Workshop Manual

Fabia II 2007 ➤ , Fabia II 2009 ➤ , Fabia II 2011 ➤ , Rapid 2011 ➤ , Rapid India 2011 ➤ , Rapid NH 2013 ➤ , Roomster 2006 ➤

Gearbox 02R

Edition 08.2014

List of Workshop Manual Repair GroupsList of Workshop Manual Repair GroupsList of Workshop Manual Repair Groups

Repair Group

00 - Technical data

30 - Clutch

34 - Controls, housing

35 - Gears, shafts

39 - Final drive - differential

Contents

00 – Technical data

1 Identification of the gearbox

(SRL000728; Edition 08.2014)

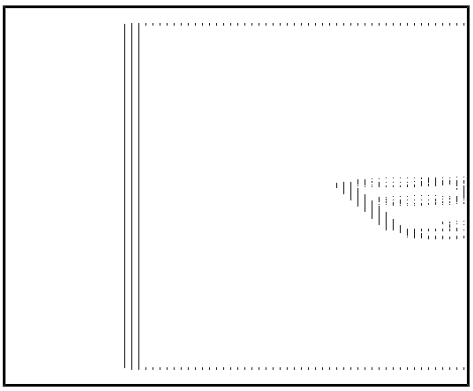
⇒ "1.1 Identification of the gearbox", page 1

1.1 Identification of the gearbox

Location on the gearbox

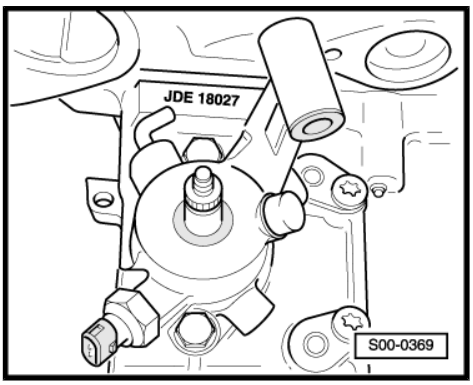
Identification characters and production date -arrow 1-.

Identification of gearbox 02R -arrow 2-.

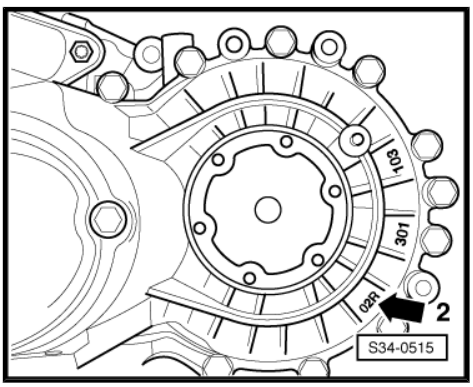


Identification characters and production date of the gearbox

Example:	JDE	18	02	7
	I	I	I	I
	Identification characters	Day	Month	Manufacturing year (2007)



Identification of gearbox 02R -arrow 2-.



2 Technical data

2.1 Identification characters, aggregate assignment (Fabia II)

Manual gearbox		5 speed 02R		
Manufactured	from through	02.07 03.10	02.07 03.10	03.08 03.10
Identification characters		JCZ	JDE	JDD
Assignment:	Engine	1.4 ltr./59 kW TDI		

Manual gearbox		5 speed 02R		
Manufactured	from through	04.07 04.07	04.07 03.10	
Identification characters		JDA	JXY	
Assignment:	Engine	1.9 ltr./77 kW TDI	1.9 ltr./77 kW TDI	

Manual gearbox		5 speed 02R		
Manufactured	from through	03.10	03.10 10.10	05.10 10.10
Identification characters		KFK, MZL	MAL	MNY
Assignment:	Engine	1.6 ltr./55 kW TDI CR 1.6 ltr./66 kW TDI CR 1.6 ltr./77 kW TDI CR	1.2 ltr./55 kW TDI CR	

Manual gearbox		5 speed 02R		
Manufactured	from through	09.10 10.10	11.10	
Identification characters		MUW	MZR	
Assignment:	Engine	1.2 ltr./55 kW TDI CR		

Manual gearbox		5 speed 02R		
Manufactured	from through	11.10	11.10	11.11
Identification characters		MZK	MZN	MZM
Assignment:	Engine	1.2 ltr./55 kW TDI CR		1.6 ltr./66 kW TDI CR

2.2 Identification characters, aggregate assignment (Roomster)

Manual gearbox		5 speed 02R	
Identification characters		**HZP**	**JEP**
Manufac-tured	from through	03.06 05.06	05.06 12.06
Assignment	Engine	1.9 ltr./77 kW TDI	

Manual gearbox		5 speed 02R	
Identification characters		**JXZ**	**JDE**
Manufac-tured	from through	01.07 03.10	05.06 03.10
Assignment	Engine	1.9 ltr./77 kW TDI	1.4 ltr./59 kW TDI

Manual gearbox		5 speed 02R	
Identification characters		**MQC**	**MQD**
Manufac-tured	from through	03.10 10.10	05.10 10.10
Assignment	Engine	1.2 ltr./55 kW TDI CR	

Manual gearbox		5 speed 02R	
Identification characters		**MZP**	**MZQ**
Manufac-tured	from through	11.10	11.10
Assignment	Engine	1.2 ltr./55 kW TDI CR	

Manual gearbox		5 speed 02R
Identification characters		**KFK, MZL**
Manufac-tured	from through	03.10
Assignment	Engine	1.6 ltr./55 kW TDI CR 1.6 ltr./66 kW TDI CR 1.6 ltr./77 kW TDI CR

2.3 Identification characters, aggregate assignment (Rapid)

Manual gearbox		**5 speed 02R**		
Identification characters		MZS	MZS	QXQ
Manufactured	from through	09.11	08.14 08.15	08.15
Assignment:	Engine	1.6 ltr./77 kW TDI CR		

2.4 Identification characters, aggregate assignment (Rapid NH)

Manual gearbox	**5 speed 02R**		

Manual gearbox		5 speed 02R		
Identification characters		MZL	MZM	MZS
Manufactured	from through	07.12	07.12	07.12
Assignment:	Engine	1.6 ltr./77 kW TDI CR		

2.5 Filling capacity

Filling capacity	2.0 litre
Gearbox oil specification	⇒ Electronic Catalogue of Original Parts
Gear oil change interval	Filled for life

2.6 Calculation of gear ratios

Example

	5th gear	Final drive
Drive wheel	$ZG_1 = 46$	$ZA_1 = 24$
Output gear	$ZG_2 = 33$	$ZA_2 = 70$

$i = ZG_2 : ZG_1$ [1)]

i_G = Ratio of a gear = $ZG_2 : ZG_1 = 33 : 46 = 0{,}717$

i_A = Ratio of the final drive = $ZA_2 : ZA_1 = 70 : 24 = 2{,}917$

i_{total} = Total ratio = $i_G \times i_A = 0.717 \times 2.917 = 2.091$

1) Z_1 = No. of teeth on driving gear, Z_2 = No. of teeth on driven gear

3 Overview of Transmission System

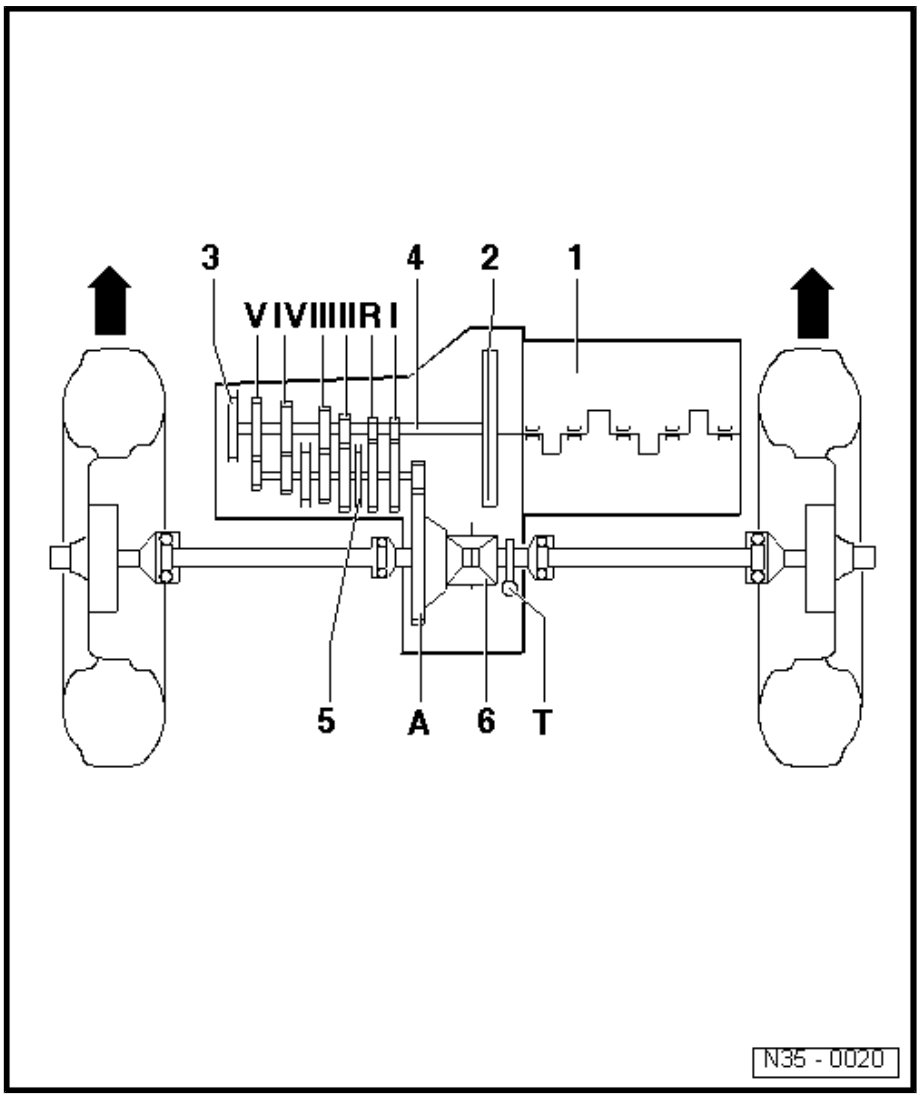
⇒ "3.1 Designation of components and transmission ratio", page 5

3.1 Designation of components and transmission ratio

Note

The -arrows- point in the direction of travel.

1 - Engine
2 - Clutch
3 - Manual gearbox
4 - Drive shaft
5 - Output shaft
6 - Differential gear
I - 1. gear
II - 2. gear
III - 3. gear
IV - 4. gear
V - 5. gear
R - Reverse gear
A - Final drive
T - Speedometer drive
- ❑ for vehicles without ABS



4 General repair instructions

To ensure flawless and successful gearbox repairs, the greatest care and cleanliness as well as the use of good and proper tools are essential. Also note the basic rules on safety when performing repair procedures.

A number of generally valid notes for individual repair operations - which are otherwise listed several times at numerous points in the workshop manual - are summarised here. They apply for this particular workshop manual.

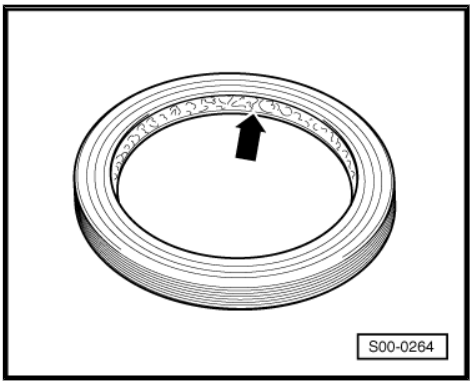
Gearbox

- Thoroughly clean the connection points and their surroundings before releasing.
- Bolts and other attachments should have a classification in the ⇒ Electronic Catalogue of Original Parts .
- When installing the manual gearbox, ensure the dowel sleeves are correctly located between the engine and gearbox.
- When installing mounts as well as waxed components, the contact surfaces must be cleaned. Contact surfaces must be free of wax and grease.
- When replacing the gearbox, inspect the gearbox oil level and top up with oil if necessary
  ⇒ “3 Check gear oil level”, page 127 .
- Filling capacity, Fabia II
  ⇒ “2.1 Identification characters, aggregate assignment (Fabia II)”, page 2
- Filling capacity, Roomster
  ⇒ “2.2 Identification characters, aggregate assignment (Roomster)”, page 3
- Filling capacity, Rapid
  ⇒ “2.3 Identification characters, aggregate assignment (Rapid)”, page 3
- Filling capacity, Rapid NH
  ⇒ “2.4 Identification characters, aggregate assignment (Rapid NH)”, page 3
- Oil specification ⇒ Electronic Catalogue of Original Parts .

Sealant

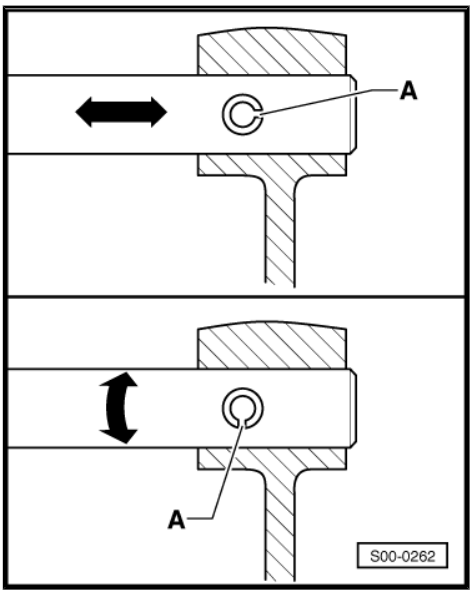
- Thoroughly clean the contact surfaces of the housing before applying the silicone sealant.
- Apply sealant AMV 188 200 03 evenly and not too thick.

O-rings, gasket rings, gaskets



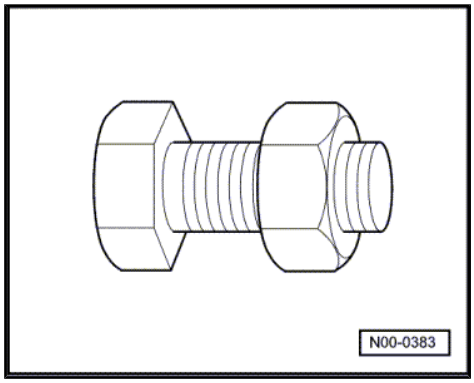
- Replace O-rings, gasket rings and gaskets ⇒ Electronic Catalogue of Original Parts .
- After removing gaskets, check the contact surface in the housing or shaft for burrs or damage which occured during the assembly.
- Shaft seals - before mounting lightly oil at outside diameter and fill half the space between the sealing lips -arrow- with sealing grease - G 052 128 A1- .
- The open side of the shaft seals is turned towards the fluid to be sealed.
- Press in new shaft seal in such a way that the sealing lip is not located on the same point as the sealing lip of the old seal (use tolerance for insertion depth).
- Before inserting lightly oil the O-rings, in order to prevent the rings being squashed during installation.
- Inspect the oil level after replacing the gaskets and gasket rings, top up oil if necessary
⇒ “3 Check gear oil level”, page 127 .

Locking elements



- Do not over-tension the circlips.
- Always replace damaged or over-tensioned circlips ⇒ Electronic Catalogue of Original Parts .
- Circlips must be positioned in the base of the groove.
- Replace roll pins. Fitting position: Slot -A- longitudinal to power flow -arrow-.

Nuts and bolts

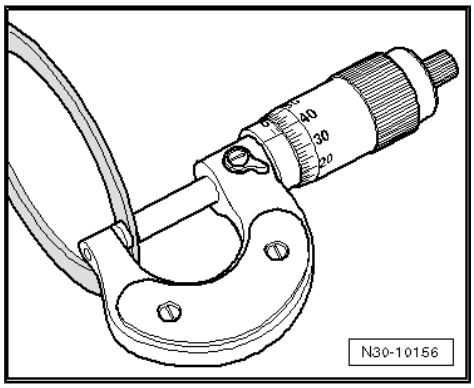


- Slacken the bolts and nuts against the tightening sequence.
- Slacken and tighten nuts and bolts for attaching covers and housings without tightening sequence diagonally across in stages.
- Replace the self-locking screws and nuts.
- Specified torques given are for unlubricated nuts, bolts and screws.
- Clean the threaded holes into which self-locking screws or screws with locking agent were screwed in (using e.g. a screw-tap). Otherwise there is a danger of bolts shearing when subsequently being removed.
- It is important to ensure at all bolted connections that the contact surfaces as well as the nuts and bolts are waxed only after being installed, should this be necessary.

Bearings

- Insert moist all bearings into the gearbox with gear oil.
- Before installing, heat the inner rings of the bearing on a heating plate or with the induction heater unit - VAS 6414- to approx. 100°C, when installing press in axial and play-free up to the stop.
- The temperature can be checked with a temperature measuring instrument.
- Do not mix up the outer and inner races of bearings of the same size.
- Always jointly replace tapered-roller bearings on the same shaft and use products of the same manufacturer.
- Position needle bearing with the lettered side (thicker end) towards the drift pin.

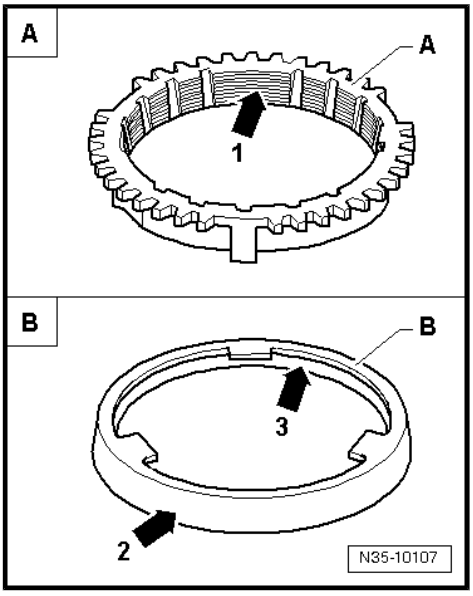
Shims



- Measure shims at several points with a micrometer. Different tolerances allow to measure the required thickness for each washer very precisely.
- Check for burrs and damage.
- Install only adjusting washers which are in perfect condition.

Synchronizer rings

- These are not interchangeable. If re-using, allocate synchronizer rings to the same sliding gear.
- Inspect for wear, replace if necessary ⇒ Electronic Catalogue of Original Parts .
- Check grooves -arrow 1- on synchronizer ring -A-, or check the inside of the ring for flattened parts (grooves worn).
- When installing the intermediate ring -B-, check outer contact surface -arrow 2- and inner contact surface -arrow 3- for grooves, blue coloring (caused by overheating) and other damages.
- Insert with some gearbox fluid.



Pinions

- Clean and heat on a heating plate or with the induction heater unit - VAS 6414- to approx. 100°C before pressing on.
- The temperature can be checked with a temperature measuring instrument.
- Check fitting position.

Sliding gears

- Check 1st to 5th gear sliding gears after assembly for low axial play or smooth operation.

Clutch control

- When removing gearbox, remove slave cylinder, do not detach the tube-hose line.
- If the slave cylinder with connected hydraulic line is removed, do not depress the clutch pedal. Otherwise the tappet is pressed out of the slave cylinder.
- Do not tilt the clutch pressure plate; release and tighten crosswise in small stages.
- If the clutch pedal does not return to its initial position after the coupling procedure - clutch pedal in home position - the clutch control must be bled (further measures ⇒ “1.16 Check hydraulic clutch control”, page 47).
- In order to reduce unpleasant odours if the clutch is burnt, thoroughly clean the clutch housing as well as the flywheel and the engine on the side of the gearbox.

Safety precautions for vehicles with start-stop system

WARNING

On vehicles with start-stop system, there is the risk of injury from automatic engine start.

- *On vehicles with activated start-stop system (recognizable by a message in the dash panel insert), the engine can start automatically if required.*
- *It is therefore necessary to ensure that the start-stop system is deactivated when carrying out work on the vehicle (ignition switched off; if required switch ignition on again).*

30 – Clutch

1 Clutch control

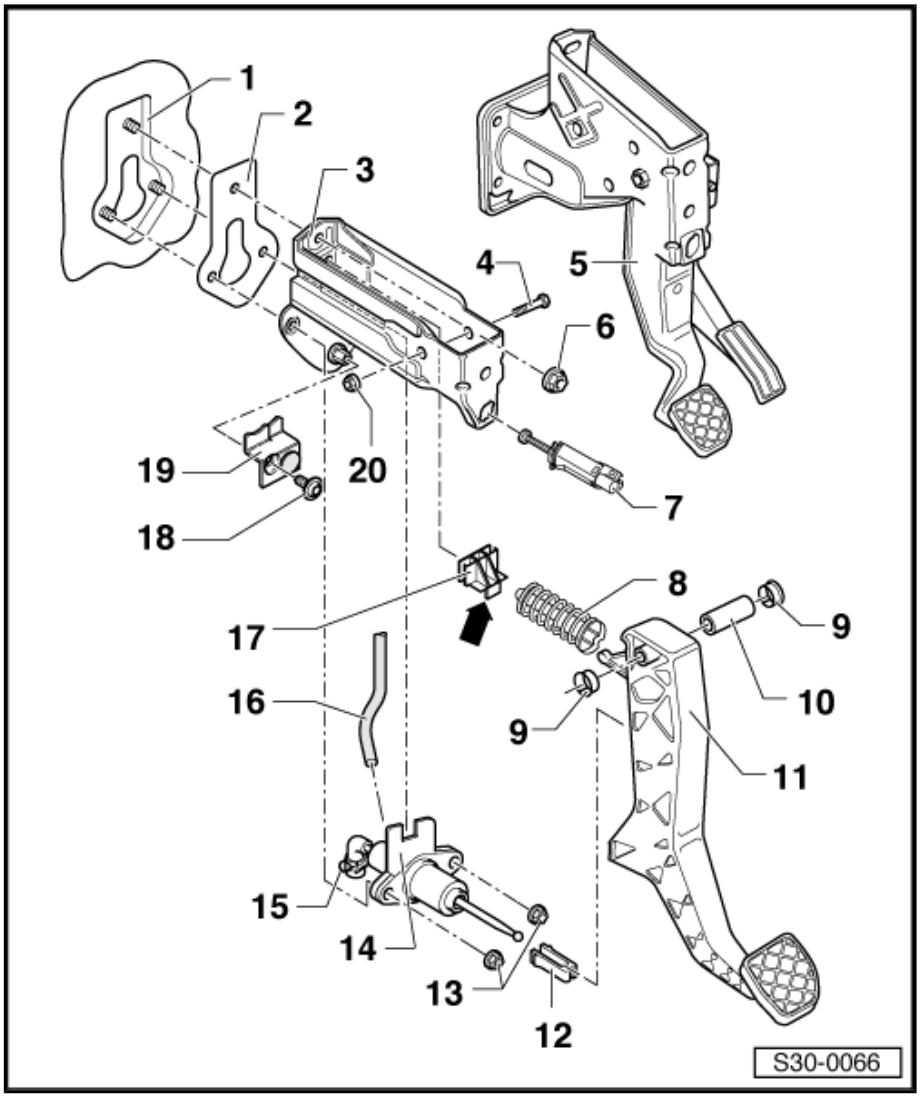
1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)

Special tools and workshop equipment required

- Polycarbamide grease - G 052 142 A2-

Note

- *Summary of components - Hydraulics*
  ⇒ “1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH) ”, page 41 .
- *After the battery earth strap is disconnected and re-connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .*
- *Grease all bearing points and contact surfaces with Polycarbamide Grease - G 052 142 A2- .*
- *Prior to working on the foot controls remove the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .*



1 - Front wall

- ❑ with mount for bearing bracket and master cylinder

2 - Gasket

- ❑ always replace ⇒ Electronic Catalogue of Original Parts

3 - Bearing bracket

- ❑ for attaching clutch pedal

4 - Screw

5 - Gas/brake foot controls

6 - 25 Nm

- ❑ self-locking
- ❑ for bracket on front wall
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

7 - Clutch pedal switch - F36-

- ❑ Difference between clutch pedal switch ⇒ page 13
- ❑ Assignment ⇒ Electronic Catalogue of Original Parts
- ❑ Removing and installing ⇒ “1.1.1 removing and installing, setting angular clutch pedal switch F36 ”, page 13 angular clutch pedal switch
- ❑ Removing and installing ⇒ “1.1.2 removing and installing, setting cylindrical clutch pedal switch F36 ”, page 13 cylindrical clutch pedal switch

8 - Over-centre helper spring

- ❑ removing and installing ⇒ “1.3 Removing and installing the over-centre helper spring (Fabia II 2007 ►; Roomster 2006 ►)”, page 14

9 - Bushing

10 - Bearing bolt

11 - Clutch pedal

- ❑ removing and installing
  ⇒ “1.4 Removing and installing the clutch pedal (Fabia II 2007 ►; Roomster 2006 ►)”, page 16

12 - Support

- ❑ only replace if the master cylinder has been removed
- ❑ removing and installing
  ⇒ “1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH) ”, page 41

13 - 25 Nm

- ❑ self-locking
- ❑ for master cylinder to front wall
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

14 - Master cylinder

- ❑ removing and installing
  ⇒ “1.17 Removing and installing the master cylinder (Fabia II 2007 ►; Roomster 2006 ►)”, page 48

15 - Clamp

- ❑ to remove and install the tube-hose line pull out retaining clip up to the stop

16 - Supply hose

- ❑ out of plastic ⇒ page 12

17 - Bearing

- ❑ for over-centre helper spring
- ❑ insert in bearing bracket
- ❑ always replace ⇒ Electronic Catalogue of Original Parts
- ❑ Fitting position: Peg -arrow- clips into the recess on the master cylinder

18 - Screw

- ❑ for pedal stop on bracket

19 - Pedal stop

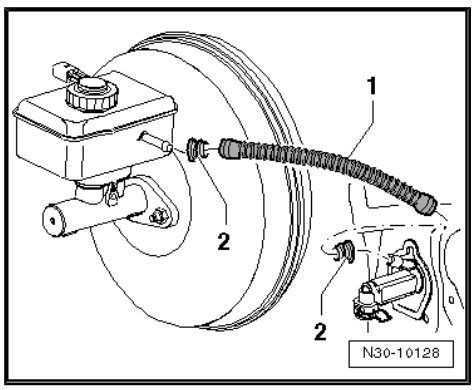
- ❑ screw onto bracket with screw Pos.18 with the master cylinder installed

20 - 25 Nm

- ❑ self-locking
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

Plastic return hose -1-

- The gaskets -2- must be located in the return hose.



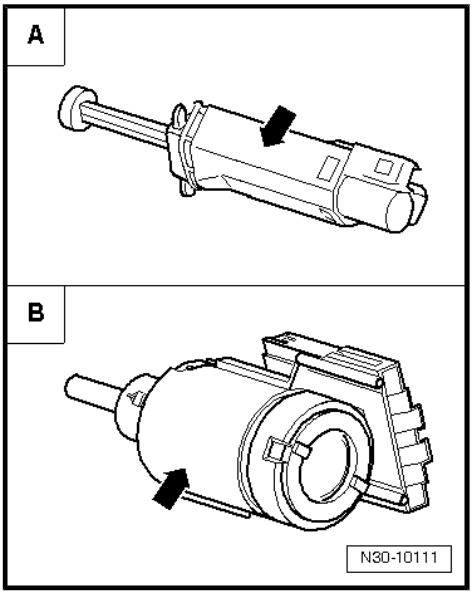
Difference between clutch pedal switches - F36-

- -A- Clutch pedal switch with angular housing

Removing and installing
⇒ “1.1.1 removing and installing, setting angular clutch pedal switch F36 ”, page 13 .

- -B- Clutch pedal switch with cylindrical housing

Removing and installing
⇒ “1.1.2 removing and installing, setting cylindrical clutch pedal switch F36 ”, page 13 .



1.1.1 removing and installing, setting angular clutch pedal switch - F36-

Note

The clutch pedal switch - F36- may only be installed once to ensure that it has an adequately tight fit in the bracket for clutch pedal.

Removing

– Remove the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .
– Unplug connector from the clutch pedal switch - F36- .
– Turn clutch pedal switch - F36- 90° to the left and remove it from the support.

Installing and setting

– Pull out the tappet of the clutch pedal switch up to the stop.
– Press down the clutch pedal as far as possible.
– Insert clutch pedal switch into the support and turn switch by 90° to the right.
– Insert connector for the clutch pedal switch - F36- .
– Install the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .

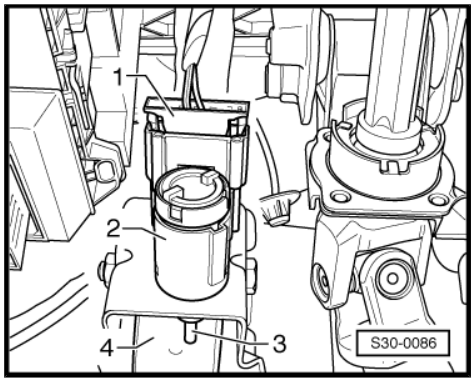
1.1.2 removing and installing, setting cylindrical clutch pedal switch - F36-

Note

The clutch pedal switch - F36- may only be installed once to ensure that it has an adequately tight fit in the bracket for clutch pedal.

– Remove the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .

– Unplug connector -1- from the clutch pedal switch - F36- .
– Turn clutch pedal switch - F36- -2- in the bracket 45° to the left and remove it from the support.

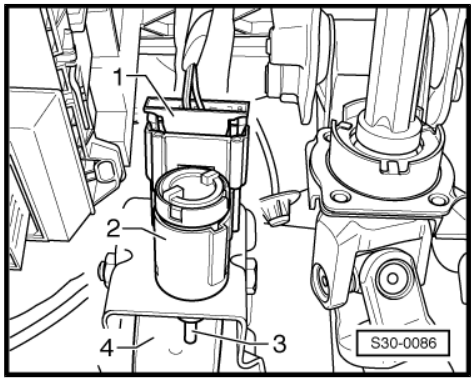


Note

Clutch pedal always remains in the off position in this case (do not depress the clutch pedal).

Installing and setting

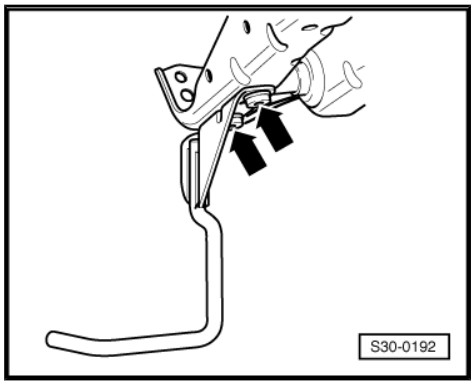
– Before installing the clutch pedal switch - F36- pull out tappet -3- fully.
• Clutch pedal -4- in the off position.
– Fit the clutch pedal switch - F36- through the assembly opening, press against the clutch pedal and attach by turning it 45° to the right.
– Insert connector for the clutch pedal switch - F36- .
– Install the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .



1.2 Removing and installing the crash strut for the clutch pedal (Fabia II 2007 ►; Roomster 2006 ►)

Removing

– Remove the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .
– Release screws -arrows- and remove crash strut.



Install

Installation is carried out in the reverse order.

Tightening torque

Crash strut to steering column	9 Nm

1.3 Removing and installing the over-centre helper spring (Fabia II 2007 ►; Roomster 2006 ►)

Special tools and workshop equipment required

♦ Pliers - T10005-
♦ Polycarbamide grease - G 052 142 A2-

Removing

– Remove the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .

– Remove crash strut (if present)
⇒ “1.2 Removing and installing the crash strut for the clutch pedal (Fabia II 2007 ►; Roomster 2006 ►)”, page 14 .

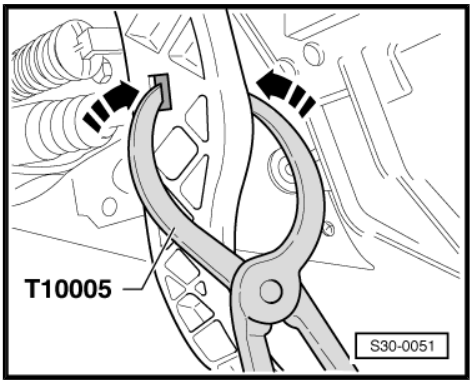
– Remove clutch pedal switch - F36-
⇒ “1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)”, page 10 -Pos. 7-, if provided.

Unlock the actuating rod/master cylinder from the clutch pedal as follows:

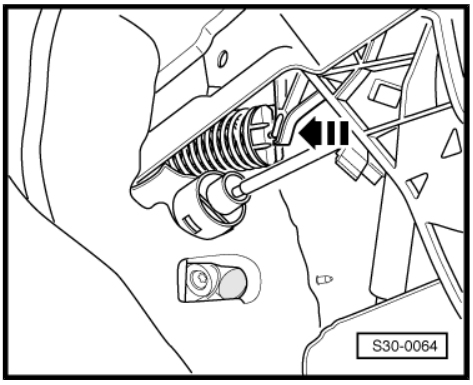
– Pull clutch pedal slightly into the passenger compartment.

– Insert pliers - T10005- in the clutch pedal recesses.

– Press together both sides of the support inwards using the pliers - T10005- -arrows- and separate the clutch pedal from the master cylinder.



– Press the over-centre helper spring towards the front wall -in direction of arrow- and remove it downwards.



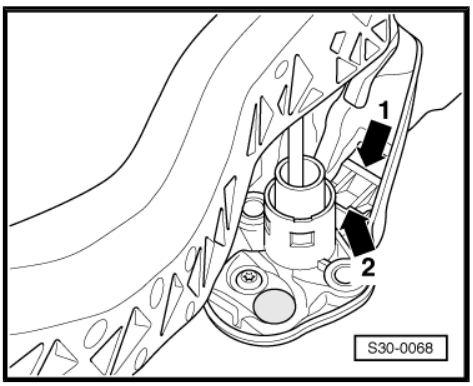
Install

• Check whether the bearing -arrow 1- for the over-centre helper spring is inserted in the bracket.

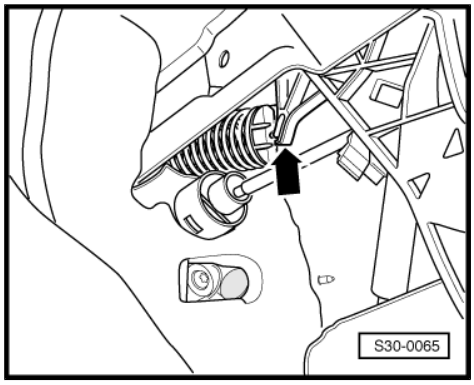
Fitting position:

The peg of the bearing is located in the recess of the master cylinder -arrow 2-.

– First of all, insert the over-centre helper spring in the rear bearing.



– Then press the over-centre helper spring onto the centering pin of the clutch pedal -arrow-.



– Position the clutch pedal with the master cylinder ⇒ “1.4 Removing and installing the clutch pedal (Fabia II 2007 ►; Roomster 2006 ►)”, page 16 .

– Install clutch pedal switch - F36- ⇒ “1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)”, page 10 -Pos. 7-.

– Install crash strut (if present) ⇒ “1.2 Removing and installing the crash strut for the clutch pedal (Fabia II 2007 ►; Roomster 2006 ►)”, page 14 .

– Install the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .

1.4 Removing and installing the clutch pedal (Fabia II 2007 ►; Roomster 2006 ►)

Special tools and workshop equipment required

♦ Pliers - T10005-

♦ Polycarbamide grease - G 052 142 A2-

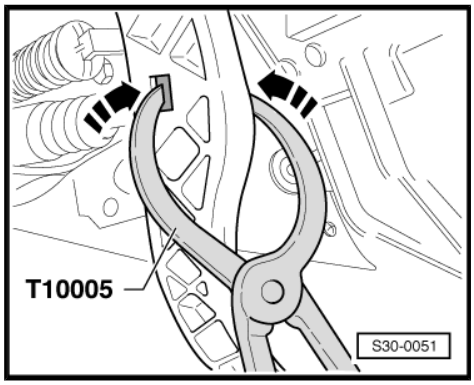
Removing

– Remove the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .

– Remove crash strut (if present) ⇒ “1.2 Removing and installing the crash strut for the clutch pedal (Fabia II 2007 ►; Roomster 2006 ►)”, page 14 .

– Remove clutch pedal switch - F36- ⇒ “1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)”, page 10 -Pos. 7-, if provided.

Unlock the actuating rod/master cylinder from the clutch pedal as follows:



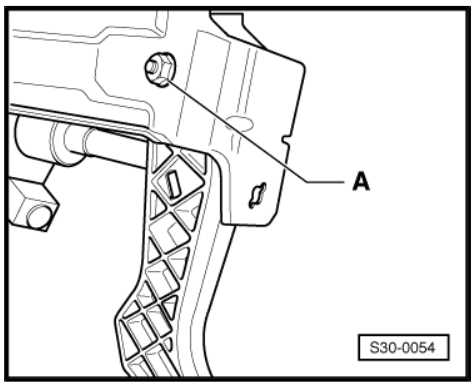
– Pull clutch pedal slightly into the passenger compartment.

– Insert pliers - T10005- in the clutch pedal recesses.

– Press together both sides of the support inwards using the pliers - T10005- -arrows- and separate the clutch pedal from the master cylinder.

– Removing the over-centre helper spring ⇒ “1.3 Removing and installing the over-centre helper spring (Fabia II 2007 ►; Roomster 2006 ►)”, page 14 .

– Put steering wheel in the lower position.



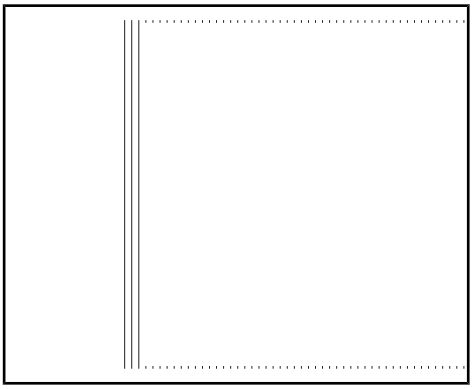
– Unscrew nut -A- and pull out screw from bracket (to facilitate pulling out the screw, turn the steering wheel to the corresponding position).

– Remove clutch pedal.

Install

Installation is performed in the reverse order, pay attention to the following points:

• Always replace self-locking nut ⇒ Electronic Catalogue of Original Parts .



- The support -A- must be located on the actuating rod -B- of the master cylinder.
- To click in the support, press the clutch pedal towards the front wall in -direction of arrow-. While doing so, make sure it catches correctly in the support.
- Install clutch pedal switch - F36- ⇒ "1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)", page 10 -Pos. 7-.
- Install crash strut (if present) ⇒ "1.2 Removing and installing the crash strut for the clutch pedal (Fabia II 2007 ►; Roomster 2006 ►)", page 14 .
- Install the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .

Tightening torque

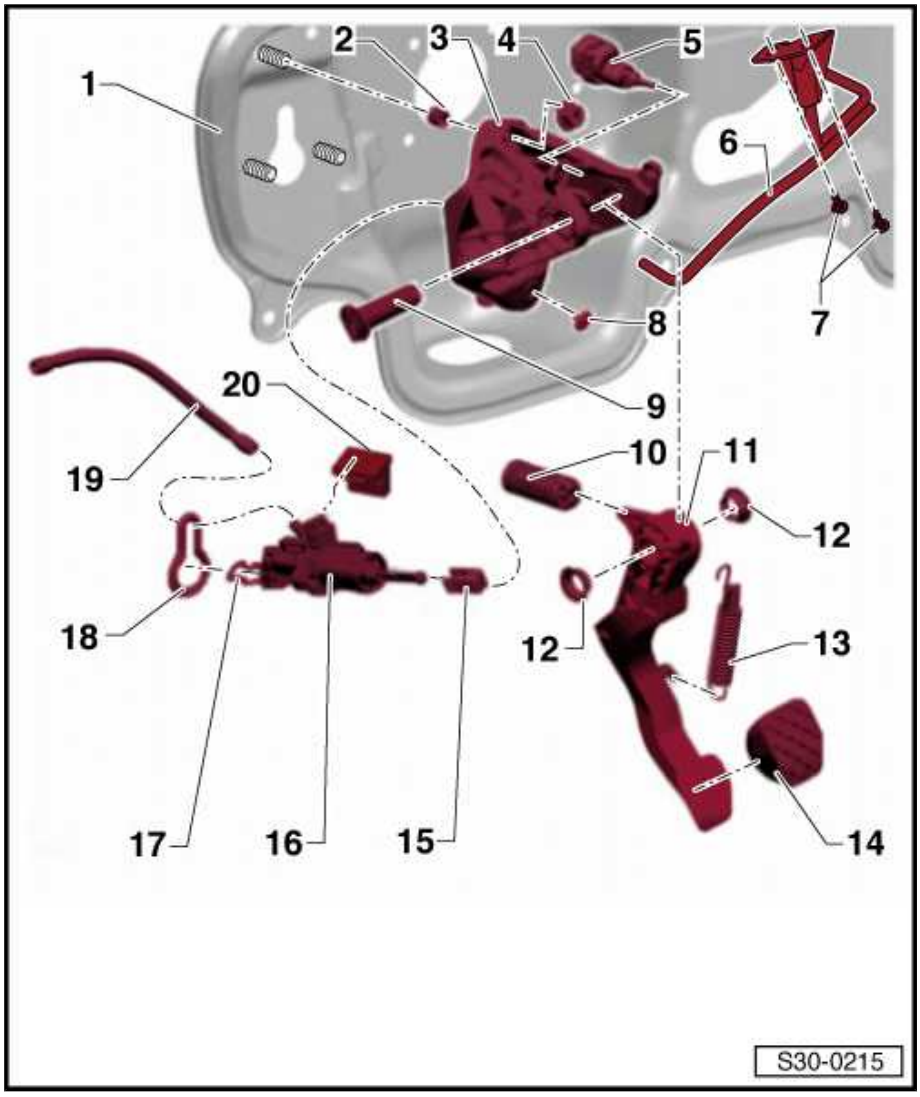
Clutch pedal to bracket [1]	⇒ "1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)", page 10 -Position 20-

[1] Replace self-locking nut.

1.5 Summary of components - foot controls (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)

Note

- *Summary of components - Hydraulics* ⇒ *"1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH) ", page 41* .
- *After the battery earth strap is disconnected and re-connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .*
- *Grease all bearing points and contact surfaces with Polycarbamide Grease - G 052 142 A2- .*



1 - Front wall

- ❑ with mount for bearing bracket and master cylinder

2 - Bushing

- ❑ for the top location hole in the bracket
- ❑ The bushings for the bottom location hole in the bracket are located in the master cylinder

3 - Bearing bracket

- ❑ removing and installing with master cylinder ⇒ “1.7 Removing and installing the bracket with the master cylinder (Fabia II 2011 ➢; Roomster 2011 ➢; Rapid NH)”, page 27
- ❑ removing and installing without master cylinder ⇒ “1.9 Removing and installing the bracket without the master cylinder (Fabia II 2011 ➢; Roomster 2011 ➢; Rapid NH)”, page 32

4 - 25 Nm

- ❑ for bracket on front wall
- ❑ self-locking
- ❑ 3 pieces
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

5 - Clutch pedal switch - F36-

- ❑ removing and installing ⇒ “1.5.1 Removing and installing clutch pedal switch F36 ”, page 20

6 - Crash strut

- ❑ is attached to the steering column
- ❑ different versions ⇒ electronic catalogue of original parts
- ❑ removing and installing ⇒ “1.5.2 Removing and installing crash strut”, page 21

7 - Screw

- ❑ for crash strut Pos. 6 at steering column
- ❑ Tightening torque:

- ♦ Version with two screws - 9 Nm
- ♦ Version with one screw - 20 Nm

8 - Stop

- ❑ for the clutch pedal

9 - Bracket axle

- ❑ always replace ⇒ Electronic Catalogue of Original Parts

10 - Over-centre helper spring

- ❑ depending on the equipment version, a tension spring or an over-centre helper spring is installed
- ❑ Assign components via the ⇒ Electronic catalogue of original parts

- ❑ removing and installing
  ⇒ “1.11 Removing and installing the clutch pedal with the over-centre helper spring (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)”, page 36

11 - Clutch pedal

- ❑ removing and installing with over-centre helper spring
  ⇒ “1.11 Removing and installing the clutch pedal with the over-centre helper spring (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)”, page 36
- ❑ with tension springs (Fabia II 2011 ►; Roomster 2011 ►)
  ⇒ “1.13 Removing and installing the clutch pedal with the tension spring (Fabia II 2011 ►; Roomster 2011 ►)”, page 39

12 - Bushing

13 - Tension spring with vibration damper

- ❑ depending on the equipment version, a tension spring or an over-centre helper spring is installed
- ❑ Assign components via the ⇒ Electronic catalogue of original parts
- ❑ is inserted on the bracket Pos. 3 and on the clutch pedal
- ❑ removing and installing ⇒ page 20

14 - Cap

15 - Support

- ❑ only replace if the master cylinder has been removed
- ❑ removing and installing
  ⇒ “1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH) ”, page 41

16 - Master cylinder

- ❑ removing and installing
  ⇒ “1.18 Removing and installing the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid 2011 ►; Rapid NH)”, page 50

17 - Clamp

- ❑ to remove and install the tube-hose line pull out retaining clip up to the stop
- ❑ is pulled out from the side on certain master cylinders

18 - Gasket

- ❑ always replace ⇒ Electronic Catalogue of Original Parts
- ❑ stick onto the master cylinder

19 - Supply hose

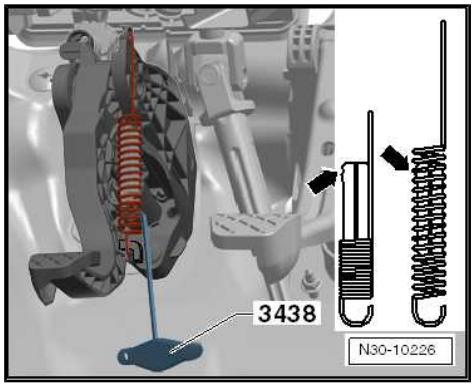
- ❑ out of plastic ⇒ page 44

20 - Clutch position sender - G476-

- ❑ for vehicles with start-stop system
- ❑ Assign components via the ⇒ Electronic catalogue of original parts
- ❑ removing ⇒ page 28
- ❑ installing ⇒ page 30
- ❑ can be checked in the “targeted fault finding” ⇒ Vehicle diagnostic tester

Removing and installing tension spring

– Insert the vibration damper with the recess -arrows- as of the 2nd spring coil -arrows-.



1.5.1 Removing and installing clutch pedal switch - F36-

Note

The clutch pedal switch - F36- may only be installed once to ensure that it has an adequately tight fit in the bracket for clutch pedal.

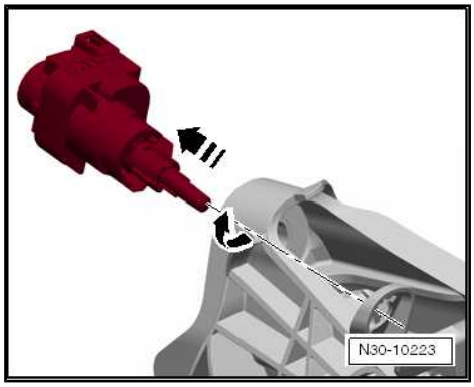
Removing

– Removing the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 80 .

Note

The clutch pedal switch is installed from the front wall.

– Unplug connector from the clutch pedal switch - F36- .
– Turn the clutch pedal switch at the bracket 45° in -direction of arrow- and remove it from the support.



Vehicles Rapid NH

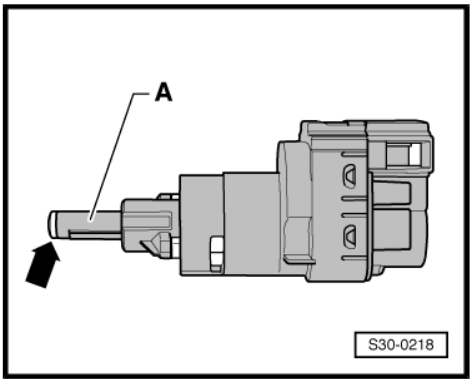
Note

To improve access to the clutch pedal switch - F36- the securing nuts for the bearing bracket for the clutch pedal can be removed and the bearing bracket removed in part
⇒ "1.9 Removing and installing the bracket without the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)", page 32 .

Continued for all vehicles

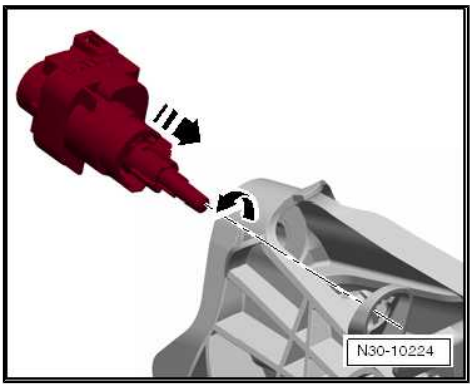
Install

- The tappet -A- of the clutch pedal switch must not be pulled out.
- Grease the tappet head -arrow-.
- Assign the grease via the ⇒ Electronic Catalogue of Original Parts .
- When installing the clutch pedal switch the clutch pedal must always remain in the off position. During the complete assembly, the clutch pedal must only be touched with the tappet head -arrow- of the clutch pedal switch .



The clutch pedal switch is installed from the front wall.

– Insert the clutch pedal switch into the support of the bracket and turn it 45° in -direction of arrow-.
– Insert connector for the clutch pedal switch .
– Install the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 80 .



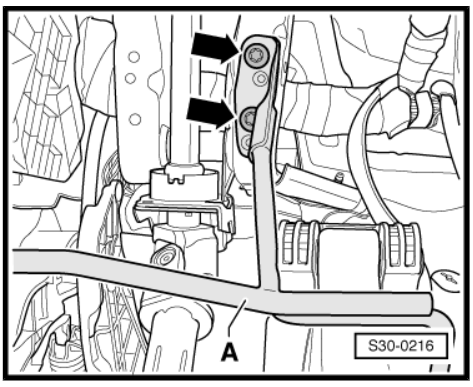
1.5.2 Removing and installing crash strut

There are two different versions of crash strut for clutch pedal which can be fitted to the steering column.

Version with two fixing screws

Removing

– Remove the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .
– Release screws -arrows-.



Install

Installation is carried out in the reverse order.

Tightening torque

Crash strut to steering column (2 screws)	9 Nm

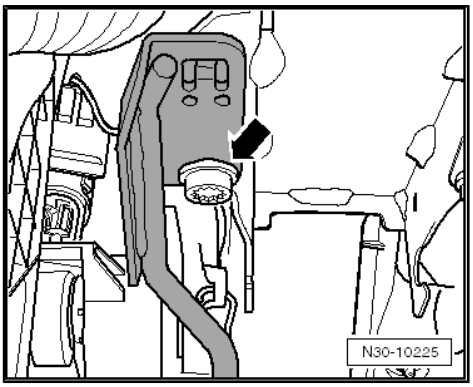
Version with one fixing screw

Removing

– Remove the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .

– Unscrew plug -arrow-.

– Unhook the crash strut from the steering column.



Install

Installation is carried out in the reverse order.

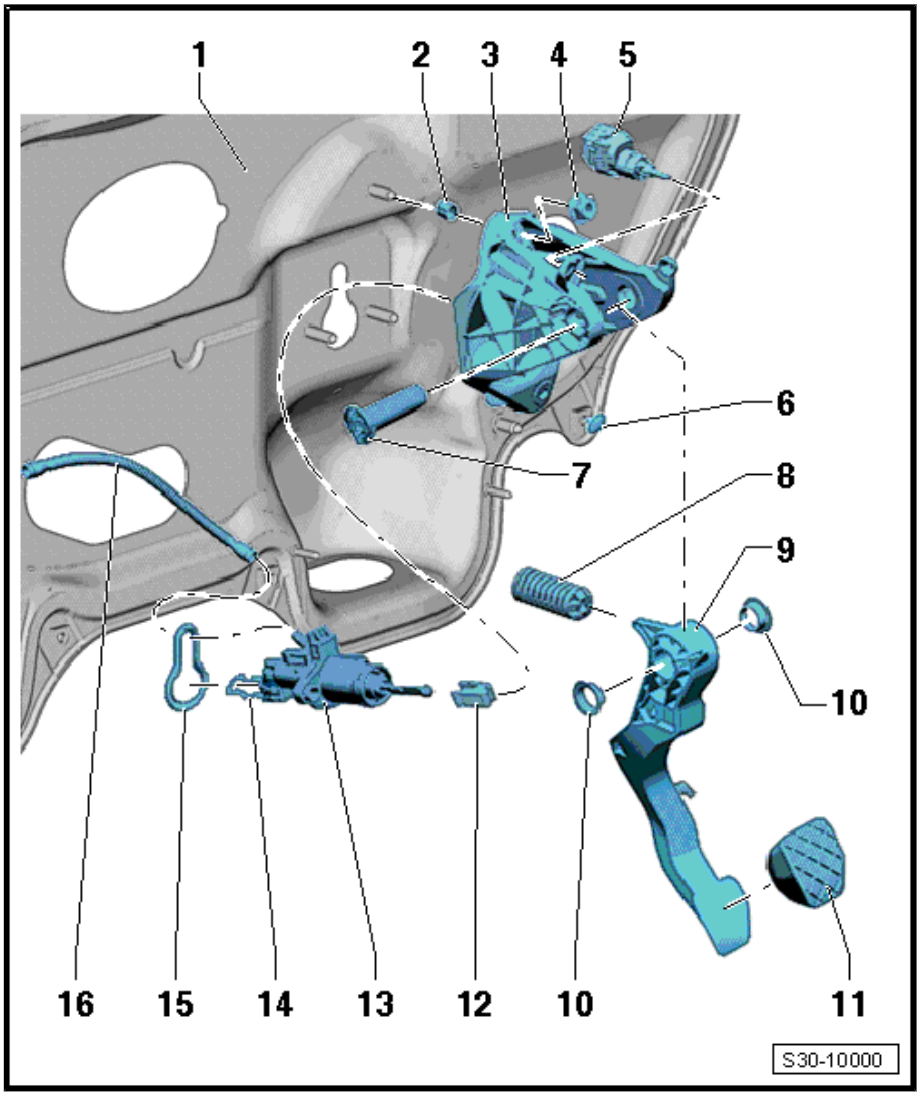
Tightening torque

Crash strut to steering column (1 screw)	20 Nm

1.6 Summary of components - Foot controls (Rapid)

Note

- *Summary of components - Hydraulics* ⇒ *"1.15 Summary of components - Hydraulic (Rapid) ", page 44* .
- *After the battery earth strap is disconnected and connected, carry out additional operations* ⇒ *Electrical System; Rep. gr. 27* .
- *Grease all bearing points and contact surfaces with Polycarbamide Grease - G 052 142 A2-* .



1 - Front wall

- ❑ with mount for bearing bracket and master cylinder

2 - Bushing

- ❑ for the top location hole in the bracket
- ❑ The bushings for the bottom location hole in the bracket are located in the master cylinder

3 - Bearing bracket

- ❑ removing and installing with master cylinder ⇒ "1.8 Removing and installing the bracket with the master cylinder (Rapid) ", page 30
- ❑ removing and installing without master cylinder ⇒ "1.10 Removing and installing the bracket without the master cylinder (Rapid) ", page 34

4 - 25 Nm

- ❑ for bracket on front wall
- ❑ self-locking
- ❑ 3 pieces
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

5 - Clutch pedal switch - F36-

- ❑ removing and installing ⇒ "1.6.1 Removing and installing clutch pedal switch F36 ", page 26

6 - Stop

- ❑ for the clutch pedal

7 - Bracket axle

- ❑ always replace ⇒ Electronic Catalogue of Original Parts

8 - Over-centre helper spring

- ❑ removing and installing ⇒ "1.12 Removing and installing the clutch pedal with the over-centre helper spring (Rapid) ", page 38

9 - Clutch pedal

- ❑ removing and installing with over-centre helper spring
  ⇒ “1.12 Removing and installing the clutch pedal with the over-centre helper spring (Rapid) ”, page 38

10 - Bushing

11 - Cap

12 - Support

- ❑ only replace if the master cylinder has been removed
- ❑ removing and installing ⇒ “1.15 Summary of components - Hydraulic (Rapid) ”, page 44

13 - Master cylinder

- ❑ removing and installing
  ⇒ “1.18 Removing and installing the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid 2011 ►; Rapid NH)”, page 50

14 - Clamp

- ❑ to remove and install the tube-hose line pull out retaining clip up to the stop
- ❑ is pulled out from the side on certain master cylinders

15 - Gasket

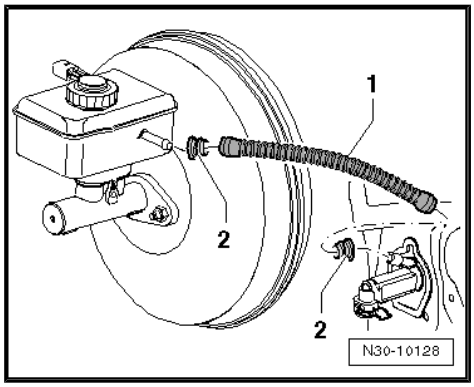
- ❑ always replace ⇒ Electronic Catalogue of Original Parts
- ❑ stick onto the master cylinder

16 - Supply hose

- ❑ out of plastic ⇒ page 26

Plastic return hose -1-

- The gaskets -2- must be located in the return hose.



1.6.1 Removing and installing clutch pedal switch - F36-

Note

The clutch pedal switch - F36- may only be installed once to ensure that it has an adequately tight fit in the bracket for clutch pedal.

Removing

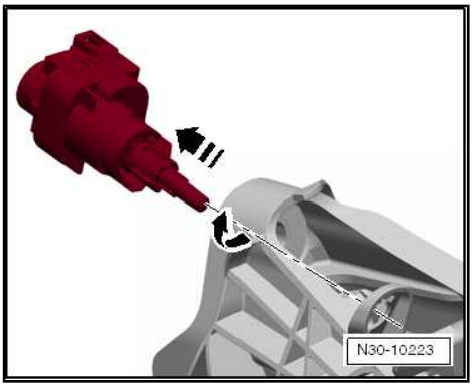
– Removing the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 80 .

Note

The clutch pedal switch is installed from the front wall.

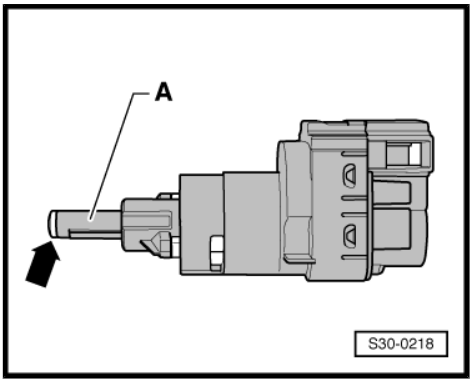
– Unplug connector from the clutch pedal switch - F36- .

– Turn the clutch pedal switch at the bracket 45° in -direction of arrow- and remove it from the support.



Install

- The tappet -A- of the clutch pedal switch must not be pulled out.
- Grease the tappet head -arrow-.
- Assign the grease via the ⇒ Electronic Catalogue of Original Parts .
- When installing the clutch pedal switch the clutch pedal must always remain in the off position. During the complete assembly, the clutch pedal must only be touched with the tappet head -arrow- of the clutch pedal switch .

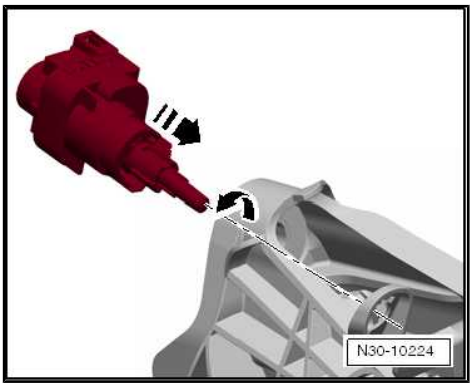


The clutch pedal switch is installed from the front wall.

– Insert the clutch pedal switch into the support of the bracket and turn it 45° in -direction of arrow-.

– Insert connector for the clutch pedal switch .

– Install the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 80 .



1.7 Removing and installing the bracket with the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)

Special tools and workshop equipment required

♦ Closing tool - T10249-

1.7.1 Removing

Note

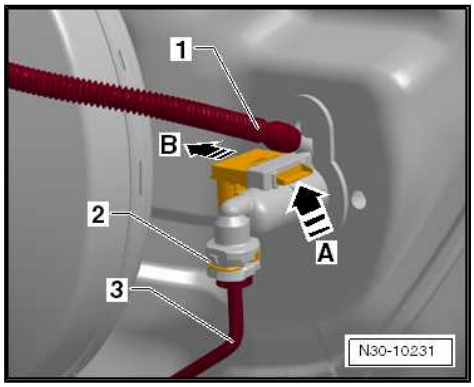
After the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .

– If necessary, remove engine cover ⇒ Engine; Rep. gr. 10 .

– Remove battery ⇒ Electrical System; Rep. gr. 27 .

– Remove air filter ⇒ Engine; Rep. gr. 23 .

– If the master cylinder is not accessible, remove the engine control unit from the front wall ⇒ Engine; Rep. gr. 23 .
– Lay a cloth under the master cylinder.
– Using an extraction bottle extract as much brake fluid as possible from the brake fluid reservoir.
– Detach return hose -1- at master cylinder and close with a suitable tool e.g. closing tool - T10249/1- .



Note

- *Do not use the hose clamp - MP7–602- , otherwise the return hose -1- will be damaged.*
- *When performing the following work, make sure that no brake fluid comes into contact with the frame side rail or the gearbox. If this is the case, these points must be cleaned thoroughly.*

– Pull out the locking clip -2- on the master cylinder up to the stop.

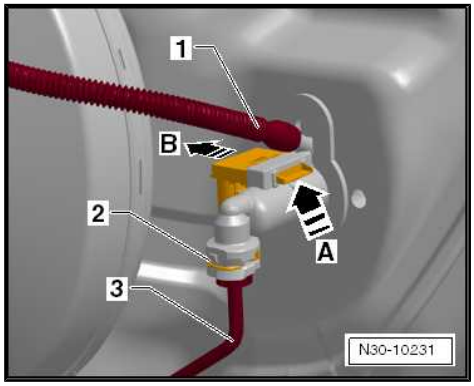
Note

On certain master cylinders, the locking clip -2- can also be pulled out from the side.

– Pull the tube-hose line -3- out of the master cylinder and close.

Vehicles with start-stop system

– Unclip clutch position sender - G476- at master cylinder -arrow A- and -arrow B-.
– Remove the clutch position sender with connected electrical plug connection from the master cylinder.



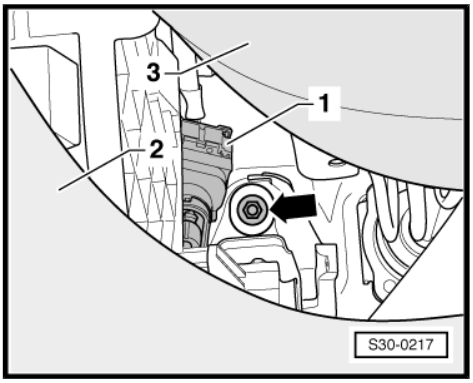
Continued for all vehicles

Note

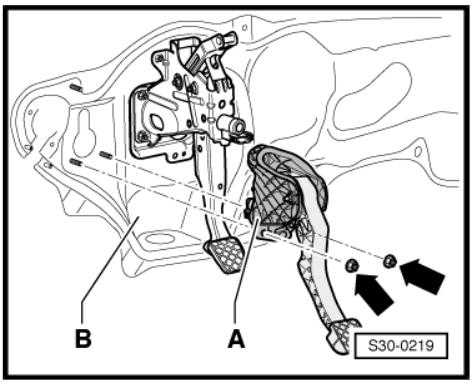
When working in the footwell, protect the floor covering with cloths from escaping brake fluid.

– Removing the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .
– If present, remove crash strut ⇒ “1.5.2 Removing and installing crash strut”, page 21 .
– Put steering wheel in the highest position.

– Remove clutch pedal switch - F36- -1-
⇒ “1.5.1 Removing and installing clutch pedal switch F36 ”, page 20 .
– Unscrew the top fixing nut -arrow- for the bracket. To do so, position an long extension on the nut in the opening between the dash panel -2- and the bottom steering column trim panel -3-.



– Unscrew the two lower fixing nuts -arrows-.
– Remove the bracket -A- from the front wall -B-.



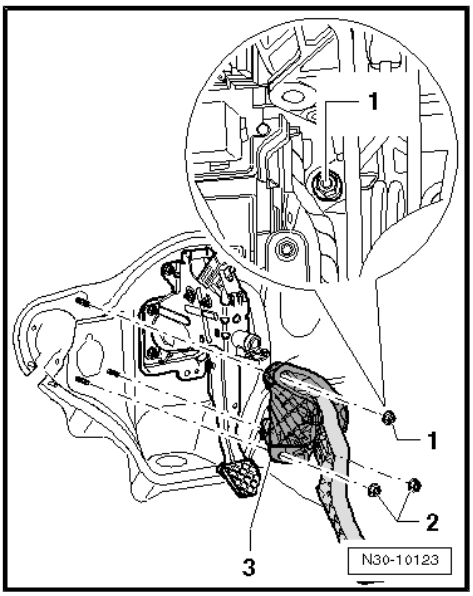
1.7.2 Install

Installation is performed in the reverse order, pay attention to the following points:

Note

Replace self-locking nuts -1- and -2- for bracket -3- on front wall.

– Install clutch pedal switch - F36-
⇒ “1.5.1 Removing and installing clutch pedal switch F36 ”, page 20
– If present, install the crash strut
⇒ “1.5.2 Removing and installing crash strut”, page 21 .
– Install the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .

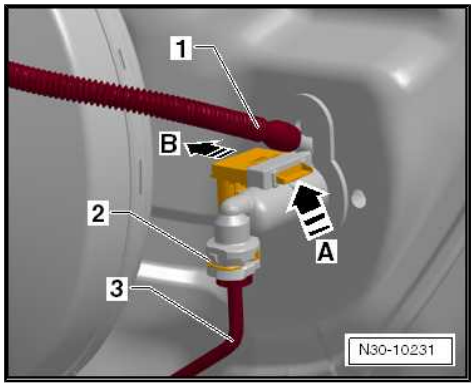


Vehicles with start-stop system

– Insert the clutch position sender - G476- with connected electrical plug connection up to the stop on the master cylinder.

• The clutch position sender must lock in place -arrow A-.

– For checking, pull at clutch position sender -arrow B-.



Continued for all vehicles

– Press in tube-hose line -3- onto the connection of the master cylinder, until the locking clip -2- is heard to click into position.

– Fit return hose -1- on the master cylinder.

– For checking, pull on the line.

– Bleed clutch mechanism
⇒ “1.20 Bleeding the clutch control ”, page 54 .

– If removed, install the engine control unit at the front wall ⇒ Engine; Rep. gr. 23 .

– Install air filter housing ⇒ Engine; Rep. gr. 23 .

– Install battery ⇒ Electrical System; Rep. gr. 27 .

Tightening torques

Bracket/clutch pedal to front wall [1)]	⇒ “1.5 Summary of components - foot controls (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)”, page 17 -Position 4-
Master cylinder to front wall [1)]	⇒ “1.5 Summary of components - foot controls (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)”, page 17 -Position 4-

[1)] Replace self-locking nut.

1.8 Removing and installing the bracket with the master cylinder (Rapid)

Special tools and workshop equipment required

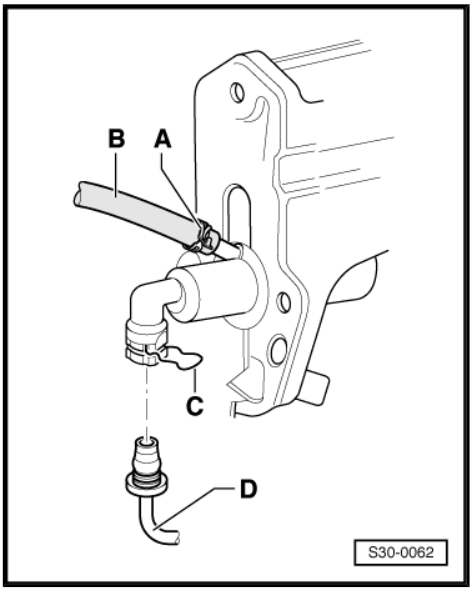
♦ Closing tool - T10249-

1.8.1 Removing

– Lay a cloth under the master cylinder.

– Using an extraction bottle extract as much brake fluid as possible from the brake fluid reservoir.

– Detach return hose -A- at master cylinder and close with a suitable tool e.g. closing tool - T10249/1- .



Note

- *Do not use the hose clamp - MP7–602- , otherwise the return hose -A- will be damaged.*
- *When performing the following work, make sure that no brake fluid comes into contact with the frame side rail or the gearbox. If this is the case, these points must be cleaned thoroughly.*

– Remove the locking clip -B- on the master cylinder up to the stop.

– Release and cut the tube-hose line -C- out of the master cylinder.

Note

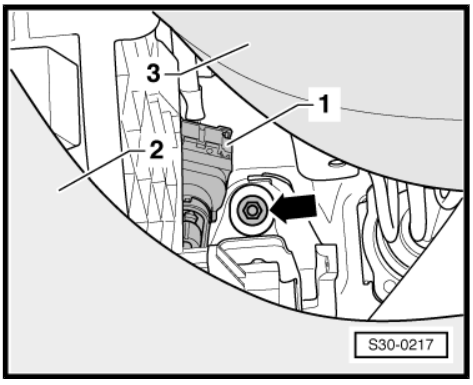
When working in the footwell, protect the floor carpet with cloths from escaping brake fluid.

– Removing the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .

– Put steering wheel in the highest position.

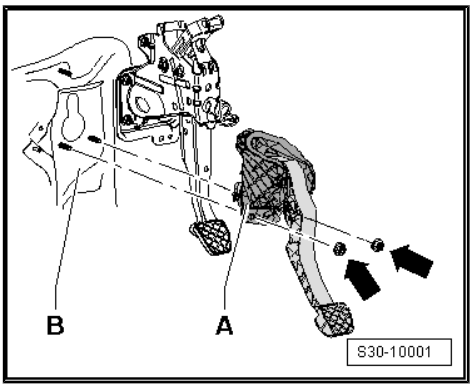
– Unplug connector from the clutch pedal switch - F36- .

– Unscrew the top fixing nut -arrow- for the bracket. To do so, position an long extension on the nut in the opening between the dash panel -2- and the bottom steering column trim panel -3-.



– Unscrew the two lower fixing nuts -arrows-.

– Remove the bracket -A- from the front wall -B-.

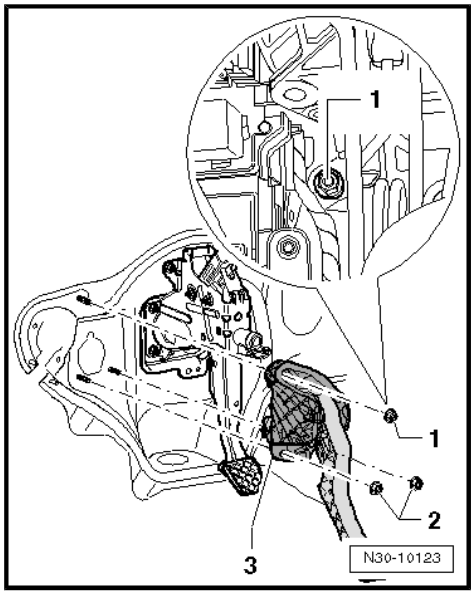


1.8.2 Install

Installation is performed in the reverse order, pay attention to the following points:

Note

Position self-locking nuts -1- and -2- for bracket -3- on front wall and tighten.



– Connect the connector to the clutch pedal switch - F36- .

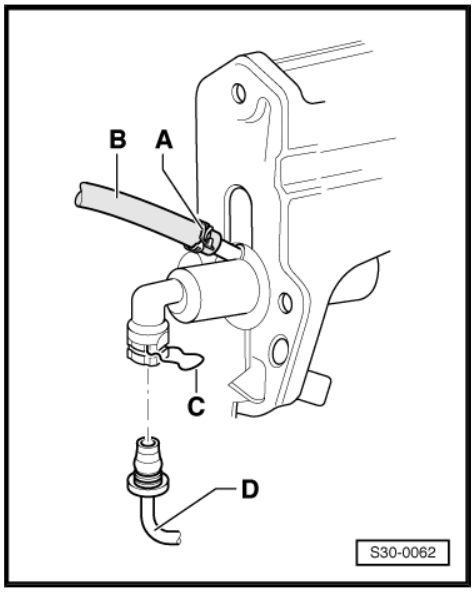
– Install the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .

– Press in tube-hose line -C- onto the connection of the master cylinder, until the locking clip -B- is heard to click into position.

– Fit return hose -A- on the master cylinder.

– For checking, pull on the line.

– Bleed clutch mechanism
⇒ “1.20 Bleeding the clutch control ”, page 54 .



Tightening torques

Bracket/clutch pedal to front wall [1)]	⇒ “1.6 Summary of components - Foot controls (Rapid) ”, page 25 -Position 4-
Master cylinder to front wall [1)]	⇒ “1.6 Summary of components - Foot controls (Rapid) ”, page 25 -Position 4-

[1)] Replace self-locking nut.

1.9 Removing and installing the bracket without the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)

Special tools and workshop equipment required

♦ Pliers - T10005-

Removing

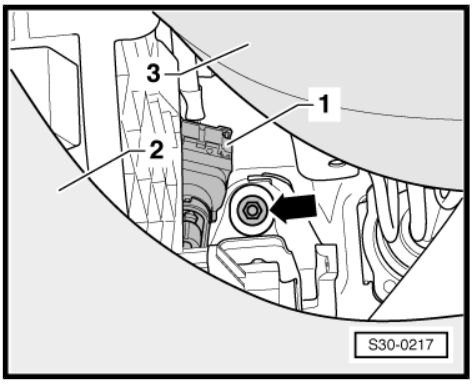
– Removing the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .

– If present, remove crash strut
⇒ “1.5.2 Removing and installing crash strut”, page 21 .

– Put steering wheel in the highest position.

– Remove clutch pedal switch - F36- -1-
⇒ “1.5.1 Removing and installing clutch pedal switch F36 ”, page 20 .

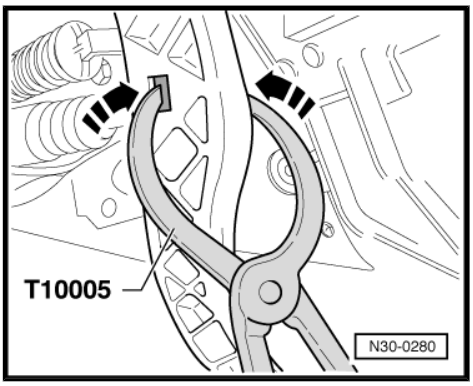
– Unscrew the top fixing nut -arrow- for the bracket. To do so, position an long extension on the nut in the opening between the dash panel -2- and the bottom steering column trim panel -3-.



– Unlock the actuating rod/master cylinder from the clutch pedal as follows:

– Pull clutch pedal slightly into the passenger compartment.

– Press together both sides of the support using the pliers - T10005- -arrows-.

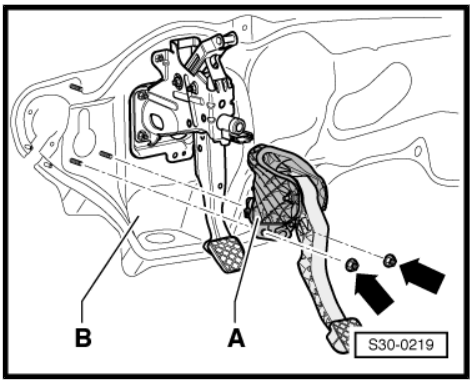


– Unscrew the two lower fixing nuts -arrows-.

– Remove the bracket -A- from the front wall -B-.

• The master cylinder is locked into position with the bracket.

• When removing the bracket, the master cylinder in the engine compartment must be held by a 2nd mechanic.

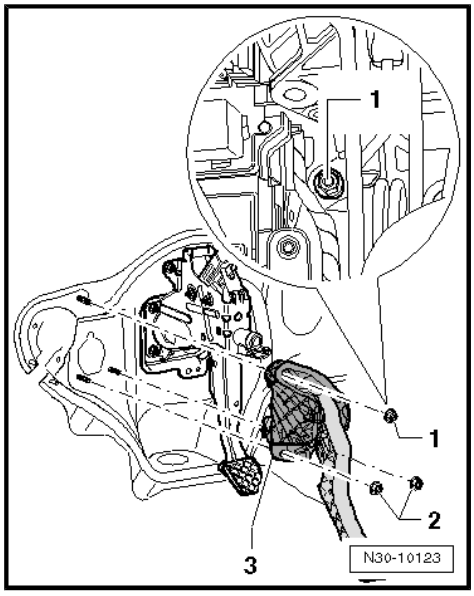


Install

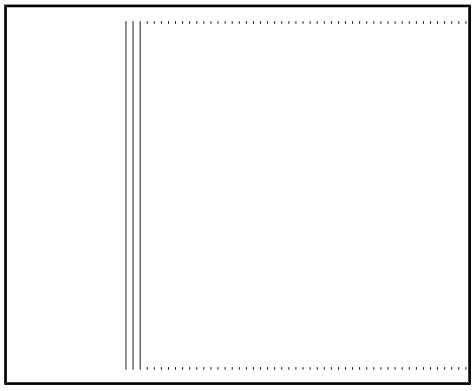
Installation is performed in the reverse order, pay attention to the following points:

Note

Replace self-locking nuts -1- and -2- for bracket -3- on front wall.



- The support -A- must be located on the actuating rod -B- of the master cylinder.
- To click in the support -A-, press the clutch pedal towards the front wall in -direction of arrow-. While doing so, make sure it catches correctly in the support.
- Install clutch pedal switch - F36- ⇒ “1.5.1 Removing and installing clutch pedal switch F36 ”, page 20
- If present, install the crash strut ⇒ “1.5.2 Removing and installing crash strut”, page 21 .
- Install the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .



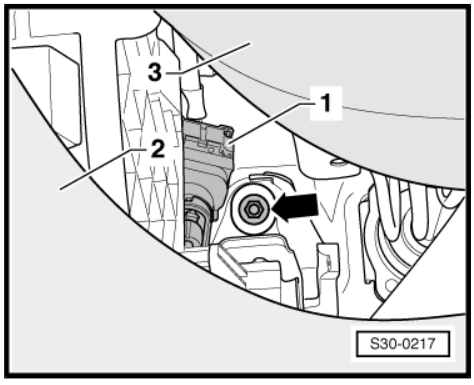
1.10 Removing and installing the bracket without the master cylinder (Rapid)

Special tools and workshop equipment required

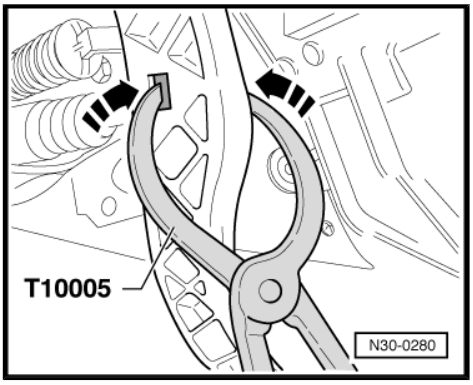
- Pliers - T10005-

Removing

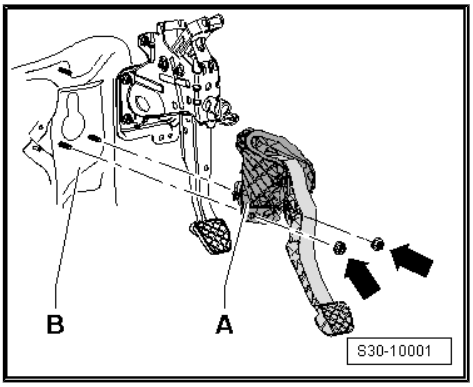
- Removing the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .
- Put steering wheel in the highest position.
- Unplug connector from the clutch pedal switch - F36- .
- Unscrew the top fixing nut -arrow- for the bracket. To do so, position an long extension on the nut in the opening between the dash panel -2- and the bottom steering column trim panel -3-.



– Unlock the actuating rod/master cylinder from the clutch pedal as follows:
– Pull clutch pedal slightly into the passenger compartment.
– Press both sides of the support inwards using the pliers - T10005- -arrows-



– Unscrew the two lower fixing nuts -arrows-.
– Remove the bracket -A- from the front wall -B-.
• The master cylinder is locked into position with the bracket.
• When removing the bracket, the master cylinder in the engine compartment must be held by a 2nd mechanic.

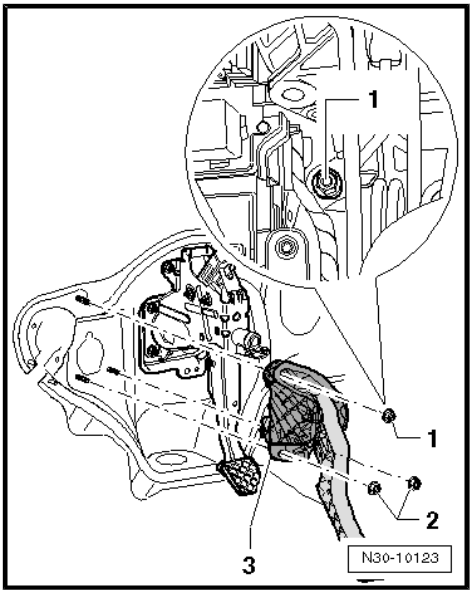


Install

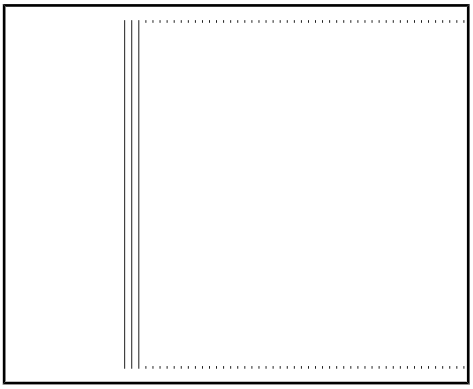
Installation is performed in the reverse order, pay attention to the following points:

Note

Position self-locking nuts -1- and -2- for bracket -3- on front wall and tighten.



– The support -A- must be located on the actuating rod -B- of the master cylinder.
– To click in the support -A-, press the clutch pedal towards the front wall in -direction of arrow-. While doing so, make sure it catches correctly in the support.
– Connect the connector to the clutch pedal switch - F36- .
– Install the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .



1.11 Removing and installing the clutch pedal with the over-centre helper spring (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)

Note

- *Install the clutch pedal with a new bearing axle.*
- *If only the over-centre helper spring should be removed, the clutch pedal must not be separated from the master cylinder.*

Special tools and workshop equipment required

- Pliers - T10005-
- Allan key, wrench size 8 mm, commercially available

Removing

– Removing the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .

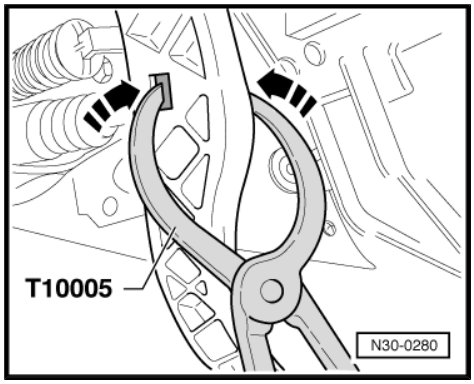
– If present, remove crash strut ⇒ “1.5.2 Removing and installing crash strut”, page 21 .

– Remove clutch pedal switch - F36- ⇒ “1.5.1 Removing and installing clutch pedal switch F36 ”, page 20 .

– Subsequently release the actuating rod of the master cylinder.

– Pull clutch pedal slightly into the passenger compartment.

– Press both sides of the support inwards using the pliers - T10005- -arrows-

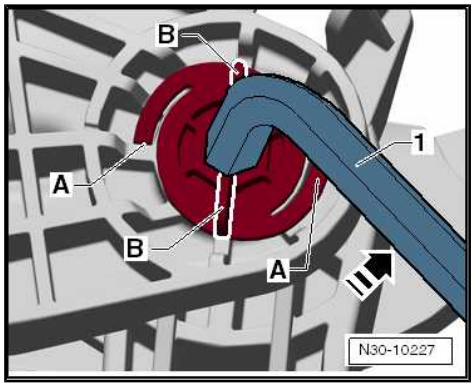


– Remove the bearing axle for the clutch pedal.

– Turn the bearing bolt for the clutch pedal to the left -in direction of arrow-, so that the pegs are positioned horizontally.

-1- = Allan key, wrench size 8 mm.

The catches -A- are destroyed.



– Subsequently move the clutch pedal so that the bearing bolt can be pulled out.

– Remove over-centre helper spring.

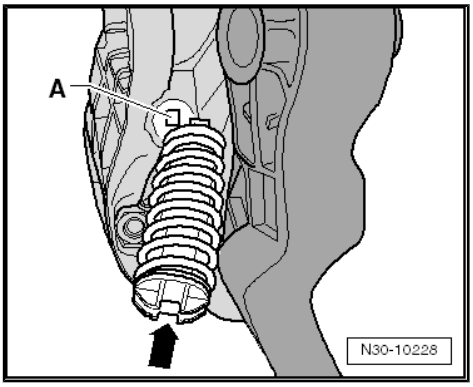
– Remove clutch pedal from bracket.

Install

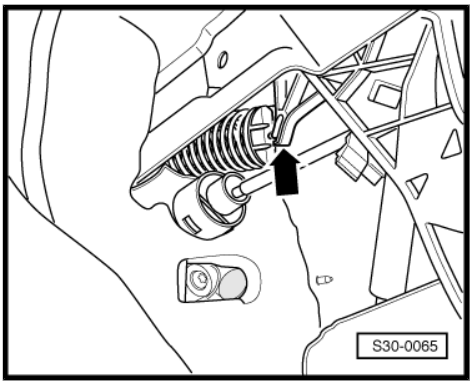
• Install the clutch pedal with a new bearing axle.

– Insert the over-centre helper spring laterally from the bottom into the support -A- in the bracket next to the body of the master cylinder and next to the clutch pedal.

• The area of the support -arrow- for the bearing bolt of the clutch pedal must be vertical.

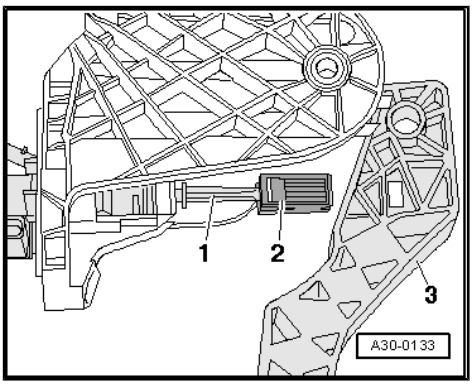


– Now position the over-centre helper spring on the centering pin of the clutch pedal -arrow-.



The support -2- must be located on the actuating rod -1- of the master cylinder.

– Press the support -2- into the recess on the clutch pedal -3- until it clicks audibly into place.



– Press on clutch pedal slightly and insert a new bearing bolt.

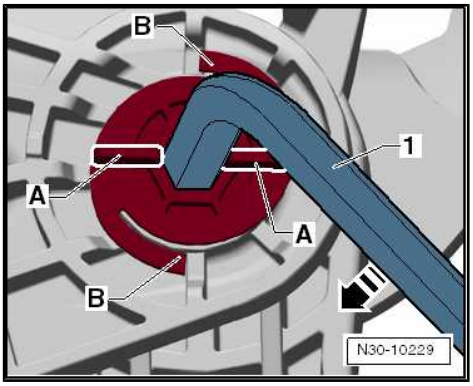
– Position the pegs -A- horizontally.

– Turn the bearing bolt for the clutch pedal to the left -in direction of arrow-, so that the pegs are positioned horizontally.

– Turn the bearing bolt to the right -in direction of arrow-, so that the pegs are positioned vertically.

-1- = 8 mm Allan key.

• The catches -B- must click audibly into place.



– Install clutch pedal switch - F36- ⇒ “1.5.1 Removing and installing clutch pedal switch F36 ”, page 20

– If present, install the crash strut ⇒ “1.5.2 Removing and installing crash strut”, page 21 .

– Install the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .

1.12 Removing and installing the clutch pedal with the over-centre helper spring (Rapid)

Note

Install the clutch pedal with a new bearing axle.

Special tools and workshop equipment required

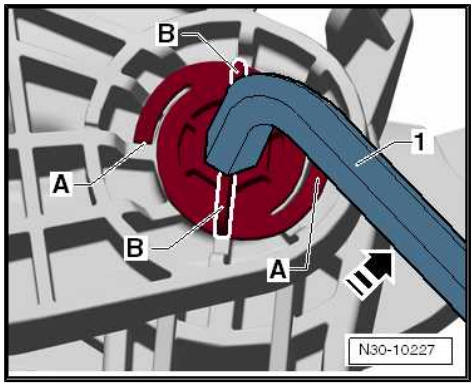
- Pliers - T10005-
- Allan key, wrench size 8 mm, commercially available

Removing

– Remove mounting bracket without master cylinder ⇒ “1.10 Removing and installing the bracket without the master cylinder (Rapid) ”, page 34 .

– Remove the bearing axle for the clutch pedal.

– Turn the bearing bolt for the clutch pedal to the left in -direction of arrow-.



-1- = 8 mm Allan key.

The catches -A- are destroyed.

Then the pegs -B- are positioned horizontally to the fitting position.

– Subsequently move the clutch pedal so that the bearing bolt can be pulled out.

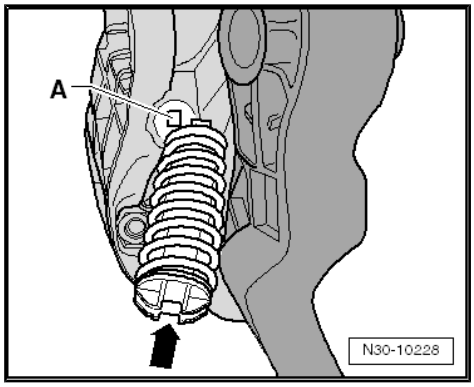
– Remove over-centre helper spring.

– Remove clutch pedal from bracket.

Install

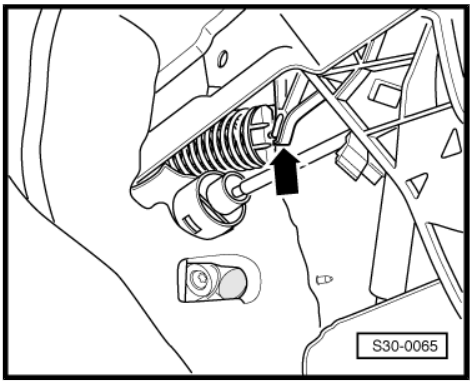
- Install the clutch pedal with a new bearing axle.

– Insert the over-centre helper spring laterally from the bottom into the support -A- in the bracket next to the tappet of the master cylinder and next to the clutch pedal.

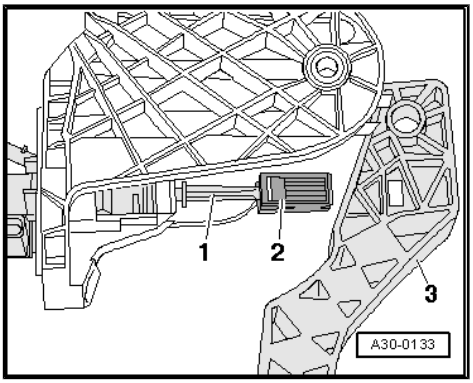


- The area of the support -arrow- for the bearing bolt of the clutch pedal must be vertical.

– Position the over-centre helper spring on the centering pin of the clutch pedal -arrow-.



– The support -2- must be located on the actuating rod -1- of the master cylinder.
– Press the support -2- into the recess on the clutch pedal -3- until it clicks audibly into place.



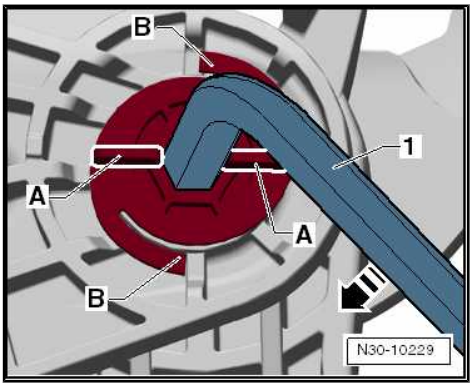
– Press on clutch pedal slightly and insert a new bearing bolt.
– Position the pegs -A- horizontally.
– Turn the bearing bolt to the right -in direction of arrow-.

-1- = 8 mm Allan key.

• The catches -B- must click audibly into place.

Then the pegs -A- are positioned vertically.

– Press the support -2- into the recess on the clutch pedal -3- until it clicks audibly into place.
– Install bracket without master cylinder
⇒ “1.10 Removing and installing the bracket without the master cylinder (Rapid) ”, page 34



1.13 Removing and installing the clutch pedal with the tension spring (Fabia II 2011 ►; Roomster 2011 ►)

Note

- *Install the clutch pedal with a new bearing axle.*
- *If only the tension spring is removed, pay attention* *⇒ page 41* .

Special tools and workshop equipment required

- Hook - 3438-
- Pliers - T10005-
- Allan key, wrench size 8 mm, commercially available

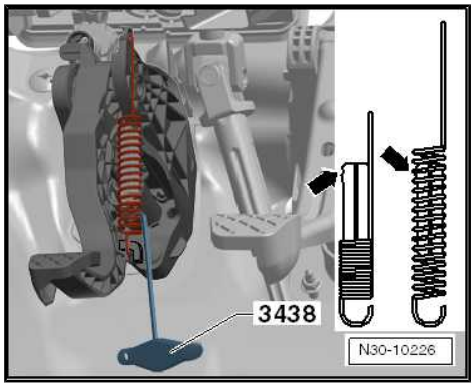
Removing

– Removing the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .

– If present, remove crash strut ⇒ “1.5.2 Removing and installing crash strut”, page 21 .

– Remove clutch pedal switch - F36- ⇒ “1.5.1 Removing and installing clutch pedal switch F36 ”, page 20 .

– Unhook the tension spring e.g with hook - 3438- .



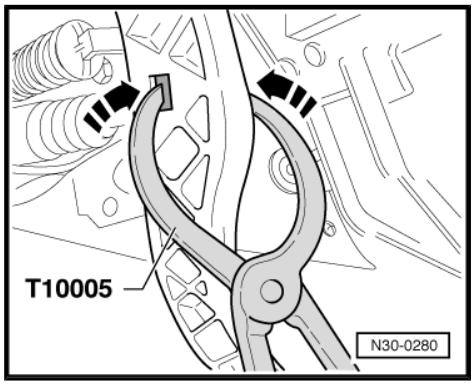
Note

Only observe the right part of the fig. -arrows- when installing.

– Unlock the actuating rod/master cylinder from the clutch pedal as follows:

– Pull clutch pedal slightly into the passenger compartment.

– Press together both sides of the support using the pliers - T10005- -arrows-.



– Remove the bearing axle for the clutch pedal.

– Turn the bearing axle for the clutch pedal to the left in -direction of arrow-.

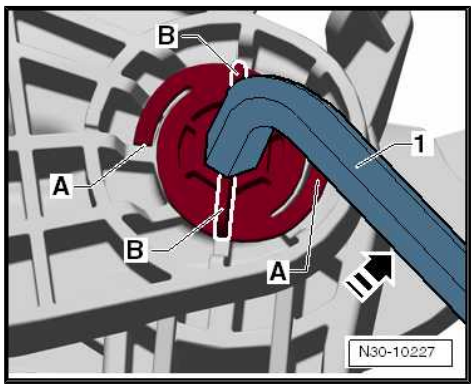
-1- = Allan key, wrench size 8 mm.

The catches -A- are destroyed.

Then the studs -B- are positioned horizontally.

– Subsequently move the clutch pedal so that the bearing axle can be pulled out.

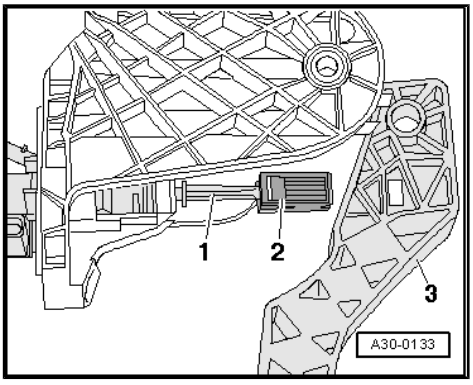
– Remove clutch pedal from bracket.



Install

• Install the clutch pedal with a new bearing axle.

– The support -2- must be located on the actuating rod -1- of the master cylinder.
– Insert a new bearing axle in the bracket and the clutch pedal.



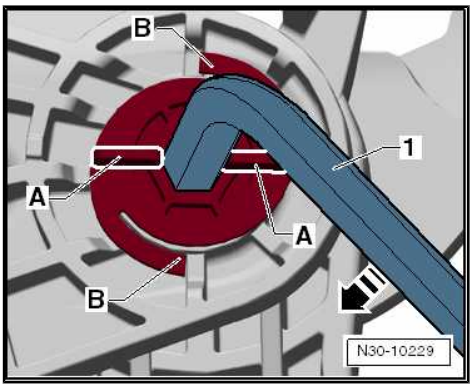
– Position the studs -A- horizontally.
– Turn the bearing axle to the right in -direction of arrow-.

-1- = Allan key, wrench size 8 mm.

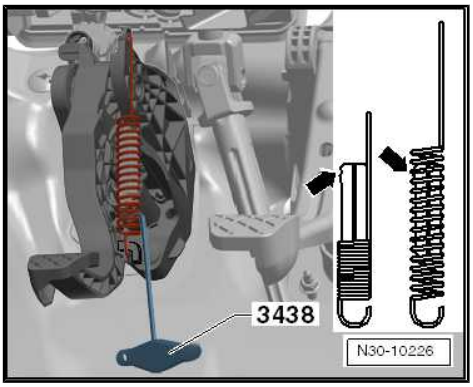
• The catches -B- must click audibly into place.

Then the studs -A- are positioned vertically.

– Lock the clutch pedal with the support on the actuating rod of the master cylinder.



– Hook in the tension spring.
– Insert the vibration damper with the recess -arrows- as of the 2nd spring coil -arrows-.
– Install clutch pedal switch - F36- ⇒ “1.5.1 Removing and installing clutch pedal switch F36 ”, page 20
– If present, install the crash strut ⇒ “1.5.2 Removing and installing crash strut”, page 21 .
– Install the footwell vent ⇒ Heating and Air Conditioning; Rep. gr. 87 .



1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH)

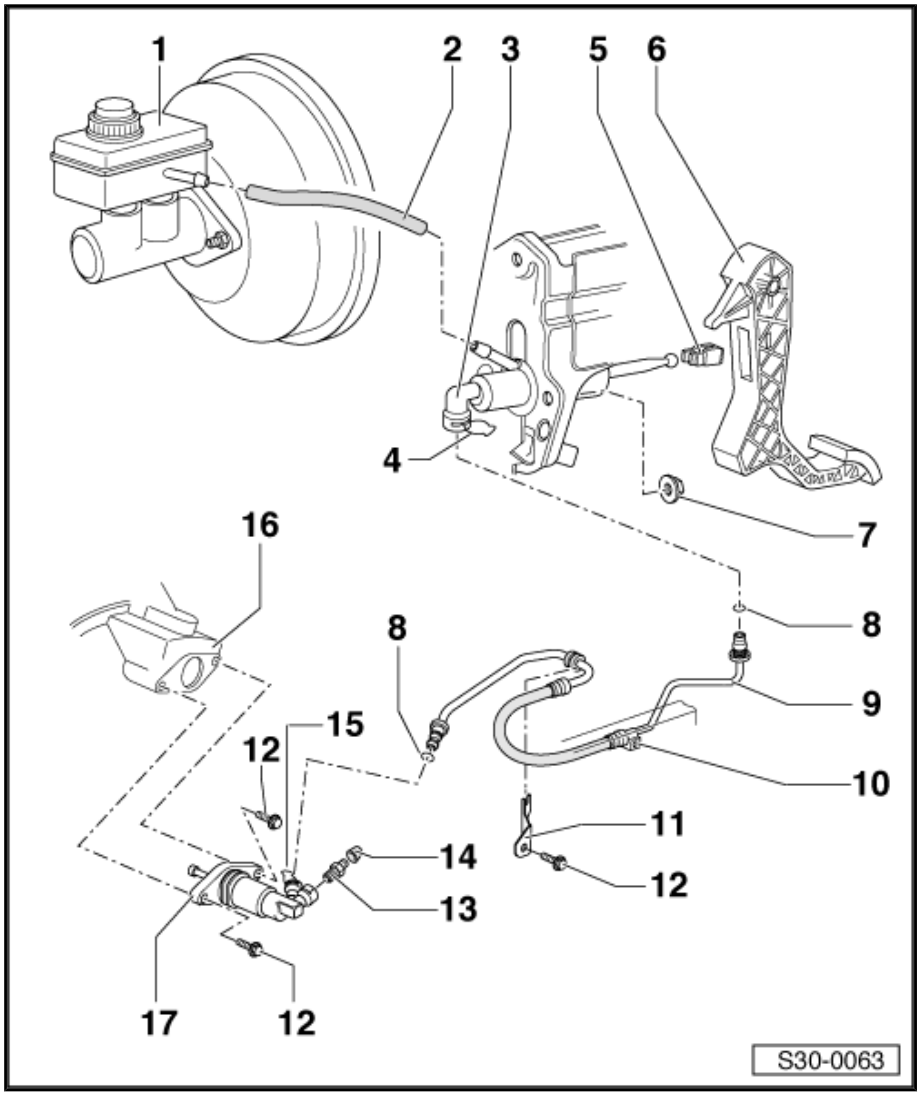
1 - Brake fluid reservoir

2 - Supply hose

- ❑ out of rubber
- ❑ on certain vehicles out of plastic ⇒ page 44
- ❑ if the return hose is made out of plastic, do not use hose clamp -MP7-602-
- ❑ test tightness ⇒ “1.16 Check hydraulic clutch control”, page 47

3 - Master cylinder

- ❑ removing and installing (Fabia II 2007 ►; Roomster 2006 ►) ⇒ “1.17 Removing and installing the master cylinder (Fabia II 2007 ►; Roomster 2006 ►)”, page 48
- ❑ removing and installing (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH 2013 ►) ⇒ “1.18 Removing and installing the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid 2011 ►; Rapid NH)”, page 50
- ❑ after installing, bleed the clutch control ⇒ “1.20 Bleeding the clutch control ”, page 54



- ❑ test tightness ⇒ “1.16 Check hydraulic clutch control”, page 47

4 - Clamp

- ❑ to remove the tube-hose line -Pos. 9- pull out of the master cylinder -Pos. 3- up to the stop

5 - Support

- ❑ only replace if the master cylinder Pos. 3 has been removed
- ❑ removing ⇒ page 43
- ❑ installing ⇒ page 44

6 - Clutch pedal

- ❑ removing and installing (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH 2013 ►) ⇒ “1.11 Removing and installing the clutch pedal with the over-centre helper spring (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)”, page 36
- ❑ Removing and installing clutch pedal with tension springs (Fabia II 2011 ►; Roomster 2011 ►) ⇒ “1.13 Removing and installing the clutch pedal with the tension spring (Fabia II 2011 ►; Roomster 2011 ►)”, page 39
- ❑ Removing and installing (Rapid) ⇒ “1.12 Removing and installing the clutch pedal with the over-centre helper spring (Rapid) ”, page 38

7 - 25 Nm

- ❑ self-locking
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

8 - Gasket ring/O-ring

- ❑ pull onto line connection
- ❑ insert with brake fluid
- ❑ Gasket rings/O-rings are adapted to the version of the line connection ⇒ page 44
- ❑ Assignment ⇒ Electronic Catalogue of Original Parts
- ❑ test tightness ⇒ “1.16 Check hydraulic clutch control”, page 47

9 - Tube-hose line

- ❑ Assignment ⇒ Electronic Catalogue of Original Parts
- ❑ test tightness ⇒ “1.16 Check hydraulic clutch control”, page 47

10 - Support

- ❑ fixed at front left frame side rail
- ❑ for clipping in the tube-hose line -Pos. 9-

11 - Support

- ❑ for clipping in the tube-hose line -Pos. 9-
- ❑ not fitted to all vehicles
- ❑ Assignment ⇒ Electronic Catalogue of Original Parts

12 - 20 Nm

- ❑ not fitted to all vehicles
- ❑ Assignment ⇒ Electronic Catalogue of Original Parts

13 - Vent valve

- ❑ Bleed the clutch control ⇒ “1.20 Bleeding the clutch control ”, page 54

14 - Dust cap

15 - Clamp

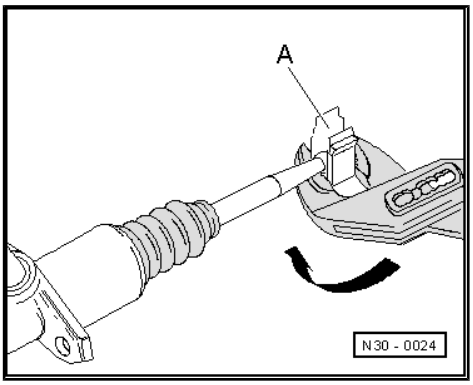
- ❑ to remove the tube-hose line Pos. 9 pull out of the slave cylinder up to the stop
- ❑ to remove the tube-hose line -Pos. 9- pull out of the slave cylinder -Pos. 17- up to the stop

16 - Gearbox

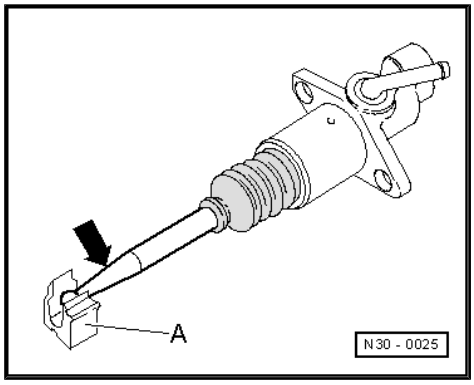
17 - Slave cylinder

- ❑ removing and installing ⇒ “1.19 Removing and installing the slave cylinder”, page 51
- ❑ after installing, bleed the clutch control ⇒ “1.20 Bleeding the clutch control ”, page 54

Remove the support -A- from the actuating rod of the master cylinder in -direction of arrow-

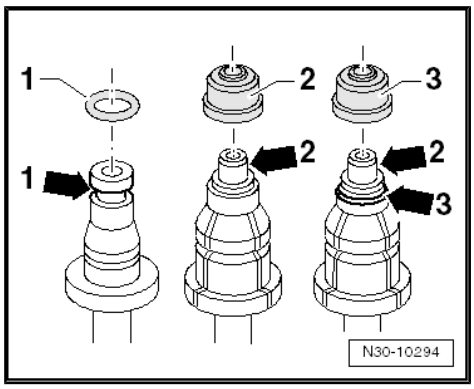


Install the support -A- at the actuating rod of the master cylinder in -direction of arrow-



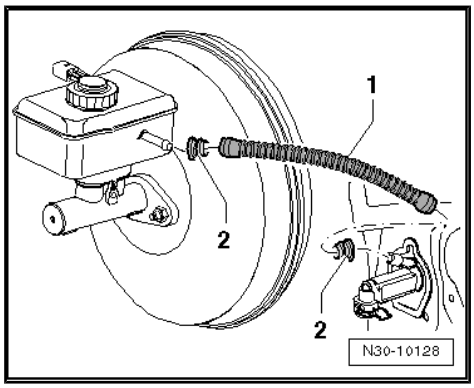
Gasket rings/O-rings for tube-hose lines

Pos.	Version of line connection
-1-	Line connection with round slot -arrow 1-
-2-	Line connection with shoulder -arrow 2-
-3-	Line connection with shoulder -arrow 2- and with round slot -arrow 3-
• In case of a line connection with round slot -arrow 1- and -arrow 3-, a gasket ring/O-ring must be inserted.	

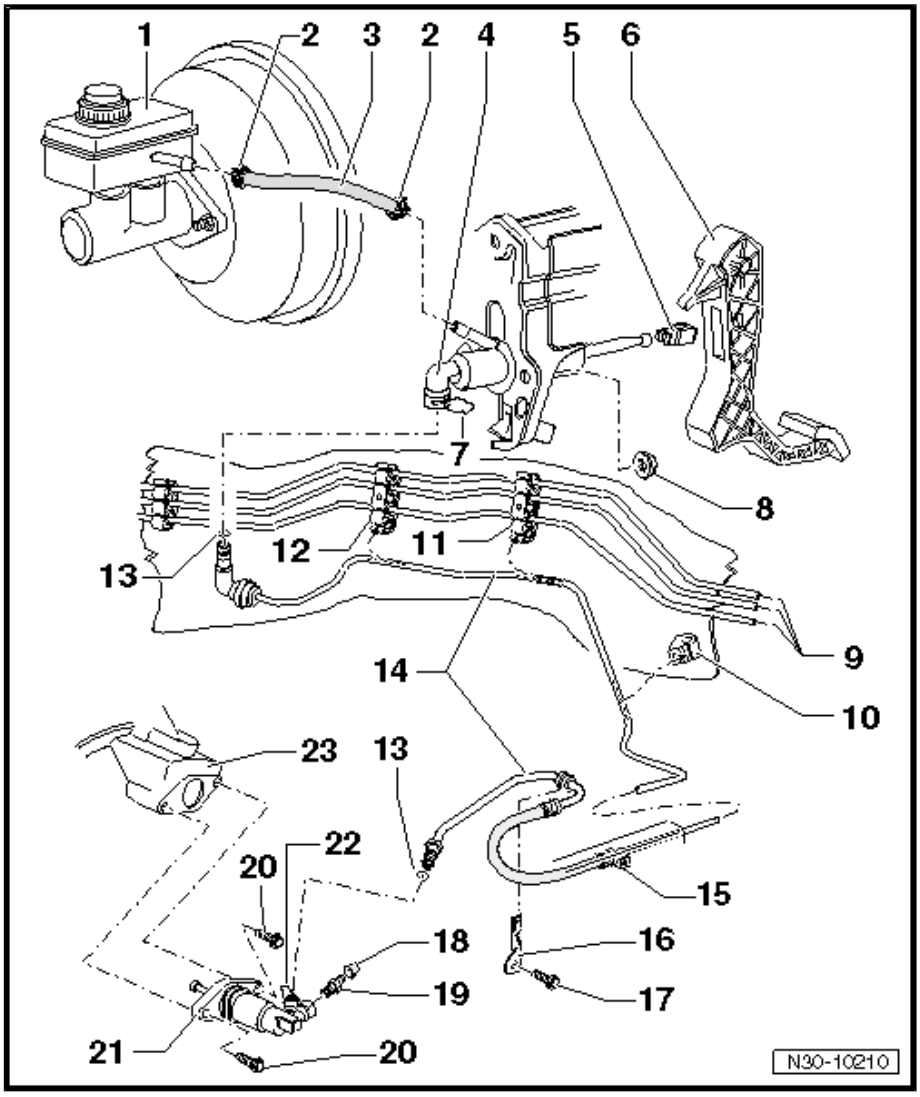


Vehicles with plastic return hose -1-:

- Gaskets -2- must be present on the return hose.
- Do not use hose clamp - MP7-602-



1.15 Summary of components - Hydraulic (Rapid)



1 - Brake fluid reservoir

2 - Spring clamp

3 - Supply hose

4 - Master cylinder

- ❑ removing and installing ⇒ “1.18 Removing and installing the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid 2011 ►; Rapid NH)”, page 50
- ❑ after installing, bleed the clutch control ⇒ “1.20 Bleeding the clutch control ”, page 54

5 - Support

- ❑ only replace if the master cylinder Pos. 3 has been removed
- ❑ removing ⇒ page 46
- ❑ installing ⇒ page 46

6 - Clutch pedal

7 - Clamp

- ❑ to remove the tube-hose line Pos. 14 pull it out of the master cylinder up to the stop

8 - 25 Nm

- ❑ self-locking
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

9 - Brake line

10 - Support

- ❑ attached to the vehicle body
- ❑ for tube-hose line pos. 14

11 - Support

- ❑ attached to the vehicle body
- ❑ for tube-hose line pos. 14

12 - Support

- ❑ attached to the vehicle body
- ❑ for tube-hose line pos. 14

13 - Gasket ring/O-ring

- ❑ pull onto line connection
- ❑ insert with brake fluid
- ❑ Gasket rings/O-rings are adapted to the version of the line connection ⇒ page 47
- ❑ Assignment ⇒ Electronic Catalogue of Original Parts

14 - Tube-hose line

- ❑ Assignment ⇒ Electronic Catalogue of Original Parts

15 - Support

- ❑ fixed at front left frame side rail

- ❑ for tube-hose line pos. 14

16 - Support

- ❑ for tube-hose line Pos. 14 on the gearbox
- ❑ not fitted to all vehicles
- ❑ Assignment ⇒ Electronic Catalogue of Original Parts

17 - Screw 20 Nm

- ❑ not fitted to all vehicles
- ❑ Assignment ⇒ Electronic Catalogue of Original Parts

18 - Dust cap

19 - Vent valve

- ❑ Bleed the clutch control ⇒ “1.20 Bleeding the clutch control ”, page 54

20 - Screw 20 Nm

21 - Slave cylinder

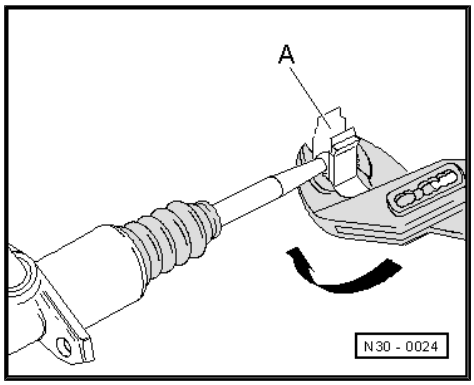
- ❑ removing and installing ⇒ “1.19 Removing and installing the slave cylinder”, page 51
- ❑ after installing, bleed the clutch control ⇒ “1.20 Bleeding the clutch control ”, page 54

22 - Clamp

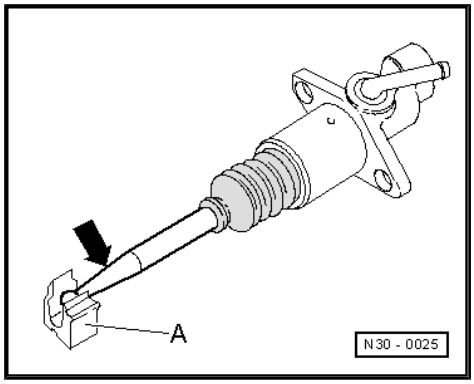
- ❑ to remove the tube-hose line Pos. 14 pull out of the slave cylinder up to the stop

23 - Gearbox

Remove the support -A- from the actuating rod of the master cylinder in -direction of arrow-

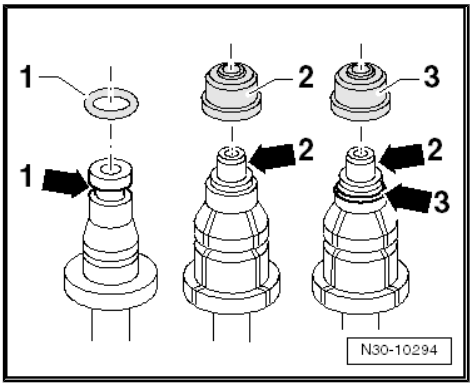


Install the support -A- at the actuating rod of the master cylinder in -direction of arrow-



Gasket rings/O-rings for tube-hose lines

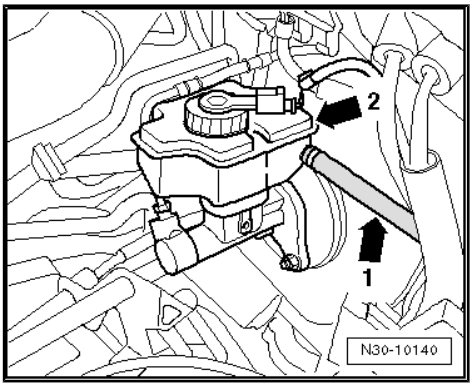
Pos.	Version of line connection
-1-	Line connection with round slot -arrow 1-
-2-	Line connection with shoulder -arrow 2-
-3-	Line connection with shoulder -arrow 2- and with round slot -arrow 3-
• In case of a line connection with round slot -arrow 1- and -arrow 3-, a gasket ring/O-ring must be inserted.	



1.16 Check hydraulic clutch control

- The brake pedal return must not be obstructed by moved or additional covers (floor coverings).
- If necessary. bleed the clutch control ⇒ “1.20 Bleeding the clutch control ”, page 54 .

– First of all check the brake fluid level in the brake fluid reservoir.



Note

- *The clutch hydraulic is connected to one of the chambers -arrow 2- of the brake fluid reservoir by the return hose -arrow 1-.*
- *If there is little or no brake fluid in this chamber, there is a leak in the hydraulic system.*

Then check the following components of the hydraulic clutch control for external leaks:

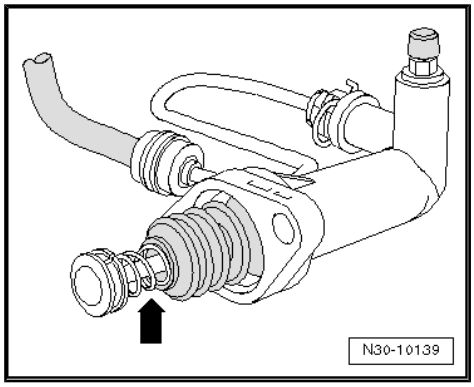
- Return hose between brake fluid reservoir and master cylinder.
- Master cylinder.
- Tube-hose line or plastic line between master and slave cylinder
- Connection points (plug and screw connections) also in a non-visible area.
- Slave cylinder.

Note

- *Symptoms of an external leak are, amongst others, traces of brake fluid on or below the gearbox, as well as on the noise insulation under the gearbox.*
- *Check the correct routing of the tube-hose line or the plastic line between the master cylinder and the slave cylinder. The line must not be kinked or trapped.*

– Subsequently depress the clutch pedal carefully, at the same time hold the clutch pedal in 5 different positions for approx. 20 seconds over the entire distance the pedal has to travel. While doing so, a second person must check if fluid is leaking from the components of the hydraulic clutch control ⇒ page 47 . At the same time the first person must check if the clutch pedal falls through on its own while being held.

– Remove the slave cylinder from the gearbox last, - do not open the line system - and check the collar for brake fluid leak.
– To do so, take off the collar from the tappet -arrow-.



1.17 Removing and installing the master cylinder (Fabia II 2007 ►; Roomster 2006 ►)

Special tools and workshop equipment required

- Pliers - T10005-
- Polycarbamide grease - G 052 142 A2-

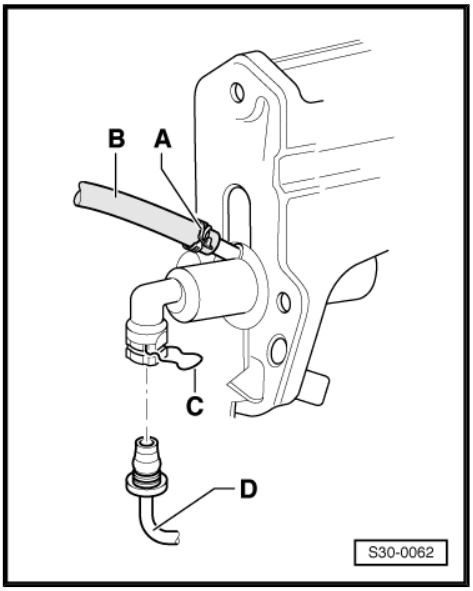
Removing

Note

After the battery earth strap is disconnected and re-connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .

– Remove engine cover ⇒ engine; Rep. gr. 10 .
– Remove battery ⇒ Electrical System; Rep. gr. 27 .
– Remove air filter ⇒ Engine; Rep. gr. 23 .
– Lay a cloth under the master cylinder.
– Using an extraction bottle extract as much brake fluid as possible from the brake fluid reservoir.

– Detach return hose -A- at master cylinder and close with a suitable tool e.g. closing tool - T10249/1- .



Note

- *Do not use the hose clamp - MP7–602- , otherwise the return hose -A- will be damaged.*
- *When performing the following work, make sure that no brake fluid comes into contact with the frame side rail or the gearbox. If this is the case, these points must be cleaned thoroughly.*

– Remove the locking clip -B- on the master cylinder up to the stop.

– Release and cut the tube-hose line -C- out of the master cylinder.

– Remove the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .

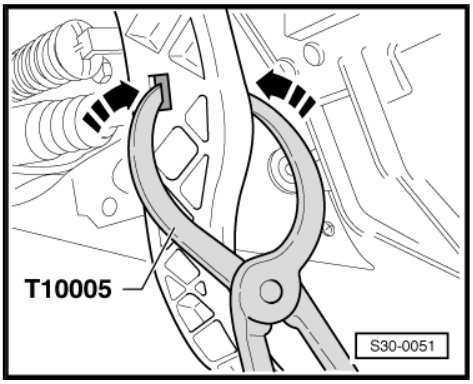
– Remove crash strut (if present)
⇒ “1.2 Removing and installing the crash strut for the clutch pedal (Fabia II 2007 ►; Roomster 2006 ►)”, page 14 .

– Remove clutch pedal switch - F36-
⇒ “1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)”, page 10 -Pos. 7-, if provided.

Note

To remove the master cylinder completely remove the clutch control. Before removing first separate the master cylinder from the clutch pedal.

Unlock the actuating rod/master cylinder from the clutch pedal as follows:



– Pull clutch pedal slightly into the passenger compartment.

– Insert pliers - T10005- in the clutch pedal recesses.

– Press together both sides of the support inwards using the pliers - T10005- -arrows- and separate the clutch pedal from the master cylinder.

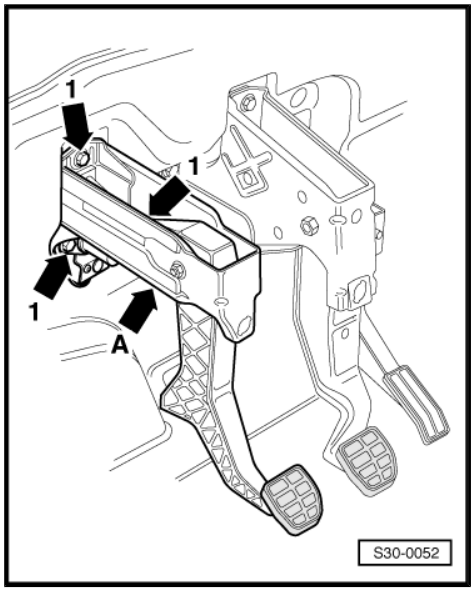
– Removing the over-centre helper spring
⇒ “1.3 Removing and installing the over-centre helper spring (Fabia II 2007 ►; Roomster 2006 ►)”, page 14 .

– Remove the bearing/over-centre helper spring from the bracket.

– Unscrew the nuts -arrows 1- and remove the bracket -arrow A- together with the master cylinder.

– Unscrew pedal stop ⇒ “1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)”, page 10 ,-Pos. 19-.

– Remove the master cylinder.



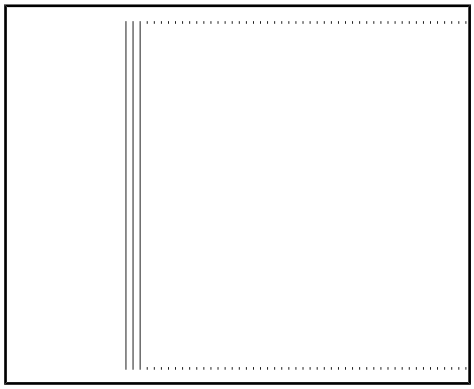
Install

Installation is performed in the reverse order, pay attention to the following points:

– Insert the bearing for over-centre helper spring in the bracket.

– The support -A- must be located on the actuating rod -B- of the master cylinder.

– To click in the support -A-, press the clutch pedal towards the front wall in -direction of arrow-. While doing so, make sure it catches correctly in the support.



– Install clutch pedal switch - F36- ⇒ “1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)”, page 10 -Pos. 7-.

– Install crash strut (if present) ⇒ “1.2 Removing and installing the crash strut for the clutch pedal (Fabia II 2007 ►; Roomster 2006 ►)”, page 14 .

– Install the storage area on the driver's side ⇒ Body Work; Rep. gr. 70 .

– After installing the master cylinder bleed the clutch control ⇒ “1.20 Bleeding the clutch control ”, page 54 .

Tightening torques

Bracket/clutch pedal to front wall 1)	⇒ “1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)”, page 10 , -Position 6-
Master cylinder to front wall 1)	⇒ “1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)”, page 10 , -Position 13-
Clutch pedal to bracket 1)	⇒ “1.1 Summary of components - foot controls (Fabia II 2007 ►; Roomster 2006 ►)”, page 10 , -Position 20-

1) Replace self-locking nut.

1.18 Removing and installing the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid 2011 ►; Rapid NH)

Special tools and workshop equipment required

- Pliers - T10005-
- Polycarbamide grease - G 052 142 A2-

Removing

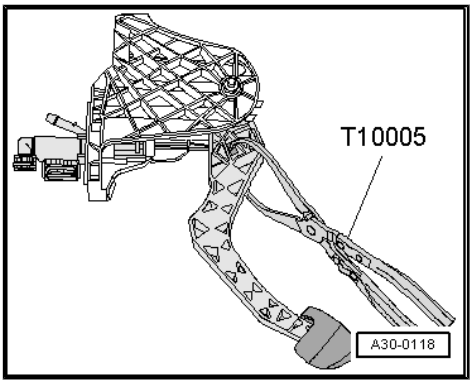
Removing bearing bracket with the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH 2013 ►)

⇒ “1.7 Removing and installing the bracket with the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)”, page 27 .

Removing bearing bracket with the master cylinder (Rapid 2011 ►)
⇒ “1.8 Removing and installing the bracket with the master cylinder (Rapid) ”, page 30 .

– Unlock the clutch pedal from the master cylinder with the pliers - T10005- .

– Remove master cylinder from mounting bracket.

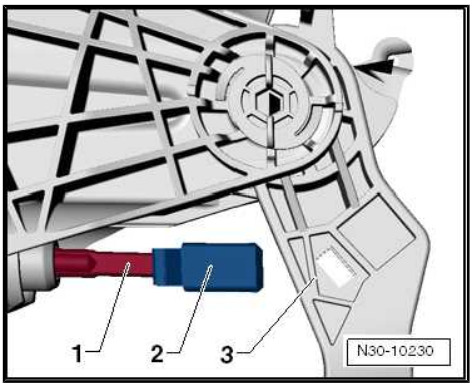


Install

– Insert the master cylinder in the bracket.

– The bracket -2- must be located on the actuating rod -1-.

– Press the support -2- into the recess on the clutch pedal -3- until it clicks audibly into place.



Installing bearing bracket with the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH 2013 ►)
⇒ “1.7 Removing and installing the bracket with the master cylinder (Fabia II 2011 ►; Roomster 2011 ►; Rapid NH)”, page 27 ,
(Rapid)
⇒ “1.8 Removing and installing the bracket with the master cylinder (Rapid) ”, page 30 .

1.19 Removing and installing the slave cylinder

Special tools and workshop equipment required

- Hose clamp - MP7-602 (3094)-
- Grease - G 000 100-

Note

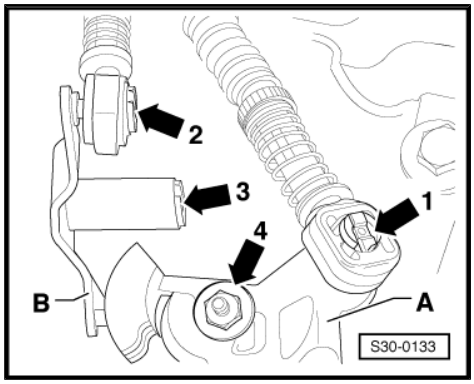
- *If the slave cylinder must be replaced due to a predetermined fault, first of all check the hydraulic clutch control ⇒ “1.16 Check hydraulic clutch control”, page 47 .*
- *If the slave cylinder with the connected tube-hose line is removed from the gearbox, do no longer depress the clutch pedal. Otherwise, the piston can be pressed out of the slave cylinder and thus be destroyed.*
- *When performing the following work, make sure no brake fluid comes into contact with the gearbox. If this is the case, these points must be cleaned thoroughly.*

Removing

Note

If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

- Disconnect the battery-earth strap with the ignition off ⇒ Electrical System; Rep. gr. 27 .
- Remove engine cover ⇒ engine; Rep. gr. 10 .
- Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .
- Remove air filter ⇒ Engine; Rep. gr. 23 .
- Remove lock washer -arrow 1- for shift cable from gearbox shift lever -A-.



Vehicles Fabia II and Roomster up to 05.07 and Rapid (metal relay lever)

- Remove circlip -arrow 2- for selector cable from relay lever -B-.
- Remove selector cable and shift cable from the studs.
- Detach circlip -arrow 3- from the relay lever -B- and remove relay lever.

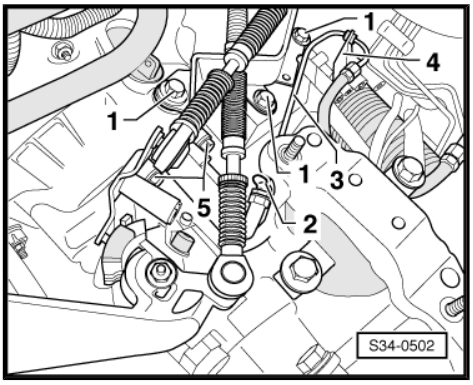
Vehicles Fabia II and Roomster as of 06.07 and Rapid NH (plastic relay lever)

- Pull off shift cable from the stud.
- Remove relay lever together with cable lock ⇒ “1.9 Plastic relay lever as of 06.07 (Fabia II, Roomster, Rapid NH)”, page 77 .

Continued for all vehicles

- Remove the gearshift lever -A-, for this step unscrew nut -arrow 4-.

– Disconnect the Bowden cable support from gearbox -arrows-.
– Tie up shift cable and selector cable.
– Place a non-fluffing cloth under the slave cylinder.
– Pull retaining clip -2- for tube-hose line out of the slave cylinder up to the stop.
– Then pull the tube-hose line -3- out of the slave cylinder and close openings.
– Pull the tube-hose line -3- out of the bracket -4-, if present, on the gearbox.
– Unscrew the screws -5- for the slave cylinder and remove the slave cylinder.



Install

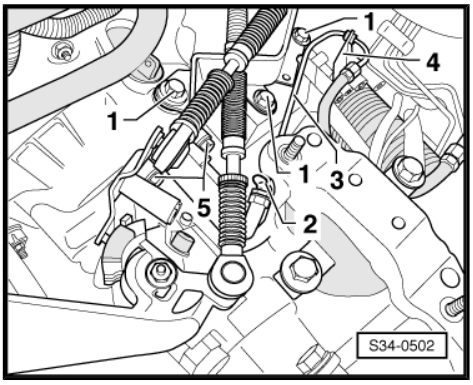
Installation is performed in the reverse order, pay attention to the following points:

– Grease tappet head with grease for plug serration of clutch disc - G 000 100 - .

Note

- *Replace damaged gasket rings.*
- *Assign all the components via the ⇒ Electronic Catalogue of Original Parts .*

– Screw the slave cylinder onto the gearbox with the screws -5-.
– Insert the tube-hose line -3- into the slave cylinder up to the stop.
– Press in retaining clip -2- up to the stop.
– Press the tube-hose line into the bracket -4-, if present, at the gearbox.
– After installing the slave cylinder bleed the clutch control ⇒ “1.20 Bleeding the clutch control ”, page 54 .
– Installing Bowden cable support, relay lever and gearshift lever.



For vehicles Fabia II and Roomster and Rapid NH
⇒ “1.10 Remove and install shift mechanism (Fabia II, Roomster, Rapid NH)”, page 79

For vehicles Rapid
⇒ “1.11 Removing and installing shift mechanism (Rapid) ”, page 84

– Setting the shift mechanism
⇒ “1.12 Setting the shift mechanism”, page 86
– Install air filter ⇒ Engine; Rep. gr. 23 .
– Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .
– Connect earth strap of battery ⇒ Electrical System; Rep. gr. 27 .

Tightening torque

Component	Tightening torque
Slave cylinder to gearbox	Fabia II, Roomster, Rapid NH ⇒ “1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH) ”, page 41 -Position 12- Rapid ⇒ “1.15 Summary of components - Hydraulic (Rapid) ”, page 44 -Position 20-
bracket for tube-hose line	Fabia II, Roomster, Rapid NH ⇒ “1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH) ”, page 41 -Position 12- Rapid ⇒ “1.15 Summary of components - Hydraulic (Rapid) ”, page 44 -Position 20-
Cable support to gearbox	⇒ “1.8 Summary of components - Control cables”, page 74
Gearbox shift lever to gearbox	⇒ “1.8 Summary of components - Control cables”, page 74

1.20 Bleeding the clutch control

Special tools and workshop equipment required

- Brake filling and bleeding device , e. g. -VAS 5234-

Note

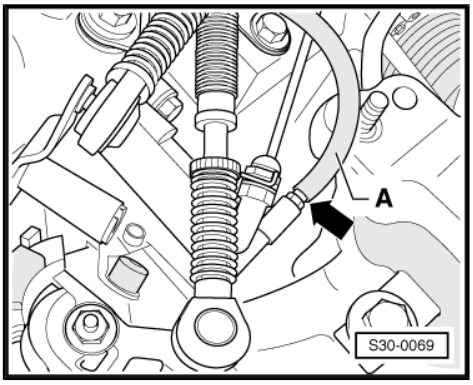
- *If the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .*
- *During the following work, ensure that no brake fluid lands on longitudinal member or gearbox.*
- *A pre-filling of the system is not necessary!*

Brake fluid specification ⇒ Chassis; Rep. gr. 00 .

– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .
– Remove air filter ⇒ Engine; Rep. gr. 23 .
– Connect brake filling and bleeding device , e. g. -VAS 5234- .

To bleed use bleeder hose .

– Connect the ventilation hose with the drip bottle of the brake bleeding device.

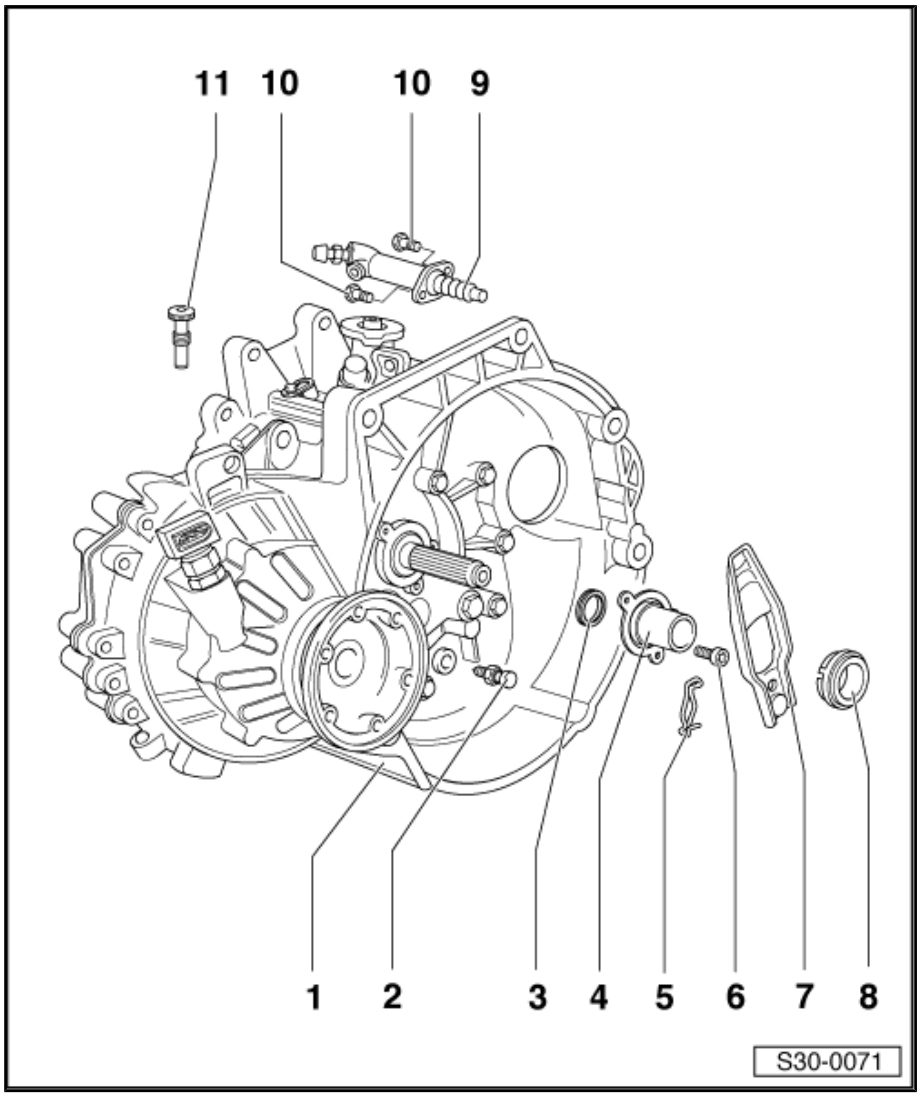


- Insert the bleeder hose on the slave cylinder -arrow- and open the vent valve.
- Activate system with a pressure of 0.2 MPa (2 bar).
- Allow approx. 100 cm^3 of brake fluid to flow out until no more air bubbles are visible.
- Close vent valve.
- Press clutch pedal forcefully from stop to stop between 10 and 15 times.
- Open vent valve.
- Activate system with a pressure of 0.2 MPa (2 bar).
- Allow another approx. 100 cm^3 of brake fluid to flow out.
- Close vent valve.
- After completing the bleeding procedure activate the clutch pedal repeatedly.
- If necessary, bleed the clutch control once again ⇒ “1.20 Bleeding the clutch control ”, page 54 .
- Separate brake filling and bleeding device , e.g. -VAS 5234- .
- Install air filter ⇒ Engine; Rep. gr. 23 .
- Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .

2 Repairing the clutch release mechanism

Special tools and workshop equipment required

- Grease for plug serration of clutch disc - G 000 100-
- Sealing grease - G 052 128 A1-



1 - Gearbox

2 - Ball stud, 25 Nm

- ❑ remove previous grease from the contact surface of the release lever
- ❑ grease with grease for plug serration of clutch disc - G 000 100-

3 - Gasket ring for drive shaft

- ❑ fitted in guide bushing Pos. 4
- ❑ Renew. ⇒ “5 Repairing gearbox housing and clutch housing”, page 151 .
- ❑ Fill half the space between the sealing lips and dust lips with sealing grease - G 052 128 A1-

4 - Guide bushing

- ❑ with vulcanized O-ring
- ❑ if O-ring is damaged, replace guide bushing together with O-ring ⇒ “5 Repairing gearbox housing and clutch housing”, page 151
- ❑ for removal, remove clutch release lever Pos. 7
- ❑ grease in the area of the clutch release lever with grease for plug serration of clutch disc - G 000 100 -

5 - Retaining spring

- ❑ attach to clutch release lever

6 - 20 Nm

7 - Clutch release lever

- ❑ remove and install ⇒ page 57 together with clutch release bearing Pos. 8
- ❑ remove previous grease from the contact surface of the clutch release lever
- ❑ Grease contact point on the ball stud with grease for plug serration of clutch disc - G 000 100-

8 - Release bearing

- ❑ Do not wash the bearing, just wipe clean
- ❑ replace noisy bearings
- ❑ removing and installing ⇒ page 57

- ❑ Grease contact point on the clutch release lever with grease for plug serration of clutch disc - G 000 100 -

9 - Slave cylinder

- ❑ removing and installing ⇒ “1.19 Removing and installing the slave cylinder”, page 51
- ❑ Grease tappet head with grease for plug serration of clutch disc - G 000 100-

10 - 20 Nm

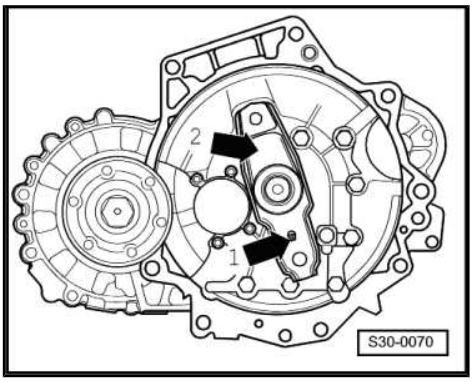
11 - Mounting bolt

- ❑ secures the clutch release lever when installing the gearbox ⇒ “2.5 Installing the gearbox”, page 120
- ❑ unscrew after the gearbox has been installed ⇒ “2.5 Installing the gearbox”, page 120

Note

If a mounting bolt is not provided, use bolt M8 x 35.

Remove and install clutch release lever with release bearing



Removing

– Unhook spring -arrow 1- upwards.

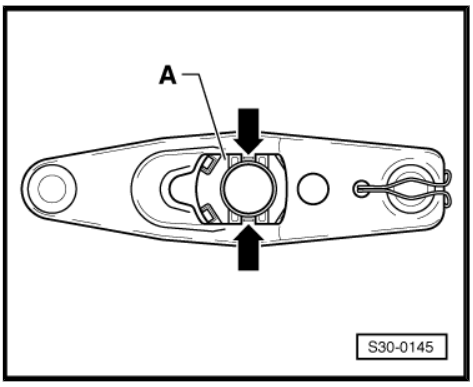
– Remove clutch release lever -arrow 2- from ball stud.

Install

– First mount spring -arrow 1- on the clutch release lever.

– Press clutch release lever -arrow 2- onto the ball stud.

Removing and installing the release bearing



– Press the catch pegs -arrows- together on the rear side of the clutch release lever and remove the release bearing -A- from the clutch release lever.

– To install, press the release bearing -A- into the clutch release lever until the catch pegs -arrows- lock into position.

3 Repairing clutch

Fault finding of power transmission - problems with the clutch and clutch control
⇒ “3.1 Fault finding power transmission - problems with the clutch and clutch control”, page 60

Special tools and workshop equipment required

- Counterholder - MP1-223 (3067)-
- Centering mandrel - MP3-475A (3190A)-
- Grease for plug serration of clutch disc - G 000 100-

(Gearbox removed)

Note

- *Observe the fault finding of the power transmission before replacing the clutch disc and the pressure plate - problems with the clutch and clutch control*
  ⇒ “3.1 Fault finding power transmission - problems with the clutch and clutch control”, page 60 .
- *Replace the clutch discs and pressure plates if the riveting is damaged or loose.*
- *Assign the clutch disc and pressure plate in accordance with engine identification characters ⇒ Electronic Catalogue of Original Parts .*
- *In order to reduce unpleasant odours if the clutch is burnt, thoroughly clean the clutch housing as well as the flywheel and the engine on the side of the gearbox.*
- *Clean the drive shaft serration and hub serration on used clutch discs, remove corrosion. Apply a very thin layer of grease for plug serration of clutch disc - G 000 100 - onto the serration. Subsequently move the clutch disc up and down on the drive shaft until the hub fits smoothly on the shaft. Remove all excess grease.*
- *The pressure plates are protected against corrosion and are greased. Only clean the thrust surface as otherwise the life of the clutch may be considerably reduced.*
- *The thrust surface of the pressure plate and the clutch disc lining must fully rest against the flywheel before the screws are installed. Only then may the fixing screws be inserted.*

1 - Flywheel

- ❑ make sure the centering pins are tight
- ❑ The locating face for the clutch lining must be free from grooves, oil and grease
- ❑ Removing and Installing ⇒ Engine; Rep. gr. 13

2 - Clutch disc

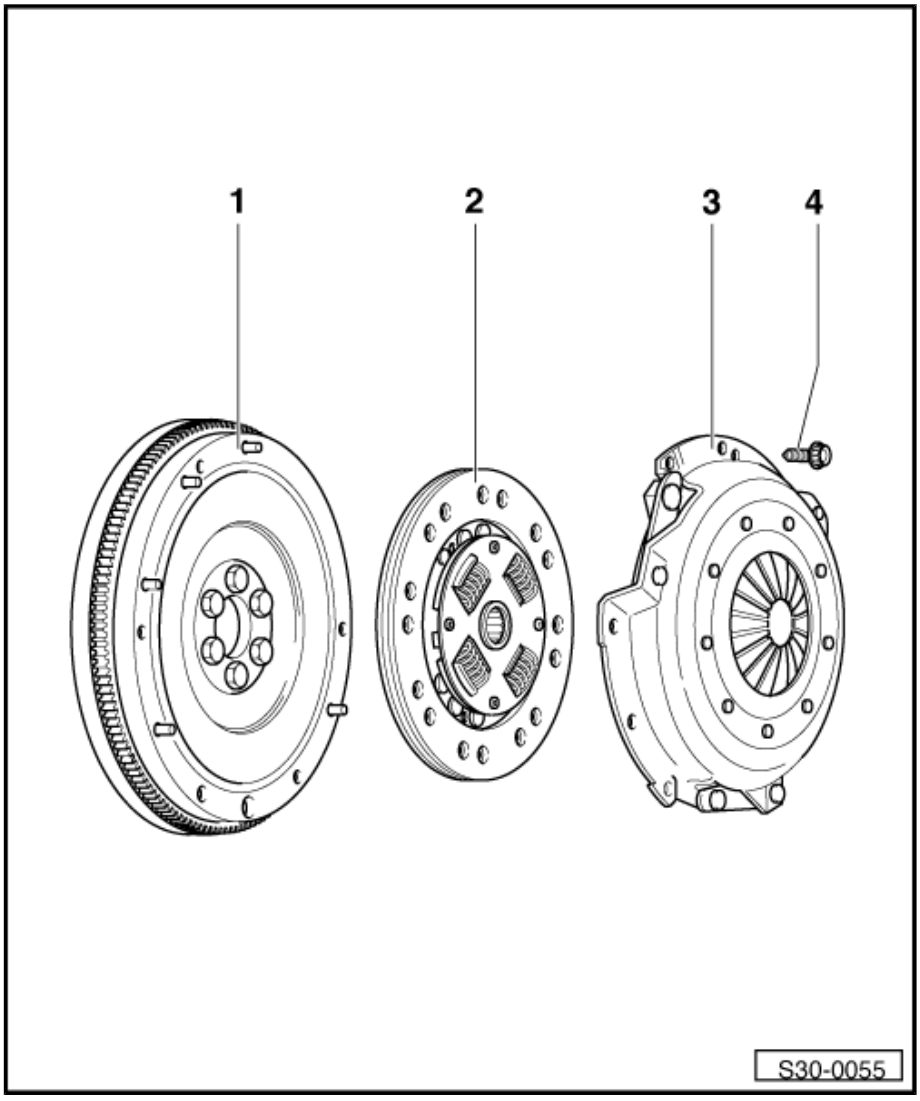
- ❑ Diameter ⇒ Electronic Catalogue of Original Parts
- ❑ Installation position for basic flywheel: The spring cage points towards the pressure plate
- ❑ Fitting position for two-mass flywheel ⇒ page 60
- ❑ center ⇒ page 59
- ❑ slightly grease the serration

3 - Pressure plate

- ❑ removing and installing ⇒ page 59
- ❑ Check the extremities of the membrane springs ⇒ page 60
- ❑ Check feather joints and riveted joints ⇒ page 60

4 - Screw M6-13 Nm; screw M7-20 Nm

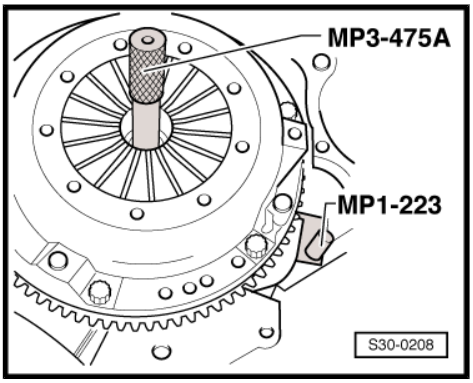
- ❑ Assignment ⇒ Electronic Catalogue of Original Parts
- ❑ loosen or tighten gradually and crosswise



Center the clutch disc and remove and install the pressure plate

– Release and tighten screws gradually and crosswise.

– When removing and installing, use counterholder - MP1-223 (3067)- .

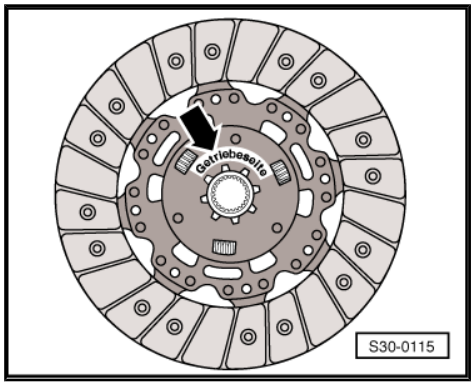


Note

- ♦ *The thrust surface of the pressure plate and the clutch disc lining must fully rest against the flywheel before the screws are installed.*
- ♦ *Tighten the screws crosswise so as not to damage the centering holes and the centering pins of the flywheel.*

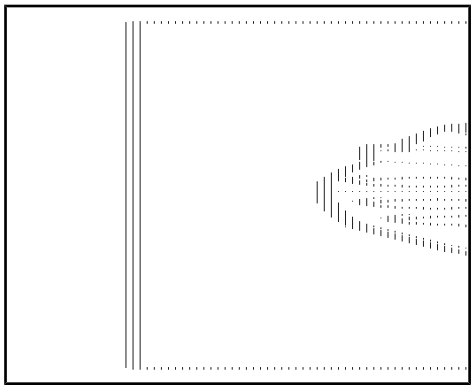
Fitting position of clutch disc in connection with two-mass flywheel

- Legend “side of gearbox” -arrow- points to the gearbox.



Check the extremities of the membrane spring

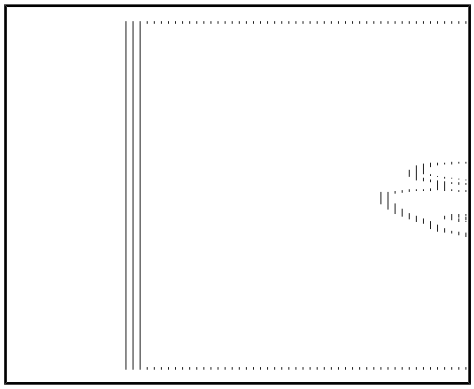
- Wear is allowed up to half the membrane spring thickness.



Check feather joints and riveted joints

– Check the feather joints between pressure plate and cover for cracks as well as the riveted joints for firm seating.

- Pressure plate with damaged feather joints or with loose riveted joints -arrows- must be replaced.



3.1 Fault finding power transmission - problems with the clutch and clutch control

Note

Check hydraulic clutch control
⇒ “1.16 Check hydraulic clutch control”, page 47 .

Always check the fault mentioned by the customer first before repairing the clutch. During this procedure, it must be determined if indeed there is a fault of the clutch or if the cause is only an incorrect setting of the shift mechanism.

Complaint	Fault type	Measure
Clutch pedal does not return to initial position.	♦ Air in line system.	– Vent air from the line system; top up with brake fluid.
	♦ Line system, master or slave cylinder leaking.	– Replace defective part, vent air from the line system; top up with brake fluid.

Complaint	Fault type	Measure
	♦ Release bearing on the guide bushing is tilted, seizured.	– Replace guide bushing and release bearing.
	♦ Membrane spring of the pressure plate broken.	– Replace pressure plate.

Complaint	Fault type	Measure
Actuating force on the clutch pedal too high.	♦ Over-centre helper spring defective.	– Replace over-centre helper spring.
	♦ Clutch release force increased due to wear of clutch linings.	– Inform customer (higher release force with increased wear). – Replace clutch disc, when the distance base/rivet is below 0.1 mm.
	♦ Release bearing on the guide bushing is tilted, seizured.	– Replace defective components.
	♦ Pressure plate with wrong spring identification.	– Assign pressure plate via the ⇒ Electronic catalogue of original parts .
	♦ Mechanical fault of the pressure plate/clutch disc.	– Replace defective components.
	♦ Clutch disc on the serration sluggish/jams.	– Check serration of the hub for damage (burrs), if necessary replace clutch disc. – Clean the hub and the drive shaft from corrosion and grease with grease for plug serration of clutch disc - G 000 100- . Move clutch disc back and forth, remove excess grease.

Complaint	Fault type	Measure
Noises when operating the clutch pedal.	♦ Release bearing defective, guide bushing is not O.K, contact surface worked-in.	– Always replace noisy release bearings. – Replace damaged guide bushing.
	♦ The contact surface of the pressure plate is defective (the tips of the membrane spring are kinked, bent). Release bearing is off-center.	– Replace pressure plate. – Check release bearing, guide bushing, replace if necessary. – Check adjustment of clutch release lever. – Check dowel sleeves.
	♦ Centre displacement of engine/gearbox.	– Check dowel sleeves.
	♦ Clutch disc incorrectly installed.	– Correct installation.

Complaint	Fault type	Measure
	♦ Wrong clutch disc installed.	– Assign clutch disc via the ⇒ Electronic catalogue of original parts .

Complaint	Fault type	Measure
Rattling, scratching occurs when the forward or reverse gear is engaged, gearschift jams, is sluggish, shifting is not possible, clutch without operation.	♦ Air in the system, clutch does not separate fully.	– Bleed system; check system, top up with brake fluid.
	♦ Master cylinder or slave cylinder is leaking, line is leaking.	– Replace defective component, top up with brake fluid, vent air from the line system.
	♦ The travel of the clutch pedal is not sufficent (carpet, foot mat under the foot controls), clutch is not fully depressed.	– Inform customer.
	♦ Pressure plate uneven due to incorrect installation, clutch disc warped due to improper handling.	– Check components, if necessary replace, make sure the centering pins are correctly fitted. – If afterwards scratching still occurs, check the serration of the clutch disc on the drive shaft for ease of movement, if necessary carry out gearbox repair.
	♦ Tips of membrane spring broken or bent (assembly fault, release bearing moves off-center).	– Replace pressure plate. – Check release bearing, guide bushing, replace if necessary. – Check dowel sleeves.
	♦ Clutch disc too thick.	– Assign clutch disc via the ⇒ Electronic catalogue of original parts .
	♦ Lining glued to the flywheel (long immobilization time, high humidity).	– Slightly rub down friction surfaces of the clutch linings or replace completely the severely corroded parts.
	♦ Clutch disc on the serration sluggish/jams. Corroded hub, damaged during assembly. Hub profile knocked out on one side.	– Check serration of the hub for damage, if necessary replace clutch disc. – Remove corrosion and traces of grease from hub and shaft. Grease shaft with grease for plug serration of clutch disc - G 000 100 - . – Move clutch disc back and forth, remove excess grease. – Check position of dowel sleeves on knocked out hub profile. – Check release bearing, guide bushing and pressure plate, replace if necessary.
	♦ Lifting of pressure plate too low (wrong pressure plate installed).	– Assign pressure plate via the ⇒ Electronic catalogue of original parts .

Complaint	Fault type	Measure
	♦ Displacement of engine/gearbox too large (dowel sleeves missing), support panel of clutch plate bent through this.	– Insert dowel sleeves before gearbox has been fitted. – Check clutch disc and pressure plate for damage, if necessary replace.
	♦ The lining is spalled off because of too high revs (shift back into lower gears during high speeds). ♦ When starting, linings are spalled off through slipping for too long a time.	– Replace clutch disc. Inform customer.

Complaint	Fault type	Measure
Load change jolts when throttle is depressed and sudden reduction of the engine speed.	♦ Assembly bearing is too soft.	– Inform customer. Assign hanger via the ⇒ Electronic Catalogue of Original Parts
	♦ Irregular engine running.	– Check engine setting, correct.
	♦ Clutch disc with predamper is built in against gear rattling.	– Inform customer.
	♦ Centre displacement of engine/gearbox.	– Test dowel sleeves, replace if necessary.

Complaint	Fault type	Measure
Clutch slips through, no or bad pre-drive.	♦ Wrong clutch disc, wrong pressure plate installed.	– Assign the clutch disc and pressure plate via the ⇒ Electronic catalogue of original parts .
	♦ Cutch disc is worn out, burnt, pressure plate overheated, scoring, pressure plate warped through incorrect assembly, contact pressure of the pressure plate too low, driving error, natural wear.	– Replace clutch disc. – Replace pressure plate. – Inform customer.
	♦ Clutch disc, pressure plate, flywheel oily. Shaft seal of the engine or the drive shaft defective. Grease on the contact surface through excess greasing of the hub.	– Replace clutch disc. – Clean contact surfaces of pressure plate and flywheel. – Replace shaft seal, remove excess grease from the drive shaft.
	♦ Clutch disc incorrectly installed.	– Correct installation, check clutch disc, replace if necessary.
	♦ Flywheel depth too large or excessive abrasion on the contact surface of the lining.	– Assign the sealing flange via the ⇒ electronic catalogue of original parts . – Inspect clutch disc, pressure plate, replace if necessary.
	♦ Slave cylinder leaking.	– Replace slave cylinder.

Complaint	Fault type	Measure
Clutch grabbing, unit shaking.	♦ Air in the system.	– Bleed system, check brake fluid level, check system for tightness. – Replace defective part.
	♦ Engine does not run clean.	– Check engine setting, correct.
	♦ Driving error, speed too low when starting.	– Inform customer.
	♦ Wrong clutch disc installed.	– Assign clutch disc via the ⇒ Electronic catalogue of original parts .
	♦ Assembly bearing too soft, knocked out.	– Assign the assembly bracket via the ⇒ Electronic catalogue of original parts .
	♦ Clutch lining, contact surface of pressure plate and flywheel oily (oil leakage from the clutch housing).	– Check shaft seal of drive shaft or crankshaft, if necessary replace. – Replace clutch disc, clean pressure plate and flywheel.
	♦ Release bearing is tilted on the guide bushing, seizured (presses on one side onto the membrane spring of the pressure plate).	– Replace release bearing and guide bushing. – Check control elements and bearing for control elements.
	♦ The contact surface of the pressure plate lifts off only unilaterally due to the tilted release bearing. ♦ The housing of the pressure plate was warped when installed. Contact surface of the pressure plate lifts off only unilaterally.	– Check the contact surface of the clutch lining on the flywheel, check pressure plate and membrane springs, replace pressure plate if necessary. – Replace release bearing and guide bushing.
	♦ Drive schaft too heavily greased (traces of grease on the clutch disc, pressure plate and flywheel).	– Remove grease from pressure plate and flywheel, replace if damaged (traces of wear, traces of overheating, grooves). – Remove traces of grease from hub and shaft, grease shaft with grease for plug serration of clutch disc - G 000 100 - . – Move clutch disc back and forth, remove excess grease.

Complaint	Fault type	Measure
Acoustic knock »klack« when coupling.	♦ Carrier earth/drive shaft is accelerated with sudden coupling. The drive shaft serration of the pinions in mesh knocks; for clutch discs with predamper the noise increases as the predamper reaches the stop.	– Inform customer.

Complaint	Fault type	Measure
Noises in idle.	♦ Torsional damper spring broken.	– Replace clutch disc.
	♦ Clutch disc without predamper installed (idle rattling).	– Assign clutch disc via the ⇒ Electronic catalogue of original parts .
	♦ Pressure plate warped, broken, imbalance.	– Replace pressure plate.
	♦ Irregular engine running.	– Check engine setting, correct if necessary.
	♦ Displacement of engine/gearbox too large (dowel sleeves missing).	– Insert dowel sleeves before gearbox has been fitted.
	♦ Intermediate plate grinds at flywheel.	– Insert intermediate plate on sealing flange and push onto the dowel sleeves.

34 – Controls, housing

1 Shift mechanism

1.1 Fitting location of shift mechanism

-Arrow A- Shift movement

-Arrow B- Selector movement

A - Shift cable

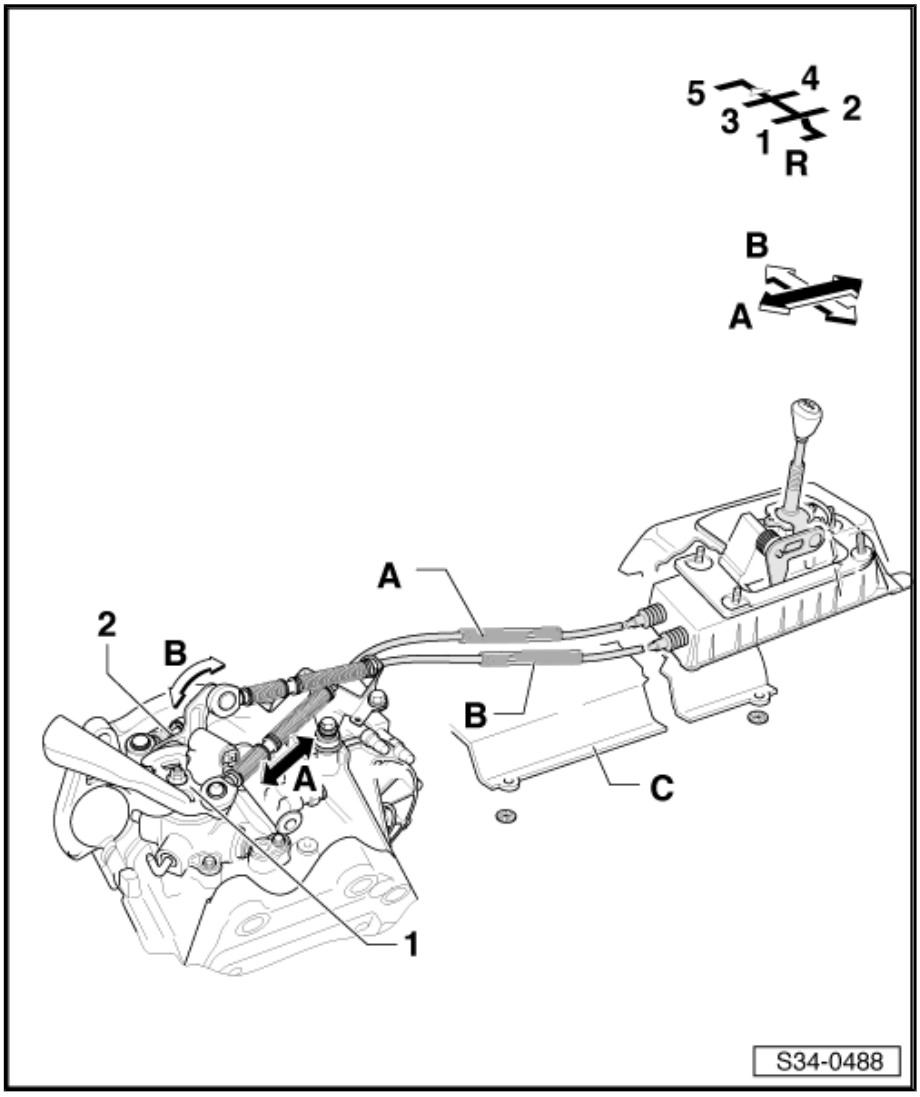
B - Selector cable

C - Heat shield

- ❑ take off before removing the shift mechanism

1 - Gearshift lever

2 - Reversing lever



1.2 Summary of components of the shift mechanism

Note

- *After the battery earth strap is disconnected and re-connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .*
- *To replace the control cables, remove the shift mechanism (Fabia II, Roomster, Rapid NH) ⇒ "1.10 Remove and install shift mechanism (Fabia II, Roomster, Rapid NH)", page 79 , (Rapid) ⇒ "1.11 Removing and installing shift mechanism (Rapid) ", page 84 .*
- *Do not kink the control cables.*

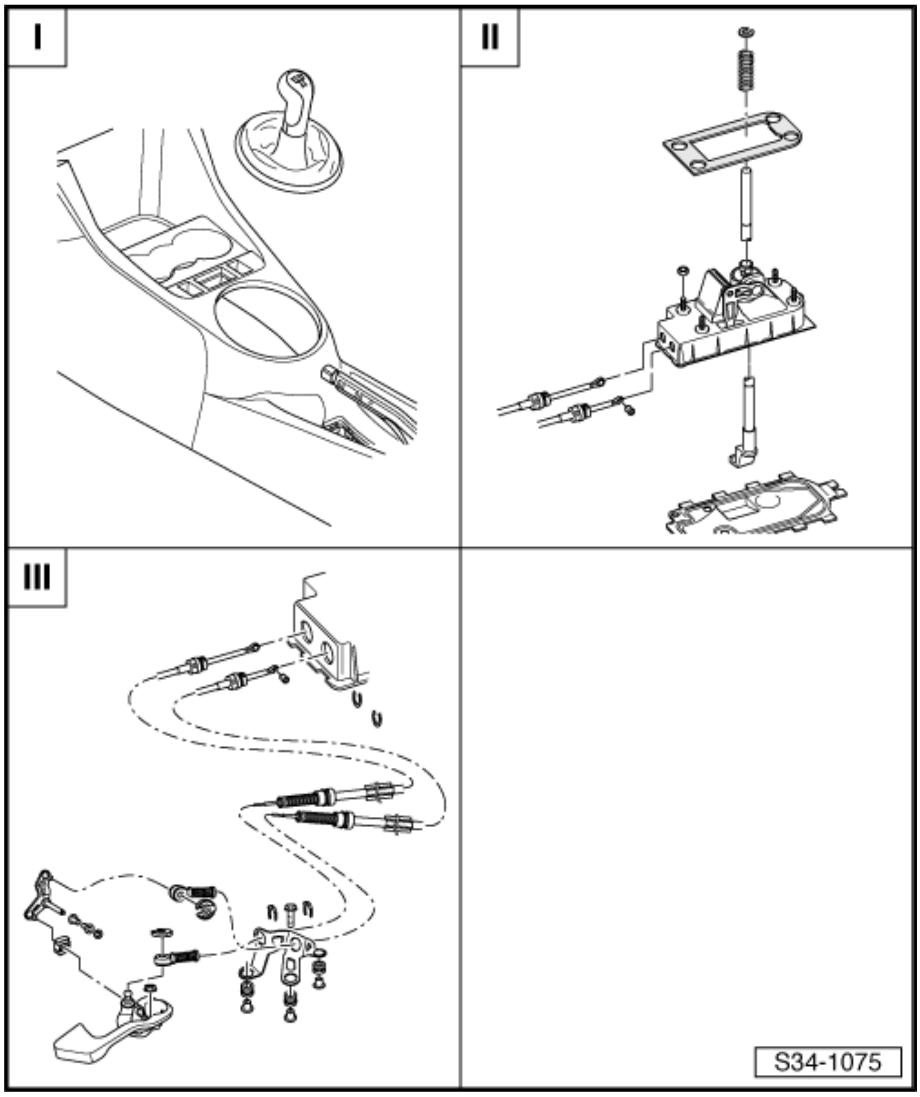
I - Summary of components - Gearshift knob and cover
⇒ "1.3 Summary of components - gearshift knob and cover", page 69

II - Summary of components - Shift lever and shift housing
⇒ "1.7 Summary of components - Shift lever and shift housing", page 72

III - Summary of components - Control cables
⇒ "1.8 Summary of components - Control cables", page 74

Removing and installing shift mechanism (Fabia II, Roomster, Rapid NH)
⇒ "1.10 Remove and install shift mechanism (Fabia II, Roomster, Rapid NH)", page 79 , (Rapid)
⇒ "1.11 Removing and installing shift mechanism (Rapid) ", page 84

Setting the shift mechanism
⇒ "1.12 Setting the shift mechanism", page 86

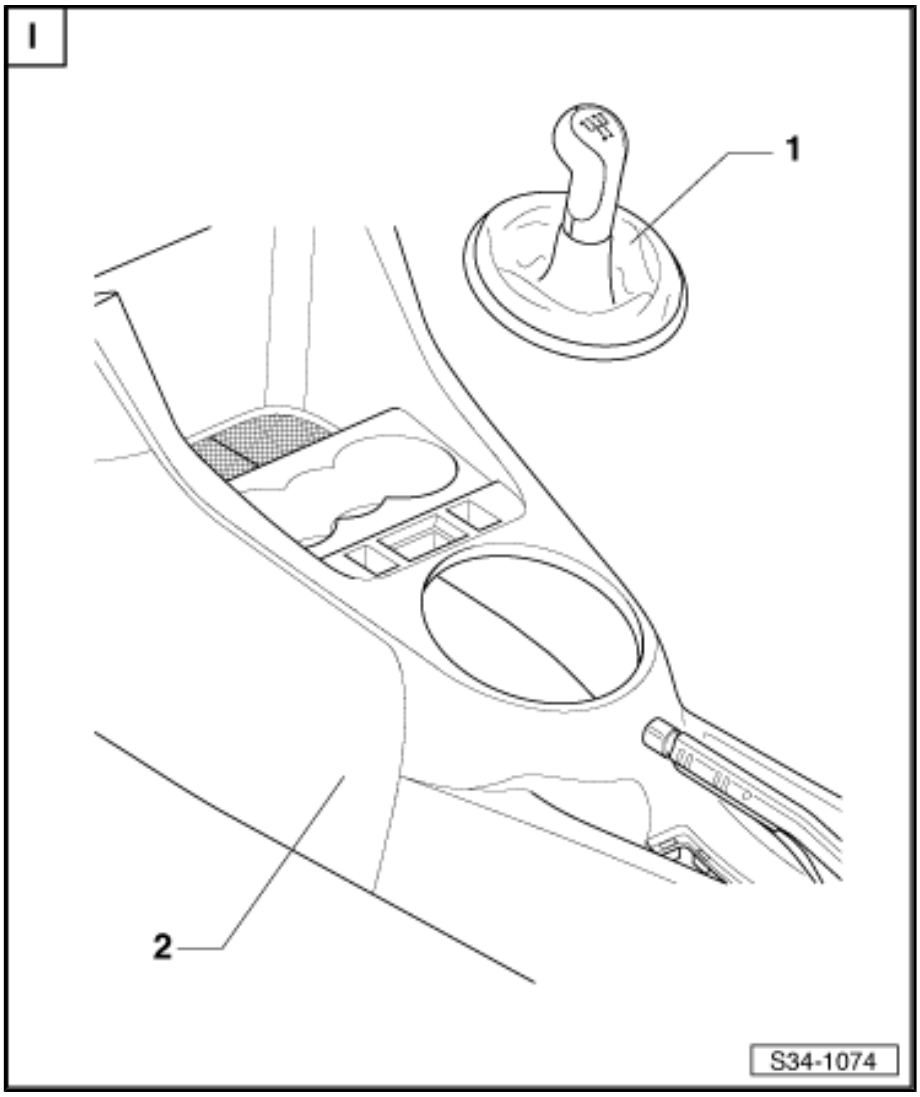


1.3 Summary of components - gearshift knob and cover

1 - Gearshift knob

- ❑ with collar
- ❑ it can be different in shape on individual models
- ❑ The gearshift knob and collar cannot be separated
- ❑ always replace together ⇒ Electronic Catalogue of Original Parts
- ❑ Removing and installing (Fabia II, Roomster) ⇒ “1.4 Separating collar from gearshift lever (Fabia II, Roomster) ”, page 69 , (Rapid) ⇒ “1.5 Separating collar from gearshift lever (Rapid)”, page 70 , (Rapid NH) ⇒ “1.6 Remove and install gearshift knob and shift lever collar (Rapid NH)”, page 72
- ❑ Plaque of gearshift lever can only be separated from the gearshift knob e.g. with a screwdriver.

2 - Centre console

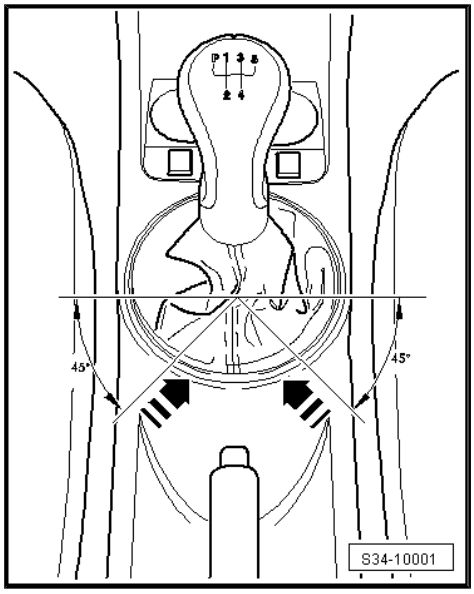


1.4 Separating collar from gearshift lever (Fabia II, Roomster)

Special tools and workshop equipment required

- ♦ Disassembly wedge - 3409-

– Lever off the collar with disassembly wedge - 3409- out of the surround of centre console in -direction of arrow-.
– Pull the collar upwards over the gearshift knob.

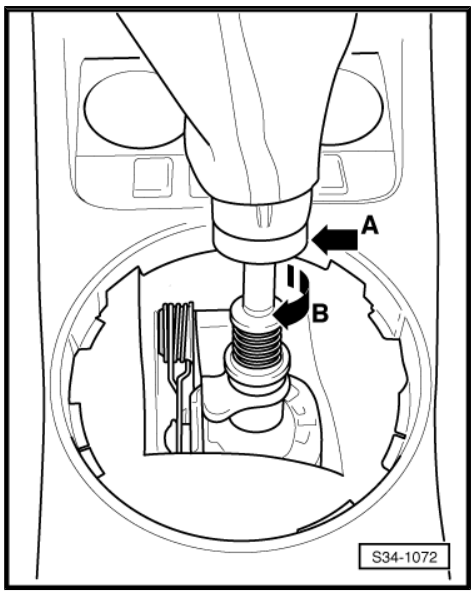


– Turn securing mechanism -arrow A- in -direction of arrow B- and pull off gearshift knob together with the collar.

Install

– Turn collar inside out.
– Position the gearshift knob together with the collar and secure with securing mechanism -arrow A- against the -direction arrow B-.

When inserting the gearshift knob on the shift lever the gearshift knob must lock into the round slot of the gearshift lever.



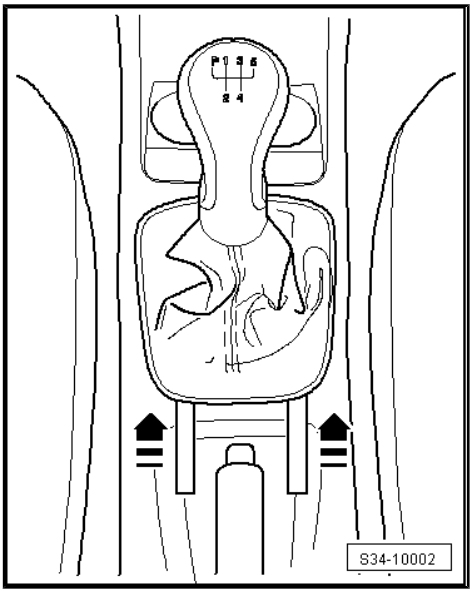
1.5 Separating collar from gearshift lever (Rapid)

Special tools and workshop equipment required

♦ Release tool - T30098-

– Lever off the collar frame with the disassembly wedge - T30098- out of the surround for the centre console in -direction of arrow-.

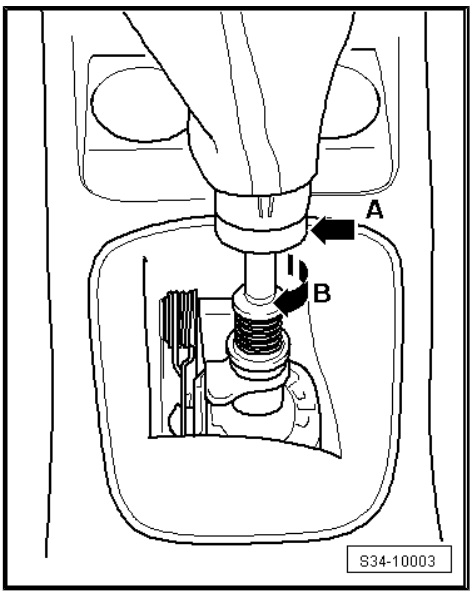
– For this step, press on the frame in -direction of arrow- and at the same time raise the frame.
– Lift off the frame.
– Pull the collar upwards over the gearshift knob.



– Turn securing mechanism -arrow A- in -direction of arrow B- and pull off gearshift knob together with the collar.

Install

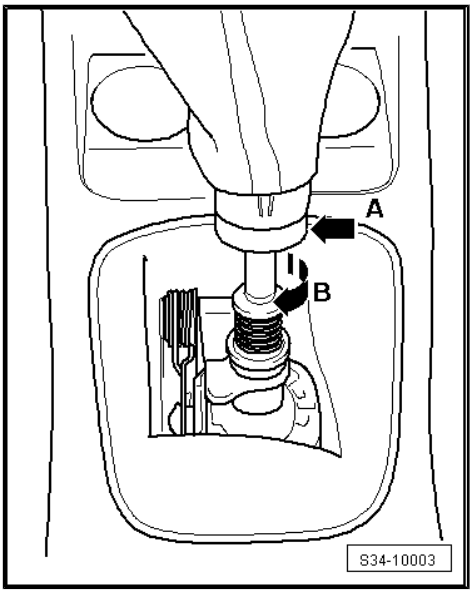
– Turn collar inside out.



– Position the gearshift knob together with the collar and secure with securing mechanism -arrow A- against the -direction arrow B-.

When inserting the gearshift knob on the shift lever the gearshift knob must lock into the round slot of the gearshift lever.

– Fit the frame with its catches into the rear part of the centre console.
– Lock the frame into the cover of the centre console in the front part.



1.6 Remove and install gearshift knob and shift lever collar (Rapid NH)

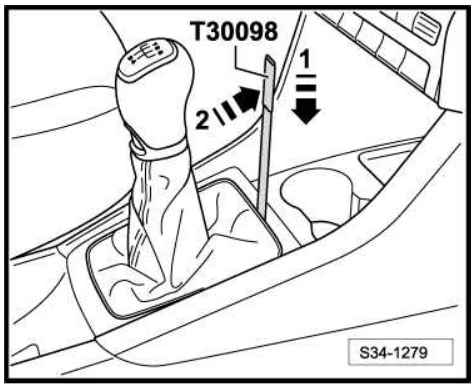
Special tools and workshop equipment required

- Release tool - T30098-
- Hose strap pliers , e.g. -V.A.G 1275 A-

– Lever the collar frame out of the centre console. To do so, fit the release tool - T30098- between the collar frame and the cover of the centre console in the middle of the front side -arrow 1- and press it forwards in -direction of arrow 2-.

– Lift off the frame.

– Pull the collar upwards over the gearshift knob.



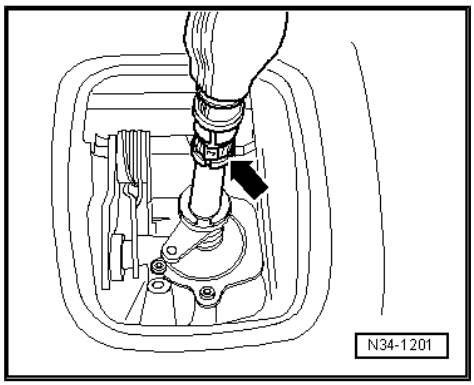
– Open clamp -arrow- and pull off gearshift knob together with the collar.

Install

– Turn collar inside out.

Note

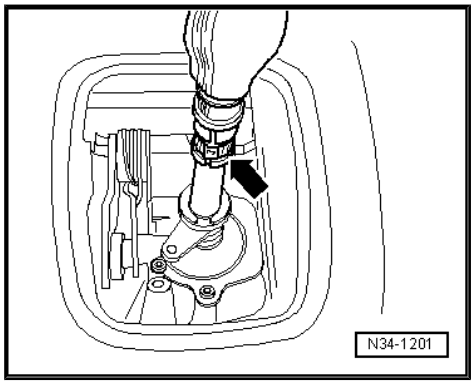
When inserting the gearshift knob on the selector lever the gearshift knob must lock up to the stop.



– Position the gearshift knob together with the collar and secure it with the new open warm-type clamp -arrow- by pressing it together.

– Fit the frame of the collar onto the catch pegs in the rear part of the centre console.

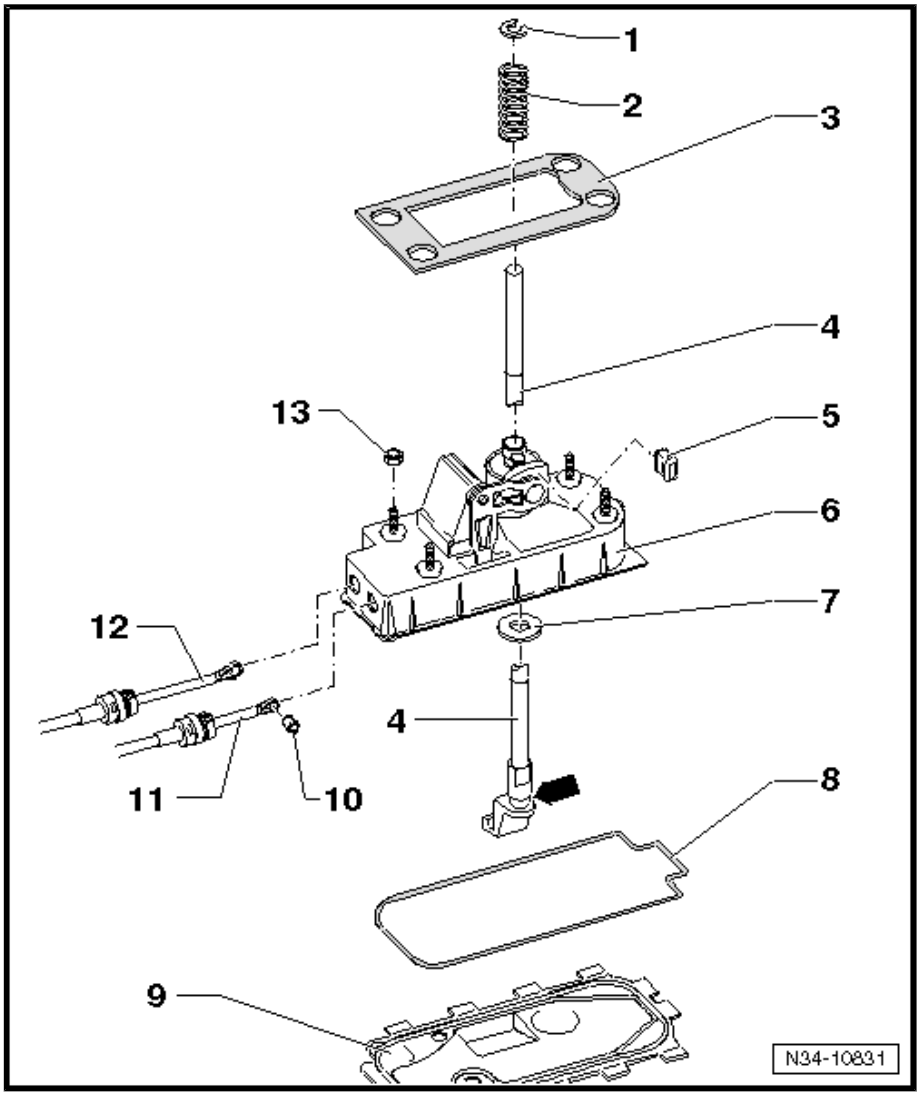
– Press the frame into the cover of the centre console until it locks in the front area.



1.7 Summary of components - Shift lever and shift housing

Note

Grease bearing and friction surfaces with grease - G 000 450 02- .



1 - Lock washer

- ❑ removing and installing ⇒ page 74

2 - Spring

3 - Gasket

- ❑ between shift housing and underbody
- ❑ self-adhesive
- ❑ stuck onto the shift housing

4 - Shift lever

5 - Damping

- ❑ removing and installing ⇒ page 74

6 - Shift housing

7 - Insulating washer

- ❑ must be present in the round slot -arrow- of the shift lever Pos. 4

8 - Gasket

- ❑ replace ⇒ Electronic Catalogue of Original Parts

9 - Floor plate

- ❑ bend up tabs for removing
- ❑ replace ⇒ Electronic Catalogue of Original Parts

10 - Bushing

- ❑ for selector cable

11 - Selector cable

- ❑ slacken from selector angle plate within the shift mechanism
- ❑ press onto selector angle plate within the shift mechanism
- ❑ Fitting position ⇒ “1.1 Fitting location of shift mechanism”, page 66
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86

12 - Shift cable

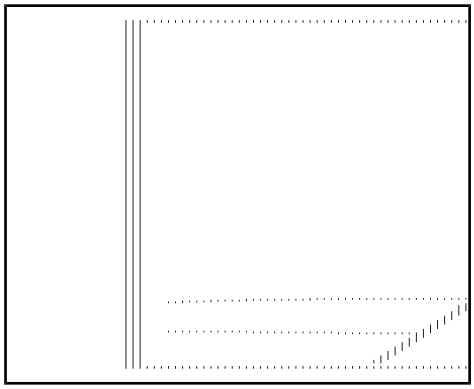
- ❑ slacken from the shift lever guide within the shift mechanism
- ❑ press onto the selector angle guide within the shift mechanism
- ❑ Fitting position ⇒ “1.1 Fitting location of shift mechanism”, page 66
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86

13 - 23 Nm

- ❑ 4 pieces

Removing and installing lock washer

– When removing and installing the circlip -A- pull the gearshift lever in the -direction of the arrow A- while simultaneously pressing the spring down with a screwdriver up to the stop in the -direction of the arrow B-. While doing so remove circlip -A-.



Note

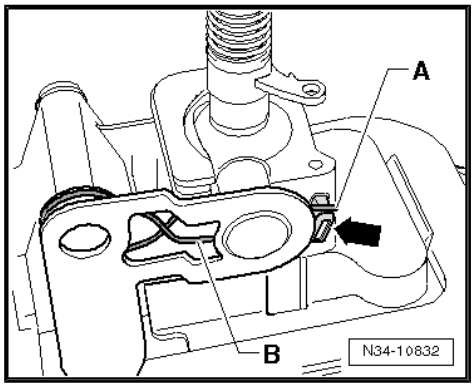
- *The mounting slot in shift lever for circlip must be visible.*
- *Release spring carefully.*

Removing and installing damping -arrow-

– Press the pressure spring leg -A- to the left until it is located next to the damping -arrow-.

– Press the shift lever to the lift and pull off the damping.

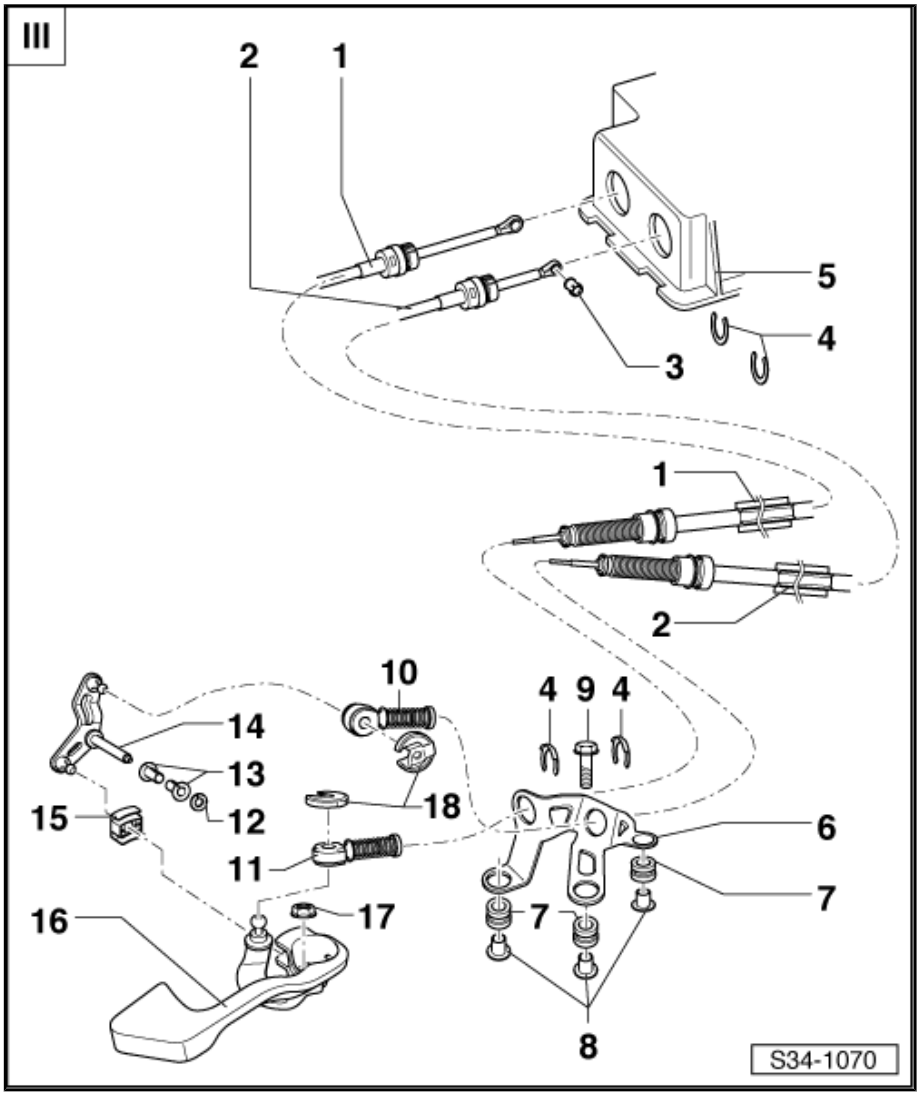
• After installing the damping, the pressure spring legs -A- and -B- must rest on the damping -arrow-.



1.8 Summary of components - Control cables

Note

Grease bearing and friction surfaces with grease - G 000 450 02- .



1 - Shift cable

- ❑ slacken from the shift lever guide within the shift mechanism
- ❑ press onto the selector angle guide within the shift mechanism
- ❑ connect with cable lock Pos. 11
- ❑ Fitting position ⇒ “1.1 Fitting location of shift mechanism”, page 66
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86

2 - Selector cable

- ❑ slacken from selector angle plate within the shift mechanism
- ❑ press onto selector angle plate within the shift mechanism
- ❑ connect with cable lock Pos. 10
- ❑ Fitting position ⇒ “1.1 Fitting location of shift mechanism”, page 66
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86

3 - Grommet

- ❑ for selector cable

4 - Lock washer

- ❑ do not damage cables when removing
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

5 - Shift housing

6 - Cable support

- ❑ out of plastic or metal

7 - Grommet

- ❑ 3 pieces
- ❑ for mounting of cable support to gearbox

8 - Spacer

- ❑ 3 pieces

9 - 20 Nm

- ❑ 3 pieces
- ❑ for cable support to gearbox

10 - Cable lock

- ❑ for selector cable at relay lever
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86

- ❑ do not interchange, cable locks for selector cable at relay lever and for shift cable at gearshift lever are different ⇒ page 77
- ❑ can be installed in tandem with the plastic relay lever (Fabia II, Roomster, Rapid NH) ⇒ “1.9 Plastic relay lever as of 06.07 (Fabia II, Roomster, Rapid NH)”, page 77
- ❑ remove from plastic relay lever (Fabia II, Roomster, Rapid NH) ⇒ “1.9.2 Remove and install cable lock for selector cable from plastic relay lever”, page 79
- ❑ press onto plastic relay lever (Fabia II, Roomster, Rapid NH) ⇒ “1.9.2 Remove and install cable lock for selector cable from plastic relay lever”, page 79
- ❑ Assignment ⇒ page 77

11 - Cable lock

- ❑ for shift cable at gearbox shift lever
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86
- ❑ do not interchange, cable locks for selector cable at relay lever and for shift cable at gearshift lever are different ⇒ page 77
- ❑ Assignment ⇒ page 77

12 - Lock washer

- ❑ always replace ⇒ Electronic Catalogue of Original Parts
- ❑ is not required, if the relay lever is made of plastic

13 - Bushings

- ❑ is not required, if the relay lever is made of plastic

14 - Reversing lever

- ❑ Fitting position ⇒ page 77
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86
- ❑ The metal relay lever is located in the bushings pos. 13 and secured with a lock washer pos. 12
- ❑ as of 06.07 the relay lever is made of plastic (Fabia II, Roomster, Rapid NH)
- ❑ Remove and install plastic relay lever together with cable lock (Fabia II, Roomster, Rapid NH) ⇒ “1.9 Plastic relay lever as of 06.07 (Fabia II, Roomster, Rapid NH)”, page 77
- ❑ if the relay lever is made of plastic, neither the bushings pos. 13 nor the lock washer pos. 12 are required (Fabia II, Roomster, Rapid NH)

15 - Sliding shoe

16 - Gearshift lever

- ❑ with balancing weight
- ❑ insert in such a way that the interrupted spacing of the teeth matches the gearshift shaft ⇒ page 77
- ❑ Fitting position ⇒ page 77
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86

17 - 20 Nm

- ❑ always replace ⇒ Electronic Catalogue of Original Parts

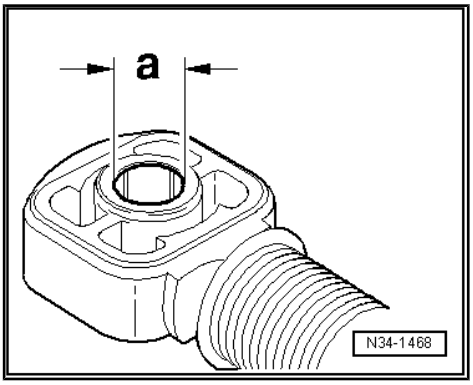
18 - Lock washer

- ❑ always replace ⇒ Electronic Catalogue of Original Parts
- ❑ is not required on cable locks for selector cable at relay lever, if relay lever is made of plastic

Assign cable locks

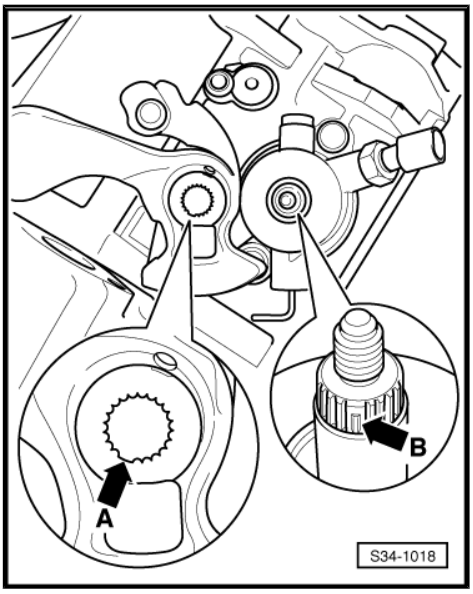
The holes in the cable locks have different diameters.

Cable lock for	Dimension “a”
Shift cable at gearbox shift lever	10 mm
Selector cable at metal relay lever	8 mm
Selector cable at plastic relay lever ⇒ “1.9 Plastic relay lever as of 06.07 (Fabia II, Roomster, Rapid NH)”, page 77	10 mm



Install gearshift lever

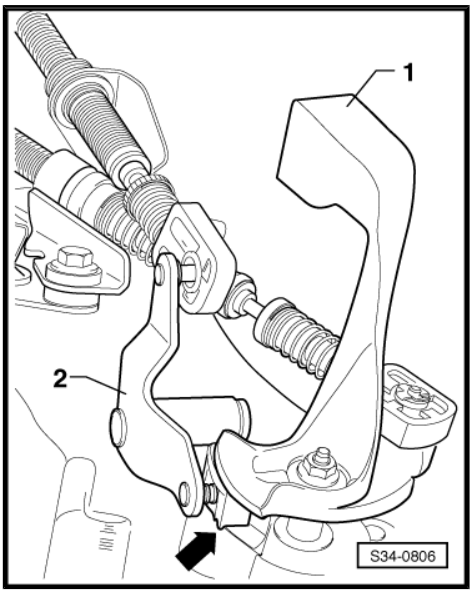
– When inserting the gearbox shift lever, make sure that the tooth opening -arrow A- is located above the interrupted spacing of the teeth -arrow B- for the gearshift shaft.



Fitting location of gearbox shift lever/relay lever

1 - Gearbox shift lever with balancing weight

2 - Relay lever is inserted over the sliding shoe -arrow- into the sliding rail of the gearbox shift lever



1.9 Plastic relay lever as of 06.07 (Fabia II, Roomster, Rapid NH)

Special tools and workshop equipment required

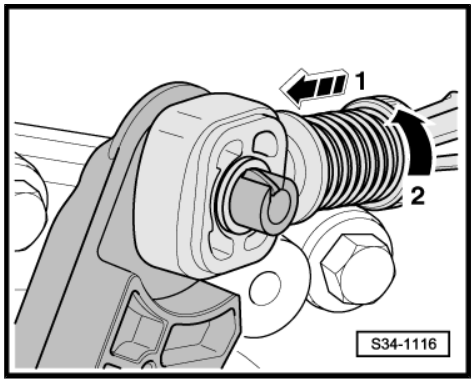
♦ Grease - G 000 450 02-

1.9.1 Removing and installing plastic relay lever

– Pull forward the locking mechanism as far as the stop in -direction of arrow 1-, then lock by turning to the left in -direction of arrow 2-.

• Before removing the plastic relay lever, the cable lock must be separated from the selector cable in order to avoid damage to the selector cable.

• The gearbox shift lever is located in the neutral position.

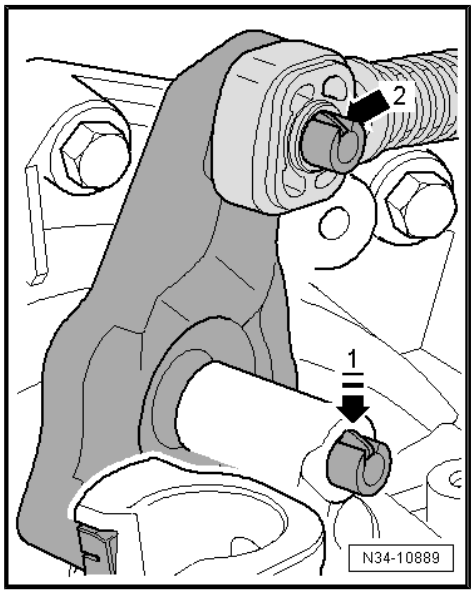


The relay lever is secured with a catch -arrow 1- on the gearshift cover

– Carefully press down the catch -arrow 1- up to the stop.

– Then move relay lever back and forward in its bearing (direction of operation). To do so, carefully pull out the cable lock.

• Only remove cable lock on removed relay lever ⇒ page 79 .



Note

To install, grease bearing points and friction surfaces with grease - G 000 450 02- .

– Press cable lock onto the relay lever ⇒ page 79 .

– Insert relay lever together with cable lock.

• The catch -arrow 1- secures the relay lever.

• The cable lock must be located behind the catch -arrow 2-.

The relay lever is secured with a clip -arrow 1- on the gearshift cover

– Remove the clip -arrow 1- from the opening in the relay lever.

– Afterwards, pull the relay lever together with the cable lock out of its bearing point in the gearshift cover.

• Only remove cable lock on removed relay lever ⇒ page 79 .

Note

To install, grease bearing points and friction surfaces with grease - G 000 450 02- .

– Press cable lock onto the relay lever ⇒ page 79 .

– Insert relay lever together with cable lock.

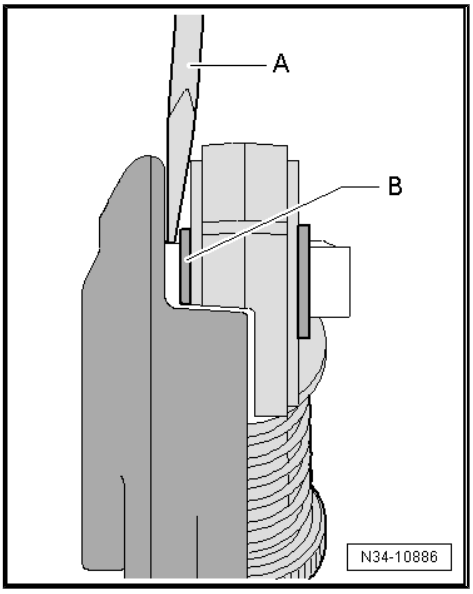
– Secure the relay lever with a clip -arrow 1-.

1.9.2 Remove and install cable lock for selector cable from plastic relay lever

Remove cable lock for selector cable from plastic relay lever

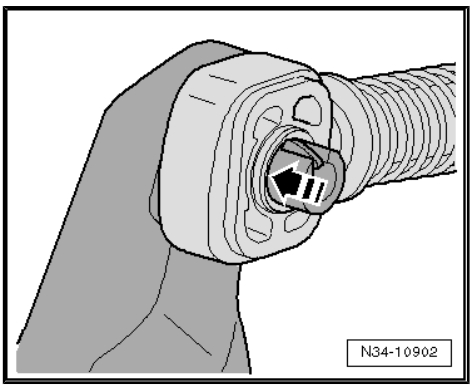
- Relay lever removed.

– Insert cross-head screwdriver -A- between bushing -B- and relay lever.



Press on cable lock

- Relay lever removed.
- The cable lock must only be pressed onto the bushing -arrow-.
- Cable lock must move freely on relay lever.
- It must be located behind the catch ⇒ page 78 .



1.10 Remove and install shift mechanism (Fabia II, Roomster, Rapid NH)

Special tools and workshop equipment required

- ♦ Disassembly wedge - 3409- (2 pieces) (Fabia II, Roomster)
- ♦ Release tool - T30098- (Rapid NH)
- ♦ Grease - G 000 450 02-

1.10.1 Removing

Note

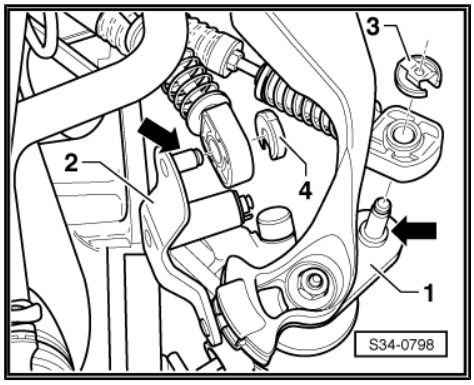
If the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .

– Remove air filter ⇒ Engine; Rep. gr. 23 .

– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .

– Remove circlip -3- for shift cable from gearbox shift lever -1-.

– Pull off shift cable from the stud -arrow-.



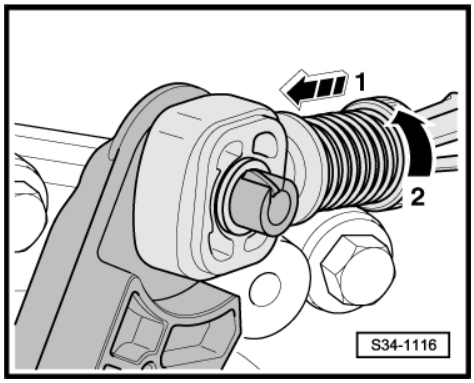
Metal relay lever (Fabia II and Roomster up to 05.07)

– Remove circlip -4- for selector cable from relay lever -2-.

– Remove selector cable and shift cable from the studs.

Plastic relay lever

Separate cable lock from selector cable



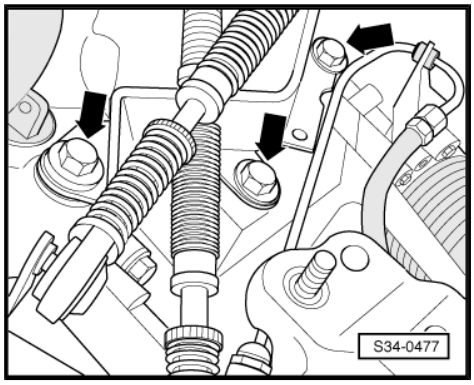
- Before removal, the cable lock must be separated from the selector cable in order to avoid damage to the selector cable.

– Pull forward the locking mechanism as far as the stop in -direction of arrow 1-, then lock by turning to the left in -direction of arrow 2-.

– Remove relay lever together with cable lock ⇒ “1.9 Plastic relay lever as of 06.07 (Fabia II, Roomster, Rapid NH)”, page 77 .

Continued for all vehicles

– Disconnect the Bowden cable support from gearbox -arrows-.



– Remove gearshift knob and shift lever collar.

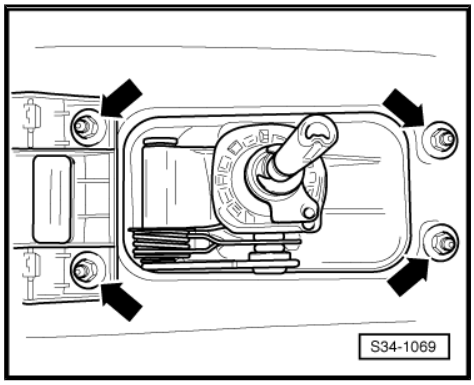
♦ Fabia II and Roomster ⇒ “1.4 Separating collar from gearshift lever (Fabia II, Roomster) ”, page 69 .

♦ Rapid NH ⇒ “1.6 Remove and install gearshift knob and shift lever collar (Rapid NH)”, page 72 .

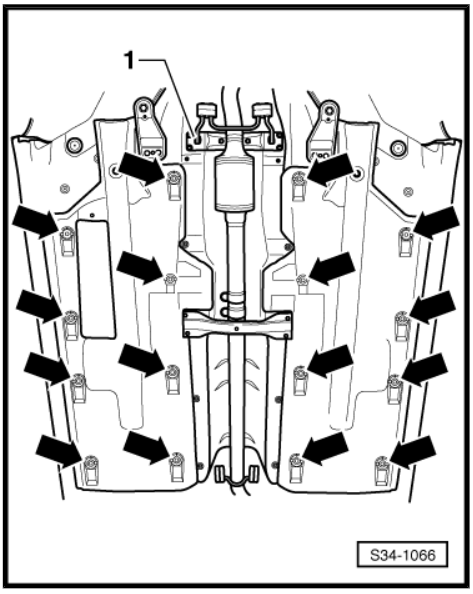
– Remove the centre console cover ⇒ Body Work; Rep. gr. 68 .

– If present, remove noise insulation from shift housing.

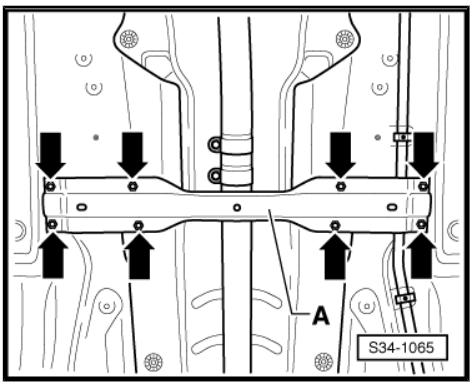
– Unscrew fixing nuts -arrows- attaching the shift housing.



– Remove underbody cover on right and left (if present) -arrows-.



– Remove tunnel bridge -arrows-.



Vehicles Fabia and Roomster

– Remove pre-exhaust pipe ⇒ Engine; Rep. gr. 26 .

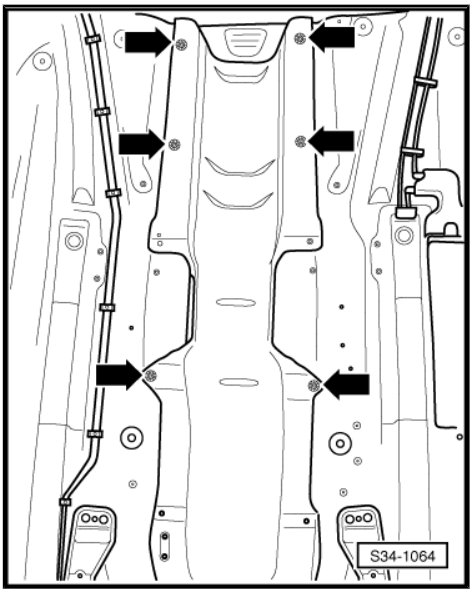
Vehicles Rapid NH

– Fit the stiff cover onto the decoupling element of the exhaust system ⇒ Engine; Rep. gr. 26 .
– Separate the exhaust system at the clamping sleeve ⇒ Engine; Rep. gr. 26 and secure the exhaust pipe so that it cannot unhook freely.
– Push the pre-exhaust pipe out of the retaining straps and secure the exhaust pipe in such a way that it cannot unhook freely.
– Remove bracket for retaining straps of rear silencer from the body.

Continued for all vehicles

– Unhook rear silencer in such a way that it does not come in contact with the rear axle.

– Remove heat shield -arrows-.
– Swivel shift housing down and remove with control cables.



1.10.2 Install

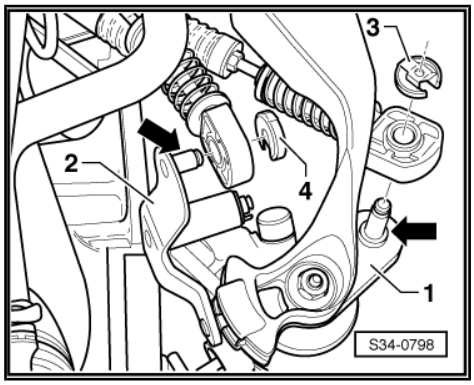
Installation is carried out in the reverse order. However, pay attention to the following:

The holes in the cable locks have different diameters
⇒ “1.8 Summary of components - Control cables”, page 74

– Apply a small quantity of grease - G 000 450 02- onto the studs -arrows- of the gearbox shift lever -1- and of the relay lever -2-.

– Always replace lock washers -3- and -4- after each removal ⇒ Electronic Catalogue of Original Parts .

– Secure the shift cable with the lock washer -3- and the selector cable with the lock washer -4- (for metal relay lever).



Cable lock with plastic relay lever

– The relay lever and the cable lock must be installed together ⇒ “1.9 Plastic relay lever as of 06.07 (Fabia II, Roomster, Rapid NH)”, page 77 .

– Insert the selector cable into the cable lock.

Continued for all gearshift mechanisms

– Align shift housing parallel to vehicle body.

• The distance to the vehicle body must be the same on both sides.

– Assemble exhaust system free of stress and attach tunnel bridges ⇒ Engine; Rep. gr. 26 .

– If present, position the noise insulation on the shift housing.

– Install centre console ⇒ Body Work; Rep. gr. 68 .

– Setting the shift mechanism
⇒ “1.12 Setting the shift mechanism”, page 86 .

– Install air filter ⇒ Engine; Rep. gr. 23 .

– Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .

Note

After the battery earth strap is disconnected and re-connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .

Tightening torques

Components	Tightening torque
Underbody cover	2 Nm
Shift housing to body	⇒ “1.7 Summary of components - Shift lever and shift housing”, page 72
Cable support to gearbox	⇒ “1.8 Summary of components - Control cables”, page 74
Tunnel bridge	⇒ Engine; Rep. gr. 26
Unbolt bracket for exhaust pipe	⇒ Engine; Rep. gr. 26

1.11 Removing and installing shift mechanism (Rapid)

Special tools and workshop equipment required

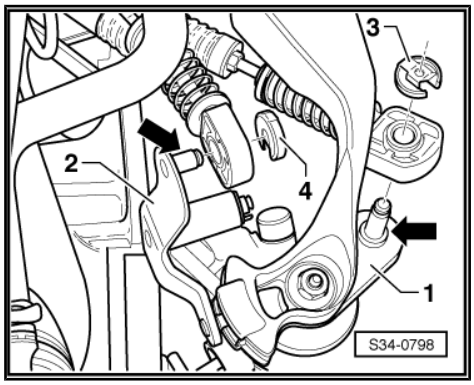
- Release tool - T30098-
- Grease - G 000 450 02-

1.11.1 Removing

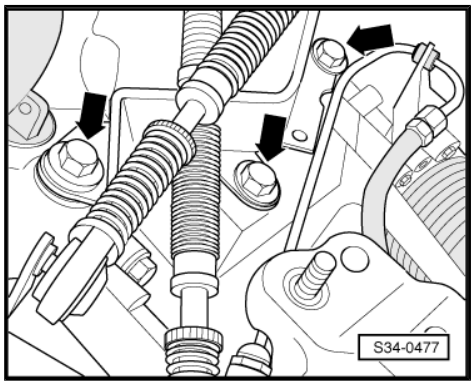
Note

After the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .

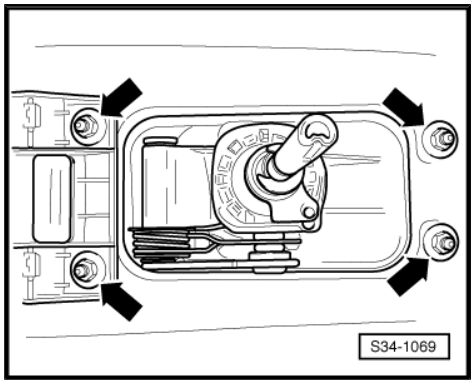
– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .
– Remove air filter ⇒ Engine; Rep. gr. 23 .
– Remove lock washer -3- for shift cable from gearbox shift lever -1-.
– Pull off shift cable from the stud -arrow-.
– Remove circlip -4- for the selector cable from relay lever -2-.
– Pull off selector cable from the stud -arrow-.



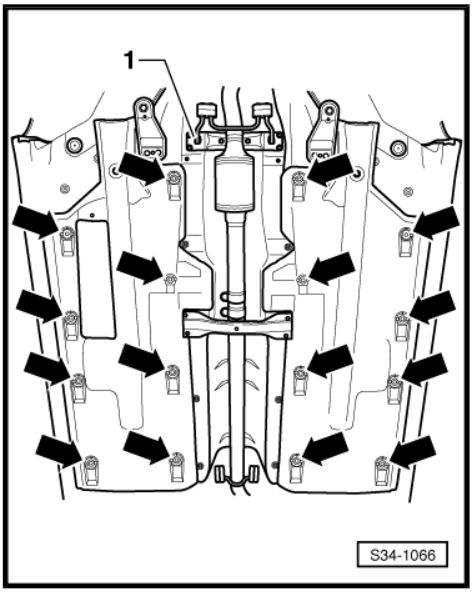
– Remove Bowden cable support -arrows-.
– Remove gearshift knob and shift lever collar ⇒ “1.5 Separating collar from gearshift lever (Rapid)”, page 70 .
– Remove the centre console ⇒ Body Work; Rep. gr. 68 .
– If present, remove noise insulation from shift housing.



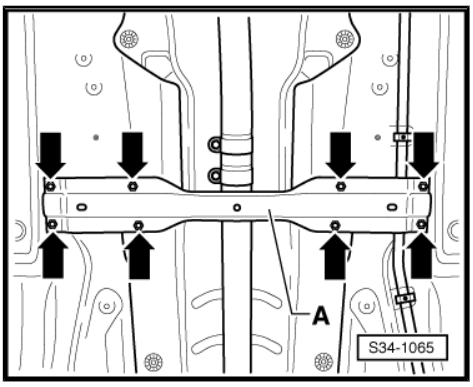
– Unscrew nuts -arrows- attaching the shift housing.



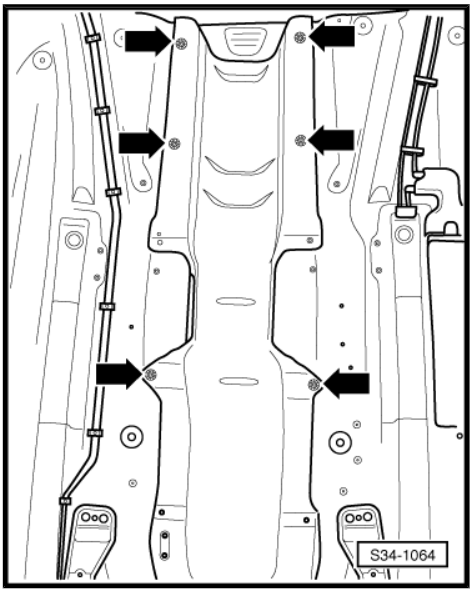
– Remove underbody cover on right and left (if present) -arrows-.



– Remove tunnel bridge -arrows-.
– Fit the stiff cover onto the decoupling element of the exhaust system ⇒ Engine; Rep. gr. 26 .
– Separate the exhaust system at the clamping sleeve ⇒ Engine; Rep. gr. 26 and secure the exhaust pipe so that it cannot unhook freely.
– Push the pre-exhaust pipe out of the retaining straps and secure the exhaust pipe in such a way that it cannot unhook freely.
– Unhook rear silencer in such a way that it does not come in contact with the rear axle.
– Remove bracket for retaining straps of rear silencer from the body.



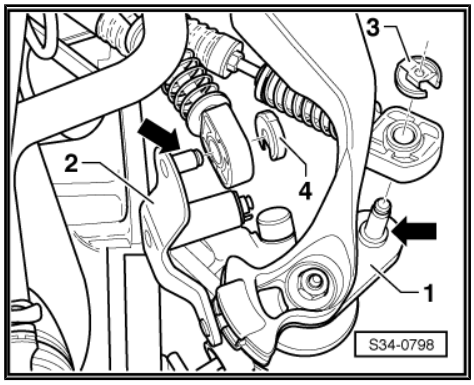
– Remove heat shield -arrows-.
– Swivel shift housing down and remove with control cables.



1.11.2 Install

Installation is performed in the reverse order, pay attention to the following points:

The holes in the cable locks have different diameters
⇒ “1.8 Summary of components - Control cables”, page 74



– Apply a small quantity of grease - G 000 450 02- onto the studs -arrows- of the gearbox shift lever -1- and of the relay lever -2-.
– Always replace lock washers -3- and -4- after each removal ⇒ Electronic Catalogue of Original Parts .
– Secure the shift cable with the lock washer -3- and the selector cable (for metal relay lever) with the lock washer -4-.
– Align shift housing parallel to vehicle body.
• The distance to the vehicle body must be the same on both sides.
– Assemble exhaust system free of stress and attach tunnel bridges ⇒ Engine; Rep. gr. 26 .
– If present, position the noise insulation on the shift housing.
– Install centre console ⇒ Body Work; Rep. gr. 68 .
– Setting the shift mechanism
⇒ “1.12 Setting the shift mechanism”, page 86
– Install air filter ⇒ Engine; Rep. gr. 23 .
– Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .

Note

After the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .

Tightening torque

Components	Tightening torque
Underbody cover	2 Nm
Shift housing to body	⇒ “1.7 Summary of components - Shift lever and shift housing”, page 72
Cable support to gearbox	⇒ “1.8 Summary of components - Control cables”, page 74
Tunnel bridge	⇒ Engine; Rep. gr. 26
Bracket for pre-exhaust pipe	⇒ Engine; Rep. gr. 26

1.12 Setting the shift mechanism

Special tools and workshop equipment required

♦ Rig pin - T10027A-
♦ Disassembly wedge - 3409- (2 pieces - Fabia II, Roomster)
♦ Release tool - T30098- (2 pieces - Rapid, 1 piece - Rapid NH)

Note

The following are required for correct setting of the shift mechanism:

• Gearbox, clutch and clutch control in perfect condition.

- Shift mechanism operates freely.
- Operating and transmission elements of the shift mechanism are in perfect condition.
- Gearbox in Neutral.

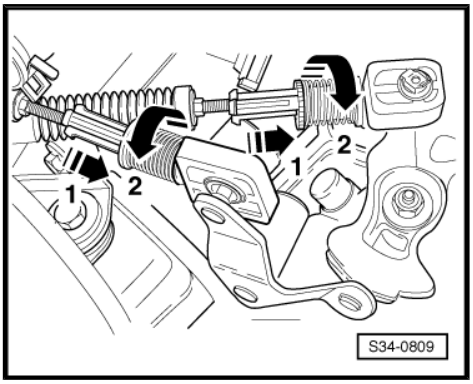
Note

After the battery earth strap is disconnected and re-connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .

– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .

– Remove air filter ⇒ Engine; Rep. gr. 23 .

– Pull forward the locking mechanism at shift cable and at selector cable as far as the stop in -direction of arrow 1-, then lock by turning to the left in -direction of arrow 2-.

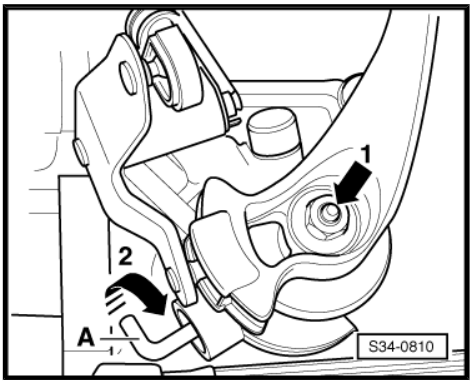


Fix the gearshift shaft as follows:

– Press down the gearshift shaft in -direction of arrow 1-.

– When pressing down the gearshift shaft turn angle lever -A- in -direction of arrow 2- upwards and at the same time press it in carefully until it locks into the gearshift shaft.

– Remove shift lever collar:



♦ Fabia II, Roomster
⇒ “1.4 Separating collar from gearshift lever (Fabia II, Roomster) ”, page 69

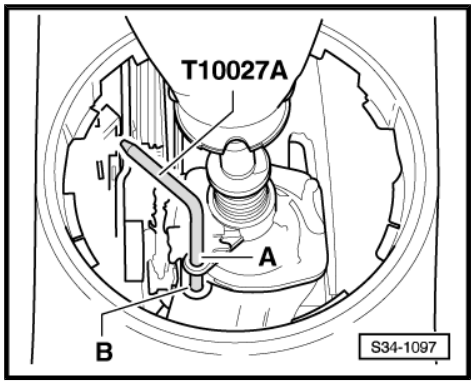
♦ Rapid
⇒ “1.5 Separating collar from gearshift lever (Rapid)”, page 70

♦ Rapid NH
⇒ “1.6 Remove and install gearshift knob and shift lever collar (Rapid NH)”, page 72

– Pull the collar upwards over the gearshift knob.

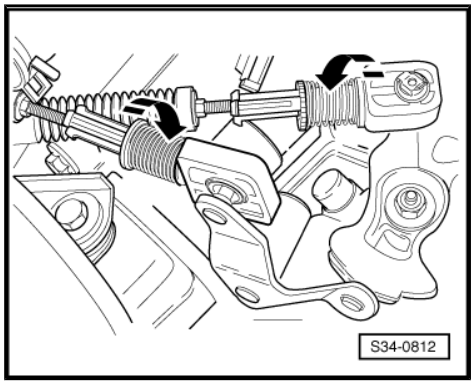
– Guide shift lever in Neutral position to the left into the 1st/2nd gear gate via the leg.

– Insert rig pin - T10027A- into the hole -A- and into the hole -B-.



– Turn locking mechanism at shift cable and at selector cable to the right up to the stop -direction of arrow-.

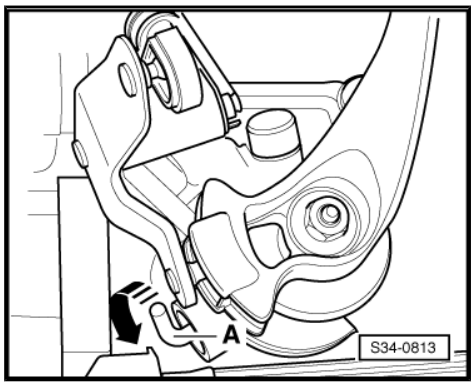
The spring pushes the locking mechanism into the initial position.



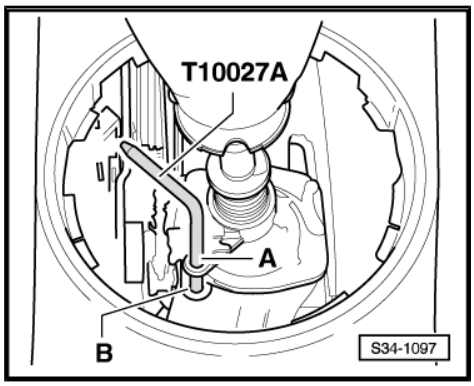
– Turn angle lever -A- back to the initial position -in direction of arrow-.

Note

The angle lever -A- must be pressed out of the gearbox housing and must point vertically upwards.



– Pull rig pin - T10027A- out of hole -A- and -B-.
– Perform a functional test of the shift mechanism ⇒ “1.12.1 Operation”, page 88 .
– Fit collar into the surround for centre console.
– Install air filter ⇒ Engine; Rep. gr. 23 .
– Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .



1.12.1 Operation

- Shift lever must be positioned in Neutral position in the selector lever gate of the 3rd/4th gear.
– Actuate clutch pedal.
– Shift through all gears several times. Pay particular attention to proper operation of the reverse gear lock.

If a gear catches when engaged again. set the shift mechanism once again ⇒ “1.12 Setting the shift mechanism”, page 86 .

2 Removing and installing the gearbox

2.1 Removing gearbox (Fabia II 2007 ►; Roomster 2006 ►)

Special tools and workshop equipment required

- Supporting device - MP9-200 (10-222A)-
- Adapter - MP9-200/3 (10-222A/3)-
- Gearbox mount - 3282-
- Adjusting plate - T30020-
- Engine and gearbox jack e.g. -V.A.G 1383 A-
- Grease for plug serration of clutch disc - G 000 100-

Note

- *All cable straps which are detached or cut open when removing, should be fitted on again in the same place when installing.*
- *After the battery earth strap is disconnected and re-connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .*

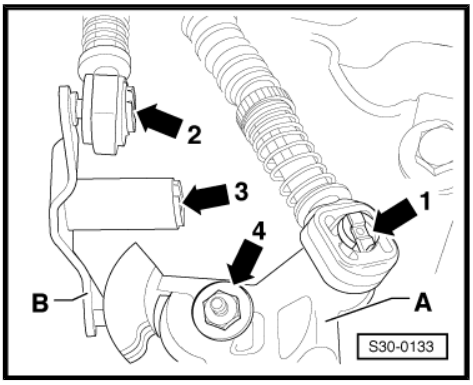
– Disconnect the earth strap from the battery with the ignition off.

– Remove engine cover ⇒ engine; Rep. gr. 10 .

– Remove air filter housing complete with air guide hose ⇒ Engine; Rep. gr. 23 .

– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .

– Remove lock washer -arrow 1- for shift cable from gearbox shift lever -A-.
– Pull off shift cable from the stud.



Metal relay lever (up to 05.07)

– Remove circlip -arrow 2- for selector cable from relay lever -B-.
– Pull selector cable off the stud.
– Detach circlip -arrow 3- from the relay lever -B- and remove relay lever.

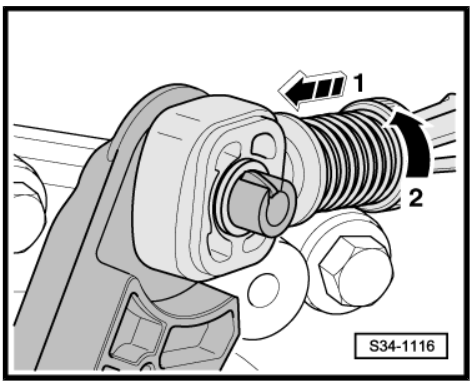
Note

Always replace circlips ⇒ Electronic Catalogue of Original Parts

Plastic relay lever

- Before removal, the cable lock must be separated from the selector cable in order to avoid damage to the selector cable.

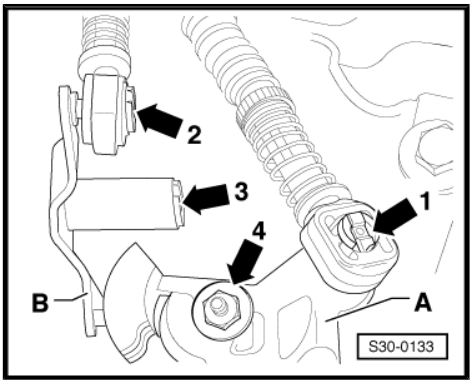
– Pull forward the locking mechanism as far as the stop in -direction of arrow 1-, then lock by turning to the left in -direction of arrow 2-.



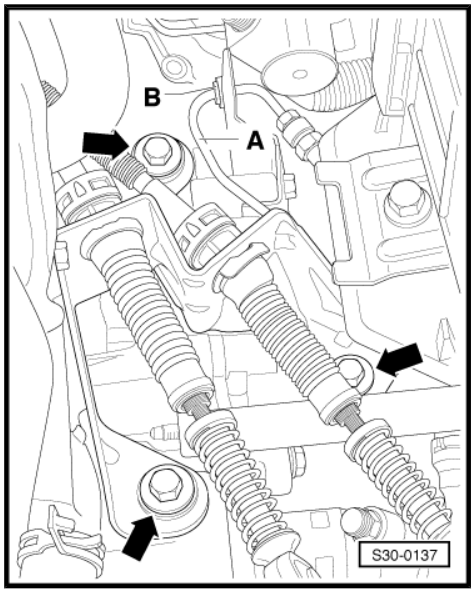
– Remove relay lever together with cable lock ⇒ “1.9 Plastic relay lever as of 06.07 (Fabia II, Roomster, Rapid NH)”, page 77 .

Continued for all vehicles:

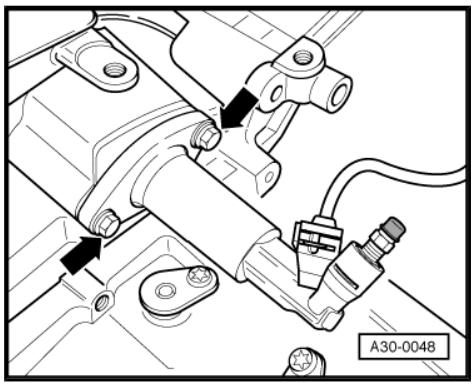
– Remove the gearshift lever -A-, for this step unscrew nut -arrow 4-.



– Remove cable support from the gearbox -arrows- and tie up laterally together with selector cable and shift cable
– Remove bracket -B- from the gearbox and pull off from the tube-hose line -A-.



– Remove the slave cylinder -arrows- and lay aside, secure with wire, do not open the line system.



Caution

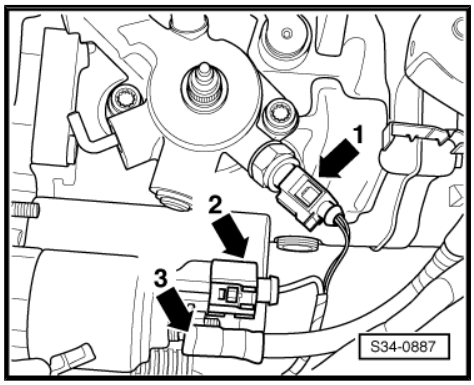
Do not depress the clutch pedal.

For vehicles with particle filter

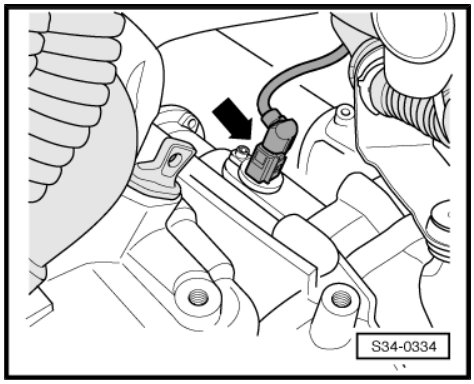
– Remove charge-air pipe from exhaust turbocharger to charge air cooler ⇒ Engine; Rep. gr. 21 .

Continued for all vehicles

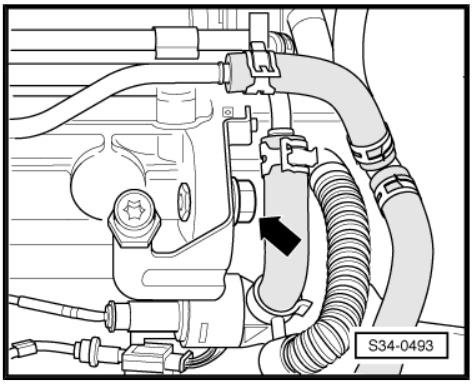
– Disconnect plug -arrow 1- from reversing light switch - F4- .
– Remove connector -arrow 2- and cable -arrow 3- from the starter.
– Expose cables.
– Remove engine/gearbox connecting screws at the top.
– Remove top securing screws at starter.



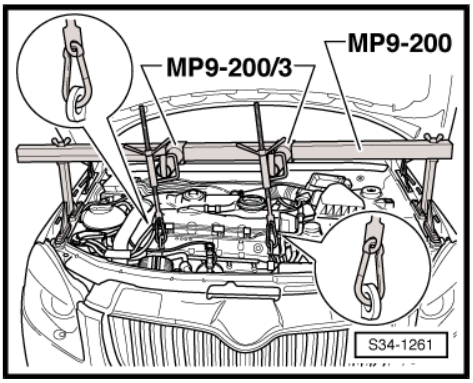
– Unplug connector -arrow- from speedometer sender - G22- (if available).



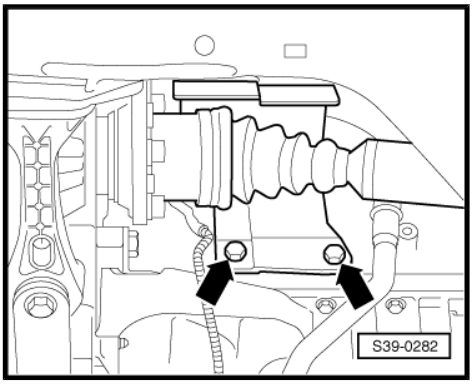
– Remove bracket for engine cover -arrow- (install in this hole one of the 2 spindles of the supporting device).
– If hose and cable connections are located in the area of the lifting eye of the engine for the supporting device - MP9-200 (10-222A)- , these must now be removed.



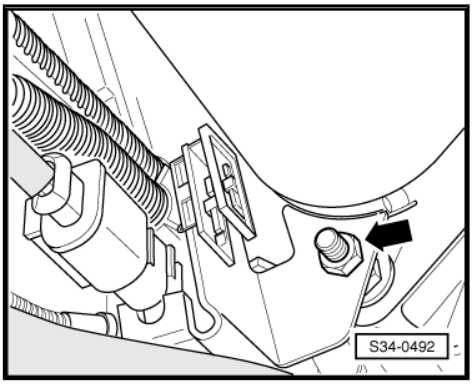
– Install supporting device - MP9-200 (10-222A)- .
– Take up the weight of the engine/gearbox unit at the spindles.
– Remove front left wheel ⇒ Chassis; Rep. gr. 44 and raise vehicle.
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .



– If present, remove heat shield for drive shaft from the engine -arrows-.



– Unscrew bracket from starter -arrow- and lay aside together with lines.
– Removing starter ⇒ Electrical System; Rep. gr. 27 .
– Remove the front left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
– Turn the sterring wheel up to the stop to the left and remove drive shafts from the flange shafts ⇒ Chassis; Rep. gr. 40 .
– Tie up right drive shaft as far as possible, e.g. with cord. Avoid damaging the paintwork on the drive shaft during this operation.

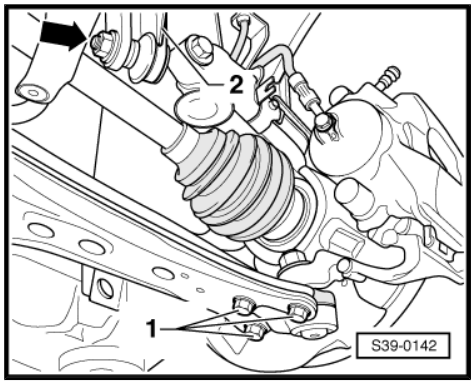


For vehicles without particle filter

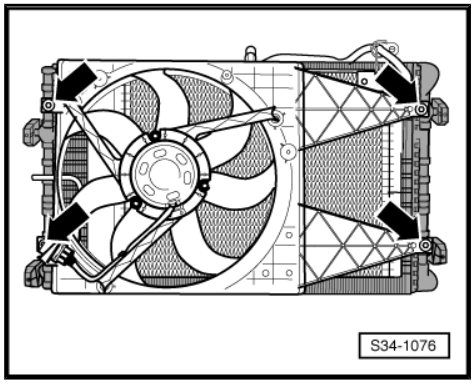
– Remove pre-exhaust pipe with catalytic converter ⇒ Engine; Rep. gr. 26 .

Continued for all vehicles

– Mark installation position of bolts -1- from left steering joint.
– Unscrew screws -1- for left steering joint ⇒ Chassis; Rep. gr. 40 .
– Unbolt coupling rod -2- from the anti-roll bar -arrow- ⇒ Chassis; Rep. gr. 40 .
– Turn coupling rod upwards.
– Swivel out left wheel-bearing housing.
– Swivel the drive shaft into the wheelhouse and secure it to the suspension strut, e.g. with cord. Avoid damaging the paintwork on the drive shaft during this operation.



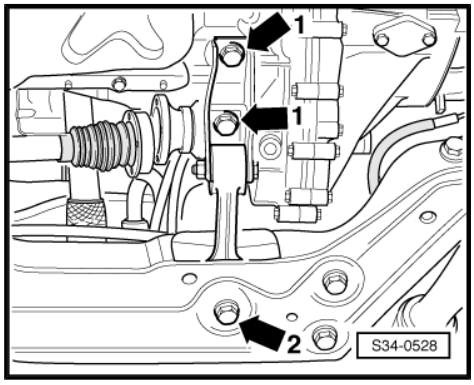
– Screw out screws -arrows- and take out fan shroud downwards. While doing so, disconnect the plug connection.



Note

On vehicles with air conditioning system, additionally unscrew the fixing screws (in the upper area of the fan shroud) of the bracket for refrigerant line.

– Remove pendulum support -arrows 1- and -arrow 2-.

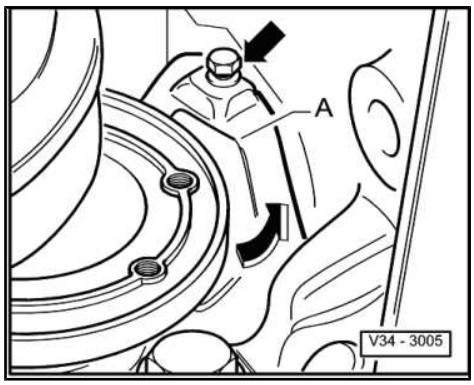


Note

When installing the pendulum support position the screws -arrows 1- in the elongated holes in such a way that there is maximum distance between the gearbox and the assembly carrier.

– Unscrew the engine/gearbox connecting screw below the right flange shaft.

– Remove small cover plate -A- (if present) for flywheel behind the right flange shaft -arrows-.



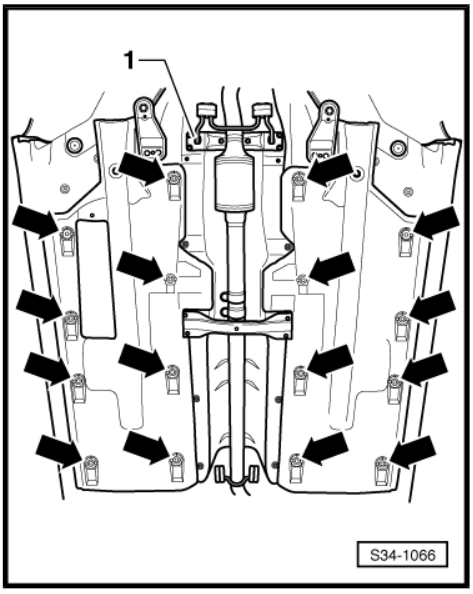
For vehicles with particle filter

– Remove the holding bracket for the exhaust pipe -1-.

– Separate the exhaust system behind the pre-exhaust pipe at the clamping sleeve and secure with wire to the body ⇒ Engine; Rep. gr. 26 .

– Release the assembly carrier (center) ⇒ Chassis; Rep. gr. 40 .

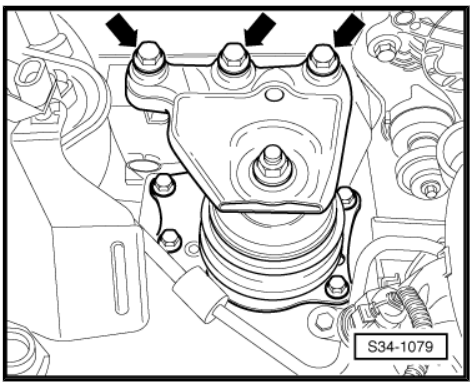
Continued for all vehicles



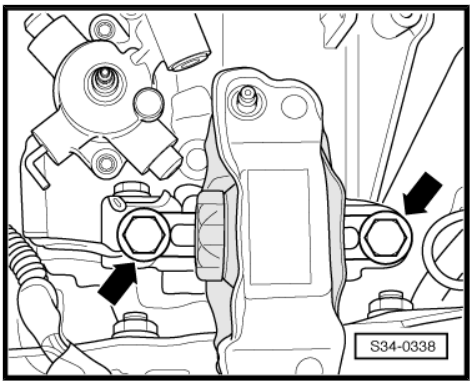
– Release screws -arrows- for engine mounting from engine holder.

Note

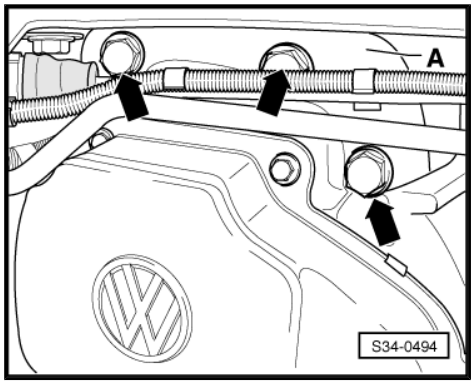
Do not slacken the fixing nut for the engine mount.



– Unscrew the fixing screws -arrows- from the gearbox mount.



– Lower engine/gearbox unit sufficiently at the two spindles until the fixing screws attaching the gearbox mounting bracket -A- are accessible from the left wheelhouse.



Note

When lowering the engine/gearbox unit, make sure the gearbox does not touch the assembly carrier.

Unscrew the fixing screws -arrows- of the gearbox console and remove the gearbox console -A- from the gearbox.

– Insert gearbox mount - 3282 - into engine/gearbox jack , e.g. -V.A.G 1383 A- .

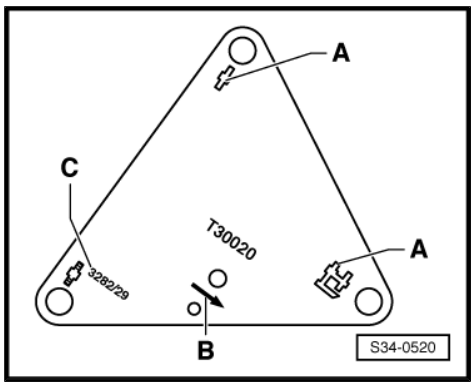
Complete engine and gearbox jack with gearbox mount - 3282- , adjusting plate - T30020- for gearbox “02R” and support elements as follows:

– Position adjusting plate - T30020 - onto the gearbox mount - 3282- (adjusting plate fits in only one position).

– Align arms of the gearbox mount to match the holes in the adjusting plate .

– Screw in the mounting elements -A- and -C- as shown on adjusting plate .

– Screw in the bolt - 3282/29- , as indicated on the adjusting plate.



– Position the engine and gearbox jack below the vehicle, the arrow -symbol B- (in the previous figure) on the adjusting plate points in the direction of travel/vehicle.

– Align adjusting plate parallel to the gearbox and lock securing mounts at gearbox.

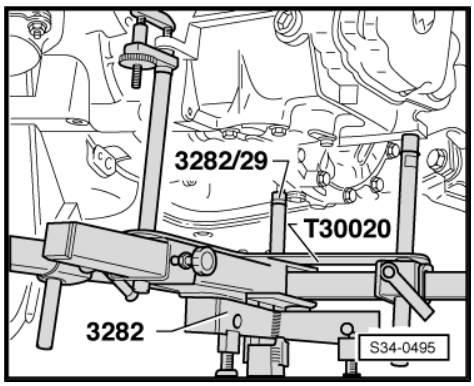
– Remove the bottom engine/gearbox connecting screws.

– Press gearbox off the engine and swivel towards the assembly carrier.

– Via the spindles swivel the gearbox backwards and down towards the assembly carrier.

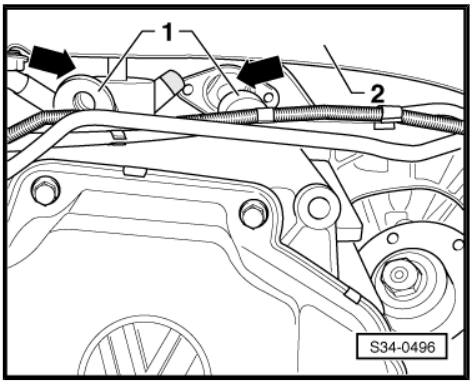
– Carefully lower the gearbox.

– Change the gearbox position at the spindles of the gearbox mount - 3282- when lowering.



Note

- *When removing the gearbox -1- ensure the gearbox does not touch the frame side rail -2-, -arrows-.*
- *When lowering guide the coolant hoses past the gearbox.*



– Installing the gearbox
⇒ “2.5 Installing the gearbox”, page 120 .

2.2 Removing gearbox (Fabia II 2011 ►; Roomster 2011 ►)

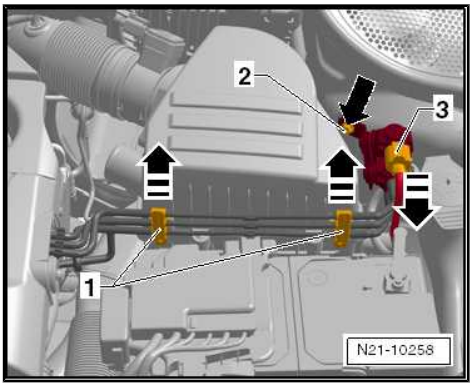
Special tools and workshop equipment required

- Supporting device - MP9-200 (10-222A)-
- Adapter - MP9-200/3 (10-222A/3)-
- Gearbox mount - 3282-
- Adjusting plate - T30020-
- Engine and gearbox jack e.g. -V.A.G 1383 A-
- Grease for plug serration of clutch disc - G 000 100-

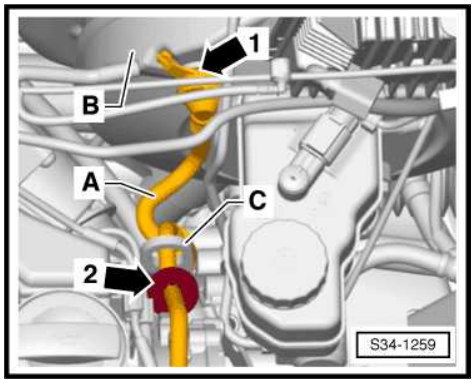
Note

- *All cable straps which are detached or cut open when removing, should be fitted on again in the same place when installing.*
- *After the battery earth strap is disconnected and re-connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .*

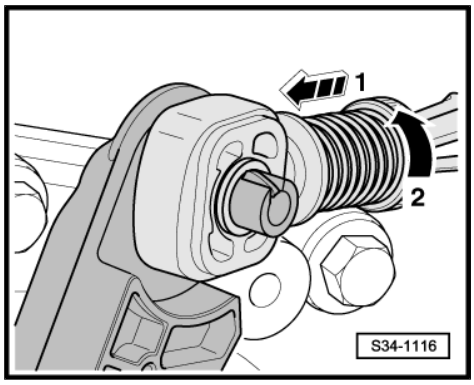
– Disconnect the earth strap from the battery with the ignition off.
– Remove engine cover ⇒ engine; Rep. gr. 10 .
– Remove the vacuum lines with the bracket -1- from the air filter and disconnect the plug -3- -direction of arrow-.
– Unscrew the charge pressure control solenoid valve - N75- with the bracket -2- -arrow- and place it with the vacuum line on the engine.
– Remove air filter housing complete with air guide hose ⇒ Engine; Rep. gr. 23 .
– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .
– Remove the plenum chamber cover and bulkhead ⇒ Body work; Rep. gr. 66 .



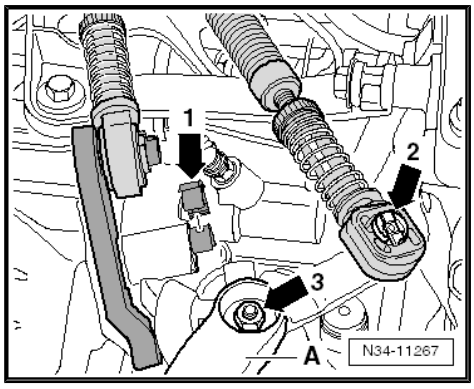
– Remove the vacuum hose -A- from the brake servo unit -B- -arrow 1-, in order to avoid damage ⇒ Chassis; Rep. gr. 47 .
– Remove the rubber bearing -arrow 2- of the vacuum hose from the lifting eye -C- at the engine.



– Pull forward the locking mechanism of the selector cable as far as the stop in -direction of arrow 1- and then lock by turning to the left in -direction of arrow 2-.



– Remove the clip -arrow 1- from the opening in the relay lever.
– Afterwards, pull the relay lever together with the cable lock out of its bearing point in the gearshift cover.

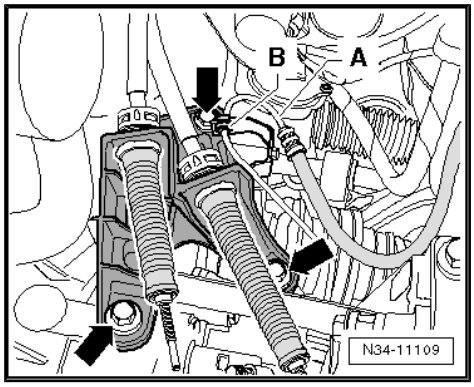


Note

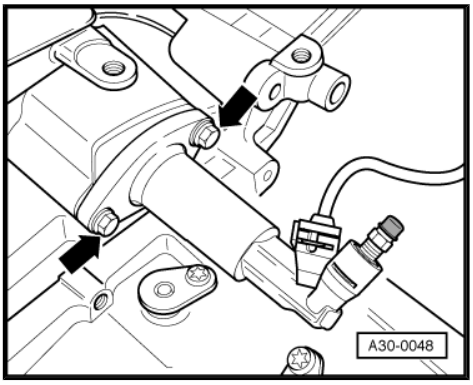
On some vehicles, the relay lever is secured with a catch *⇒ "1.9.1 Removing and installing plastic relay lever", page 78* .

– Remove lock washer -arrow 2- for shift cable from gearbox shift lever -A-.
– Pull off shift cable from the stud.
– Remove the gearshift lever -A-, for this step unscrew nut -arrow 3-.

– Remove cable support from the gearbox -arrows- and tie up laterally together with selector cable and shift cable
– If present, remove the bracket -B- from the gearbox and pull off from the tube-hose line -A-.



– Remove the slave cylinder -arrows-, lay aside and secure it; do not open the line system.

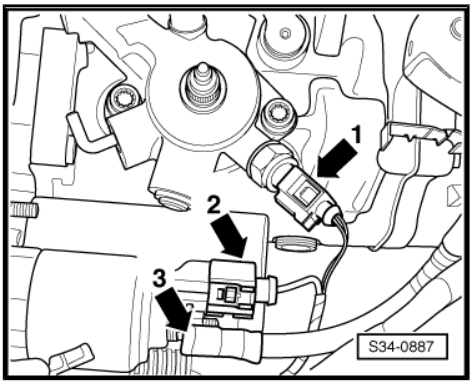


Caution

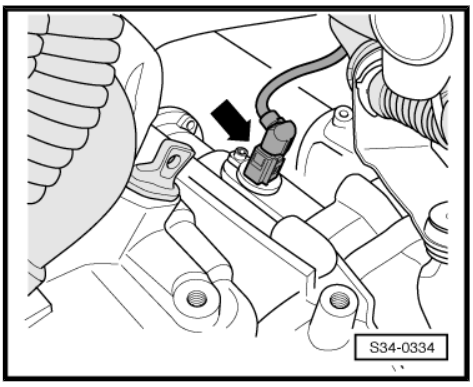
Do not depress the clutch pedal.

– Remove engine/gearbox connecting screws at the top.

– Disconnect plug -arrow 1- from reversing light switch - F4- .
– Remove connector -arrow 2- and cable -arrow 3- from the starter.
– Expose cables.
– Remove engine/gearbox connecting screws at the top.
– Remove top securing screws at starter.



– Unplug connector -arrow- from speedometer sender - G22- (if available).



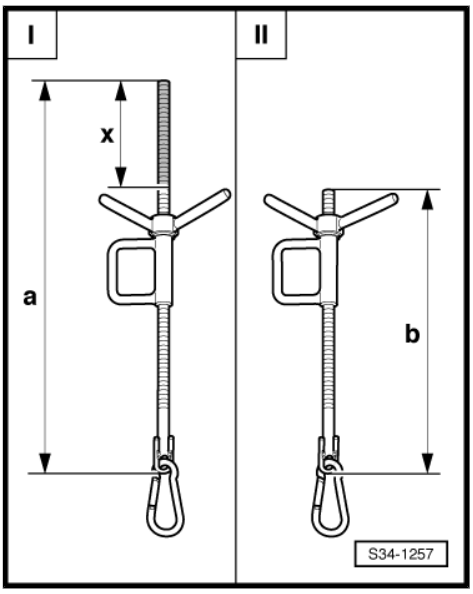
Shorten the spindle -I- of the supporting device - MP9-200 (10-222A)- by 100 mm:

I - Spindle

- Dimension -a- = 442 mm
- Dimension -x- = 100 mm

II - shortened spindle MP9-200/10 (10-222A/10)

- Dimension -b- = 342 mm

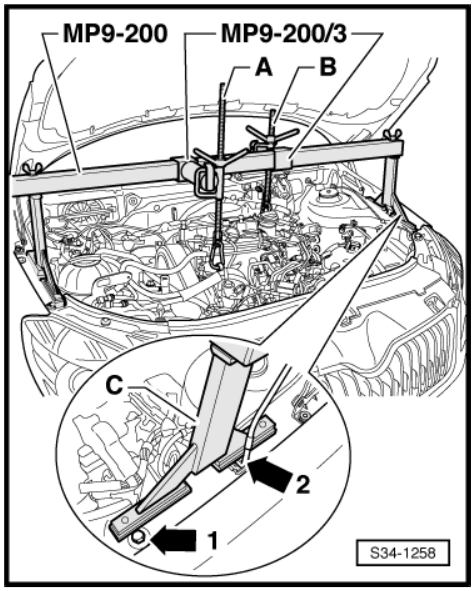


Note

In order for the spindle -I- of the supporting device - MP9-200 (10-222A)- not to touch the front flap, it must be shortened to the dimension -x- (100 mm).

– If hose and cable connections are located in the area of the lifting eye of the engine for the supporting device - MP9-200 (10-222A)- , these must now be removed.

– Install supporting device - MP9-200 (10-222A)- . For this purpose, position the supports -C- next to the screw -arrow 1- and the support for the front flap -arrow 2- as shown.
– Hook the spindle -A- into the front right engine lifting eye.
– Position the shortened spindle -B- on the adapter - 10-222 A/3- .

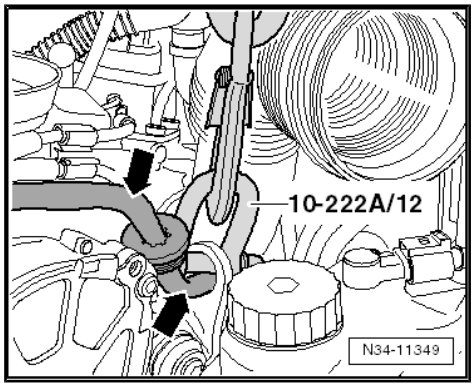


– Hook the rear left shackle - 10-222 A/12- into the lifting eye of the engine.

Caution

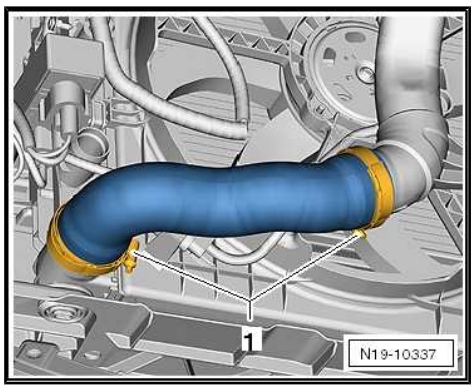
The vacuum hose must move freely in the lifting eye -arrows-.

It must not be damaged.

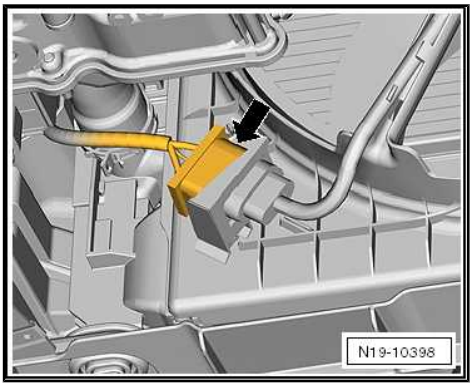


– Then connect the shackle - 10-222 A/12- with the shortened spindle ⇒ page 99 .
– Take up the weight of the engine/gearbox unit at the spindles.
– Remove front left wheel ⇒ Chassis; Rep. gr. 44 and raise vehicle.
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .

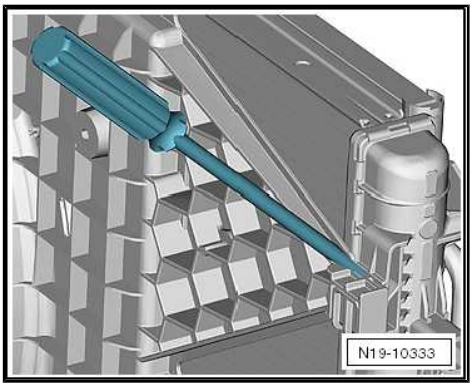
– Remove the charge air hose »hot« side, to do so slacken the hose clamps -1- ⇒ Engine; Rep. gr. 21 .
– Remove charge air pipe »cold« side from engine ⇒ Engine; Rep. gr. 21 .



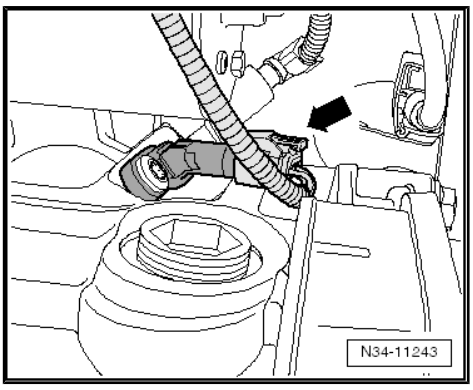
– Unplug connector -arrow-.



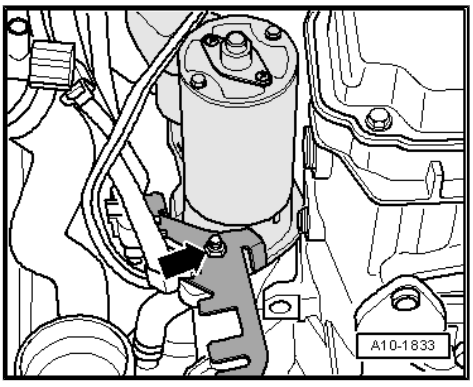
– Release the fan shroud on the catch hook e.g. using a screwdriver and remove ⇒ Engine; Rep. gr. 19 .



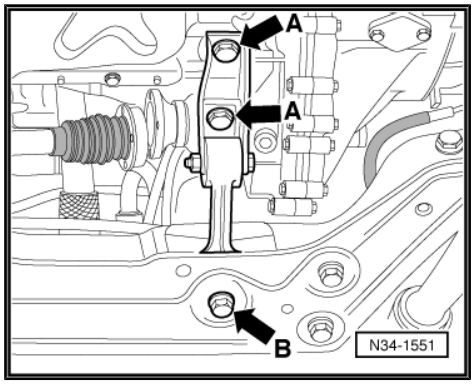
– Gearboxes for vehicles with start/stop system: Unplug the connector -arrow- from the transmission neutral sender -G701- .



– Release the nut -arrow- and remove the bracket for the electrical cables.
– Removing starter ⇒ Electrical System; Rep. gr. 27 .
– Remove the front left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
– Separate the exhaust pipe at the clamping sleeve and unhook from the assembly carrier ⇒ Engine; Rep. gr. 26 .



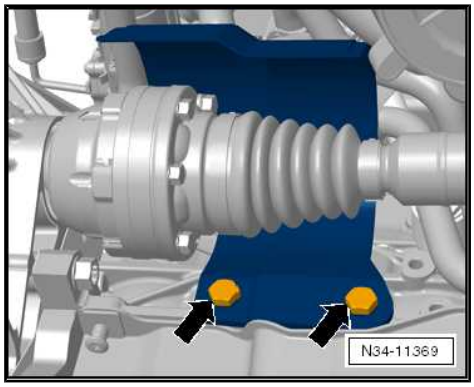
– Remove pendulum support -arrows A- and -arrow B-.



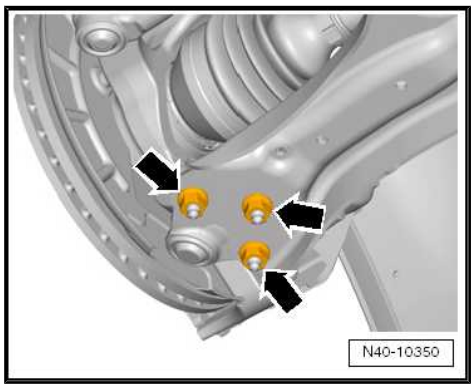
Note

When installing the pendulum support position the screws -arrows 1- in the elongated holes in such a way that there is maximum distance between the gearbox and the assembly carrier.

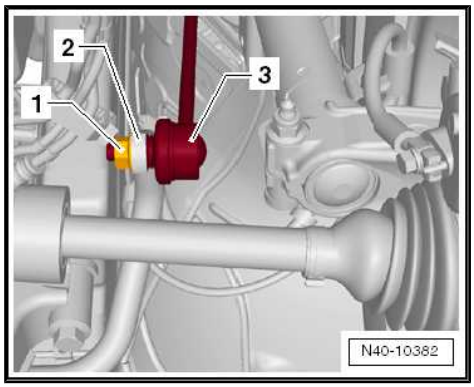
– If present, remove the heat shield for the right drive shaft -arrows- ⇒ Chassis; Rep. gr. 40 .
– Turn the sterring wheel up to the stop to the left and remove drive shafts from the flange shafts ⇒ Chassis; Rep. gr. 40 .



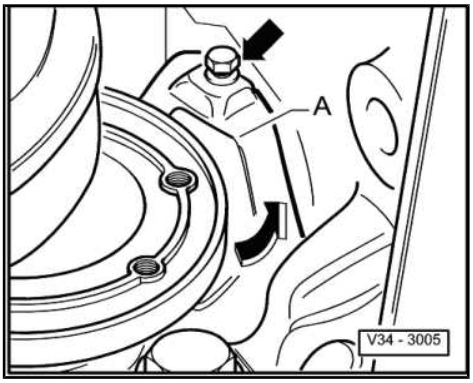
– Unscrew nuts -arrows- for left steering joint ⇒ Chassis; Rep. gr. 44 .



– Unscrew the nut -1- from the coupling rod -3- -arrow- ⇒ Chassis; Rep. gr. 40 .
– Remove coupling rod and turn anti-roll bar -2- slightly upwards.
– Swivel out left wheel-bearing housing.
– Swivel the drive shaft into the wheelhouse and secure it to the suspension strut, e.g. with cord. Avoid damaging the paintwork on the drive shaft during this operation.
– Tie up right drive shaft as far as possible, e.g. with cord. Avoid damaging the paintwork on the drive shaft during this operation.



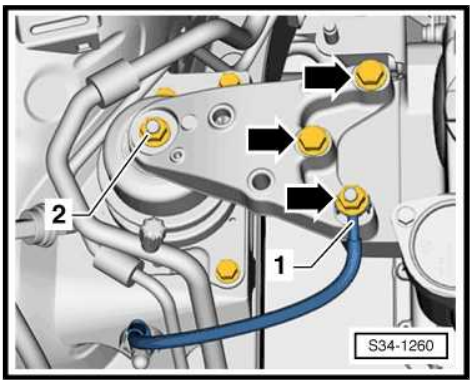
– If present, remove small cover plate -A- for flywheel -arrows-.



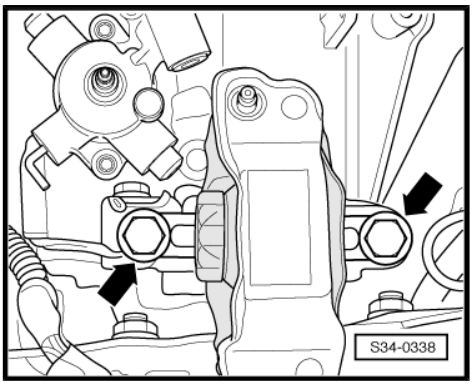
– Remove earth strap -1- from engine mount.
– Remove screws -arrows- for engine cradle at engine mount ⇒ Engine; Rep. gr. 26 .

Note

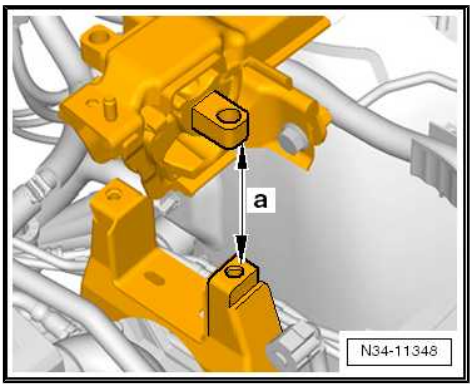
The nut -2- must not be released!



– Remove the screws -arrows- of the left assembly carrier from the gearbox mount.



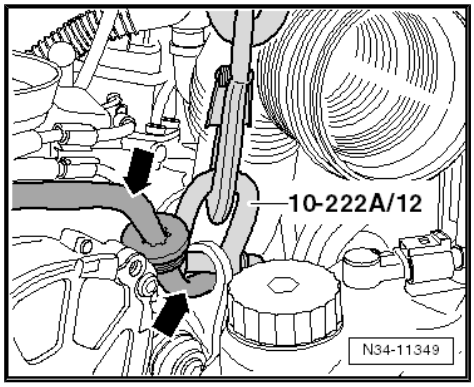
– Lower the gearbox to the dimension -a- approx. 55 mm.
– In addition, slightly lower the engine.



The vacuum hose -arrows- must not be jammed.

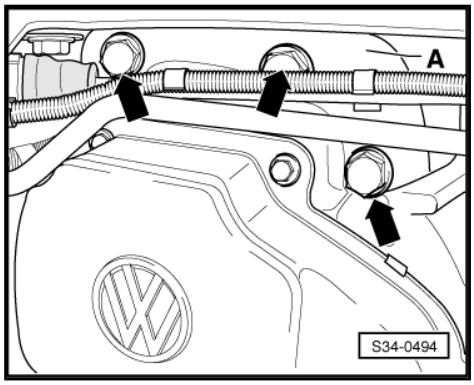
Caution

The lifting eye of the engine must not touch the brake fluid reservoir and the brake lines.



- The fixing screws -arrows- for the gearbox console -A- must be accessible.

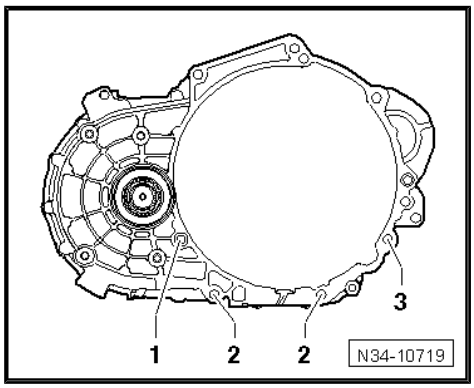
– Remove gearbox console -A- -arrows-.



– Remove bottom engine/gearbox connecting screw -1-

Note

Slacken the engine/gearbox connecting screws -2- and -3- and leave them screwed in hand tight. The screws -2- and -3- are removed during future work procedure.



– Insert gearbox mount - 3282 - into engine/gearbox jack , e.g. -V.A.G 1383 A- .

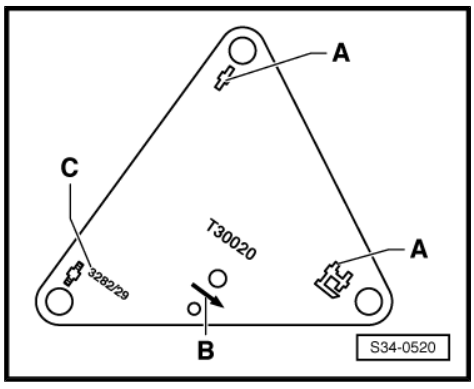
Complete engine and gearbox jack with gearbox mount - 3282- , adjusting plate - T30020- for gearbox “02R” and support elements as follows:

– Position adjusting plate - T30020 - onto the gearbox mount - 3282- (adjusting plate fits in only one position).

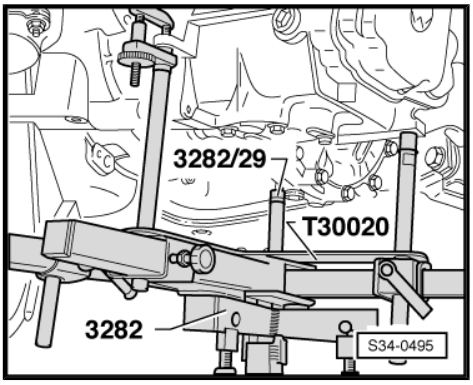
– Align arms of the gearbox mount to match the holes in the adjusting plate .

– Screw in the mounting elements -A- and -C- as shown on adjusting plate .

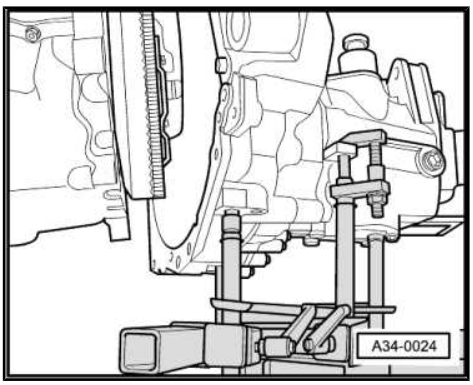
– Screw in the bolt - 3282/29- , as indicated on the adjusting plate.



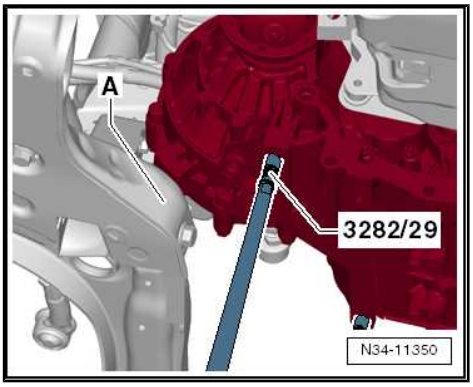
– Position the engine and gearbox jack below the vehicle, the arrow -symbol B- (in the previous figure) on the adjusting plate points in the direction of travel/vehicle.
– Align adjusting plate parallel to the gearbox and lock securing mounts at gearbox.
– Remove the bottom engine/gearbox connecting screws.



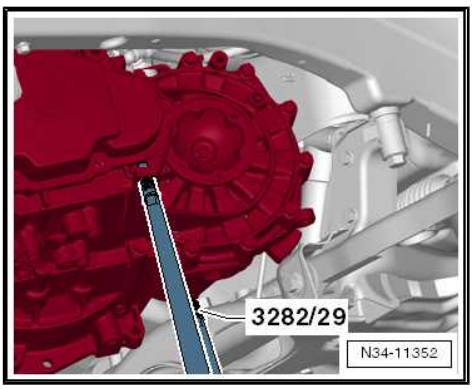
– Press the gearbox out of the dowel sleeves and carefully swing towards the assembly carrier.
• The differential gear must point upwards.
• When removing and installing the gearbox, ask a 2nd mechanic to push the engine slightly forwards.



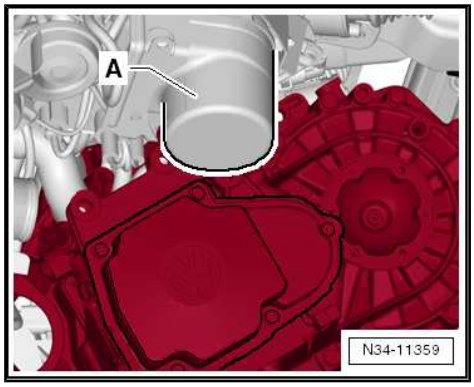
– Guide the gearbox with the differential gear via the assembly carrier -A- and swivel out.
– If necessary, turn the gearbox in the area of the differential gear via the spindles of the gearbox mount - 3282- further upwards.



– Swivel out the gearbox further and carefully lower it.
– Lower the gearbox in the area of the 5th gear (sheet metal cover) via the spindles of the gearbox mount - 3282- .



The gearbox must not touch the engine pump aggregate -A- for the power-assisted steering.



– Change the gearbox position at the spindles of the gearbox mount - 3282- when lowering.

Note

- *Pay attention to the coolant hose between the engine and the heat exchanger for heating.*
- *When removing and installing, pay attention to the charge air pipe of the engine ⇒ Engine; Rep. gr. 21 .*
- *The engine cradle must not touch the toothed belt guard - top part ⇒ Engine; Rep. gr. 26 .*

– Installing the gearbox
⇒ “2.5 Installing the gearbox”, page 120 .

2.3 Removing gearbox (Rapid)

Special tools and workshop equipment required

- Supporting device - MP9-200 (10-222A)-
- Adapter - MP9-200/3 (10-222A/3)-
- Gearbox mount - 3282-
- Adjusting plate - T30020-
- Engine and gearbox jack e.g. -V.A.G 1383 A-
- Hook for MP9-200 - MP9-200/10-
- Shackle - (10-222A/12)-
- Bolt - 3282/29-
- Grease for plug serration of clutch disc - G 000 100-

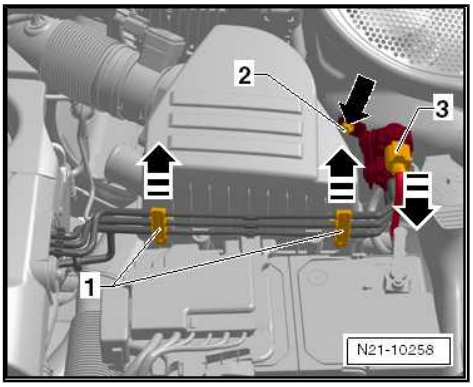
Note

- *All cable straps which are detached or cut open when removing, should be fitted on again in the same place when installing.*
- *After the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .*

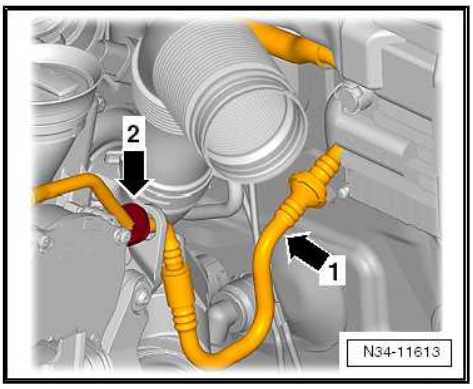
– Disconnect the earth strap from the battery with the ignition off.

– Remove engine cover ⇒ engine; Rep. gr. 10 .

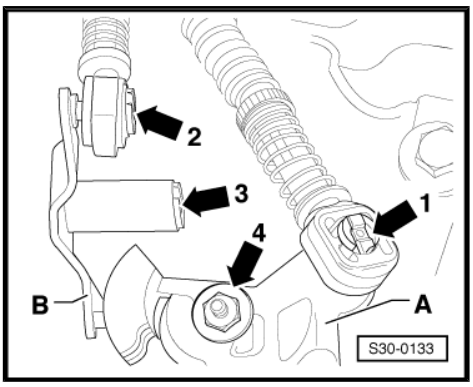
– Remove the vacuum lines with the bracket -1- from the air filter and disconnect the plug -3- -direction of arrow-.
– Unscrew the charge pressure control solenoid valve - N75- with the bracket -2- -arrow- and place it with the vacuum line on the engine.
– Remove air filter box completely with air guide hose ⇒ Engine; Rep. gr. 23 .
– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .



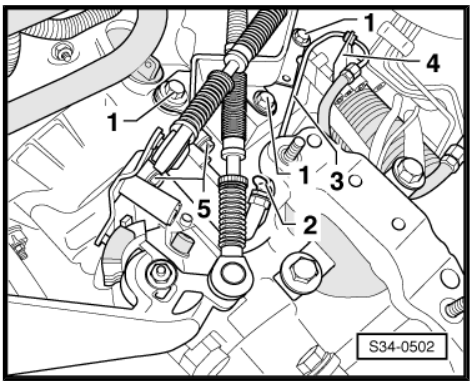
– Remove the vacuum hose -arrow 1- from the brake servo unit to the engine at the front wall.
– Remove the rubber bearing -arrow 2- of the vacuum hose from the lifting eye at the engine.



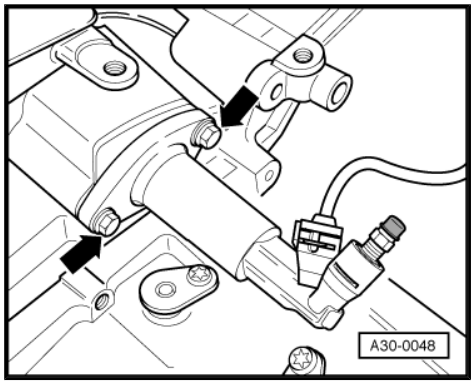
– Remove lock washer -arrow 1- for shift cable from gearbox shift lever -A-.
– Remove circlip -arrow 2- for selector cable from relay lever -B-.
– Remove selector cable and shift cable from the studs.
– Detach circlip -arrow 3- from the relay lever -B- and remove relay lever.
– Remove the gearshift lever -A-, for this step unscrew nut -arrow 4-.



– Disconnect the cable support from the gearbox (screws -1-).
– Tie up shift cable and selector cable.
– If present, remove the bracket -B- from the gearbox and pull off from the tube-hose line -A-.



– Remove the slave cylinder -arrows-, lay aside and secure it; do not open the line system.

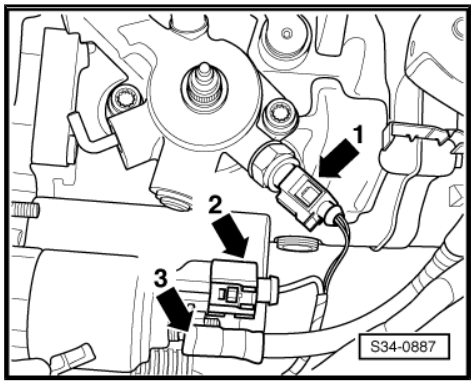


Caution

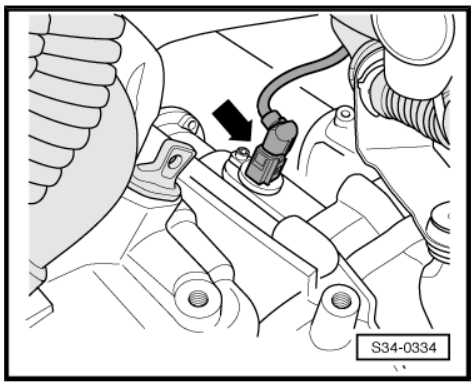
Do not depress the clutch pedal.

– Remove engine/gearbox connecting screws at the top.

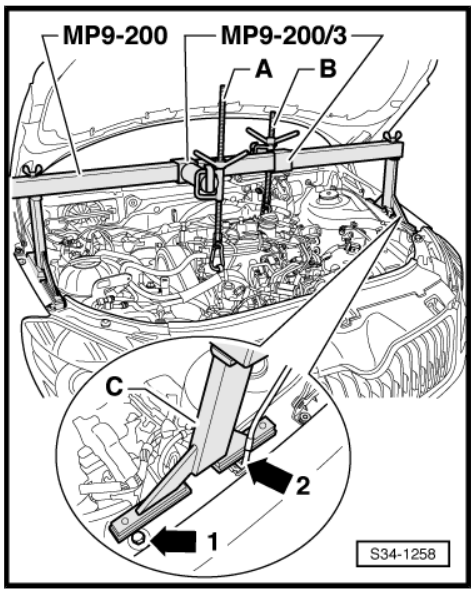
– Disconnect plug -arrow 1- from reversing light switch - F4- .
– Remove connector -arrow 2- and cable -arrow 3- from the starter.
– Expose cables.
– Remove engine/gearbox connecting screws at the top.
– Remove top securing screws at starter.



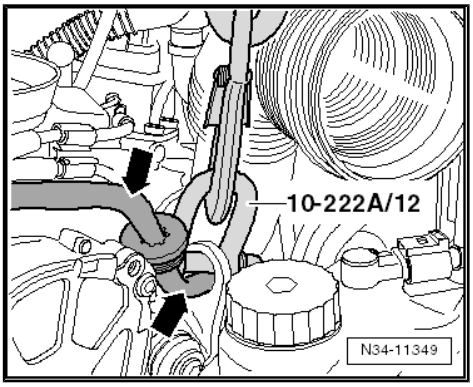
– Unplug connector -arrow- from speedometer sender - G22- (if available).
– If hose and cable connections are located in the area of the lifting eye of the engine for the supporting device - MP9-200 (10-222A)- , these must now be removed.



– Install supporting device - MP9-200 (10-222A)- . For this purpose, position the supports -C- next to the screw -arrow 1- and the support for the front flap -arrow 2- as shown.
– Hook the spindle -A- into the front right engine lifting eye.
– Position the spindle -B- on the adapter - 10-222 A/3- .

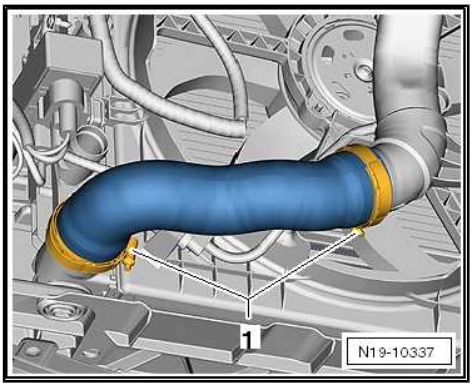


– Hook the rear left shackle - 10-222 A/12- into the engine lifting eye.

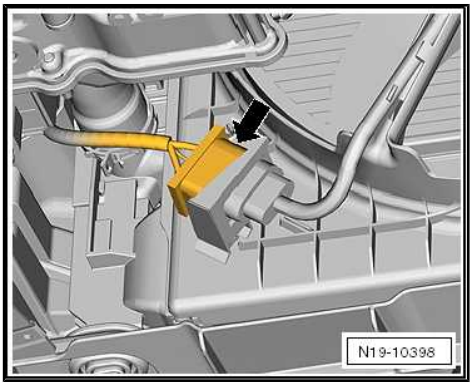


> **Caution**
>
> *The vacuum hose must move freely in the lifting eye -arrows-.*
>
> *It must not be damaged.*

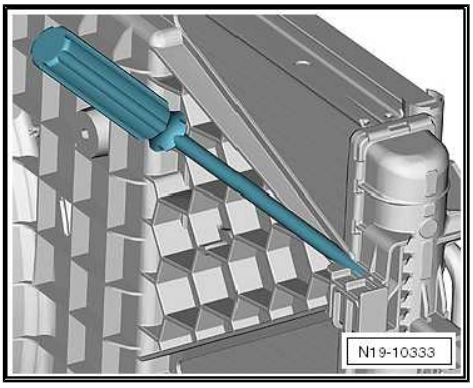
– Then connect the shackle - 10-222 A/12- with the spindle.
– Take up the weight of the engine/gearbox unit at the spindles.
– Remove front left wheel ⇒ Chassis; Rep. gr. 44 and raise vehicle.
– Remove the front left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
– Remove the charge air hose »hot« side, to do so slacken the hose clamps -1- ⇒ Engine; Rep. gr. 21 .
– Remove charge air pipe »hot« side at engine side ⇒ Engine; Rep. gr. 21 .



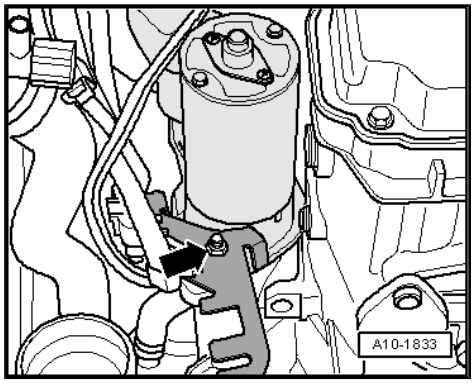
– Unplug connector -arrow-.



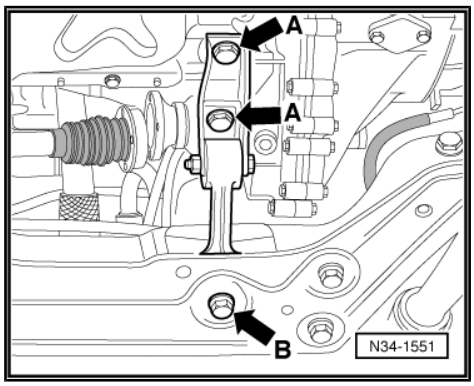
– Release the fan shroud on the catch hook e.g. using a screwdriver and remove ⇒ Engine; Rep. gr. 19 .



– Release the nut -arrow- and remove the bracket for the electrical cables.



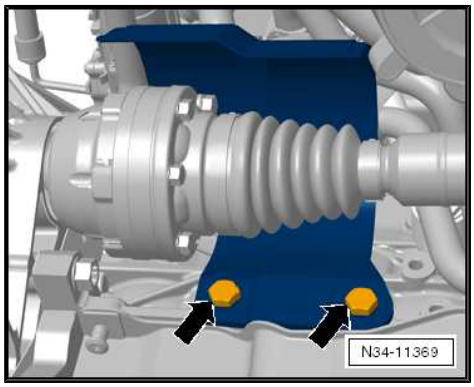
– Removing starter ⇒ Electrical System; Rep. gr. 27 .
– Fit the stiff cover onto the decoupling element of the exhaust system ⇒ Engine; Rep. gr. 26 .
– Separate the exhaust system at the clamping sleeve ⇒ Engine; Rep. gr. 26 and secure the exhaust pipe so that it cannot unhook freely.
– Push the pre-exhaust pipe out of the retaining straps and secure the exhaust pipe in such a way that it cannot unhook freely.
– Remove pendulum support -arrows A- and -arrow B-.



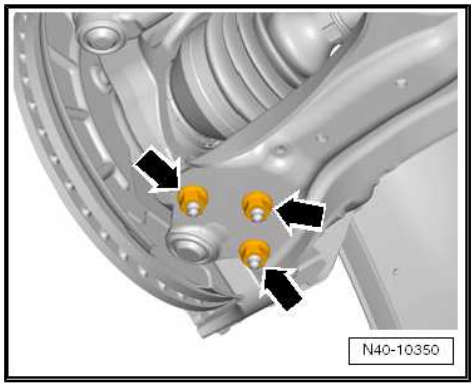
Note

When installing the pendulum support position the screws -arrows 1- in the elongated holes in such a way that there is maximum distance between the gearbox and the assembly carrier.

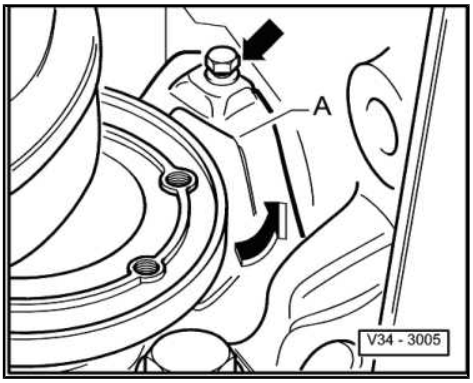
– If present, remove the heat shield for the right drive shaft -arrows- ⇒ Chassis; Rep. gr. 40 .
– Turn steering to full left lock.



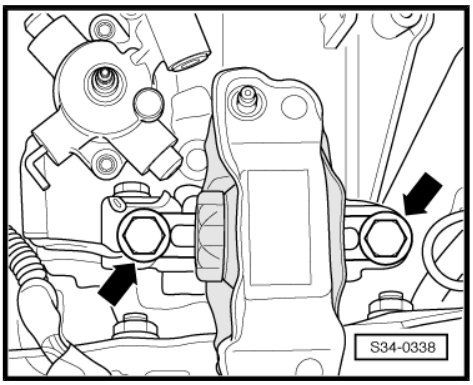
– Unscrew nuts -arrows- for left and right steering joint ⇒ Chassis; Rep. gr. 44 .
– Remove drive shafts from flange shafts ⇒ Chassis; Rep. gr. 40 .
– Swivel out the wheel-bearing housing.
– Swivel the drive shafts into the wheelhouses and secure them to the suspension struts, e.g. with a cord. Avoid damaging the paintwork of the drive shafts during this operation.
– Remove right flange shaft from gearbox.



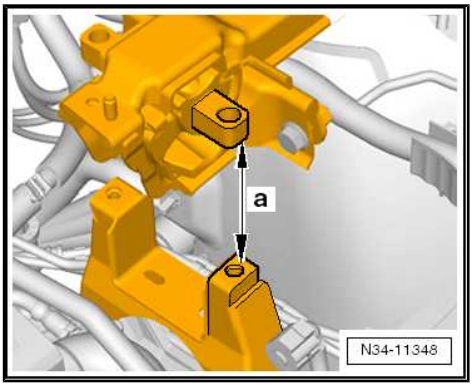
– If present, remove small cover plate -A- for flywheel -arrows-.



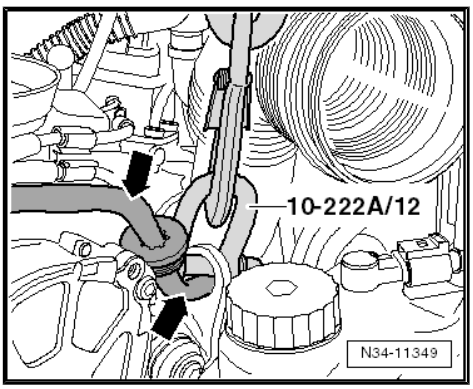
– Remove the screws -arrows- of the left assembly carrier from the gearbox mount.



– Lower the gearbox to the dimension -a- approx. 55 mm.



The vacuum hose -arrows- must not be jammed.

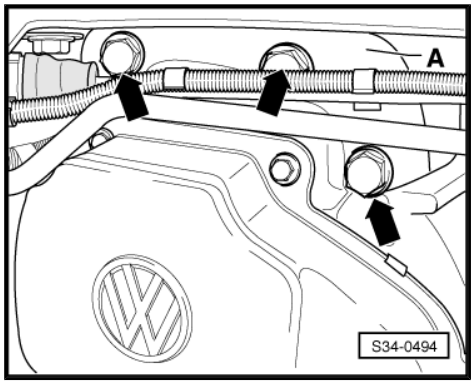


Caution

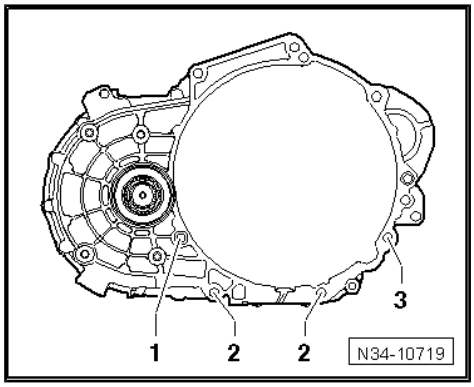
The lifting eye of the engine must not touch the brake fluid reservoir and the brake lines.

- The fixing screws -arrows- for the gearbox console -A- must be accessible.

– Remove gearbox console -A- -arrows-.



– Remove bottom engine/gearbox connecting screw -1-



Note

Slacken the engine/gearbox connecting screws -2- and -3- and leave them screwed in hand tight. The screws -2- and -3- are removed during future work procedure.

– Insert gearbox mount - 3282- into engine/gearbox jack , e.g. - V.A.G 1383 A- .

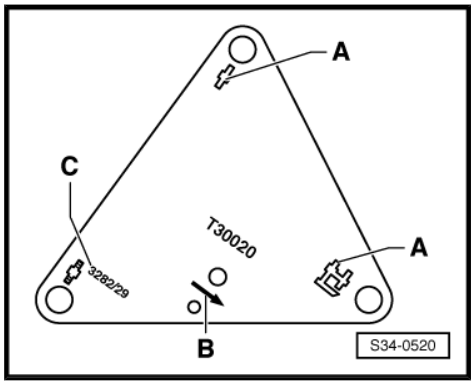
Complete engine and gearbox jack with gearbox mount - 3282- , adjusting plate - T30020- for gearbox “02R” and support elements as follows:

– Position adjusting plate - T30020- onto the gearbox mount - 3282- (adjusting plate fits in only one position).

– Align arms of the gearbox mount to match the holes in the adjusting plate .

– Screw in the mounting elements -A- and -C- as shown on adjusting plate .

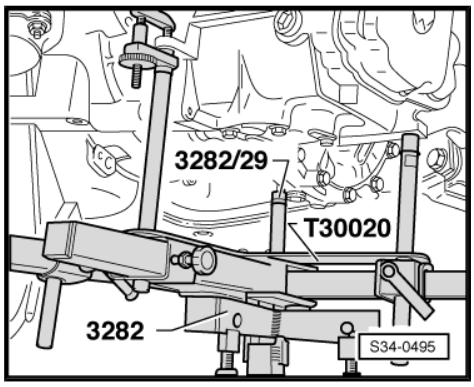
– Screw in the bolt - 3282/29- , as indicated on the adjusting plate.



– Position the engine and gearbox jack below the vehicle, the arrow -symbol B- (in the previous figure) on the adjusting plate points in the direction of travel/vehicle.

– Align adjusting plate parallel to the gearbox and lock securing mounts at gearbox.

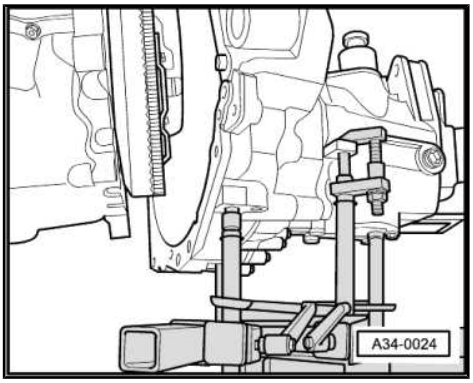
– Remove the bottom engine/gearbox connecting screws.



– Press the gearbox out of the dowel sleeves and carefully swing towards the assembly carrier.

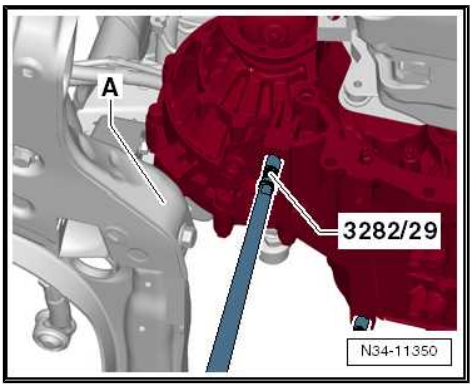
• The differential gear must point upwards.

• When removing and installing the gearbox, ask a 2nd mechanic to push the engine slightly forwards.



– Guide the gearbox with the differential gear via the assembly carrier -A- and swivel out.

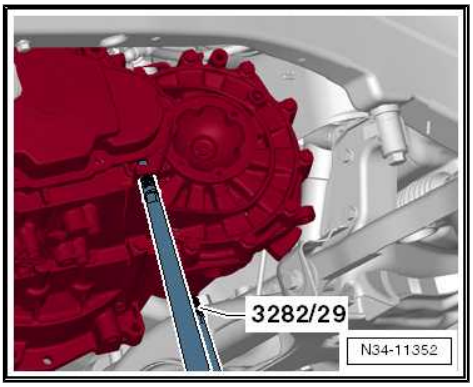
– If necessary, turn the gearbox in the area of the differential gear via the spindles of the gearbox mount - 3282- further upwards.



– Swivel out the gearbox further and carefully lower it.

– Lower the gearbox in the area of the 5th gear (sheet metal cover) via the spindles of the gearbox mount - 3282- .

– Change the gearbox position at the spindles of the gearbox mount - 3282- when lowering.



Note

♦ *Pay attention to the coolant hose between the engine and the heat exchanger for heating.*

♦ *When removing and installing, pay attention to the charge air pipe of the engine ⇒ Engine; Rep. gr. 21 .*

♦ *The engine cradle must not touch the toothed belt guard - top part ⇒ Engine; Rep. gr. 26 .*

– Installing the gearbox
⇒ “2.5 Installing the gearbox”, page 120 .

2.4 Removing gearbox (Rapid NH)

Special tools and workshop equipment required

♦ Gearbox mount - 3282-

♦ Bolt - 3282/29-

♦ Adjusting plate - T30020-

♦ Engine and gearbox jack e.g. -V.A.G 1383 A-

♦ Supporting device - T30099-

♦ Adapter - MP9-200/3 (10-222A/3)-

♦ Hook for MP9-200 - MP9-200/10 (10-222A/10)-

♦ Surface - T30099/1-

- Shackle - (10-222A/12)-
- Grease for plug serration of clutch disc - G 000 100-

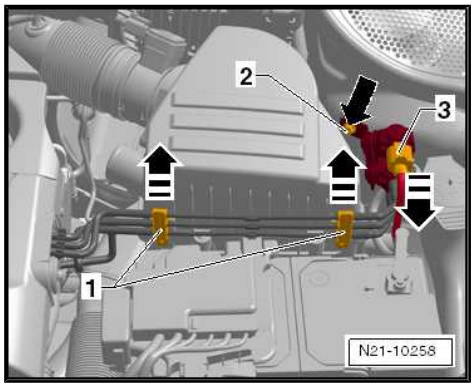
Note

- *All cable straps which are detached or cut open when removing, should be fitted on again in the same place when installing.*
- *If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .*

– Disconnect the earth strap from the battery with the ignition off.

– Remove engine cover ⇒ engine; Rep. gr. 10 .

– Remove the vacuum lines with the bracket -1- from the air filter and disconnect the plug -3- -direction of arrow-.



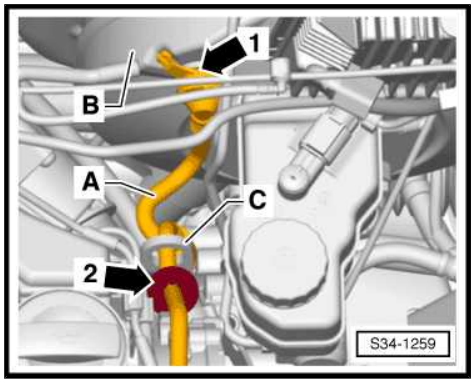
– Unscrew the charge pressure control solenoid valve - N75- with the bracket -2- -arrow- and place it with the vacuum line on the engine.

– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .

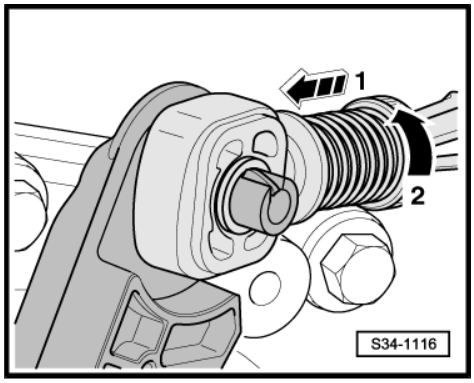
– Remove air filter housing complete with air guide hose ⇒ Engine; Rep. gr. 23 .

– Remove the cooling water tank cover ⇒ Body Work; Rep. gr. 66 .

– Remove the rubber bearing -arrow 2- of the vacuum hose from the lifting eye at the engine.

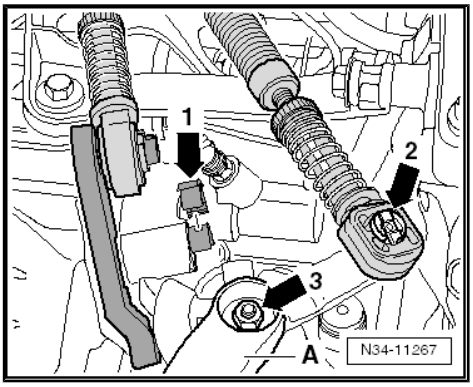


– Pull forward the locking mechanism of the selector cable as far as the stop in -direction of arrow 1- and then lock by turning to the left in -direction of arrow 2-.



– Remove the clip -arrow 1- from the opening in the relay lever.

– Pull the relay lever out of its bearing point in the gearshift cover together with the cable lock.

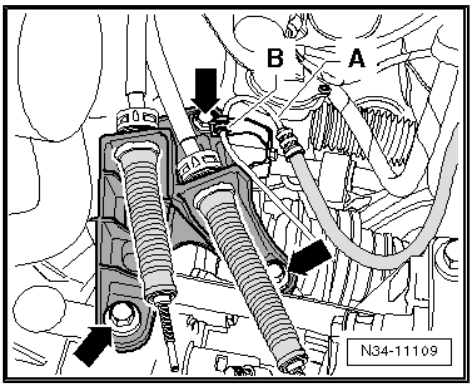


Note

- *On some vehicles, the relay lever can be secured with a catch ⇒ "1.9.1 Removing and installing plastic relay lever", page 78 .*
- *Remove circlip -arrow 2- for shift cable from gearbox shift lever -A-.*
- *Pull off the shift cable from the stud.*
- *Remove the gearshift lever -A-, for this step unscrew nut -arrow 3-.*

– Remove cable support from the gearbox -arrows- and tie up laterally together with selector cable and shift cable

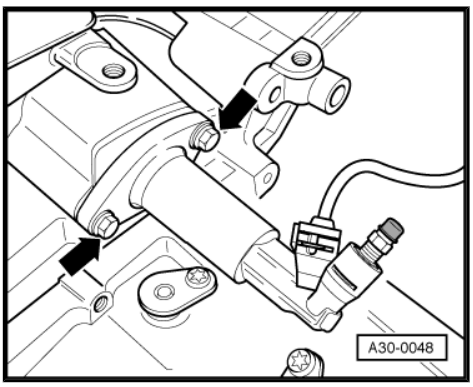
– If present, remove the bracket -B- from the gearbox and pull off from the tube-hose line -A-.



– Remove the slave cylinder -arrows-, lay aside and secure it, do not open the line system.

Caution

Do not operate clutch pedal any more.



– Remove engine/gearbox connecting screws at the top.

– Disconnect plug -arrow 1- from reversing light switch - F4- .

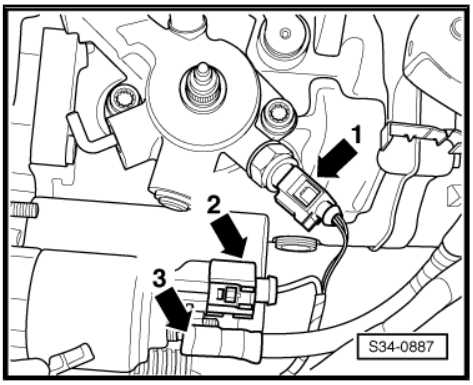
– Remove connector -arrow 2- and cable -arrow 3- from the starter.

– Expose cables.

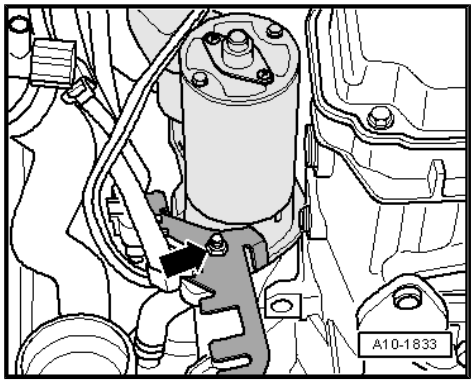
– Remove front left wheel ⇒ Chassis; Rep. gr. 44 and raise vehicle.

– Remove the front left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .

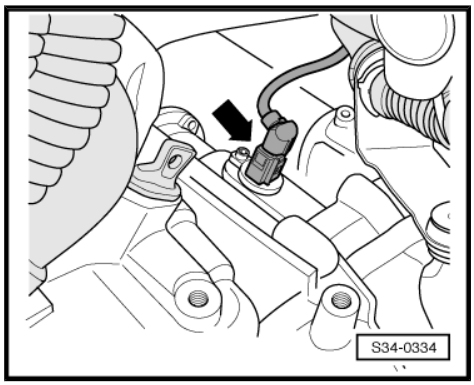
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .



– Release the nut -arrow- and remove the bracket for the electrical cables.
– Remove top securing screws at starter.
– Removing starter ⇒ Electrical System; Rep. gr. 27 .
– Remove engine/gearbox connecting screws at the top.



– Unplug connector -arrow- from speedometer sender - G22- (if available).



Note

In order for the spindle -I- of the supporting device - MP9-200 (10-222A)- not to touch the front flap, it must be shortened to the dimension -x- (100 mm).

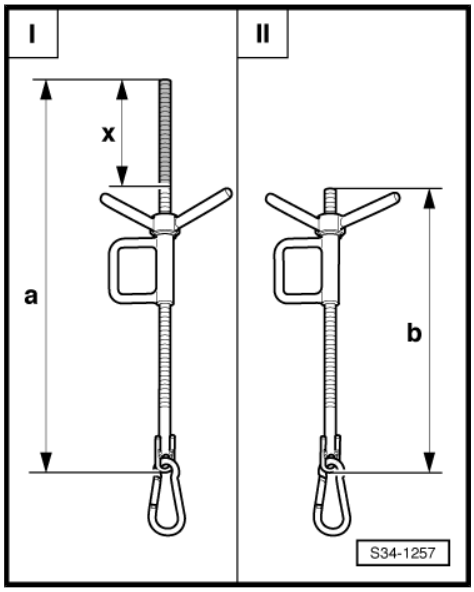
Shorten the spindle -I- of the supporting device - MP9-200 (10-222A)- by 100 mm:

I - Spindle MP9-200/10 (10-222A/10)

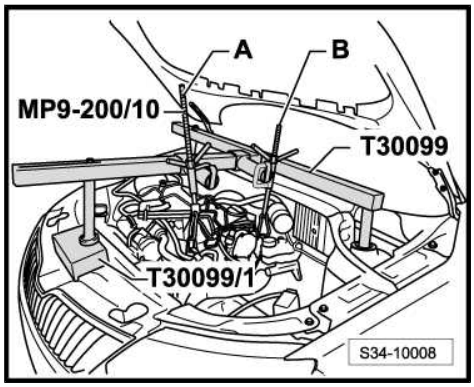
- Dimension -a- = 442 mm
- Dimension -x- = 100 mm

II - shortened spindle MP9-200/10 (10-222A/10)

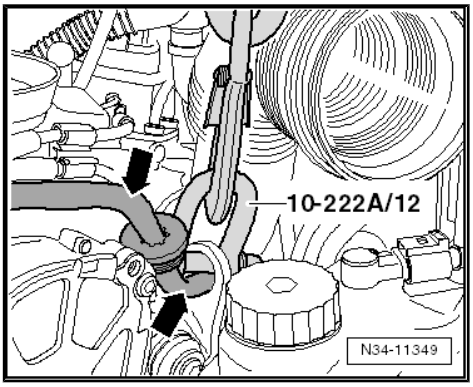
- Dimension -b- = 342 mm



– Install supporting device - T30099- with base - T30099/1- .
– Position original spindle -A- on adapter - MP9-200/3 (10-222A/3)- and hook it into the front engine lifting eye.
– Position the shortened spindle -B- on the rear adapter - MP9-200/3 (10-222A/3)- .



– Hook the shackle - 10-222 A/12- into the rear engine lifting eye.
– Then hook the shackle - 10-222 A/12- into the shortened spindle ⇒ page 116 .



Caution

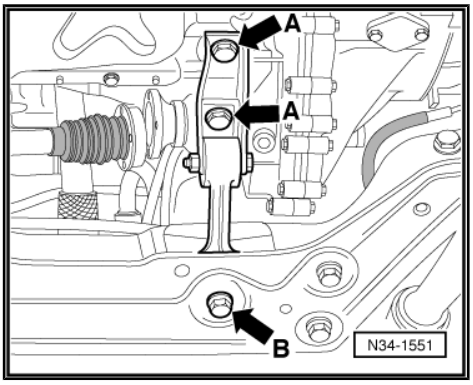
The vacuum hose must move freely in the lifting eye -arrows-.

It must not be damaged.

Note

Support supporting device - T30099- with base - T30099/1- and lock carrier.

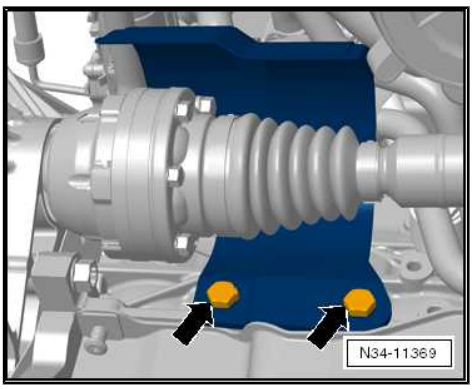
– Take up the weight of the engine/gearbox unit at the spindles.
– Fit the stiff cover onto the decoupling element of the exhaust system ⇒ Engine; Rep. gr. 26 .
– Separate the exhaust system at the clamping sleeve ⇒ Engine; Rep. gr. 26 and secure the exhaust pipe so that it cannot unhook freely.
– Push the pre-exhaust pipe out of the retaining straps and secure the exhaust pipe in such a way that it cannot unhook freely.
– Remove pendulum support -arrows A- and -arrow B-.



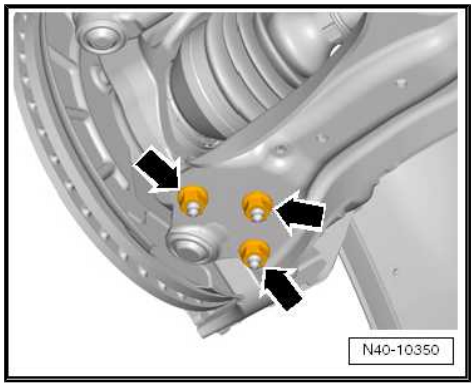
Note

When installing the pendulum support position the screws -arrows 1- in the elongated holes in such a way that there is maximum distance between the gearbox and the assembly carrier.

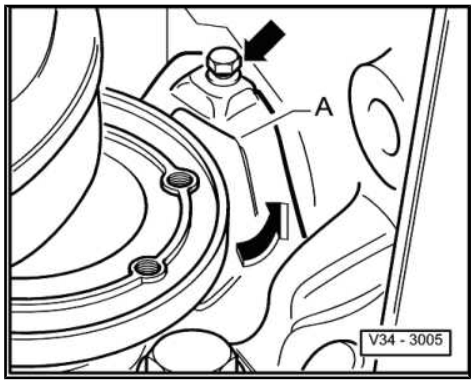
– If present, remove heat shield for right drive shaft -arrows-.
– Turn steering to full left lock.



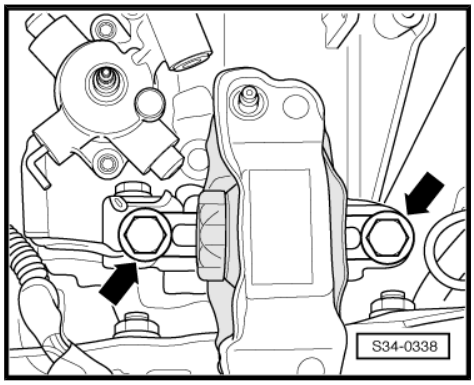
– Unscrew nuts -arrows- for left and right steering joint ⇒ Chassis; Rep. gr. 40 .
– Remove drive shafts from the flange shafts.
– Swivel out the wheel-bearing housing.
– Swivel the drive shafts into the wheelhouses and secure them to the suspension struts, e.g. with a cord. Avoid damaging the paintwork of the drive shafts during this operation.
– Lower the assembly carrier in the service position ⇒ Chassis; Rep. gr. 40 .



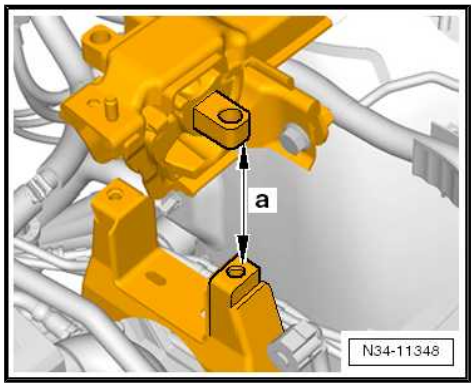
– If present, remove small cover plate -A- for flywheel -arrows-.



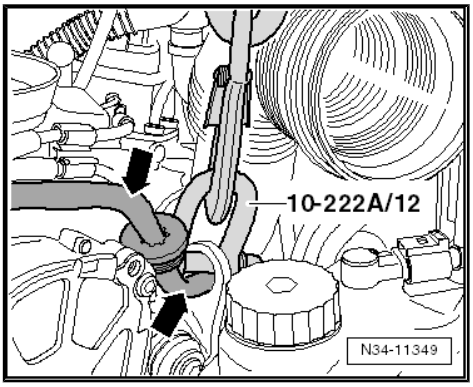
– Remove the screws -arrows- of the left assembly carrier from the gearbox mount.



– Lower the gearbox to the dimension -a- approx. 55 mm.



The vacuum hose -arrows- must not be jammed.

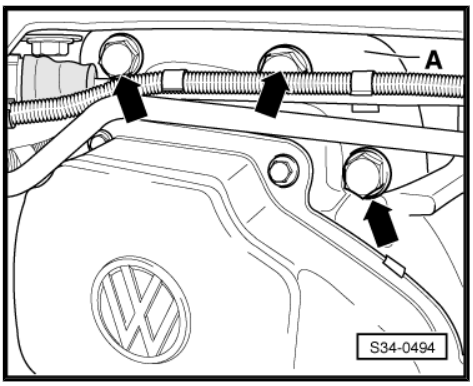


Caution

The engine lifting eye must not touch the brake fluid reservoir nor the brake lines.

- The fixing screws -arrows- for the gearbox console -A- must be accessible.

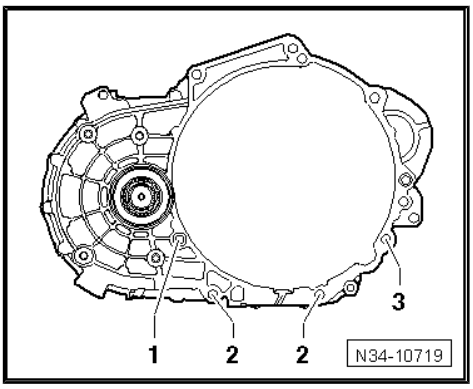
– Remove gearbox console -A- -arrows-.



– Remove bottom engine/gearbox connecting screw -1-

Note

Slacken the engine/gearbox connecting screws -2- and -3- and leave them screwed in hand tight. The screws -2- and -3- are removed during future work procedure.



– Insert engine mount - 3282- into engine and gearbox jack . e.g. -V.A.G 1383 A- .

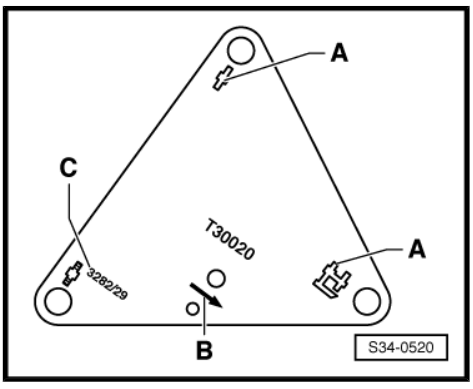
Complete engine and gearbox jack with gearbox mount - 3282- , adjusting plate - T30020- for gearbox “02R” and support elements as follows:

– Position adjusting plate - T30020- onto the gearbox mount - 3282- (adjusting plate fits in only one position).

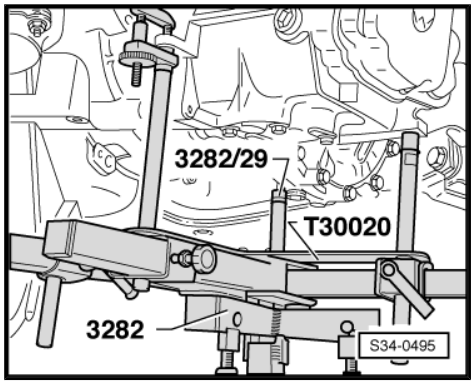
– Align arms of the gearbox mount to match the holes in the adjusting plate .

– Screw in the mounting elements -A- and -C- as shown on adjusting plate .

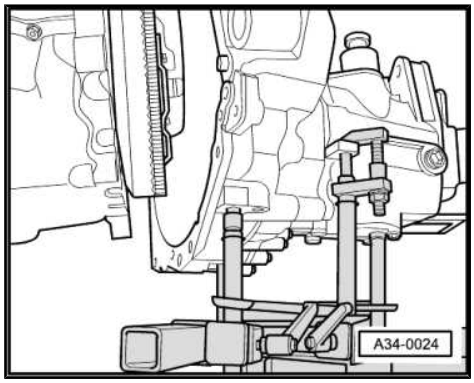
– Screw in the bolt - 3282/29- , as indicated on the adjusting plate.



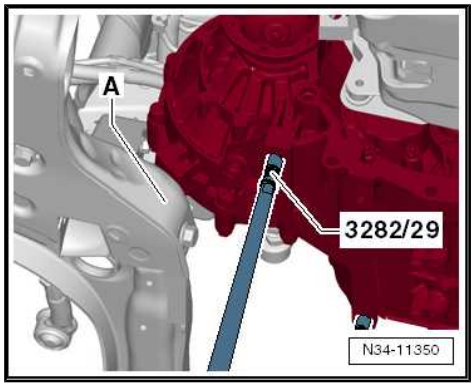
– Position the engine and gearbox jack below the vehicle, the arrow -symbol B- (in the previous figure) on the adjusting plate points in the direction of travel/vehicle.
– Align adjusting plate parallel to the gearbox and lock securing mounts at gearbox.
– Remove the bottom engine/gearbox connecting screws.



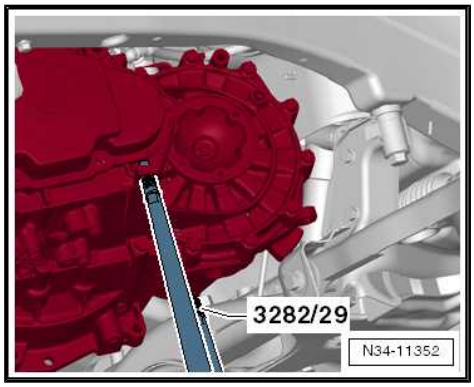
– Press the gearbox out of the dowel sleeves and carefully swing towards the assembly carrier.
• The differential gear must point upwards.
• When removing and installing the gearbox, ask a 2nd mechanic to push the engine slightly forwards.



– Guide the gearbox with the differential gear via the assembly carrier -A- and swivel out.
– If necessary, turn the gearbox in the area of the differential gear via the spindles of the gearbox mount - 3282- further upwards.



– Swivel out the gearbox further and carefully lower it.
– Lower the gearbox in the area of the 5th gear (sheet metal cover) via the spindles of the gearbox mount - 3282- .
– Change the gearbox position at the spindles of the gearbox mount - 3282- when lowering.



Note

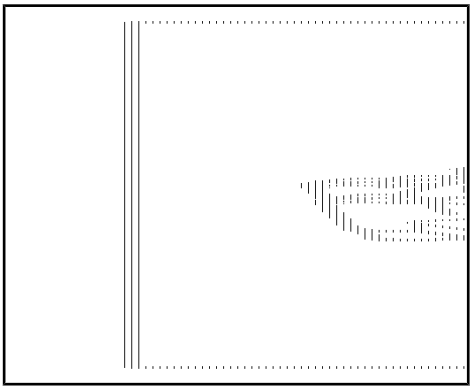
♦ *Pay attention to the coolant hose between the engine and the heat exchanger for heating.*
♦ *When removing and installing, pay attention to the charge air pipe of the engine ⇒ Engine; Rep. gr. 21 .*

– Installing the gearbox
⇒ “2.5 Installing the gearbox”, page 120 .

2.5 Installing the gearbox

The installation of the gearbox occurs in reverse order. Observe the stress-free assembly bracket in the vehicle.

– Before installing the gearbox press the clutch release lever towards the gearbox housing and secure with mounting bolt or screw M 8 x 35.
– After installing the gearbox release screw again. The hole is then closed with the 3rd fixing screw for the cable support/ control cables.

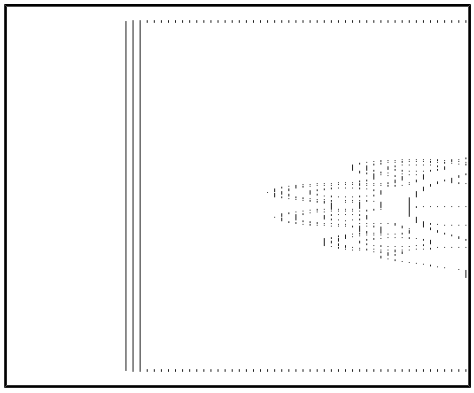


Note

- *Clean spline of drive shaft and apply a thin film of grease for the plug serration of the clutch disc - G 000 100 - . The clutch plate must slide freely up and down the drive shaft.*
- *If the gearbox is inserted, ensure the intermediate plate between the engine and gearbox is correctly installed.*
- *Check whether the dowel sleeves for centering the gearbox are present in the cylinder block, insert if necessary.*
- *When inserting the gearbox, slightly turn the engine for easy insertion.*
- *Install gearbox mount ⇒ Engine; Rep. gr. 10 .*
- *Align the exhaust system, without tightening ⇒ Engine; Rep. gr. 26 .*
- *Screw on the assembly carrier on vehicles with particle filter (Fabia II, Roomster) ⇒ Chassis; Rep. gr. 40 .*
- *Installing starter and cable ⇒ Electrical System; Rep. gr. 27 .*
- *Install the left wheelhouse liner ⇒ Body Work; Rep. gr. 50 .*
- *Install left front wheel ⇒ Chassis; Rep. gr. 66 .*
- *Install the noise insulation ⇒ Body Work; Rep. gr. 50 .*
- *Setting the shift mechanism ⇒ "1.12 Setting the shift mechanism", page 86 .*
- *Check gear oil level ⇒ "3 Check gear oil level", page 127 .*
- *Install air filter housing complete with air guide hose ⇒ Engine; Rep. gr. 23 .*
- *Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .*
- *If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .*

2.5.1 Tightening torques (Fabia II, Roomster)

Attach the gearbox to the 3 cylinder engine without particle filter (flange fig. gearbox)

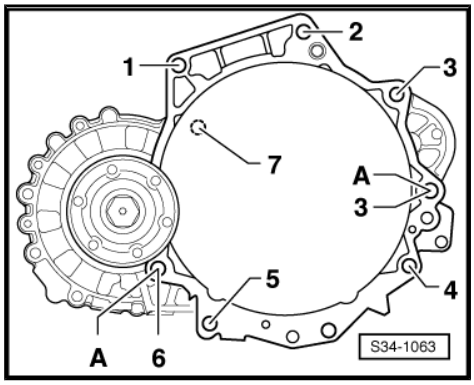


Pos.	Screw	Piece	Nm
1	M12 x 50	2	80
2[1)]	M12 x 150	1	80
3[1)]	M12 x 150	1	80
4[1)]	M10 x 58	1	40
5	M10 x 50	1	40
6	M12 x 55	1	80
7[2)]	M6 x 8	1	10
A	Dowel sleeves for centering		

[1)] Screw with threaded pin M8.

[2)] Attachment of cover plate for flywheel.

Attach the gearbox to the 3 cylinder engine with particle filter (flange fig. gearbox)

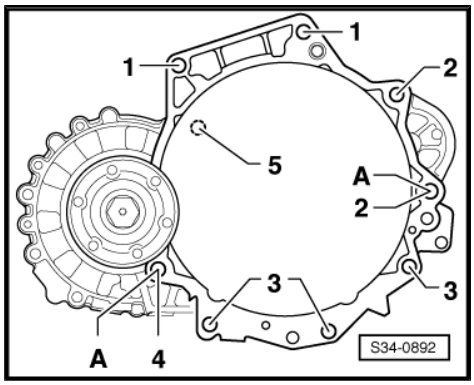


Pos.	Screw	Piece	Nm
1	M12 x 50	1	80
2[1)]	M12 x 55	1	80
3[1)]	M12 x 150	2	80
4[1)]	M10 x 50	1	40
5	M10 x 50	1	40
6	M12 x 60	1	80
7[2)]	M6 x 8	1	10
A	Dowel sleeves for centering		

[1)] Screw with threaded pin M8.

[2)] Attachment of cover plate for flywheel.

Attach the gearbox to the 4 cylinder engine without particle filter (flange fig. gearbox)

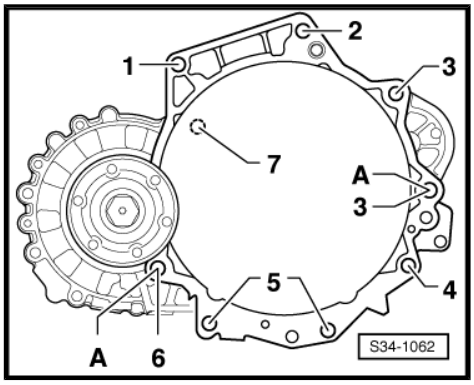


Pos.	Screw	Piece	Nm
1	M12 x 50	2	80
2[1)]	M12 x 150	2	80
3	M10 x 50	3	40
4	M12 x 55	1	80
5[2)]	M6 x 8	1	10
A	Dowel sleeves for centering		

[1)] Screw with threaded pin M8.

[2)] Attachment of cover plate for flywheel.

Attach the gearbox to the 4 cylinder engine with particle filter (flange fig. gearbox)

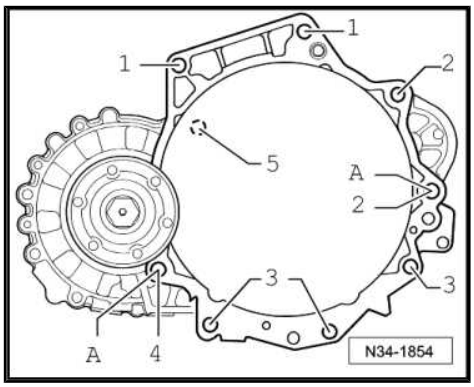


Pos.	Screw	Piece	Nm
1	M12 x 50	1	80
2[1)]	M12 x 55	1	80
3[1)]	M12 x 150	2	80
4[1)]	M10 x 50	1	40
5	M10 x 50	2	40
6	M12 x 60	1	80
7[2)]	M6 x 8	1	10
A	Dowel sleeves for centering		

[1)] Screw with threaded pin M8.

[2)] Attachment of cover plate for flywheel.

Attach the gearbox to the 3 cylinder engine (1.2 ltr./55 kW TDI CR) with particle filter (flange fig. gearbox)



Pos.	Screw	Piece	Nm
1	M12 x 50	2	80
2[1)]	M12 x 150	2	80
3	M10 x 50	3	40
4	M12 x 60	1	80
5[2)]	M6 x 8	1	10
A	Dowel sleeves for centering		

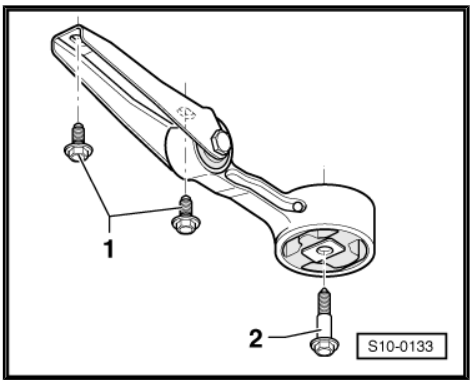
[1)] Screw with threaded pin M8.

[2)] Attachment of cover plate for flywheel.

Pendulum support

Note

Position the screws -1- in the elongated holes of the pendulum support in such a way that there is maximum distance between the gearbox and the assembly carrier.



Components	Tightening torque
Gearbox console to gearbox[1)]	40 Nm + 90°
Fixing screws to gearbox mount[1)]	40 Nm + 90°
Cable support to gearbox	⇒ “1.8 Summary of components - Control cables”, page 74
Gearbox shift lever to gearbox	⇒ “1.8 Summary of components - Control cables”, page 74
Slave cylinder to gearbox	⇒ “1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH) ”, page 41
bracket for tube-hose line	⇒ “1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH) ”, page 41

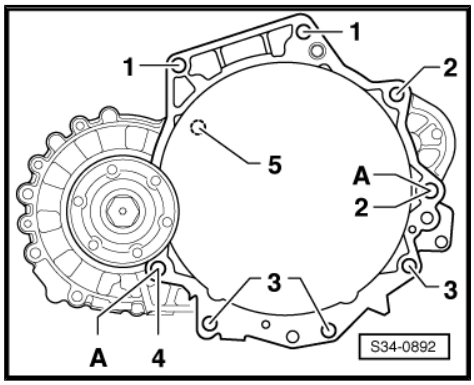
Components	Tightening torque
Fixing screws of engine mount	⇒ Engine; Rep. gr. 10
Pendulum support	⇒ Engine; Rep. gr. 10
Pre-exhaust pipe with catalytic converter and clamping sleeve	⇒ Engine; Rep. gr. 26
Drive shaft to flange shaft	⇒ Chassis; Rep. gr. 40
Coupling rod to anti-roll bar	⇒ Chassis; Rep. gr. 40
Heat shield for drive shaft to engine	⇒ Chassis; Rep. gr. 40
Steering joint to track control arm	⇒ Chassis; Rep. gr. 40
Wheel bolts	⇒ Chassis; Rep. gr. 44

1) Always replace these bolts.

2.5.2 Tightening torques (Rapid)

Attach gearbox to engine (flange fig. gearbox)

Pos.	Screw	Piece	Nm
1	M12 x 50	2	80
2[1)]	M12 x 150	2	80
3	M10 x 50	3	40
4	M12 x 60	1	80
5[2)]	M6 x 8	1	10
A	Dowel sleeves for centering		



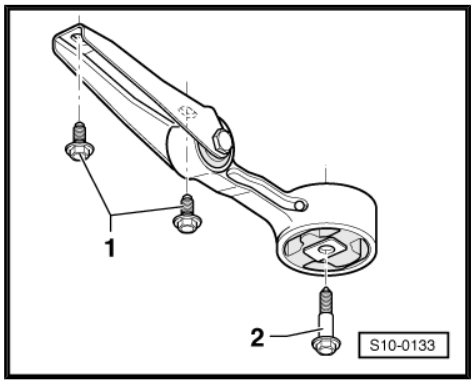
1) Screw with threaded pin M8.

2) Attachment of cover plate for flywheel.

Pendulum support

Note

Position the screws -1- in the elongated holes of the pendulum support in such a way that there is maximum distance between the gearbox and the assembly carrier.



Components	Tightening torque
Gearbox console to gearbox[1)]	40 Nm + 90°
Fixing screws to gearbox mount[1)]	40 Nm + 90°
Cable support to gearbox	⇒ “1.8 Summary of components - Control cables”, page 74
Gearbox shift lever to gearbox	⇒ “1.8 Summary of components - Control cables”, page 74
Slave cylinder to gearbox	⇒ “1.15 Summary of components - Hydraulic (Rapid) ”, page 44
bracket for tube-hose line	⇒ “1.15 Summary of components - Hydraulic (Rapid) ”, page 44

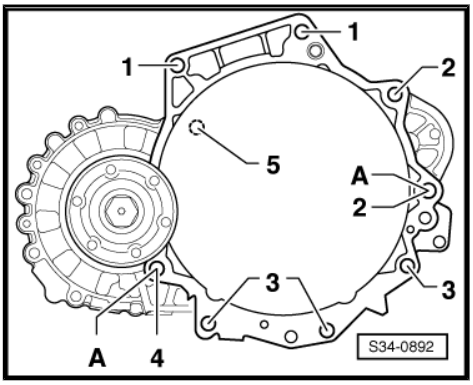
Components	Tightening torque
Flange shaft on gearbox (conical screw)	⇒ “2.1 Disassembling and assembling differential gear”, page 196
Fixing screws of engine mount	⇒ Engine; Rep. gr. 10
Pendulum support	⇒ Engine; Rep. gr. 10
Drive shaft to flange shaft	⇒ Chassis; Rep. gr. 40
Heat shield for drive shaft to engine	⇒ Chassis; Rep. gr. 40
Steering joint to track control arm	⇒ Chassis; Rep. gr. 40
Wheel bolts	⇒ Chassis; Rep. gr. 44

1) Always replace these bolts.

2.6 Tightening torques (Rapid NH)

Attach gearbox to engine (flange fig. gearbox)

Pos.	Screw	Piece	Nm
1	M12 x 50	2	80
2[1)]	M12 x 150	2	80
3	M10 x 55	3	40
4	M12 x 60	1	80
5[2)]	M6 x 8	1	10
A	Dowel sleeves for centering		



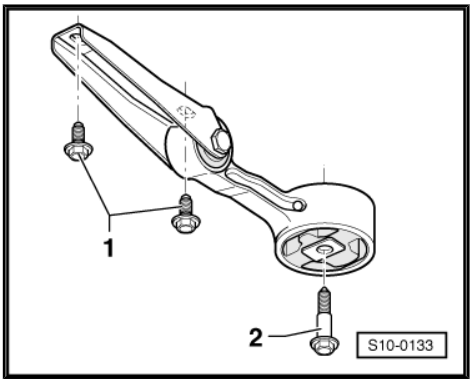
1) Screw with threaded pin M8.

2) Attachment of cover plate for flywheel.

Pendulum support

Note

Position the screws -1- in the elongated holes of the pendulum support in such a way that there is maximum distance between the gearbox and the assembly carrier.



Components	Tightening torque
Gearbox console to gearbox[1)]	40 Nm + 90°
Fixing screws to gearbox mount[1)]	40 Nm + 90°
Cable support to gearbox	⇒ “1.8 Summary of components - Control cables”, page 74
Gearbox shift lever to gearbox	⇒ “1.8 Summary of components - Control cables”, page 74
Slave cylinder to gearbox	⇒ “1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH) ”, page 41
bracket for tube-hose line	⇒ “1.14 Summary of components - Hydraulic (Fabia II ►; Roomster ►; Rapid NH) ”, page 41
Flange shaft on gearbox (conical screw)	⇒ “2.1 Disassembling and assembling differential gear”, page 196

Components	Tightening torque
Fixing screws of engine mount	⇒ Engine; Rep. gr. 10
Pendulum support	⇒ Engine; Rep. gr. 10
Drive shaft to flange shaft	⇒ Chassis; Rep. gr. 40
Heat shield for drive shaft to engine	⇒ Chassis; Rep. gr. 40
Steering joint to track control arm	⇒ Chassis; Rep. gr. 40
Wheel bolts	⇒ Chassis; Rep. gr. 44

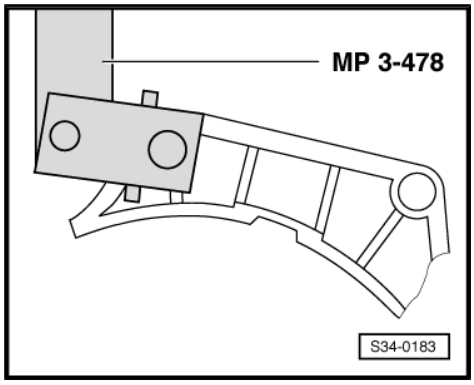
1) Always replace these bolts.

2.7 Transporting the gearbox

Special tools and workshop equipment required

- ♦ Gearbox attachment device - MP3-478 (3336)-

– Screw down gearbox suspension device - MP3-478 (3336)- onto clutch housing.

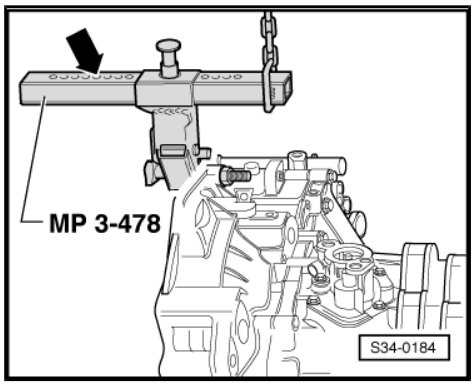


– Adjust supporting arm at slide piece with locking pin -arrow-.

Number of visible holes = 5.

– Raise gearbox with workshop crane and gearbox suspension device - MP3-478 (3336)- .

– Place down gearbox, e.g. in a transport container.

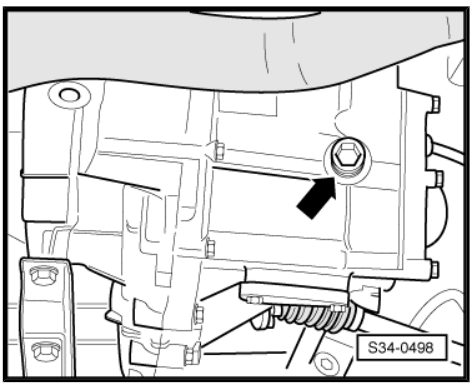


3 Check gear oil level

Gearbox oil specification ⇒ Electronic Catalogue of Original Parts .

– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .

– Unscrew plug for inspecting gear oil -arrow-.



The oil is at the correct level if the gear is filled up to the lower edge of the oil filler hole.

– Screw in gearbox inspection plug -arrow- and tighten to tightening torque
⇒ “5 Repairing gearbox housing and clutch housing”, page 151 .

If re-filling, do the following:

– Unscrew gearbox oil filler threaded plug -arrow-.

– Pour in gear oil up to lower edge of filler hole.

– Screw in plug -arrow-.

– Start engine, engage a gear and allow gearbox to rotate for about 2 minutes.

– Switch off engine and unscrew plug -arrow-.

– Pour in gear oil again up to lower edge of the filler hole.

– Screw in gearbox inspection plug -arrow- and tighten to tightening torque
⇒ “5 Repairing gearbox housing and clutch housing”, page 151 .

– Install the noise insulation ⇒ Body Work; Rep. gr. 50 .

4 Disassembling and assembling the gearbox

4.1 Gearbox overview

1 - 1. gear

2 - 2. gear

3 - 3. gear

4 - 4. gear

5 - 5. gear

6 - Gearbox housing

- ❑ repairing
  ⇒ “5 Repairing gearbox housing and clutch housing”, page 151

7 - Shift mechanism

- ❑ Gearshift forks
- ❑ disassembling and assembling
  ⇒ “7 Disassembling and assembling the gearshift forks”, page 160

8 - Drive wheel for 1st gear sliding gear and reverse gear

9 - Drive shaft

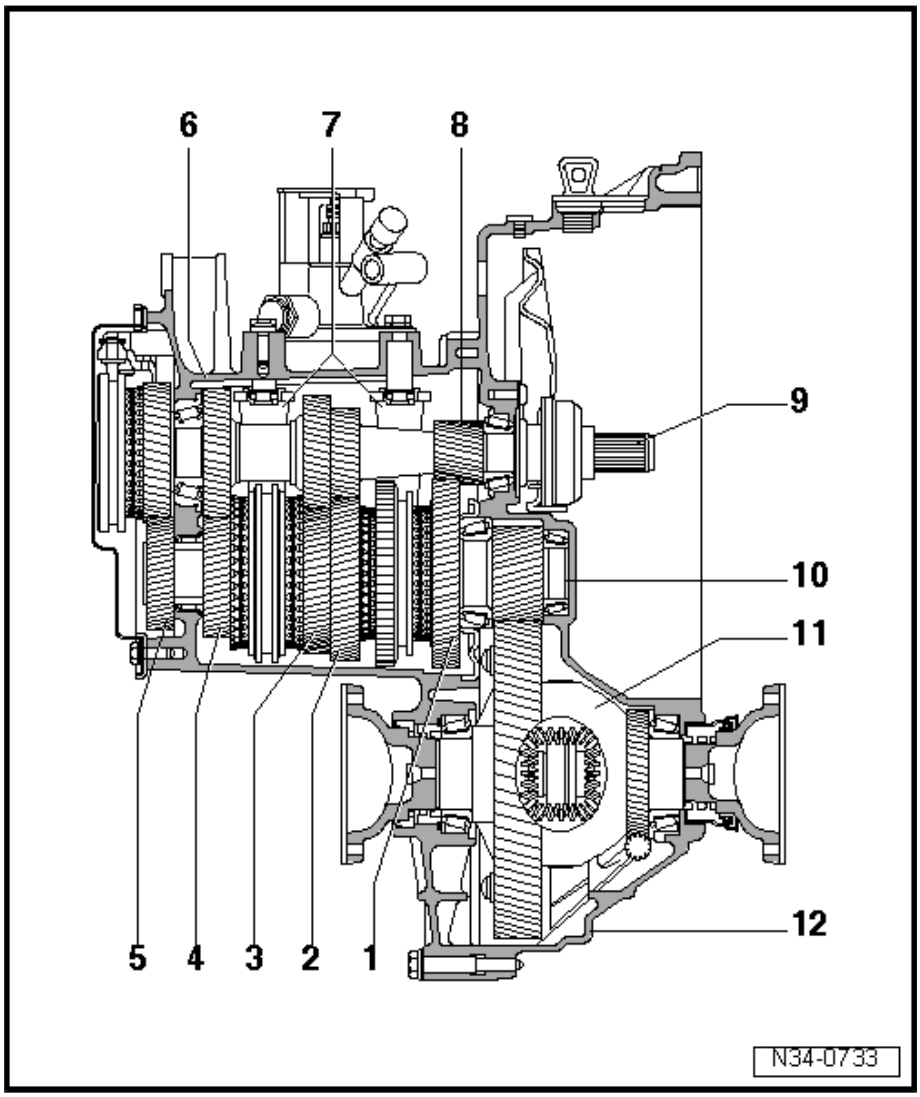
- ❑ disassembling and assembling
  ⇒ “1 Drive shaft”, page 163

10 - Output shaft

- ❑ disassembling and assembling
  ⇒ “2 Output shaft”, page 174

11 - Differential gear

- ❑ disassembling and assembling
  ⇒ “2 Differential gear ”, page 196



12 - Clutch housing

- ❑ repairing ⇒ “5 Repairing gearbox housing and clutch housing”, page 151

4.2 Summary of components

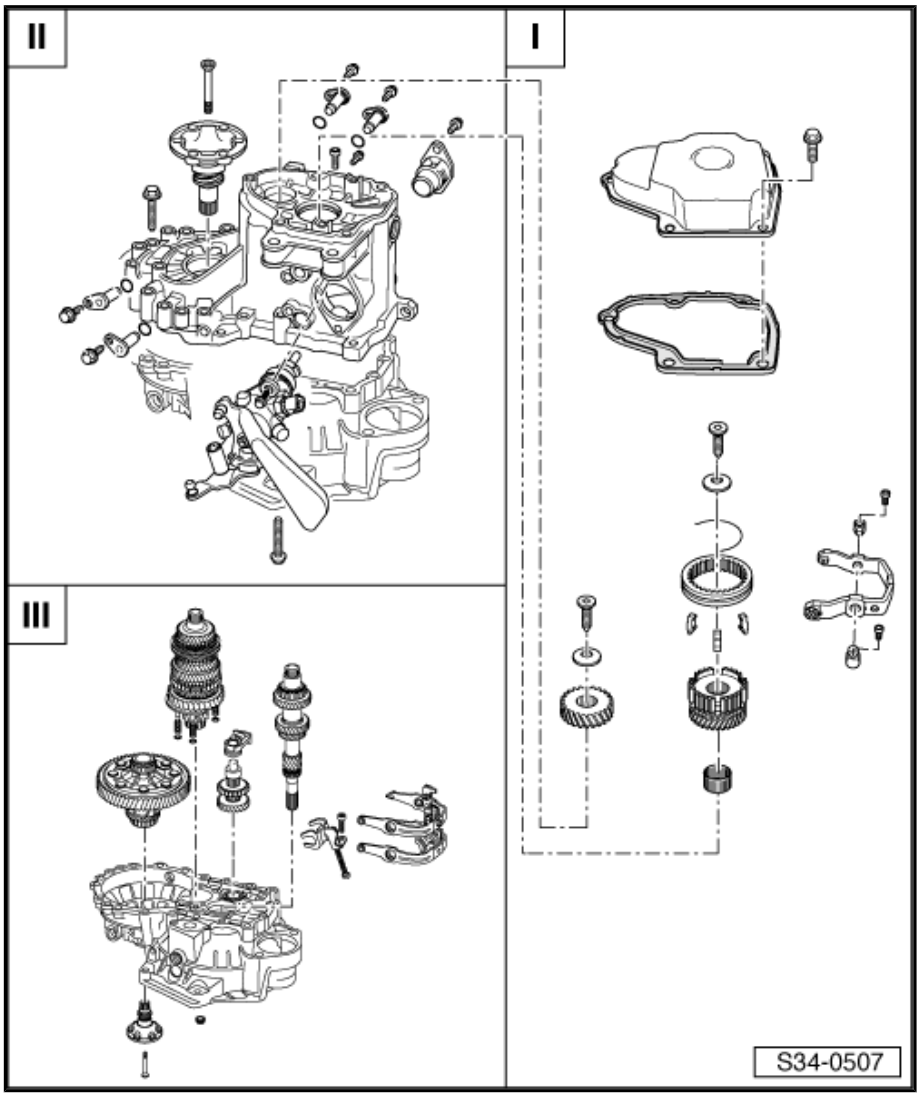
Mounting sequence - Removing and installing gearbox housing cover and 5th gear
⇒ “4.6 Mounting sequence - Removing and installing gearbox housing cover and 5th gear ”, page 134

Mounting sequence - completely disassembling and assembling the gearbox
⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139

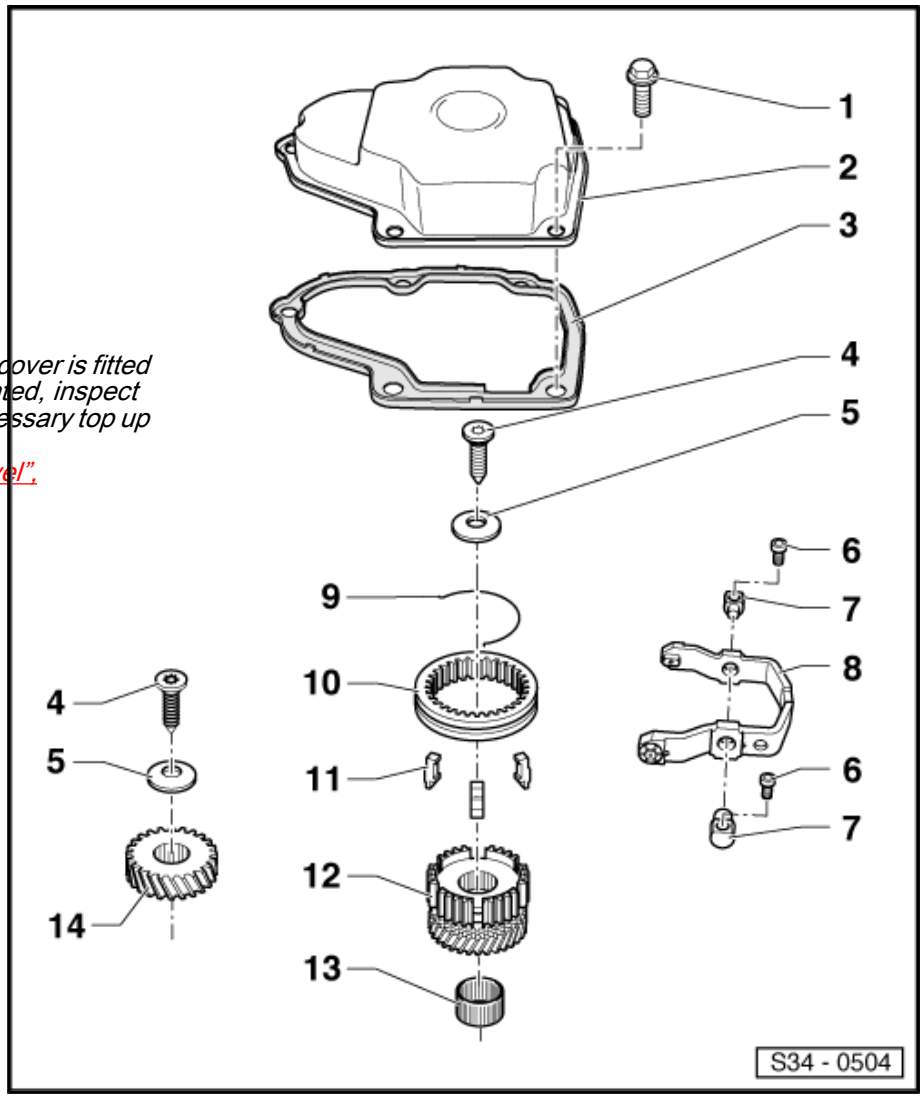
I - Removing and installing gearbox housing cover and 5th gear
⇒ “4.3 Removing and installing gearbox housing cover and 5th gear”, page 130

II - Removing and installing gearbox housing and shift mechanism
⇒ “4.4 Removing and installing gearbox housing and shift mechanism”, page 131

III - Removing and installing the drive shaft, output shaft, differential gear and shift forks
⇒ “4.5 Removing and installing the drive shaft, output shaft, differential gear and shift forks”, page 133



4.3 Removing and installing gearbox housing cover and 5th gear



1 - 18 Nm

- ❑ for cover to gearbox housing

2 - Cover for gearbox housing

- ❑ as of 08.10, with magnet on the inside ⇒ Electronic Catalogue of Original Parts

Note

If the gearbox housing cover is fitted with the gearbox mounted, inspect the gear oil level, if necessary top up with gear oil
⇒ "3 Check gear oil level", page 127 .

3 - Gasket

4 - 80 Nm and torque a further 90°

- ❑ holds disc spring in position with sleeve socket on screw head
- ❑ always replace ⇒ Electronic Catalogue of Original Parts
- ❑ Clean the threaded holes for the fixing screws of the synchronizer body and the 5th gear pinion using a screw-tap in order to remove locking agent residues; otherwise there is a risk that the screws will shear

5 - Disc spring

- ❑ installing ⇒ page 149

6 - 25 Nm

- ❑ for bearing pins on the gearbox housing

7 - Bearing pins

8 - 5th gear shift fork

- ❑ disassembling and assembling ⇒ "7 Disassembling and assembling the gearshift forks", page 160
- ❑ adjust ⇒ page 150

9 - Spring

- ❑ Fitting position ⇒ "1.1 Disassembling and assembling the drive shaft", page 163

10 - 5th gear sliding sleeve

- ❑ Fitting position ⇒ "1.1 Disassembling and assembling the drive shaft", page 163

11 - Arresters

- ❑ (3 pieces)
- ❑ Fitting position ⇒ "1.1 Disassembling and assembling the drive shaft", page 163

12 - Synchronizer body with sliding gear and synchronizer ring for 5th gear

- ❑ remove separately
  ⇒ “4.6 Mounting sequence - Removing and installing gearbox housing cover and 5th gear ”, page 134
- ❑ remove together with gearbox housing
  ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139
- ❑ disassembling and assembling ⇒ “1 Drive shaft”, page 163

13 - Needle bearing

- ❑ for 5th gear sliding gear

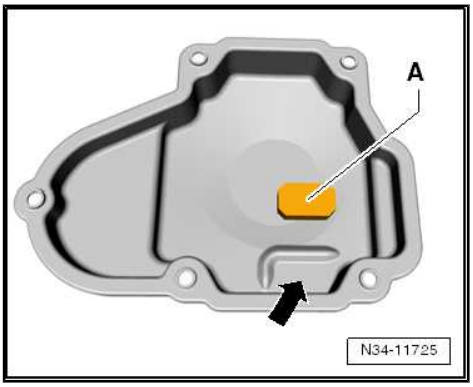
14 - 5th gear pinion

- ❑ remove separately
  ⇒ “4.6 Mounting sequence - Removing and installing gearbox housing cover and 5th gear ”, page 134
- ❑ remove together with gearbox housing
  ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139
- ❑ Fitting position ⇒ page 148

Cover for gearbox housing with magnet -A-

Magnet can only be inserted in the cover with recess -arrow-.

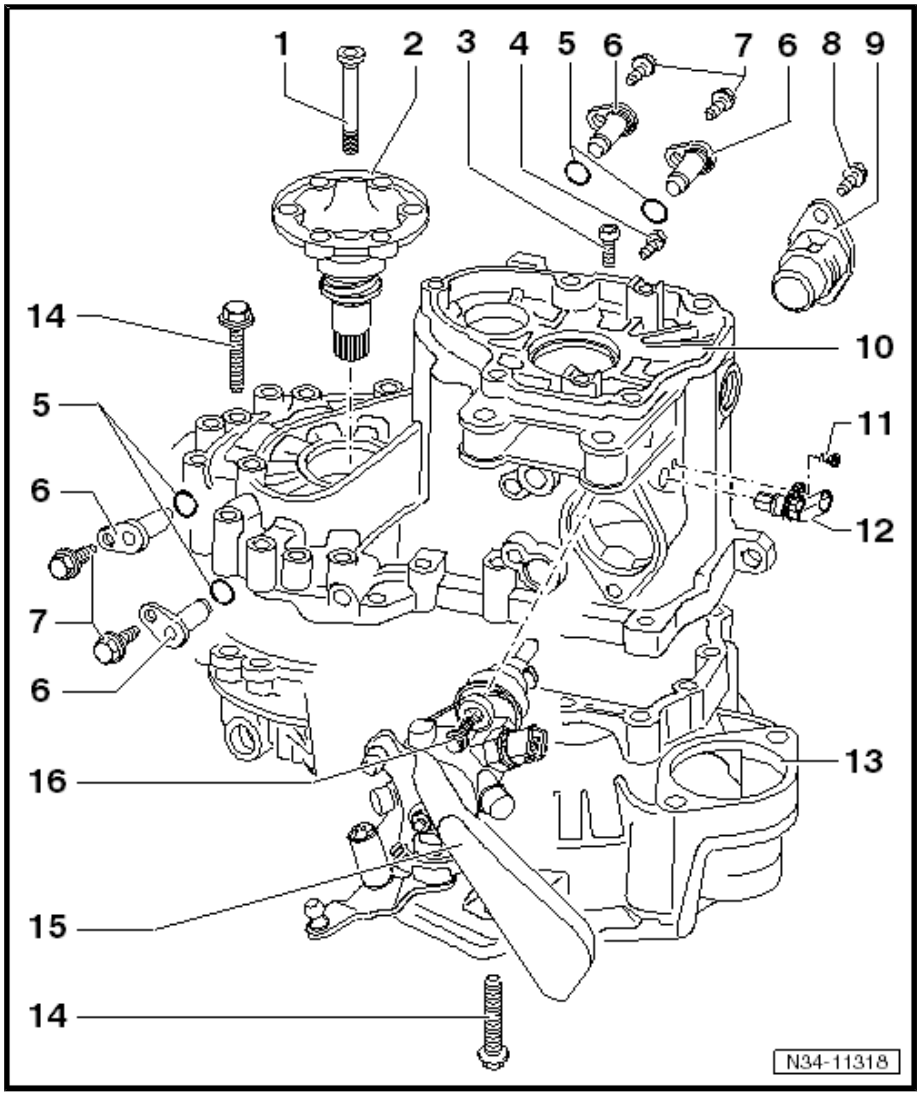
The magnet is held in the correct position on the installed cover by a fixing screw for the carrier bolt of the 5th gear shift fork.



4.4 Removing and installing gearbox housing and shift mechanism

Special tools and workshop equipment required

- ♦ Sealant - AMV 188 200 03-



1 - 25 Nm

2 - Flange shaft with pressure spring

- ❑ removing and installing ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139
- ❑ complete ⇒ “2 Differential gear ”, page 196

3 - 25 Nm

- ❑ for reverse shaft support
- ❑ self-locking
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

4 - 30 Nm

- ❑ for reverse shaft support
- ❑ self-locking
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

5 - O-ring

- ❑ always replace ⇒ Electronic Catalogue of Original Parts

6 - Bearing pins

7 - 25 Nm

8 - 25 Nm

9 - Screw cap

10 - Gearbox housing

- ❑ together with 5th gear! ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139
- ❑ repairing ⇒ “5 Repairing gearbox housing and clutch housing”, page 151

11 - Screw, 5 Nm

12 - Transmission neutral sender - G701 -

- ❑ for vehicles with start-stop system (Fabia II, Roomster)

13 - Clutch housing

- ❑ repairing ⇒ “5 Repairing gearbox housing and clutch housing”, page 151

14 - 25 Nm and torque a further 90°

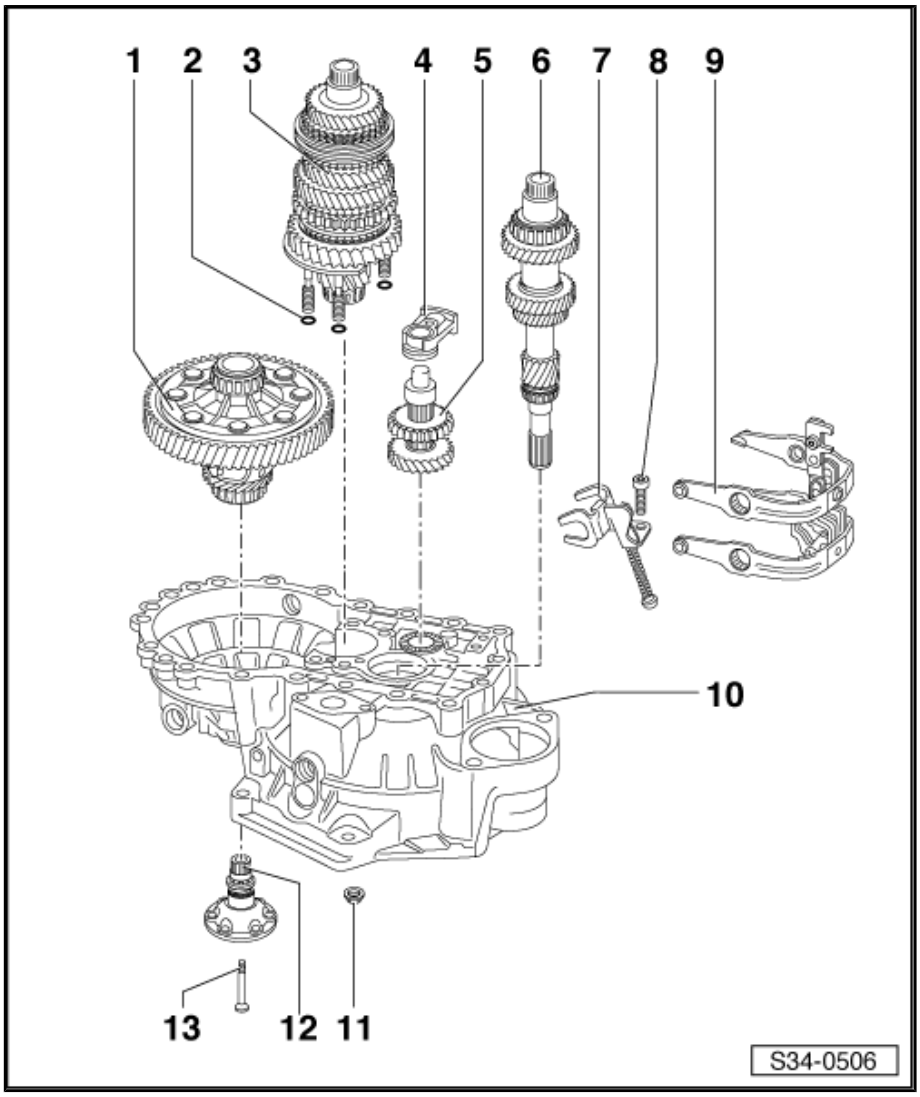
- ❑ for attaching the gearbox housing to the clutch housing
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

15 - Shift mechanism

- ❑ (Gearshift shaft with gearshift cover)
- ❑ repairing ⇒ “6 Repairing the gearshift mechanism on the gearbox side”, page 155

16 - 25 Nm

4.5 Removing and installing the drive shaft, output shaft, differential gear and shift forks



1 - Differential gear

- ❑ disassembling and assembling ⇒ “2 Differential gear ”, page 196

2 - O-ring

- ❑ 4 pieces
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

3 - Output shaft

- ❑ disassembling and assembling ⇒ “2 Output shaft”, page 174

4 - reverse shaft support

- ❑ disassembling and assembling ⇒ “3 Reverse shaft”, page 188

5 - Reverse shaft

- ❑ disassembling and assembling ⇒ “3 Reverse shaft”, page 188

6 - Drive shaft

- ❑ disassembling and assembling ⇒ “1 Drive shaft”, page 163

7 - Gearshift fork reverse gear

- ❑ disassembling and assembling ⇒ “7 Disassembling and assembling the gearshift forks”, page 160
- ❑ Fitting position ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139

8 - 25 Nm

9 - Shift mechanism

- ❑ (Gearshift forks)
- ❑ disassembling and assembling ⇒ “7 Disassembling and assembling the gearshift forks”, page 160

10 - Clutch housing

- ❑ repairing ⇒ “5 Repairing gearbox housing and clutch housing”, page 151

11 - 25 Nm and torque a further 90°

- ❑ 4 nuts for bearing support
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

12 - Flange shaft with pressure spring

- ❑ removing and installing ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139
- ❑ complete ⇒ “2 Differential gear ”, page 196

13 - 25 Nm

4.6 Mounting sequence - Removing and installing gearbox housing cover and 5th gear

Note

- *If it is intended to only remove the 5th gear, keep to the following work sequence.*
- *For this work sequence, the gear oil must not be drained. Once the gearbox housing cover is removed, the gearbox side must point upwards without the removed cover.*
- *When wishing to remove the gearbox housing, follow the work instructions for "completely disassembling and assembling the gearbox"*
  ⇒ "4.7 Mounting sequence - completely disassembling and assembling the gearbox", page 139 .

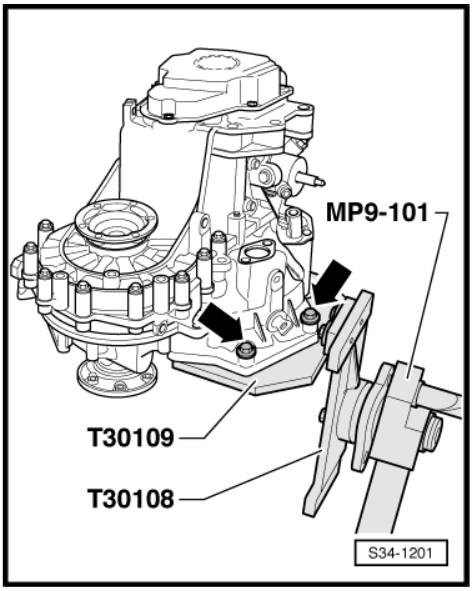
Special tools and workshop equipment required

- Drive bushing - MP3-402 (VW 244 B)-
- Supporting bridge - MP3-425 (30-211 A)-
- Pressure washer - MP3-456 (VW 447 i)-
- Insertion tool - MP3-466 (32-111)-
- Assembly device - MP6-414 (3253)-
- Assembly stand - MP9-101-
- Assembly device - T10030-
- Extractor - T10309-
- Supporting bridge - T10323-
- Gearbox mount - T30108-
- Gearbox mount - T30109 (VW 353)-
- Two-arm extractor - Kukko 20/10- with extraction hook - T10040/2A-
- Hot air blower e.g. -V.A.G 1416-
- Screw M 10 x 20 mm

4.6.1 Removing gearbox housing cover and 5th gear

– Secure the gearbox to the gearbox mount - T30109 (VW 353)- with screws -arrows-.

– Remove clutch release lever with release bearing ⇒ “2 Repairing the clutch release mechanism”, page 56 .



- If the 5th gear is installed again, then the input shaft and output shaft bearings must not be damaged.
- Therefore, while securing the gearbox to the gearbox mount - T30109 (VW 353)- the following tools must be installed for support:

Under the drive shaft:

♦ Supporting bridge - MP3-425 (30-211 A)-

♦ Insertion tool - MP3-466 (32-111)-

♦ Thrust piece - T10030/4-

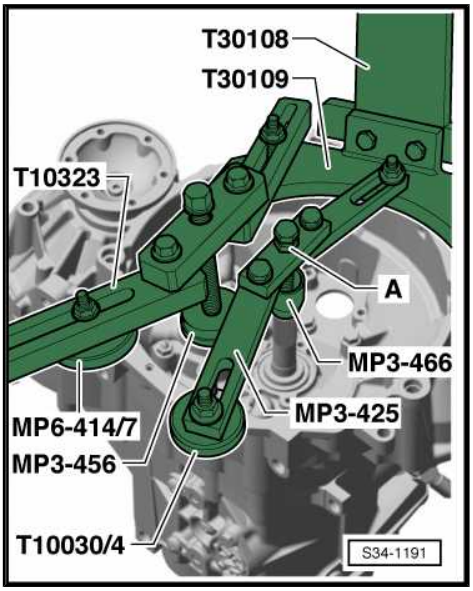
- The drive shaft must only be supported with the insertion tool - MP3-466 (32-111)- at a later stage.

Under bearing support/output shaft:

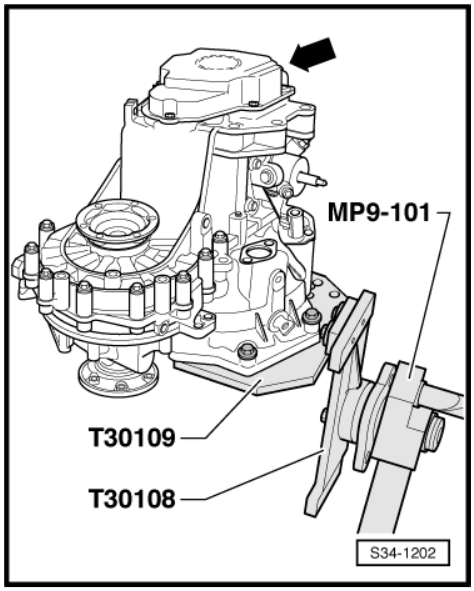
♦ Supporting bridge - T10323-

♦ Pressure plate - MP6-414/7 (3253/7)- from assembly device - MP6-414 (3253)-

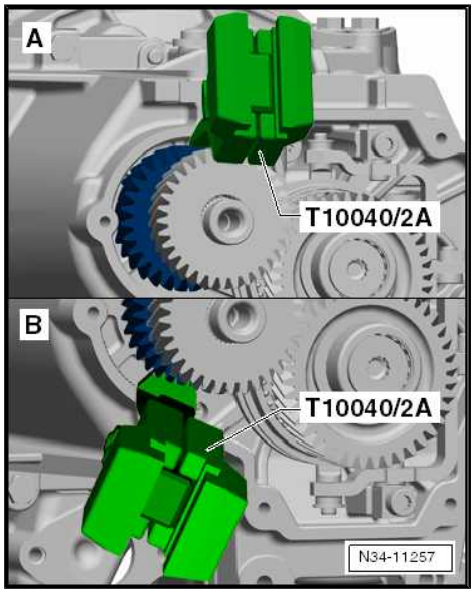
♦ Pressure washer - MP3-456 (VW 447 i)-



– Unscrew the gearbox housing cover -arrow-.



– Check whether the extraction hooks - T10040/2A- can be correctly positioned under the 5th gear pinion.



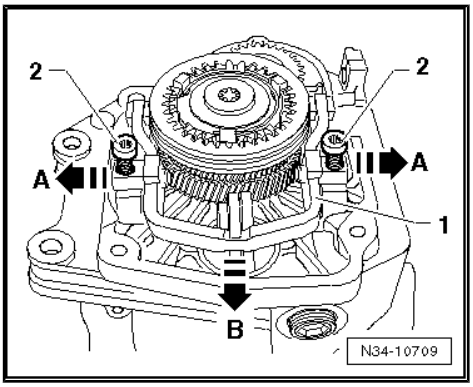
The extraction hooks - T10040/2A- cannot be correctly positioned.	
-A- the extraction hooks - T10040/2A- come prematurely in contact with: ♦ the gearbox housing wall ♦ the ribbing of the gearbox housing below the 5th gear pinion	“Joint” disassembly of: “Synchronizer body 5. gear”, “notched wheel 5th gear” and “gearbox housing” ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139
-B- the extraction hooks - T10040/2A- come in contact with the ribbing in the gearbox housing below the 5th gear pinion.	

The extraction hooks - T10040/2A- can be correctly positioned.
The 5th gear can be removed separately ⇒ page 137 .

Remove 5th gear separately

Remove 5th gear shift fork as follows:

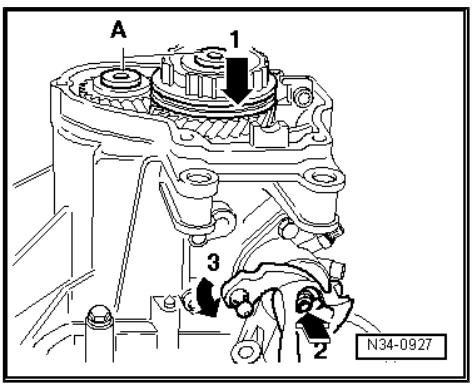
– Cover the openings with a cloth.
– Put shift fork -1- in Neutral position.
– Release screws -2- for bearing pins.
– Pull out bearing pins -direction of arrow A-.
– Remove 5th gear shift fork from the sliding sleeve in -direction of arrow B-.



Note

The 5th gear sliding sleeve must not be removed.

– Unscrew screws -A- for synchronizer body and 5th gear pinion. To this end engage the 5th gear -arrow 1- and 1st gear -arrows 2- and -3-.



The input and output shafts are blocked after introducing the two gears, the synchronizer body and pinion cannot rotate. Now it is possible to release the two bolts.

Note

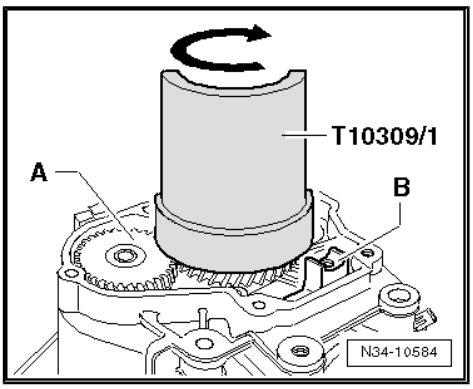
If the shafts are not replaced, carefully clean the threaded holes e.g. using a screw-tap in order to remove locking agent residues.

Pull off 5th gear synchronizer body together with sliding sleeve and arresters.

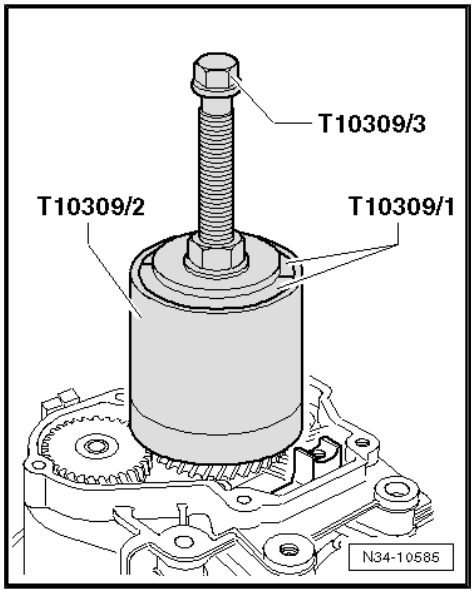
Use extractor - T10309- .

– First of all insert a shell - T10309/1- between the 5th gear pinion -A- and the support of the 5th gear shift fork -B-.

• Half of the sleeve - T10309/1- must be attached underneath the synchronizer ring 5. gear.
– If necessary, the shell must be pressed into the end position.
– Turn the shell - T10309/1- to the opposite side -direction of arrow-.



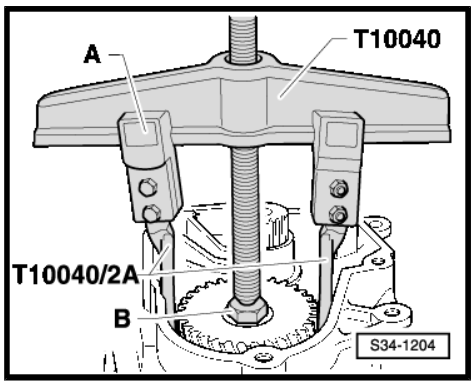
– Insert the threaded insert - T10309/3- into the shell .
– Now insert the other half of the bushing - T10309/1- and place the pipe - T10309/2- on the assembly device.
– Check the synchronizer body for damage after removing.
– Replace 5th gear synchronizer ring.
– Remove the 5th gear sliding gear with needle bearing.



– Remove the 5th gear pinion as follows:
– First of all insert the extraction hook -A-.

B - Screw M10 x 20, SW 17

– If necessary, heat the gear pinion using the hot-air blower - V.A.G 1416- .



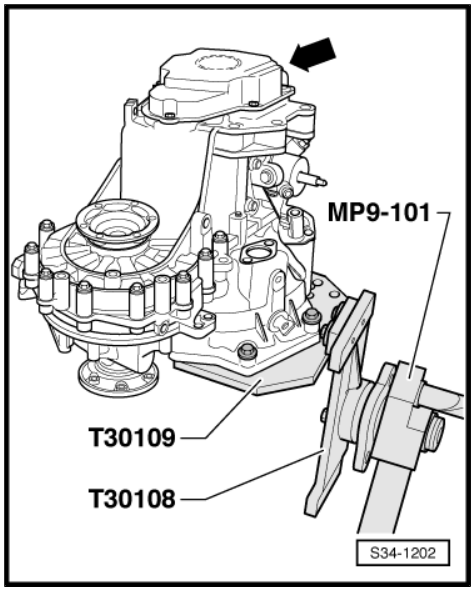
Note

- *The 5th gear pinion can also be removed using the two-arm extractor - Kukko 20/10- in combination with the extraction hooks - T10040/2A- .*
- *When pulling off the gear pinion make sure the hooks do not bend outwards. Check 5th gear for damage after removing.*

4.6.2 Mount 5th gear and cover for gearbox housing

Install 5th gear ⇒ **“4.7.3 Install 5th gear”, page 147** .

– Mount the cover for the gearbox housing -arrow- and tighten the screws to the specified tightening torque ⇒ “4.3 Removing and installing gearbox housing cover and 5th gear”, page 130 .
– Mount clutch release lever with release bearing ⇒ “2 Repairing the clutch release mechanism”, page 56 .
– Pour in gear oil ⇒ “3 Check gear oil level”, page 127 .



4.7 Mounting sequence - completely disassembling and assembling the gearbox

Removing and installing cover for gearbox housing, clutch housing, gearshift shaft with gearshift cover, drive shaft, output shaft, differential gear and gearshift mechanism

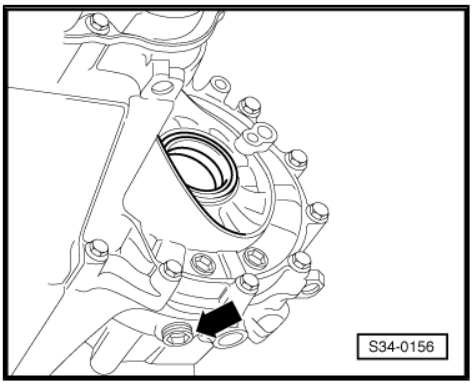
Special tools and workshop equipment required

- Driver - MP1-304 (10-206)-
- Drive bushing - MP3-402 (VW 244 B)-
- Supporting bridge - MP3-425 (30-211 A)-
- Pressure washer - MP3-456 (VW 447 i)-
- Insertion tool - MP3-466 (32-111)-
- Assembly device - MP6-414 (3253)-
- Assembly stand - MP9-101-
- Assembly device - T10030-
- Supporting bridge - T10323-
- Extractor plate - T10408-
- Spacer (5 pieces) - T10408/1-
- Thrust piece (2 pieces) - T10408/2-
- Hanger (2 pieces) - T10408/3-
- Gearbox mount - T30108-
- Gearbox mount - T30109 (VW 353)-
- Extractor (2 pieces) e.g. -Kukko 18/1-
- Hot air blower e.g. -V.A.G 1416-
- Sealant - AMV 188 200 03-
- Bolts M 8 x 100 mm

4.7.1 Disassembling gearbox

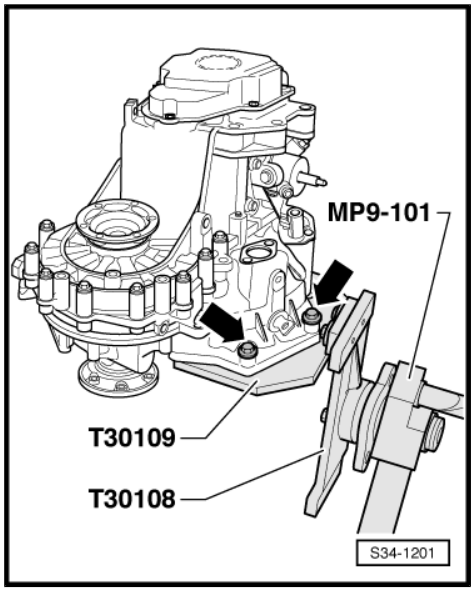
– Place catch pan underneath.

– Drain gear oil, to this end unscrew oil drain plug -arrow-.



– Secure the gearbox to the gearbox mount - T30109 (VW 353)- with screws -arrows-.

– Removing the clutch release lever, clutch release bearing and guide bushing
⇒ “2 Repairing the clutch release mechanism”, page 56 .



- The bearing of the input shaft and of the output shaft must not be damaged when removing and installing the 5th gear.
- Therefore, while securing the gearbox to the gearbox mount - T30109 (VW 353)- the following devices must be installed for support:

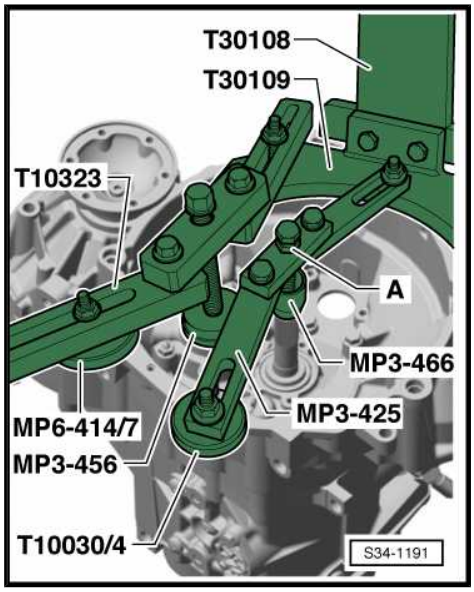
Under the drive shaft:

- Supporting bridge - MP3-425 (30-211 A)-
- Insertion tool - MP3-466 (32-111)-
- Thrust piece - T10030/4-

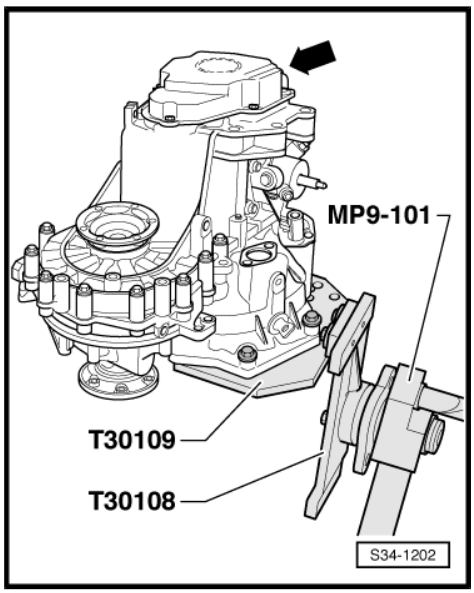
- Lock the screw of the supporting bridge - MP3-425 (30-211 A)- with the nut -A-.

Under bearing support/output shaft:

- Supporting bridge - T10323-
- Pressure plate - MP6-414/7 (3253/7)- from assembly device - MP6-414 (3253)-
- Pressure washer - MP3-456 (VW 447 i)-

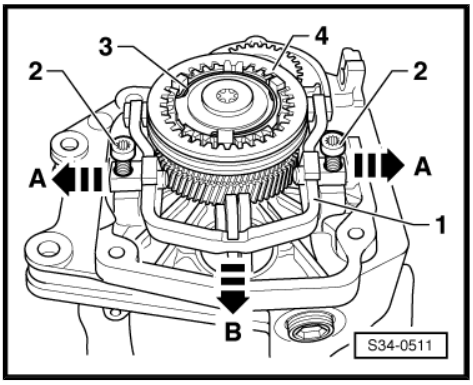


– Unscrew the gearbox housing cover -arrow-.



Remove 5th gear shift fork as follows:

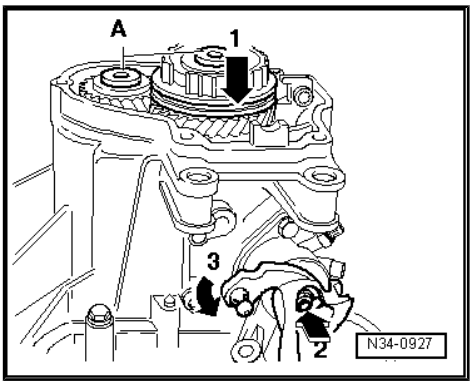
– Put shift fork -1- in Neutral position.
– Release screws -2- for bearing pins.
– Pull out bearing pins -direction of arrow A-.
– Remove 5th gear shift fork from the sliding sleeve in -direction of arrow B-.



Note

The 5th gear sliding sleeve must not be removed.

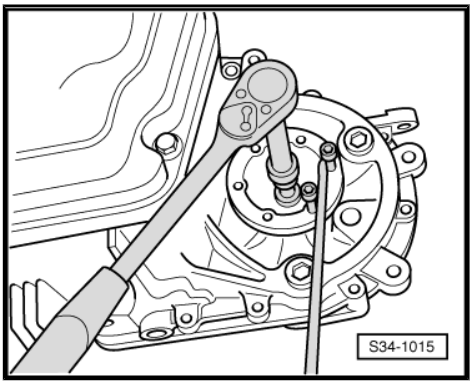
– Unscrew screws -A- for synchronizer body and 5th gear pinion. To this end engage the 5th gear -arrow 1- and 1st gear -arrows 2- and -3-
.
– The input and output shafts are blocked after introducing the two gears, the synchronizer body and pinion cannot rotate. Now it is possible to release the two bolts.



Note

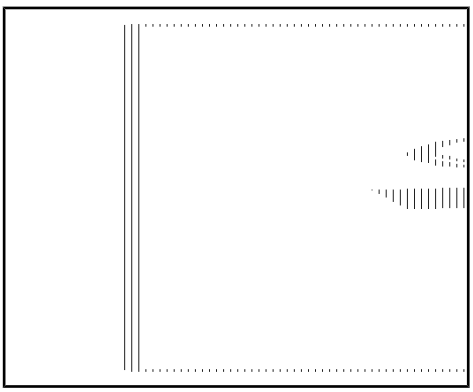
If the shafts are not replaced, carefully clean the threaded holes e.g. using a screw-tap in order to remove locking agent residues.

– Remove both flange shafts. To do so secure the flange shaft with a drift to prevent it from turning and release screw.
– Remove both flange shafts with pressure springs, stop discs and conical rings.

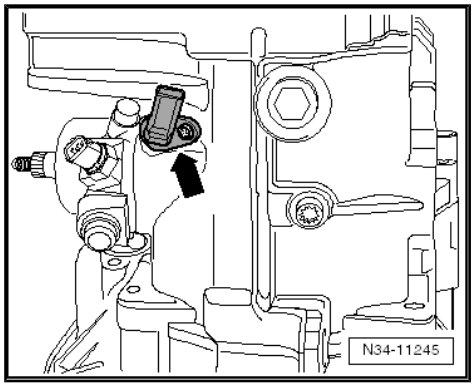


– Release both screws -arrows- for support/reverse shaft.

Vehicles with start-stop system

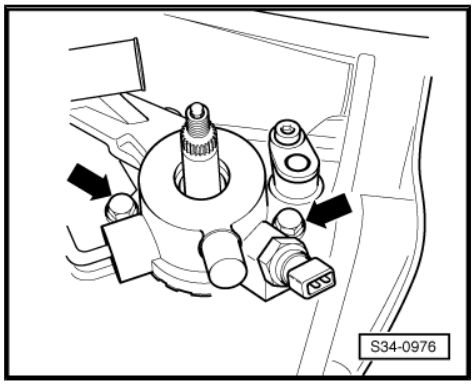


– Gearboxes for vehicles with start/stop system: Remove transmission neutral sender - G701- -arrow-.

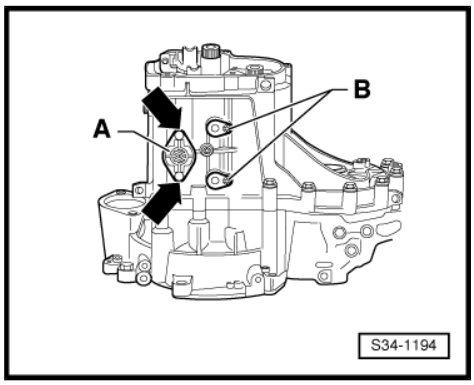


Continued for all vehicles

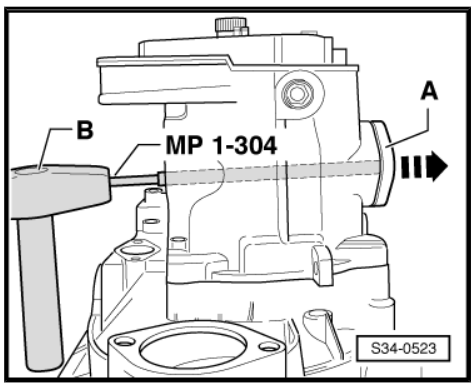
– Remove gearshift shaft with cover Put the gearshift shaft into Neutral. Subsequently unscrew screws -arrows- and remove the gearshift shaft from the gearbox housing.



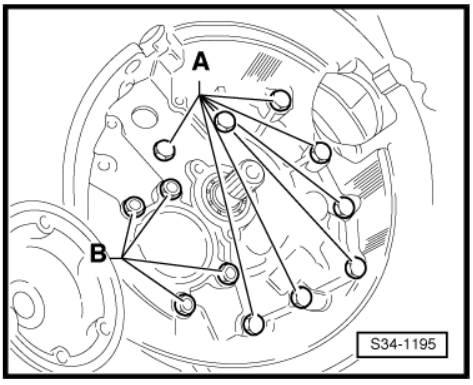
– Remove screws -arrows- from the cap -A- and the bearing pins -B- at the bottom of the gearbox.



– Carefully remove the screw cap -A- with driver -MP1-304 (10-206) - and hammer -B-.



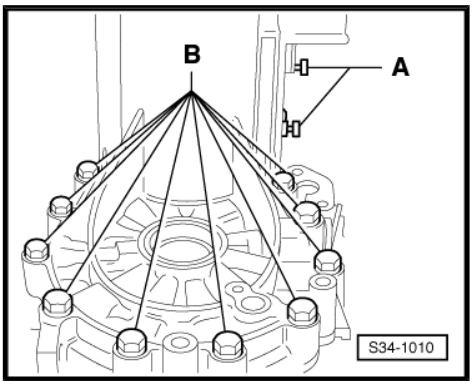
– Release screws -A-, that serve to secure the gearbox housing from the clutch housing.



Note

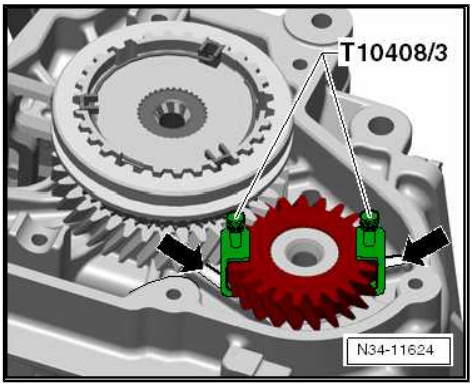
Do not remove nuts -B- for the output shaft bearing support.

– Remove bearing pins -A- on the top side of the gearbox and fixing screws -B- for the gearbox housing on the clutch housing near the differential gear.



Remove the following components together with the gearbox housing:

- 5th gear synchronizer body
- 5th gear pinion
- Two hangers - T10408/3- must be attached to the 5th gear pinion
- If is required that the hangers are always fitted above 2 recesses of the housing, which are opposite each other -arrows-



Note

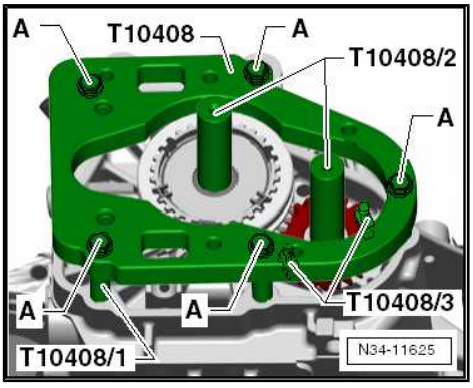
- *The needle bearing is located under the 5th gear pinion.*
- *Detach the gearbox housing in such a way that it does not come in contact with the 5th gear pinion and attach the hangers.*

Use the extractor plate - T10408- in combination with the following devices:

- Spacers - T10408/1- (5 pieces)
- Pressure pieces - T10408/2 - (2 pieces)
- Hangers - T10408/3 - (2 pieces)
- Extractors Kukko 18/1 (2 pieces)

– Tighten the 5° spacers - T10408/1- in the threaded bores of the cover for the gearbox housing.

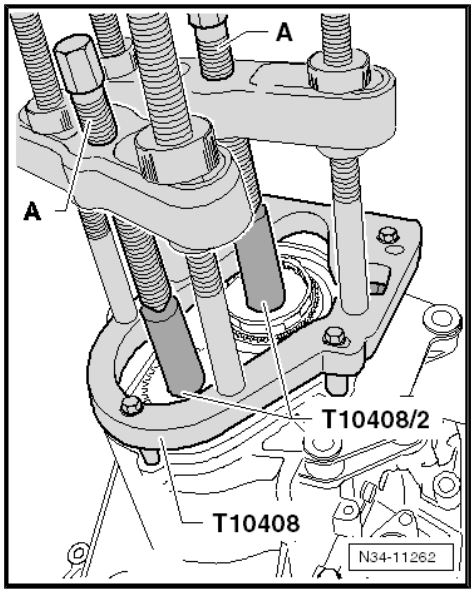
– Screw the extractor plate - T10408- on the spacers - T10408/1- .



A - Screws M7 x 35 with washers

Tightening torque - 18 Nm

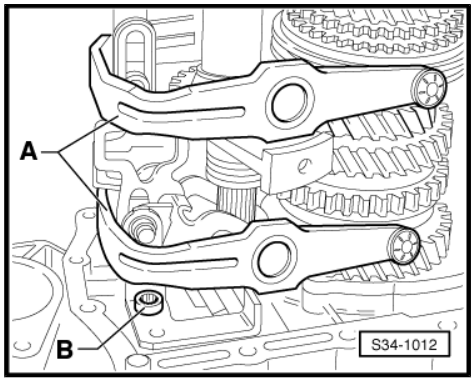
– Position the pressure pieces - T10408/2- onto the shafts.
– 2 Mount the extractor -A-, e.g. -Kukko 18/1- .
– Remove 5th gear synchronizer body, 5th gear pinion and gearbox housing by alternatively tightening the spindles -A- ($^1/_2$ turn) of the extractors , e.g. -Kukko 18/1- , -Kukko 18/1- .



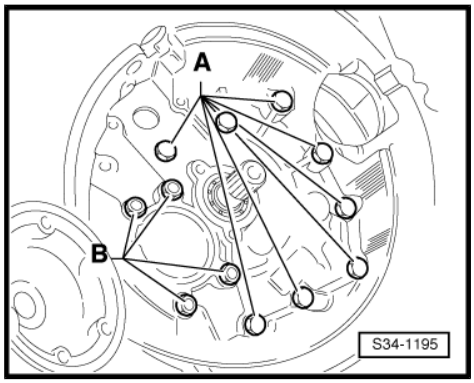
Note

- *Press off gear pinion for 5th Heat gear with hot-air blower where necessary, e.g. - V.A.G 1416- .*
- *Check the securing mechanism for the needle bearing/output shaft. If the 3 caulks are damaged, the needle bearing was shifted during the removal and must be replaced* *⇒ "5 Repairing gearbox housing and clutch housing", page 151* .

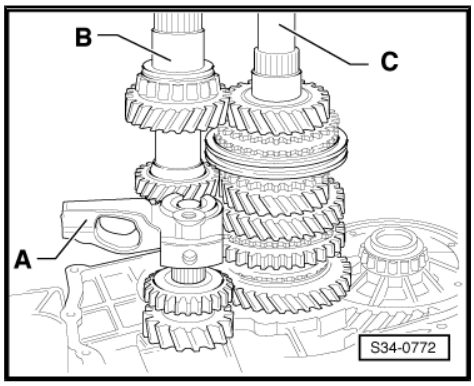
– Remove shift forks -A- together with shift rails.
– Unscrew shift mechanism/reverse gear -B-.



– Release nuts -B- for the bearing support/output shaft.



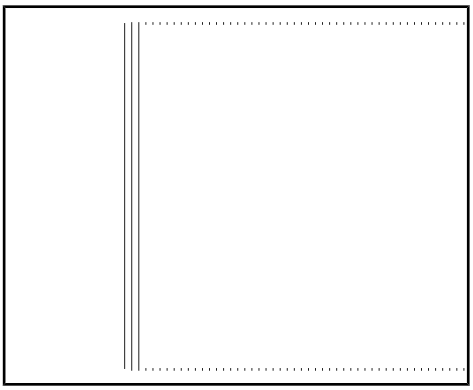
– Successively remove the reverse gear -A-, drive shaft -B- and output shaft -C- from the clutch housing.
– Remove differential gear.



4.7.2 Assembling gearbox

– Insert differential gear.

– Always replace O-rings -arrows- for bearing support/output shaft ⇒ Electronic Catalogue of Original Parts .



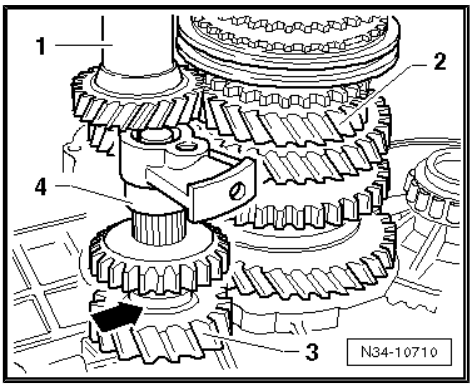
Note

The figure only shows 3 of the 4 O-rings.

– Insert together the drive shaft -1- and the drive shaft -2-.

– Tighten nuts for the bearing support/output shaft to tightening torque ⇒ “2 Output shaft”, page 174 .

– Position the reverse pinion -3- on the needle bearing in the clutch housing.



The shoulder -arrow- points away from the clutch housing.

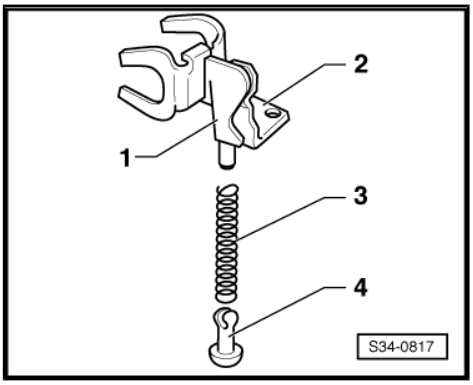
– Check if the reverse shaft -4- is complete ⇒ “3.1 Disassembling and assembling the reverse shaft”, page 188 ; do not yet position the reverse shaft support onto the reverse shaft.

– Insert the reverse shaft in the clutch housing.

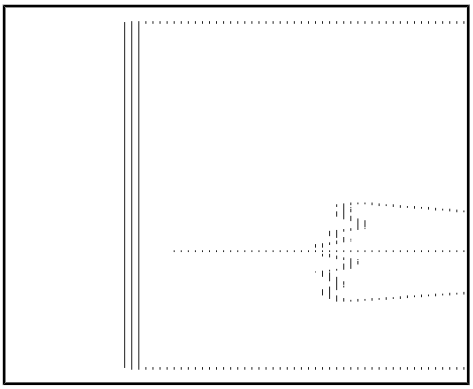
– Clean all threaded holes in the reverse shaft support to remove locking agent; clean with a screw-tap.

– Position reverse shaft support on the reverse shaft.

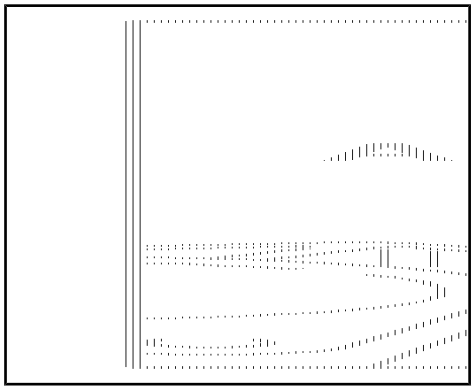
– Install the reverse gear shift fork -1- with the support for reverse gear shift fork -2-, the spring -3- and the sliding shoe -4-.



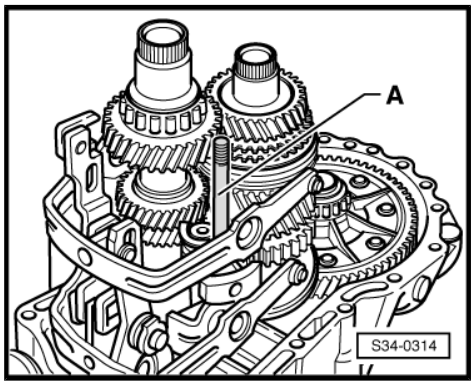
Fitting location of reverse gear



– Tighten screw -B- for shift mechanism/reverse gear to the specified tightening torque
⇒ “4.5 Removing and installing the drive shaft, output shaft, differential gear and shift forks”, page 133 .
– Install shift forks -A- together with shift rails.



– Screw the pin screw -A- M8 x 100 mm in the reverse shaft support, to ensure it is aligned once the gearbox housing has been fitted.
– Align shift rails.



Note

The shift segments must be positioned in the slots of the sliding sleeves.

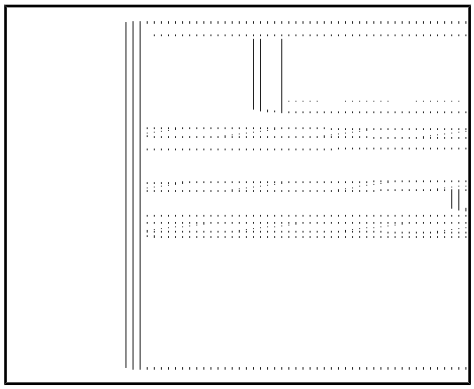
– Apply sealant - AMV 188 200 03- uniformly on the sealing surface of the clutch housing.
– Attach the gearbox housing and tighten fixing screws to the given tightening torque
⇒ “4.4 Removing and installing gearbox housing and shift mechanism”, page 131 .

Insert the screws for the reverse shaft support -arrow- as follows:

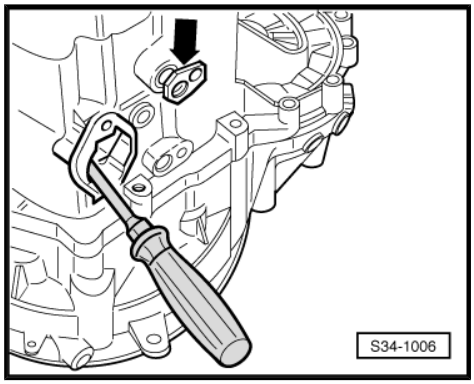
– Insert screw -a-, unscrew pin screw M 8 x 100 mm (⇒ fig. S34-0314) from the reverse shaft support, insert screw -b- and tighten by hand.

Tightening sequence:

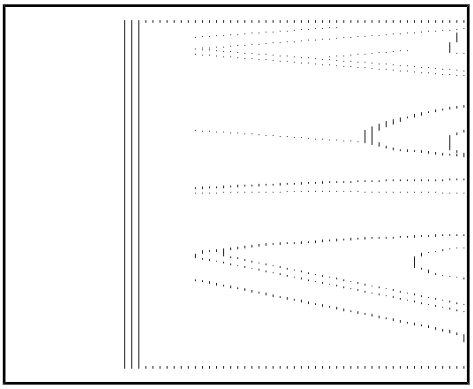
1 - Screw -a- 30 Nm (M8 x 32)
2 - Screw -b- 25 Nm (M8 x 26)



– Fit bearing pins -arrow- for shift forks. Align the shift mechanism with a screwdriver to ensure the relevant bearing pin can be fitted.
– Apply sealant - AMV 188 200 03- uniformly on the sealing surface of the screw cap.
– Fit gearshift shaft cap and tighten screws to tightening torque
⇒ “4.4 Removing and installing gearbox housing and shift mechanism”, page 131 .

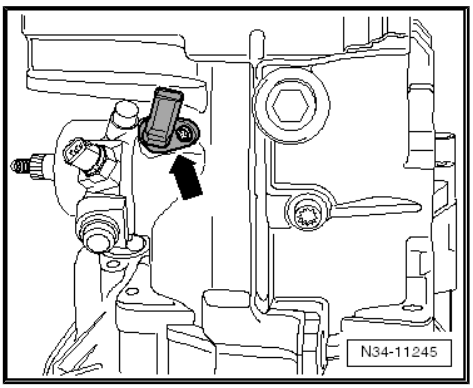


Install the gearshift shaft as follows:



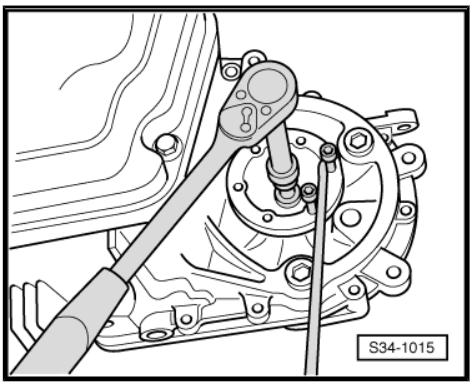
- Put the shift rails in neutral position.
- Apply sealant - AMV 188 200 03- uniformly on the sealing surface of the gearshift cover.
- Position the peg -arrow 1- in the recess of the gearbox housing. Align the gearshift shaft in such a way that the shift finger -arrow 2- is inserted in the shift rails.
- Fit gearshift shaft cover and tighten screws to tightening torque
⇒ “4.4 Removing and installing gearbox housing and shift mechanism”, page 131 .

Vehicles with start-stop system



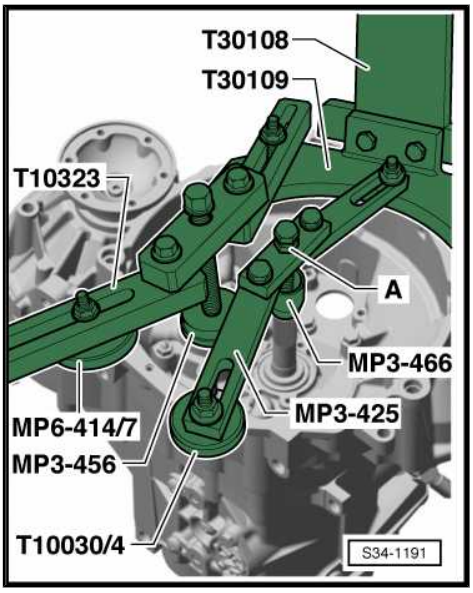
- Gearboxes for vehicles with the Start/stop system: Insert gearbox neutral position sender - G701- -arrow- and tighten fixing screw
⇒ “4.4 Removing and installing gearbox housing and shift mechanism”, page 131 -Pos. 11- to the specified tightening torque.

Continued for all vehicles



- Install both flange shafts with pressure springs, stop discs and conical rings.

4.7.3 Install 5th gear



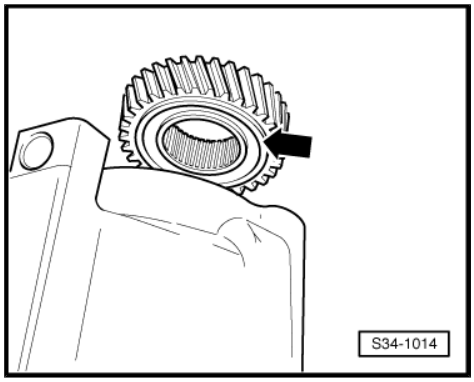
- If the 5th gear is installed again, then the input shaft and output shaft bearings must not be damaged.
- Make sure that the supporting bridge - MP3-425 (30-211 A)- and the supporting bridge - T10323- are installed.
- Lock the screw of the supporting bridge - MP3-425 (30-211 A)- with the nut -A-.

Fitting position of the 5th gear pinion

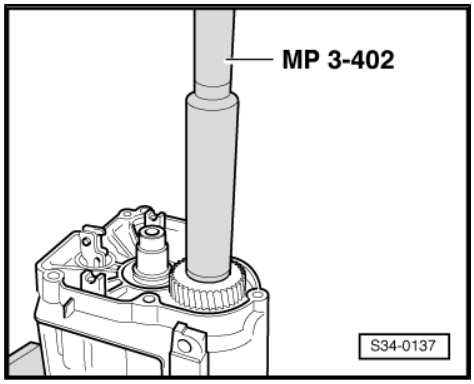
The round slot -arrow- points to the gearbox housing.

– Heat the 5th gear pinion to approx. 100°C.

> **WARNING**
>
> *Wear protective gloves!*



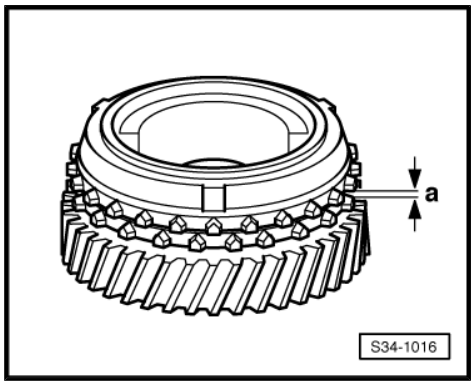
– Drive in 5th gear pinion



Checking 5th gear synchronizer ring for wear

– Press the synchronizer ring on the cone of the sliding gear and measure the clearance -a- with a feeler gauge before installing the sliding gear and the 5th gear snychronizer ring.

	Installation dimension	Wear limit
Clearance -a-	1.1 … 1.7 mm	0.5 mm



– Mount the 5th gear sliding gear with needle bearing.

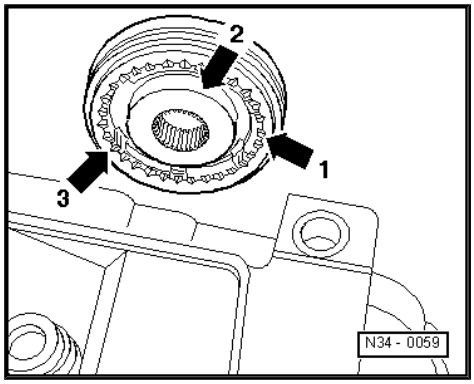
– Position the 5th gear synchronizer ring on the sliding gear.

– If disassembled, assemble the 5th gear synchronizer body/ sliding sleeve before installation
⇒ “1 Drive shaft”, page 163 .

Fitting position of the 5th gear synchronizer body/sliding sleeve

The sharp teeth of the sliding sleeve -arrow 1- and the high collar of the synchronizer body -arrow 2- point towards the gearbox housing.

The supports -arrow 3- of the synchronizer body are on the same line as the integrated arresters of the synchronizer ring (arrows in Fig. N35-0018 ⇒ page 149).



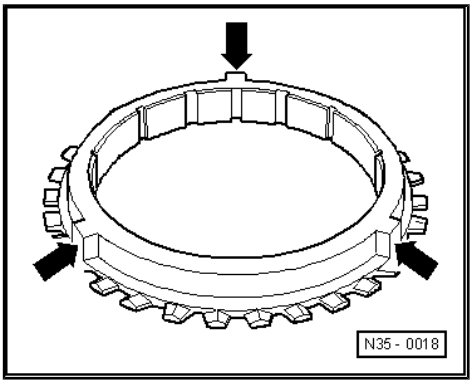
5th gear synchronizer ring with integrated arresters -arrows-

– Cover all openings in the gearbox housing with a cloth so that no foreign bodies can get into the gearbox.

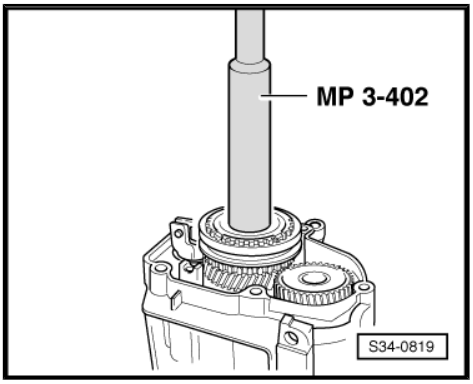
– Heat 5th gear synchonizer body to approx. 100 °C.

WARNING

Wear protective gloves!



– Drive in 5th gear synchronizer body/sliding sleeve.

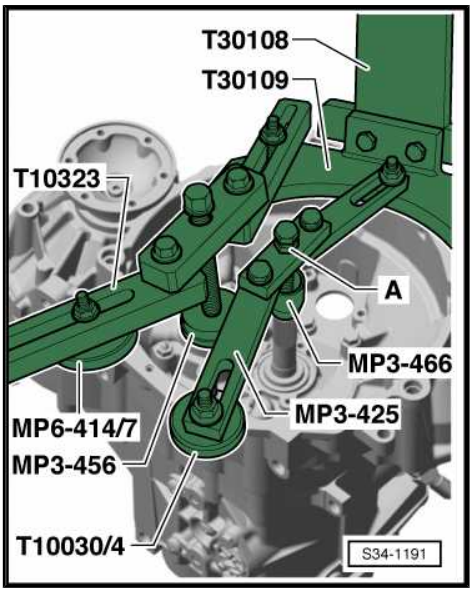


Note

Pay attention to the free travel of the synchronizer ring during the driving in operation.

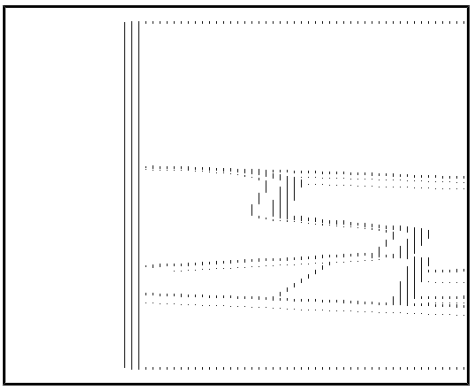
– Remove supporting bridge - MP3-425 (30-211 A)- and supporting bridge - T10323- .

If it is not yet performed, clean the threaded holes of the fixing screws for the 5th gear synchronizer body and the 5th gear pinion e.g. using a screw-tap in order to remove locking agent residues. Otherwise there is a risk that the screws will shear.

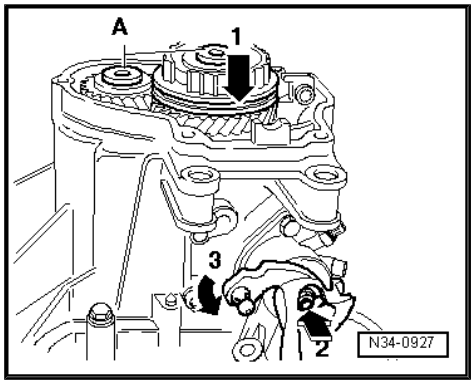


Fitting position of the disc springs for fixing screws on the 5th gear pinion and synchronizer body

The curved side (concave side) -arrows- points to the screw head.



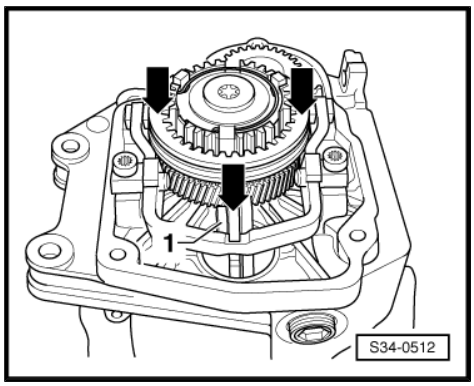
– Screw in new screws -A- for the synchronizer body and the 5th gear pinion and tighten to tightening torque ⇒ “4.3 Removing and installing gearbox housing cover and 5th gear”, page 130 . To this end engage the 5th gear -arrow 1- and 1st gear -arrows 2- and -3-.



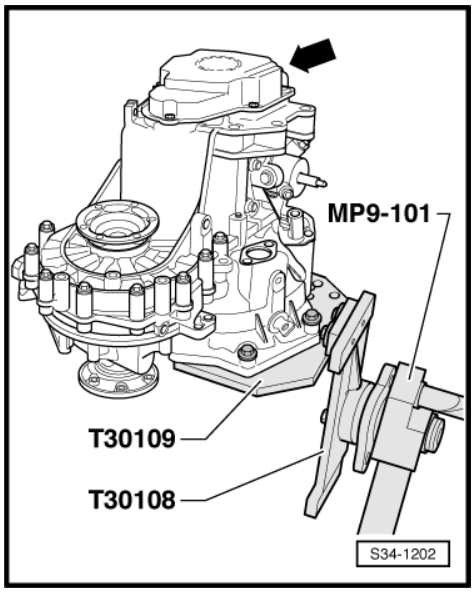
The input and output shafts are blocked after introducing the two gears, the synchronizer body and 5th gear pinion cannot rotate. Now it is possible to tighten the two bolts.

– Fit 5th gear shift fork.

Set 5th gear as follows:



– Engage 5th gear.
– Release screw -1-. Press the sliding sleeve and the gear shift gate in the -direction of the arrow-.
– Tighten screw -1- to tightening torque ⇒ “7 Disassembling and assembling the gearshift forks”, page 160 .
• Control measurement when 5th gear is engaged: A 0.2 mm feeler gauge must not be able to be inserted between the sliding sleeve and sliding gear. If necessary, repeat the adjustment procedure.
– Remove 5th gear. The sliding sleeve must now be in Neutral. The 5th gear synchronizer ring must move freely.
– Shift through all gears consecutively.



– Mount the cover for the gearbox housing -arrow- and tighten the screws to the specified tightening torque ⇒ “4.3 Removing and installing gearbox housing cover and 5th gear”, page 130 .
– Installing the guide bushing for clutch release lever and clutch release bearing ⇒ “2 Repairing the clutch release mechanism”, page 56 .
– Pour in gear oil ⇒ “3 Check gear oil level”, page 127 .

5 Repairing gearbox housing and clutch housing

Special tools and workshop equipment required

- Drift - MP3-403 (VW 295)-
- Adapter - MP3-403/1 (VW 295 A)-
- Thrust piece - MP3-411 (VW 454)-
- Multi-purpose tool - MP3-419 (VW 771)-
- Assembly device - MP3-434 (3066)-
- Pipe section - MP3-450 (VW 415A)-
- Pressure washer - MP3-455 (VW 447 H)-
- Pressure washer - MP3-460 (VW 512)-
- Thrust piece - T10148-
- Sealant - AMV 188 200 03-
- Grease for plug serration of clutch disc - G 000 100-

1 - Gearbox housing

- ❑ when used: Adjust drive shaft and differential gear ⇒ “3 Setting overview”, page 205

2 - Oil filler plug, 30 Nm

3 - Needle bearing

- ❑ for output shaft
- ❑ extracting ⇒ page 153
- ❑ fitting and securing ⇒ page 153

4 - Adjusting washer

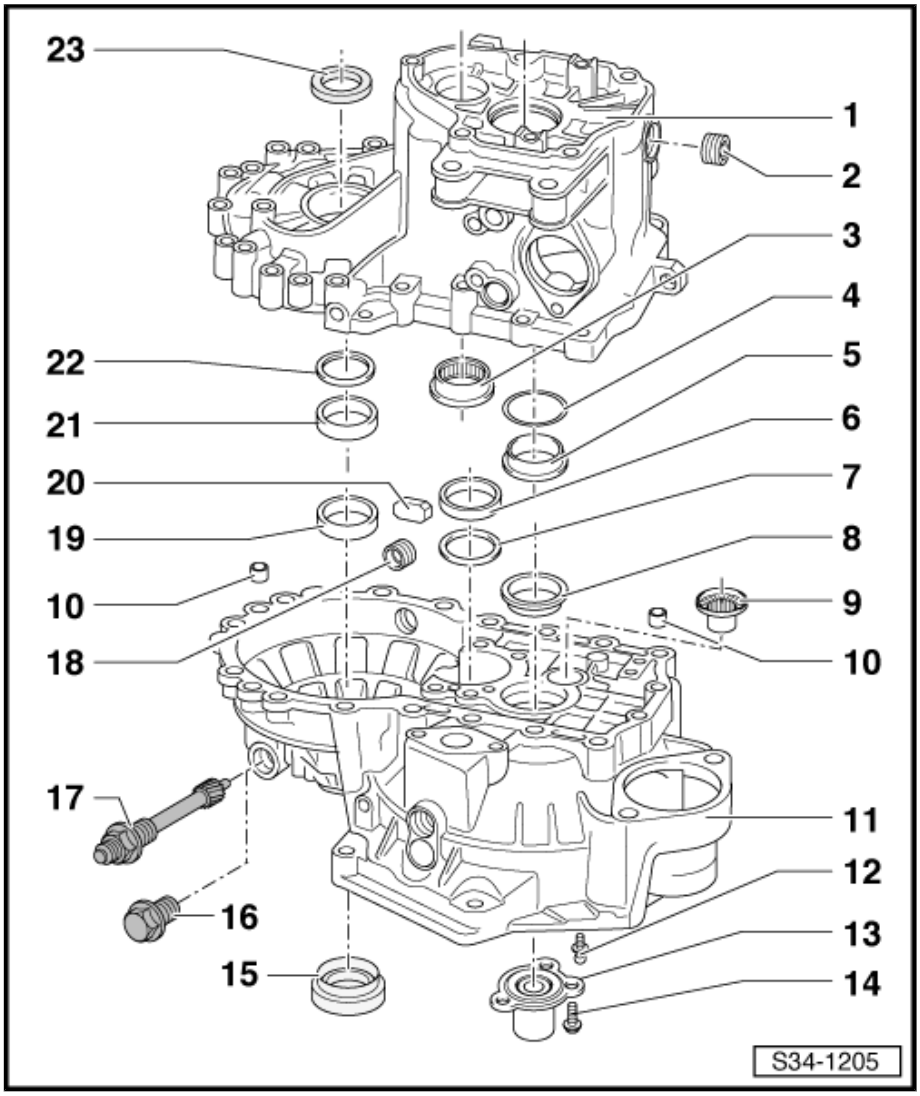
- ❑ for drive shaft
- ❑ Setting overview ⇒ “3 Setting overview”, page 205

5 - Outer ring/tapered-roller bearing

- ❑ for drive shaft
- ❑ removing and installing ⇒ “1 Drive shaft”, page 163
- ❑ when used: Setting drive shaft ⇒ “1.2 Setting drive shaft”, page 169

6 - Outer ring/tapered-roller bearing

- ❑ for output shaft
- ❑ removing and installing ⇒ “2 Output shaft”, page 174
- ❑ when used: Setting output shaft ⇒ “2.2 Setting output shaft”, page 184



7 - Adjusting washer

- ❑ for output shaft
- ❑ Setting overview ⇒ “3 Setting overview”, page 205

8 - Outer ring/tapered-roller bearing

- ❑ for drive shaft
- ❑ removing and installing ⇒ “1 Drive shaft”, page 163
- ❑ when used: Setting drive shaft ⇒ “1.2 Setting drive shaft”, page 169

9 - Needle bushing

- ❑ removing and installing ⇒ “3 Reverse shaft”, page 188

10 - Fitting sleeve

- ❑ 2 pieces

11 - Clutch housing

- ❑ when used: Setting overview ⇒ “3 Setting overview”, page 205

12 - Ball stud, 25 Nm

- ❑ grease with grease for plug serration of clutch disc - G 000 100-

13 - Guide bushing

- ❑ with gasket ring for drive shaft and vulcanized O-ring
- ❑ Driving out gasket ring ⇒ page 153
- ❑ Driving in gasket ring ⇒ page 153
- ❑ to replace gasket ring, remove guide bushing
- ❑ if O-ring is damaged, replace guide bushing and O-ring together ⇒ Electronic Catalogue of Original Parts

14 - 20 Nm

15 - Gasket ring with bushing

- ❑ for right flange shaft
- ❑ replace gasket ring together with bushing in the event of damage ⇒ “1.2 Replace gasket ring for right flange shaft (gasket ring and bushing are one component)”, page 193
- ❑ removing ⇒ page 154
- ❑ installing ⇒ page 154

16 - Screw plug, 5 Nm

- ❑ is installed instead of the drive for speedometer on vehicles with ABS

17 - Drive for speedometer, 10 Nm

- ❑ only mounted on vehicles without ABS

18 - Oil drain plug, 30 Nm

19 - Outer ring/tapered-roller bearing

- ❑ for differential gear
- ❑ removing and installing ⇒ “2 Differential gear ”, page 196
- ❑ when used: Adjusting differential gear ⇒ “2.2 Adjusting the differential gear”, page 202

20 - Magnet

- ❑ is held in position by the separator surface of the housing

21 - Outer ring/tapered-roller bearing

- ❑ for differential gear
- ❑ removing and installing ⇒ “2 Differential gear ”, page 196
- ❑ when used: Adjusting differential gear ⇒ “2.2 Adjusting the differential gear”, page 202

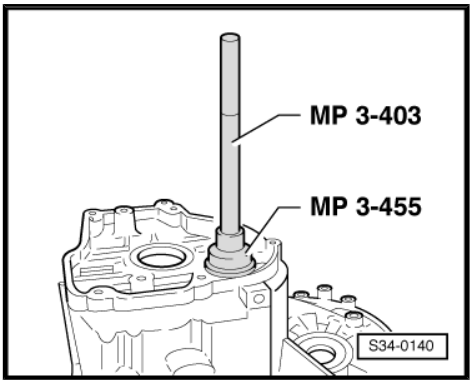
22 - Adjusting washer

- ❑ for differential gear
- ❑ Setting overview ⇒ “3 Setting overview”, page 205

23 - Sealing ring

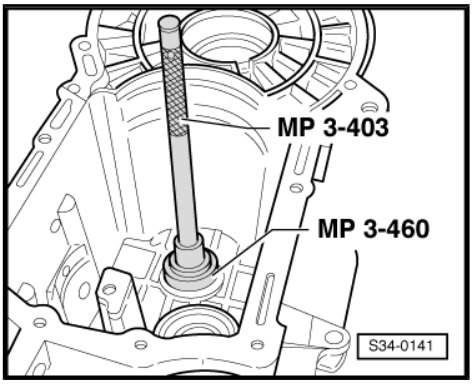
- ❑ for left flange shaft
- ❑ Renew. ⇒ “1 Replacing the flange shaft gasket rings (gearbox assembled)”, page 191 .

Driving out needle bearing

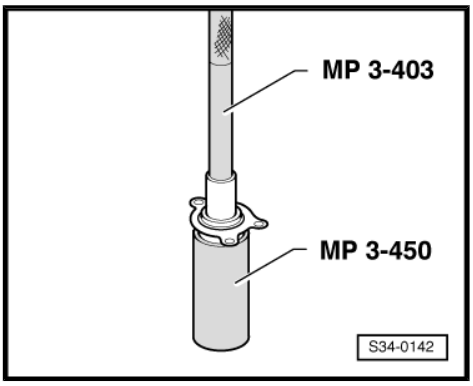


Drive in needle bearing up to stop

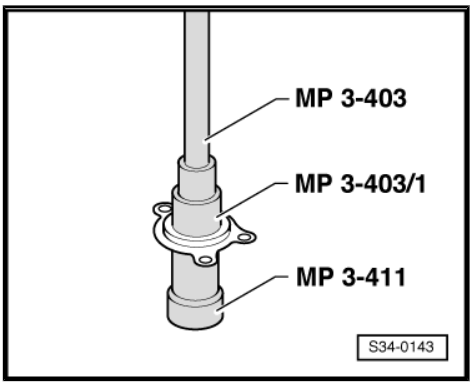
– Using a drift secure needle bearing in 3 points in the gearbox housing with 120° offset.



Driving out the guide bushing



Driving the gasket ring into the guide bushing up to the stop

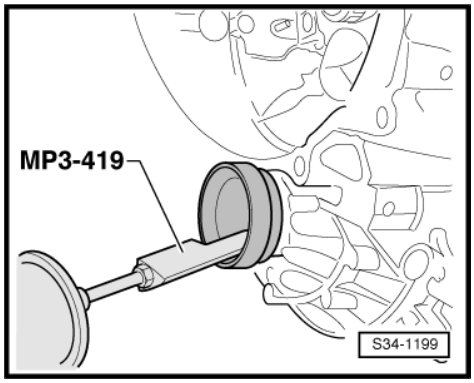


Remove bushing with gasket ring

A leg is located in the inner diameter of the bushing.

– Position the extraction hook - MP3-419/37 (VW 771/37) - of the multi-purpose tool - MP3-419 (VW 771)- directly behind the leg in the bushing.

– Press the extraction hook - MP3-419/37 (VW 771/37)- forcefully into the bushing during the extraction process.



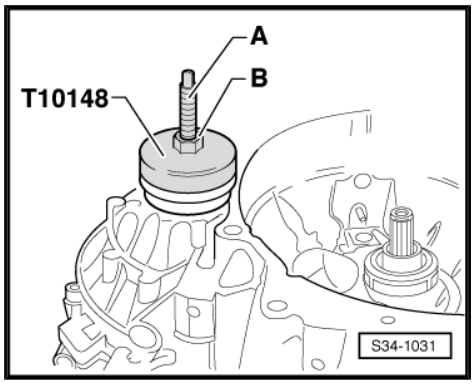
Insert bushing with gasket ring

– Clean point for gasket ring in gearbox.

-A- Screw spindle of assembly device - MP3-434 (3066)- into the threaded part of the differential gear.

-B- Nut M12

– By turning the nut -B- insert the bushing with the gasket ring over the pressure plate - T10148 - up to the stop.



Note

If the gearbox is disassembled press in the bushing with the gasket ring over the pressure plate - T10148- up to the stop.

6 Repairing the gearshift mechanism on the gearbox side

⇒ "6.1 Disassembling and assembling the gearshift mechanism on the gearbox side (gearshift shaft can be removed from gearshift cover)", page 155

⇒ "6.2 Disassembling and assembling the gearshift mechanism on the gearbox side (gearshift shaft cannot be removed from gearshift cover)", page 158

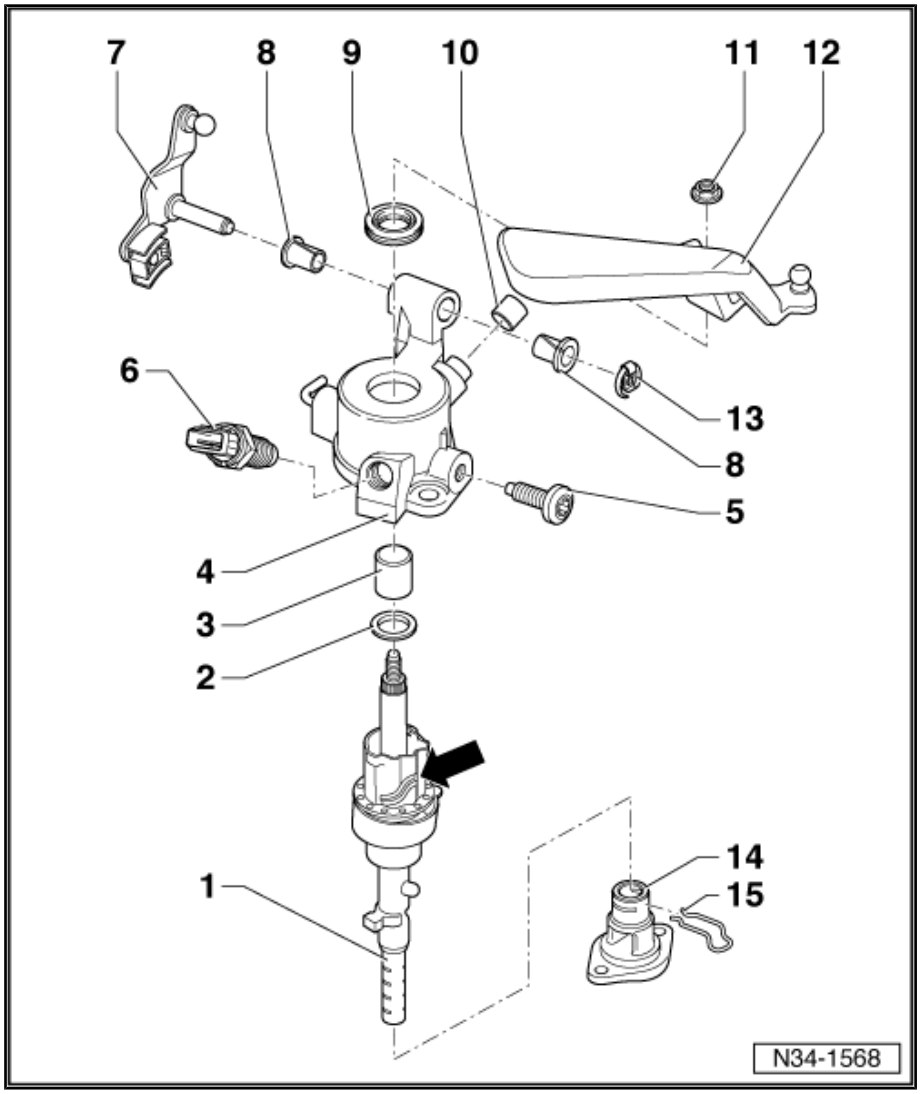
6.1 Disassembling and assembling the gearshift mechanism on the gearbox side (gearshift shaft can be removed from gearshift cover)

Special tools and workshop equipment required

- Pressure plate - MP3-406 (VW 401)-
- Pressure spindle - MP3-448 (VW 408 A)-
- Guide piece - MP3-454 (VW 439)-
- Pressure washer - MP3-456 (VW 447 I)-
- Pipe section - MP3-479 (VW 423)-
- Interior extractor 18,5…23,5 mm , e.g. -Kukko 21/3-
- Grease for plug serration of clutch disc - G 000 100-
- Sealing grease - G 052 128 A1-

Note

- *Grease bearing points and friction surfaces.*
- *Assign the grease via the ⇒ Electronic Catalogue of Original Parts .*



1 - Gearshift shaft

- ❑ when shifting from the 5th gear to the 4th gear, the screw Pos. 5 guides the gearshift shaft into the 4th gear gate via the leg -arrow-
- ❑ pay attention to correct assignment ⇒ Electronic catalogue of original parts

2 - Stop ring

3 - Ball sleeve

- ❑ removing ⇒ page 157
- ❑ inserting ⇒ page 157

4 - Shift cover

- ❑ with locking angle for setting the gearshift mechanism
- ❑ Remove locking angle ⇒ page 159
- ❑ Press in locking angle ⇒ page 159
- ❑ pay attention to correct assignment ⇒ Electronic catalogue of original parts

5 - 15 Nm

6 - Reversing light switch - F4- , 20 Nm

- ❑ Grease peg lightly with grease for plug serration of clutch disc - G 000 100-

7 - Reversing lever

- ❑ Fitting position ⇒ “1.8 Summary of components - Control cables”, page 74
- ❑ as of 06.07 the relay lever is made of plastic (Fabia II, Roomster, Rapid NH)
- ❑ Remove and install plastic relay lever together with cable lock (Fabia II, Roomster, Rapid NH) ⇒ “1.9.1 Removing and installing plastic relay lever”, page 78
- ❑ If the relay lever is made of plastic, neither the bushings pos. 8 nor the lock washer pos. 13 are required
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86

8 - Bushing

- ❑ is not required, if the relay lever is made of plastic

9 - Sealing ring

- ❑ lever out with screwdriver
- ❑ installing ⇒ page 157
- ❑ Fill half the space between the sealing lips and dust lips with sealing grease - G 052 128 A1-

10 - Cap

- ❑ for gearbox bleeder

11 - 20 Nm

- ❑ always replace ⇒ Electronic Catalogue of Original Parts

12 - Gearshift lever

- ❑ insert in such a way that the interrupted spacing of the teeth matches the gearshift shaft

- ❑ may be replaced with the gearshift mechanism mounted
- ❑ Fitting position ⇒ “1.8 Summary of components - Control cables”, page 74
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86

13 - Lock washer

- ❑ replace after each disassembly ⇒ electronic catalogue of original parts
- ❑ is not required, if the relay lever is made of plastic

14 - Screw cap

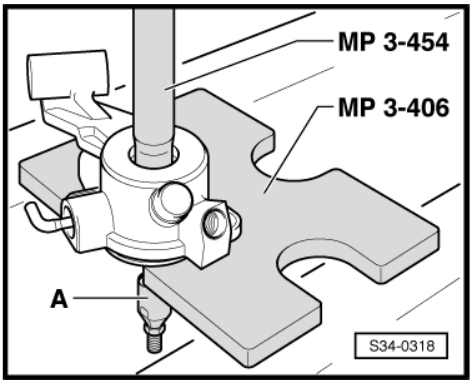
15 - Spring

- ❑ if present, insert in the screw cap Pos. 14

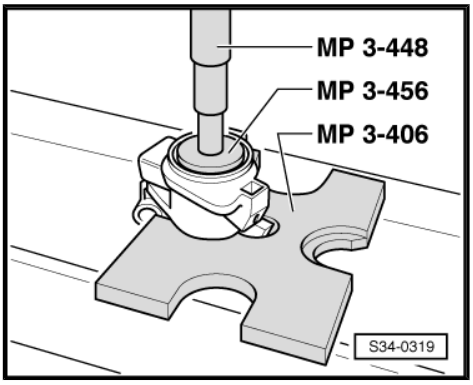
Remove the ball sleeve from the cover

– Before pulling out the ball sleeve destroy the platic cage and remove the balls.

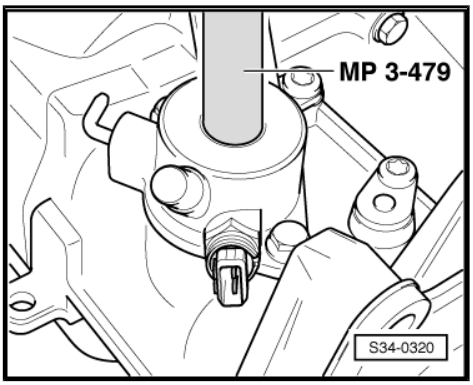
A - Interior extractor 18,5…23,5 mm , e.g. -Kukko 21/3-



Press the ball sleeve flush into the gearshift cover



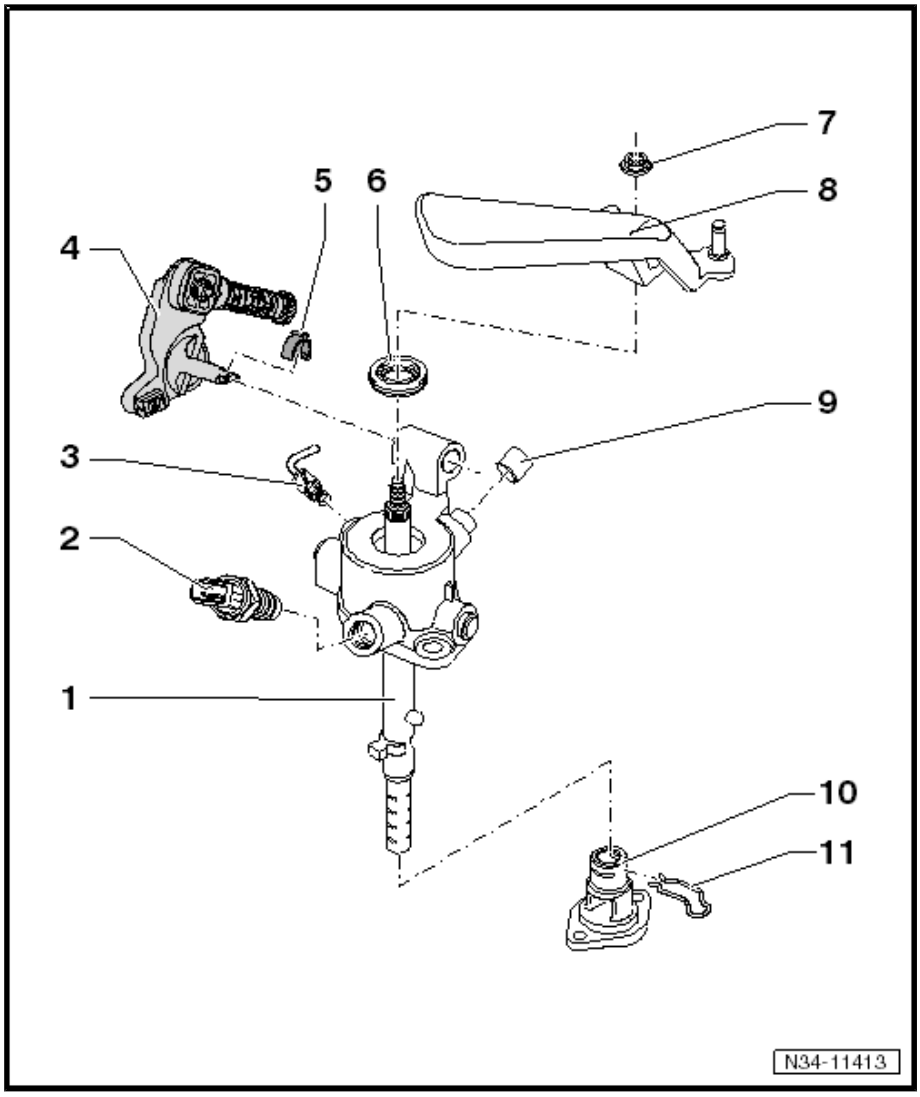
Press in the gasket up to the stop.



6.2 Disassembling and assembling the gearshift mechanism on the gearbox side (gearshift shaft cannot be removed from gearshift cover)

Note

- *Grease bearing points and friction surfaces.*
- *Assign the grease via the ⇒ Electronic Catalogue of Original Parts .*



1 - Gearshift unit

- ❑ consisting of the gearshift shaft and the gearshift cover
- ❑ Parts cannot be separated

2 - Reversing light switch - F4- , 20 Nm

- ❑ Grease peg lightly with grease for plug serration of clutch disc - G 000 100-

3 - Locking angle

- ❑ for setting the gearshift mechanism
- ❑ removing ⇒ page 159
- ❑ installing ⇒ page 159

4 - Reversing lever

- ❑ Fitting position ⇒ “1.8 Summary of components - Control cables”, page 74
- ❑ Removing and installing (Fabia II, Roomster, Rapid NH) ⇒ “1.9.1 Removing and installing plastic relay lever”, page 78 , (Rapid) ⇒ “1.11 Removing and installing shift mechanism (Rapid) ”, page 84
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86

5 - Clip

- ❑ for relay lever with hole in the bearing shaft

6 - Gasket for gearshift shaft

- ❑ release with a screwdriver
- ❑ inserting ⇒ page 157

7 - 20 Nm

- ❑ always replace ⇒ Electronic Catalogue of Original Parts

8 - Gearshift lever

- ❑ insert in such a way that the interrupted spacing of the teeth matches the gearshift shaft
- ❑ may be replaced with the gearshift mechanism mounted

- ❑ Fitting position ⇒ “1.8 Summary of components - Control cables”, page 74
- ❑ after installing set shift mechanism ⇒ “1.12 Setting the shift mechanism”, page 86

9 - Cap

- ❑ for gearbox bleeder

10 - Screw cap

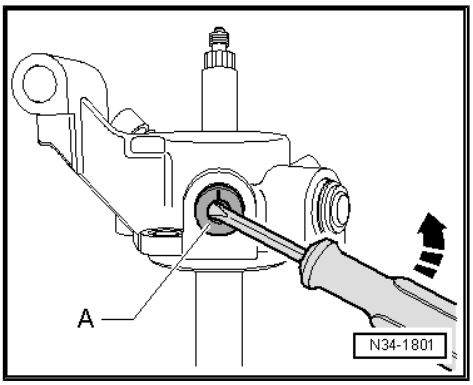
11 - Spring

- ❑ if present, insert in the screw cap

Remove locking angle -A- from gearshift cover

– Remove the outer part of the locking angle.

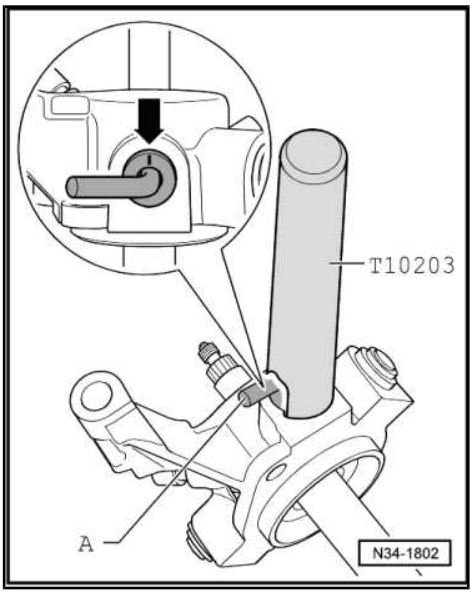
– Then lever out the locking angle carefully with a screwdriver.



Press locking angle -A- into gearshift cover

Fitting position:

The marking -arrow- points to the upper part of the gearshift shaft.



7 Disassembling and assembling the gearshift forks

Special tools and workshop equipment required

- Driver - MP1-304 (10-206)-
- Pressure plate - MP3-407 (VW 402)-
- Thrust piece - MP3-453 (VW 431)-
- Distance sleeve - MP3-458 (VW 472)-
- Assembly device - MP5-402 (3301)-
- Removal tool for inner lining of the door panel - MP8-602/1-
- Thrust piece - T30100/1-

Note

- *Removing and installing gearshift fork group Pos. 7*
  ⇒ "4.7 Mounting sequence - completely disassembling and assembling the gearbox", page 139 .
- *The gearshift fork group (Pos. 7 need not to be disassembled for the disassembly and assembly of the shift segments, circlips and angular ball bearings.*

1 - Shift segment for 5th gear

- ❑ Identification ⇒ page 161
- ❑ It must still be possible to rotate the shift segment freely once the circlip has been fitted

2 - Circlip

- ❑ removing ⇒ page 161
- ❑ installing ⇒ page 161
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

3 - 5th gear shift fork

- ❑ adjust ⇒ "4.7.3 Install 5th gear", page 147

4 - 25 Nm

5 - 5th gear shift fork

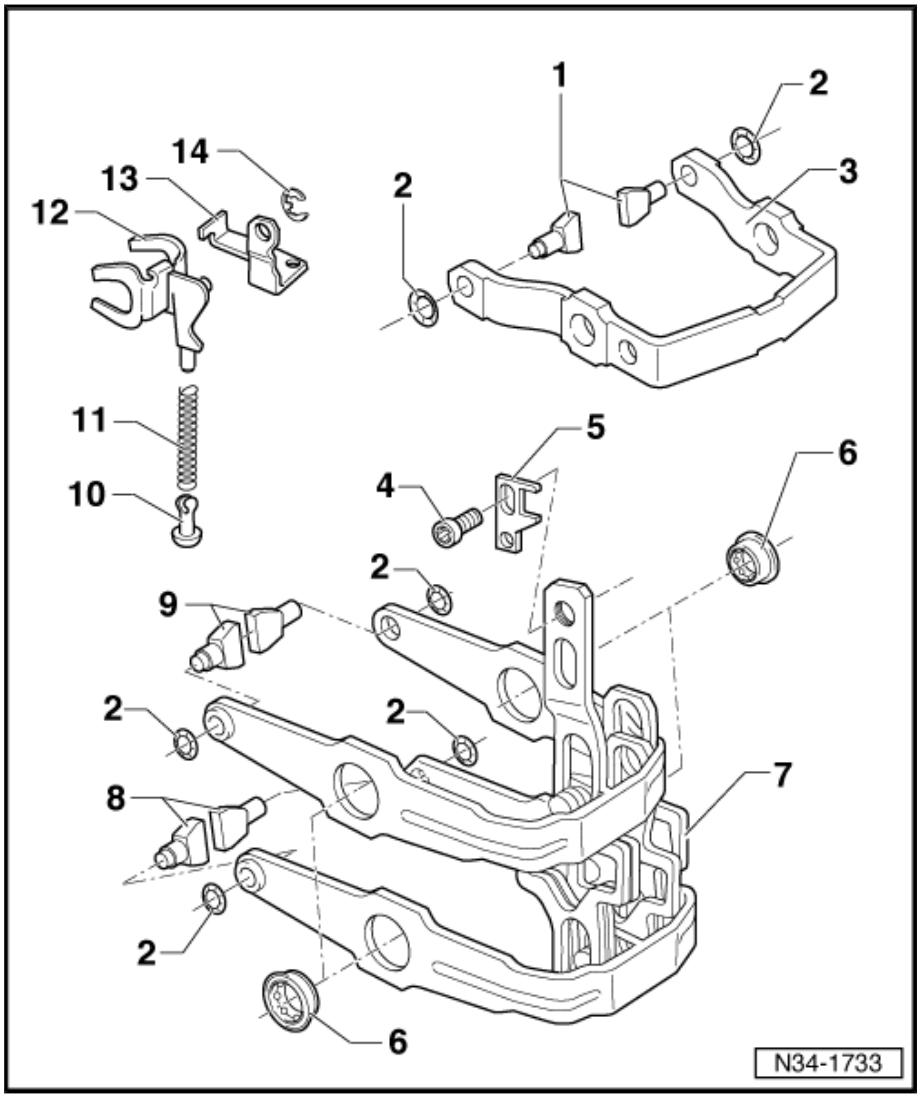
6 - Angular ball bearing

- ❑ 4 pieces
- ❑ removing ⇒ page 162
- ❑ installing ⇒ page 162

7 - Gearshift fork group with shift rails

8 - 1st/2nd gear shift segment

- ❑ Identification ⇒ page 161
- ❑ It must still be possible to rotate the shift segment freely once the cir-



clip has been fitted

9 - 3rd/4th gear shift segment

- ❑ Identification ⇒ page 161
- ❑ It must still be possible to rotate the shift segment freely once the circlip has been fitted

10 - Sliding block

- ❑ Mushroom shape

11 - Spring

12 - Gearshift fork reverse gear

13 - Support for reverse gear shift fork

14 - Circlip

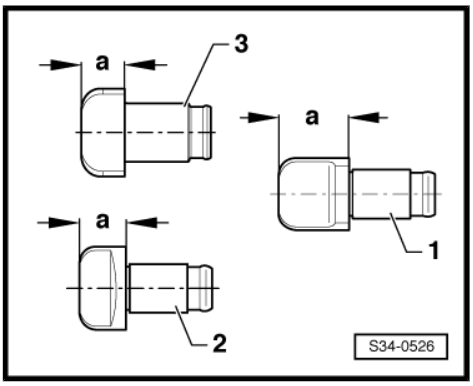
Identification of shift segments

Dimension -a-

1 - Shift segments 1st and 2nd gear = 11.4 mm

2 - Shift segments 3rd and 4th gear = 7.6 mm

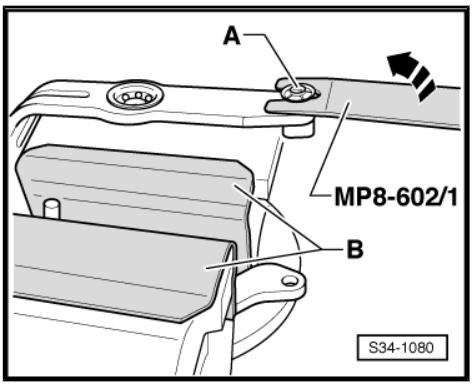
3 - Shift segments 5th gear = 6.0 mm



Removing the circlip

– Secure the shift fork in a vice fitted with protective jaws -B-.

– Lift off the circlip -A- in -direction of the arrow-.



Fitting the circlip

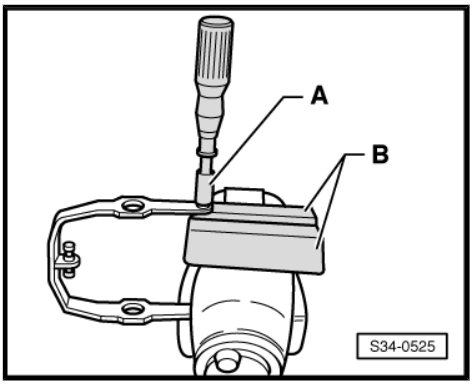
– Press the circlip with a handle wrench into the slot of the shift segment.

Note

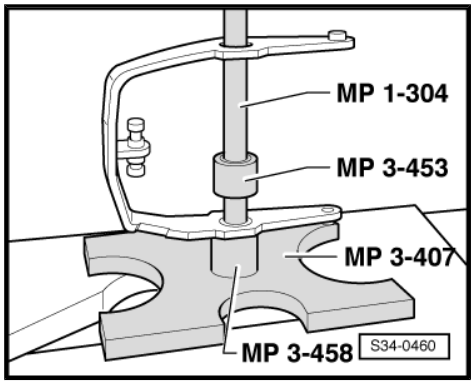
It must still be possible to rotate the shift segment freely once the circlip has been fitted.

-A- - Handle wrench, wrench size 10 mm

-B- - Protective jaws



Removing the angular ball bearing

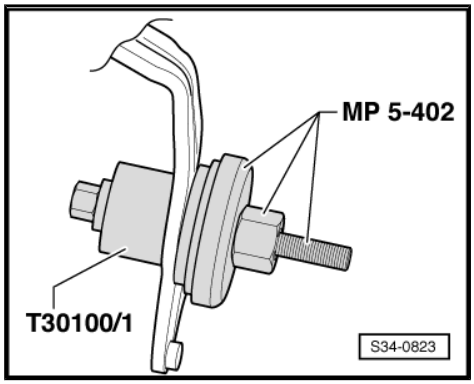


Note

Do not bend the shift forks when removing and installing the angular ball bearings.

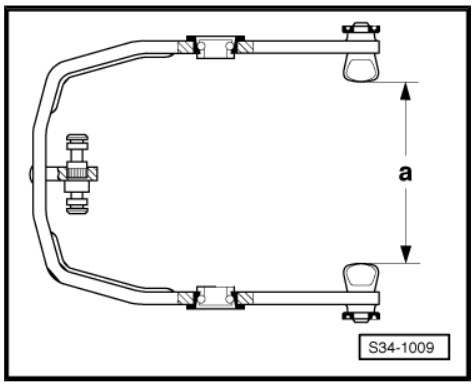
Insert the angular ball bearing up to the stop into the gearshift fork

The recess in the pressure plate - T30100/1- points towards the ball bearing.



Shift fork with fitted shift segments

	Dimension -a- (mm)
Gearshift fork for 1st and 2nd gear	88.4 … 89.1
Gearshift fork for 3rd and 4th gear	96.0 … 96.7



Shift segment assignment ⇒ page 161

35 – Gears, shafts

1 Drive shaft

⇒ "1.1 Disassembling and assembling the drive shaft", page 163

⇒ "1.2 Setting drive shaft", page 169

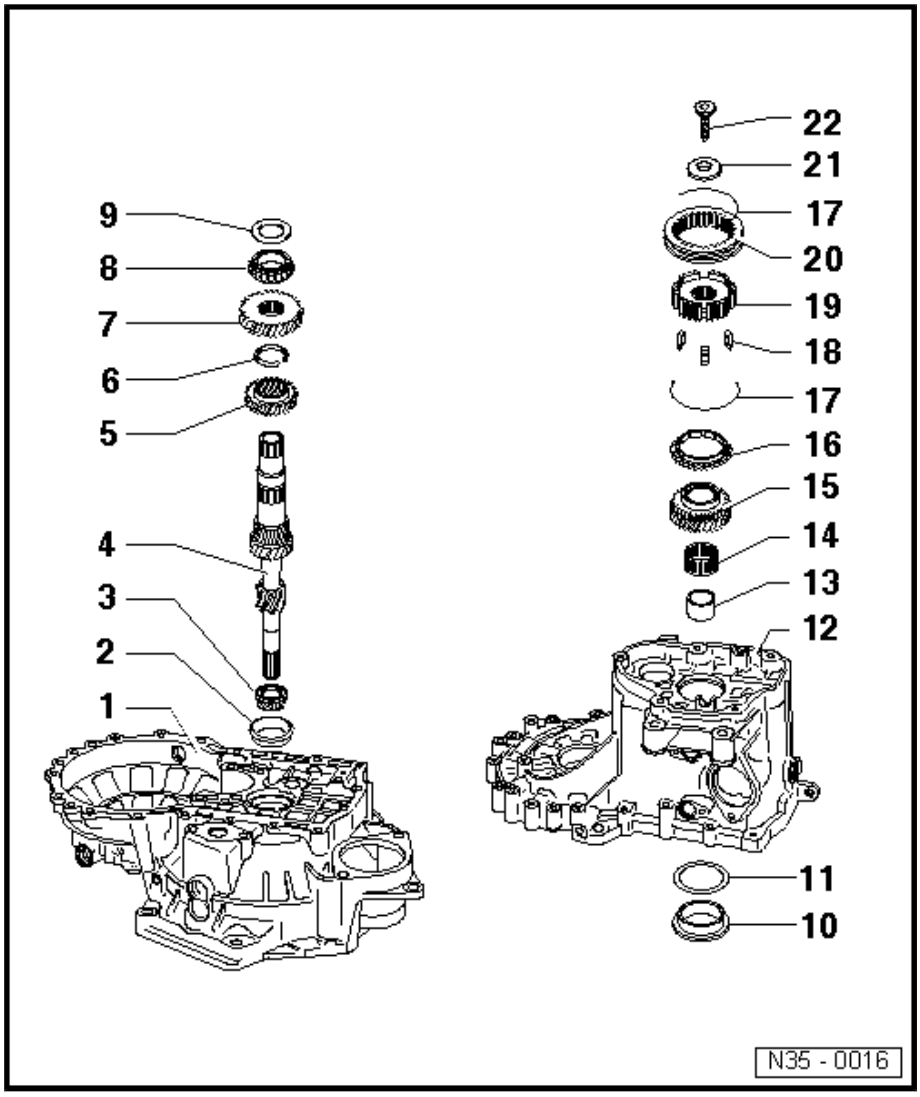
1.1 Disassembling and assembling the drive shaft

Special tools and workshop equipment required

- Pressure plate - MP3-406 (VW 401)-
- Pressure plate - MP3-407 (VW 402)-
- Pressure spindle - MP3-408 (VW 412)-
- Thrust piece - MP3-411 (VW 454) -
- Pressure washer - MP3-413 (VW 510)-
- Pressure spindle - MP3-423 (VW 407)-
- Pressure spindle - MP3-448 (VW 408 A)-
- Pipe section - MP3-451 (VW 422)-
- Pressure washer - MP3-455 (VW 447 H)-
- Pressure washer - MP3-456 (VW 447 I)-
- Pipe section - MP3-4013 (VW 421)-
- Separating device 12…75 mm , e.g. -Kukko17/1-

Note

- *Removing and installing drive shaft*
  ⇒ "4.7 Mounting sequence - completely disassembling and assembling the gearbox", page 139 .
- *When installing new pinions or a new drive shaft, pay attention to the technical data Fabia II*
  ⇒ "2.1 Identification characters, aggregate assignment (Fabia II)", page 2 , Roomster
  ⇒ "2.2 Identification characters, aggregate assignment (Roomster)", page 3 , Rapid
  ⇒ "2.3 Identification characters, aggregate assignment (Rapid)", page 3 and Rapid NH
  ⇒ "2.4 Identification characters, aggregate assignment (Rapid NH)", page 3 .
- *If the position of the tapered-roller bearing is influenced when parts are replaced the drive shaft must be reset. Setting overview ⇒ "3 Setting overview", page 205 .*
- *Replace both tapered-roller bearings together.*



1 - Clutch housing

2 - Outer ring/tapered-roller bearing

- ❑ pressing out ⇒ page 165
- ❑ installing ⇒ page 165

3 - Inner ring/tapered-roller bearing

- ❑ pressing off ⇒ page 166
- ❑ pressing on ⇒ page 166

4 - Drive shaft

- ❑ adjust ⇒ “1.2 Setting drive shaft”, page 169

5 - 3rd gear pinion

- ❑ pressing off ⇒ page 166
- ❑ pressing on ⇒ page 167
- ❑ Fitting position: Collar points towards the sliding gear, 4th gear

6 - Circlip

- ❑ always replace ⇒ Electronic Catalogue of Original Parts

7 - 4th gear pinion

- ❑ pressing off with inner ring/tapered-roller bearing and bushing ⇒ page 166
- ❑ pressing on ⇒ page 167
- ❑ Fitting position: Collar points towards the sliding gear, 3rd gear

8 - Inner ring/tapered-roller bearing

- ❑ pressing off with 4th gear pinion and bushing ⇒ page 166
- ❑ pressing on ⇒ page 167

9 - Thrust washer

10 - Outer ring/tapered-roller bearing

- ❑ pressing out ⇒ page 168
- ❑ installing ⇒ page 168

11 - Adjusting washer

- ❑ Determine thickness ⇒ “1.2 Setting drive shaft”, page 169

12 - Gearbox housing

13 - Bushing

- ❑ for 5th gear needle bearing
- ❑ pressing off with 4th gear pinion and inner ring/tapered-roller bearing ⇒ page 166
- ❑ pressing on ⇒ page 167
- ❑ insert thrust washer Pos. 9 before assembly

14 - Needle bearing

- ❑ for 5th gear

15 - 5th gear sliding gear

16 - 5th gear synchronizer ring

- ❑ with integrated arresters ⇒ “4.7.3 Install 5th gear”, page 147
- ❑ check for wear ⇒ “4.7.3 Install 5th gear”, page 147

17 - Spring

- ❑ Fitting position ⇒ page 169 and ⇒ page 169

18 - Arresters

- ❑ (3 pieces)
- ❑ Fitting position ⇒ page 168

19 - 5th gear synchronizer body

- ❑ remove separately ⇒ “4.6.1 Removing gearbox housing cover and 5th gear”, page 135
- ❑ remove together with gearbox housing
  ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139
- ❑ installing ⇒ “4.7.3 Install 5th gear”, page 147

20 - 5th gear sliding sleeve

- ❑ remove with 5th gear synchronizer body Pos. 19
- ❑ Assembling sliding sleeve/5th gear synchronizer body ⇒ page 169

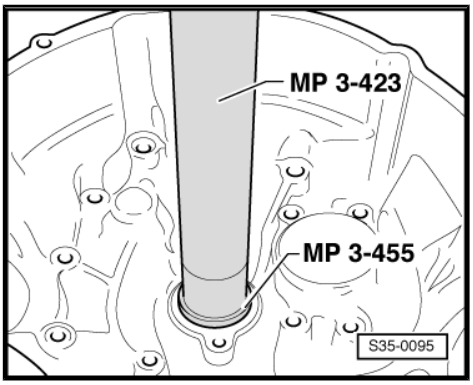
21 - Disc spring

- ❑ Fitting position ⇒ “4.7.3 Install 5th gear”, page 147

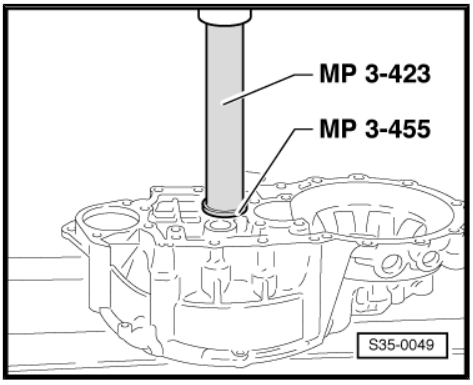
22 - 80 Nm and torque a further 90°

- ❑ holds disc spring in position with sleeve socket on screw head
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

Pressing out outer ring/tapered-roller bearing

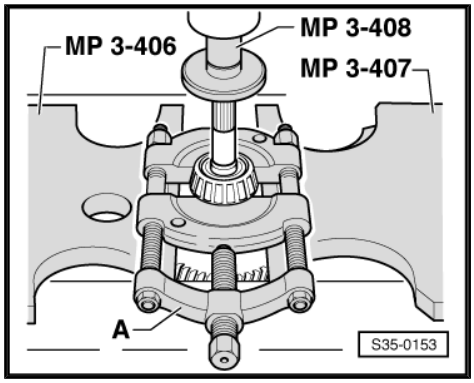


Pressing on outer ring/tapered-roller bearing

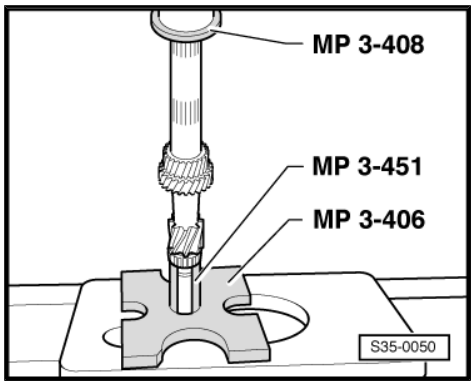


Pressing off inner ring/tapered-roller bearing

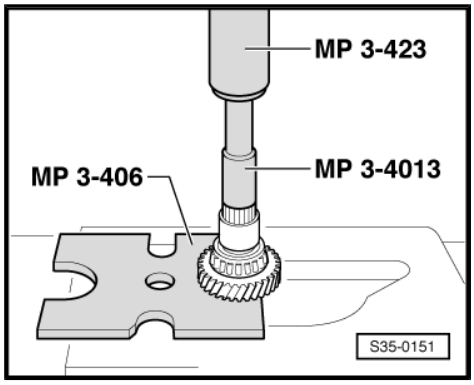
-A- - separating device 12…75 mm e.g. -Kukko17/1-



Press on inner ring/tapered-roller bearing

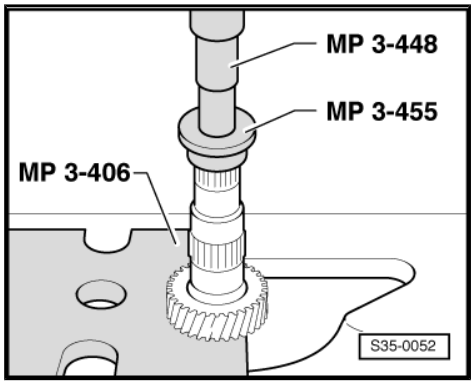


Pressing off 4th gearwheel with tapered-roller bearing and bushing

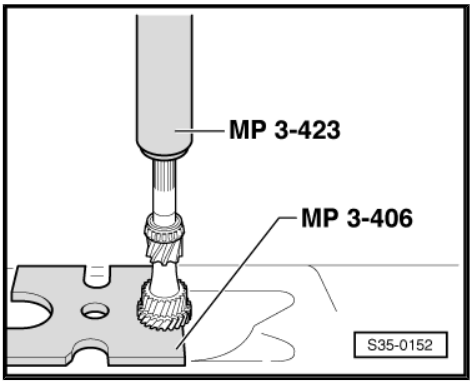


Pressing off 3rd gear pinion

– Prior to this remove the circlip.

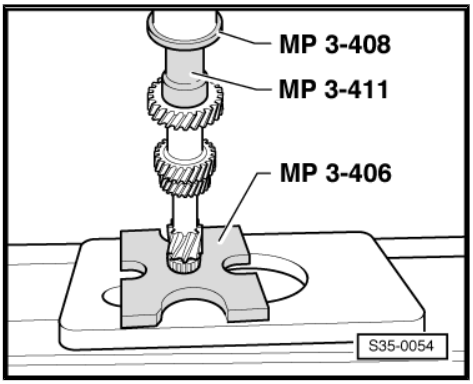


Pressing on 3rd gear pinion

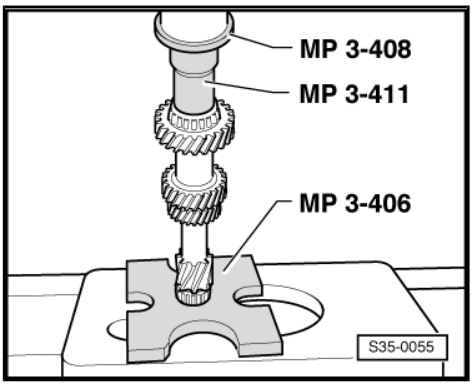


Pressing on 4th gear pinion

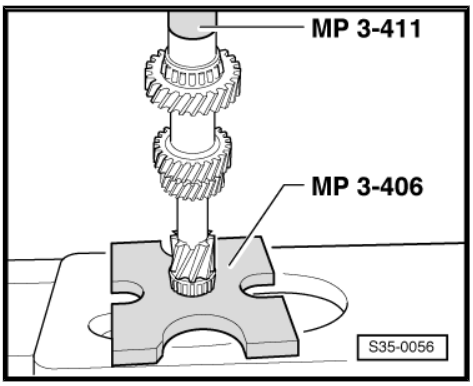
Collar points to the 3rd gear.



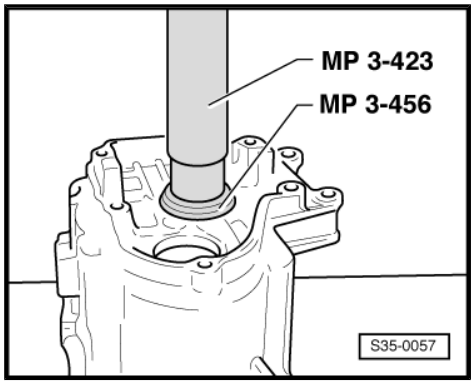
Press on inner ring/tapered-roller bearing



Press on bushing for 5th gear needle bearing

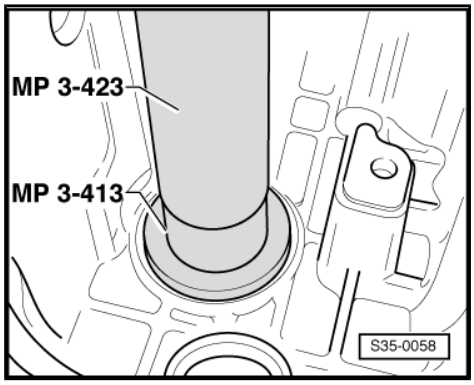


Pressing out outer ring/tapered-roller bearing



Pressing on outer ring/tapered-roller bearing

– After setting the drive shaft insert with adjusting washer.



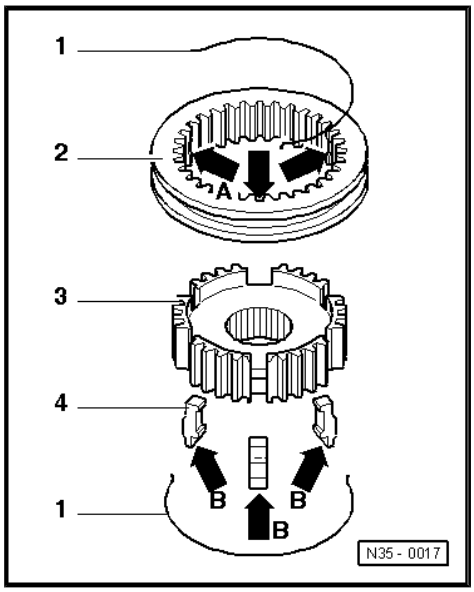
5th gear synchronization

1 - Springs for arresters

2 - Sliding sleeve with 3 recesses -arrows A- for the arresters -4-

3 - Synchronizer body

4 - Arresters (Fitting location: Leg -arrow B- points to the sharp teeth of the sliding sleeve -2-)



Assembling sliding sleeve/5th gear synchronizer body

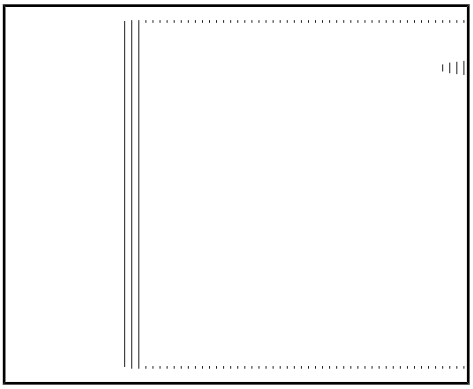
– Slide the sliding sleeve over the synchronizer body.

The sharp teeth -A- of the sliding sleeve and the collar -B- of the synchronizer body point in the same direction.

The recesses for the arresters in the sliding sleeve and the synchronizer body must be positioned above one another ⇒ page 168

– Insert arresters (Fitting location: ⇒ page 168).

– Mount the springs with 120° offset under the shoulder -C-. The angled ends of the spring must be located before the arresters -arrows-.



Note

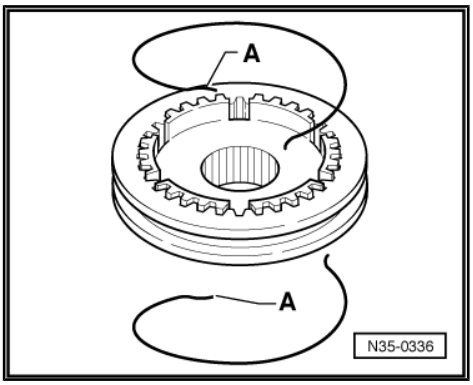
Observe the correct position of springs on the arresters which are hollow inside ⇒ page 169 .

Springs bent at right angles -A- for the 5th gear synchronisation

These springs are installed on both sides.

– The springs can only be installed on previous gearboxes together with arresters, which are hollow inside.

– Insert arresters (Fitting location ⇒ page 168).

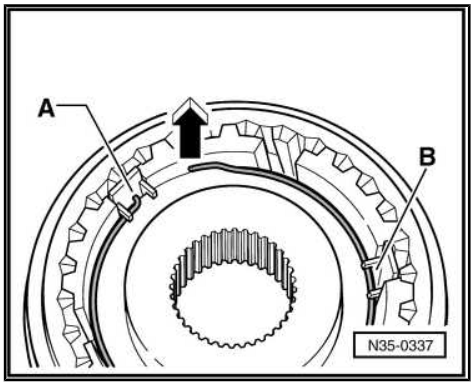


Fitting location of the springs:

– Mount the springs with 120° offset.

– The angled end -A- of the spring must grip into the hollow arrester and at the same time be located below the shoulder -B- of the arresters.

The end bent at right angles always points away from the synchronizer body -direction of arrow-.



1.2 Setting drive shaft

(Determine adjusting washer for drive shaft)

Special tools and workshop equipment required

- Gauge block plate - MP3-405/17-
- Pressure washer - MP3-413 (VW 510)-
- Pressure spindle - MP3-423 (VW 407)-
- Universal dial gauge holder - MP3-447 (VW 387)-
- Pressure washer - MP3-455 (VW 447 H)-
- Pressure washer - MP3-456 (VW 447 I)-
- Gearbox mount - T30109 (VW 353)-

- Dial gauge

The drive shaft must be re-set when the following components are replaced:

- Gearbox housing
- Clutch housing
- Drive shaft
- 4th gear pinion

or the

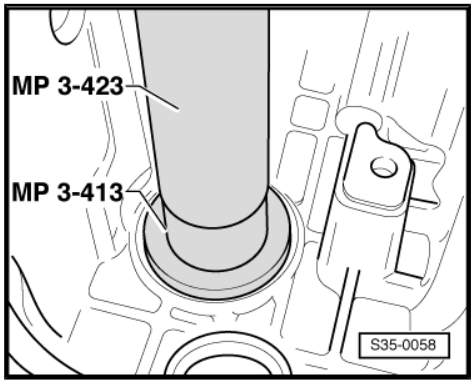
- Tapered-roller bearing

Setting overview ⇒ “3 Setting overview”, page 205 .

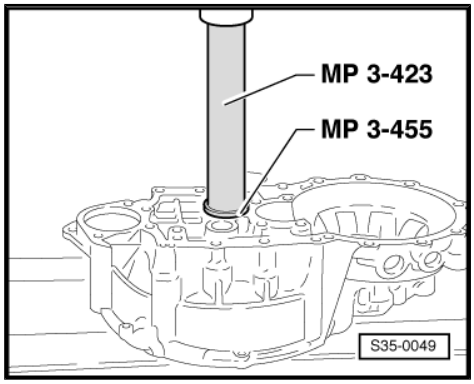
Note

Sealing surfaces of clutch and gearbox housing must be removed of sealant residues.

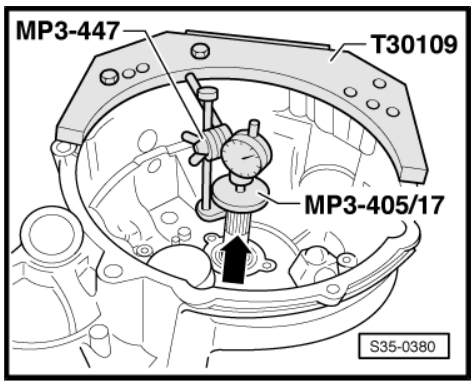
– Press the outer ring/tapered-roller without adjusting washer up to the stop into the gearbox housing.



– Press the outer ring/tapered-roller bearing up to the stop into the clutch housing.
– Insert drive shaft in the clutch housing and install gearbox housing. Tighten screws to tightening torque ⇒ “4.4 Removing and installing gearbox housing and shift mechanism”, page 131 .



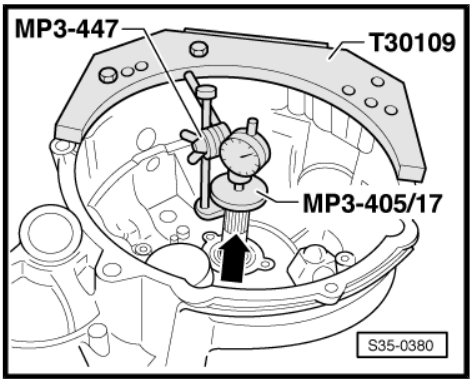
– Fit measuring device and dial gauge in the clutch housing.
– Turn the drive shaft several times before measuring to ensure the tapered-roller bearings set. Set the dial gauge to “0” with 1 mm bias.



Note

This procedure must be repeated before each subsequent measurement, because otherwise the dial gauge does not return to its initial setting to “0”.

– Press drive shaft towards the dial gauge -direction of arrow-.
– Read off play on dial gauge and note (in the example = 1.21 mm).



Note

The dial gauge does not return to its initial position.

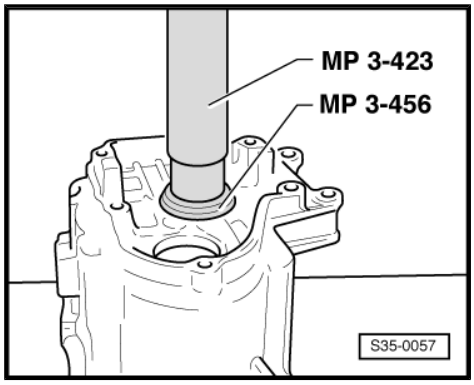
1.2.1 Determine thickness of the adjusting washer

Example:

Measured value of bearing play	Thickness of the adjusting washer according to the table
1.21 mm	1.175 mm

– Remove drive shaft and press out outer ring/tapered-roller bearing from the gearbox housing with thrust washer - MP3-456 (VW 447 I)- .

– Determine the adjusting washer thickness from the table ⇒ page 172 (example 1.175 mm).



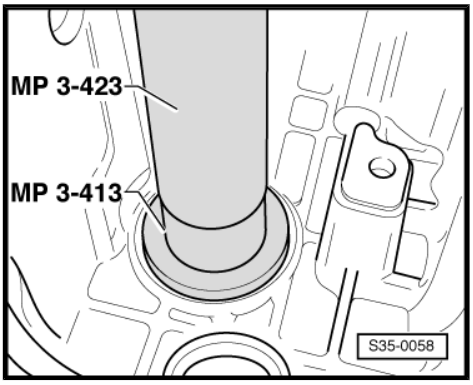
Adjusting washer table

Bearing clearance	Adjusting washer
Measured value (mm)	**Thickness (mm)**
0.671 … 0.699	0.650
0.700 … 0.724	0.675
0.725 … 0.749	0.700
0.750 … 0.774	0.725
0.775 … 0.799	0.750
0.800 … 0.824	0.775
0.825 … 0.849	0.800
0.850 … 0.874	0.825
0.875 … 0.899	0.850
0.900 … 0.924	0.875
0.925 … 0.949	0.900
0.950 … 0.974	0.925
0.975 … 0.999	0.950
1.000 … 1.024	0.975
1.025 … 1.049	1.000
1.050 … 1.074	1.025
1.075 … 1.099	1.050
1.100 … 1.124	1.075
1.125 … 1.149	1.100
1.150 … 1.174	1.125
1.175 … 1.199	1.150
1.200 … 1.224	1.175
1.225 … 1.249	1.200
1.250 … 1.274	1.225
1.275 … 1.229	1.250
1.300 … 1.324	1.275
1.325 … 1.349	1.300
1.350 … 1.374	1.325
1.375 … 1.399	1.350
1.400 … 1.424	1.375
1.425 … 1.449	1.400
1.450 … 1.474	1.425
1.475 … 1.499	1.450
1.500 … 1.524	1.475
1.525 … 1.549	1.500
1.550 … 1.574	1.525
1.575 … 1.599	1.550
1.600 … 1.624	1.575
1.625 … 1.649	1.600
1.650 … 1.674	1.625
1.675 … 1.699	1.650
1.700 … 1.724	1.675

Note

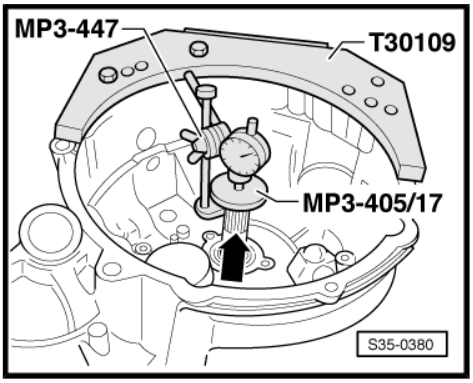
Assign the adjusting washers via the ⇒ Electronic Catalogue of Original Parts .

– Press outer ring/tapered-roller bearing with thrust washer - MP3-413 (VW 510)- into the gearbox housing together with the adjusting washer (in the example 1.175 mm).
– Position the gearbox housing and tighten screws to the given tightening torque
⇒ “4.4 Removing and installing gearbox housing and shift mechanism”, page 131 .



1.2.2 Control measurement

– Insert measuring device and dial gauge.
– Turn the drive shaft several times to ensure the tapered-roller bearings set.
– Press drive shaft in the -direction of the arrow-.
– The bearing clearance must be min. 0.01…max. 0.09 mm.



Note

If no bearing clearance can be measured, however the drive shaft has a tangible valve rock and can easily be turned, then the setting is also OK.

2 Output shaft

⇒ "2.1 Disassembling and assembling the output shaft", page 174

⇒ "2.2 Setting output shaft", page 184

2.1 Disassembling and assembling the output shaft

Special tools and workshop equipment required

- Pressure plate - MP3-407 (VW 402)-
- Pressure spindle - MP3-408 (VW 412)-
- Thrust piece - MP3-411 (VW 454) -
- Press-on sleeve - MP3-412 (VW 455)-
- Pressure spindle - MP3-423 (VW407)-
- Pressure spindle - MP3-448 (VW 408 A)-
- Pressure spindle - MP3-449 (VW 409) -
- Pipe section - MP3-450 (VW 415 A)-
- Thrust ring - MP3-452 (VW 429)-
- Pressure washer - MP3-455 (VW 447 H)-
- Alignment rails - MP3-457 (VW 457) -
- Pressure washer - MP3-460 (VW 512)-
- Pipe section - MP3-461 (VW 519)-
- Insertion tool - MP3-466 (32-111)-
- Tapered-roller bearing extractor - V.A.G 1582-
- Gripper - V.A.G 1582/4-
- Gripper - V.A.G 1582/5-
- Interior extractor , e.g. -Kukko 21/6-
- Countersupport , e.g. -Kukko 22/2-
- Separating tool , e.g. -Kukko 17/2-
- Feeler gauge
- Bolt M10 x 20

Note

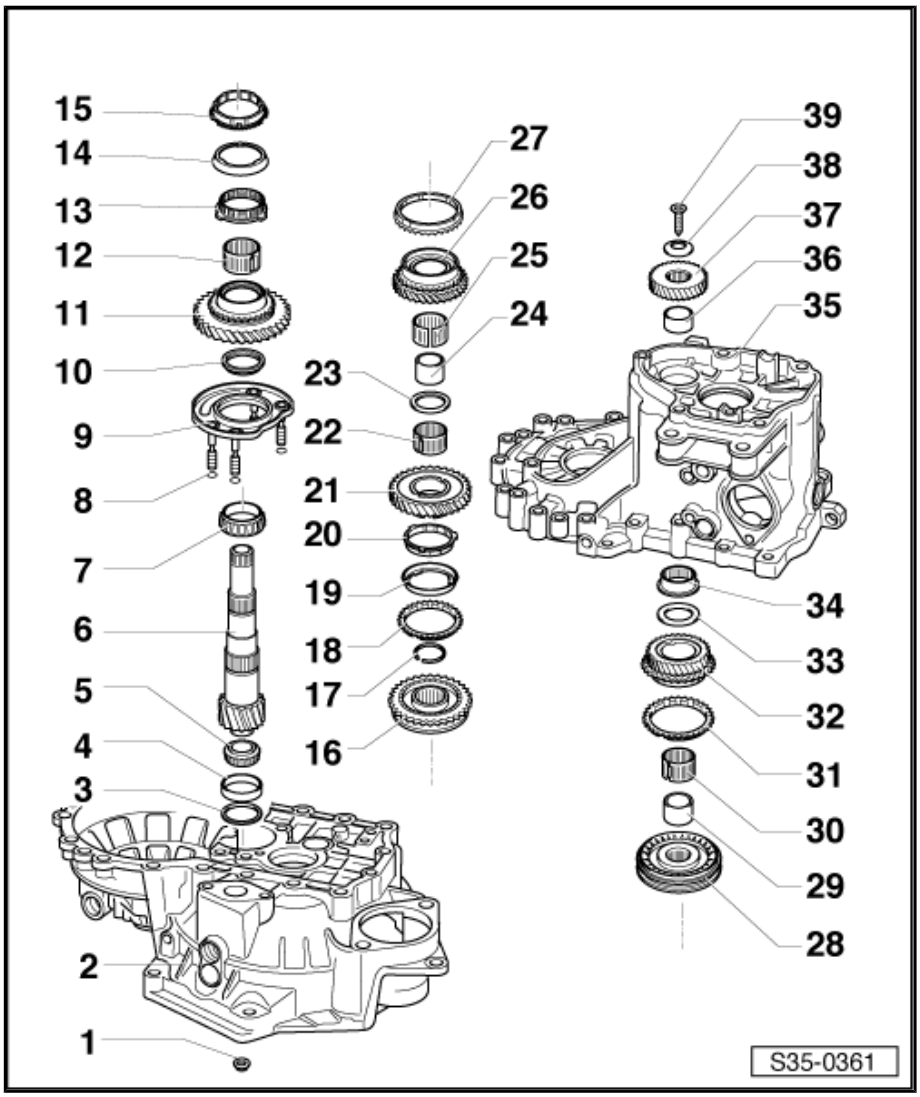
- *When installing new pinions or a new drive shaft, pay attention to the technical data Fabia II ⇒ "2.1 Identification characters, aggregate assignment (Fabia II)", page 2 , Roomster ⇒ "2.2 Identification characters, aggregate assignment (Roomster)", page 3 , Rapid ⇒ "2.3 Identification characters, aggregate assignment (Rapid)", page 3 and Rapid NH ⇒ "2.4 Identification characters, aggregate assignment (Rapid NH)", page 3 .*
- *Removing and installing output shaft ⇒ "4.7 Mounting sequence - completely disassembling and assembling the gearbox", page 139 .*
- *Replace both tapered-roller bearings together.*

The output shaft can be disassembled as follows:

– Insert separating device under 2nd gear sliding gear Pos. 21 and press off as shown ⇒ page 178 .

– Remove circlip Pos. 17.

– Press off sliding sleeve with 1st and 2nd gear synchronizer body as shown in ⇒ page 179 .



1 - 25 Nm and torque a further 90°

- ❑ 4 nuts for bearing support Pos. 9
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

2 - Clutch housing

3 - Adjusting washer

- ❑ for output shaft
- ❑ Determine thickness ⇒ “2.2 Setting output shaft”, page 184

4 - Outer ring/tapered-roller bearing small

- ❑ removing ⇒ page 177
- ❑ pressing on ⇒ page 178

5 - Inner ring/tapered-roller bearing small

- ❑ Pulling off ⇒ page 178
- ❑ pressing on ⇒ page 178

6 - Output shaft

- ❑ adjust ⇒ “2.2 Setting output shaft”, page 184

7 - Inner ring/tapered-roller bearing large

- ❑ Pulling off ⇒ page 179
- ❑ pressing on ⇒ page 179

8 - O-ring

- ❑ Position O-rings (4 pieces) on the bearing support screws
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

9 - Bearing support

- ❑ with outer ring/tapered-roller bearing large and with screws
- ❑ Always replace outer ring together with tapered-roller bearing large and bearing support

10 - Thrust washer

- ❑ Shoulder of thrust washer points to the tapered-roller bearing Pos. 7

11 - 1st gear sliding gear

12 - Needle bearing

- ❑ for 1st gear

13 - Synchronizer ring

- ❑ (Inner ring for 1st gear)
- ❑ Fitting position ⇒ page 179
- ❑ check for wear ⇒ page 180

- ❑ Check pegs for traces of wear

14 - Outer ring for 1st gear

- ❑ place onto the inner ring Pos. 13
- ❑ Fitting position ⇒ page 179
- ❑ check for wear ⇒ page 180
- ❑ replace if there are any traces of scoring or friction

15 - 1st gear synchronizer ring

- ❑ check for wear ⇒ page 180
- ❑ Fitting position ⇒ page 179

16 - Sliding sleeve with 1st and 2nd gear synchronizer body

- ❑ after removing the circlip Pos. 17 press off with bearing support Pos. 9 ⇒ page 179
- ❑ disassembling ⇒ page 180
- ❑ Assembling sliding sleeve/synchronizer body ⇒ page 180 , ⇒ page 181 and ⇒ page 181
- ❑ Fitting position ⇒ page 181
- ❑ pressing on ⇒ page 181

17 - Circlip

18 - 2nd gear synchronizer ring

- ❑ check for wear ⇒ page 180
- ❑ insert in such a way that the recesses lock into the arresters of the sliding sleeve Pos. 16

19 - Outer ring for 2nd gear

- ❑ insert into synchronizer ring Pos. 18
- ❑ Fitting position ⇒ page 182
- ❑ replace if there are any traces of scoring and friction ⇒ Electronic Catalogue of Original Parts

20 - Synchronizer ring

- ❑ (Inner ring for 2nd gear)
- ❑ check for wear ⇒ page 180
- ❑ Check pegs for traces of wear
- ❑ Fitting position ⇒ page 182

21 - 2nd gear sliding gear

- ❑ Fitting position ⇒ page 182

22 - Needle bearing

- ❑ for 2nd gear

23 - Thrust washer

24 - Bushing

- ❑ for 3rd gear needle bearing
- ❑ press off with 2nd gear sliding gear ⇒ page 178
- ❑ pressing on ⇒ page 182

25 - Needle bearing

- ❑ for 3rd gear

26 - 3rd gear sliding gear

27 - 3rd gear synchronizer ring

- ❑ check for wear ⇒ page 183

28 - Sliding sleeve with 3rd and 4th gear synchronizer body

- ❑ press off ⇒ page 178 together with 2nd gear Pos. 21 and and 3rd gear Pos. 26 sliding gear
- ❑ disassembling ⇒ page 183
- ❑ Assembling sliding sleeve/synchronizer body ⇒ page 183 , ⇒ page 183 and ⇒ page 183
- ❑ Fitting position sliding sleeve/synchronizer body ⇒ page 184

- ❑ pressing on ⇒ page 184

29 - Bushing

- ❑ for 4th gear needle bearing
- ❑ Press of together with the sliding sleeve and synchronizer body, 3rd and 4th gear, Pos. 28 ⇒ page 178
- ❑ pressing on ⇒ page 184

30 - Needle bearing

- ❑ for 4th gear

31 - 4th gear synchronizer ring

- ❑ check for wear ⇒ page 183

32 - 4th gear sliding gear

33 - Thrust washer

34 - Needle bearing

- ❑ for output shaft
- ❑ removing and installing ⇒ “5 Repairing gearbox housing and clutch housing”, page 151

35 - Gearbox housing

36 - Bushing

- ❑ for needle bearing/output shaft Pos. 34
- ❑ pressing off ⇒ page 178
- ❑ pressing on ⇒ page 184

37 - 5th gear pinion

- ❑ remove separately ⇒ “4.6 Mounting sequence - Removing and installing gearbox housing cover and 5th gear ”, page 134
- ❑ remove together with gearbox housing ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139
- ❑ installing ⇒ “4.7.3 Install 5th gear”, page 147

38 - Disc spring

- ❑ Fitting position ⇒ “4.7.3 Install 5th gear”, page 147

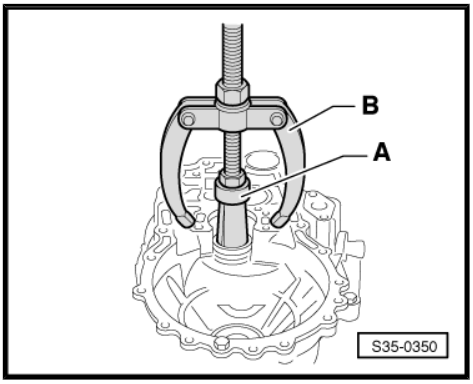
39 - 80 Nm and torque a further 90°

- ❑ holds disc spring in position with sleeve socket on screw head
- ❑ always replace ⇒ Electronic Catalogue of Original Parts

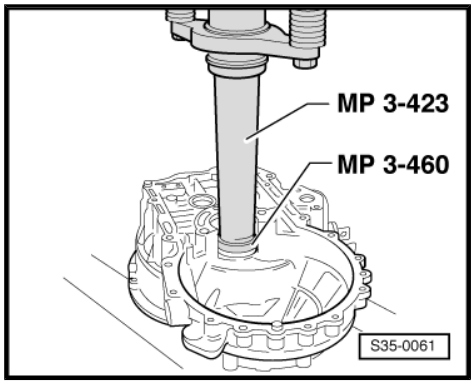
Removing outer ring/tapered-roller bearing small

-A- interior extractor 37…46 mm , e.g. -Kukko 21/6-

-B- countersupport , e.g. -Kukko 22/2-



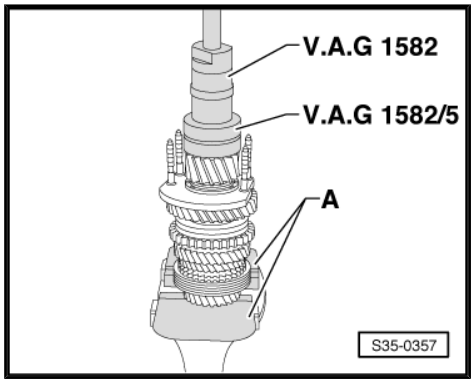
Pressing on small outer ring/tapered-roller bearing



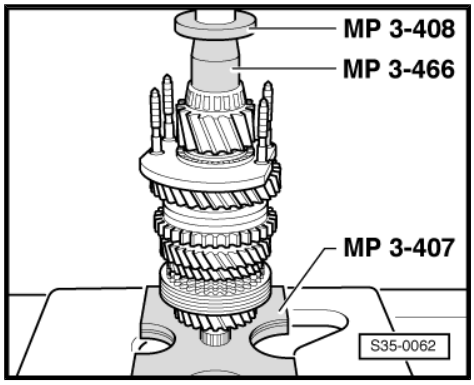
Extracting small inner ring/tapered-roller bearing

-A- vice with protective jaws

– Insert the gripper and tighten behind the rollers of the bearing, then turn bearing and tighten the gripper.



Press on small inner ring/tapered-roller bearing



Pressing out 3rd and 4th gear synchronizer body/sliding sleeve, 2nd, 3rd and 4th gear sliding gear with bushing for needle bearing output shaft

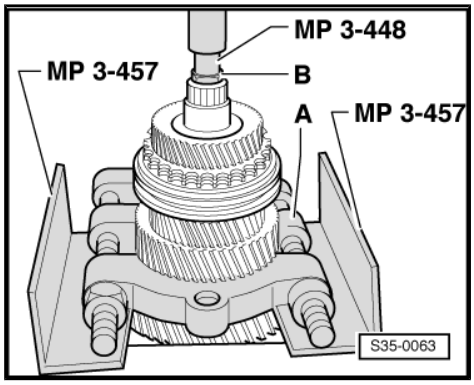
-A- separating device 22…115 mm e.g. -Kukko 17/2-

-B- Screw M10 x 20

– Insert separating device under 2nd gear sliding gear and press off.

Note

Support the separating device in such a way that the 1st and 2nd gear sliding sleeve is not drawn off.

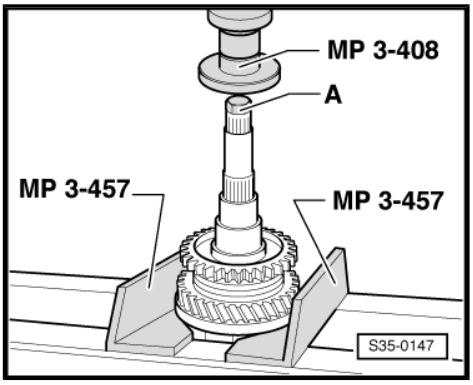


Press off sliding sleeve with synchronizer body and bearing support

– Undo the circlip (⇒ “2.1 Disassembling and assembling the output shaft”, page 174 -Pos. 17-) before.

-A- Screw M10 x 20

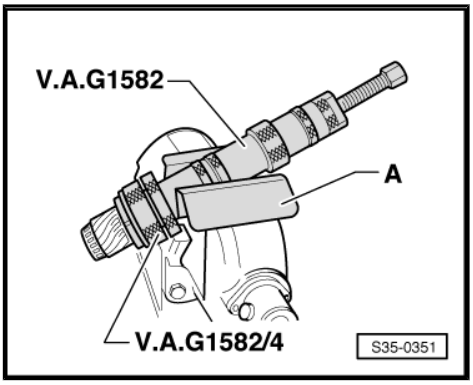
– Press off together with 1st gear sliding gear and sliding sleeve with synchronizer body for 1st and 2nd gear.



Pulling off large inner ring/tapered-roller bearing

-A- protective jaws

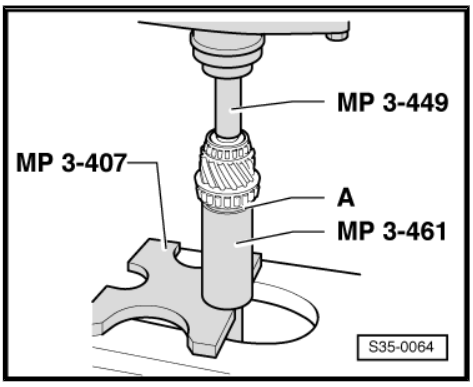
– Before fitting the extractor insert screw M10 x 20 in the output shaft bore.



Pressing on large inner ring/tapered-roller bearing

-A- Thrust washer

– Insert thrust washer before pressing in the inner ring. The shoulder points to the inner ring.



Fitting position of the inner ring, outer ring and 1st gear synchronizer ring

– Position the inner ring -A- on the 1st gear sliding gear.

The angled lands -arrow 1- point towards the outer ring -B-.

– Position the outer ring -B-.

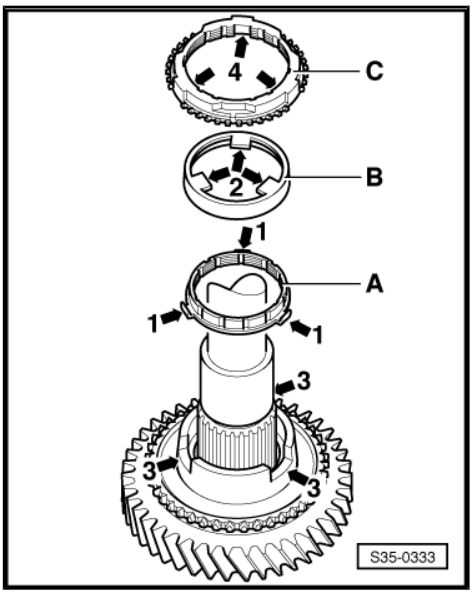
Lock the lands -arrows 2- in the recesses -arrows 3- of the sliding gear.

– Position the synchronizer ring -C-.

Lock the recesses -arrows 4- in the lands -arrows 1- of the inner ring -A-.

Note

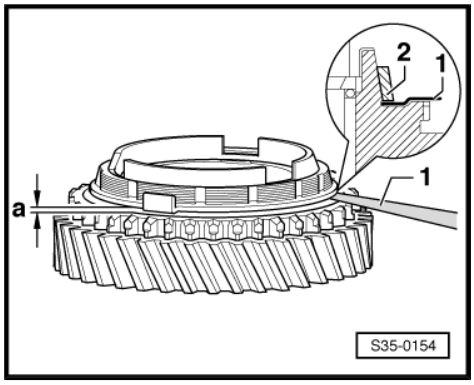
If these components should not be replaced, make sure that they are assigned again to the original gear.



Check 1st and 2nd gear inner ring for wear

– Press the inner ring -2- on the cone of the sliding gear and measure clearance -a- with a feeler gauge -1-.

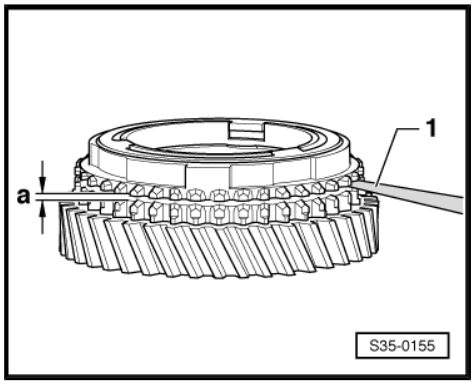
Dimension “a”	Installation dimension	Wear limit
1. and 2nd gear	0.75 … 1.25 mm	0.3 mm



Check 1st and 2nd gear snychronizer rings for wear

– Press the synchronizer ring, outer ring and inner ring on the cone of the sliding gear and measure clearance -a- with a feeler gauge.

Dimension “a”	Installation dimension	Wear limit
1. and 2nd gear	1.2 … 1.8 mm	0.5 mm



Disassembling and assembling the sliding sleeve and 1st and 2nd gear synchronizer body

1 - Spring

Assign the springs via the ⇒ Electronic Catalogue of Original Parts .

Installation together with arresters, which are hollow inside ⇒ page 181 .

Installation together with arresters, which are not hollow inside ⇒ page 181 .

2 - Sliding sleeve

3 - Synchronizer body

4 - Arresters

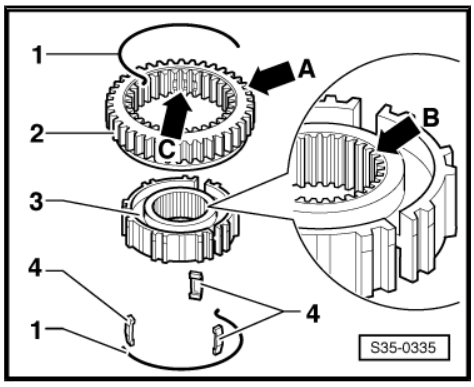
Assign the arresters via the ⇒ Electronic Catalogue of Original Parts .

The collar on both sides of the synchronizer body is identical in width.

The collar has a chamfer on one side -arrow B-.

The chamfer on the collar of the synchronizer body and the outer serration of the sliding sleeve -arrow A- point after assembly in the same direction.

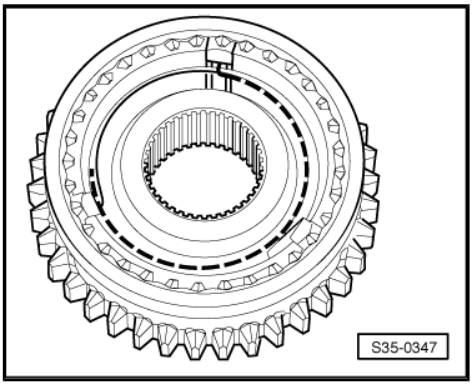
The recesses for the arresters on the synchronizer body and the sliding sleeve -arrow C- must be positioned above one another.



Assembly of sliding sleeve/1st and 2nd gear synchronizer body together with arresters, which are hollow inside

- The sliding sleeve is drawn over the synchronizer body.

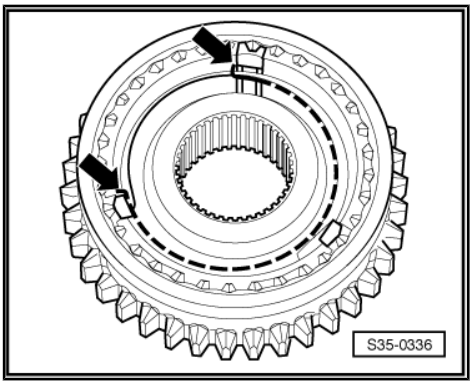
– Insert arresters and mount springs with 120° offset. The angled end of the spring must grip into the hollow arrester.



Assembly of sliding sleeve/1st and 2nd gear synchronizer body together with arresters, which are not hollow inside

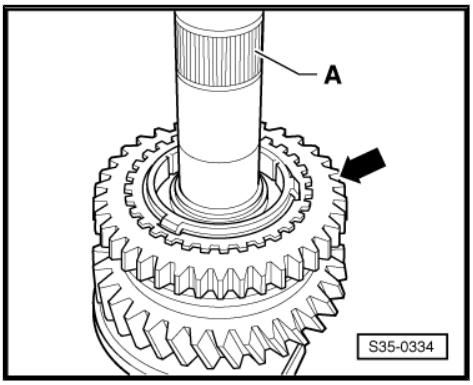
- The sliding sleeve is drawn over the synchronizer body.

– Insert arresters and mount springs with 120° offset. The angled ends of the springs must be located before the arresters -arrows-.



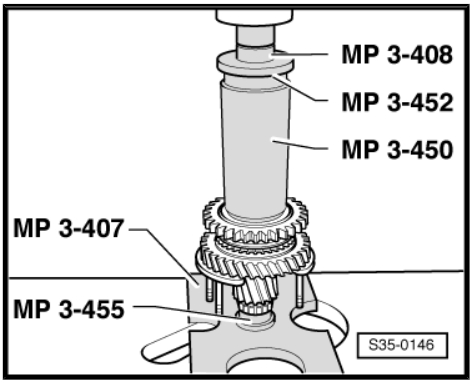
Fitting position of the sliding sleeve and 1st and 2nd gear synchronizer body

The teeth of the sliding sleeve -arrow- point towards the serration for the 3rd/4th gear synchronizer body -A-.



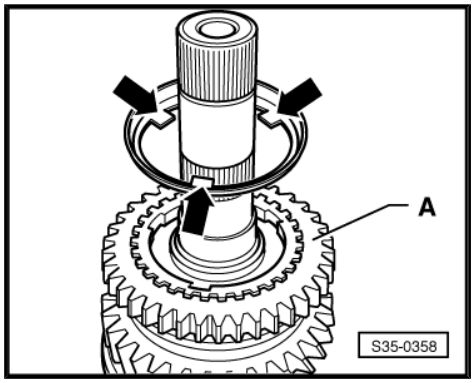
Press on the sliding sleeve and 1st and 2nd gear synchronizer body

Rotate the synchronizer ring in such a way that the slots are flush with the arresters.



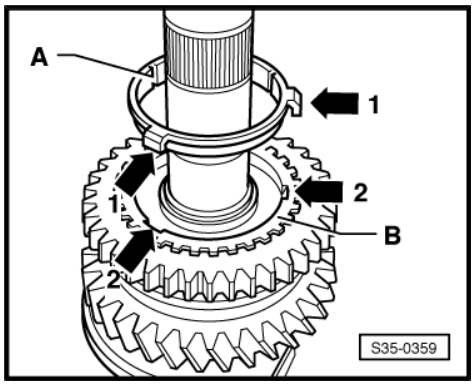
Fitting position of the 2nd gear outer ring

The pegs -arrows- point towards the 1st gear sliding gear -A-.



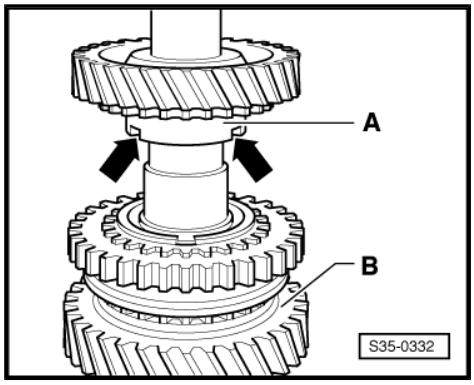
Fitting position for synchronizer ring (inner ring for 2nd gear) -A-

The pegs -arrow 1- lock into the recesses -arrow 2- of the synchronizer ring -B-.



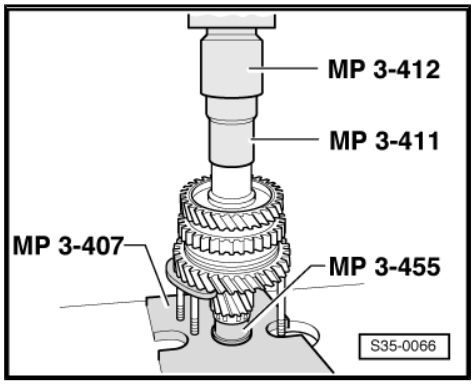
Fitting position 2nd gear sliding gear

The higher collar -A- points towards the 1st gear -B-. The recesses in the collar -arrows- lock into the pegs of the outer ring ⇒ page 182 .



Place on thrust washer and press on bushing for 3rd gear needle bearing

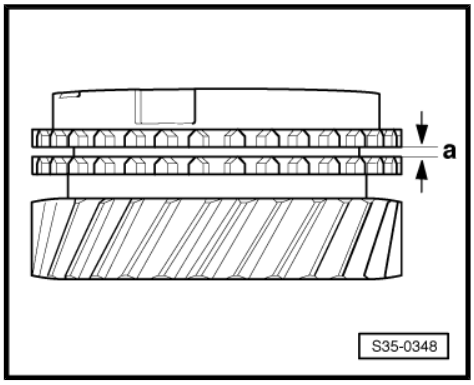
– Install needle bearing, sliding gear and 3rd gear synchronizer ring.



Check 3rd and 4th gear snychronizer ring for wear

– Press the synchronizer ring on the cone of the sliding gear and measure clearance -a- with a feeler gauge.

Dimension “a”	Installation dimension	Wear limit
3. and 4th gear	1.0 … 1.7 mm	0.5 mm



Disassembling and assembling the sliding sleeve and 3rd and 4th gear synchronizer body

1 - Spring

Assign the springs via the ⇒ Electronic Catalogue of Original Parts .

Installation together with arresters, which are hollow inside ⇒ page 183 .

Installation together with arresters, which are not hollow inside ⇒ page 183 .

2 - Arresters

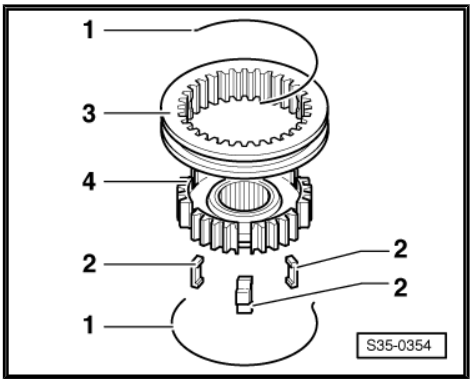
Assign the arresters via the ⇒ Electronic Catalogue of Original Parts .

3 - Sliding sleeve

4 - Synchronizer body

– Slide the sliding sleeve over the synchronizer body.

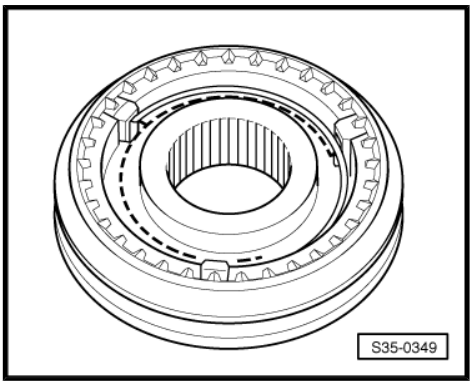
The recesses for the arresters on the synchronizer body and the sliding sleeve must be in line with each other.



Assembly of sliding sleeve/3rd and 4th gear synchronizer body together with arresters, which are hollow inside

• The sliding sleeve is drawn over the synchronizer body.

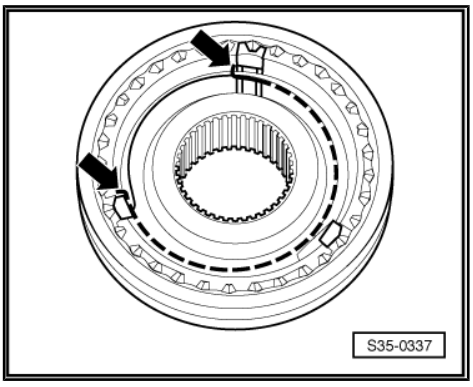
– Insert arresters and mount springs with 120° offset. The angled end of the spring must grip into the hollow arrester.



Assembly of sliding sleeve/3rd and 4th gear synchronizer body together with arresters, which are not hollow inside

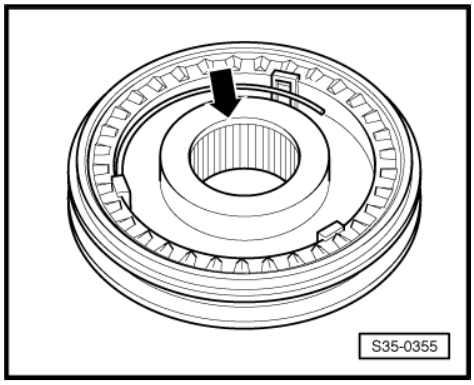
• The sliding sleeve is drawn over the synchronizer body.

– Insert arresters and mount springs with 120° offset. The angled ends of the spring must be located before the arresters -arrows-.

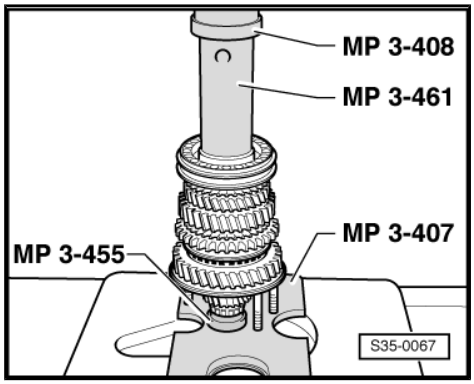


Fitting position of the sliding sleeve/3rd and 4th gear synchronizer body

Chamfer -arrow- points towards the 4th gear.

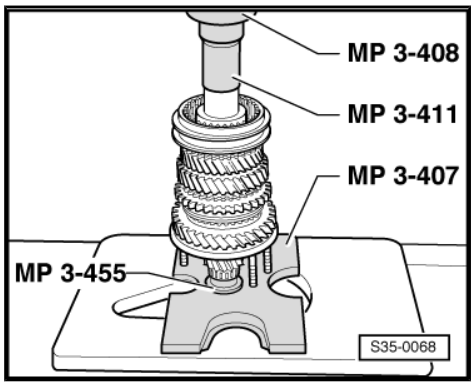


Press on the synchronizer body with the 3rd and 4th gear sliding sleeve

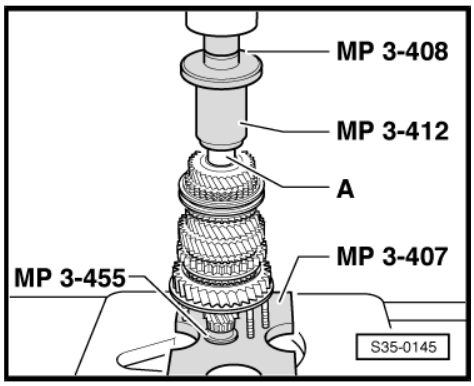


Pressing on bushing for 4th gear needle bearing

- Install needle bearing, 4th gear sliding gear and synchronizer ring.
- Place thrust washer ⇒ “2.1 Disassembling and assembling the output shaft”, page 174 -Pos. 33- onto sliding gear 4th gear.



Pressing on bushing for needle bearing/output shaft -A-



2.2 Setting output shaft

(Determine adjusting washer for drive shaft)

Special tools and workshop equipment required

- Gauge block plate - MP3-405/17-
- Pressure spindle - MP3-423 (VW 407)-
- Universal dial gauge holder - MP3-447 (VW 387)-

- Pressure washer - MP3-460 (VW 512)-
- Bolts M8 and M10 - 3114/2-
- Interior extractor 37…46 mm , e.g. -Kukko 21/6-
- Countersupport e.g. -Kukko 22/2-
- Dial gauge

The output shaft must be re-set when the following components are replaced:

- Output shaft
- Clutch housing

or the

- Tapered-roller bearing

Setting overview ⇒ “3 Setting overview”, page 205 .

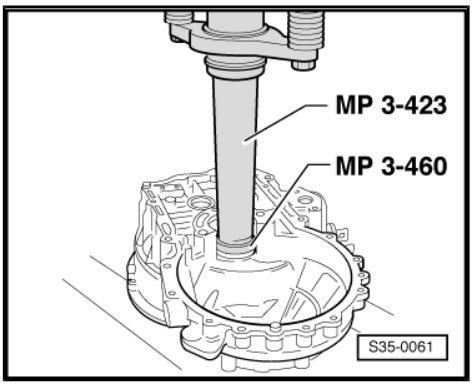
Note

Sealing surfaces of clutch and gearbox housing must be removed of sealant residues.

– Press in outer ring/tapered-roller bearing small in the clutch housing with a 0.65 mm thick adjsuting washer up to the stop

– Insert output shaft and tighten nuts for bearing support to 25 Nm.

– Turn output shaft 20 to 30 times in one direction.

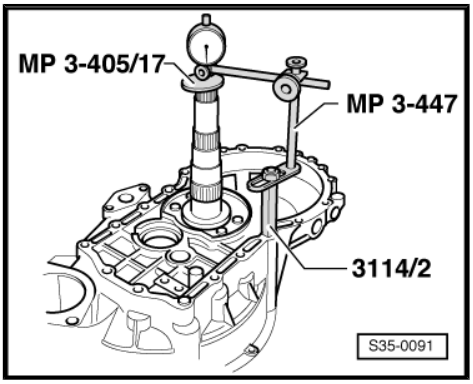


Note

- *Therefore, it must be turned in one direction so that the rolling elements/tapered-roller bearings settle in one direction.*
- *This requires 20 to 30 turns.*
- *Otherwise, the result of the measurement will be incorrect.*

– Insert dial gauge (3 mm measuring range) and set to “0” with a 1 mm bias.

– Move the output shaft up and down, read off and write down the clearance on the dial gauge. (Example: 0.20 mm).



2.2.1 Determine thickness of the adjusting washer

The prescribed bearing preload is reached by adding the established measured value (in the example 0.20 mm) to the inserted adjusting washer (0.65 mm) and by adding a constant value (0.10…0.15 mm).

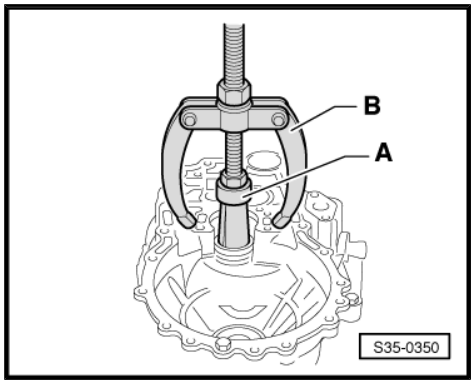
Example:

inserted washer	0.65 mm
+ measured value	0.20 mm
+ compression (constant value)	0.15 mm
Thickness of the adjusting washer	1.00 mm

Example:

Bearing clearance = (adjusting washer 0.65 mm and the determined measured value)	Thickness of the adjusting washer according to the table
0.850 mm	1.000 mm

– Remove output shaft and pull out small outer ring/tapered-roller bearing.



-A- interior extractor 37…46 mm , e.g. -Kukko 21/6-

-B- countersupport , e.g. -Kukko 22/2-

The following adjusting washers are available:

Adjusting washer table

Bearing clearance = (adjusting washer 0.65 mm and the determined measured value)	Adjusting washer thickness (mm)
0.650	0.750
0.660 … 0.689	0.800
0.690 … 0.739	0.850
0.740 … 0.789	0.900
0.790 … 0.839	0.950
0.840 … 0.889	1.000
0.890 … 0.939	1.050
0.940 … 0.989	1.100
0.990 … 1.039	1.150
1.040 … 1.089	1.200
1.090 … 1.139	1.250
1.140 … 1.189	1.300
1.190 … 1.239	1.350
1.240 … 1.289	1.400
1.290 … 1.339	1.450
1.340 … 1.389	1.500
1.390 … 1.429	1.550

Note

Assign the adjusting washers via the ⇒ Electronic Catalogue of Original Parts .

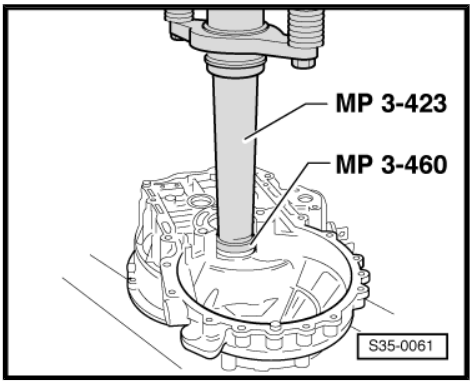
– Insert adjusting washers of the determined thickness, the thickest adjusting washer first.

• If the previous adjusting washer 0.65 mm should be inserted again, it must be checked for damage.

If the measured washer thickness is greater than the one listed in the table, 2 washers corresponding to the measured value may be fitted.

Different tolerances allow to measure the required thickness for each washer very precisely.

– Press in small outer ring/tapered-roller bearing with the determined adjusting washer (in the example 1.00 mm).
– Install output shaft and tighten nuts for the bearing support in the clutch housing to tightening torque
⇒ “2.1 Disassembling and assembling the output shaft”, page 174 .



3 Reverse shaft

⇒ “3.1 Disassembling and assembling the reverse shaft”, page 188

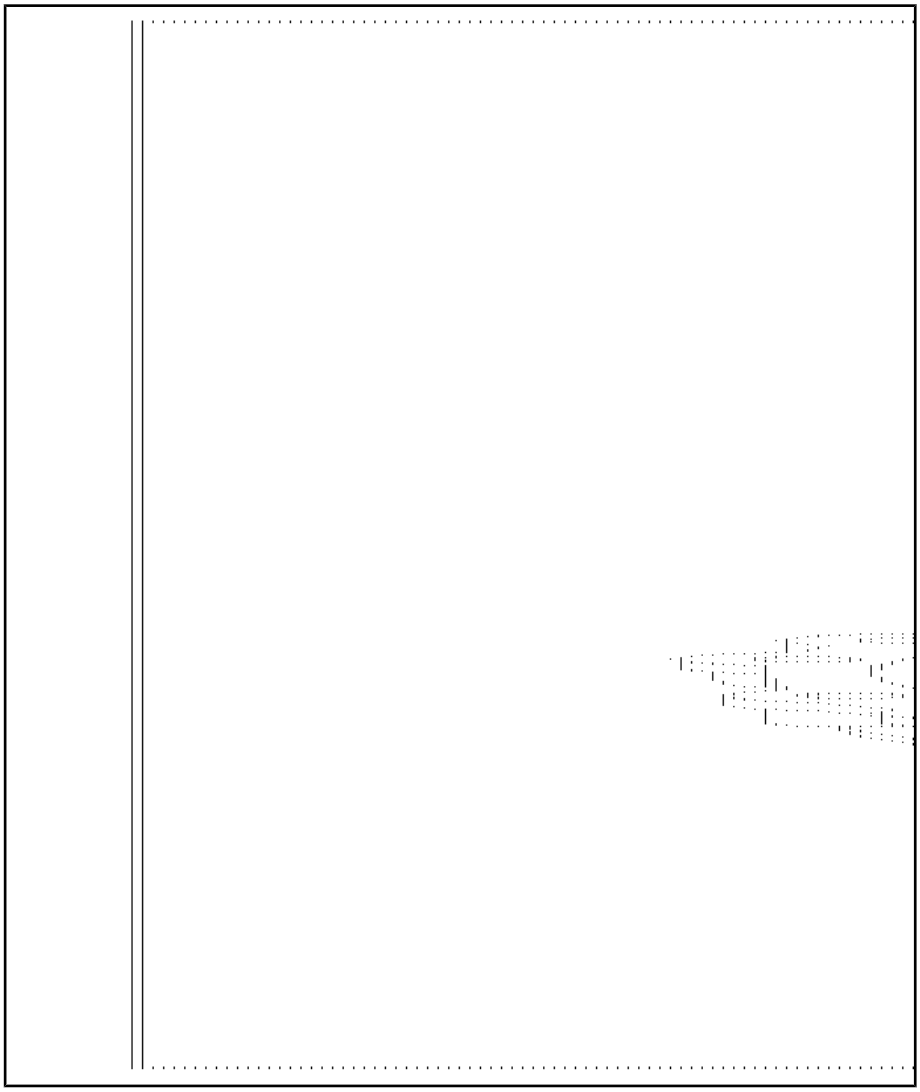
3.1 Disassembling and assembling the reverse shaft

Special tools and workshop equipment required

- Pressure plate - MP3-406 (VW 401)-
- Thrust piece - MP3-411 (VW 454)-
- Pressure spindle - MP3-423 (VW407)-
- Pressure spindle - MP3-448 (VW 408 A)-
- Pressure washer - MP3-455 (VW 447 H)-
- Centering mandrel - MP3-463 (12-551)-
- Pressure spindle - MP6-405 (VW 411)-
- Interior extractor 14.5 up to 18.5 mm , e.g. -Kukko 21/2-
- Countersupport e.g. -Kukko 22/1-

Note

Always replace the needle bushing from the clutch housing or from the reverse shaft support after removing ⇒ Electronic Catalogue of Original Parts .



1 - Clutch housing

2 - Needle bushing

- ❑ removing ⇒ page 189
- ❑ installing ⇒ page 190
- ❑ always replace after removing ⇒ Electronic Catalogue of Original Parts

3 - Reverse pinion

4 - Circlip

- ❑ always replace after removing ⇒ Electronic Catalogue of Original Parts
- ❑ carefully fit on new circlip
- ❑ do not over-extend

5 - Reverse gear sliding gear

- ❑ remove circlip Pos. 4 before replacing
- ❑ the collar points to the return flow gear pinion Pos. 3

6 - Reverse shaft

- ❑ removing and installing ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139

7 - Needle bushing

- ❑ pressing out ⇒ page 190
- ❑ installing ⇒ page 190
- ❑ always replace after removing ⇒ Electronic Catalogue of Original Parts

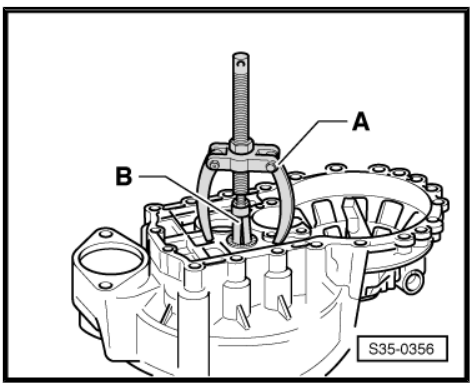
8 - reverse shaft support

- ❑ removing and installing ⇒ “4.7 Mounting sequence - completely disassembling and assembling the gearbox”, page 139

Removing needle bushing from clutch housing

A - Countersupport , e.g. -Kukko 22/1-

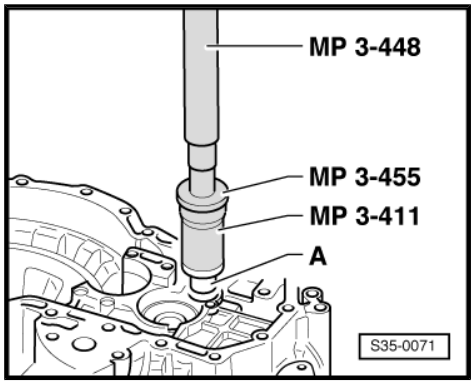
B - Interior extractor 14,5…18,5 mm , e.g. -Kukko 21/2-



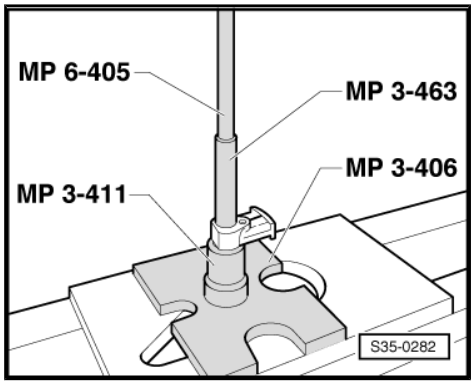
Note

The needle bushing is damaged when removed and must be replaced ⇒ Electronic Catalogue of Original Parts .

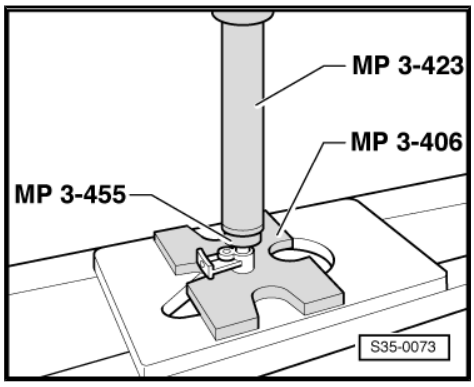
Pressing in needle bushing -A- in the clutch housing



Pressing out needle bushing from the reverse shaft support



Pressing the needle bushing in the reverse shaft support



39 – Final drive - differential

1 Replacing the flange shaft gasket rings (gearbox assembled)

⇒ "1.1 Replacing the left flange shaft gasket ring", page 191

⇒ "1.2 Replace gasket ring for right flange shaft (gasket ring and bushing are one component)", page 193

1.1 Replacing the left flange shaft gasket ring

Special tools and workshop equipment required

- Multi-purpose tool - MP3-419 (VW 771)-
- Extraction hook - MP3-419/37 (VW 771/37)-
- Thrust piece - T10160-
- Catch pan
- Sealing grease - G 052 128 A1-

Removing

– Remove front left wheel ⇒ Chassis; Rep. gr. 44 and raise vehicle.

– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .

– Remove the front left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .

– Turn steering to full left lock.

– Unscrew drive shaft from flange shaft ⇒ Chassis; Rep. gr. 40 .

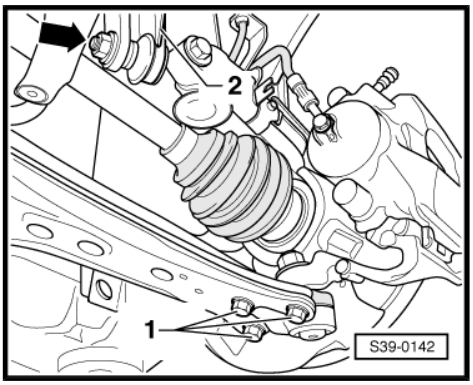
Fabia II 2007 ►; Roomster 2006 ►

– Mark the fitting position of the screws -1-.

– Release screws -1- ⇒ Chassis; Rep. gr. 40

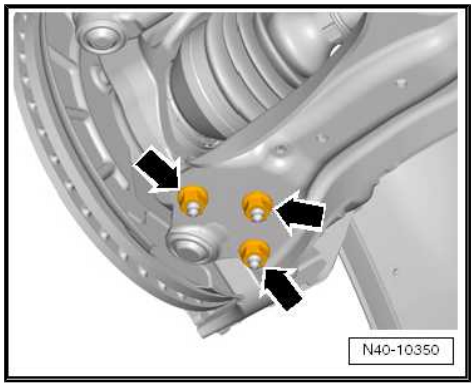
– Unbolt coupling rod -2- from the anti-roll bar -arrow- ⇒ Chassis; Rep. gr. 40 .

– Turn coupling rod upwards.



Fabia II 2011 ►; Roomster 2011 ►; Rapid, Rapid NH

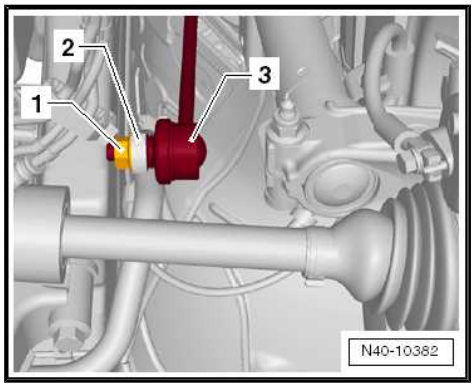
– Unscrew nuts -arrows- for left steering joint ⇒ Chassis; Rep. gr. 40 .



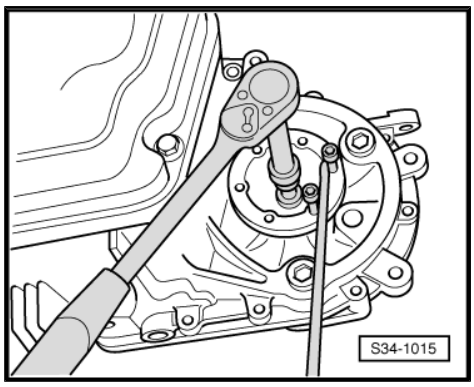
– Unscrew the nut -1- from the coupling rod -3- ⇒ Chassis; Rep. gr. 40 .
– Remove coupling rod and turn anti-roll bar -2- slightly upwards.

Continued for all vehicles

– Swivel out left wheel-bearing housing.
– Swivel the drive shaft into the wheelhouse and secure it to the suspension strut, e.g. with cord. Avoid damaging the paintwork on the drive shaft during this operation.
– Position the catch pan under the gearbox.

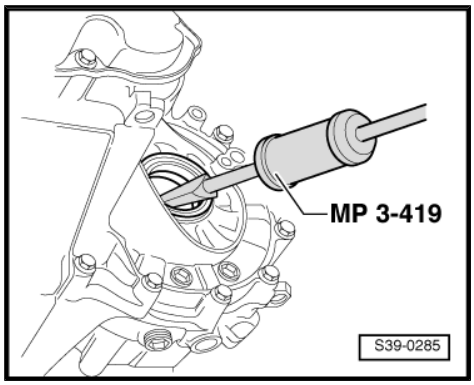


– Release the fixing screw for the flange shaft, to this end insert two screws in the flange and using a tyre iron hold the shaft.
– Remove the flange shaft together with the pressure spring.

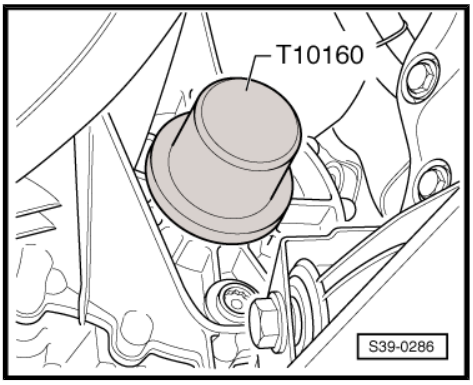


– Pull out gasket ring for flange shaft with multi-purpose tool - MP3-419 (VW 771)- and extraction hook - MP3-419/37 (VW 771/37)- .

Install



– Drive the new seal ring in up to the stop, do not twist the seal ring.
– Fill half the space between the sealing lip and dust lip with sealing grease - G 052 128 A1- .
– Insert the flange shaft.
– Secure the flange shaft with the conical screw and tighten with tightening torque.
– Bolt drive shaft to flange shaft ⇒ Chassis; Rep. gr. 40 .
– Install coupling rod and steering joint to track control arm ⇒ Chassis; Rep. gr. 40 .
– Check gear oil level, if necessary fill up to lower edge of filler hole ⇒ “3 Check gear oil level”, page 127 .
– Install the wheelhouse liner into the left wheelhouse ⇒ Body Work; Rep. gr. 66 .
– Install the noise insulation ⇒ Body Work; Rep. gr. 50 .
– Install wheel ⇒ Chassis; Rep. gr. 44 .



Tightening torque

Flange shaft on gearbox (conical screw)	⇒ “2.1 Disassembling and assembling differential gear”, page 196

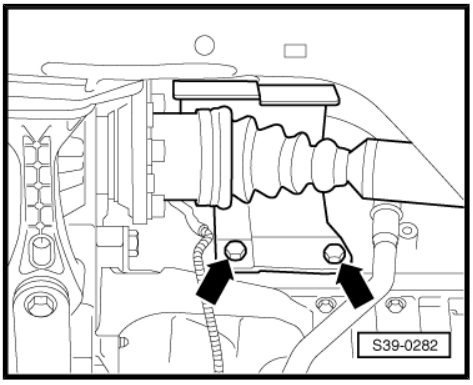
1.2 Replace gasket ring for right flange shaft (gasket ring and bushing are one component)

Special tools and workshop equipment required

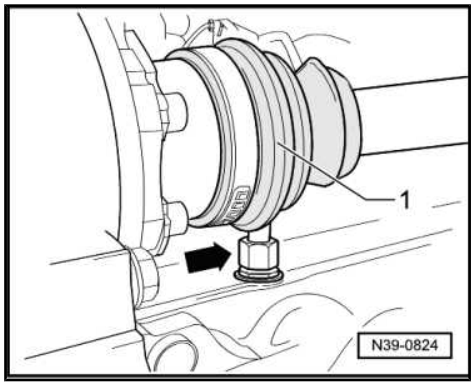
- Multi-purpose tool - MP3-419 (VW 771)-
- Extraction hook - MP3-419/37 (VW 771/37)-
- Assembly device - MP3-434 (3066)-
- Thrust piece - T10148-
- Catch pan
- Sealing grease - G 052 128 A1-

Removing

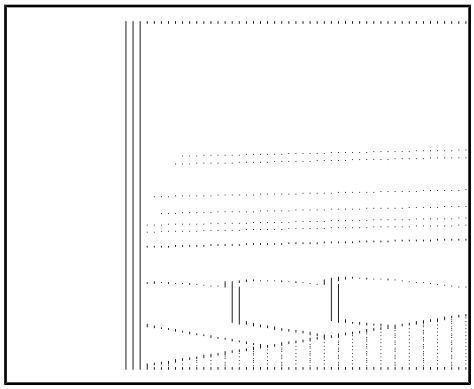
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
– Turn steering to full right lock.
– If present, remove heat shield for drive shaft from the engine -arrows-.



– Unscrew the drive shaft -1- from the flange shaft ⇒ Chassis; Rep. gr. 40 .
– Tie up the drive shaft as far as possible. Avoid damaging the paintwork on the drive shaft during this operation.
– Position the catch pan under the gearbox and the engine.
– If necessary, unscrew oil return-flow line for exhaust turbo-charger from engine -arrow- ⇒ Engine; Rep. gr. 21 .



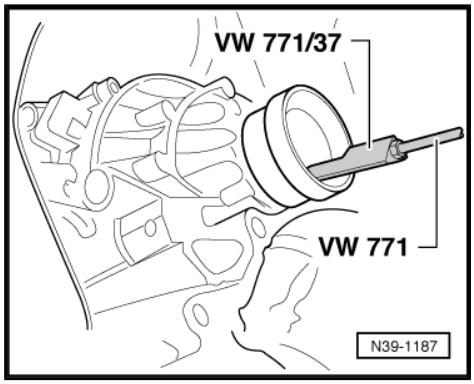
– Release the fixing screw for the flange shaft, to this end insert two screws in the flange and using a tyre iron hold the shaft.
– Remove the flange shaft together with the pressure spring.



– Pull out gasket ring with bushing.

A leg is located in the inner diameter of the bushing.

– Position the extraction hook - VW 771/37 (MP3-419/37) - directly behind the leg in the bushing.
– Press the extraction hook - VW 771/37 (MP3-419/37)- forcefully into the bushing during the extraction process.



Install

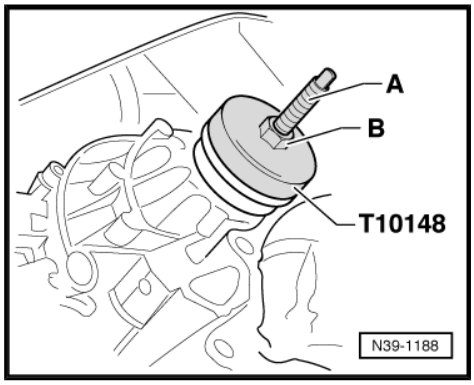
– Clean point for gasket ring in gearbox.

– Insert gasket ring together with bushing.

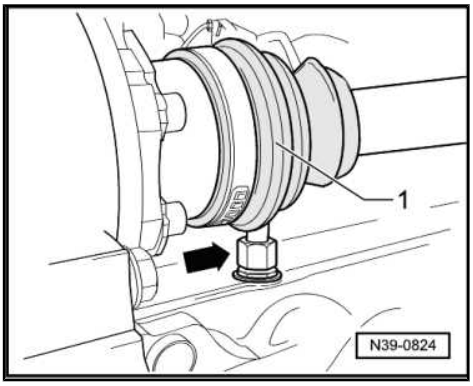
A - Screw threaded rod from assembly device - MP3-434 (3066)- into the threaded part of the differential gear.

B - Nut M12 with washer

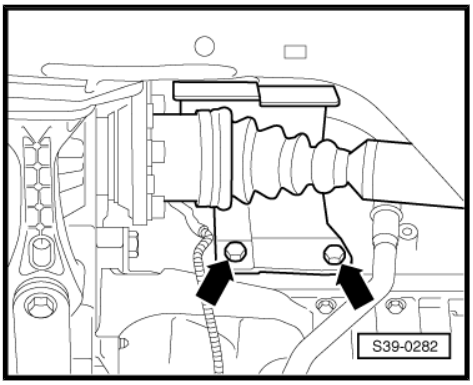
– By turning the nut -B- insert the gasket ring with the bushing over the pressure plate - T10148- up to the stop.
– Fill half the space between the sealing lip and dust lip with sealing grease - G 052 128 A1- .
– Insert the flange shaft.
– Secure the flange shaft with the conical screw and tighten with tightening torque.



– If the oil return line for exhaust turbocharger was unscrewed at the engine, install it again -arrow- ⇒ Engine; Rep. gr. 21 .
– Install drive shaft -1- on gearbox ⇒ Chassis; Rep. gr. 40 .



– If present, screw on heat shield for drive shaft -arrows-.
– Check gear oil level ⇒ “3 Check gear oil level”, page 127 .
– Install the noise insulation ⇒ Body Work; Rep. gr. 50 .



Tightening torques

Flange shaft on gearbox (conical screw)	⇒ “2.1 Disassembling and assembling differential gear”, page 196
Heat shield for drive shaft to engine	⇒ Chassis; Rep. gr. 40

2 Differential gear

⇒ "2.1 Disassembling and assembling differential gear", page 196

⇒ "2.2 Adjusting the differential gear", page 202

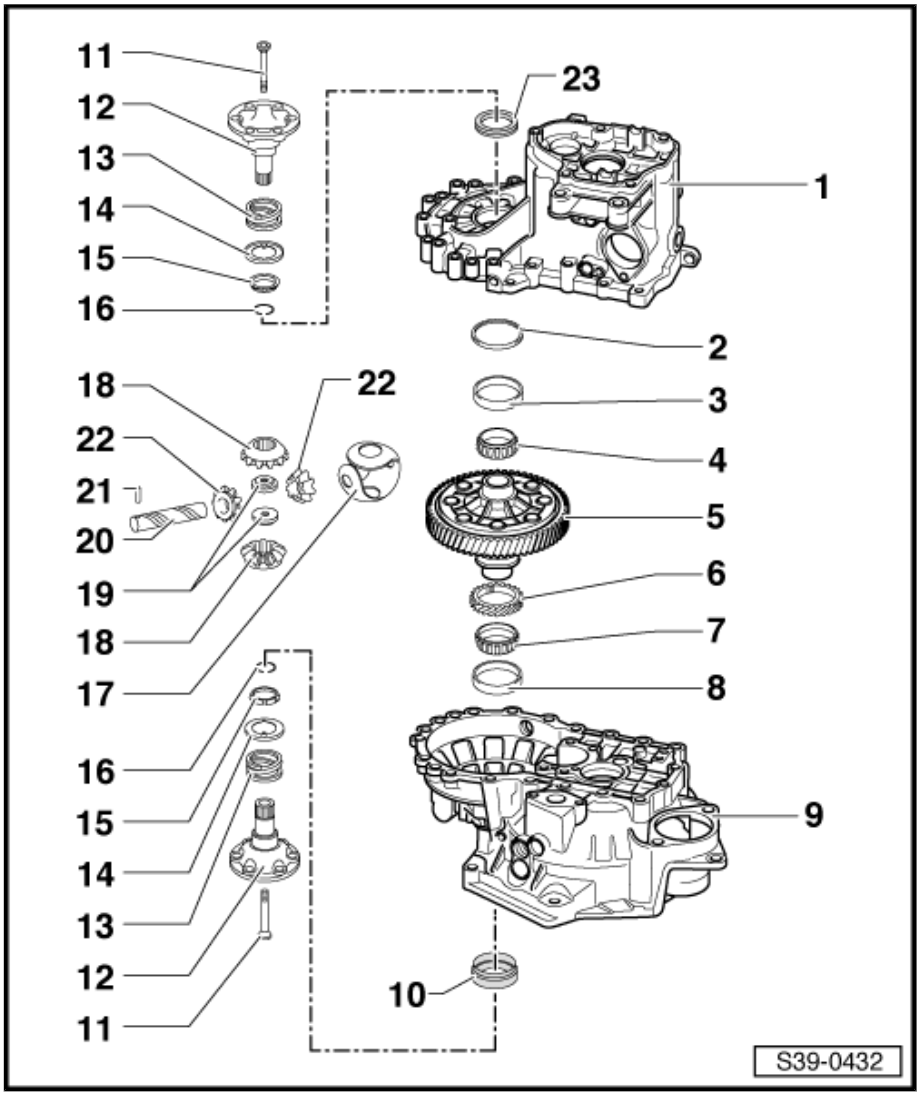
2.1 Disassembling and assembling differential gear

Special tools and workshop equipment required

- Counterholder - MP1-223 (3067)-
- Pressure plate - MP3-406 (VW 401)-
- Pressure plate - MP3-407 (VW 402)-
- Pressure spindle - MP3-408 (VW 412)-
- Pipe section - MP3-409 (VW 418 A)-
- Drive bushing - MP3-427 (40-21)-
- Pressure spindle - MP3-448 (VW 408 A)-
- Thrust piece - MP3-459 (VW 473) -
- Thrust plate - MP3-464 (30-205)-
- Thrust plate - MP3-467 (40-105)-
- Thrust piece - MP3-468 (2007)-
- Bushing - MP3-474 (3144)-
- Tapered-roller bearing extractor - V.A.G 1582-
- Gripper - V.A.G 1582/3-
- Interior extractor 46 up to 58 mm , e.g. -Kukko 21/7-
- Countersupport e.g. -Kukko 22/2-

Note

- *Before installing heat the inner ring of the tapered-roller bearing to 100°C.*
- *Replace both tapered-roller bearings together.*
- *Removing and installing differential gear*
  ⇒ "4.7 Mounting sequence - completely disassembling and assembling the gearbox", page 139 .
- *When replacing the tapered-roller bearings. the differential housing. the gearbox housing or the clutch housing. set the differential gear ⇒ "2.2 Adjusting the differential gear", page 202 .*



1 - Gearbox housing

2 - Adjusting washer

- ❑ for the differential gear
- ❑ Determine thickness ⇒ “2.2 Adjusting the differential gear”, page 202

3 - Outer ring/tapered-roller bearing

- ❑ removing ⇒ page 199
- ❑ installing ⇒ page 200

4 - Inner ring/tapered-roller bearing

- ❑ Pulling off ⇒ page 199
- ❑ pressing on ⇒ page 199

5 - Differential gear housing

- ❑ with gear pinion for final drive
- ❑ The hole of the tensioning sleeve is adapted to the length of the tensioning sleeve ⇒ page 200
- ❑ Assignment ⇒ Electronic Catalogue of Original Parts

6 - Drive wheel for speedometer

- ❑ if present, place it on the differential gear housing up to the stop before pressing on the inner ring Pos. 7

7 - Inner ring/tapered-roller bearing

- ❑ Pulling off ⇒ page 199
- ❑ pressing on ⇒ page 199

8 - Outer ring/tapered-roller bearing

- ❑ pressing out ⇒ page 198
- ❑ installing ⇒ page 199

9 - Clutch housing

10 - Gasket ring with bushing

- ❑ for right flange shaft
- ❑ one-piece (a component part)
- ❑ replace gasket ring together with bushing in the event of damage ⇒ “1.2 Replace gasket ring for right flange shaft (gasket ring and bushing are one component)”, page 193

11 - 25 Nm

- ❑ screw to threaded connector Pos. 19 to attach the flange shaft

12 - Flange shaft

- ❑ left - removing and installing ⇒ “1.1 Replacing the left flange shaft gasket ring”, page 191
- ❑ right - removing and installing ⇒ “1.2 Replace gasket ring for right flange shaft (gasket ring and bushing are one component)”, page 193

13 - Pressure spring for flange shaft

- ❑ fitted behind flange shaft

14 - Thrust washer

- ❑ Fitting position: Collar for compression spring ⇒ page 202

15 - Conical ring

- ❑ with slots for thrust washer catch
- ❑ Fitting position: Cone for differential gear housing

16 - Circlip

- ❑ holds the conical ring, stop disc and pressure spring in position when the flange shaft is removed

17 - Stop disc compound

- ❑ insert with gear oil

18 - Large differential bevel gear

- ❑ installing ⇒ page 201

19 - Threaded part

- ❑ installing ⇒ page 201

20 - Differential bevel gear shaft

- ❑ remove in combination with short tensioning sleeve ⇒ page 200
- ❑ remove in combination with long tensioning sleeve ⇒ page 201
- ❑ installing ⇒ page 201

21 - Tensioning sleeve

- ❑ to secure the differential bevel gear shaft
- ❑ Tensioning sleeves having different lengths are mounted
- ❑ Difference between the tensioning sleeves ⇒ page 200
- ❑ short tensioning sleeve: removing and installing ⇒ page 200
- ❑ long tensioning sleeve: is cut when removing ⇒ page 201
- ❑ long tensioning sleeve: installing ⇒ page 201

22 - Small differential bevel gear

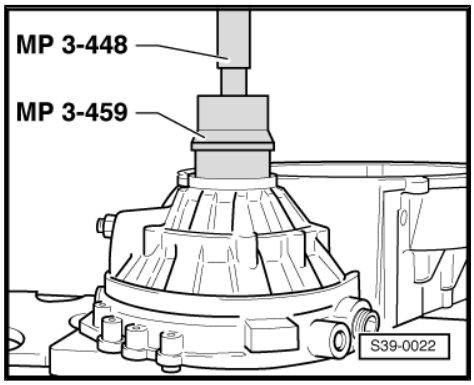
- ❑ installing ⇒ page 201

23 - Sealing ring

- ❑ for left flange shaft
- ❑ replace with installed gearbox ⇒ “1.1 Replacing the left flange shaft gasket ring”, page 191

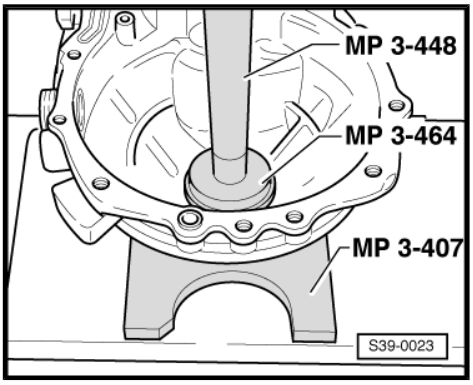
Press outer ring/tapered-roller bearing out of clutch housing

– First remove gasket ring with bushing for right flange shaft.



Press outer ring/tapered-roller bearing into the clutch housing

No adjusting washer is fitted at the side of the clutch housing.

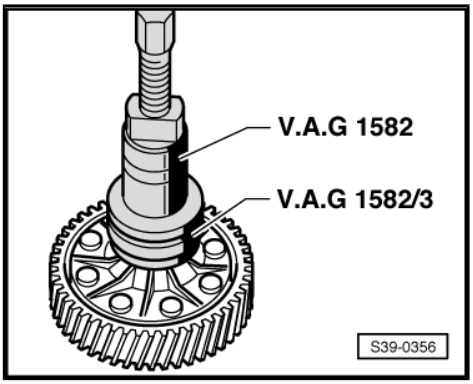


Removing inner ring/tapered-roller bearing

– Before fitting the extractor, position pressure plate - MP3-467 (40-105) - on the differential gear housing.

Note

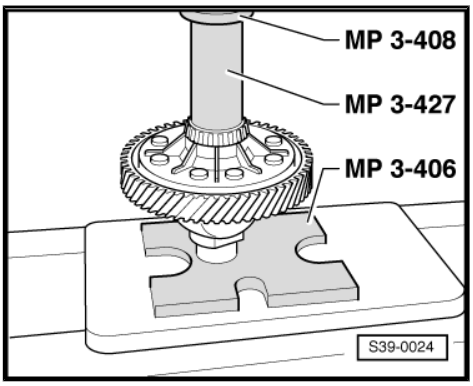
Both inner rings/tapered-roller bearings of the differential gear housing are removed in the same way.



Press on inner rings/tapered-roller bearing

Note

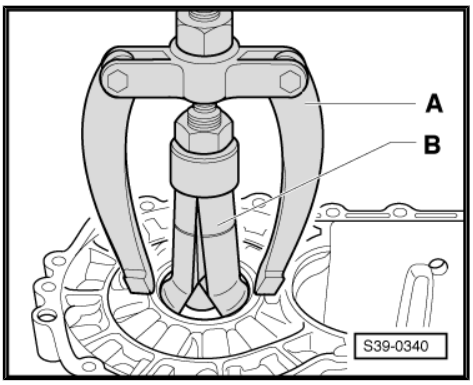
The inner rings/tapered-roller bearings for the gearbox housing and clutch housing are pressed on with the same special tools.



Remove outer ring/tapered-roller bearing from gearbox housing

A - Countersupport , e.g. -Kukko 22/2-

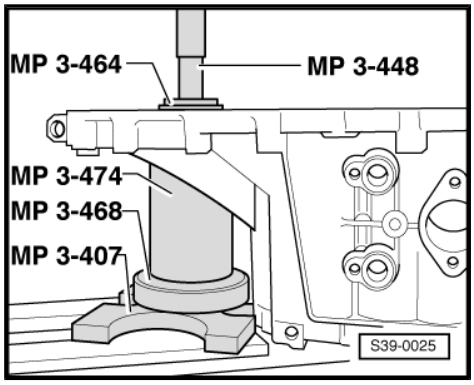
B - Interior extractor 46…58 mm , e.g. -Kukko 21/7-



Press in outer ring/tapered-roller bearing in the gearbox housing

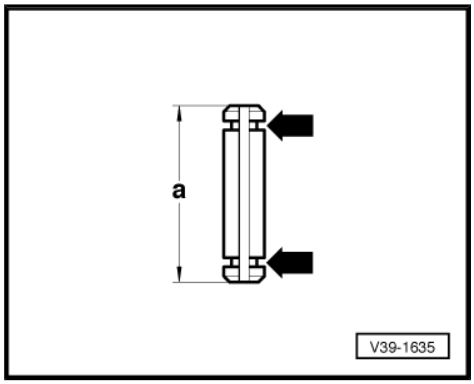
– Position adjusting washer under outside ring.

– Support the gearbox housing with a bushing - MP3-474 (3144) - directly below the bearing support.



Difference between the tensioning sleeves

Dimension “a” (mm)	Distinguishing feature
28.5 (short tensioning sleeve), removing and installing ⇒ page 200	round slot -arrows-
36.0 (long tensioning sleeve), remove ⇒ page 201 , install ⇒ page 201	no round slot

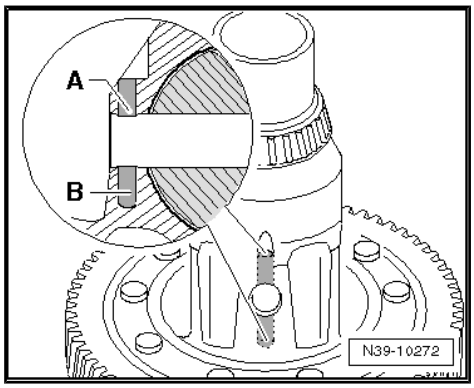


Assign differential gear housing

– Check the hole for the tensioning sleeve in the differential gear housing.

The hole in the differential gear housing was adapted due to the longer tensioning sleeves.

Bore	Length of tensioning sleeve (mm)
-A-	28.5 (short tensioning sleeve)
-A- and -B-	36.0 (long tensioning sleeve)



Tensioning sleeve with groove all the way around (short tensioning sleeve): removing and installing

Removing

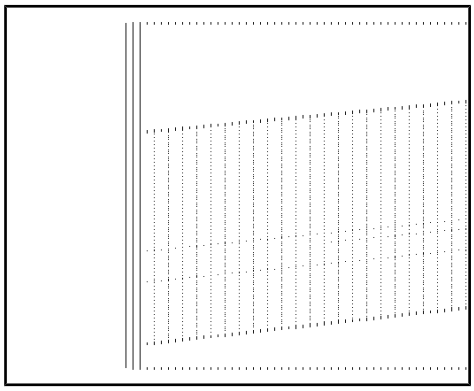
– Cover inner ring/tapered-roller bearing and drive wheel for speedometer to avoid any possible damage and swarf.

– Drive out tensioning sleeve with a chisel, position the chisel in the circular slot.

– Press off the differential bevel gear shaft using an extractor.

Install

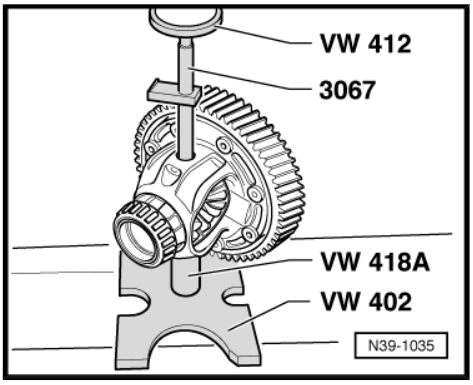
– Drive the new tensioning sleeve into the differential gear housing up to the stop.



Remove tensioning sleeve without round slot (long tensioning sleeve); press out differential bevel gear shaft

When pressing out the tensioning sleeve, it is sheared off during this procedure.

– Drive the remaining part of the tensioning sleeve out of the differential gear housing and the differential bevel gear shaft.

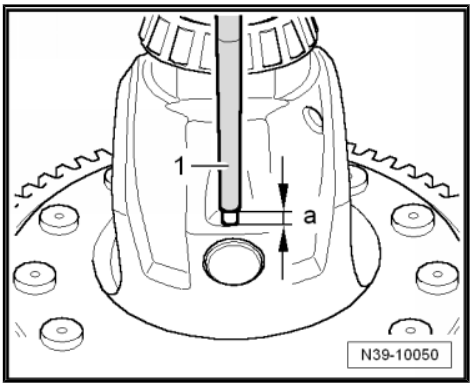


Install tensioning sleeve without round slot (long tensioning sleeve)

– Align the hole in the differential bevel gear shaft to the hole in the differential gear housing.

– Drive in the new tensioning sleeve with a drift -1- to the dimension -a- = 3.0 mm.

• When turning, the tensioning sleeve must not come in contact with the housing wall of the clutch housing when the differential gear is installed.



Install differential bevel gears and differential gear shaft

– Install stop disc compound with gearbox oil.

– Insert both large differential bevel gears and secure (e.g. with flange shaft).

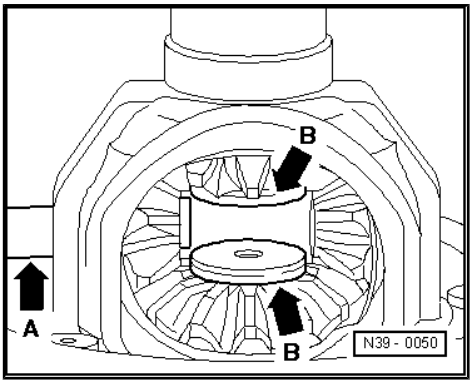
– Insert the small differential bevel gears offset at 180° and slide in.

– Push in the differential bevel gear shaft -arrow A- up to the first small differential bevel gear.

– Insert the threaded parts -arrows B- in the large differential bevel gears.

  Fitting position: Heel of the differential bevel gear.

– Drive in the differential gear shaft up to end position and secure with new tensioning sleeve.

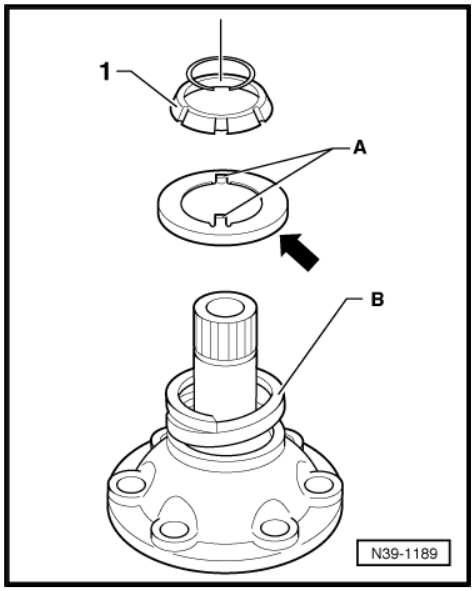


Fitting position of thrust washer for the conical ring -1-

The collar -arrow- points towards the pressure spring -B-.

The lands -A- are available on certain gearboxes.

The lands -A- point towards the conical ring -1-.



2.2 Adjusting the differential gear

Special tools and workshop equipment required

- Gauge block plate - MP3-405/17-
- Pressure plate - MP3-407 (VW 402)-
- Universal dial gauge holder - MP3-447 (VW 387)-
- Pressure spindle - MP3-448 (VW 408 A)-
- Thrust plate - MP3-464 (30-205)-
- Thrust piece - MP3-468 (2007)-
- Bushing - MP3-474 (3144)-
- Interior extractor 46 up to 58 mm , e.g. -Kukko 21/7-
- Countersupport e.g. -Kukko 22/2 -
- Dial gauge

The differential gear must be re-set when the following components are replaced:

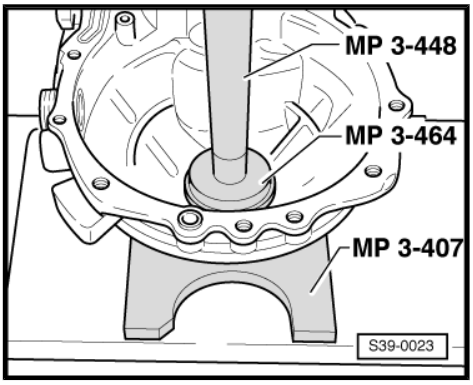
- Gearbox housing
- Clutch housing
- Differential gear housing

or the

- Tapered-roller bearings of the differential gear

Setting overview ⇒ “3 Setting overview”, page 205 .

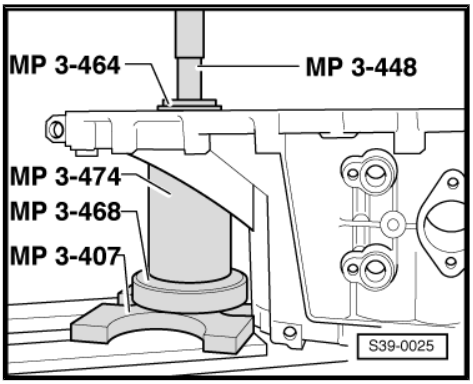
– Press the outer ring/tapered-roller bearing with thrust plate - MP3-464 (30-205) - into the clutch housing.



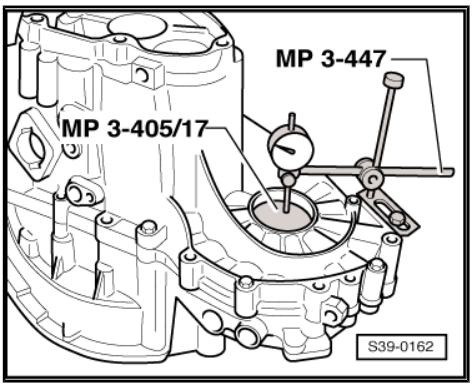
Note

The inner and outer ring of the tapered-roller bearing are paired. Do not interchange!

– Press outer ring/tapered-roller bearing without adjusting washer with thrust plate - MP3-464 (30-205)- into the gearbox housing.
– Insert the differential gear in the clutch housing.
– Position the gearbox housing and tighten 5 screws to torque 25 Nm.



– Set the dial gauge to 0 with 1 mm preload on “0”.
– Move the differential gear up and down, read off and write down the clearance on the dial gauge (example: 0.70 mm).



2.2.1 Determine thickness of the adjusting washer

The prescribed bearing preload is reached by adding to the established measured value a constant compression value (0.25 mm).

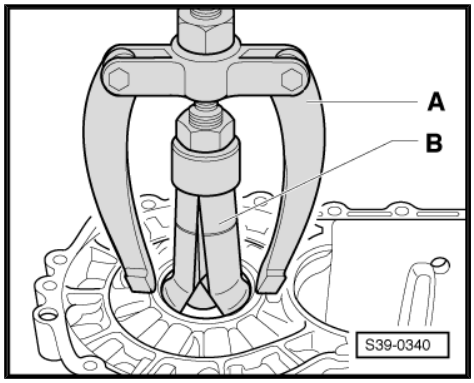
Example:

measured value	0.70 mm
+ compression (constant value)	0.25 mm
Thickness of the adjusting washer =	0.95 mm

Example:

Measured value of bearing play	Thickness of the adjusting washer according to the table
0.70 mm	0.95 mm

– Remove the gearbox housing and pull the outer ring/tapered-roller bearing out of the gearbox housing.



A - Countersupport , e.g. -Kukko 22/2-

B - Interior extractor 46…58 mm , e.g. -Kukko 21/7-

The following adjusting washers are available:

Bearing clearance	Adjusting washer
Measured value (mm)	Thickness (mm)
0.303 … 0.449	0.650
0.450 … 0.499	0.700
0.500 … 0.549	0.750
0.550 … 0.599	0.800
0.600 … 0.649	0.850
0.650 … 0.699	0.900
0.700 … 0.749	0.950
0.750 … 0.799	1.000
0.800 … 0.849	1.050
0.850 … 0.899	1.100
0.900 … 0.949	1.150
0.950 … 0.999	1.200
1.000 … 1.049	1.250
1.050 … 1.099	1.300
1.100 … 1.149	1.350
1.150 … 1.199	1.400

Note

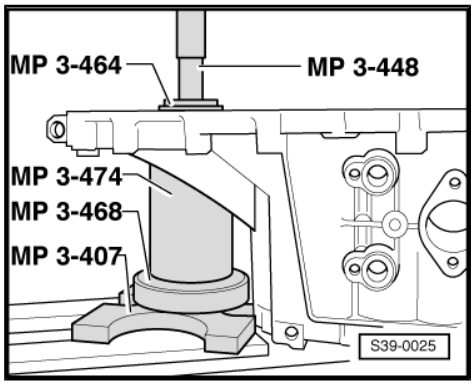
Assign the adjusting washers via the ⇒ Electronic Catalogue of Original Parts .

– Insert adjusting washers of the determined thickness, the thickest adjusting washer first.

If the measured washer thickness is greater than the one listed in the table, 2 washers corresponding to the measured value may be fitted.

Different tolerances allow to measure the required thickness for each washer very precisely.

– Press outer ring/tapered-roller bearing with the determined adjusting washer (in the example 0.95 mm) again into the gearbox housing.



– Fit gearbox housing and tighten
⇒ “4.4 Removing and installing gearbox housing and shift mechanism”, page 131 .

3 Setting overview

Note

- *When working on the gearbox it is only necessary to re-set the drive shaft, output shaft or differential gear if parts were replaced that directly affect the setting of the gearbox.*
- *To avoid unnecessary settings, refer to the following table:*

		Set:		
		Drive shaft ⇒ “1.2 Setting drive shaft”, page 169	Output shaft ⇒ “2.2 Setting output shaft”, page 184	Differential gear ⇒ “2.2 Adjusting the differential gear”, page 202
Replaced part:	Gearbox housing	x		x
	Clutch housing	x	x	x
	Drive shaft	x		
	Output shaft		x	
	Differential gear housing			x
	Tapered-roller bearing for drive shaft	x		
	Tapered-roller bearing for output shaft		x	
	Tapered-roller bearings for differential gears.			x
	4th gear pinion	x		