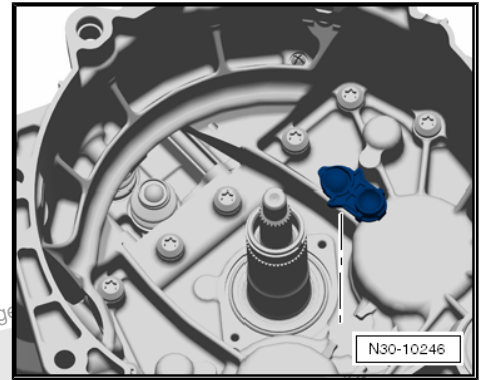
Note

Only a few, »older« gearboxes do not have a clip.





- Remove retainer for engaging lever.



1.3 Adjusting position of clutch engagement bearings “K 1” and “K 2”

The position of the engagement bearings must be adjusted after the following tasks:

- ◆ Clutch has been renewed.
- ◆ Engaging levers have been renewed.
- ◆ Retainer of engaging levers has been renewed.
- ◆ Engagement bearings have been renewed.



Note

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

Brief description

- ◆ Position of engagement bearings is comparable with clutch play of a manual gearbox. In the 7-speed dual clutch gearbox 0AM there are tolerances in the engagement system of the gearbox and in the gearbox itself. Even within the dual clutch there are tolerances. These tolerances must be taken into account separately during adjustment.
- ◆ The following procedure first describes how to measure all necessary dimensions on the gearbox so that the appropriate shim can be selected. In addition are the tolerances in the clutch that the manufacturer has already calculated. Tolerances on gearbox and tolerances in clutch determine thickness of shim.
- ◆ Adhere to the sequence of work steps.

Overview of clutch actuation



1 - Small engaging lever for »K 2«

2 - Shim for »K 2«

3 - Engagement bearings for »K 2«

4 - Large engaging lever for "K 1"

- With large engagement bearing

5 - Shim for "K 1"

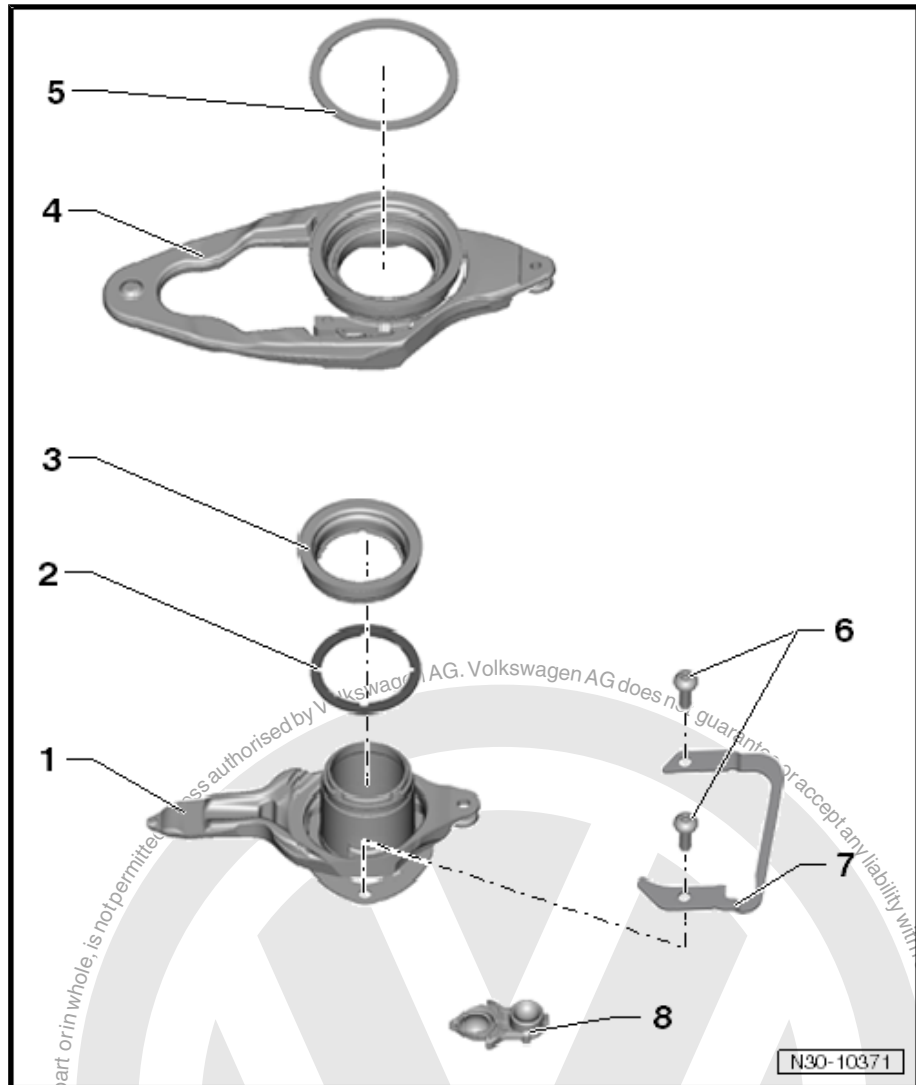
6 - Bolts

- Always renew after removing.
- 8Nm + 90°

7 - Clip

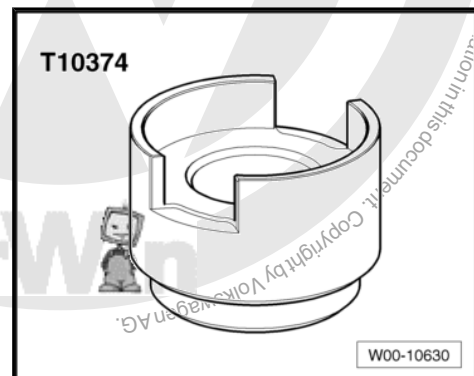
- No present in some older gearboxes

8 - Support



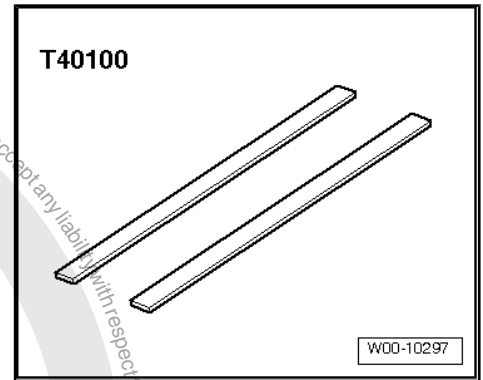
Special tools and workshop equipment required

- ◆ Depth gauge, digital 300 mm -VAS 6594-
- ◆ Gauge block -T10374-





◆ Ruler -T40100-



Requirement:

- The gearbox flange must be level to assure good contact with the ruler.
- Mechatronic unit for dual clutch gearbox -J743- must be installed.
- Torque settings
⇒ ["1.1 Assembly overview - dual clutch", page 11](#) .



Note

If a further tightening angle is specified for certain bolts, these must be renewed.



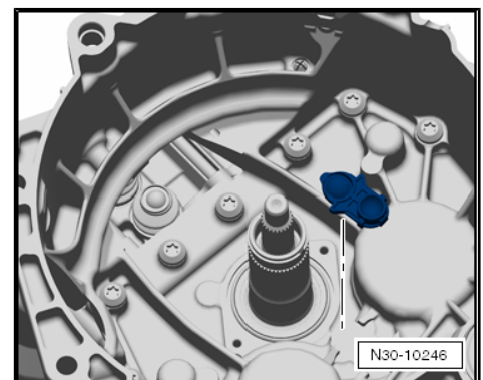
Caution

Risk of damage to clutch and other components!

- ***Mounting for engaging lever and entire mechanism of engagement bearing must be dry and free of oil or grease.***

1st step: Prepare dual clutch for measurement

- Insert retainer for engaging lever.





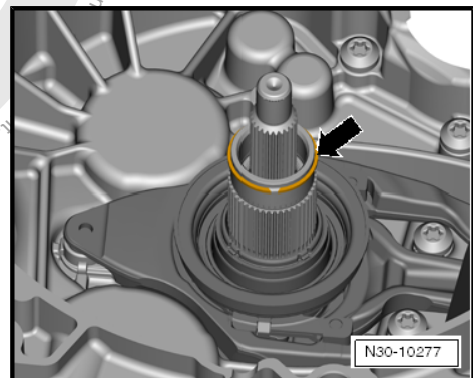
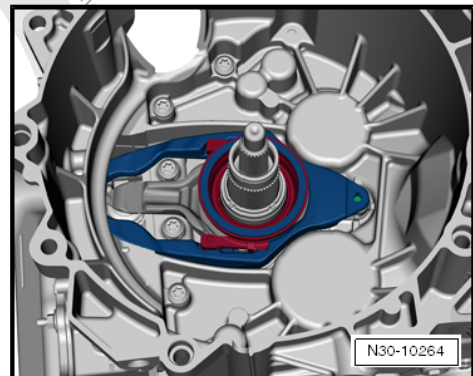
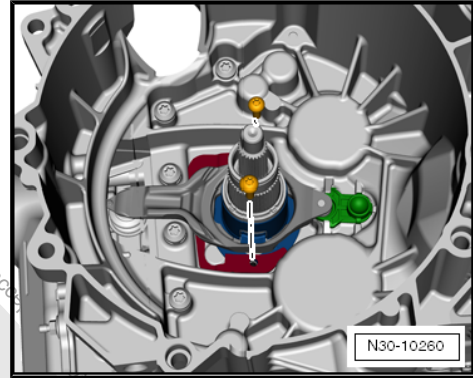
- Fit small engaging lever with clip and secure with 2 new bolts.
Torque setting: [⇒ page 12](#) .



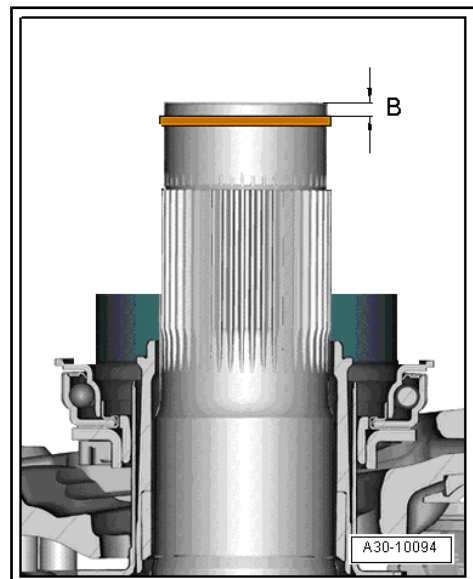
Note

Only a few, »older« gearboxes do not have a clip.

- Insert large engaging lever.
- Check both engaging levers are seated correctly.
- Install old retaining ring of outer input shaft.



2nd step: Determine dimension "B" for clutch "K 1" and "K 2"





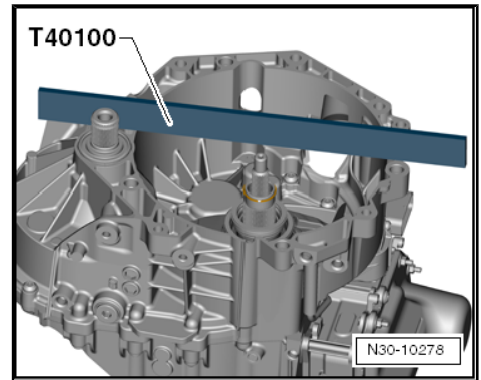
- Place ruler -T40100- upwards across end of shaft onto gear-box flange.



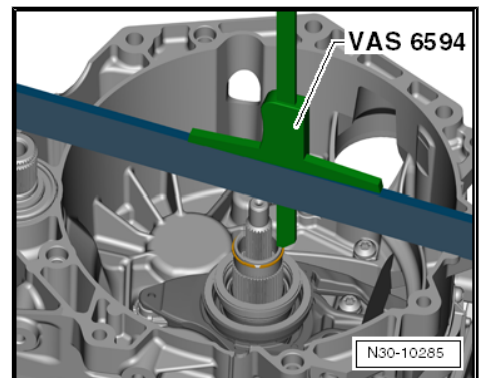
Caution

Risk of false measurements.

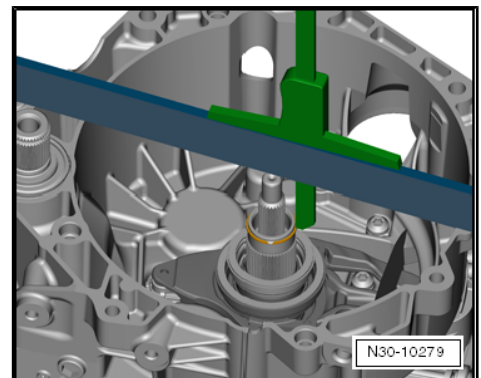
- ◆ *The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.*



- Place digital 300 mm depth gauge -VAS 6594- on top of ruler -T40100- and position depth gauge rod on outer input shaft.
- Set depth gauge to “0”.



- Position depth gauge rod on retaining ring, as show in diagram.
- In this position, determine dimension “B₁” to retaining ring.
- Example: dimension “B₁” = 2.92 mm



- In the opposite position, determine dimension “B₂” to retaining ring.



Note

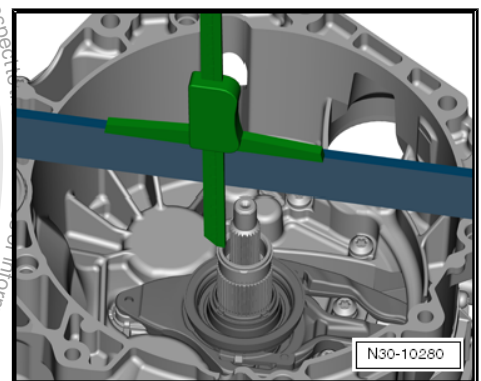
Do not measure on retaining ring joint. The retaining ring could be pushed away and falsify the reading.

- Example: dimension “B₂” = 3.00 mm
- Calculate mean value from dimension “B₁” and “B₂”.

Formula: $B_1 + B_2 \div 2$

Example:

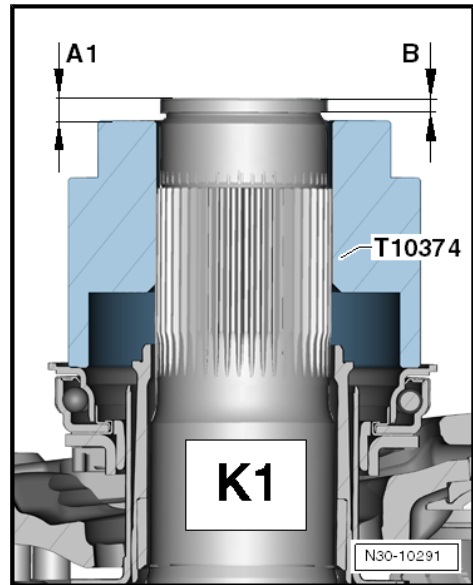
- $2.92 + 3.00 \div 2 = 2.96$ mm
- Result: Dimension “B” = 2.96 mm
- Remove and dispose of retaining ring.



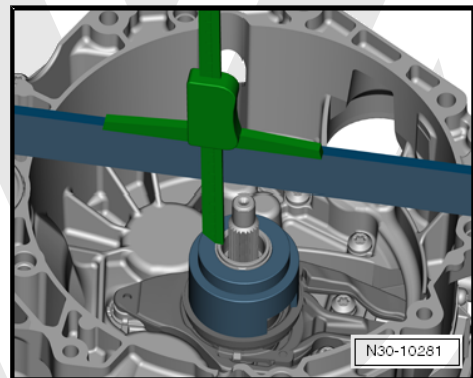
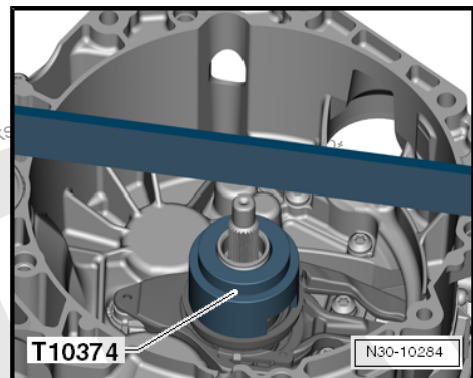


3rd step: Determine dimension "A 1" for clutch engaging lever "K 1"

- Place end gauge -T10374- on large engagement bearing with large opening upwards.
- To ensure that end gauge -T10374- sits properly on engagement bearing, press down and turn end gauge.
- Engagement bearing will turn with end gauge -T10374- .



- Place digital 300 mm depth gauge -VAS 6594- on top of ruler and position depth gauge rod on outer input shaft.
- Ruler -T40100- is lying upwards across end of shaft on gearbox flange.

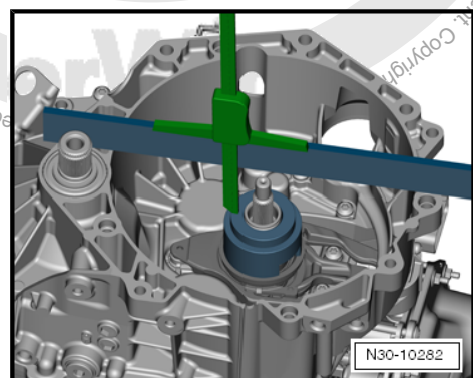


Caution

Risk of false measurements.

- ◆ *The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.*

- Set depth gauge to "0".
- Position depth gauge rod on end gauge -T10374- , as show in diagram.
- In this position, determine dimension "A 1_a" to end gauge -T10374- .
- Example: Dimension "A 1_a" = 2.61 mm





– In the opposite position, determine dimension “A 1_b” to end gauge -T10374- .

• Example: Dimension “A 1_b” = 2.81 mm

– Calculate mean value from dimension “A 1_a” and “A 1_b”.

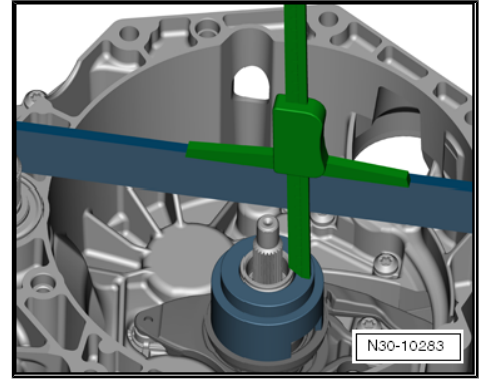
Formula: $A 1_a + A 1_b \div 2$

Example:

• $2.61 + 2.812 = 2.71$ mm

• Result: Dimension “A 1” = 2.71 mm

4th step: Calculate installation depth of clutch engagement bearing “K 1”



i Note

Using dimension “A1” and dimension “B”, the actual installation depth of the clutch engagement bearing “K 1” is now calculated based on the following calculus.

	Dimension “A 1”
–	Dimension “B”
+	Exterior height end gauge -T10374- (51.81 mm; fixed value)
=	Actual installation depth of clutch engagement bearing “K 1”

Example:

• $2.71 \text{ mm} - 2.96 \text{ mm} + 51.81 \text{ mm} = 51.56 \text{ mm}$

• Result: Installation depth of clutch engagement bearing “K 1” = 51.56 mm

5th step: Calculate clearance of clutch “K 1”

i Note

With the actual value and specification for the engagement bearing installation depth, the clearance of clutch “K 1” is now determined using the following calculus.

	Actual value of engagement bearing installation depth
–	Specification of engagement bearing installation depth (50.08 mm; fixed value)
=	Clearance of clutch “K 1”

Example:

• $51.56 \text{ mm} - 50.08 \text{ mm} = 1.48 \text{ mm}$

• Result: Clearance of clutch “K 1” = 1.48 mm



6th step: Determine clutch tolerance of clutch "K 1"

- Take clutch tolerance value from new clutch.
- Example: Read off clutch tolerance value on clutch "K 1 = +0.2", as shown in diagram.

7th step: Determine thickness of shim "SK 1"



Note

On the basis of the clearance value and clutch tolerance "K 1", the thickness of shim "SK 1" is now calculated using the following calculus.

	Clearance of clutch "K 1"
-/+	Clutch tolerance of clutch "K 1"
=	Calculated thickness of shim "SK 1"

Example:

- $1.48 \text{ mm} + 0.20 \text{ mm} = 1.68 \text{ mm}$
- Result: Calculated thickness of shim "SK 1" = 1.68 mm
- From the shims supplied, measure the required shim and have it ready for installation.

Calculated thickness of shim mm	Available shims Thickness in mm
0.31 ... 0.90	0.80
0.91 ... 1.10	1.00
1.11 ... 1.30	1.20
1.31 ... 1.50	1.40
1.51 ... 1.70	1.60
1.71 ... 1.90	1.80
1.91 ... 2.10	2.00
2.11 ... 2.30	2.20
2.31 ... 2.50	2.40
2.51 ... 2.70	2.60
2.71 ... 3.30	2.80

Example:

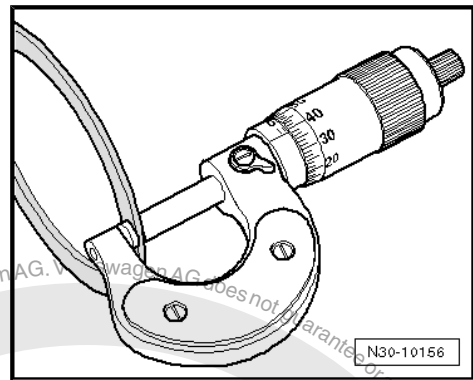
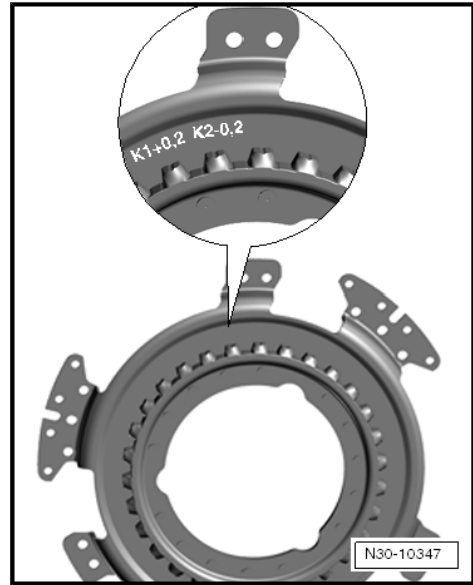
- Result: Calculated thickness of shim "SK 1" = 1.68 mm
- Chosen shim thickness = 1.60 mm



Caution

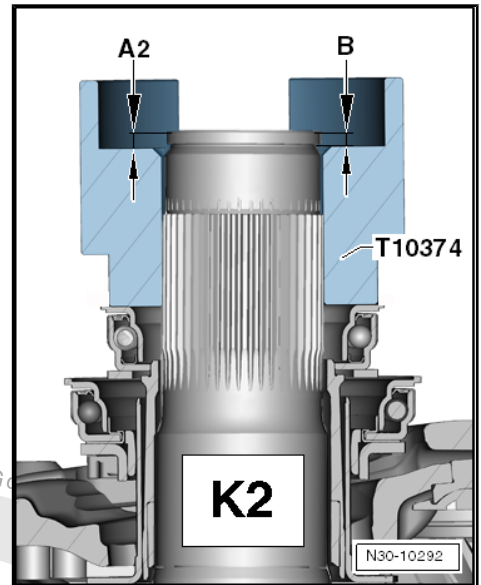
Risk of damage to gearbox

- ◆ **Mark shim "SK 1" and have it ready for assembly.**
- ◆ **For adjustment, only this shim "SK 1" may be inserted.**

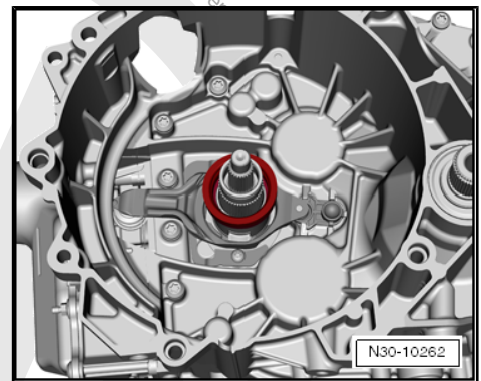




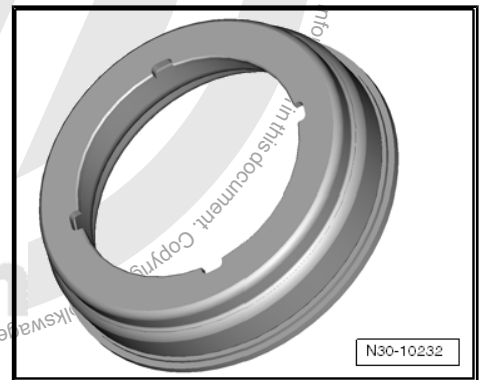
8th step: Determine dimension "A 2" for clutch engaging lever "K 2"



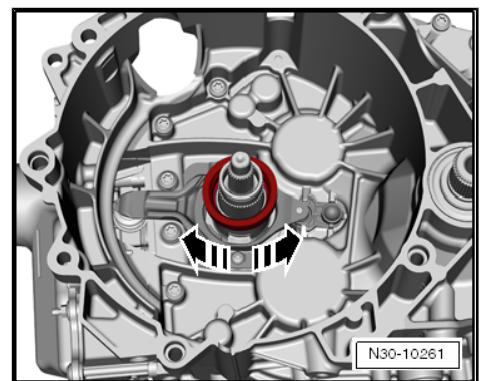
- Only insert small engagement bearing.



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

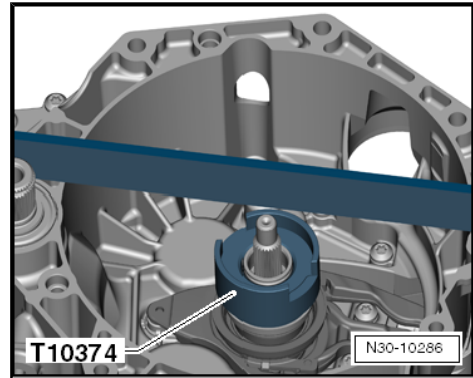


- By turning -arrows-, check whether small engagement bearing is properly installed and that grooves are seated correctly.

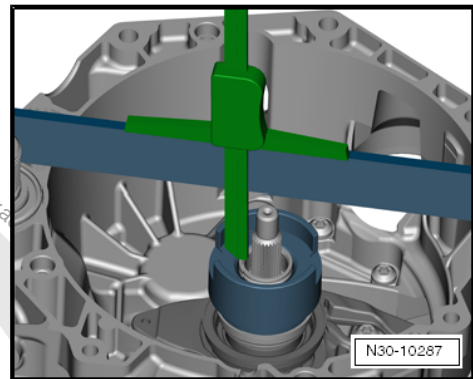




- Place end gauge -T10374- on small engagement bearing with large opening upwards.



- Place digital 300 mm depth gauge -VAS 6594- on top of ruler and position depth gauge rod on outer input shaft.
- Ruler -T40100- is lying upwards across end of shaft on gear-box flange.

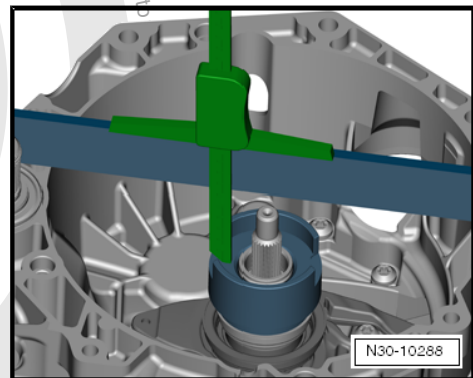


Caution

Risk of false measurements.

- ◆ **The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.**

- Set depth gauge to "0".
- Position depth gauge rod on end gauge -T10374- , as show in diagram.
- In this position, determine dimension "A 2_a" to end gauge -T10374- .
- Example: Dimension "A 2_a" = 2.50 mm





– In the opposite position, determine dimension “A 2_b” to end gauge -T10374- .

• Example: Dimension “A 2_b” = 2.54 mm

– Calculate mean value from dimension “A 2_a” and “A 2_b”.

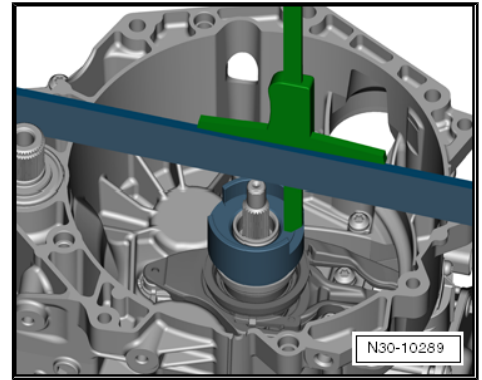
Formula: $A 2_a + A 2_b \div 2$

Example:

• $2.50 + 2.542 = 2.52$ mm

• Result: Dimension “A 2” = 2.52 mm

9th step: Determine installation depth of clutch engagement bearing “K 2”



i Note

On the basis of dimension “A 2” and dimension “B”, the actual installation depth of the clutch engagement bearing “K 2” is now calculated based on the following calculus.

	Dimension “A 2”
–	Dimension “B”
+	Interior height end gauge -T10374- (36.20 mm; fixed value)
=	Actual installation depth of clutch engagement bearing “K 2”

Example:

• $2.52 \text{ mm} - 2.96 \text{ mm} + 36.20 \text{ mm} = 35.76 \text{ mm}$

• Result: Installation depth of clutch engagement bearing “K 2” = 35.76 mm

10th step: Determine clearance of clutch “K 2”

i Note

With the actual value and specification for the engagement bearing installation depth, the clearance of clutch “K 2” is now determined using the following calculus.

	Actual value of engagement bearing installation depth
–	Specification of engagement bearing installation depth (34.35 mm; fixed value)
=	Clearance of clutch “K 2”

Example:

• $35.76 \text{ mm} - 34.35 \text{ mm} = 1.41 \text{ mm}$

• Result: Clearance of clutch “K 2” = 1.41 mm



11th step: Determine clutch tolerance of clutch "K 2"

- Take clutch tolerance value from new clutch.
- Example: Read off clutch tolerance value on clutch "K 2 = - 0.2", as shown in diagram.

12th step: Determine thickness of shim "SK 2"

Note

On the basis of the clearance value and clutch tolerance "K 2", the thickness of shim "SK 2" is now calculated using the following calculus.

	Clearance of clutch "K 2"
-/+	Clutch tolerance of clutch "K 2"
=	Calculated thickness of shim "SK 2"

Example:

- $1.41 \text{ mm} - 0.20 \text{ mm} = 1.21 \text{ mm}$
- Result: Calculated thickness of shim "SK 2" = 1.21 mm

- From the shims supplied, measure the required shim and have it ready for installation.

Calculated thickness of shim mm	Available shims Thickness in mm
0.31 ... 0.90	0.80
0.91 ... 1.10	1.00
1.11 ... 1.30	1.20
1.31 ... 1.50	1.40
1.51 ... 1.70	1.60
1.71 ... 1.90	1.80
1.91 ... 2.10	2.00
2.11 ... 2.30	2.20
2.31 ... 2.50	2.40
2.51 ... 2.70	2.60
2.71 ... 3.30	2.80

Example:

- Result: Calculated thickness of shim "SK 2" = 1.21 mm
- Chosen shim thickness = 1.20 mm



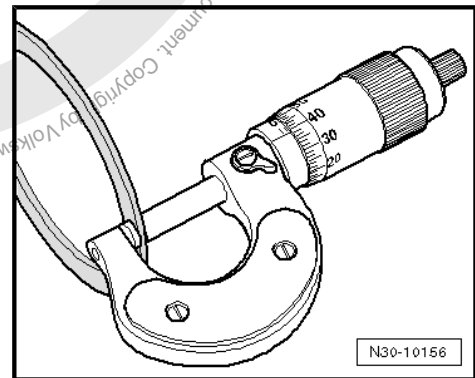
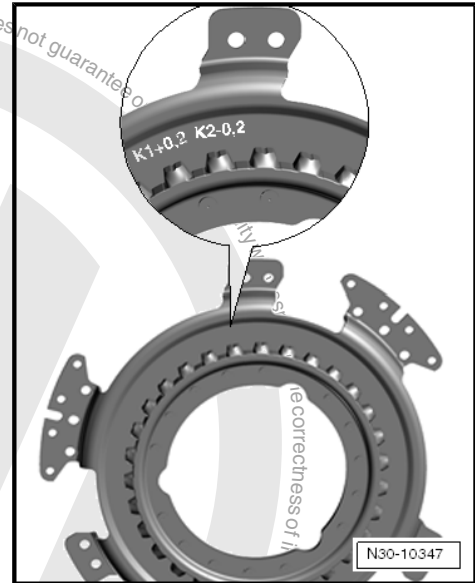
Caution

Risk of damage to gearbox

- ◆ Mark shim "SK 2" and have it ready for assembly.
- ◆ For adjustment, only this shim "SK 2" may be inserted.

The adjusting work has now been completed and the »small« engagement lever has already been installed. The next step now is to install the clutch again.

- Install clutch ⇒ [page 29](#) .

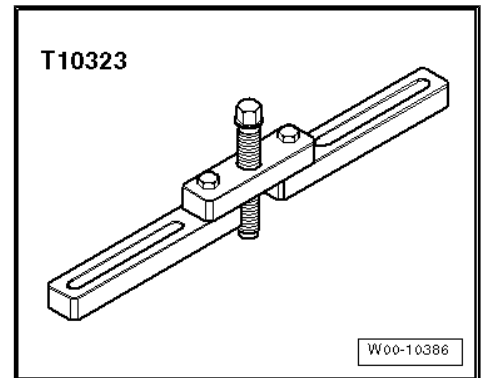




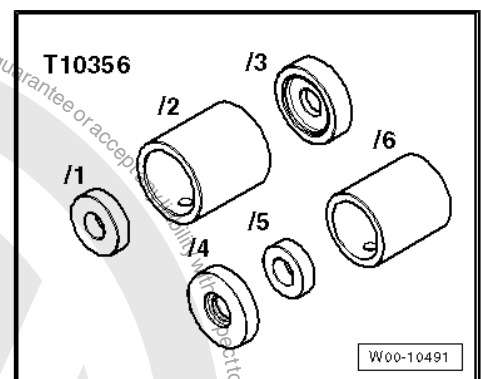
1.4 Installing dual clutch

Special tools and workshop equipment required

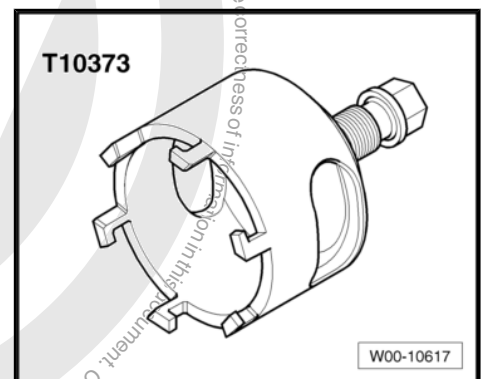
- ◆ Support device -T10323-



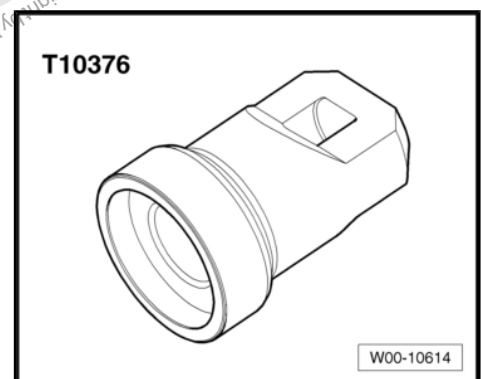
- ◆ -T10356/5- from assembly tool -T10356-



- ◆ Puller -T10373-



- ◆ Thrust piece -T10376-



- ◆ Adhesive -AMV 195 KD1 01-

- Torque settings
⇒ ["1.1 Assembly overview - dual clutch", page 11](#) .



Installing



Note

If a further tightening angle is specified for certain bolts, these must be renewed.



Caution

Risk of damage to clutch and other components!

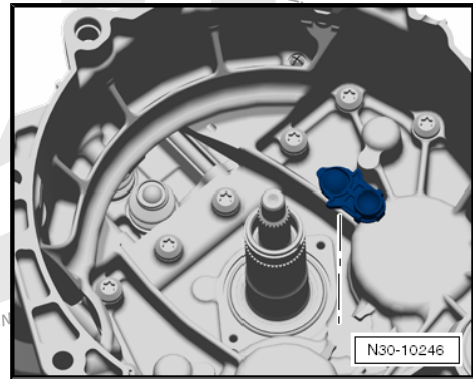
- Clutch parts must be free of oil and grease.



Note

The following four work steps are only necessary if the position of the engagement bearings did not have to be adjusted.

- Insert retainer for engaging lever.

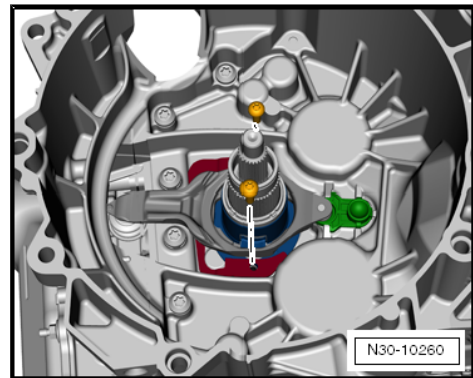


- Install small engaging lever with clip.



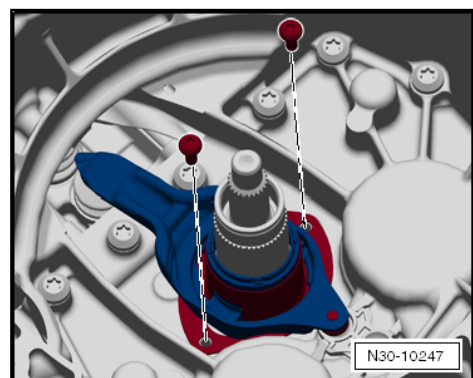
Note

Only a few, »older« gearboxes do not have a clip.



- Bolt on engaging lever with 2 new bolts.

Torque setting => [page 12](#)





- Insert large engaging lever.
- Check both engaging levers are seated correctly.



Caution

Risk of damage to clutch and other components!

- *The positions of the engagement bearings must be set correctly.*

Adjustment can only be carried out before the clutch is installed.

The position of the engagement bearings must be adjusted after the following tasks:

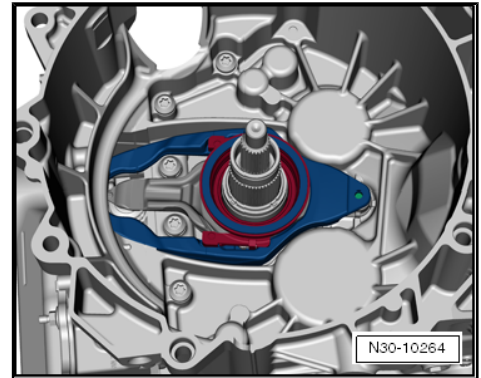
- ◆ *Clutch has been renewed.*
- ◆ *Engaging levers have been renewed.*
- ◆ *Retainer of engaging levers has been renewed.*
- ◆ *Engagement bearings were renewed.*

If any of the work above has been carried out, you must now adjust the position of engagement bearings "K 1 and K 2" ⇒ [page 17](#).

Do not continue with assembly until the setting is correct!

If no new parts have been installed, use removed shims.

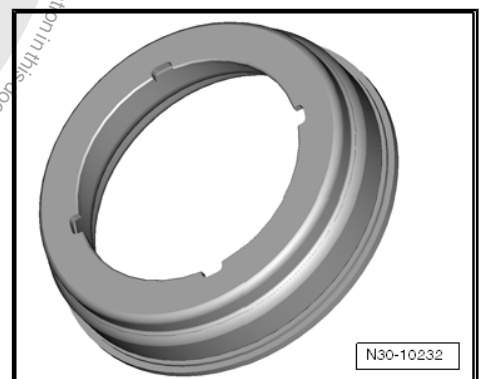
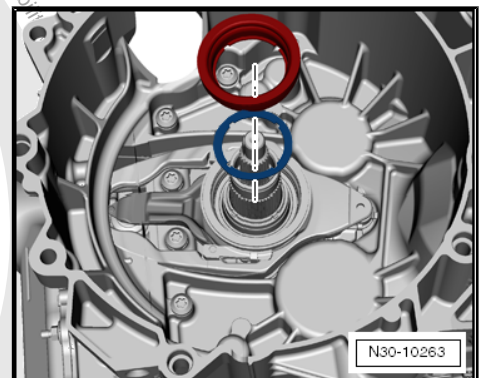
For adjustment, only one shim per engagement bearing may be installed.



- Insert small engagement bearings with measured shim for "K 2".

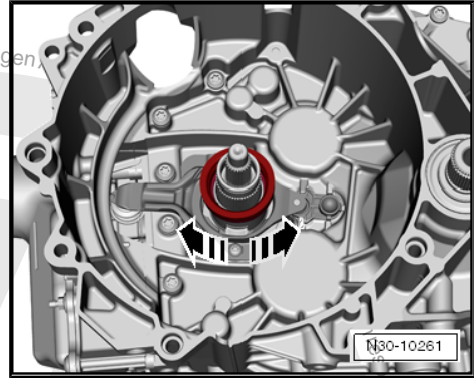
Shim should be under small engagement bearing. Therefore, insert shim first.

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



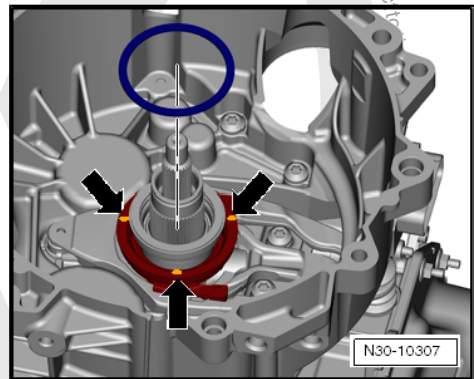


- By turning -arrows-, check whether small engagement bearing is properly installed and that grooves are seated correctly.



- Fix »large« shim for "K 1" in place with 3 drops of adhesive - AMV 195 KD1 01- .

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

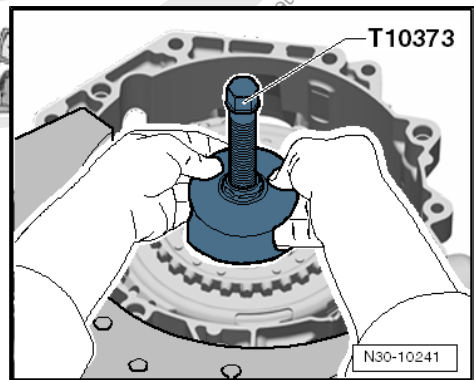


- Turn back spindle of puller -T10373-

Caution

Risk of damage from clutch adjustment device.

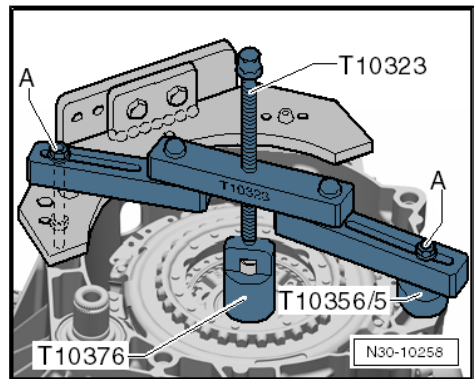
◆ **The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Do not allow clutch to fall into gear-box during installation.**



- Install clutch with puller -T10373- in gearbox, as shown in diagram.
- Position support bracket -T10323- parallel to gearbox flange as shown in illustration.
- If necessary, balance out gaps using -T10356/5- from assembly tool -T10356- , for example.
- Screw in bolts -A- hand-tight.

Note

Bolts -A-, secure with nut as required.



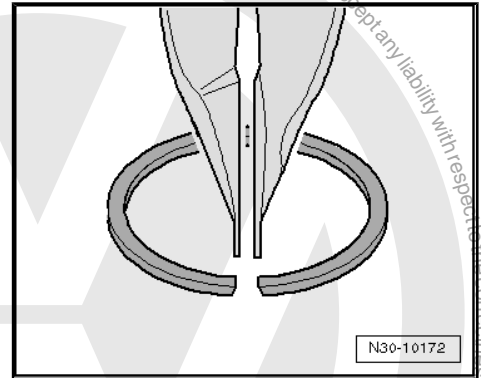
- Press on clutch as far as it will go.

Note

Place a hand on the clutch when pressing it on. A slight »rattling« will be felt. Rattling indicates that the clutch is being pressed onto its press seat. This also enables detection of the limit stop once the clutch has been seated correctly.



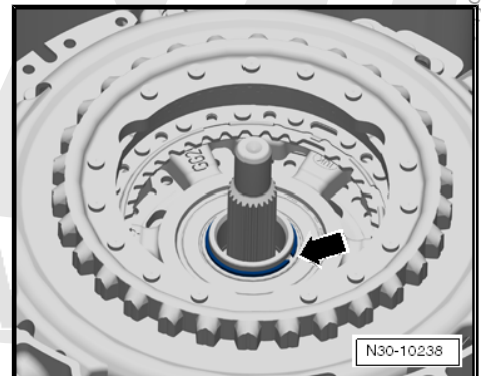
- Take hold of new retaining ring with retaining ring pliers, as shown in the illustration.
- Installation position: narrow surface of retaining ring on top.



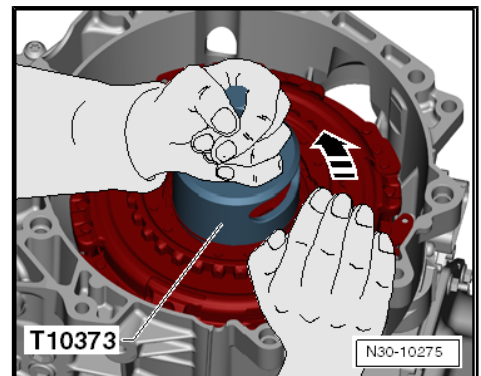
- Inserting retaining ring -arrow-

i Note

If the retaining ring cannot be inserted, the clutch has not been pressed in onto its limit stop.



- To ensure that the clutch reaches its operating position right from this stage, turn it against puller -T10373- -arrow- by hand without using any other tools.

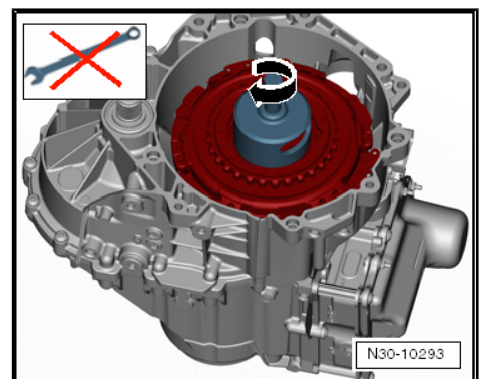


i Note

- ◆ *By pressing on, the clutch sits at the bottom against the limit stop on the input shaft. This is not the optimum position.*
- ◆ *Clutch should only be pulled up far enough for it to contact retaining ring.*

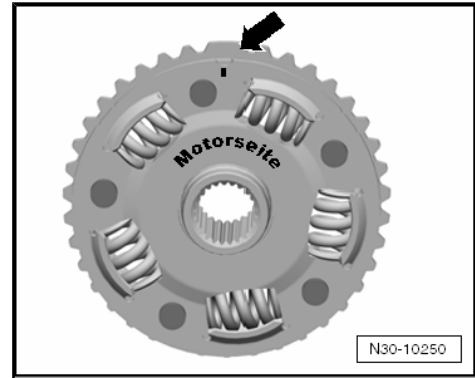
i Note

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

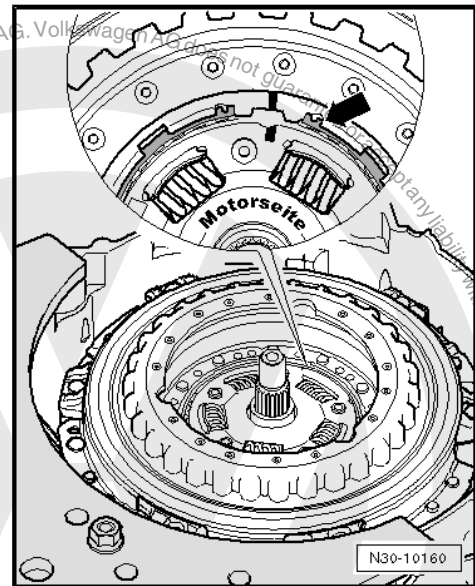




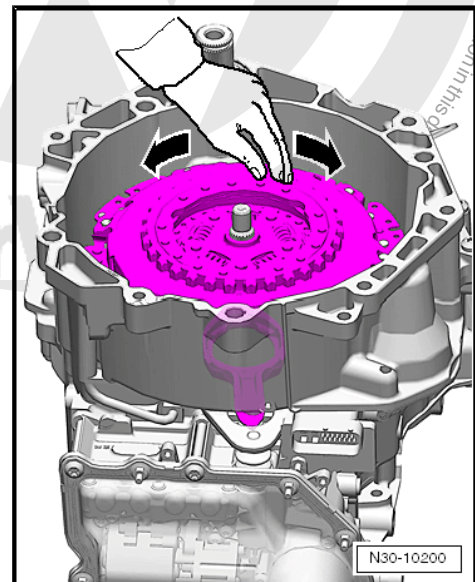
- Insert hub.
- Hub has »large tooth« -arrow- and only fits in one position.
- »Large tooth« has a mark at engine end.



- Insert retaining ring -arrow- of hub.
- Joint of retaining ring must point towards »hub« of clutch.

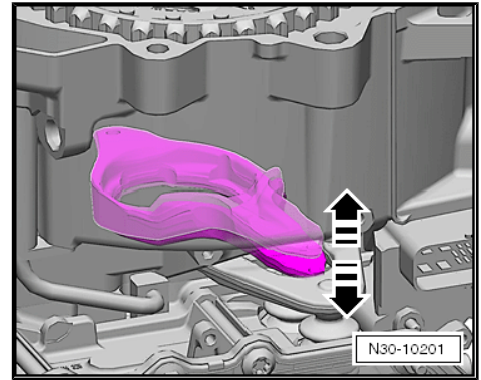


- Turn clutch by hand and observe small engaging lever whilst turning.



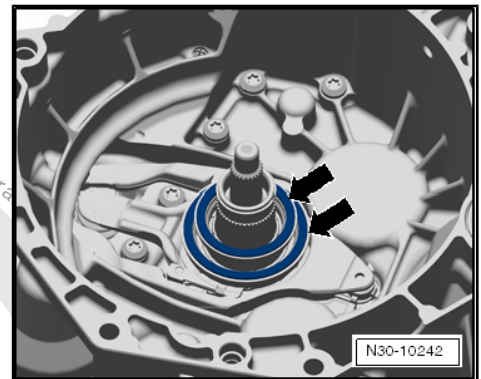


- While the clutch is being turned, it must be ensured that the small engaging lever remains absolutely still. It must be ensured that it does not move up and down.



Note

- ◆ If an engaging lever moves up and down, the shim is not properly seated.
- ◆ In this case, remove clutch again ⇒ [page 13](#) .
- ◆ Check shims -arrows-.
- ◆ The shims must be properly seated and must not be damaged.



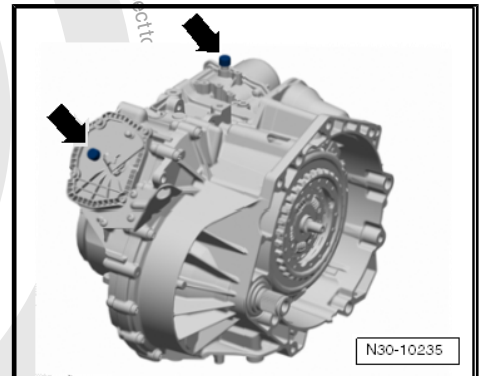
- Remove two plugs and put breather caps -arrows-on.



WARNING

For some gearboxes the breather cap on the mechatronic unit is destroyed during removal and must be renewed.

- Dispose of excess shims.
- After installation of gearbox, perform **Complete reset** by means of **Guided functions** ⇒ Vehicle diagnostic tester.





2 Removing and installing dual clutch, gearboxes made from 06..2011 onwards

Removing and installing dual clutch, gearboxes made up to 05.2011 ⇒ [page 11](#)

Overview:

- ◆ ⇒ [“2.1 Assembly overview - dual clutch”, page 36](#)
- ◆ ⇒ [“2.2 Removing dual clutch”, page 38](#)
- ◆ ⇒ [“2.3 Adjusting position of clutch engagement bearings K 1 and K 2”, page 42](#)
- ◆ ⇒ [“2.4 Installing dual clutch”, page 54](#)

2.1 Assembly overview - dual clutch



Caution

Risk of damage from clutch adjustment device.

- ◆ *The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Do not allow clutch to fall into gearbox during installation.*
- ◆ *A clutch that has fallen onto a hard surface or shows signs of damage must not be reinstalled.*





1 - Hinge mounting

- For large engaging lever "K 1"
- Is not renewed

2 - Ball stud

- Small small engaging lever "K 2"
- ⇒ ["2.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 42](#)

3 - Shim "SK 1"

- Determining thickness ⇒ ["2.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 42](#)

4 - Shim "SK 2"

- Determining thickness ⇒ ["2.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 42](#)

5 - Small engagement bearings for "K 2"

- ⇒ ["2.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 42](#)

6 - Dual clutch

- Removing ⇒ [page 38](#)
- Installing ⇒ [page 54](#)
- Renewing ⇒ ["2.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 42](#)

7 - Retaining ring

- Always renew after removing.

8 - Hub

9 - Retaining ring

- Renew

10 - Large engaging lever for "K 1"

- With engagement bearing
- ⇒ ["2.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 42](#)

11 - Upper part of guide sleeve

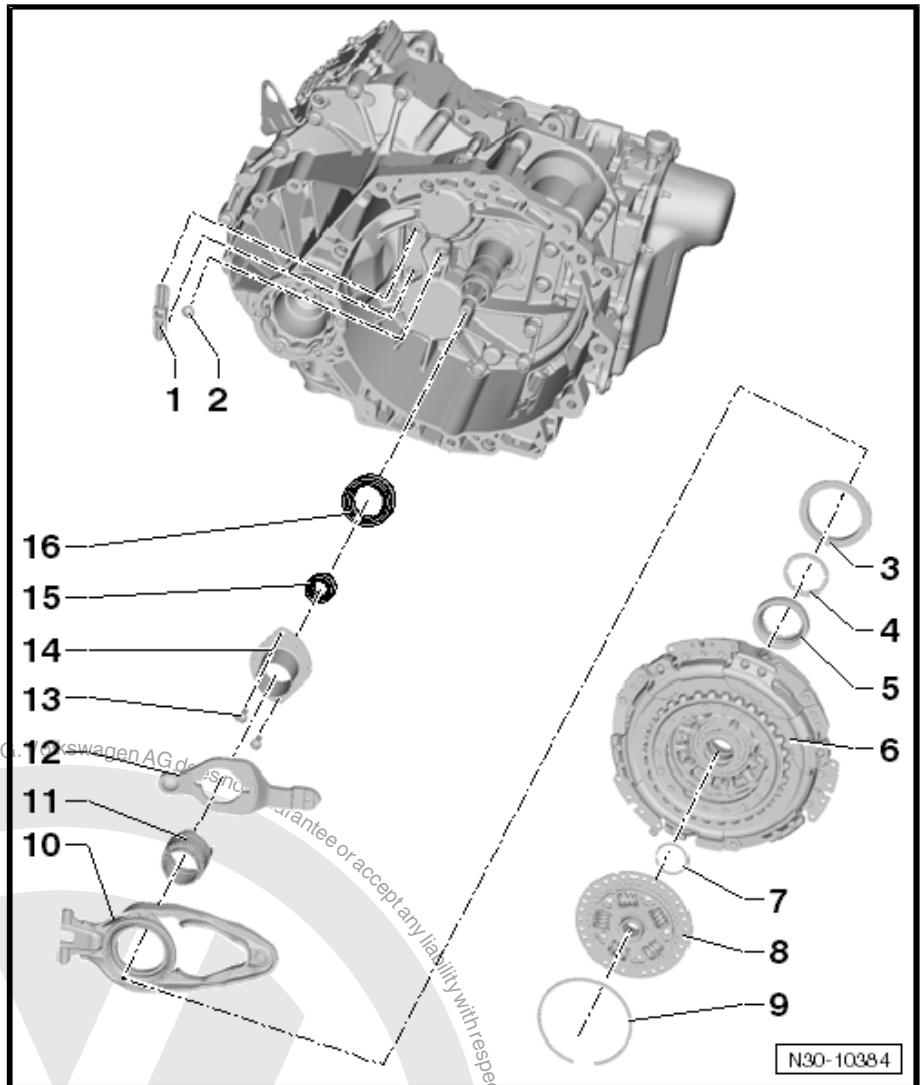
- Small small engaging lever "K 2"
- is removed and installed together with lower part of guide sleeve

12 - Small engaging lever for "K 2"

- is removed and installed together with upper and lower part of guide sleeve
- ⇒ ["2.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 42](#)

13 - Bolts

- Always renew after removing.
- 8 Nm + 90°





14 - Lower part of guide sleeve

- Small engaging lever "K 2"
- is removed and installed together with upper part of guide sleeve

15 - Seal

- For inner input shaft
- Renewing ⇒ [page 61](#)

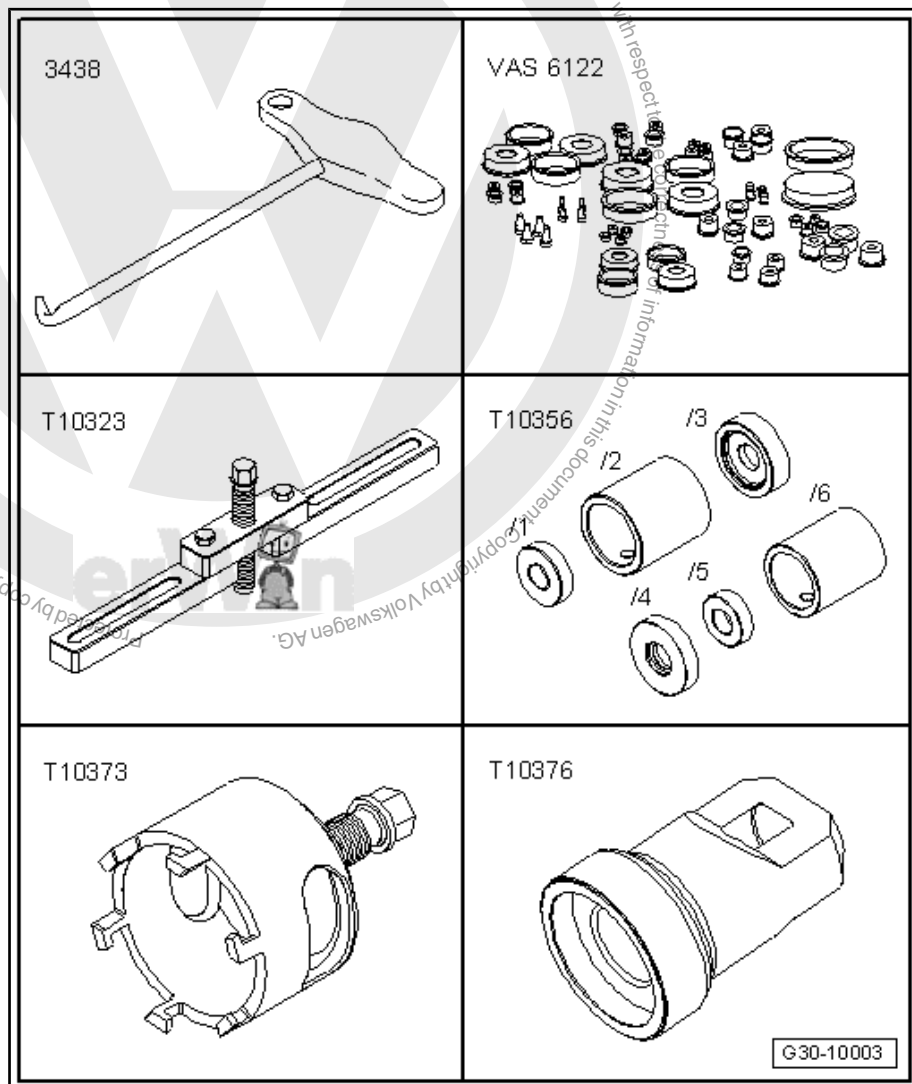
16 - Seal

- For outer input shaft
- Renewing ⇒ [page 61](#)

2.2 Removing dual clutch

Special tools and workshop equipment required

- ◆ Hook -3438-
- ◆ Engine plug set -VAS 6122-
- ◆ Support device -T10323-
- ◆ -T10356/5- from assembly tool -T10356-
- ◆ Puller -T10373-
- ◆ Thrust piece -T10376-



Requirement:

- Gearbox removed and secured to engine and gearbox jack ⇒ [page 286](#) .
- Mechatronic unit for dual clutch gearbox -J743- built into gearbox.



- Pull off both breather caps -arrows- and close using clean plugs from engine bung set -VAS 6122- to achieve an oil-tight seal.

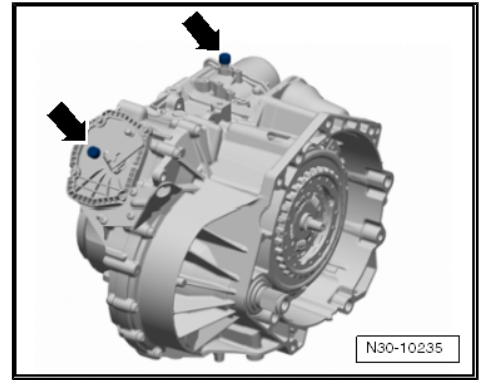


WARNING

For some gearboxes the breather cap on the mechatronic unit is destroyed during removal and must be renewed.

It is not possible to check the fill level of the hydraulic fluid section of the mechatronic unit. Before repairs, the breather of the mechatronic unit must be sealed so that no oil can escape.

If any oil escapes from the hydraulic fluid section of the mechatronic unit, it is not possible to replenish it or check the level! Renew mechatronic unit if any oil escaped!

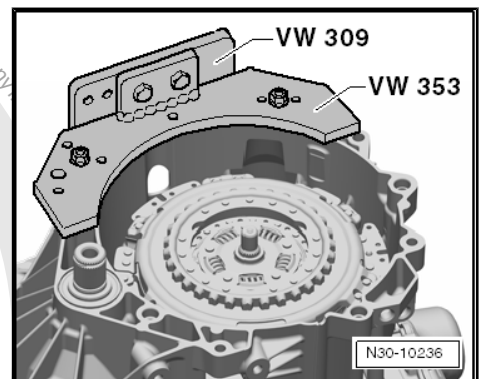


- Turn gearbox on engine and gearbox jack upwards together with clutch..

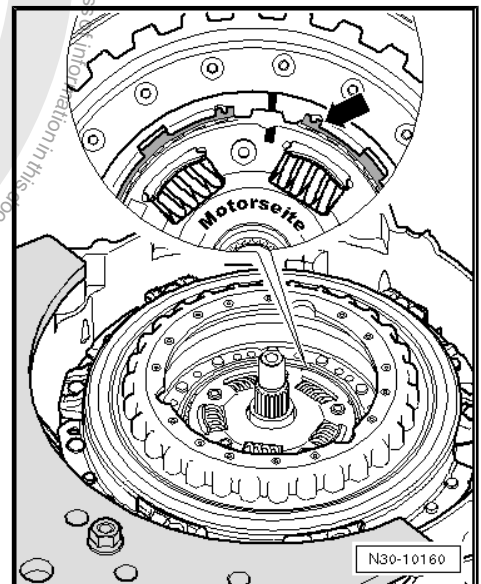


Note

The clutch is pulled off upwards. The mechatronic unit remains on the gearbox.



- Remove retaining ring of hub -arrow-.



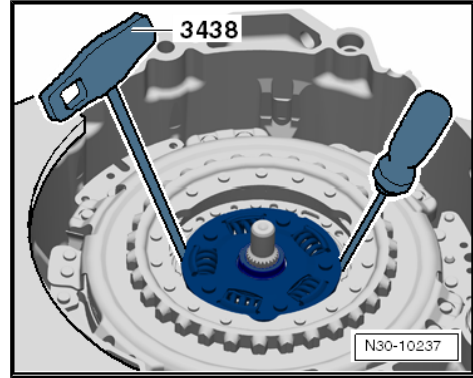


- Remove hub with hook -3438- and a screwdriver.



Note

If parts of clutch are renewed, the position of engagement bearings "K 1" and "K 2" must be set later. It is therefore advisable to determine dimension "B" for the measurements now
=> [page 42](#).



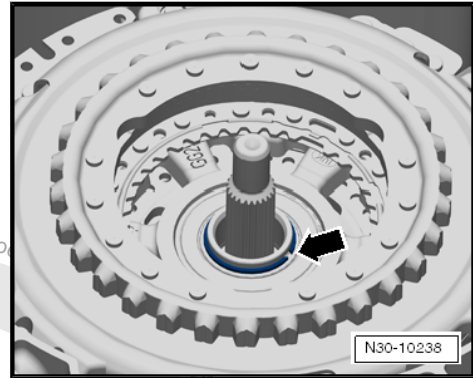
- Remove retaining ring -arrow- for clutch

If retaining ring cannot be removed:



Note

- ◆ If the retaining ring cannot be removed it is because the clutch has »clamped« the retaining ring at the bottom.
- ◆ In this case, depress the clutch slightly as described in the following. The retaining ring is thus relieved. Never strike the clutch or shaft with a hammer!

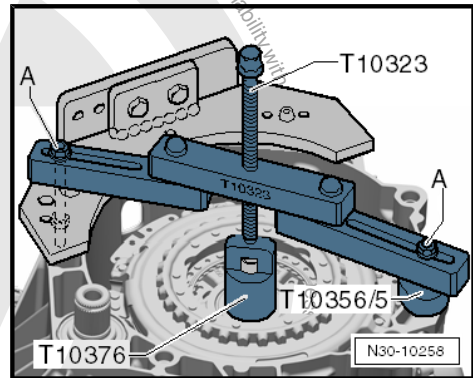


- Position support bracket -T10323- parallel to gearbox flange as shown in illustration.
- If necessary, balance out gaps using -T10356/5- , for example.
- Screw in bolts -A- hand-tight.



Note

Bolts -A-, secure with nut as required.



Caution

Risk of damage to clutch and other components!

- Push down clutch using only very light force.

- To press down, turn spindle against thrust piece -T10376-
- Remove retaining ring -arrow- for clutch.



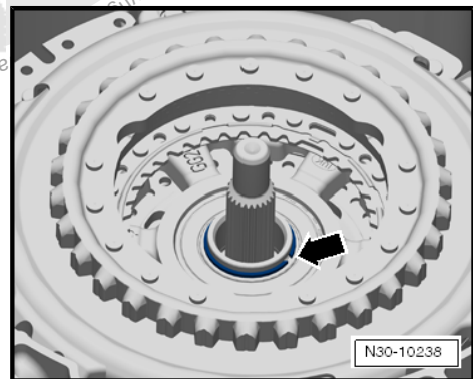
WARNING

It is not permissible to reuse the retaining ring.



Note

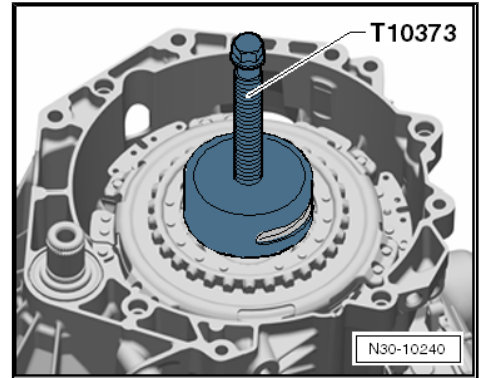
Do not dispose of the retaining ring, if later the dimension "B" must be determined for adjusting the clutch engagement.



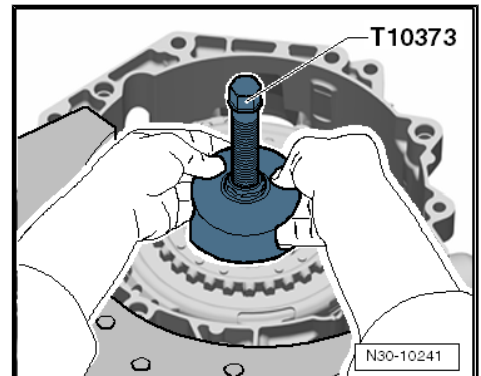


Continuation once retaining ring has been removed:

- Insert puller -T10373- into clutch and bore out clutch.



- Remove clutch together with puller -T10373- .

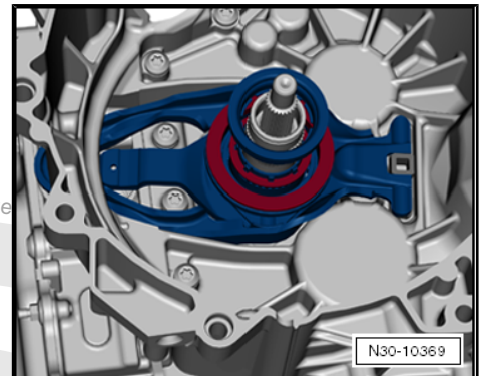


- Remove »large« engaging lever with »small« engagement bearing.

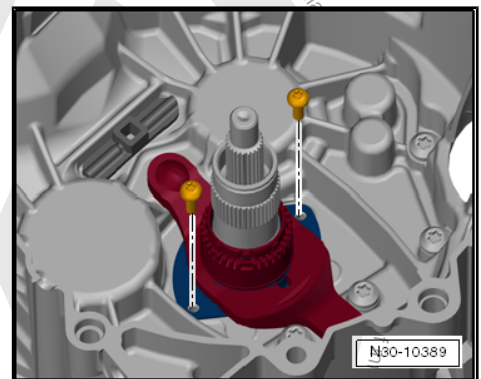


Note

The upper part of guide sleeve cannot be removed or installed separately. It is always removed and installed together with lower part of guide sleeve and »small« engagement lever.



- Undo and remove bolts and remove »small« engagement lever together with upper and lower parts of guide sleeve.



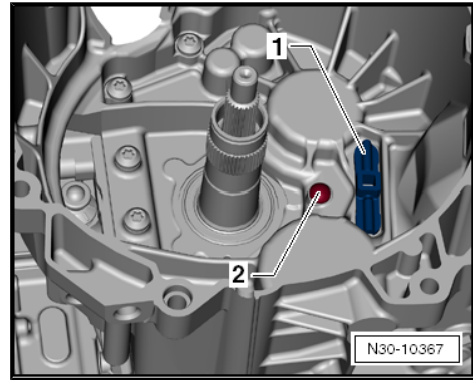


If no parts are renewed, the ball stud -2- remains installed.
The hinge mounting -1- is not removed.



Note

If dimension "B" has already been determined, it is now possible to proceed with step "2" of the measurement ⇒ [page 47](#)



2.3 Adjusting position of clutch engagement bearings "K 1" and "K 2"

The position of the engagement bearings must be adjusted after the following tasks:

- ◆ Clutch has been renewed.
- ◆ Engaging levers have been renewed.
- ◆ Small ball stud for engaging lever "K 2" has been renewed.
- ◆ Engagement bearings have been renewed.



Note

- ◆ *There is no need to adjust anything if all the named parts have only been removed and reinstalled.*
- ◆ *The retaining ring must be renewed in each case.*

Brief description

- ◆ Position of engagement bearings is comparable with clutch play of a manual gearbox. In the 7-speed dual clutch gearbox 0AM there are tolerances in the engagement system of the gearbox and in the gearbox itself. Even within the dual clutch there are tolerances. These tolerances must be taken into account separately during adjustment.
- ◆ The following procedure first describes how to measure all necessary dimensions on the gearbox so that the appropriate shim can be selected. In addition are the tolerances in the clutch that the manufacturer has already calculated. Tolerances on gearbox and tolerances in clutch determine thickness of shim.
- ◆ Adhere to the sequence of work steps.

Overview of clutch actuation:



1 - Shim for "K 1"

- ⇒ ["2.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 42](#)

2 - Large engaging lever for "K 1"

- With engagement bearing

3 - Hinge mounting

- For large engaging lever "K 1"
- Is not renewed

4 - Small engagement bearings for "K 2"

5 - Shim for "K 2"

- ⇒ ["2.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 42](#)

6 - Upper part of guide sleeve

- Small small engaging lever "K 2"
- is removed and installed together with lower part of guide sleeve

7 - Small engaging lever for "K 2"

- is removed and installed together with upper and lower part of guide sleeve

8 - Ball stud

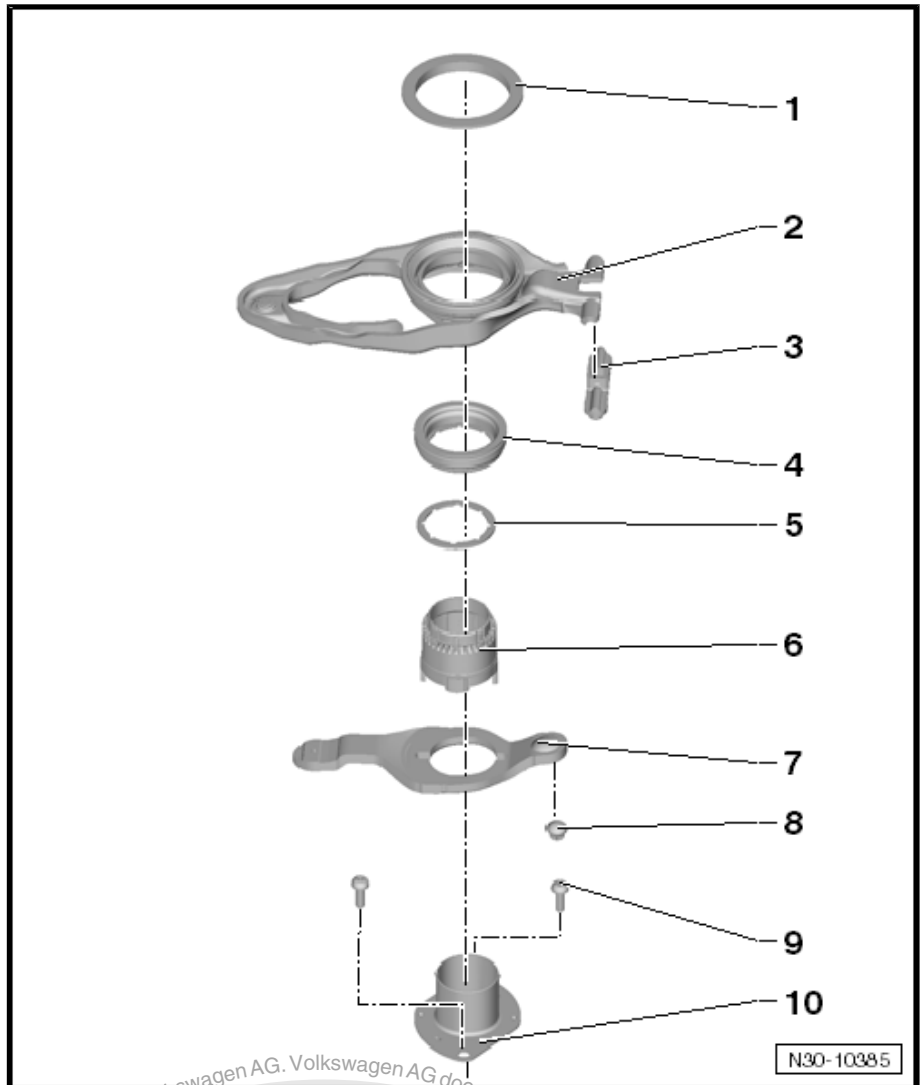
- Small small engaging lever "K 2"
- ⇒ ["2.3 Adjusting position of clutch engagement bearings K 1 and K 2", page 42](#)

9 - Bolts

- Always renew after removing.
- 8 Nm + 90°

10 - Lower part of guide sleeve

- Small small engaging lever "K 2"
- is removed and installed together with upper part of guide sleeve

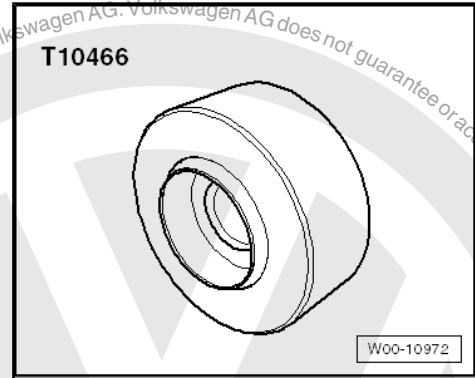


Special tools and workshop equipment required

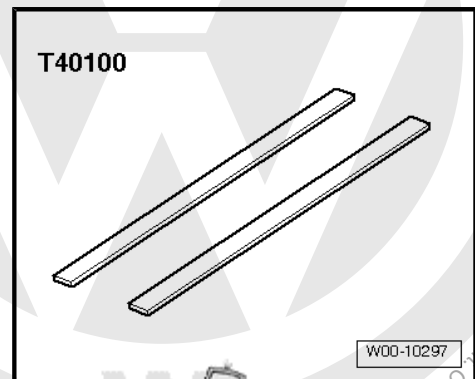
- ◆ Depth gauge, digital 300 mm -VAS 6594-



- ◆ Gauge block -T10466-



- ◆ Ruler -T40100-



Requirement:

- The gearbox flange must be level to assure good contact with the ruler.
- Mechatronic unit for dual clutch gearbox -J743- must be installed.

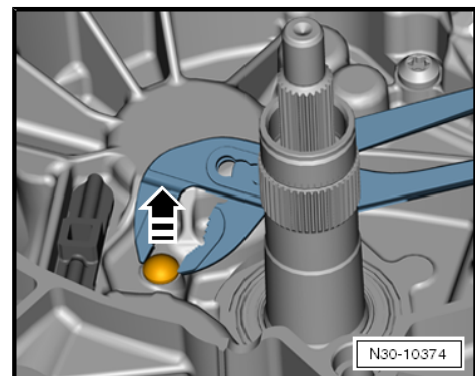


Caution

Risk of damage to clutch and other components!

- ***Mounting for engaging lever and entire mechanism of engagement bearing must be dry and free of oil or grease.***

- Remove installed ball stud using pliers.



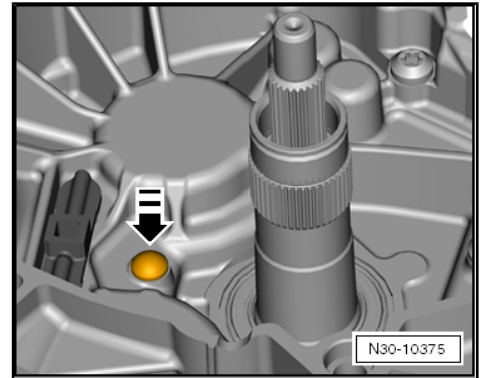


- Push in »new« ball stud by hand, if necessary using a plastic hammer and drift to tap it in.

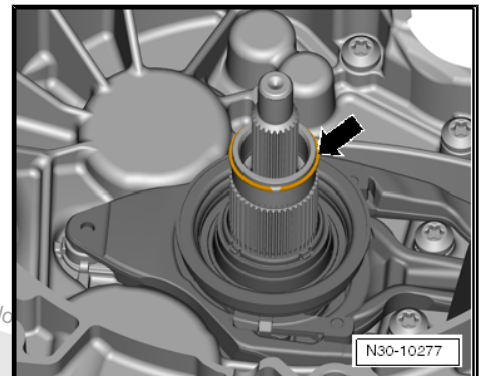


Note

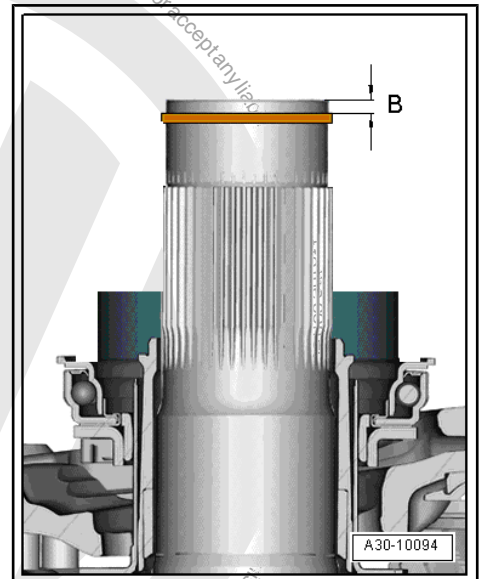
To avoid damage to ball stud, only tap the drift lightly with the hammer.



- Install old retaining ring of outer input shaft.



1st step: Determine dimension "B" for clutch "K 1" and "K 2"



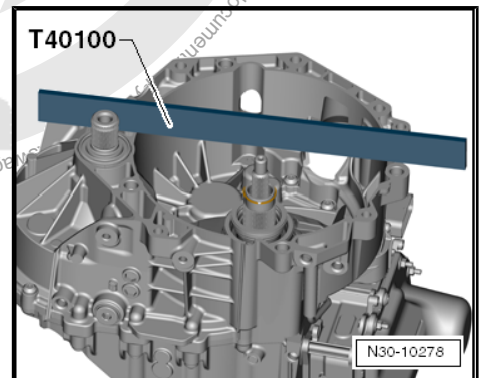
- Place ruler -T40100- upwards across end of shaft onto gear-box flange.



Caution

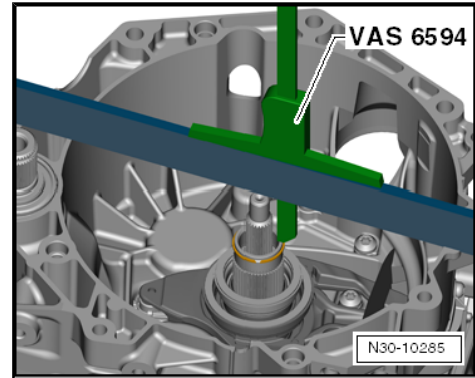
Risk of false measurements.

- ◆ The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.

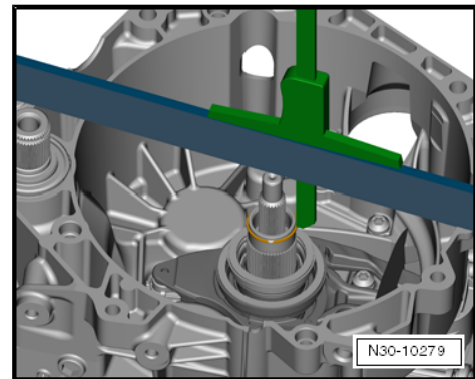




- Place digital 300 mm depth gauge -VAS 6594- on top of ruler -T40100- and position depth gauge rod on outer input shaft.
- Set depth gauge to "0".



- Position depth gauge rod on retaining ring, as show in diagram.
- In this position, determine dimension "B₁" to retaining ring.
- Example: dimension "B₁" = 2.62 mm



- In the opposite position, determine dimension "B₂" to retaining ring.



Note

Do not measure on retaining ring joint. The retaining ring could be pushed away and falsify the reading.

- Example: dimension "B₂" = 2.58 mm
- Calculate mean value from dimension "B₁" and "B₂".

Formula: $B_1 + B_2 / 2$

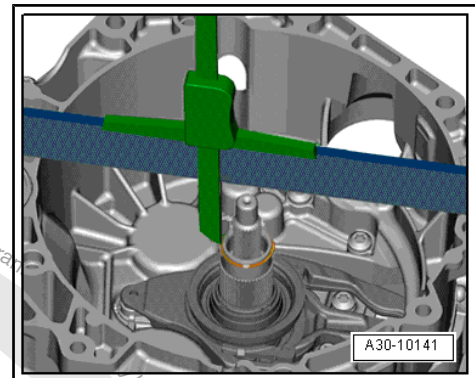
Example:

- $2.62 + 2.58 / 2 = 2.60$ mm
- Result: Dimension "B" = 2.60 mm




Note

If the dual clutch was installed after this measurement, it must now be removed => [page 40](#).



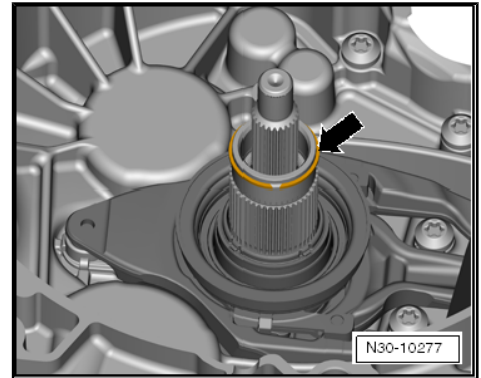


- Remove and dispose of outer input shaft.

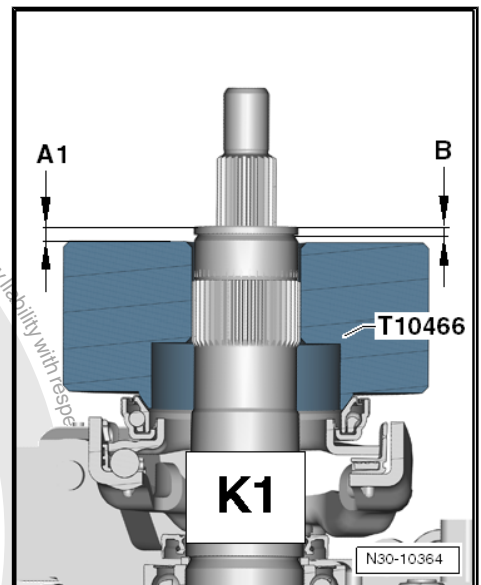


WARNING

It is not permissible to reuse the retaining ring.



2nd step: Determine dimension "A 1" for clutch engaging lever "K 1"



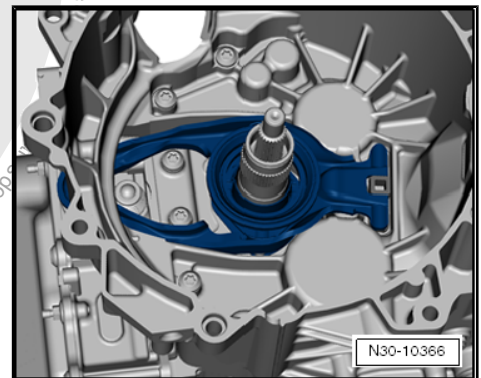
- Insert large engaging lever.



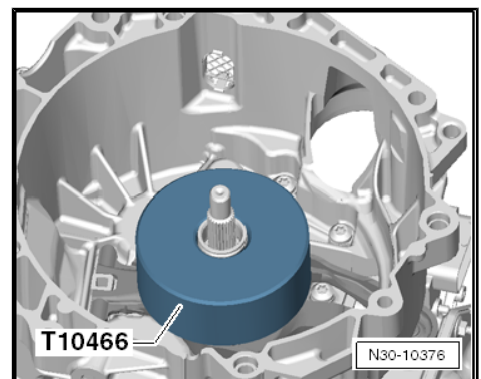
WARNING

Do not insert any shim!

- Check that engaging lever is seated correctly.



- Place end gauge -T10466- on large engagement bearing. Flat side faces upwards.
- To ensure that end gauge -T10466- sits properly on engagement bearing, press down and turn end gauge.
- Engagement bearing will turn with end gauge -T10466- .





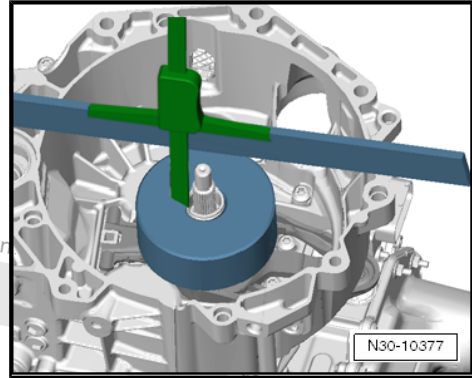
- Place digital 300 mm depth gauge -VAS 6594- on top of ruler and position depth gauge rod on outer input shaft.
- Ruler -T40100- is lying upwards across end of shaft on gearbox flange.



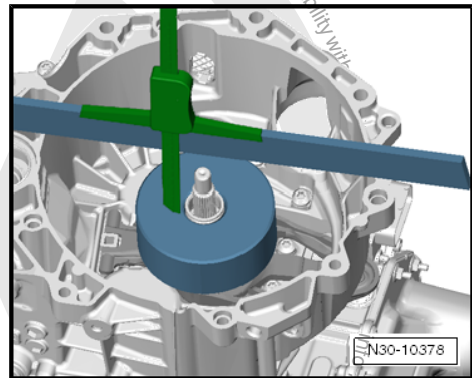
Caution

Risk of false measurements.

- ◆ **The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.**



- Set depth gauge to "0".
- Position depth gauge rod on end gauge -T10466- , as show in diagram.
- In this position, determine dimension "A 1_a" to end gauge -T10466- .
- Example: Dimension "A 1_a" = 4.93 mm

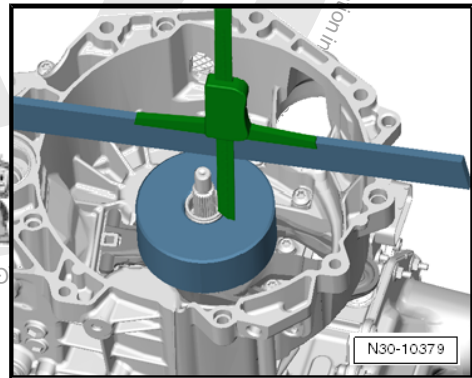


- In the opposite position, determine dimension "A 1_b" to end gauge -T10466- .
- Example: Dimension "A 1_b" = 4.91 mm
- Calculate mean value from dimension "A 1_a" and "A 1_b".

Formula: $A_{1a} + A_{1b} / 2$

Example:

- $4.93 + 4.912 = 4.92\text{mm}$
- Result: Dimension "A 1" = 4.92 mm



3rd step: Calculate height tolerance of clutch engagement bearing "K 1"



Note

On the basis of dimension "A1" and dimension "B", the height tolerance of the clutch engagement bearing "K 1" is now calculated according to the following calculus.

	Dimension "A 1"
-	Dimension "B"
=	Actual height tolerance of clutch engagement bearing "K 1"

Example:

- $4.92\text{ mm} - 2.60\text{ mm} = 2.32\text{ mm}$
- Result: Height tolerance of clutch engagement bearing "K 1" = 2.32 mm



4th step: Calculate clutch tolerance of clutch "K 1".

- Take clutch tolerance value from new clutch.
- Example: Read off clutch tolerance value on clutch "K 1 = +0.2", as shown in diagram.

5th step: Determine thickness of shim "SK 1"



Note

On the basis of the clutch tolerance "K 1", the thickness of shim "SK1" is now calculated according to the following calculus.

	Height tolerance of engagement bearing "K 1"
-/+	Clutch tolerance of clutch "K 1"
=	Calculated thickness of shim "SK 1"

Example:

- 2.32 mm + 0.20 mm = 2.52 mm
- Result: Calculated thickness of shim "SK 1" = 2.52 mm
- Select required shim from the table with the help of the part number -magnifying glass- and have it ready for installation.

Calculated thickness of shim mm	Available shims Thickness in mm	Part number of shim
1.21 ... 1.60	1.50	0AM 141 383
1.61 ... 1.80	1.70	0AM 141 383 A
1.81 ... 2.00	1.90	0AM 141 383 B
2.01 ... 2.20	2.10	0AM 141 383 C
2.21 ... 2.40	2.30	0AM 141 383 D
2.41 ... 2.60	2.50	0AM 141 383 E
2.61 ... 2.80	2.70	0AM 141 383 F
2.81 ... 3.00	2.90	0AM 141 383 G
3.01 ... 3.20	3.10	0AM 141 383 H
3.21 ... 3.40	3.30	0AM 141 383 J
3.41 ... 3.80	3.50	0AM 141 383 K

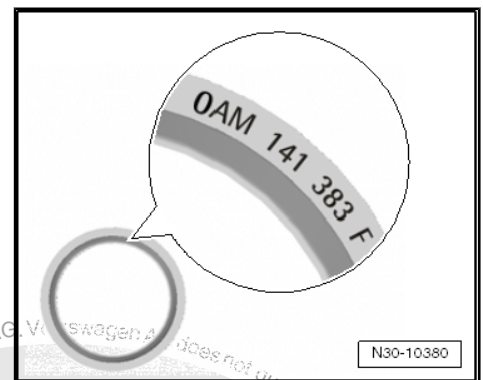
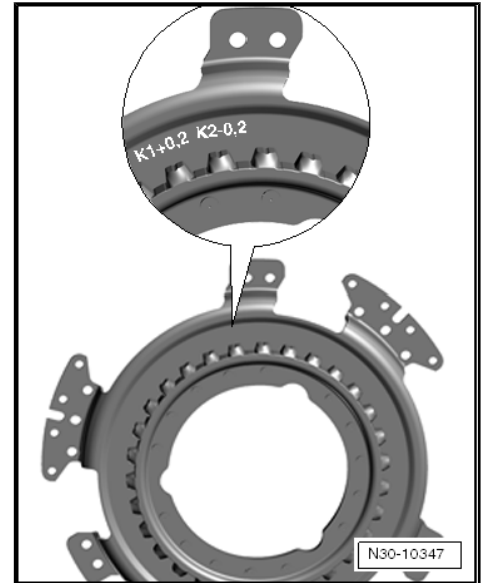
Example:

- Result: Calculated thickness of shim "SK 1" = 2.52 mm
- Chosen shim thickness = 2.50 mm = part number DAM 141 383 E



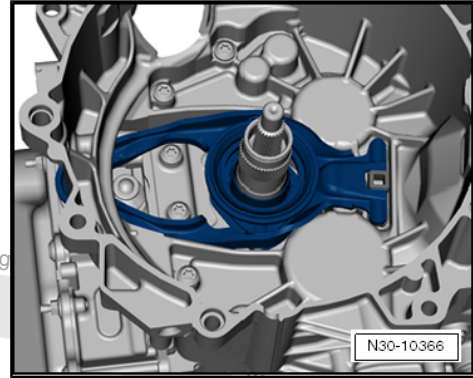
WARNING

To avoid damage to clutch, only fit this shim later.



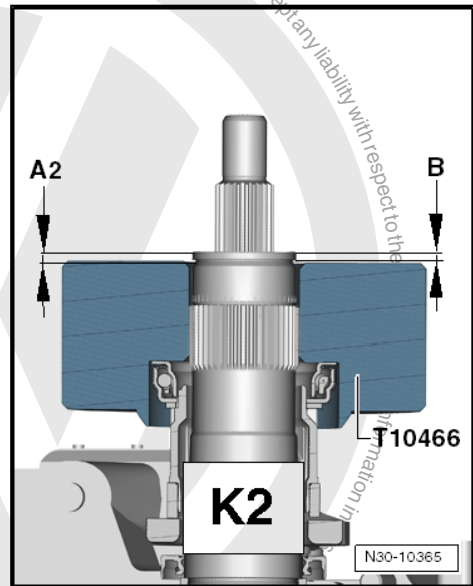


- Remove end gauge -T10466- and large engagement lever again.



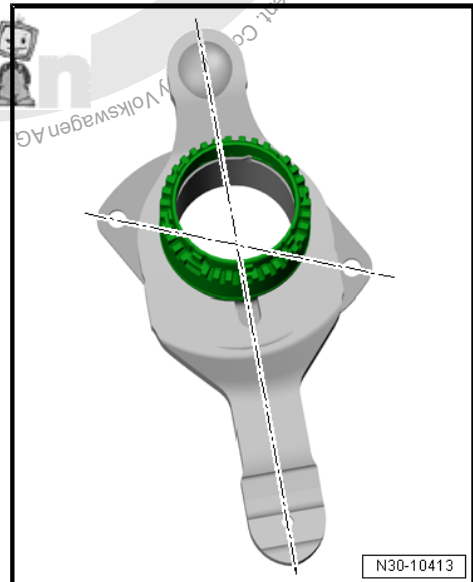
6th step: Determine dimension "A 2" for clutch engaging lever "K 2"

Observe the following when installing a new engaging lever »K2«:



The new engaging lever »K2« with upper and lower section of guide sleeve will be delivered in transport position -illustration- and must be set to installation position prior to installation.

Setting engaging lever »K2« to installation position.



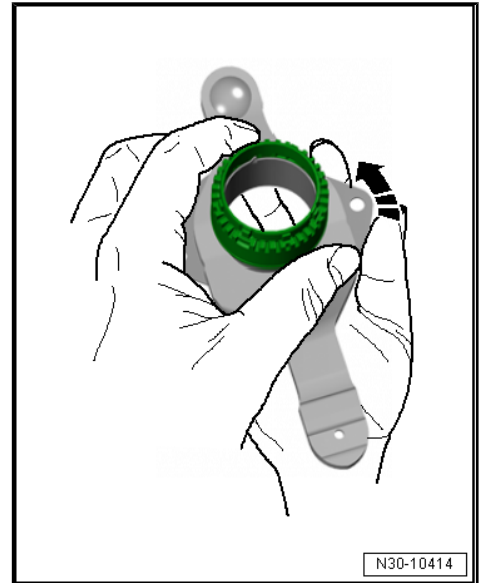


- Hold upper section of guide sleeve with one hand. With the other hand turn the lower section of guide sleeve in direction of arrow until the sleeve moves freely.



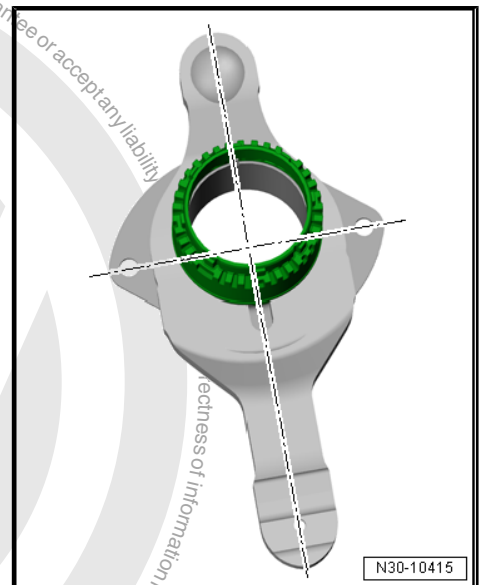
Note

Apply high force to hold both sections, as this is necessary for turning the lower section of the guide sleeve.



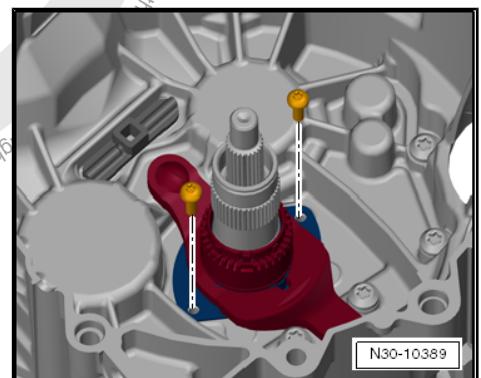
If the engaging lever is in installation position, the holes of the lower section of guide sleeve are at right angles to the engaging lever and the sleeve moves freely.

Continuation for all:



- Install »small« engaging lever together with upper and lower section of guide sleeve. Insert and tighten new bolts.

Specified torque: => [page 43](#)





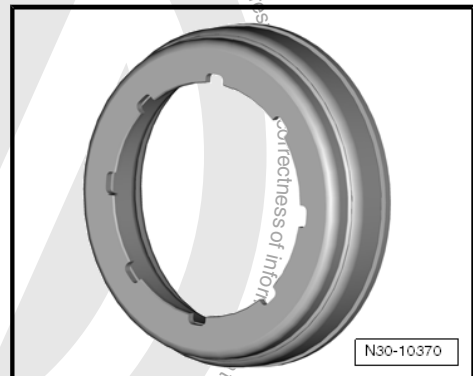
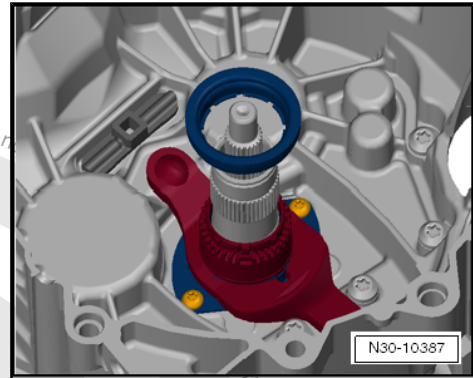
- Insert »small« engagement bearing without shim



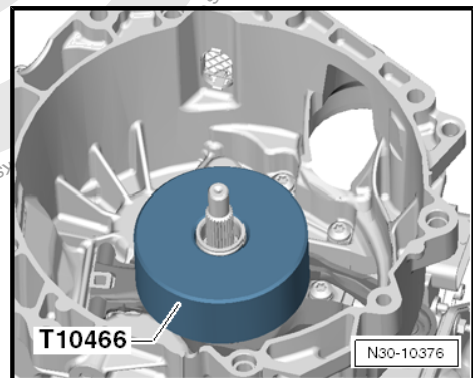
WARNING

Do not insert any shims!

- Small engagement bearing only fits in one position due to 8 grooves.
- By turning, check whether small engagement bearing has been installed correctly and that grooves are seated correctly.



- Place end gauge -T10466- on small engagement bearing. Flat side faces upwards.
- To ensure that end gauge -T10466- sits properly on engagement bearing, press down and turn end gauge.
- Engagement bearing will turn with end gauge -T10466-



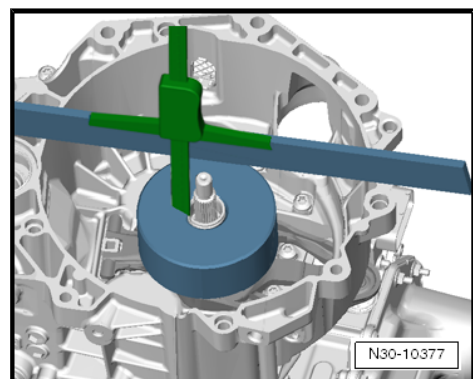
- Place digital 300 mm depth gauge -VAS 6594- on top of ruler and position depth gauge rod on outer input shaft.
- Ruler -T40100- is lying upwards across end of shaft on gearbox flange.



Caution

Risk of false measurements.

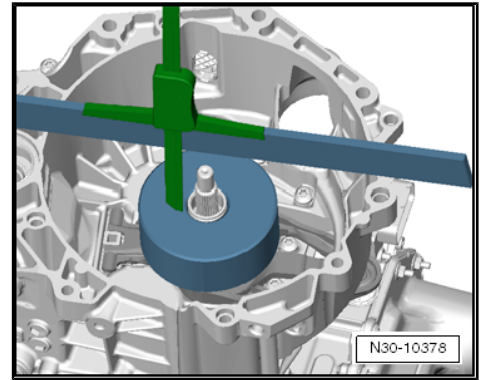
- ◆ ***The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.***



- Set depth gauge to "0".



- Position depth gauge rod on end gauge -T10466- , as show in diagram.
- In this position, determine dimension "A 2_a" to end gauge - T10466- .
- Example: Dimension "A 2_a" = 4.79 mm

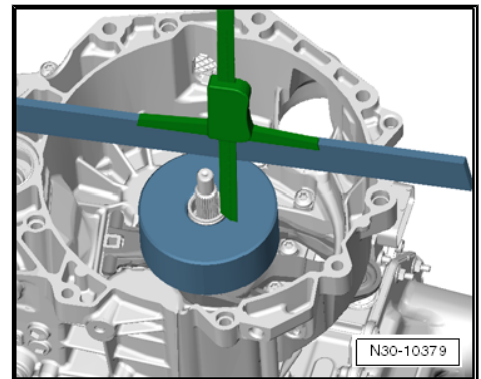


- In the opposite position, determine dimension "A 2_b" to end gauge -T10466- .
- Example: Dimension "A 2_b" = 4.75 mm
- Calculate mean value from dimension "A 2_a" and "A 2_b".

Formula: $A 2_a + A 2_b \div 2$

Example:

- $4.79 + 4.752 = 4.77$ mm
- Result: Dimension "A 2" = 4.77 mm



7th step: Calculate height tolerance of clutch engagement bearing "K 2"

i Note

On the basis of dimension "A 2" and dimension "B", the height tolerance of the clutch engagement bearing "K 2" is now calculated according to the following calculus.

	Dimension "A 2"
-	Dimension "B"
=	Actual height tolerance of clutch engagement bearing "K 2"

Example:

- $4.77 \text{ mm} - 2.60 \text{ mm} = 2.17 \text{ mm}$
- Result: Height tolerance of clutch engagement bearing "K 2" = 2.17 mm



8th step: Calculate clutch tolerance of clutch "K 2"

- Read clutch tolerance value from new clutch.
- Example: Read off clutch tolerance value on clutch "K 2 = - 0.2", as shown in diagram.

9th step: Determine thickness of shim "SK 2"



Note

On the basis of the clutch tolerance "K 2", the thickness of shim "SK 2" is now calculated according to the following calculus.

	Height tolerance of engagement bearing "K 2"
-/+	Clutch tolerance of clutch "K 2"
=	Calculated thickness of shim "SK 2"

Example:

- $2.17 \text{ mm} - 0.20 \text{ mm} = 1.97 \text{ mm}$
- Result: Calculated thickness of shim "SK 2" = 1.97 mm
- From the shims supplied, measure the required shim and have it ready for installation.

Calculated thickness of shim mm	Available shims Thickness in mm
0.31 ... 0.90	0.80
0.91 ... 1.10	1.00
1.11 ... 1.30	1.20
1.31 ... 1.50	1.40
1.51 ... 1.70	1.60
1.71 ... 1.90	1.80
1.91 ... 2.10	2.00
2.11 ... 2.30	2.20
2.31 ... 2.50	2.40
2.51 ... 2.70	2.60
2.71 ... 3.30	2.80

Example:

- Result: Calculated thickness of shim "SK 2" = 1.97 mm
- Chosen shim thickness = 2.00 mm



WARNING

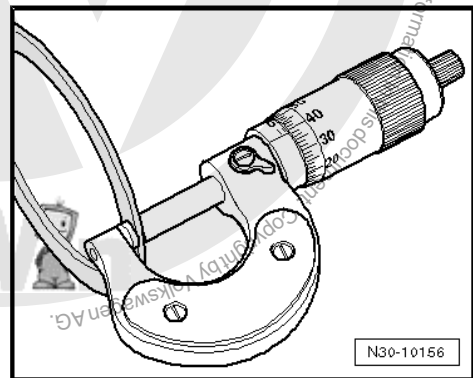
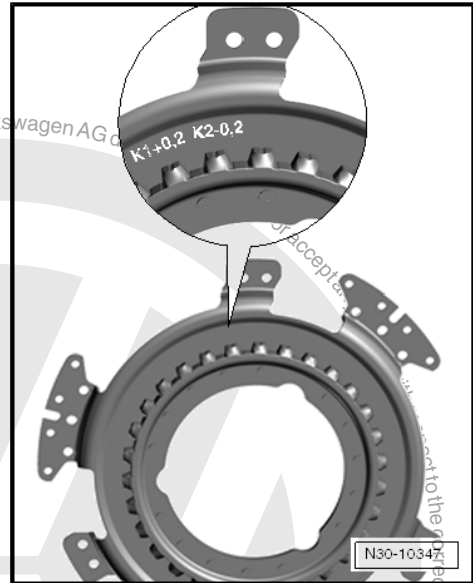
To avoid damage to clutch, only fit this shim later.

The adjusting work has not been completed and the »small« engagement lever has already been installed. The next step now is to install the clutch again.

- Install clutch => [page 54](#) .

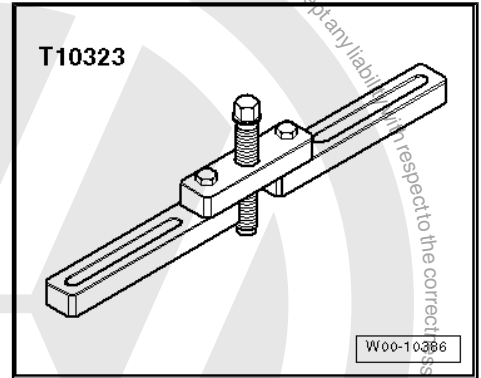
2.4 Installing dual clutch

Special tools and workshop equipment required

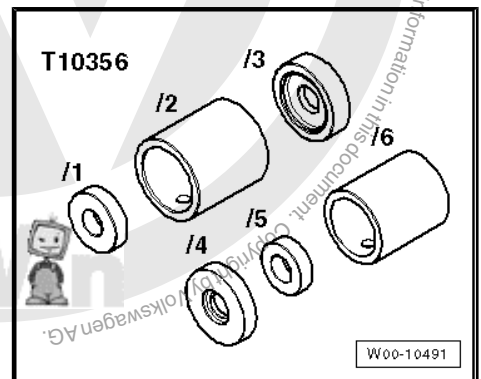




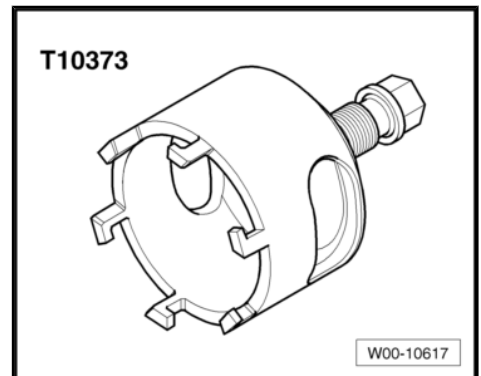
- ◆ Support device -T10323-



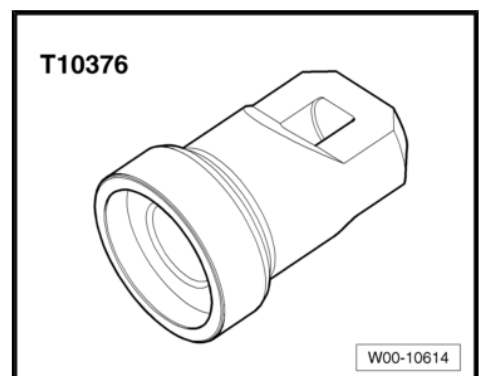
- ◆ -T10356/5- from assembly tool -T10356-



- ◆ Puller -T10373-



- ◆ Thrust piece -T10376-





Installing



Note

If a further tightening angle is specified for certain bolts, these must be renewed.



Caution

Risk of damage to clutch and other components!

- The positions of the engagement bearings must be set correctly.

Adjustment can only be carried out before the clutch is installed.

The position of the engagement bearings must be adjusted after the following tasks:

- ◆ Clutch has been renewed.
- ◆ Engaging levers were renewed.
- ◆ The ball stud was replaced.
- ◆ Engagement bearings were renewed.

If any of the work above has been carried out, you must now adjust the position of engagement bearings "K 1 and K 2" ⇒ **page 42**.

Do not continue with assembly until the setting is correct!

If no new parts have been installed, use removed shims.

For adjustment, only one shim per engagement bearing may be installed.

- Clutch parts must be free of oil and grease.

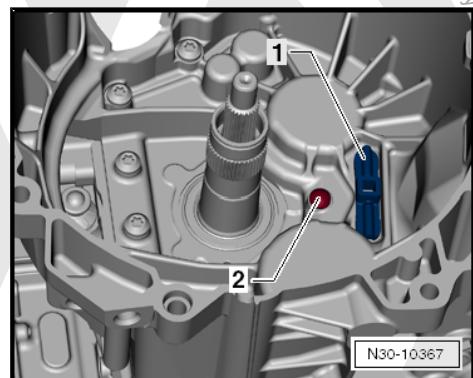
Hinge mounting -1- and ball stud -2- have been installed.



Note

The upper part of guide sleeve cannot be removed or installed separately. It is always removed and installed together with lower part of guide sleeve and »small« engagement lever.

The following part of the work is only necessary if all the named parts are only removed and then installed again.

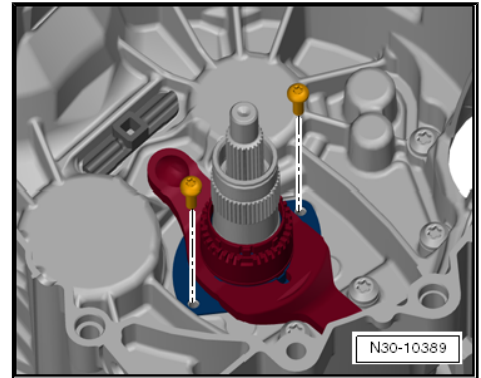




- Install »small« engagement lever together with upper and lower parts of guide sleeve. Insert and tighten new bolts.

Specified torque: => [page 43](#)

Continuation for all vehicles:

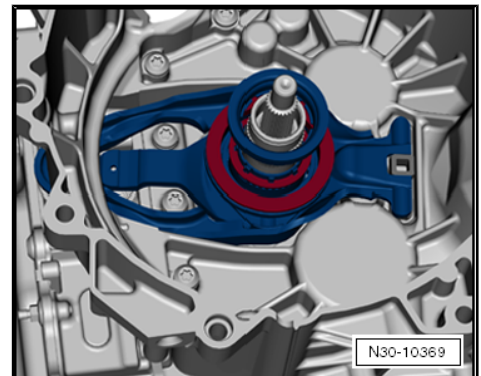


- Insert »large« engagement lever with measured shims for "K 1" and "K 2" and with small engagement bearing.



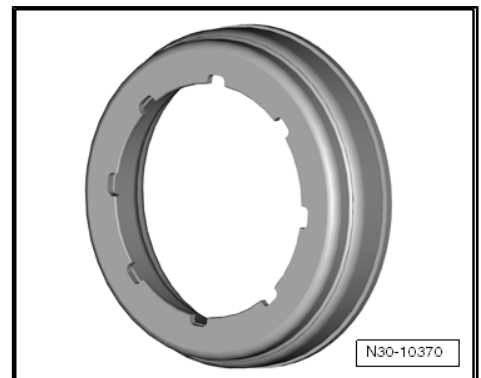
Note

- ◆ The large shim is inserted into the large engagement bearing, with the hemispherical side of the shim facing downwards.
- ◆ The small shim goes under the small engagement bearing. This shim must therefore be inserted first.



The shim and the small engagement bearing only fit in one position due to the 8 grooves.

- By turning, check that parts have been installed correctly and that grooves are seated correctly.
- Check both engaging levers are seated correctly.
- Turn back spindle of puller -T10373- .

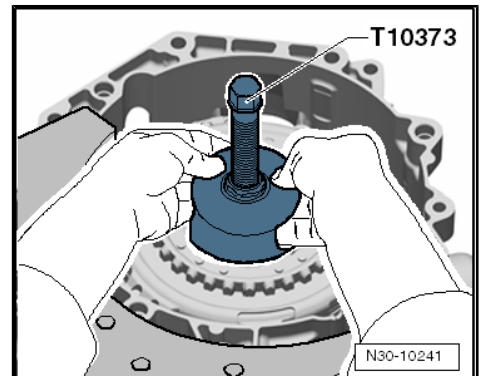


Caution

Risk of damage from clutch adjustment device.

- ◆ The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Do not allow clutch to fall into gearbox during installation.

- Install clutch with puller -T10373- in gearbox, as shown in diagram.





- Position support bracket -T10323- parallel to gearbox flange as shown in illustration.
- If necessary, balance out gaps using -T10356/5- from assembly tool -T10356- , for example.
- Screw in bolts -A- hand-tight.

i Note

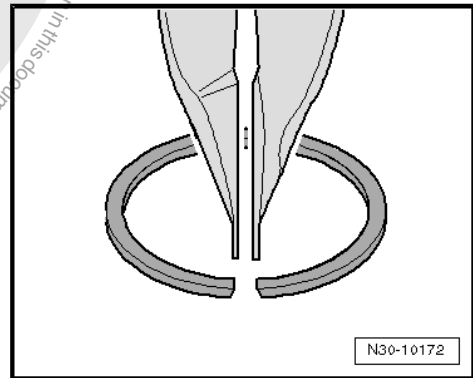
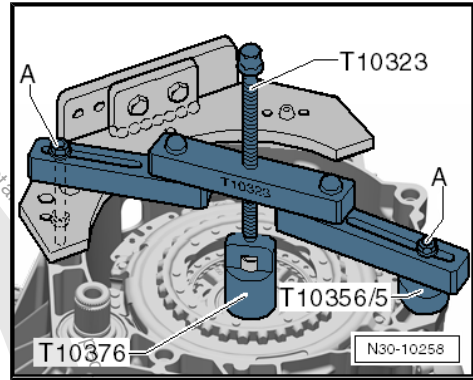
Bolts -A-, secure with nut as required.

- Press on clutch as far as it will go.

i Note

Place a hand on the clutch when pressing it on. A slight »rattling« will be felt. Rattling indicates that the clutch is being pressed onto its press seat. This also enables detection of the limit stop once the clutch has been seated correctly.

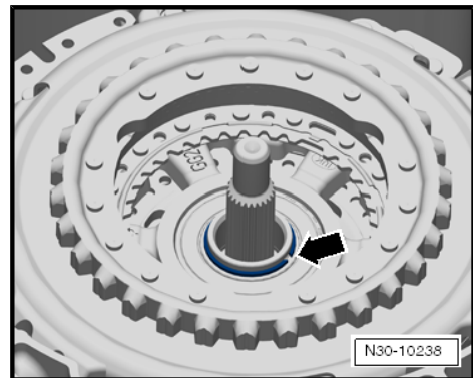
- Take hold of new retaining ring with retaining ring pliers, as shown in the illustration.
- Installation position: narrow surface of retaining ring on top.



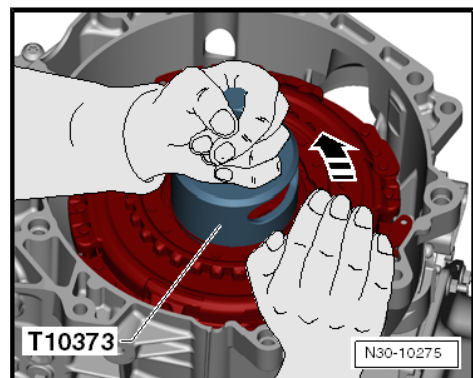
- Inserting retaining ring -arrow-.

i Note

If the retaining ring cannot be inserted, the clutch has not been pressed in onto its limit stop.



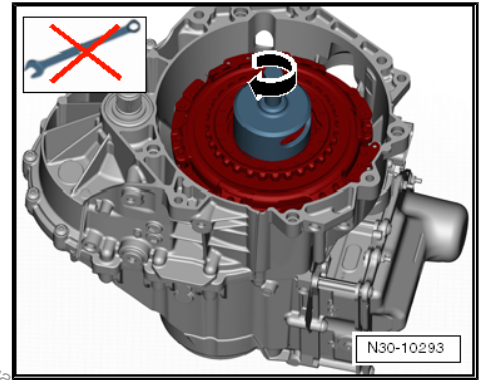
- To ensure that the clutch reaches its operating position right from this stage, turn it against puller -T10373- -arrow- by hand without using any other tools.





i Note

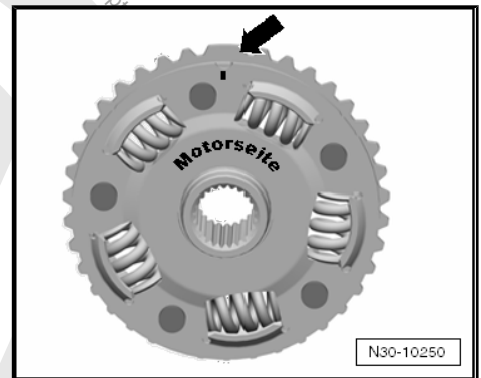
- ◆ *By pressing on, the clutch sits at the bottom against the limit stop on the input shaft. This is not the optimum position.*
- ◆ *Clutch should only be pulled up far enough for it to contact retaining ring.*



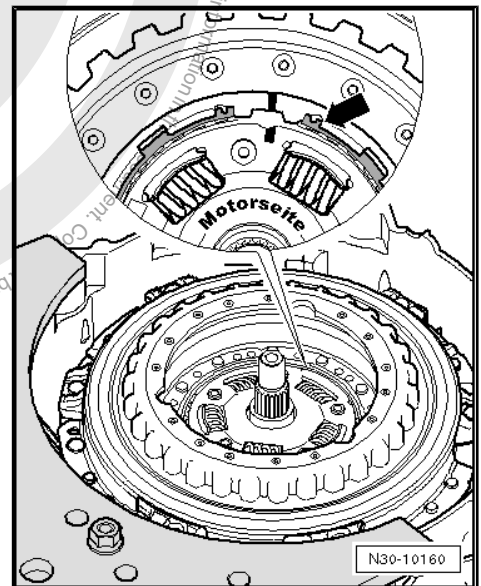
i Note

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

- Insert hub.
- Hub has »large tooth« -arrow- and only fits in one position.
- »Large tooth« has a mark at engine end.

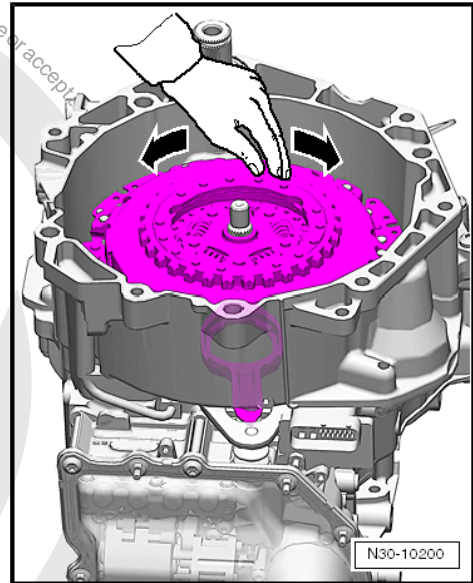


- Insert retaining ring -arrow- of hub.
- Joint of retaining ring must point towards »hub« of clutch.



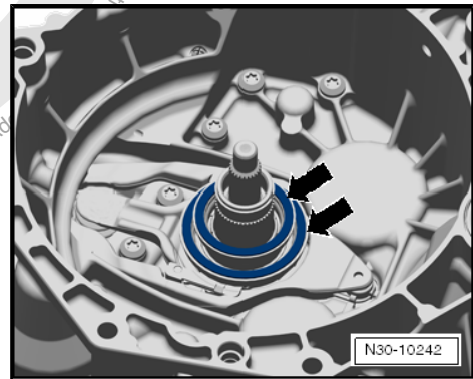


- Turn clutch by hand. It should be possible to turn it without difficulty.



Note

- ◆ If the clutch is difficult to turn or if the clutch lining is being rubbed hard, remove clutch again ⇒ [page 38](#).
- ◆ Check installation position of shims -arrows-.
- ◆ The shims must be properly seated and undamaged ⇒ [page 54](#).
- ◆ A mathematical error could have been made. Check measurements again ⇒ [page 42](#).
- ◆ If no error has been made, the clutch may have been moved out of position due to transport/assembly and a new clutch now has to be installed. The position of the engagement bearings must then be readjusted ⇒ [page 42](#).



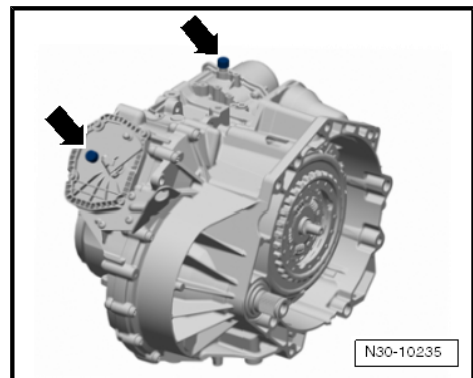
- Remove two plugs and put breather caps -arrows-on.



WARNING

For some gearboxes the breather cap on the mechatronic unit is destroyed during removal and must be renewed.

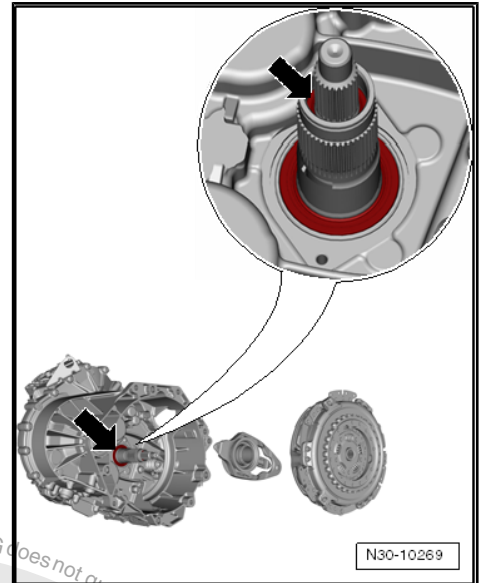
- Dispose of excess shims.
- After installation of gearbox, perform [Complete reset](#) by means of [Guided functions](#) ⇒ Vehicle diagnostic tester.





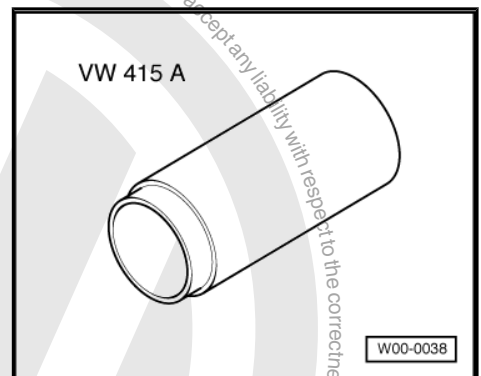
3 Removing and installing oil seals at clutch end

There are 2 radial oil seals in gearbox at clutch end. Both oil seals can be renewed without gearbox being dismantled. If only oil seals are renewed, there is no need to adjust clutch.

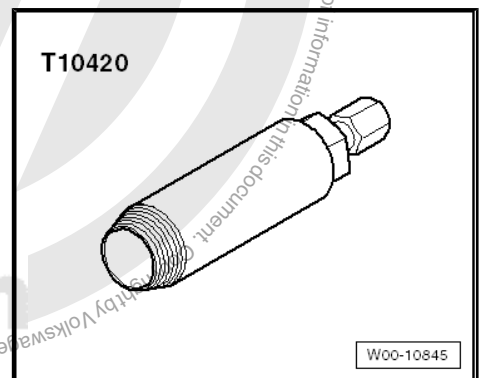


Special tools and workshop equipment required

- ◆ Tube -VW 415 A-

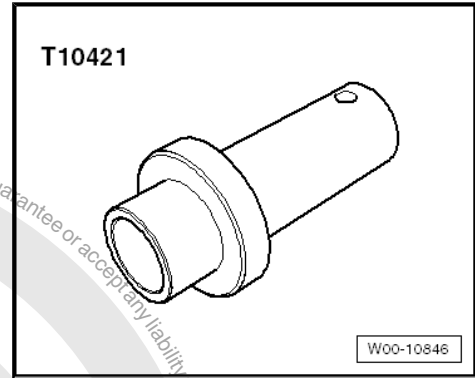


- ◆ Oil seal extractor -T10420-

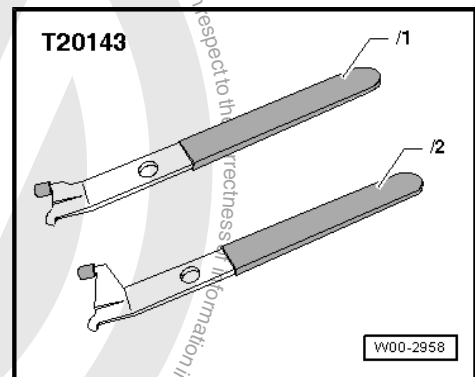




◆ Thrust piece -T10421-



◆ Extractor tool -T20143/2-



Requirement:

Dual clutch has been removed.

Up to gearbox manufacturing date 05.2011 ⇒ [page 11](#)

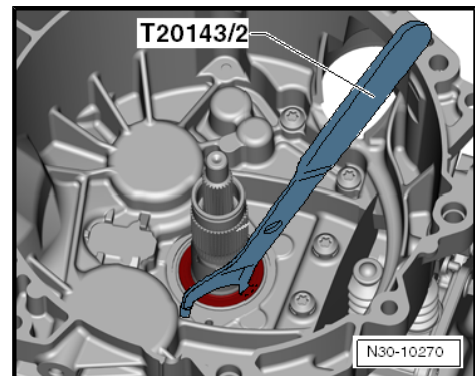
From gearbox manufacturing date 06.2011 onwards
⇒ [page 36](#)



Caution

If leaking, always check the dual clutch. Renew clutch if it is oily.

- Lever out outer oil seal.





- Drive in outer, »new« oil seal with a plastic mallet until flush with clutch housing.
- Shoulder of pipe section -VW 415 A- points upwards -arrow-.

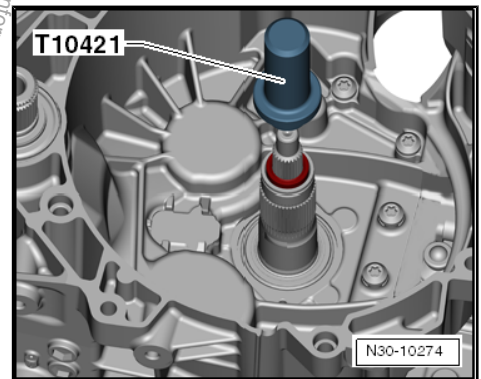
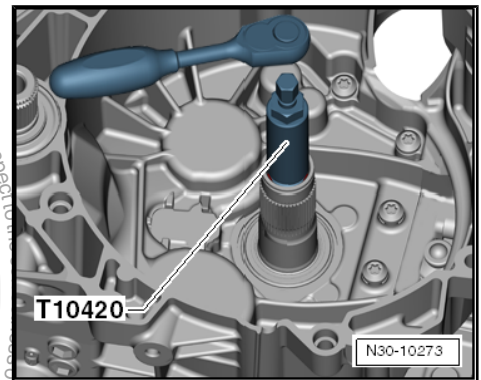
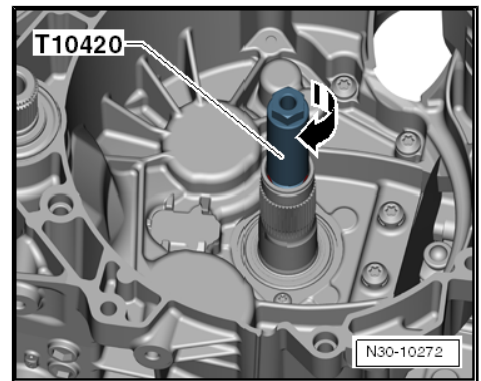
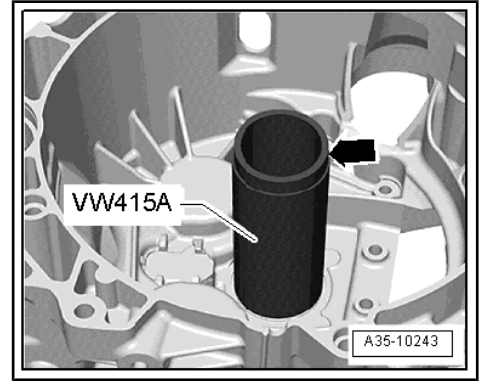


WARNING

Only drive in oil seal until flush, in order to avoid closing off oil drilling located behind it. Otherwise, bearing can no longer be supplied with enough oil.

- Unscrew spindle of oil seal extractor -T10420- .
- Screw oil seal extractor -T10420- into »small«, inner oil seal. Press puller when doing this.

Puller will become very tightly clamped when turning oil seal. You can »feel« when oil seal starts to turn in its seat as well.



- Now screw in spindle.
- Pull out oil seal using spindle.

- Knock in »new« oil seal up to stop.
- Install dual clutch ⇒ [page 29](#) .



Note

If there is a complaint about "leaking" it might be worthwhile looking at the engine crankshaft now.

Installing gearbox ⇒ [page 276](#) .

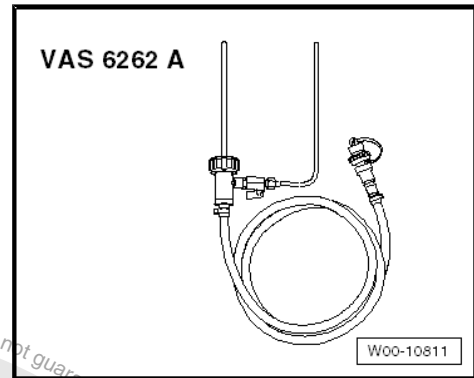


34 – Controls, housing

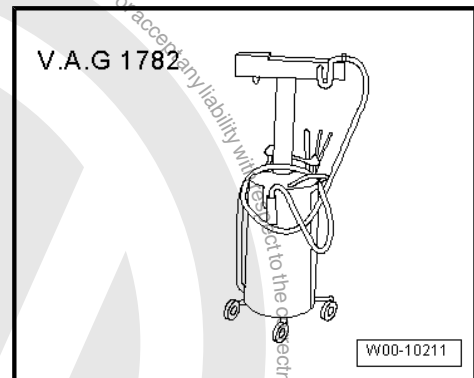
1 Renewing gear oil

Special tools and workshop equipment required

- ◆ Adapter for filling oil -VAS 6262 A-



- ◆ Used oil collection and extraction unit -V.A.G 1782-

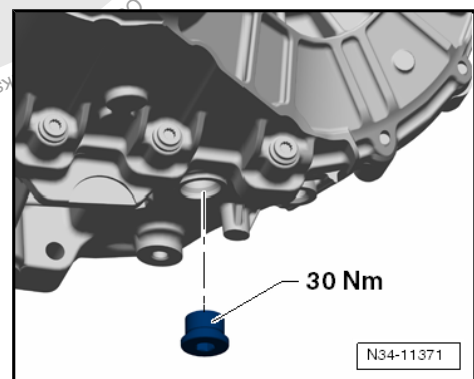


The gearbox is filled for life. Therefore, there is no need to check the oil level of this gearbox.

This explains why there is no oil level check.

If the gearbox has started leaking, check where the oil is coming from.

- Position used oil collection and extraction unit -V.A.G 1782- under gearbox.
- Then drain remaining oil.
- Repair leak.
- Then install the drain plug again.



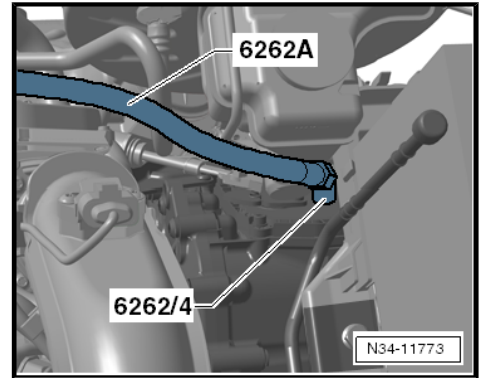


The new oil is poured in through the breather hole.

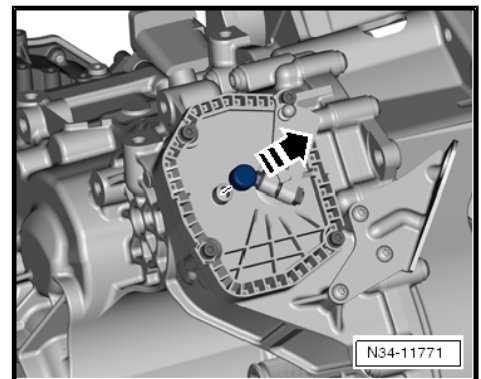
If the gearbox has been installed, the air filter and/or battery must be removed in order to fill it with oil, depending on the model and engine size.

Removing and installing air filter housing ⇒ Rep. gr. 24 .

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



- Pull cap off breather hole.

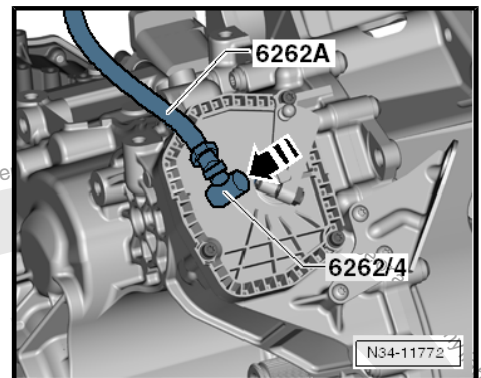


- Fit oil filling adapter -VAS 6262 A- with adapter -VAS 6262/4- on breather hole.



Note

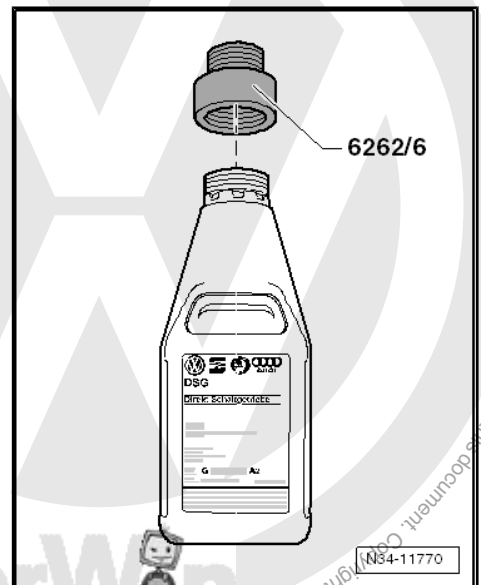
- ◆ *Only the gearbox oil for the 7-speed dual clutch gearbox 0AM, which is available through the replacement parts system, may be used ⇒ Electronic parts catalogue (ETKA) .*
- ◆ *Shake oil bottles before filling.*



- Screw adapter -VAS 6262/6- onto bottle and twist onto oil filling adapter -VAS 6262 A- .
- Fill 1.7 litres of oil.

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

After filling, remove oil filling adapter -VAS 6262 A- . Clean area around breather hole with a cloth and fit the breather cap.





2 Emergency release of selector lever

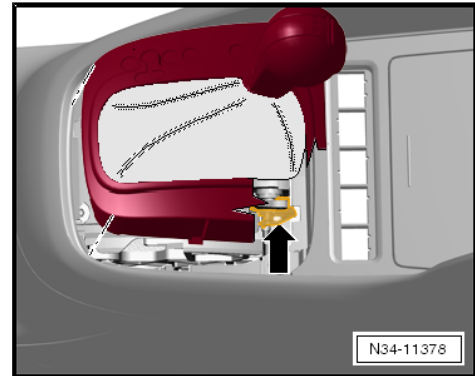
Do not remove knob ⇒ [page 66](#) .

- Depress brake pedal or set handbrake.

In an emergency:

Vehicles up to 02.2009

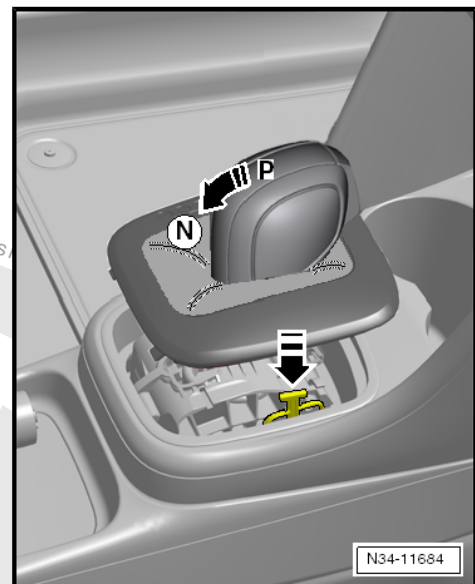
- Grip leather bellows and pull trim upwards.
- Press yellow plastic wedge from right to left.



Vehicles from 03.2009 onwards

- Unclip selector cover and hold to side.
- Press yellow plastic wedge -arrow-.

Lever can now be moved from position »P«.





3 Removing and installing selector lever handle

Brief description

Depending on the model, different handles may be installed.

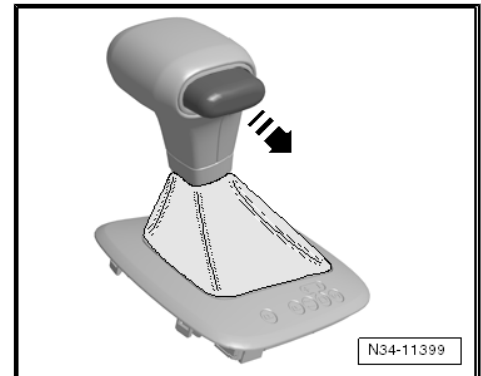
Handle is removed together with selector cover.

Removing:

- Shift selector lever to position “D”.

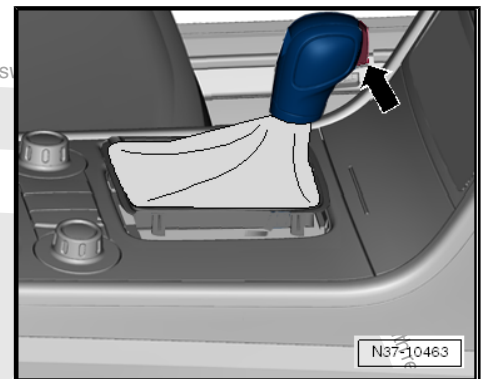
Handle with pushbutton on side:

- First pull button far enough out of knob that a small gap is visible between knob and button. Button locks when released.
- Hold button in this position with a cable tie or wire to prevent it from being pressed in.



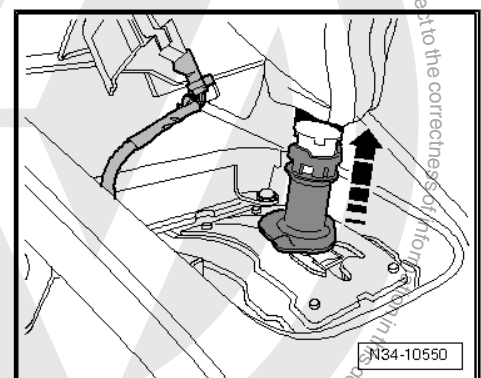
Handle with front pushbutton:

Button does not need to be pulled out by hand. The pushbutton engages in installation position -arrow- when the handle is pulled off.



Further procedure for all handles:

- Unclip cover.
- Pull connector from selector cover.
- Push sleeve upwards to release knob.





Polo 2010 only

One clamp is installed instead of sleeve in the Polo.

- Cut open clip beneath boot -arrow- using side cutters.

Further procedure for all handles:

- Pull handle off selector lever without pressing button.



Note

Do not press button again after removal as it will no longer be possible to install the handle.

Installing

- Install in reverse order of removal, observing the following:
- Selector lever is in position "D".

Handle with pushbutton on side:

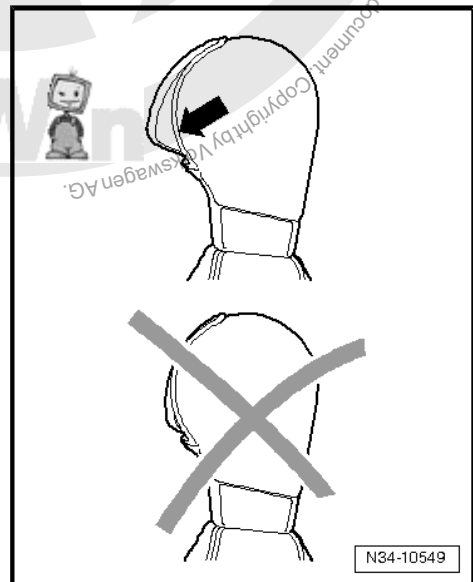
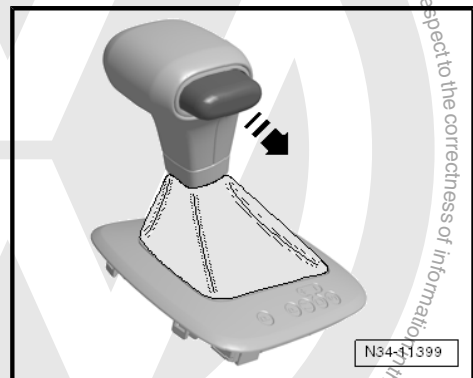
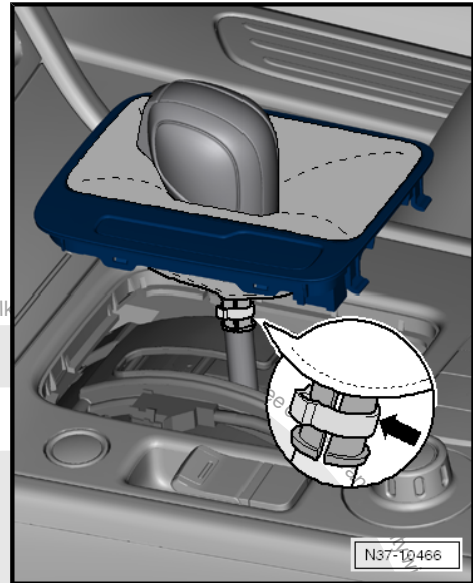
- Button in handle is pulled out and secured against being pressed in.

Handle with front pushbutton:

- Pushbutton is in installation position -arrow-.

If the pushbutton was pressed by mistake, the installation position can be restored.

- Move pushbutton to installation position ⇒ [page 69](#) .





Note

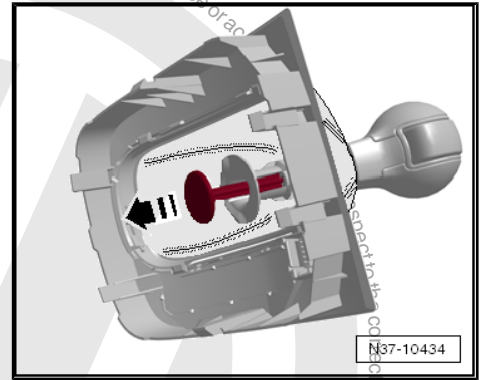
New handle is supplied with installation guard. Do not remove guard until just before installing. To remove, pull it out.

Continuation for all handles

- Push handle fully onto selector lever and lock.
- Push sleeve downwards to lock.

Polo 2010 only

- Push on handle with new clip onto stop.
- Secure clip with hose clip pliers -V.A.G 1275- .
- Push pushbutton after installing it.



Note

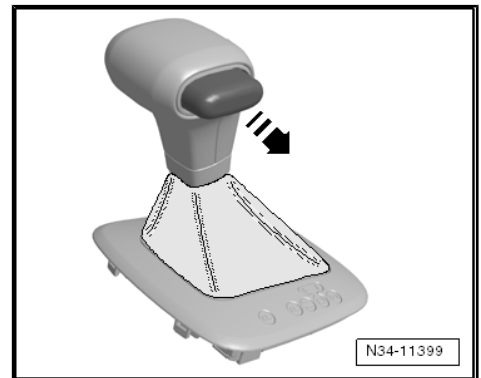
If not installed correctly, pushbutton remains inserted in handle after being pressed. If this happens, remove handle again and move pushbutton to installation position again => [page 69](#) . The handle can then be installed again.

Continue installation in reverse order of removal.

3.1 Moving pushbutton to installation position in the handle

3.1.1 Handle with pushbutton on side

- First pull button far enough out of knob that a small gap is visible between knob and button. Button locks when released.
- Hold button in this position with a cable tie or wire to prevent it from being pressed in.



3.1.2 Handle with front pushbutton

With this kind of handle, the pushbutton cannot be pulled out.

There are 2 ways of moving the pushbutton into the installation position, »with« and »without« installation guard. Both of them are described here.



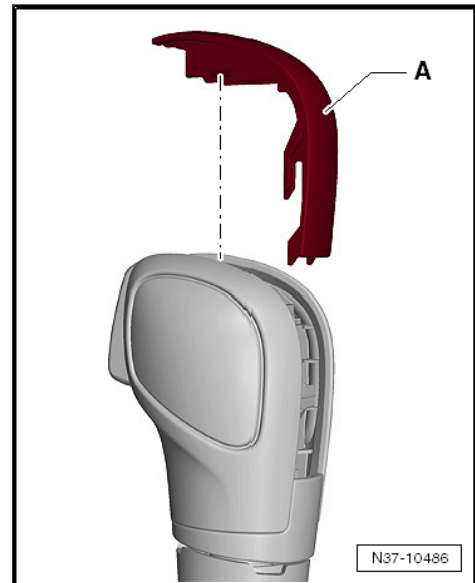
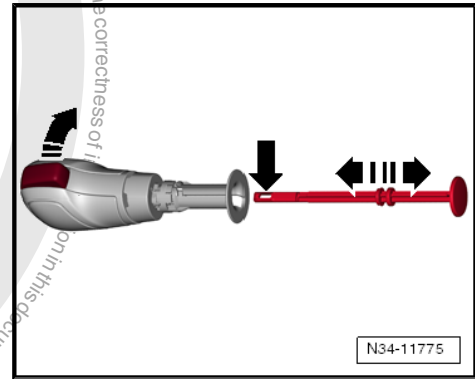
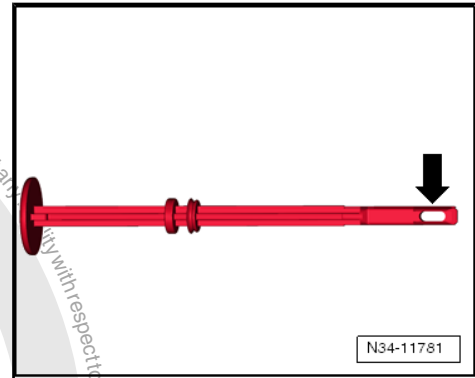
Place handle »with« installation guard in installation position:

When using the installation guard, make sure that it has an eyelet -arrow- at the front. Other types of installation guard are not suitable.

- Holding the button down, completely push in installation guard with eyelet -arrow- until the installation guard engages, then release the button. When the installation guard is pulled out, the pushbutton engages in the installation position.

Place handle »without« installation guard in installation position:

- Carefully unclip trim of handle -A- upwards.



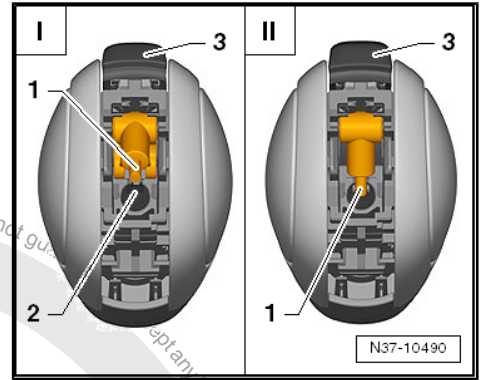


- Using a screwdriver, press the small lever -1- for the tie rod into the groove -2-. When this is done, the pushbutton -3- is pressed into the installation position.
- I- Pushbutton in pressed position
- II- Pushbutton in installation position



Note

- ◆ *Only press the lever into the groove and no further.*
- ◆ *Do not clip the trim of the handle onto the selector mechanism until the handle has been fitted. This makes it possible to check whether the small lever engages in the tie rod when the pushbutton is pressed.*





4 Selector mechanism in vehicles up to 02.2009



WARNING

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

Selector mechanism from 03.2009 onwards ⇒ [page 80](#)

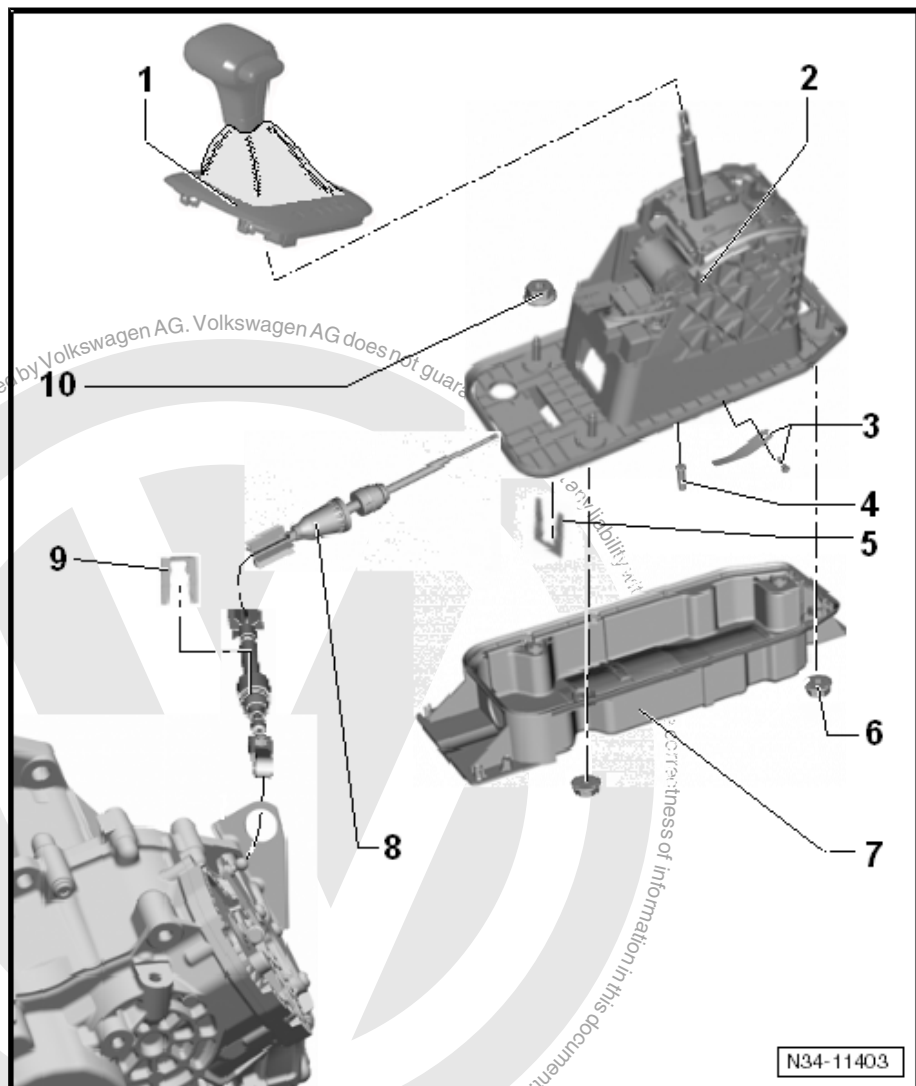
4.1 Overview of selector mechanism up to 02.2009

1 - Selector cover with knob

- Do not remove knob without reason. For emergency release, only the cover needs to be unclipped ⇒ [page 66](#) .
- Before removing knob, 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 knob.
- Removing and installing ⇒ [page 67](#)

2 - Selector lever and selector mechanism

- With selector lever lock solenoid -N110-
- Brief instructions for removing and installing:
 - Remove centre console.
 - Remove Bowden cable from gearbox ⇒ [page 73](#) .
 - If necessary, disconnect or remove parts of ⇒ exhaust system; Rep. gr. 26 .
 - Remove heat shield beneath vehicle.
 - Adjust selector lever cable after installing ⇒ [page 85](#) .



3 - Bolt with spring

- 3 Nm

4 - Pin

- Removing ⇒ [page 73](#)
- Do not grease



5 - Securing clip

- Always renew after removing.

6 - Nut

- Qty. 4
- 9 Nm

7 - Selector housing

- With seal

8 - Selector lever cable

- Cable must not be greased
- Removing and installing ⇒ [page 73](#)
- Checking and adjusting ⇒ [page 85](#)

9 - Securing clip

- Always renew after removing.

10 - Hexagon flange nut

- Qty. 4
- M6 - 8 Nm
- M8 - 20 Nm

Torque setting , selector lever to selector shaft ⇒ [page 64](#) .

4.2 Removing and installing selector lever cable up to 02.2009

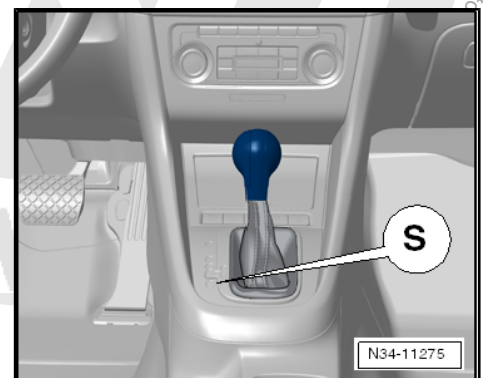


Note

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

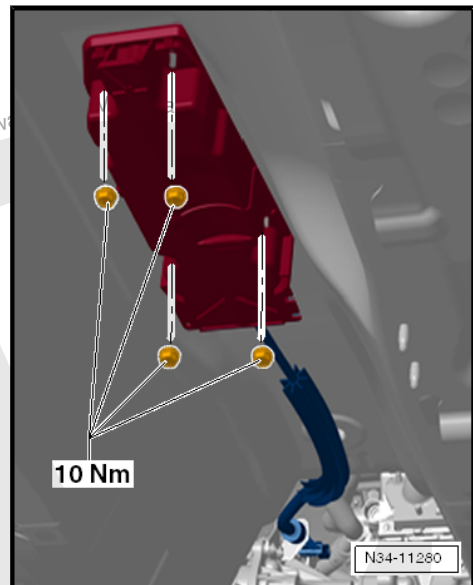
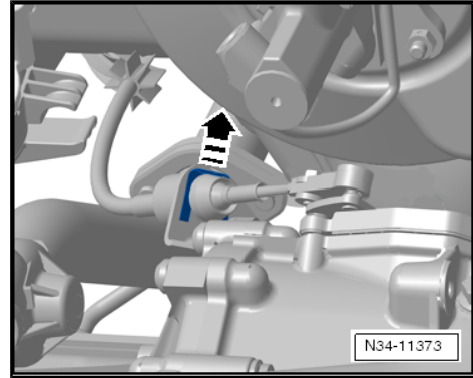
Removing

- Move selector lever to position “S”

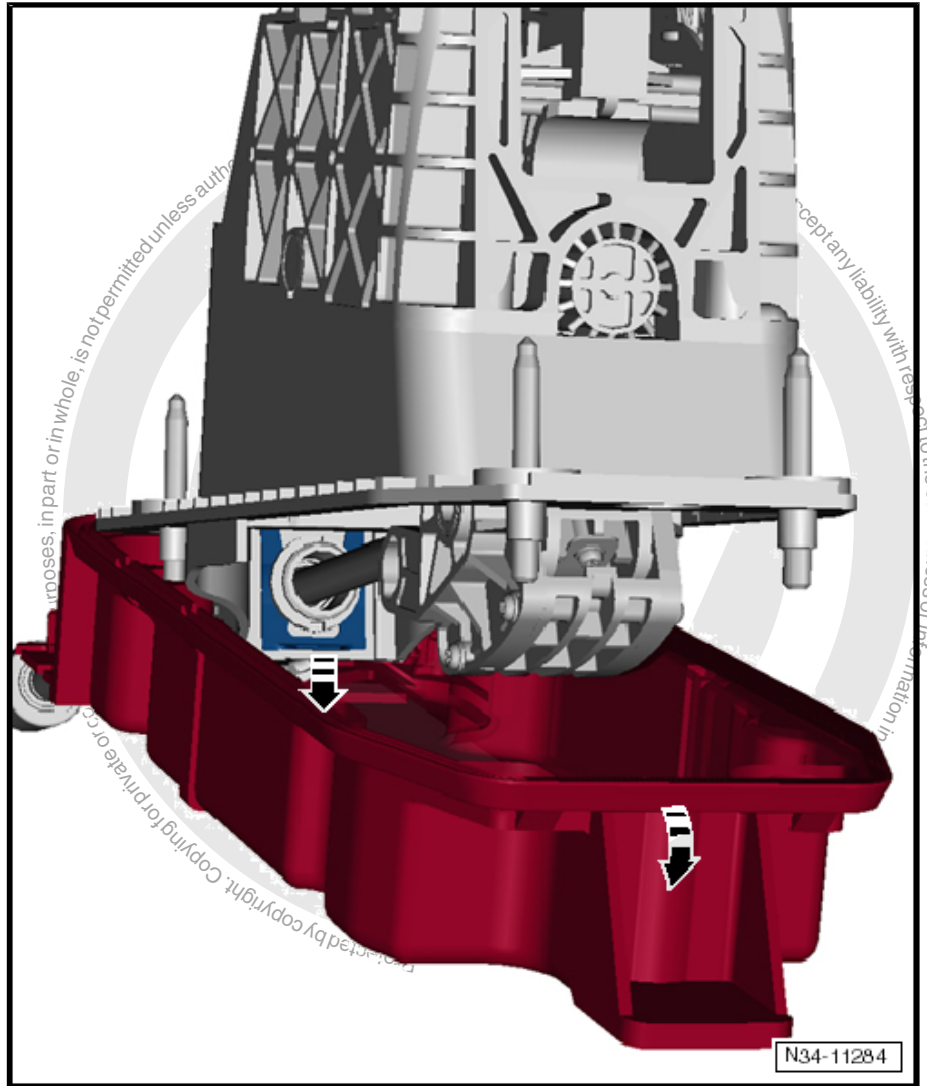




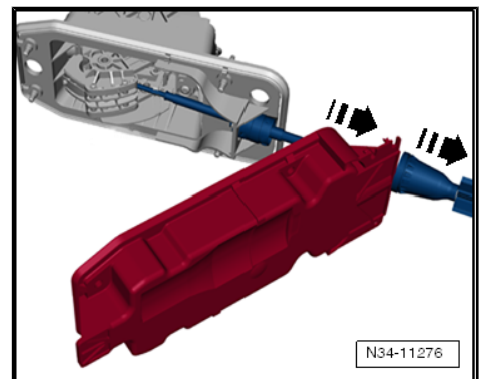
- Remove securing clip.
- Securing clips for selector lever cable must always be renewed.
- Remove cable from ball head.
- Raise vehicle.
- To remove cable and/or selector mechanism, heat shield must now be removed and, if necessary, parts of exhaust system
- => Rep. gr. 26 ; Removing and installing parts of the exhaust system
- Remove heat shield.
- Remove -selector housing- beneath selector lever.



- Remove securing clip of cable support bracket. Always renew securing clip.



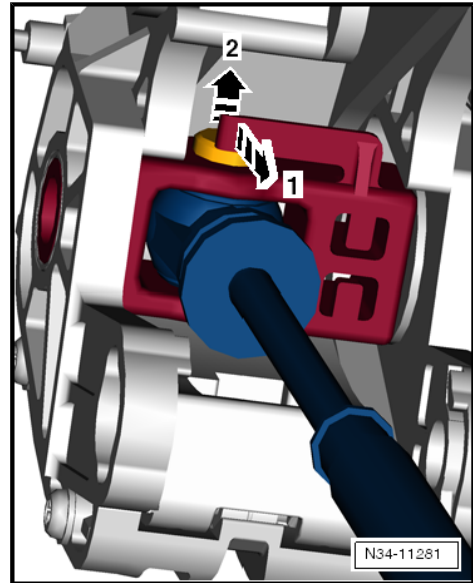
-Selector housing- is pushed forwards slightly on cable.



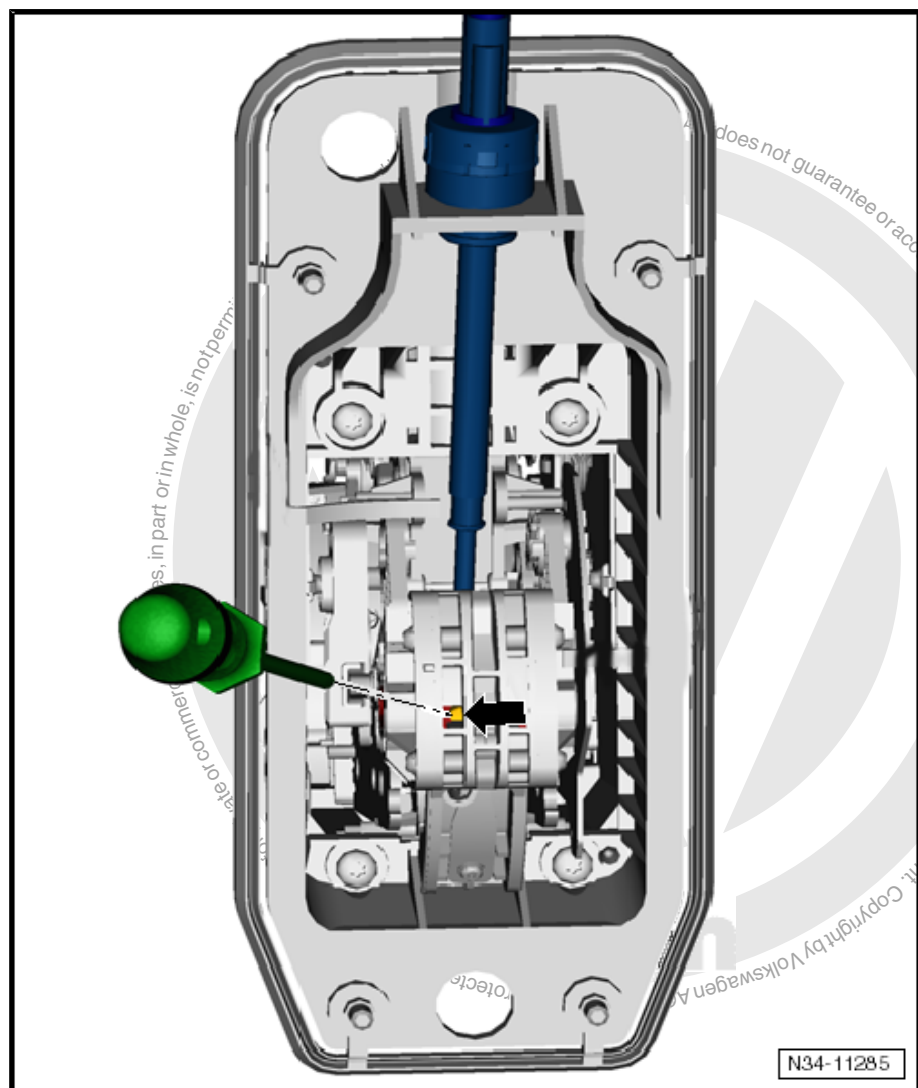


To remove cable, securing tab must be pushed forwards -1-.

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



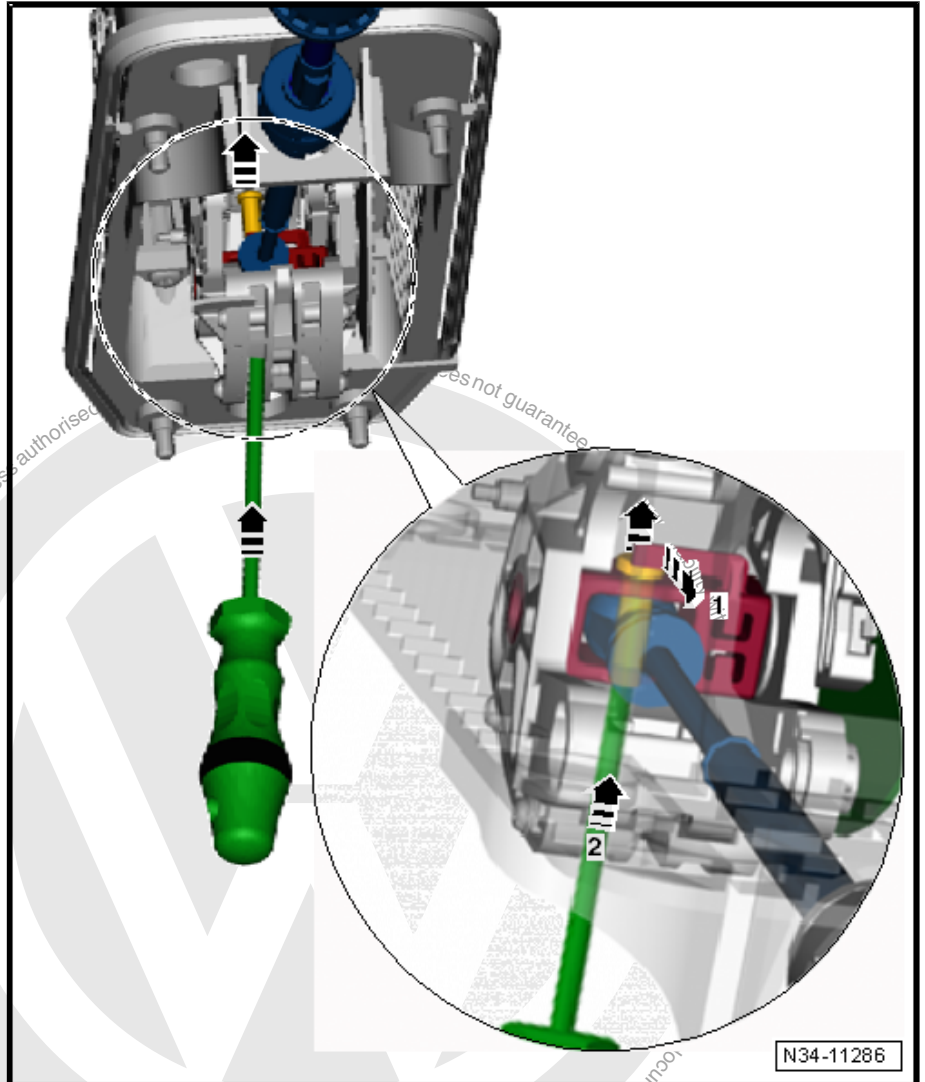
- Insert -screwdriver- from underneath whilst pushing securing tab forwards.





Clarification:

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

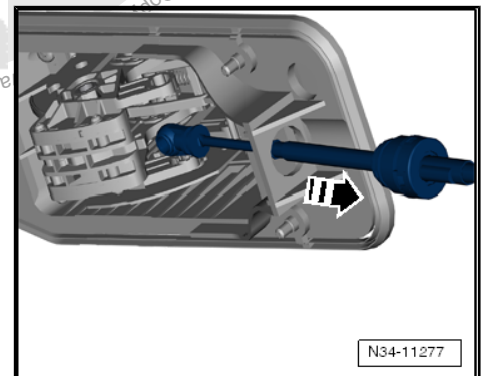


- Remove selector lever cable.
- Remove selector housing from cable.

Installing

Do not grease cable.

- Route selector lever cable without tension. Do not secure with securing clips yet. Do not clip in ball head.

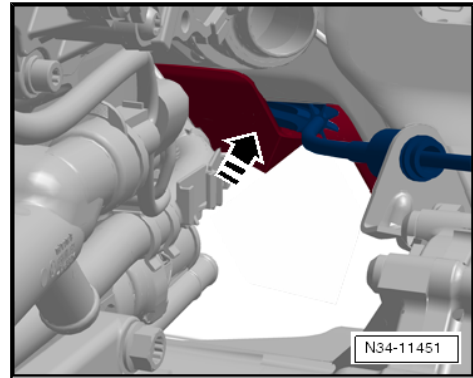




- Ensure that selector lever cable is properly routed during installation.

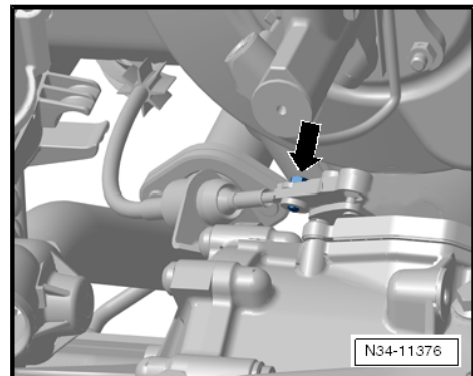
If the sheet metal is bent downwards, it may cause noises. The cable will vibrate against the sheet metal.

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

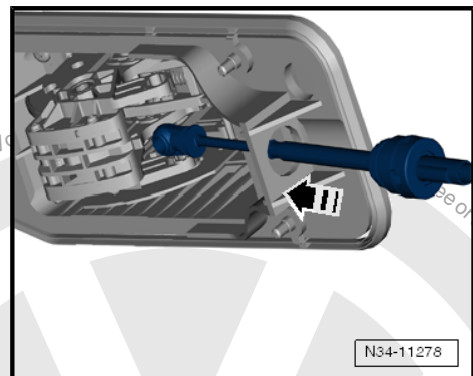


Loosen adjustment screw -arrow-.

- Put selector housing onto cable.

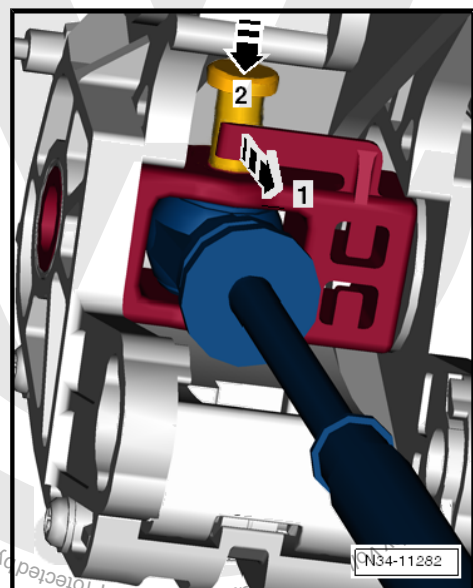


- Insert selector lever cable into selector mechanism.

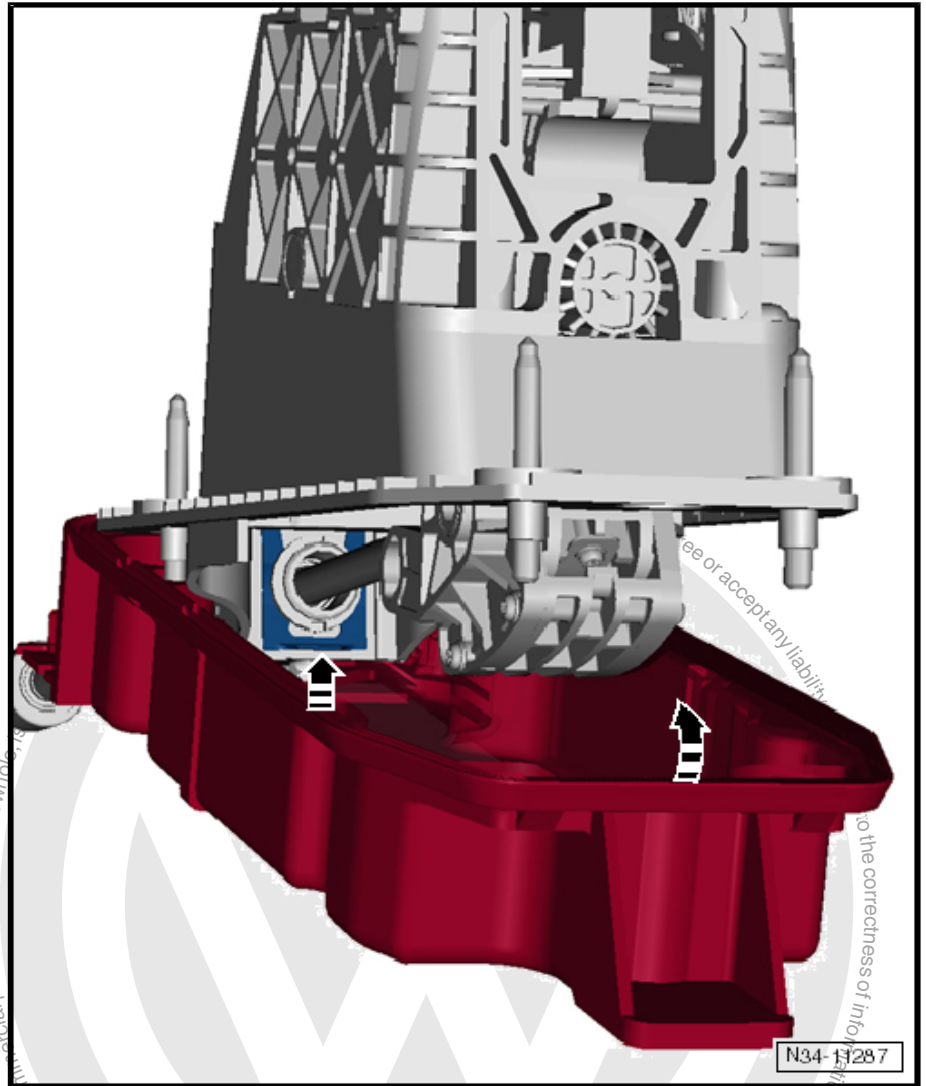


- Insert cable into bearing and insert pin from above, downwards through eye.

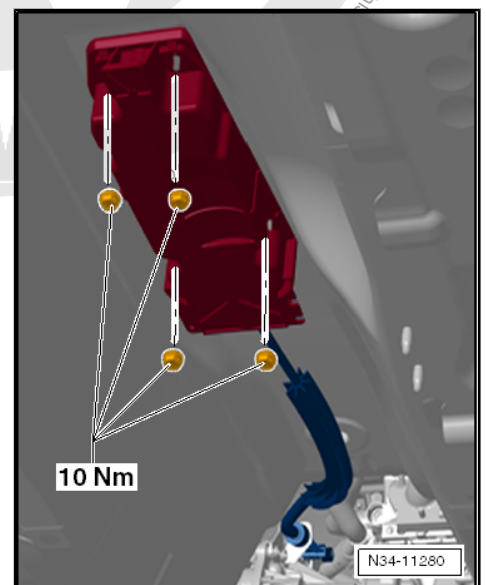
When freedom of movement of cable has been checked
⇒ [page 85](#) , insert securing clip.



- Attach cable with new securing clip on cable support bracket of selector mechanism.



- Install selector housing, heat shield and exhaust system.
- Check selector lever cable => [page 85](#).





5 Selector mechanism from 03.2009 onwards



WARNING

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

Selector mechanism in vehicles up to 02.2009 ⇒ [page 72](#)

5.1 Overview of selector mechanism in vehicles from 03.2009 onwards

1 - Selector cover with knob

- Do not remove knob without reason. For emergency release, only the cover needs to be unclipped ⇒ [page 66](#).
- Before removing knob, 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 knob.
- Removing and installing ⇒ [page 67](#)

2 - Selector lever and selector mechanism with selector lever cable

- With selector lever lock solenoid -N110-
- Cable must not be greased
- Removing and installing ⇒ [page 81](#)
- Checking and adjusting ⇒ [page 85](#)

3 - Bolt

- 8 Nm

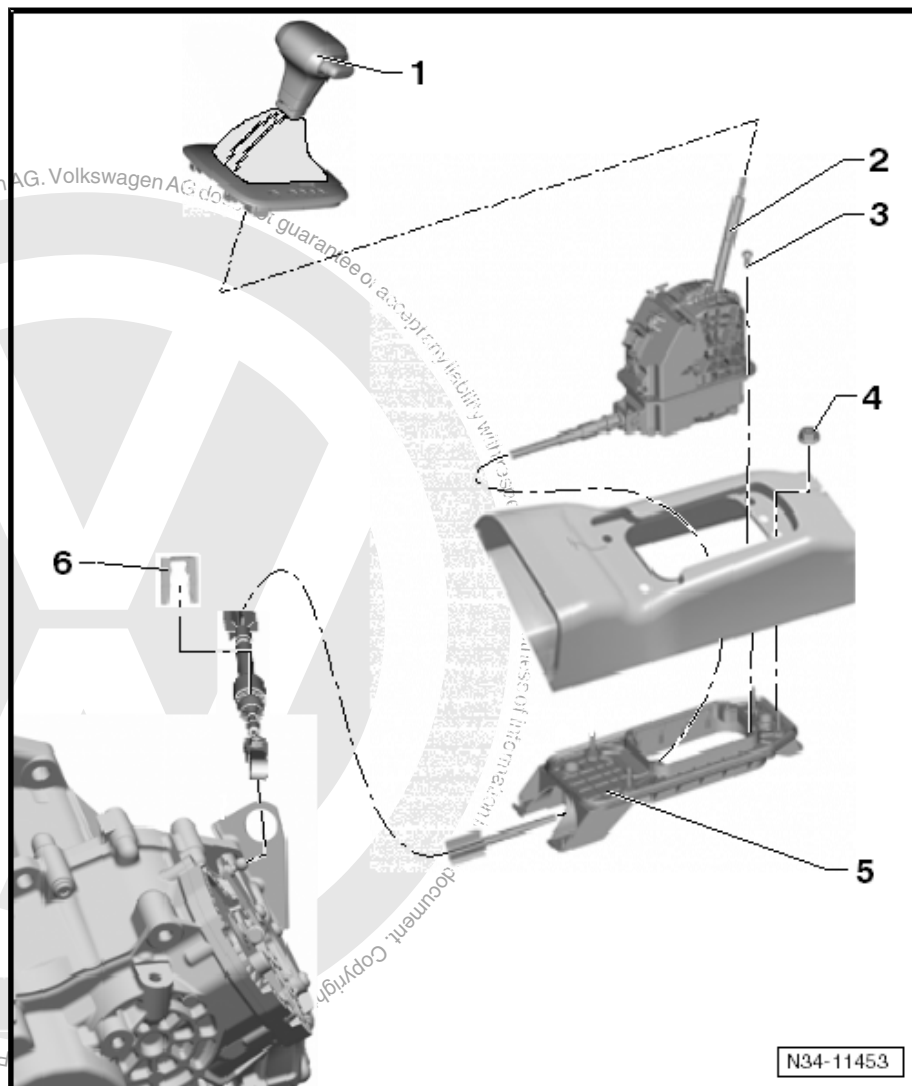
4 - Hexagon flange nut

- Qty. 4
- M6 - 8 Nm
- M8 - 20 Nm

5 - Selector housing

6 - Securing clip

- Always renew after removing.





5.2 Removing and installing selector mechanism

⇒ ["5.2.1 Removing and installing selector mechanism with selector housing", page 81](#)

⇒ ["5.2.2 Removing and installing selector mechanism without selector housing", page 83](#)

5.2.1 Removing and installing selector mechanism with selector housing

Brief description

Selector mechanism and selector lever cable are not allowed to be separated from one another. Both are removed together with the selector housing.

In the interior, the centre console must be removed.

The heat shield beneath the vehicle must be removed.

The selector mechanism with selector lever cable can be removed and installed separately without removing and installing the selector housing ⇒ [page 83](#) .



Note

Following installation of selector mechanism, selector lever cable must be checked for ease of movement and be adjusted.

Removing

- Remove selector lever handle ⇒ [page 67](#) .
- Remove centre console ⇒ [General body repairs, interior; Rep. gr. 68](#) ; [Centre console; Removing and installing centre console](#) .
- Separate electrical connector from selector mechanism to vehicle wiring harness.
- Remove air filter housing:
 - ◆ Petrol engine ⇒ [Rep. gr. 24](#) ; [Air filter; Removing and installing air filter housing](#) .
 - ◆ Diesel engine ⇒ [Rep. gr. 23](#) ; [Air filter; Removing and installing air filter housing](#) .
- Remove securing clip.

Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever. The selector lever cable could otherwise be damaged.

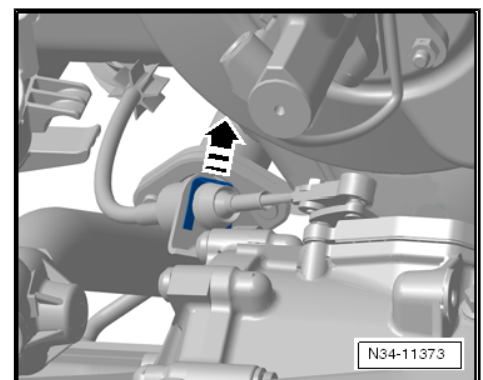
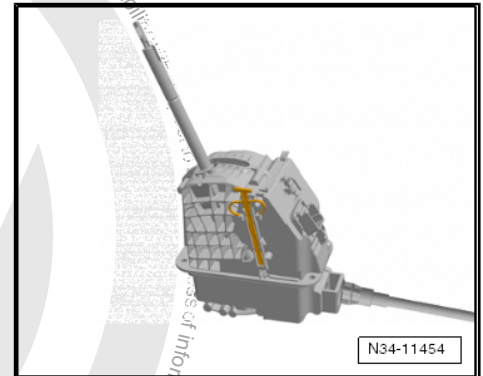
Securing clips for selector lever cable must always be renewed.

- Remove cable from ball head.
- Remove heat shield for centre tunnel beneath selector mechanism ⇒ [General body repairs, exterior; Rep. gr. 66](#) ; [Underbody cladding; Assembly overview - underbody cladding](#) .



Note

To remove selector mechanism, a 2nd mechanic is required under the vehicle.





- Remove nuts -arrows- inside vehicle.
- If fitted, remove bracket -A-.
- Remove selector mechanism -B- together with selector lever cable and selector housing downwards.

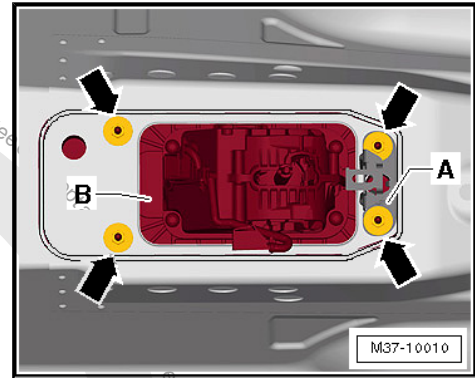
Installing

Install in reverse order of removal.



Note

- ◆ Do not bend or kink selector lever cable.
- ◆ Do not grease selector lever cable.
- ◆ Specified torques ⇒ [page 80](#) .
- Install heat shield beneath selector mechanism ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody cladding; Assembly overview - underbody cladding .
- Install centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Install selector lever handle ⇒ [page 67](#) .
- Adjust selector lever cable ⇒ [page 85](#) .
- Check selector mechanism ⇒ [page 85](#) .
- Install air filter housing:
- ◆ Petrol engine ⇒ Rep. gr. 24 ; Air filter; Removing and installing air filter housing .
- ◆ Diesel engine ⇒ Rep. gr. 23 ; Air filter; Removing and installing air filter housing .





5.2.2 Removing and installing selector mechanism without selector housing

Brief description

Selector mechanism and selector lever cable are not allowed to be separated from one another. Both are removed together.

In the interior, the centre console must be removed.

A cord must be attached to the Bowden cable before it is removed. The cord is needed to guide the Bowden cable between the tunnel and the heat shield.

The selector mechanism with selector lever cable can also be removed and installed with the selector housing ⇒ [page 81](#) .

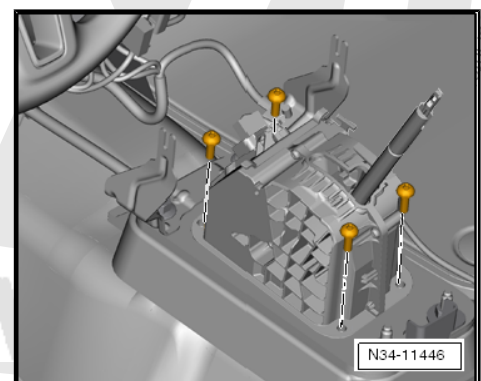
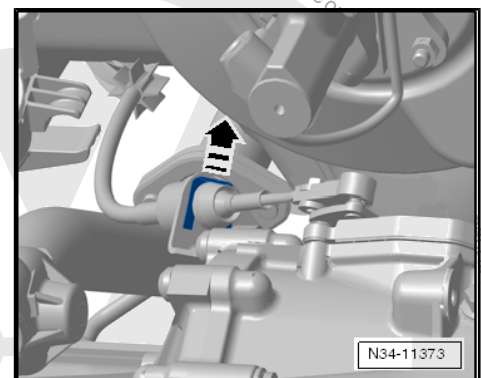
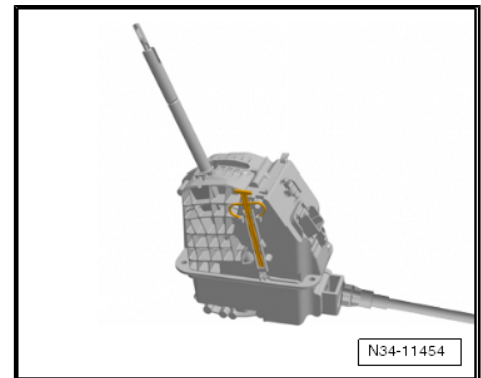
Removing

- Remove selector lever handle ⇒ [page 67](#) .
- Remove centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Separate electrical connector from selector mechanism to vehicle wiring harness.
- Remove air filter housing.
- ◆ Petrol engine ⇒ Rep. gr. 24 ; Air filter; Removing and installing air filter housing .
- ◆ Diesel engine ⇒ Rep. gr. 23 ; Air filter; Removing and installing air filter housing .
- Remove securing clip.

Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever. The selector lever cable could otherwise be damaged.

Securing clips for selector lever cable must always be renewed.

- Remove cable from ball head.
- Then a long cord must be attached to the end of the Bowden cable. The cord is needed to guide the Bowden cable between the tunnel and heat shield during installation.
- Remove 4 bolts.





- Carefully pull selector mechanism with Bowden cable out of the centre tunnel. Ensure that the cord remains accessible from the engine compartment after being pulled by the Bowden cable.
- Remove cord from Bowden cable.

Installing

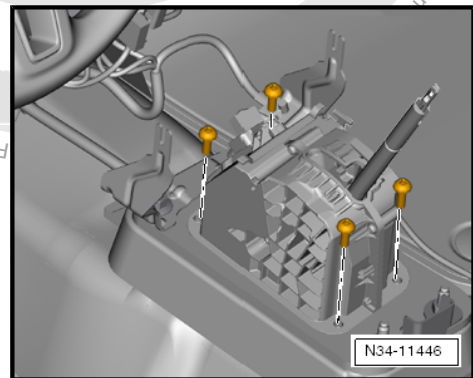
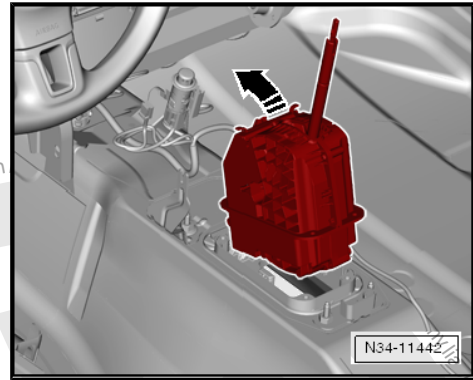
Install in reverse order of removal, observing the following:

A second mechanic is needed to guide Bowden cable from passenger compartment into engine compartment.



Note

- ◆ *Do not bend or kink selector lever cable.*
- ◆ *Do not grease selector lever cable.*
- ◆ *Specified torques ⇒ [page 80](#) .*
- Attach Bowden cable to cord which was drawn into the passenger compartment during removal.
- Carefully guide selector mechanism with Bowden cable through opening in centre tunnel.
- Have the second mechanic pull cord with Bowden cable through tunnel from engine compartment until Bowden cable can be attached to support bracket.
- Remove cord from Bowden cable.
- Secure selector mechanism to selector housing using 4 bolts.
- Install centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Install selector lever handle ⇒ [page 67](#) .
- Adjust selector lever cable ⇒ [page 85](#) .
- Check selector mechanism ⇒ [page 85](#) .
- Install air filter housing:
 - ◆ Petrol engine ⇒ Rep. gr. 24 ; Air filter; Removing and installing air filter housing .
 - ◆ Diesel engine ⇒ Rep. gr. 23 ; Air filter; Removing and installing air filter housing .





6 Checking selector mechanism

The engine must not be able to start in the selector lever positions "R", "D", "S" or the Tiptronic position.

On right-hand drive vehicles, the engine may only start in selector lever positions "P" and "N" when the button in the gear knob is not pressed.

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.

6.1 Selector lever in "P" position and ignition switched on

- Brake pedal is 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 actual selector lever position.

6.2 Selector lever in "N" position and ignition switched on

- Brake pedal is 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.

6.3 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".

6.4 Ignition and light switched on

The respective symbol in the shift mechanism cover lights up.

6.5 Selector lever position display

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

6.6 Checking and adjusting selector lever cable

Brief description

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



The selector lever must be moved and then the cable must be reattached to the gearbox.

Then the selector lever cable must be adjusted.

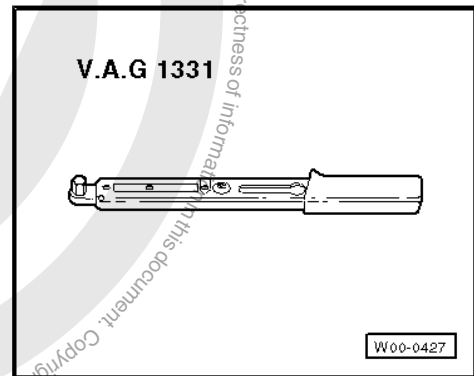
Do not grease cable!

Always adjust selector lever cable, when:

- ◆ 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.

Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-



Checking

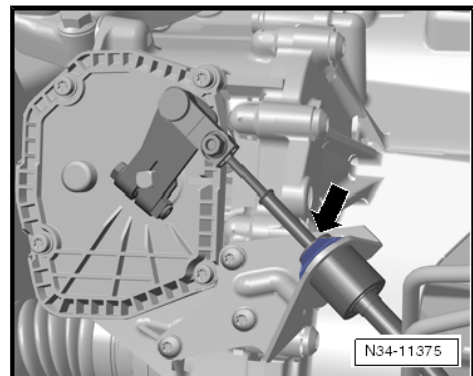
- Move selector lever to position »P« position.
- Remove cable from lever on gearbox.
- Move selector lever repeatedly from »P« to »S« and back to »P«.
- Selector lever must move easily.
- Reinstall cable with »loosened« adjustment screw.

If securing clip was removed, always install a »new« securing clip.

- Finally adjust selector lever cable.

Adjusting

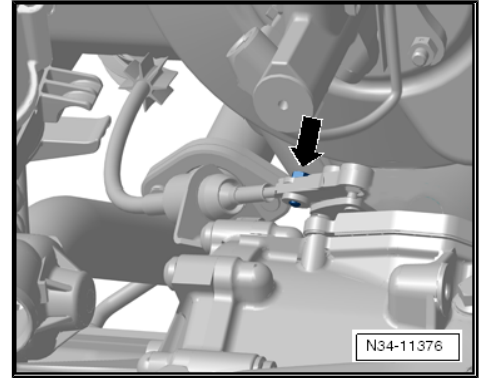
- Move selector lever in vehicle to "P" position.



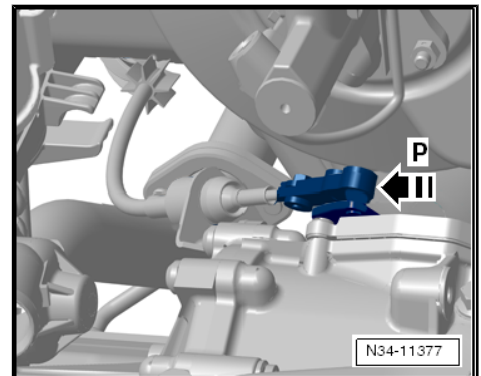


Adjuster screw -arrow- must be »loosened«.

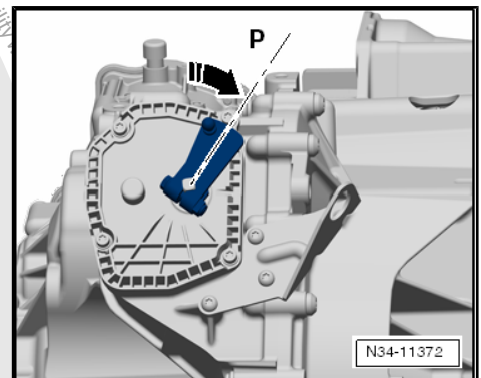
- Shift lever on gearbox to position “P”.



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.



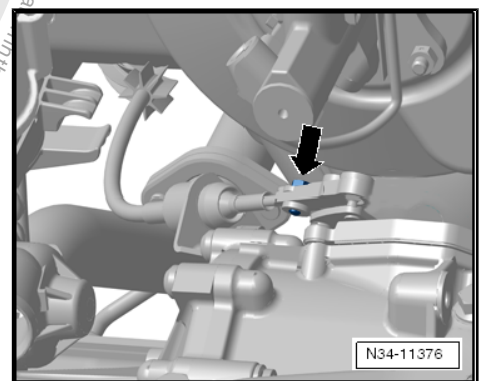
WARNING

The parking lock must be engaged.



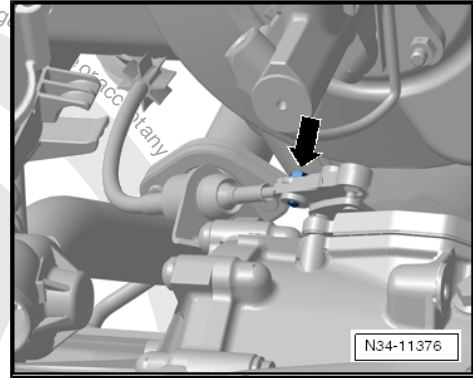
- To do this, turn both front wheels simultaneously »under the car« in the same direction until the parking lock can be heard to engage.
- The parking lock is engaged when both front wheels cannot be turned in the same direction at the same time.
- Gently push knob of selector lever forwards and backwards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

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



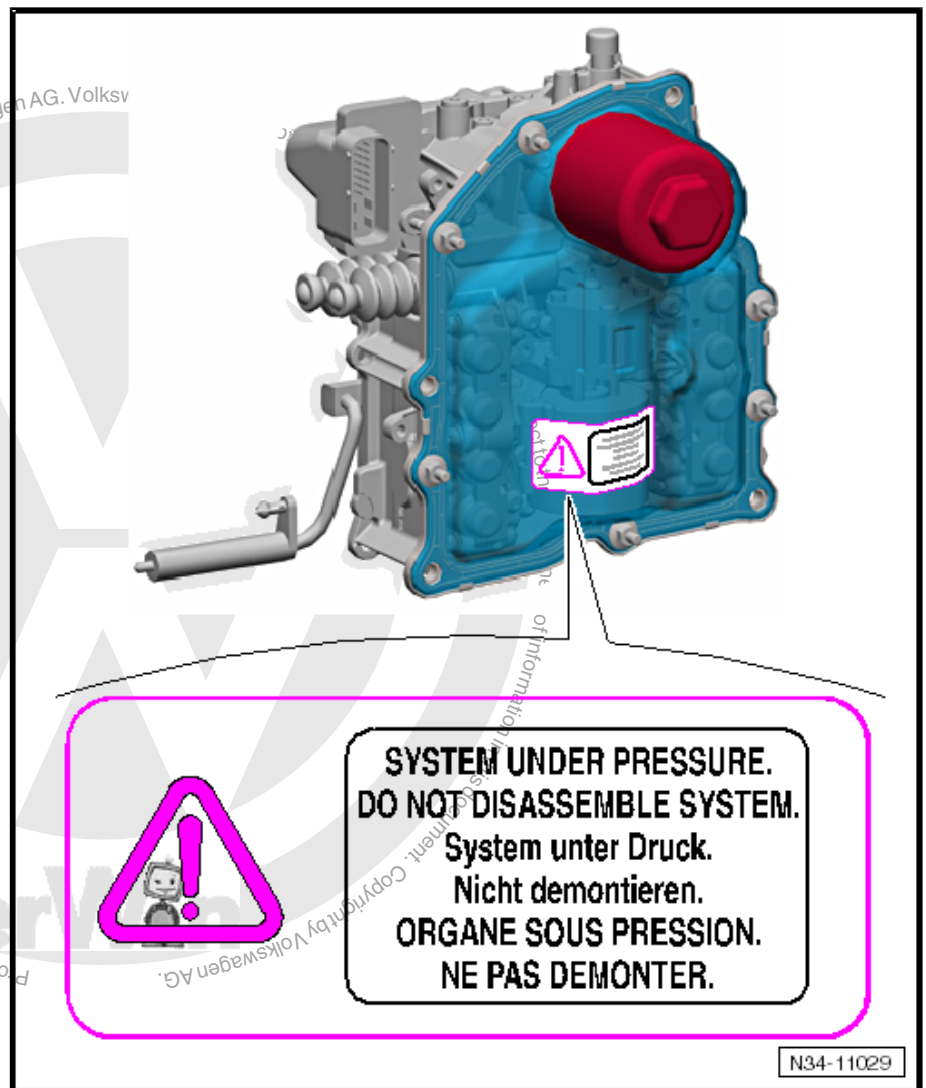


- Tighten adjusting screw -arrow- to 13 Nm.
This completes the adjustment.





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



DANGER!

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



8 Overview - mechatronic unit

1 - Bolt

- Always renew after removing.
- M8x35
- 10 Nm



Note

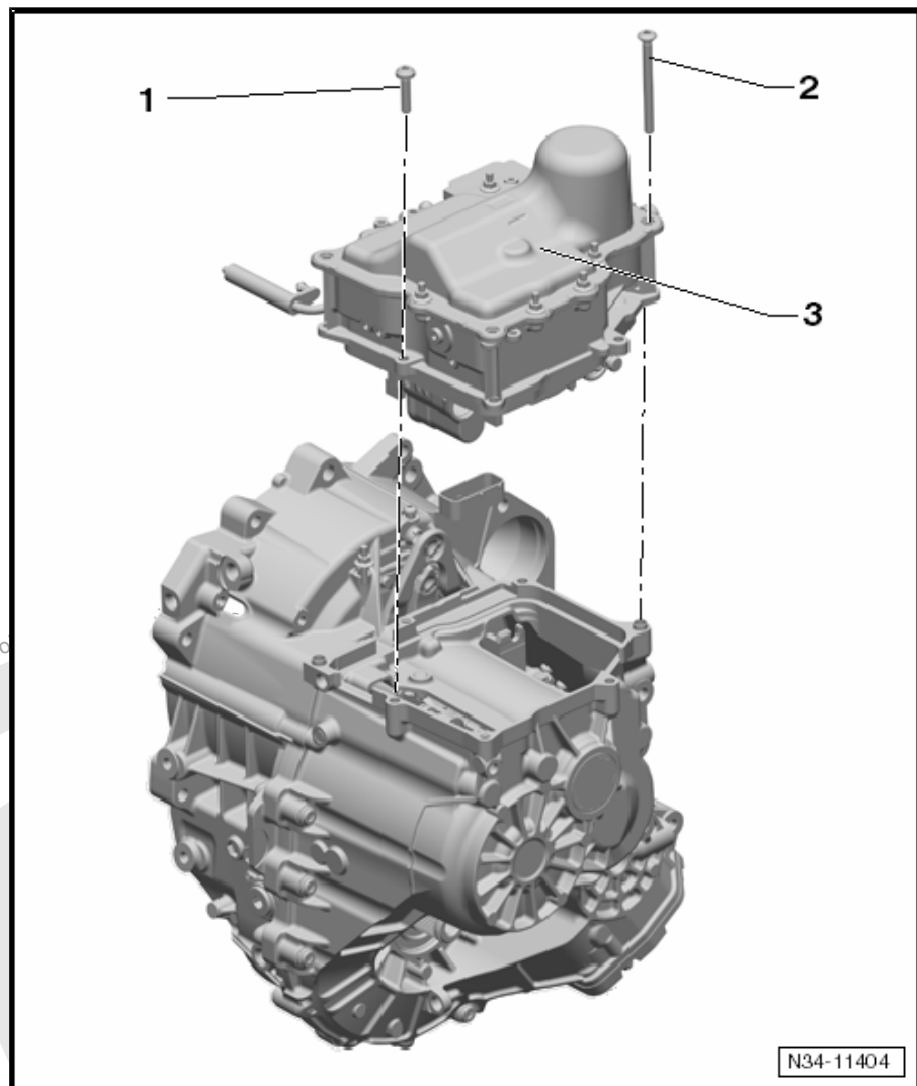
2 - Bolt

- Always renew after removing.
- M8x90
- 10 Nm

3 - Mechatronic unit for dual clutch gearbox -J743-



Note



- When working on mechatronic unit, remove cap from breather and seal with a suitable plug so that no oil can escape.

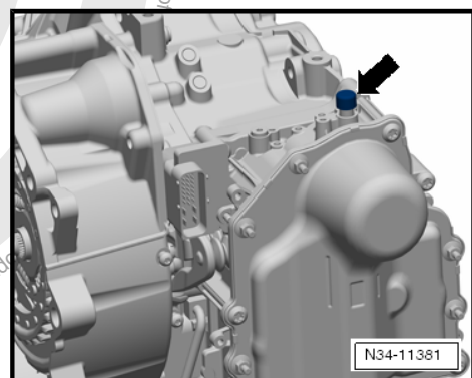


WARNING

For some gearboxes the breather cap on the mechatronic unit is destroyed during removal and must be renewed.

It is not possible to check the fill level of the hydraulic fluid section of the mechatronic unit. Before repairs, the breather of the mechatronic unit must be sealed so that no oil can escape.

If any oil escapes from the hydraulic fluid section of the mechatronic unit, it is not possible to replenish it or check the level! Renew mechatronic unit if any oil escaped!

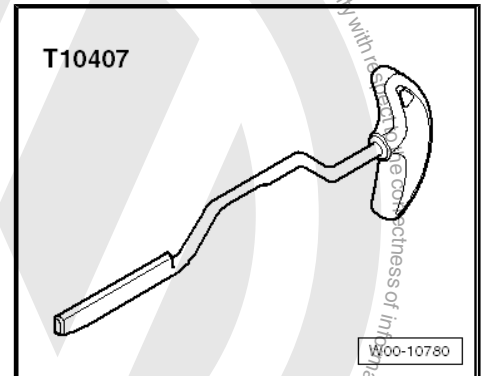




9 Removing mechatronic unit for dual clutch gearbox -J743- ; gearbox is installed

Special tools and workshop equipment required

- ◆ Assembly lever -T10407-



Brief description

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, if present, charge air lines or coolant lines. In Polo 2010, for example, radiator fan control unit -J293- with retainer.

Any retainers fitted to the bolts in the cover of the mechatronic unit must be removed.

Tester moves all gear actuators »into neutral«.

In this position, insert assembly lever -T10407- between clutch 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 cup 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 to the bolts in the cover of the mechatronic unit are also 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:

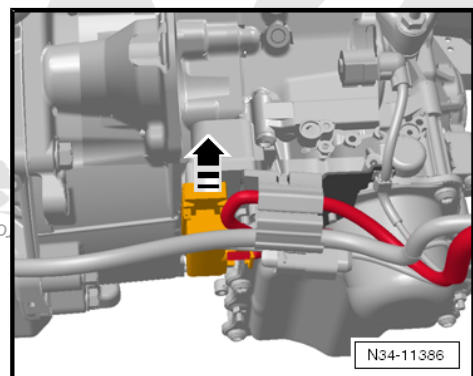
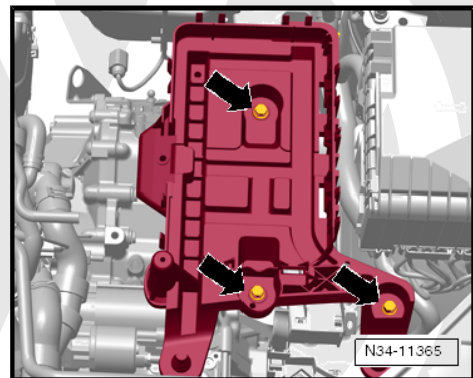
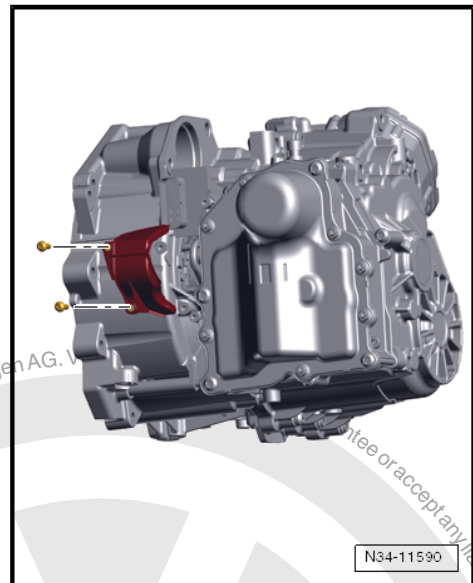
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation .
- Drain gear oil, then reinstall drain plug => [page 64](#) .

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

The cover prevents dirt getting in.

Torque setting: 8 Nm

- Connect vehicle diagnosis, testing and information system - VAS 5051- .
- Select Guided fault finding.
- Under "7-speed dual clutch gearbox", select Moving gear actuator into -neutral- position.
- Switch off ignition.
- Raise vehicle.
- 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 => Electrical system; Rep. gr. 27 ; Removing and installing starter .
- Release mechatronic unit connector by pulling and pull off connector.
- Drain gear oil, then reinstall drain plug => [page 64](#) .





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

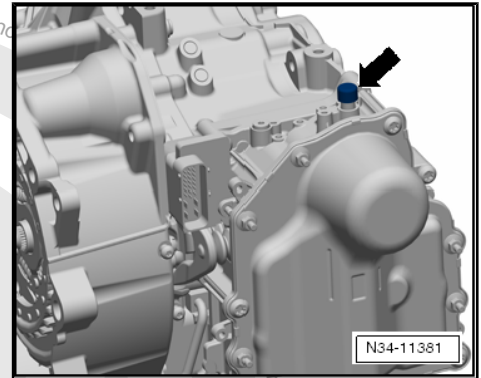


WARNING

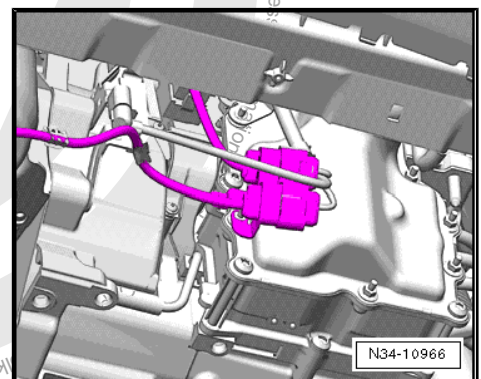
For some gearboxes the breather cap on the mechatronic unit is destroyed during removal and must be renewed.

It is not possible to check the fill level of the hydraulic fluid section of the mechatronic unit. Before repairs, the breather of the mechatronic unit must be sealed so that no oil can escape.

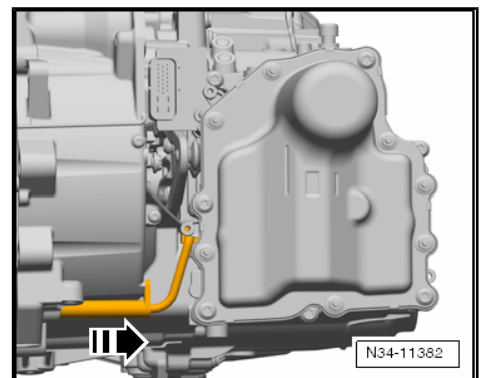
If any oil escapes from the hydraulic fluid section of the mechatronic unit, it is not possible to replenish it or check the level! Renew mechatronic unit if any oil escaped!



- 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.



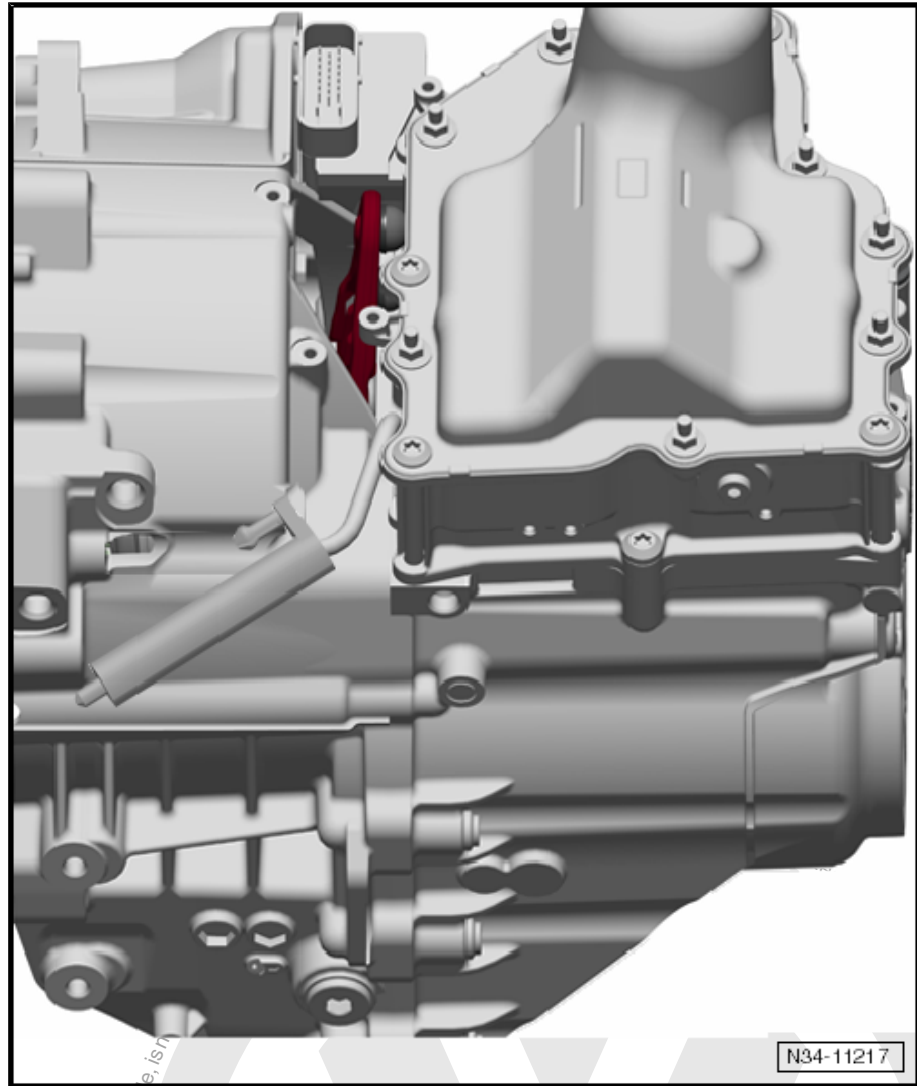
The next step is »difficult«:

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 should 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.

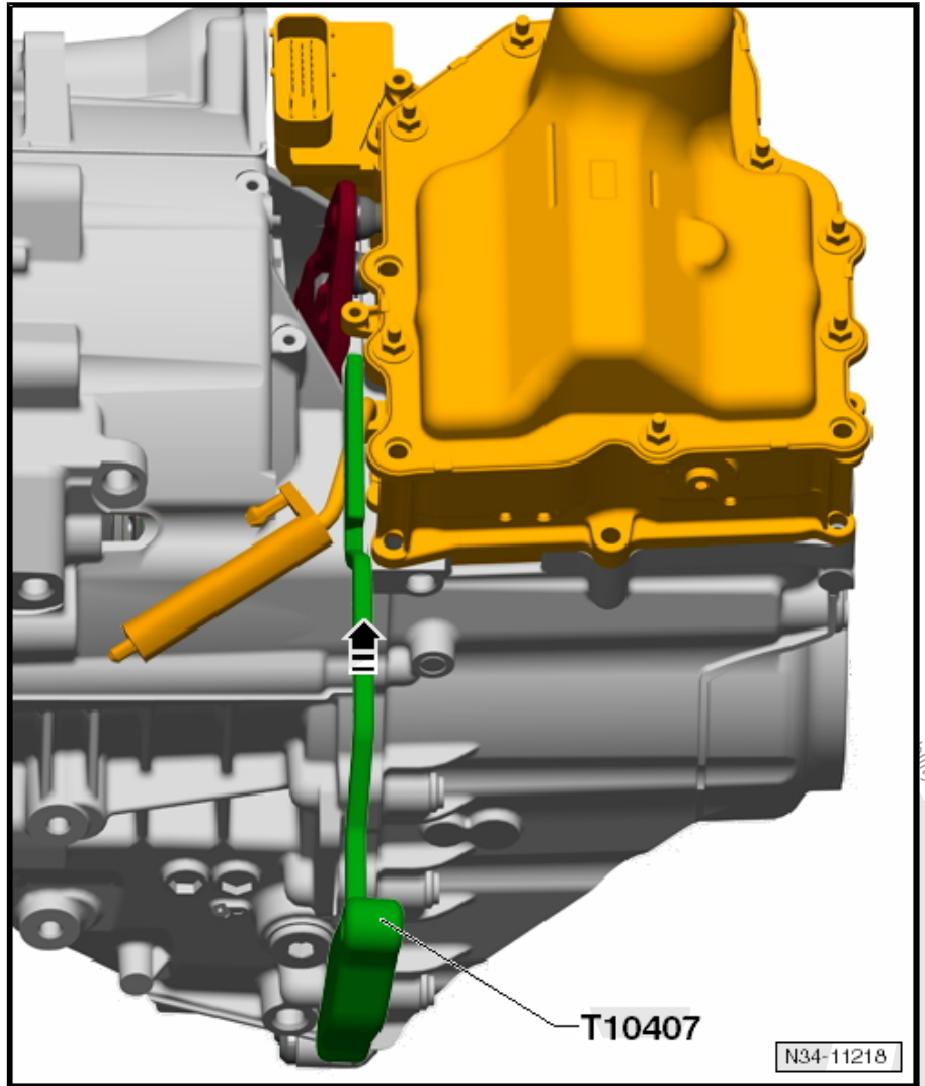


- Insert assembly lever -T10407- to the right.

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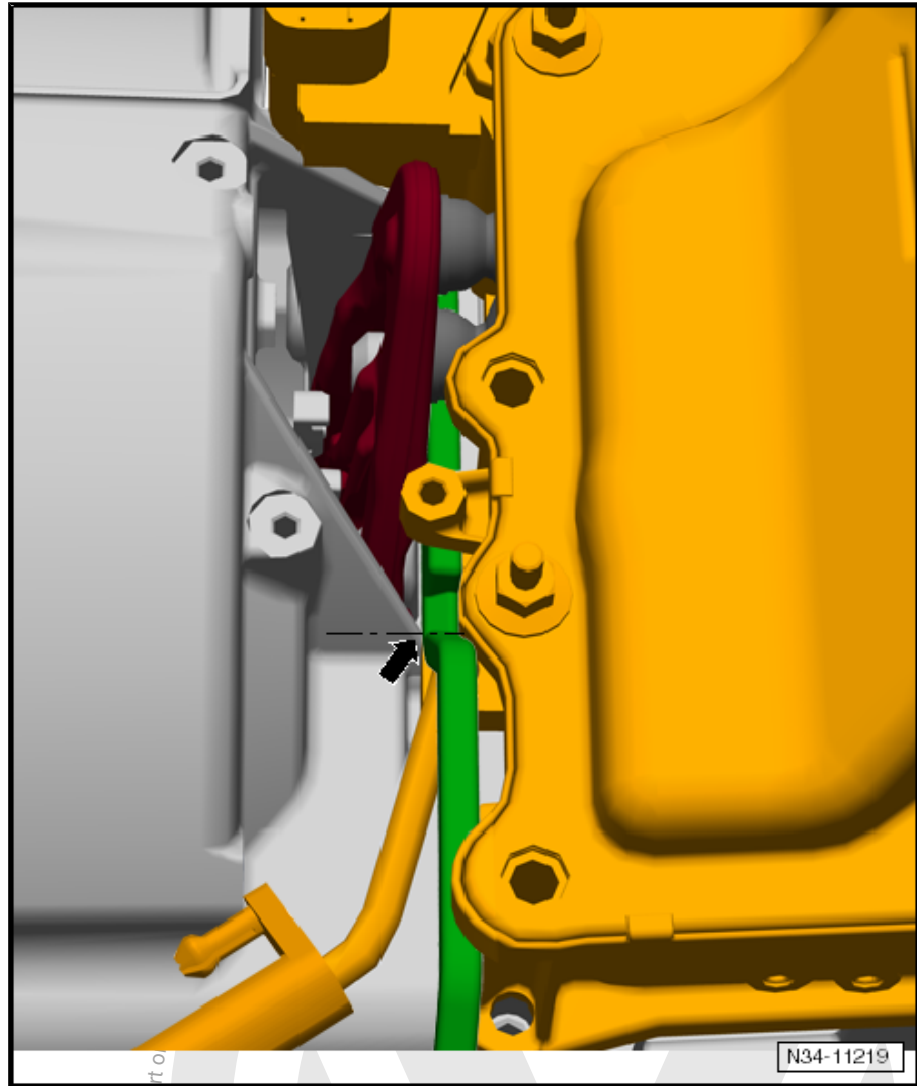


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- Far enough until groove lines up with housing rib.

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No further.

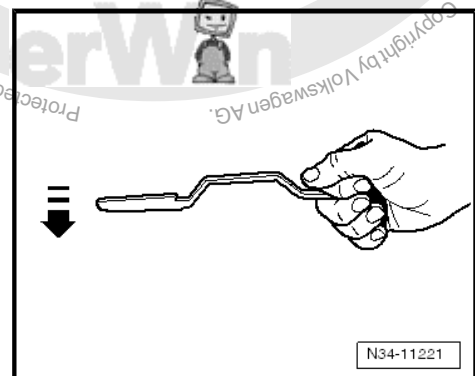
- Assembly lever -T10407- should make contact with gearbox housing with its entire »rear face«.



Caution

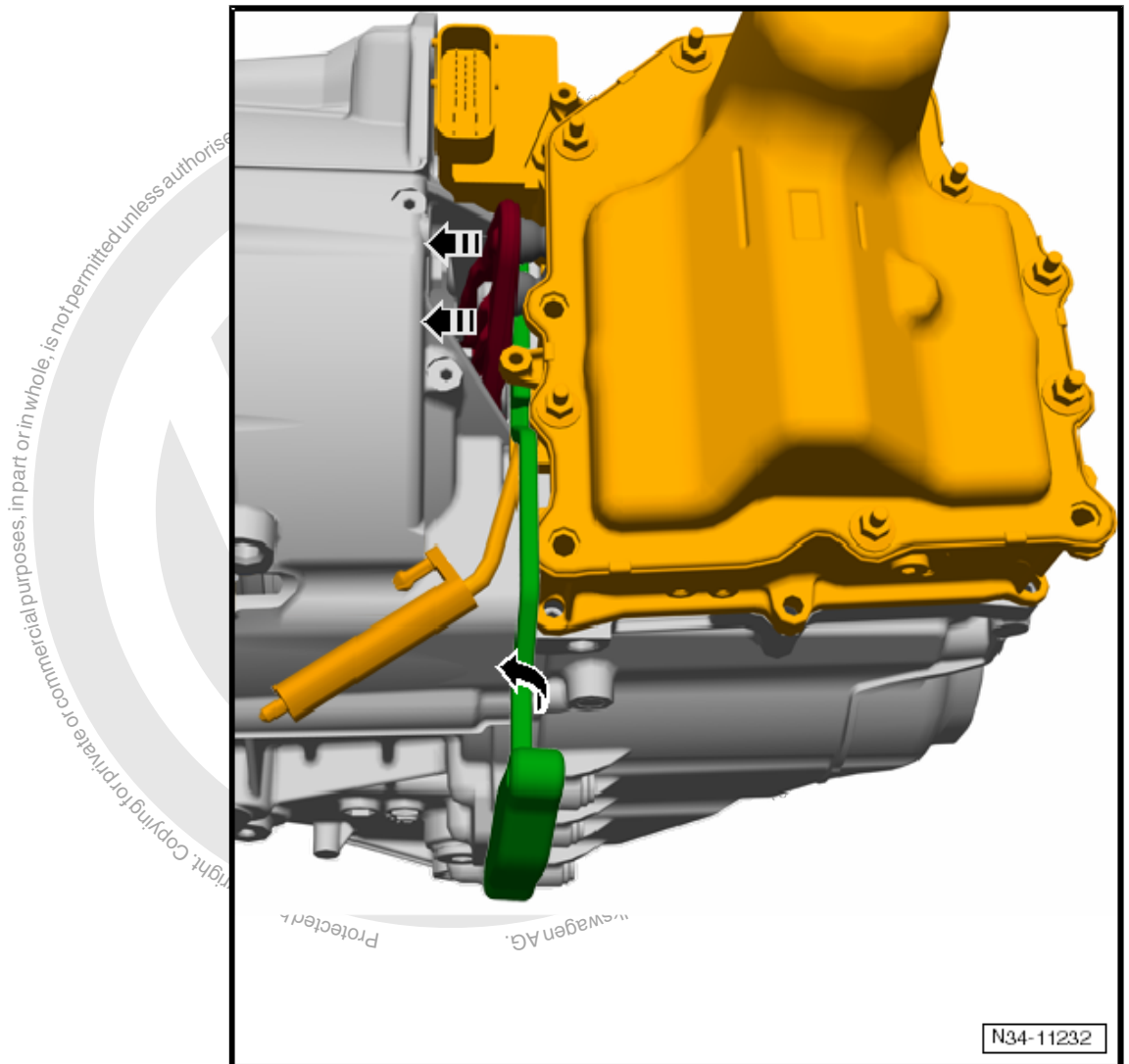
- *Housing rib and groove of lever must align with one another. Do not insert tool as far as stop.*

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



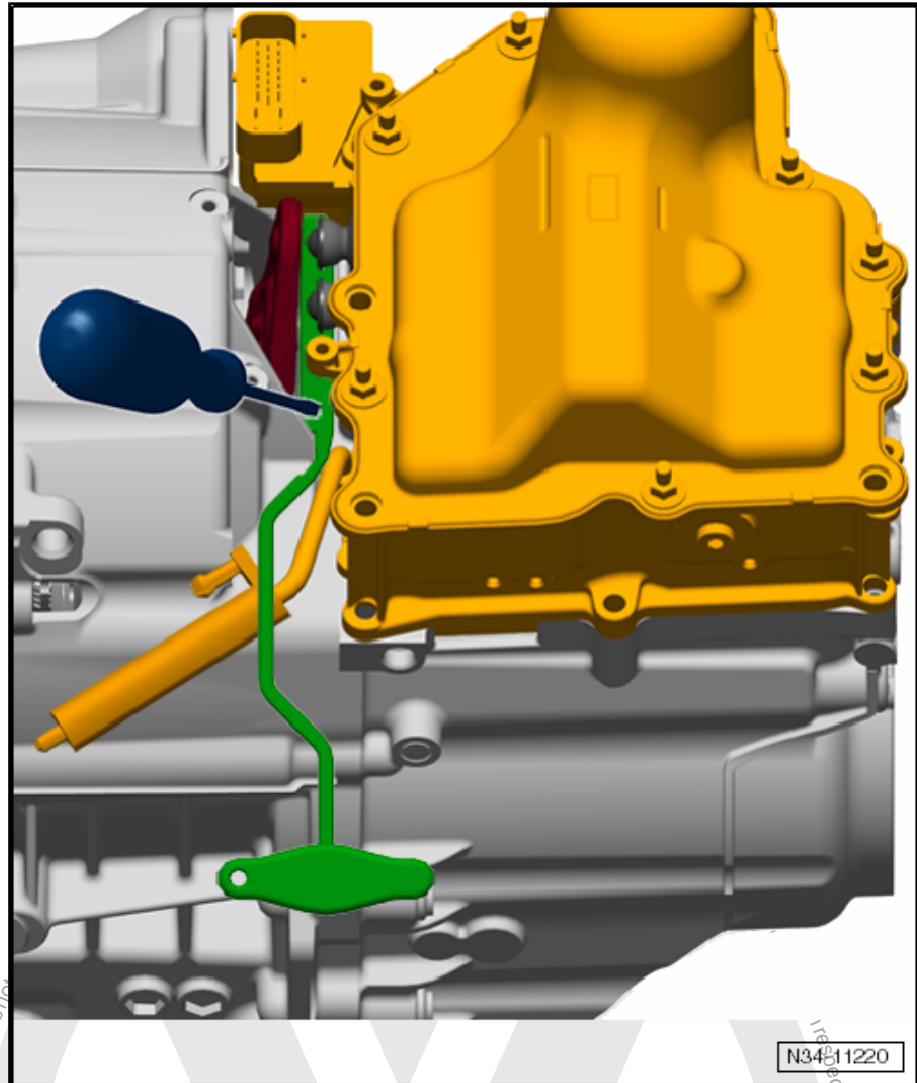


Turn assembly lever -T10407- anticlockwise. In this way, engaging levers are pressed away from plungers.



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

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



Note

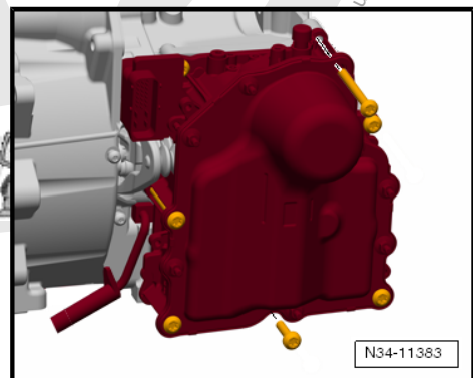
The assembly lever -T10407- must remain inserted between clutch lever and gearbox housing after removing the mechatronics. Removing the lever could have a negative effect on the clutch adjustment.

- 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!

- Therefore, 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!

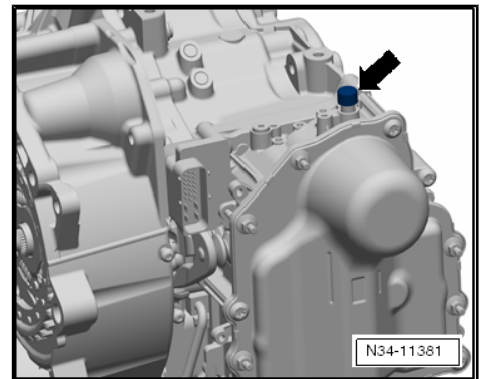
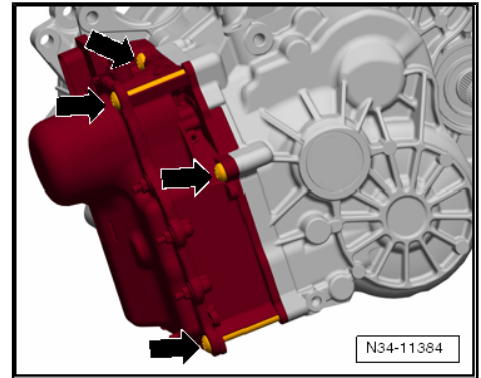
- Remove mechatronic unit.

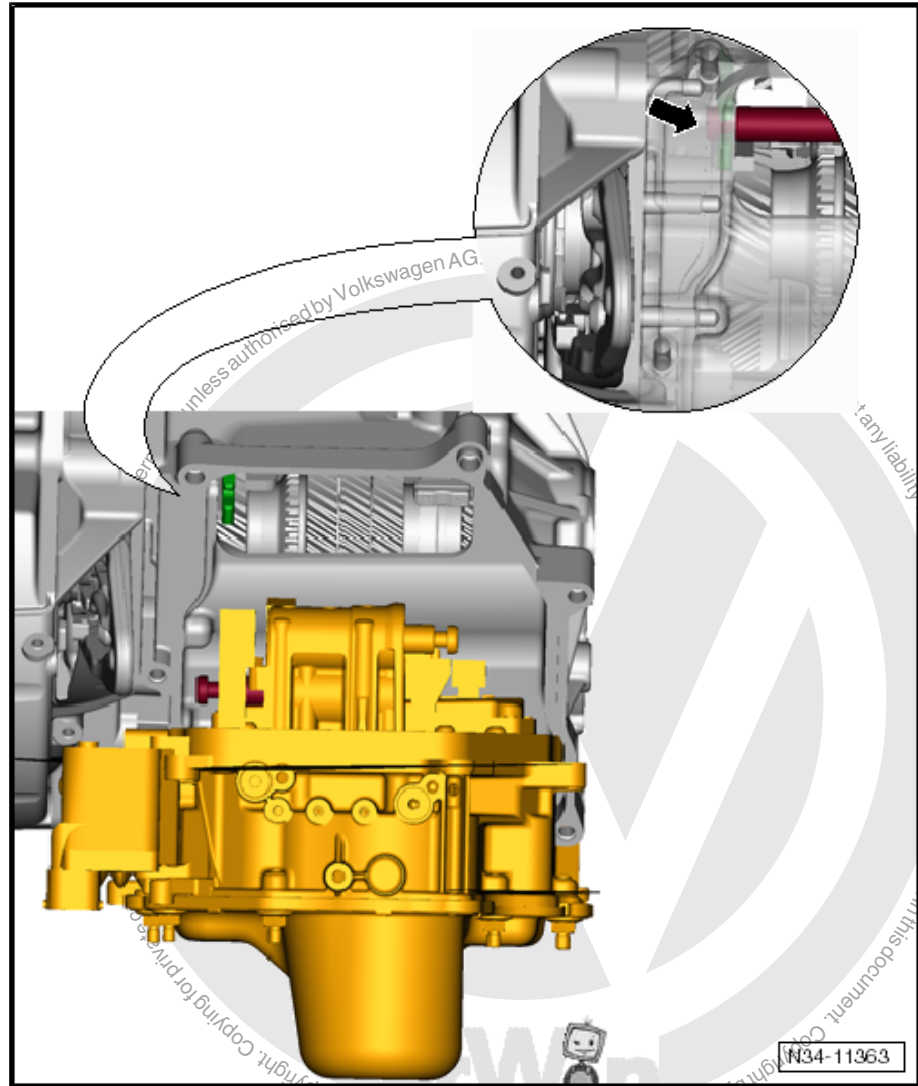
Mechatronic unit remains filled with oil.

- Make sure no oil runs out of breather.

Mechatronic unit is delivered 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.

- First reposition mechatronic unit on gearbox housing and secure it with one bolt.
- Move mechatronic unit into »removal position« by hand
⇒ [page 101](#) .

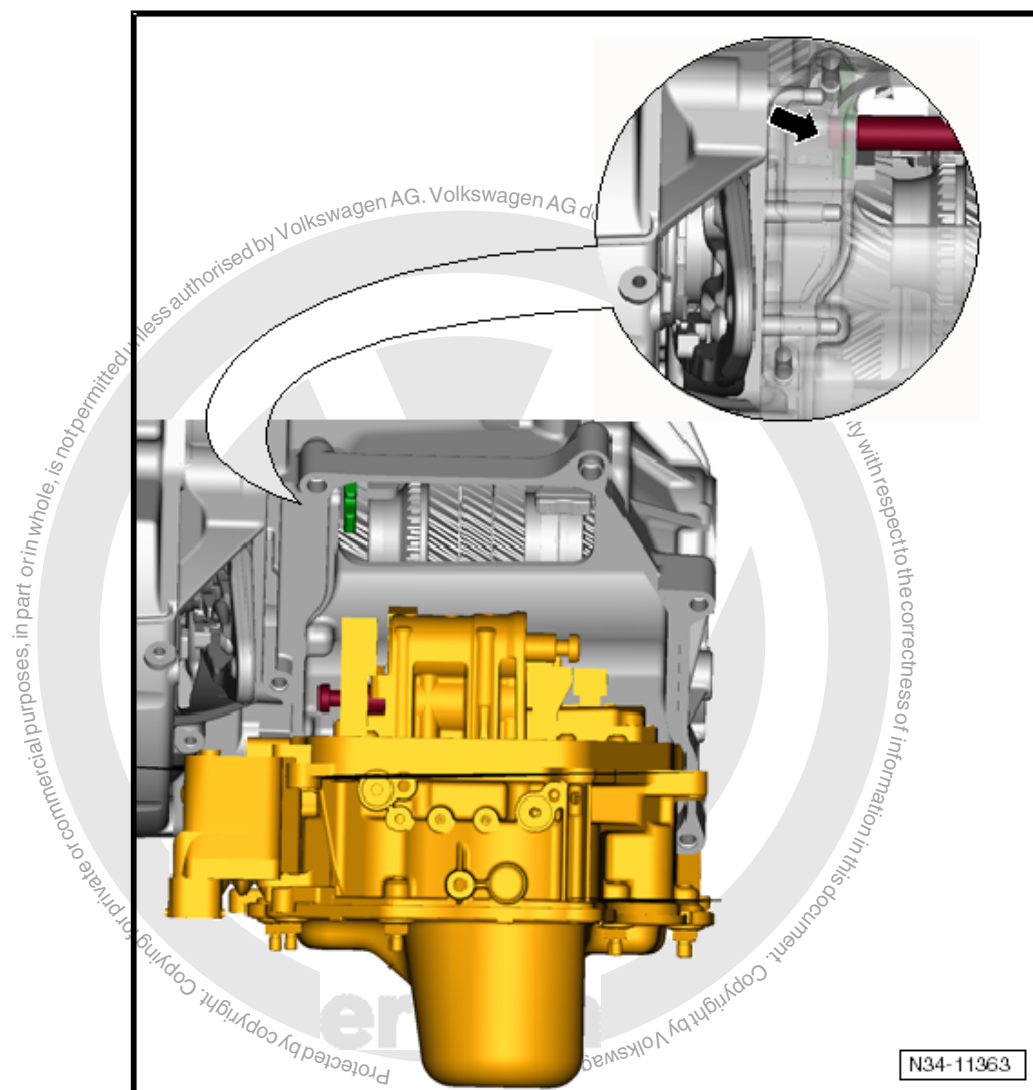
Installing mechatronic unit ⇒ [page 103](#) .



10 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 diagnosis, testing and information system - VAS 5051B- , you must move the unit by hand to this position.



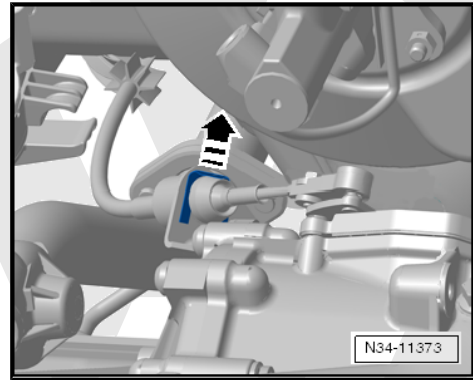
The »sticking« gear actuator -arrow- can be pressed by hand into its »removal position«. To do this, push a selector fork behind the parking lock cover.

Procedure:

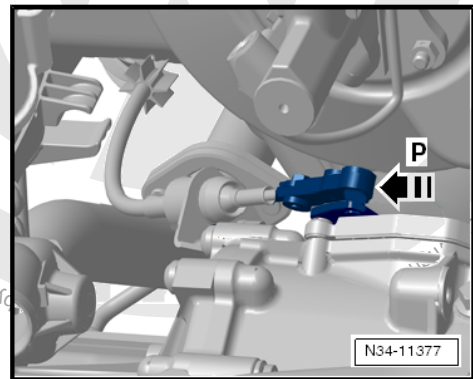
- First reposition mechatronic unit on gearbox housing and secure it with one bolt.
- Move selector lever to position "P" position.



- Remove securing clip -arrow-.
- Securing clips for selector lever cable must always be renewed.



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

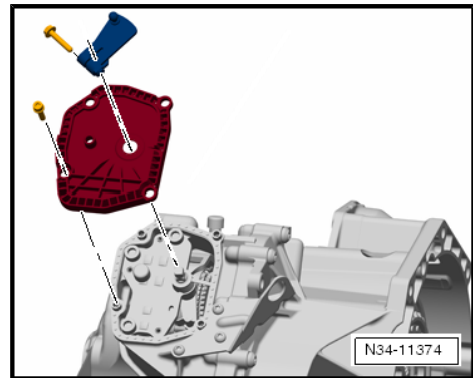


- Remove lever of selector shaft.
- Unbolt cover.



WARNING

The mechatronic unit will not be »stuck« after the next step. That means that it could fall out. If it has not already been done, secure mechatronic unit on gearbox with one bolt to prevent it from falling down.

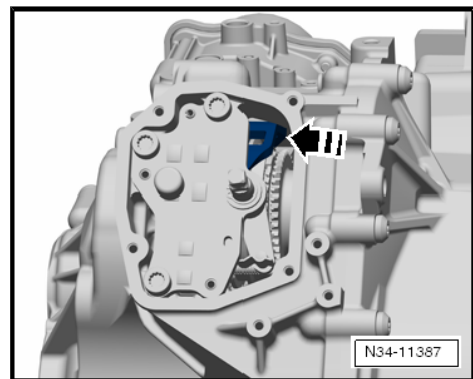


- Working through opening, push selector fork to side.
(Press to left in direction of travel.)

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

- Add gear oil after completing work on mechatronic unit
⇒ [page 64](#) .
- Adjust selector lever cable ⇒ [page 85](#) .
- Place plug on removed mechatronic unit.

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

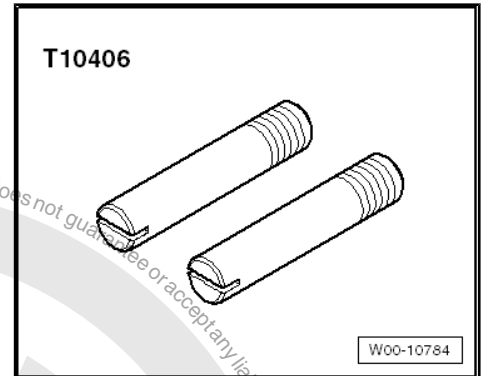




11 Installing mechatronic unit for dual clutch gearbox -J743-

Special tools and workshop equipment required

- ◆ Guide pin -T10406-

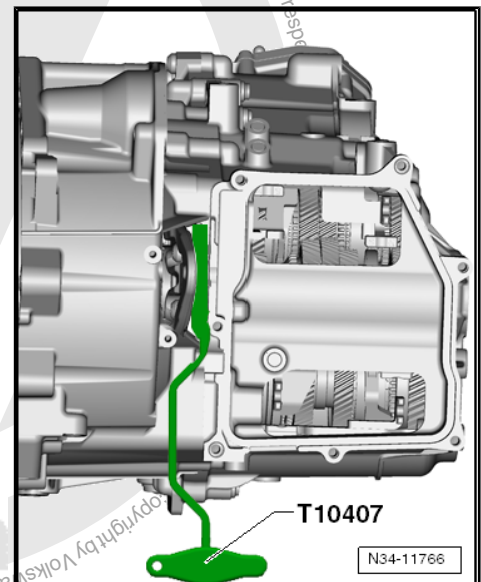


Prerequisites:

The assembly lever -T10407- is inserted between clutch lever and gearbox housing..

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.

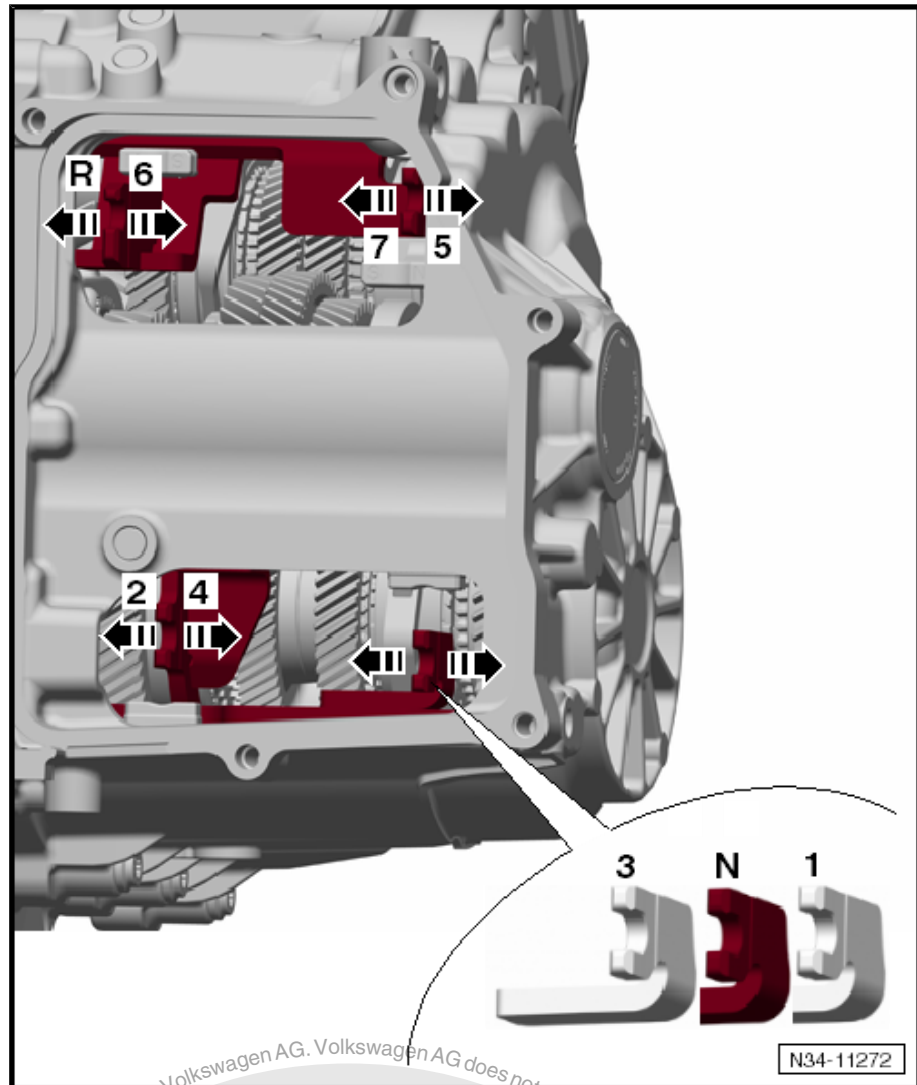


Installing

- All selector forks are »in neutral«.

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«.

- Move each fork once into each position in succession. Then disengage all gears and return selector forks to »middle position«.



Note

»Neutral, neutral, neutral«, or gearbox will not function!

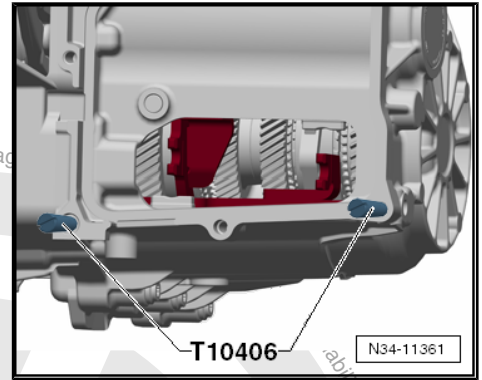
Turn gear slightly for assistance. This makes it »easier« to shift the forks.

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

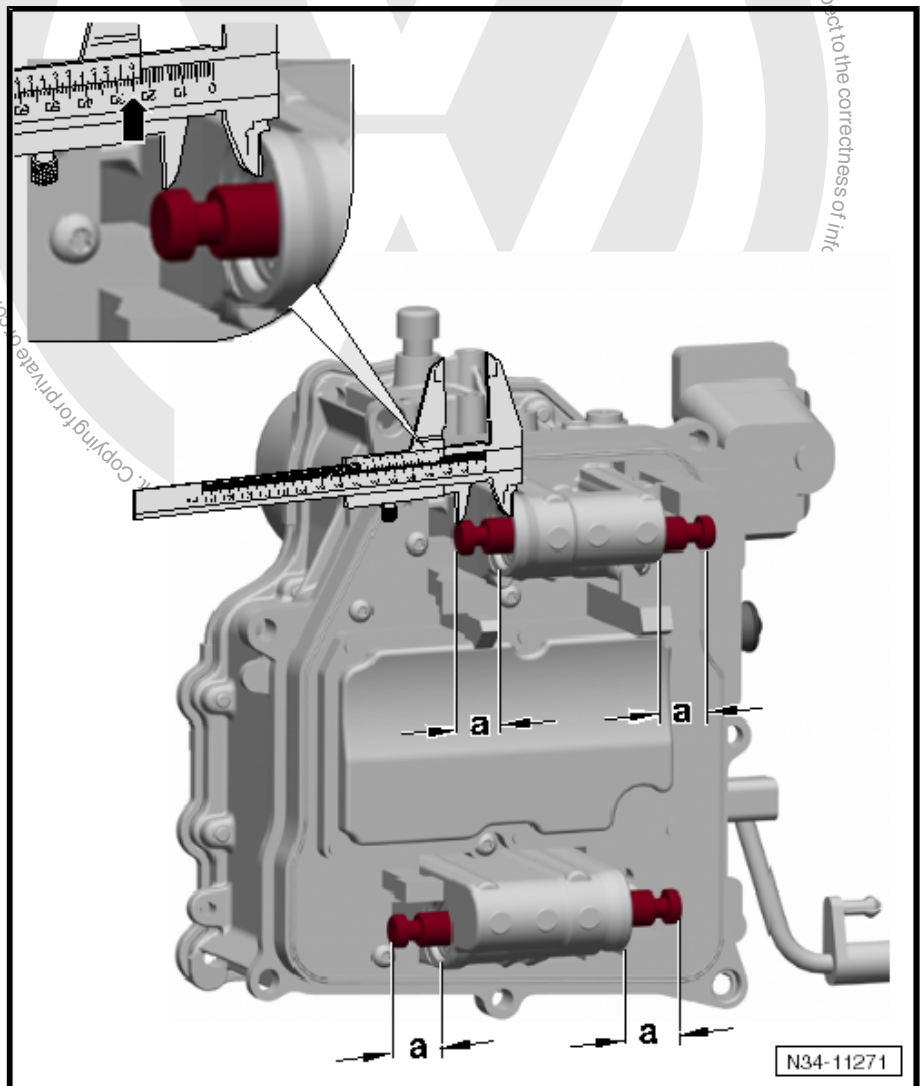
Oil residues on sealing surface will later result in a misdiagnosis of »leaking«.



- Screw in guide pin -T10406- until finger-tight.



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



Caution

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

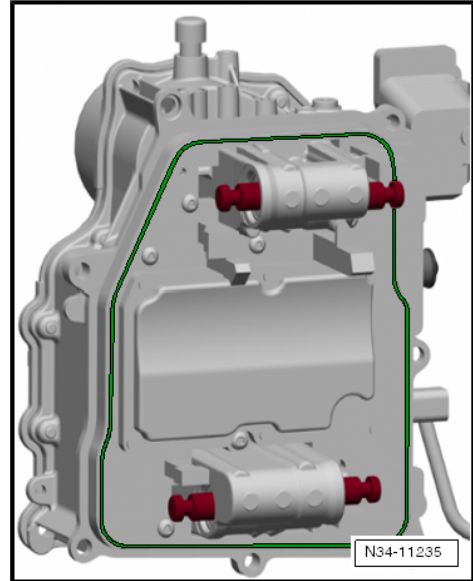
- Clean sealing surface of mechatronic unit.



- It is essential to watch out for seal on mechatronic unit.

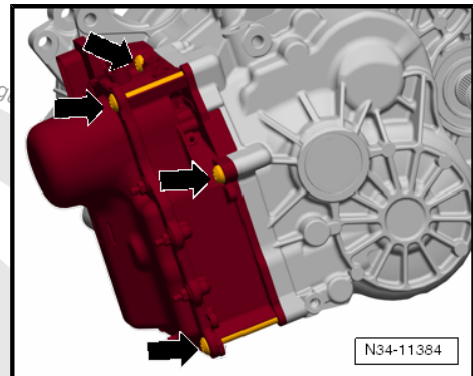
Seal must be pushed in all around.

- Pay attention to 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.

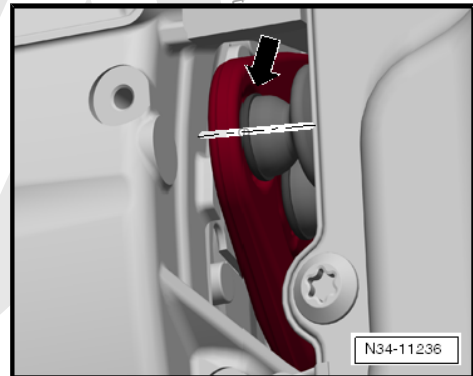


- Make sure that plungers meet up correctly in cups of engaging levers.

- 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.

- Check seat of plungers again.



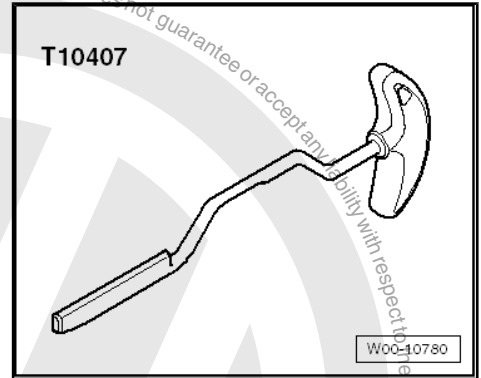
Plungers that are not seated correctly will damage mechatronic unit.

- Tighten mechatronic unit diagonally to 10 Nm.

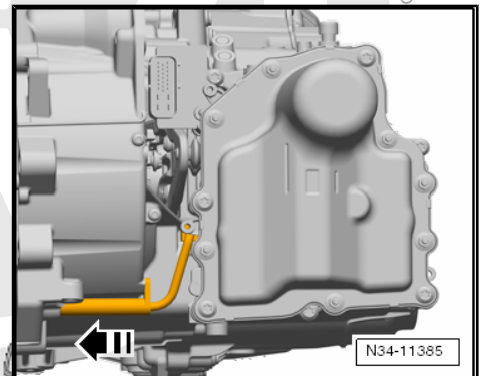





- Turn assembly lever -T10407- clockwise and remove it.



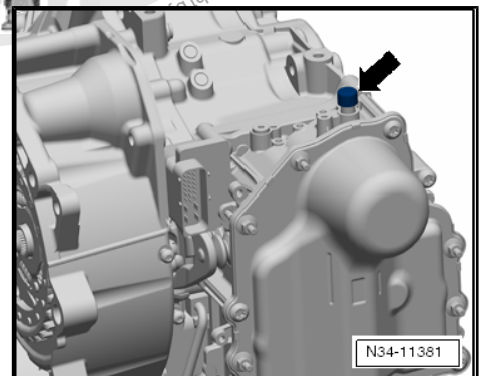
- Install gearbox input speed sender 3 -G641- .
- Pay attention to sender. Clip must not be damaged.
- Sender lug must be fully and firmly in contact with gearbox housing. If sender is »loose« because the clip is broken, renew mechatronic unit.



- Remove plug and put on breather cap.

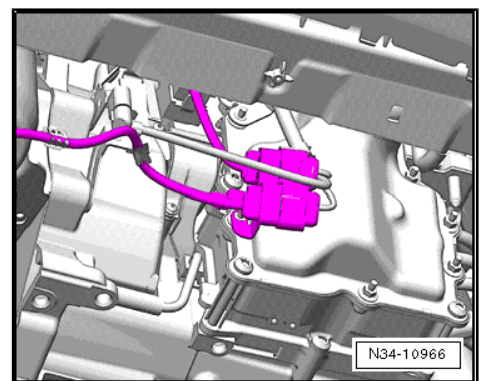
 **WARNING**

For some gearboxes the breather cap on the mechatronic unit is destroyed during removal and must be renewed.



- Put on connector of mechatronic unit.

- Mount all retainers and brackets on front of gearbox.



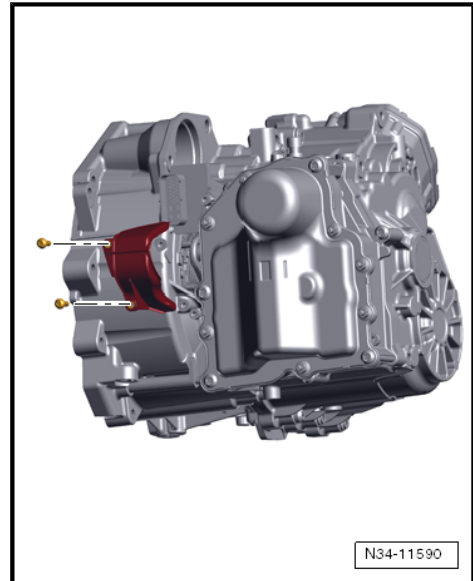


In some vehicles, a cover is fitted over the engaging levers.

The cover prevents dirt getting in.

Torque setting: 8 Nm

Now add gear oil ⇒ [page 64](#) .



- Fit coolant hose or air lines if necessary.
- Install battery and air filter.
- Connect battery ⇒ Electrical system; Rep. gr. 27 ; Disconnecting and connecting battery .
- If necessary, top up coolant ⇒ Engine; Rep. gr. 19 ; Draining and filling coolant .
- Install noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .

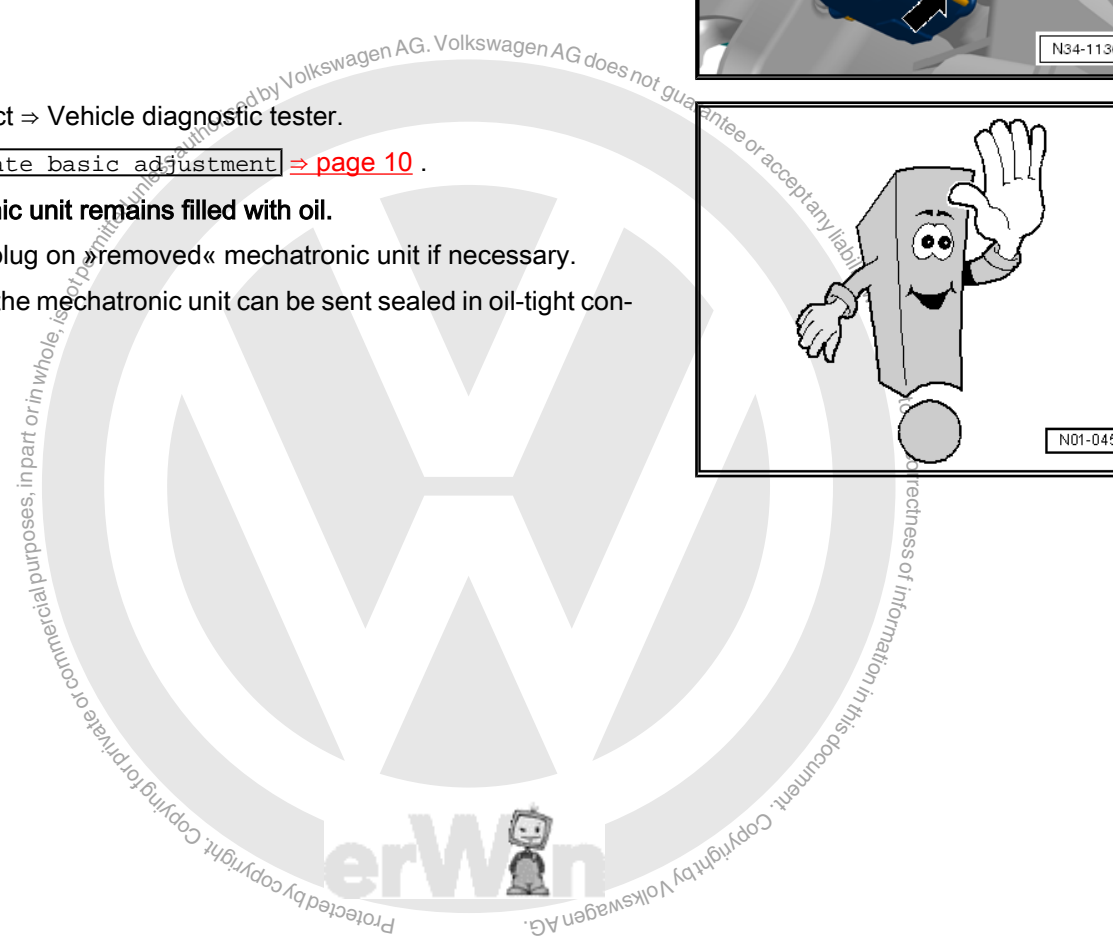
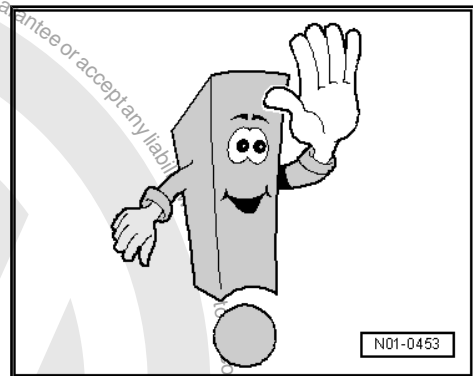


- Connect ⇒ Vehicle diagnostic tester.
- **Initiate basic adjustment** ⇒ [page 10](#) .

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.





12 View on selector forks; mechatronic unit is removed

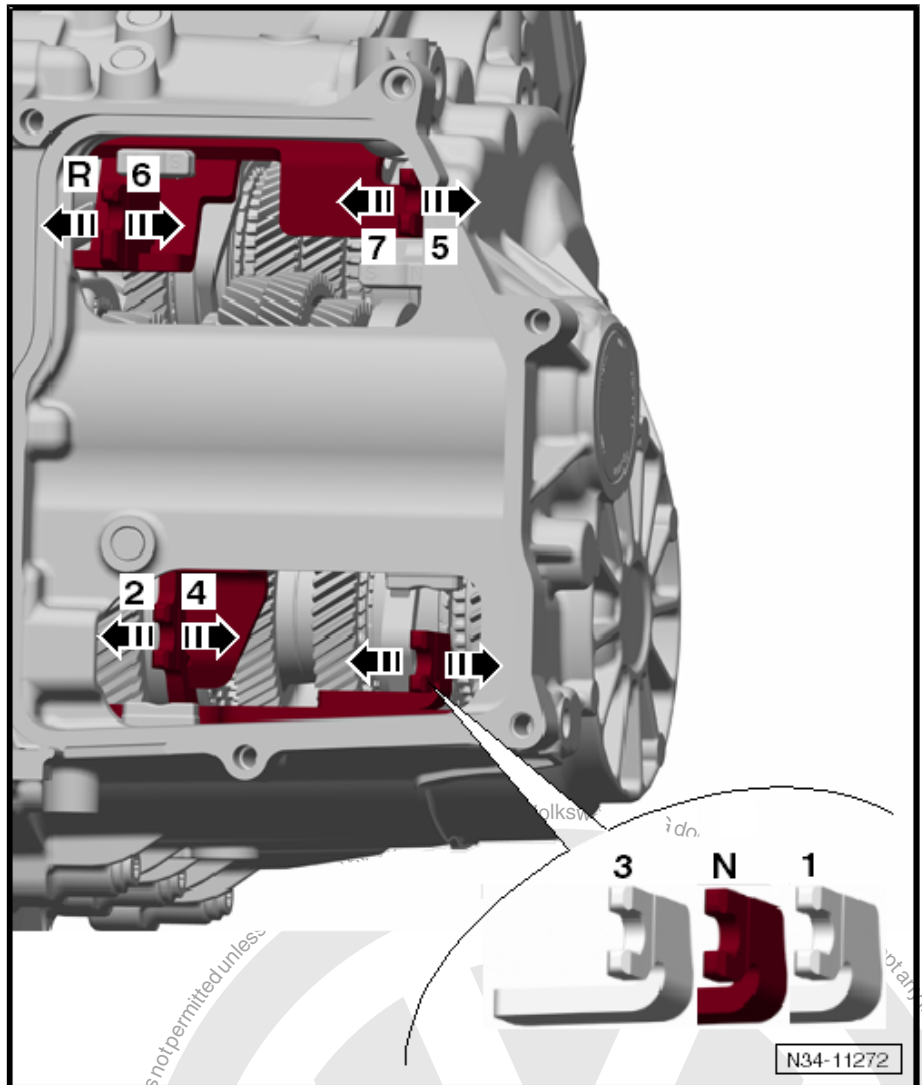
N - Idling/gearbox neutral position »in the middle«

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 101](#) .

- 1 - Gear
- 2 - Gear
- 3 - Gear
- 4 - Gear
- 5 - Gear
- 6 - Gear
- 7 - Gear





13 Overview "Removing and installing gearbox"

Golf 2004

Petrol

1.4 l - 90 kW and 118 kW TSI engine ⇒ [page 228](#)

Diesel

1.9 l - 77 kW - TDI engine ⇒ [page 248](#)

Golf Plus 2005

Petrol

1.4 l - 90 kW and 118 kW TSI engine ⇒ [page 228](#)

Diesel

1.9 l - 77 kW - TDI engine ⇒ [page 248](#)

Touran

Information about different vehicles ⇒ [page 111](#)

Petrol

Removing gearbox with flange shafts; Touran 1.4 l - 103, 110 and 125 kW petrol engine (and 110 kW Eco-Fuel) ⇒ [page 156](#)

Diesel

1.6 l - 77 kW - TDI engine ⇒ [page 163](#)

1.9 l - 77 kW - TDI engine ⇒ [page 169](#)

Passat 2006

Petrol

Removing gearbox; 1.4 l - 90 and 110 kW - petrol engine
⇒ [page 181](#)

Removing gearbox; 1.8 l - 112 and 118 kW - petrol engine
⇒ [page 186](#)

Gas

Removing gearbox with flange shafts 1.4 l - 110 kW - Eco-Fuel
engine ⇒ [page 175](#)

Passat CC 2009, CC 2010

Petrol

Removing gearbox; 1.4 l, 90 kW, 110 kW, 118 kW petrol engine
⇒ [page 255](#)

Removing gearbox; 1.8 l - 112 and 118 kW - petrol engine
⇒ [page 263](#)

Golf 2009

Petrol

Removing gearbox; Golf 2009 ▶, 1.2 l - 63 or 77 kW - petrol engine
⇒ [page 114](#)

Removing gearbox; Golf 2009 ▶, 1.4 l - 90 or 118 kW - petrol
engine ⇒ [page 221](#)

Removing gearbox; Golf 2009 ▶, 1.6 l - 75 kW - petrol engine
⇒ [page 214](#)

Removing gearbox; 1.8 l - 118 kW - petrol engine ⇒ [page 122](#)



Diesel

Removing gearbox; Golf 2009 1.6 l and 1.9 l - 77 kW - diesel engine ⇒ [page 242](#)

Scirocco 2009

Petrol

, 1.4 l - 118 kW - TSI engine ⇒ [page 207](#)

Golf Plus 2009

Petrol

1.2 l - 63 and 77 kW - petrol engine ⇒ [page 114](#)

1.6 l - 75 kW - petrol engine ⇒ [page 200](#)

1.4 l - 90 kW and 118 kW - petrol engine ⇒ [page 192](#)

Diesel

Removing gearbox; Golf Plus 2009, 1.6 l - 77 kW diesel engine ⇒ [page 235](#)

Polo 2010

Petrol

Removing gearbox; Polo 2010 ▶, 1.2 l - 63 and 77 kW petrol engine ⇒ [page 129](#)

Removing gearbox; Polo 2010 ▶, 1.4 l - 63 kW petrol engine ⇒ [page 136](#)

Removing gearbox; Polo 2010 ▶, 1.4 l - 132 kW petrol engine ⇒ [page 150](#)

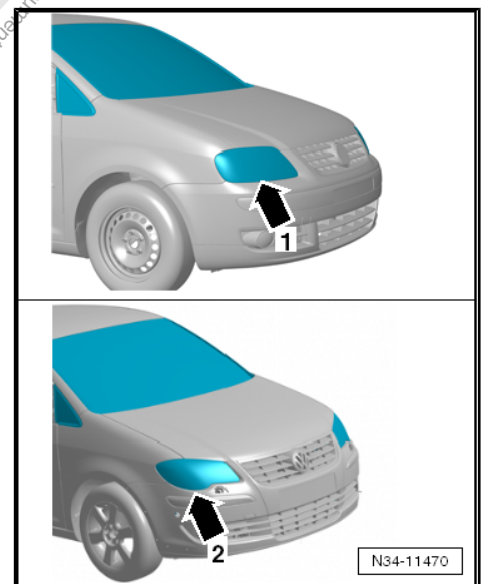
Diesel

Removing gearbox; Polo 2010 ▶, 1.6 l - 66 kW diesel engine ⇒ [page 143](#)

13.1 Notes on different vehicles, different gearboxes

Support engine and gearbox in the Touran.

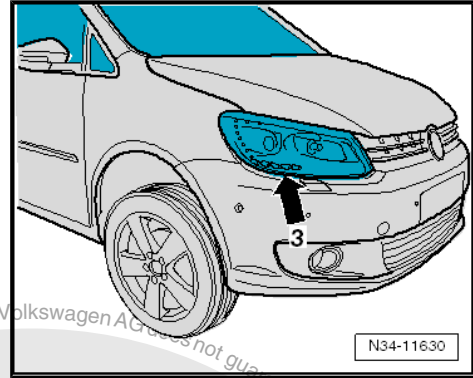
Contour of headlights has been changed several times in the Touran. This means there are different contact surfaces for support bracket -10 - 222 A- on wing.



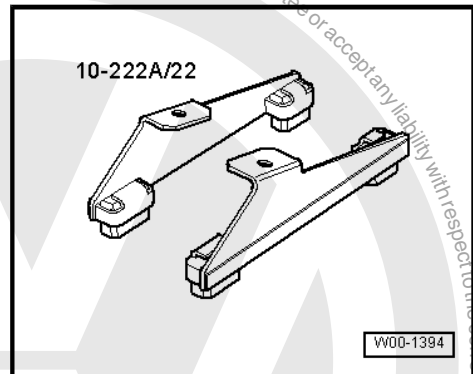


- ◆ To 11.06: small headlights -arrow 1-.
- ◆ From 11.06 to 05.10: large headlights with curvature -arrow 2-.
- ◆ From 05.10: large headlights without curvature -arrow 3-

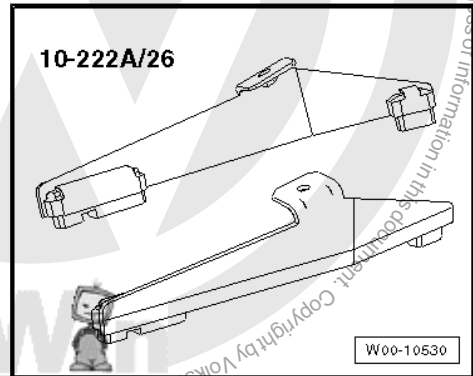
Adapters have been adjusted accordingly. It is essential to take this into account.



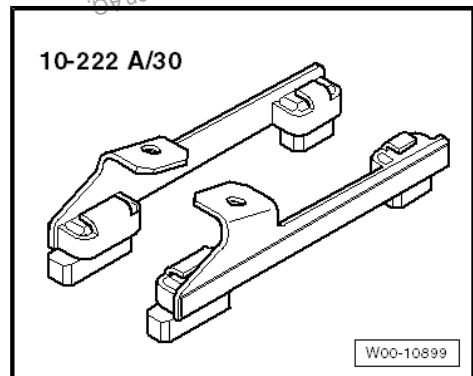
- Small headlights -arrow 1-: adapter -10 - 222 A /22- .



- Large headlights with curvature -arrows 2-: adapter -10 - 222 A /26- .



- Large headlights without curvature -arrow 3-: adapter -10 - 222 A /30- .





Gearbox with different output shafts.

A - Stub shafts »up to November 2008«

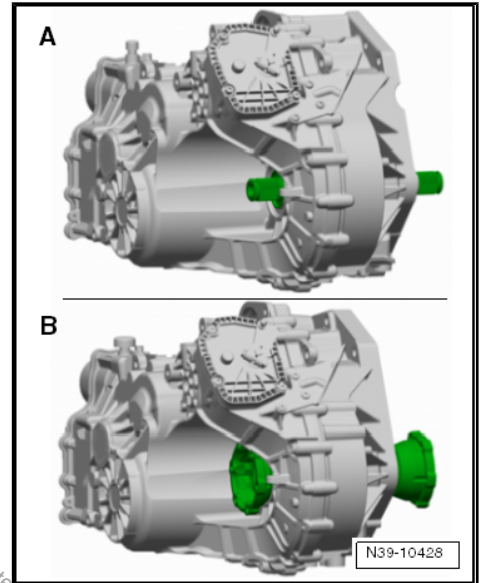
B - Flange shafts »from November 2008«

Vehicles with stub shafts on gearbox

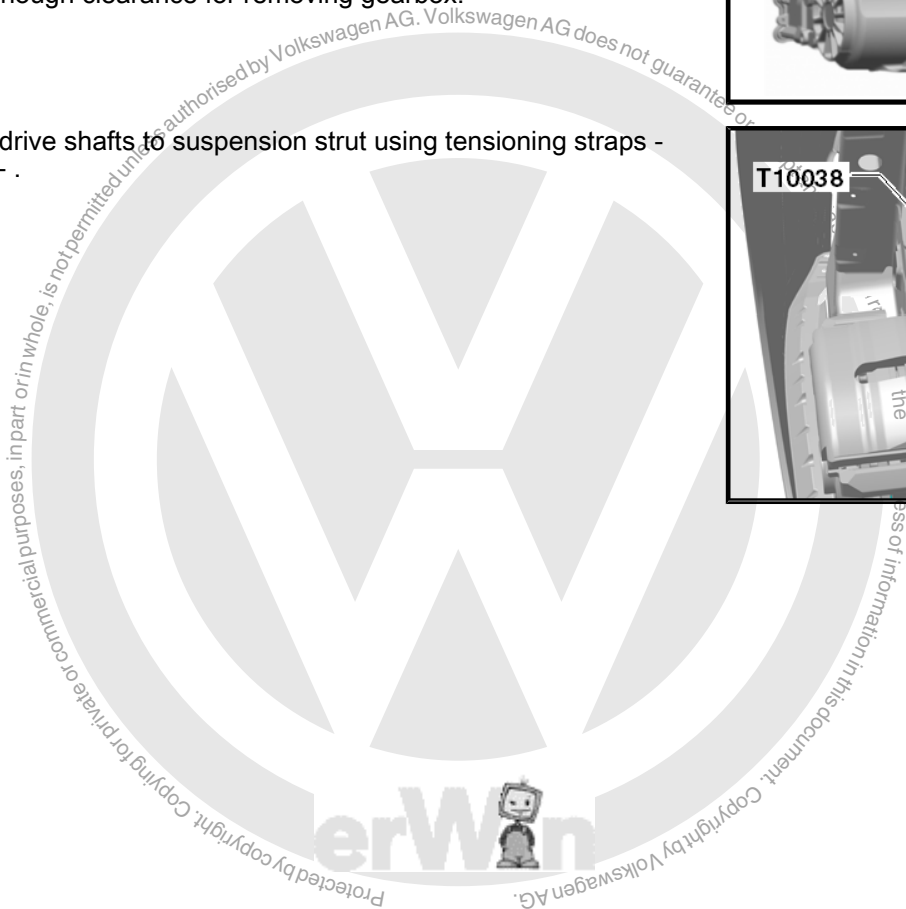
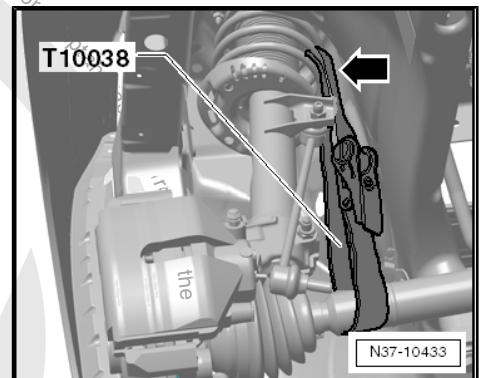
To remove gearboxes with stub shafts, it is necessary to remove stub shafts. Only shafts with straight joints can be put back onto the output shafts safely. Therefore, these shafts must be removed.

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 left-hand drive shaft completely and right-hand flange shaft from gearbox. This produces enough clearance for removing gearbox.



Secure drive shafts to suspension strut using tensioning straps - T10038- .

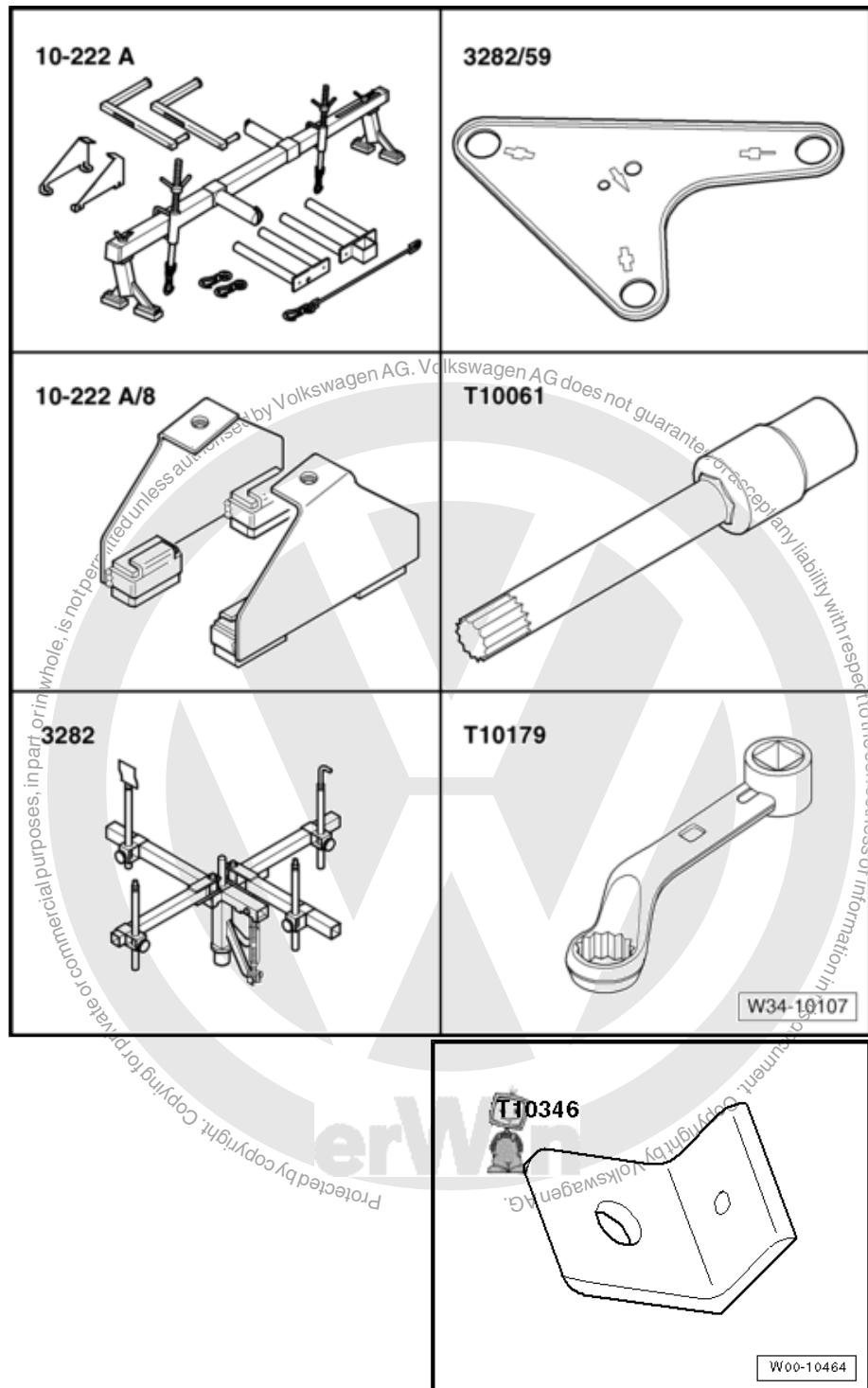




13.2 Removing gearbox; Golf 2009 ▶ und Golf Plus 2009 ▶, 1.2 l - 63 and 77 kW - petrol engine

Special tools and workshop equipment required

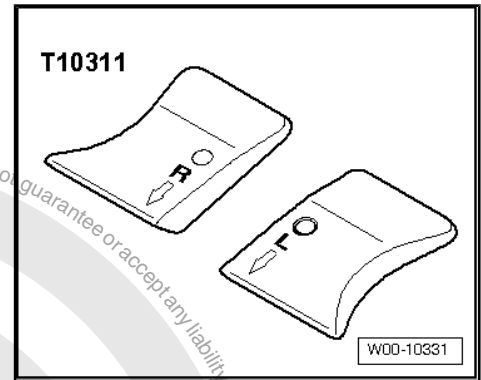
- ◆ Support bracket -10 - 222 A-
- ◆ Adjustment plate -3282/59-
- ◆ Adapter -10 - 222 A /8-
- ◆ Gearbox support -3282-
- ◆ Insert tool, 18 mm -T10179-
- ◆ Socket -T10061-
- ◆ Retainer -T10346-



Special tools and workshop equipment required



◆ Golf Plus only wing compensation plate -T10311-



◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-

Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

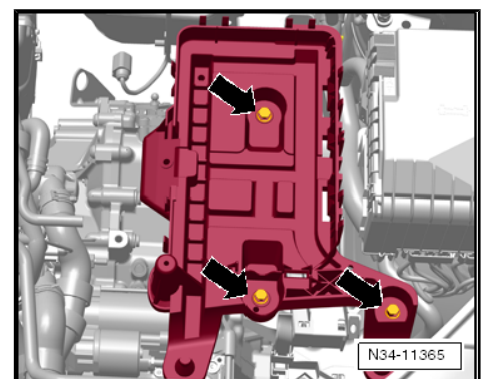
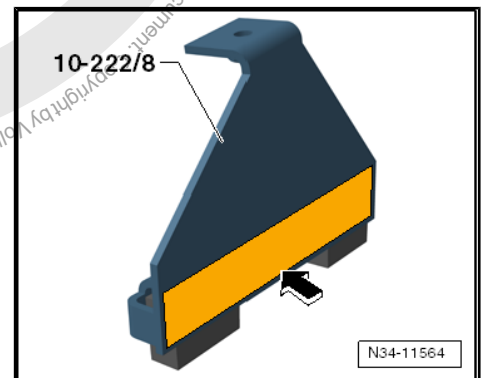
Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

At a later point, support bracket -10-222 A- will be put onto longitudinal members with adapters -10 - 222 A /8- .

- To prevent damage to edges of wings, cover bottom area of both adapters -10 - 222 A /8- with self-adhesive fabric tape -arrow- ⇒ Electronic parts catalogue (ETKA chemical substances) .
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Follow the instructions for different vehicles ⇒ [page 111](#) .
- 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 ⇒ Electrical system; Rep. gr. 27 ; Removing and installing starter .

In cars with stop/start system, disconnect electrical connections above gearbox.





- Remove selector lever cable from ball head, remove securing clip.

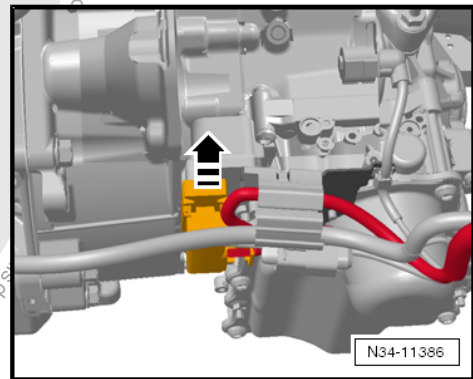
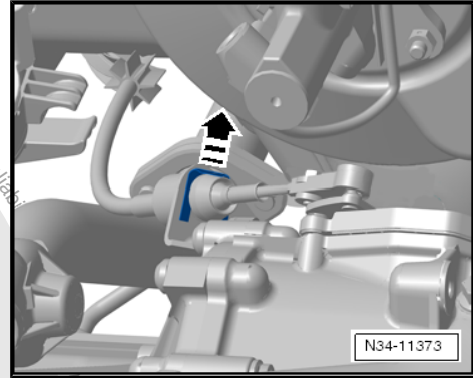
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

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

Remove cable with great care from cable support bracket on gearbox. Do not bend.

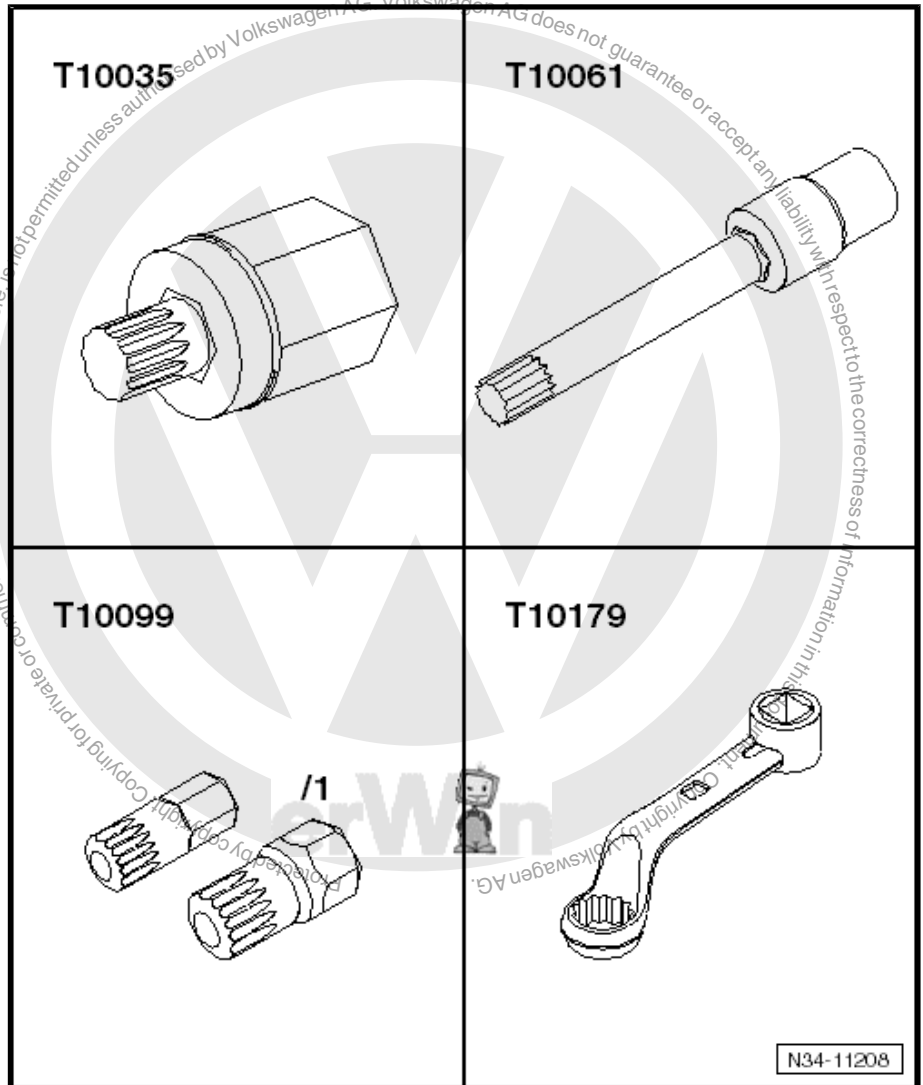
Release mechatronic unit connector by pulling and pull off connector.

Remove all upper connecting bolts between engine and gearbox.



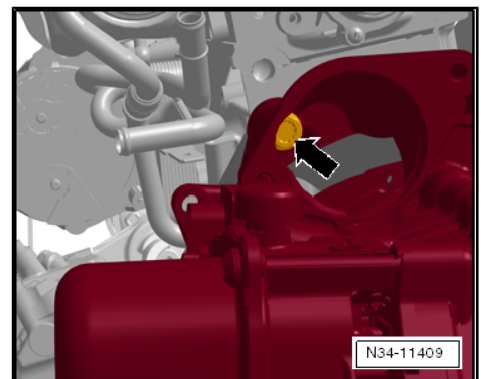
These tools are appropriate for this.





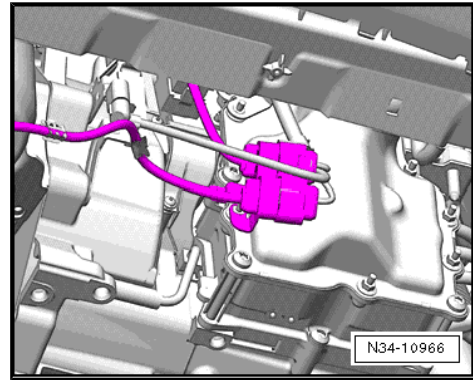
A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.

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

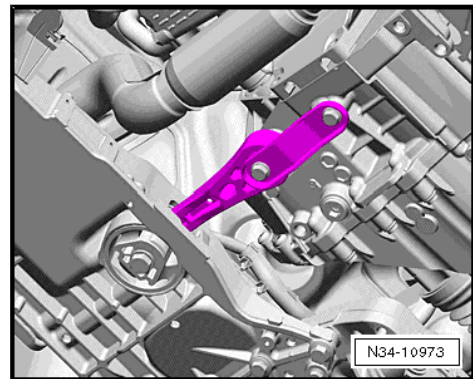




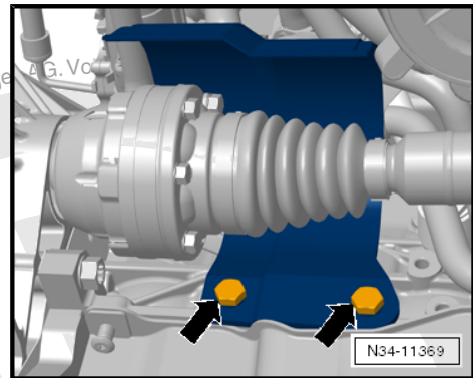
- Remove all retainers and brackets from front of gearbox.



- Remove pendulum support.

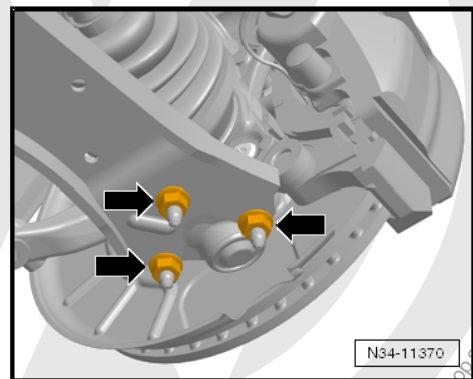


- If present, remove heat shield above right drive shaft. Tightening torque => Rep. gr. 40 ; Repairing drive shafts



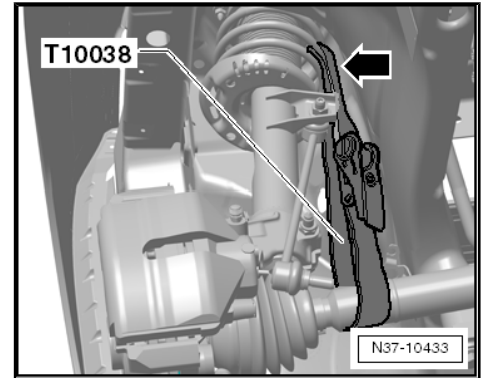
- Unscrew left transverse link from suspension strut.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

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.



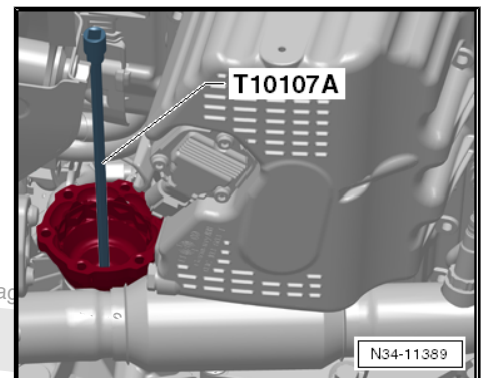


Secure both drive shafts to suspension struts using tensioning straps -T10038- .



- Remove right flange shaft of gearbox using socket -T10107 A- .

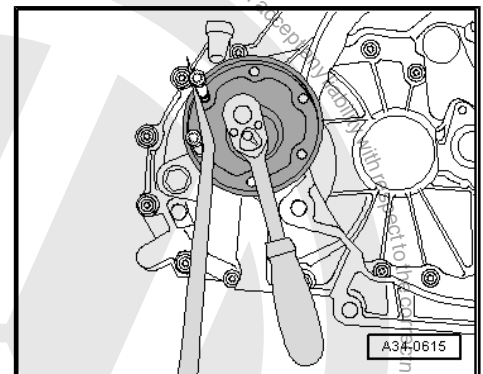
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .



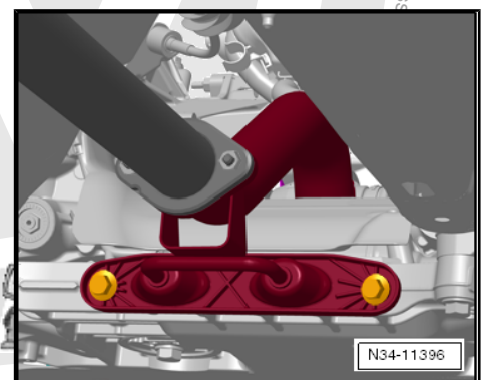
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

Torque setting 30 Nm

Continuation for all vehicles

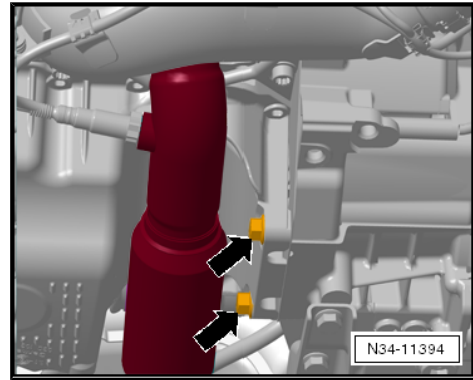


- Unbolt exhaust system bracket from subframe => Rep. gr. 26 ; Removing and installing parts of exhaust system .



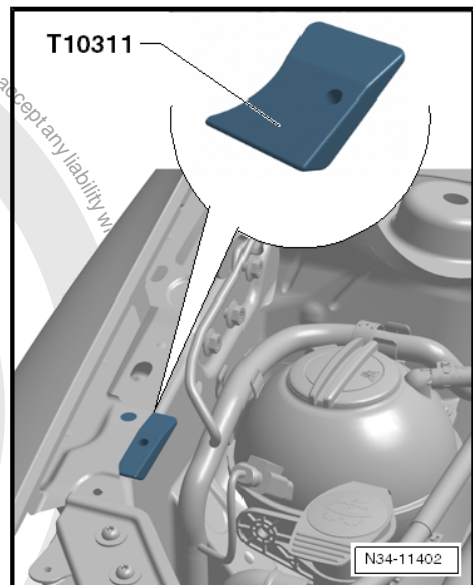


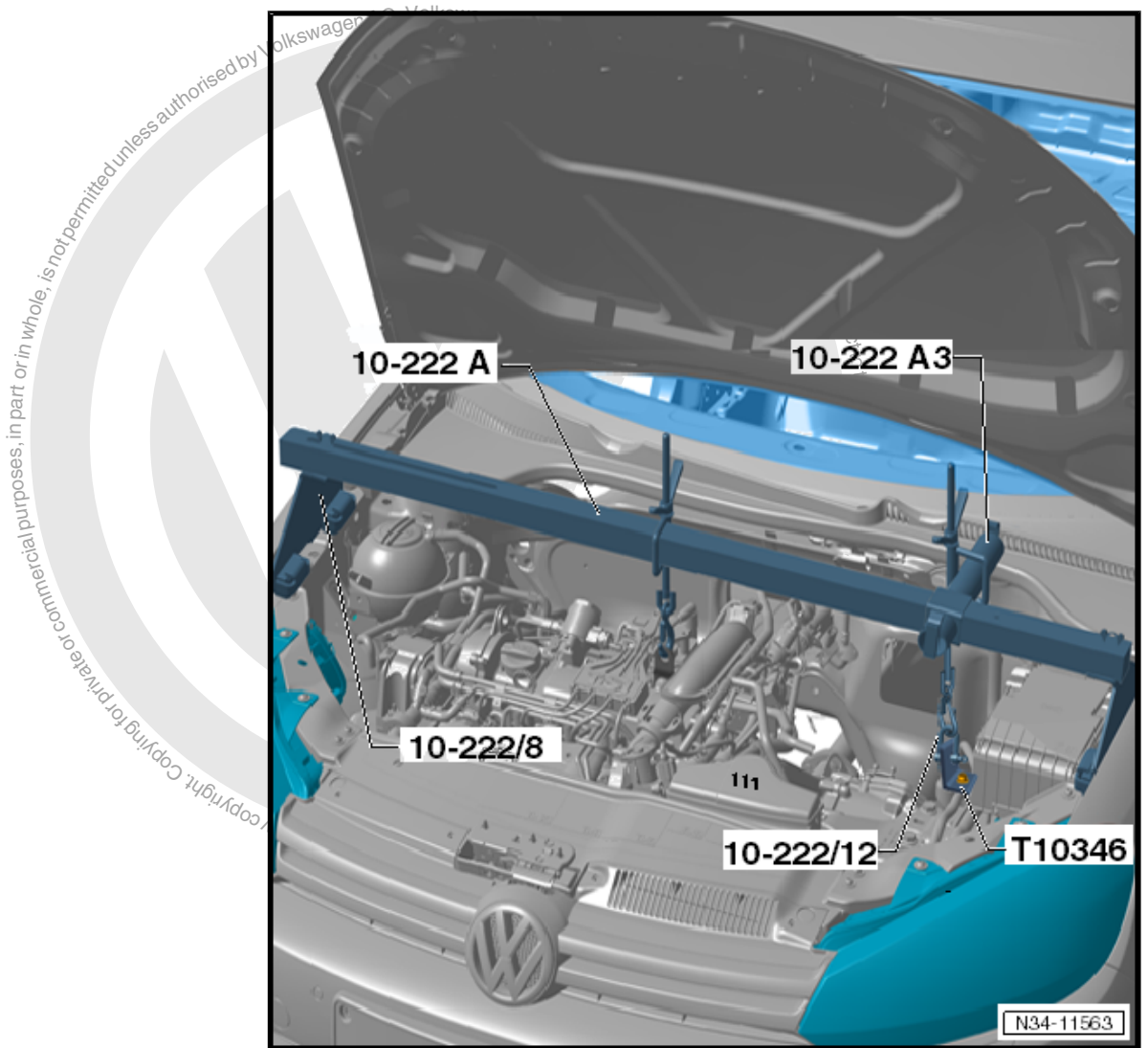
- Disconnect front exhaust pipe from catalytic converter so that lower engine/gearbox connecting bolts -arrows- can be removed => Rep. gr. 26 ; Removing and installing parts of exhaust system .
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222A- , remove these now.



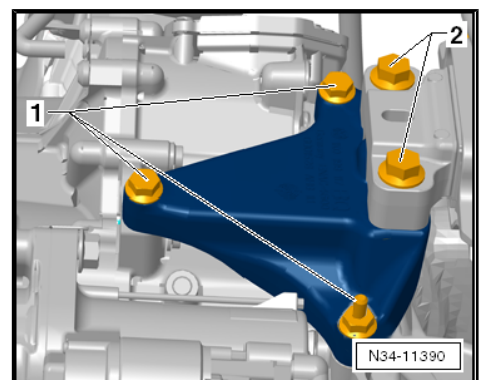
Golf Plus:

- Use wing supports -T10311- on both sides.
- The supports prevent the weight of the engine from damaging the wings.
- Bolt bracket -T10346- to rear mounting hole for battery tray.





- Support engine and gearbox. 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.
- Set up gearbox support -3282- with adjustment plate -3282/59- .

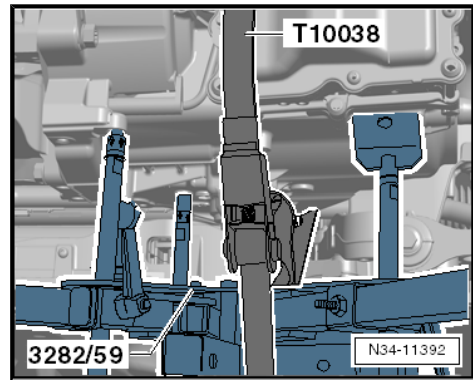




- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

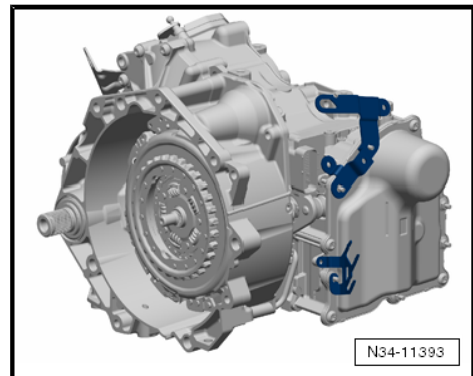


In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

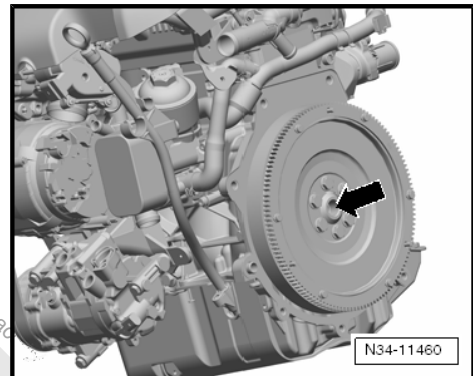
Gearbox with flange shafts, torque setting ⇒ [page 379](#)

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



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#) .

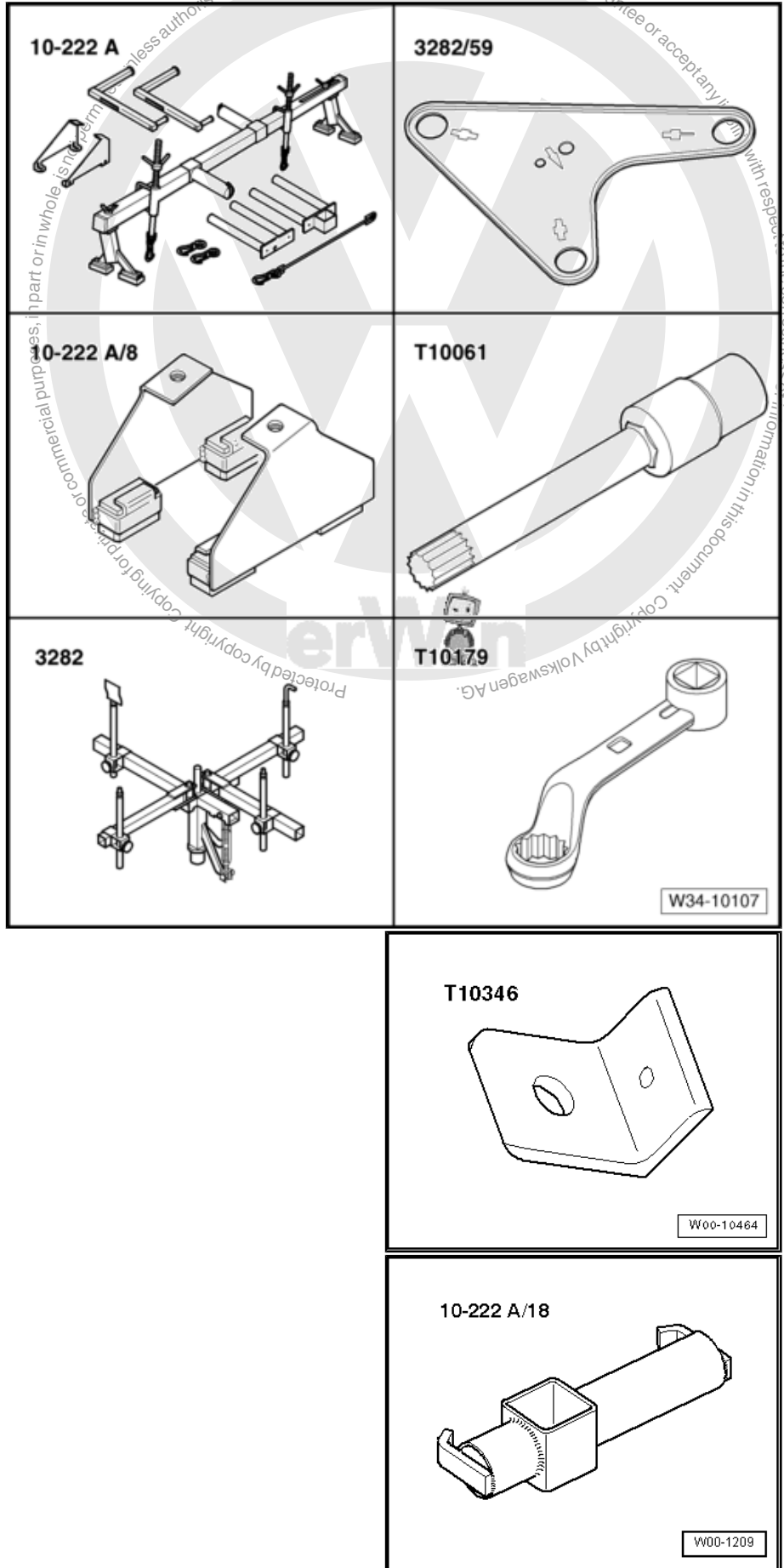


13.3 Removing gearbox; Golf 2009 ▶ , 1.8 l - 118 kW - petrol engine



Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adjustment plate -3282/59-
- ◆ Adapter -10 - 222 A /8-
- ◆ Gearbox support -3282-
- ◆ Insert tool, 18 mm -T10179-
- ◆ Socket -T10061-
- ◆ Retainer -T10346-
- ◆ Adapter -10 - 222 A /18-
- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-





Brief description

The gearbox is removed downwards separately, without engine.
»From above«

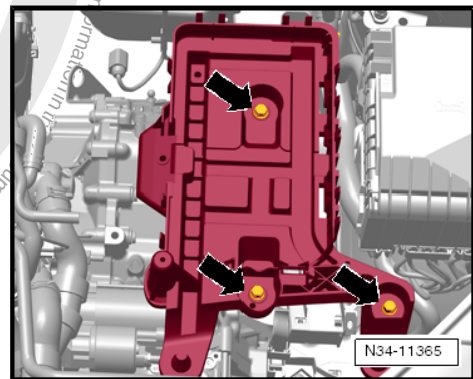
Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- 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. 24 ; Removing and installing air filter .
- Remove battery and -battery tray- => Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter => Electrical system; Rep. gr. 27 ; Removing and installing starter .

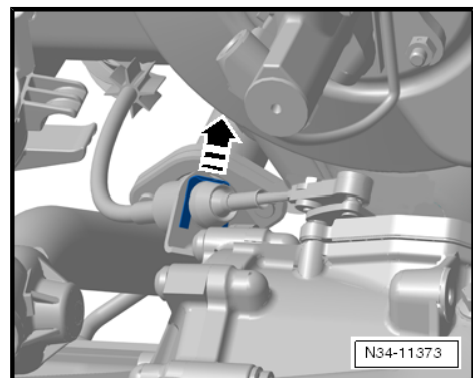


- Remove selector lever cable from ball head, remove securing clip.

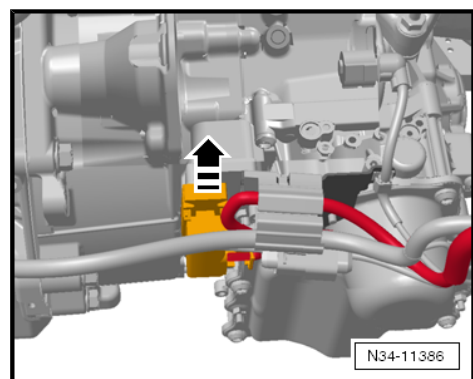
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

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

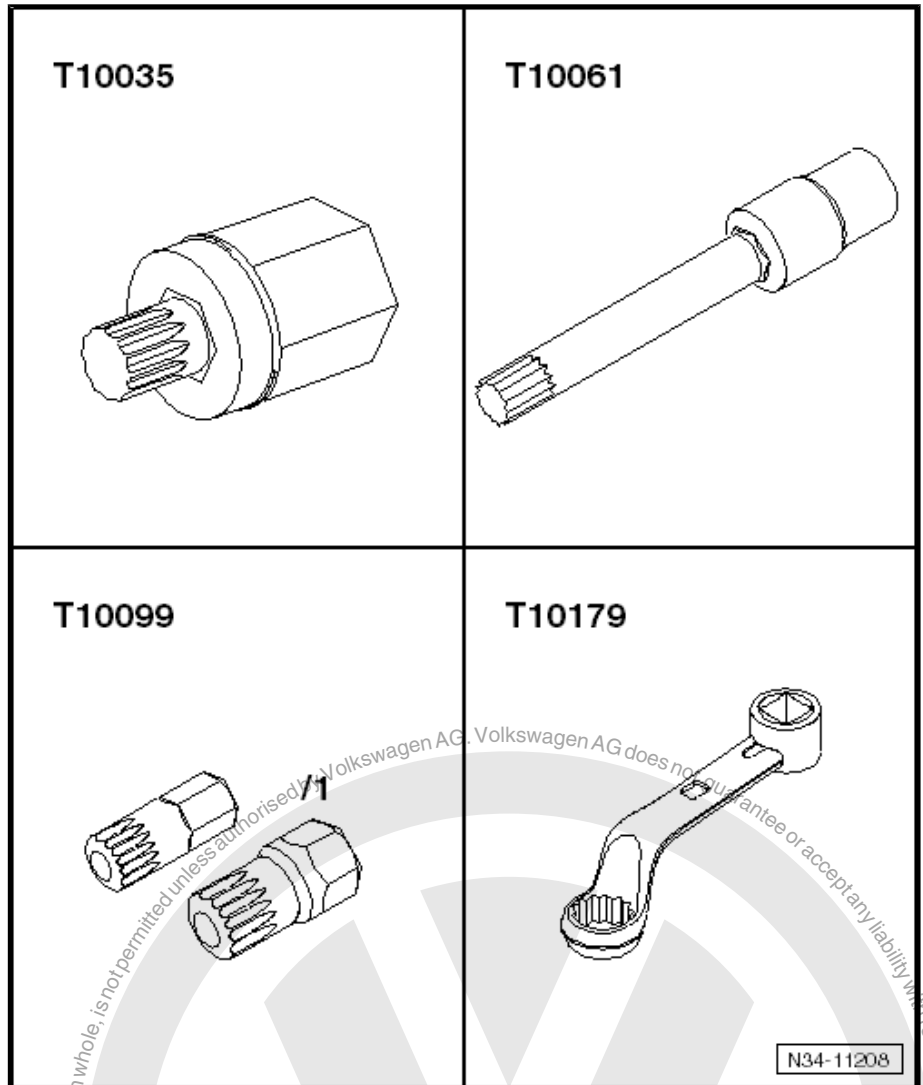
Remove cable with great care from cable support bracket on gearbox. Do not bend cable.



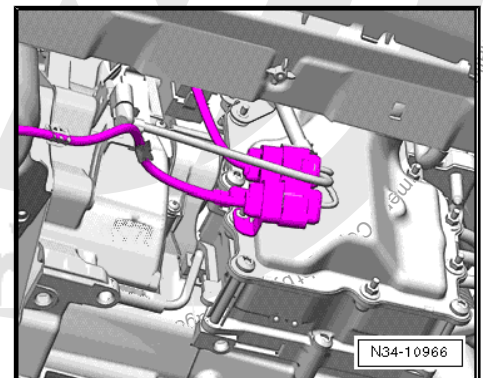
- Release mechatronic unit connector by pulling and pull off connector.
- Remove upper connecting bolts between engine and gearbox.



These tools are appropriate for this.

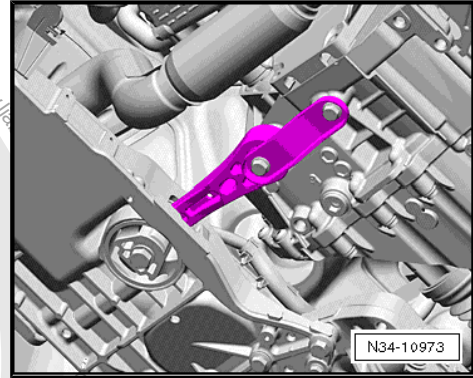


- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front left part of wheel housing liner ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing liner .
- Remove all retainers and brackets from front of gearbox.



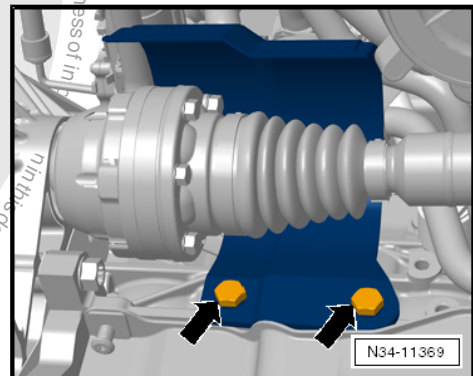


- Remove pendulum support.



If present, remove heat shield above right drive shaft. Tightening torque => Rep. gr. 40 ; Repairing drive shafts

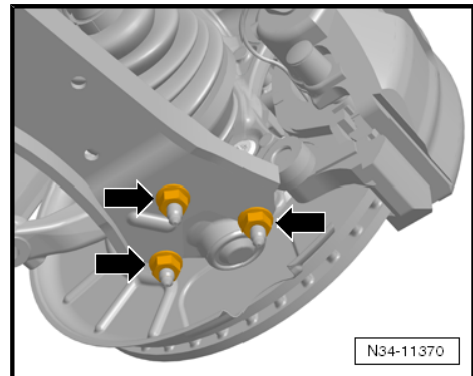
- Disconnect left coupling rod from anti-roll bar => Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .



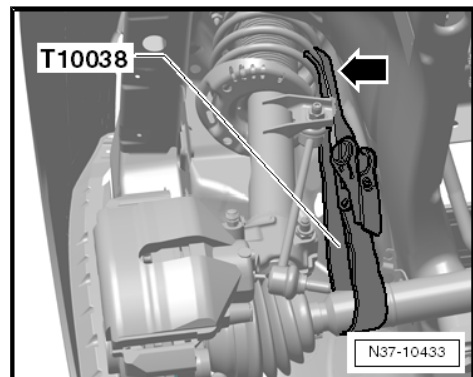
- Only unscrew left transverse link from suspension strut. Do not touch right transverse link.

Both centre bolts of shafts remain installed.

- Unbolt both drive shafts from gearbox and carefully lay to side. => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts
- Swing left drive shaft into wheel housing.



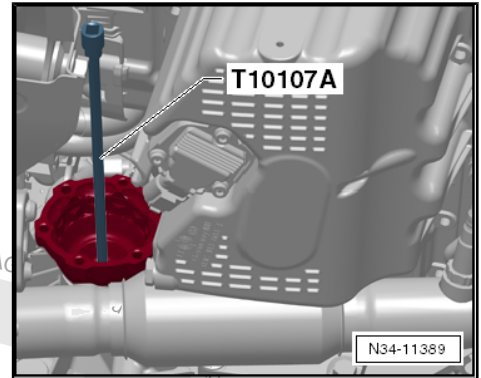
Shafts are fixed to suspension struts using tensioning belts - T10038- .





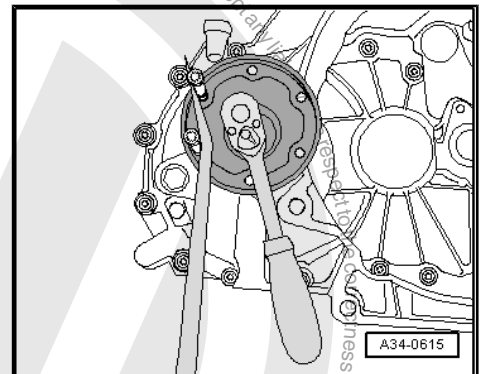
- Remove right flange shaft of gearbox using socket -T10107 A- .

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

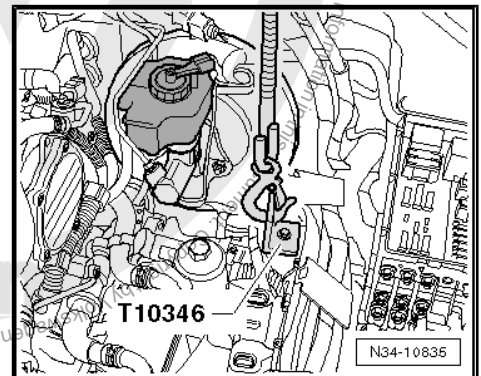


- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

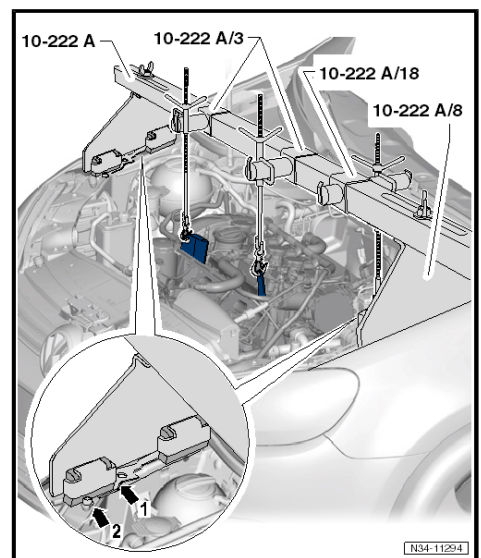
Torque setting 30 Nm



- Remove upper engine/gearbox connecting bolts.
- Bolt bracket -T10346- to rear of the 3 mounting holes for battery tray.
- If there are hose and cable connections or retainers in area of support eyes for support bracket -10-222A- , remove these now.



- Set up support bracket -10-222 A- in front of bonnet support.





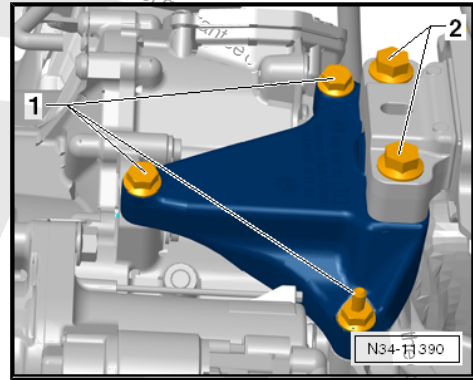
Remove all bolts -1- and -2- for bracket.

- 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.

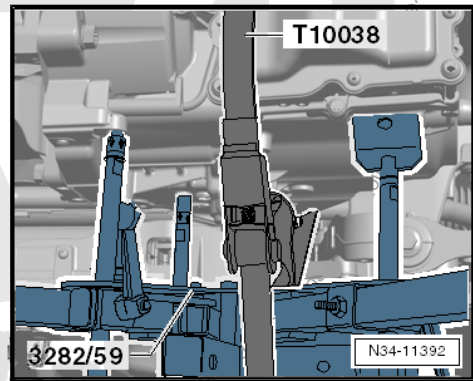
- Set up gearbox support -3282- with adjustment plate -3282/59- .



- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

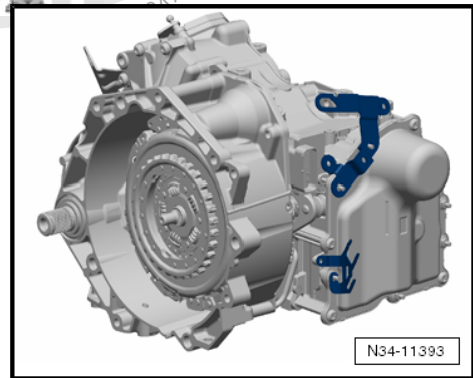


In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

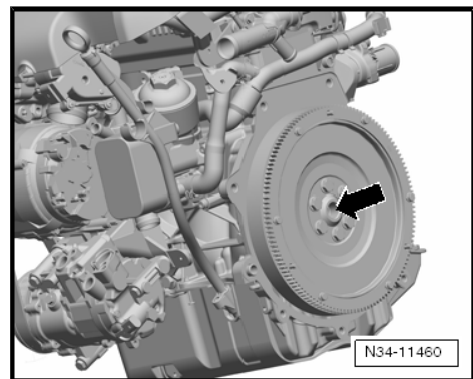
Gearbox with flange shafts, torque setting ⇒ [page 379](#)

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



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#) .

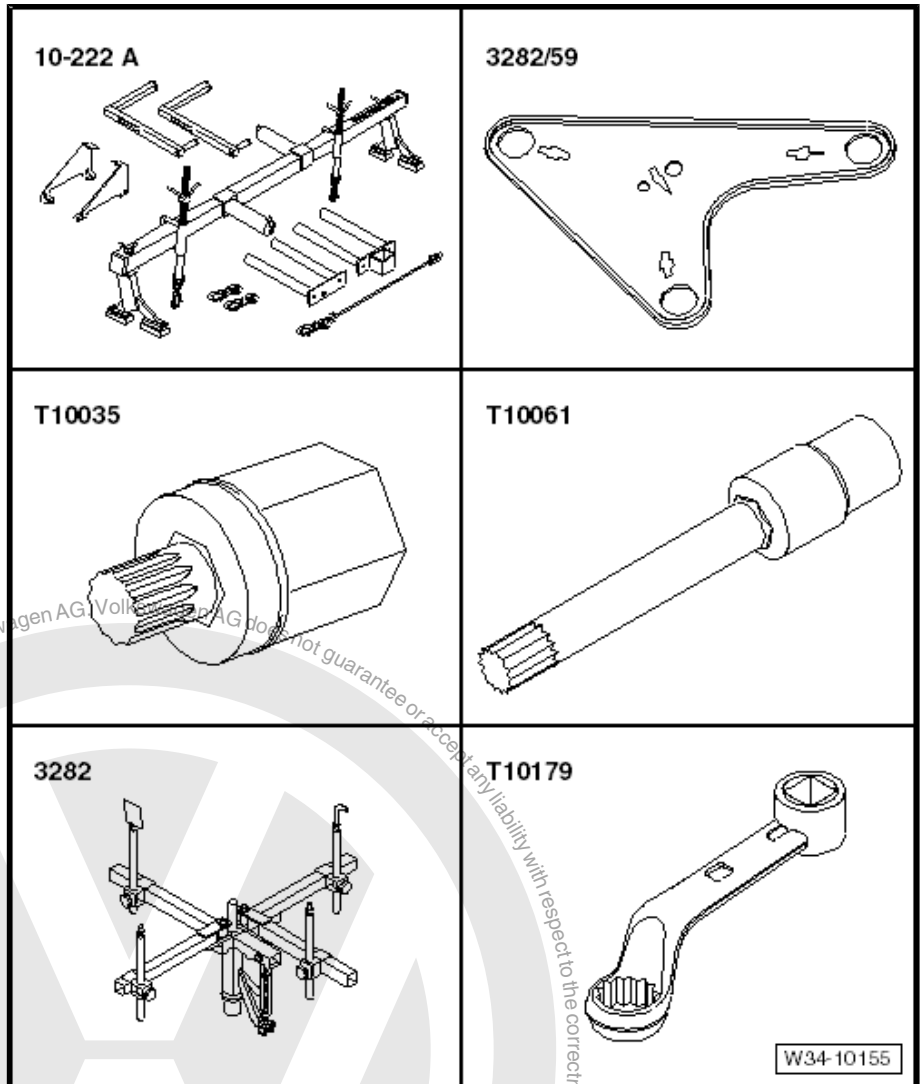




13.4 Removing gearbox; Polo 2010 ▶ , 1.2 l - 63 and 77 kW petrol engine

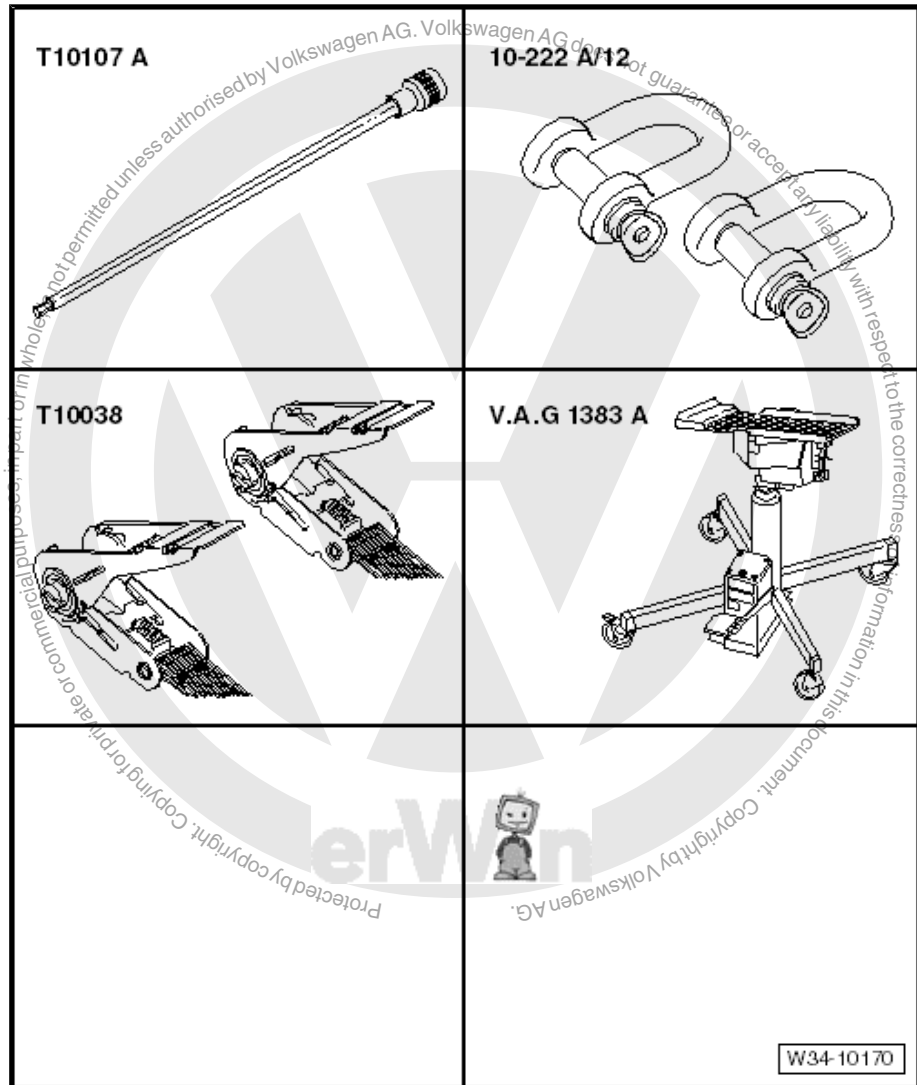
Special tools and workshop equipment required

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





- ◆ Socket -T10107 A-
- ◆ Shackle -10 - 222 A /12-
- ◆ 3 tensioning belts -T10038-
- ◆ Engine and gearbox jack - V.A.G 1383 A-



Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery and starter.

»From below«:

Remove noise insulation beneath engine, front left wheel housing liner and subframe with pendulum support. Secure drive shafts so that they do not disrupt removal. However, leave them on the suspension struts. The gearbox is removed downwards separately, without engine.

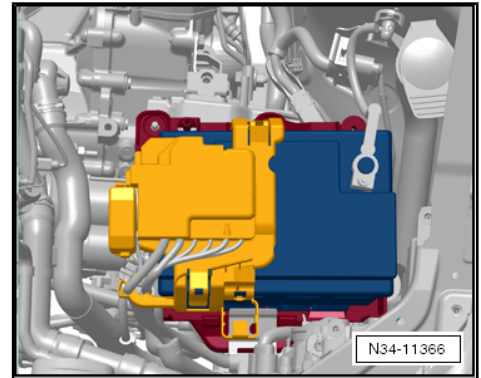
Subframe must be secured.

Removing:

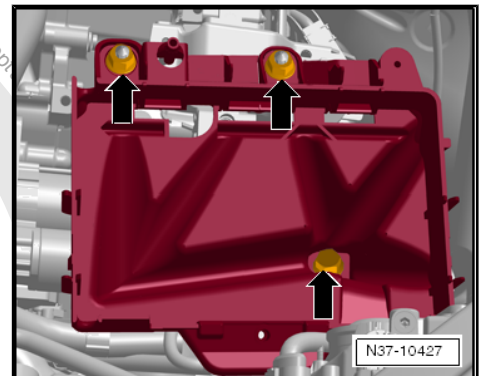
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Remove engine cover from cylinder head.



- Remove battery and -battery tray- ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove air line to air filter housing ⇒ Rep. gr. 24 ; Removing and installing air filter .

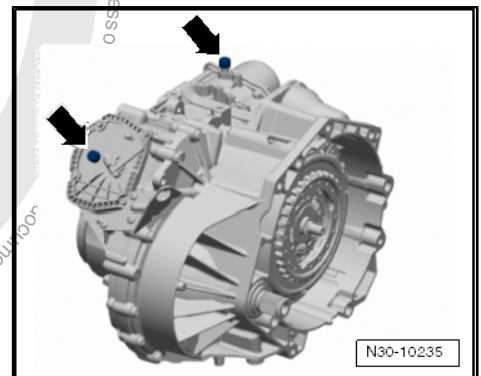


- Remove battery carrier.

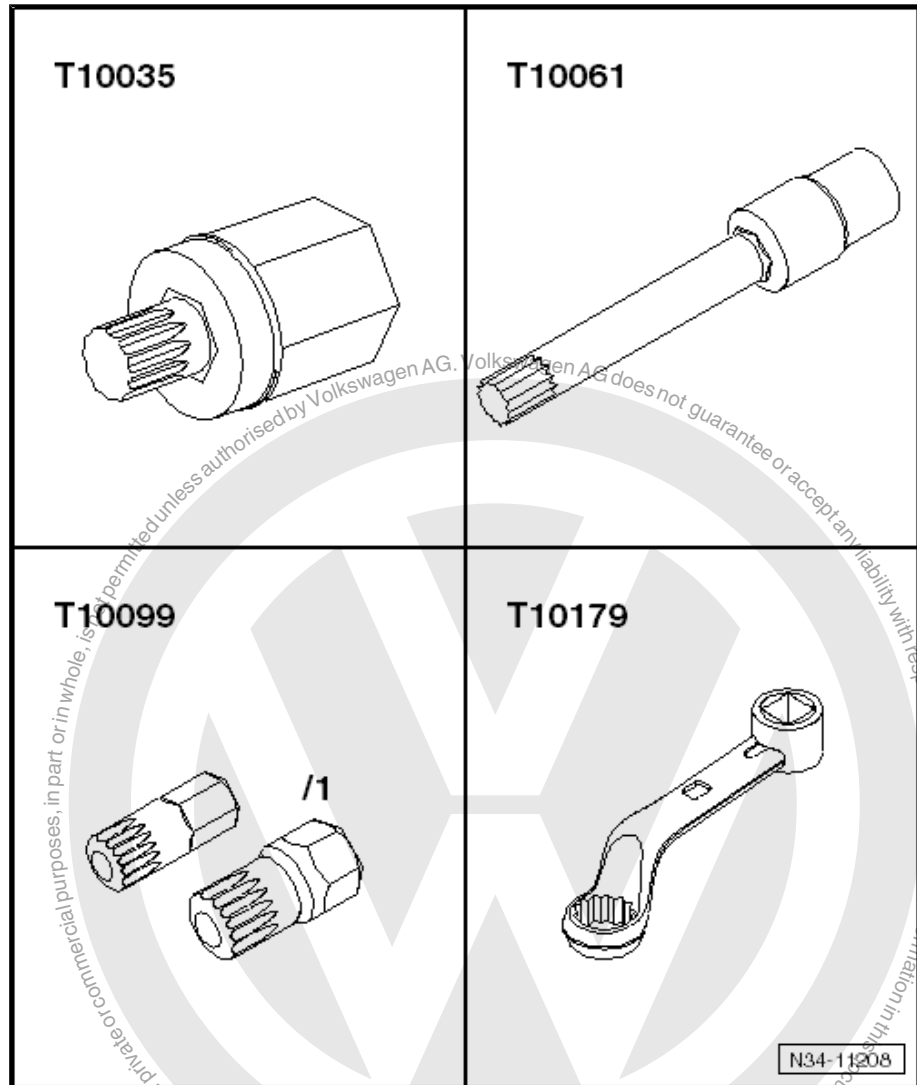


- Later, during installation, please check whether both breather caps are seated on gearbox.
- Remove starter ⇒ Electrical system; Rep. gr. 27 ; Removing and installing starter .

During removal, it is recommended to remove the lower bolt first.



These tools are appropriate for this.



- Remove selector lever cable from ball head, remove securing clip.

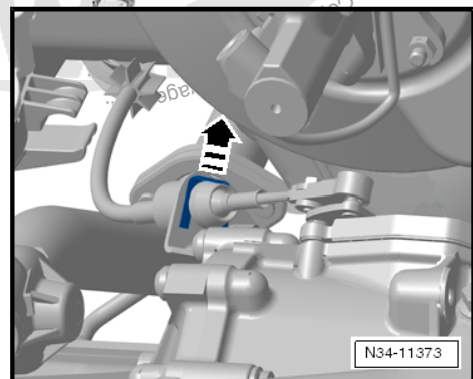
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

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

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

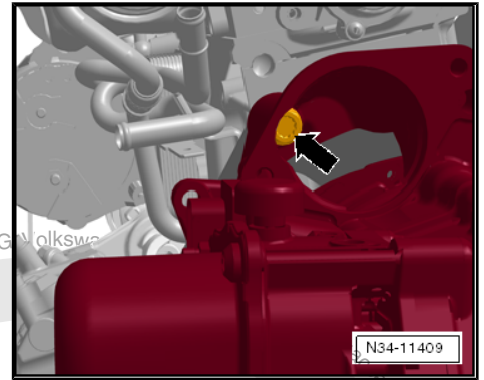
Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.

- Now remove all upper connecting bolts between engine and gearbox.

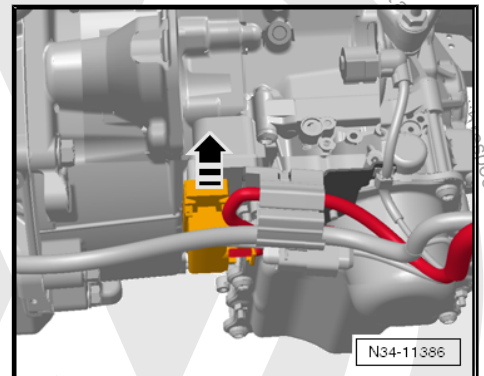




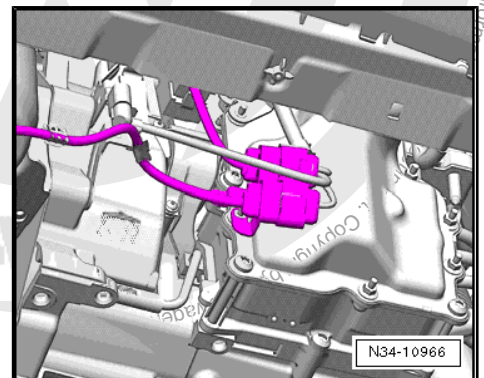
A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.



- Release mechatronic unit connector by pulling and pull off connector.
- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove left front part of wheel housing liner ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing liner .



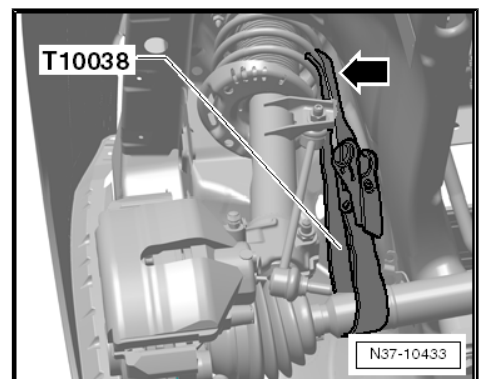
- Remove all retainers and brackets from front of gearbox.
- If fitted, remove radiator fan control unit -J293- with retainer from longitudinal member.
- If fitted, remove power steering hydraulic unit from longitudinal member and secure with wire.
- Remove subframe with pendulum support and secure ⇒ Rep. gr. 40 .
- Unbolt both drive shafts from gearbox.



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

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.

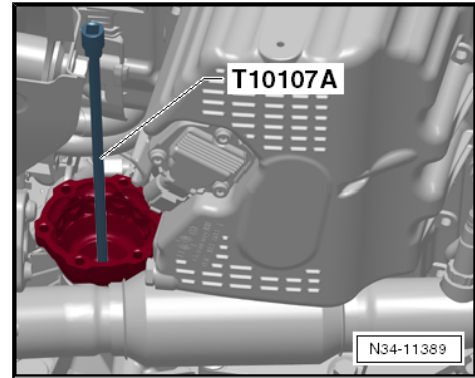
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.





- Remove right flange shaft of gearbox using socket -T10107 A- .

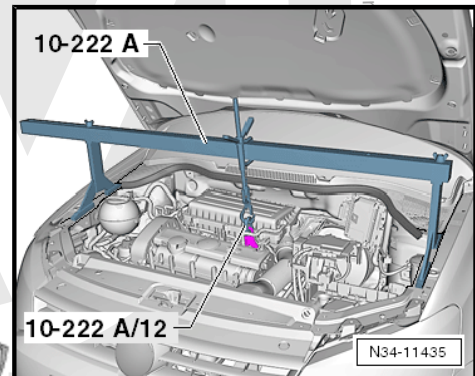
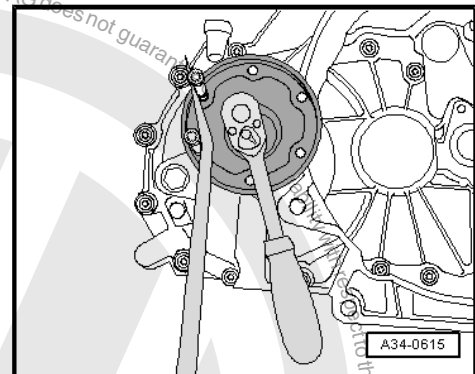
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .



- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

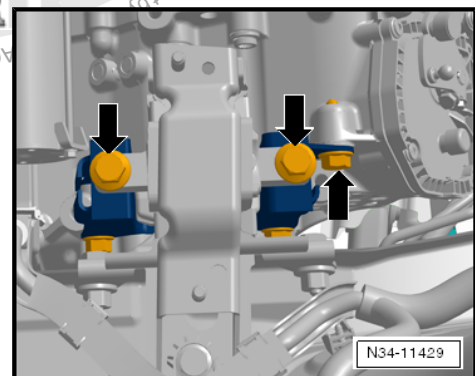
Torque setting 30 Nm

- If there are hose and cable connections in area of engine support eyes for support bracket -10-222A- , remove these now.
- If fitted: remove filler pieces from upper edges of both wings.
- Support engine and gearbox, but do not raise.



Remove 3 bolts from bracket.

2 bolts vertical, 1 bolt horizontal on top of gearbox.

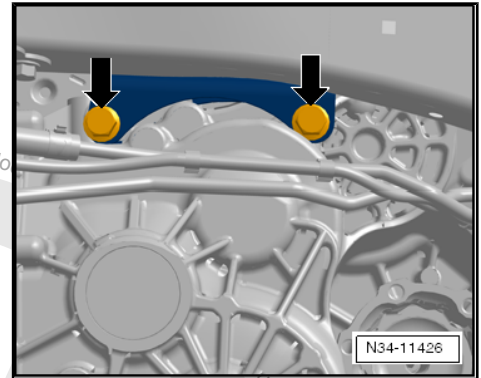




- Then lower engine and gearbox slightly using spindle of support bracket -10 - 222 A- until lower bolts of bracket can be removed.

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

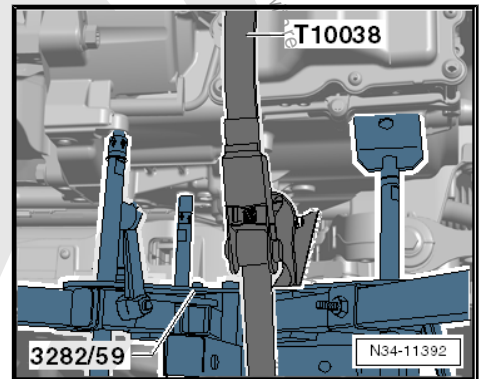
- Set up gearbox support -3282- with adjustment plate -3282/59- .



- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.



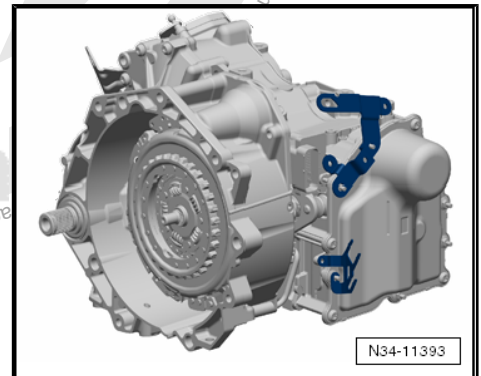
In some cases, there are retainers on the front of the gearbox.

- Remove retainers.

If a »new« gearbox is being fitted, these retainers are not present on »new« gearbox.

Gearbox with flange shafts, torque setting ⇒ page 379

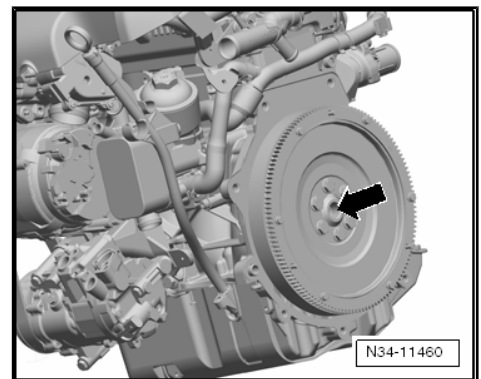
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .
- Install right flange shaft again.

Torque setting 30 Nm

Installing gearbox ⇒ page 276 .

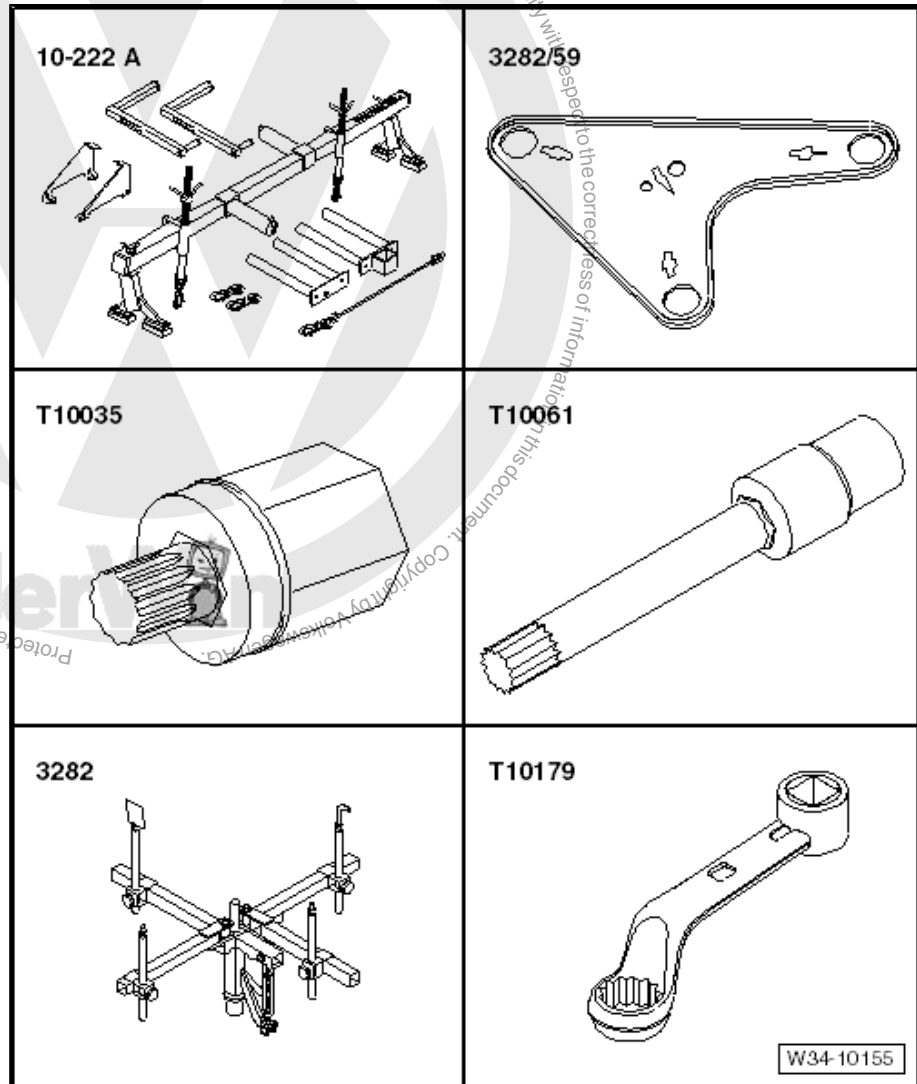




13.5 Removing gearbox; Polo 2010 ▶, 1.4 l - 63 kW petrol engine

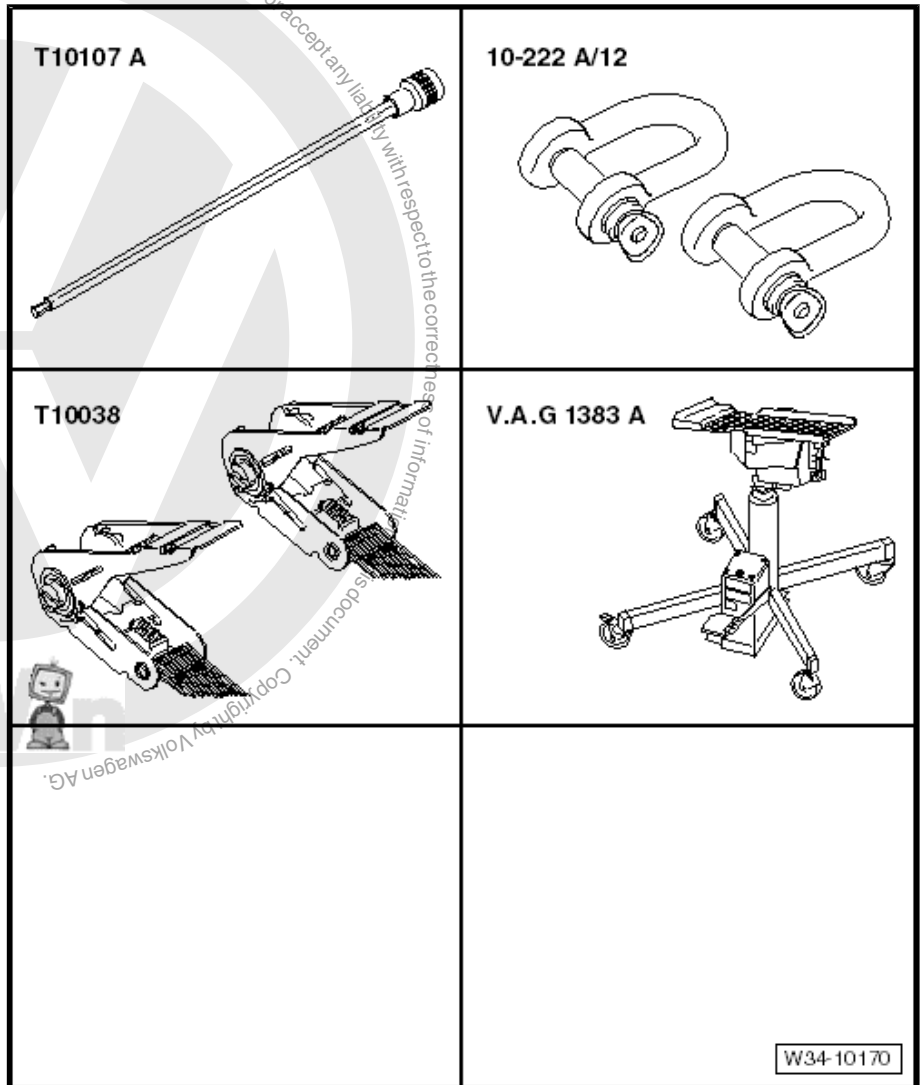
Special tools and workshop equipment required

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





- ◆ Socket -T10107 A-
- ◆ Shackle -10 - 222 A /12-
- ◆ 3 tensioning belts -T10038-
- ◆ Engine and gearbox jack - V.A.G 1383 A-



Brief description

The gearbox is removed downwards separately, without engine.
 »From above«

Remove battery and starter.

»From below«:

Remove noise insulation beneath engine, front left wheel housing liner and subframe with pendulum support. Secure drive shafts so that they do not disrupt removal. However, leave them on the suspension struts. The gearbox is removed downwards separately, without engine.

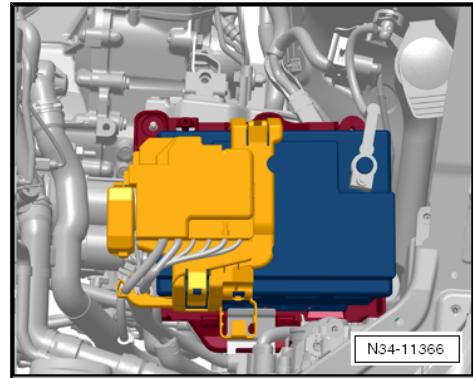
Subframe must be secured.

Removing:

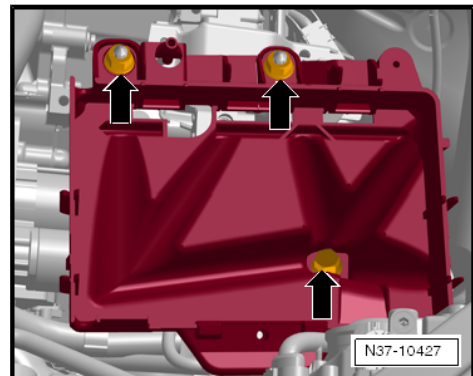
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Remove engine cover from cylinder head.



- Remove battery and -battery tray- => Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove air line to air filter housing => Rep. gr. 24 ; Removing and installing air filter .

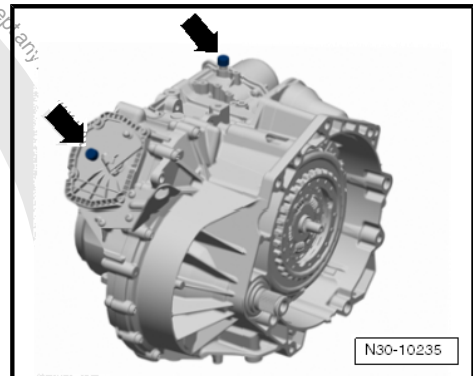


- Remove battery carrier.

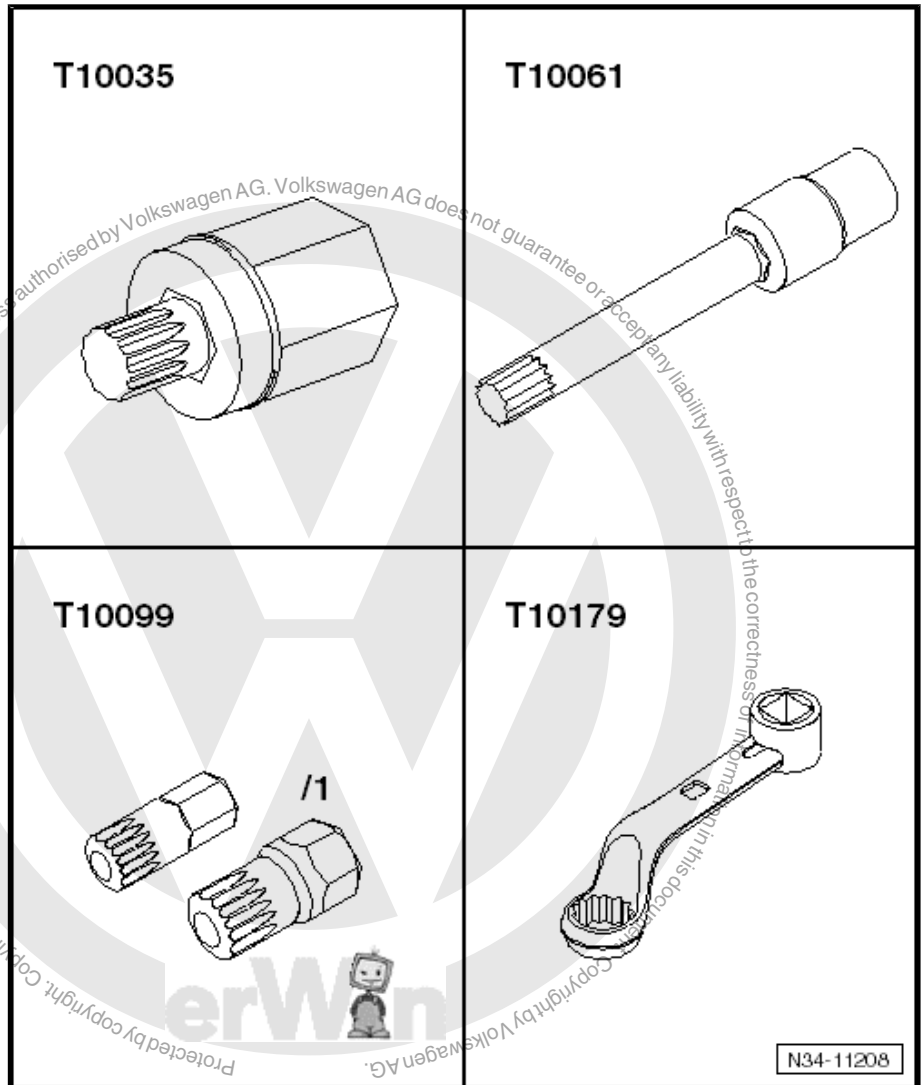


- Later, during installation, please check whether both breather caps are seated on gearbox.
- Remove starter => Electrical system; Rep. gr. 27 ; Removing and installing starter .

During removal, it is recommended to remove the lower bolt first.



These tools are appropriate for this.



- Remove selector lever cable from ball head, remove securing clip.

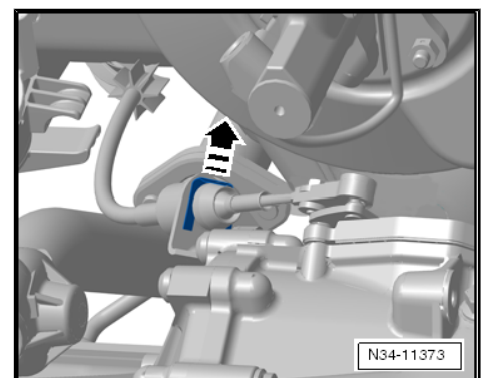
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

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

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

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.

- Now remove all upper connecting bolts between engine and gearbox.





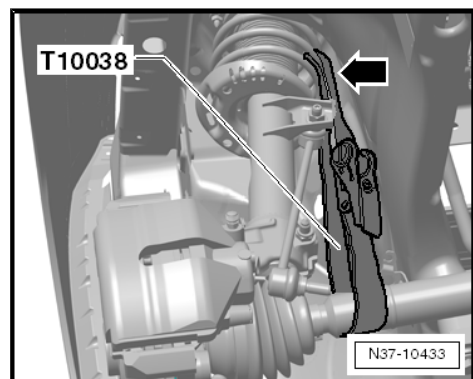
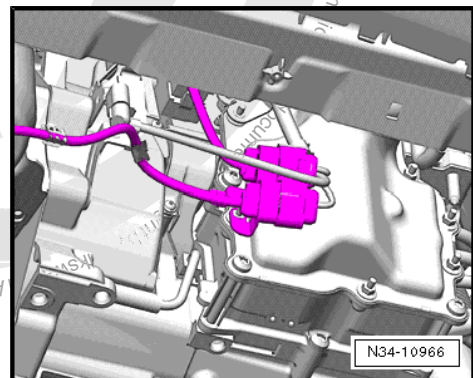
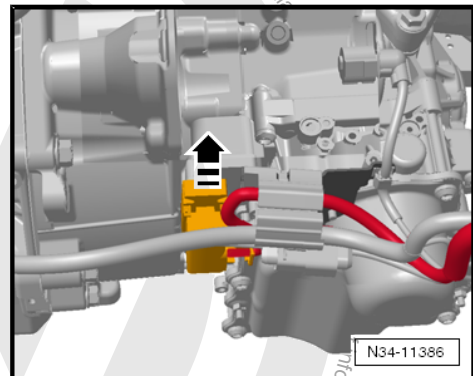
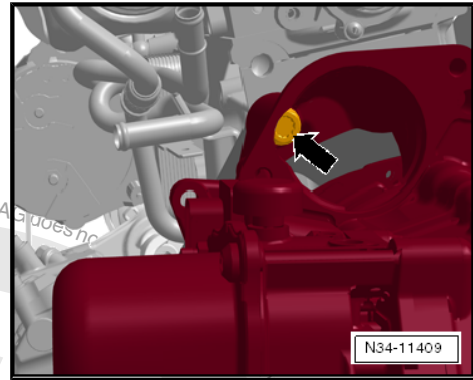
A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.

- Release mechatronic unit connector by pulling and pull off connector.
- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove left front part of wheel housing liner ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing liner .
- Remove all retainers and brackets from front of gearbox.
- If fitted, remove radiator fan control unit -J293- with retainer from longitudinal member.
- If fitted, remove power steering hydraulic unit from longitudinal member and secure with wire.
- Remove subframe with pendulum support and secure ⇒ Rep. gr. 40 .
- Unbolt both drive shafts from gearbox.

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

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.

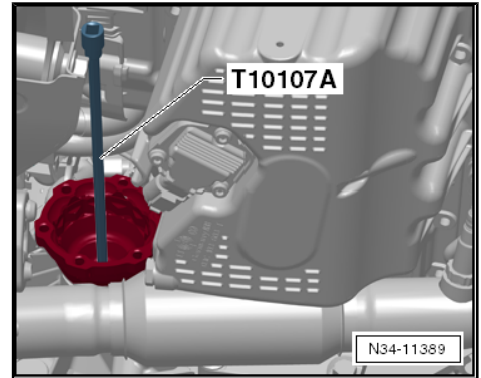
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.



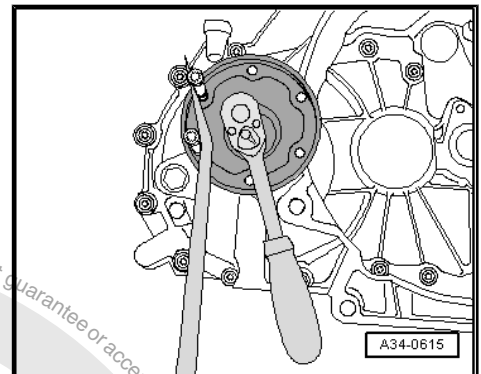


- Remove right flange shaft of gearbox using socket -T10107 A- .

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

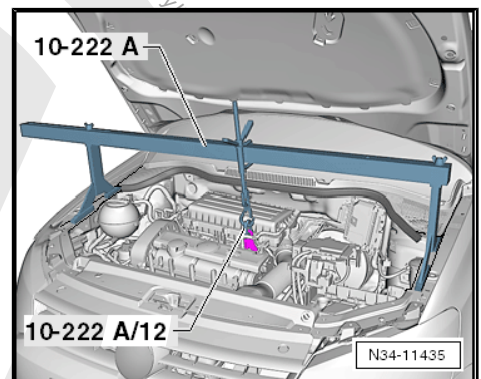


- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.



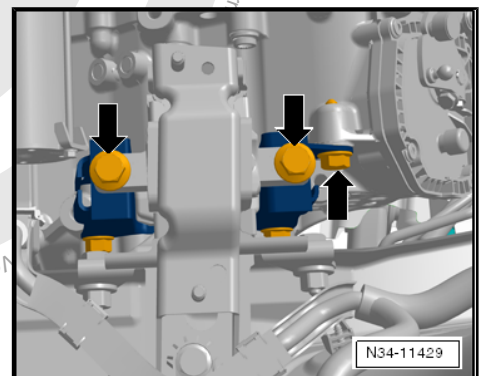
Torque setting 30 Nm

- If there are hose and cable connections in area of engine support eyes for support bracket -10-222A- , remove these now.
- If fitted: remove filler pieces from upper edges of both wings.
- Support engine and gearbox, but do not raise.



Remove 3 bolts from bracket.

2 bolts vertical, 1 bolt horizontal on top of gearbox.





- Then lower engine and gearbox slightly using spindle of support bracket -10 - 222 A- until lower bolts of bracket can be removed.

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

- Set up gearbox support -3282- with adjustment plate -3282/59- .

- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

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

- Remove retainers.

If a »new« gearbox is being fitted, these retainers are not present on »new« gearbox.

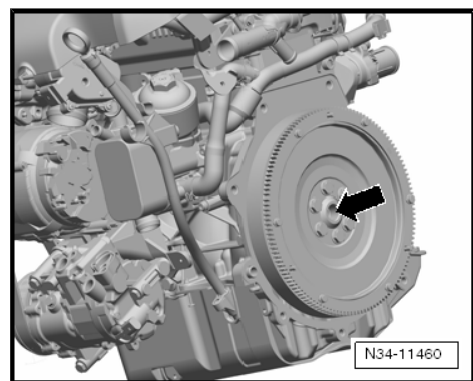
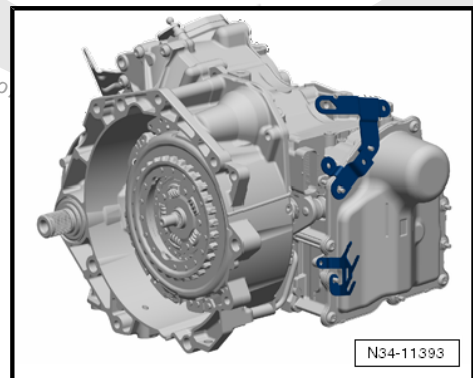
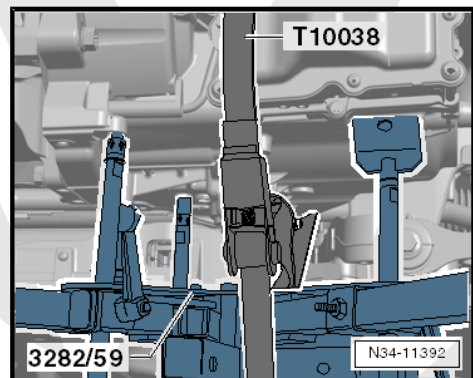
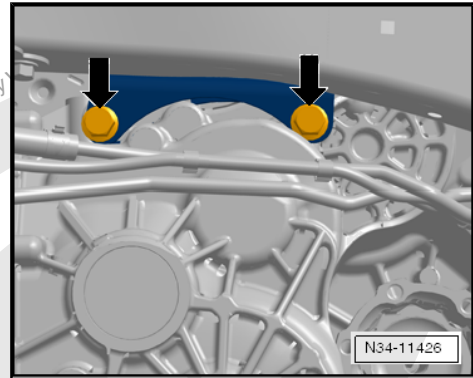
Gearbox with flange shafts, torque setting ⇒ page 379

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

- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .
- Install right flange shaft again.

Torque setting 30 Nm

Installing gearbox ⇒ page 276 .

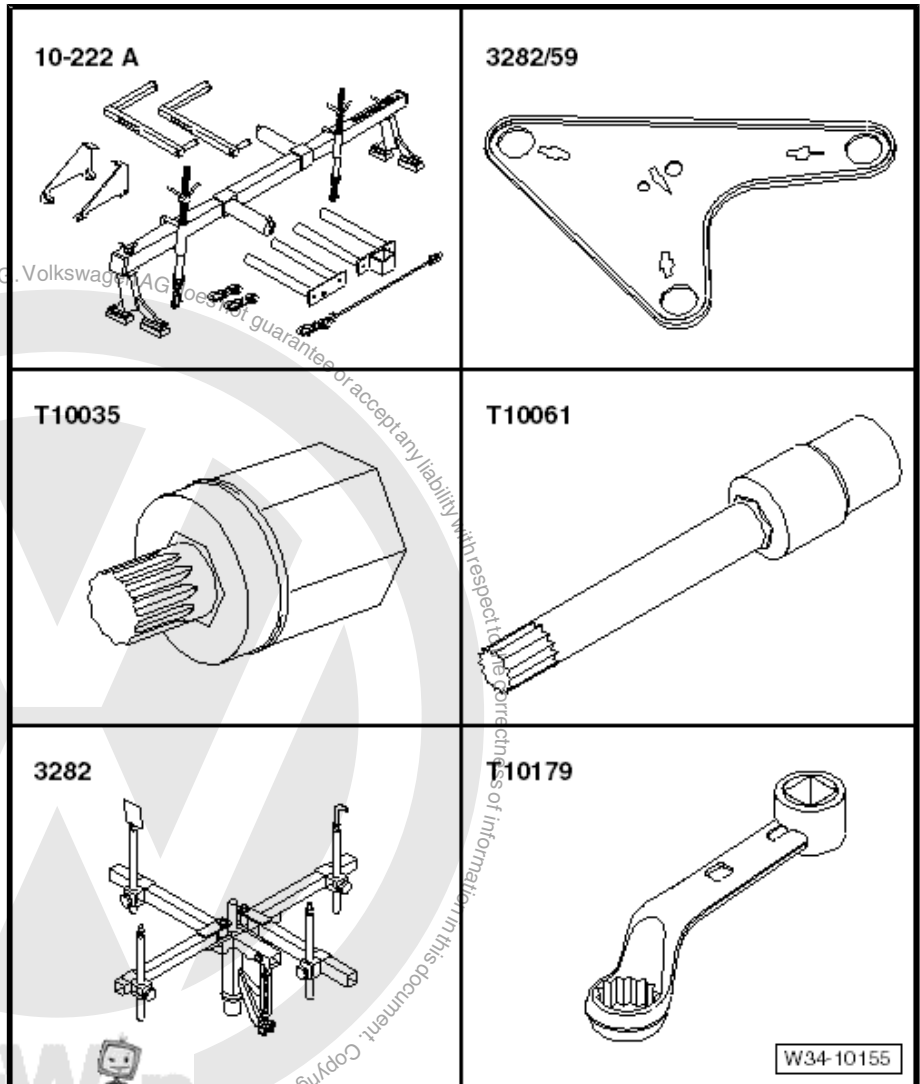




13.6 Removing gearbox; Polo 2010 >, 1.6 l - 66 kW diesel engine

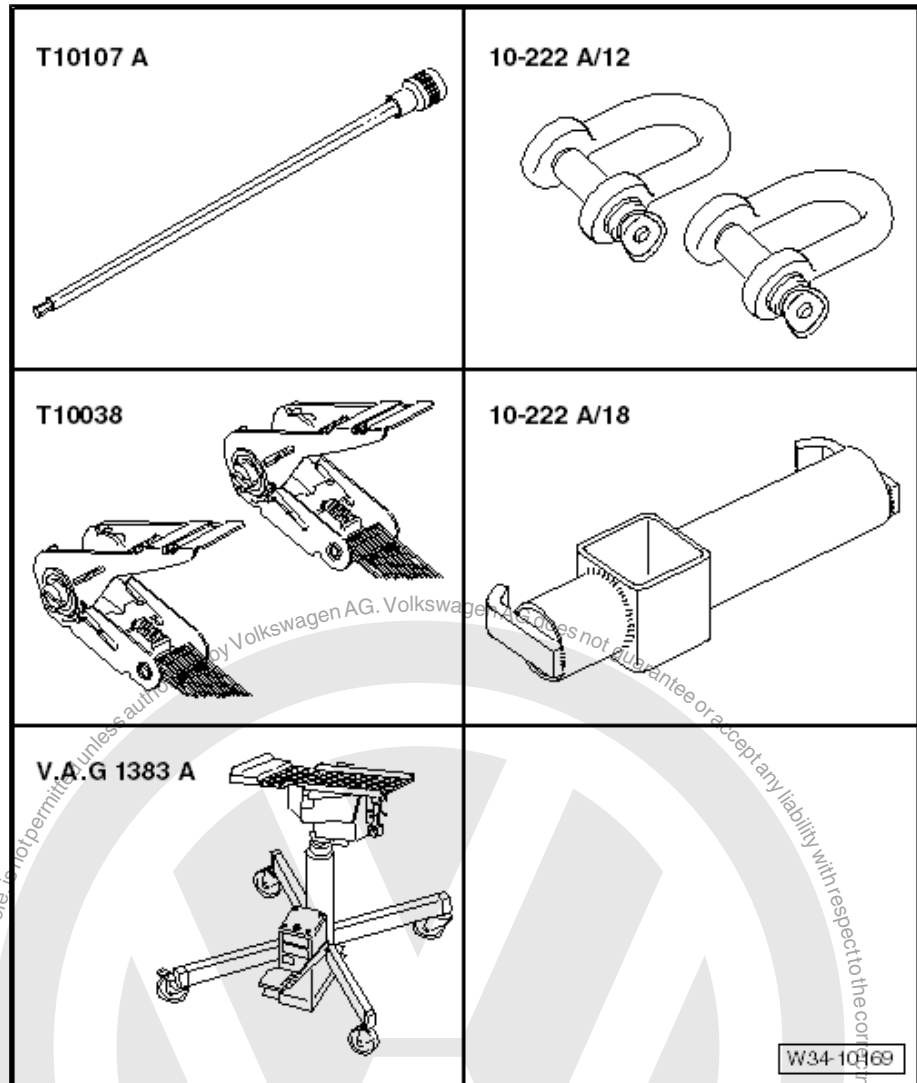
Special tools and workshop equipment required

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





- ◆ Socket -T10107 A-
- ◆ Shackle -10 - 222 A /12-
- ◆ 3 tensioning belts -T10038-
- ◆ Adapter -10 - 222 A /18-
- ◆ Engine and gearbox jack -
V.A.G 1383 A-



Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, front left wheel housing liner and subframe with pendulum support. Secure drive shafts so that they do not disrupt removal. However, leave them on the suspension struts. The gearbox is removed downwards separately, without engine.

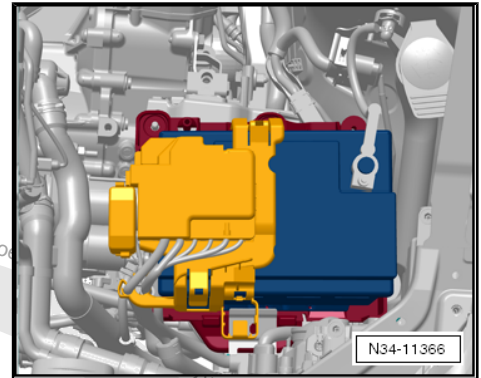
Subframe must be secured.

Removing:

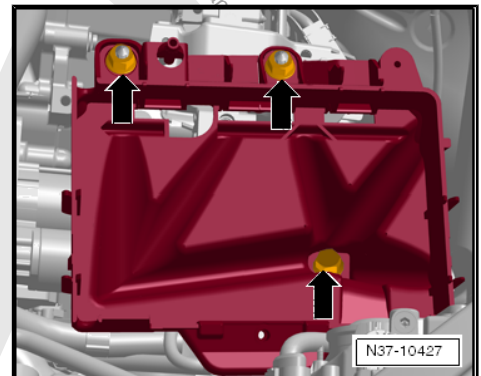
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Remove engine cover from cylinder head.



- Remove battery and -battery tray- ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove complete air filter housing ⇒ Rep. gr. 24 ; Removing and installing air filter .

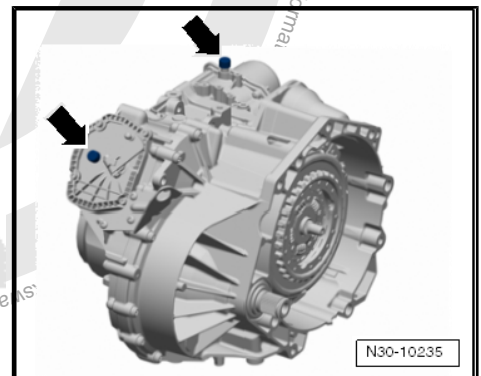


- Remove battery carrier

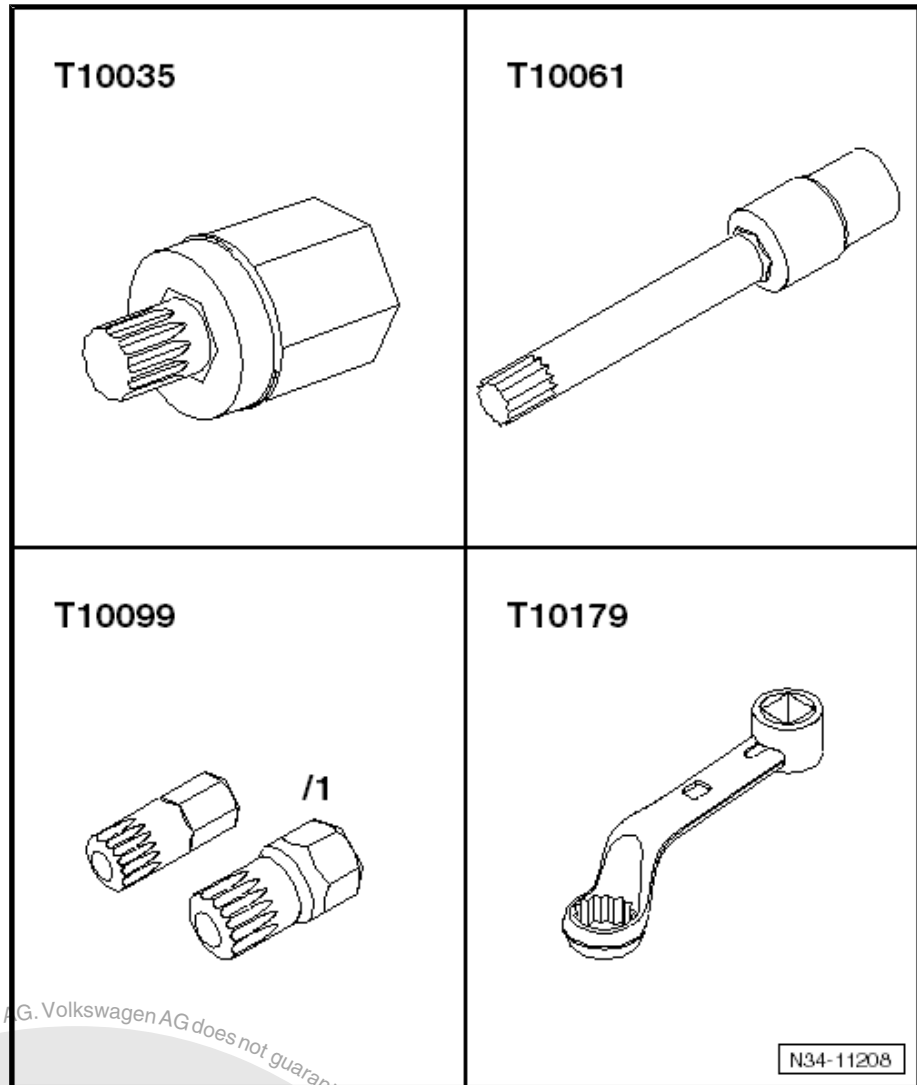


- Later, during installation, please check whether both breather caps are seated on gearbox.
- Remove starter ⇒ Electrical system; Rep. gr. 27 ; Removing and installing starter .

During removal, it is recommended to remove the lower bolt first.



These tools are appropriate for this.



- Remove selector lever cable from ball head, remove 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.

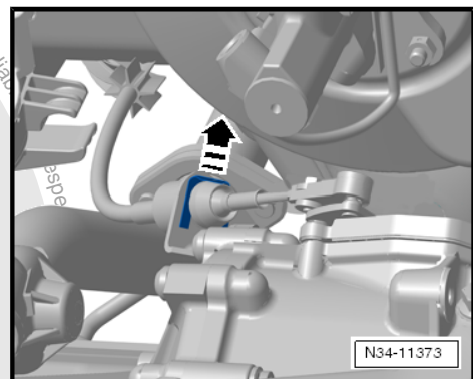
Therefore, when installing, always use a »new« securing clip.

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

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.

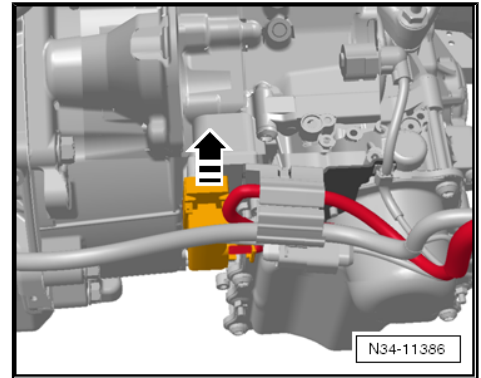
Remove charge air line to access upper connecting bolts of gearbox ⇒ Rep. gr. 21 .

- Now remove all upper connecting bolts between engine and gearbox.

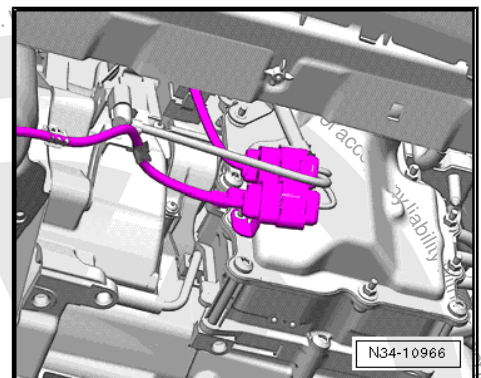




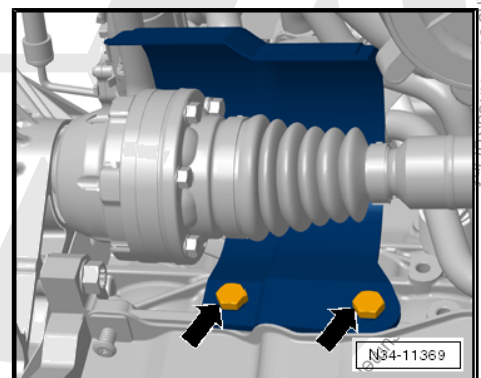
- Release mechatronic unit connector by pulling and pull off connector.
- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove left front part of wheel housing liner => Rep. gr. 66 ; Assembly overview - front wheel housing liner .



- Remove all retainers and brackets from front of gearbox.
- If fitted, remove radiator fan control unit -J293- with retainer from longitudinal member.
- If fitted, remove power steering hydraulic unit from longitudinal member and secure with wire.
- Remove subframe with pendulum support and secure => Rep. gr. 40 .



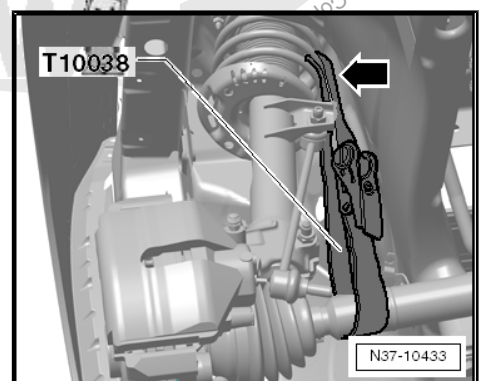
- If fitted, remove the heat shield over the right-hand drive shaft. Tightening torque => Rep. gr. 40 ; Repairing drive shafts
- Unbolt both drive shafts from gearbox.



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

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.

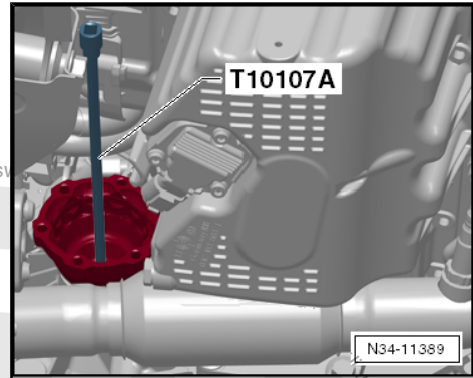
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.





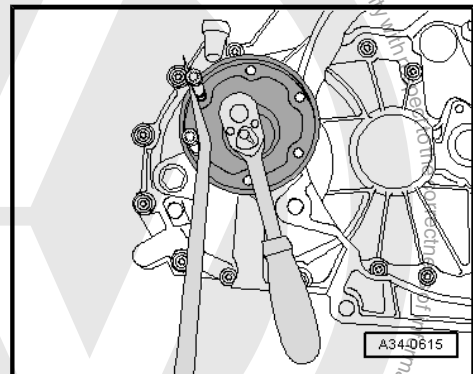
- Remove right flange shaft of gearbox using socket -T10107 A- .

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

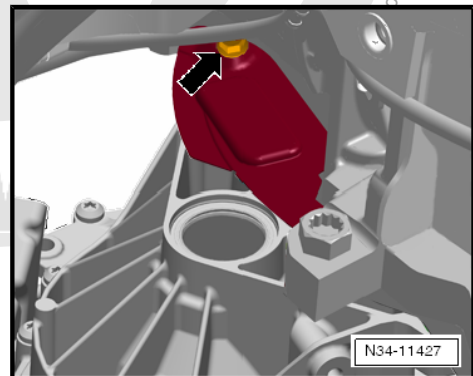


- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

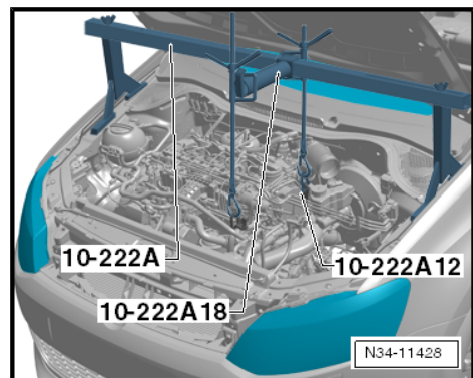
Torque setting 30 Nm



- In some vehicles, there is still another small cover plate on intermediate plate. It is above right drive flange. Remove this plate.
- If there are hose and cable connections in area of engine support eyes for support bracket -10-222A-, remove these now.
- If fitted: remove filler pieces from upper edges of both wings.

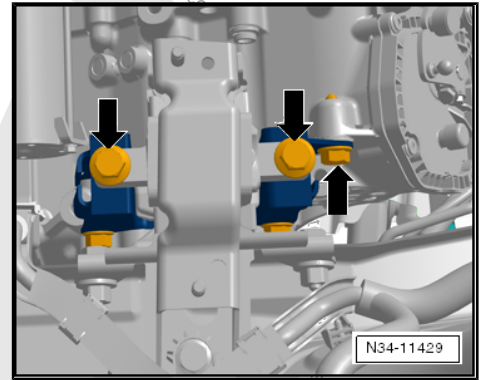


- Support engine and gearbox, but do not raise.





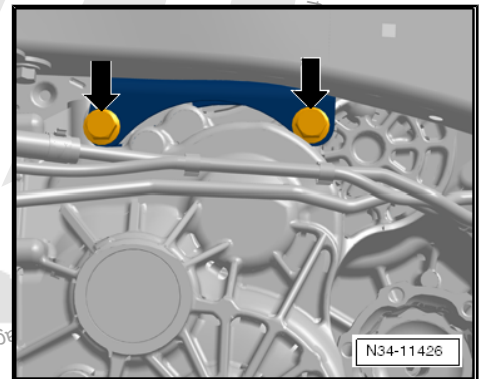
Remove 3 bolts from bracket.
2 bolts vertical, 1 bolt horizontal on top of gearbox.



- Then lower engine and gearbox slightly using spindle of support bracket -10 - 222 A- until lower bolts of bracket can be removed.

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

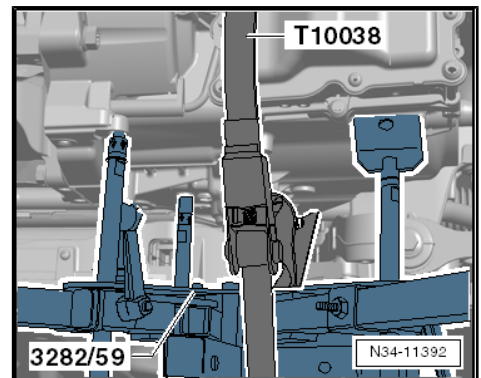
- Set up gearbox support -3282- with adjustment plate -3282/59- .



- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.



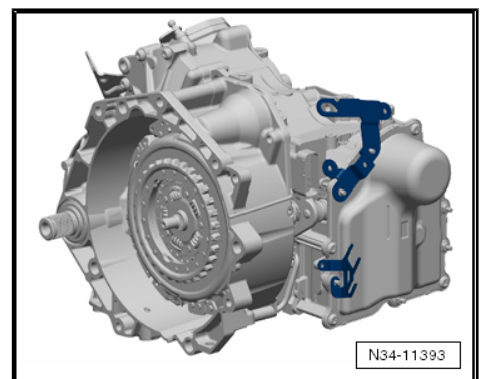
In some cases, there are retainers on the front of the gearbox.

- Remove retainers.

If a »new« gearbox is being fitted, these retainers are not present on »new« gearbox.

Gearbox with flange shafts, torque setting => page 379

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

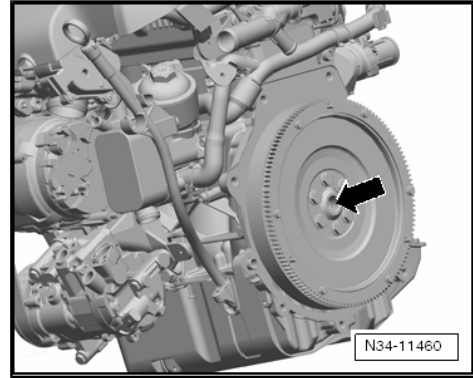




- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .
- Install right flange shaft again.

Torque setting 30 Nm

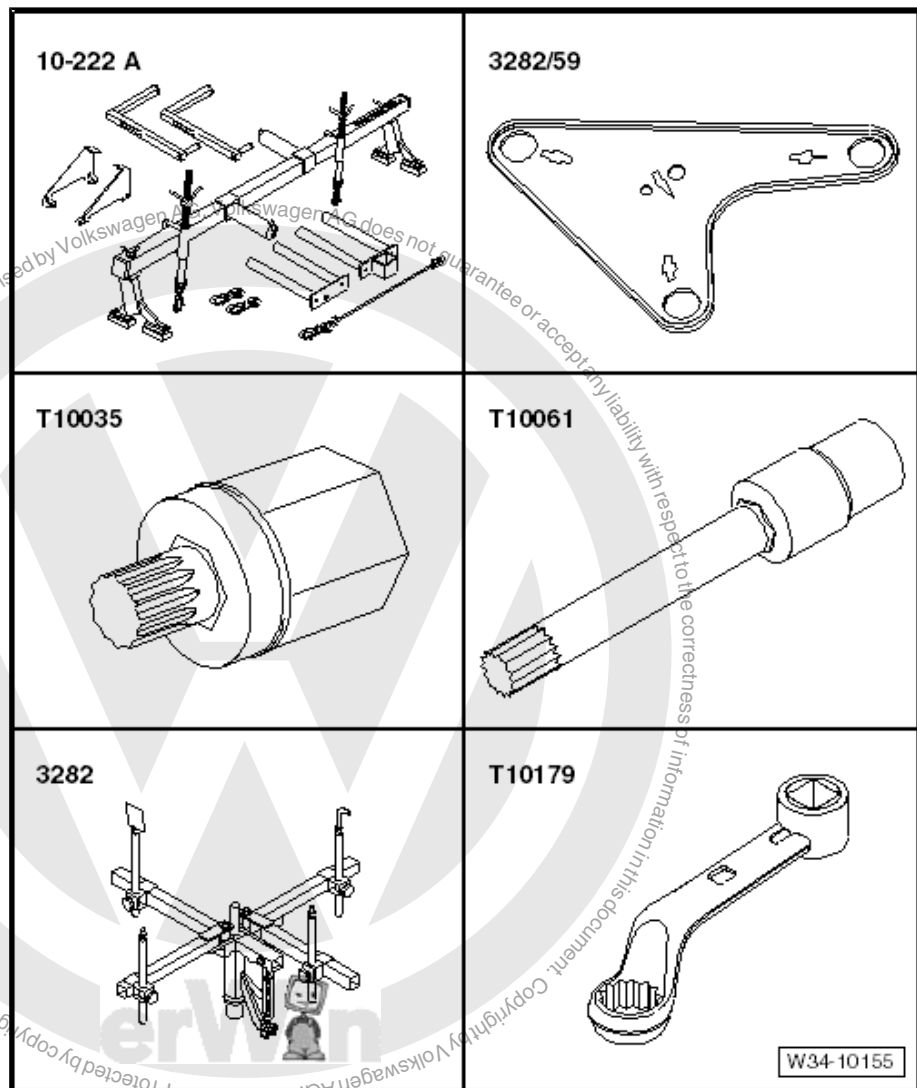
Installing gearbox ⇒ [page 276](#) .



13.7 Removing gearbox; Polo 2010 ▶, 1.4 l - 132 kW petrol engine

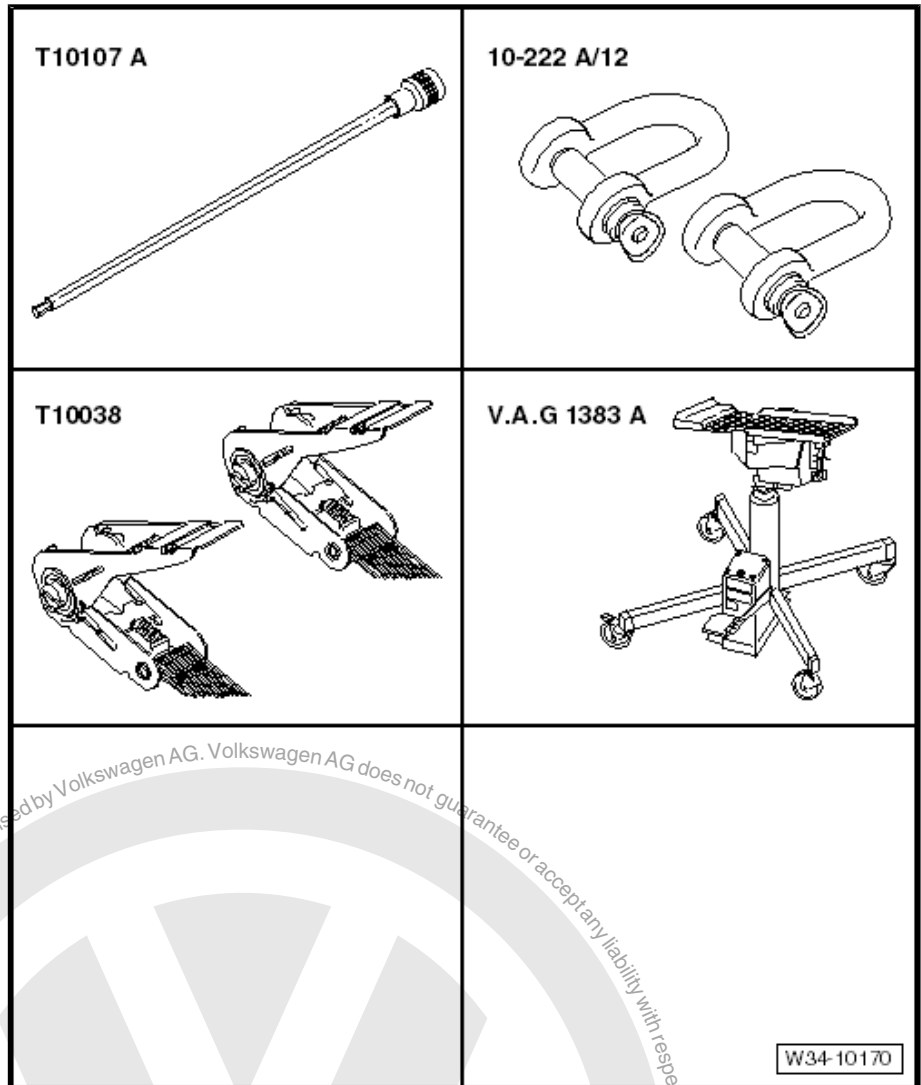
Special tools and workshop equipment required

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





- ◆ Socket -T10107 A-
- ◆ Shackle -10 - 222 A /12-
- ◆ 2 tensioning belts -T10038-
- ◆ Engine and gearbox jack - V.A.G 1383 A-



Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove complete air filter housing and starter.

»From below«:

Remove noise insulation beneath engine, front left wheel housing liner and subframe with pendulum support. Left drive shaft is removed and right drive shaft is secured so it does not disrupt removal. The gearbox is removed downwards separately, without engine.

Subframe must be secured.

Removing:

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



- Step on the brake pedal while a 2nd mechanic loosens the left nut from drive shaft -arrow-



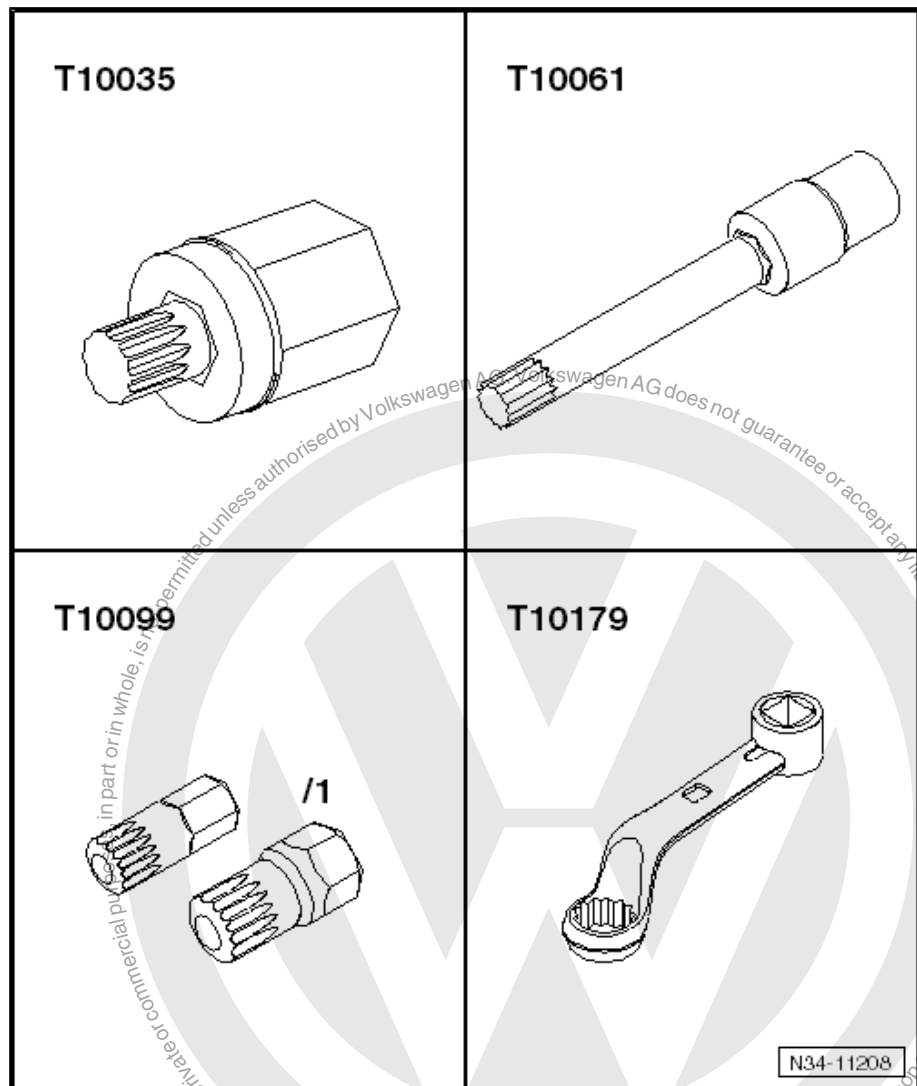
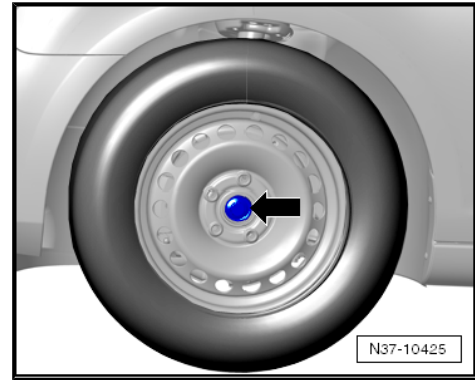
Note

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

- Remove engine cover from cylinder head.
- Disconnect battery ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove air filter housing ⇒ Rep. gr. 24 ; Removing and installing air filter .
- Remove starter ⇒ Electrical system; Rep. gr. 27 ; Removing and installing starter .

During removal, it is recommended to remove the lower bolt first.

These tools are appropriate for this.





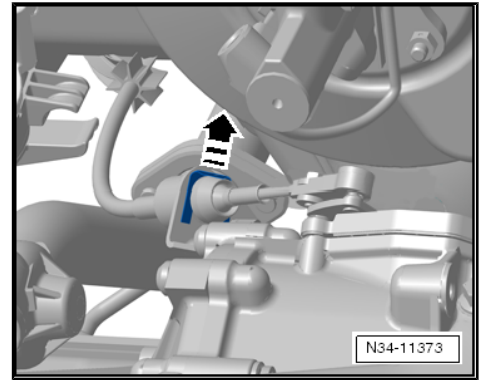
- Remove selector lever cable from ball head, remove securing clip.

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.

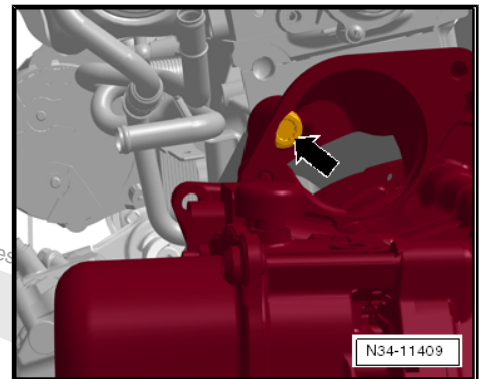
- Therefore, when installing, always use a »new« securing clip.

Remove cable with great care from cable support bracket on gearbox. Do not bend cable.

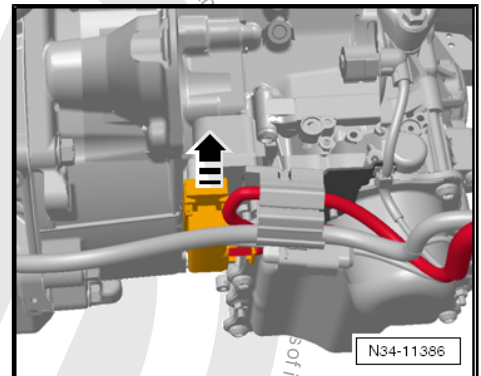
- Remove all upper connecting bolts between engine and gearbox.



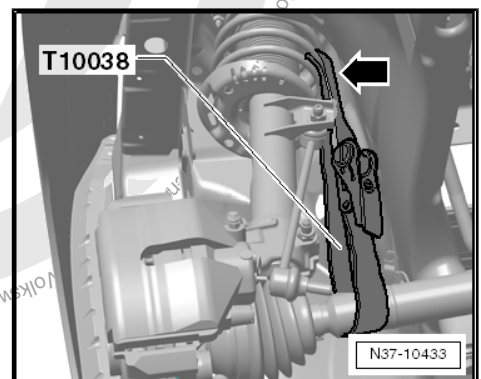
A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.



- Release mechatronic unit connector by pulling and pull off connector.
- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation.
- Remove left front part of wheel housing liner => Rep. gr. 66 ; Assembly overview - front wheel housing liner .
- Remove left drive shaft => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .
- Unbolt right drive shaft from gearbox.

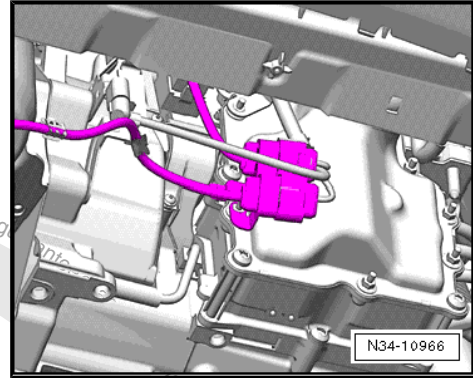


Right drive shaft is fixed onto suspension strut with tensioning belts -T10038- .



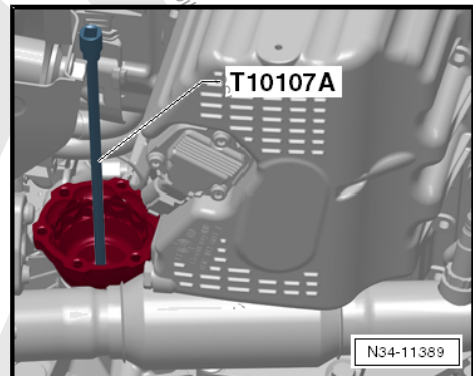


- Remove all retainers and brackets from front of gearbox.
- If fitted, remove radiator fan control unit -J293- with retainer from longitudinal member.
- If fitted, remove power steering hydraulic unit from longitudinal member and secure with wire.
- Remove subframe with pendulum support and secure => Rep gr. 40 .

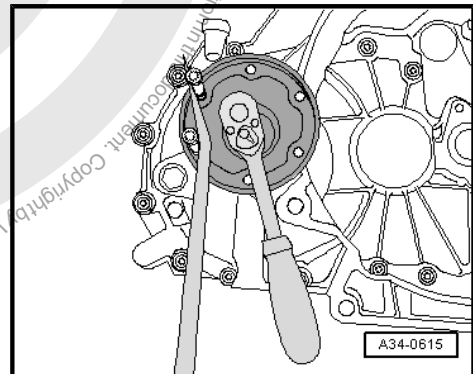


- Remove right flange shaft of gearbox using socket -T10107 A- .

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



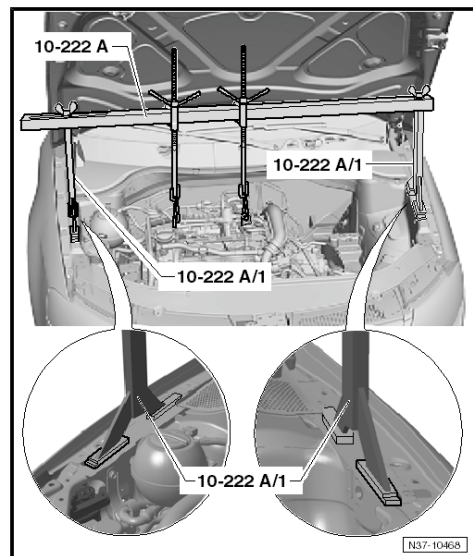
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.



Torque setting 30 Nm

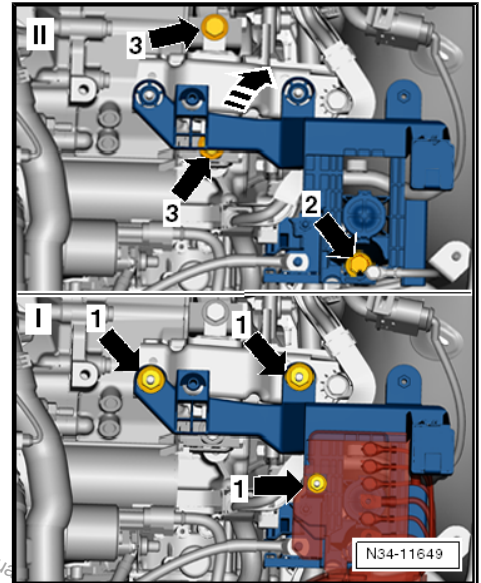
- If fitted: remove filler pieces from upper edges of both wings.

- Support engine and gearbox, but do not raise.

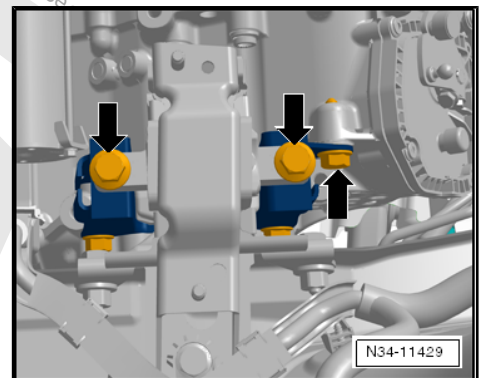




- Unscrew main fuse box. First unscrew bolts -1-, then lift up printed circuit board and unscrew bolt -2-.
- Box can then be placed to side in order to gain access to bolts -3-.



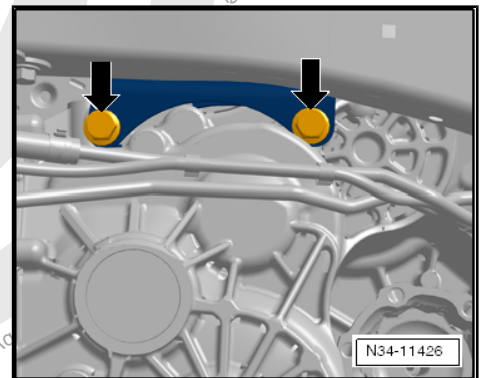
Remove 3 bolts from bracket.
2 bolts vertical, 1 bolt horizontal on top of gearbox.



- Then lower engine and gearbox slightly using spindle of support bracket -10 - 222 A- until lower bolts of bracket can be removed.

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

- Set up gearbox support -3282- with adjustment plate -3282/59- .



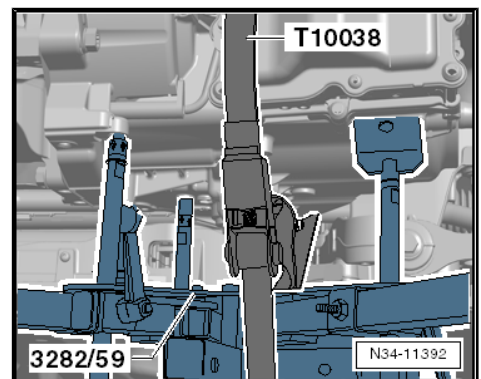
- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.

- Position plate of pin under gearbox housing, not under mechatronic unit.

- Screw a pin into »rear« hole for pendulum support.

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.

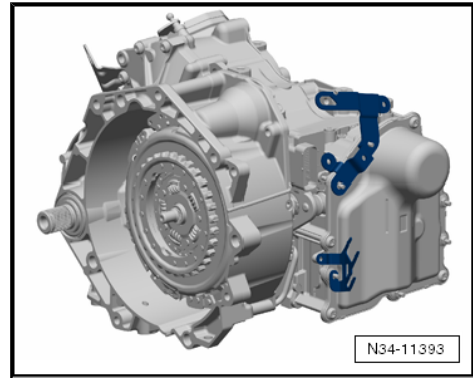




In some cases, there are retainers on the front of the gearbox.

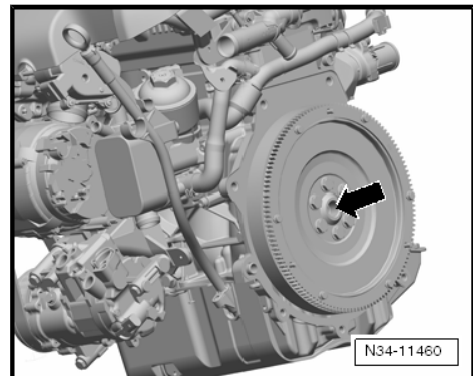
- Remove retainers.

If a »new« gearbox is being fitted, these retainers are not present on »new« gearbox.



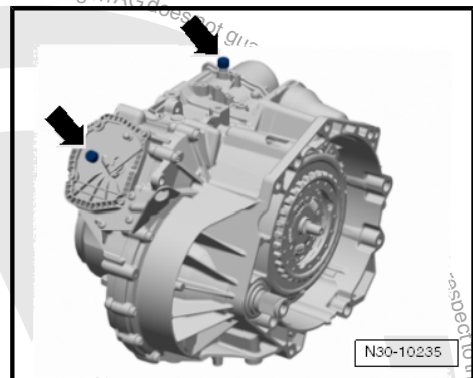
- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .
- Install right flange shaft again.

Torque setting 30 Nm



- For subsequent installation, check whether both breather caps are seated on gearbox.

Installing gearbox ⇒ [page 276](#) .



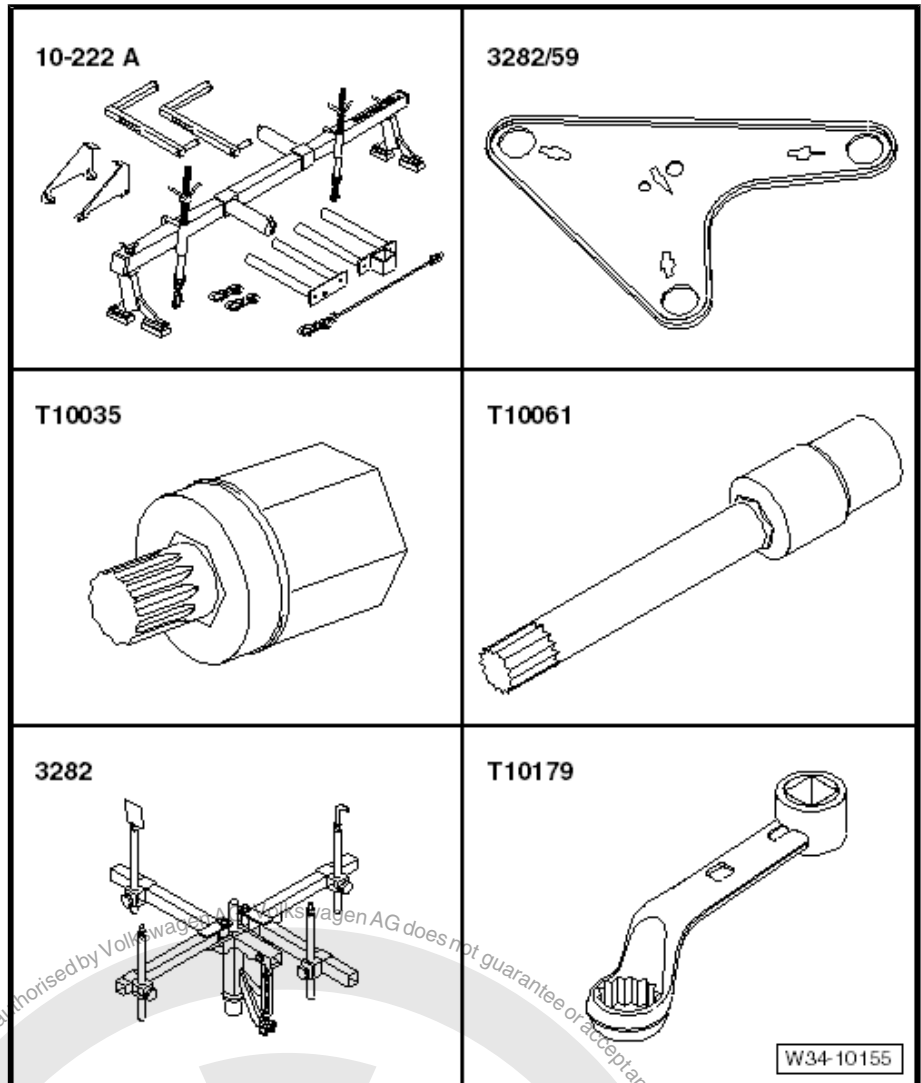
13.8 Removing gearbox with flange shafts; Touran 1.4 I - 103, 110 and 125 kW petrol engine (and 110 kW Eco-Fuel)

- Follow the instructions for different vehicles ⇒ [page 111](#) .



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-
- ◆ Not illustrated:
- ◆ Engine and gearbox jack - V.A.G 1383 A-



Up to October 2008, gearboxes were installed with stub shafts. In these gearboxes, both drive shafts are removed for secure installation. In gearboxes with flange shafts, drive shafts remain in vehicle.

Brief description

The gearbox is removed downwards separately, without engine.

»From above«

Remove battery, air filter and starter.

»From below«:

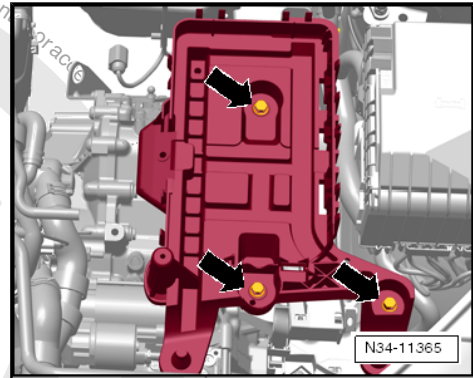
Remove noise insulation beneath engine, front left wheel housing liner and pendulum support. The subframe remains in the vehicle.

Removing:

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Remove front left wheel.
- Remove engine cover.
- 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 => Electrical system; Rep. gr. 27 ; Removing and installing starter .



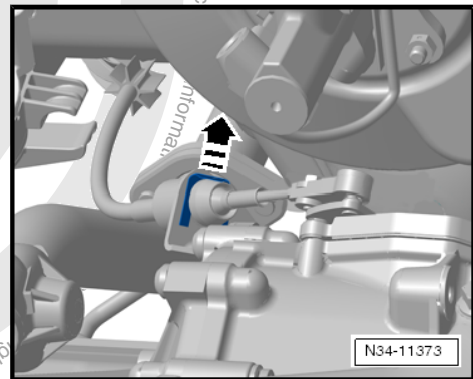
- Remove selector lever cable from ball head, remove securing clip.

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.

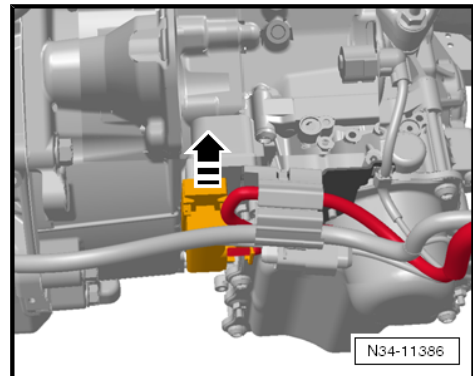
Remove cable with great care from cable support bracket on gearbox. Do not bend it.

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.

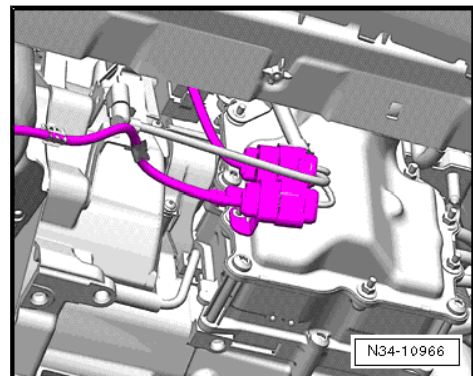


- Now remove all upper connecting bolts between engine and gearbox.

- Release mechatronic unit connector by pulling and pull off connector.
- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front left wheel housing liner.

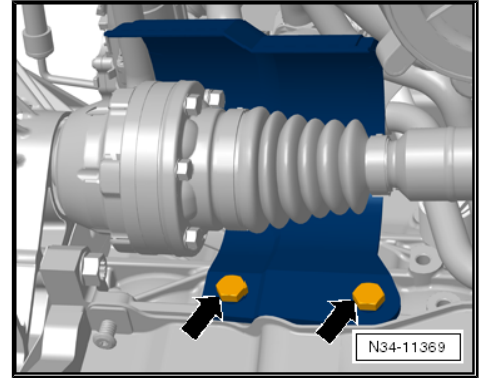


- Remove all retainers and brackets from front of gearbox.

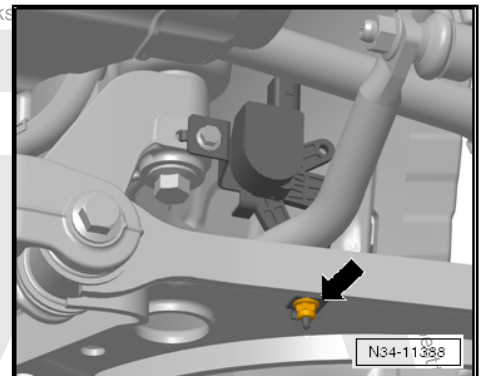




- If fitted, remove the heat shield over the right-hand drive shaft.
Tightening torque => Rep. gr. 40 ; Repairing drive shafts

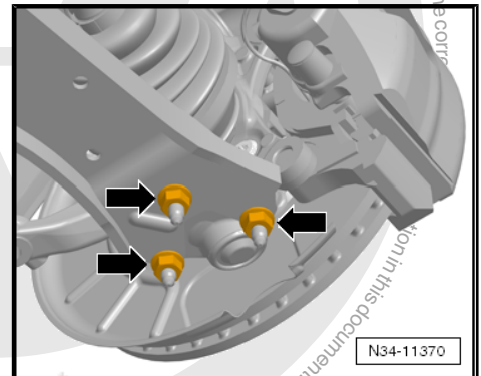


- Unbolt front left vehicle level sender -G78- from suspension link.
- Remove left coupling rod from suspension link and lay to side.

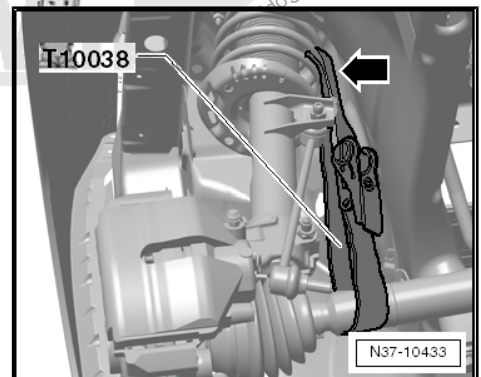


- Unbolt left suspension link from suspension strut.
- Unbolt both drive shafts from gearbox and carefully lay to side.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

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.



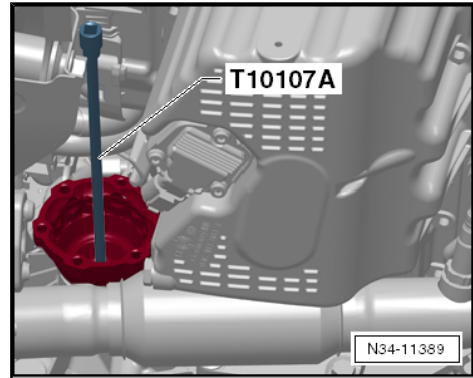
Secure both drive shafts to suspension struts using tensioning straps -T10038- .





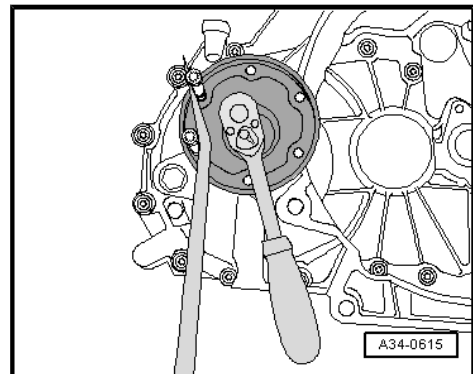
- Remove right flange shaft of gearbox using socket -T10107 A- .

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

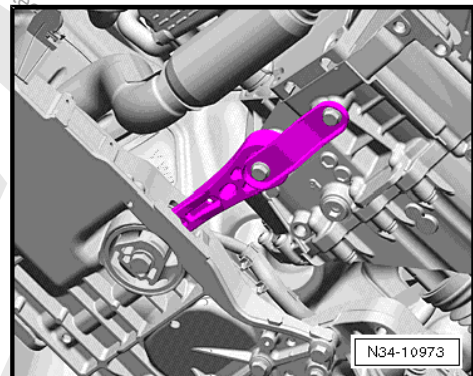


- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

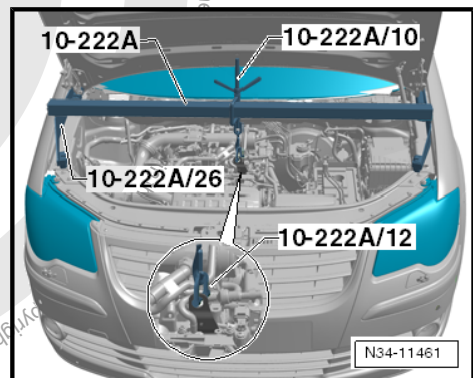
Torque setting 30 Nm



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

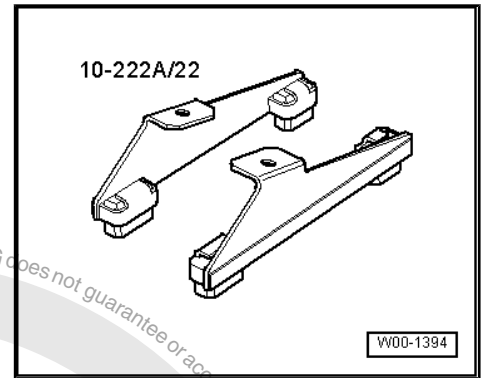


- For vehicles with large headlights with round profile, use adapter 10 - 222 A /26- .
- Headlights => [page 111](#) .

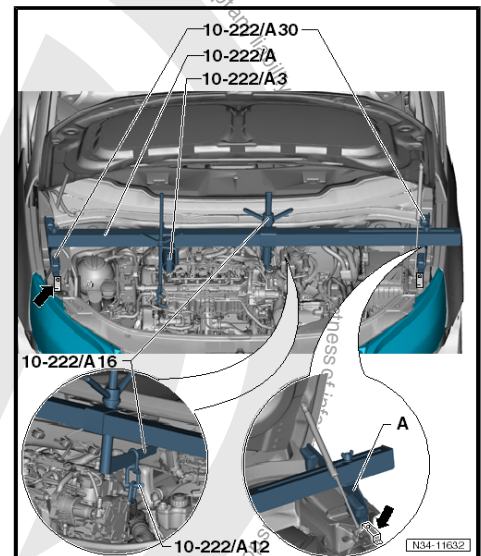




- For vehicles with small headlights, use adapter -10 - 222 A / 22- .
- Headlights => [page 111](#) .



- For vehicles with large headlights without round profile, use adapter -10 - 222 A /30- .
- Headlights => [page 111](#) .



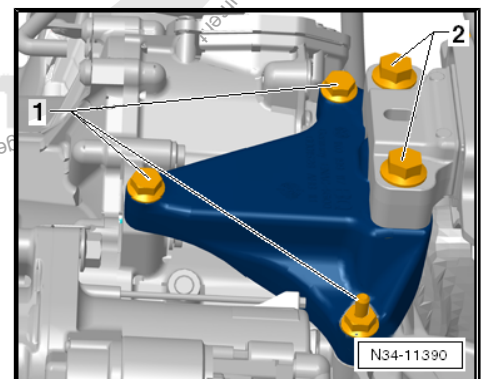
Remove all bolts -1- and -2- for bracket.

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

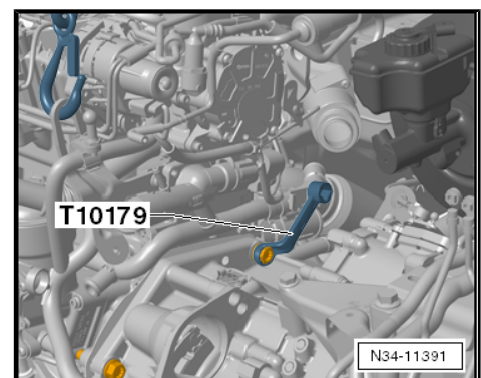
At most, 5 turns are sufficient to remove bracket.

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

- If charge air line is present, remove it.



- Remove connecting bolt
- Set up gearbox support -3282- with adjustment plate -3282/59- .





- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

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

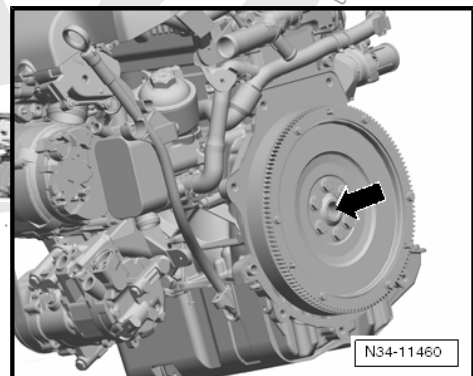
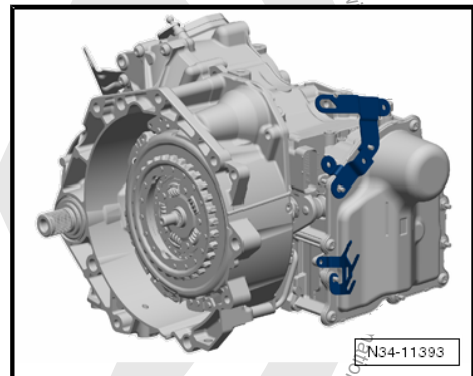
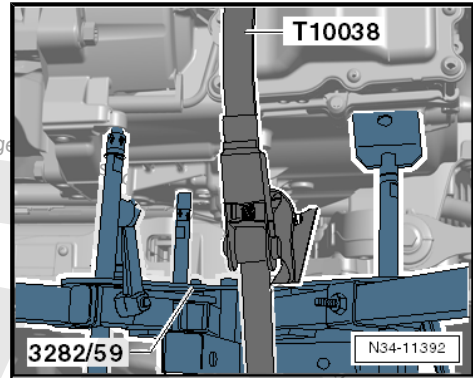
- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.
- Install right flange shaft of gearbox.

Torque setting 30 Nm

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

- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#) .

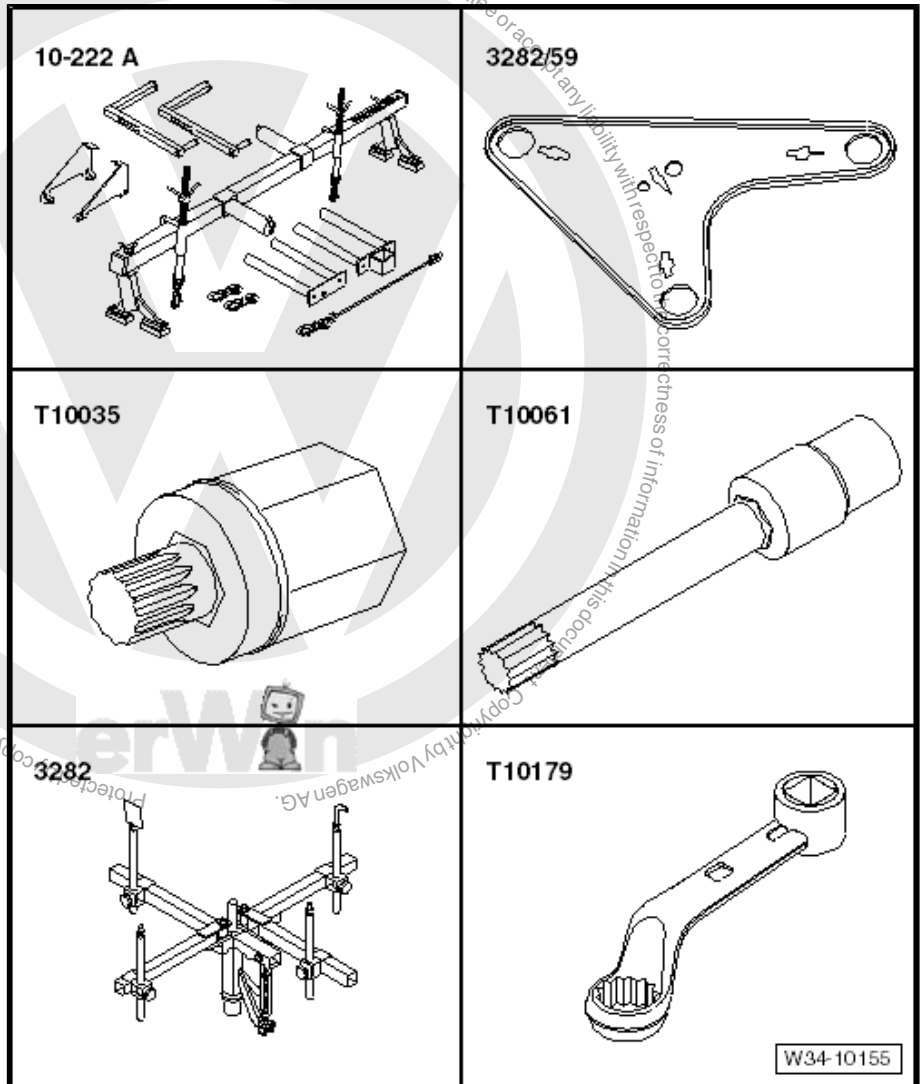




13.9 Removing gearbox; Touran 1.6 TDI - 77 kW - TDI engine

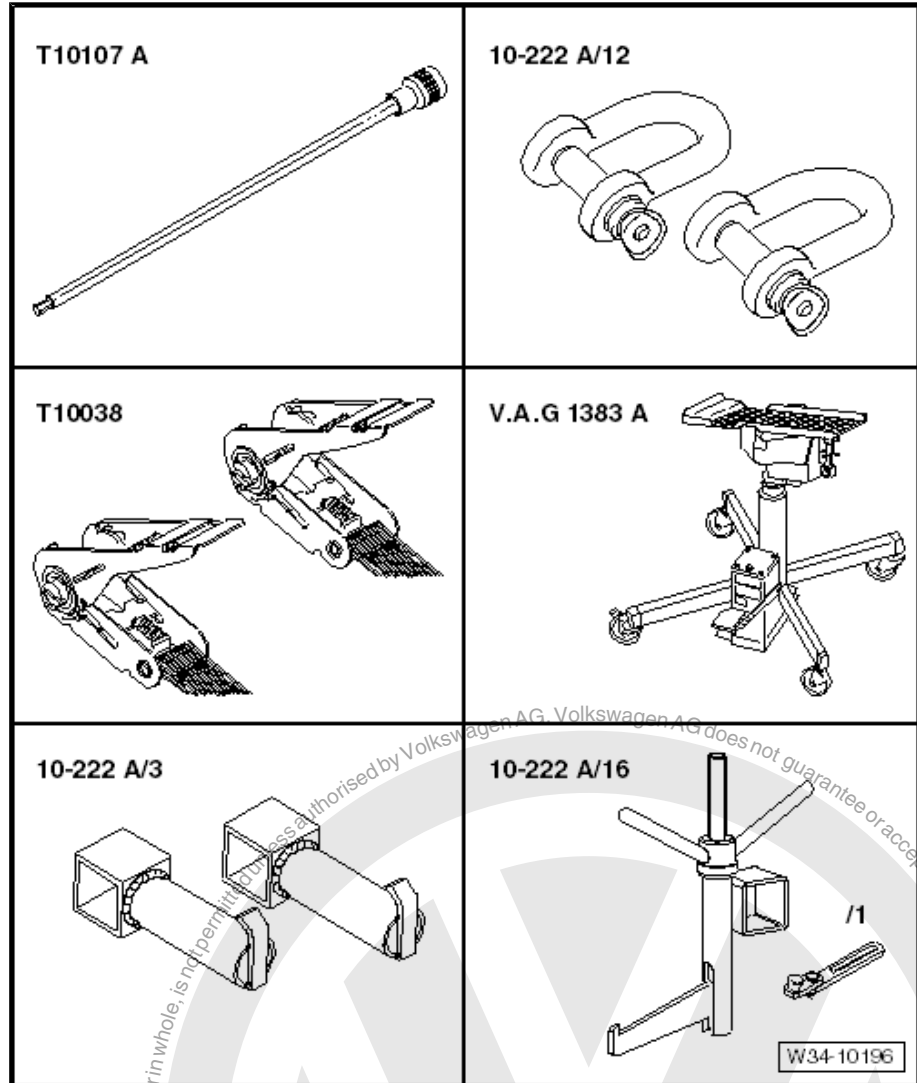
Special tools and workshop equipment required

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

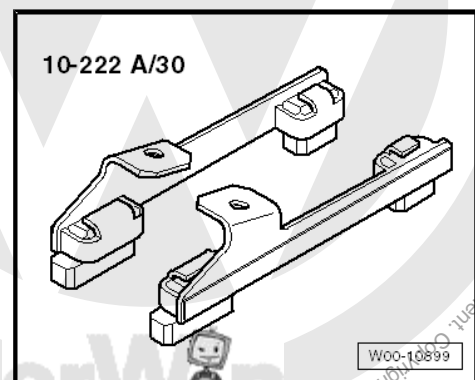




- ◆ Socket -T10107 A-
- ◆ Shackle -10 - 222 A /12-
- ◆ 2 tensioning belts -T10038-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Adapter -10 - 222 A/3-
- ◆ Adapter -10 - 222 A /16-



- ◆ Adapter -10-222A/30-



Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, cover in front left wheel housing, left drive shaft and pendulum support. Subframe and right drive shaft remain in vehicle.



Removing:

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Step on the brake pedal while a 2nd mechanic loosens the left drive shaft bolt -arrow-.

Note

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

- Remove engine cover.
- Remove complete air filter housing => Rep. gr. 24 ; Removing and installing air filter .
- Remove battery with battery tray => Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter => Electrical system; Rep. gr. 27 ; Removing and installing starter .
- Remove selector lever cable from ball head, remove securing clip.

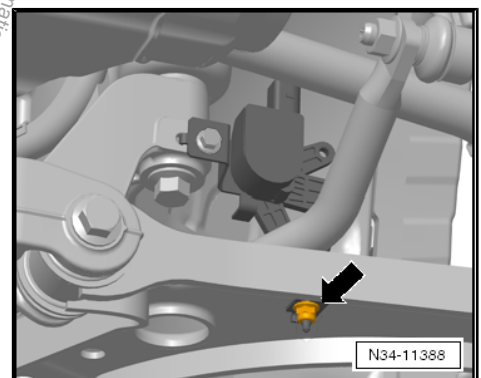
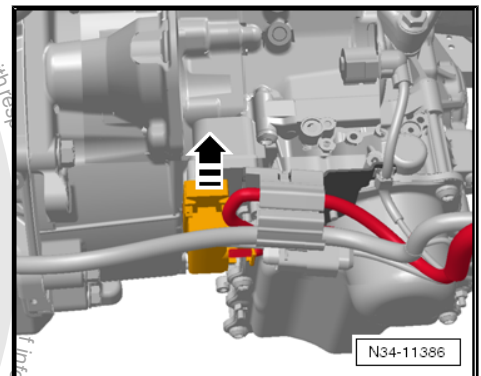
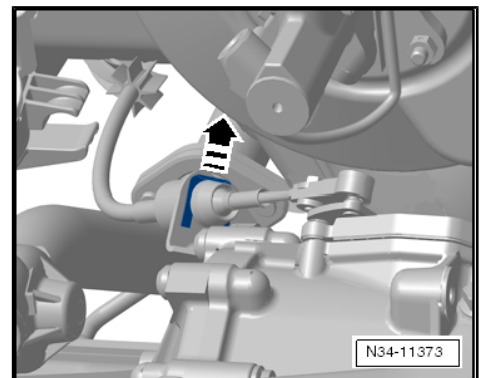
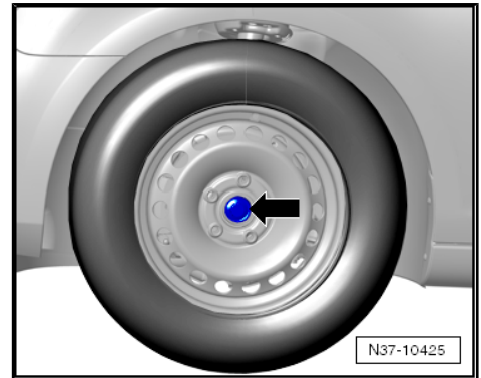
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

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

Remove cable with great care from cable support bracket on gearbox. Do not bend.

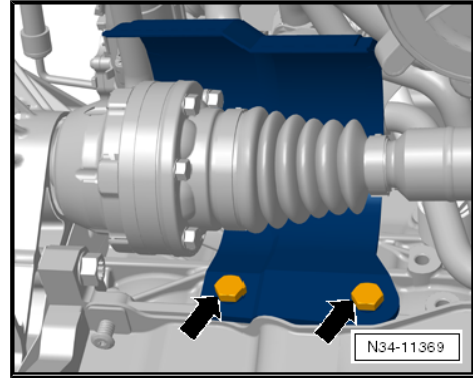
- Release mechatronic unit connector by pulling and pull off connector.
- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation .

- Unbolt front left vehicle level sender -G78- from suspension link.
- Remove left coupling rod from suspension link and lay to side
- Remove left drive shaft => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .



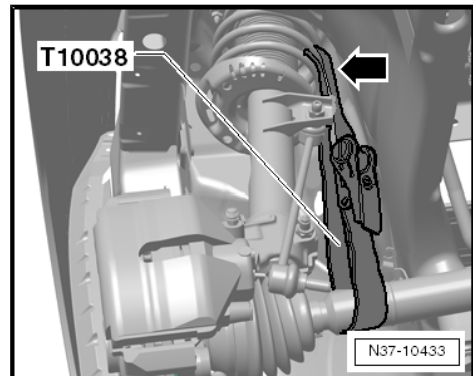


- If present, remove heat shield above right drive shaft. Tightening torque \Rightarrow Rep. gr. 40 ; Repairing drive shafts
- Unbolt right drive shaft from gearbox.



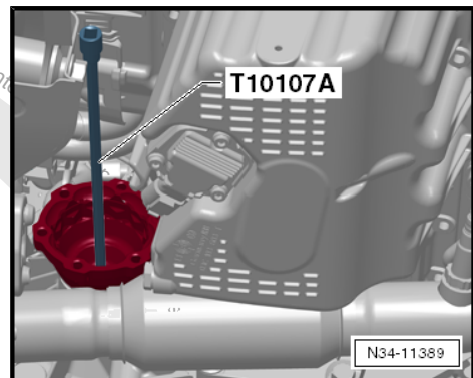
- Secure right drive shaft to suspension strut with tensioning belt -T10038- .

The surface protection of the shafts must not be damaged.



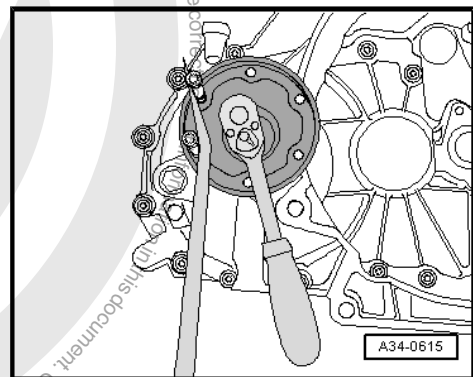
- Remove right flange shaft of gearbox using socket -T10107 A- .

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



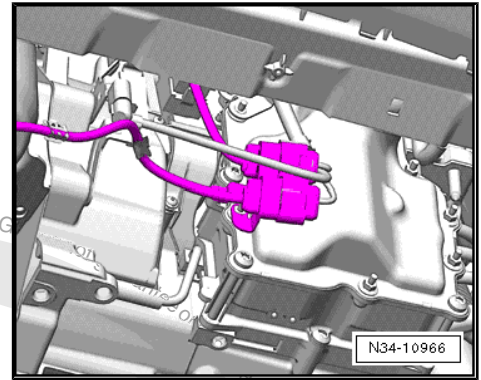
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

Torque setting 30 Nm

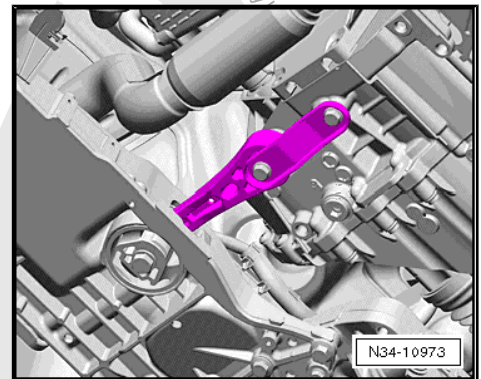




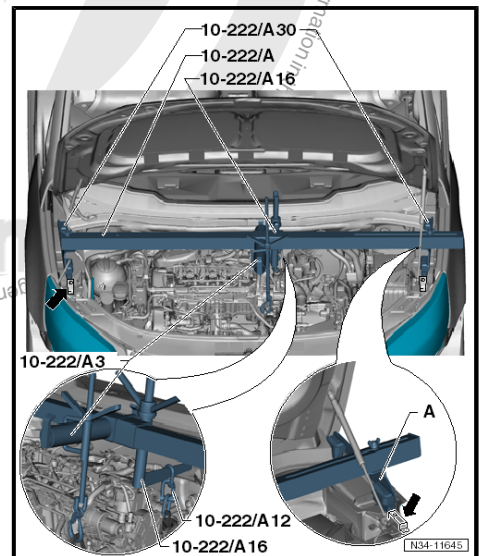
- Remove all retainers and brackets from front of gearbox.



- Remove pendulum support.
- If there are hose and cable connections or retainers in area of support eyes for support bracket -10-222A- , remove these now.



- Support engine and gearbox.
- Preload engine and gearbox using spindles hooks -10 - 222 A /10- and adapter -10 - 222 A /16- by about 5 rotations each.

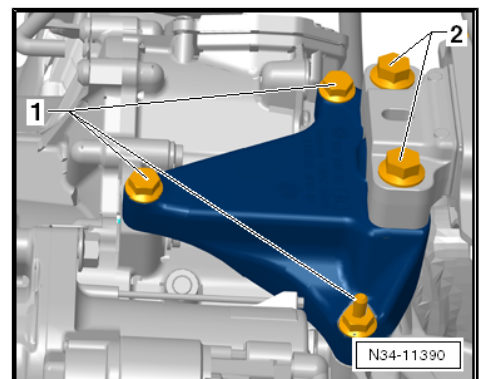


Remove all bolts -1- and -2- for bracket.

- Then lower engine and gearbox by about 5 rotations using spindle hooks -10 - 222 A /10- and remove bracket.
- Then raise engine and gearbox again using spindle hook -10 - 222 A /10- by these 5 rotations.

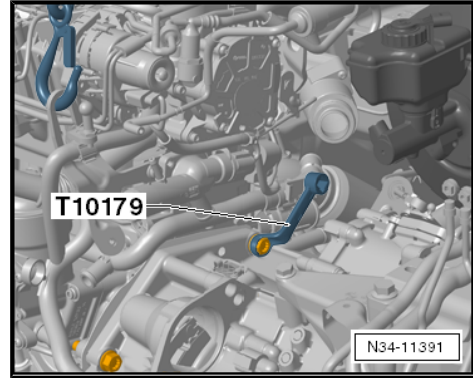
In many cases, there is no need to move spindles again during subsequent removal of gearbox.

- Remove charge air line. => Rep. gr. 21 ; Turbocharging/supercharging

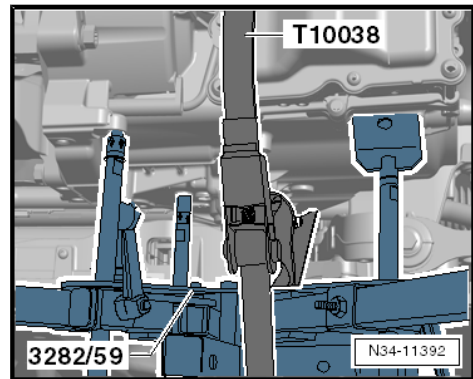




- Remove upper engine/gearbox connecting bolts.
- Set up gearbox support -3282- with adjustment plate -3282/59- .



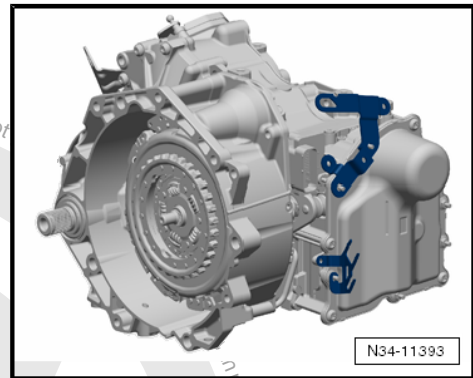
- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.
- Remove remaining engine/gearbox connecting bolts.
- Press gearbox off engine, »observing selector lever cable« and lower gearbox.
- Note clearance of gearbox from subframe when lowering. Tilt gearbox using spindle of gearbox support -3282- and lower slowly.



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

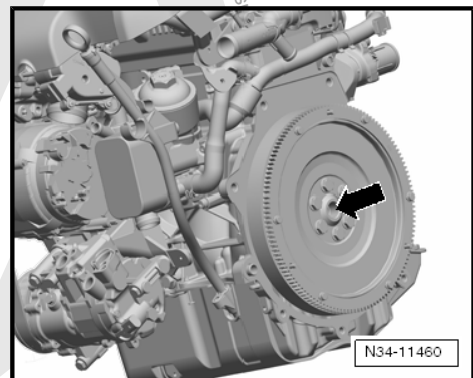
- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

Gearbox with flange shafts, torque setting => page 379



- Renew needle bearing in crankshaft => Rep. gr. 13 ; Crankshaft group

Installing gearbox => page 276 .

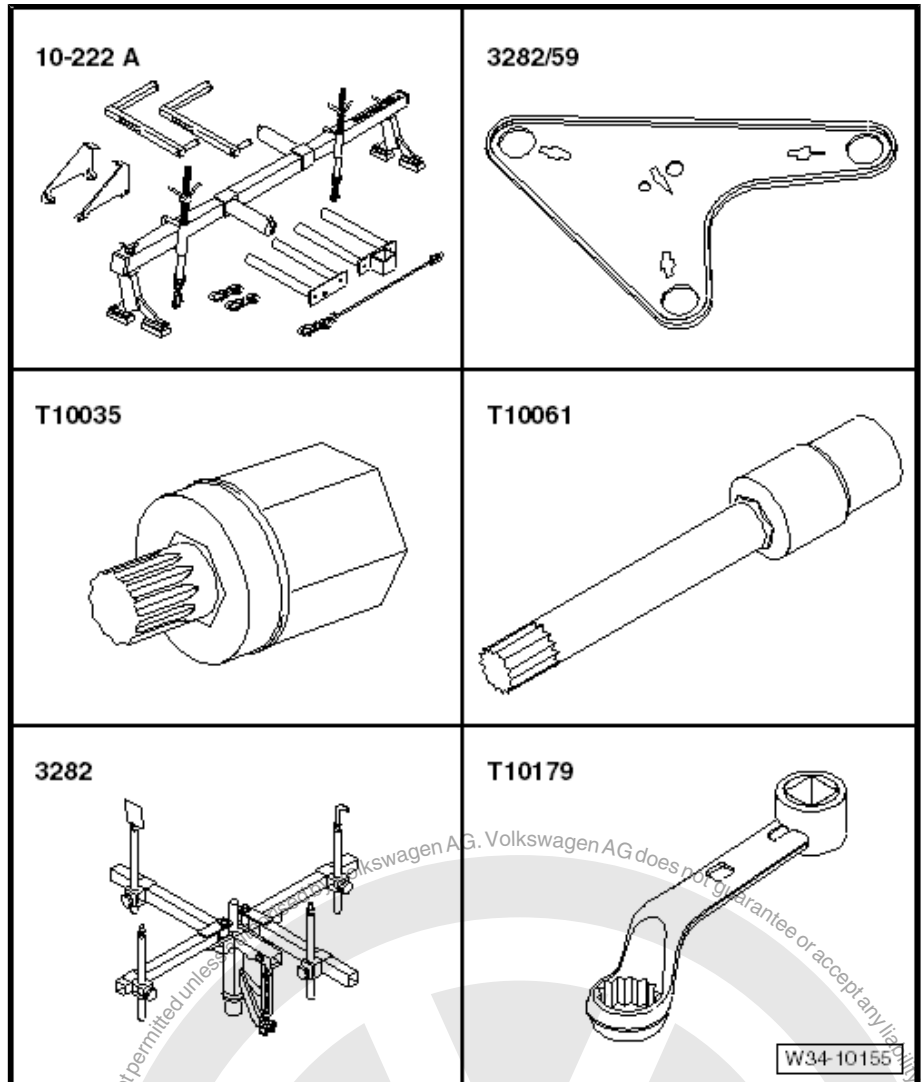




13.10 Removing gearbox; Touran 1.9 I - 77 kW - TDI engine

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-



Special tools and workshop equipment required

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

Up to October 2008, gearboxes were installed with stub shafts. In these gearboxes, both drive shafts are removed for secure installation. In gearboxes with flange shafts, drive shafts remain in vehicle.

Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, cover in front left wheel housing, drive shafts and pendulum support. The subframe remains in the vehicle.

Removing:

- Raise vehicle. All 4 supports of lifting platform must be at same height.



- Move selector lever to position »P« position.
- Follow the instructions for different vehicles => [page 111](#) .

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 engine cover.
- 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 => Electrical system; Rep. gr. 27 ; Removing and installing starter .

- Remove selector lever cable from ball head, remove securing clip.

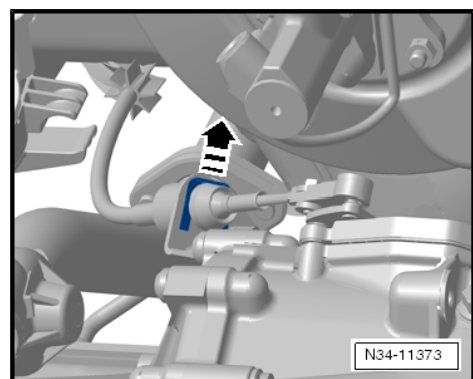
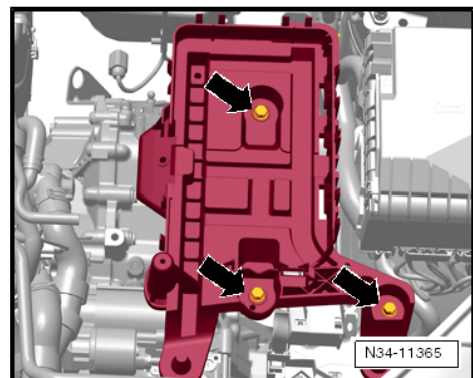
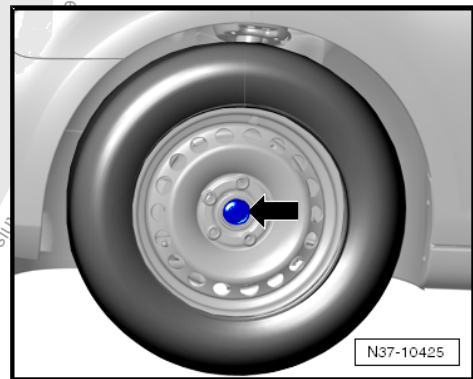
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

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

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

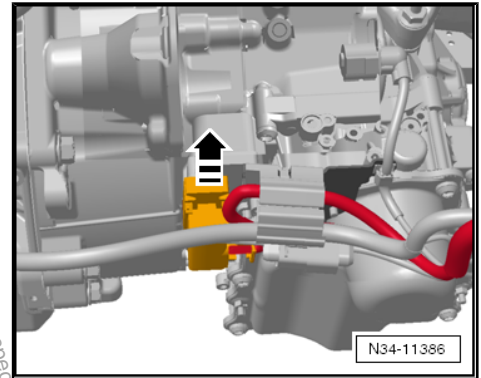
Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.

- Now remove all upper connecting bolts between engine and gearbox.





- Release mechatronic unit connector by pulling and pull off connector.
- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation .



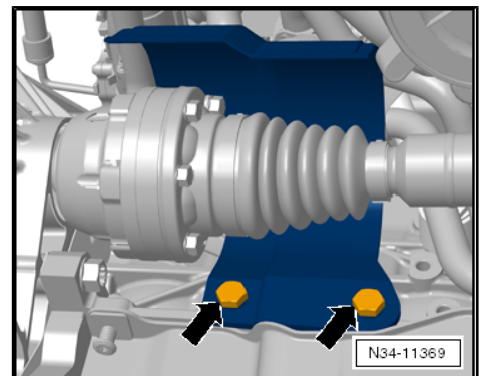
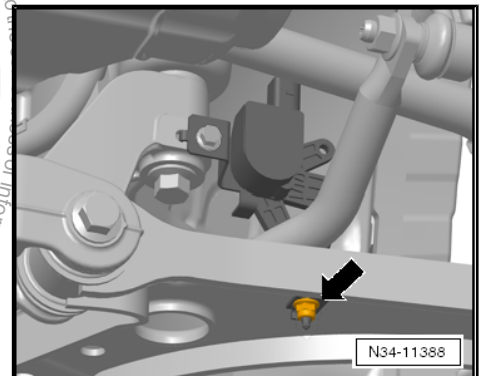
- Unbolt front left vehicle level sender -G78- from suspension link.
- Remove left coupling rod from suspension link and lay to side.

Only in vehicles with stub shafts

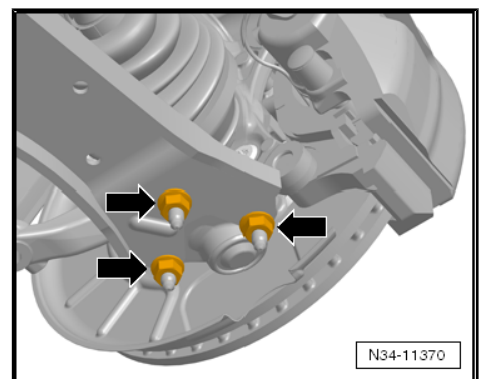
- Remove both drive shafts => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .

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



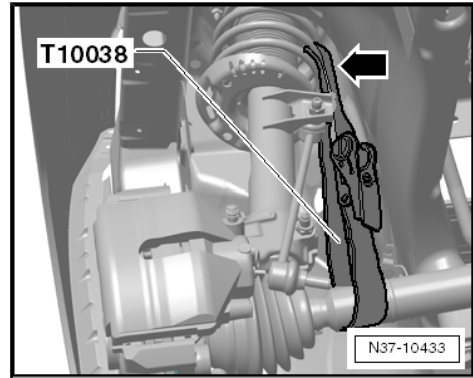
- Unbolt left suspension link from suspension strut.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.





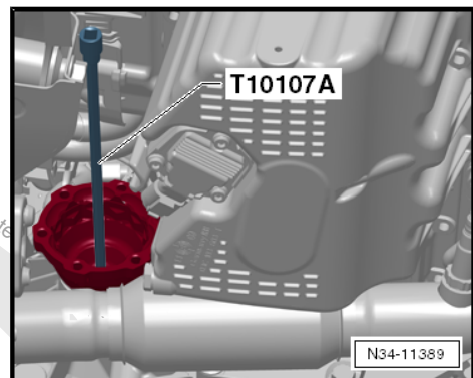
Secure both drive shafts to suspension struts using tensioning straps -T10038- .

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.

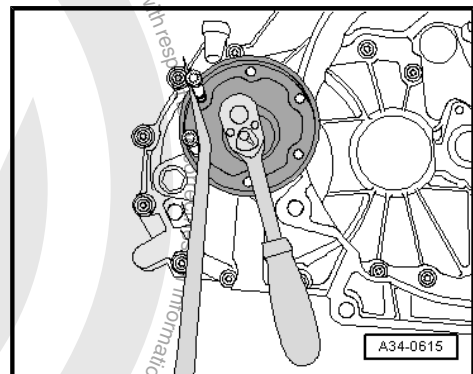


- Remove right flange shaft of gearbox using socket -T10107 A- .

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



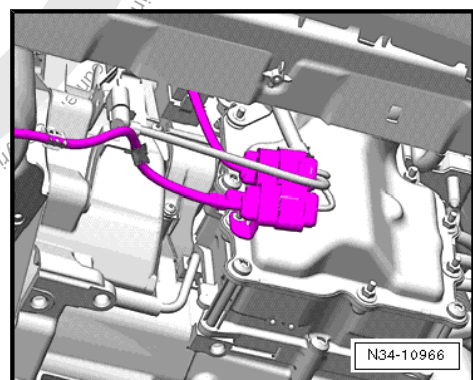
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.



Torque setting 30 Nm

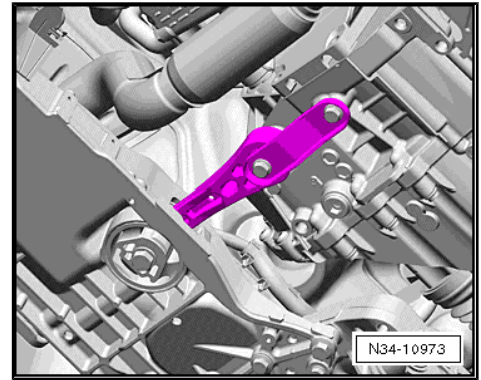
Continuation for all vehicles

- Remove all retainers and brackets from front of gearbox.

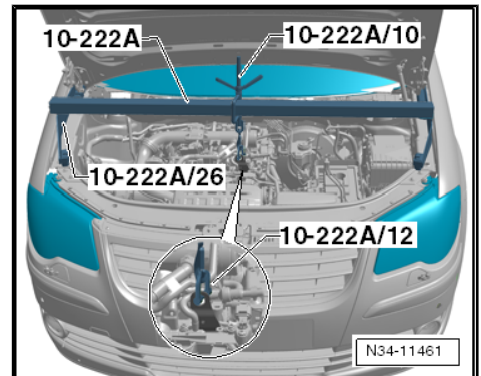




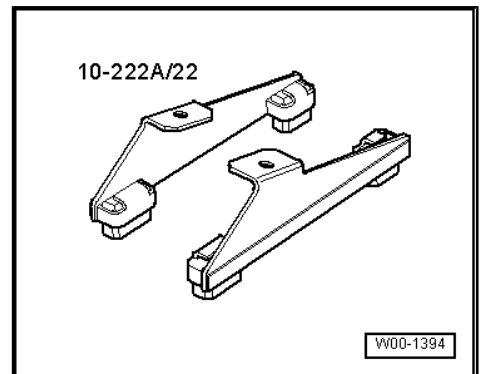
- Remove pendulum support.
- If there are hose and cable connections or retainers in area of support eyes for support bracket -10-222A- , remove these now.
- Remove filler pieces from upper edges of both wings.



- For vehicles with large headlights with round profile, use adapter -10 - 222 A /26- .
- Headlights => [page 111](#) .



- For vehicles with small headlights, use adapter -10 - 222 A / 22- .
- Headlights => [page 111](#) .



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

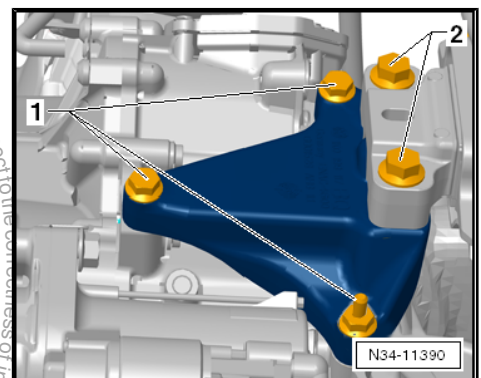
- Then lower engine and gearbox slightly using spindles of support bracket -10 - 222 A- so that bracket can be removed.

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.

- Remove charge air line.

This way you can later tighten the bolts to the specified torque with certainty.



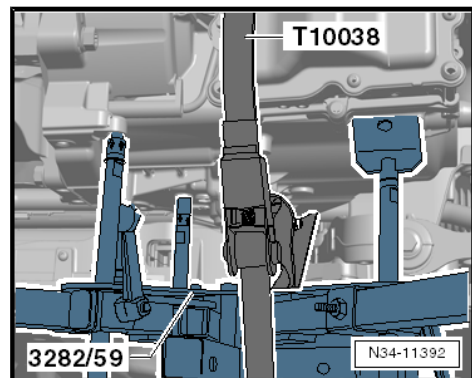
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- Remove connecting bolts at top.
- Set up gearbox support -3282- with adjustment plate -3282/59- .



- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
 - Position plate of pin under gearbox housing, not under mechatronic unit.
 - Screw a pin into »rear« hole for pendulum support.
- 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.

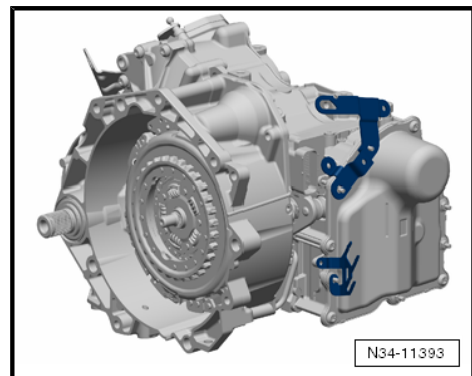


In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

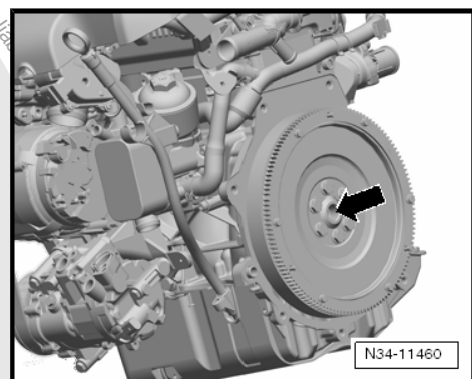
Gearbox with flange shafts, torque setting ⇒ [page 379](#)

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



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#) .

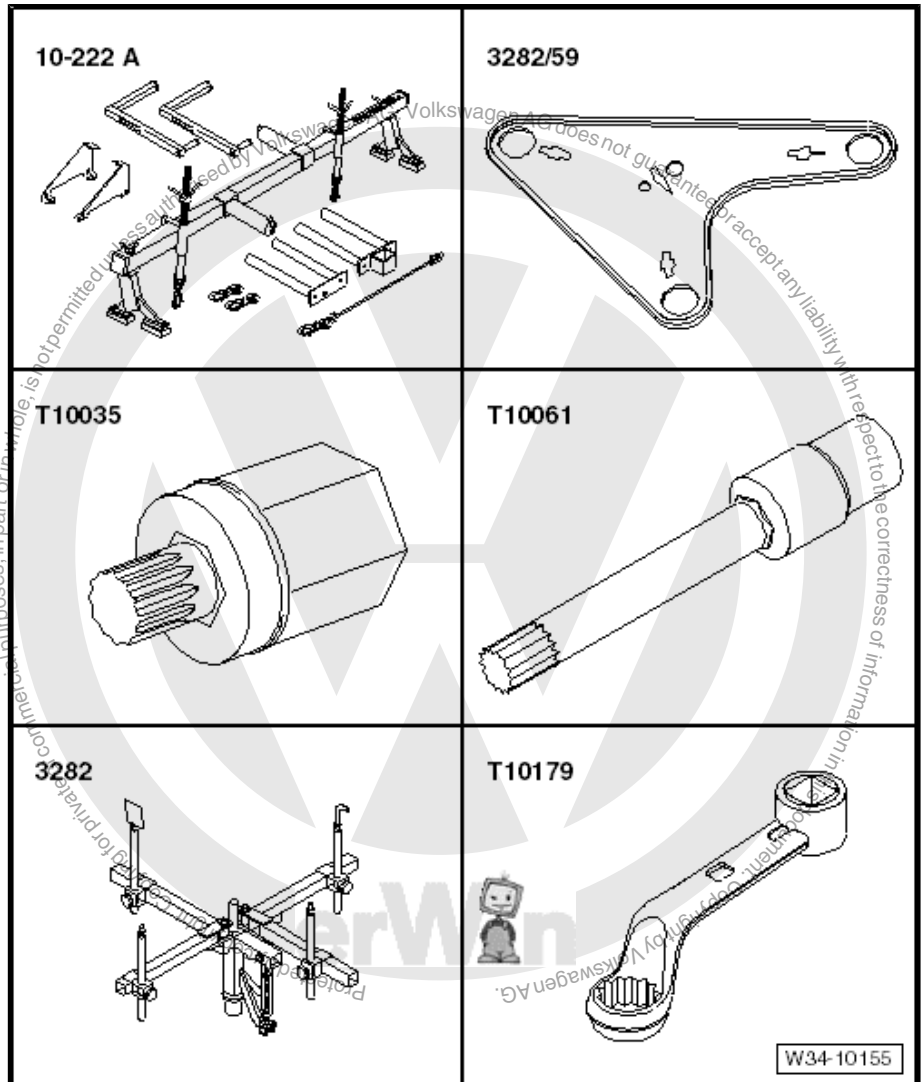




13.11 Removing gearbox; Passat 2006 > 1.4 I - 110 kW - Eco-Fuel engine

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-



Special tools and workshop equipment required

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

Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

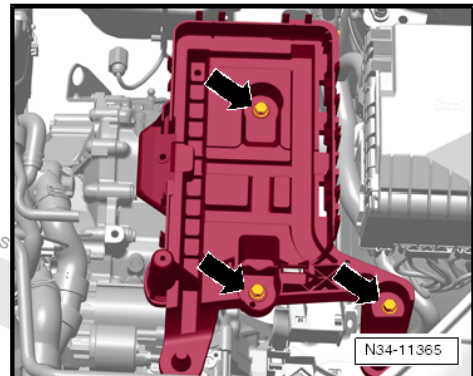
Both drive shafts must also be removed. The shafts can be properly inserted during installation only if they are guided »straight« onto the ends of the gearbox shafts. Partially installed shafts cannot be inserted straight.

Removing:

- 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 => Electrical system; Rep. gr. 27 ; Removing and installing starter .



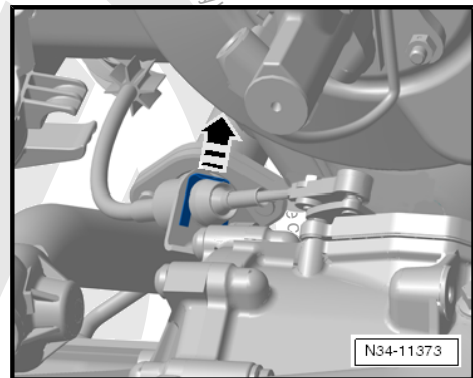
- Remove selector lever cable from ball head, remove securing clip.

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.

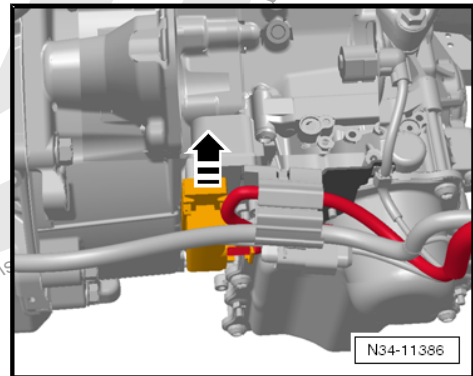
- Therefore, when installing, always use a »new« securing clip.

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

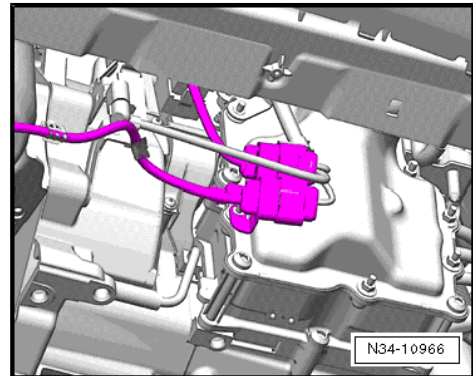
Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.



- Release mechatronic unit connector by pulling and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.
- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front left wheel housing liner => Rep. gr. 66 ; Assembly overview - front wheel housing liner

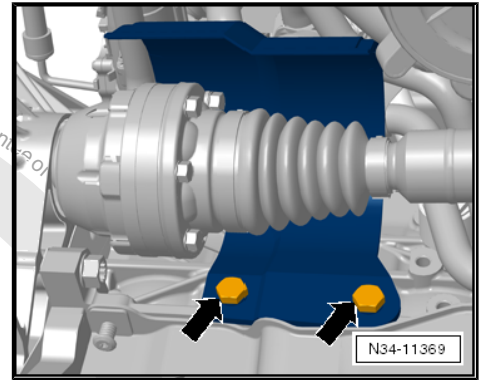


- Remove all retainers and brackets from front of gearbox.



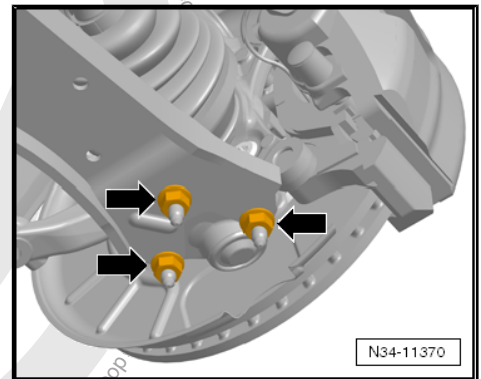


- If fitted, remove the heat shield over the right-hand drive shaft.
Tightening torque => Rep. gr. 40 ; Repairing drive shafts
- Remove left coupling rod from suspension link and lay to side.

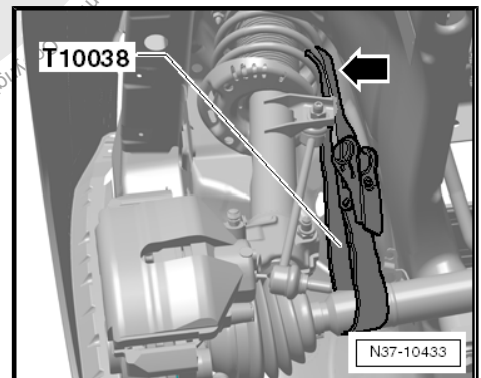


- Unbolt left suspension link from suspension strut.
- Unbolt both drive shafts from gearbox and carefully lay to side.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

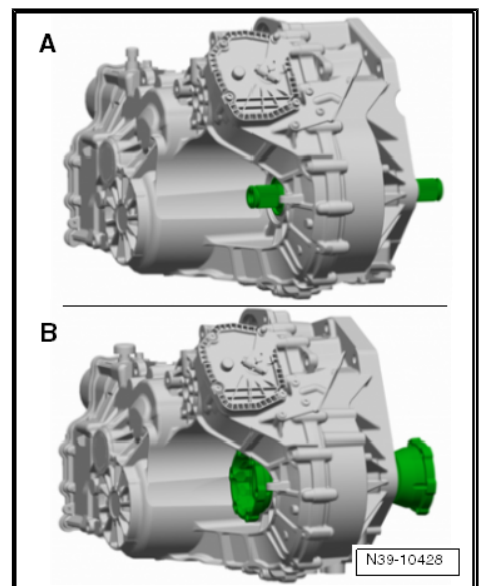
The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.



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

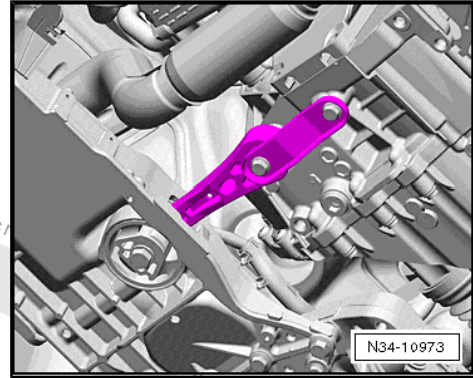


Gearbox with flange shafts -B-

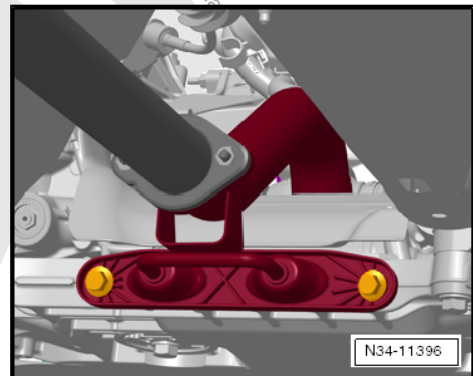




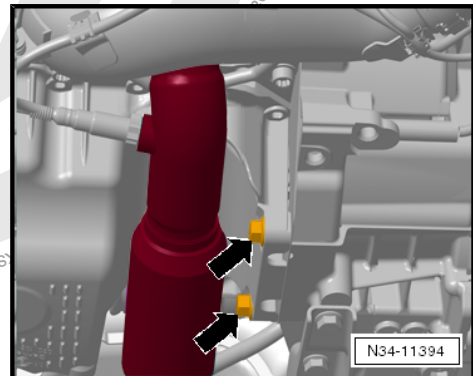
- Remove pendulum support.



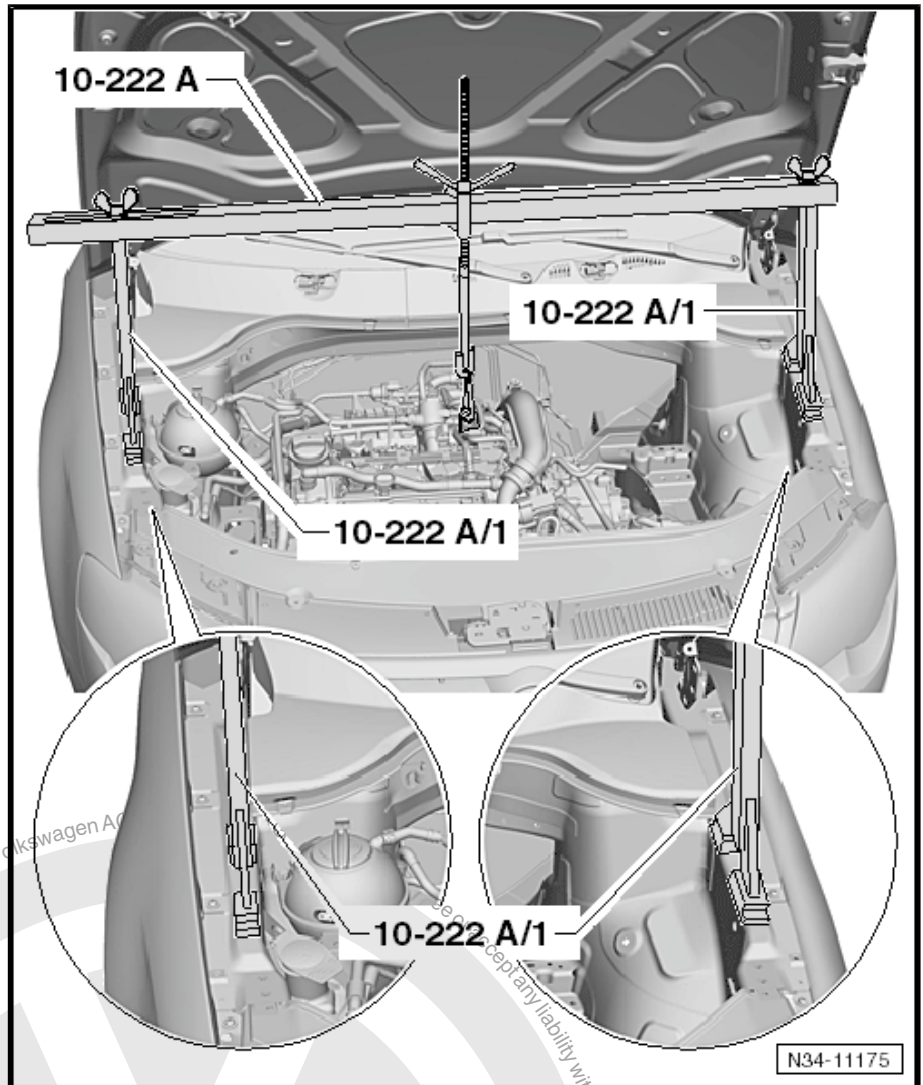
- Unbolt exhaust system bracket from subframe => Rep. gr. 26 ; Removing and installing parts of exhaust system .



- Disconnect front exhaust pipe from catalytic converter so that lower engine/gearbox connecting bolts -arrows- can be removed => Rep. gr. 26 ; Removing and installing parts of exhaust system .
- Remove filler pieces from upper edges of both wings.
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222A- remove these now.



- Support engine and gearbox. Do not raise.



Adapters -10 - 222 A /8- can also be used.

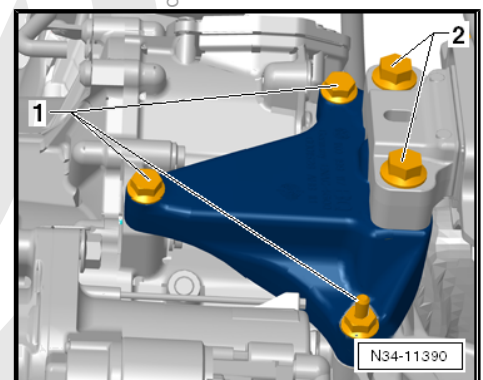
Remove all bolts -1- and -2- for bracket.

- 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.

- Set up gearbox support -3282- with adjustment plate -3282/59-





- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

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

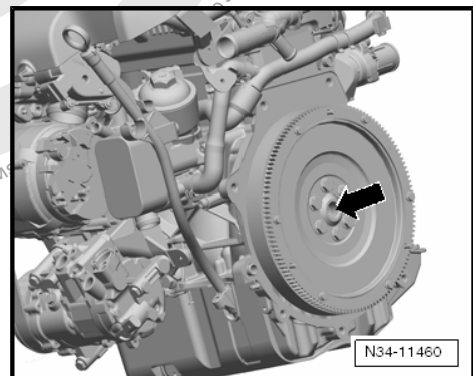
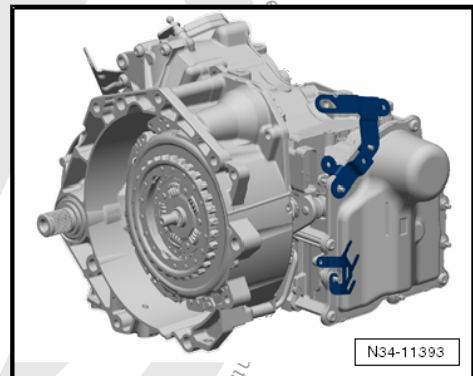
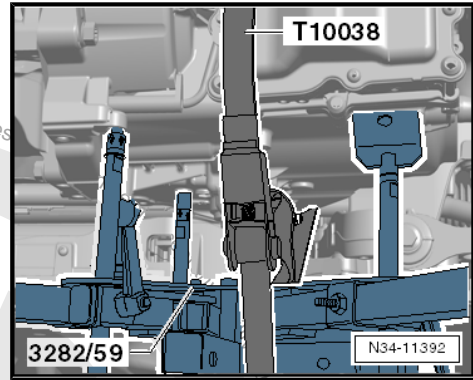
- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

Gearbox with flange shafts, torque setting ⇒ [page 379](#)

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

- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#)

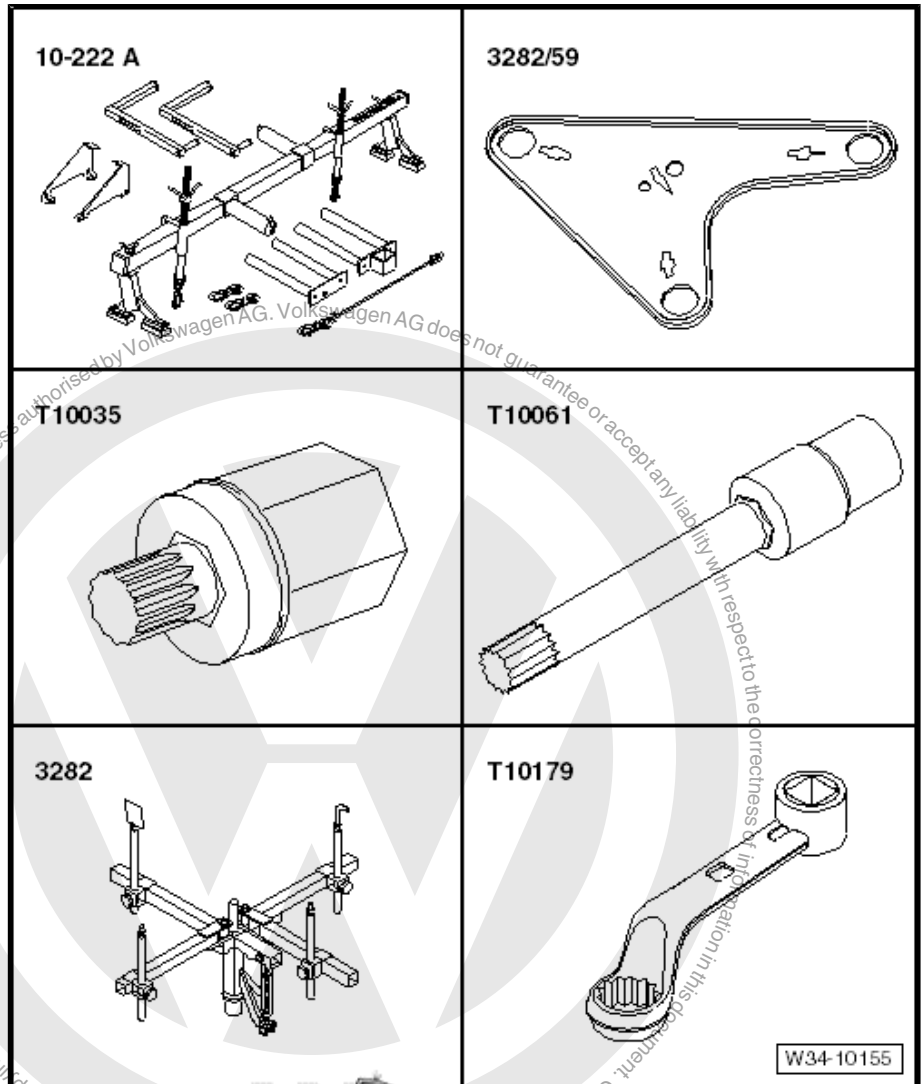




13.12 Removing gearbox; Passat 2006 > 1.4 I - 90 and 110 kW - petrol engine

Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A- with adapter -10 - 222 A / 8-
- ◆ Adjustment plate -3282/59-
- ◆ Socket -T10035-
- ◆ Socket -T10061-
- ◆ Gearbox support -3282-
- ◆ Insert tool, 18 mm -T10179-



Special tools and workshop equipment required

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

Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Follow the instructions for different vehicles => [page 111](#) .



Only in vehicles with stub shafts



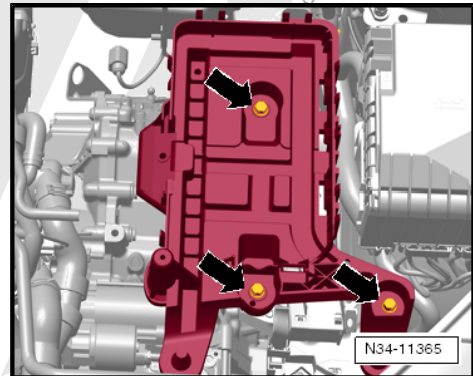
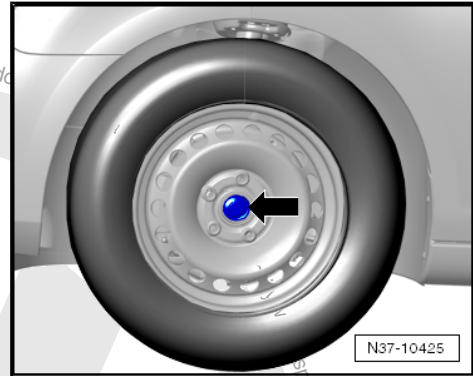
Note

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 => Electrical system; Rep. gr. 27 ; Removing and installing starter .



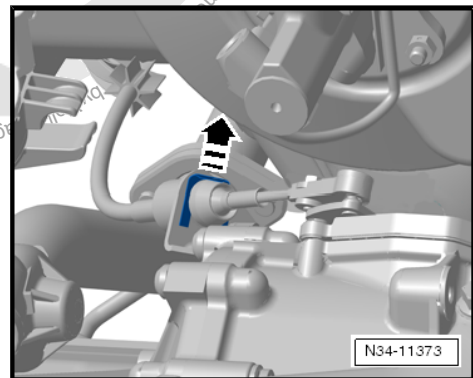
- Remove selector lever cable from ball head, remove securing clip.

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.

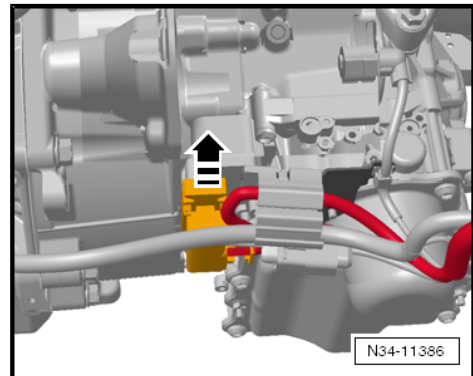
- Therefore, when installing, always use a »new« securing clip.

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

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.

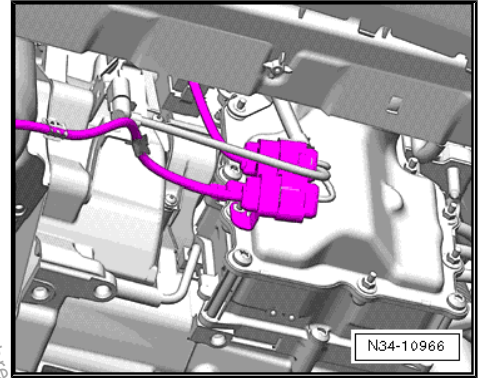


- Release mechatronic unit connector by pulling and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.
- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing => Rep. gr. 66 ; Assembly overview - front wheel housing .





- Remove all retainers and brackets from front of gearbox.

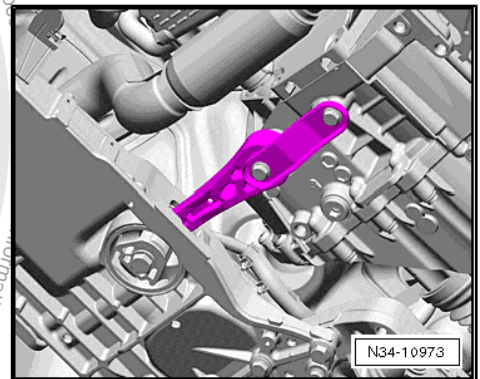


- Remove pendulum support.

Only in vehicles with stub shafts

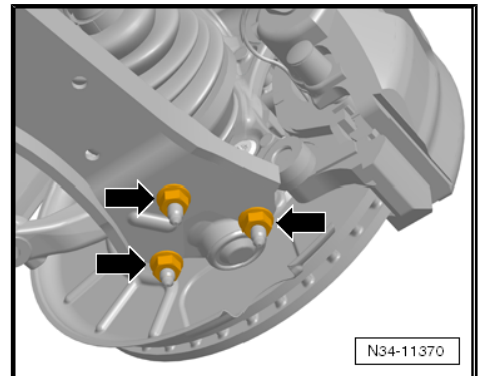
- Remove both drive shafts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .

Only in vehicles with flange shafts

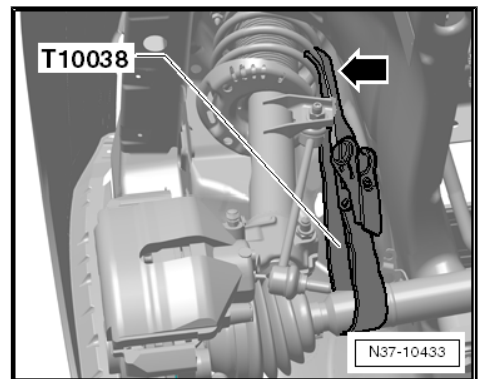


- Unbolt left suspension link from suspension strut.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

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.



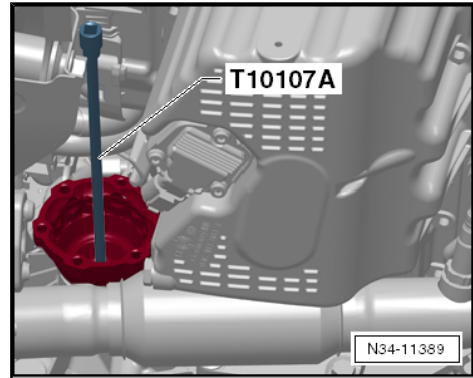
Secure both drive shafts to suspension struts using tensioning straps -T10038- .



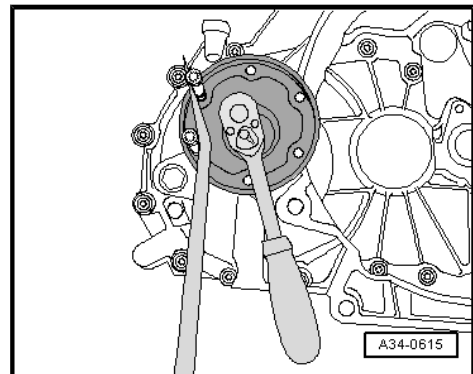


- Remove right flange shaft of gearbox using socket -T10107 A- .

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



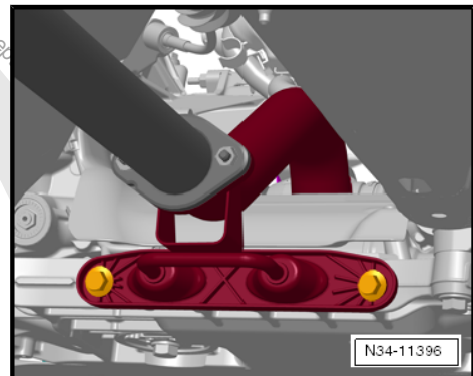
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.



Torque setting 30 Nm

Continuation for all vehicles

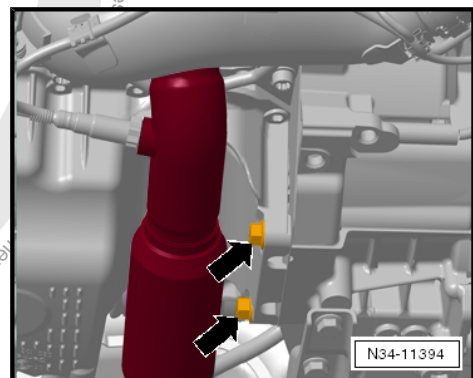
- Unbolt exhaust system bracket from subframe => Rep. gr. 26 ; Removing and installing parts of exhaust system .



- Disconnect front exhaust pipe from catalytic converter so that lower engine/gearbox connecting bolts -arrows- can be removed => Rep. gr. 26 ; Removing and installing parts of exhaust system .

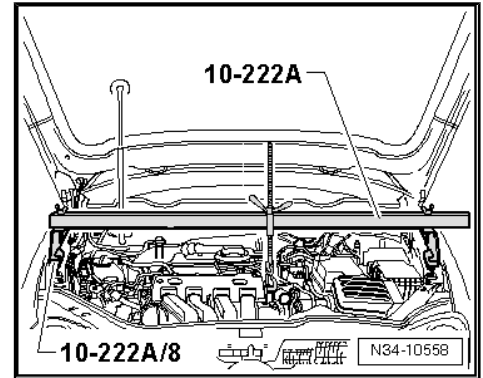
- Remove filler pieces from upper edges of both wings.
- Remove engine cover from cylinder head.

- If there are hose and cable connections in area of engine support eye for support bracket -10-222A- , remove these now.





- Set up support bracket -10 - 222 A- together with adapters -10 - 222 A /8- in front of support for bonnet. Do not raise.



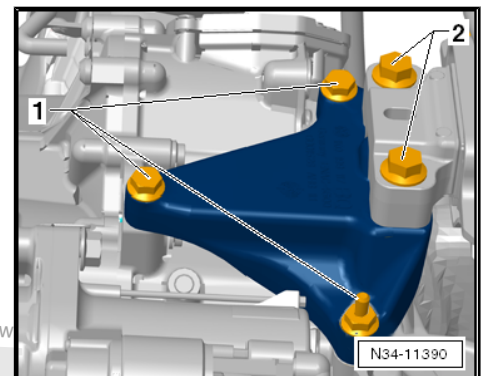
Remove all bolts -1- and -2- for bracket.

- 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.

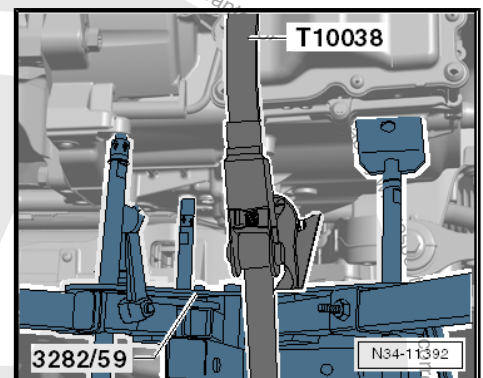
- Set up gearbox support -3282- with adjustment plate -3282/59- .



- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

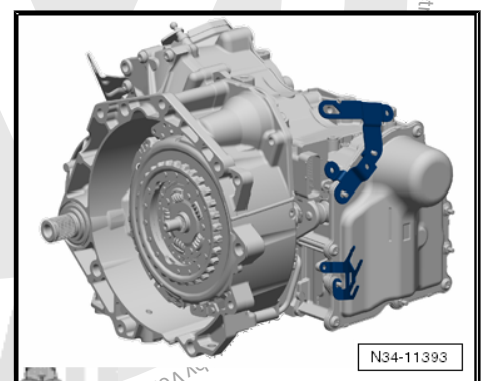


In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

Gearbox with flange shafts, torque setting => page 379

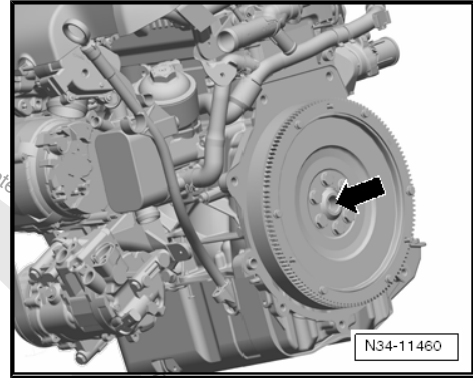
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669-





- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

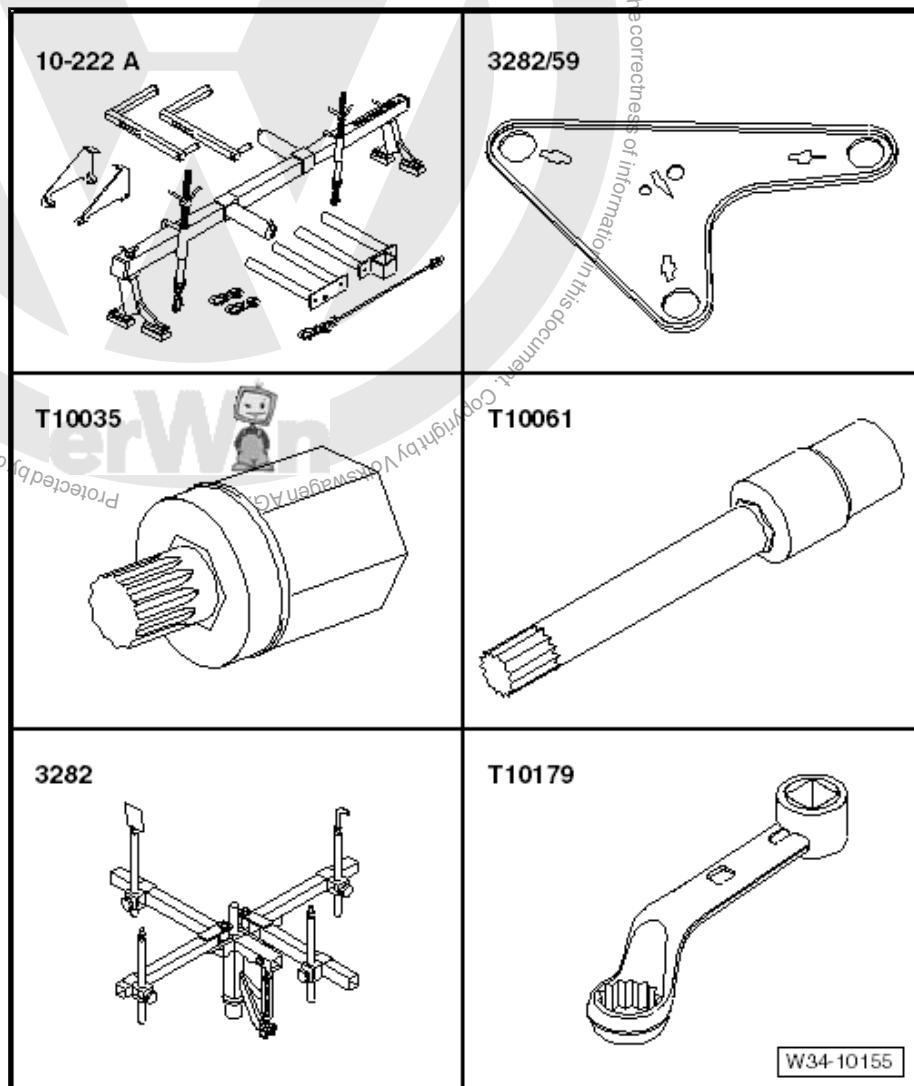
Installing gearbox ⇒ [page 276](#) .



13.13 Removing gearbox; Passat 2006 > 1.8 l - 112 and 118 kW - petrol 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-



Special tools and workshop equipment required

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

Brief description

The gearbox is removed downwards separately, without engine.
»From above«



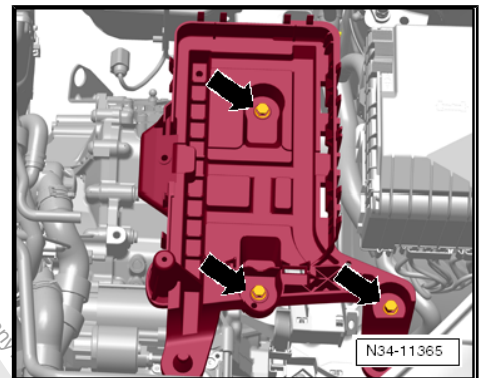
Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- 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. 24 ; Removing and installing air filter .
- Remove battery and -battery box- ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Electrical system; Rep. gr. 27 ; Removing and installing starter .



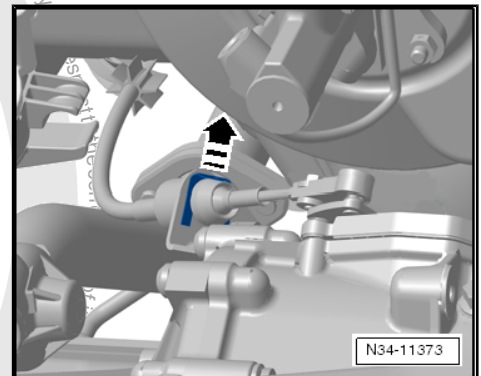
- Remove selector lever cable from ball head, remove securing clip.

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.

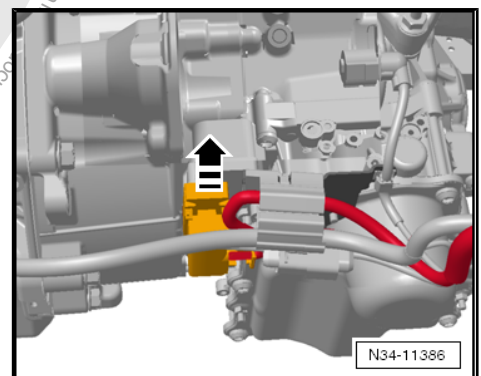
Therefore, when installing, always use a »new« securing clip.

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

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.

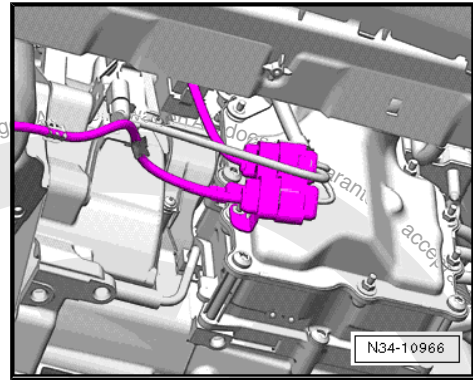


- Release mechatronic unit connector by pulling and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.
- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation
- Remove front part of wheel housing ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing .

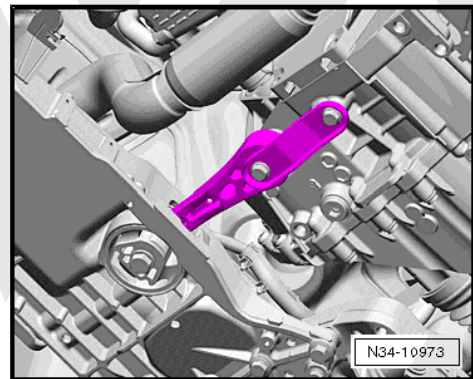




- Remove all retainers and brackets from front of gearbox.



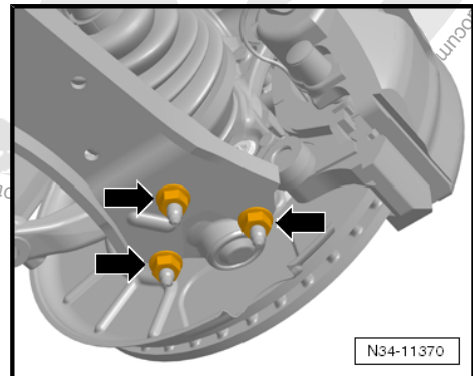
- Remove pendulum support.



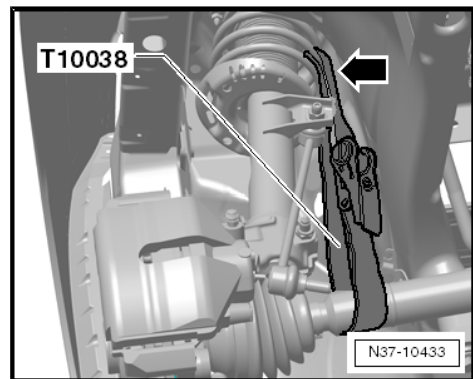
- Only unbolt left suspension link from suspension strut.

Both centre bolts of shafts remain installed.

- Unbolt both drive shafts from gearbox and carefully lay to side.
⇒ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts
- Swing left drive shaft into wheel housing.



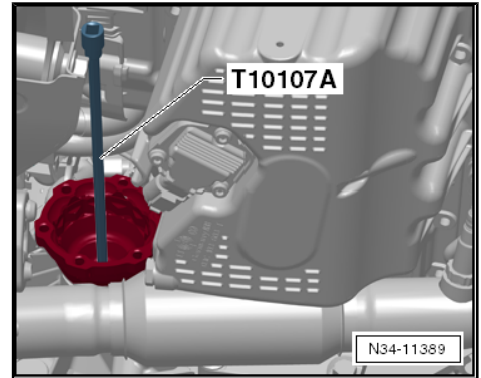
Shafts are fixed to suspension struts using tensioning belts - T10038- .





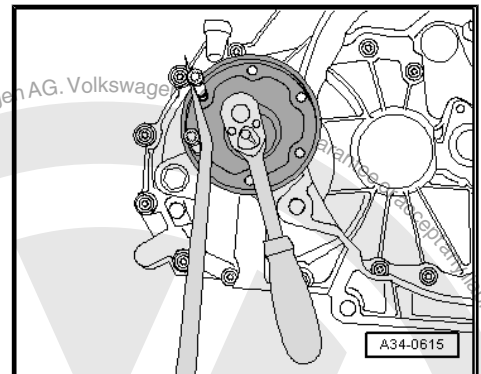
- Remove right flange shaft of gearbox.

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

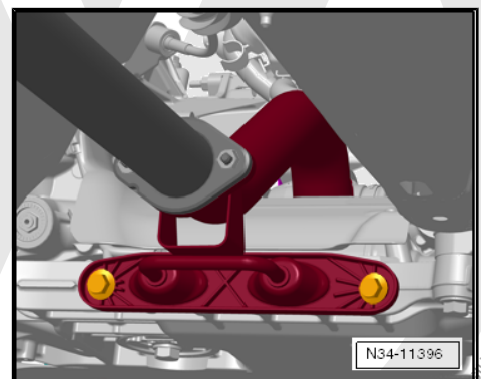


- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

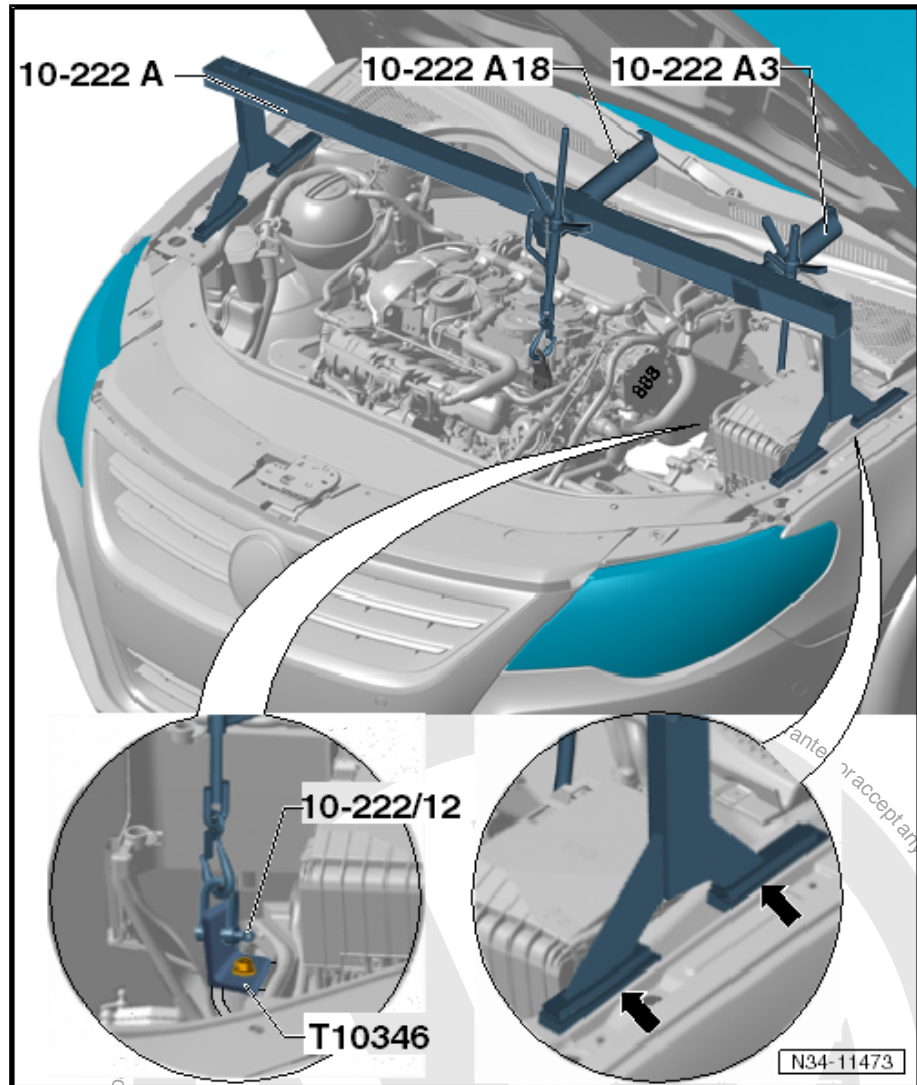
Torque setting 30 Nm



- Unbolt exhaust system bracket from subframe => Rep. gr. 26 ; Removing and installing parts of exhaust system .
- If there are hose and cable connections in area of engine support eye for support bracket -10-222A- , remove these now.
- Remove filler pieces from upper edges of both wings.



New:



- If there are hose or wiring connections near the engine lifting eyes, remove them now.
- Set support bracket -10 - 222 A- on longitudinal members.

Do not put support bracket onto wing.

- Support engine and gearbox with support bracket -10 - 222 A- and hooks -10 - 222 A /10- . Do not raise.

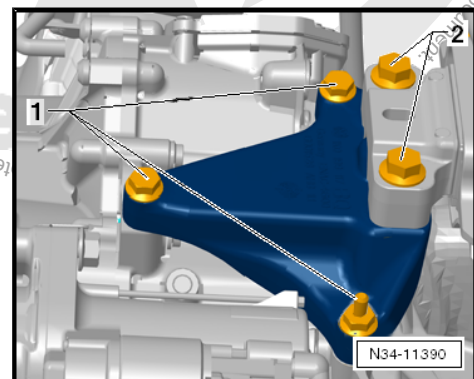
Remove all bolts -1- and -2- for bracket.

- 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.

- Set up gearbox support -3282- with adjustment plate -3282/59- .

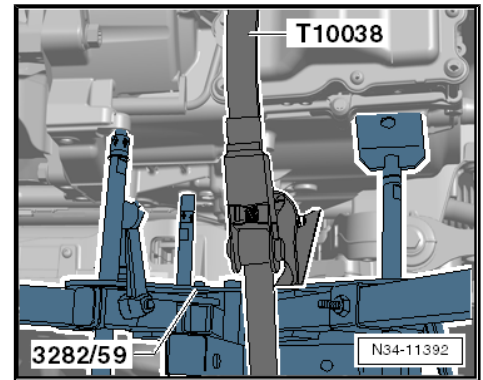




- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

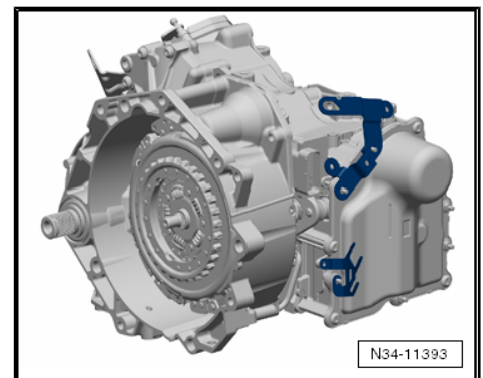


In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

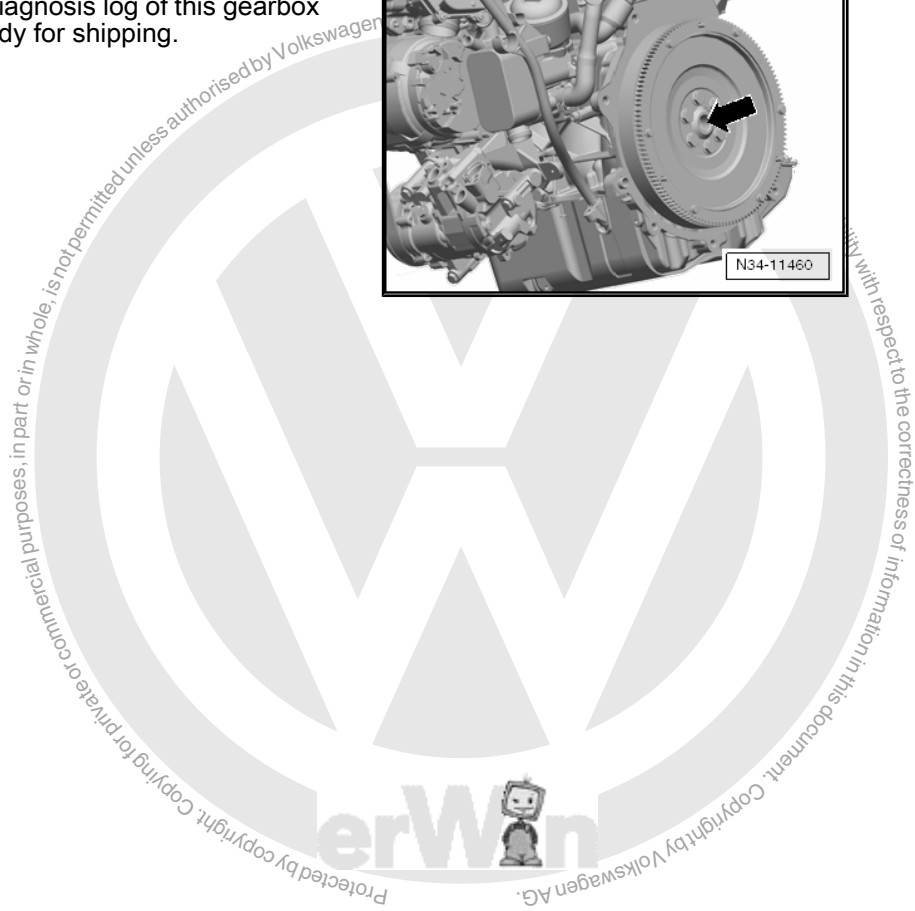
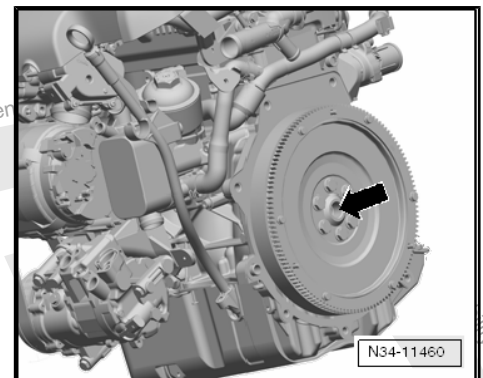
Gearbox with flange shafts, torque setting ⇒ [page 379](#)

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



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .
- For purposes of analysis, attach diagnosis log of this gearbox securely to gearbox when it is ready for shipping.

Installing gearbox ⇒ [page 276](#) .

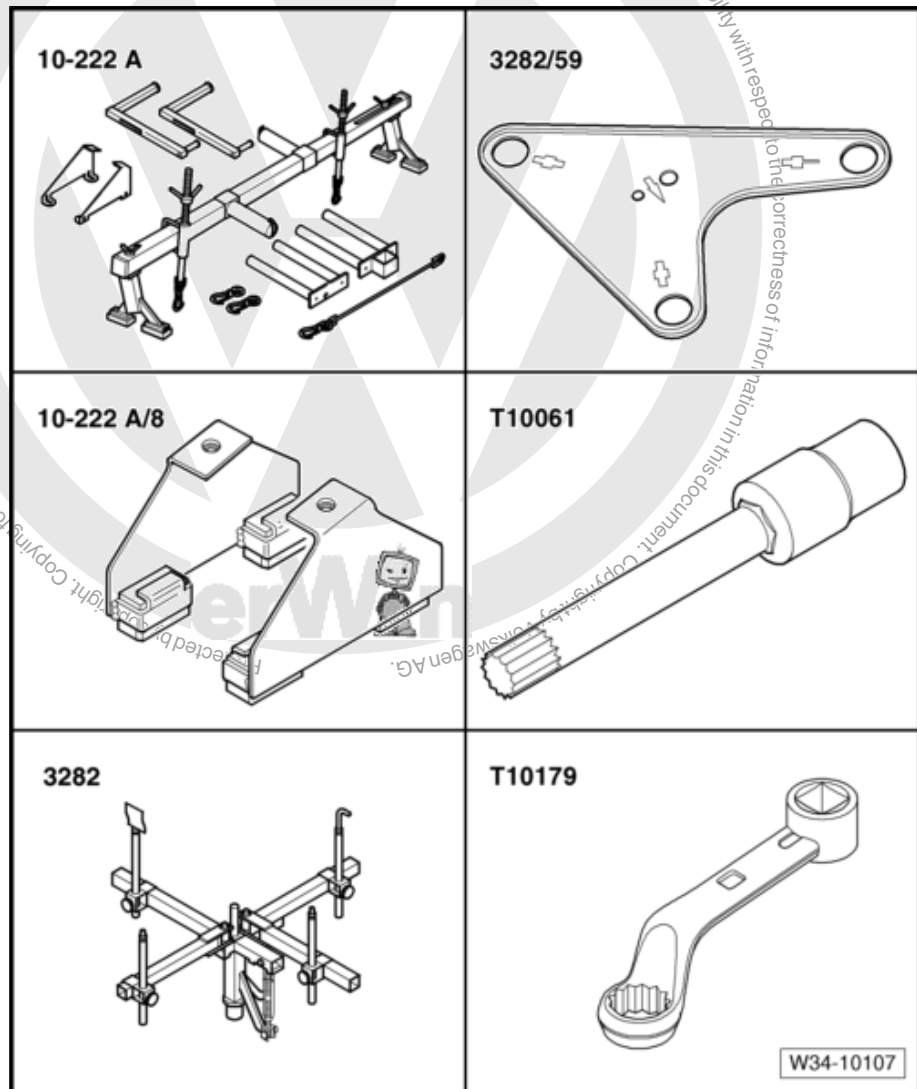




13.14 Removing gearbox, Golf Plus 2009 ▶, 1.4 l - 90 kW and 118 kW - petrol engine

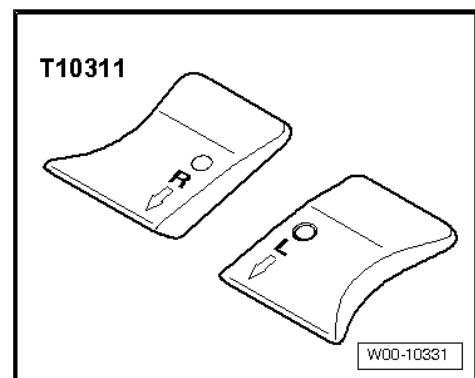
Special tools and workshop equipment required

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



Special tools and workshop equipment required

- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-
- ◆ Wing supports -T10311-





Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- Follow the instructions for different vehicles => [page 111](#) .
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.



Note

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

Only in vehicles with stub shafts

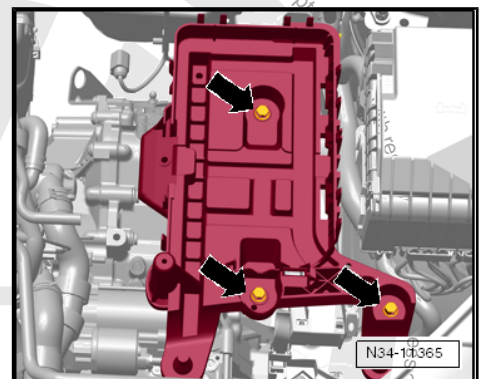
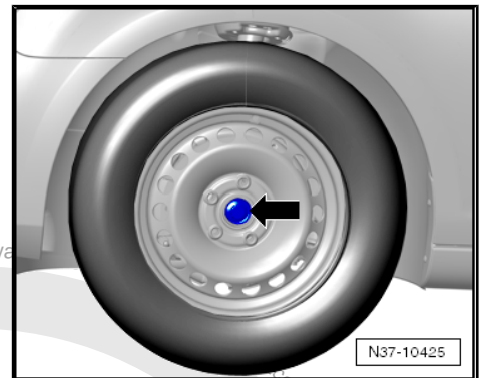
- Step on the brake pedal while a 2nd mechanic loosens the two drive shaft bolts -arrow-.

Only in vehicles with flange shafts

- Depress the brake pedal and loosen left bolt of drive shaft -arrow- (2nd mechanic).

Continuation for all vehicles

- Remove engine cover from cylinder head.
- 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 => Electrical system; Rep. gr. 27 ; Removing and installing starter .





- Remove selector lever cable from ball head, remove securing clip.

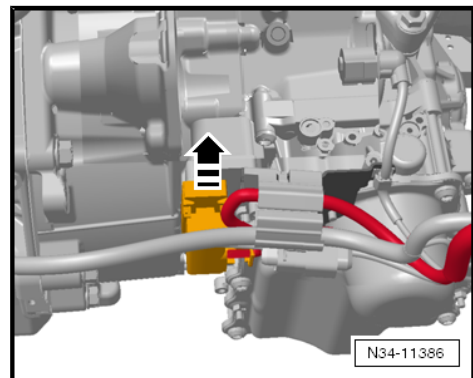
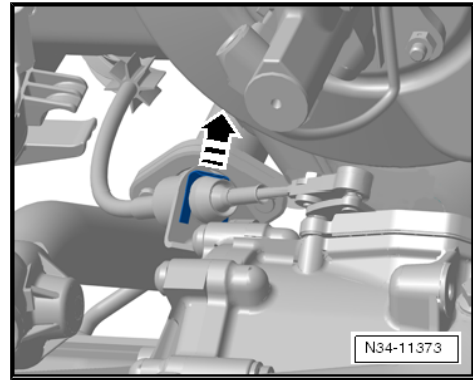
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

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

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

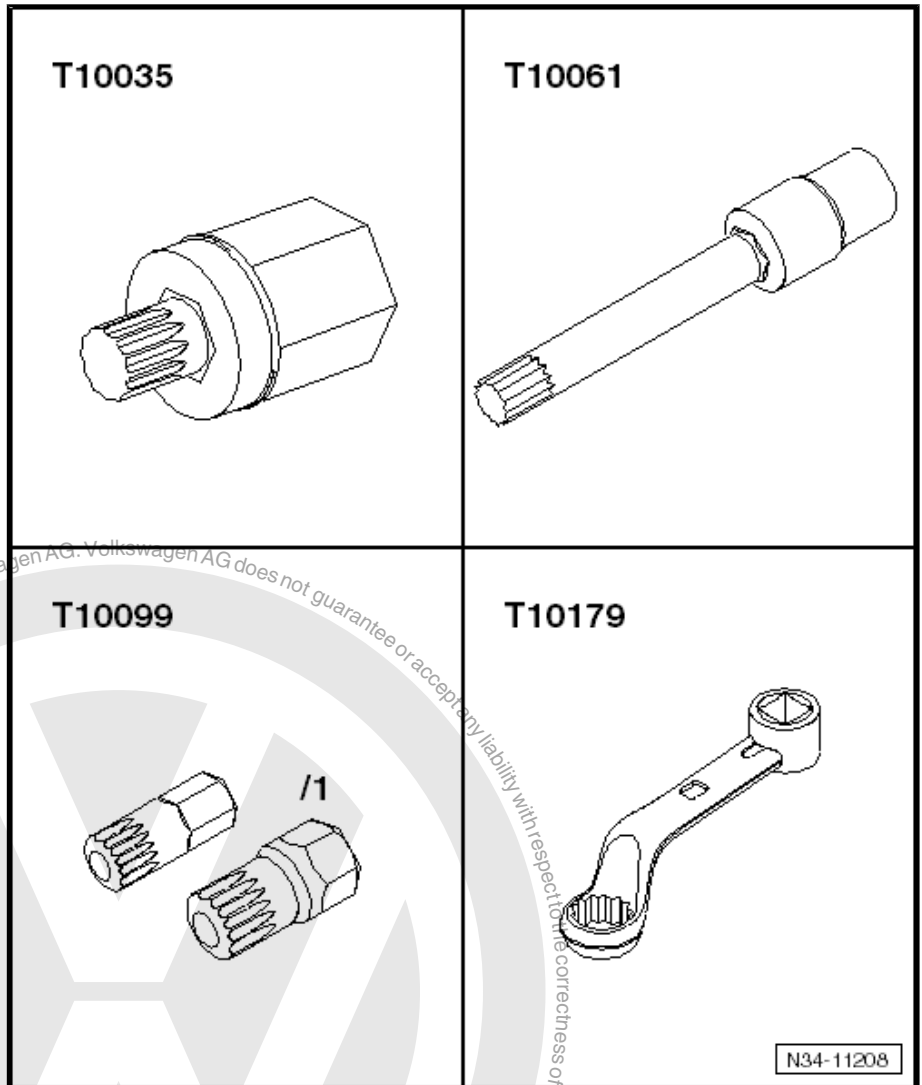
Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.

- 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.



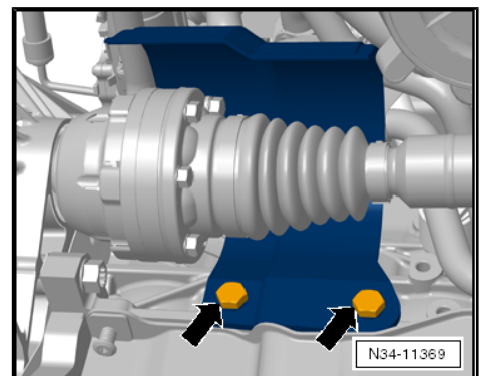


- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front left part of wheel housing liner ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing liner .

Only in vehicles with flange shafts

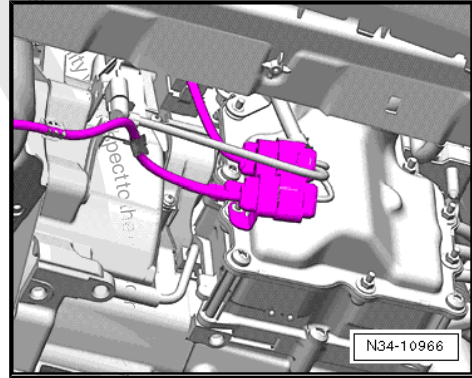
- If fitted, remove the heat shield over the right-hand drive shaft.
Tightening torque ⇒ Rep. gr. 40 ; Repairing drive shafts

Continuation for all vehicles



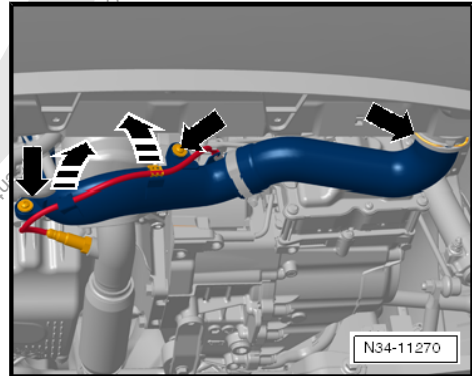


- Remove all retainers and brackets from front of gearbox.



In engines with charge air ducting:

- Unclip line to Lambda probe.
- Remove hose for charge air ducting.
- Unscrew charge air pipe from engine at bottom and swivel it forwards.
- Disconnect left coupling rod from anti-roll bar => Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .

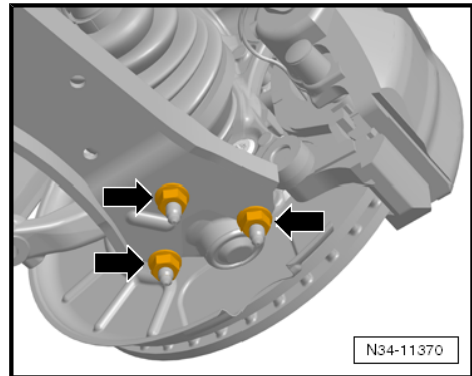


Only in vehicles with stub shafts

- Remove both drive shafts => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .

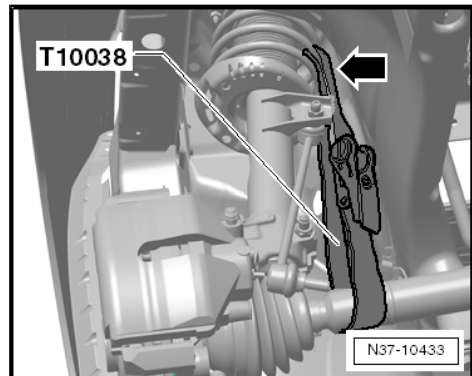
Only in vehicles with flange shafts

- Remove left drive shaft => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .
- Unbolt right drive shaft from gearbox => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .
- Unbolt right suspension link from axle link => Running gear, axles, steering; Rep. gr. 40 ; Subframe, anti-roll bar, suspension link .



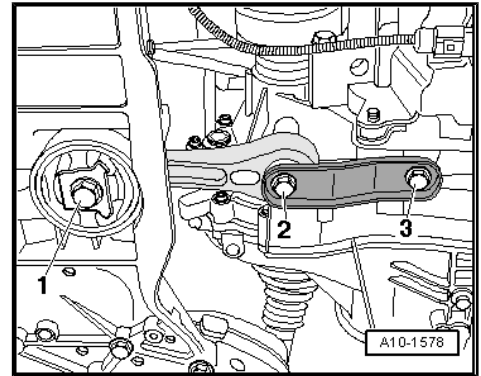
- Secure right drive shaft to suspension strut with tensioning belt -T10038- .

The surface protection of the shaft must not be damaged.



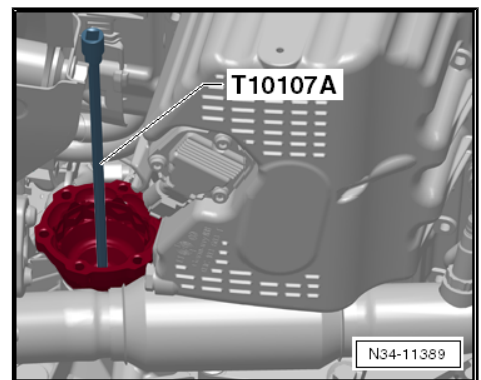


- Remove pendulum support. First remove bolt -1-, followed by bolts -2- and -3- → Rep. gr. 40 .

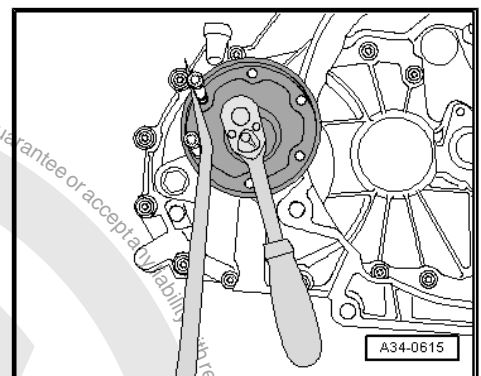


- Remove right flange shaft of gearbox using socket -T10107 A- .

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



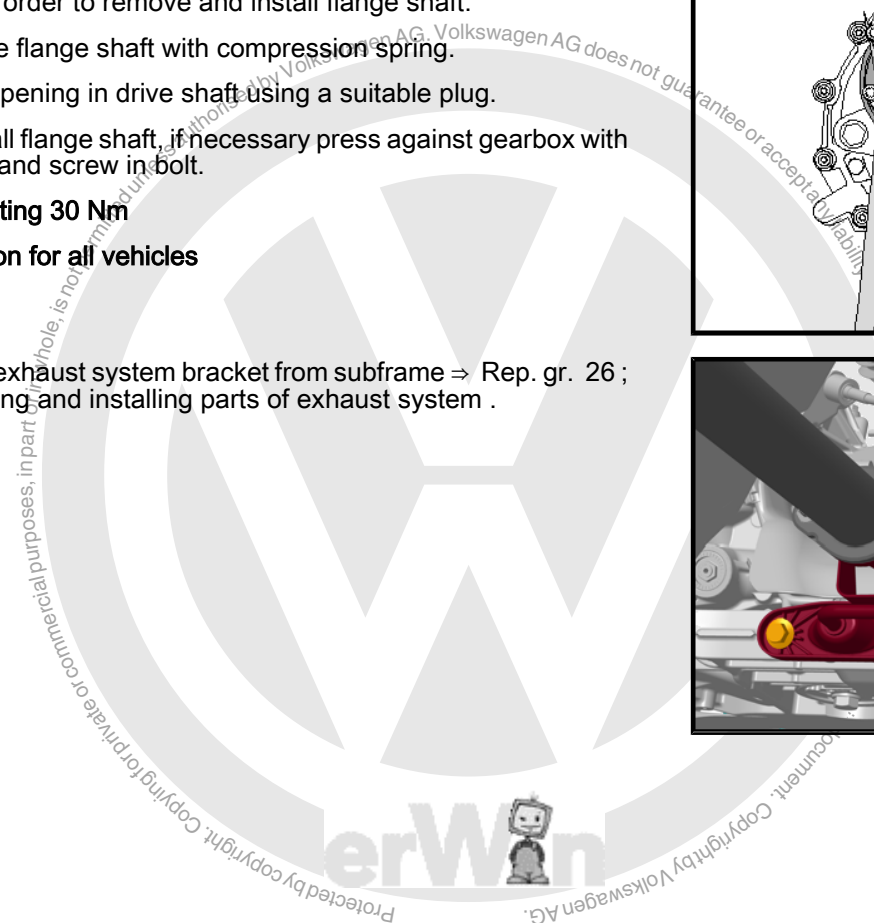
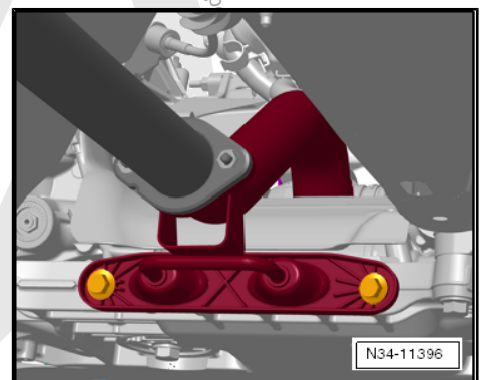
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.



Torque setting 30 Nm

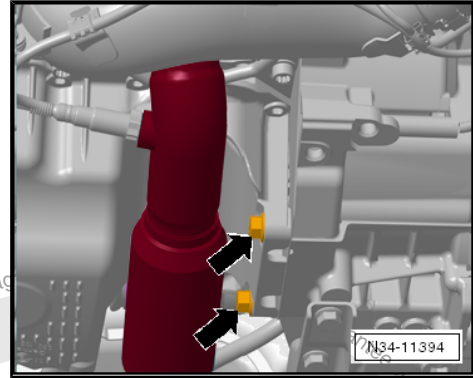
Continuation for all vehicles

- Unbolt exhaust system bracket from subframe → Rep. gr. 26 ; Removing and installing parts of exhaust system .





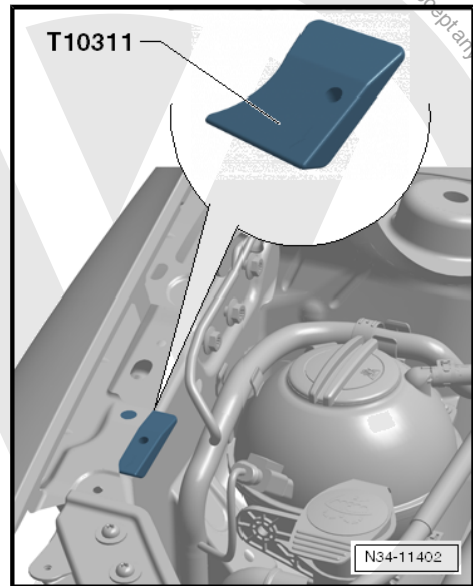
- Disconnect front exhaust pipe from catalytic converter so that lower engine/gearbox connecting bolts -arrows- can be removed => Rep. gr. 26 ; Removing and installing parts of exhaust system .
- If there are hose and cable connections in area of engine support eyes for support bracket -10-222A- , remove these now.
- Remove filler pieces from upper edges of both wings.



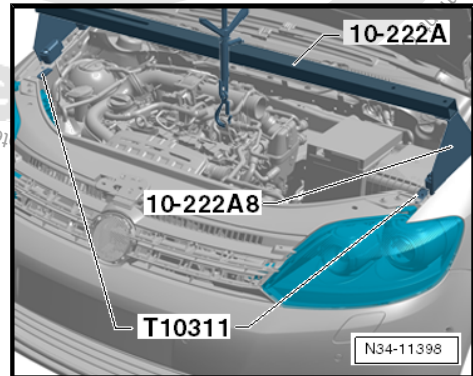
Golf Plus and Cross Golf:

- Use wing supports -T10311- on both sides.

The supports prevent the weight of the engine from damaging the wings.



- Support engine and gearbox. Do not raise.



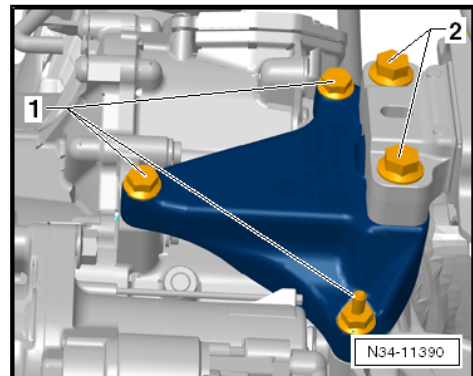
Remove all bolts -1- and -2- for bracket.

- 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.

- Set up gearbox support -3282- with adjustment plate -3282/59- .

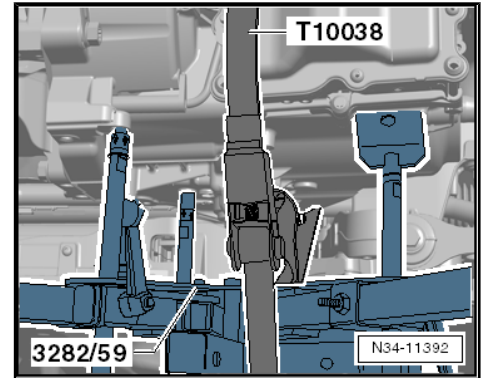




- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.



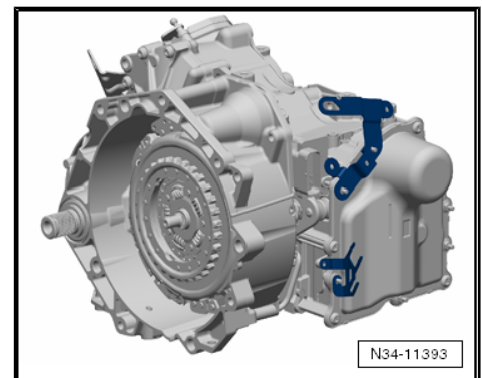
In some cases, there are retainers on the front of the gearbox.

- Remove retainers.

If a »new« gearbox is being fitted, these retainers are not present on »new« gearbox.

Gearbox with flange shafts, torque setting => [page 379](#)

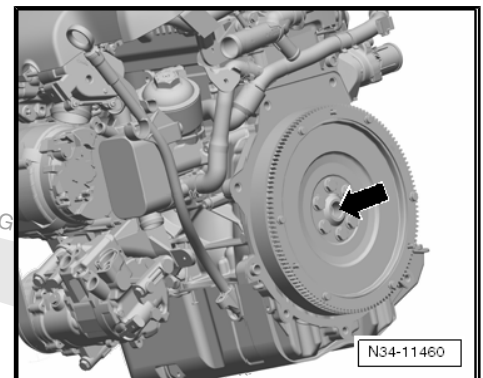
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .



- Renew needle bearing in crankshaft => Rep. gr. 13 ; Crankshaft group .
- Install right flange shaft again.

Torque setting 30 Nm

Installing gearbox => [page 276](#) .

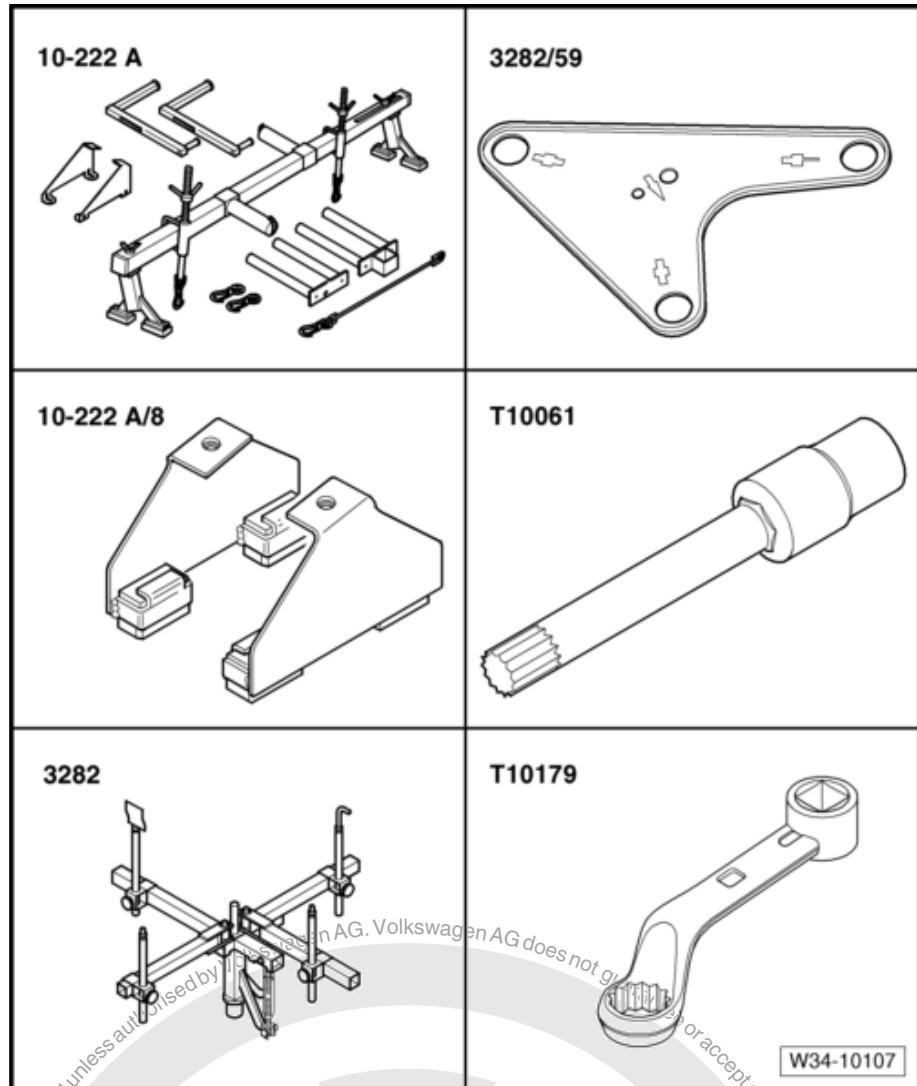




13.15 Removing gearbox, Golf Plus 2009 >, 1.6 l - 75 kW - petrol engine

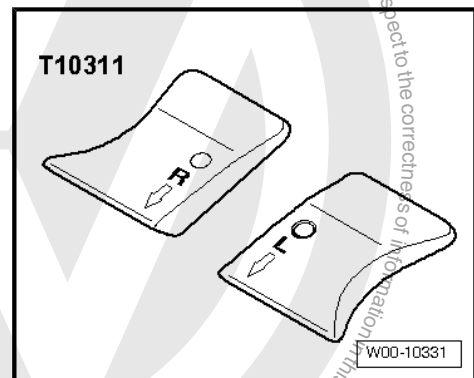
Special tools and workshop equipment required

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



Special tools and workshop equipment required

- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-
- ◆ Wing supports -T10311-



Brief description

The gearbox is removed downwards separately, without engine.
»From above«



Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- 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. 24 ; Removing and installing air filter .
- Remove battery and -battery tray- => Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter => Electrical system; Rep. gr. 27 ; Removing and installing starter .

- Remove selector lever cable from ball head, remove securing clip.

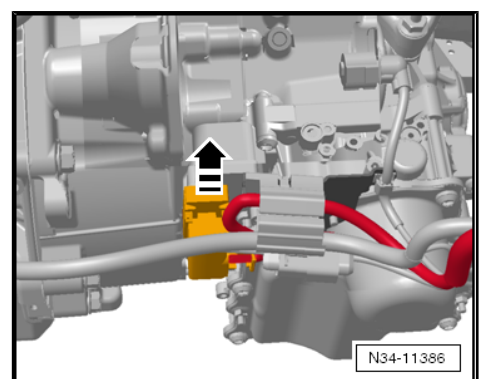
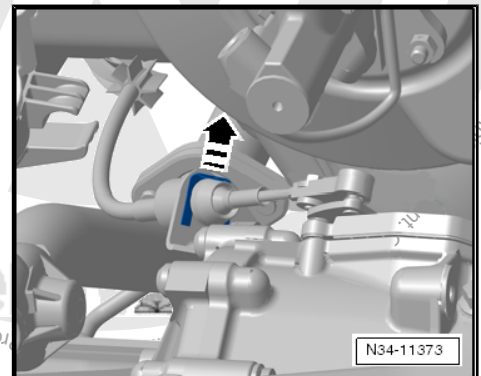
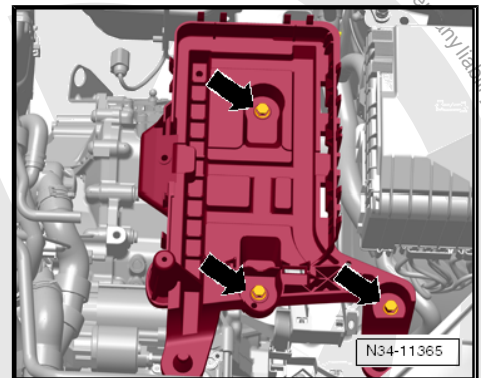
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

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

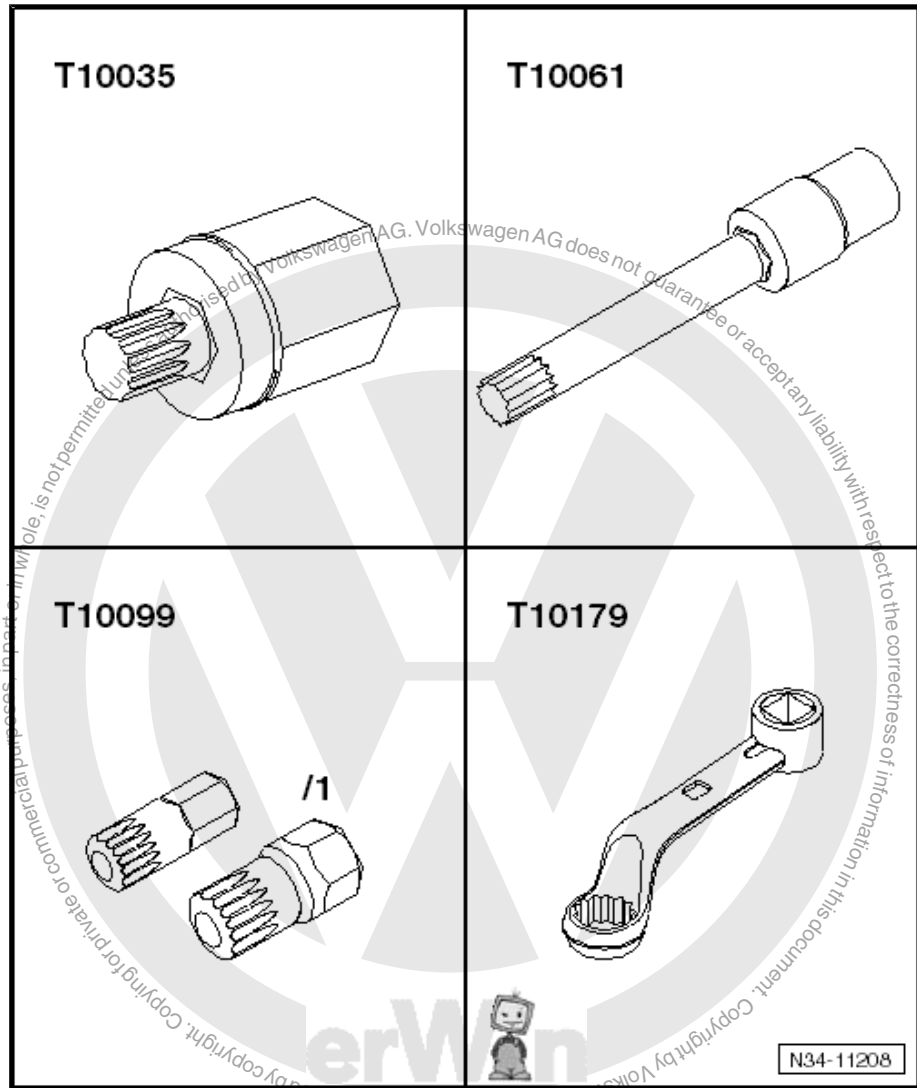
Remove cable with great care from cable support bracket on gearbox. Do not bend it.

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.



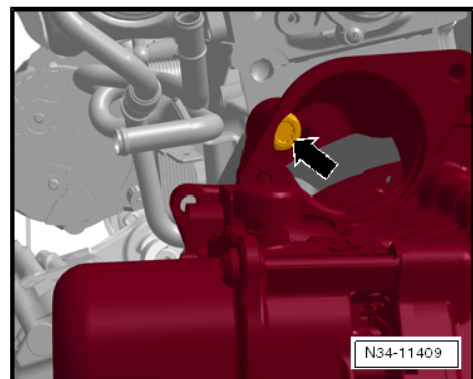
These tools are appropriate for this.



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

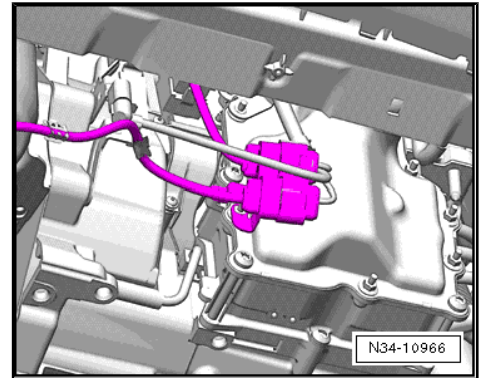
- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front left part of wheel housing liner ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing liner .

Remove pre-volume tank together with its intake air duct ⇒ Rep. gr. 24 ; Assembly overview - air filter with ancillaries .

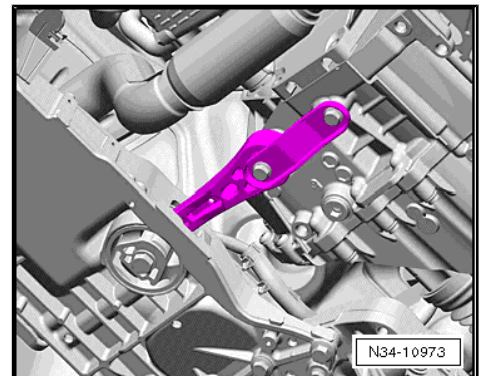




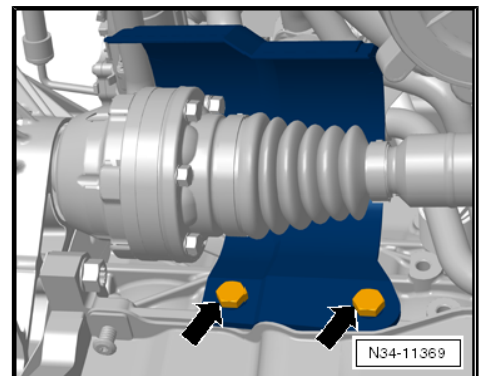
- Remove all retainers and brackets from front of gearbox.



- Remove pendulum support.



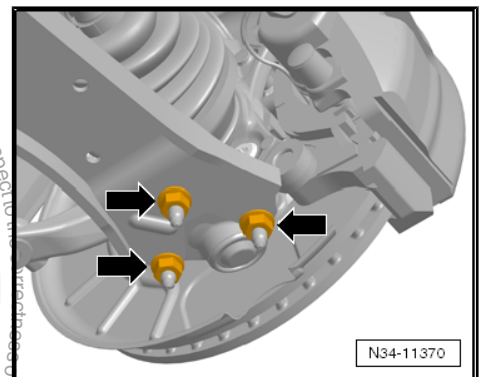
- If fitted, remove the heat shield over the right-hand drive shaft.
Tightening torque => Rep. gr. 40 ; Repairing drive shafts
- Disconnect left coupling rod from anti-roll bar => Rep. gr. 40 ;
Assembly overview - subframe, anti-roll bar, suspension links .



- Only unbolt left suspension link from suspension strut.

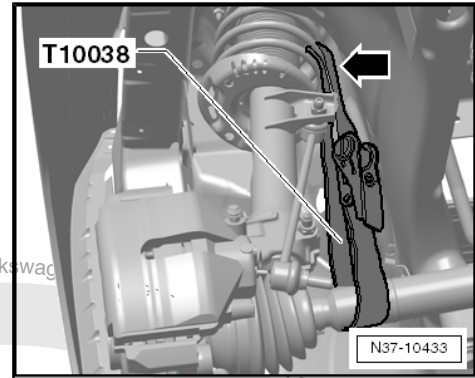
Both centre bolts of shafts remain installed.

- Unbolt both drive shafts from gearbox and carefully lay to side.
=> Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts
- Swing left drive shaft into wheel housing.



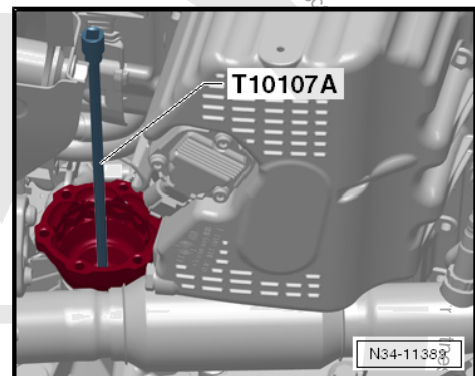


Shafts are fixed to suspension struts using tensioning belts - T10038- .



- Remove right flange shaft of gearbox using socket -T10107 A- .

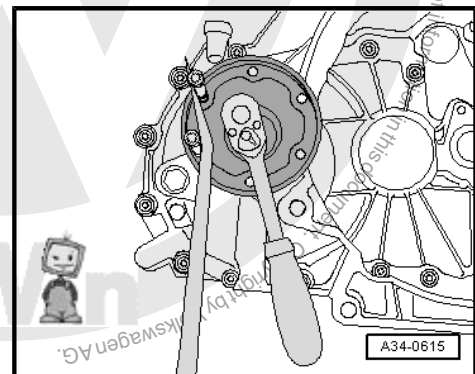
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669-



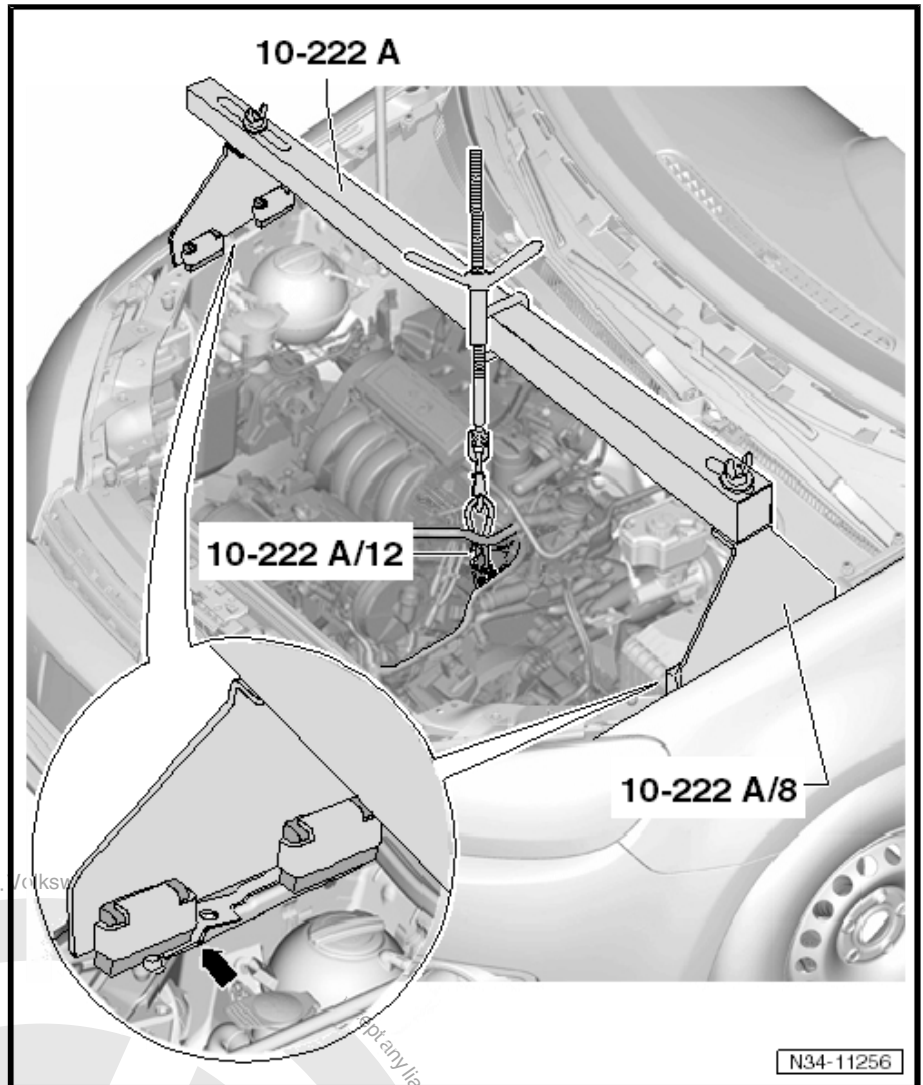
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

Torque setting 30 Nm

- If there are hose and cable connections in area of engine support eyes for support bracket -10-222A- , remove these now.



- Support engine and gearbox. Do not raise.



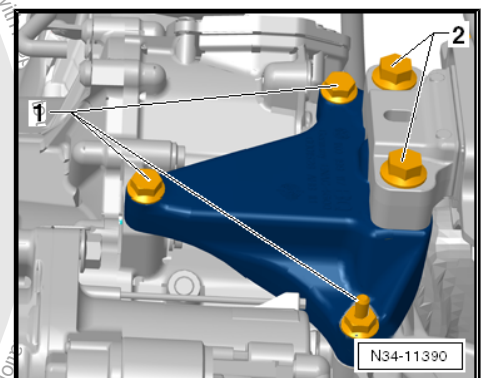
Remove all bolts -1- and -2- for bracket.

- 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.

- Set up gearbox support -3282- with adjustment plate -3282/59- .

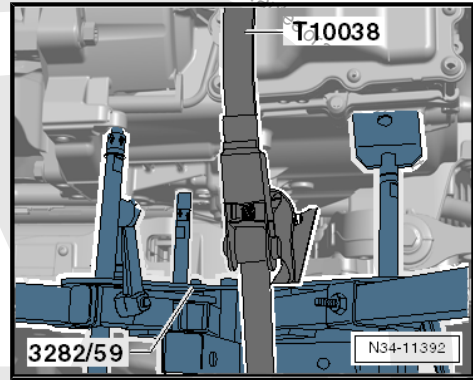




- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

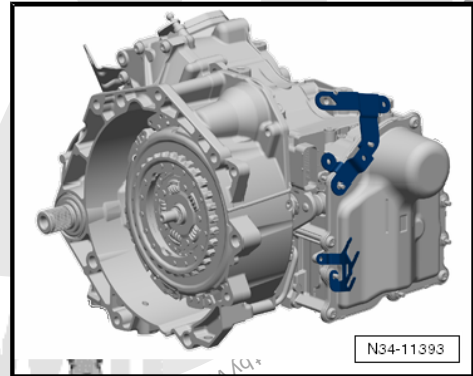


In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

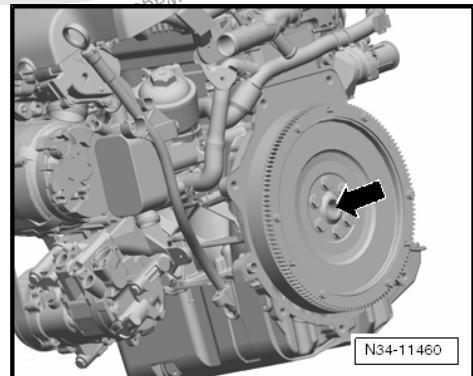
Gearbox with flange shafts, torque setting ⇒ [page 379](#)

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



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#) .

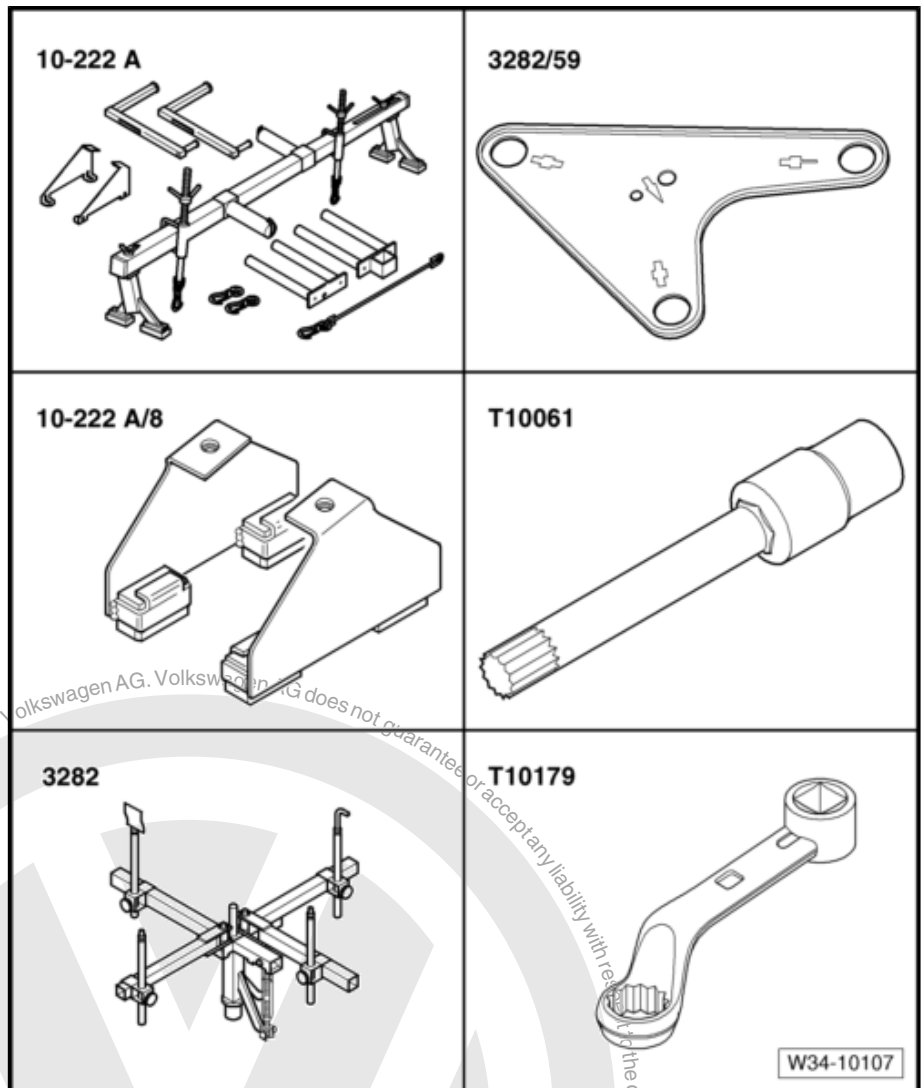




13.16 Removing gearbox; Scirocco 2009 >, 1.4 l - 118 kW - TSI engine

Special tools and workshop equipment required

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



Special tools and workshop equipment required

- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-

Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, cover in front left wheel housing and pendulum support.

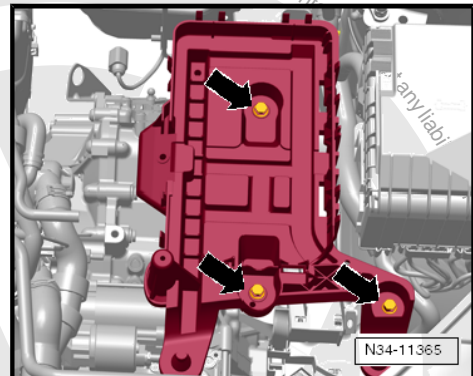
Drive shafts are removed from gearbox and swivelled to side.
Right drive shaft flange is removed from gearbox. Subframe and drive shafts remain in vehicle.

Removing:

- 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. 24 ; Removing and installing air filter .
- Remove battery and -battery tray -> Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter => Electrical system; Rep. gr. 27 ; Removing and installing starter .



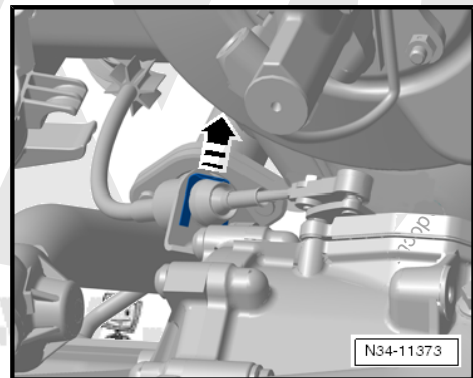
- Remove selector lever cable from ball head, remove securing clip.

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.

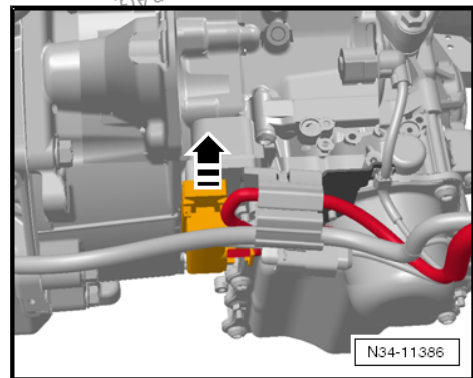
- Therefore, when installing, always use a »new« securing clip.

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

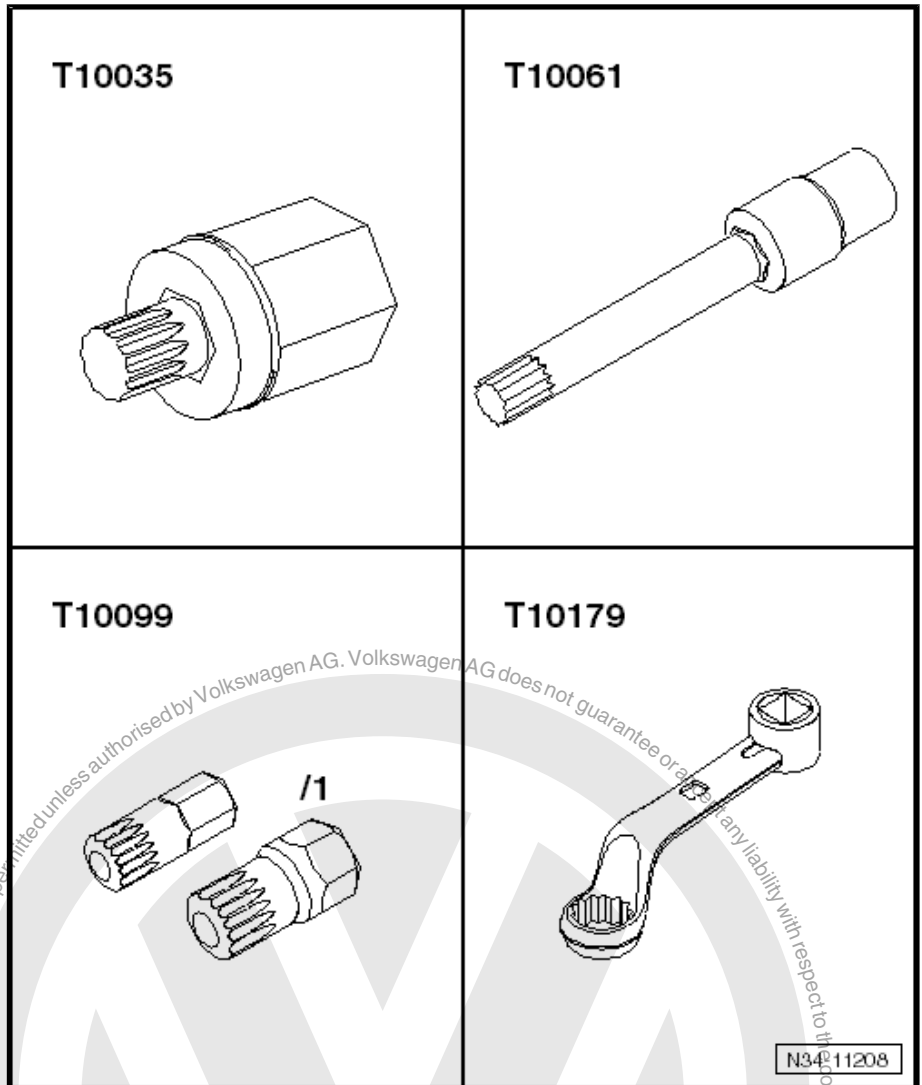
Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.



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

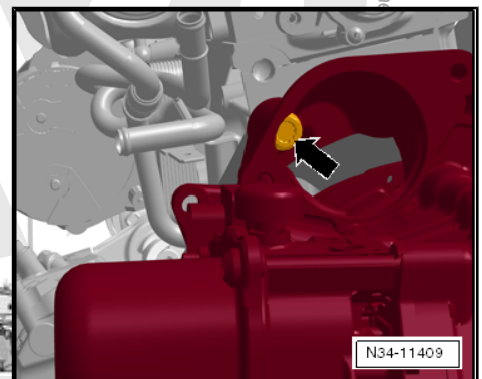


These tools are appropriate for this.



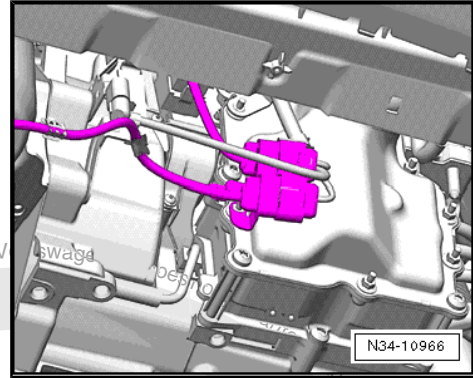
A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.

- Remove noise insulation → Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove left wheel housing liner → Rep. gr. 66 ; Assembly overview - front wheel housing liner .





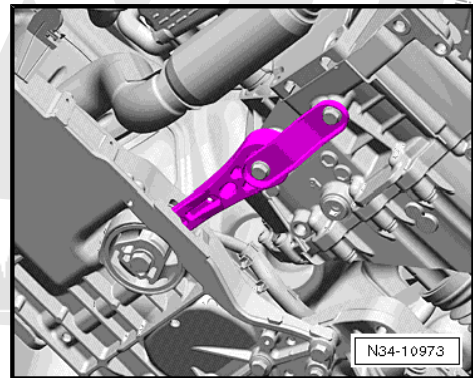
- Remove all retainers and brackets from front of gearbox.



- Remove charge air line.



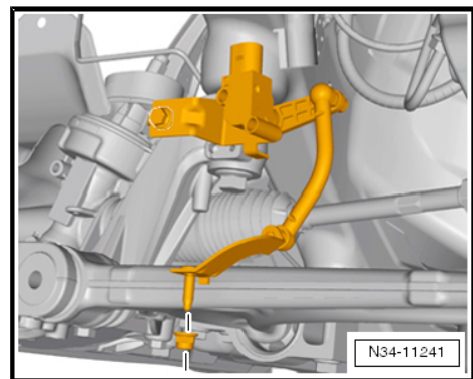
- Remove pendulum support.



- Unbolt front left vehicle level sender -G78- from suspension link.

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

- Disconnect left coupling rod from anti-roll bar ⇒ Rep. gr. 40 ;
Assembly overview - subframe, anti-roll bar, suspension links .

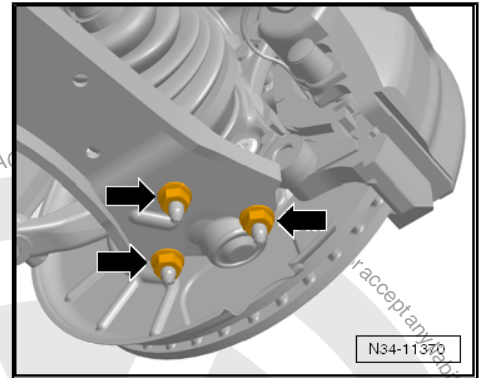




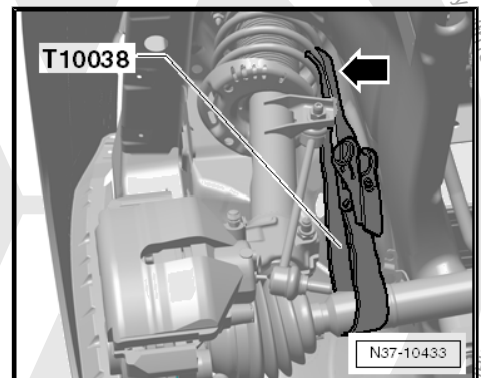
- Only unbolt left suspension link from suspension strut.

Both centre bolts of shafts remain installed.

- Unbolt both drive shafts from gearbox and carefully lay to side.
=> Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts
- Swing left drive shaft into wheel housing.

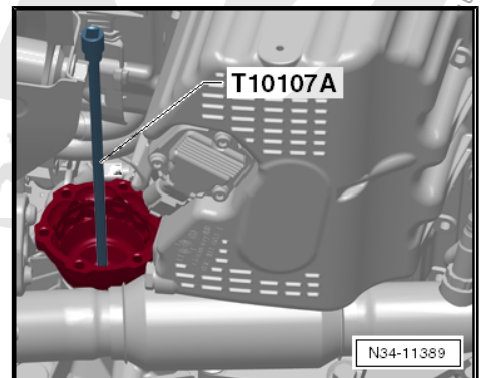


Shafts are fixed to suspension struts using tensioning belts - T10038- .



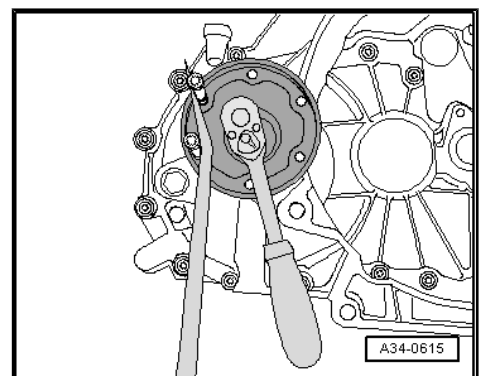
- Remove right flange shaft of gearbox using socket -T10107 A- .

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



- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

Torque setting 30 Nm

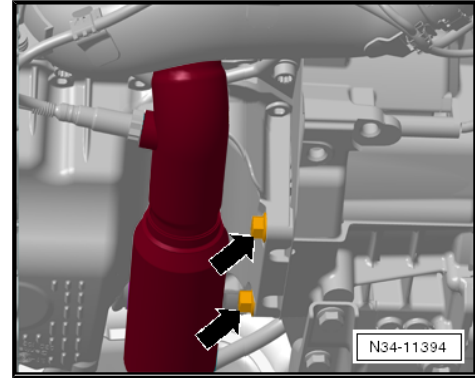




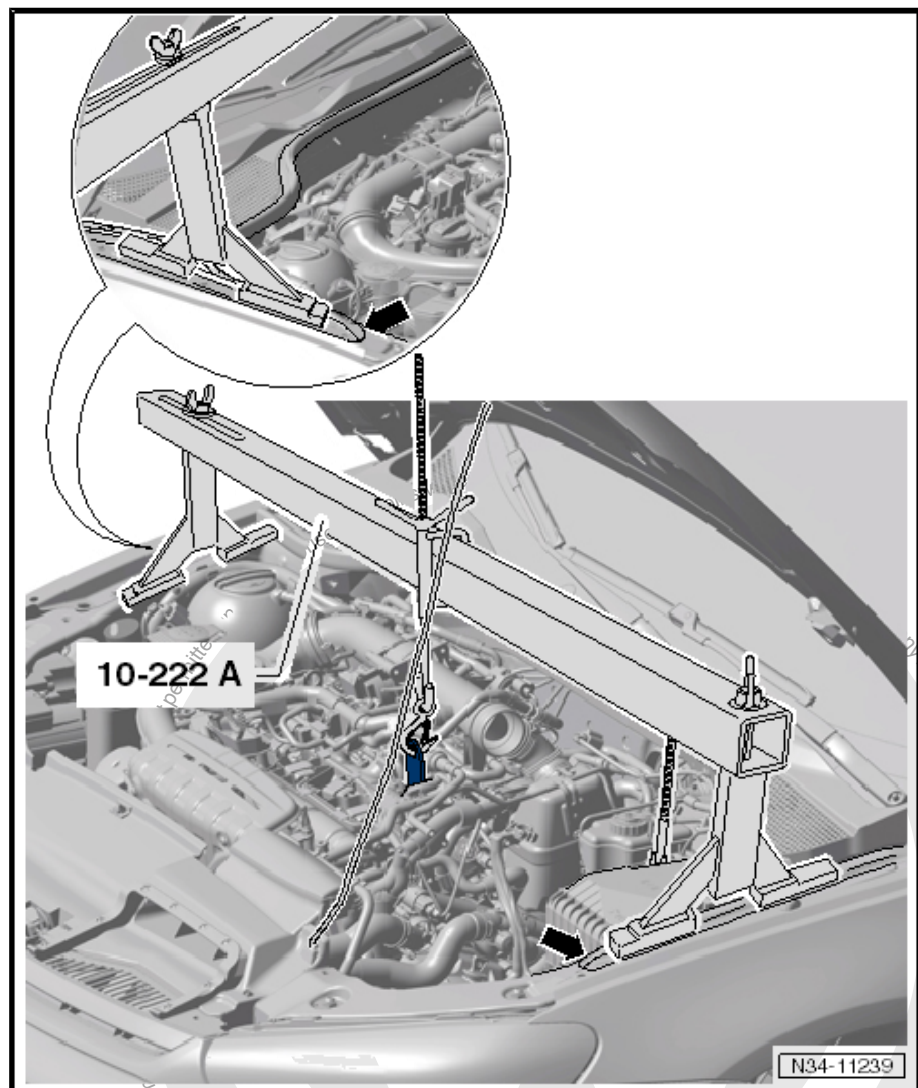
- Disconnect front exhaust pipe from catalytic converter so that lower engine/gearbox connecting bolts -arrows- can be removed => Rep. gr. 26 ; Removing and installing parts of exhaust system .

This allows lower bolts to be removed.

- Fold up filler pieces of upper edges of both wings.



- Set support bracket on raised portion of upper longitudinal member.



- Support engine and gearbox. 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.

- Set up gearbox support -3282- with adjustment plate -3282/59- .

- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.

- Position plate of pin under gearbox housing, not under mechatronic unit.

- Screw a pin into »rear« hole for pendulum support.

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.

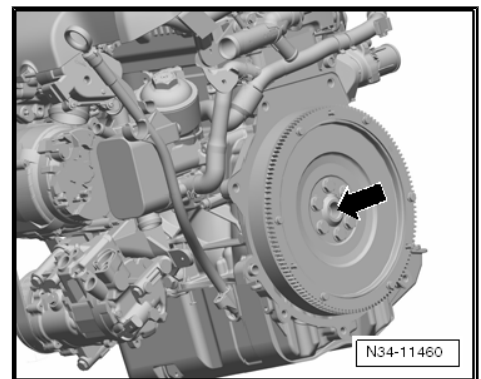
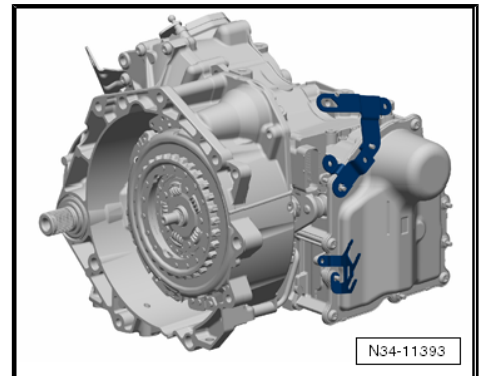
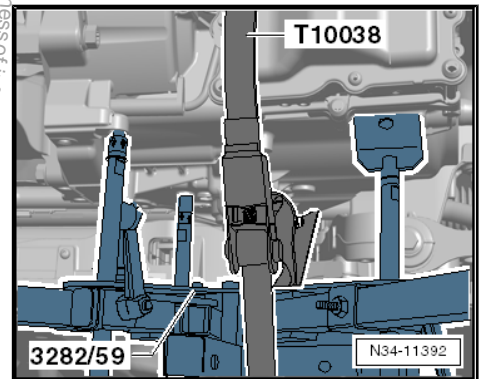
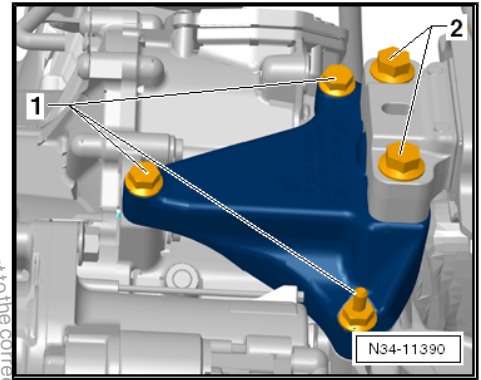
In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

Gearbox with flange shafts, torque setting => [page 379](#)

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

- Renew needle bearing in crankshaft => Rep. gr. 13 ; Crankshaft group .



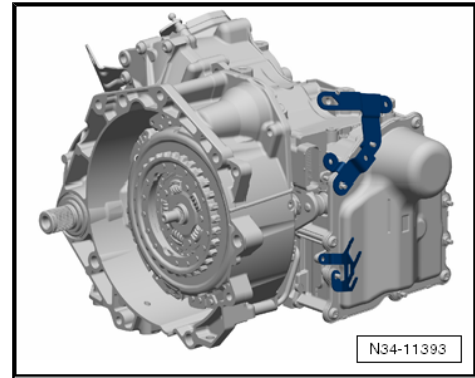


In some cases, there are retainers on the front of the gearbox.

- Remove retainer if a »new« gearbox is being installed. A »new« gearbox does not have any retainers.
- Install right flange shaft again.

Torque setting 30 Nm

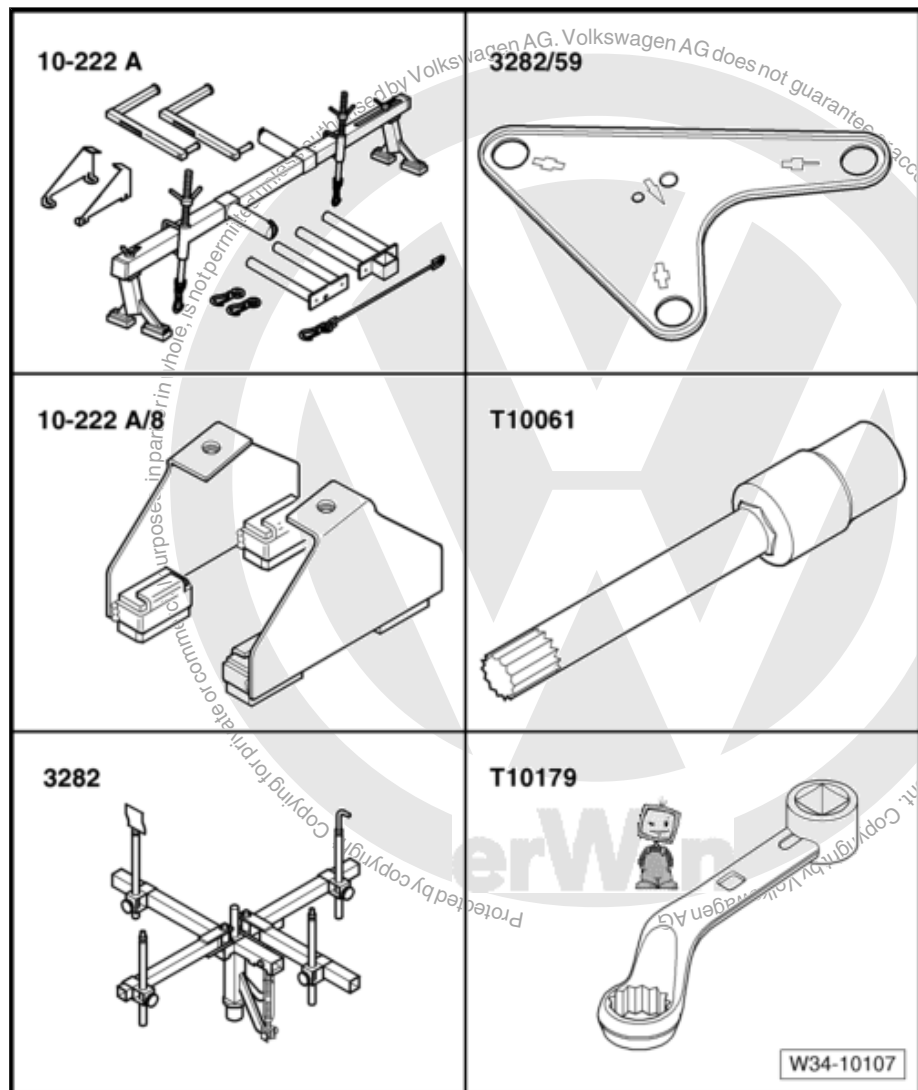
Installing gearbox ⇒ [page 276](#) .



13.17 Removing gearbox; Golf 2009 ▶, 1.6 l - 75 kW - petrol engine

Special tools and workshop equipment required

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



Special tools and workshop equipment required

- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-

Brief description

The gearbox is removed downwards separately, without engine.
»From above«



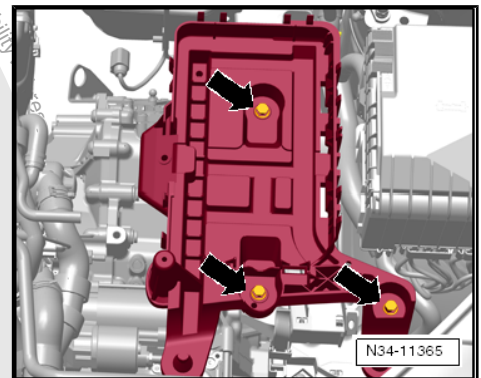
Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Follow the instructions for different vehicles => [page 111](#)
- 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 => Electrical system; Rep. gr. 27 ; Removing and installing starter .



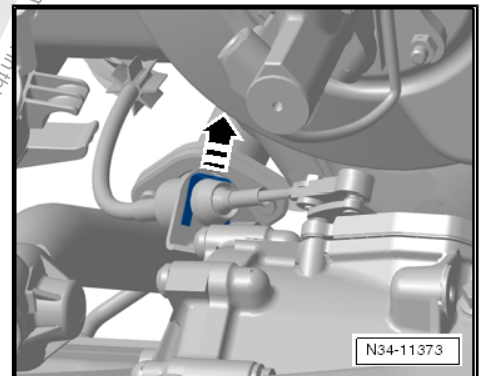
- Remove selector lever cable from ball head, remove securing clip.

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.

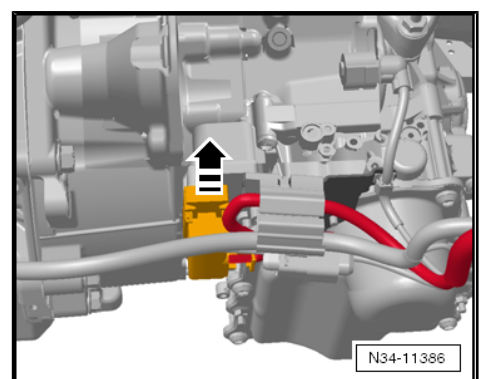
- Therefore, when installing, always use a »new« securing clip.

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

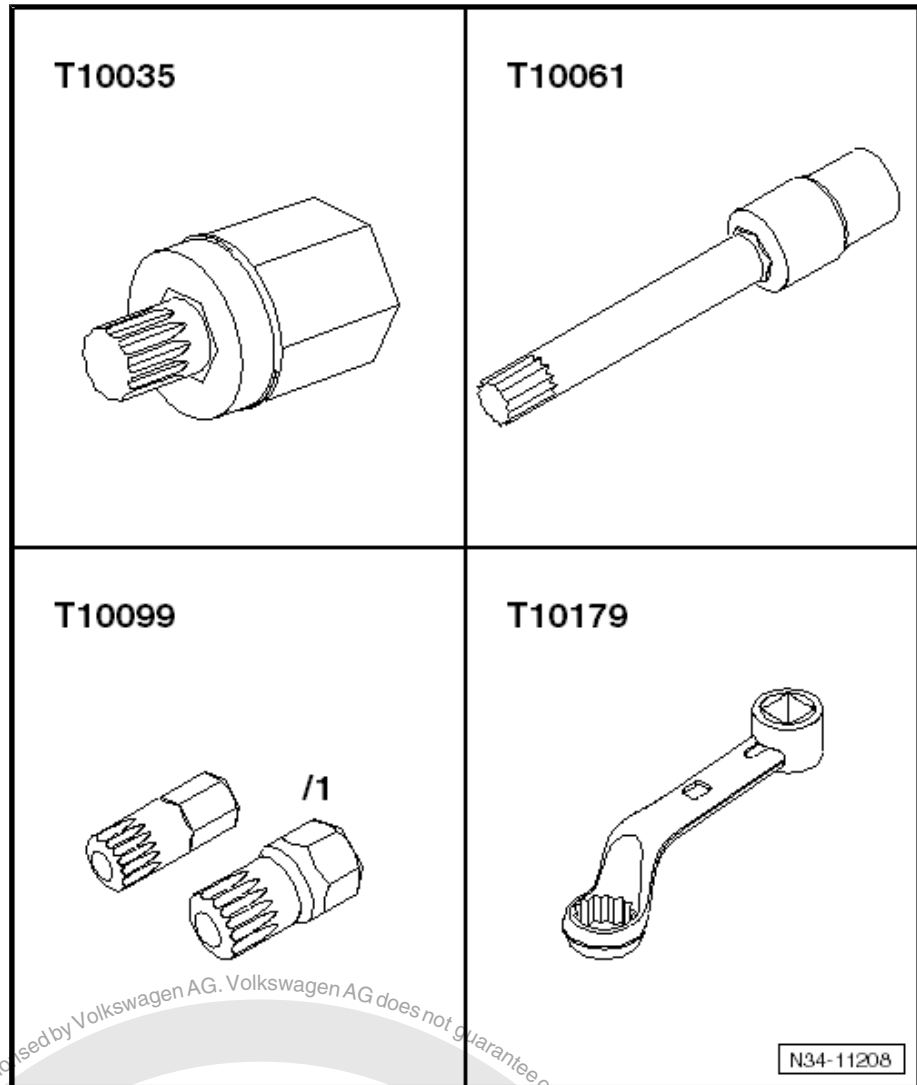
Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.



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

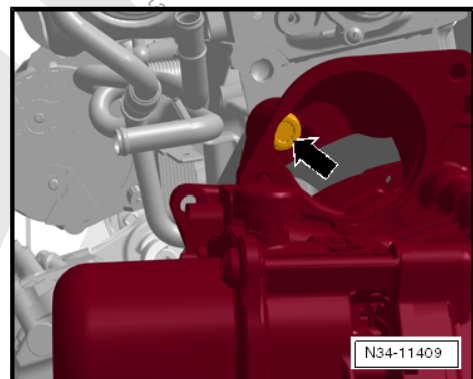


These tools are appropriate for this.



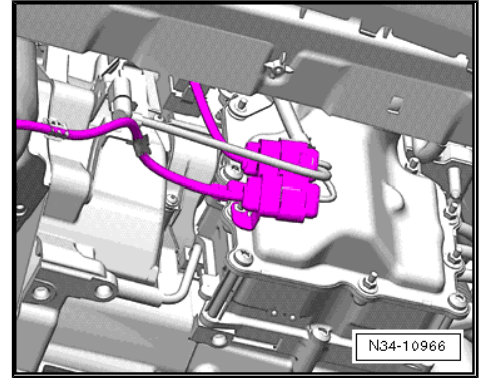
A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.

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

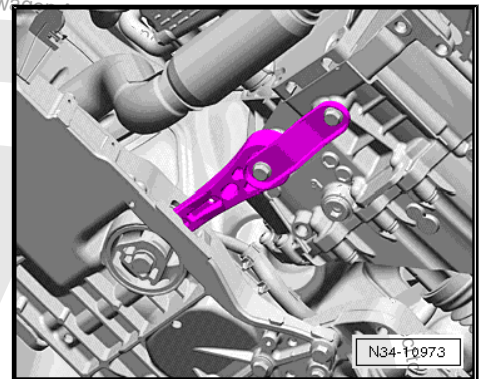




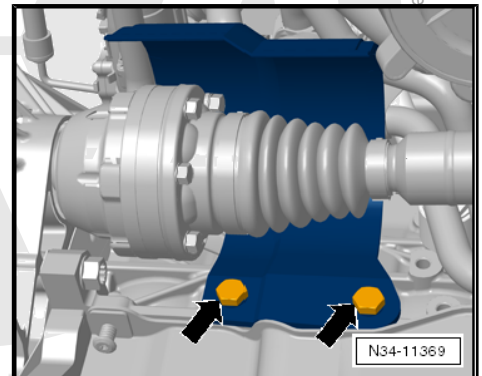
- Remove all retainers and brackets from front of gearbox.



- Remove pendulum support.

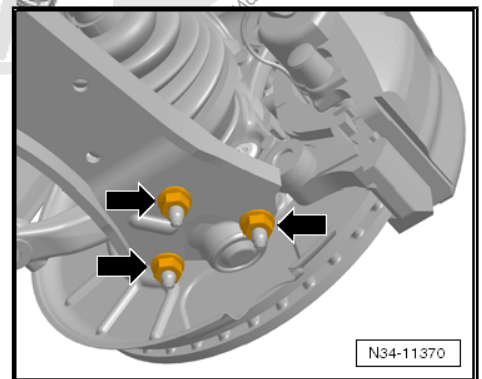


- If fitted, remove the heat shield over the right-hand drive shaft.
Tightening torque => Rep.gr. 40 ; Repairing drive shafts



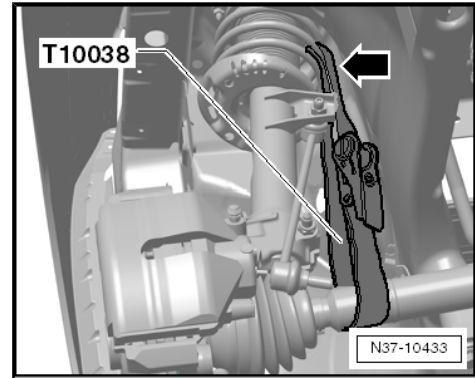
- Only unbolt left suspension link from suspension strut.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

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.



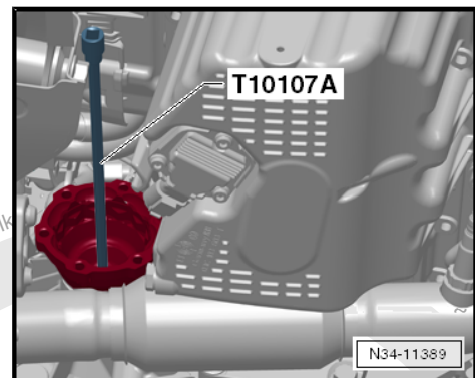


Secure both drive shafts to suspension struts using tensioning straps -T10038- .

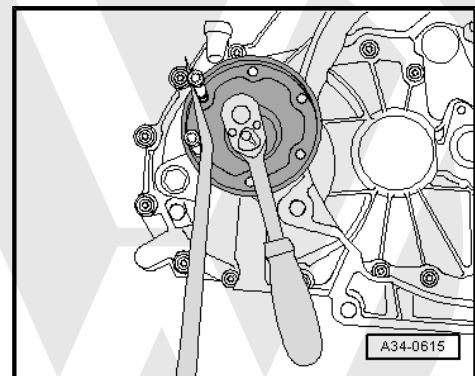


- Remove right flange shaft of gearbox using socket -T10107 A- .

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



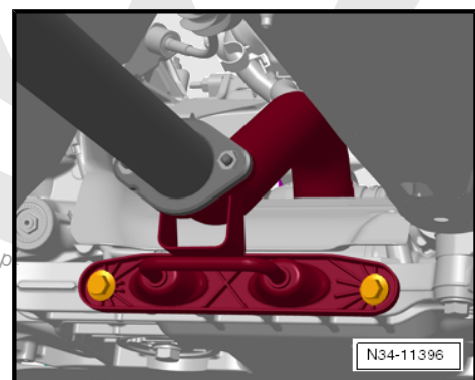
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.



Torque setting 30 Nm

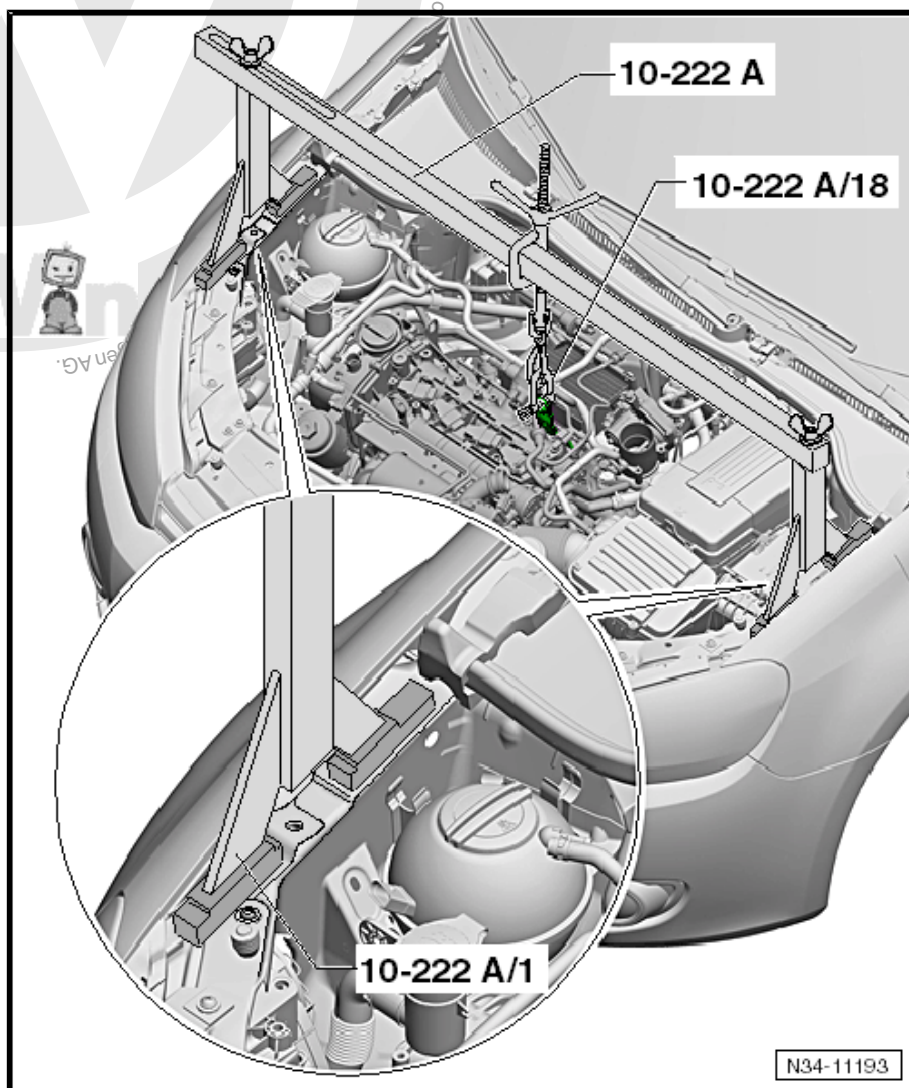
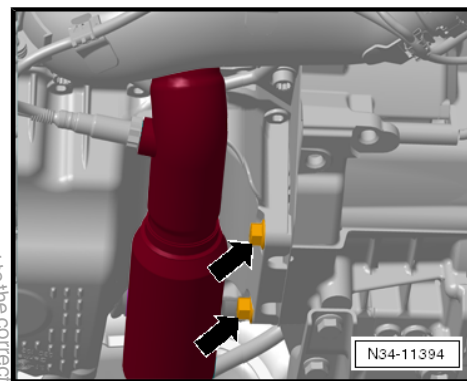
Continuation for all vehicles

- Unbolt exhaust system bracket from subframe → Rep. gr. 26 ; Removing and installing parts of exhaust system .





- Disconnect front exhaust pipe from catalytic converter, so that lower engine/gearbox connecting bolts -arrows- can be removed => Rep. gr. 26 ; Removing and installing parts of exhaust system .
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222A- , remove these now.



- Support engine and gearbox. 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.

- Set up gearbox support -3282- with adjustment plate -3282/59- .

- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

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

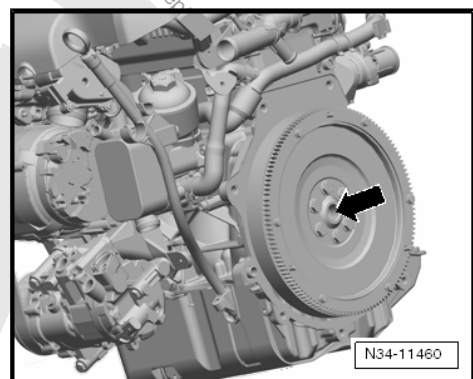
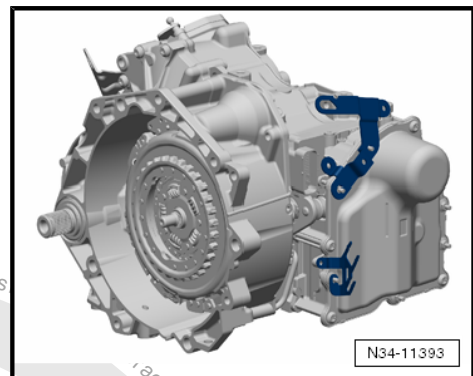
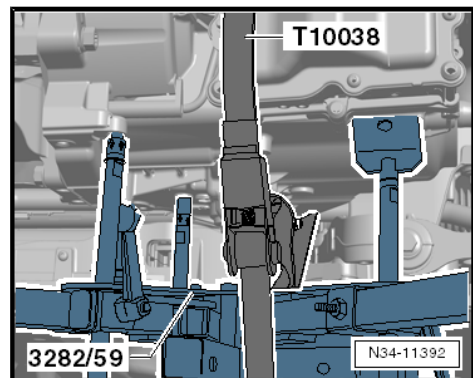
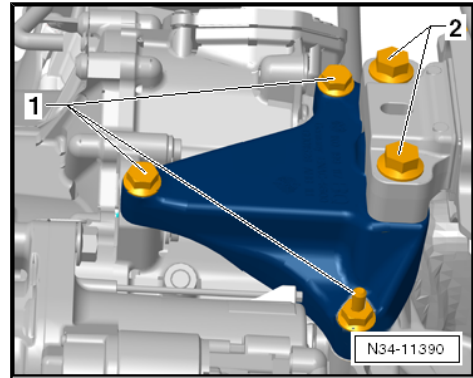
- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

Gearbox with flange shafts, torque setting ⇒ [page 379](#)

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

- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#) .

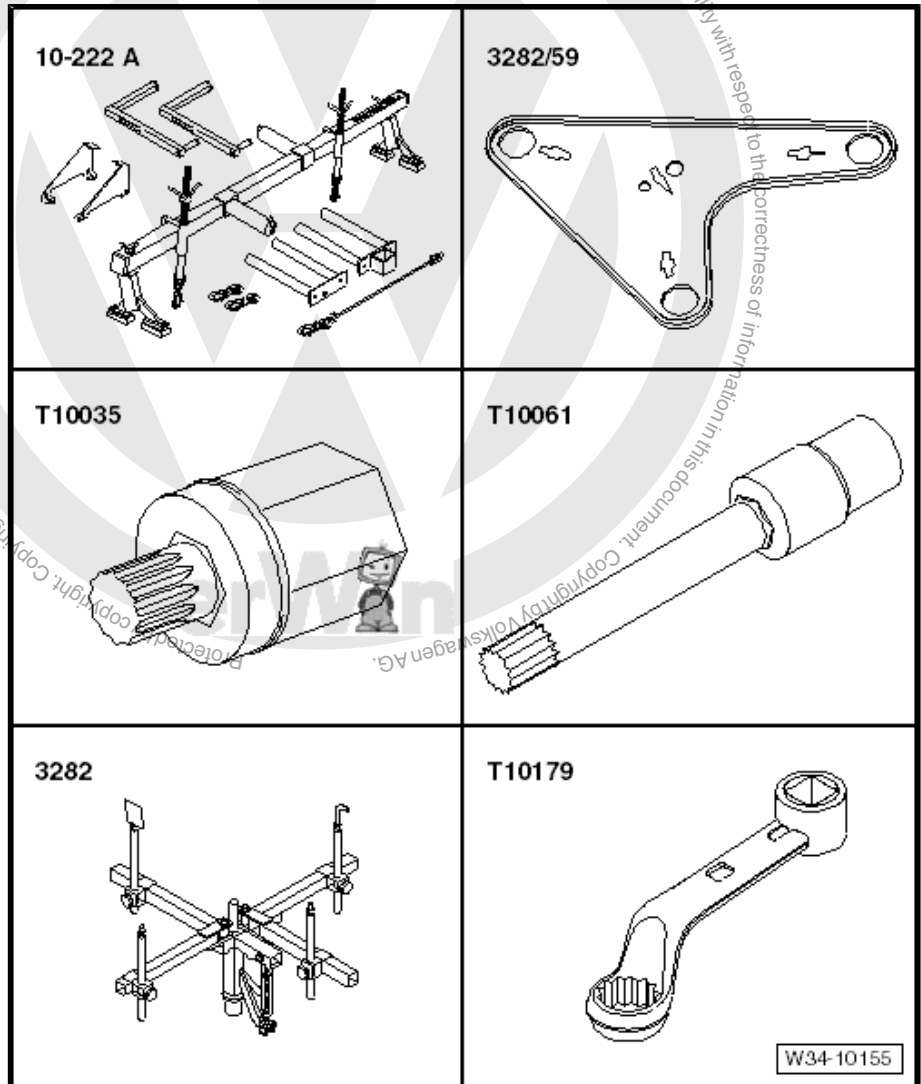




13.18 Removing gearbox; Golf 2009 >, 1.4 I - 90 and 118 kW - petrol engine

Special tools and workshop equipment required

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



Special tools and workshop equipment required

- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-

Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Follow the instructions for different vehicles => [page 111](#) .



Only in vehicles with stub shafts



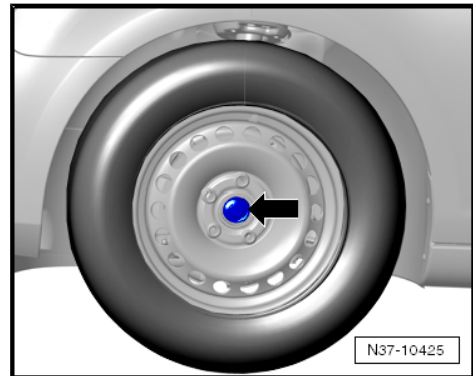
Note

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

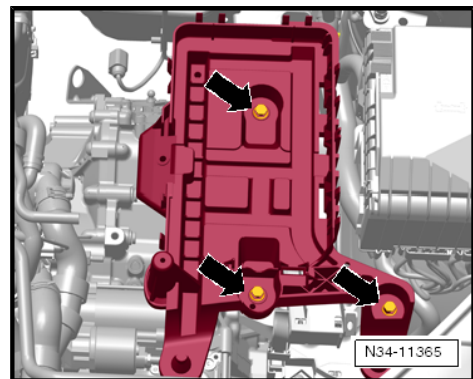
- Step on the brake pedal while a 2nd mechanic loosens the two drive shaft bolts -arrow-.
- Remove both front wheels.

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 => Electrical system; Rep. gr. 27 ; Removing and installing starter .



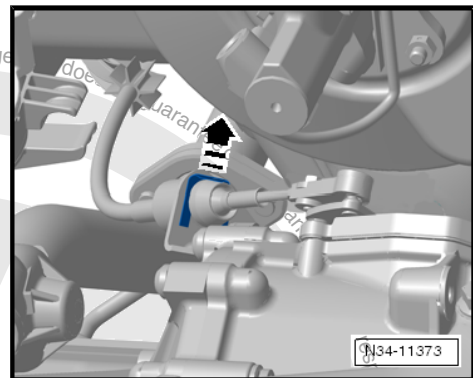
- Remove selector lever cable from ball head, remove securing clip.

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.

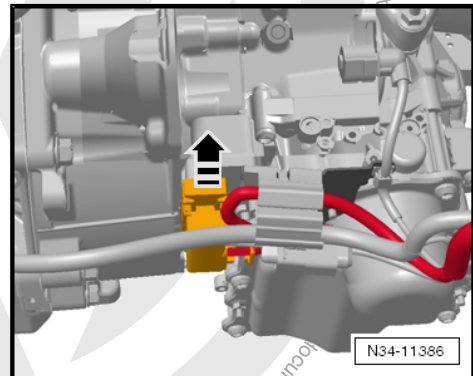
- Therefore, when installing, always use a »new« securing clip.

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

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.



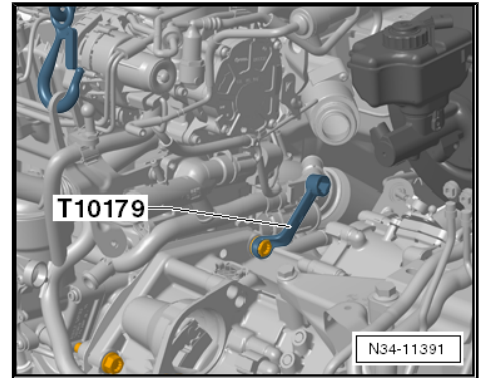
- Release mechatronic unit connector by pulling and pull off connector.



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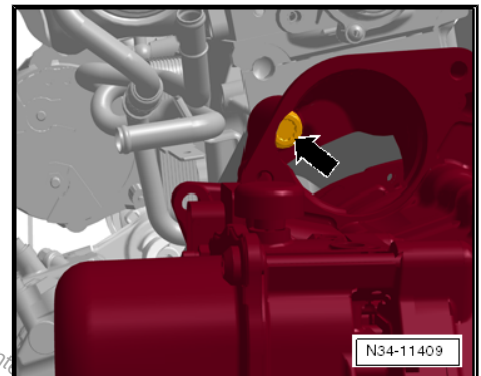


- Remove upper engine/gearbox connecting bolts.

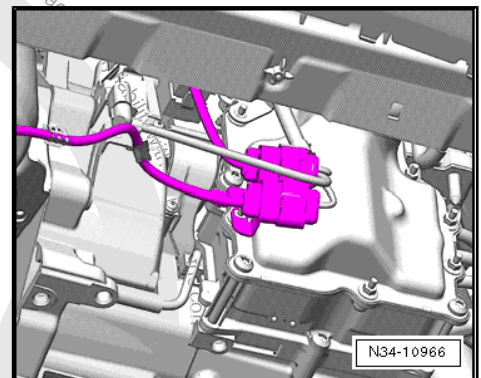


A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.

- 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.

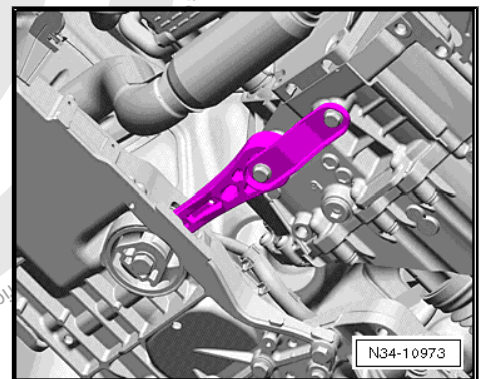


- Remove pendulum support.

Only in vehicles with stub shafts

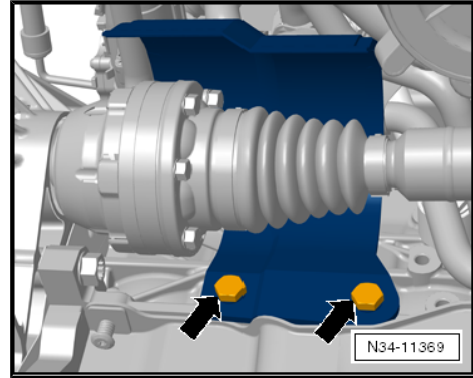
- Remove both drive shafts => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .

Only in vehicles with flange shafts



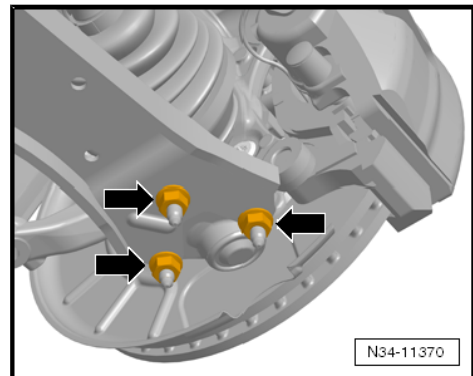


- If fitted, remove the heat shield over the right-hand drive shaft.
Tightening torque => Rep. gr. 40 ; Repairing drive shafts

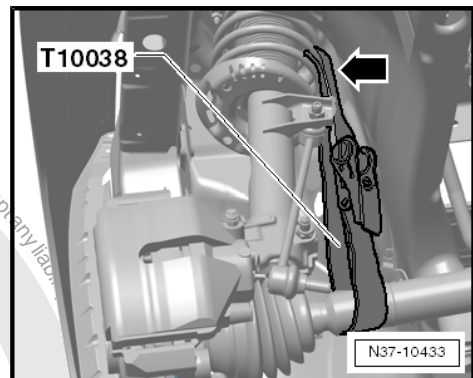


- Unbolt left suspension link from suspension strut.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

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.

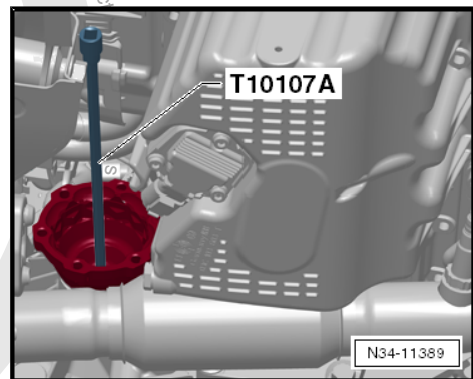


Secure both drive shafts to suspension struts using tensioning straps -T10038- .



- Remove right flange shaft of gearbox using socket -T10107 A- .

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

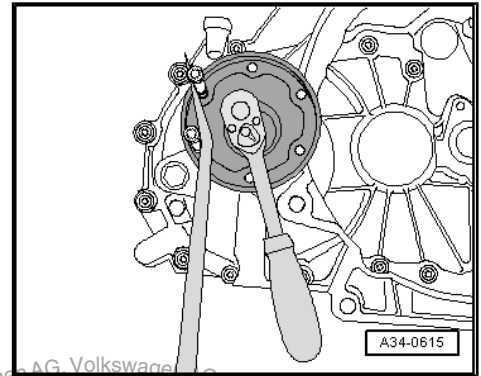




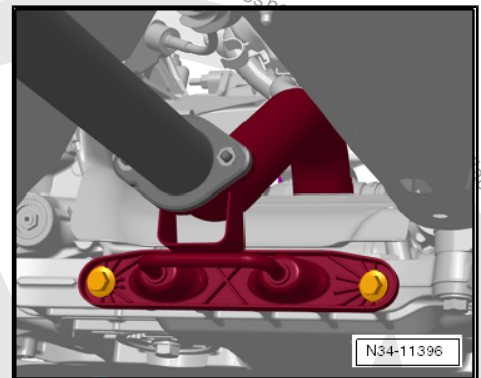
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

Torque setting 30 Nm

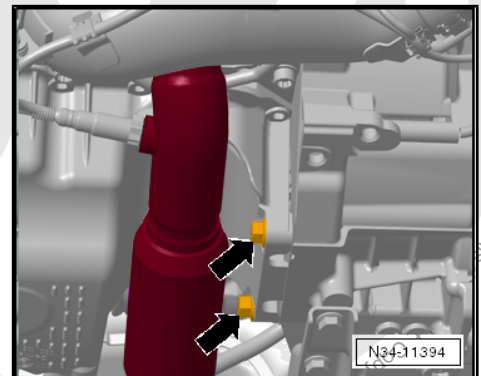
Continuation for all vehicles

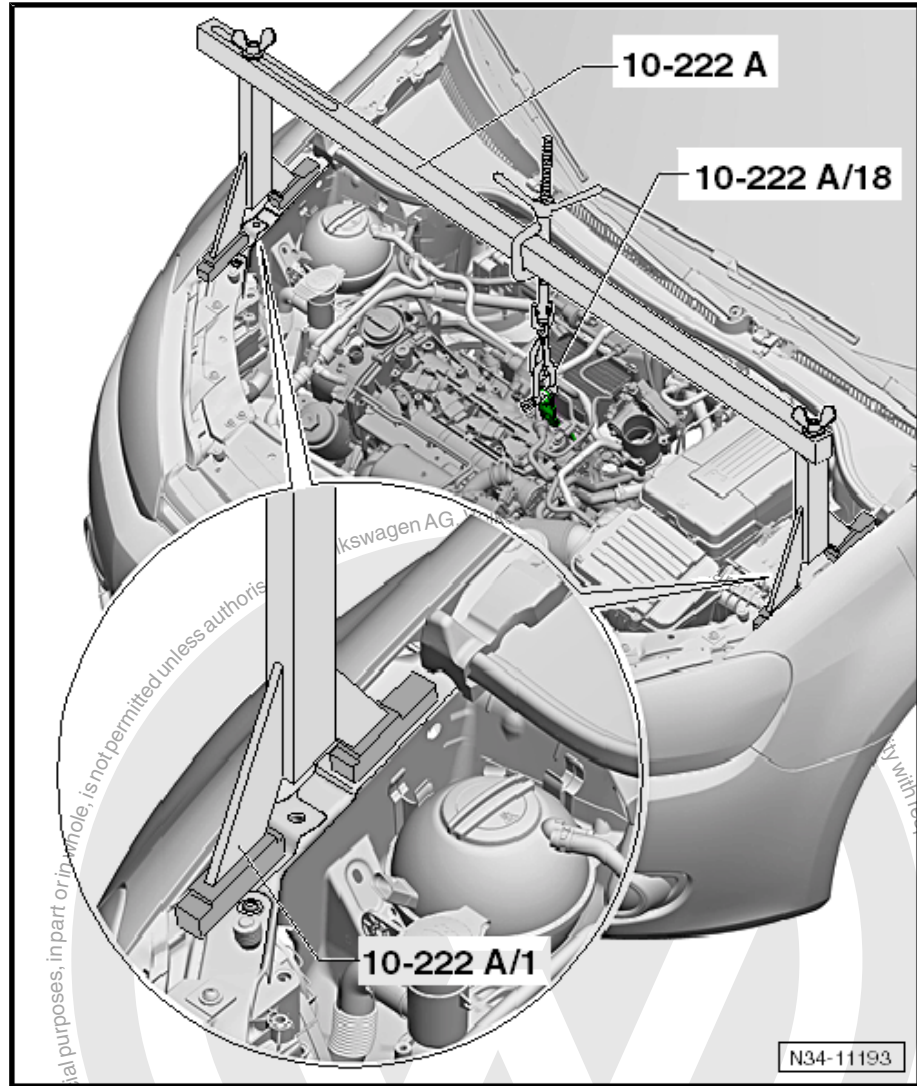


- Unbolt exhaust system bracket from subframe ⇒ Rep. gr. 26 ; Removing and installing parts of exhaust system .

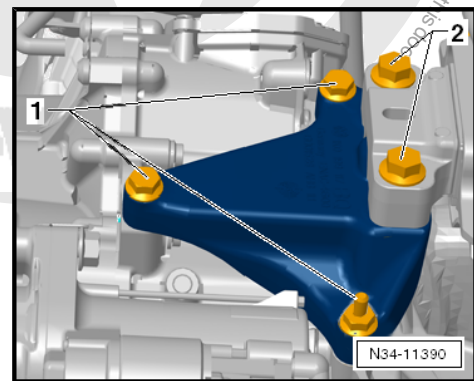


- Disconnect front exhaust pipe from catalytic converter so that lower engine/gearbox connecting bolts -arrows- can be removed ⇒ Rep. gr. 26 ; Removing and installing parts of exhaust system .
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222A- , remove these now.





- Support engine and gearbox. 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.
- Set up gearbox support -3282- with adjustment plate -3282/59- .

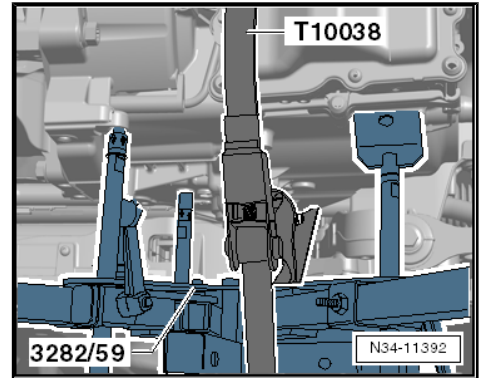




- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

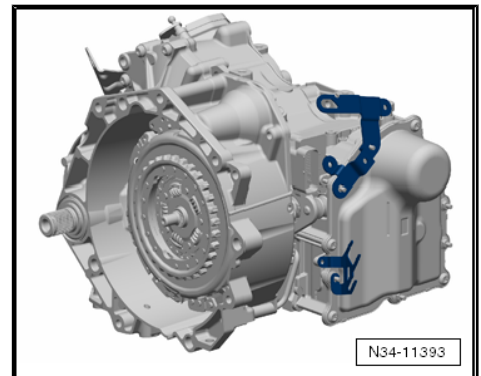


In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

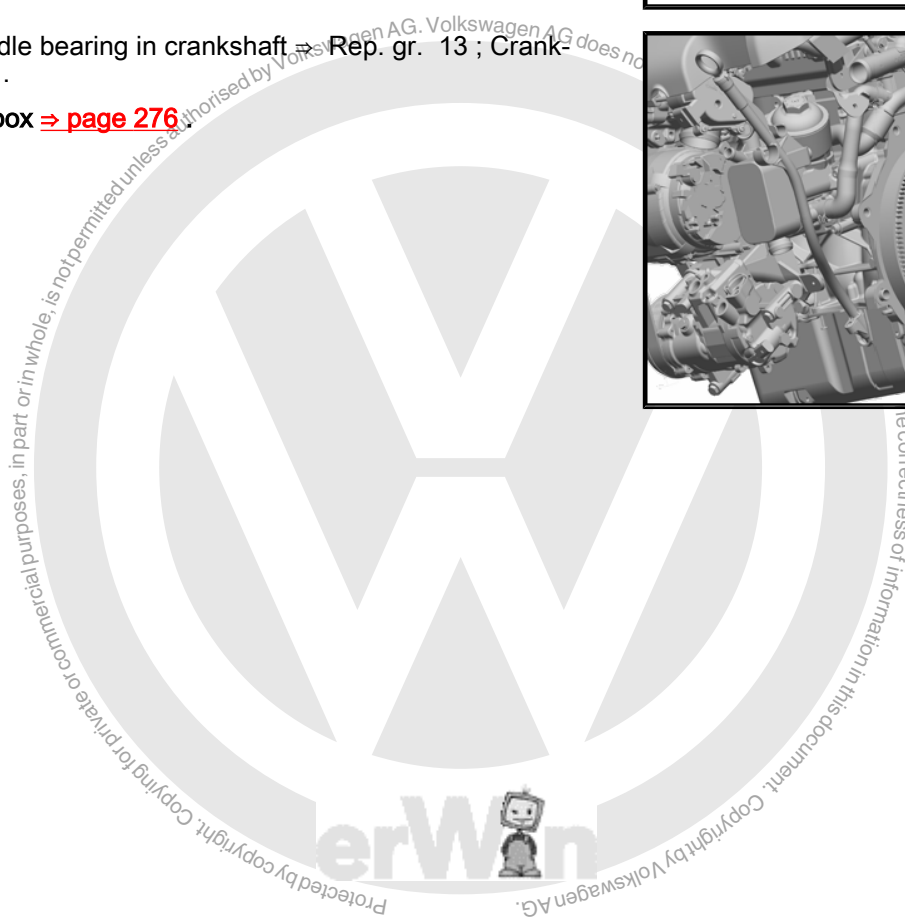
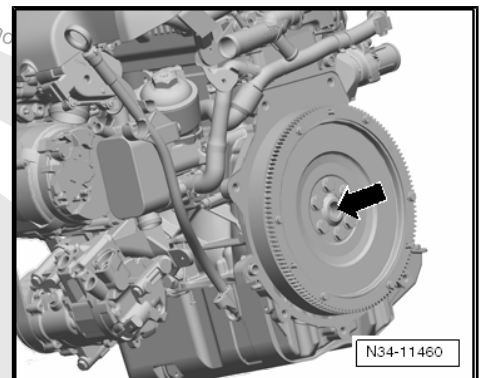
Gearbox with flange shafts, torque setting ⇒ page 379

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



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ page 276

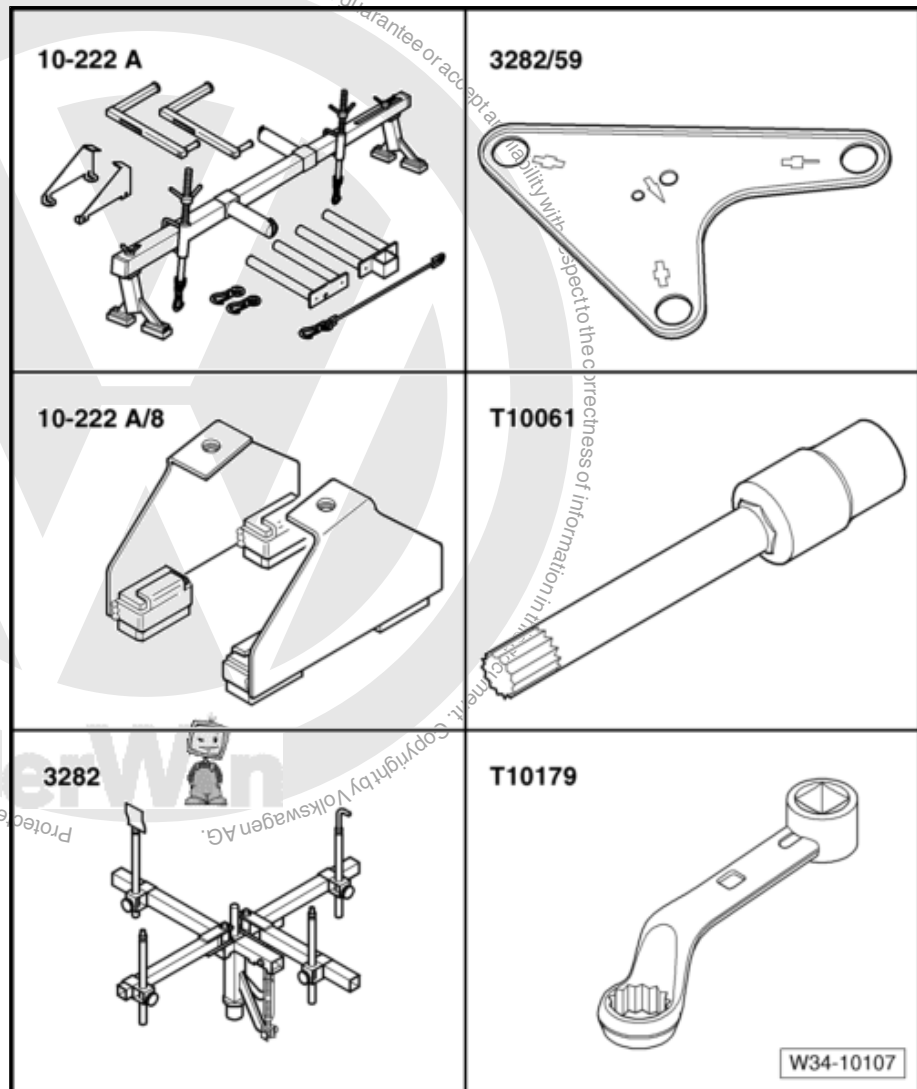




13.19 Removing gearbox; Golf 2004 ▶, Golf Plus 2005 ▶ and Cross Golf 1.4 I - 90, - 118 kW - TSI engine

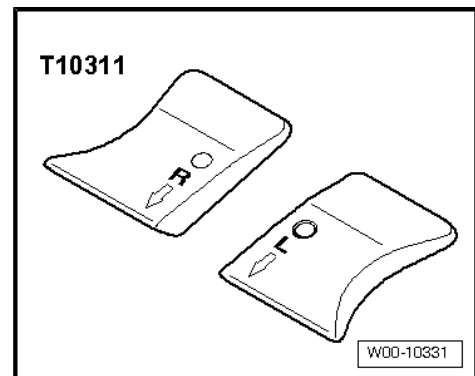
Special tools and workshop equipment required

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



Special tools and workshop equipment required

- ◆ Golf Plus and Cross Golf only: wing support -T10311-



- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-



Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- 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



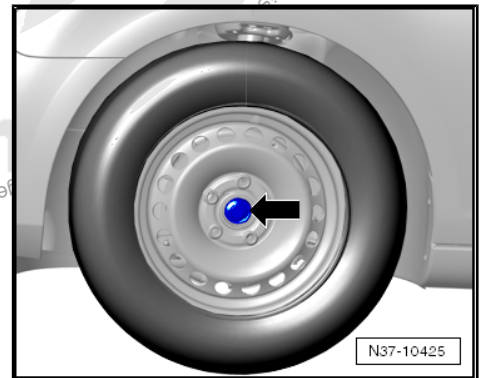
Note

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

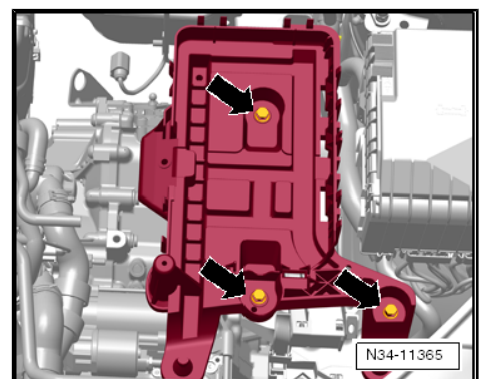
- Step on the brake pedal while a 2nd mechanic loosens the two drive shaft bolts -arrow-.
- Remove both front wheels.

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 ⇒ Electrical system; Rep. gr. 27 ; Removing and installing starter .



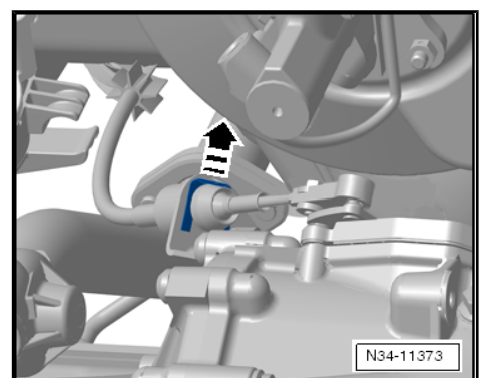
- Remove selector lever cable from ball head, remove securing clip.

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.

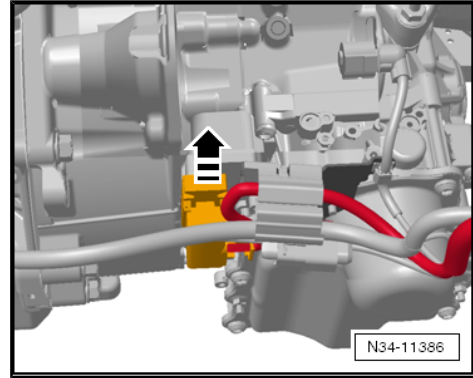
Remove cable with great care from cable support bracket on gearbox. Do not bend it.

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.



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

These tools are also suitable:

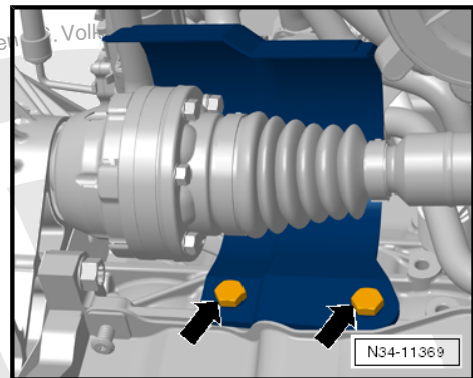
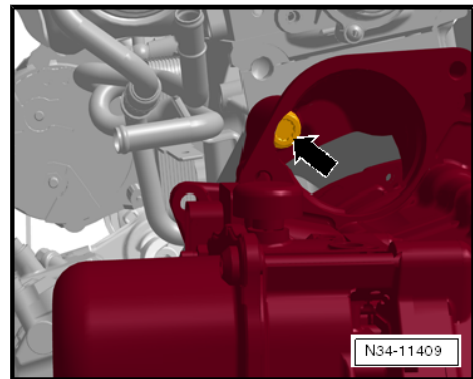
- ◆ Socket -T10061-
- ◆ Bit -T10099/1-
- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing .

Only in vehicles with stub shafts

- Remove both drive shafts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .

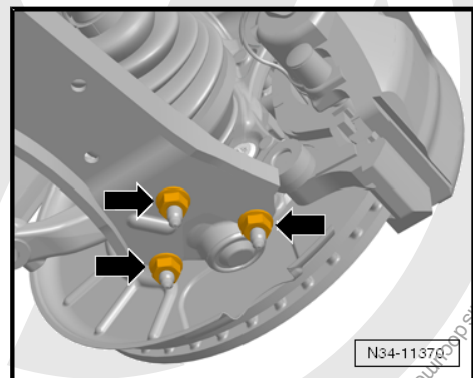
Only in vehicles with flange shafts

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



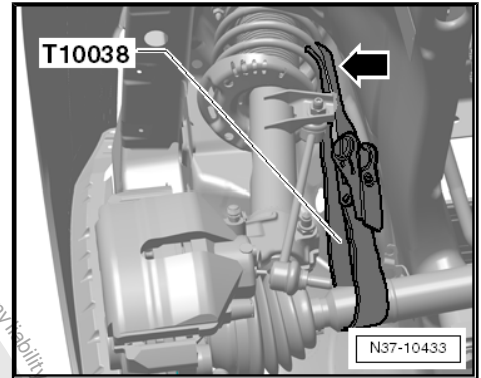
- Unbolt left suspension link from suspension strut.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

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.



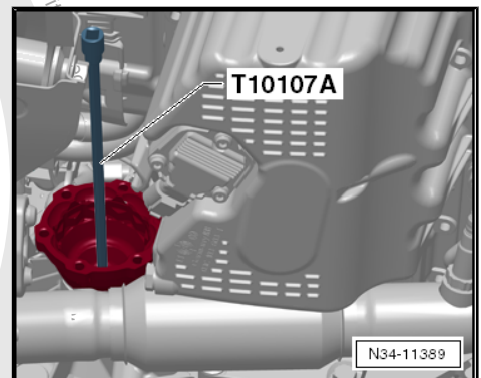


Secure both drive shafts to suspension struts using tensioning straps -T10038- .

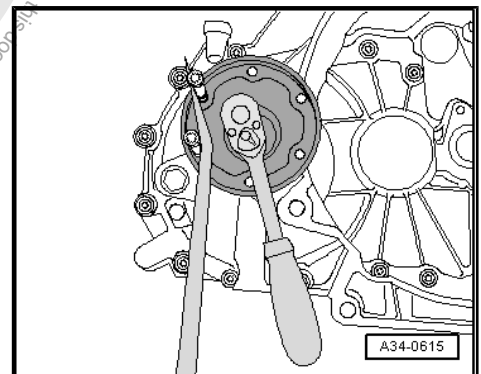


- Remove right flange shaft of gearbox using socket -T10107 A- .

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



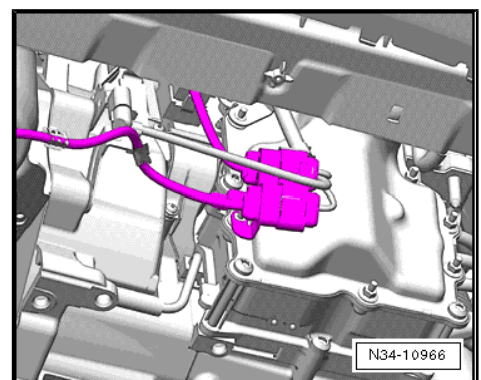
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.



Torque setting 30 Nm

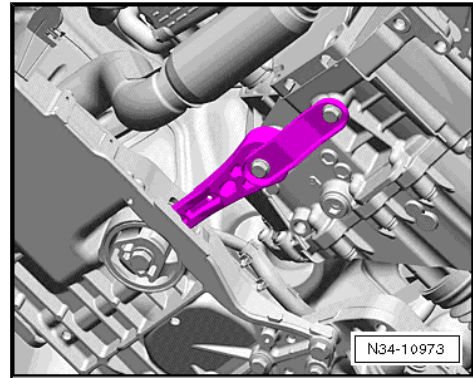
Continuation for all vehicles

- Remove all retainers and brackets from front of gearbox.

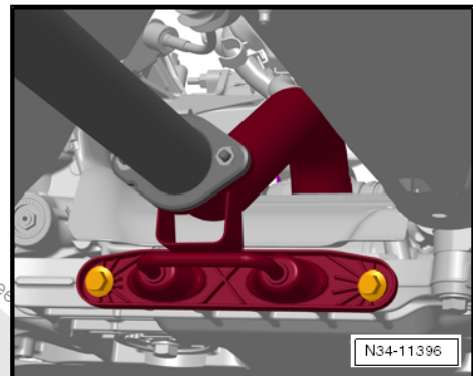




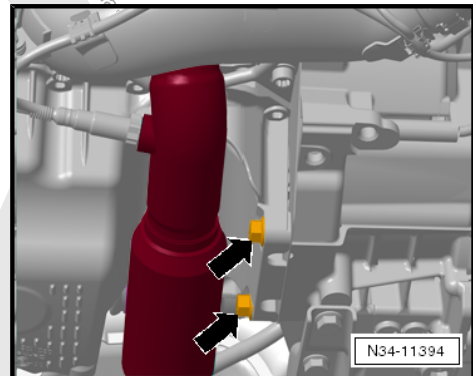
- Remove pendulum support.



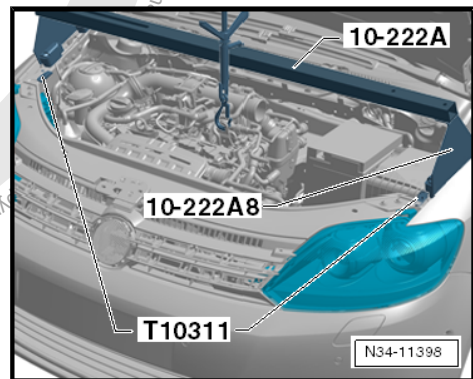
- Unbolt exhaust system bracket from subframe => Rep. gr. 26 ; Removing and installing parts of exhaust system .



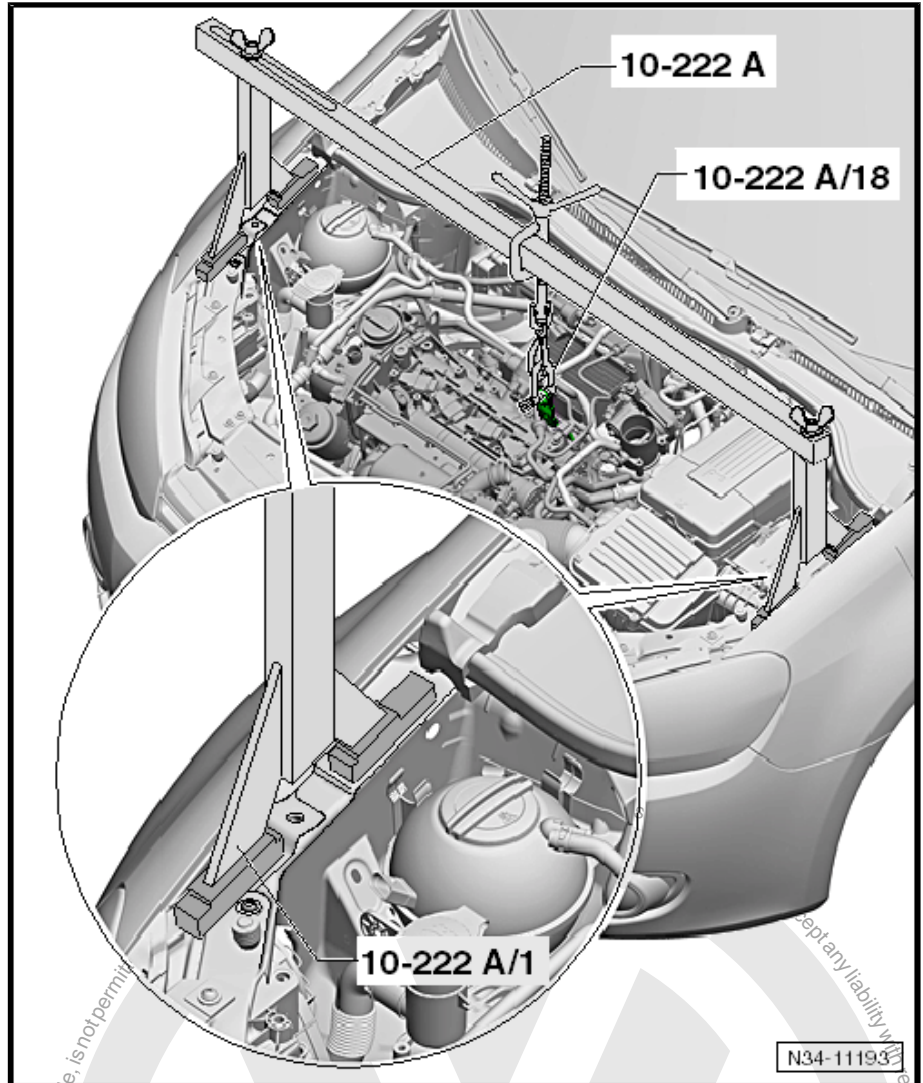
- Disconnect front exhaust pipe from catalytic converter so that lower engine/gearbox connecting bolts -arrows- can be removed => Rep. gr. 26 ; Removing and installing parts of exhaust system .
- Remove filler pieces from upper edges of both wings.
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222A- , remove these now.
- Support engine and gearbox. Do not raise.



Golf Plus:



Golf only:



- Support engine and gearbox. Do not raise.

Continuation for all vehicles:

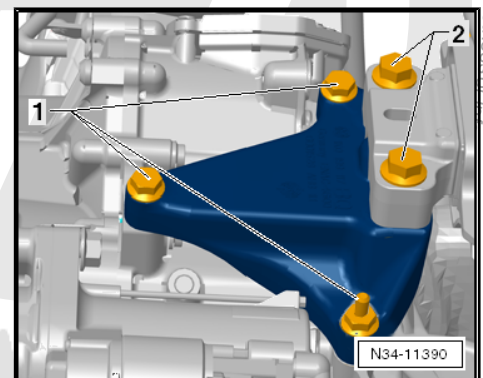
Remove all bolts -1- and -2- for bracket.

- 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.

- Set up gearbox support -3282- with adjustment plate -3282/59- .

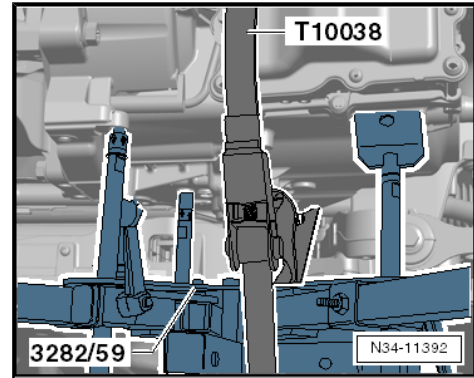




- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

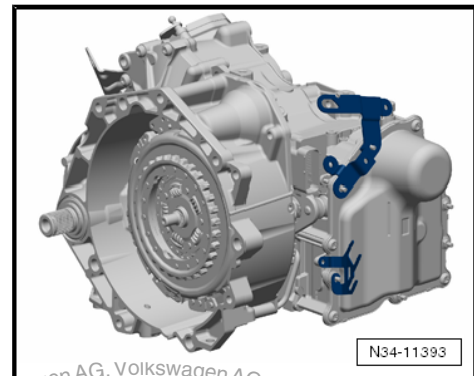


In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

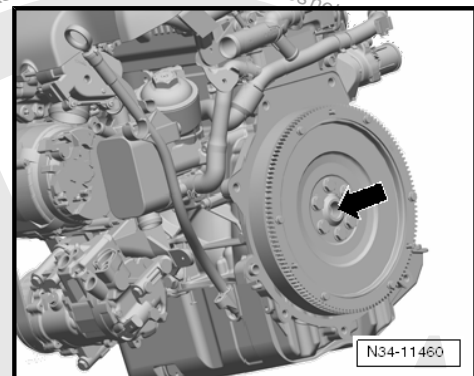
Gearbox with flange shafts, torque setting ⇒ [page 379](#)

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



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#) .

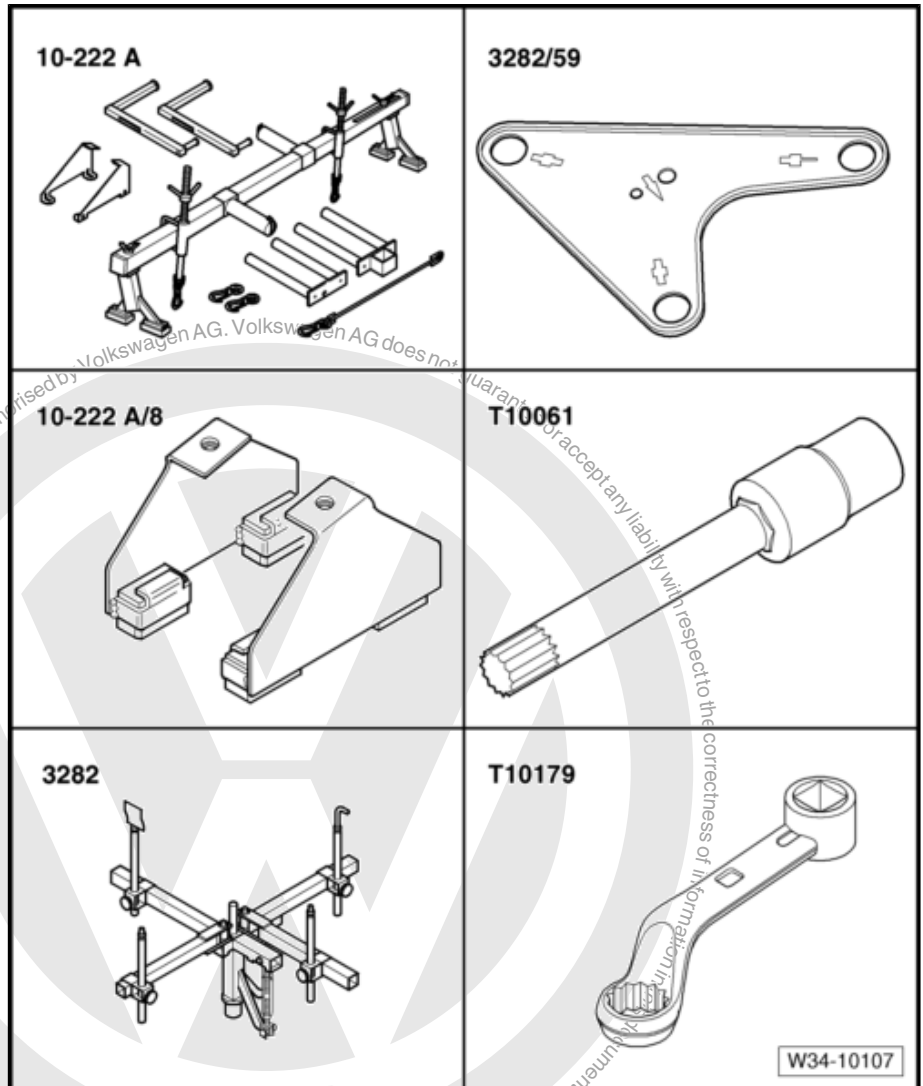




13.20 Removing gearbox; Golf Plus 2009, 1.6 I - 77 kW diesel engine

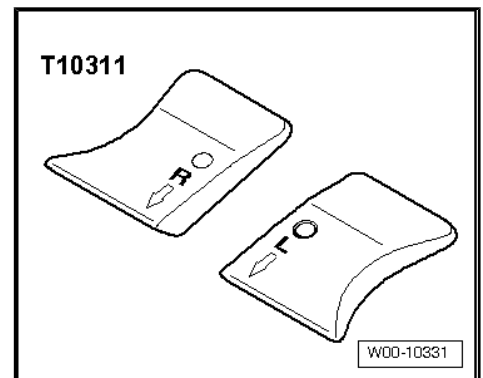
Special tools and workshop equipment required

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



Special tools and workshop equipment required

- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-
- ◆ Wing supports -T10311-



Brief description

The gearbox is removed downwards separately, without engine.
»From above«



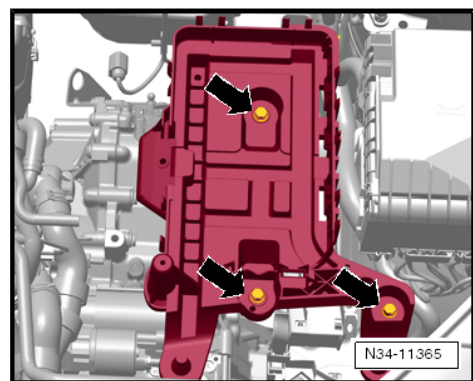
Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- Follow the instructions for different vehicles ⇒ [page 111](#) .
- 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. 24 ; Removing and installing air filter .
- Remove battery and -battery tray- ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Electrical system; Rep. gr. 27 ; Removing and installing starter .



- Remove selector lever cable from ball head, remove securing clip.

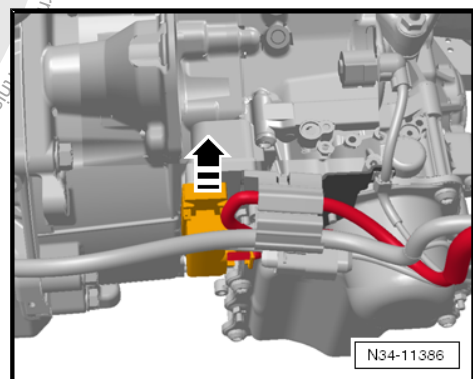
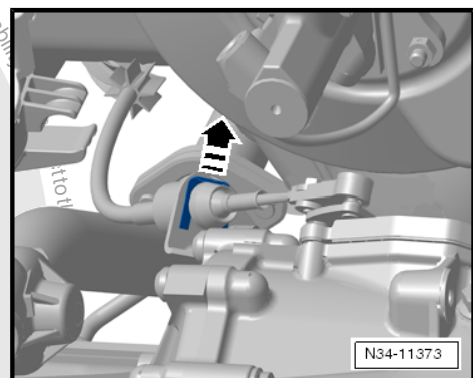
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

Therefore, when installing, always use a »new« securing clip.

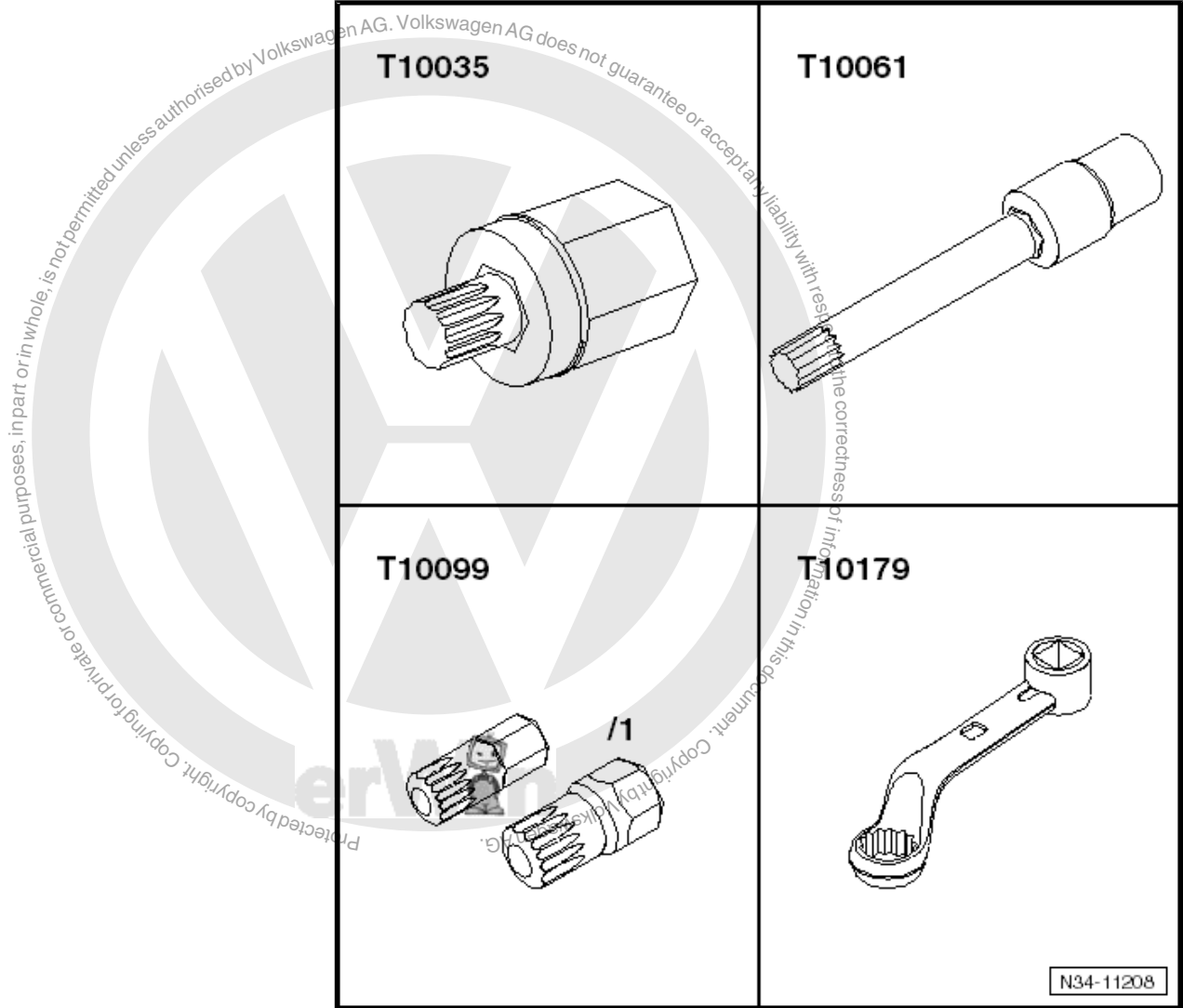
Remove cable with great care from cable support bracket on gearbox. Do not bend it.

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.

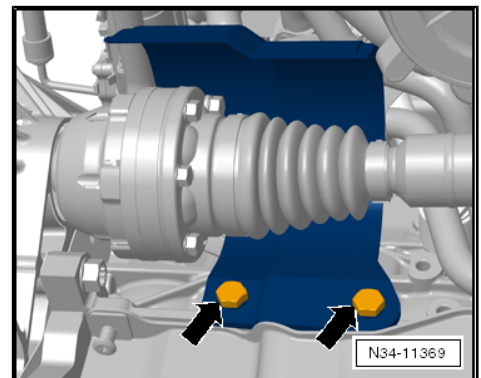
- Release mechatronic unit connector by pulling and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.



These tools are appropriate for this.

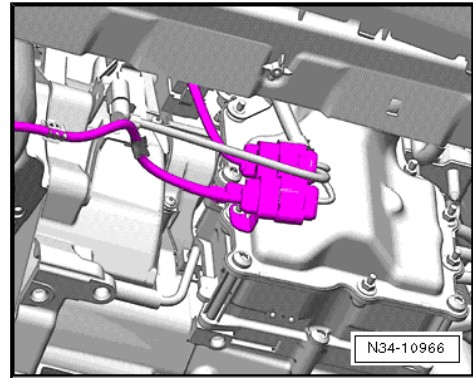


- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front left part of wheel housing liner ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing liner .
- If fitted, remove the heat shield over the right-hand drive shaft. Tightening torque ⇒ Rep. gr. 40 ; Repairing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

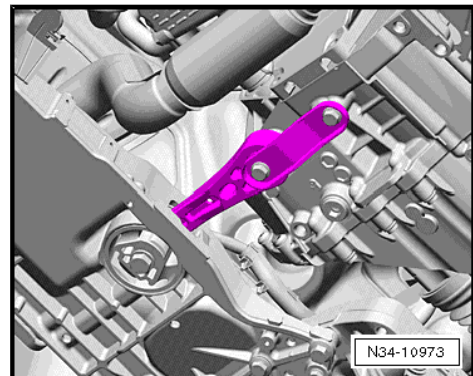




- Remove all retainers and brackets from front of gearbox.

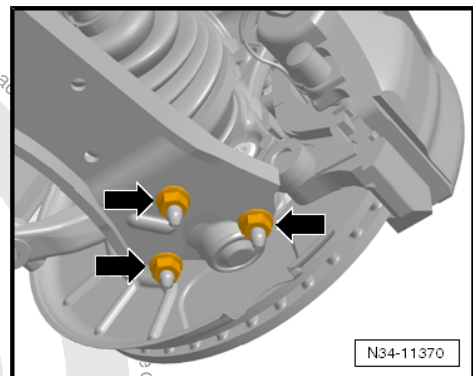


- Remove pendulum support.
- Disconnect left coupling rod from anti-roll bar => Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .

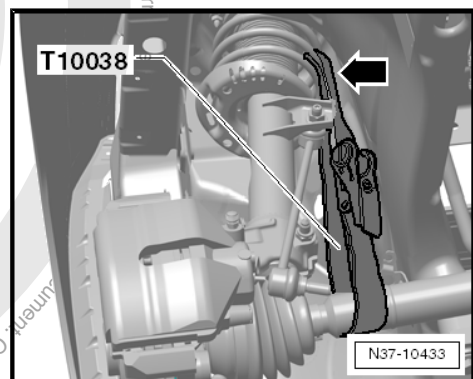


- Unbolt left suspension link from suspension strut.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

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.



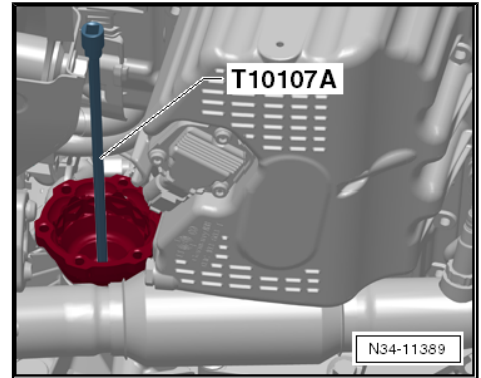
Secure both drive shafts to suspension struts using tensioning straps -T10038- .





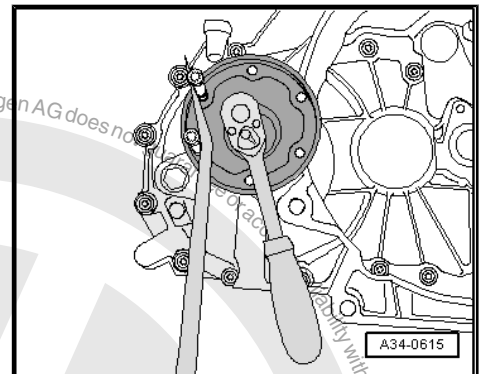
- Remove right flange shaft of gearbox using socket -T10107 A- .

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

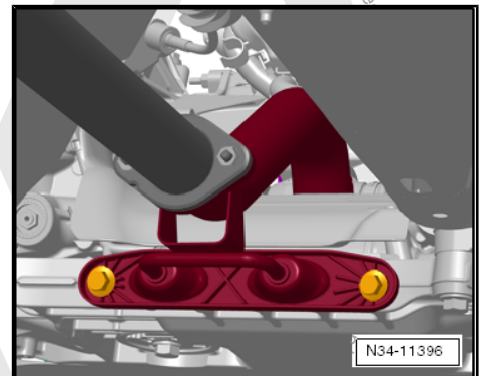


- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

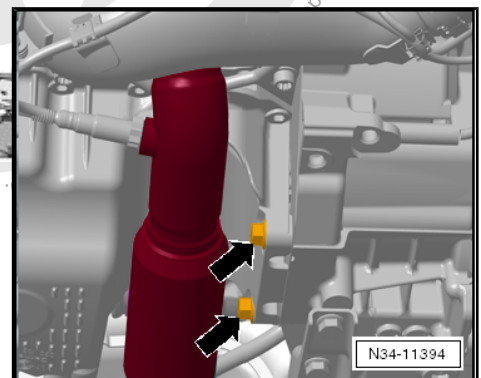
Torque setting 30 Nm



- Unbolt exhaust system bracket from subframe => Rep. gr. 26 ; Removing and installing parts of exhaust system .



- Disconnect front exhaust pipe from catalytic converter so that lower engine/gearbox connecting bolts -arrows- can be removed => Rep. gr. 26 ; Removing and installing parts of exhaust system .
- If there are hose and cable connections in area of engine support eyes for support bracket -10-222A- , remove these now.
- Remove filler pieces from upper edges of both wings.

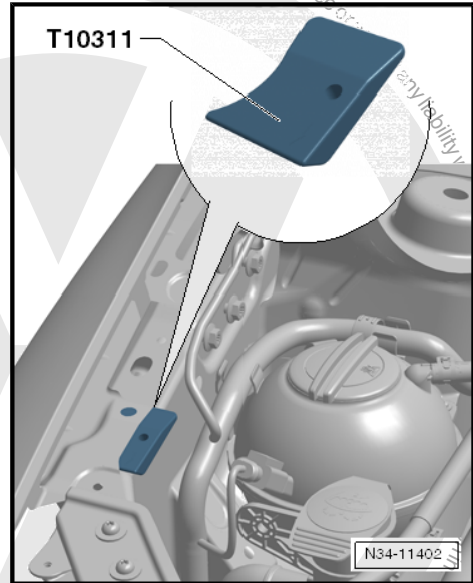




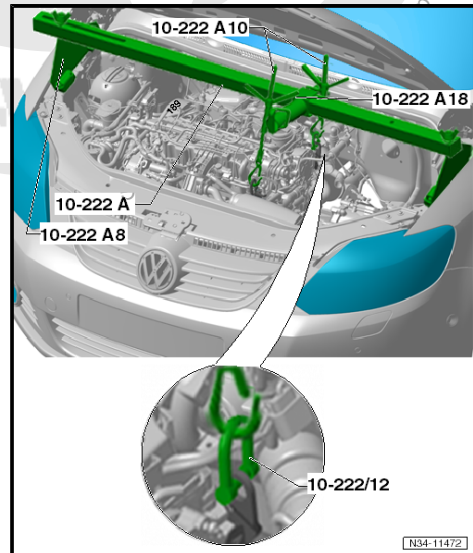
Golf Plus and Cross Golf:

- Use wing supports -T10311- on both sides.

The supports prevent the weight of the engine from damaging the wings.



- Support engine and gearbox. Do not raise.



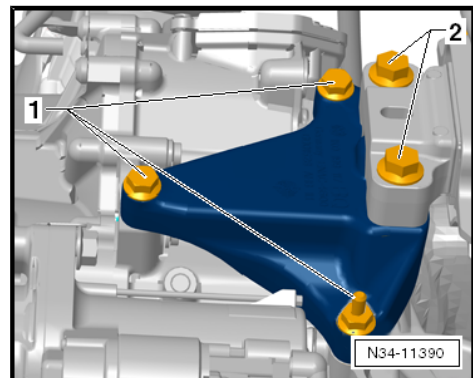
Remove all bolts -1- and -2- for bracket.

- 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.

- Set up gearbox support -3282- with adjustment plate -3282/59- .





- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

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

- Remove retainers.

If a »new« gearbox is being fitted, these retainers are not present on »new« gearbox.

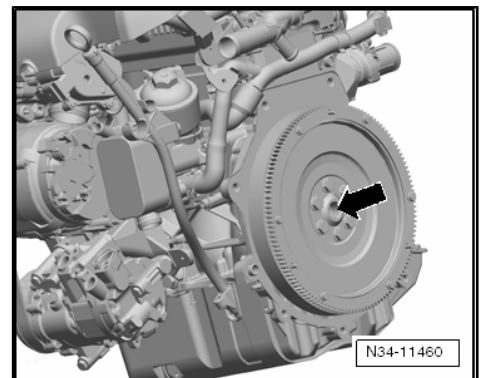
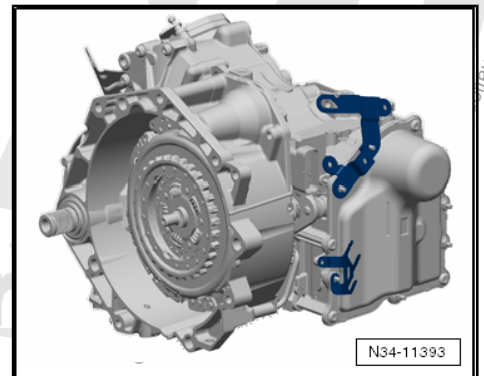
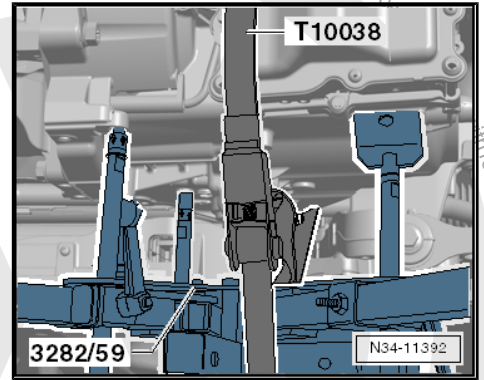
Gearbox with flange shafts, torque setting => [page 379](#)

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

- Renew needle bearing in crankshaft => Rep. gr. 13 ; Crankshaft group .
- Install right flange shaft again.

Torque setting 30 Nm

Installing gearbox => [page 276](#) .

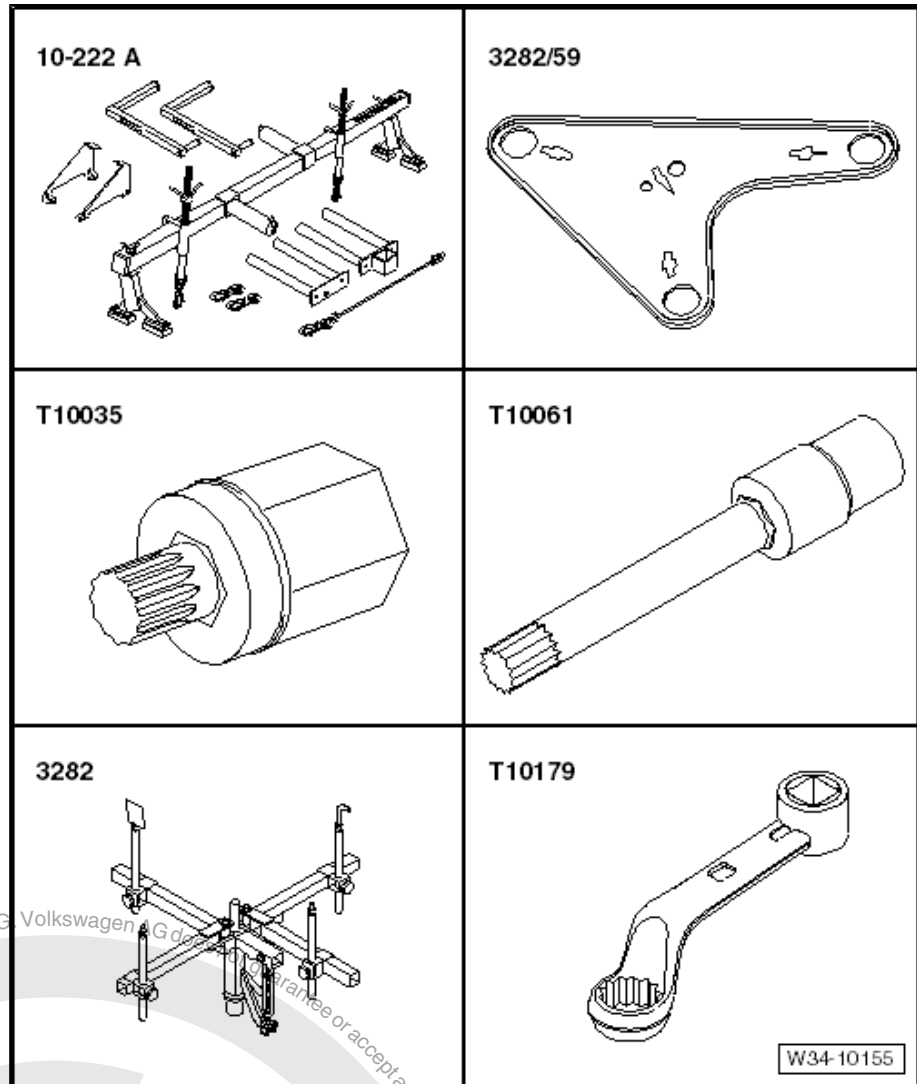




13.21 Removing gearbox; Golf 2009 1.6 I and 1.9 I - 77 kW - diesel engine

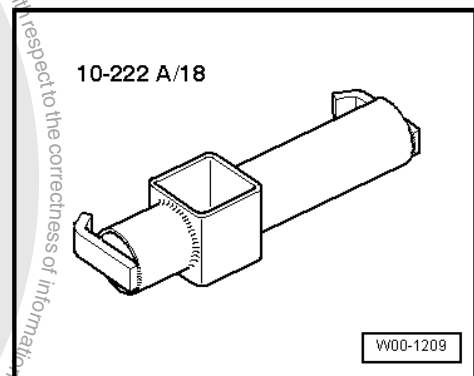
Special tools and workshop equipment required

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



Special tools and workshop equipment required

- ◆ Adapter -10 - 222 A /18-



- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-

Brief description

The gearbox is removed downwards separately, without engine.
»From above«



Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- 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. 24 ; Removing and installing air filter .
- Remove battery and -battery tray- => Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter => Electrical system; Rep. gr. 27 ; Removing and installing starter .

- Remove selector lever cable from ball head, remove securing clip.

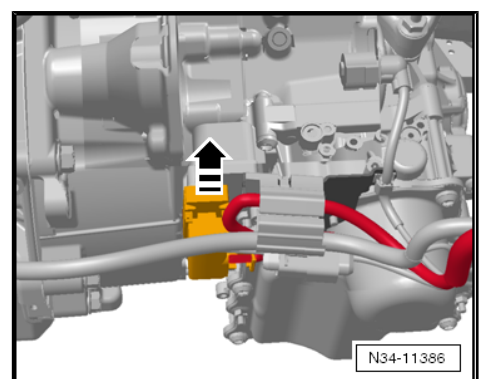
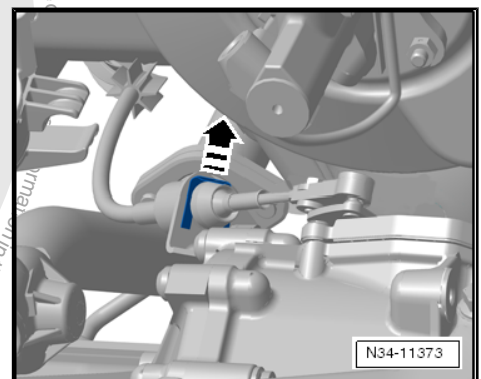
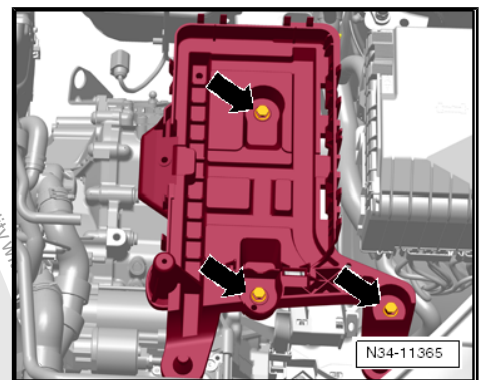
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

Therefore, when installing, always use a »new« securing clip.

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

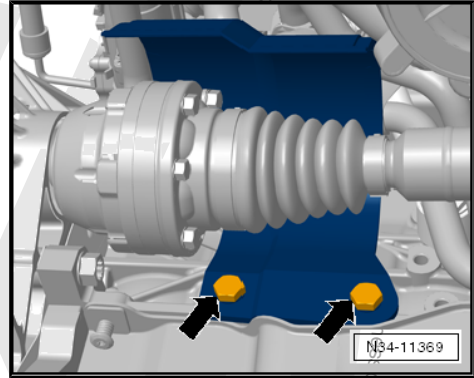
Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.

- Release mechatronic unit connector by pulling and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.
- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing => Rep. gr. 66 ; Assembly overview - front wheel housing .



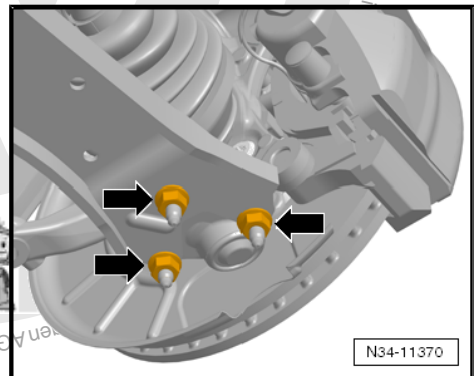


- If fitted, remove the heat shield over the right-hand drive shaft.
Tightening torque => Rep. gr. 40 ; Repairing drive shafts

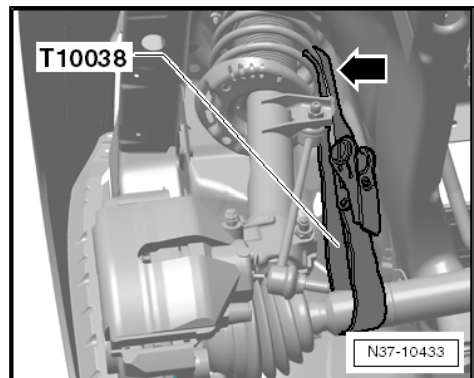


- Unbolt left suspension link from suspension strut.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

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.

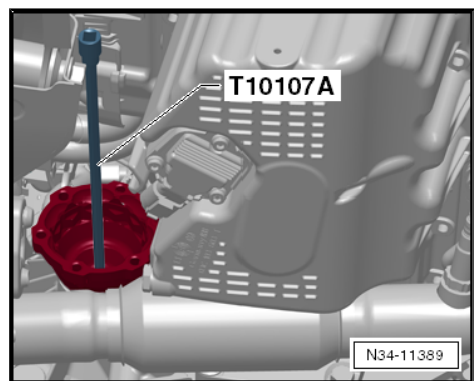


Secure both drive shafts to suspension struts using tensioning straps -T10038- .



- Remove right flange shaft of gearbox using socket -T10107 A- .

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

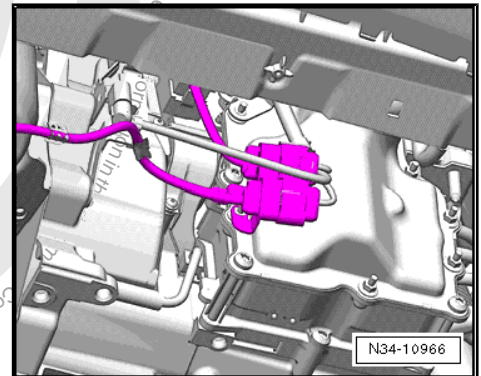
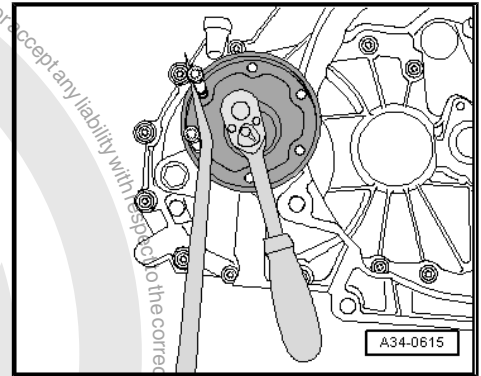




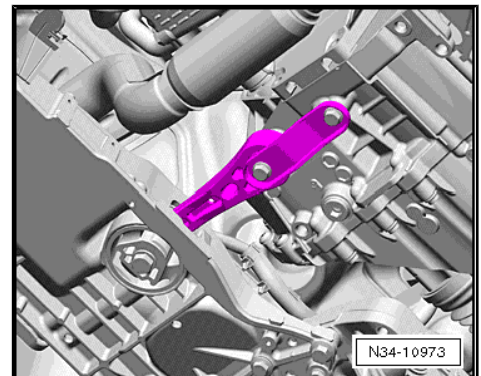
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

Torque setting 30 Nm

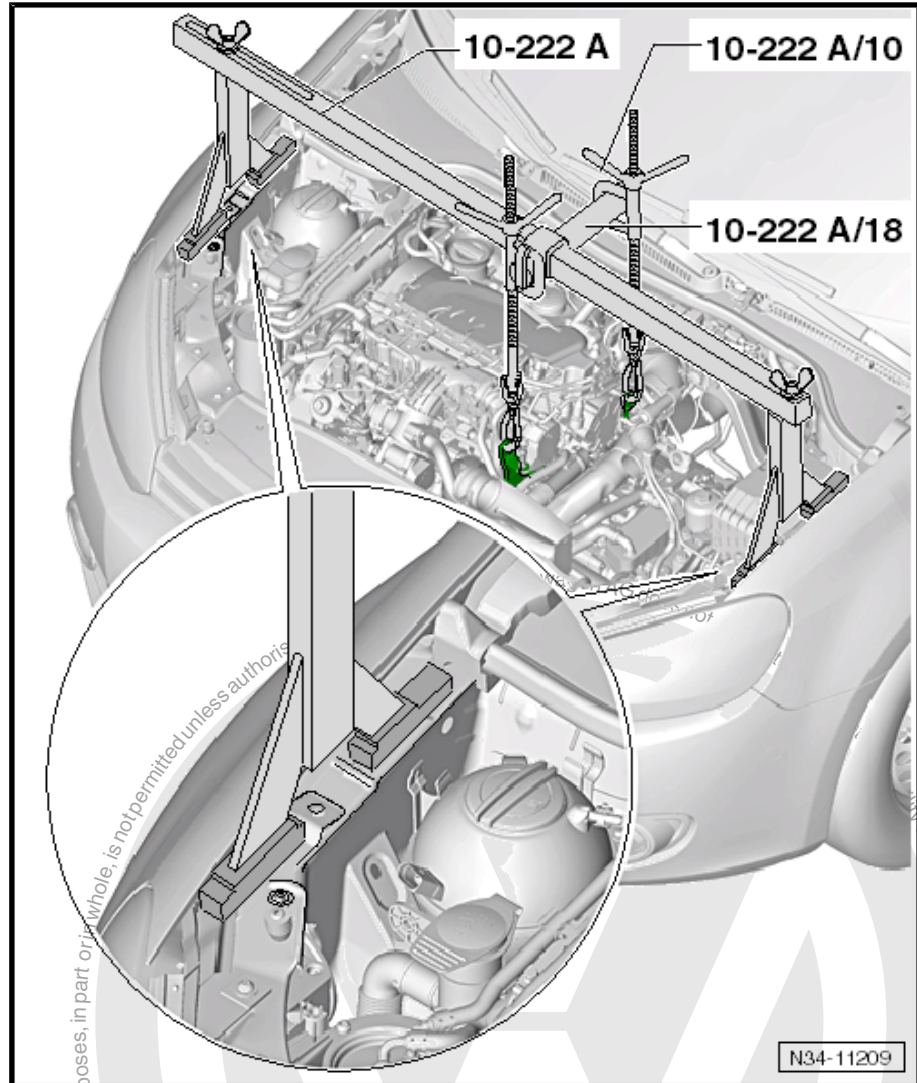
- Remove all retainers and brackets from front of gearbox.



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



- Support engine and gearbox. Do not raise.



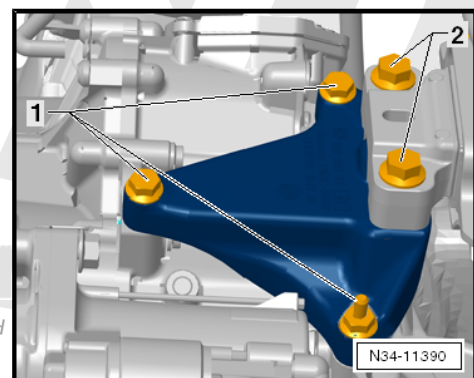
Remove all bolts -1- and -2- for bracket.

- 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.

- Set up gearbox support -3282- with adjustment plate -3282/59- .

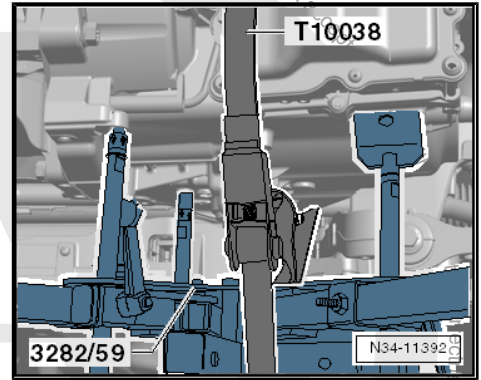




- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

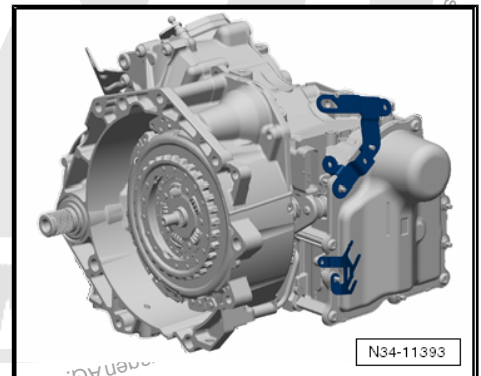


In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

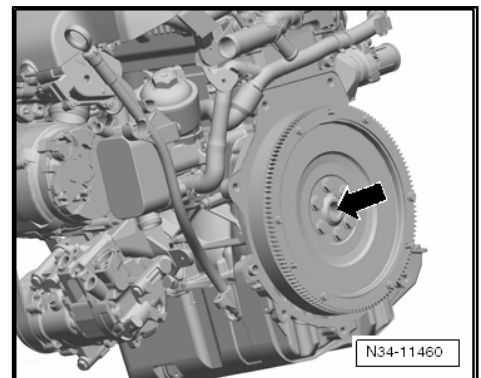
Gearbox with flange shafts, torque setting ⇒ page 379

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



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ page 276 .

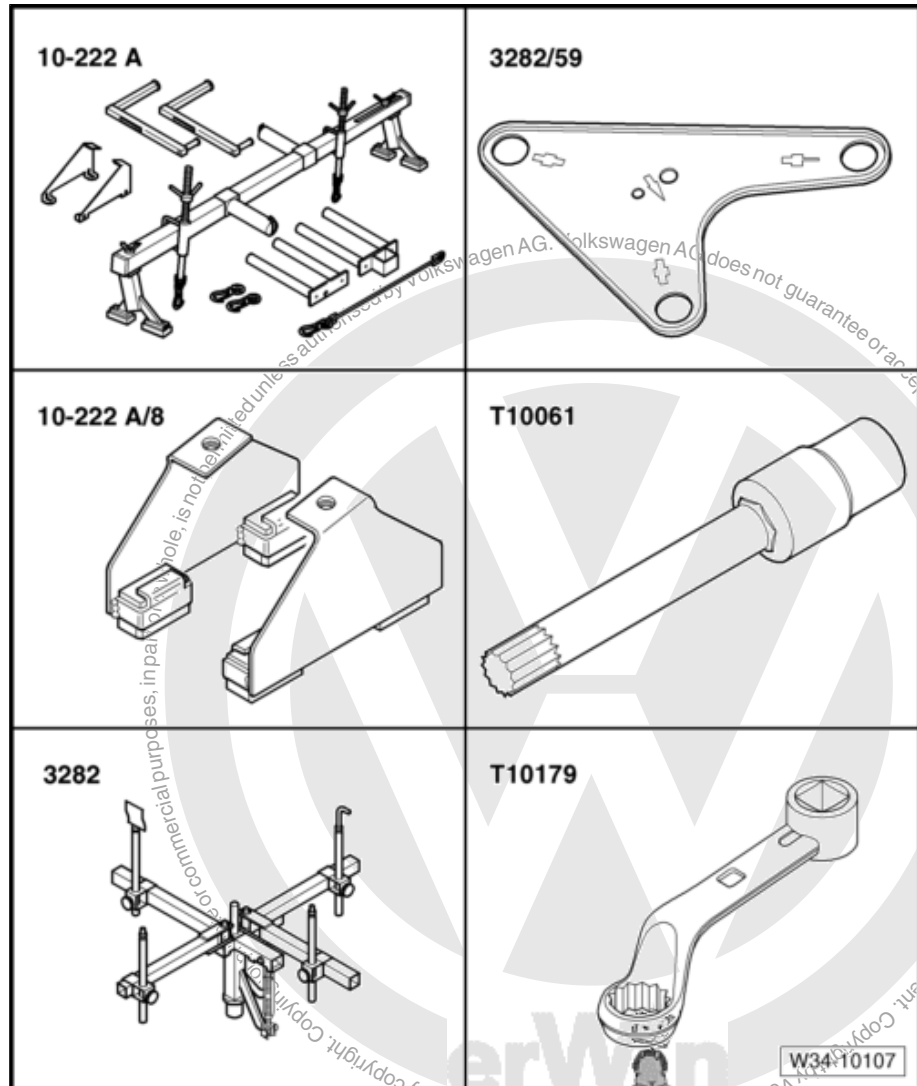




13.22 Removing gearbox; Golf 2004 and Golf Plus 2005 1.9 l - 77 kW - TDI engine

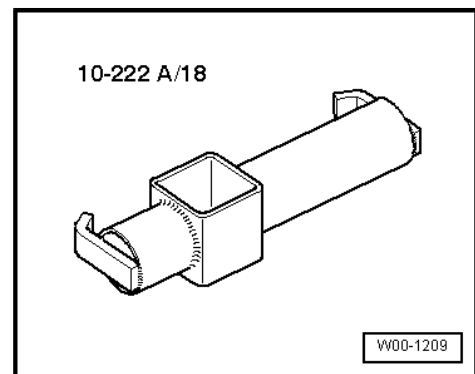
Special tools and workshop equipment required

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



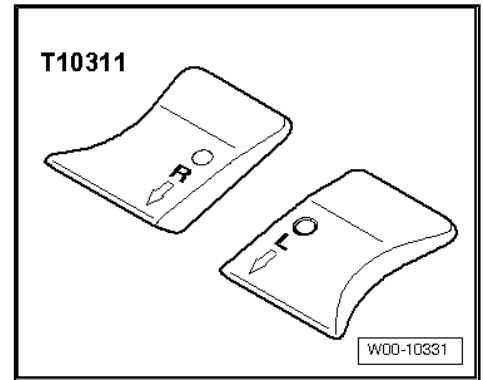
Special tools and workshop equipment required

- ◆ Adapter -10 - 222 A /18-





- ◆ Golf Plus only: wing support -T10311-



- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-

Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

- 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



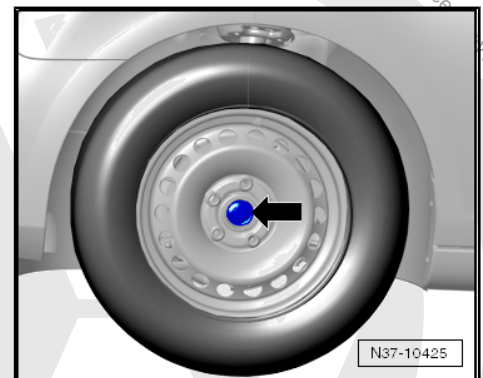
Note

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.

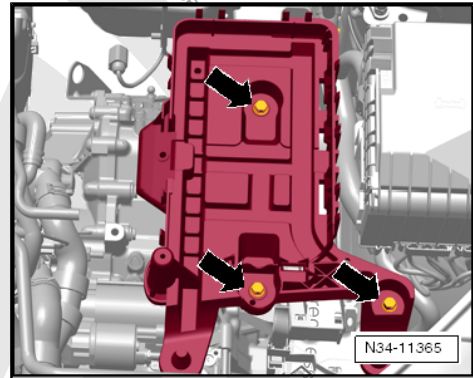
Continuation for all vehicles

- Remove engine cover from cylinder head.
- 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 ⇒ Electrical system; Rep. gr. 27 ; Removing and installing starter .



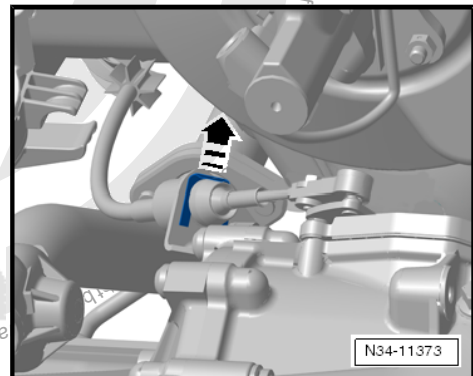
- Remove selector lever cable from ball head, remove securing clip.

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.

Remove cable with great care from cable support bracket on gearbox. Do not bend it.

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.



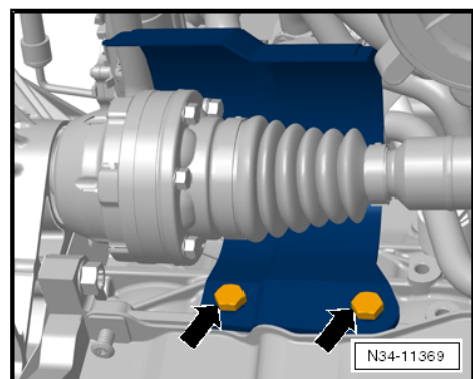
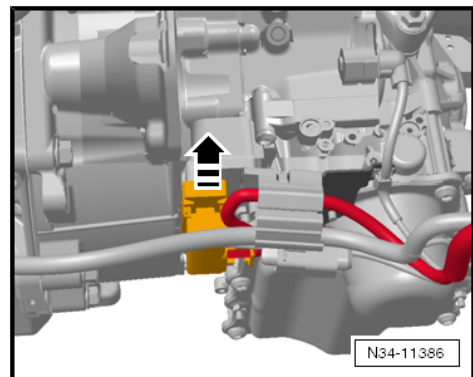
- Release mechatronic unit connector by pulling and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.
- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing .

Only in vehicles with stub shafts

- Remove both drive shafts ⇒ Running gear, axles, steering; 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

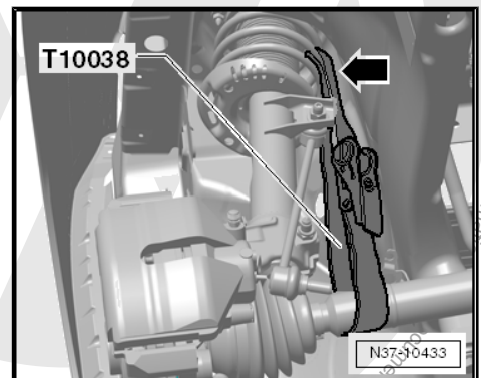
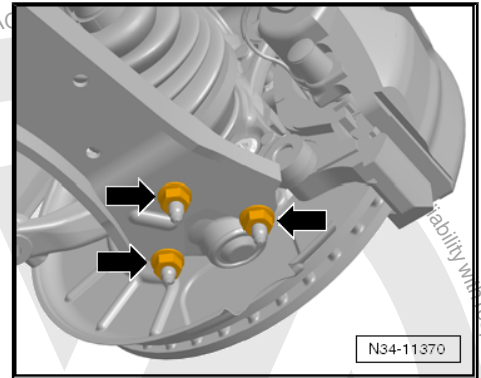




- Unbolt left suspension link from suspension strut.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

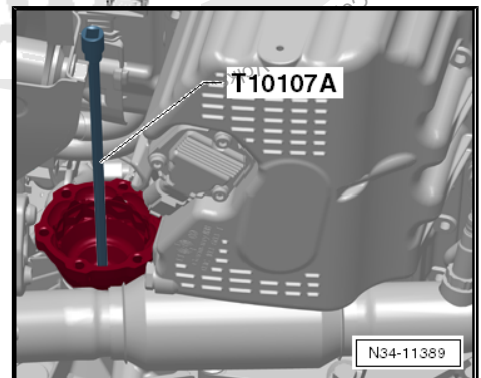
The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.

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



- Remove right flange shaft of gearbox using socket -T10107 A- .

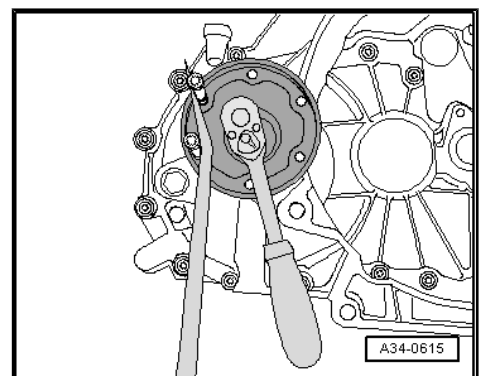
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .



- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

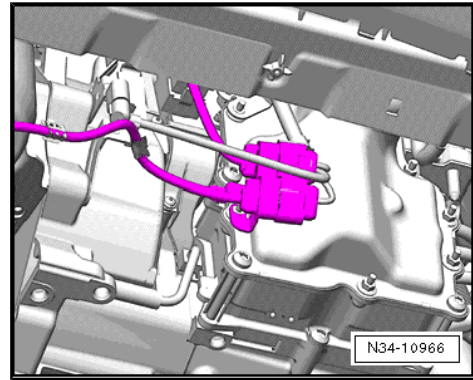
Torque setting 30 Nm

Continuation for all vehicles

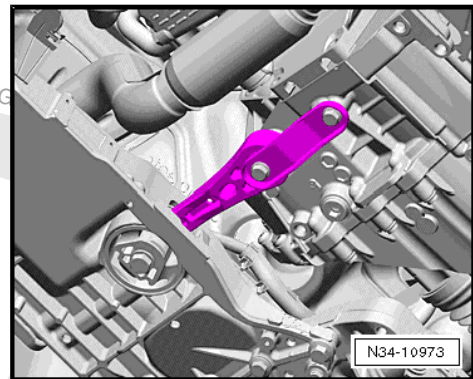




- Remove all retainers and brackets from front of gearbox.



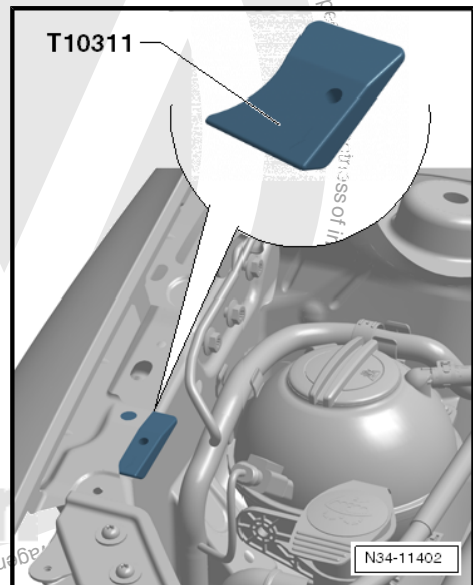
- Remove pendulum support.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222A-, remove these now.
- Remove filler pieces from upper edges of both wings.



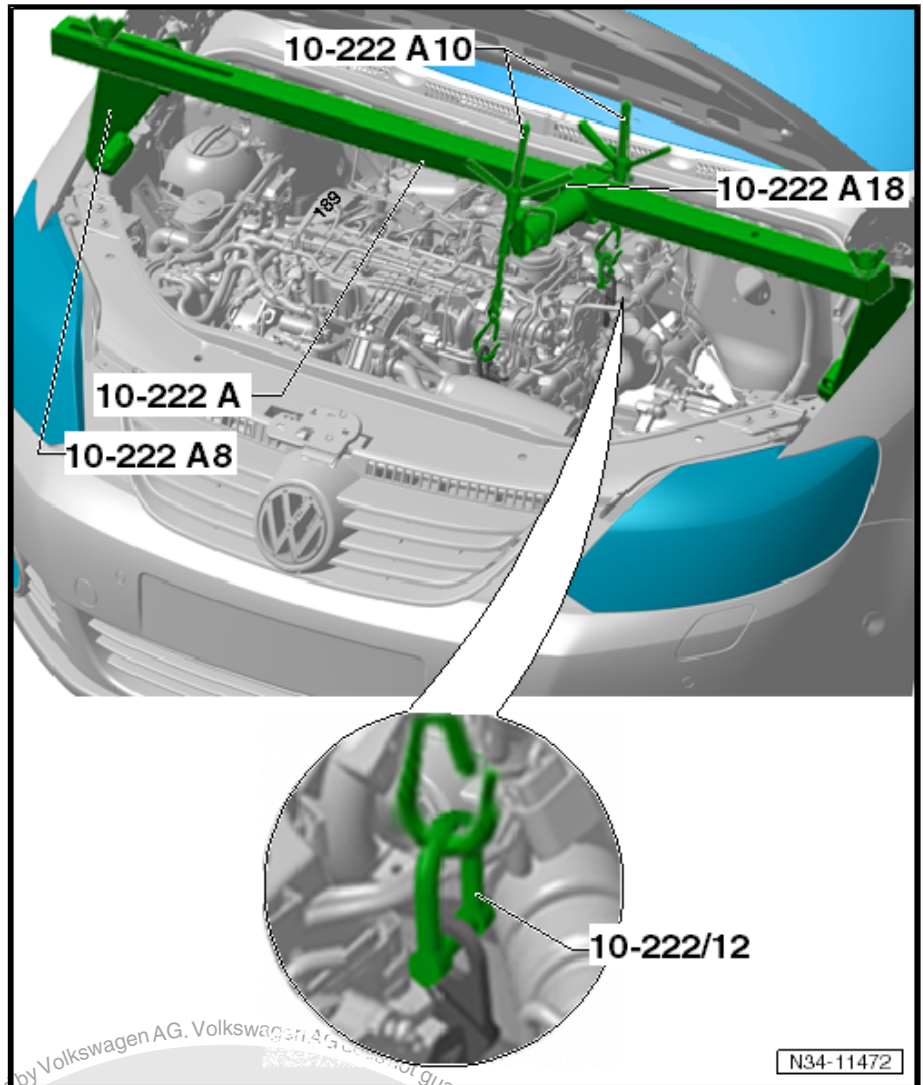
Golf Plus only:

- Use wing supports T10311- on both sides.

The supports prevent the weight of the engine from damaging the wings.



- Support engine and gearbox. Do not raise.



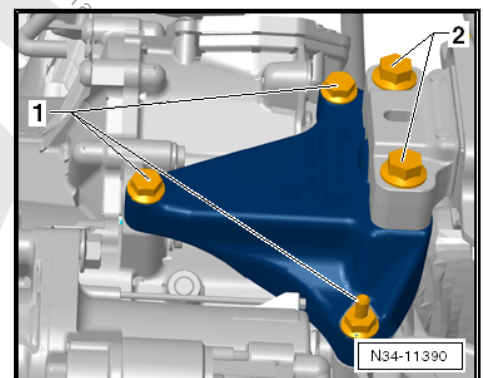
Remove all bolts -1- and -2- for bracket.

- 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.

- Set up gearbox support -3282- with adjustment plate -3282/59-.

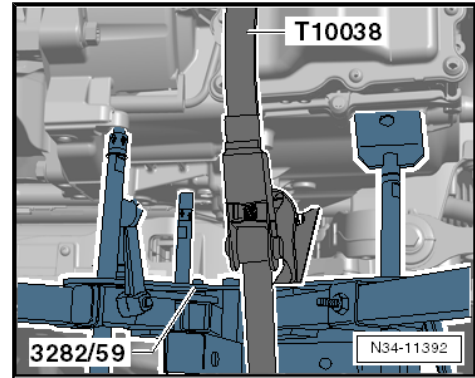




- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

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.

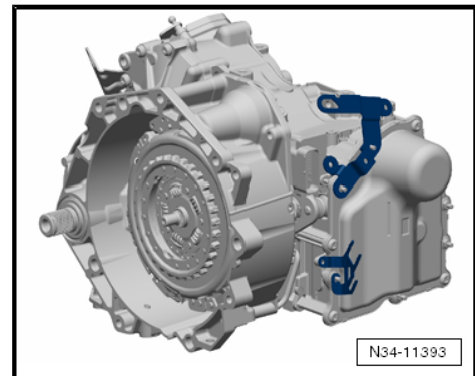


In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.

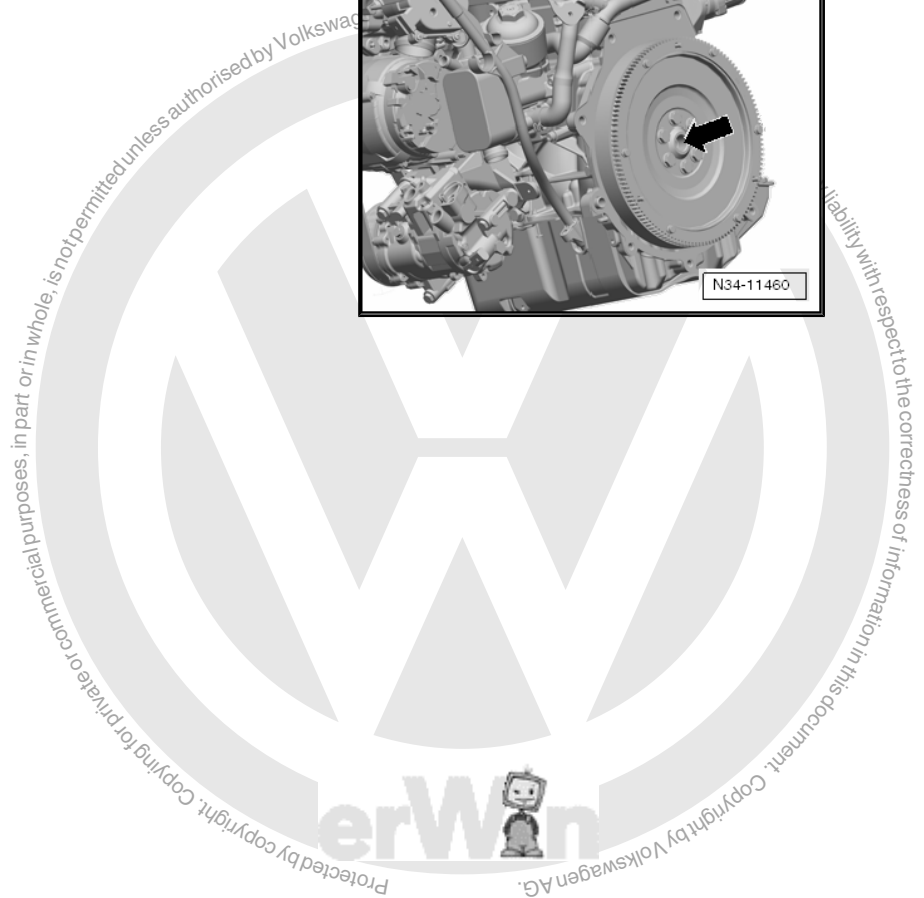
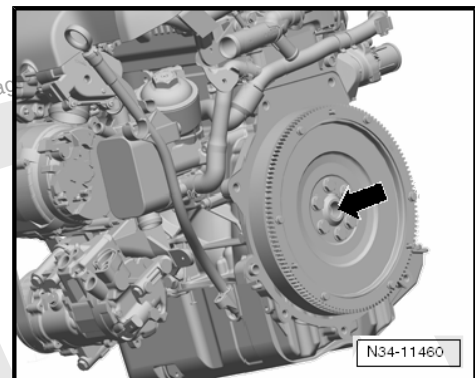
Gearbox with flange shafts, torque setting ⇒ [page 379](#)

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



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#) .

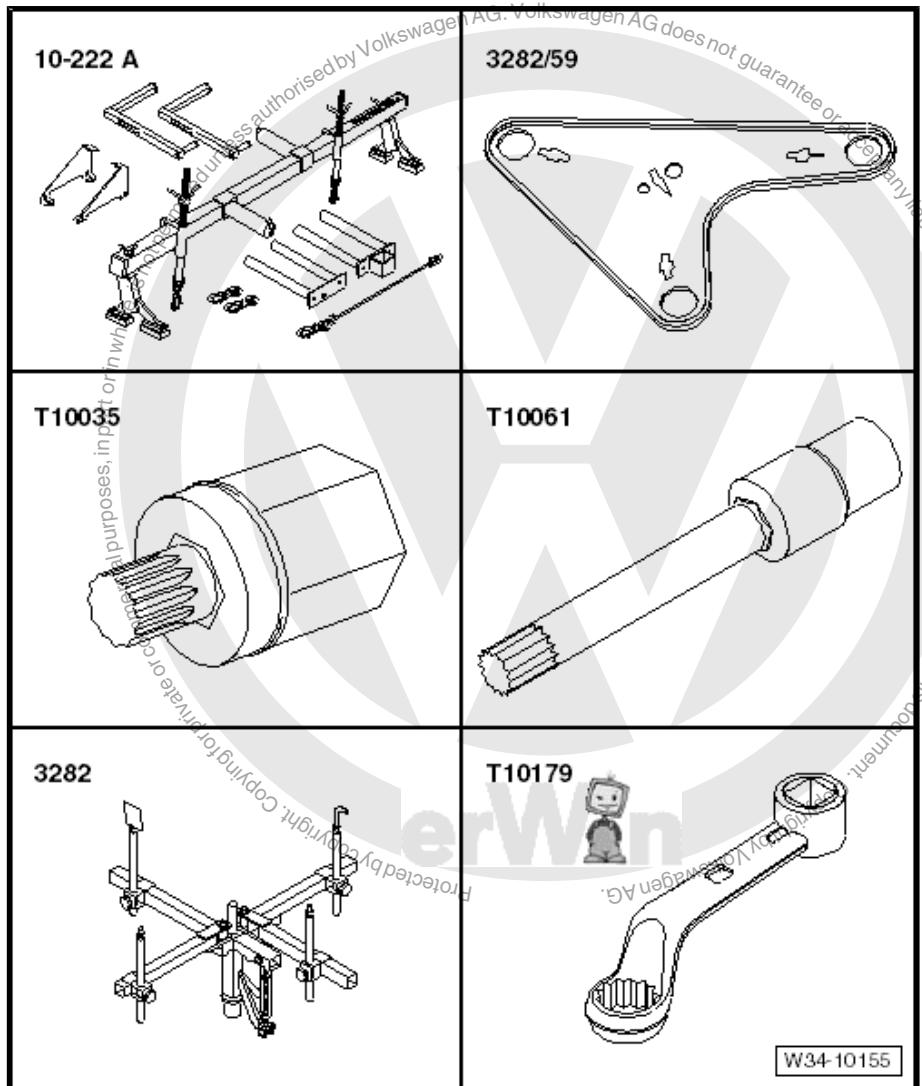




13.23 Removing gearbox; Passat CC 2009 >, CC 2010 > 1.4 I - 90, 110, 118 kW petrol engine and 1.4 I - 110 kW Eco-Fuel engine

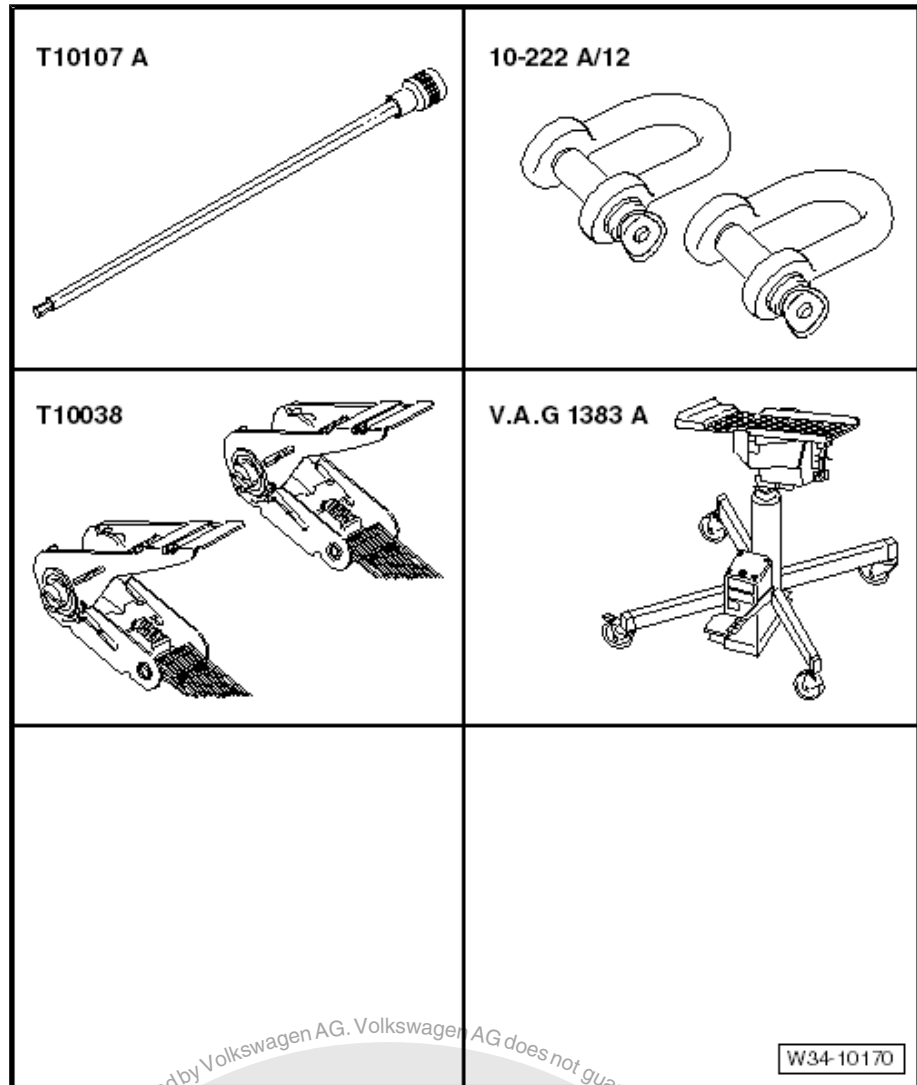
Special tools and workshop equipment required

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



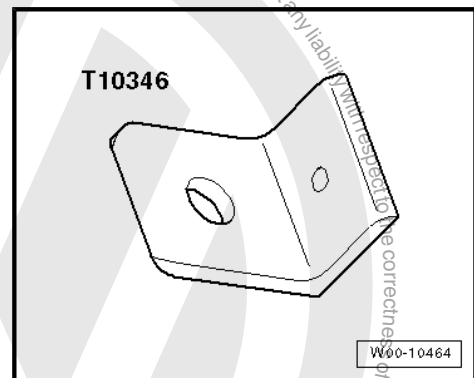


- ◆ Socket -T10107 A-
- ◆ Shackle -10 - 222 A /12-
- ◆ Tensioning strap -T10038-
- ◆ Engine and gearbox jack - V.A.G 1383 A-



Special tools and workshop equipment required

- ◆ Retainer -T10346-



Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing, left drive shaft and pendulum support.



Removing:

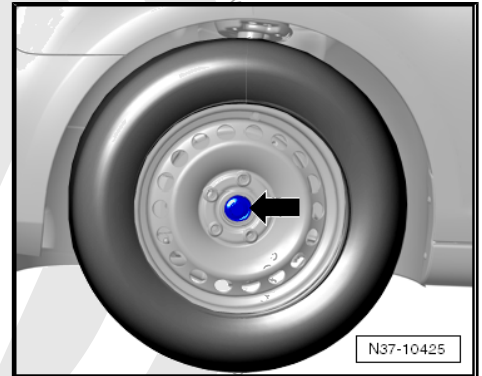
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.



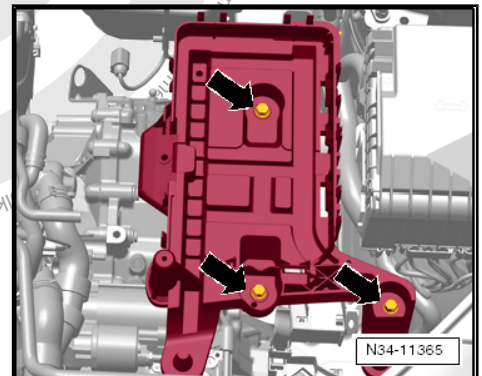
Note

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

- Step on the brake pedal while a 2nd mechanic loosens the left drive shaft bolt (arrow-).
- Remove complete air filter housing => Rep. gr. 24 ; Removing and installing air filter .

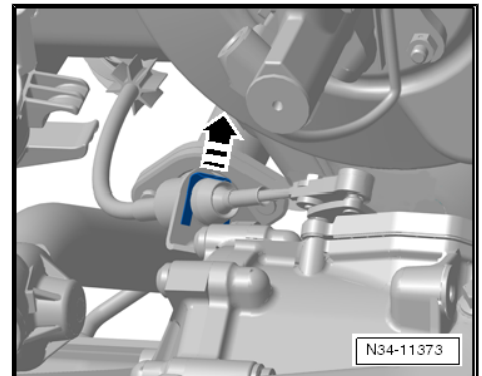


- Remove battery and -battery tray- => Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter => Electrical system; Rep. gr. 27 ; Removing and installing starter .



- Remove selector lever cable from ball head, remove securing clip.

Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever, as the rubber grommet on the cable could be damaged.

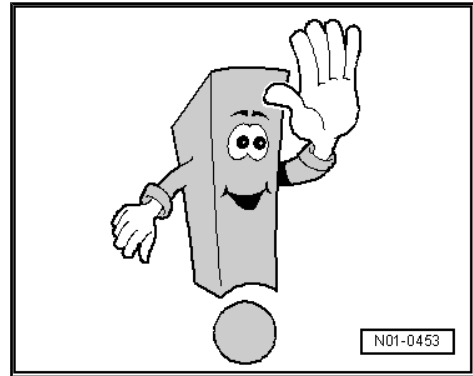




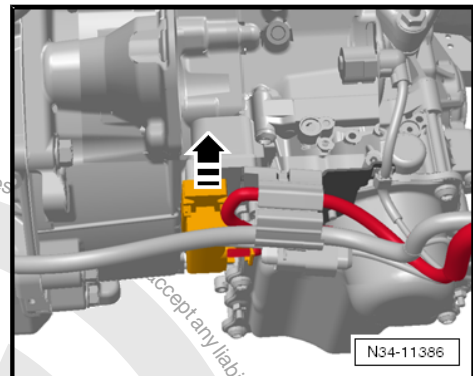
Always renew securing clip.

- Remove cable with great care from cable support bracket on gearbox. Do not bend cable.

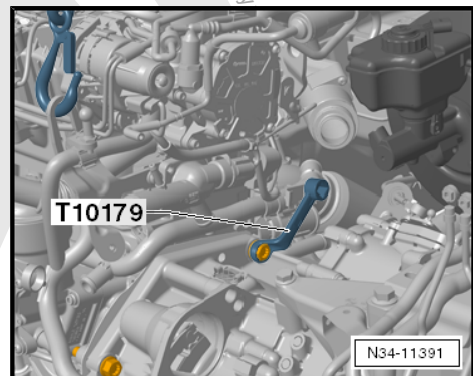
Cable can also be removed later on when gearbox is being lowered. Then observe cable whilst lowering gearbox.



- Release mechatronic unit connector by pulling and pull off connector.

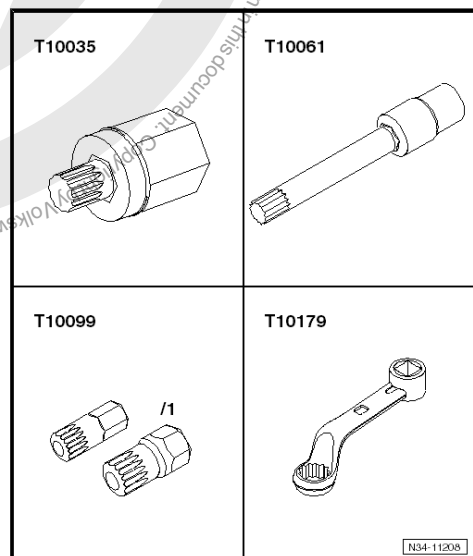


- Remove upper engine/gearbox connecting bolts.



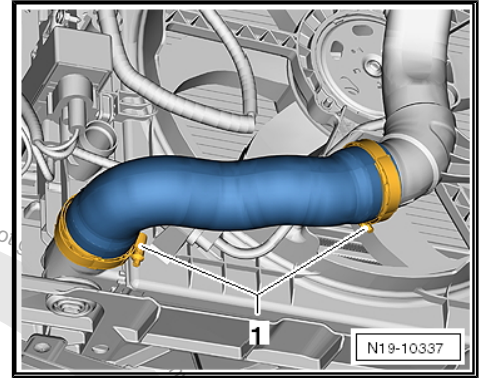
These tools are appropriate for this.

- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing => Rep. gr. 66 ; Assembly overview - front wheel housing

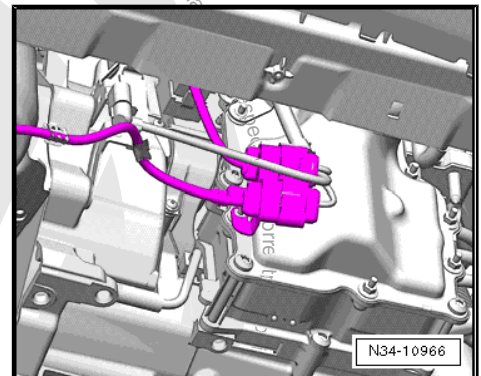




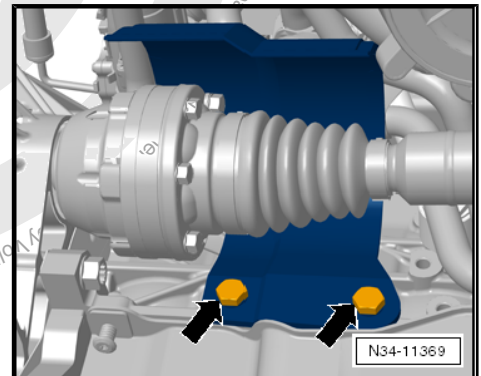
- Remove connecting hose between charge air cooler and charge air pipe ⇒ Rep. gr. 21 ; Removing and installing parts of charge air cooling .



- Remove all retainers and brackets from front of gearbox.
- Remove left drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .

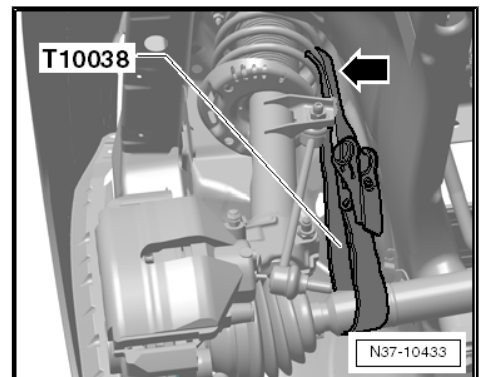


- If present, remove heat shield above right drive shaft. Tightening torque ⇒ Rep. gr. 40 ; Repairing drive shafts
- Unbolt right drive shaft from gearbox ⇒ Rep. gr. 40 ; Removing and installing drive shafts .



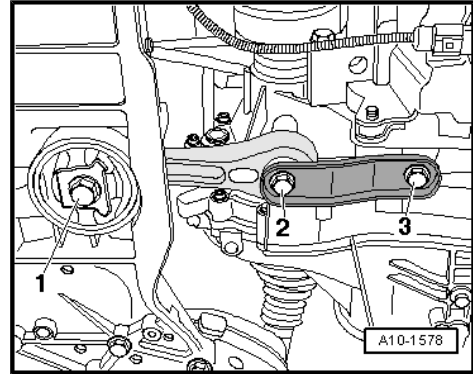
- Secure right drive shaft to suspension strut with tensioning belt -T10038- .

The surface protection of the shaft must not be damaged.

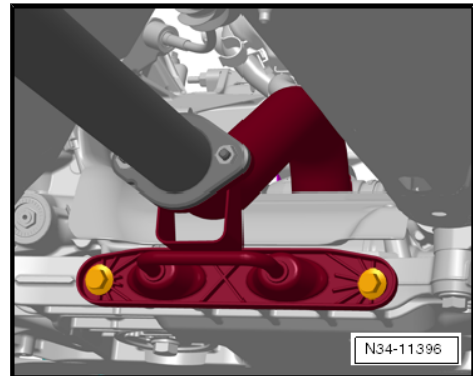




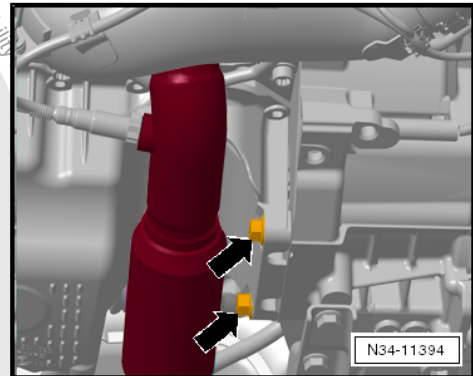
- Remove pendulum support. First remove bolt -1-, followed by bolts -2- and -3- ⇒ Rep. gr. 40 .



- Unbolt exhaust system bracket from subframe ⇒ Rep. gr. 26 ; Removing and installing parts of exhaust system .

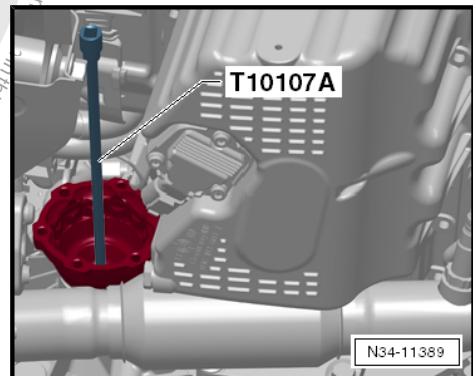


- Disconnect front exhaust pipe from catalytic converter so that lower engine/gearbox connecting bolts -arrows- can be removed ⇒ Rep. gr. 26 ; Removing and installing parts of exhaust system .



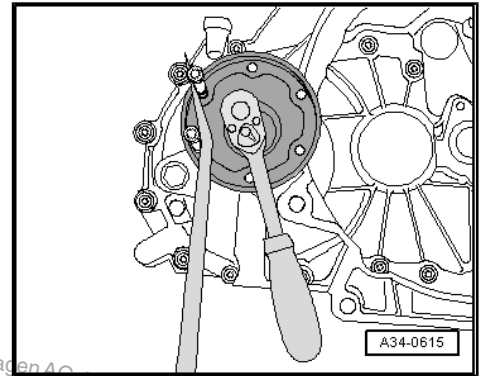
- Remove right flange shaft of gearbox using socket -T10107 A- .

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






- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring. To do this, push gearbox forwards a little if necessary.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.



Torque setting 30 Nm

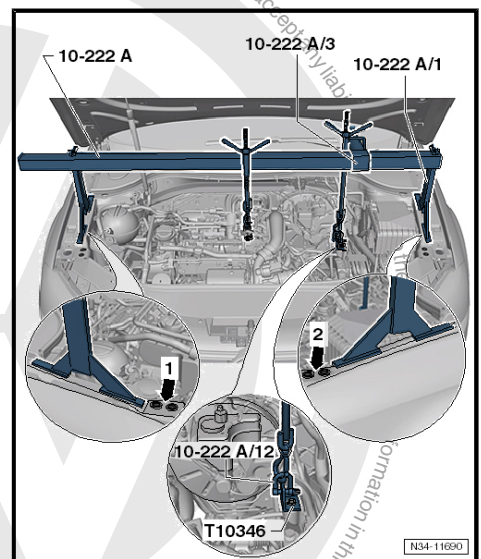
- Remove filler pieces from upper edges of both wings.
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222A- remove these now.
- Support engine and gearbox with support bracket -10 - 222 A- and hooks -10 - 222 A /10- . Do not raise.

Adapters -10 - 222 A /8- can also be used instead of racks -10 - 222 A /1- .



Caution

The support bracket must not be placed on the wings, otherwise these might be damaged.



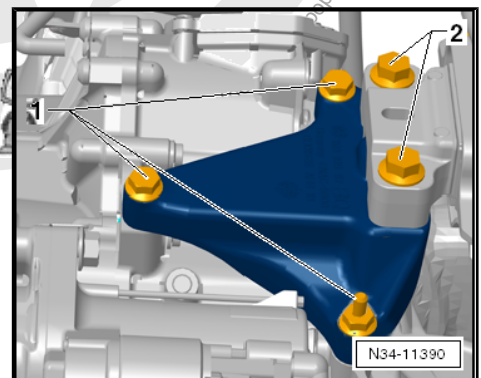
Remove all bolts -1- and -2- for bracket.

- Then lower engine/gearbox using spindles of support bracket -10 - 222 A- until 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.

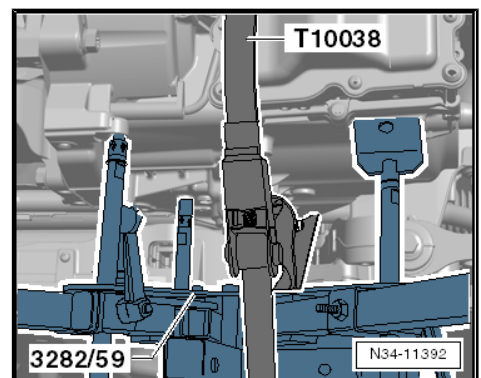
- Remove all connecting bolts except one which is in an easily accessible place between engine and gearbox.
- Set up gearbox support -3282- with adjustment plate -3282/59- .



- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.
- Position plate of pin under gearbox housing, not under mechatronic unit.
- Screw a pin into »rear« hole for pendulum support.

The gearbox is separated from the engine in this position.

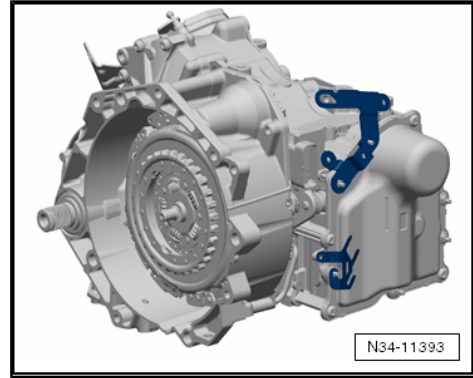
- Remove last engine/gearbox connecting bolt.
- Press gearbox off engine, »observing selector lever cable« and lower gearbox.





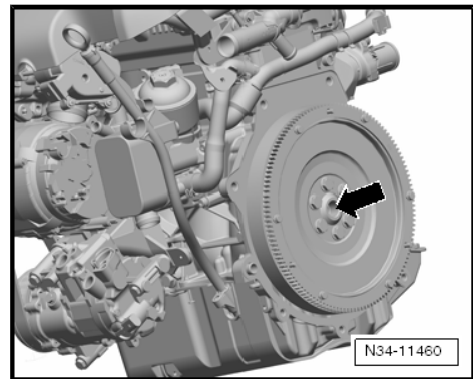
In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.



- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#) .

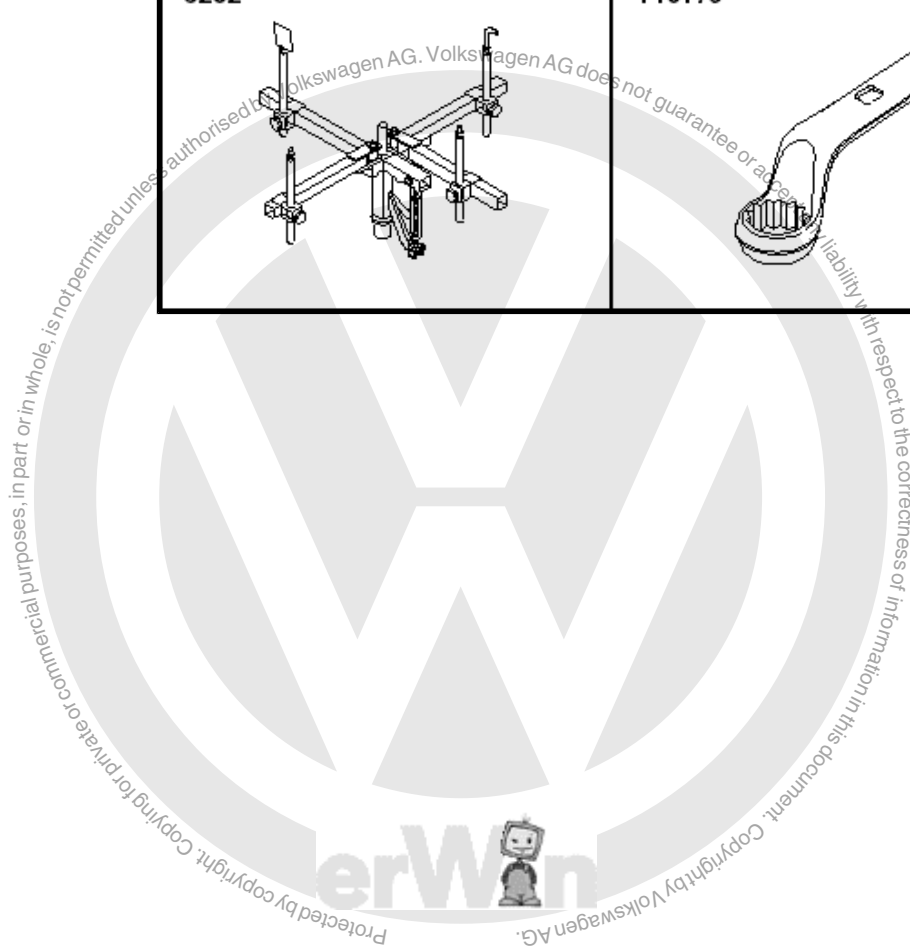
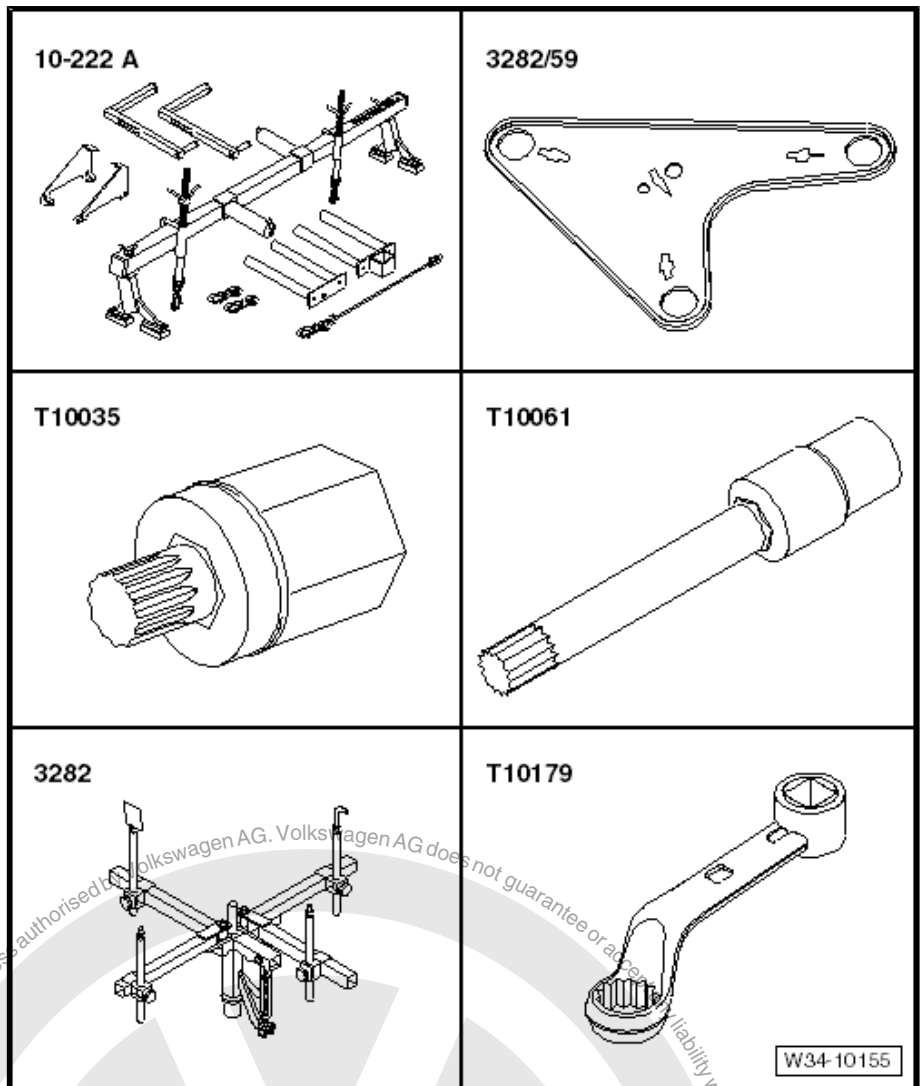




13.24 Removing gearbox, Passat CC 2009 ▶, CC 2010 ▶ 1.8 I - 112 and 118 kW petrol engine

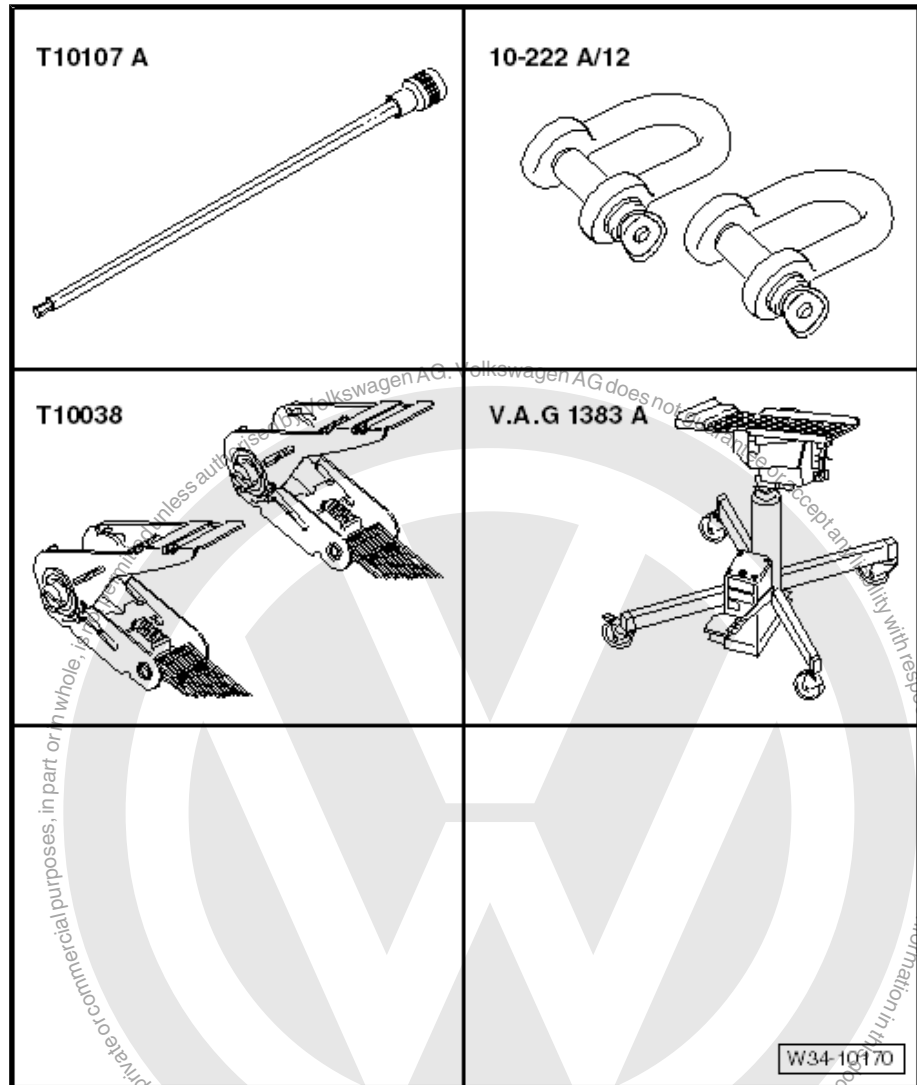
Special tools and workshop equipment required

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



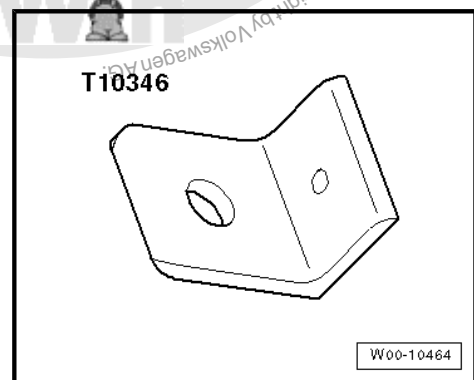


- ◆ Socket -T10107 A-
- ◆ Shackle -10 - 222 A /12-
- ◆ Tensioning strap -T10038-
- ◆ Engine and gearbox jack - V.A.G 1383 A-



Special tools and workshop equipment required

- ◆ Retainer -T10346-



Brief description

The gearbox is removed downwards separately, without engine.
»From above«

Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing, left drive shaft and pendulum support.



Removing:

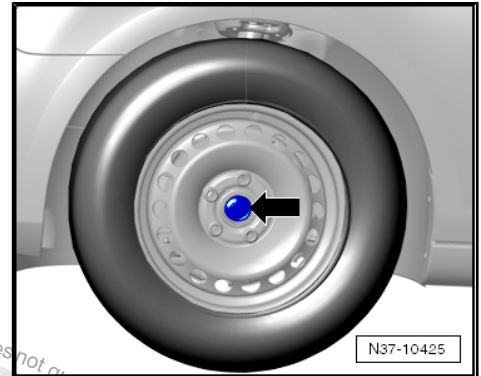
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.



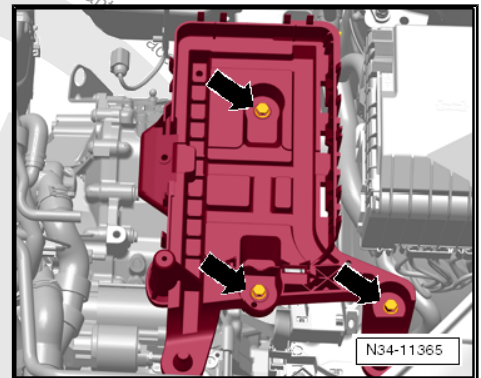
Note

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

- Step on the brake pedal while a 2nd mechanic loosens the left drive shaft bolt -arrow-.
- Remove complete air filter housing => Rep. gr. 24 ; Removing and installing air filter .

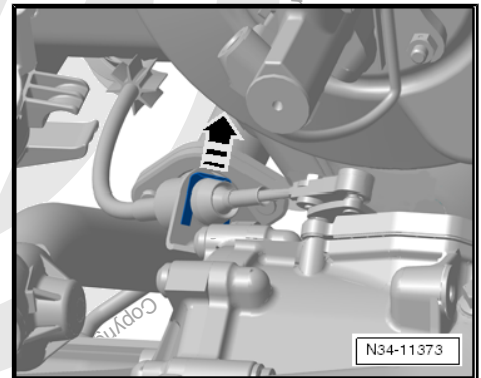


- Remove battery and -battery tray- => Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter => Electrical system; Rep. gr. 27 ; Removing and installing starter



- Remove selector lever cable from ball head, remove securing clip.

Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever, as the rubber grommet on the cable could be damaged.

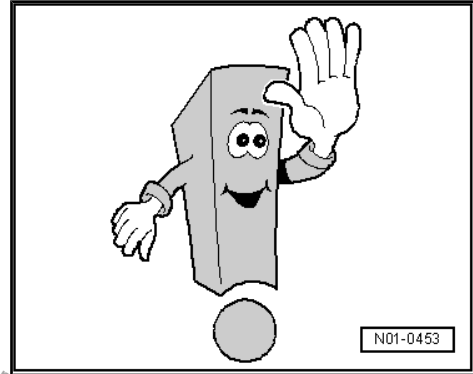




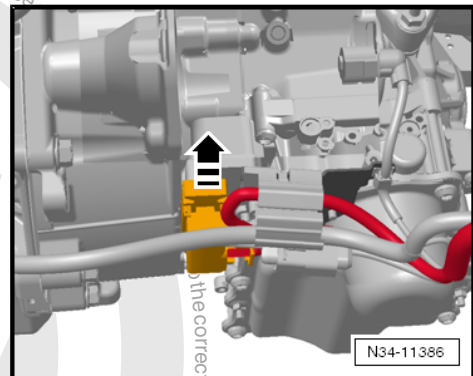
Always renew securing clip.

- Remove cable with great care from cable support bracket on gearbox. Do not bend cable.

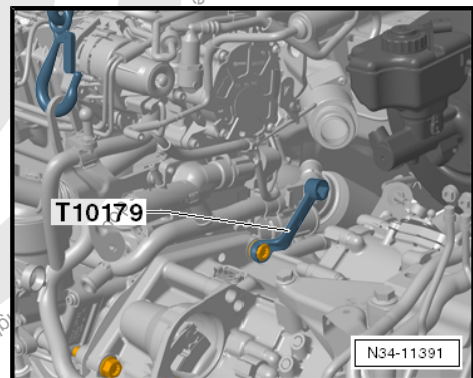
Cable can also be removed later on when gearbox is being lowered. Then observe cable whilst lowering gearbox.



- Release mechatronic unit connector by pulling and pull off connector.

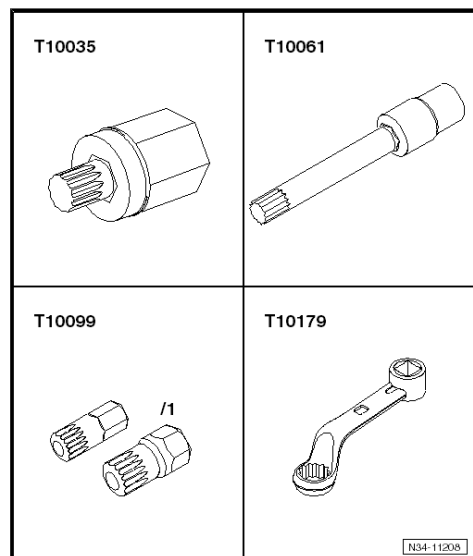


- Remove upper engine/gearbox connecting bolts.



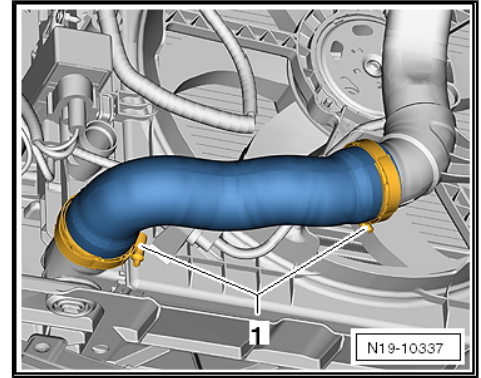
These tools are appropriate for this.

- Remove noise insulation => Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing => Rep. gr. 66 ; Assembly overview - front wheel housing .

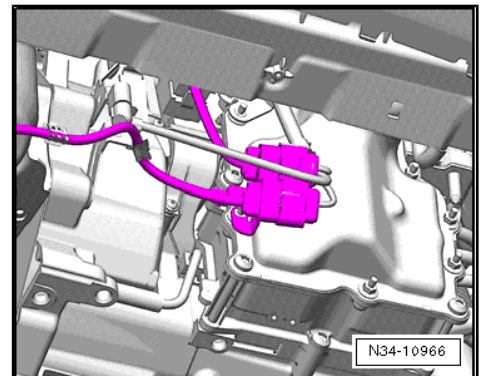




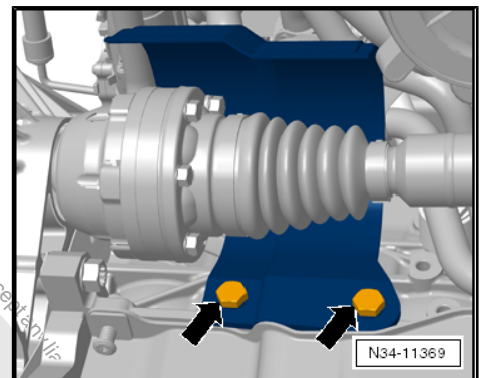
- Remove connecting hose between charge air cooler and charge air pipe ⇒ Rep. gr. 21 ; Removing and installing parts of charge air cooling .



- Remove all retainers and brackets from front of gearbox.
- Remove left drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .

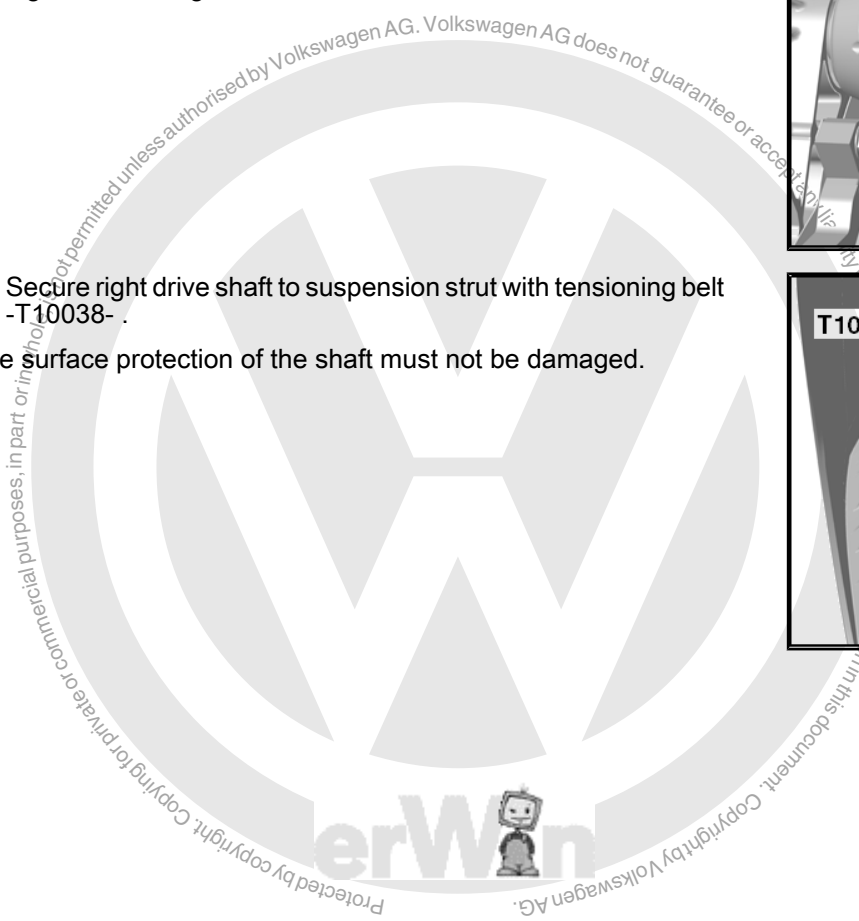
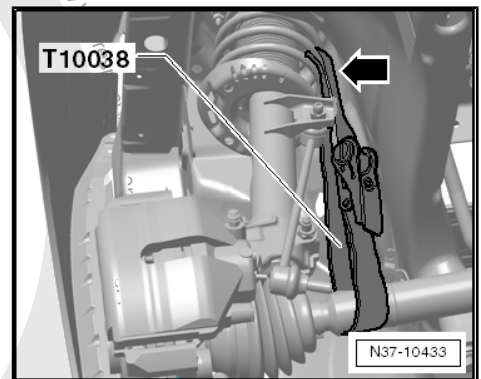


- If present, remove heat shield above right drive shaft. Tightening torque ⇒ Rep. gr. 40 ; Repairing drive shafts
- Unbolt right drive shaft from gearbox ⇒ Rep. gr. 40 ; Removing and installing drive shafts .



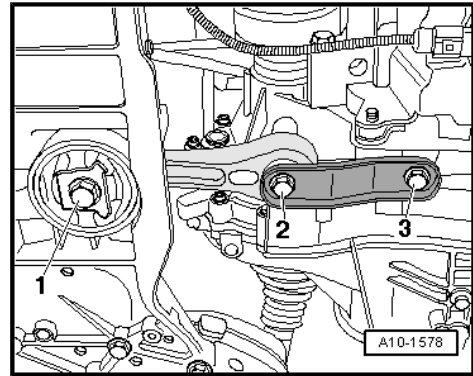
- Secure right drive shaft to suspension strut with tensioning belt -T10038- .

The surface protection of the shaft must not be damaged.



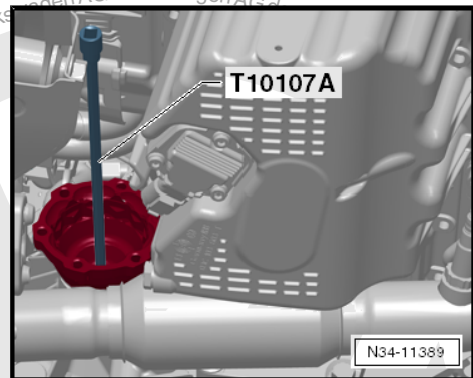


- Remove pendulum support. First remove bolt -1-, followed by bolts -2- and -3- ⇒ Rep. gr. 40 .

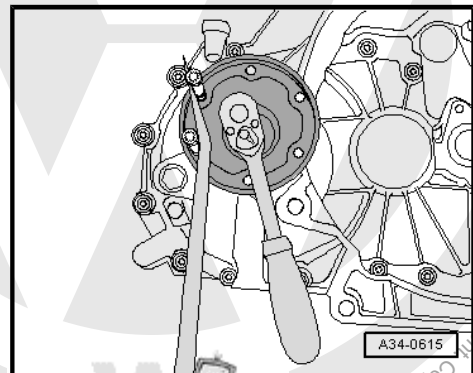


- Remove right flange shaft of gearbox using socket -T10107 A- .

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

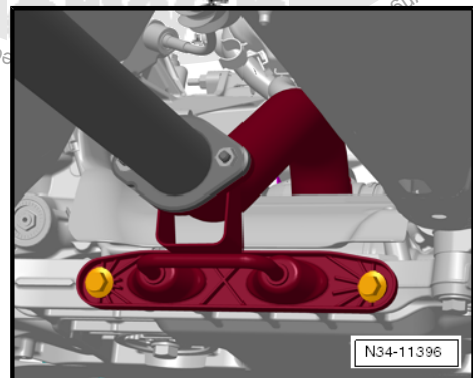


- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.



Torque setting 30 Nm

- Unbolt exhaust system bracket from subframe ⇒ Rep. gr. 26: Removing and installing parts of exhaust system .
- Remove filler pieces from upper edges of both wings.
- 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.





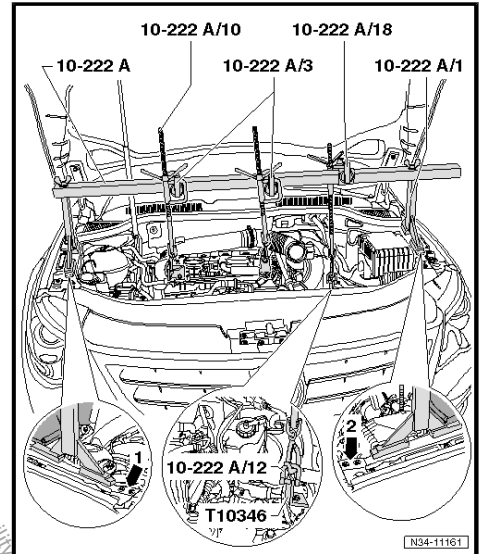
- Support engine and gearbox with support bracket -10 - 222 A- and hooks -10 - 222 A /10- . Do not raise.

Adapters -10 - 222 A /8- can also be used instead of racks -10 - 222 A /1- .



Caution

The support bracket must not be placed on the wings, otherwise these might be damaged.



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

- Then lower engine/gearbox using spindles of support bracket -10 - 222 A- until 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.

- Remove all connecting bolts except one which is in an easily accessible place between engine and gearbox.

Set up gearbox support -3282- with adjustment plate -3282/59- .

- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.

- Position plate of pin under gearbox housing, not under mechatronic unit.

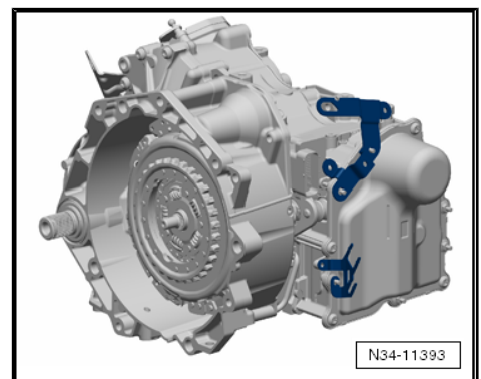
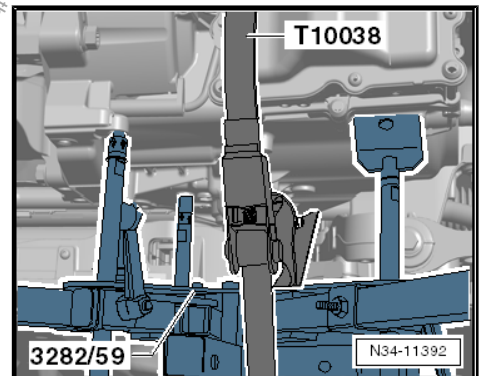
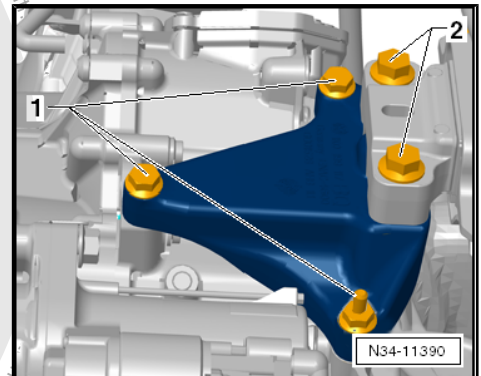
- Screw a pin into »rear« hole for pendulum support.

The gearbox is separated from the engine in this position.

- Remove last engine/gearbox connecting bolt.
- Press gearbox off engine, »observing selector lever cable« and lower gearbox.

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

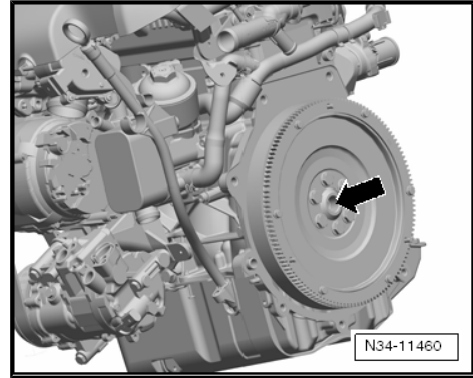
- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.





- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

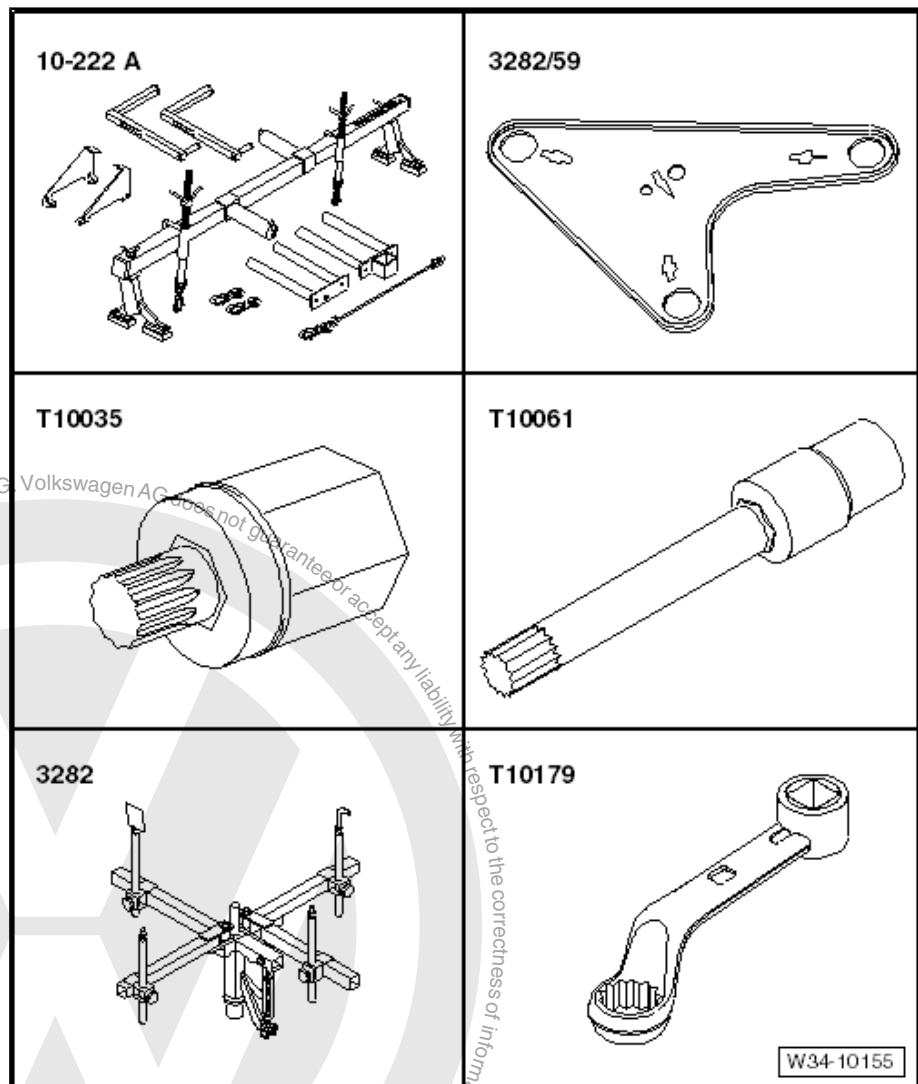
Installing gearbox ⇒ [page 276](#) .



13.25 Removing gearbox; Golf Cabriolet 2012 ▶ 1.4 I - 90 and 118 kW - petrol 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-



Special tools and workshop equipment required

- ◆ Not illustrated: Engine and gearbox jack -V.A.G 1383 A-

Brief description

The gearbox is removed downwards separately, without engine.
»From above«



Remove battery, air filter and starter.

»From below«:

Remove noise insulation beneath engine, lower cover in front left wheel housing and pendulum support.

Removing:

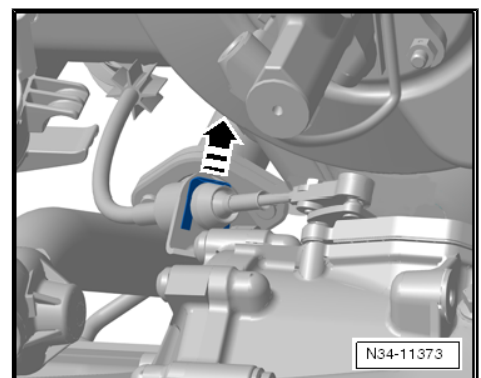
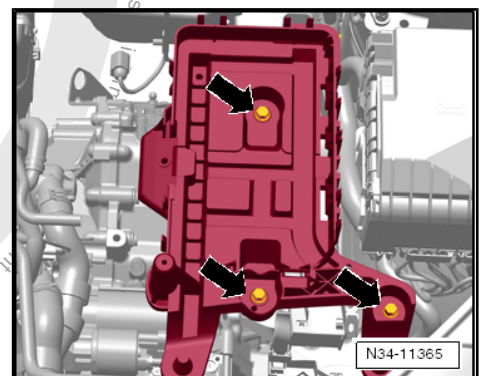
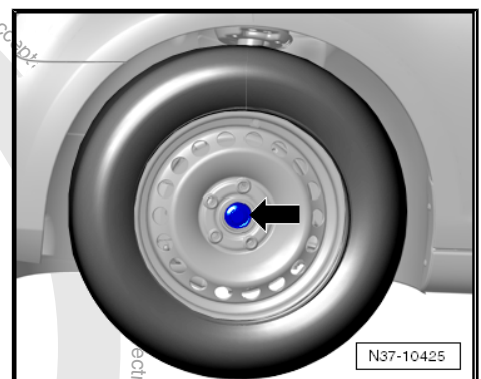
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.



Note

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

- Depress the brake pedal and loosen left bolt of drive shaft -arrow- (2nd mechanic).
- 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 => Electrical system; Rep. gr. 27 ; Removing and installing starter .



- Remove selector lever cable from ball head, remove securing clip.

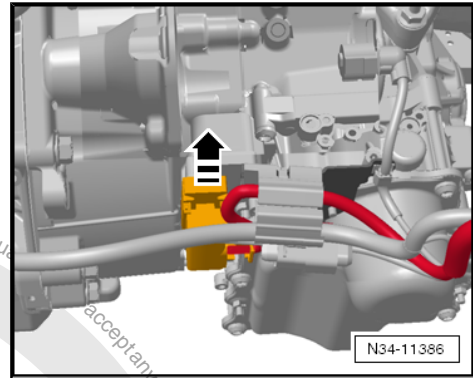
A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

- Therefore, when installing, always use a »new« securing clip.
- Remove cable with great care from cable support bracket on gearbox. Do not bend cable.

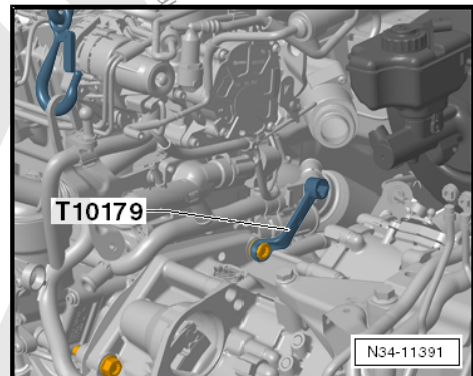
Cable can also be removed later on when gearbox is being lowered. Then observe cable whilst lowering gearbox.



- Release mechatronic unit connector by pulling and pull off connector.

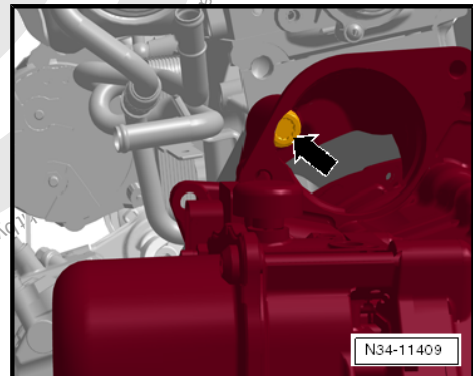


- Remove upper engine/gearbox connecting bolts.

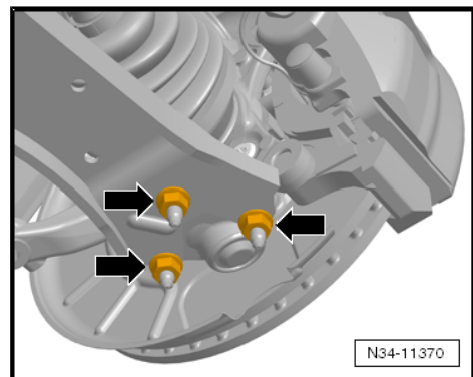


A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.

- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove left drive shaft completely ⇒ Rep. gr. 40 ; Removing and installing drive shafts .
- Unbolt right drive shaft from gearbox ⇒ Rep. gr. 40 ; Removing and installing drive shafts .



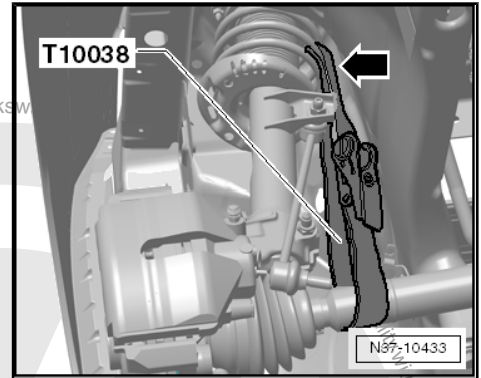
- Unbolt right wishbone from axle link ⇒ Rep. gr. 40 ; Subframe, anti-roll bar, wishbone .



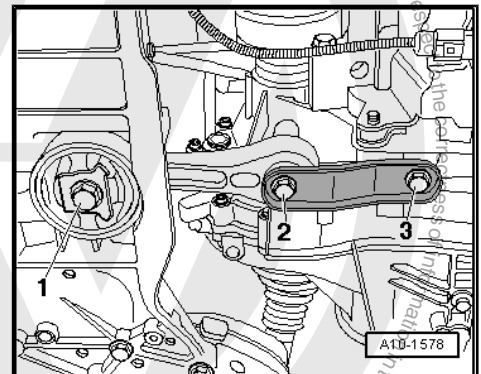


- Secure right drive shaft to suspension strut with tensioning belt -T10038- .

The surface protection of the shaft must not be damaged.

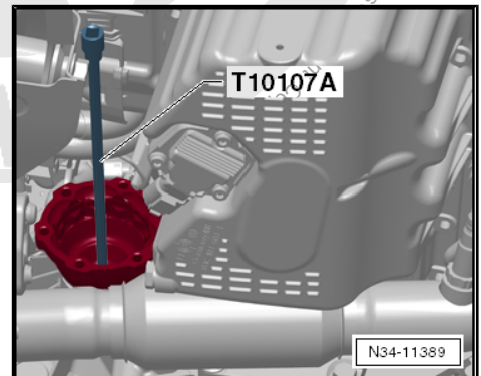


- Remove pendulum support. First remove bolt -1-, followed by bolts -2- and -3- → Rep. gr. 40 .



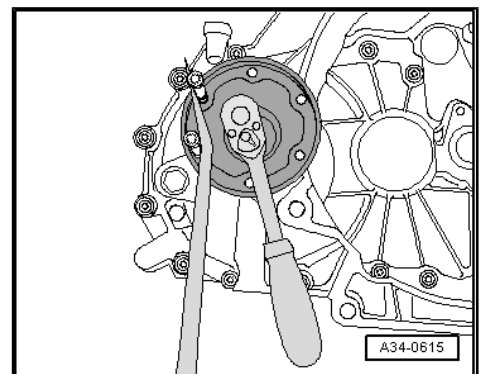
- Remove right flange shaft of gearbox using socket -T10107 A- .

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



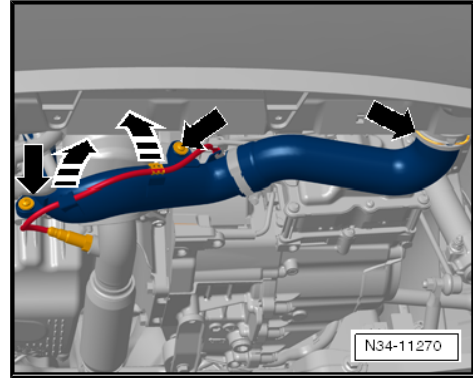
- Screw 2 bolts into flange and counterhold flange shaft with a lever in order to remove and install flange shaft.
- Remove flange shaft with compression spring.
- Close opening in drive shaft using a suitable plug.
- To install flange shaft, if necessary press against gearbox with a lever and screw in bolt.

Torque setting 30 Nm

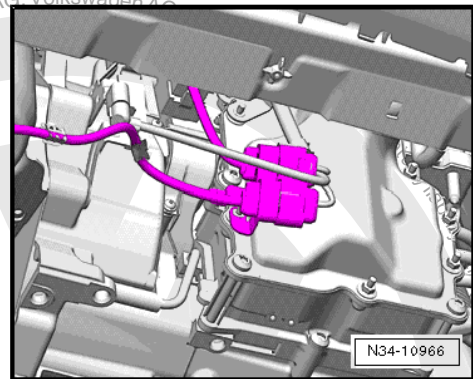




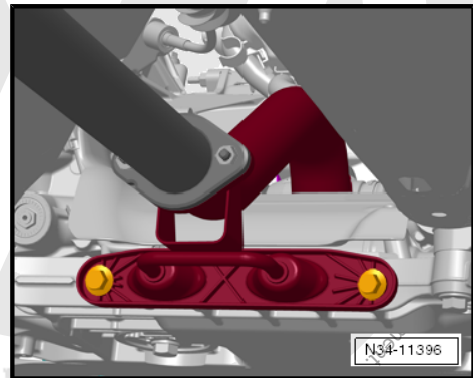
- Unclip line to Lambda probe.
- Remove connecting hose between charge air cooler and charge air pipe.
- Unbolt bottom of charge air pipe from engine and swing forwards => Rep. gr. 21 ; Removing and installing parts of charge air cooling .



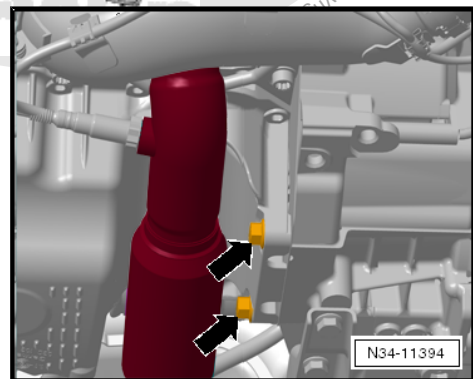
- Remove all retainers and brackets from front of gearbox.



- Unbolt exhaust system bracket from subframe => Rep. gr. 26 ; Removing and installing parts of exhaust system .

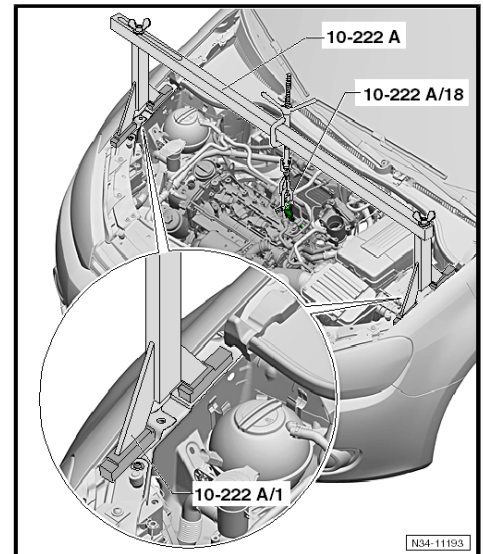


- Disconnect front exhaust pipe from catalytic converter so that lower engine/gearbox connecting bolts -arrows- can be removed => Rep. gr. 26 ; Removing and installing parts of exhaust system .
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222A- , remove these now.





- Support engine and gearbox. Do not raise.



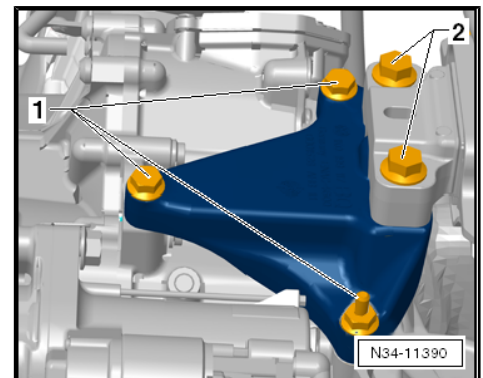
Remove all bolts -1- and -2- for bracket.

- Then lower engine/gearbox using spindles of support bracket -10 - 222 A- until 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.

- Remove all connecting bolts except one which is in an easily accessible place between engine and gearbox.
- Set up gearbox support -3282- with adjustment plate -3282/59- .



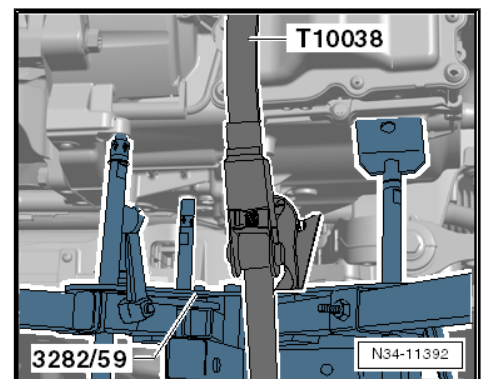
- Move engine and gearbox jack -V.A.G 1383 A- under gearbox and support gearbox. Do not raise.

- Position plate of pin under gearbox housing, not under mechatronic unit.

- Screw a pin into »rear« hole for pendulum support.

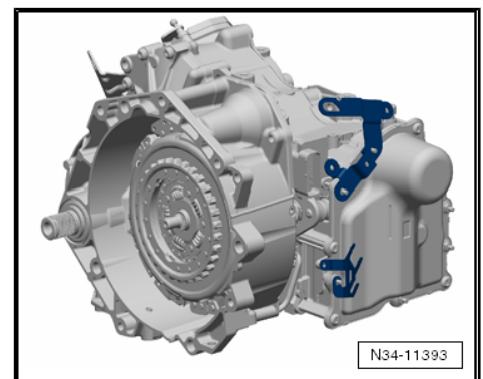
The gearbox is separated from the engine in this position.

- Remove last engine/gearbox connecting bolt.
- Press gearbox off engine, »observing selector lever cable« and lower gearbox.



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

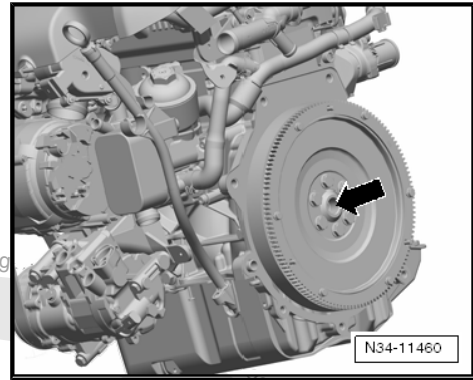
- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.





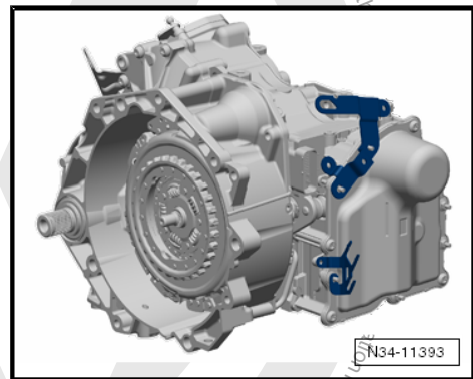
- Renew needle bearing in crankshaft ⇒ Rep. gr. 13 ; Crankshaft group .

Installing gearbox ⇒ [page 276](#) .



13.26 Installing gearbox

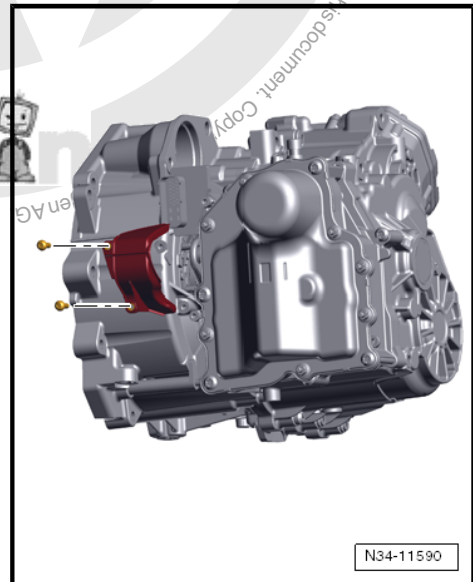
- Please read these important work steps before installing gearbox.
- In some cases, there are brackets on the front of the removed gearbox. Attach these brackets to the »new« gearbox.



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-

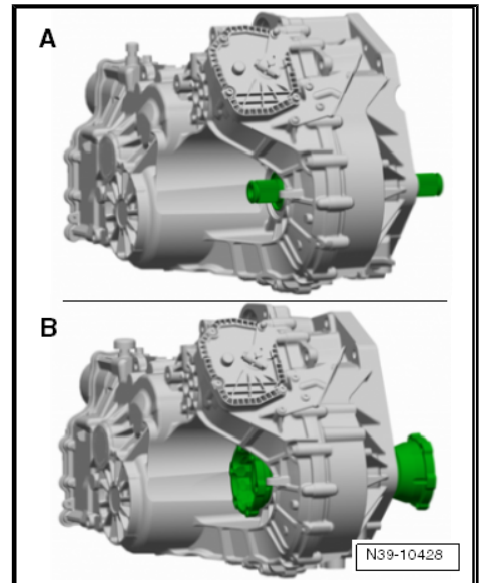
- In gearboxes with stub shafts, stub shaft must be reinstalled on »new« gearbox in some cases. For this procedure, refer to => [page 376](#) .

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

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

Gearbox with flange shafts, torque setting => [page 379](#)

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



- If it hasn't been done already, renew needle bearing in crankshaft => Rep. gr. 13 ; Crankshaft group .
- 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.

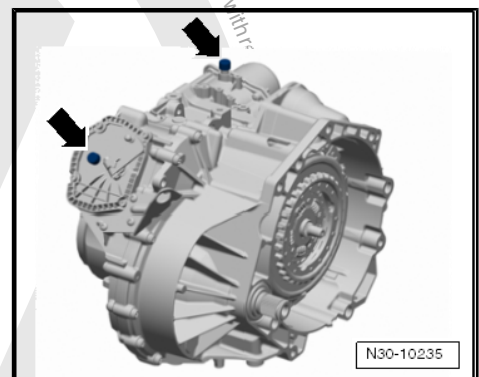
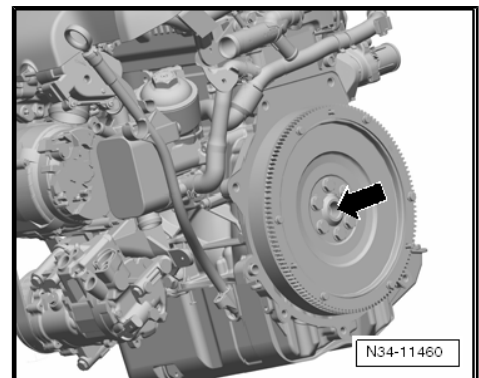
Check cable as soon as gearbox is raised. Be sure to insert it in cable support bracket »early«.

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«!

- Re-adjust gearbox support until engine and gearbox »are aligned with each other«.
- If necessary, turn crankshaft slightly.
- After fitting starter motor, check that both breather caps are in place!

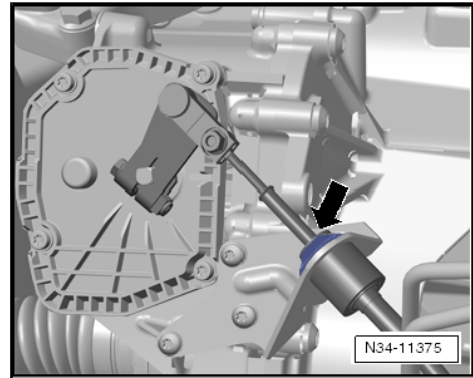




- Securing clip for selector lever cable must be renewed.

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.

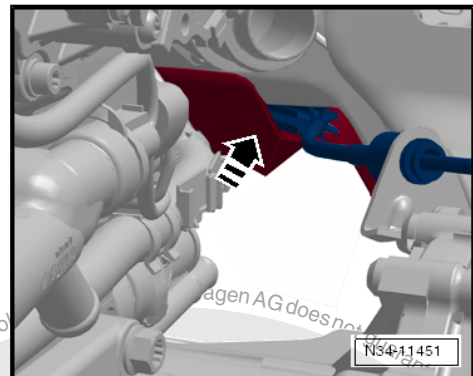
- Therefore, when installing, always use a »new« securing clip.



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

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 85](#) .
- Initiate basic adjustment => [page 10](#) .



Torque settings for gearbox installation => [page 278](#) .

13.27 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.

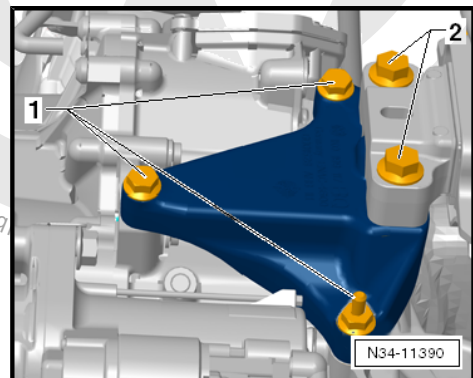
For example: subframe and pendulum support.

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

Consequently, further descriptions can also be found in => Running gear; Rep. gr. 40 .

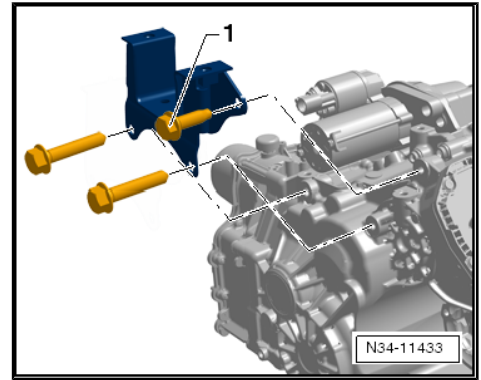
Left assembly mounting

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





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

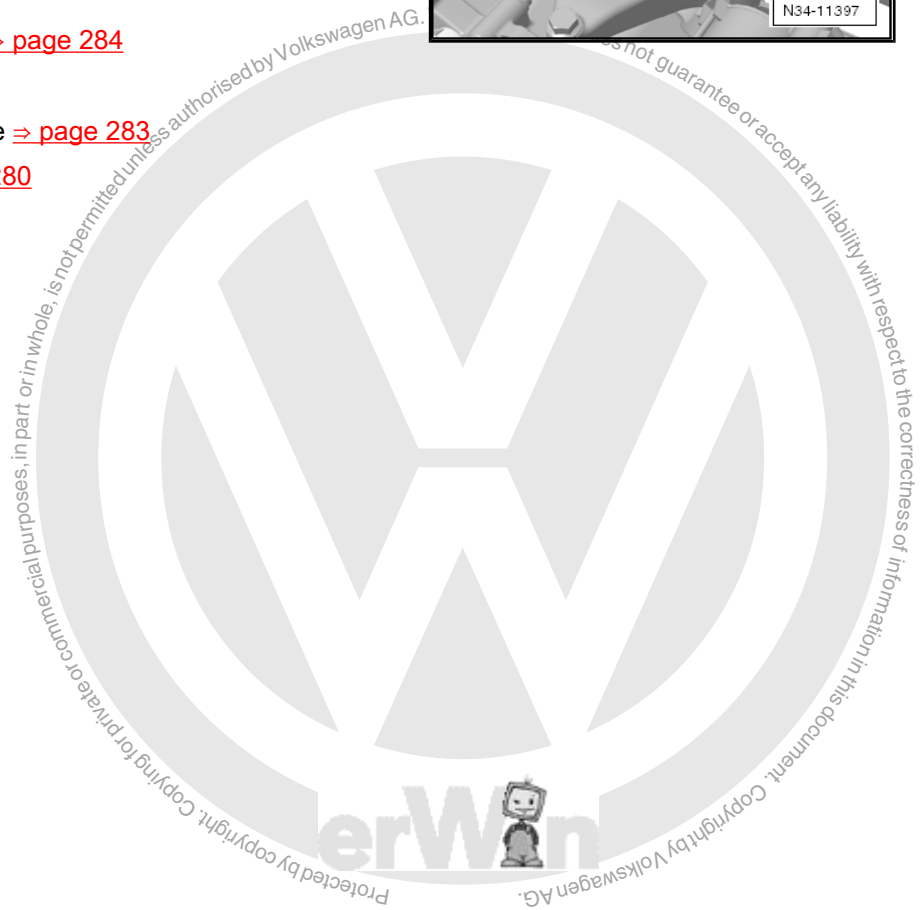
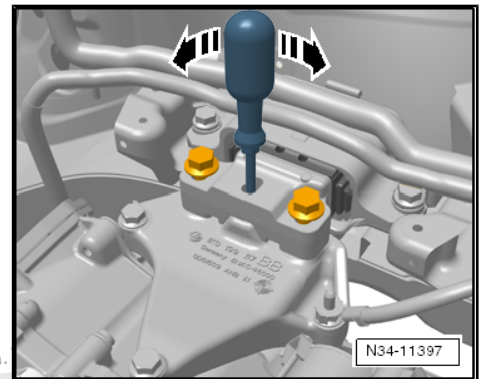


- The bracket can be moved within its seat with a screwdriver when bolts -2- are tightened. Torque settings of -bolts 2-: 60 Nm + 90°.

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 .

- ◆ 1.4 l - 63 kW engine ⇒ [page 281](#)
- ◆ 1.9 l - 77 kW - diesel engine and 1.6 l - 66 kW diesel engine ⇒ [page 285](#)
- ◆ 1.6 l - 77 kW - diesel engine ⇒ [page 284](#)
- ◆ 1.6 l - 66 kW - diesel engine
- ◆ 1.2 l and 1.4 l and 1.6 l engine ⇒ [page 283](#)
- ◆ 1.8 - 118 kW engine ⇒ [page 280](#)





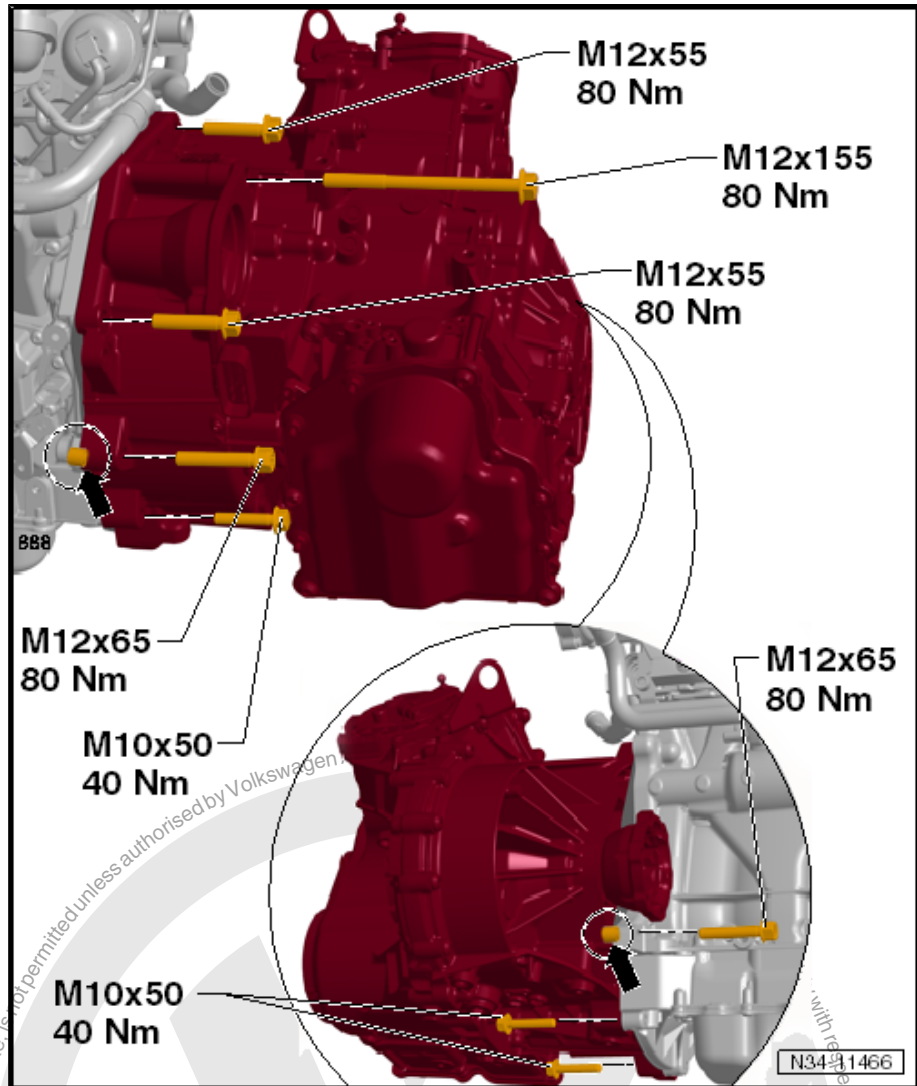
13.27.1 1.8 - 118 kW engine

M12 - 80 Nm

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

M10 - 40 Nm

- Arrows point towards dowel sleeves





13.27.2 1.4 I - 63 kW petrol engine

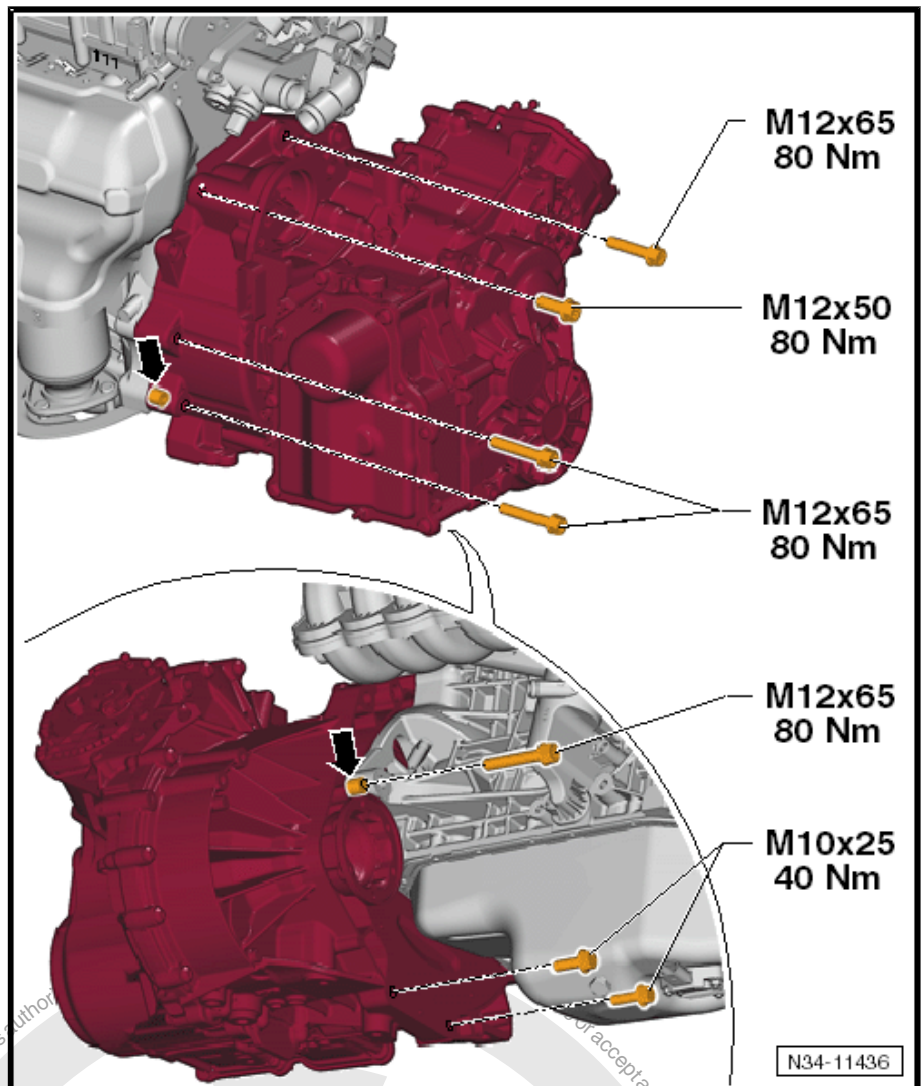
Without stop/start

M12 - 80 Nm

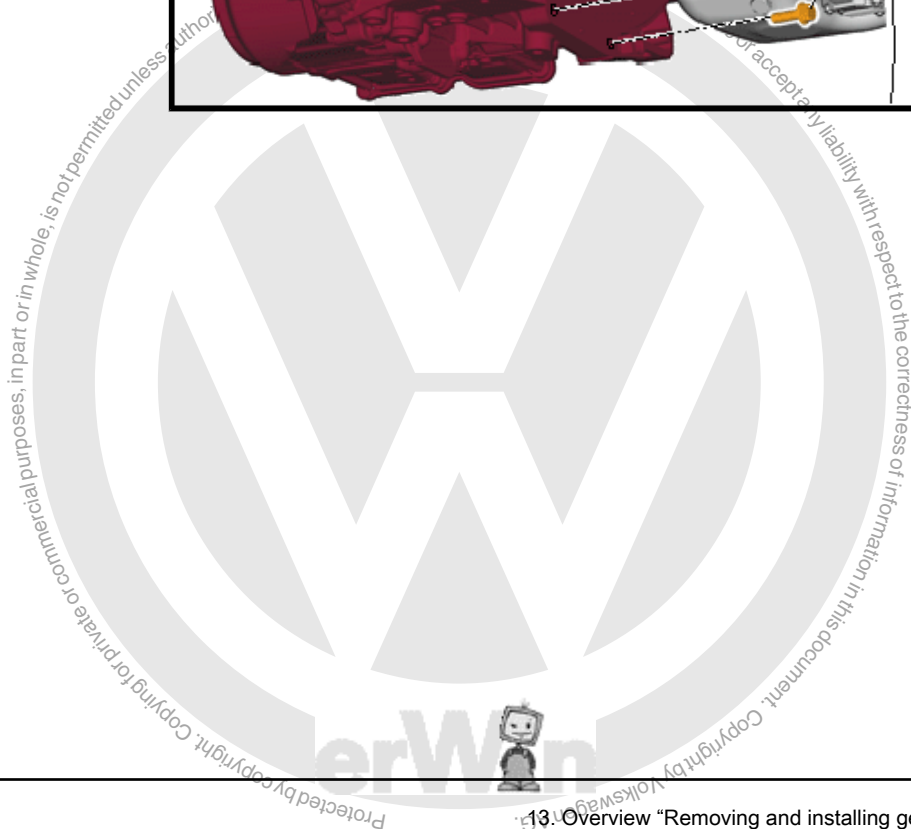
- If 18 mm insert -T10179- is used: 65 Nm.

M10 - 40 Nm

- Arrows point towards dowel sleeves



With stop/start



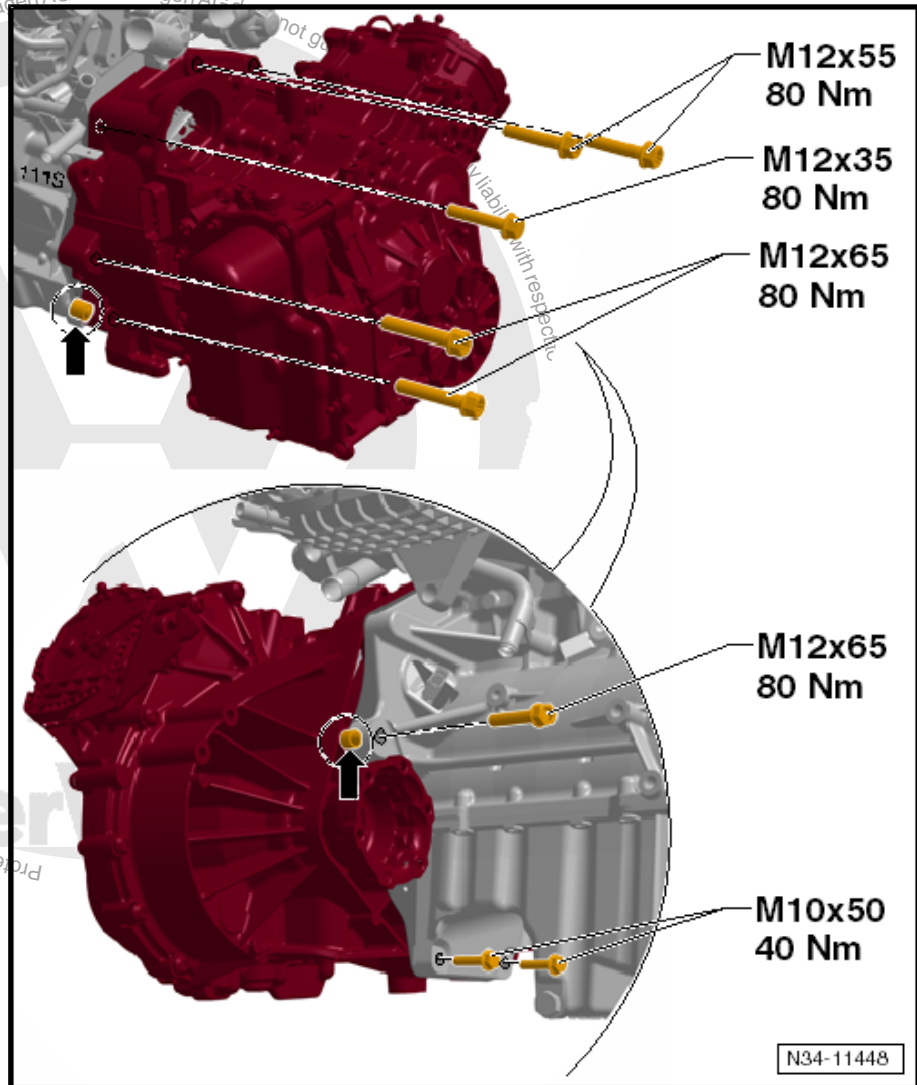


M12 - 80 Nm

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

M10 - 40 Nm

- Arrows point towards dowel sleeves





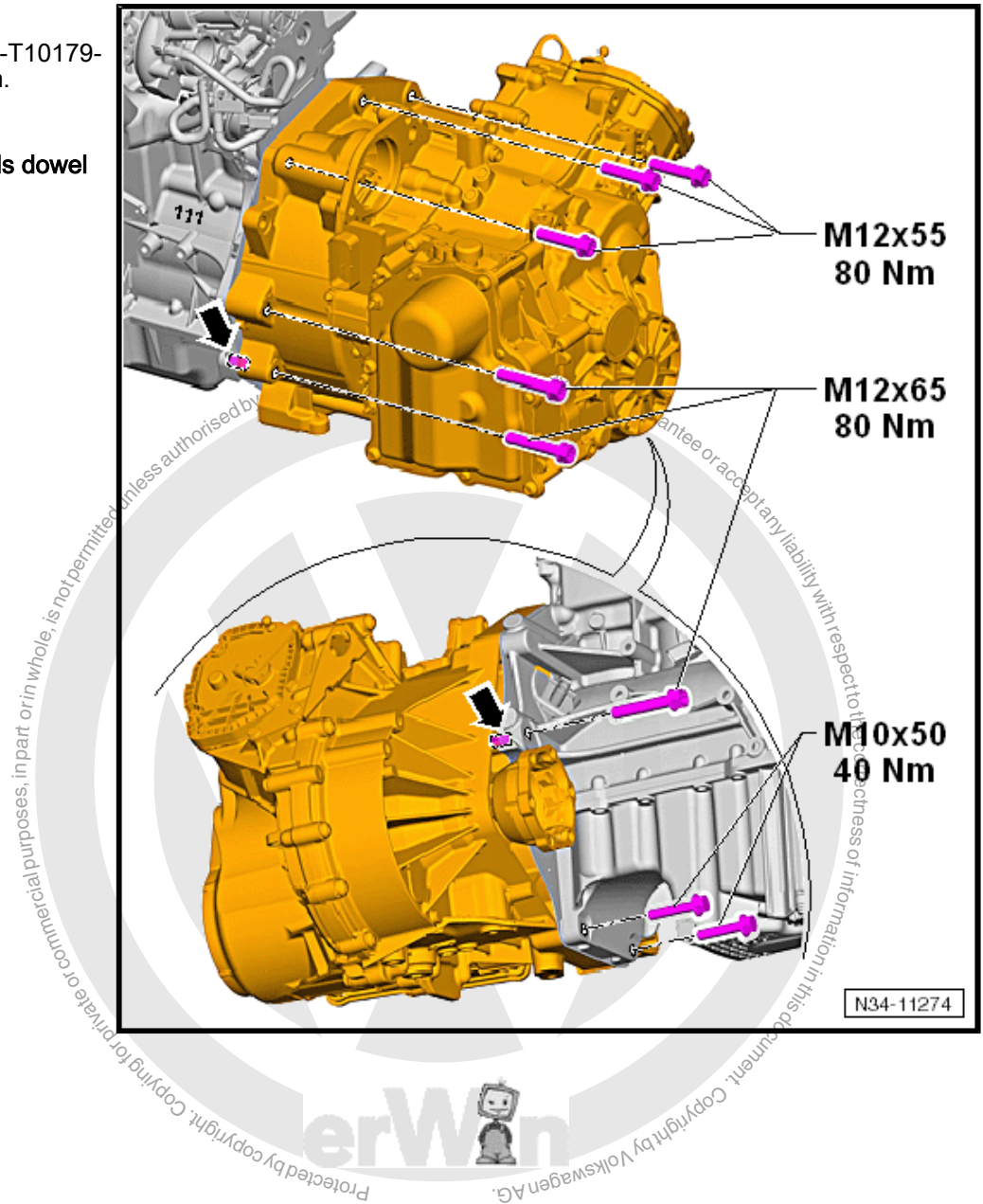
13.27.3 1.2 l and 1.4 l and 1.6 l engine

M12 - 80 Nm

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

M10 - 40 Nm

- Arrows point towards dowel sleeves





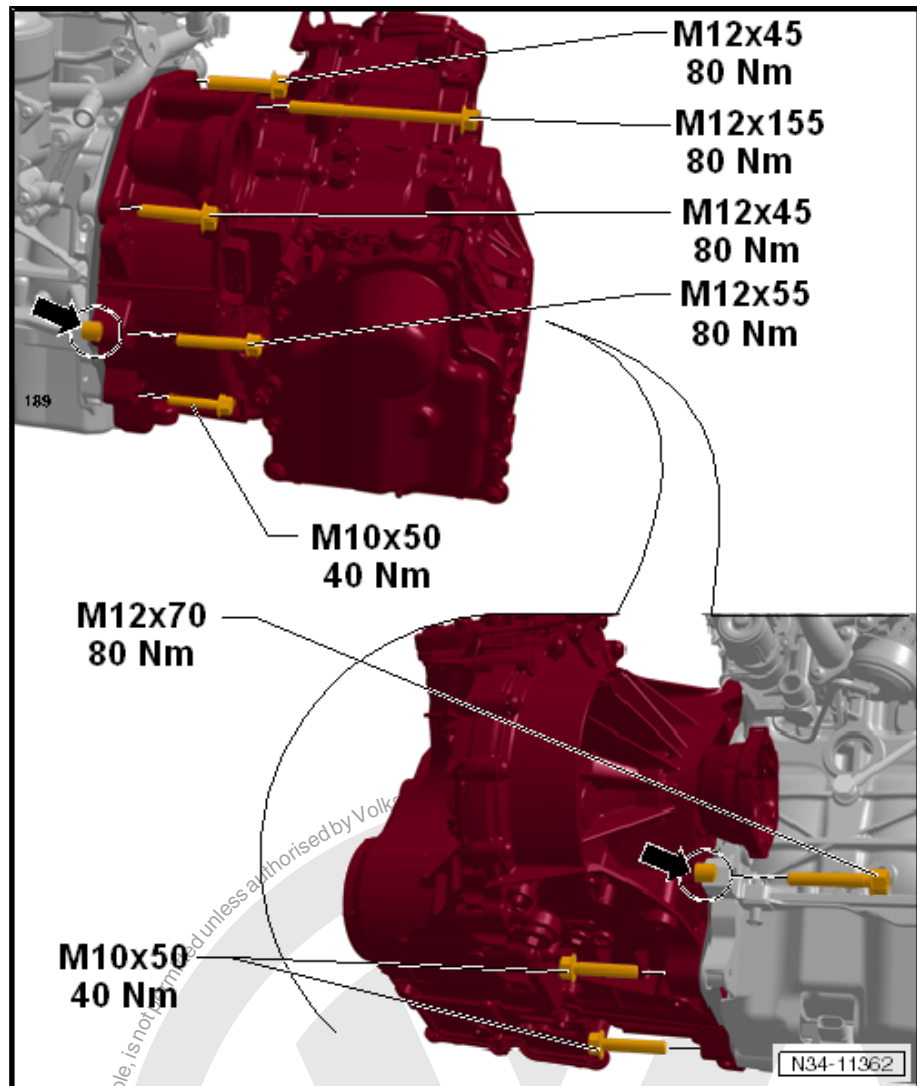
13.27.4 1.6 I - 77 kW diesel engine

M12 - 80 Nm

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

M10 - 40 Nm

- Arrows point towards dowel sleeves





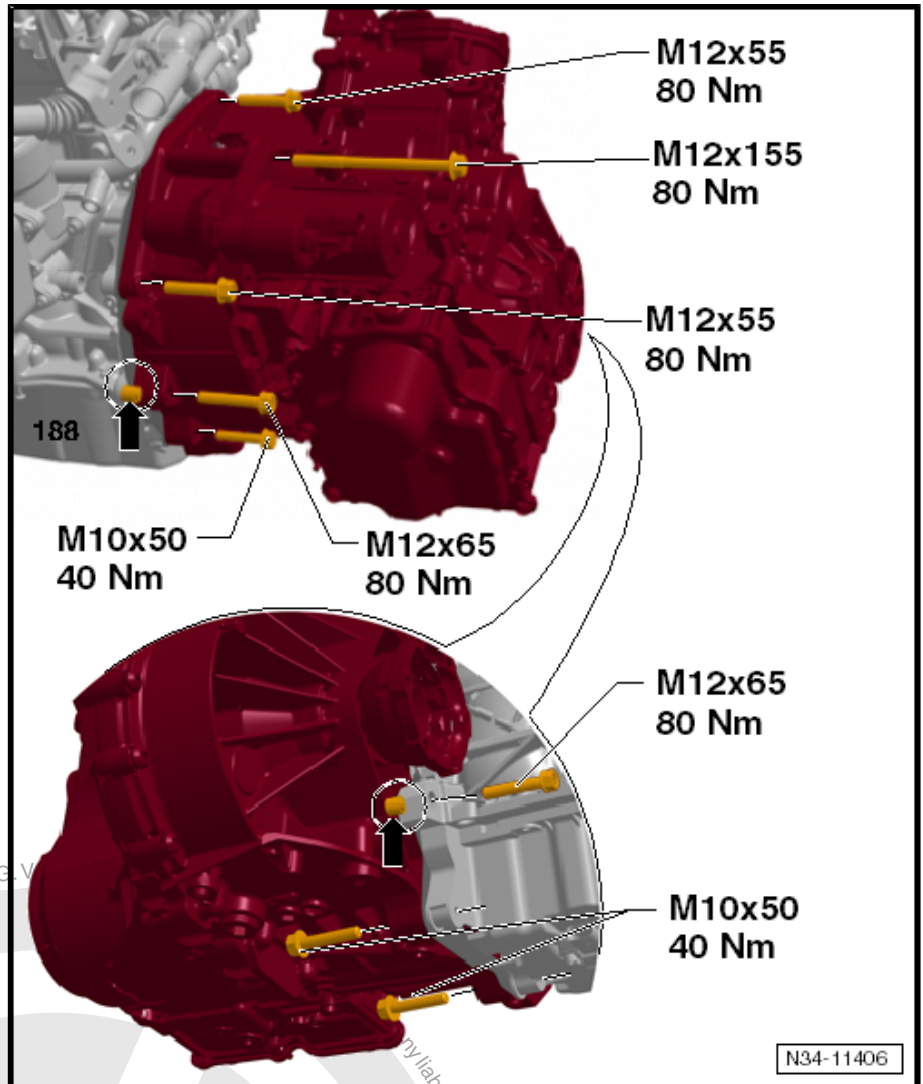
13.27.5 1.9 l - 77 kW - diesel engine and 1.6 l - 66 kW diesel engine

M12 - 80 Nm

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

M10 - 40 Nm

- Arrows point towards dowel sleeves



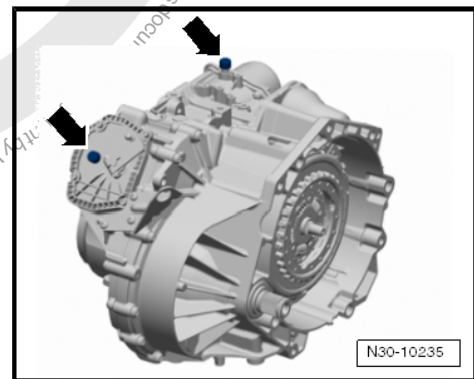
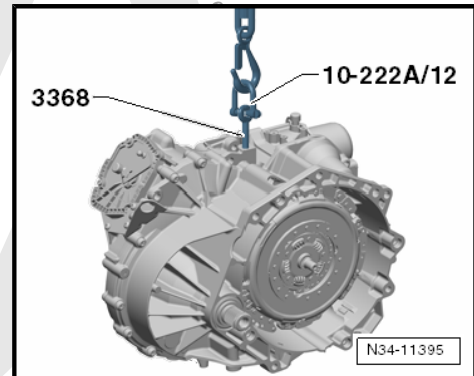
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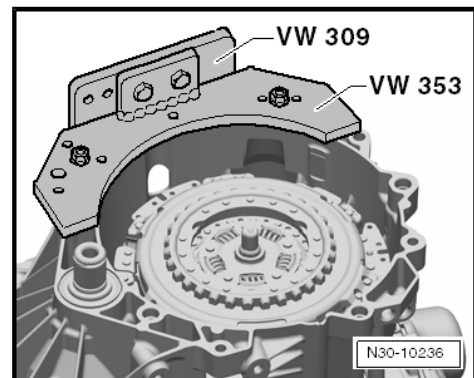
14 Transporting gearbox and securing to assembly stand

Transporting gearbox.

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



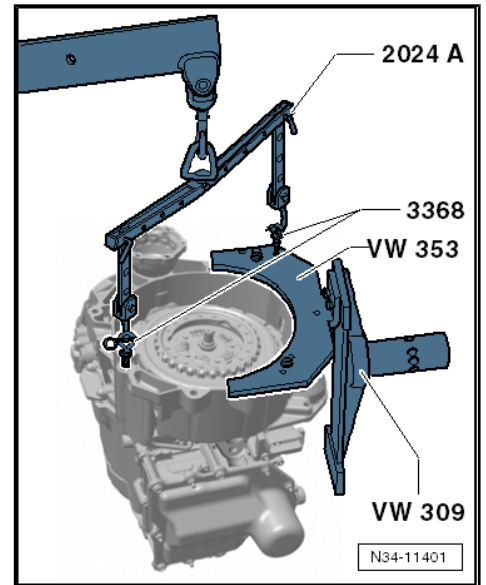
Secure gearbox on gearbox support -VW 353- .





Lift gearbox into assembly stand.

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





35 – Gears, shafts

1 Notes on gearbox disassembly

Gearbox spare parts are allocated to gearbox code.

For every installation on shafts, always check »lower« bearing. It is easy for bearing cages to become bent and damaged by »bumping«.

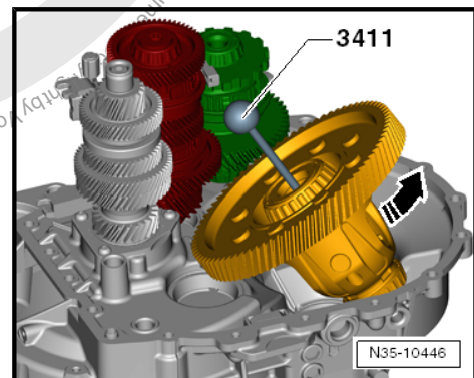
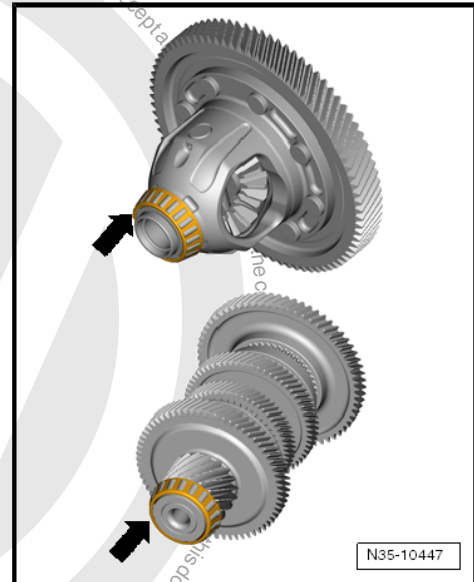
Bearing races are not allowed to be swapped over. They are paired with the bearing.

Always renew the bearings on a shaft together.

- Install with care, without using force.

Example:

Always use guide pins -3411- to install differential. Take care not to bump lower bearing.





1.1 Overview: gearbox disassembly

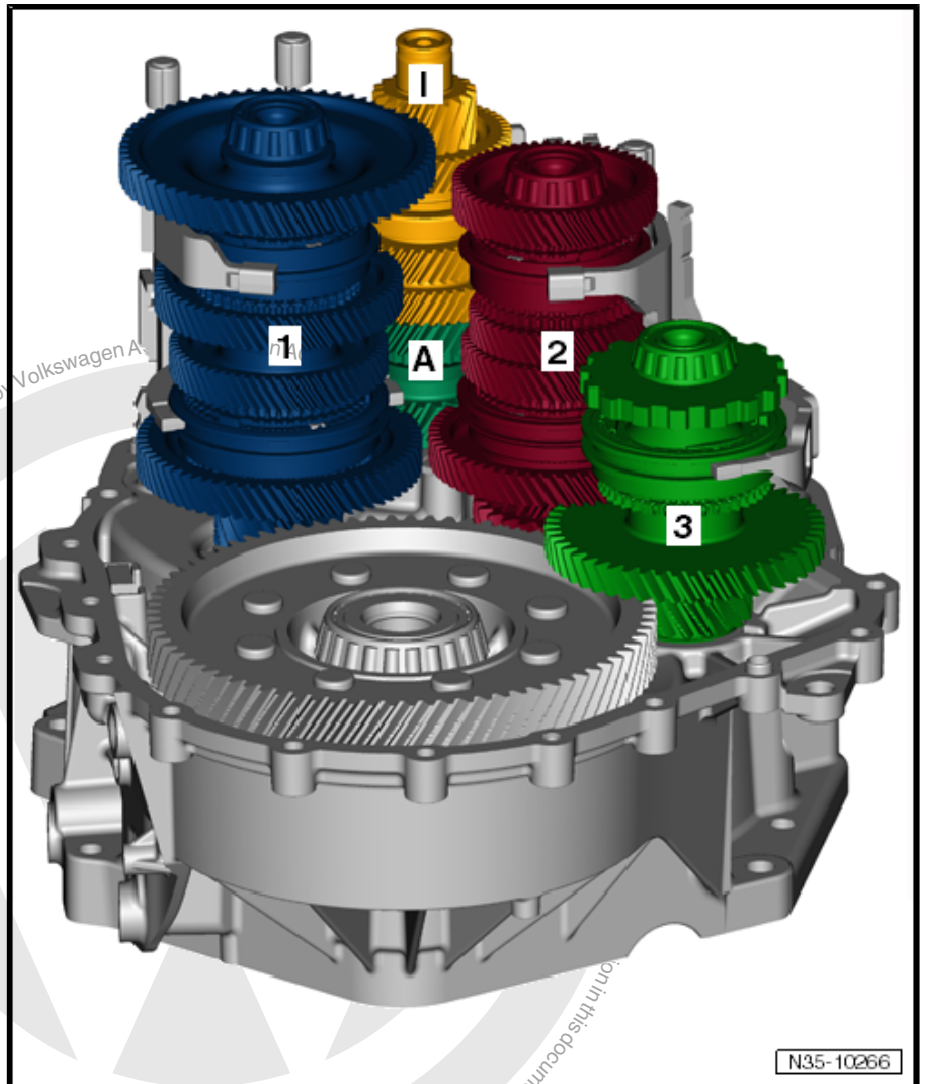
A - Outer input shaft

I - Inner input shaft

1 - Output shaft 1

2 - Output shaft 2

3 - Output shaft 3



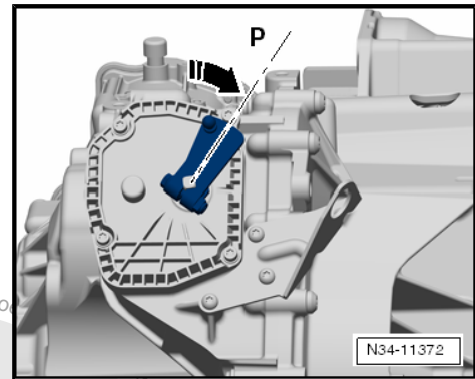


2 Dismantling gearbox

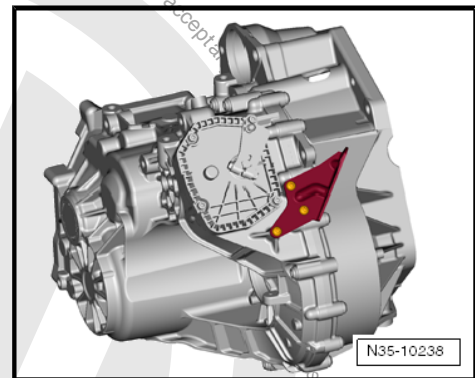
- Secure gearbox to stand => [page 286](#) .

Prerequisites

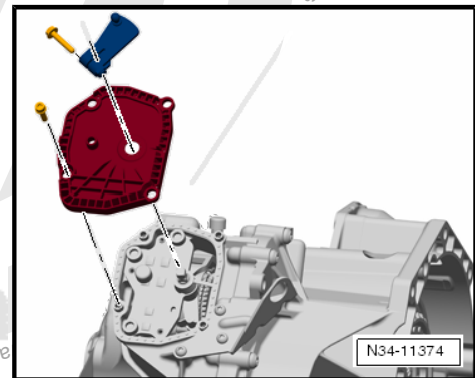
- Clutch is removed
- Mechatronic unit is removed
- Gear oil is drained
- Engage parking lock.



- Remove cable support bracket.

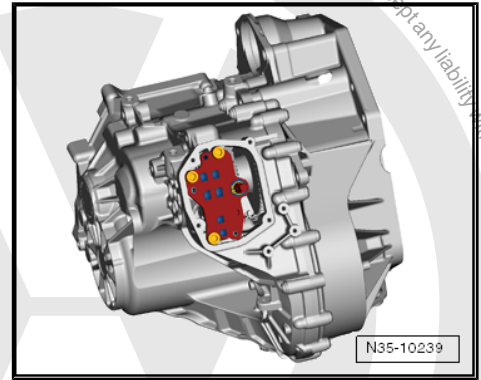


- Remove lever and cover.

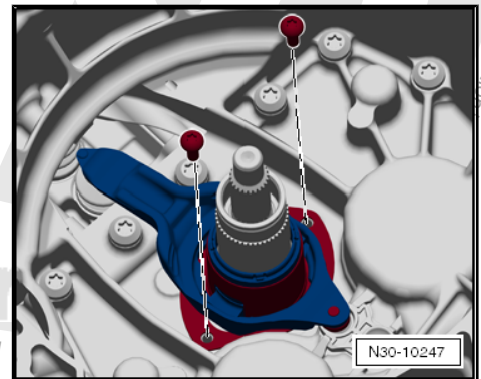




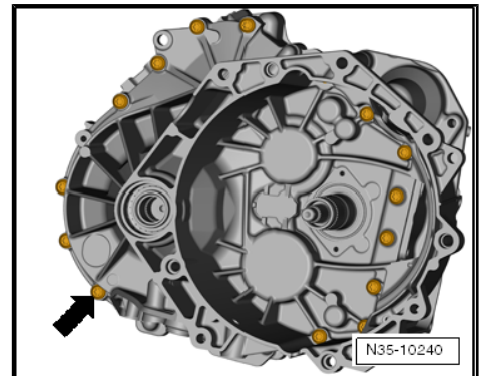
- Remove parking lock ⇒ [page 375](#) .
- Remove dual clutch ⇒ [page 13](#) .



- If not already removed: remove both engaging levers.
- Remove mechatronic unit ⇒ [page 91](#) .
- Remove flange shafts or stub shafts ⇒ [page 376](#) .

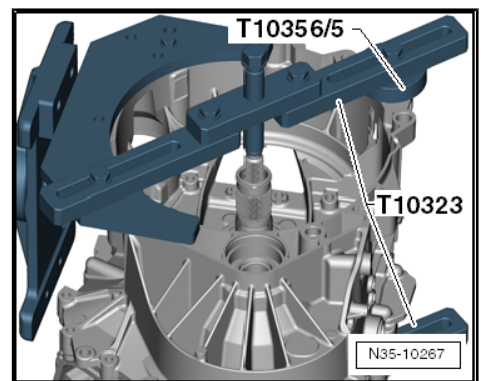


- Remove connecting bolts of housing halves at clutch end.



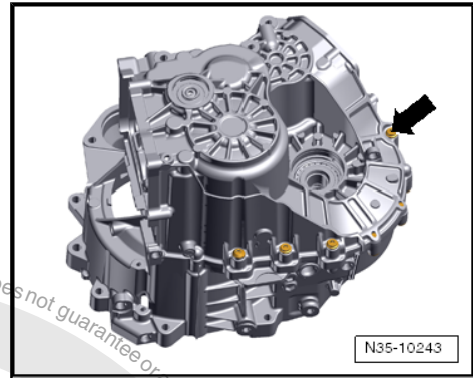
- Fit support bridge -T10323- and rotate spindle against inner input shaft until finger tight.

This supports shaft. Gearbox housing is pulled off later. In this way, the force required is not applied to the gearbox in an uncontrolled manner.

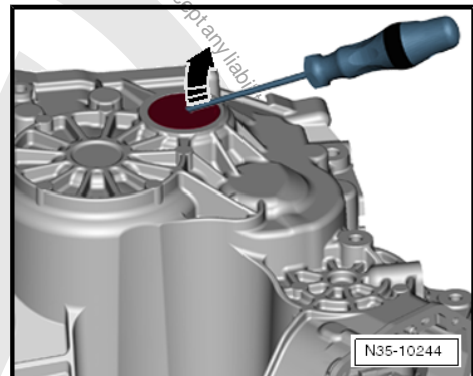




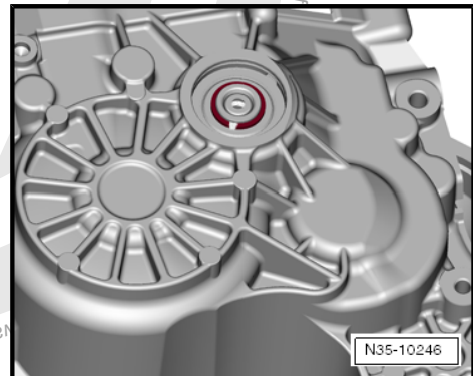
- Turn gearbox, remove remaining connecting bolts of housing halves.



- Penetrate cover of "inner input shaft" and lever out.
Drive screwdriver »centrally« and at a very »acute« angle into cover. Only far enough so you can lever out cover.



- Remove retaining ring.
- Remove dowel sleeves of mechatronic unit.



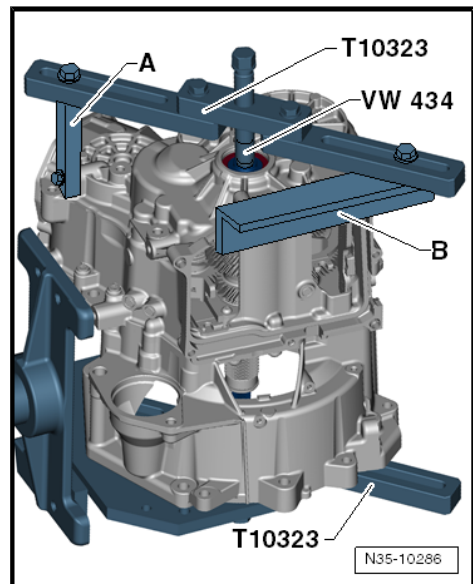
- From above, mount another puller.
Screw on -A- square pin -T10427/1- and -B- angled rod -T10427- until finger-tight.

Spindle should press against input shaft.

- Whilst pulling off, you can apply »targeted« hammer blows to reinforce pulling force.
- Use a hardwood block as protection.

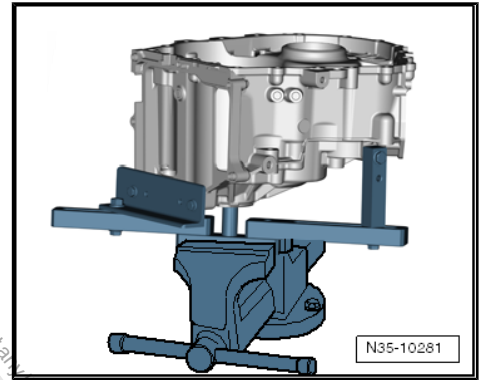
This will make it easier to release glue between both housing halves.

- Pull off gearbox housing and place it to one side.

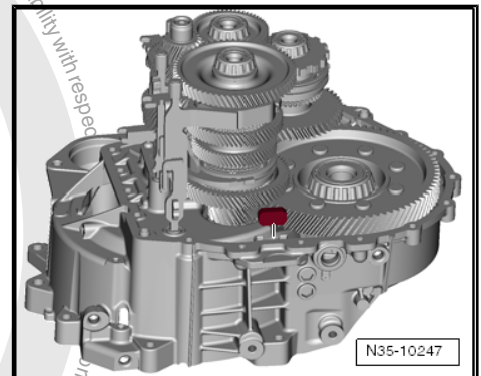




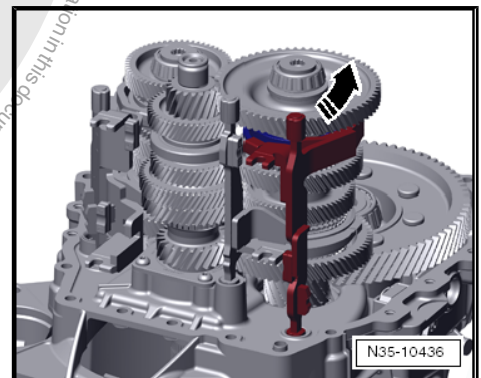
Gearbox housing can be clamped in 1 vice for further assembly with puller.



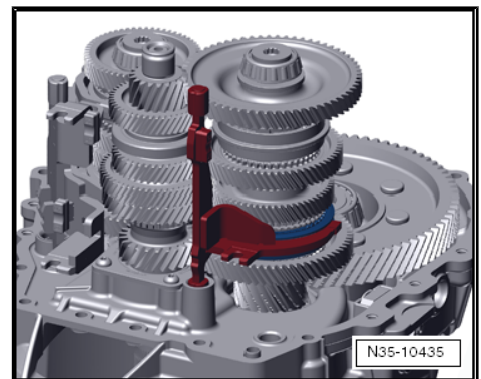
- Remove magnet and clean it.



- Move selector fork for 1st and 3rd gear upwards into 1st gear.
- Slightly raise output shaft 1, tip it a little -arrow- and remove selector fork.

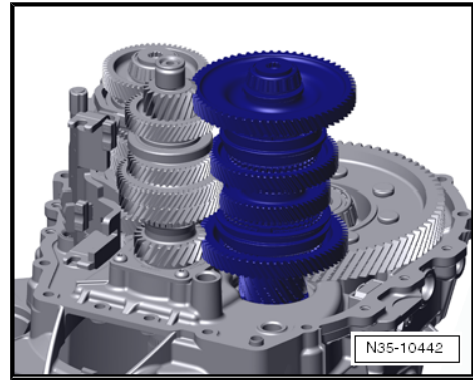


- Move selector fork for 2nd and 4th gear upwards into 4th gear.
- In this case too, raise output shaft 1 slightly, tilt it and remove selector fork.

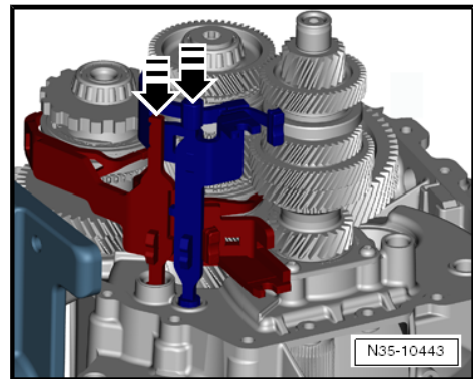




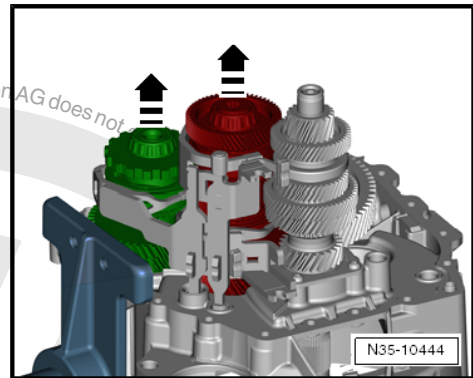
- Remove output shaft 1.



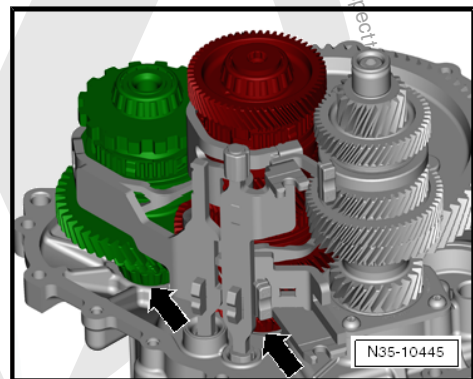
- Shift down both remaining selector forks.



- Raise output shafts 2 and 3 out of the lower bearings.

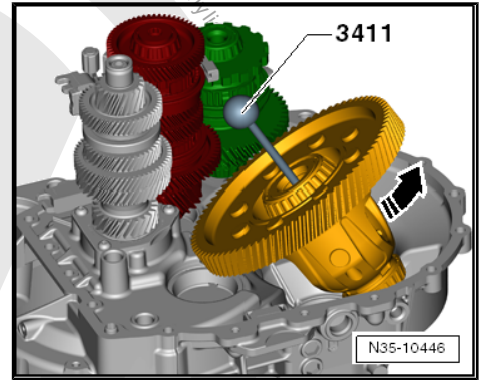


- Place both shafts »in direction of« selector forks onto clutch housing.

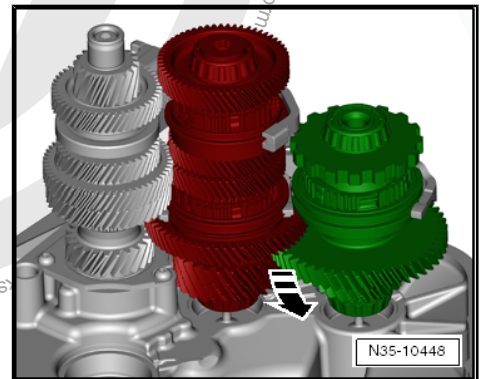




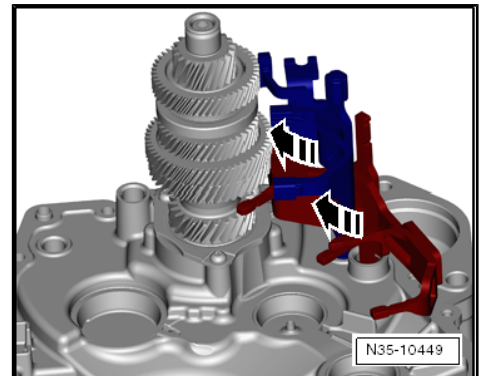
- Screw one guide pin 3411- into differential.
- Remove differential. Output shaft 2 can be raised slightly for this purpose.



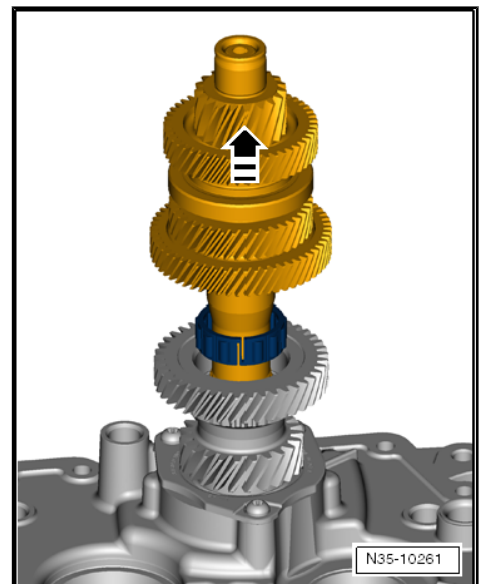
- Remove output shafts 2 and 3.



- Selector forks rotate »inwards«.
- Remove selector forks.

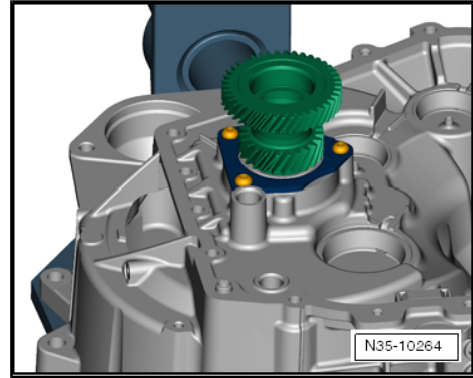


- Remove inner input shaft.
- There is a roller bearing between inner and outer input shaft. Please also remove this.
- This bearing is not allowed to be broken.

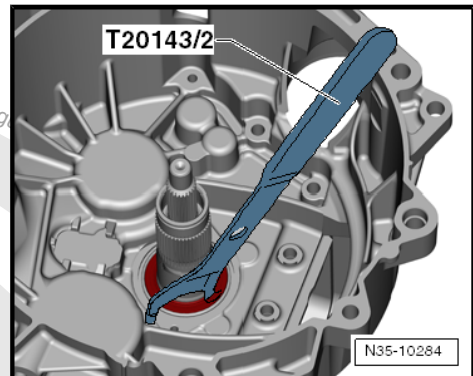




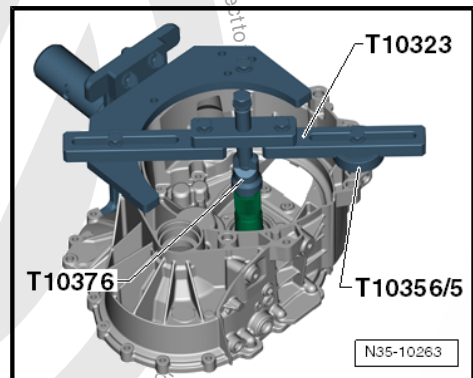
- Unscrew 3 bolts.
- Turn over clutch housing together with »last«, outer input shaft.



- Lever out outer oil seal.



- Outer input shaft can be pressed out now.
- Hold shaft firmly with one hand. This prevents it from falling down.





Note

»Pressed out« shaft will fall down.

- Bearing of outer input shaft must always be renewed
⇒ [page 317](#) . New retaining ring -arrow- must also be pressed in.

Pressing out shaft caused force to be applied through balls of bearing.

- Clean surfaces of both housings with silicone remover - LSE020100A3- .

Disassembly of gearbox is completed.

Further »links«:

Assembling gearbox ⇒ [page 298](#) .

Dismantling and assembling gearbox housing ⇒ [page 309](#)

Dismantling and assembling clutch housing ⇒ [page 313](#)

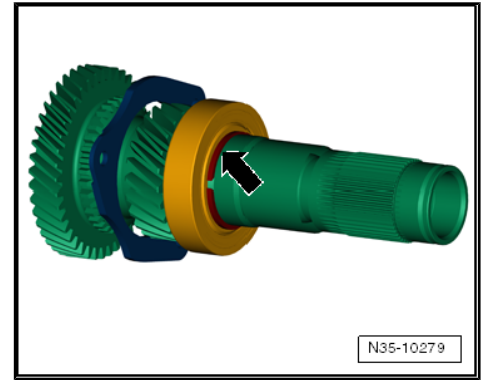
Dismantling and assembling outer input shaft ⇒ [page 317](#)

Dismantling and assembling inner input shaft ⇒ [page 319](#) .

Dismantling and assembling output shaft 1 ⇒ [page 322](#) .

Dismantling and assembling output shaft 2 ⇒ [page 332](#) .

Dismantling and assembling output shaft 3 ⇒ [page 339](#) .





3 Assembling gearbox

Clean sealing surfaces on both gearbox halves.

- First install outer input shaft.
- External input shaft must be prepared for this in advance. 1 new bearing with correct retaining ring must already be attached => [page 317](#) .
- Heat clutch housing in area of outer input shaft to approx. 100 ° C using a hot air blower.
- If housing has been heated correctly then outer input shaft can be inserted by hand up to stop. This is done without force.

If bearing jams then clutch housing is »still too cold«.

Do not continue pressing!

- Remove shaft again, heat clutch housing correctly.

- After cooling down: tighten 3 bolts.

Torque setting 8 Nm + 90°

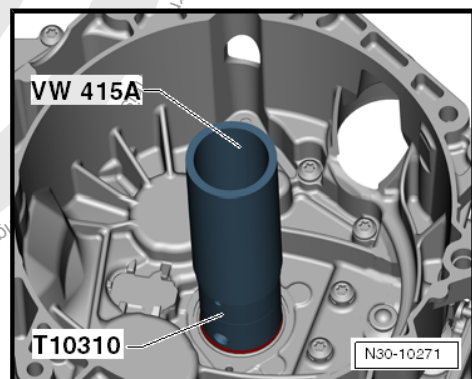
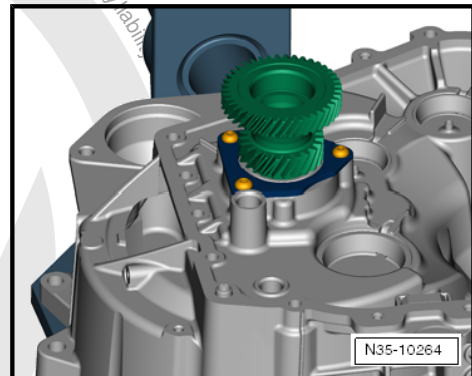
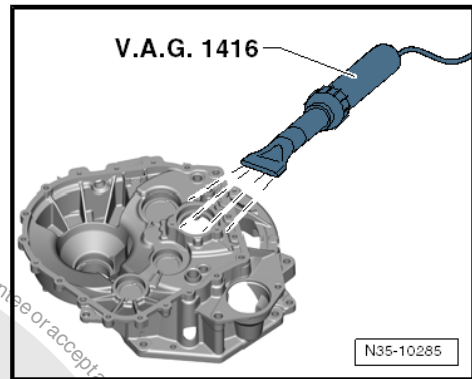
- Turn clutch housing around.

- Drive in outer, »new« oil seal with a plastic mallet until flush with clutch housing.

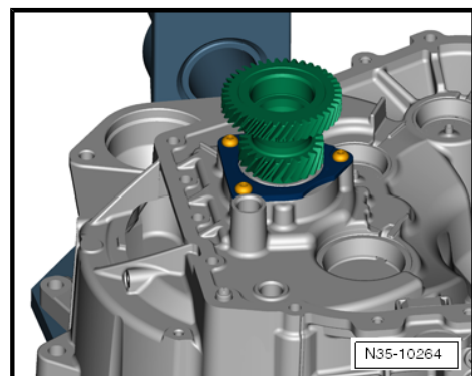


WARNING

Only drive in oil seal until flush, in order to avoid closing off oil drilling located behind it. Otherwise, bearing can no longer be supplied with enough oil.

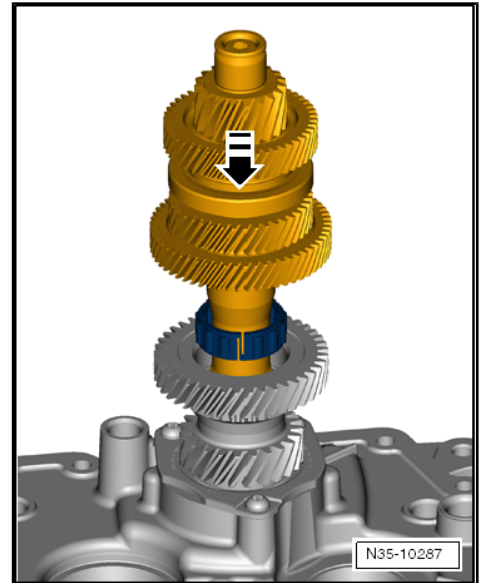


- Turn clutch housing back around.

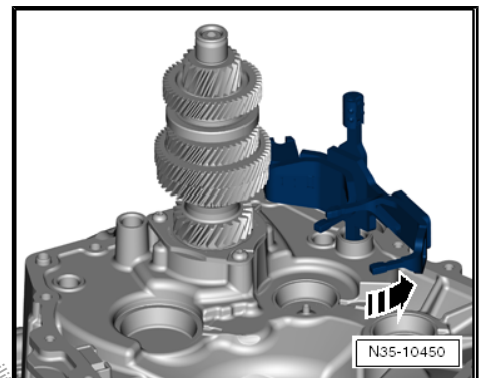




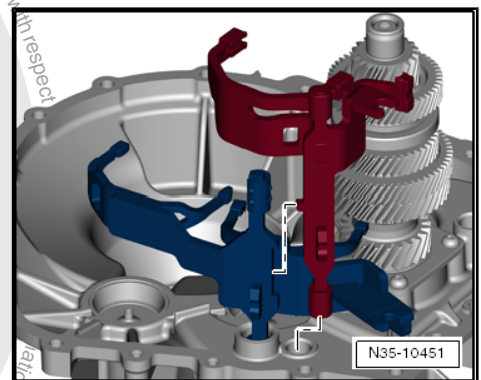
- Insert inner input shaft with roller bearing.
Bearing is not allowed to be broken. Oil bearing.
- Shift all locking collars of output shafts 2 and 3 »downwards«.



- Insert selector fork for 6th gear and reverse gear.
- Fork cannot be turned in its position unless it is »all the way down«.



- Insert selector fork for 5th and 7th gears.
This selector fork can be inserted very easily if you raise the other selector fork a little.

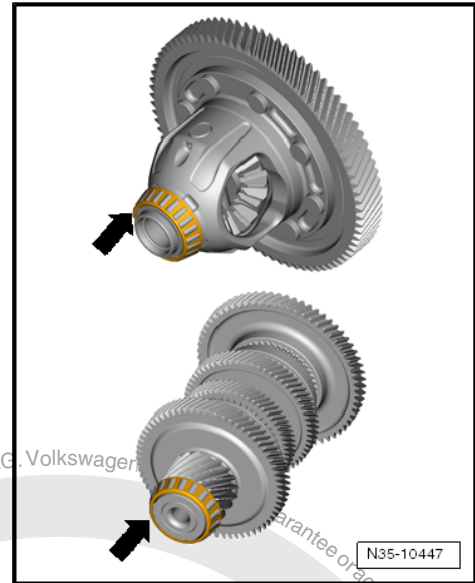




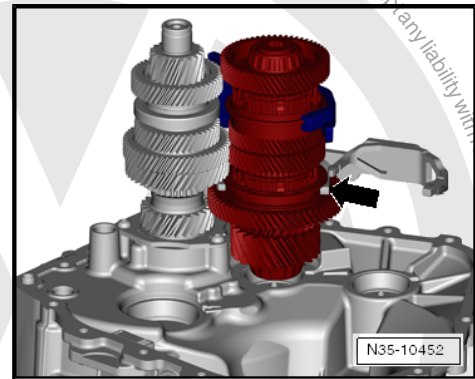
For the following steps:

Tapered roller bearings are destroyed very quickly if the cage is bent due to being inserted forcefully or knocked.

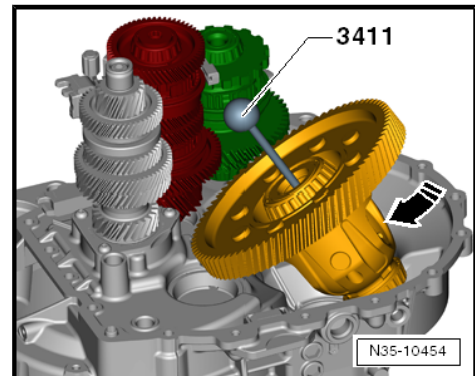
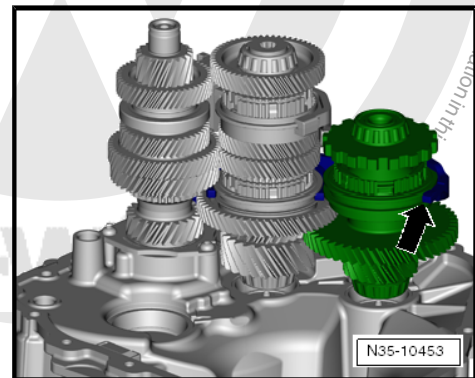
- Insert output shaft 2.
- Watch out for both locking collars. Mouth »top« and mouth »bottom« -arrow- must be inserted correctly.
- Output shaft 2 is placed on clutch housing, not in bearing race.



- Insert output shaft 3.
 - Watch out for mouth of selector fork and locking collar.
- This shaft is also »placed« on clutch housing.

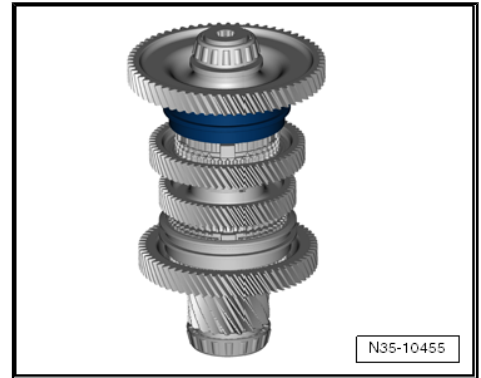


- Install differential.
- Make sure that you do not strike bearing against clutch housing.
- Carefully insert output shafts into bearings.
- Raise inner input shaft slightly. This allows output shaft 2 to find its installation position.
- Take out guide pin -3411- .





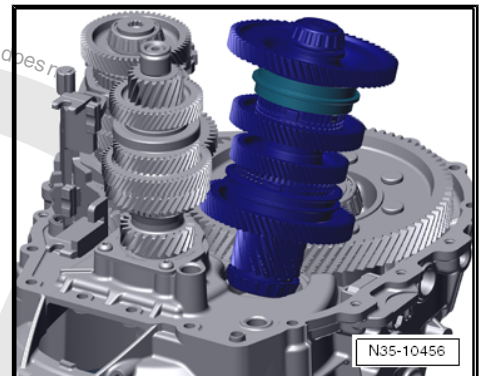
- On output shaft 1, shift »upper« locking collar upwards.



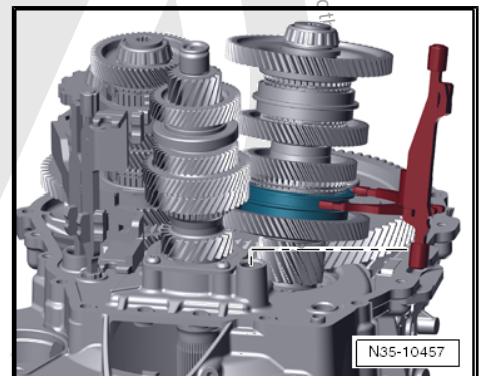
- Insert output shaft 1 »at an angle from above«.

Shaft should remain at an angle.

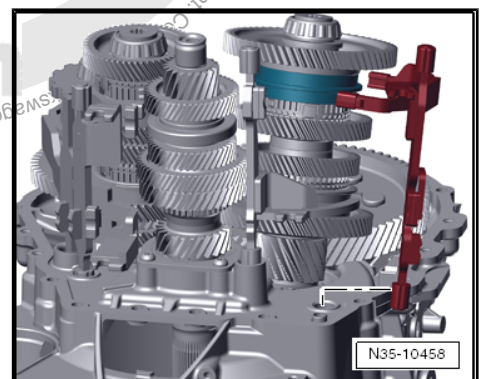
This is because selector forks must still be installed before shaft is set in installation position.



- First insert selector fork for 2nd and 4th gears into collar then swivel it to its guide.

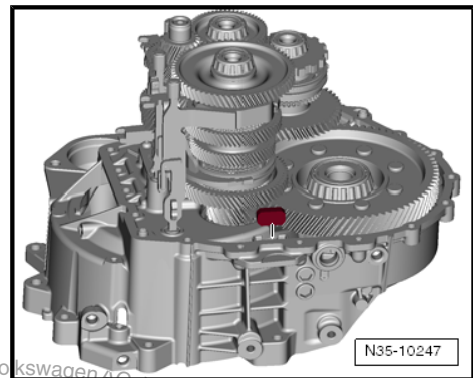
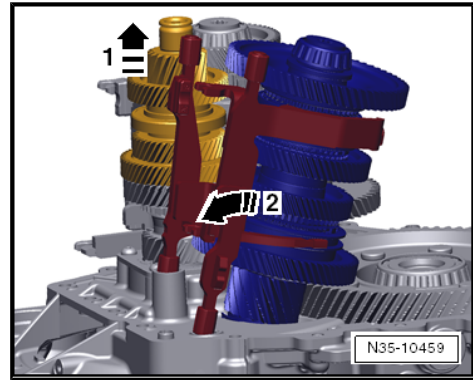


- Insert selector fork for 1st - 3rd gears onto collar then swivel it to its guide.



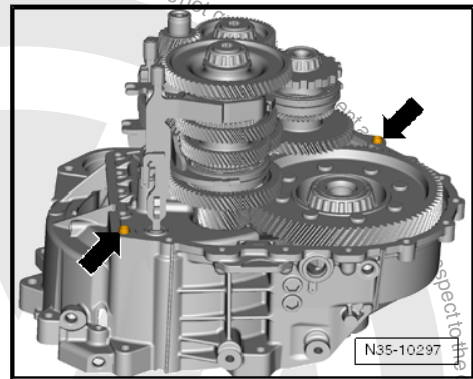


- Raise inner input shaft slightly. In this way, you can move output shaft 1 into its installation position.
 - After insertion, position all selector forks in neutral.
 - Make sure all selector forks and pinion shafts are correctly seated.
- 1 - Turn shafts.
 - 2 - Look at selector forks.
 - 3 - Turn gears on shafts a little back and forth. Also on differential.
 - 4 - Grip inner and outer input shaft from below. Turn shafts once.
- It must be possible to turn all parts back and forth without catching.
 - Insert magnet.

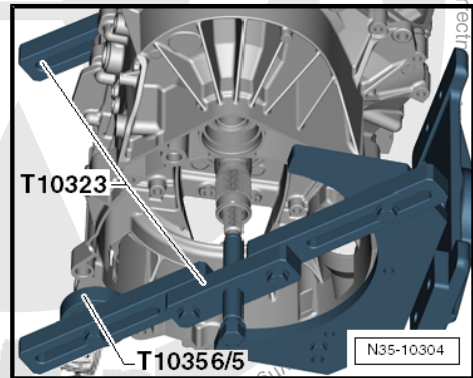


- Insert dowel sleeves.

It is essential to leave gearbox in this position.



- Mount support bridge -T10323- from below.
- Turn spindle against inner input shaft until finger-tight.





Shaft should only be supported. It is only allowed to be pushed up until gear for 7th gear on inner input shaft -A- touches synchromeshed gear for 3rd gear on output shaft 1 -B-.

It is adequate for spindle to touch shaft.

This prevents inadmissible force being applied to gearbox later on when gearbox housing is put on. Force should be absorbed by support bridge -T10323- .

- Drip oil onto all exposed tapered roller bearings.
- Prepare gearbox housing to be put on.
- Make sure that gearbox housing is completely assembled.
- Flange surface is cleaned.
- Oil guide is installed.
- Apply a bead of assembly adhesive -AMV 174 003 02- onto flange of clutch housing.

»Thickness of adhesive bead«: maximum 1 millimetre.

Adhesive is applied with hand-cartridge gun -V.A.G 1628- .

- Adhesive bead should seal oil space. Therefore, do not spray around holes.
- Put on gearbox housing.

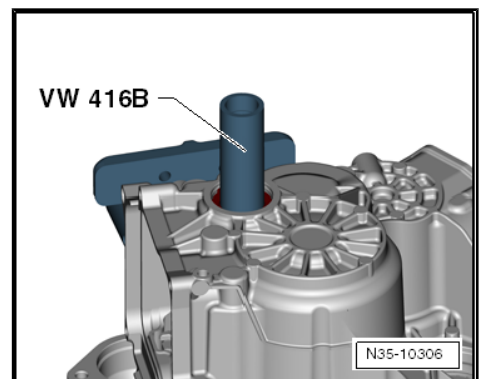
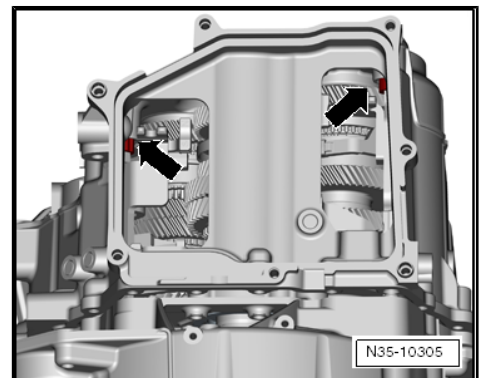
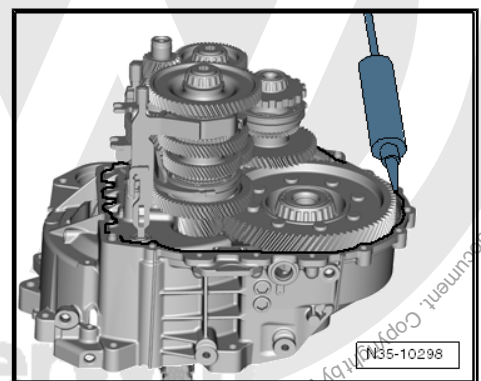
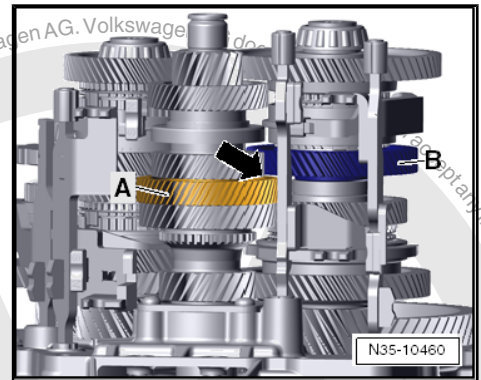


Note

Do not grip cleaned flange surfaces when putting on gearbox housing.

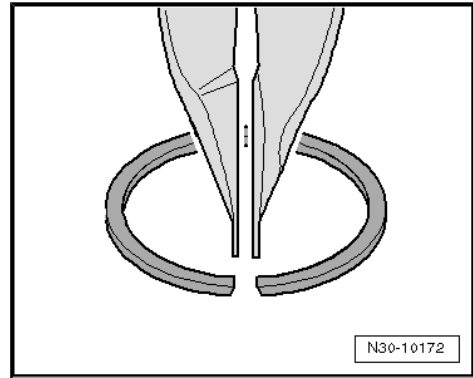
- Make sure that selector forks locate in their sockets.

- Place large inner diameter of tube -VW 416 B- onto inner ring.
- A second mechanic should hold gearbox housing in position as early as possible »when pressing on«.
- Apply targeted blows with a plastic hammer to drive inner input shaft into its bearing.
- Make sure seating on guide bushes is correct.

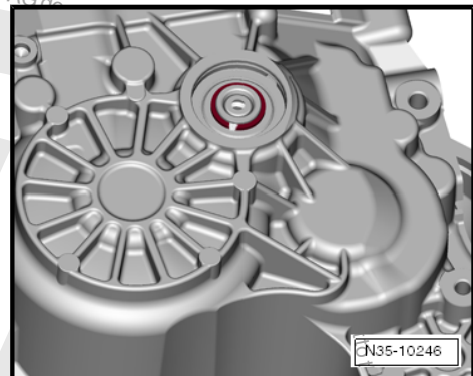




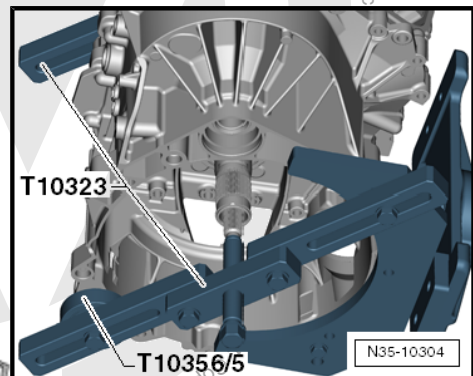
- Take a look at joint of retaining ring.
Ring is »narrower at top«. Its installation position is as well.
The retaining ring pliers also engage better like this.



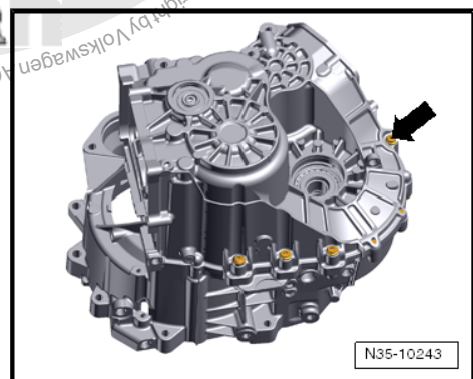
- Install new retaining ring.



- Remove support bridge -T10323- from below.

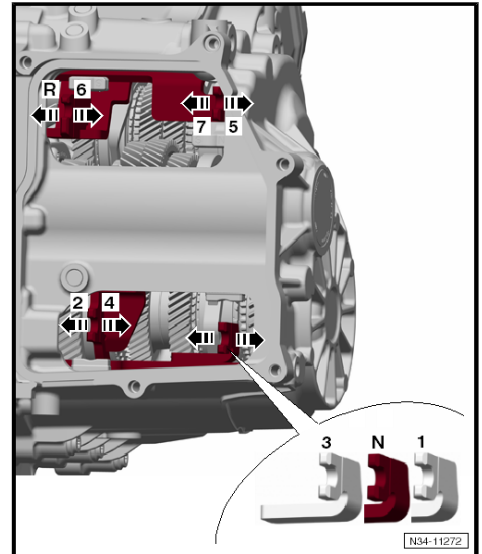


- Screw new connecting bolts against gearbox housing. Do not tighten them yet.
- A second mechanic turns gearbox whilst housing halves are being tightened.





- To do this: engage 1st gear.



- Use hub of clutch for turning.

This prevents tapered roller bearings from being damaged whilst being »seated in bearing seat«.

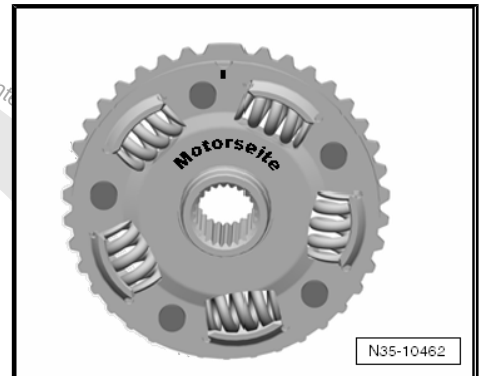
- Tighten new connecting bolts.

Torque setting

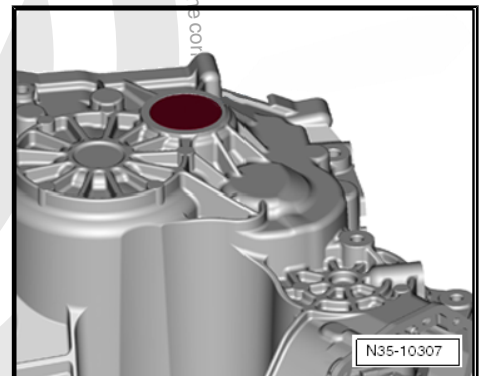
Steel bolts: 20 Nm + 45°

Aluminium bolts: 10 Nm + 90°

- Set gearbox to neutral.



- Knock cover of "inner input shaft" in until flush.

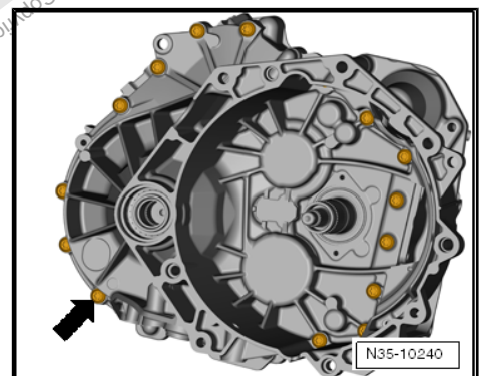


- Install connecting bolts of housing halves at clutch end.

Torque setting

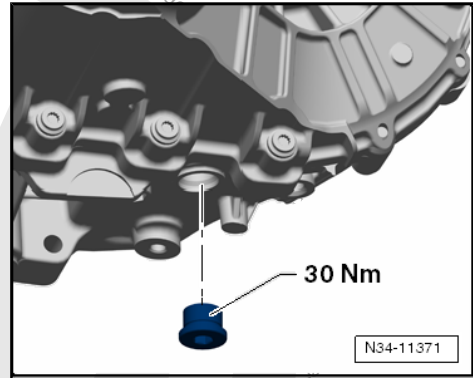
Steel bolts: 20 Nm + 45°

Aluminium bolts: 10 Nm + 90°



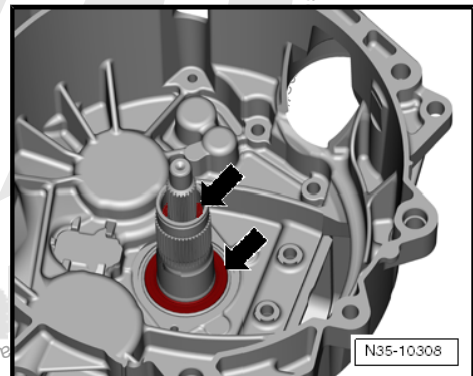


- Install drain plug.



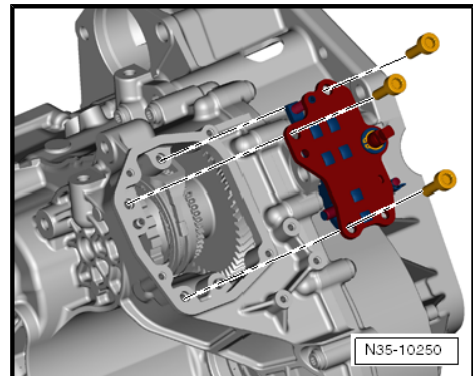
- Install oil seals of input shafts ⇒ [page 61](#) .

If large oil seal has already been renewed, you do not need to renew it again.



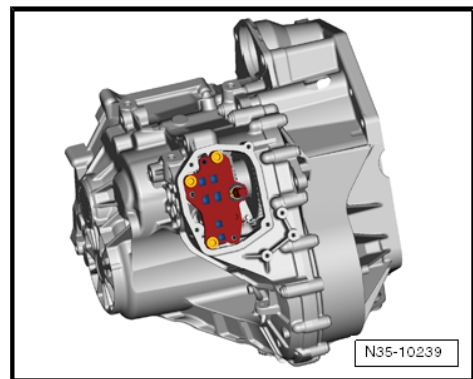
- Install parking lock.
- Install new bolts.

Torque setting



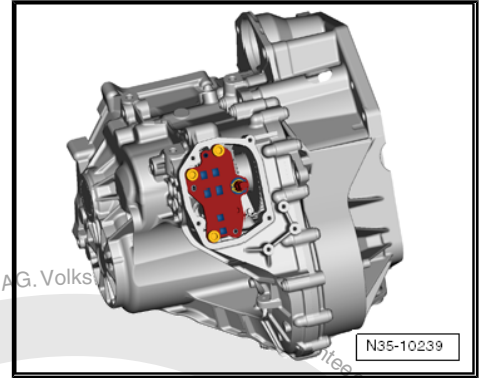
30 Nm

- Installing mechatronic unit ⇒ [page 103](#) .
- Install flange shafts or stub shafts, installing new sealing rings as you do so ⇒ [page 376](#) .
- Install dual clutch ⇒ [page 29](#) .

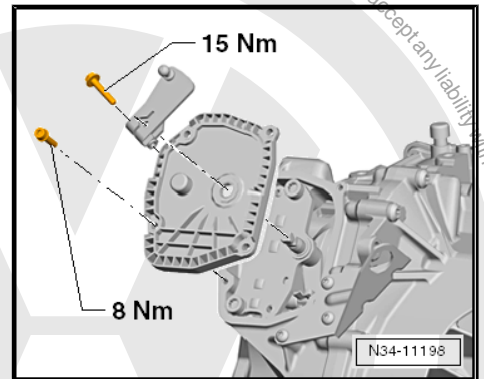




- Fill 1.7 litres of oil through parking lock.



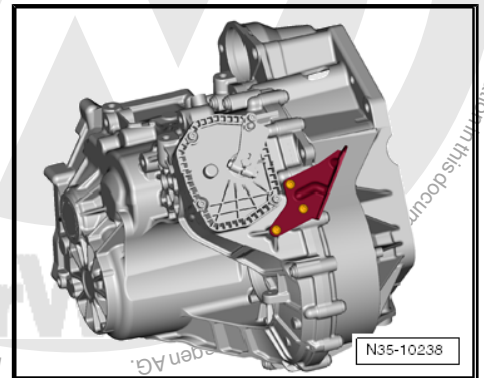
- Install lever and cover.



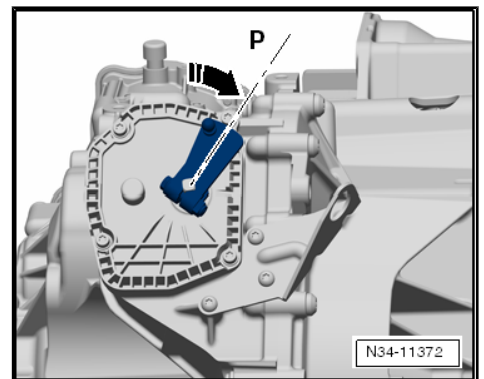
- Fit cable support bracket.

Torque settings:

8 Nm



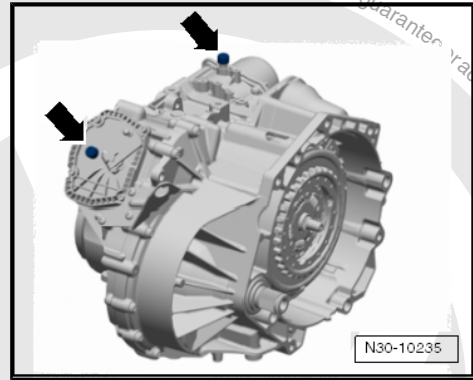
- Use your hand to press lever to stop in direction of cable support bracket.





- Put both breather caps -arrows- back on.
- Take gearbox off assembly stand.

Assembly of gearbox is completed.



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4 Dismantling and assembling gearbox housing

1 - Gearbox housing

- With oil guide
⇒ [page 310](#)

2 - Baffle plate

- Smooth side faces outwards

3 - Differential shim

- Determining thickness
⇒ [page 356](#) .

4 - Differential bearing race

- Driving out ⇒ [page 311](#)
- Driving in ⇒ [page 312](#)

5 - Output shaft shim 3

- Determining thickness
⇒ [page 356](#) .

6 - Output shaft bearing race 3

- Pulling out ⇒ [page 310](#)
- Preparing for pressing in ⇒ [page 311](#)
- Pressing in
⇒ [page 311](#)

7 - Output shaft shim 2

- Determining thickness
⇒ [page 356](#) .

8 - Output shaft bearing race 2

- Pulling out ⇒ [page 310](#)
- Preparing for pressing in ⇒ [page 311](#)
- Pressing in
⇒ [page 311](#)

9 - Output shaft shim 1

- Determining thickness ⇒ [page 356](#) .

10 - Output shaft bearing race 1

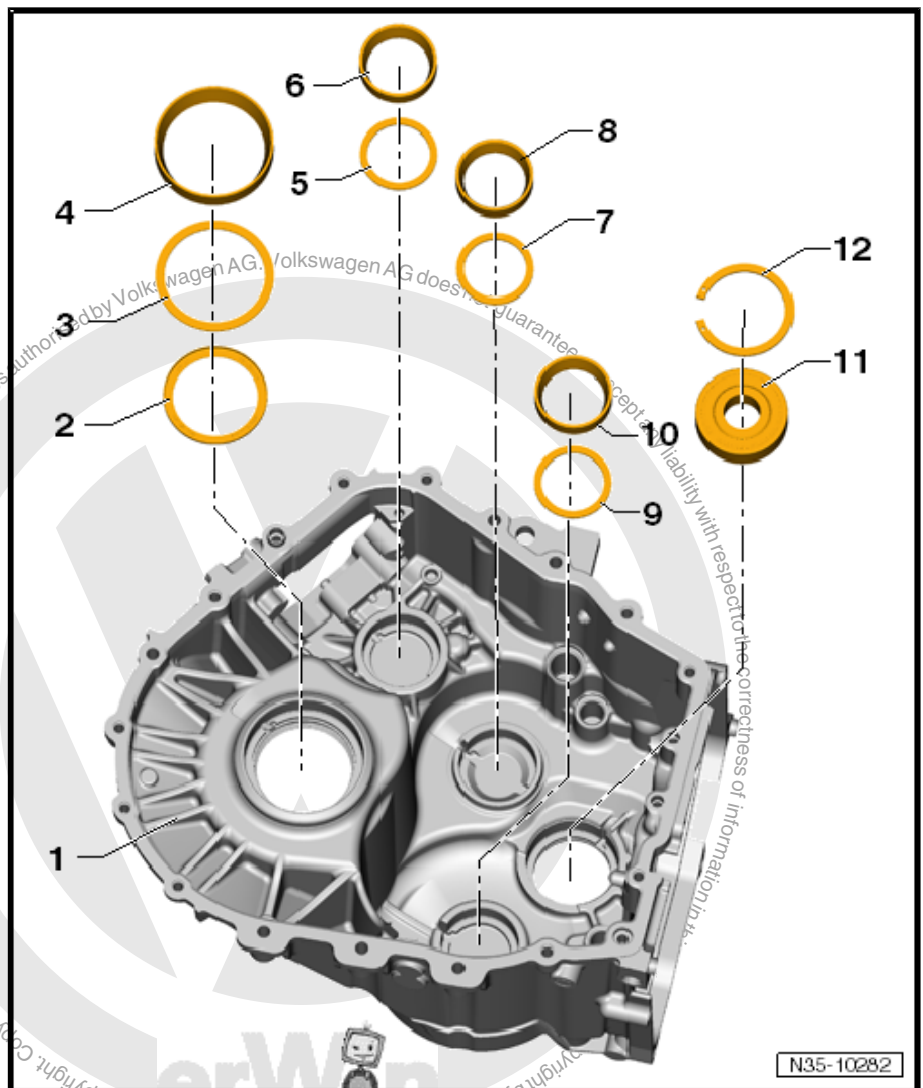
- Pulling out ⇒ [page 310](#)
- Pressing in ⇒ [page 310](#)

11 - Bearing for the inner input shaft

- Remove to press out retaining ring
- Press in »new« bearing ⇒ [page 310](#)

12 - Retaining ring

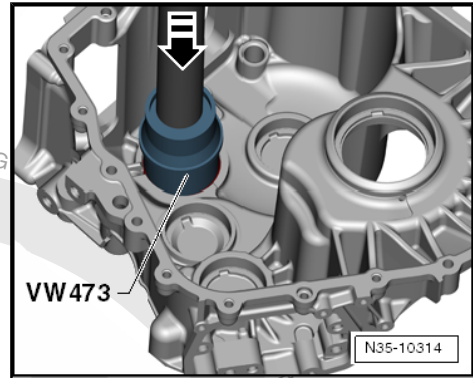
- Always renew





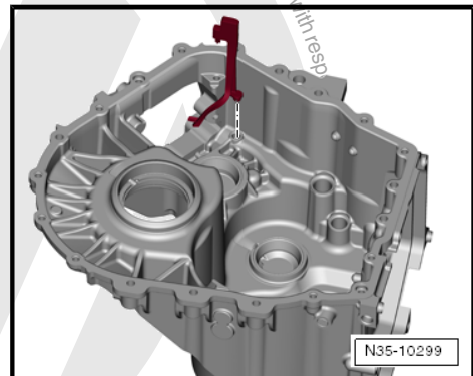
Press in bearing for inner input shaft

- Press in bearing bearing to stop.
- Install »new« retaining ring.



Installation position of oil guide in gearbox housing

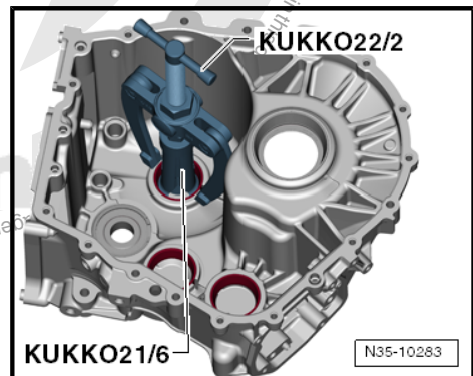
- Oil guide is clipped into housing.



Pull out bearing races of output shafts

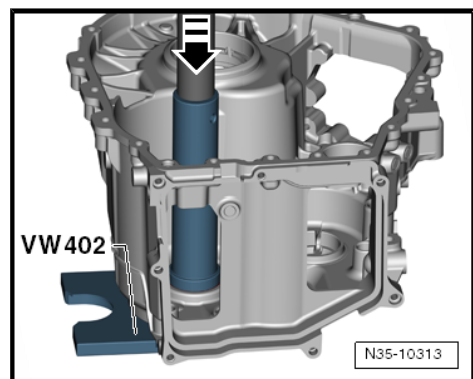
All bearing races of output shafts 1 to 3 are removed »in the same way«. Here, for example, the removal of output shaft 1 is described. Bearing races of output shafts 2 and 3 are removed in the same manner.

- Make sure that bearing race does not »get stuck« on supports of puller.



Pressing in bearing race of output shaft 1

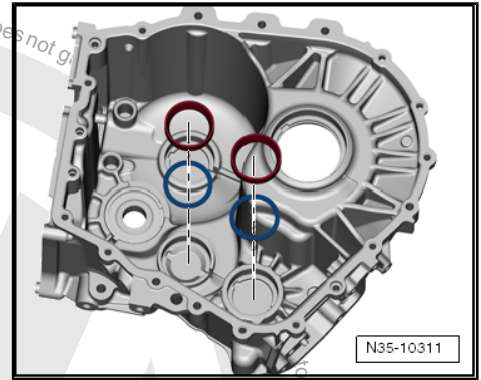
- Insert shim.
- Press in bearing race to stop.



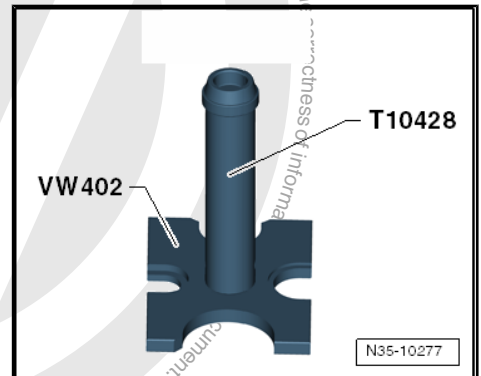


Prepare bearing races of output shafts 2 and 3 for pressing in

- First insert 1 shim into housing.
- Then position »correct« bearing race and drive bearing race in using targeted, light taps until it can no longer drop out.



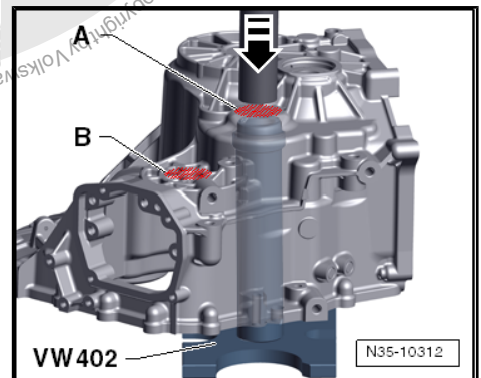
- Fit spacer sleeve -T10428- and press tool -VW 402- onto press.



Pressing in bearing races of output shafts 2 and 3

This shows how bearings of output shaft 2 are pressed in.

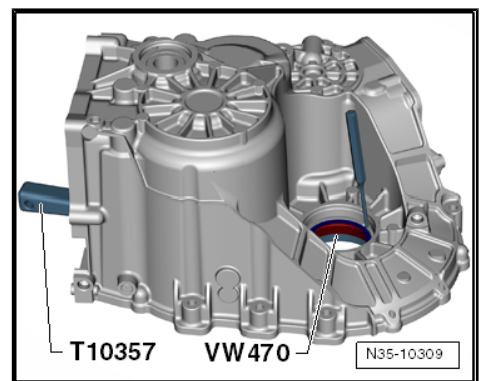
- A- Output shaft bearing race 2
- B- Output shaft bearing race 3
- To press in bearing of output shaft 2, place housing on thrust piece -B-.



Driving out bearing race of differential

Bearing is driven out using a suitable drift.

- Before driving out, place ring of thrust pieces for drive pinion bearing -VW 470- under bearing.
- To prevent gearbox housing from rocking, also insert wedge -T10357- under housing.

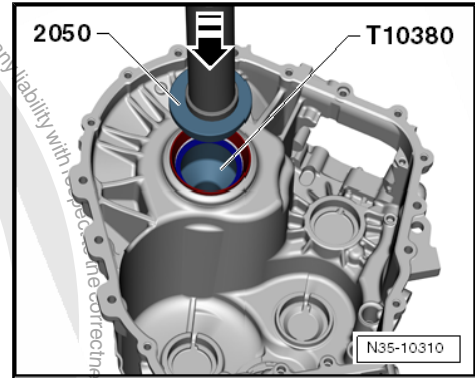




Drive in bearing race of differential

A second mechanic is required for driving in.

- Place thrust piece -T10380- on edge of workbench. Position gearbox housing with area of bearing point on thrust piece, and hold housing firmly like that.
- Second mechanic inserts oil ring and shim. 2. Mechanic drive bearing in as far as stop.





5 Dismantling and assembling clutch housing

1 - Clutch housing

- Remove outer input shaft ⇒ [page 290](#)

2 - Baffle plate

- Smooth side faces outwards

3 - Differential bearing race

- Driving out ⇒ [page 314](#)
- Pressing in ⇒ [page 315](#)

4 - Output shaft shim 3

- Determining thickness ⇒ [page 345](#) .

5 - Oil deflector

- Always renew a deformed plate

6 - Output shaft bearing race 3

- Pulling out ⇒ [page 316](#)
- Preparing for pressing in ⇒ [page 314](#)
- Pressing in output shaft 3 ⇒ [page 314](#)

7 - Output shaft shim 1

- Determining thickness ⇒ [page 345](#) .

8 - Output shaft bearing race 1

- Pulling out ⇒ [page 315](#)
- Preparing for pressing in ⇒ [page 315](#)
- Pressing in ⇒ [page 316](#)

9 - Output shaft shim 2

- Determining thickness ⇒ [page 345](#) .

10 - Output shaft bearing race 2

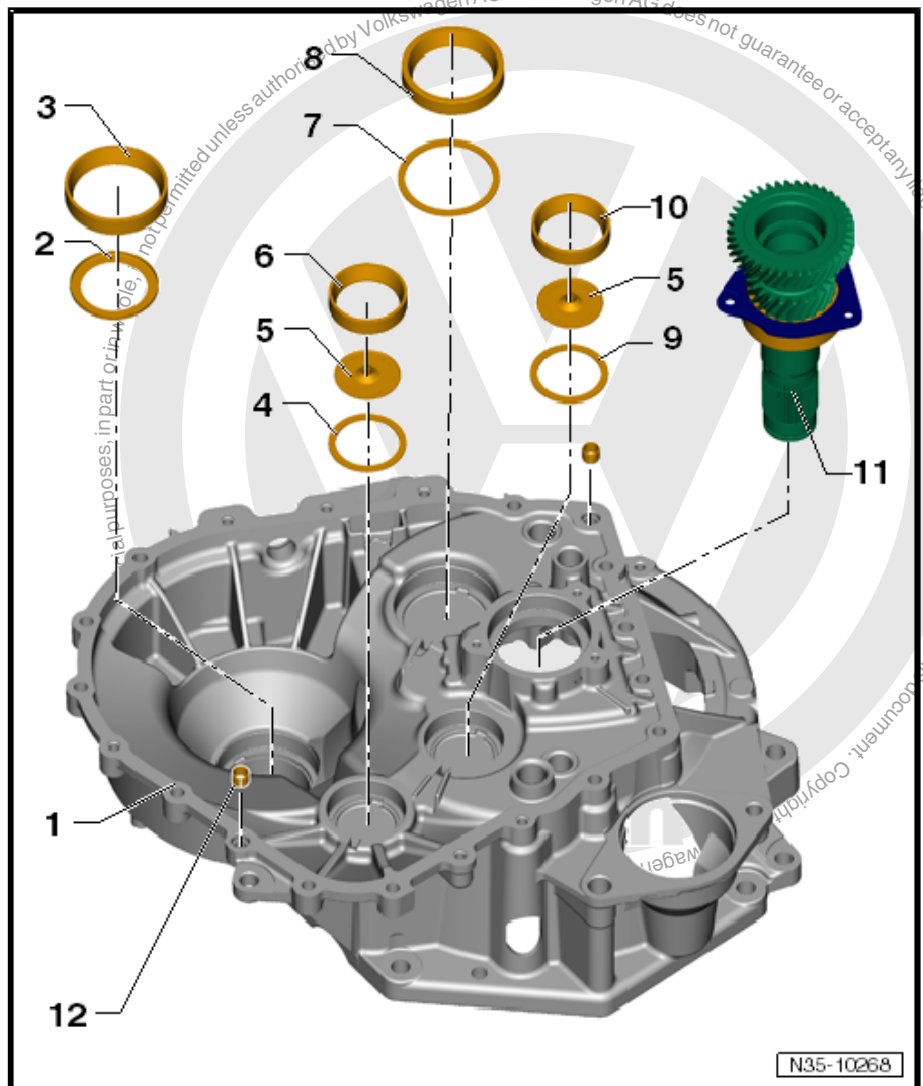
- Pulling out ⇒ [page 316](#)
- Preparing for pressing in ⇒ [page 314](#)
- Pressing in output shaft 2 ⇒ [page 314](#)

11 - Outer input shaft

- Removing ⇒ [page 290](#)
- Installing ⇒ [page 298](#)
- Dismantling and assembling ⇒ [page 317](#)

12 - Centring sleeve

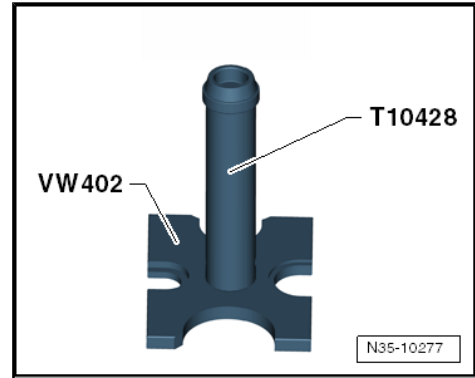
- Qty. 2





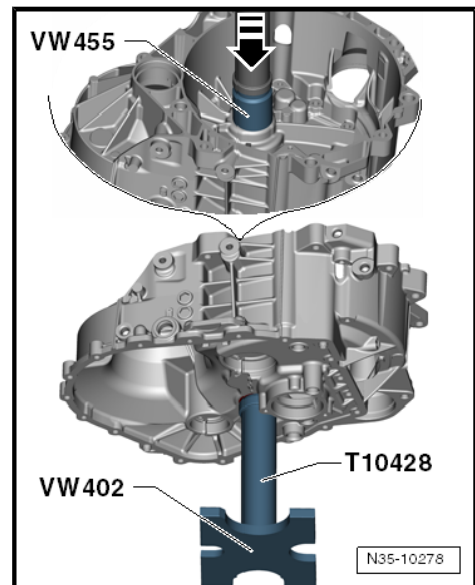
Preparing output shaft bearing race 2 for pressing in

- First place installing tool -T 10428- on the press bed.
- Insert shim and oil deflector.
- Then carefully drive in bearing race with a drift. Continue until it no longer drops out.



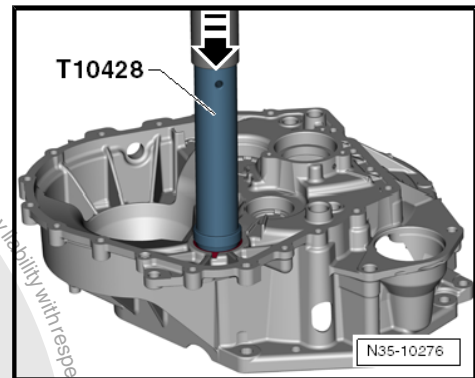
Pressing in output shaft bearing race 2

- Place clutch housing »wrong way round« on drift -T10428- .
- Use installing sleeve -VW 455- so that press pressure will be applied to clutch housing in a controlled manner.

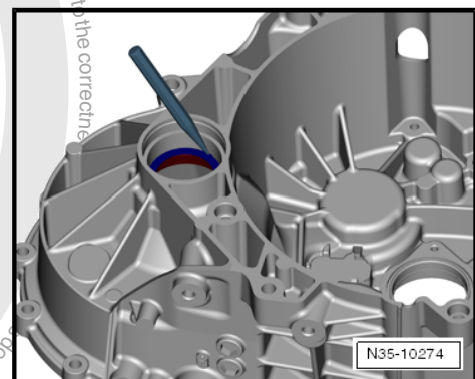


Pressing in output shaft bearing race 3

- Insert oil deflector first.
- There is 1 shim under bearing.



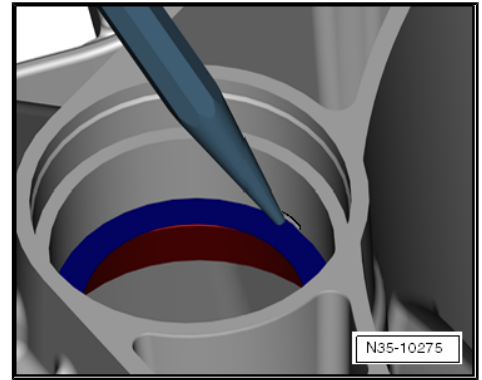
Driving out bearing race of differential



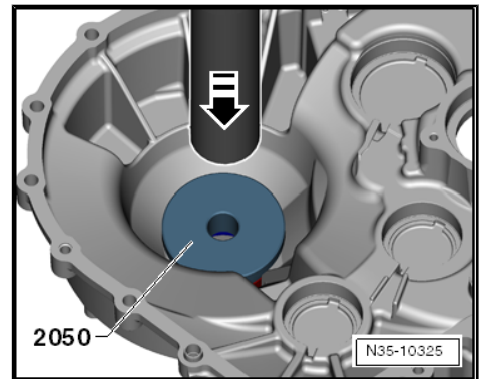


- Drive out bearing with a suitable drift.

Oil scraper ring is destroyed during removal and must be renewed.

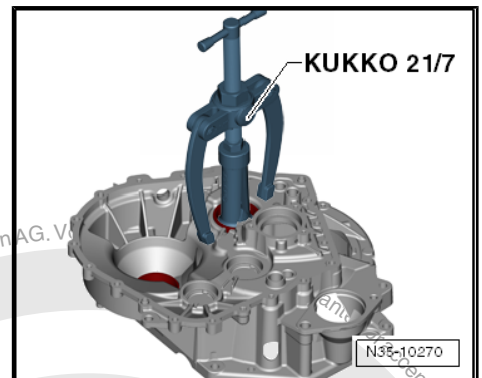


Pressing in bearing race of differential



Pulling out output shaft bearing race 1

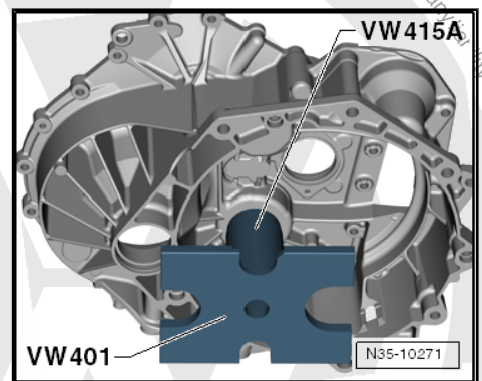
There is 1 shim under bearing.



Preparing output shaft bearing race 1 for pressing in

- First place tube -VW 415 A- under bearing seat.

This illustration show view »from below«. This means press pressure is not applied to clutch housing in an uncontrolled manner, but is absorbed by tube.



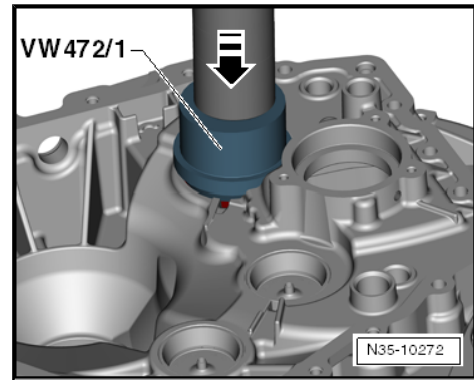
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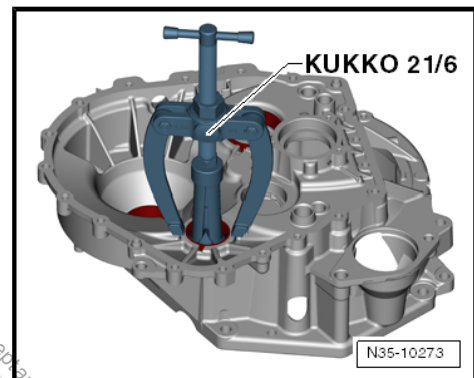
Pressing in output shaft bearing race 1

- Insert calculated shim if you already know its thickness.



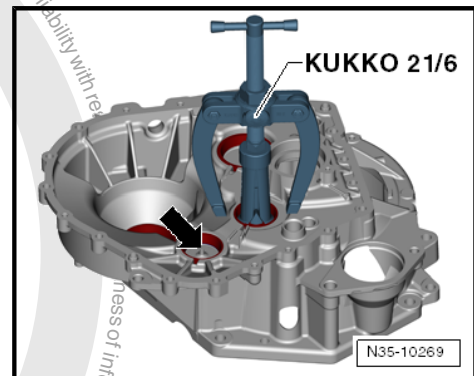
Pull out output shaft bearing race 2 and 3

There is 1 shim under bearing.



Note

It may be that oil deflectors get in the way when internal puller is being put on. Carefully knock down guide plates with 1 hammer. Plates deformed in this way must be renewed during installation.

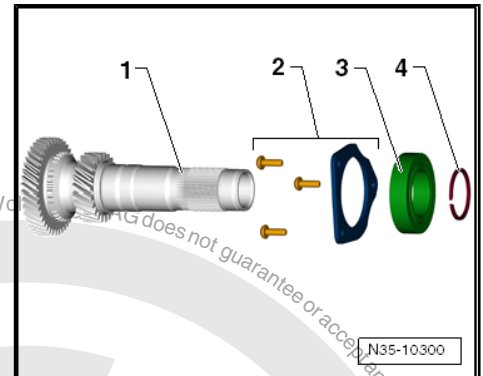




6 Dismantling and assembling outer input shaft

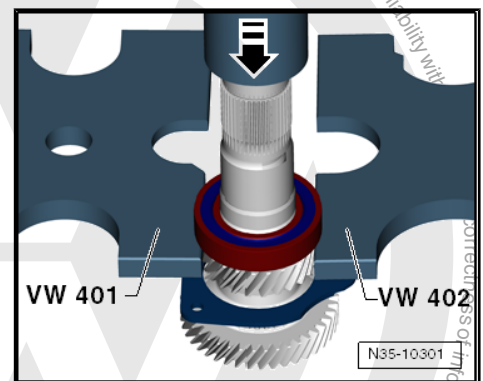
Overview

- 1 - Outer input shaft
- 2 - Retaining plate with bolts: lettering faces the gears - smooth side towards the bearing
- 3 - Bearing: pressing off ⇒ [page 317](#) ; pressing on ⇒ [page 317](#)
- 4 - Determining thickness of retaining ring ⇒ [page 317](#)



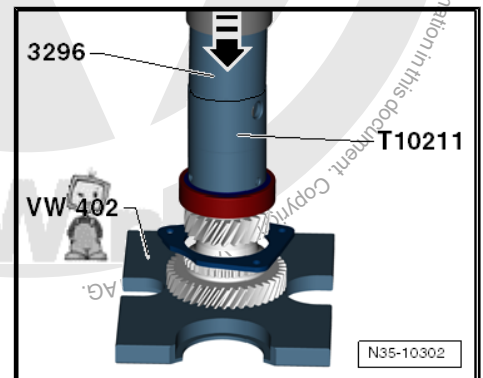
Outer input shaft - pressing off bearing

The bearing is destroyed during pressing off and must be renewed.



Outer input shaft - pressing on new bearing to stop

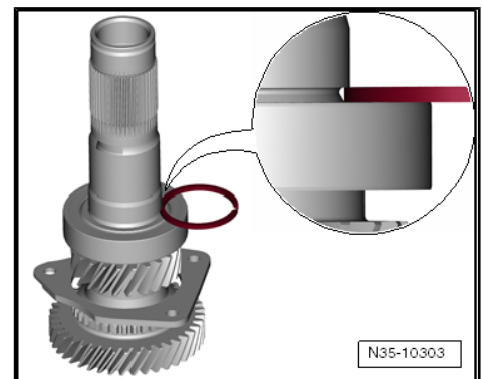
- Make sure that bearing is only pressed on over inner ring.
- Lettering on plate faces towards gears.



Installing retaining ring

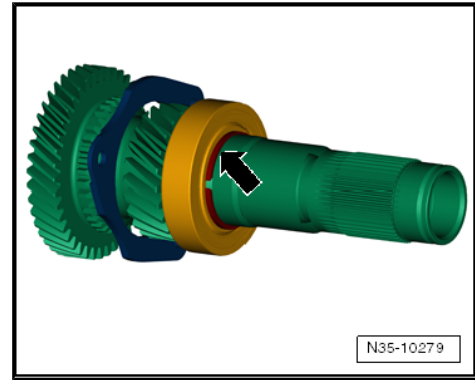
Objective is to secure bearing with retaining ring without play. To achieve this, you must select ring that fits into groove without play.

- Insert rings one after another sideways into groove.
- Select ring that is just small enough to still be installed.





- Check that ring is located »correctly« in groove.

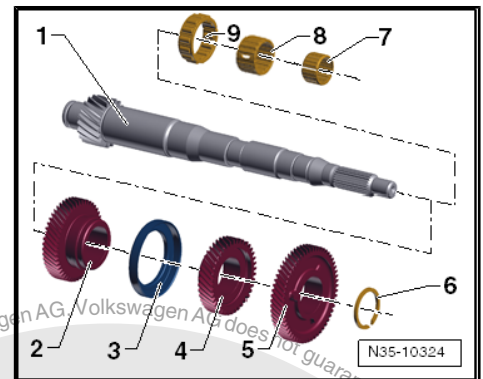




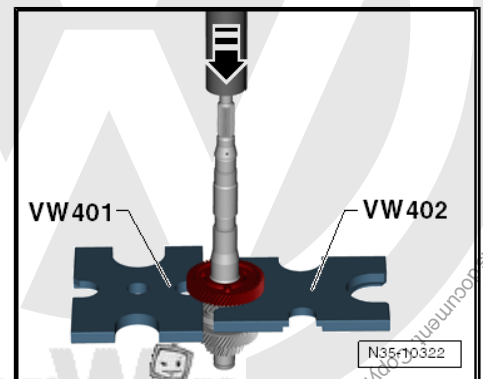
7 Dismantling and assembling inner input shaft

Overview: inner input shaft

- 1 - Inner input shaft
- 2 - Gear wheel for 5th gear: does not need to be pressed off for cleaning. Pressing off ⇒ [page 320](#) ; pressing on ⇒ [page 320](#)
- 3 - Sensor wheel: does not need to be removed for cleaning. Lever off with lever; pressing on ⇒ [page 321](#) . Always renew removed sensor rings.
- 4 - Gear wheel for 3rd gear: pressing off ⇒ [page 320](#) ; pressing on ⇒ [page 320](#)
- 5 - Gear wheel for 7th gear: pressing off ⇒ [page 319](#) ; pressing on ⇒ [page 319](#)
- 6 - Retaining ring
- 7 - Needle cage
- 8 - Needle cage; »large« needles
- 9 - Roller cage

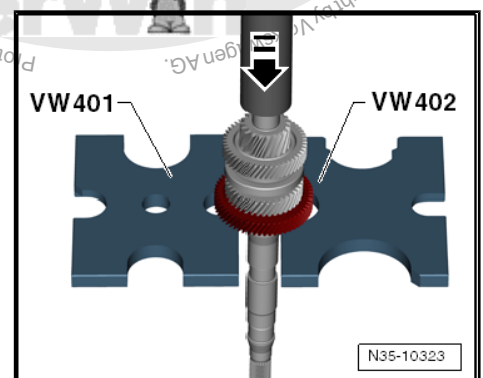


Pressing off gear wheel for 7th gear



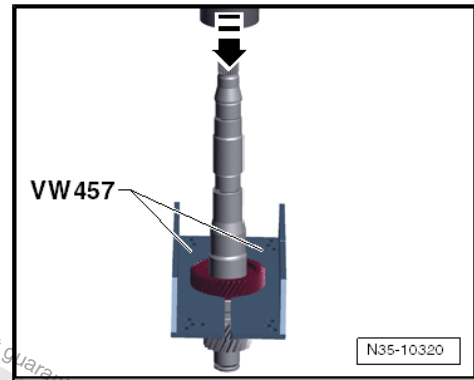
Pressing on gear wheel for 7th gear

- Carefully press on to stop.



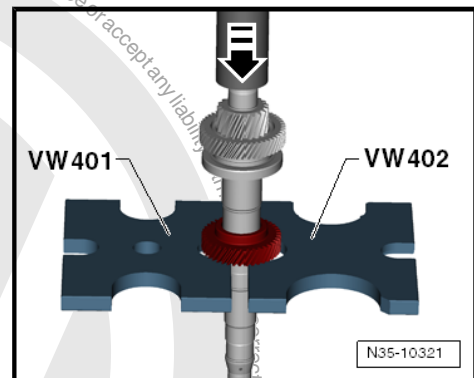


Pressing off gear wheel for 3rd gear

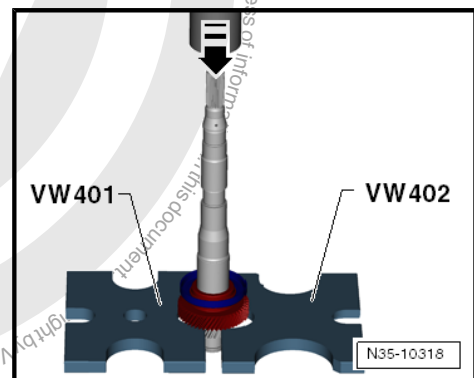


Pressing on gear wheel for 3rd gear

- Carefully press on to stop.



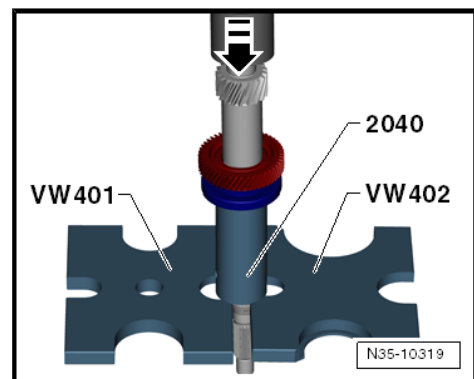
Pressing off 5th gear wheel



Pressing on gear wheel for 5th gear

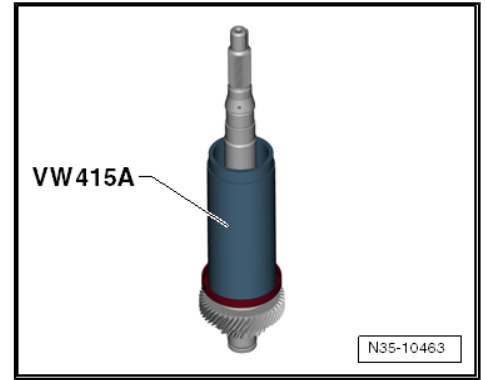
- Heat to 140 °C to press on.
- Carefully press on to stop.
- Align tube -2040- on thrust plate -VW 401- so that shaft can be pushed through downwards without »bumping«.

Use thrust plate -VW 402- to provide a secure hold for tube.





Drive sensor ring onto »cooled« gear wheel for 5th gear





8 Dismantling and assembling output shaft 1 - overview

1 - Output shaft 1

2 - Needle bearing

3 - Synchronised gear for 2nd gear

4 - Synchro-ring

5 - Outer ring

6 - Synchro-ring

7 - Locking collar and synchro-hub for 2nd and 4th gears

Dismantling and assembling => [page 331](#)

8 - Synchro-ring

9 - Outer ring

10 - Synchro-ring

11 - Needle bearing

12 - Sleeve for needle bearing

13 - Synchronised gear for 4th gear

14 - Washer



Note

15 - Needle bearing

16 - Sleeve for needle bearing

17 - Synchronised gear for 3rd gear

18 - Synchro-ring

19 - Outer ring

20 - Synchro-ring

21 - Locking collar and synchro-hub for 1st and 3rd gears

Dismantling and assembling => [page 331](#)

22 - Synchro-ring

23 - Outer ring

24 - Synchro-ring

25 - Needle bearing

26 - Sleeve for needle bearing

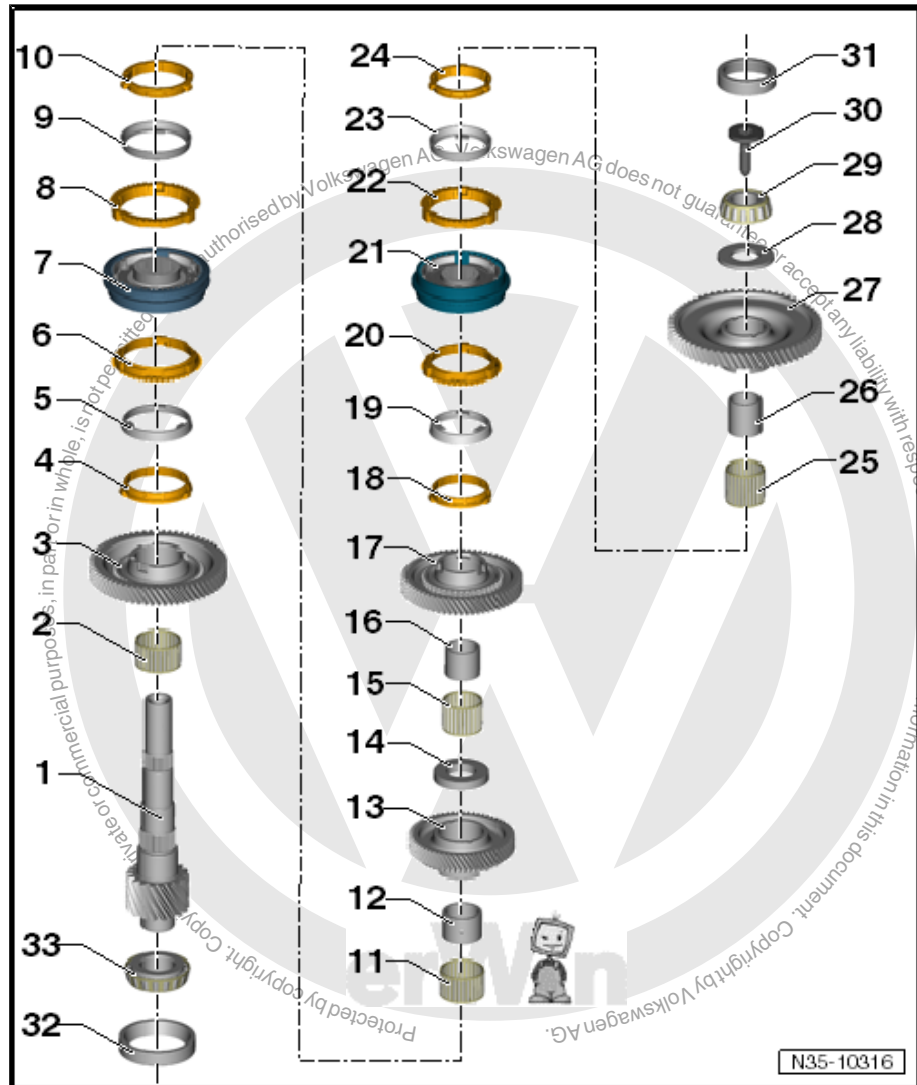
27 - Synchronised gear for 1st gear

28 - Thrust washer

29 - Bearing



Note





30 - Bolt

- Removing ⇒ [page 323](#)
- Installing and torque setting ⇒ [page 325](#)
- Always renew.

31 - Ball socket

- Removing and installing ⇒ [page 309](#) >>>>>>>
- Bearing races are not allowed to be swapped over. They are paired with the bearing.

32 - Ball socket

- Removing and installing ⇒ [page 313](#) >>>>>>>
- Bearing races are not allowed to be swapped over. They are paired with the bearing.

33 - Bearing

- Pressing off ⇒ [page 324](#)
- Pressing on ⇒ [page 324](#)



8.1 Dismantling output shaft 1 partially

Output shaft 1 only needs to be dismantled partially in order to adjust gearbox.

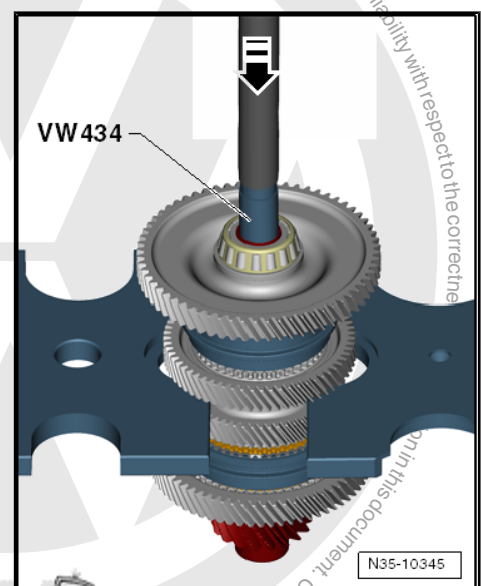
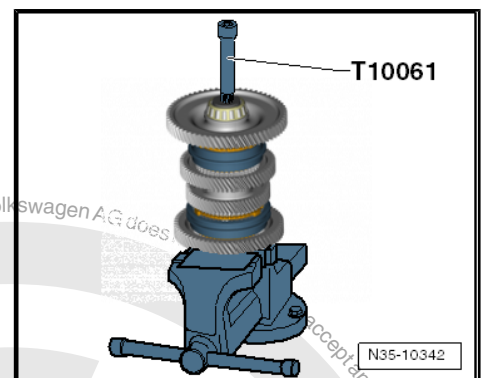
Dismantle output shaft completely if gearbox is to be cleaned or if parts of shaft are to be renewed ⇒ [page 324](#) .

- Remove bolt.

Special wrench -T10035- can also be used.

- Press out output shaft.

Assembling output shaft 1 ⇒ [page 325](#) .

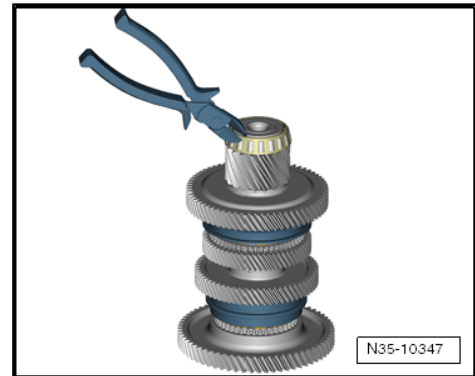




8.2 Dismantling output shaft 1 completely

Press off bearing of output shaft 1.

- Destroy cage of bearing first.

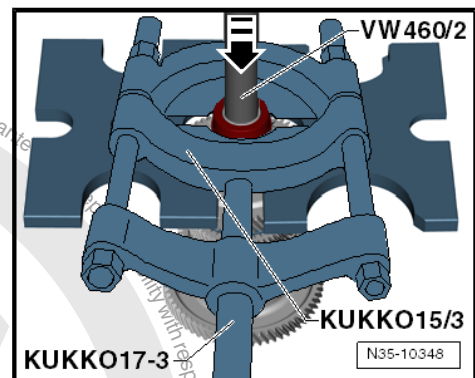


- Press off bearing inner race.

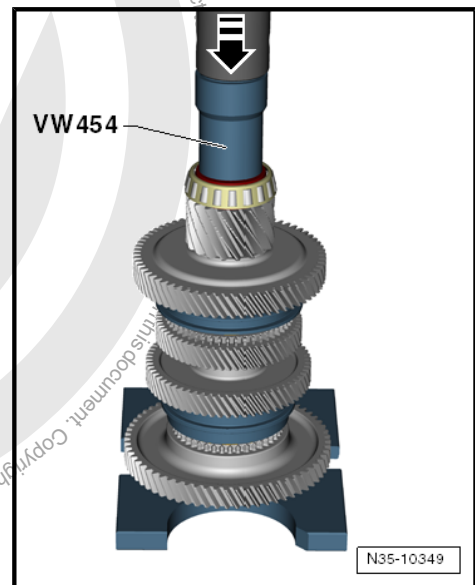


Note

Shaft will fall down! Therefore, take precautions and position suitable items under press. It is also possible to hold shaft by hand.



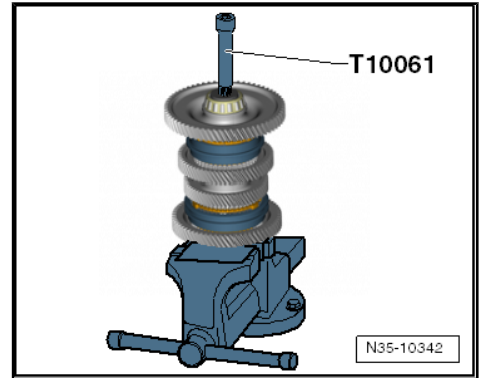
Press on bearing of output shaft 1.





- Remove bolt.

Special wrench -T10035- can also be used.

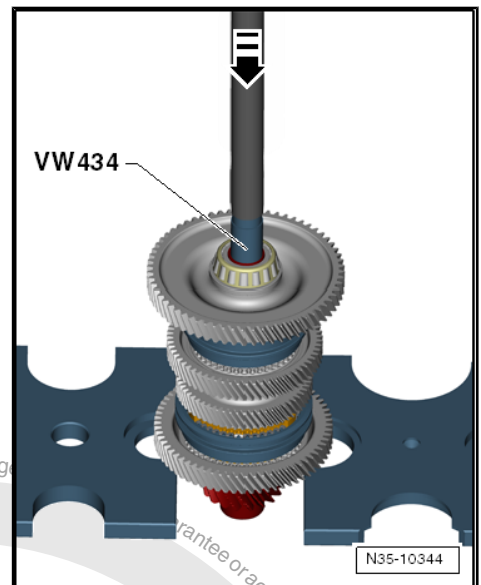


- Press out output shaft completely.



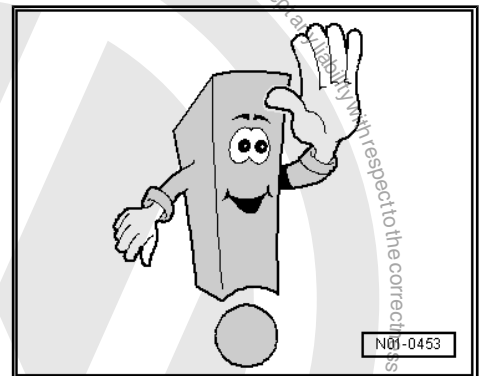
Note

Shaft will fall down! Therefore, take precautions and position suitable items under press. It is also possible to hold shaft by hand.



Do not assemble output shaft until gearbox has been adjusted.

Assembling output shaft 1 => [page 325](#) .



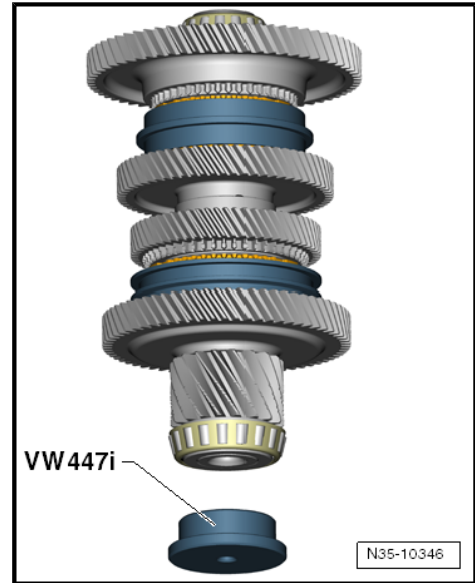
8.3 Assembling output shaft 1

In this procedure, you will see how output shaft 1 is assembled. Make sure that shaft bearing is not damaged during following work on press.

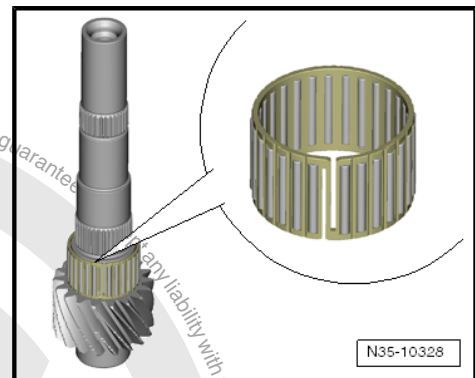
If bearing is not going to be renewed then it must be protected.



- If bearing is pressed on, thrust plate -VW 447 i- must also be used for each pressing operation.
- Pressing off bearing: => [page 324](#)
- Pressing on bearing: => [page 324](#)

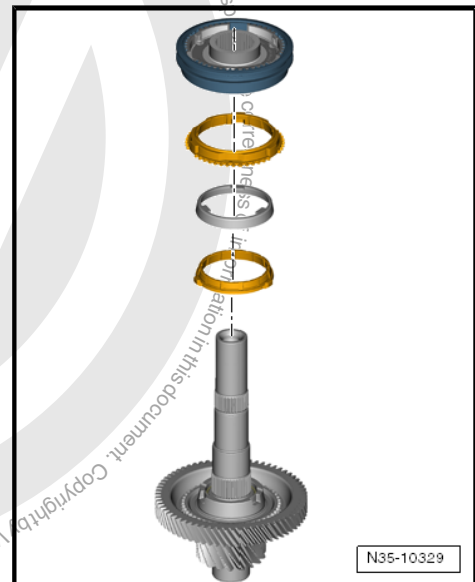


- Place needle bearing onto output shaft.
- Make sure that cage is not broken.
- Wet bearing with oil.



- Place synchro meshed gear for 2nd gear onto needle cage.
- Wet friction surfaces with oil.
- Place both synchro-rings with outer ring on gear wheel for 2nd gear.
- Put on locking collar with synchro-hub. Make sure groove for selector fork is pointing »upwards«, and collar of locking collar »downwards«.

Synchro-hub can only be put in place. It is pressed on in next step.



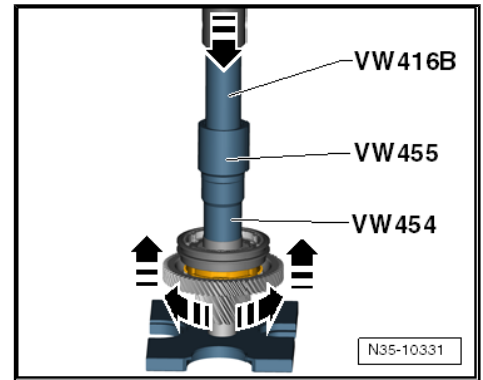


- Press on synchro-hub.



Note

- ◆ *Bear two things in mind when pressing:*
- ◆ *Raise gear wheel and turn it at same time. This allows synchro-ring to locate its installation position before ring is clamped by synchro-hub.*
- ◆ *Once ring has located its seat, pay attention to force required for pressing. Stop pressing as soon as you feel a stop (increased force requirement). Synchromeshed gear for 2nd gear must have axial play. Gear has reached its installation position as soon as force during pressing rises. If you continue pressing then you will be pressing synchro-hub against needle bearing, thus damaging it.*



After pressing, gear wheel must turn »freely« when shaft is in horizontal position.

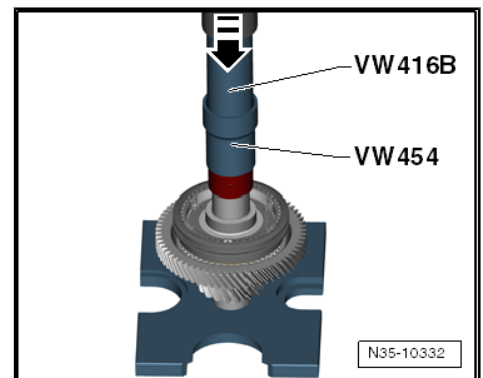
- Press on sleeve for needle bearing of synchromeshed gear for 4th gear.

Installation direction: lettering points »downwards«.

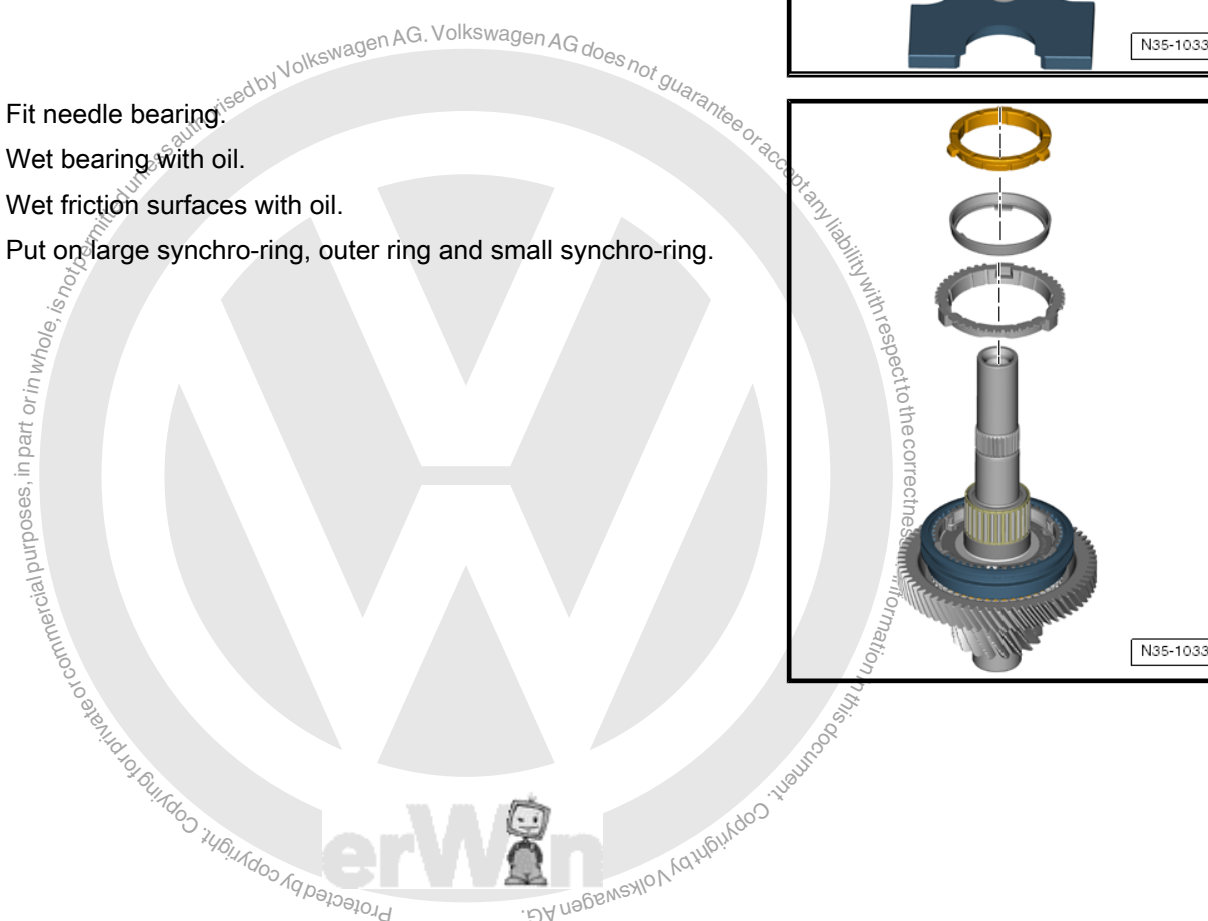
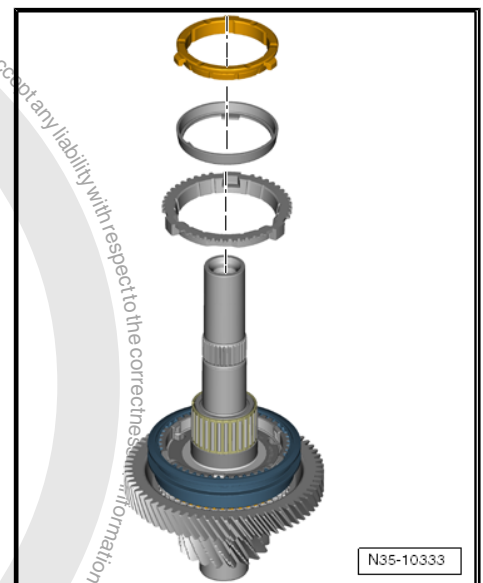


Note

Here too, stop pressing immediately when you notice a rise in force during pressing. Do not continue pressing!

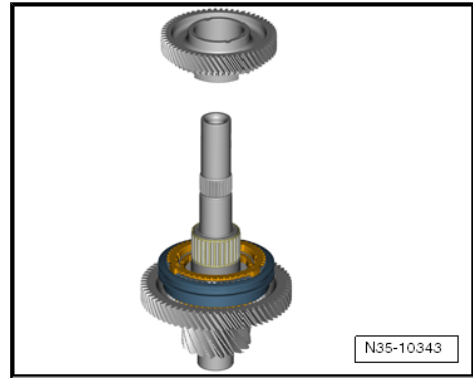


- Fit needle bearing.
- Wet bearing with oil.
- Wet friction surfaces with oil.
- Put on large synchro-ring, outer ring and small synchro-ring.





- Put on synchromeshed gear for 4th gear.

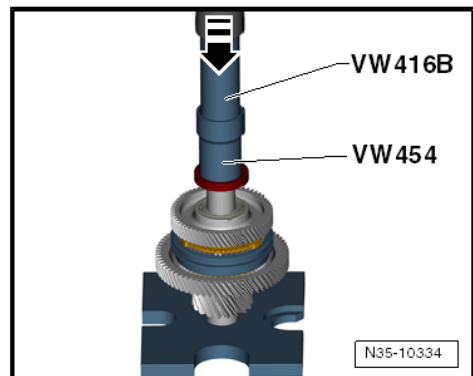


- Press on washer.

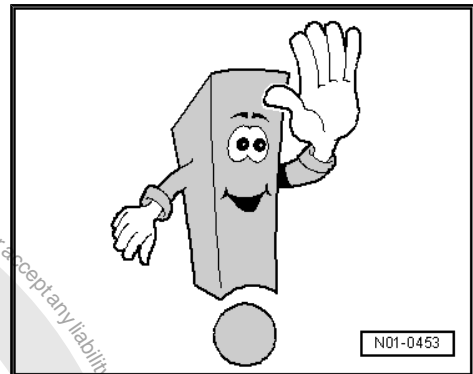


Note

- ◆ Here too, stop pressing immediately when you notice a rise in force during pressing. Do not continue pressing!
- ◆ After pressing, gear wheel must turn »freely« when shaft is in horizontal position.
- ◆ Output shaft is assembled as far as this washer for purpose of adjusting shaft.



Do not assemble output shaft further until gearbox has been adjusted.

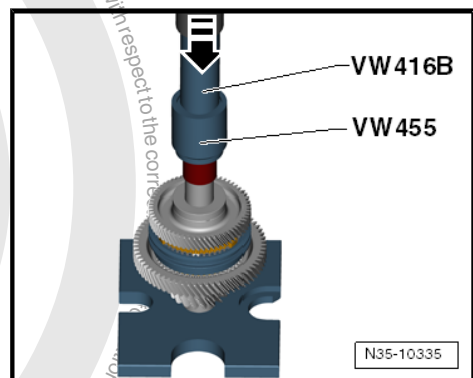


- Press on sleeve for needle bearing of synchromeshed gear for 3rd gear.



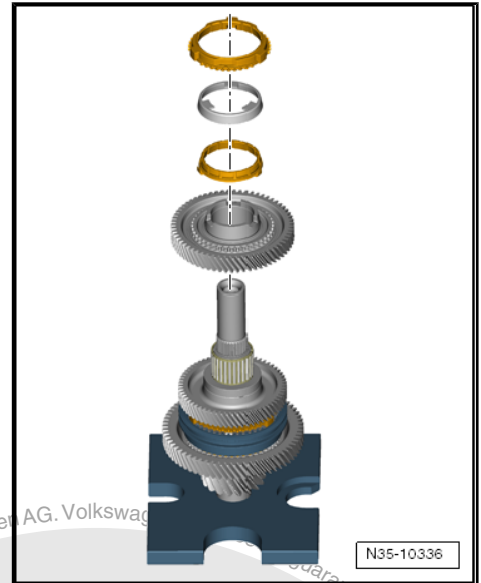
Note

Here too, stop pressing immediately when sleeve has located its position and you notice a rise in force during pressing. Do not continue pressing!





- Fit needle bearing.
- Wet bearing and friction surfaces with oil.
- Put on synchromeshed gear for 3rd gear, small synchro-ring, outer ring and large synchro-ring.



- Press on locking collar and synchro-hub.

i Note

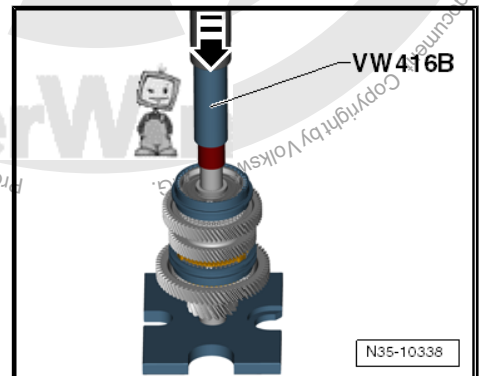
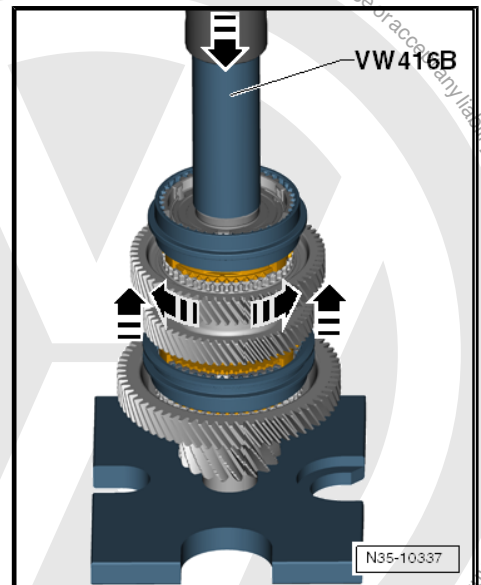
- ◆ Bear two things in mind when pressing:
- ◆ Raise gear wheel and turn it at same time. This allows synchro-ring to locate its installation position before ring is clamped by synchro-hub.
- ◆ Once ring has located its seat, pay attention to force required for pressing. Stop pressing as soon as you feel a stop (increased force requirement). Synchromeshed gear for 3rd gear must have axial play. Gear has reached its installation position as soon as force during pressing rises. If you continue pressing then you will be pressing synchro-hub against needle bearing, thus damaging it.

After pressing, gear wheel must turn »freely« when shaft is in horizontal position.

- Press on sleeve for needle bearing of synchromeshed gear for 1st gear.

i Note

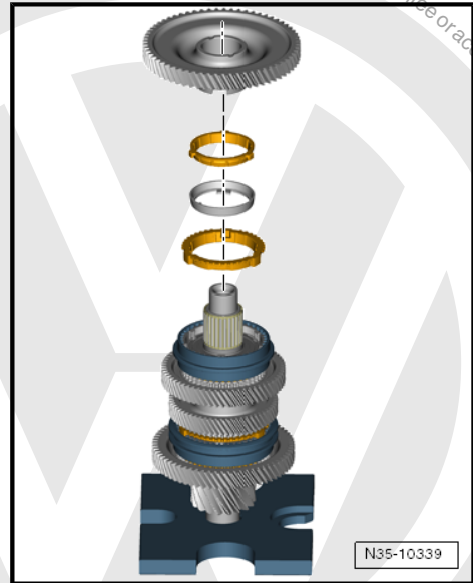
Here too, stop pressing immediately when sleeve has located its position and you notice a rise in force during pressing. Do not continue pressing!





- Fit needle bearing.
- Wet bearing and friction surfaces with oil.
- First place small synchro-ring onto synchromeshed gear for 1st gear.
- Then outer ring and then large synchro-ring.

Gear wheel and rings can be placed on shaft together.



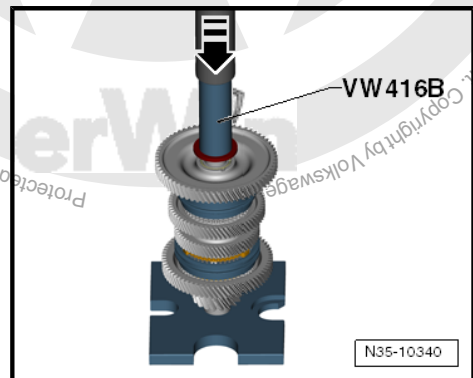
- Press on washer.



Note

Here too, stop pressing immediately when washer has located its position and you notice a rise in force during pressing. Do not continue pressing!

After pressing, gear wheel must turn »freely« when shaft is in horizontal position.



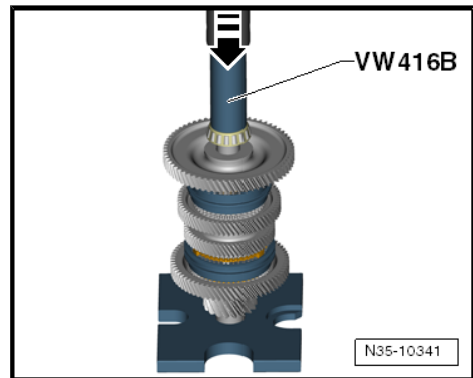
- Press on bearing.



Note

Here too, stop pressing immediately when bearing has located its position and you notice a rise in force during pressing. Do not continue pressing!

- Wet bearing with oil.

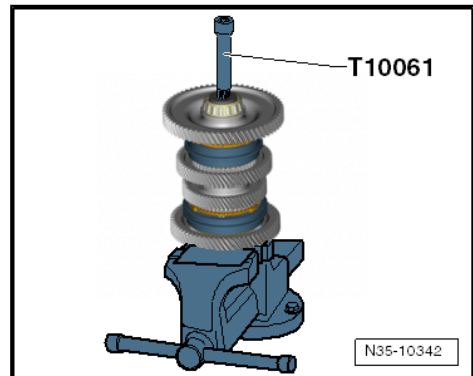


- Tighten new bolt.

Torque settings:

60 Nm, 90° further.

Special wrench -T10035- can also be used for tightening.



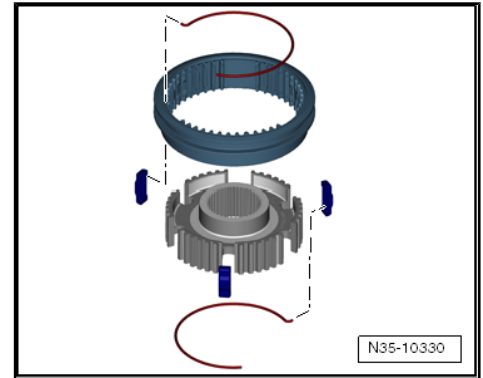


8.4 Dismantling and assembling locking collars and synchro-hubs of output shaft 1

Dismantling and assembling 2nd and 4th gear locking collar and synchro-hub

Lettered side of synchro-hub faces groove in locking collar.

Locking collar of 3rd and 1st gear is assembled accordingly. It is symmetrical, it does not have a particular installation direction.





9 Dismantling and assembling output shaft 2 - overview

1 - Output shaft 2

2 - Needle thrust bearing

3 - Needle bearing

4 - Reverse gear wheel

5 - Washer

6 - Locking collar and synchro-hub for 6th gear

- Dismantling and assembling ⇒ [page 338](#)

7 - Synchro-ring

8 - Needle bearing

9 - Sleeve for needle bearing

10 - Synchromeshed gear for 6th gear

11 - Washer



Note

12 - Needle bearing

13 - Sleeve for needle bearing

14 - Synchromeshed gear for 7th gear

15 - Synchro-ring

16 - Locking collar and synchro-hub for 5th and 7th gears

- Dismantling and assembling ⇒ [page 338](#)

17 - Synchro-ring

18 - Needle bearing

19 - Sleeve for needle bearing

20 - Synchromeshed gear for 5th gear

21 - Bearing

- Removing and installing ⇒ [page 333](#)



Note

22 - Bolt

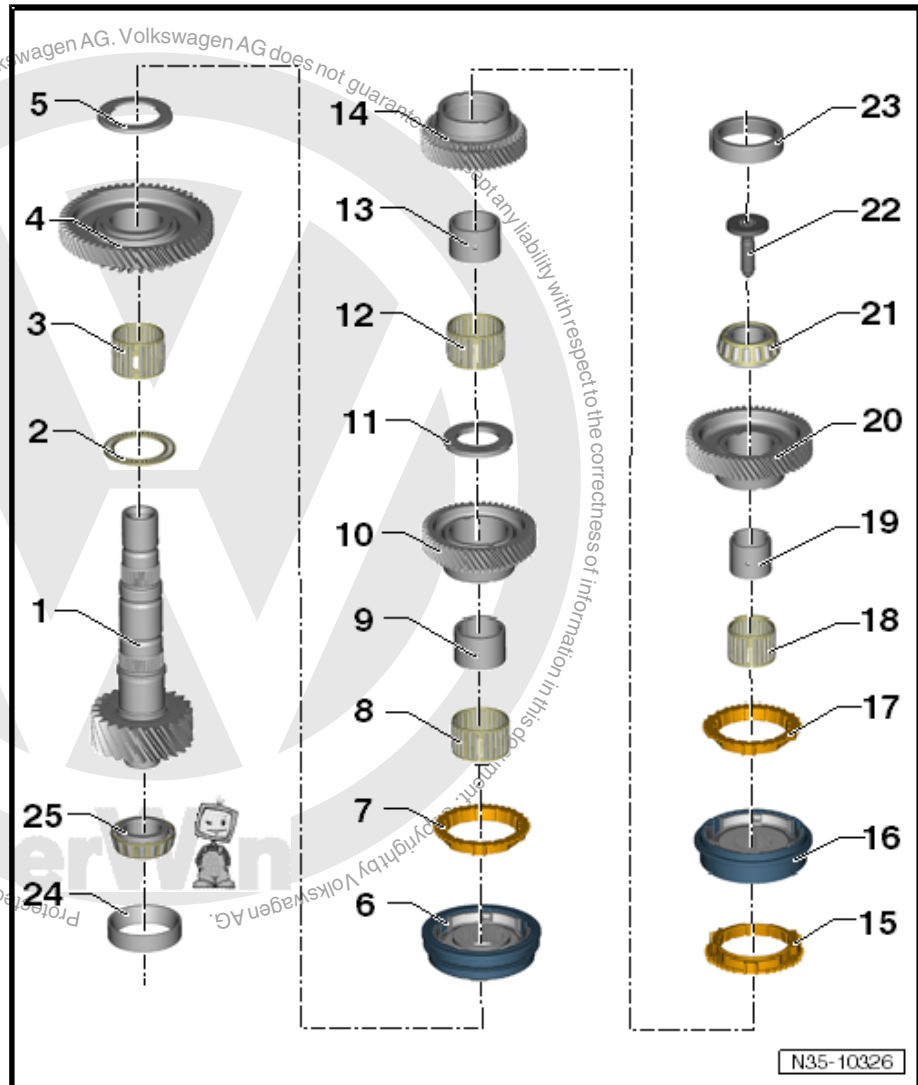
- Removing ⇒ [page 333](#)
- Installing and torque setting ⇒ [page 334](#)

– Always renew.

23 - Ball socket

- Removing and installing ⇒ [page 309](#) >>>>>>>>

- Bearing races are not allowed to be swapped over. They are paired with the bearing.





24 - Ball socket

- ❑ Removing and installing ⇒ [page 313](#) >>>>>>>>

• Bearing races are not allowed to be swapped over. They are paired with the bearing.

25 - Bearing

- ❑ Pressing off ⇒ [page 333](#)
- ❑ Pressing on ⇒ [page 333](#)

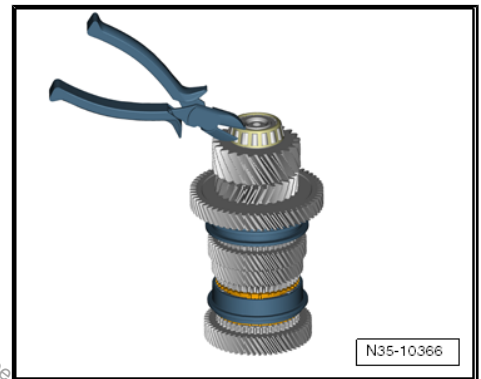


Note

9.1 Dismantling output shaft 2

Press off bearing of output shaft 2.

- Destroy cage of bearing first.

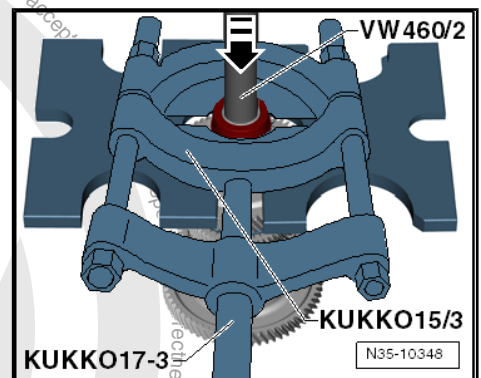


- Press off bearing inner race.

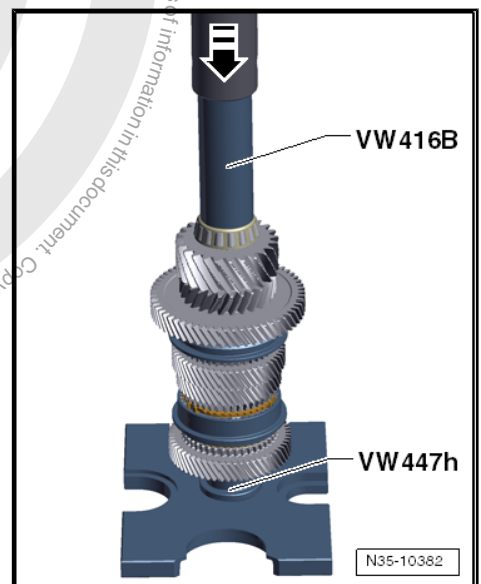


Note

Shaft will fall down! Therefore, take precautions and position suitable items under press. It is also possible to hold shaft by hand.



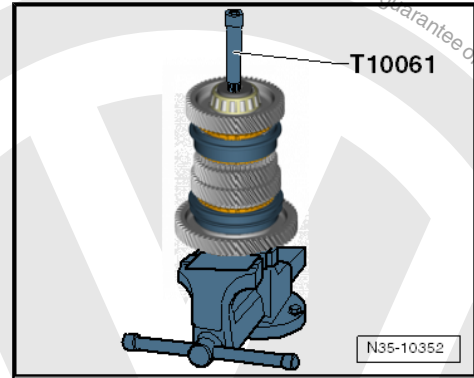
Press on bearing of output shaft 2.





- Remove bolt.

Special wrench -T10035- can also be used.

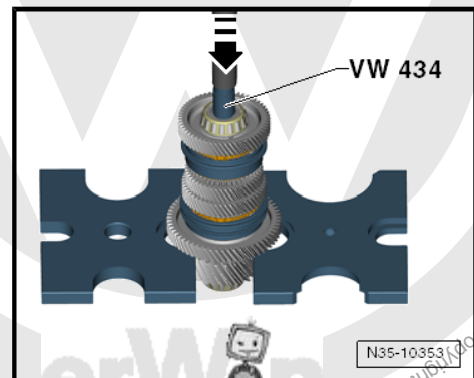


- Press out output shaft completely.



Note

Shaft will fall down! Therefore, take precautions and position suitable items under press. It is also possible to hold shaft by hand.

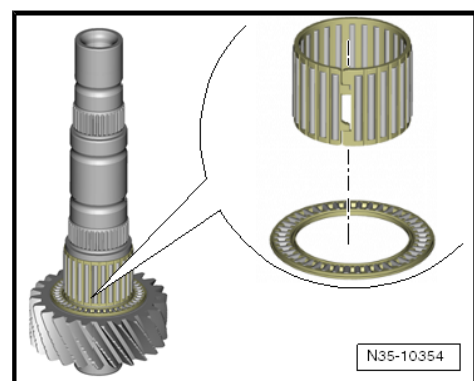


9.2 Assembling output shaft 2

In this procedure, you will see how output shaft 2 is assembled. Make sure that shaft bearing is not damaged during following work on press.

If bearing is not going to be renewed then it must be protected.

- If bearing is pressed on, thrust plate -VW 447 H- must also be used for each pressing operation.
- Pressing off bearing: => [page 333](#)
- Pressing on bearing: => [page 333](#)
- Place both needle bearings onto output shaft.
- Make sure that cages are not broken.
- Wet bearing with oil.
- Fit reverse gear wheel.





- Put on reverse gear wheel, axial bearing »with smooth side facing upwards«.
- Put on locking collar with synchro-hub. Make sure circumferential edge of sleeve is pointing »upwards«, and collar of locking collar »downwards«.

Dismantling and assembling locking collar ⇒ [page 338](#) .

Synchro-hub can only be put in place. It is pressed on in next step.

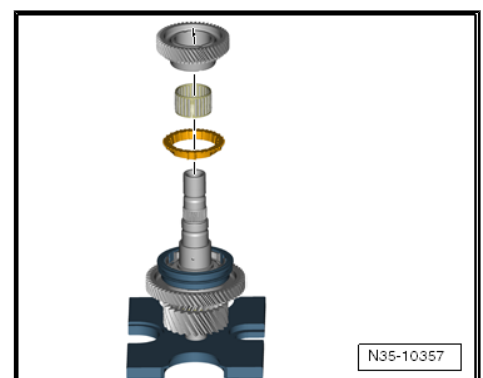
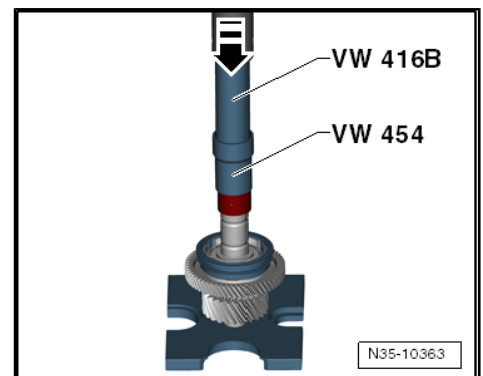
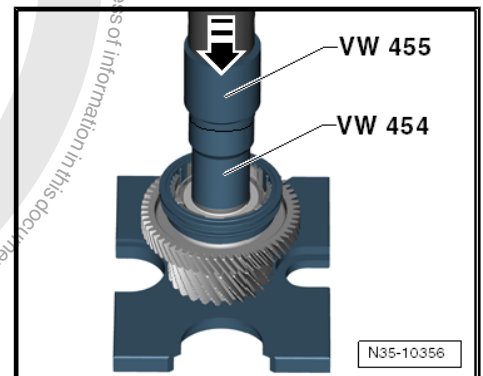
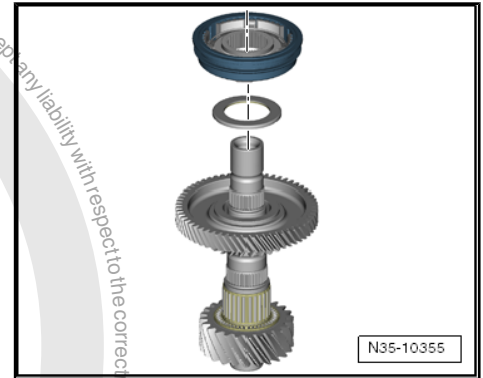
- Press on synchro-hub.



Note
Stop pressing immediately when you notice a rise in force during pressing. Do not continue pressing!

- Press on sleeve for synchromeshed gear for 6th gear.

- Put on synchro-ring, needle bearing and synchromeshed gear for 6th gear.
- Wet bearing and friction surfaces with oil.



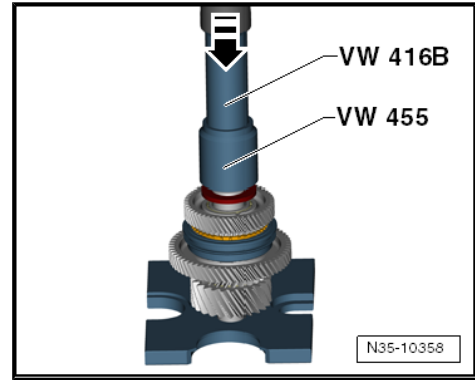


- Press on washer for synchromeshed gear for 6th gear.

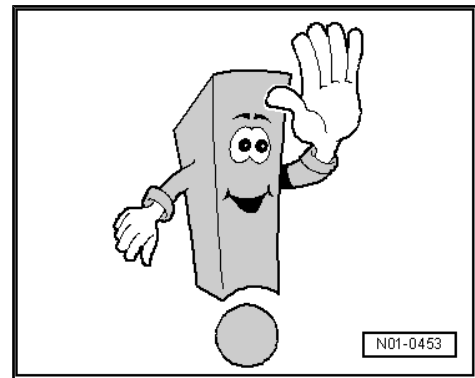
If this washer has lettering then position this side of washer »downwards«.

i Note

- ◆ Here too, stop pressing immediately when you notice a rise in force during pressing. Do not continue pressing!
- ◆ After pressing, gear wheel must turn »freely« when shaft is in horizontal position.
- ◆ Output shaft is assembled as far as this washer for purpose of adjusting shaft.



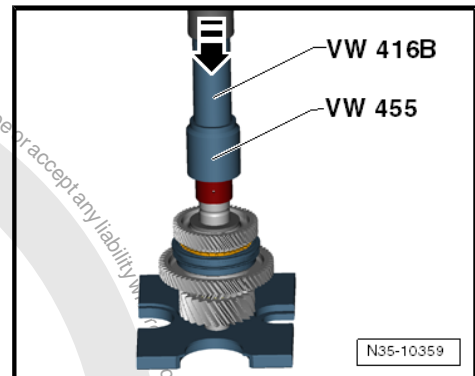
Do not assemble output shaft further until gearbox has been adjusted.



- Press on sleeve for needle bearing of synchromeshed gear for 7th gear.

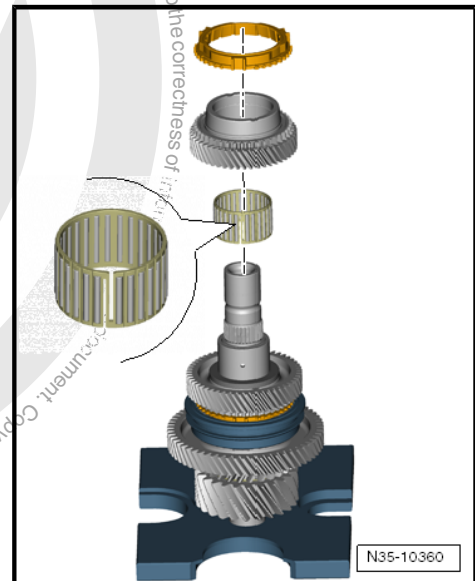
i Note

Here too, stop pressing immediately when you notice a rise in force during pressing. Do not continue pressing!



- Put on needle bearing, synchromeshed gear for 7th gear and synchro-ring.
- Wet bearing and friction surface with oil.
- Put on locking collar with synchro-hub. Make sure circumferential edge of sleeve is pointing »upwards«, and collar of locking collar »downwards«.

Synchro-hub can only be put in place. It is pressed on in next step.

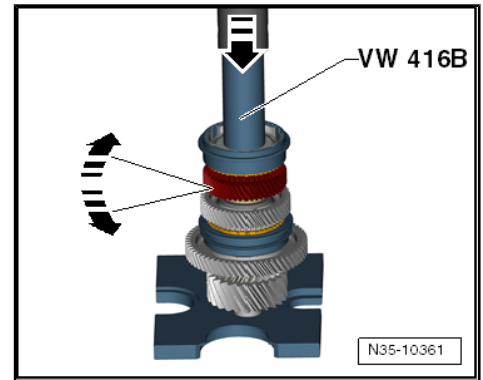




- Press on synchro-hub.

i Note

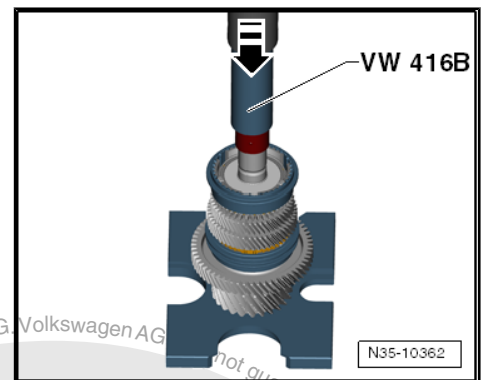
- ◆ Bear two things in mind when pressing:
- ◆ Raise gear wheel and turn it at same time. This allows synchro-ring to locate its installation position before ring is clamped by synchro-hub.
- ◆ Once ring has located its seat, pay attention to force required for pressing. Stop pressing as soon as you feel a stop (increased force requirement). Synchromeshed gear for 3rd gear must have axial play. Gear has reached its installation position as soon as force during pressing rises. If you continue pressing then you will be pressing synchro-hub against needle bearing, thus damaging it.
- ◆ After pressing, gear wheel must turn »freely« when shaft is in horizontal position.



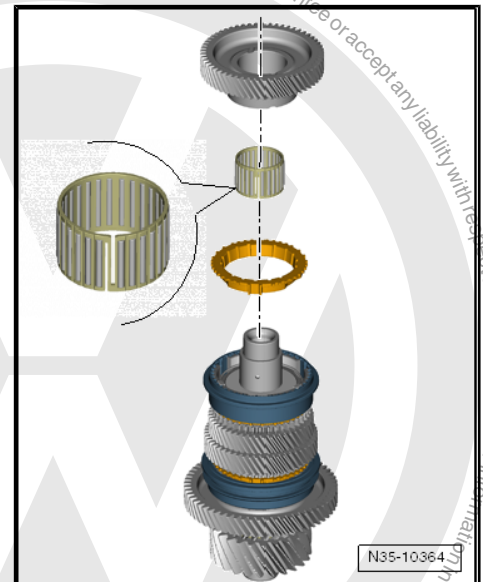
- Press on sleeve for needle bearing of synchromeshed gear for 5th gear.

i Note

Here too, stop pressing immediately when you notice a rise in force during pressing. Do not continue pressing!

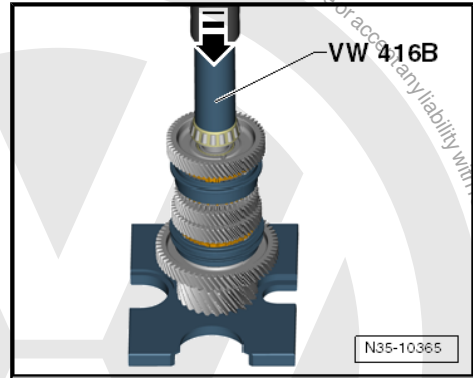


- Put on synchro-ring, needle bearing and gear wheel for 5th gear.
- Wet bearing and friction surface with oil.





- Press on bearing.
- Wet bearing with oil.

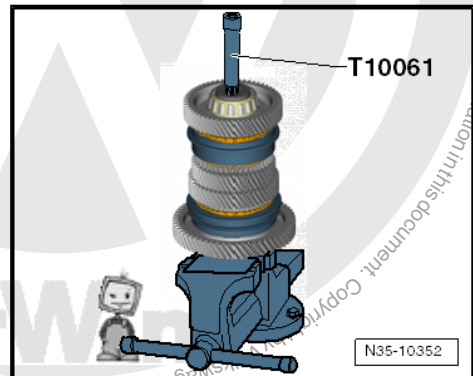


- Tighten new bolt.

Torque settings:

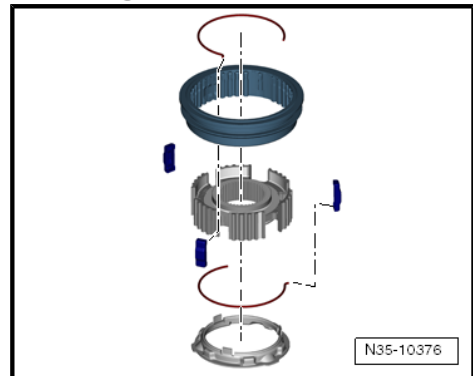
60 Nm, 90° further.

Special wrench -T10035- can also be used for tightening.

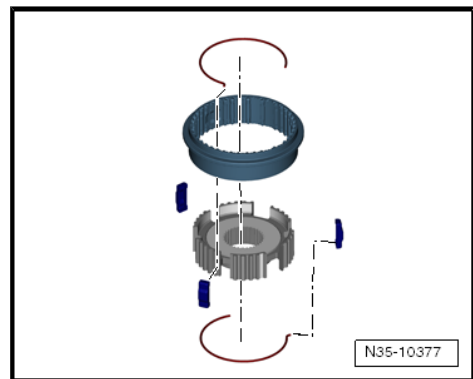


9.3 Dismantling and assembling locking collars and synchro-hubs of output shaft 2

Locking collar and synchro-hub for synchromeshed gear for 6th gear



Locking collar and synchro-hub for synchromeshed gear for 7th and 5th gears

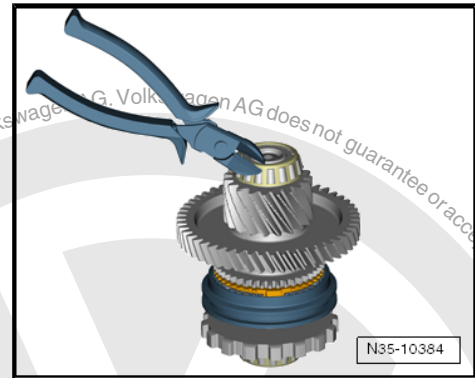




10.1 Dismantling output shaft 3

Press off bearing of output shaft 3.

- Destroy cage of bearing first.

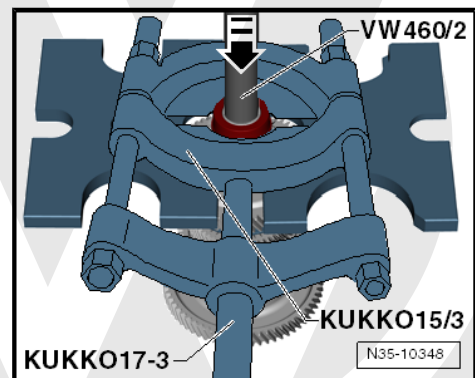


- Press off bearing inner race.

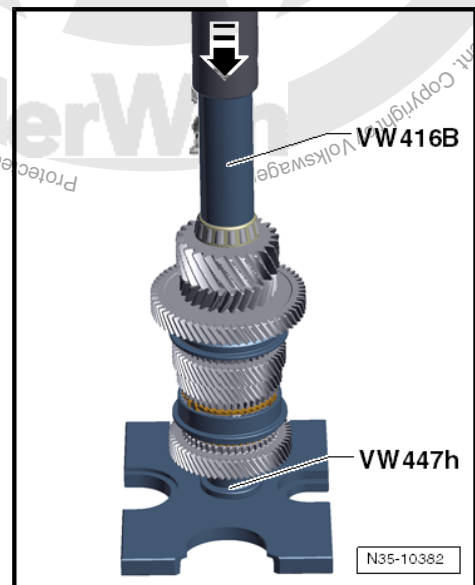


Note

Shaft will fall down! Therefore, take precautions and position suitable items under press. It is also possible to hold shaft by hand.



Press on bearing of output shaft 3.



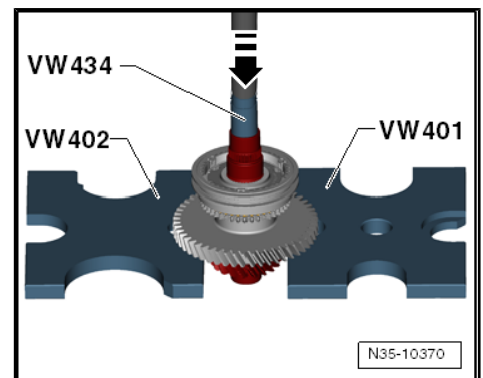
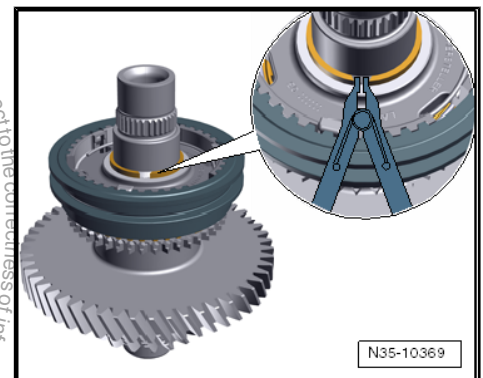
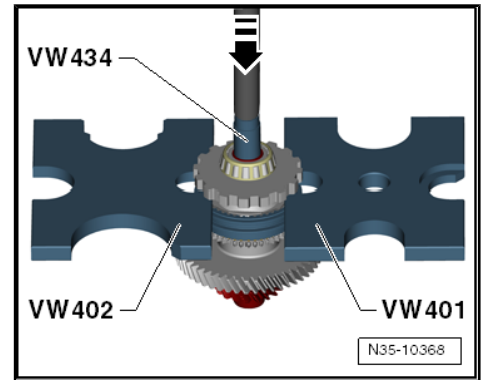


- Press off parking lock gear together with bearing.



Note

Shaft will fall down! Therefore, take precautions and position suitable items under press. It is also possible to hold shaft by hand.



- Remove retaining ring.

- Press out shaft.



Note

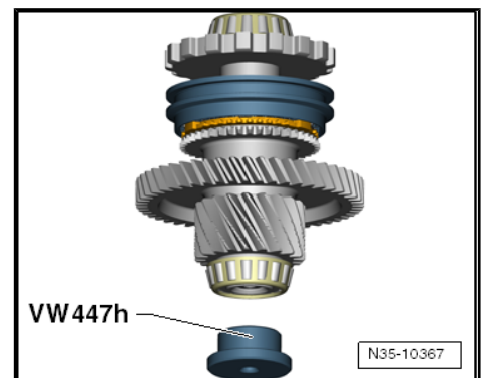
Shaft will fall down! Therefore, take precautions and position suitable items under press. It is also possible to hold shaft by hand.

10.2 Assembling output shaft 3

In this procedure, you will see how output shaft is assembled. Make sure that shaft bearing is not damaged during following work on press.

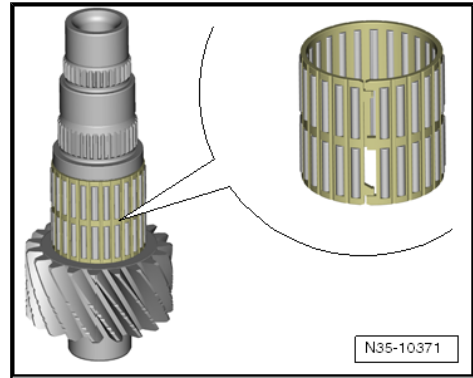
If bearing is not going to be renewed then it must be protected.

- If bearing is pressed on, thrust plate -VW 447 H- must also be used for each pressing operation.
- Pressing off bearing: ⇒ [page 340](#)
- Pressing on bearing: ⇒ [page 340](#)

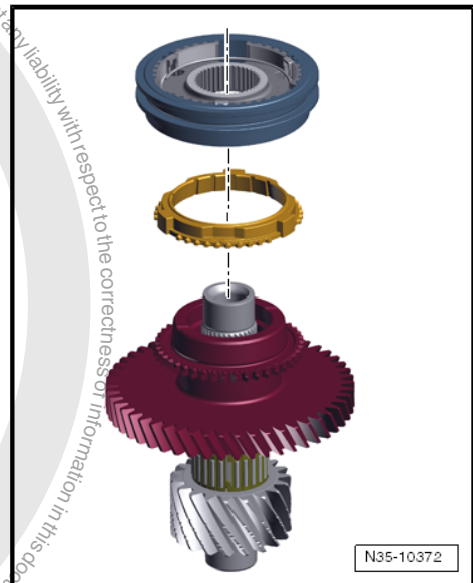




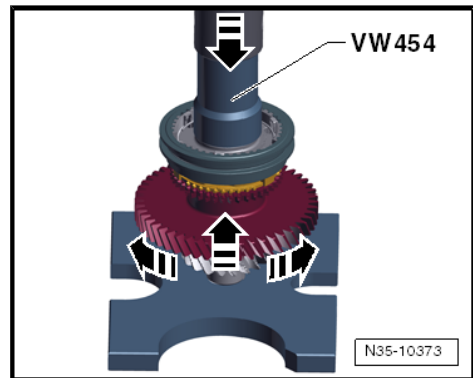
- Fit needle bearing.
- Wet bearing slightly with oil.



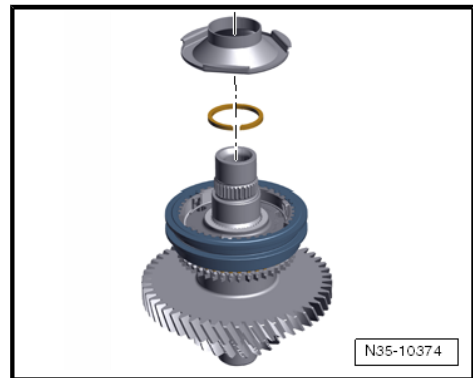
- Put on reverse gear synchromeshed gear, synchro-ring and locking collar.
 - Wet friction surface with oil.
- Synchro-hub can only be put in place. It is pressed on in next step.



- Press on synchro-hub and locking collar.

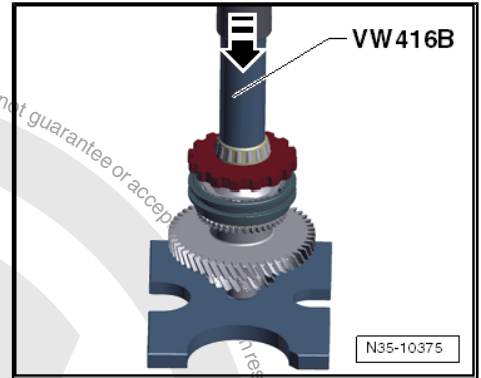


- Fit retaining ring.
- Insert -stop ring-.



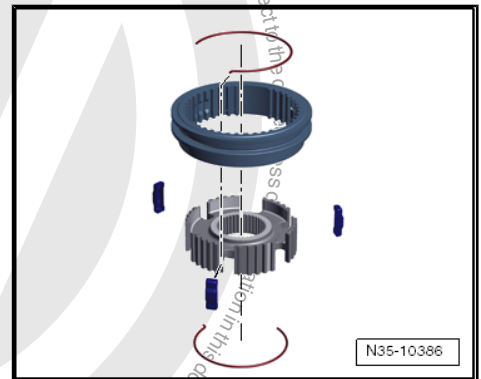


- Put on parking lock gear and bearing.
- Press on both together.



10.3 Dismantling and assembling locking collar and synchro-hub of output shaft 3

Dismantling and assembling locking collar and synchro-hub of output shaft 3





11 Notes on gearbox adjustment

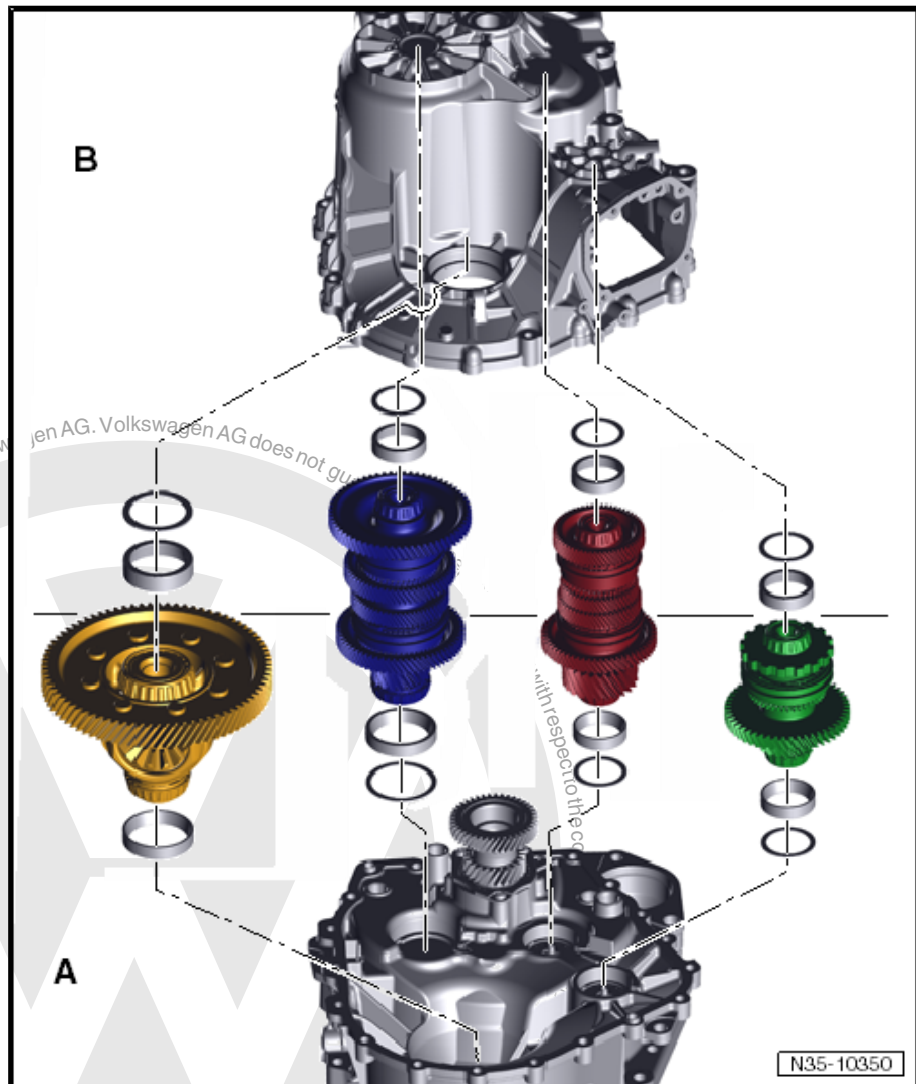
Adjustment work is divided into 2 »sections«:

A - This involves finding shims that are inserted into clutch housing.

- This is the start of the work. Objective is to align output shafts 1 to 3 in clutch housing »in one imaginary plane«. This »imaginary plane« is defined by face end of outer input shaft. For this procedure, refer to chapter => [page 345](#) .

B - During assembly of gearbox, »thickness« of these shims determines force with which shafts are »clamped« between both halves. These shims are inserted in gearbox housing.

- For this procedure, refer to => [page 356](#)
- Only once correct shims -A- have been calculated for clutch housing, or if there is no need for measurement, can shims -B- be determined.
- Therefore, do not calculate shims -B- until shims -A- are OK.



- Work with intact tools, make sure the workplace is clean.
- Avoid temperature differences between gearbox and adjusting tool.
- Flange surfaces of both housing halves should be smooth and neither »indented nor damaged«.
- Do not put on measuring table unless there are guide bushes in housing.
- Do not swap over bearing races of same size, always renew bearings on a shaft jointly.
- Follow this procedure step by step. Temperature differences, such as between »summer and winter«, affect all measuring tools that are used.
- Numbers given in the calculations below are in millimetres. »Your measuring tools« and »dimensions on your gearbox« will differ from the values stated here. Numerical values such as these are always identified with this supplement: -example-.



- Notes made during measurements should be legible and easy to follow. Oily pieces of paper are not appropriate for this.

11.1 Calculating shims for clutch housing

This »section« explains how to calculate thickness of shims in clutch housing. 3 shims are installed in total. There is 1 shim under each output shaft. Differential does not have a shim here.



Oil deflectors are inserted under output shafts 2 and 3, which are not shown here. For information about installation of shims, oil deflectors and bearing races, refer to [⇒ page 313](#).



Note

Do not install any oil deflectors or shims when calculating which shims to use. Only install bearing races of shafts.



- Outer input shaft is installed ⇒ [page 313](#) .
- Bearing races of all shafts and bearing race of differential are installed ⇒ [page 313](#) .
- No oil deflector and no shim is installed.



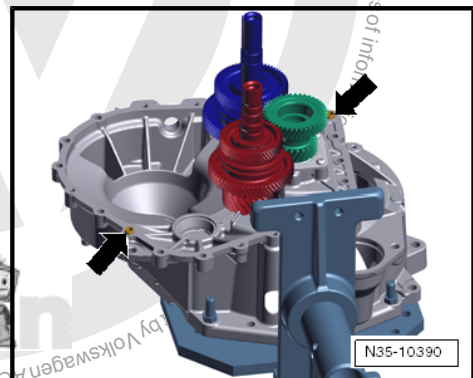
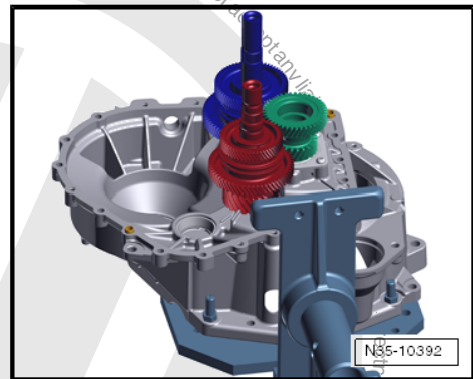
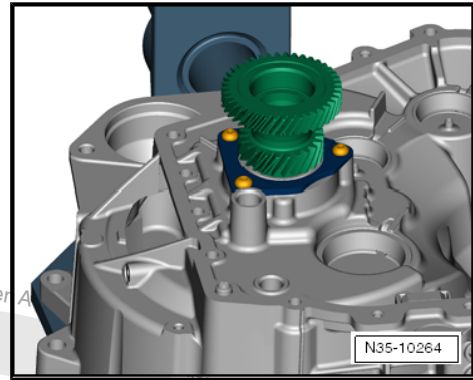
Note

For adjustment only: do not install any shims. Do not install any oil deflectors.

- Place partially dismantled output shaft 1 and output shaft 2 into bearing race.

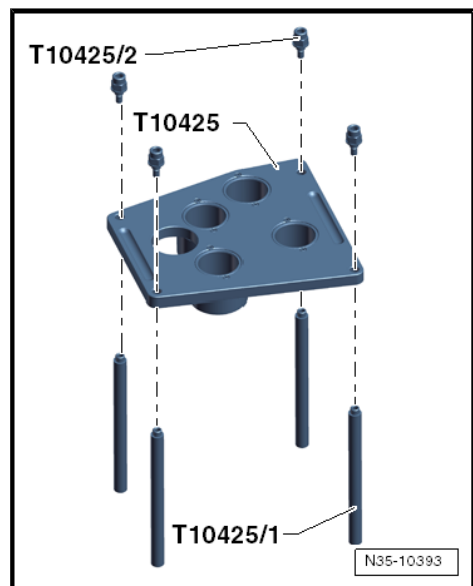
To find out how »far« shafts are allowed to be assembled, refer to ⇒ [page 323](#) for output shaft 1, and ⇒ [page 334](#) for output shaft 2.

- Make sure that dowel sleeves are inserted in clutch housing.



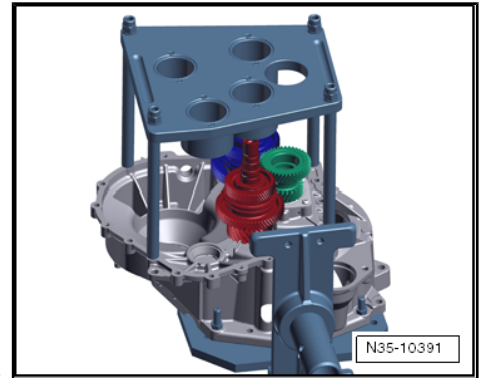
Assemble measuring tool -T10425- for work on clutch housing.

Torque setting 15 Nm





- Place measuring tool -T10425- on dowel sleeves.



- Place mandrel -T10425/3- on output shaft 1.



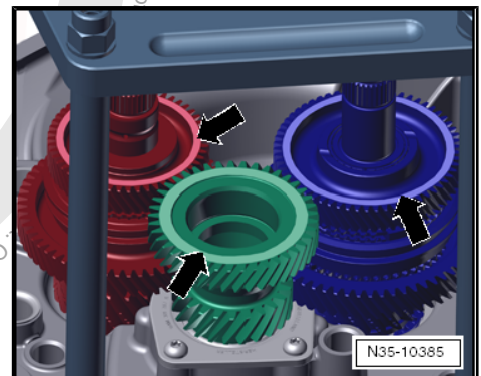
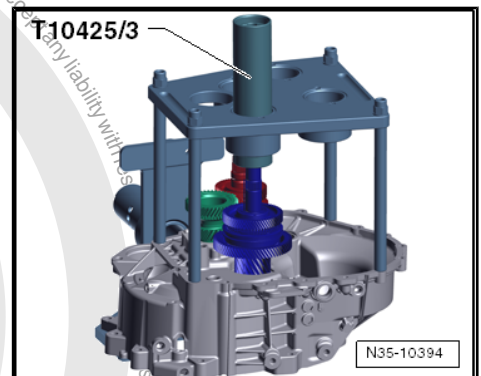
Note

All gears have burrs on their teeth. These burrs »disrupt« measurements. This is intended to show -where- gear wheels are measured in following measurements.

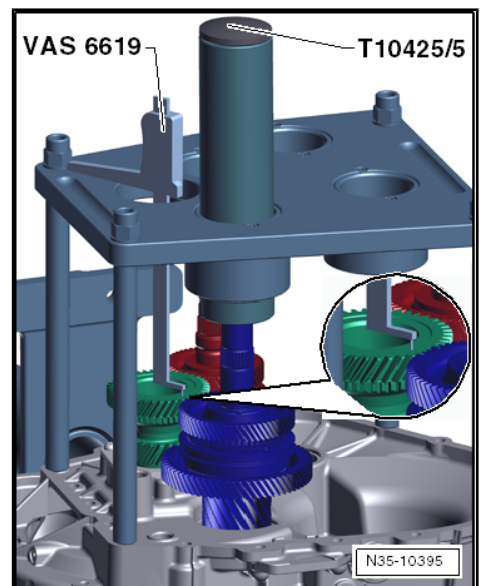
Measuring surfaces start at »roots« of teeth.

They extend as far as »first shoulder«. Shown here in "light" colour in illustration.

Teeth themselves can be used for measurement. It is important to make sure that depth gauge does not locate on burrs.

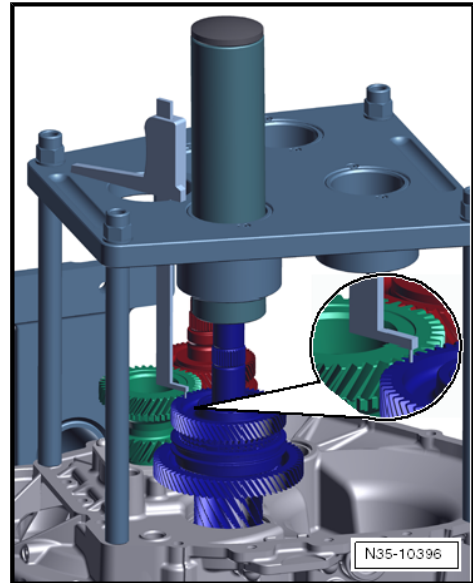


- Zero depth gauge -VAS 6619- on outer input shaft. Shown here in »green«.





- Use depth gauge -VAS 6619- to measure on 4th gear wheel of output shaft 1. Shown here in »blue«.
- Make a note of this value.
- Identify value as "A".



- Three measurements are taken. Therefore, make a mark on gear of outer input shaft.
- Turn input shaft by 120° further and repeat measurement. Then turn through another 120° and measure again.

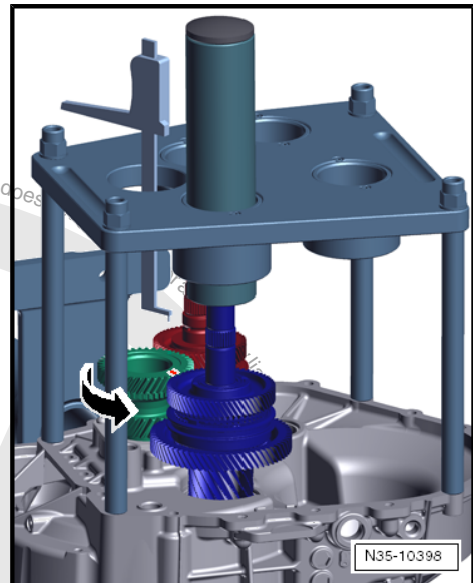


Note

Gears of shafts have helical gearing. Turning shafts causes them to be raised out of bearing.

- To make sure that shafts remain in their bearing, tap mandrel -T10425/3- lightly whilst turning. Do not forget headpiece -T10425/5- .

This gives you 3 measurement values, from which you should calculate the average.



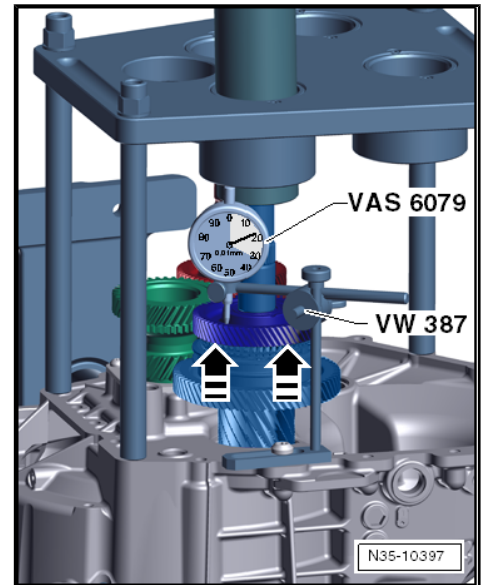


Gear wheel for 4th gear has axial play on shaft.

This play is not allowed to »influence« size of subsequent shim.
Therefore, axial play is measured.

- Identify value as "B".
- Make a note of this value.
- Calculation: "A" minus "B" = calculated shim thickness.

Calculated shim thickness		Shim to be installed (in millimetres)
from	to	
0.625	0.674	0.65
0.675	0.724	0.70
0.725	0.774	0.75
0.775	0.824	0.80
0.825	0.874	0.85
0.875	0.924	0.90
0.925	0.974	0.95
0.975	1.024	1.00
1.025	1.074	1.05
1.075	1.124	1.10
1.125	1.174	1.15
1.175	1.224	1.20
1.225	1.274	1.25
1.275	1.324	1.30
1.325	1.374	1.35
1.375	1.424	1.40
1.425	1.474	1.45
1.475	1.524	1.50
1.525	1.574	1.55
1.575	1.624	1.60
1.625	1.674	1.65
1.675	1.724	1.70
1.725	1.774	1.75

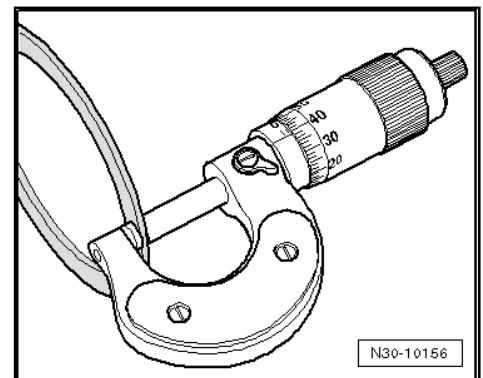


- From the shims that have been supplied, measure shim that you require.

⚠ WARNING

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

Keep this shim carefully, do not mix it up with any other shims.





- Place mandrel -T10425/3- on output shaft 2.

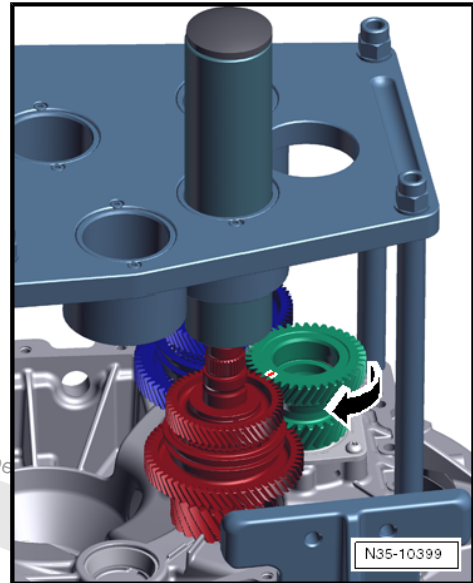
Turn mark on outer input shaft »into alignment« with output shaft 2.



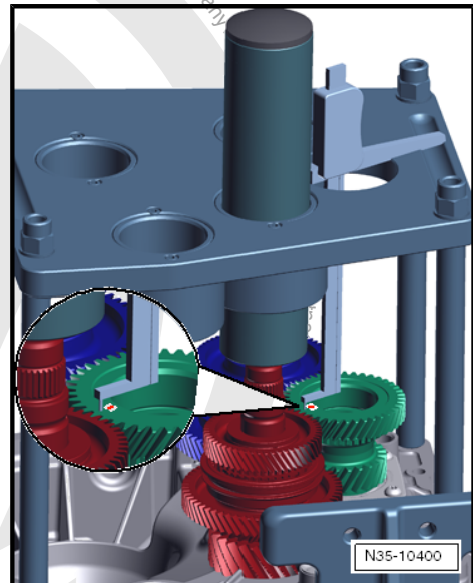
Note

Gears of shafts have helical gearing. It is possible for shafts to be raised out of their bearing when they are turned.

- To make sure that shafts remain in their bearing, tap mandrel -T10425/3- lightly whilst turning. Do not forget headpiece -T10425/5- .



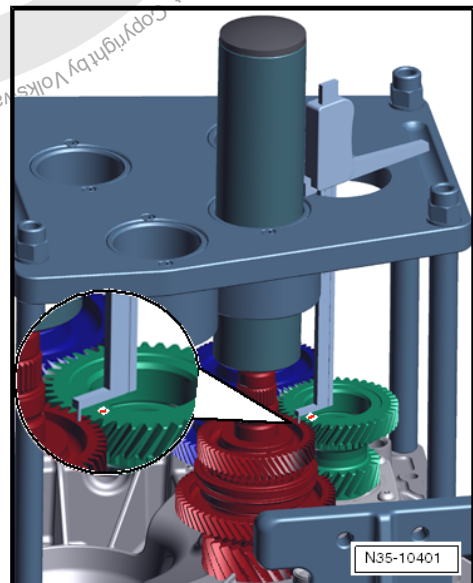
- Zero depth gauge -VAS 6619- on outer input shaft. Shown here in »green«.



- Use depth gauge -VAS 6619- to measure on 6th gear wheel of output shaft 2. Shown here in »red«.

- Make a note of this value.

- Identify value as "A".





- Three measurements are taken.
- Use »existing« mark for orientation.
- Turn input shaft by 120° further and repeat measurement.
Then turn through another 120° and measure again.

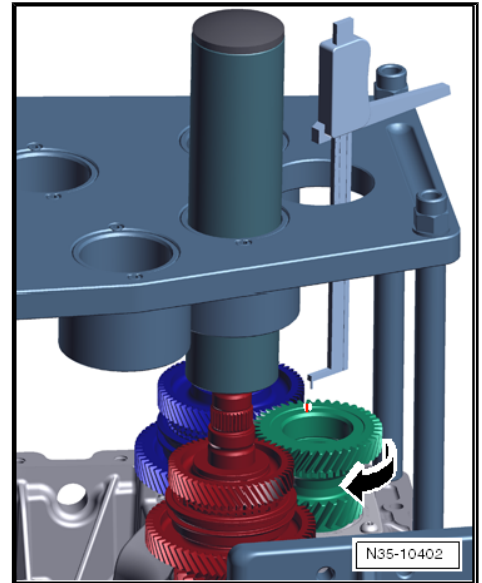
 **Note**

Gears of shafts have helical gearing. It is possible for shafts to be raised out of their bearing when they are turned.

- To make sure that shafts remain in their bearing, tap mandrel -T10425/3- lightly whilst turning. Do not forget headpiece - T10425/5- .

This gives you 3 measurement values, from which you should calculate the average.

Gear wheel for 6th gear has axial play on shaft.

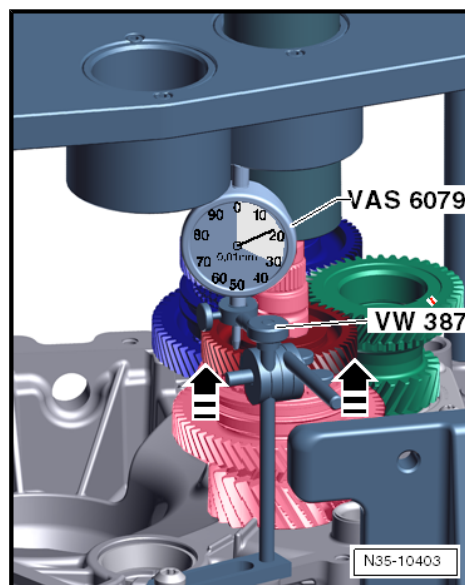




This play is not allowed to »influence« size of subsequent shim.
Therefore, axial play is measured.

- Identify value as "B".
- Make a note of this value.
- Calculation: "A" minus "B" = calculated shim thickness.

Calculated shim thickness		Shim to be installed (in millimetres)
from	to	
0.625	0.674	0.65
0.675	0.724	0.70
0.725	0.774	0.75
0.775	0.824	0.80
0.825	0.874	0.85
0.875	0.924	0.90
0.925	0.974	0.95
0.975	1.024	1.00
1.025	1.074	1.05
1.075	1.124	1.10
1.125	1.174	1.15
1.175	1.224	1.20
1.225	1.274	1.25
1.275	1.324	1.30
1.325	1.374	1.35
1.375	1.424	1.40
1.425	1.474	1.45
1.475	1.524	1.50
1.525	1.574	1.55
1.575	1.624	1.60
1.625	1.674	1.65
1.675	1.724	1.70
1.725	1.774	1.75
1.775	1.824	1.80
1.825	1.874	1.85
1.875	1.924	1.90



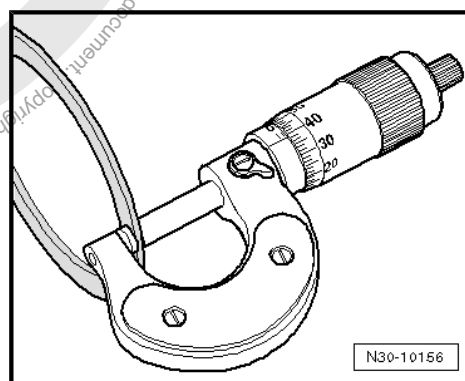
- From the shims that have been supplied, measure shim that you require.

WARNING

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

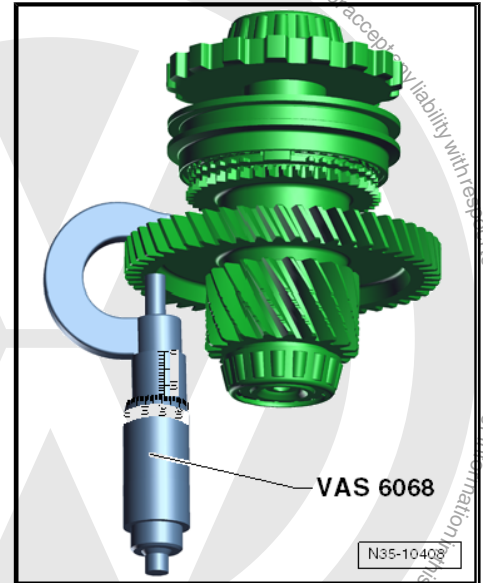
Keep this shim carefully, do not mix it up with any other shims.

- Remove output shafts 1 and 2 and assemble them.
- ◆ Output shaft 1 ⇒ [page 325](#)
- ◆ Output shaft 2 ⇒ [page 334](#)
- ◆ Then adjust output shaft 3





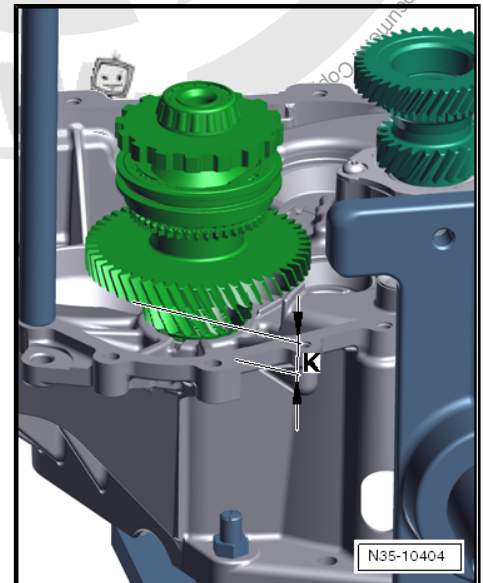
- First measure thickness of synchromeshed gear for reverse gear.
- Make a note of this value and identify value as "B".



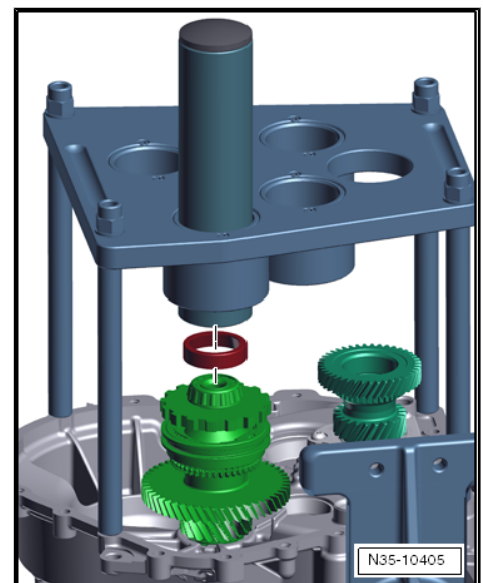
Adjust output shaft 3.

Output shaft 3 is set correctly when dimension K = 19.9 millimetres.

- Place output shaft 3 into bearing.

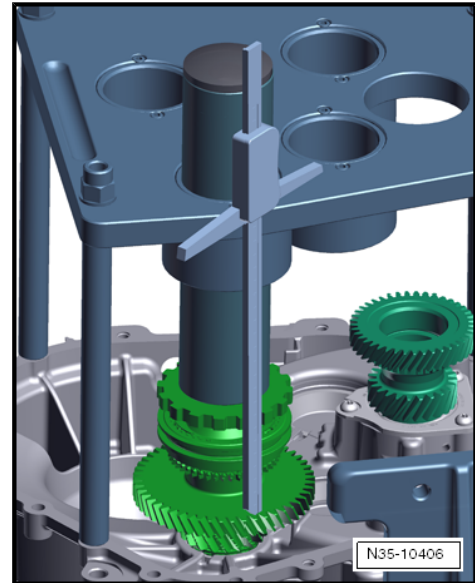


- Take bearing race that is to be installed and place onto shaft.
- Place mandrel -T10425/3- onto shaft.

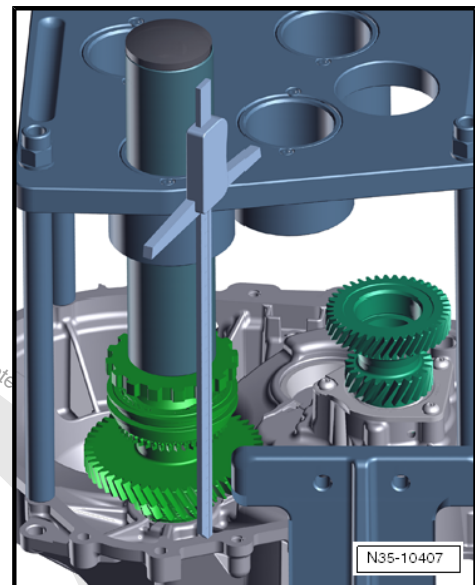




- Zero depth gauge -VAS 6594- on synchroneshed gear for reverse gear.



- Measure distance from housing flange surface.
 - Make sure that burrs on teeth are not included in measurement.
 - Make a note of this value and identify value as "A".
- »Thickness« of synchroneshed gear for reverse gear "B" must be subtracted from this value.





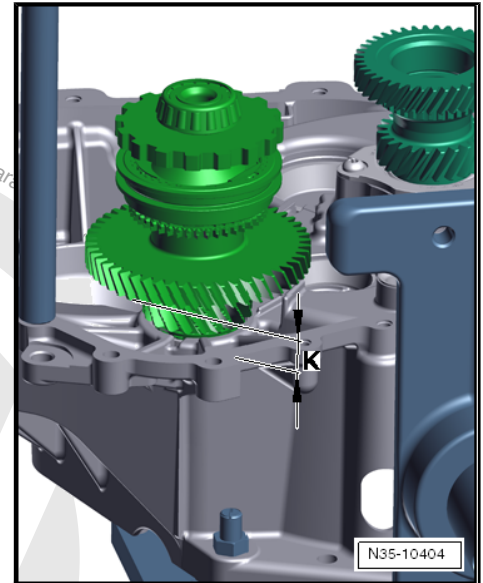
- Top edge of gear wheel to housing flange surface "A" minus thickness of gear wheel "B" = actual value for "K".

Output shaft 3 is set correctly when dimension -K- = 19.9 millimetres.


- Therefore, now calculate a shim to arrive at -K- = 19.9 millimetres.

19.9 millimetres minus actual value for "K" = calculated shim thickness.

Calculated shim thickness		Shim to be installed (in millimetres)
from	to	
0.775	0.824	0.80
0.825	0.874	0.85
0.875	0.924	0.90
0.925	0.974	0.95
0.975	1.024	1.00
1.025	1.074	1.05
1.075	1.124	1.10
1.125	1.174	1.15
1.175	1.224	1.20
1.225	1.274	1.25
1.275	1.324	1.30
1.325	1.374	1.35
1.375	1.424	1.40
1.425	1.474	1.45
1.475	1.524	1.50
1.525	1.574	1.55



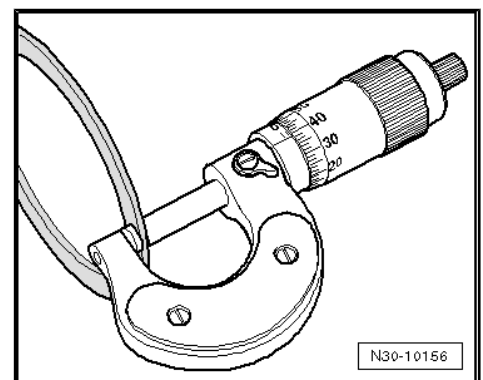
- From the shims that have been supplied, measure shim that you require.



WARNING

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

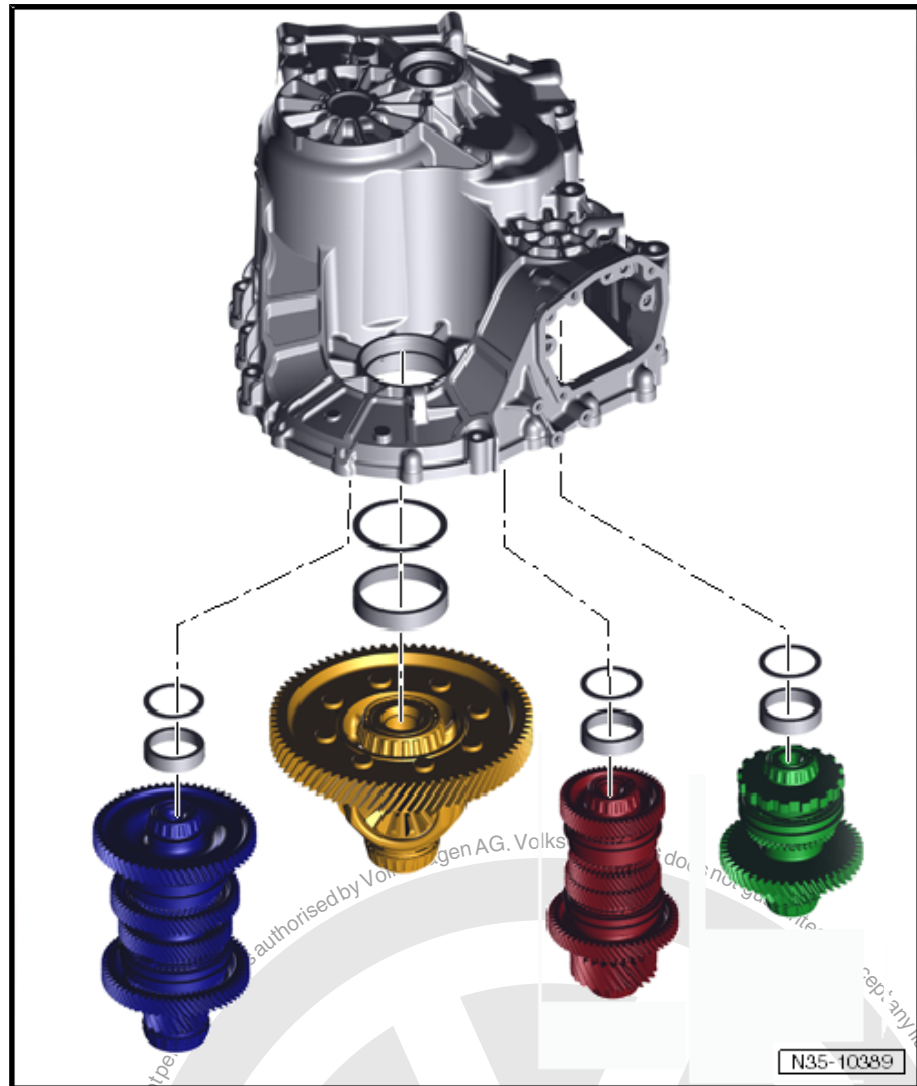
- 1 - Keep this measured shim carefully, do not mix it up with any other shims.
 - 2 - Place measuring tool -T10425- to one side.
 - 3 - Install measured shims for output shafts, bearing races and oil deflectors ⇒ [page 313](#) .
 - 4 - Assembling output shaft 1 ⇒ [page 325](#) .
 - 5 - Assembling output shaft 2 ⇒ [page 334](#) .
 - 6 - Insert all output shafts in clutch housing.
 - 7 - Put measuring tool -T10425- back onto clutch housing.
- Calculating shims for gearbox housing ⇒ [page 356](#) .





12 Calculating shims for gearbox housing

This »section« explains how to calculate thickness of shims in gearbox housing. 4 shims are installed in total. There is 1 shim on each output shaft. Differential has 1 shim as well here.



Procedure:

First calculate how »high« shafts stand in clutch housing.

Then measure how »deep« gearbox housing is.

Subtract both »heights« from one another.

Bearing preload is stated for each shaft in working procedure. Therefore, follow this procedure exactly, please.

Each shaft has a different preload, therefore follow the instruction precisely and note the different preloads.

The correct shim can then be calculated in each case.

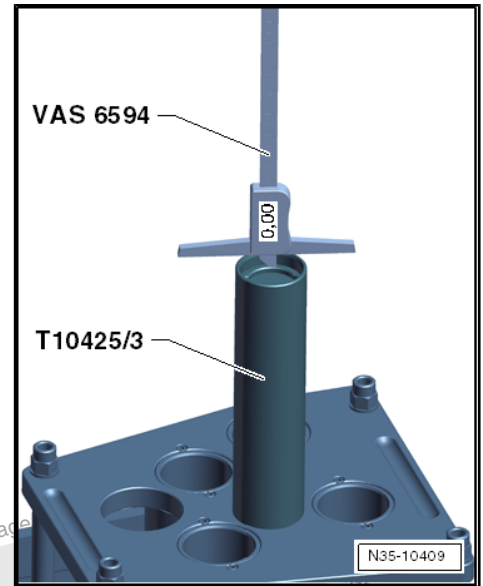
For information about installation of shims and bearing races after »calculation«, refer to [⇒ page 309](#).

- Do not insert differential yet. Output shafts 1, 2 and 3 are in their bearings.



Comply with following work instructions:

- Measure height of your mandrel -T10425/3- .
- Zero depth gauge -VAS 6619- on shoulder for bearing races.



- Measure height of mandrel.

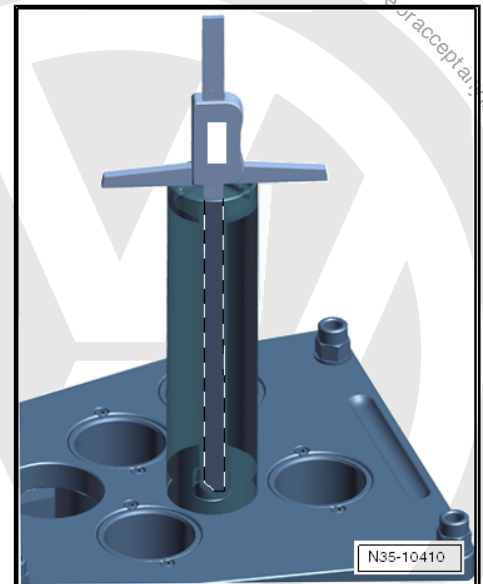
Make a note of your mandrel height. Its height is needed in subsequent calculations. Identify height of mandrel as $D=?$ mm.

Example: 230.03 mm

i Note

Each mandrel has a different height. Therefore, measure your mandrel.

Start with output shaft 1.

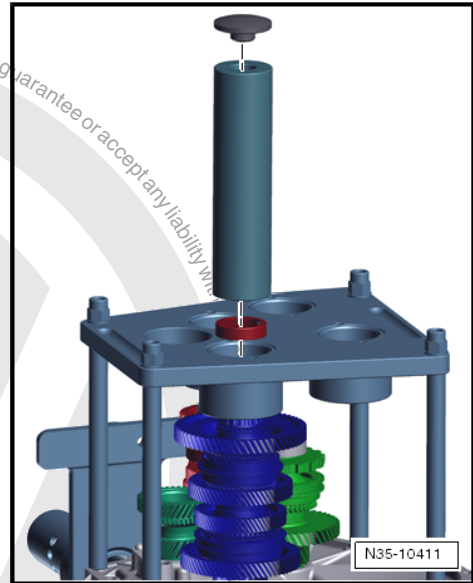




- Put on bearing race, mandrel and headpiece.
- Tap mandrel »lightly« with a plastic hammer.
- Rotate outer input shaft whilst tapping.

This locates output shaft correctly in its bearing seat.

- Remove headpiece -T10425/5- from mandrel again and place it to one side.



- Zero depth gauge -VAS 6594- on measuring tool -T10425- .
- Measure distance (height) from surface of measuring tool -T10425- to flange surface of clutch housing.

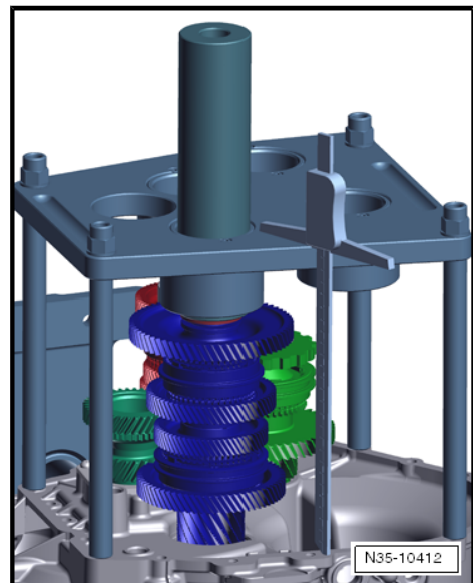


Always measure close to the respective bearing position.

- Note this value. Identify it as "a"

Example:

"a" = 264.97 mm





- Measure distance (height) from mandrel to measuring tool - T10425- .
- Note this value. Identify it as "b"

Example:

"b" = 163.85 mm

Height of output shaft 1 = "a" plus "b" minus height of mandrel "D"
= 264.97 mm + 163.85 mm - 230.03 mm = 198.79 mm

This example is intended to show you the procedure for measuring and calculating. Without doubt, the values on your gearbox will be different.

- Note the calculated value for the "height of output shaft 1". You will require this value later.

Example: "height of output shaft 1" = 198.79 mm

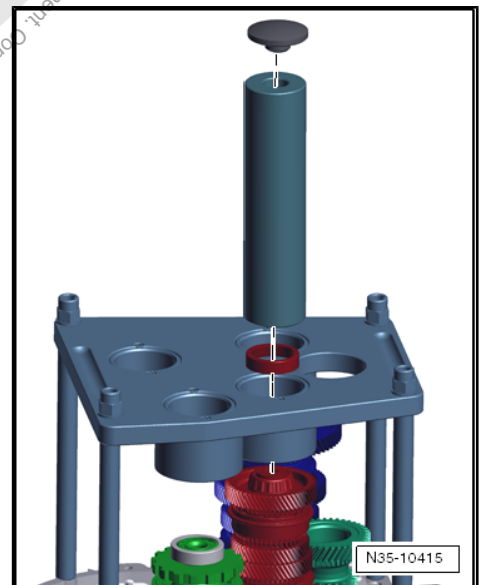
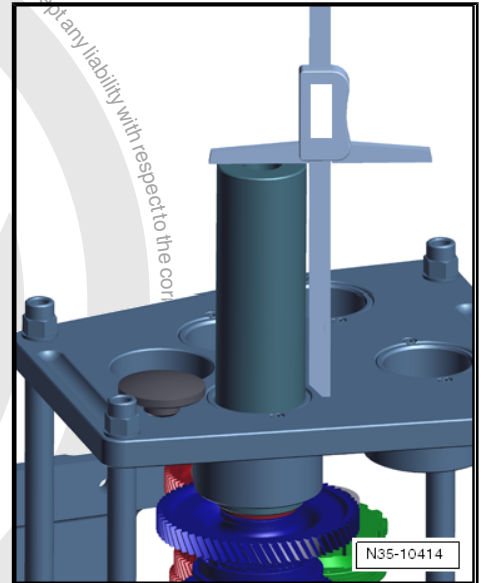
Continue with output shaft 2.

- Put on bearing race which is to be installed, mandrel and headpiece.
- Tap mandrel »lightly« with a plastic hammer.
- Rotate outer output shaft whilst tapping.

This locates output shaft 2 correctly in its bearing seat.

- Remove headpiece -T10425/5- from mandrel again and place it to one side.

- Zero depth gauge -VAS 6594- on measuring tool -T10425- .
- Measure distance (height) from surface of measuring tool -T10425- to flange surface of clutch housing.



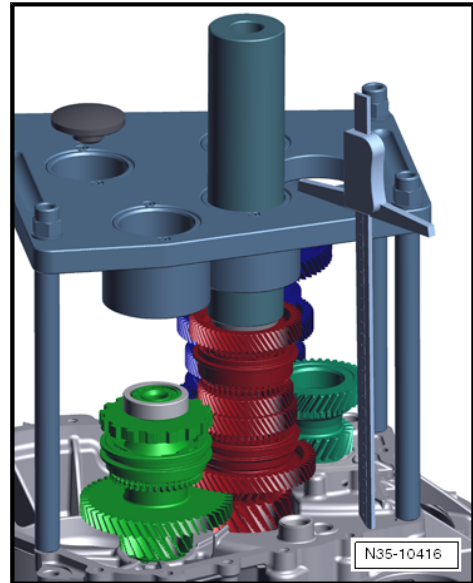


Always measure close to the respective bearing position.

- Note this value. Identify it as "a2"

Example:

"a2" = 264.93 mm



- Measure distance (height) from mandrel to measuring tool - T10425- .

- Note this value. Identify it as "b2"

Example:

"b2" = 138.99 mm

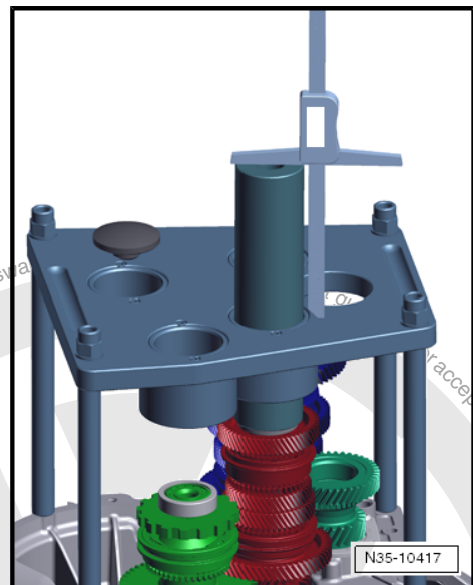
Height of output shaft 2 = "a2" plus "b2" minus height of mandrel
"D" = 264.93 mm + 138.99 mm - 230.03 mm = 173.89 mm

This example is also intended to show you the procedure for measuring and calculating. Without doubt, the values on your gearbox will be different.

- Note the calculated value for the "height of output shaft 2". You will require this value later.

Example: "height of output shaft 2" = 173.89 mm

Continue with output shaft 3.



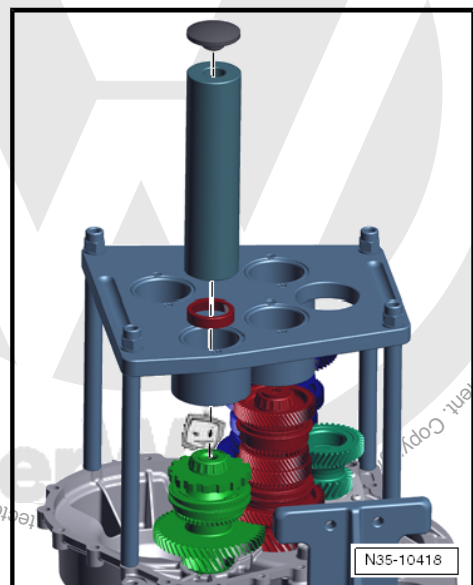
- Put on bearing race which is to be installed, mandrel and headpiece.

- Tap mandrel »lightly« with a plastic hammer.

- Rotate outer input shaft whilst tapping.

This locates output shaft 3 correctly in its bearing seat.

- Remove headpiece -T10425/5- from mandrel again and place it to one side.





- Zero depth gauge -VAS 6594- on measuring tool -T10425- .
- Measure distance (height) from surface of measuring tool - T10425- to flange surface of clutch housing.

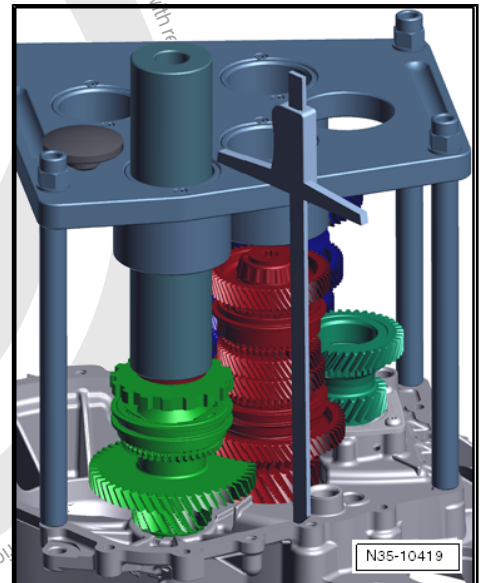


Always measure close to the respective bearing position.

- Note this value. Identify it as "a3"

Example:

"a3" = 264.92 mm





- Measure distance (height) from mandrel to measuring tool - T10425- .
- Note this value. Identify it as "b3"

Example:

"b3" = 85.59 mm

Height of output shaft 3 = "a3" plus "b3" minus height of mandrel
"D" = 264.92 mm + 85.59 mm - 230.03 mm = 120.48 mm

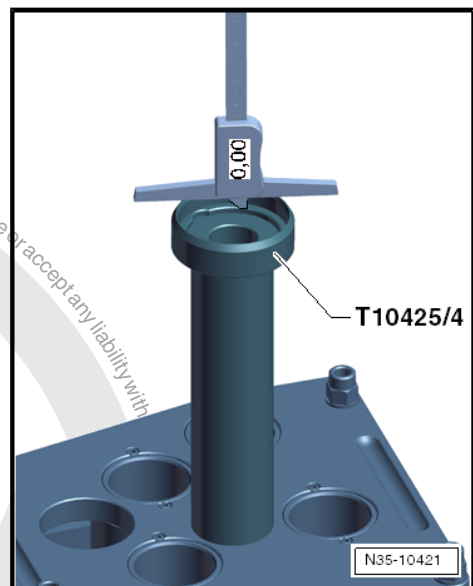
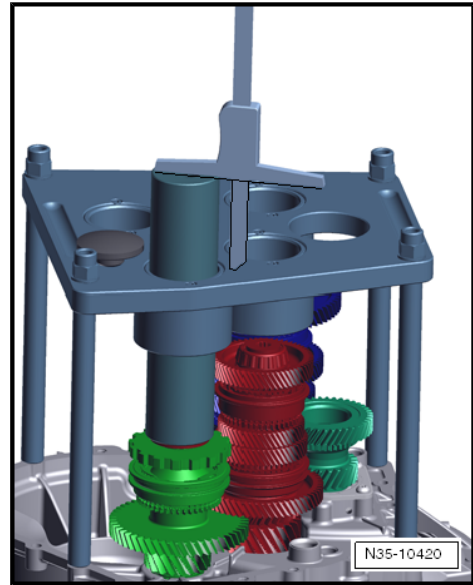
This example is also intended to show you the procedure for measuring and calculating. Without doubt, the values on your gearbox will be different.

- Note the calculated value for the "height of output shaft 3". You will require this value later.

Example: "height of output shaft 3" = 120.48 mm

- 1 - Place measuring tool -T10425- to one side.
 - 2 - Remove output shafts 1, 2 and 3
 - 3 - Install differential.
 - 4 - Put measuring tool -T10425- back onto clutch housing.
 - 5 - Place mandrel -T10425/3- with adapter -T10425/4- onto measuring tool -T10425- .
- Zero depth gauge -VAS 6619- on shoulder for bearing race.

Make sure which is shoulder for bearing race.





- Measure height of mandrel -T10425/3- with adapter - T10425/4- .

Make a note of your mandrel height. Its height is needed in subsequent calculations. Identify height of mandrel as "D" = ? mm

Example: D = 256.00 mm



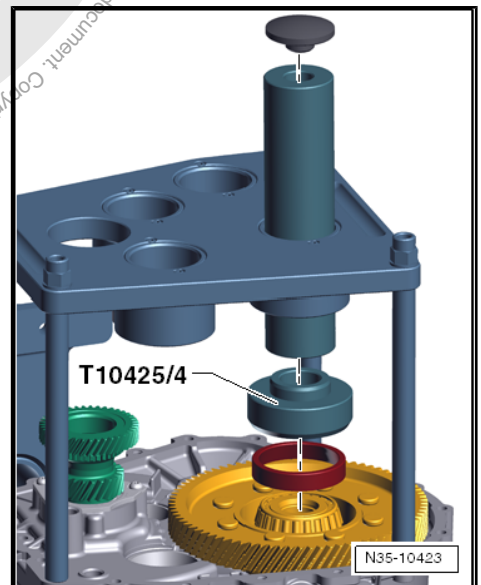
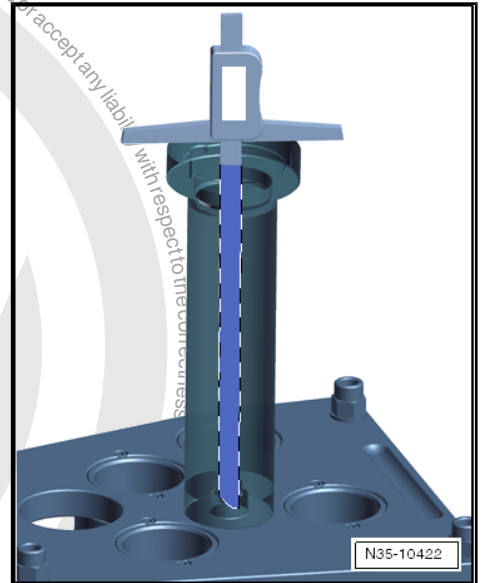
Note

Each mandrel responds to ambient temperature. Therefore measure mandrel prior to each gearbox repair. When measuring, make sure you are measuring the mandrel correctly. Depth gauge should pass through mandrel and »contact« surface of measuring tool. Mandrel has a shoulder at its »bottom end«. This shoulder can lead to errors if care is not taken when measuring.

Always use guide pins -3411- to install and remove differential.

- Put on bearing race, adapter, mandrel and headpiece.
- Tap mandrel »lightly« with a plastic hammer.
- Rotate differential whilst tapping.

The differential will then seat correctly in its bearing seat.



- Zero depth gauge -VAS 6594- on measuring tool -T10425- .





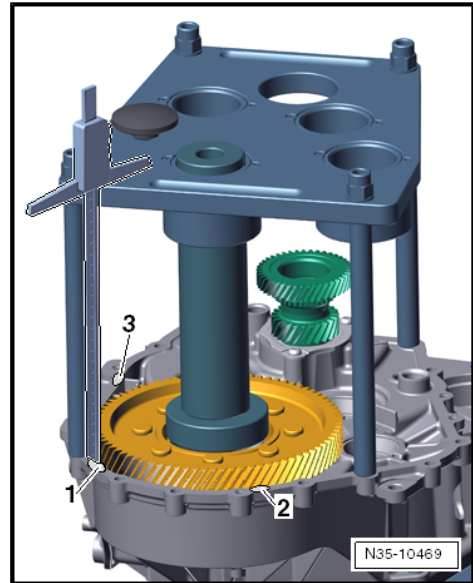
- Measure distance (height) from surface of measuring tool - T10425- to flange surface of clutch housing.

Measure at 2 more points to keep inaccuracies as low as possible.

- »Average« these 3 measurement values.
- Note this value. Identify it as "a4"

Example:

$$"a4" = 264.96 \text{ mm} + 264.98 \text{ mm} + 264.94 \text{ mm} / 3 = 264.96 \text{ mm}$$



- Measure distance (height) from mandrel to measuring tool - T10425- .

- Note this value. Identify it as "b4"

Example:

$$"b4" = 6.21 \text{ mm}$$

$$\text{Height of differential} = "a4" \text{ plus } "b4" \text{ minus height of mandrel } "D" \\ = 264.96 \text{ mm} + 6.21 \text{ mm} - 256.00 \text{ mm} = 15.17 \text{ mm}$$

This example is also intended to show you the procedure for measuring and calculating. Without doubt, the values on your gearbox will be different.

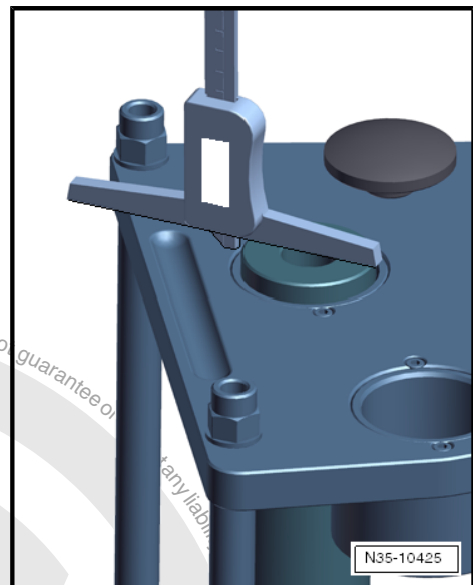
- Note the calculated value for the "height of differential". You will require this value later.

Example: "height of differential" = 15.17 mm

Now you have calculated how »high« shafts stand in clutch housing.

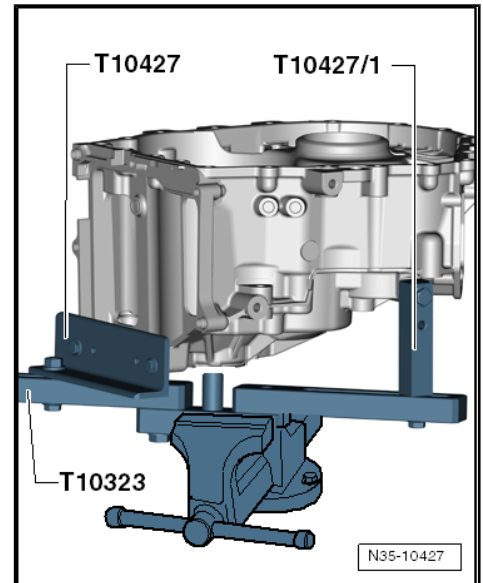
Subsequently, you will measure how »deep« gearbox housing is.

Comply with following work instructions:





- Secure gearbox housing in a vice using support bridge - T10323- .



- Insert dowel sleeves in gearbox housing.
- Set measuring tool on gearbox housing.
- Place measuring tool -T10425- on dowel sleeves.

Start again with measurements for output shaft 1:

Bearing preload for this output shaft 1 is: 0.25 mm.

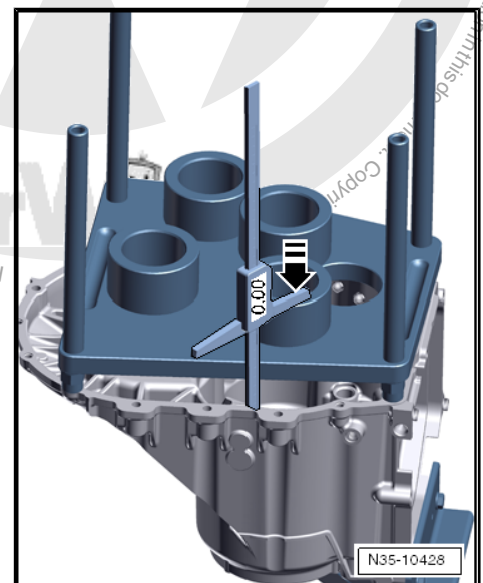


- Zero depth gauge -VAS 6594- on flange surface.



Note

Press against leg of depth gauge -arrow-.





- Measure at seat of bearing race in gearbox housing.
- Note this value. Identify it as »depth for output shaft 1«.

Example: "depth for output shaft 1" = 199.89 mm

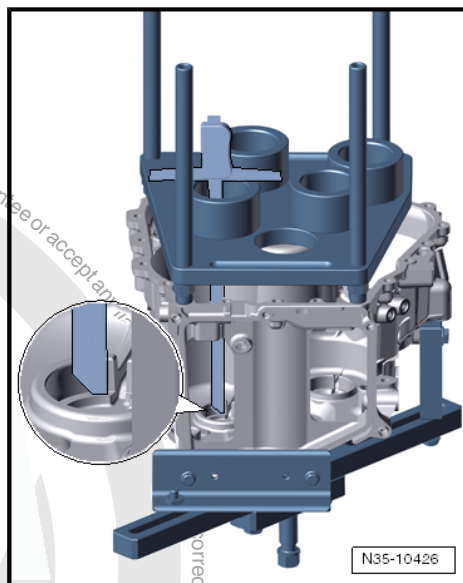
In your notes, you recorded your value for "height of output shaft 1". You require this value now.

- Calculate as follows: "depth for output shaft 1" minus "height of output shaft 1" plus bearing preload 0.25 mm = calculated shim thickness

Example: "height of output shaft 1" = 198.79 mm

Example: "depth for output shaft 1" = 199.89 mm

$$199.89 \text{ mm} - 198.79 \text{ mm} + 0.25 \text{ mm} = 1.35 \text{ mm}$$



Calculated shim thickness in gearbox housing for output shaft 1		Shim to be installed (in millimetres)
from	to	
0.625	0.674	0.65
0.675	0.724	0.70
0.725	0.774	0.75
0.775	0.824	0.80
0.825	0.874	0.85
0.875	0.924	0.90
0.925	0.974	0.95
0.975	1.024	1.00
1.025	1.074	1.05
1.075	1.124	1.10
1.125	1.174	1.15
1.175	1.224	1.20
1.225	1.274	1.25
1.275	1.324	1.30
1.325	1.374	1.35
1.375	1.424	1.40
1.425	1.474	1.45
1.475	1.524	1.50
1.525	1.574	1.55
1.575	1.624	1.60
1.625	1.674	1.65
1.675	1.724	1.70
1.725	1.774	1.75
1.775	1.824	1.80
1.825	1.874	1.85



- From the shims that have been supplied, measure shim that you require.

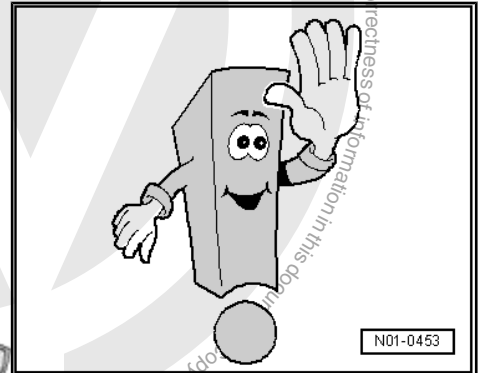
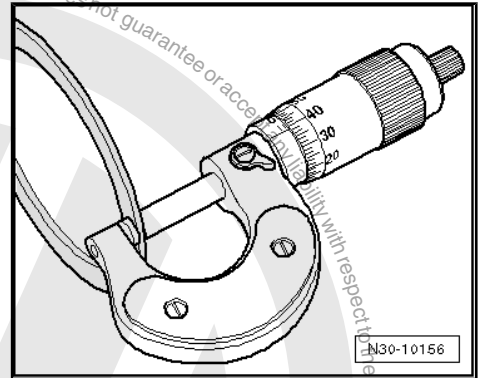


WARNING

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

Continue with measurements for output shaft 2:

Bearing preload for this output shaft 2 is: 0.30 mm.

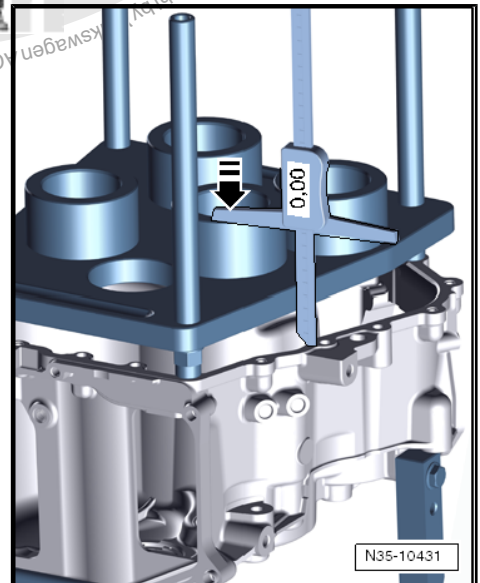


- Zero depth gauge -VAS 6594- on flange surface.



Note

Press against leg of depth gauge -arrow-.





- Measure at seat of bearing race in gearbox housing.
- Note this value. Identify it as »depth for output shaft 2«.

Example: "depth for output shaft 2" = 175.18 mm

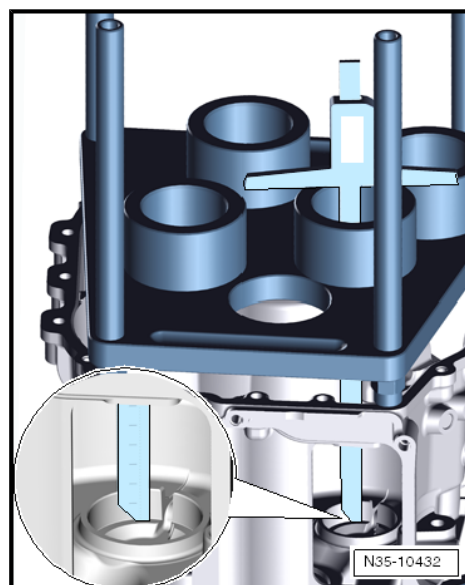
In your notes, you recorded your value for "height of output shaft 2". You require this value now.

- Calculate as follows: "depth for output shaft 2" minus "height of output shaft 2" plus bearing preload 0.30 mm = calculated shim thickness

Example: "height of output shaft 2" = 173.89 mm

Example: "depth for output shaft 2" = 175.18 mm

$$175.18 \text{ mm} - 173.89 \text{ mm} + 0.30 \text{ mm} = 1.59 \text{ mm}$$



Calculated shim thickness in gearbox housing for output shaft 2		Shim to be installed (in millimetres)
from	to	
0.625	0.674	0.65
0.675	0.724	0.70
0.725	0.774	0.75
0.775	0.824	0.80
0.825	0.874	0.85
0.875	0.924	0.90
0.925	0.974	0.95
0.975	1.024	1.00
1.025	1.074	1.05
1.075	1.124	1.10
1.125	1.174	1.15
1.175	1.224	1.20
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1.275	1.324	1.30
1.325	1.374	1.35
1.375	1.424	1.40
1.425	1.474	1.45
1.475	1.524	1.50
1.525	1.574	1.55
1.575	1.624	1.60
1.625	1.674	1.65
1.675	1.724	1.70
1.725	1.774	1.75
1.775	1.824	1.80
1.825	1.874	1.85



- From the shims that have been supplied, measure shim that you require.

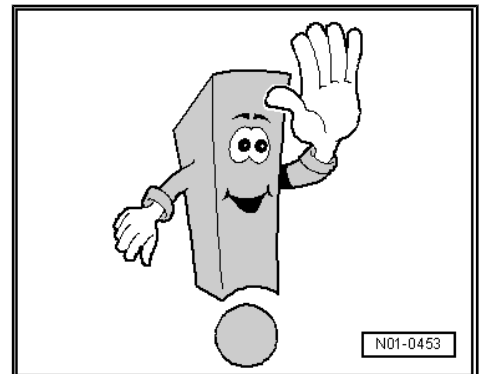
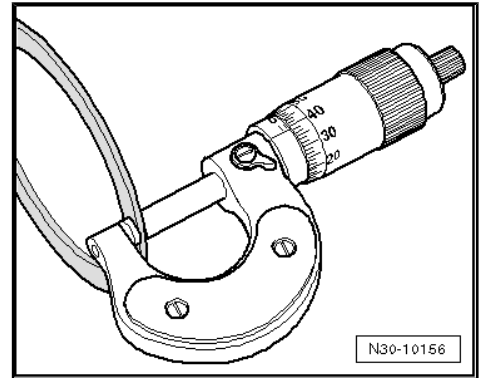


WARNING

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

Continue with measurements for output shaft 3:

Bearing preload for this output shaft 3 is: 0.15 mm.

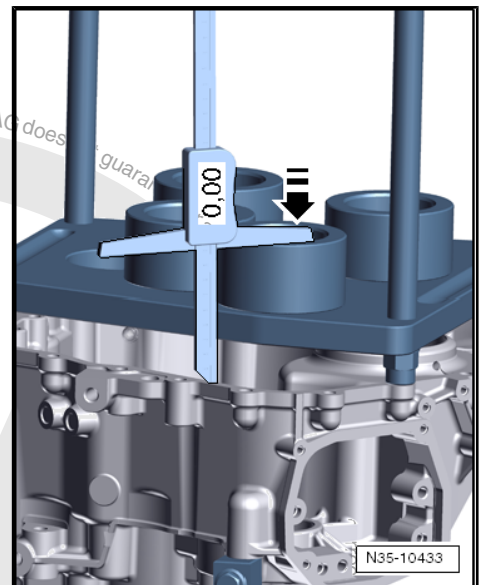


- Zero depth gauge -VAS 6594- on flange surface.



Note

Press against leg of depth gauge.



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- Measure at seat of bearing race in gearbox housing.
- Note this value. Identify it as »depth for output shaft 3«.

Example: "depth for output shaft 3" = 121.40 mm

In your notes, you recorded your value for "height of output shaft 3". You require this value now.

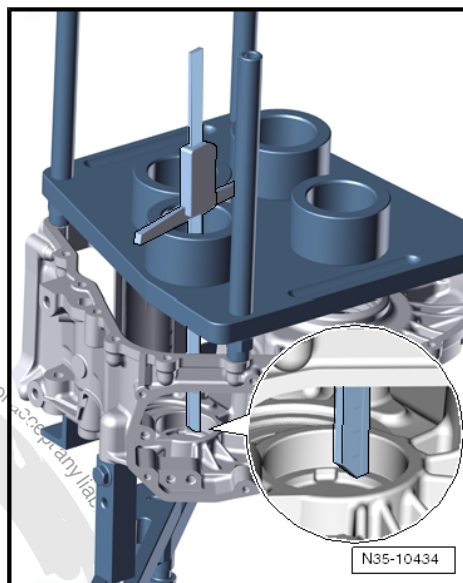
- Calculate as follows: "depth for output shaft 3" minus "height of output shaft 3" plus bearing preload 0.15 mm = calculated shim thickness

Example: "height of output shaft 3" = 120.48 mm

Example: "depth for output shaft 3" = 121.40 mm

$$121.40 \text{ mm} - 120.48 \text{ mm} + 0.15 \text{ mm} = 1.07 \text{ mm}$$

Calculated shim thickness in gearbox housing for output shaft 3		Shim to be installed (in millimetres)
from	to	
0.625	0.674	0.65
0.675	0.724	0.70
0.725	0.774	0.75
0.775	0.824	0.80
0.825	0.874	0.85
0.875	0.924	0.90
0.925	0.974	0.95
0.975	1.024	1.00
1.025	1.074	1.05
1.075	1.124	1.10
1.125	1.174	1.15
1.175	1.224	1.20
1.225	1.274	1.25
1.275	1.324	1.30
1.325	1.374	1.35
1.375	1.424	1.40
1.425	1.474	1.45
1.475	1.524	1.50
1.525	1.574	1.55
1.575	1.624	1.60
1.625	1.674	1.65
1.675	1.724	1.70



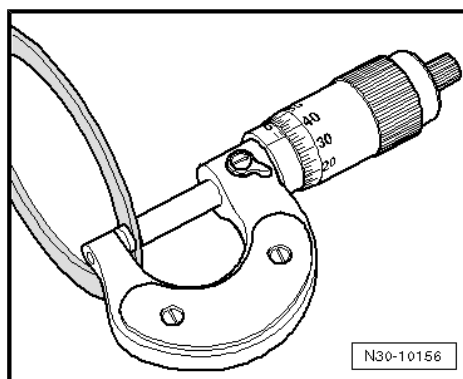
- From the shims that have been supplied, measure shim that you require.



WARNING

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

Continue with measurements for differential:





Bearing preload for differential is: 0.20 mm.

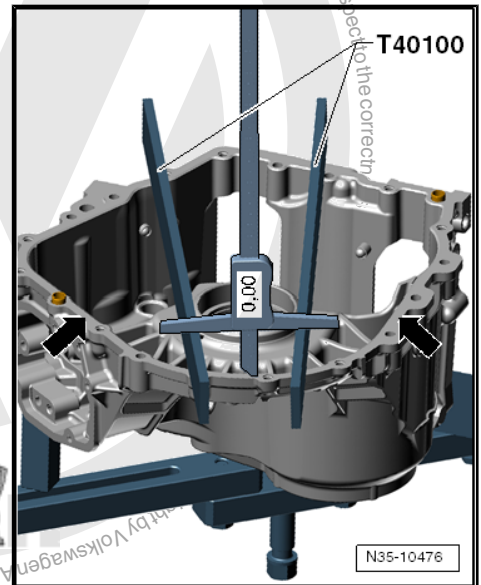
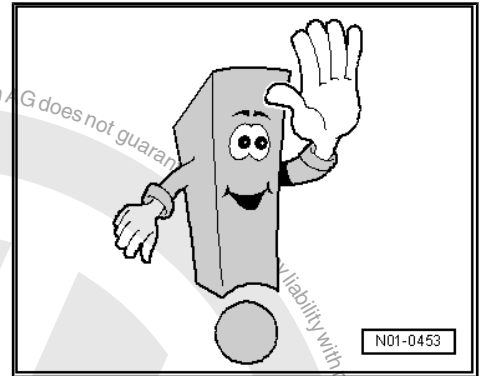
Remove measuring tool -T10425- .

Calculate depth of differential:

To measure depth of differential as accurately as possible, measure at 3 points around bearing seat. »Average« the measurement results.

- Place two gauge blocks -T40100- on flange surface.
- Zero depth gauge -VAS 6594- on flange surface.

The measurement is repeated at 2 other points -arrows- on the flange surface, to reduce measurement inaccuracies.



- Measure 3 times around bearing seat -arrows-.

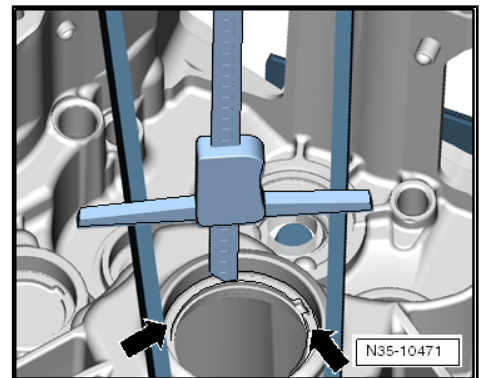
Please measure carefully.

- Make a note of average of these 3 measurements.

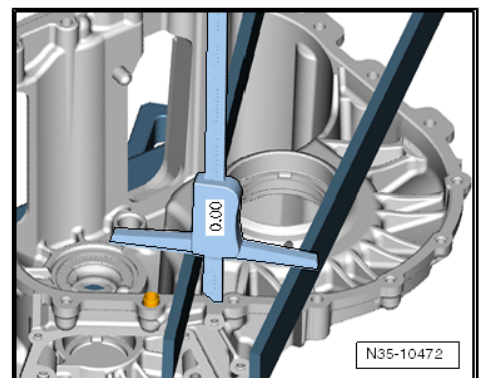
Example: 16.28 mm + 16.27 mm + 16.29 mm = 16.28 mm

Example: first measurement result = 16.28 mm

Second measurement is taken:



- Place both gauge blocks -T40100- on flange surface.
- Zero depth gauge -VAS 6594- on flange surface.





- Measure 3 times around bearing seat -arrows-.

Please measure carefully.

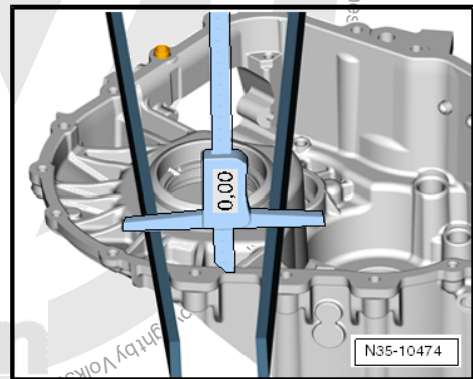
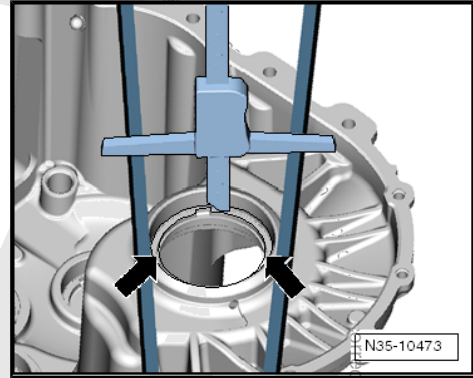
- Make a note of average of these 3 measurements.

Example: $16.25 \text{ mm} + 16.24 \text{ mm} + 16.27 \text{ mm} \div 3 = 16.25 \text{ mm}$

Example: second measurement result = 16.25 mm

Third measurement is taken:

- Place both gauge blocks -T40100- on flange surface.
- Zero depth gauge -VAS 6594- on flange surface.





- Measure 3 times around bearing seat -arrows-

Please measure carefully.

- Make a note of average of these 3 measurements.

Example: 16.24 mm + 16.24 mm + 16.21 mm3 = 16.23 mm

Example: third measurement result = 16.23 mm

Calculate average of all three measuring results.

Example: 16.28 mm + 16.25 mm + 16.23 mm3 = 16.253 mm

Correct mathematical rounding: = 16.25 mm

Note this value. Identify it as »depth for differential«.

Example: "depth for differential" = 16.25 mm

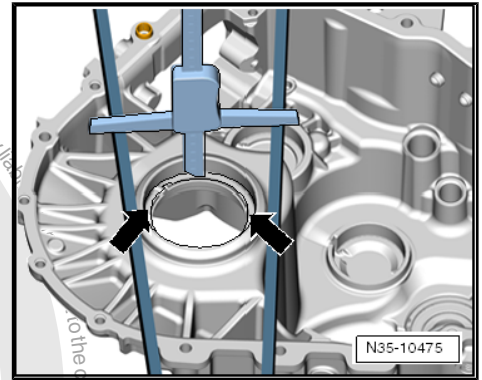
In your notes, you recorded your value for "height of differential".
You require this value now.

- Calculate as follows: "depth for differential" minus "height of differential" plus bearing preload 0.20 mm = calculated shim thickness

Example: "height of differential" = 15.17 mm

Example: "depth for differential" = 16.25 mm

16.25 mm - 15.17 mm + 0.20 mm = 1.28 mm



Calculated shim thickness of differential		Shim to be installed (in millimetres)
from	to	
0.625	0.674	0.65
0.675	0.724	0.70
0.725	0.774	0.75
0.775	0.824	0.80
0.825	0.874	0.85
0.875	0.924	0.90
0.925	0.974	0.95
0.975	1.024	1.00
1.025	1.074	1.05
1.075	1.124	1.10
1.125	1.174	1.15
1.175	1.224	1.20
1.225	1.274	1.25
1.275	1.324	1.30
1.325	1.374	1.35
1.375	1.424	1.40



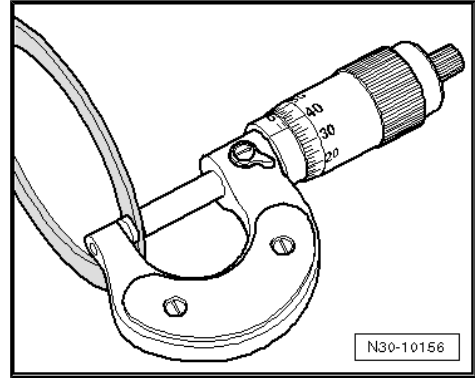
- From the shims that have been supplied, measure shim that you require.



WARNING

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

- Installing shims and bearing races of gearbox housing
⇒ [page 309](#) .
- Assembling gearbox ⇒ [page 298](#) .





13 Removing and installing parking lock

- Remove selector lever cable from gearbox.

Information about selector lever cable:

Vehicles up to 02.2009 ⇒ [page 73](#) .

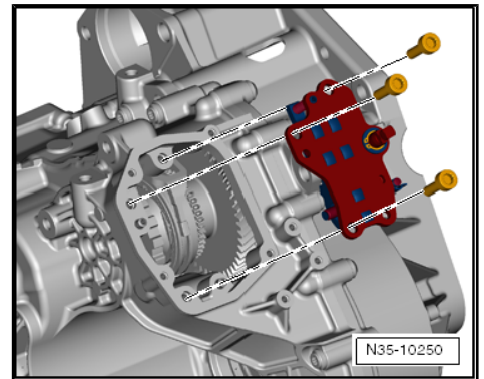
Vehicles from 03.2009 onwards ⇒ [page 81](#)

- Remove parking lock cover.
- Remove 3 bolts with socket -3410- .
- Always renew bolts.

Torque setting

20 Nm, 90° further

- Remove parking lock.





39 – Final drive - front differential

1 Oil seals

Gearbox with stub shafts -A-

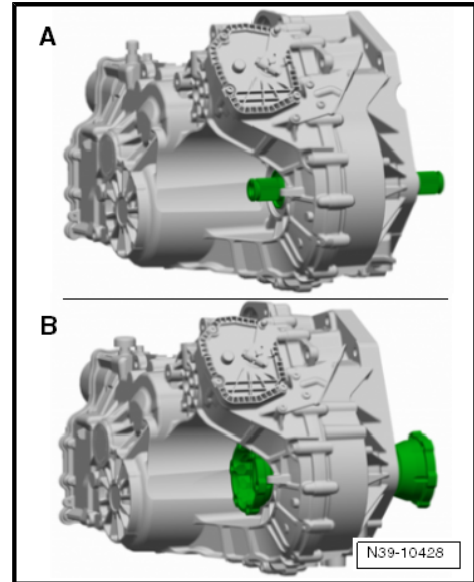
Right ⇒ [page 376](#)

Left ⇒ [page 377](#)

Gearbox with flange shafts -B-

Right ⇒ [page 379](#)

Left ⇒ [page 381](#)

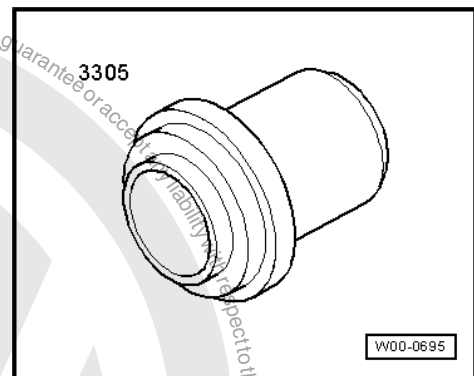


1.1 Renewing oil seal for right stub shaft

Left ⇒ [page 377](#) .

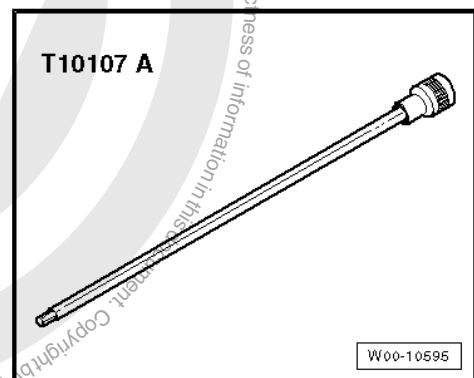
Special tools and workshop equipment required

◆ Thrust piece -3305-



◆ Socket -V.A.G 1669- or

◆ Socket -T10107 A-



◆ Torque wrench -V.A.G 1331-



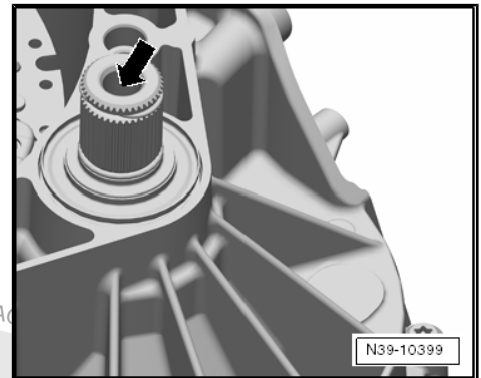
- ◆ Torque wrench -V.A.G 1332-

Removing



Note

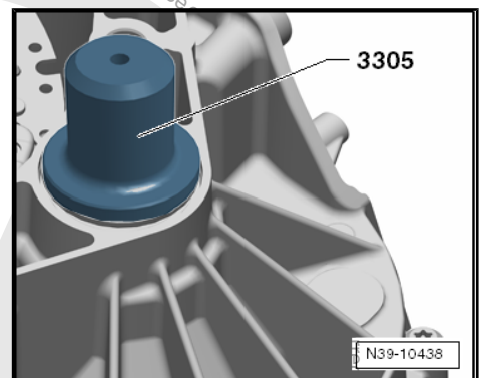
- ◆ *Do not remove both drive shaft from the gearbox at the same time. If you do so, it will no longer be possible to hold the opposite wheel fixed for removing or installing the bolts of the stub shafts.*
 - ◆ *Do not loosen both securing bolts in left and right stub shafts at the same time. If the differential bevel gears turn, it is difficult to reinstall the bolts.*
 - ◆ *For information about pressing off the drive shaft as well as other useful hints and torque settings, refer to ⇒ Rep. gr. 40 ; Removing and installing drive shafts .*
- Remove drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .
 - Place drip tray under gearbox.
 - Remove bolt in stub shaft with socket -T10107 A- .
 - Pull out stub shaft.
 - Pry seal out using assembly lever.



- 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 64](#) .
- Install and tighten noise insulation, torque settings ⇒ General body repairs, exterior; Rep. gr. 50 ; Assembly overview - noise insulation .



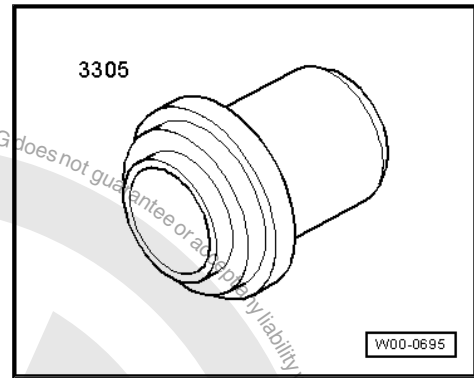
1.2 Renewing oil seal for left stub shaft

Right side ⇒ [page 376](#) .

Special tools and workshop equipment required



- ◆ Thrust piece -3305-



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

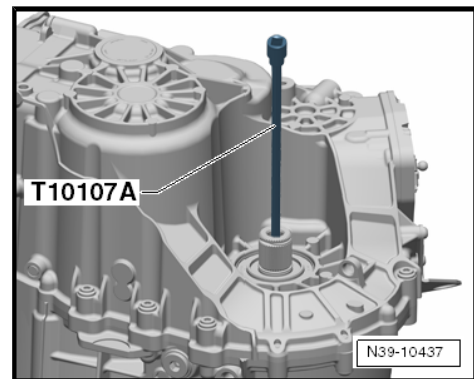
Removing



Note

- ◆ *Do not remove both drive shaft from the gearbox at the same time. If you do so, it will no longer be possible to hold the opposite wheel fixed for removing or installing the bolts of the stub shafts.*
- ◆ *Do not loosen both securing bolts in left and right stub shafts at the same time. If the differential bevel gears turn, it is difficult to reinstall the bolts.*
- ◆ *For information about pressing off the drive shaft as well as other useful hints and torque settings, refer to ⇒ Rep. gr. 40 Removing and installing drive shafts.*

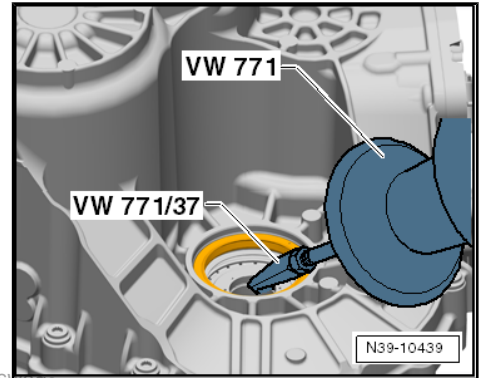
- Remove drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .
- Place drip tray under gearbox.
- Remove bolt in stub shaft with socket -T10107 A- .
- Pull out stub shaft.



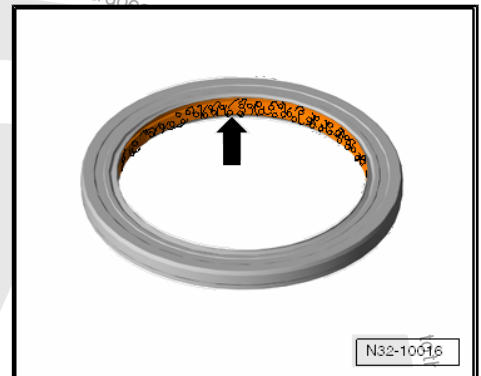


- Pull out stub shaft oil seal with multi-purpose tool -VW 771- and puller hooks -VW 771/37-.

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



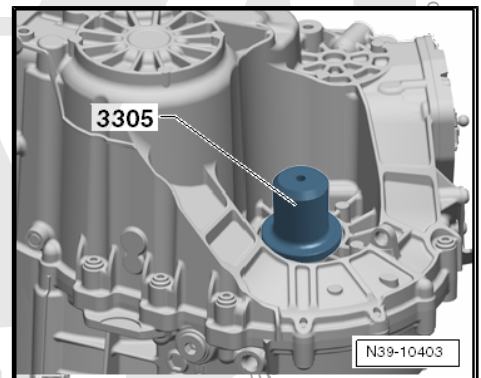
- Half-fill space between sealing lip and dust lip with sealing grease .



- 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 64](#) .
- Install and tighten noise insulation, torque settings => General body repairs, exterior; Rep. gr. 50 ; Assembly overview - noise insulation .

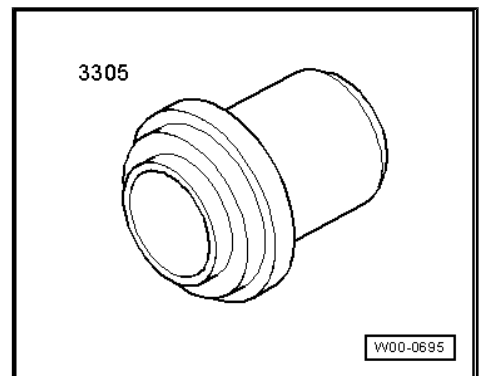


1.3 Renewing seal for right flange shaft

Left => [page 381](#) .

Special tools and workshop equipment required

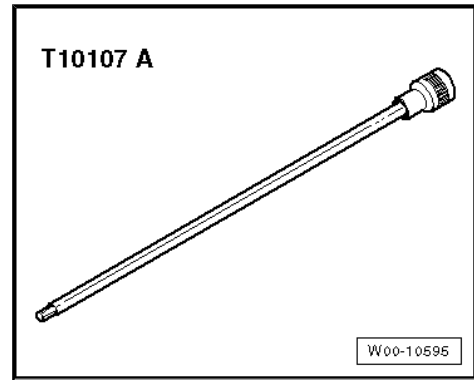
- ◆ Thrust piece -3305-



- ◆ Socket -V.A.G 1669- or



- ◆ Socket -T10107 A-



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

Removing



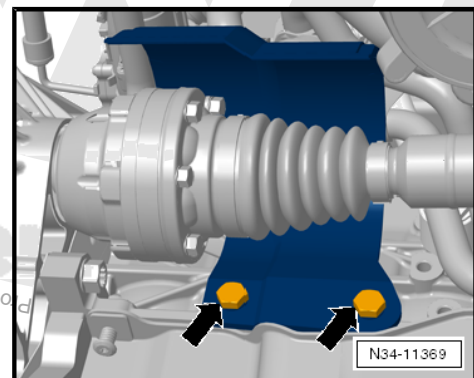
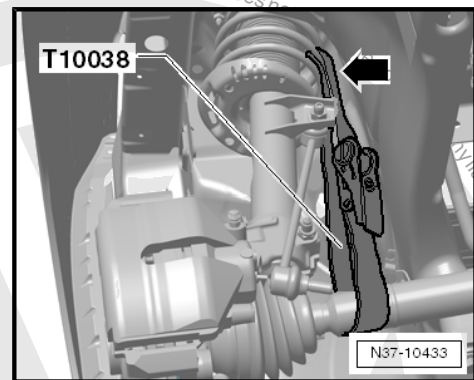
Note

- ◆ Do not remove both drive shaft from the gearbox at the same time. If you do so, it will no longer be possible to hold the opposite wheel fixed for removing or installing the bolts of the stub shafts.
- ◆ Do not loosen 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 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 => General body repairs, exterior; Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove drive shaft deflector cap from engine -arrows-, if fitted.

Unbolt drive shaft from gearbox.

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



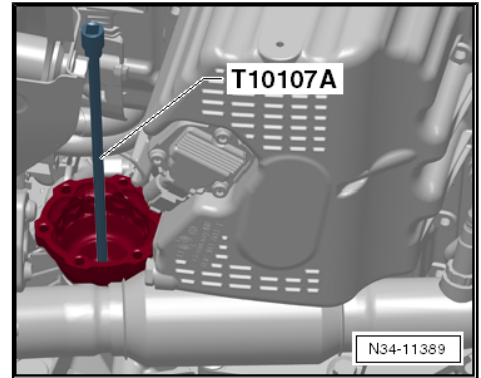


- Remove right flange shaft of gearbox.

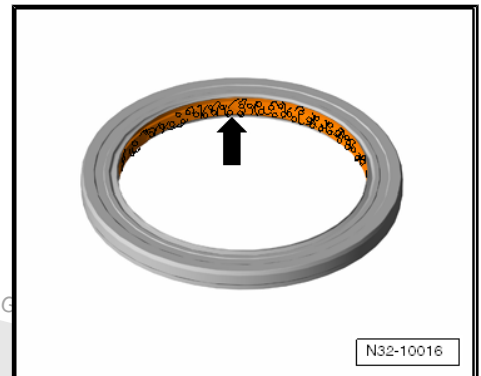
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

Torque setting 30 Nm

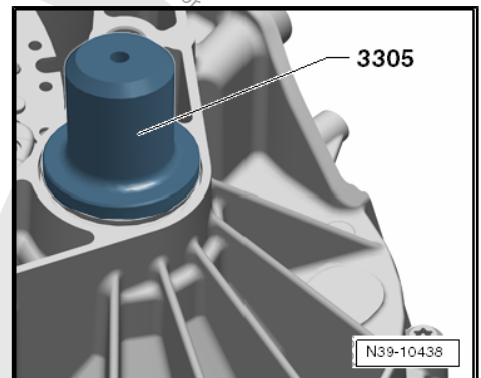
- Pull out flange shaft.
- Pry seal out using assembly lever.



- Half-fill space between sealing lip and dust lip of new seal with sealing grease .



- Drive in new seal to stop, 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 64](#) .
- Install and tighten noise insulation, torque settings => General body repairs, exterior; Rep. gr. 50 ; Assembly overview - noise insulation .

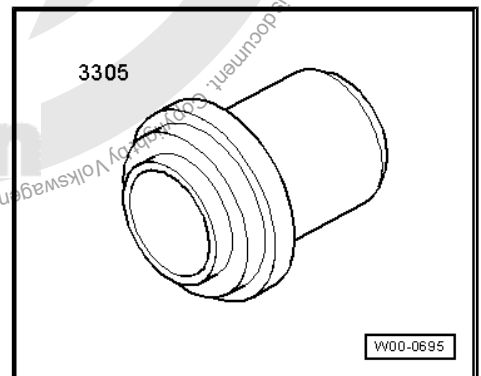


1.4 Renewing oil seal for left flange shaft

Right => [page 379](#)

Special tools and workshop equipment required

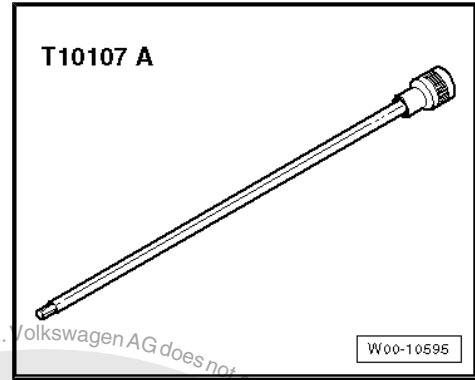
- ◆ Thrust piece -3305-



- ◆ Socket -V.A.G 1669- or



- ◆ Socket -T10107 A-



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

Removing

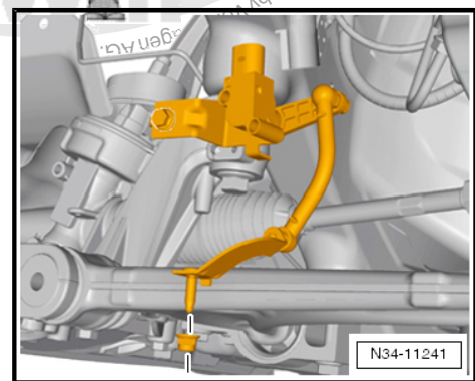
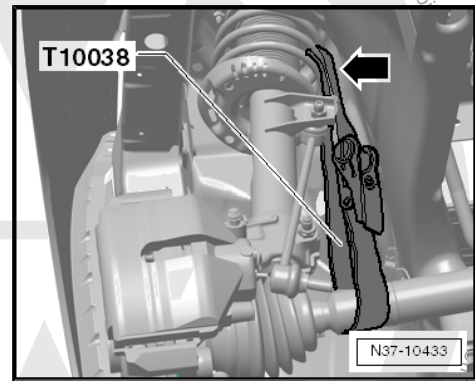


Note

- ◆ *Do not remove both drive shaft from the gearbox at the same time. If you do so, it will no longer be possible to hold the opposite wheel fixed for removing or installing the bolts of the stub shafts.*
- ◆ *Do not loosen 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 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 ⇒ Rep. gr. 40 ; removing and installing front left vehicle level sender -G78- .

- Disconnect left coupling rod from anti-roll bar ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .

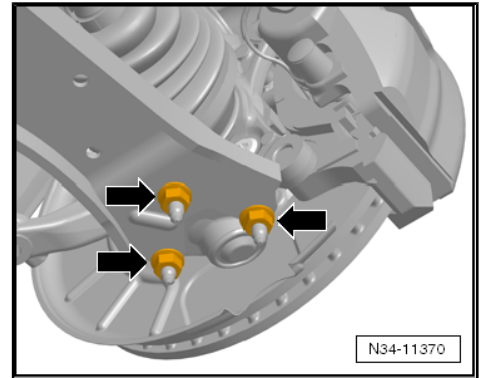




- Only unbolt left suspension link from suspension strut.

Remove drive shaft from gearbox => Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .

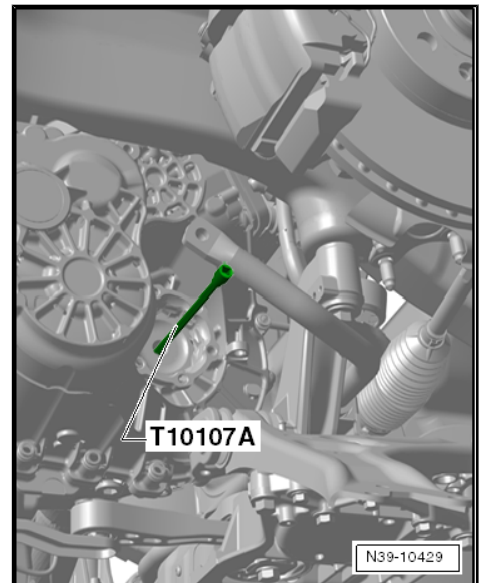
- Swing left drive shaft into wheel housing.
- Raise drive shaft as high as possible and secure. Take care not to damage paint on drive shaft in the process.



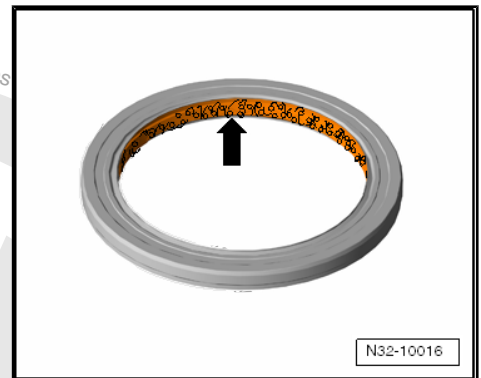
- Remove left flange shaft of gearbox.

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

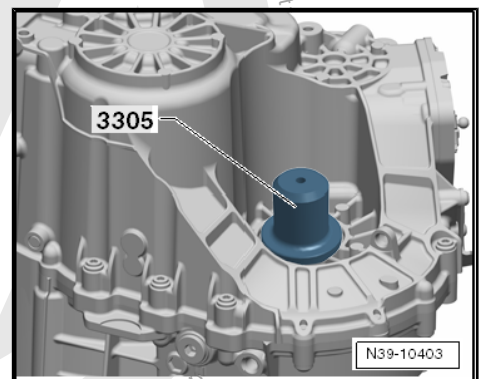
- Pull out flange shaft.
- Pry seal out using assembly lever.



- Half-fill space between sealing lip and dust lip of new seal with sealing grease .



- Drive in new seal to stop, 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 .





- Install transverse link and coupling rod again ⇒ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .
- Renew gear oil ⇒ [page 64](#) .
- Install and tighten noise insulation, torque settings ⇒ General body repairs, exterior; Rep. gr. 50 ; Assembly overview - noise insulation .

