



Workshop Manual

Golf Variant 2007 ➤

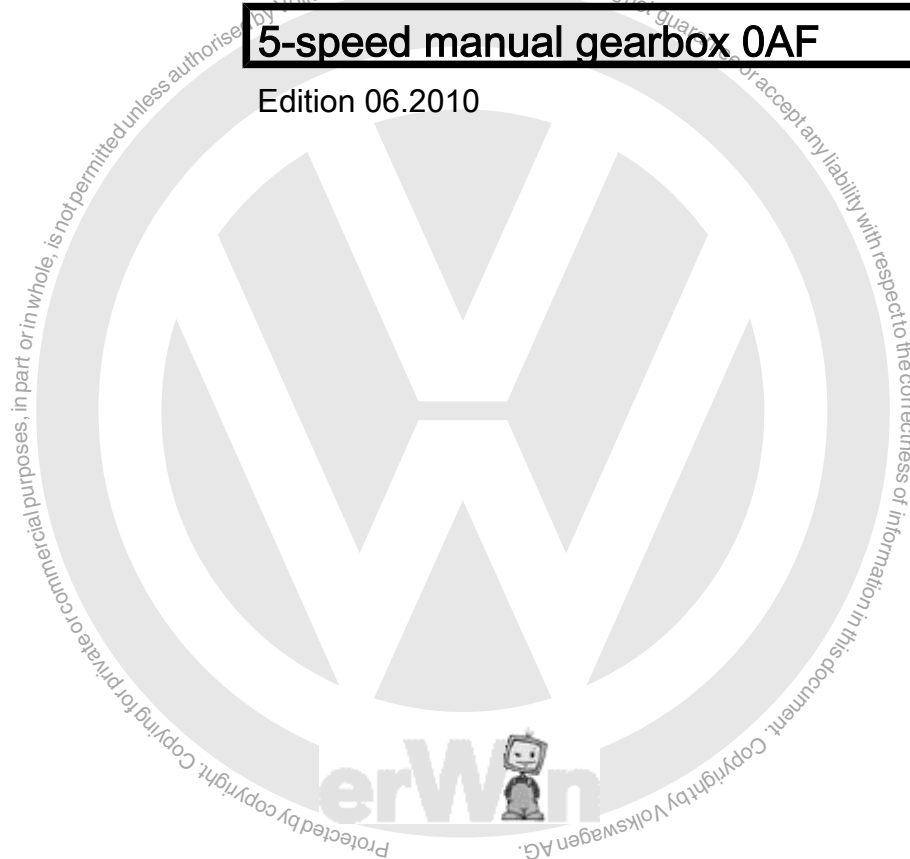
Golf Variant 2010 ➤

Jetta 2005 ➤

Jetta 2011 ➤

5-speed manual gearbox 0AF

Edition 06.2010





List of Workshop Manual Repair Groups

Repair Group

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



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



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00 – Technical data

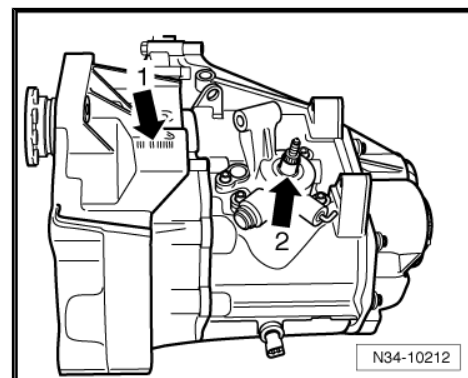
1 Gearbox identification

The 5-speed manual gearbox 0AF is installed in the Jetta 2005 ▶ , in the Golf Variant 2007 ▶ , in the Golf Variant 2010 ▶ and in the Jetta 2011 ▶ in conjunction with a 4-cylinder engine.

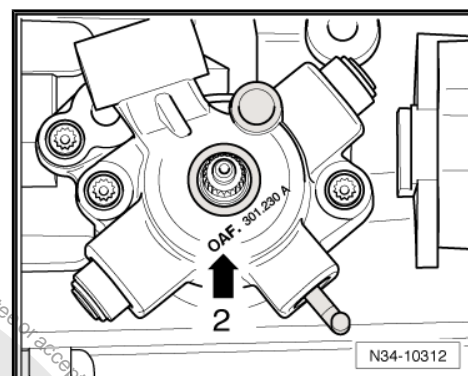
Allocation: ⇒ [page 1](#) .

1.1 Location on gearbox

Code letters and production date -arrow 1-, manual gearbox 0AF -arrow 2-.



Manual gearbox 0AF -arrow 2-



Codes and production date of gearbox

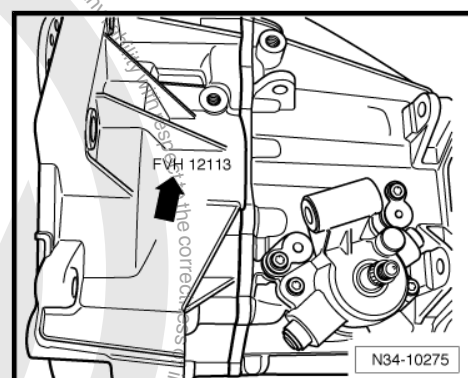
Example:	FVH	12	11	3
	Identification code	Day	Month	Year (2003) of manufacture

Additional data provide information about the production facility.



Note

The gearbox code also appears on the vehicle identification plates.



1.2 Identification code, assembly allocation and capacities

Manual gearbox		5-speed 0AF		
Identification code		FVH	JHT	JHU
Manufactured from	to	05.05	11.06	03.09



Manual gearbox		5-speed 0AF		
Identification code		FVH	JHT	JHU
Allocation	Model	Jetta 2005 ▶ Golf Variant 2007 ▶	Jetta 2005 ▶ Golf Variant 2007 ▶	Jetta 2005 ▶ Golf Variant 2007 ▶ Golf Variant 2010 ▶
	Engine	1.6 l - 75 kW	1.6 l - 75 kW	1.4 l - 59 kW
Ratio	Final drive	68 : 15 = 4.533	68 : 15 = 4.533	68 : 15 = 4.533
Z1 : Z2				
Capacity of manual gear-box		2.0 l	2.0 l	2.0 l
Drive shaft flange Ø		100 mm	100 mm	90 mm

The following data can be found in the ⇒ Electronic parts catalogue "ETKA" :

- ◆ Individual gear ratios
- ◆ Gear oil
- ◆ Clutch allocation

Manual gearbox		5-speed 0AF		
Identification code		LEG	LVN	LDZ
Manufactured	from to	06.09	05.09	06.10
Allocation	Model	Jetta 2005 ▶ Golf Variant 2007 ▶ Golf Variant 2010 ▶	Jetta 2005 ▶ Golf Variant 2007 ▶ Golf Variant 2010 ▶	Jetta 2005 ▶ Golf Variant 2007 ▶ Golf Variant 2010 ▶ Jetta 2011 ▶
	Engine	1.4 l - 59 kW	1.6 l - 75 kW	2.0 l - 85 kW
Ratio	Final drive	61 : 14 = 4.357	68 : 15 = 4.533	59 : 15 = 3.933
Z1 : Z2				
Capacity of manual gear-box		2.0 l	2.0 l	2.0 l
Drive shaft flange Ø		90 mm	100 mm	100 mm

The following data can be found in the ⇒ Electronic parts catalogue "ETKA" :

- ◆ Individual gear ratios
- ◆ Gear oil
- ◆ Clutch allocation

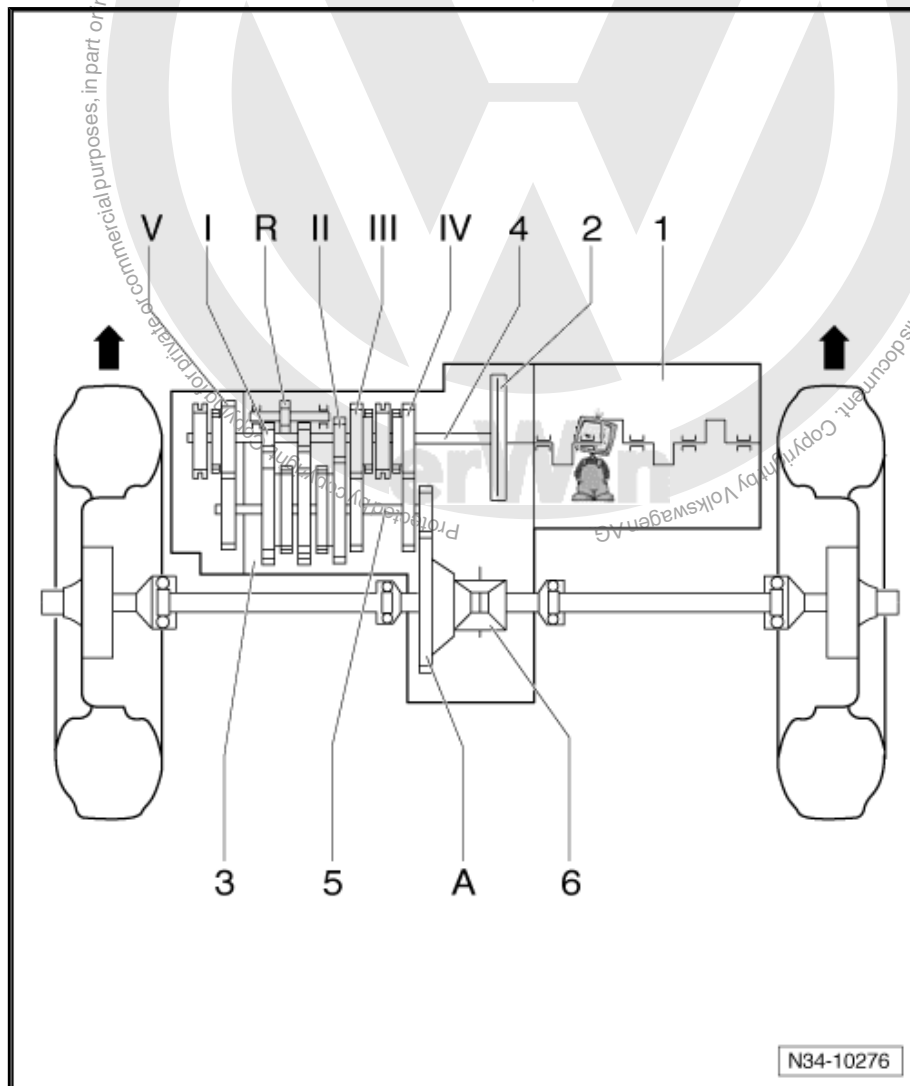


2 Overview - power transmission

Designation

-Arrows- indicate direction of travel.

- 1 - Engine
- 2 - Clutch
- 3 - Manual gearbox
- 4 - Input shaft
- 5 - Output shaft
- 6 - Differential

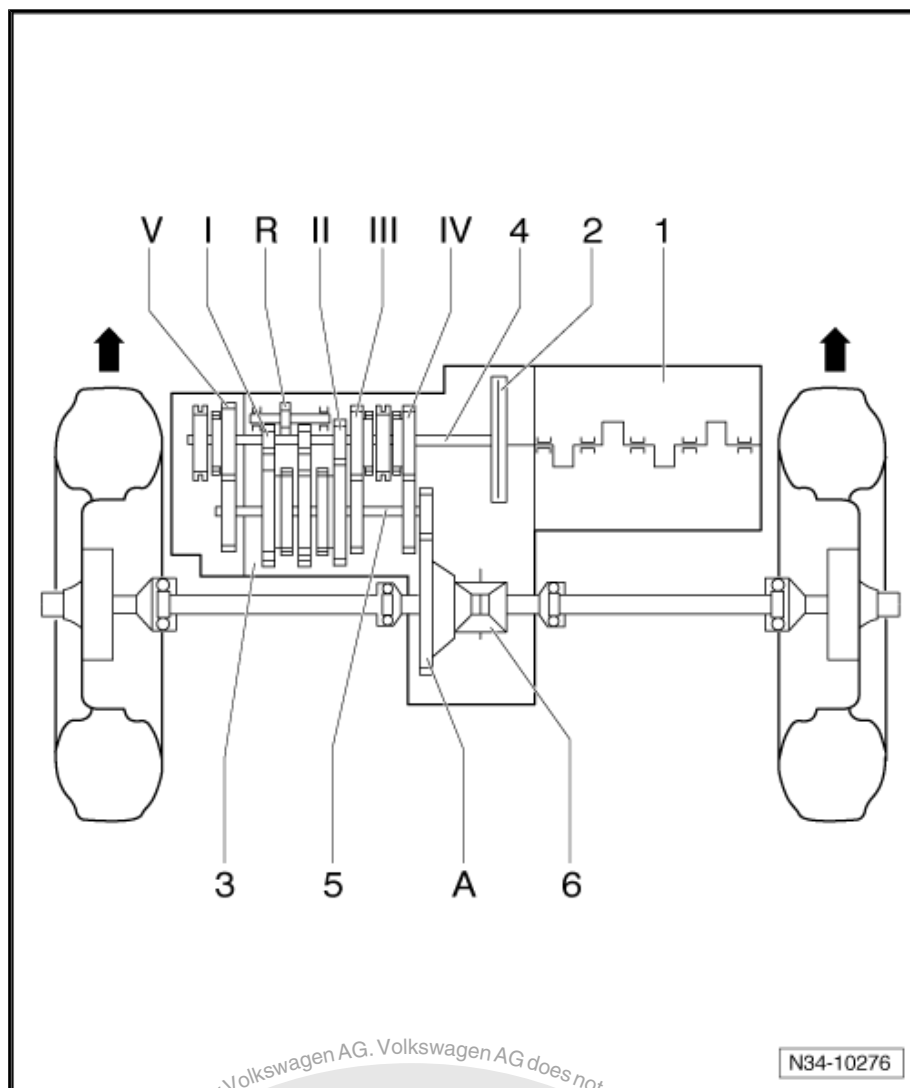


Gears

-Arrows- indicate direction of travel.



- I - 1st gear
- II - 2nd gear
- III - 3rd gear
- IV - 4th gear
- V - 5th gear
- R - Reverse gear
- A - Final drive





3 Calculating overall gear ratio "i"

Example:

	5th gear	Final drive
Drive gear	$ZG_1 = 37$	$ZA_1 = 14$
Driven gear	$ZG_2 = 50$	$ZG_2 = 69$

$$i = Z_2 : Z_1^{1)}$$

$$i_G = \text{Gear ratio} = ZG_2 : ZG_1 = 37 : 50 = 0.740$$

$$i_A = \text{Final drive ratio} = ZA_2 : ZA_1 = 69 : 14 = 4.929$$

$$\text{Overall ratio} = \text{total ratio} = i_G \times i_A = 0.740 \times 4.929 = 3.647$$

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





4 General repair notes

To ensure flawless and successful gearbox repairs, the greatest care and cleanliness as well as the use of good and proper tools are essential. Of course, the basic rules for safety also apply during repair work.

A number of instructions generally applicable to the various repair procedures - which were previously repeated a number of times at various places in the workshop manual are summarised under the topic "components" ➔ [page 6](#) . They apply to this workshop manual.

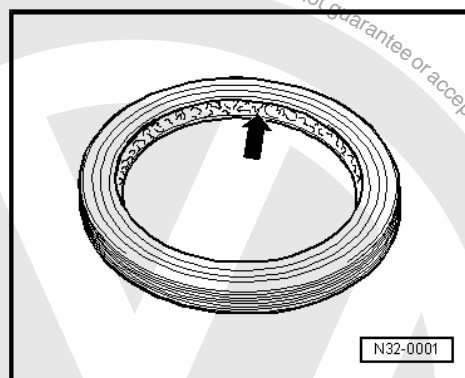
4.1 Components

4.1.1 Gearbox

- ◆ When installing the manual gearbox, ensure that the dowel sleeves between the engine and gearbox are correctly seated.
- ◆ When installing mounting brackets or waxed components, clean the contact surfaces. Contact surfaces must be free of wax and grease.
- ◆ Allocate bolts and other components using ➔ Electronic parts catalogue "ETKA" .
- ◆ Following installation, check gear oil level ➔ [page 100](#) .
- ◆ Capacity ➔ [page 1](#)

4.1.2 O-rings, seals, gaskets and sealants

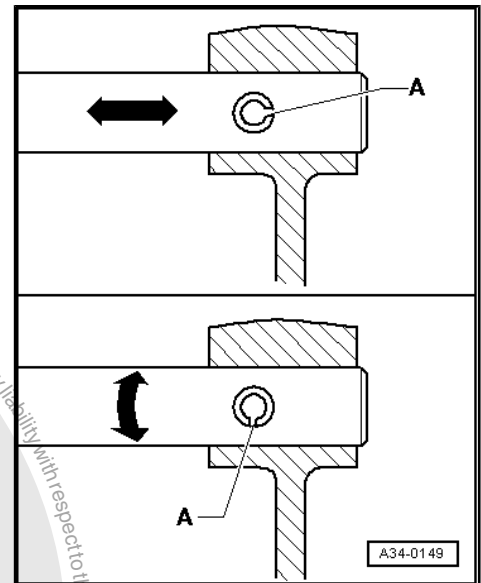
- ◆ Thoroughly clean housing joint surfaces before applying sealant .
- ◆ Apply sealant -AMV 188 200 03- uniformly but not too thick.
- ◆ Renew O-rings, seals and gaskets.
- ◆ When seals have been removed, check contact surface on housings or shafts for burrs and damage and rectify as necessary.
- ◆ Before installing radial shaft seals, lightly oil outer diameter and half-fill space between sealing lips -arrow- with sealing grease -G 052 128 A1- .
- ◆ The open side of the oil seal faces the side with fluid filling.
- ◆ Press in new oil seals so that sealing lip does not contact the shaft in the same place as the old seal (make use of insertion depth tolerances).
- ◆ Lightly oil O-rings before installing; this prevents the rings being crushed when inserted.
- ◆ After renewing seals and gaskets, check oil level in gearbox and replenish if necessary ➔ [page 100](#) .





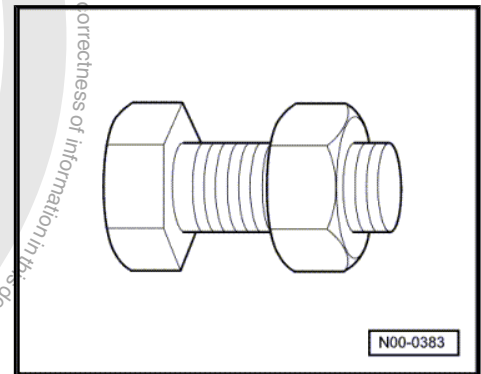
4.1.3 Locking devices

- ◆ Do not overstretch retaining rings.
- ◆ Always renew retaining rings which have been damaged or overstretched.
- ◆ Retaining rings must locate properly in grooves.
- ◆ Renew spring pins. Installation position: slit -A- should be in line with the line of force -arrow-.



4.1.4 Nuts and bolts

- ◆ Loosen nuts or bolts in the order opposite to the tightening sequence.
- ◆ Securing bolts and securing nuts which secure covers and housings should be loosened and tightened diagonally in stages if no tightening sequence is specified.
- ◆ Do not cant especially delicate parts, such as clutch pressure plates. Loosen and tighten bolts and nuts in stages in a diagonal sequence.
- ◆ Torque settings are specified for uncoiled bolts and nuts.
- ◆ Always renew self-locking bolts and nuts.
- ◆ Ensure with threaded connections that contact surfaces as well as nuts and bolts are rewaxed only after assembly, if necessary.
- ◆ Threads of bolts secured with locking fluid must be cleaned with a wire brush. Then insert bolts with locking fluid - AMV 185 101 A1- .
- ◆ Threaded holes into which self-locking bolts or bolts coated with locking fluid are screwed, must be cleaned (e.g. with a thread chaser). Otherwise there is a danger of bolts shearing when subsequently being removed.



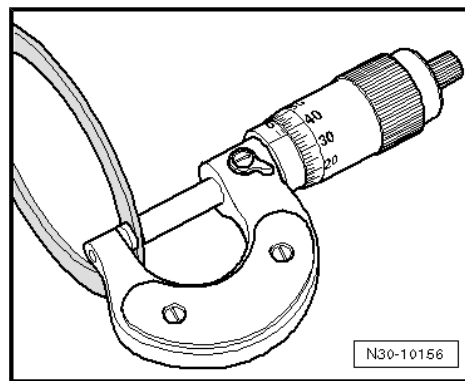
4.1.5 Bearings

- ◆ Install needle bearings with lettered side (thicker metal) towards fitting tool.
- ◆ Tapered roller bearings fitted to one shaft must be renewed as a set. Use same make of bearings.
- ◆ Heat inner races to about 100 °C with the inductive heater - VAS 6414- before installing.
- ◆ Do not interchange outer or inner races of bearings of the same size. The bearings are matched in pairs.



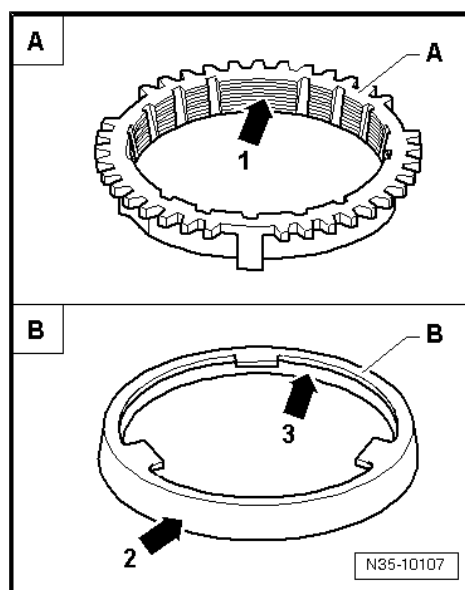
4.1.6 Shims

- ◆ Measure shims at several points with a micrometer. The various thicknesses make it possible to achieve the exact shim thickness required.
- ◆ Check for burrs and damage.
- ◆ Install only flawless shims.



4.1.7 Synchro-rings

- ◆ Do not interchange. When reusing synchro-rings, always fit to the same synchromeshed gear.
- ◆ Check for wear and renew if necessary.
- ◆ Check grooves -arrow 1- of synchro-ring -A- and inner ring for flat spots (worn grooves).
- ◆ If synchro-rings are coated, coating must not be damaged.
- ◆ If an intermediate ring -B- is installed, check the outer friction surface -arrow 2- and inner friction surface -arrow 3- of this intermediate ring for "scoring" and "signs of abnormal wear".
- ◆ Check the cone of the synchromeshed gear for "scoring" and "signs of abnormal wear".
- ◆ Moisten synchromesh mechanism with gear oil before installing.



4.1.8 Gears, synchro-hubs, inner races for needle bearings

- ◆ Heat inner races for needle bearings to about 100° C with the inductive heater -VAS 6414- before installing.
- ◆ Heat synchro-hub with inductive heater -VAS 6414- to approx. 100 °C before installing. Press in to stop when installing so there is no axial clearance.
- ◆ Heat gears with inductive heater -VAS 6414- to approx. 100 ° C before installing. Press in to stop when installing so there is no axial clearance.
- ◆ Observe installation position.

4.1.9 Synchromeshed gears

- ◆ After assembly, check synchromeshed gears of 1st through 5th gear for slight play, or for freedom of movement.

4.1.10 Clutch

- ◆ When removing gearbox, remove slave cylinder without disconnecting pipes.
- ◆ If the clutch slave cylinder is removed with the hydraulic line attached, do not depress clutch pedal. Otherwise the piston will be pressed out of the slave cylinder.



- ◆ Ensure that the pressure plate does not cant: loosen and tighten bolts diagonally and in several gradual stages.
- ◆ If the clutch has burnt out, thoroughly clean the clutch housing as well as the friction surface of flywheel with a cloth to reduce the smell of burnt linings.

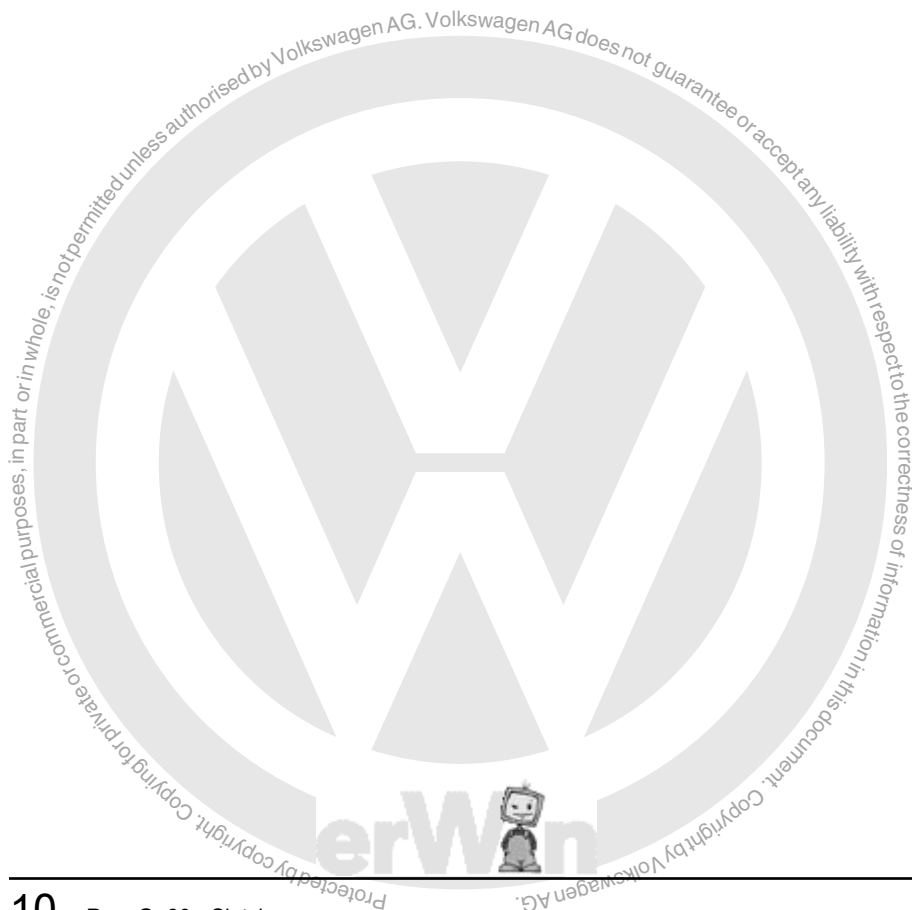




30 – Clutch

1 Fault finding, power transmission

- Refer to ⇒ Fault finding, power transmission; Rep. Gr. 30 ;
Complaints about clutch and clutch mechanism and ⇒ Fault
finding, power transmission; Rep. Gr. 34 ; Complaints about
selector mechanism .





2 Repairing clutch mechanism

2.1 Overview



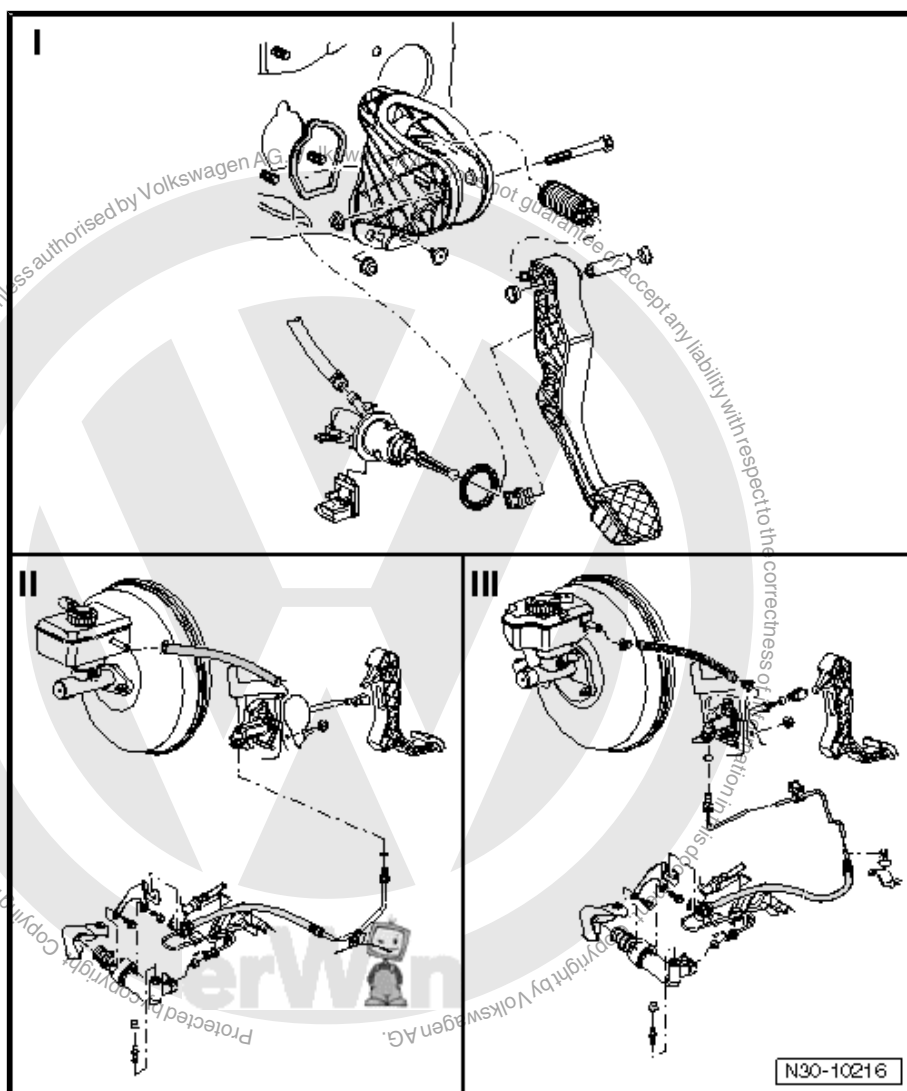
Note

- ◆ Before disconnecting battery, obtain code for radio having anti-theft coding.
- ◆ With ignition switched off, disconnect battery ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .
- ◆ If reconnecting battery, follow procedure after connecting battery ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .
- ◆ Grease all bearing points and contact surfaces. Allocate grease according to ⇒ Electronic parts catalogue "ETKA".

I - Assembly overview - pedal cluster ⇒ [page 12](#)

II - Assembly overview - hydraulics (LHD) ⇒ [page 35](#)

III - Assembly overview - hydraulics (RHD) ⇒ [page 37](#)





2.2 Assembly overview - pedal cluster

1 - Bulkhead

- ☐ With support for mounting bracket

2 - Seal

- ☐ Always renew
- ☐ Between mounting bracket and bulkhead
- ☐ Self-adhesive
- ☐ Bond to mounting bracket

3 - Mounting bracket

- ☐ For mounting clutch pedal
- ☐ Is provided with damping in some equipment variants ➔ [page 13](#)
- ☐ Removing and installing ➔ [page 24](#)

4 - Bolt

5 - Over-centre spring

- ☐ Removing and installing ➔ [page 13](#)

6 - Bearing bush

7 - Pivot pin

8 - Clutch pedal

- ☐ Removing and installing ➔ [page 18](#)

9 - Retainer

- ☐ To remove and install, separate master cylinder from clutch pedal ➔ ["2.4 Removing and installing clutch pedal", page 18](#)

10 - Seal

- ☐ Always renew
- ☐ Between master cylinder and mounting bracket

11 - Master cylinder

- ☐ Removing and installing after removal of mounting bracket ➔ [page 30](#)

12 - Clutch position sender -G476-

- ☐ Removing and installing ➔ [page 32](#)
- ☐ Can be checked in "guided fault finding" of vehicle diagnosis, testing and information system -VAS 5051-.
- ☐ The clutch position sender -G476- is identified as clutch pedal switch -F36- in "guided fault finding".

13 - Clip

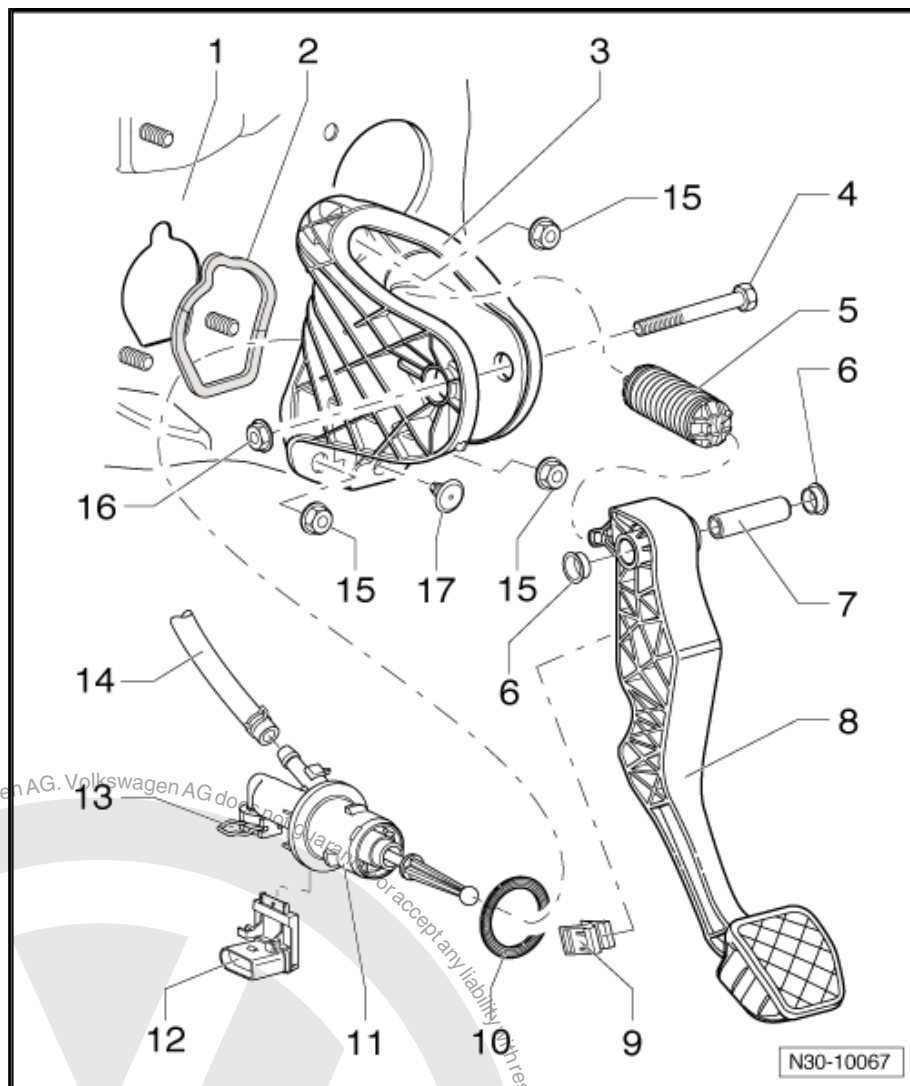
- ☐ Pull out clip to stop to remove and install pipe/hose line

14 - Supply hose

- ☐ Made of plastic ➔ [page 36](#)

15 - Hexagon nut, 25 Nm

- ☐ Self-locking
- ☐ Qty. 3





- ☐ For mounting bracket to bulkhead
- ☐ Always renew

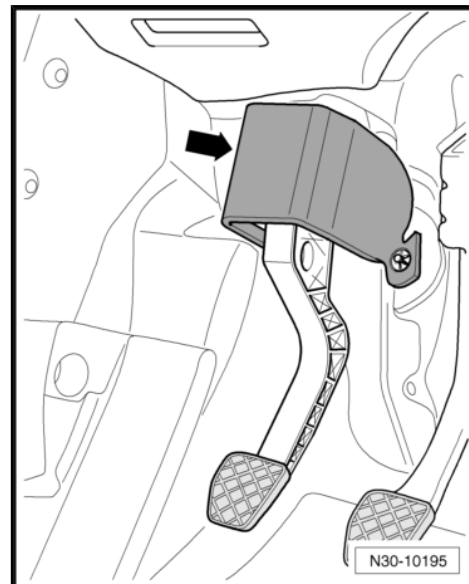
16 - Hexagon nut, 25 Nm

- ☐ Always renew

17 - Stop

- ☐ For clutch pedal

Mounting bracket with damping -arrows-

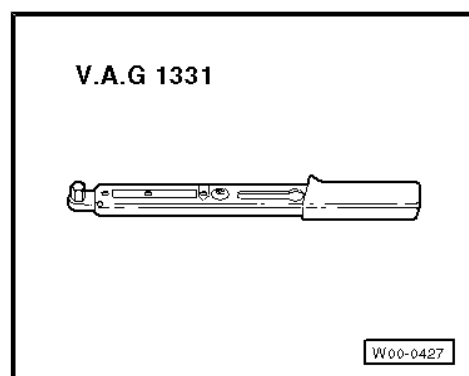
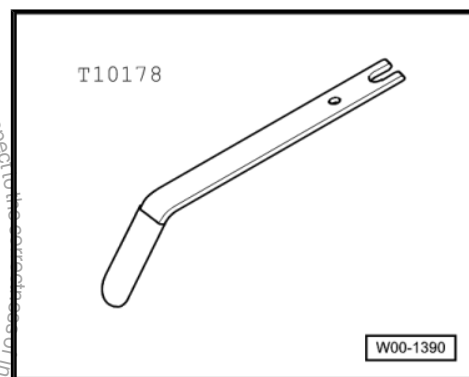


2.3 Removing and installing over-centre spring

Special tools and workshop equipment required

- ◆ Release tool -T10178-

Torque wrench -V.A.G 1331-





2.3.1 Removing

Perform the following steps:

Vehicles with knee airbag



Note

The installation location of the knee airbag is above the pedal cluster.

- First check whether a coded radio is fitted. If so, obtain anti-theft code.
- With ignition switched off, disconnect battery ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .

Continuation for all

- Push driver seat as far back as possible and move steering wheel to highest position.
- Remove trim and cover below trim on drive side ⇒ General body repairs, interior; Rep. Gr. 68 .

Vehicles with knee airbag

- Remove bracket for knee airbag together with crash bar ⇒ General body repairs, interior; Rep. Gr. 69 ; Airbag; Removing and installing knee airbag bracket.

Continuation for all

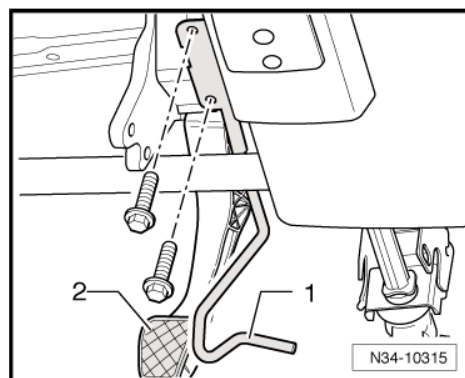
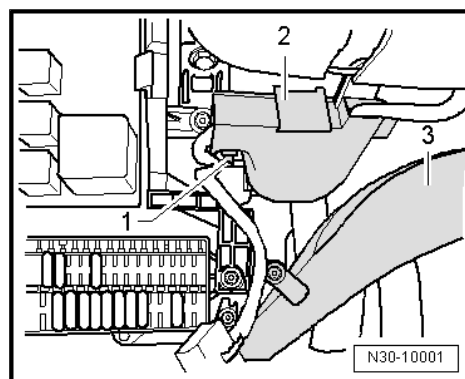
- Remove cable guide -2- from steering column.
- Remove footwell vent -3- ⇒ Heating, air conditioning; Rep. Gr. 80 ; Repairing heating .

Vehicles without knee airbag

The crash bar -1- in front of clutch pedal -2- may be secured in different ways. Crash bar may look different from as shown in following illustrations.

Attachment with 2 bolts

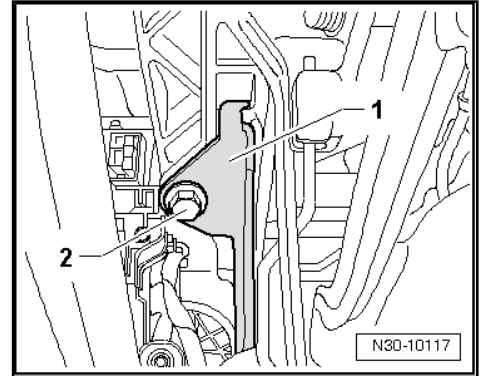
- Remove crash bar -1- (2 bolts).



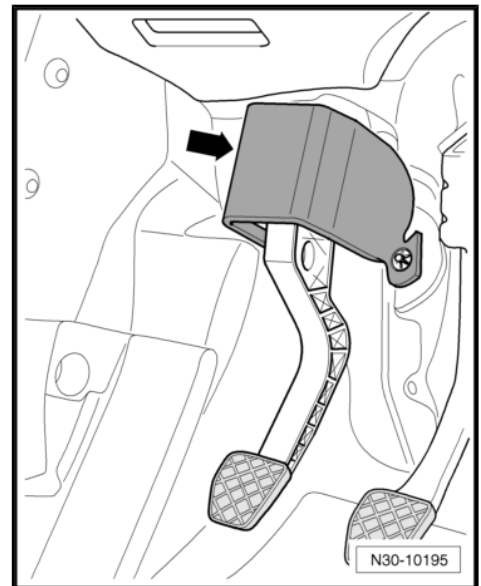


Attachment with 1 bolt

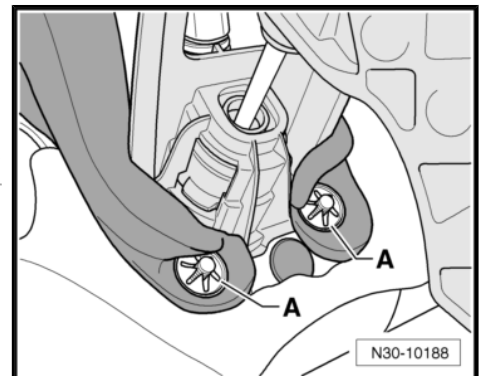
- Remove crash bar -1- (1 x bolt -2-).



- If fitted, remove damping -arrow- from lower area of clutch pedal mounting bracket.

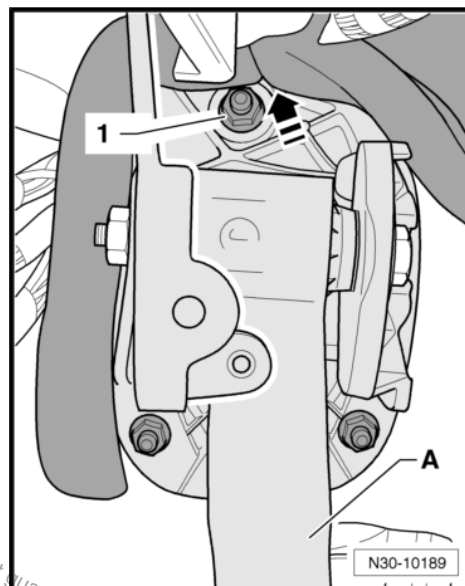


- To do this, remove lock washers -A- for damping.
- Pull off insulation.





- Push damping upwards in area of upper securing nut -1- above clutch pedal -A- in -direction of arrow-.



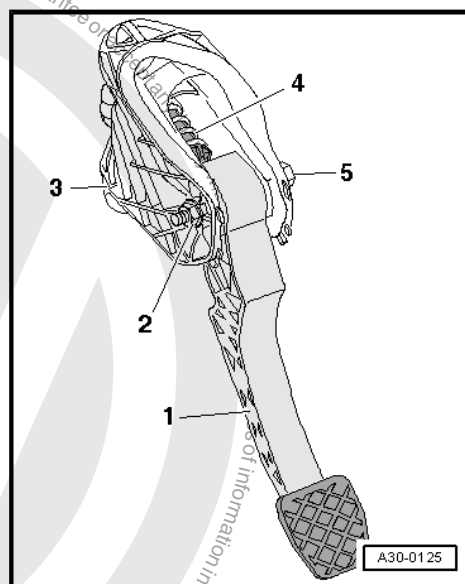
- Unbolt clutch pedal -1- from mounting bracket -3- by removing nut -2- and pulling out bolt -5-.



Note

The clutch pedal remains hooked to operating rod of master cylinder.

- Swing clutch pedal down slightly and remove over-centre spring -4- from mounting bracket.



2.3.2 Installing

Install in the reverse order of removal, observing the following:

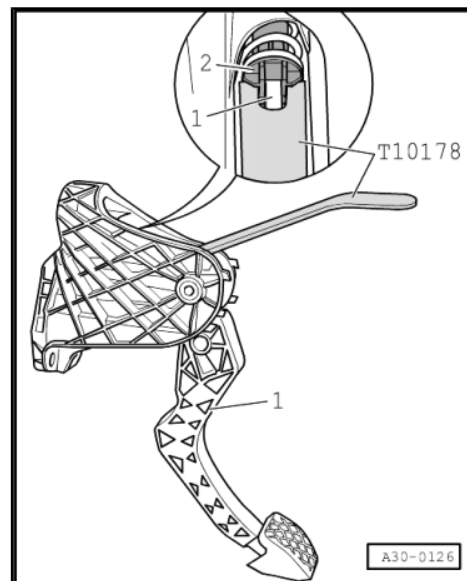


Note

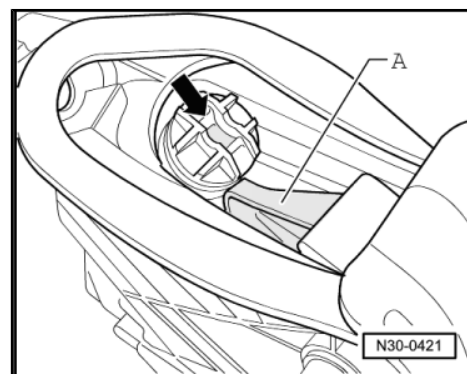
Renew self-locking nuts.



- Insert over-centre spring -2- in mounting bracket from above while holding end of spring with assembly tool -T10178- in installation position.



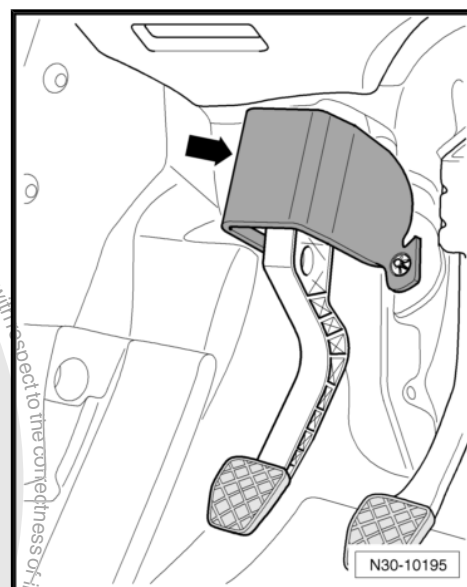
- Receptacle -arrow- for tip -A- of clutch pedal must stand vertically.
- Insert tip of clutch pedal in bearing recess of over-centre spring.
- Depress clutch pedal slightly, push bolt through and tighten self-locking nut to specified torque ➤ [page 18](#) .



Some cars have damping -arrow- on the clutch pedal mounting bracket.

- Return this to installation position.

Vehicles without knee airbag

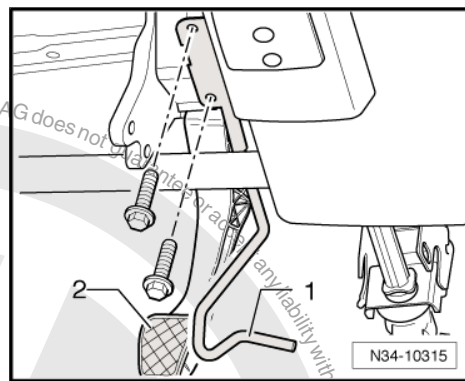




The crash bar -1- in front of clutch pedal -2- may be secured in different ways.

Attachment with 2 bolts

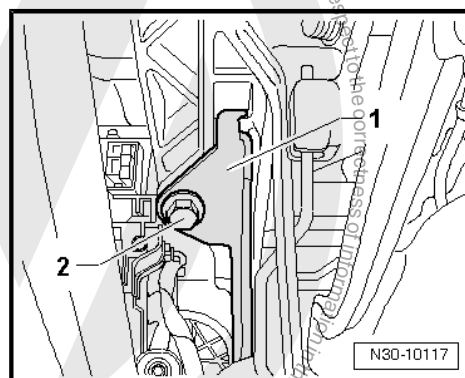
- Install crash bar -1- and tighten 2 bolts to specified torque
⇒ [page 18](#) .



Attachment with 1 bolt

- Install crash bar -1- and tighten bolt -2- to specified torque
⇒ [page 18](#) .

Continuation for all



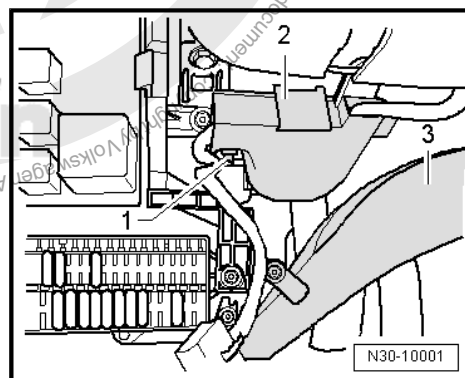
- Mount cable guide -2- on steering column.
- Install footwell vent -3- ⇒ Heating, air conditioning; Rep. Gr. 80 ; Repairing heating .

Vehicles with knee airbag

- Install bracket for knee airbag together with crash bar ⇒ General body repairs, interior; Rep. Gr. 69 ; Airbag; Removing and installing knee airbag bracket .

Continuation for all

- Install trim and cover below trim on drive side ⇒ General body repairs, interior; Rep. Gr. 68 .
- If disconnected, connect battery ⇒ Electrical system; Rep. Gr. 27 ; Removing and installing battery .



2.3.3 Torque settings

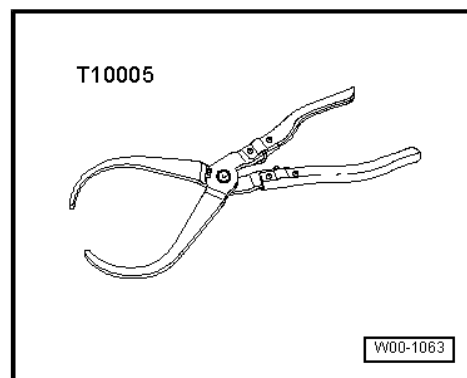
Component	Nm
Clutch pedal to mounting bracket ♦ Renew self-locking nuts	25
Crash bar to steering column mounting bracket (attachment with 2 bolts)	10
Crash bar to steering column mounting bracket (attachment with 1 bolt)	20
♦ Renew bolts for crash bar	

2.4 Removing and installing clutch pedal

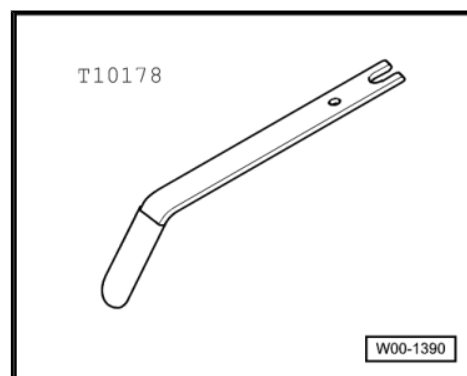
Special tools and workshop equipment required



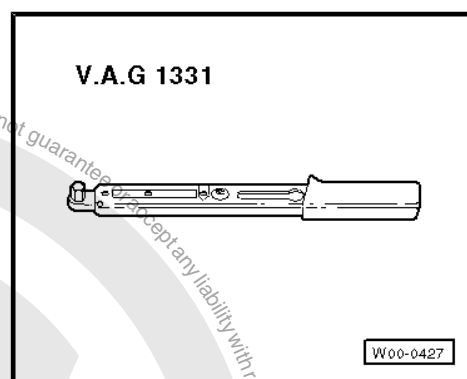
◆ Pliers -T10005-



◆ Release tool -T10178-



Torque wrench -V.A.G 1331-



2.4.1 Removing

Perform the following steps:

Vehicles with knee airbag



Note

The installation location of the knee airbag is above the pedal cluster.

- First check whether a coded radio is fitted. If so, obtain anti-theft code.
- With ignition switched off, disconnect battery earth strap ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .

Continuation for all

- Push driver seat as far back as possible and move steering wheel to highest position.



- Remove trim and cover below trim on drive side ⇒ General body repairs, interior; Rep. Gr. 68 .

Vehicles with knee airbag

- Remove bracket for knee airbag together with crash bar ⇒ General body repairs, interior; Rep. Gr. 69 ; Airbag; Removing and installing knee airbag bracket.

Continuation for all

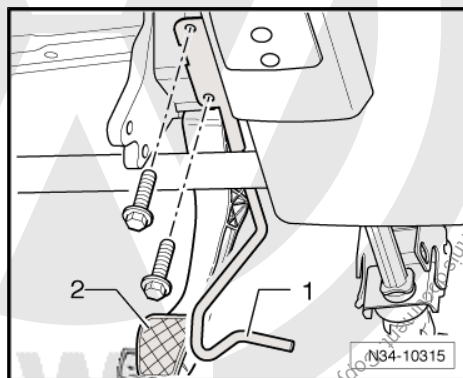
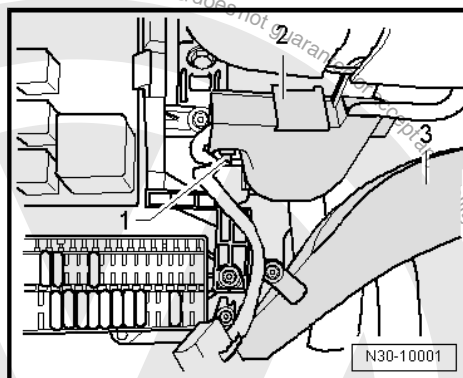
- Remove cable guide -2- from steering column.
- Remove footwell vent -3- ⇒ Heating, air conditioning; Rep. Gr. 80 ; Repairing heating .

Vehicles without knee airbag

The crash bar -1- in front of clutch pedal -2- may be secured in different ways. Crash bar may look different from as shown in following illustrations.

Attachment with 2 bolts

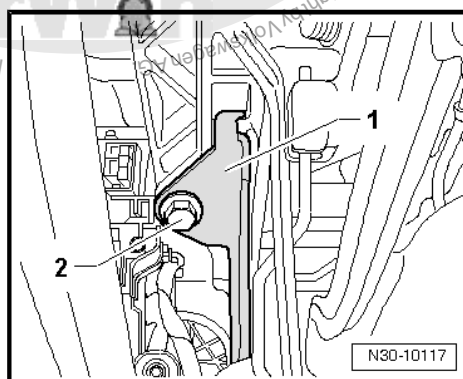
- Remove crash bar -1- (2 bolts).



Attachment with 1 bolt

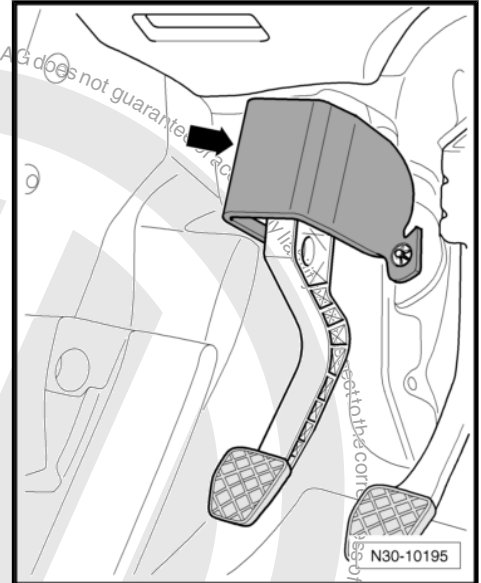
- Remove crash bar -1- (1 x bolt -2-).

Continuation for all

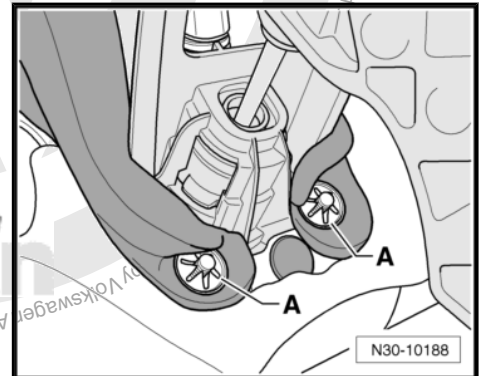




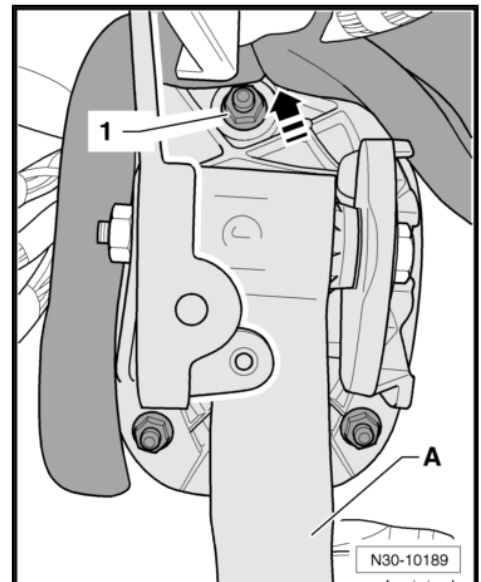
- If fitted, remove damping -arrow- from lower area of clutch pedal mounting bracket.



- To do this, remove lock washers -A- for damping.
- Pull off insulation.

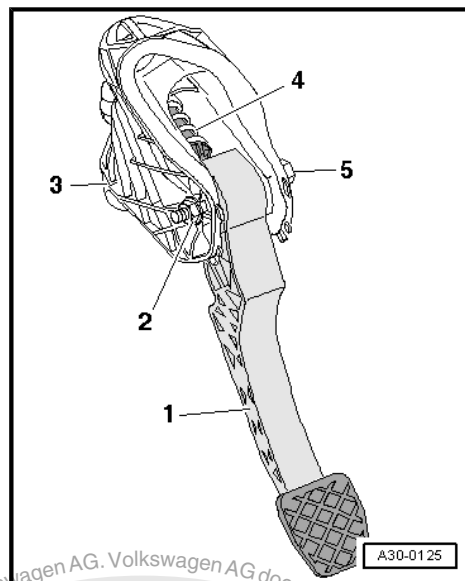


- Push damping upwards in area of upper securing nut -1- above clutch pedal -A- in -direction of arrow-.

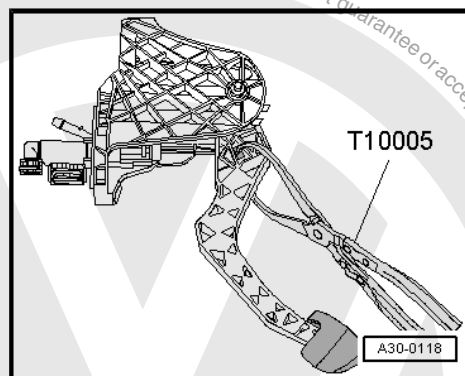




- Unbolt clutch pedal -1- from mounting bracket -3- by removing nut -2- and pulling out bolt -5-
- Swing clutch pedal down slightly and remove over-centre spring -4- from mounting bracket.



- Release clutch pedal from master cylinder with pliers - T10005- .
- Remove clutch pedal.



2.4.2 Installing

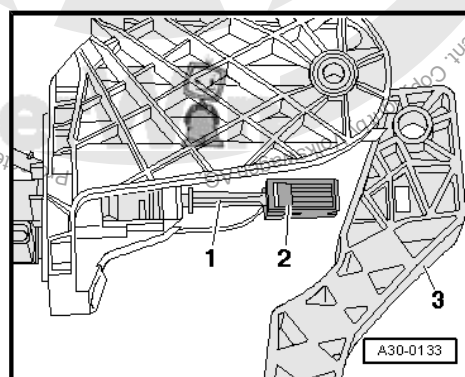
Install in the reverse order of removal, observing the following:



Note

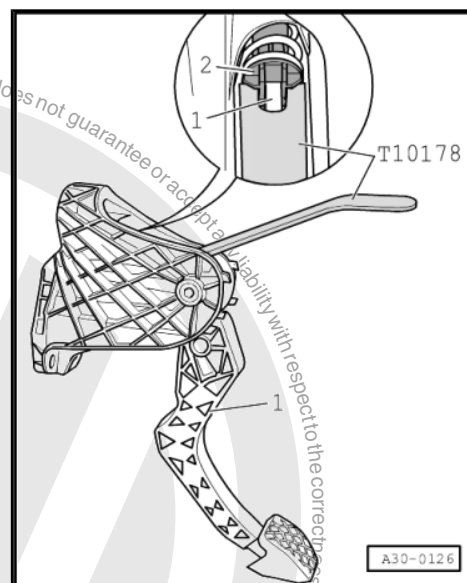
Renew self-locking nuts.

- Secure retainer -2- to master cylinder operating rod -1-.
- Press retainer into notch in clutch pedal -3- until it can be heard to engage.

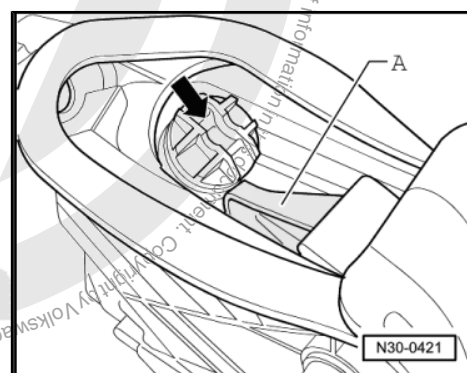




- Insert over-centre spring -2- in mounting bracket from above while holding end of spring with assembly tool -T10178- in installation position.



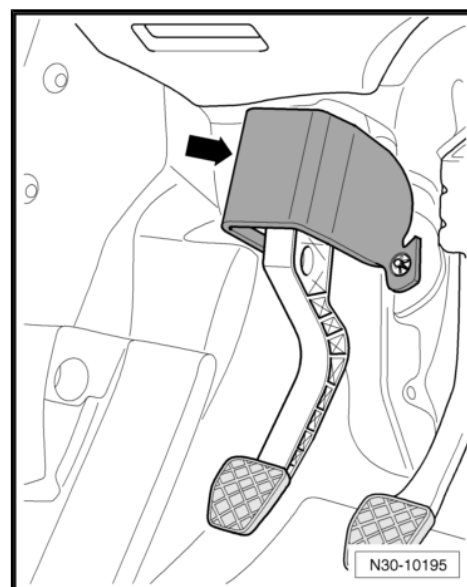
- Receptacle -arrow- for tip -A- of clutch pedal must stand vertically.
- Insert tip -A- of clutch pedal in bearing recess of over-centre spring.
- Depress clutch pedal slightly, push bolt through and tighten self-locking nut to specified torque ⇒ [page 24](#) .



Some cars have damping -arrow- on the clutch pedal mounting bracket.

- Return this to installation position.

Vehicles without knee airbag

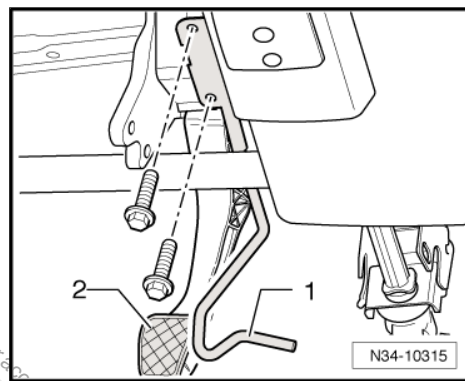




The crash bar -1- in front of clutch pedal -2- may be secured in different ways.

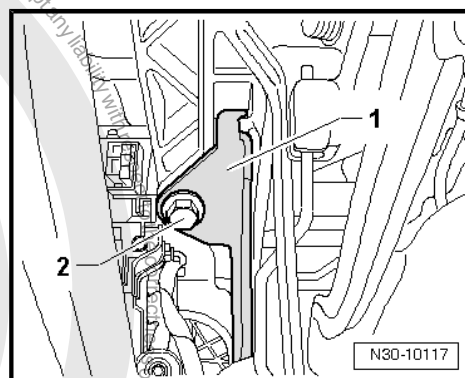
Attachment with 2 bolts

- Install crash bar -1- and tighten 2 bolts to specified torque
⇒ [page 24](#) .



Attachment with 1 bolt

- Install crash bar -1- and tighten bolt -2- to specified torque
⇒ [page 24](#) .



Continuation for all

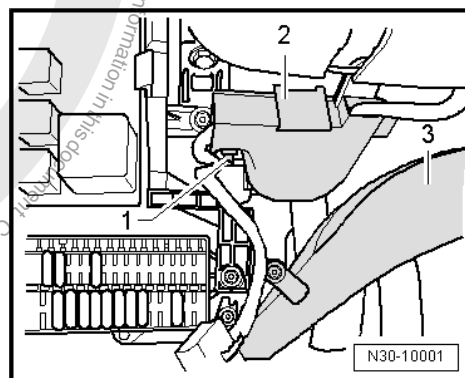
- Mount cable guide -2- on steering column.
- Install footwell vent -3- ⇒ Heating, air conditioning; Rep. Gr. 80 ; Repairing heating .

Vehicles with knee airbag

- Install bracket for knee airbag together with crash bar ⇒ General body repairs, interior; Rep. Gr. 69 ; Airbag; Removing and installing knee airbag bracket .

Continuation for all

- Install trim and cover below trim on drive side ⇒ General body repairs, interior; Rep. Gr. 68 .
- If disconnected, connect battery ⇒ Electrical system; Rep. Gr. 27 ; Removing and installing battery .



2.4.3 Torque settings

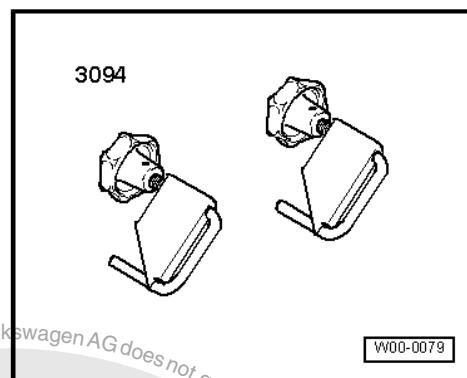
Component	Nm
Clutch pedal to mounting bracket ♦ Renew self-locking nuts	25
Crash bar to steering column mounting bracket (attachment with 2 bolts)	10
Crash bar to steering column mounting bracket (attachment with 1 bolts)	20
♦ Renew bolts for crash bar	

2.5 Removing and installing mounting bracket

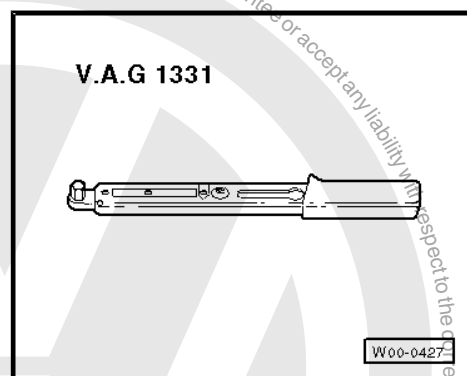
Special tools and workshop equipment required



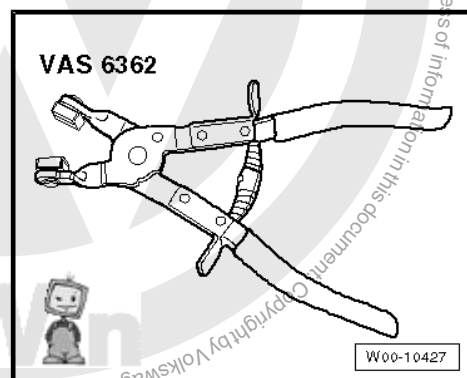
- ◆ Hose clamps to 25 mm Ø -3094-



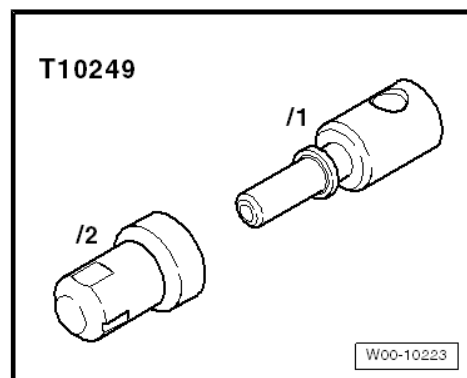
- ◆ Torque wrench -V.A.G 1331-



- ◆ Hose clip pliers -VAS 6362-



- ◆ Sealing tool -T10249-



2.5.1 Removing

Perform the following steps:

LHD

- First check whether a coded radio is fitted. If so, obtain anti-theft code.



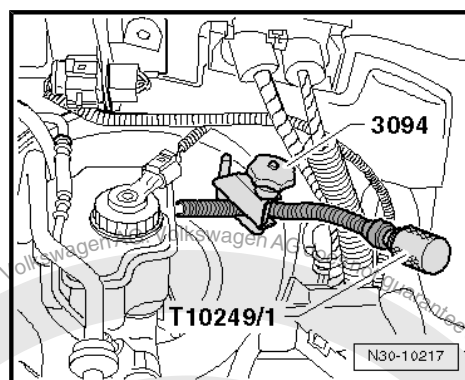
- With ignition switched off, disconnect battery earth strap ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .
- Remove complete air filter housing if it is located close to the battery ⇒ Rep. Gr. 24 ; Repairing injection system .
- Remove battery and battery tray ⇒ Electrical system; Rep. Gr. 27 ; Battery; Removing and installing battery .

Continuation for all



Note

- ◆ *During the following work, ensure that no brake fluid lands on longitudinal member or gearbox. If this does happen, clean the affected areas thoroughly.*
- ◆ *Lay a lint-free cloth under master cylinder.*
- Clamp off supply hose to master cylinder with hose clamps up to Ø 25 mm -3094- .
- Then seal supply hose with sealing tool -T10249/1- .



- Release securing clip -2- using screwdriver or a pointed object and pull pipe/hose line -1- off master cylinder.
- Unclip clutch position sender -G476- from master cylinder -arrow- and remove with electrical connector attached -4-.



Note

When performing work in the footwell, put cloths on the carpet to protect it from possible brake fluid spills.

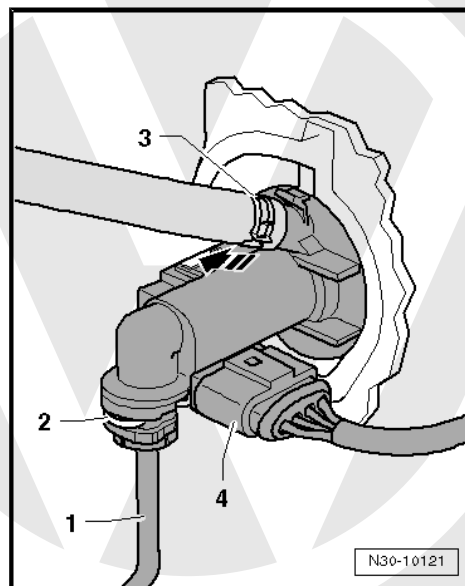
- Remove trim and cover below trim on drive side ⇒ General body repairs, interior; Rep. Gr. 68 .

Vehicles with knee airbag



Note

The installation location of the knee airbag is above the pedal cluster.





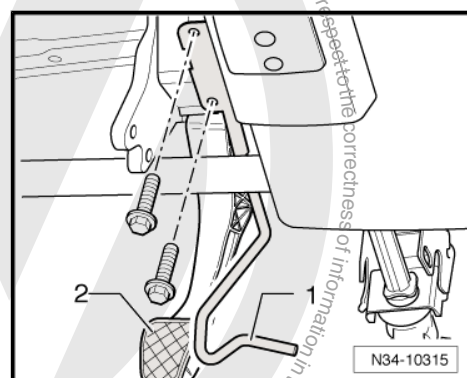
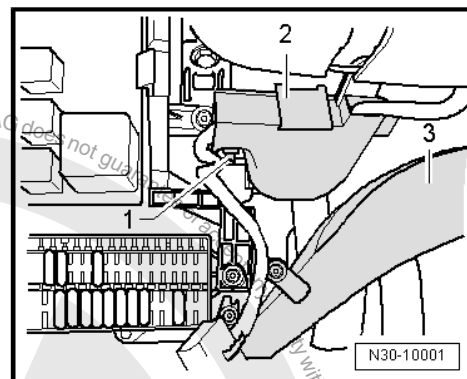
- Remove bracket for knee airbag together with crash bar ⇒ General body repairs, interior; Rep. Gr. 69 ; Airbag; Removing and installing knee airbag bracket.
- Remove cable guide -2- from steering column.
- Remove footwell vent -3- ⇒ Heating, air conditioning; Rep. Gr. 80 ; Repairing heating .

Vehicles without knee airbag

The crash bar -1- in front of clutch pedal -2- may be secured in different ways. Crash bar may look different from as shown in following illustrations.

Attachment with 2 bolts

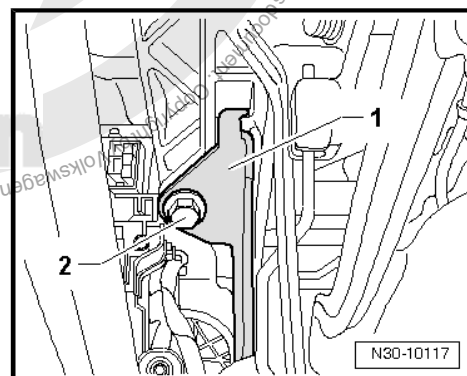
- Remove crash bar (2 bolts).



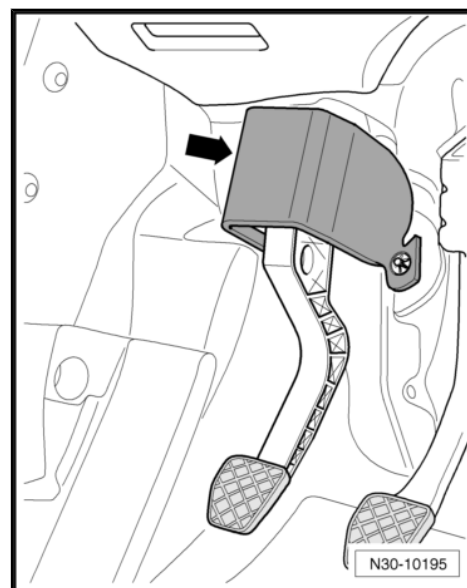
Attachment with 1 bolt

- Remove crash bar -1- (1 x bolt, 2-).

Continuation for all

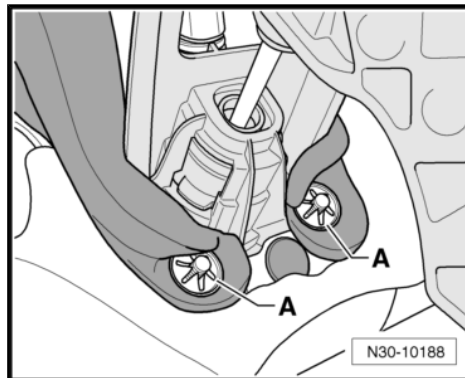


- If fitted, remove damping -arrow- from lower area of clutch pedal mounting bracket.

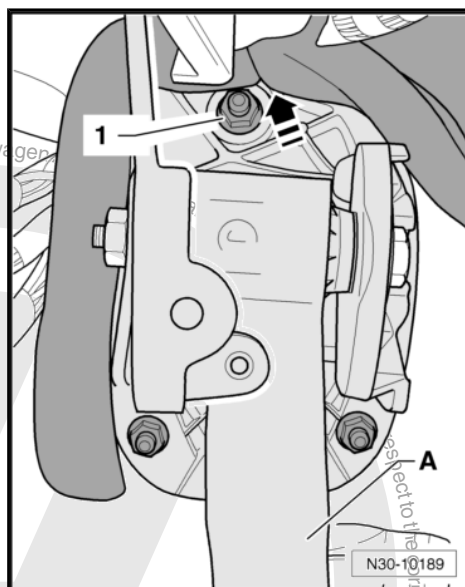




- To do this, remove lock washers -A- for damping.
- Pull off insulation.



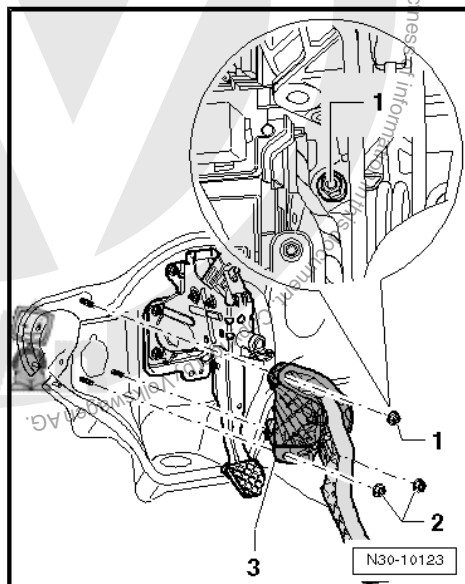
- Push damping upwards in area of upper securing nut -1- above clutch pedal -A- in -direction of arrow-.



- Remove securing nuts -1- and -2-.

The upper securing nut -1- is accessible between the relay carrier and the steering column trim.

- Remove mounting bracket -3-.



2.5.2 Installing

Install in the reverse order of removal, observing the following:



Some cars have damping -arrow- on the clutch pedal mounting bracket.



Note

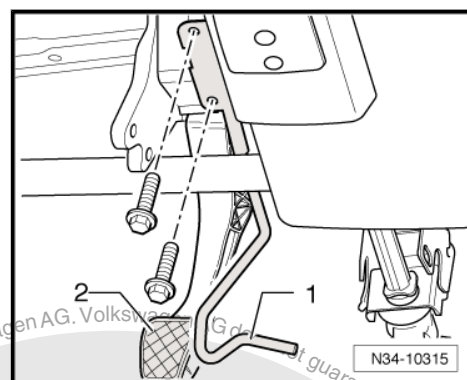
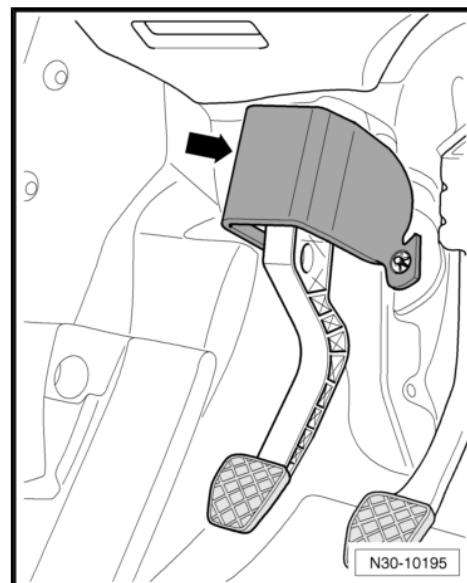
- ◆ Renew self-locking nuts.
- ◆ Renew hose clips.
- ◆ Allocate all components according to ➔ Electronic parts catalogue "ETKA".

Vehicles without knee airbag

The crash bar -1- in front of clutch pedal -2- may be secured in different ways.

Attachment with 2 bolts

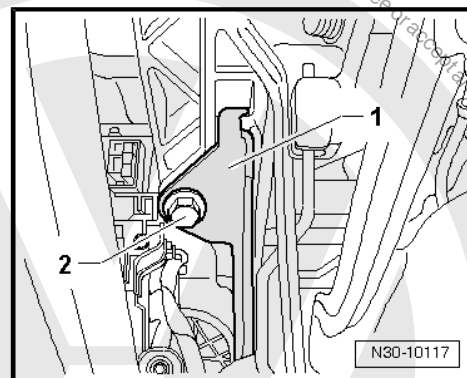
- Install crash bar -1- and tighten 2 bolts to specified torque ➔ [page 30](#) .



Attachment with 1 bolt

- Install crash bar -1- and tighten bolt -2- to specified torque ➔ [page 30](#) .

Continuation for all



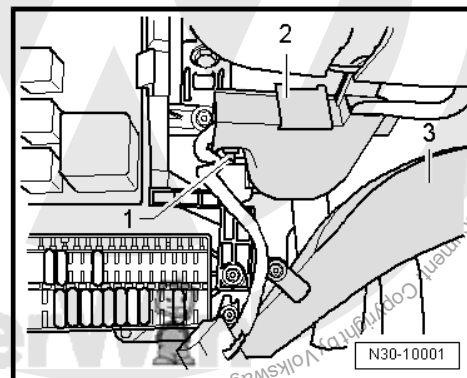
- Mount cable guide -2- on steering column.
- Install footwell vent -3- ➔ Heating, Air conditioning; Rep. Gr. 80 ; Repairing heating; Removing and installing left footwell vent .

Vehicles with knee airbag

- Install bracket for knee airbag together with crash bar ➔ General body repairs, interior; Rep. Gr. 69 ; Airbag; Removing and installing knee airbag bracket .

Continuation for all

- Install trim and cover below trim on drive side ➔ General body repairs, interior; Rep. Gr. 68 .

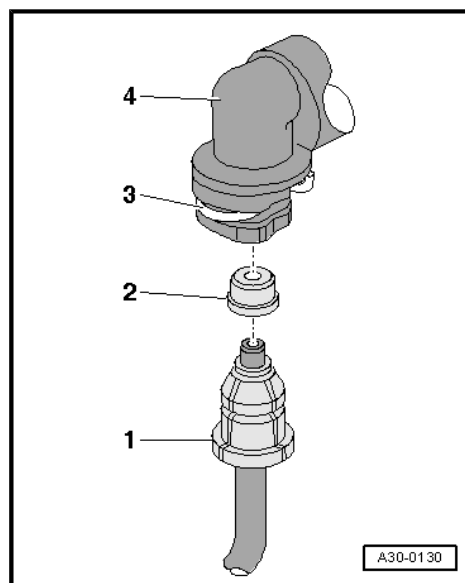




- Push pipe/hose line or plastic line -1- with seal -2- onto connection of master cylinder -4- until securing clip -3- engages audibly.
- Test line by tugging on it.
- After removing hose clamp up to \varnothing 25 mm -3094- , return supply hose to its original contour, if necessary.
- Bleed clutch system ➔ [page 41](#) .

LHD

- Install battery ➔ Electrical system; Rep. Gr. 27 ; Battery; Removing and installing .
- If complete air filter housing was removed, install it ➔ Rep. Gr. 24 ; Repairing injection system .



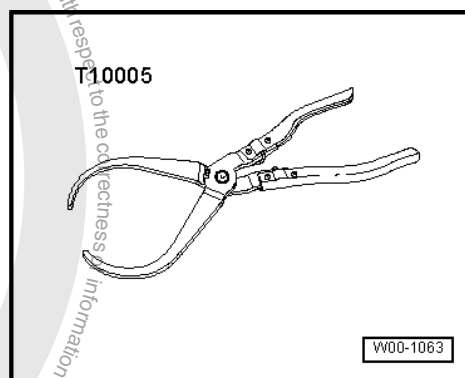
2.5.3 Torque settings

Component	Nm
Mounting bracket to bulkhead ♦ Renew self-locking nuts.	25
Crash bar to steering column mounting bracket (attachment with 2 bolts)	10
Crash bar to steering column mounting bracket (attachment with 1 bolt) ♦ Renew bolts for crash bar	20

2.6 Removing and installing master cylinder

Special tools and workshop equipment required

- ♦ Pliers -T10005-



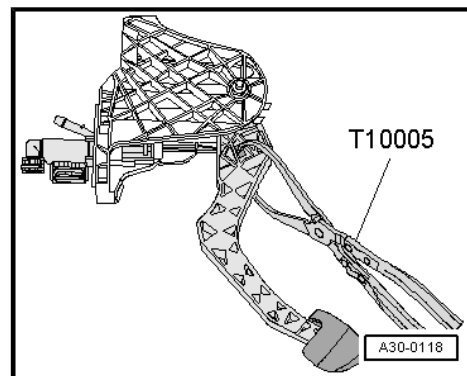
2.6.1 Removing

Perform the following steps:

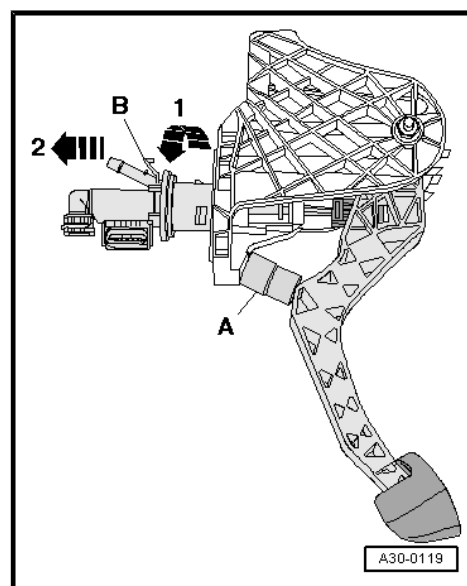
- Remove mounting bracket ➔ [page 24](#) .



- Release retainer for master cylinder operating rod using pliers -T10005- .

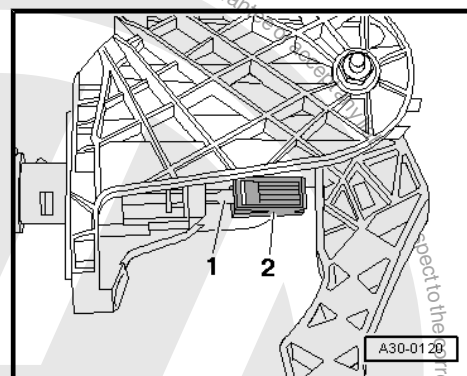


- Place spacer -A- between clutch pedal and stop and press clutch pedal to spacer.
- ◆ Length of spacer = about 40 mm (e.g. 1/2" socket)
- Release securing bar -B- and pull master cylinder out of mounting bracket -arrow 1- and -arrow 2-.



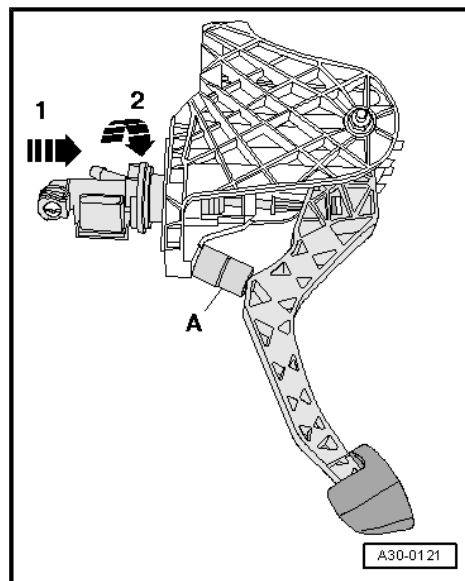
2.6.2 Installing

- Move clutch pedal to stop at rest position.
- Secure retainer -2- to master cylinder operating rod -1-.

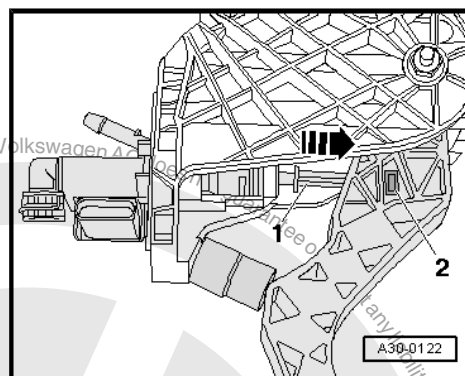




- Place spacer -A- between clutch pedal and stop and press clutch pedal to spacer.
- ◆ Length of spacer = about 40 mm (e.g. 1/2" socket)
- Engage master cylinder in mounting bracket -arrow 1- and -arrow 2-.



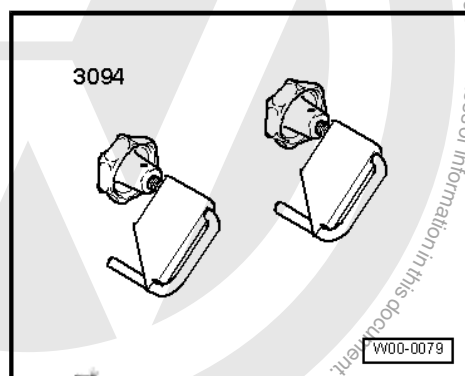
- Press master cylinder operating rod -1- in -direction of arrow- until retainer -2- engages audibly in clutch pedal.
- Install mounting bracket ➔ [page 24](#) .



2.7 Removing and installing clutch position sender -G476-

Special tools and workshop equipment required

- ◆ Hose clamps to 25 mm Ø -3094-



2.7.1 Removing

Perform the following steps:

LHD

- First check whether a coded radio is fitted. If so, obtain anti-theft code.
- With ignition switched off, disconnect battery earth strap ➔ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .

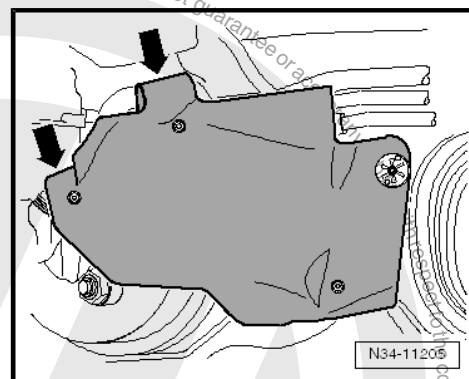


- Remove complete air filter housing if it is located close to the battery ➔ Rep. Gr. 24 ; Repairing injection system .
- Remove battery and battery tray ➔ Electrical system; Rep. Gr. 27 ; Battery; Removing and installing battery .

Right-hand drive

An insulation mat is installed in conjunction with some engines.

- Remove the insulation mat from the hose/pipe line -arrows-.



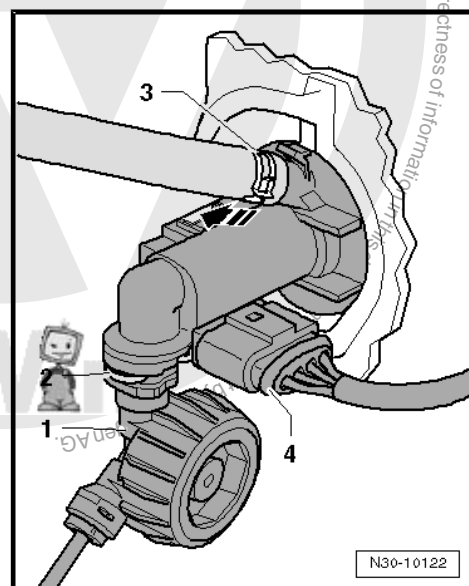
Continuation for all

If a pipe/hose line -1- with a round component is installed directly beneath the master cylinder, the pipe/hose line must be removed.

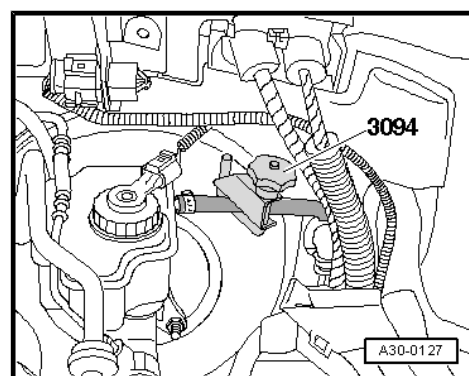


Note

During the following work, ensure that no brake fluid lands on longitudinal member or gearbox. If this does happen, clean the affected areas thoroughly.

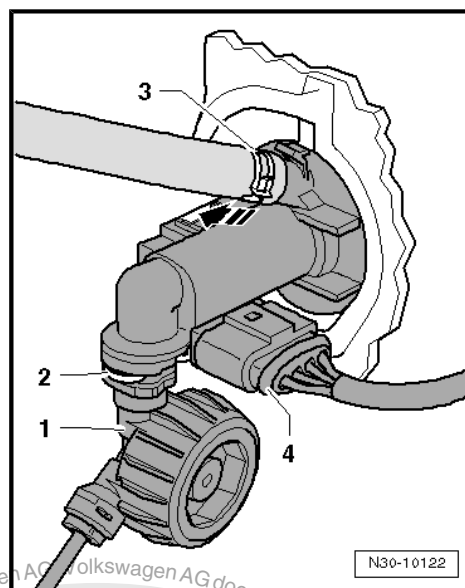


- Clamp off supply hose to master cylinder with hose clamps up to Ø 25 mm -3094- .





- Release securing clip -2- with a screwdriver or a pointed object and pull out of master cylinder to stop.
- Pull pipe/hose line -1- or plastic line out from master cylinder and seal.
- Disconnect electrical connector -4-.
- Unclip clutch position sender -G476- from master cylinder -arrow- and remove.



2.7.2 Installing

Install in the reverse order of removal, observing the following:



Note

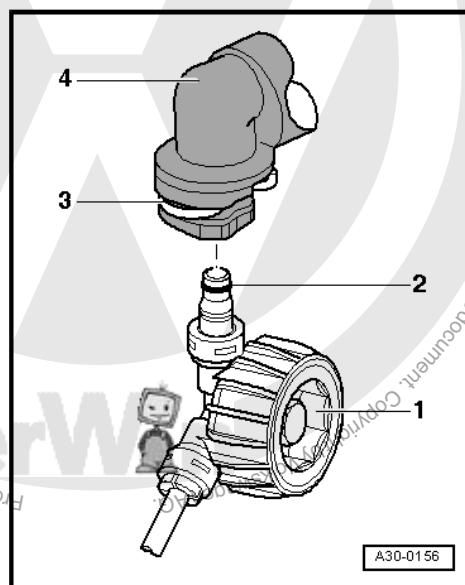
Allocate all components according to ⇒ *Electronic parts catalogue "ETKA"*.

If the pipe/hose line was removed

- Push pipe/hose line -1- or plastic line with seal -2- onto connection of master cylinder -4- until securing clip -3- engages audibly.
- Test pipe/hose line by tugging on it.
- After removing hose clamp up to Ø 25 mm -3094- , return supply hose to its original contour, if necessary.
- Bleed clutch system ⇒ [page 41](#) .

LHD

- Install battery tray and battery ⇒ Electrical system; Rep. Gr. 27 ; Removing and installing battery .
- If complete air filter housing was removed, install it ⇒ Rep. Gr. 24 ; Repairing injection system .
- Connect battery and follow procedure after connecting battery ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .





2.8 Assembly overview - hydraulics (LHD)

1 - Brake fluid reservoir

2 - Spring-type clip

- ☐ Not present

3 - Supply hose

- ☐ Made of plastic
⇒ [page 36](#)

4 - Master cylinder

- ☐ Removing and installing
⇒ [page 30](#)

5 - Clip

- ☐ Pull clip out to stop to remove or install line between master and slave cylinders
- ☐ Pulled out to side on some master cylinders

6 - Retainer

- ☐ To remove and install, separate master cylinder from clutch pedal
⇒ ["2.4 Removing and installing clutch pedal"](#), [page 18](#)

7 - Clutch pedal

- ☐ Removing and installing
⇒ [page 18](#)

8 - Hexagon nut

- ☐ Note and torque setting:

9 - O-ring

- ☐ Pull onto line connection
- ☐ Insert with brake fluid
- ☐ Seals/O-rings are adapted to configuration of line connection ⇒ [page 36](#)
- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"

10 - Seal

- ☐ Pull onto line connection
- ☐ Insert with brake fluid
- ☐ Seals/O-rings are adapted to configuration of line connection ⇒ [page 36](#)
- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"

11 - Pipe/hose line

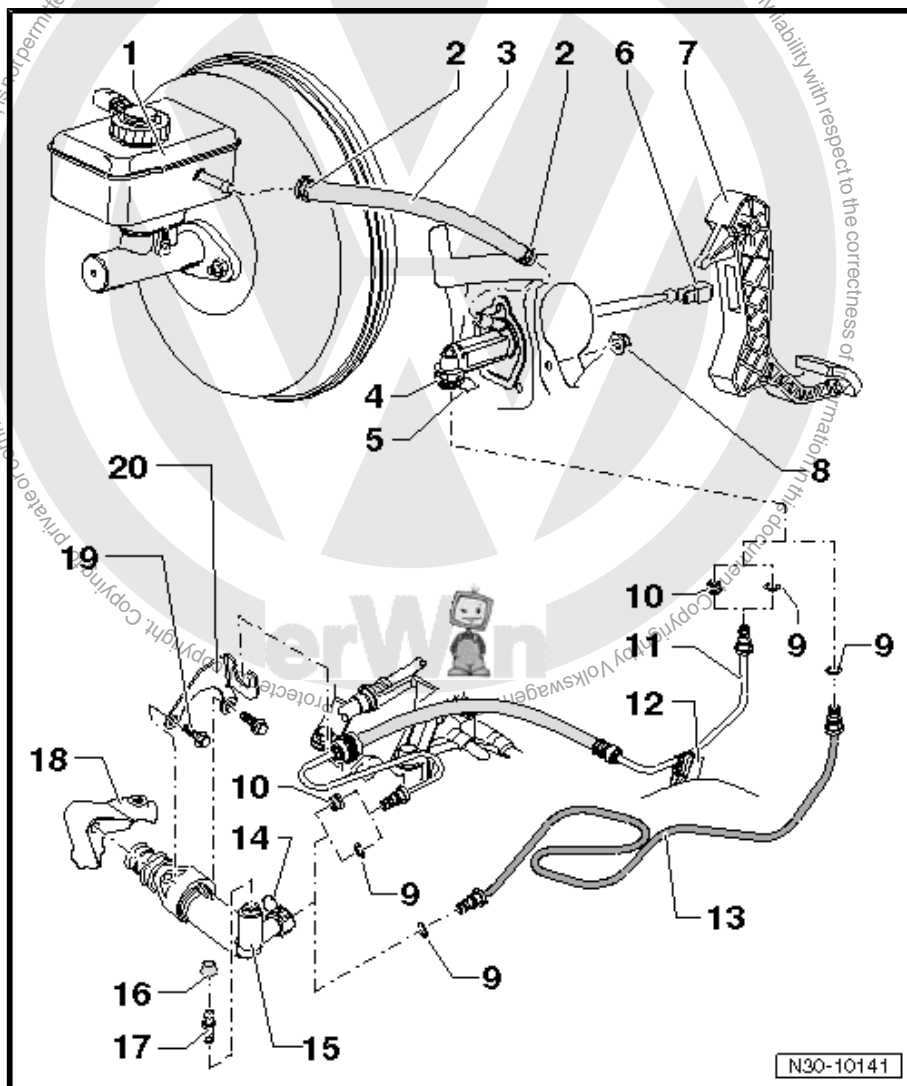
- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"
- ☐ To remove, remove battery and battery tray ⇒ Electrical system; Rep. Gr. 27 ; Removing and installing battery .

12 - Retainer

- ☐ For pipe/hose line ⇒ [Item 11 \(page 35\)](#)
- ☐ Secured to body

13 - Plastic line

- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"
- ☐ To remove, remove battery and battery tray ⇒ Electrical system; Rep. Gr. 27 ; Removing and installing battery .





14 - Clip

- ❑ Pull clip out to stop to remove or install line between master and slave cylinders

15 - Slave cylinder

- ❑ Removing and installing ⇒ [page 38](#)

16 - Dust cap

17 - Bleeder valve

- ❑ Bleeding clutch system ⇒ [page 41](#)

18 - Gearbox

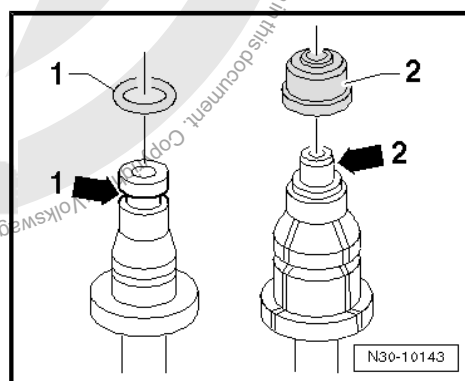
19 - Hexagon bolt

- ❑ Torque setting ⇒ [Item 9 \(page 43\)](#)

20 - Retainer

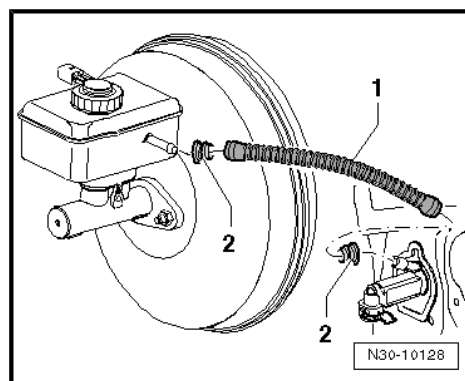
Seals and O-rings for pipe/hose line or plastic line

Item	Material of line connection
1	Line connection with circumferential groove -arrow 1-
2	Line connection with shoulder -arrow 2-



Supply hose -1- of plastic

- The seals -2- must be located in supply hose housing.





2.9 Assembly overview - hydraulics (RHD)

1 - Brake fluid reservoir

2 - Seal

- ☐ For plastic supply hose
- ☐ The seals must be located in supply hose

3 - Supply hose

- ☐ Made of plastic
⇒ [page 36](#)

4 - Master cylinder

- ☐ Removing and installing
⇒ [page 30](#)

5 - Clip

- ☐ Pull clip out to stop to remove or install pipe line
- ☐ Pulled out to side on some master cylinders

6 - Seal / O-ring

- ☐ Pull onto line connection
- ☐ Insert with brake fluid
- ☐ Seals/O-rings are adapted to configuration of line connection
⇒ [page 36](#)
- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"

7 - Retainer

- ☐ To remove and install, separate master cylinder from clutch pedal
⇒ [page 18](#)

8 - Clutch pedal

- ☐ Removing and installing
⇒ [page 18](#)

9 - Hexagon nut

- ☐ Note and torque setting:

10 - Retainer

- ☐ Secured to body

11 - Pipe/hose line

- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"
- ☐ To remove, remove battery and battery tray ⇒ Electrical system; Rep. Gr. 27 ; Removing and installing battery .

12 - Retainer

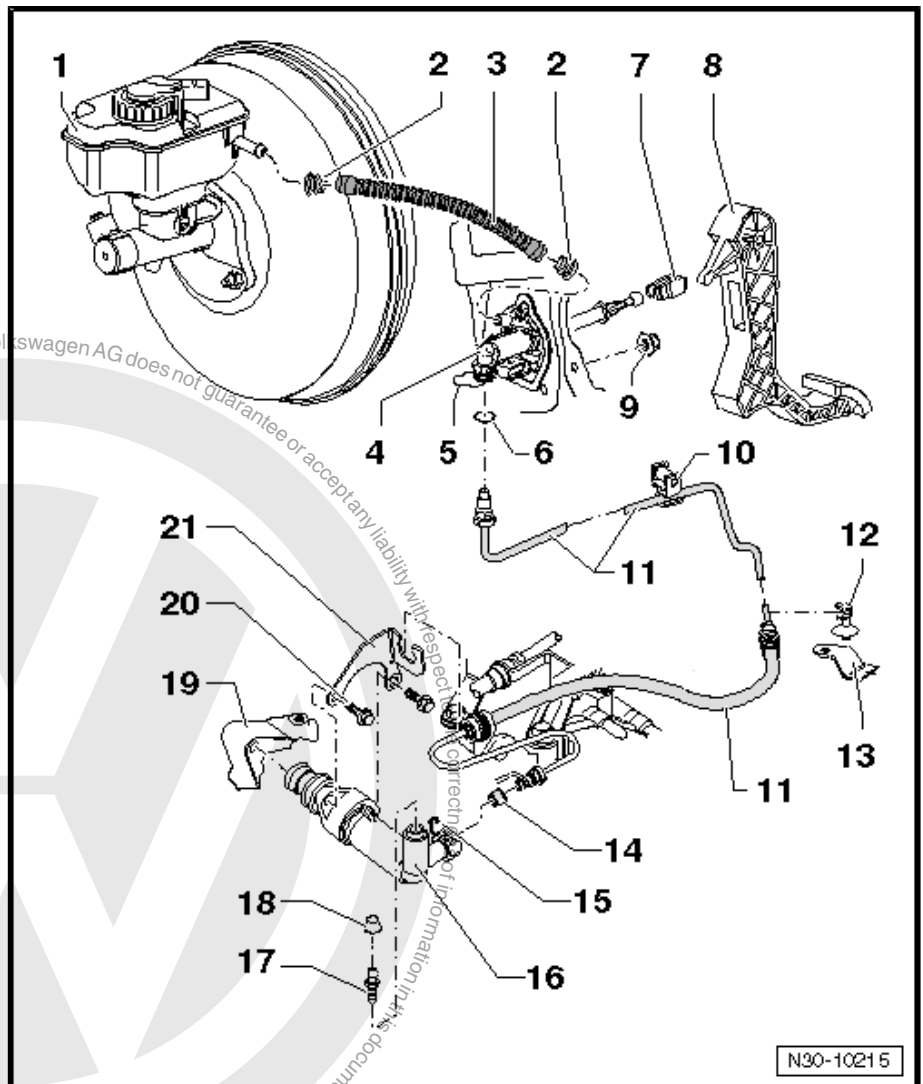
- ☐ Secured to retainer for ABS/EDL

13 - Retainer

- ☐ For ABS/EDL

14 - Seal / O-ring

- ☐ Pull onto line connection
- ☐ Insert with brake fluid





- ☐ Seals/O-rings are adapted to configuration of line connection ➔ [page 36](#)
- ☐ Allocation ➔ Electronic parts catalogue "ETKA"

15 - Clip

- ☐ Pull out clip to stop to remove and install pipe/hose line

16 - Slave cylinder

- ☐ Removing and installing ➔ [page 38](#)

17 - Bleeder valve

- ☐ Bleeding clutch system ➔ [page 41](#)

18 - Dust cap

19 - Gearbox

20 - Hexagon bolt

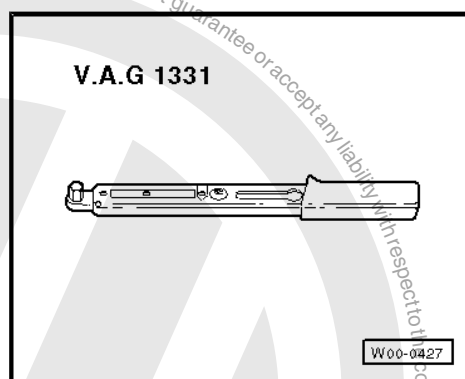
- ☐ Torque setting ➔ [Item 9 \(page 43\)](#)

21 - Retainer

2.10 Removing and installing slave cylinder

Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-



2.10.1 Removing

Perform the following steps:

- First check whether a coded radio is fitted. If so, obtain anti-theft code.
- With ignition switched off, disconnect battery earth strap ➔ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .
- Remove complete air filter housing if it is located above slave cylinder ➔ Rep. Gr. 24 ; Repairing injection system .



- Remove securing clip -arrow 1- for gear selector cable from gearbox selector lever -A-.
- Pull gear selector cable off pin.

Metal relay lever

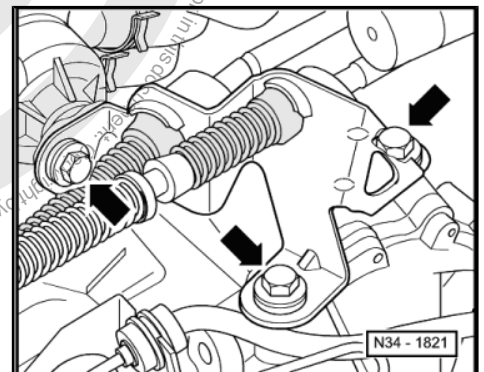
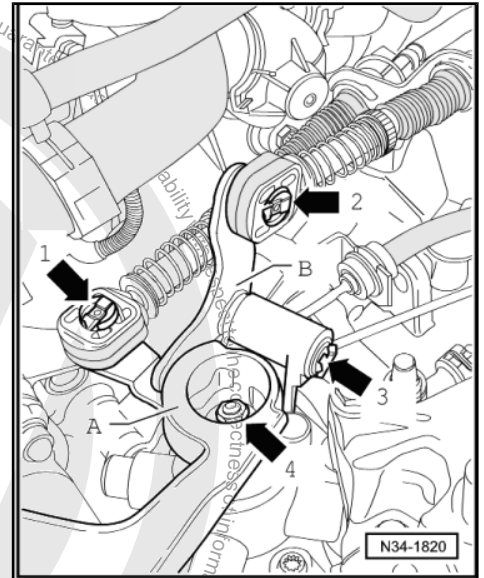
- Remove securing clip -arrow 2- for gate selector cable from relay lever -B-.
- Pull gate selector cable from pin.
- Pull securing clip -arrow 3- off relay lever -B- and remove relay lever.

Plastic relay lever

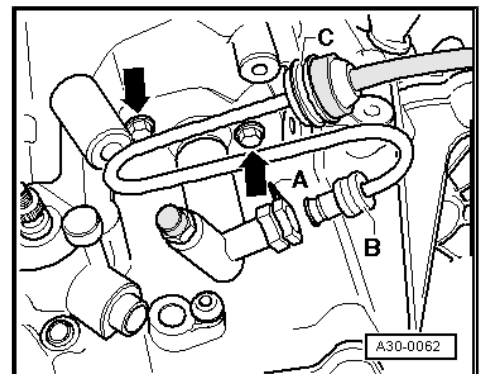
- Remove relay lever together with cable end-piece from gearbox ➔ [page 70](#).

Continuation for all

- Remove gearbox selector lever -A- by removing nut -arrow 4-.
- Remove cable support bracket from gearbox -arrows-.
- Then tie up gear selector cable and gate selector cable.
- Lay a lint-free cloth under slave cylinder.



- Pull clip -A- for line between master and slave cylinders out of slave cylinder to stop.
- Pull line between master and slave cylinders out of support -C-.
- Pull line between master and slave cylinders -B- out of slave cylinder and seal opening.
- Unbolt slave cylinder -arrows- and remove.



Caution

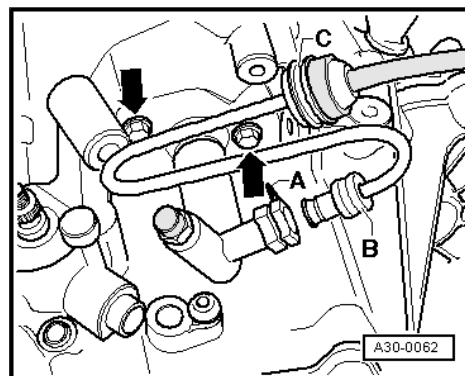
Do not operate clutch pedal any more.

2.10.2 Installing

Install in the reverse order of removal, observing the following:



- Install slave cylinder and tighten bolts -arrows- to specified torque ⇒ [Item 9 \(page 43\)](#) .
- Insert line -B- between master and slave cylinders into slave cylinder to stop.
- Push securing clip -A- into line between master and slave cylinders to stop.
- Test line by tugging on it.
- Press line between master and slave cylinders into mounting -C- to stop on gearbox.
- Bleed clutch system after installing slave cylinder ⇒ [page 41](#) .
- Assembling selector mechanism ⇒ [page 64](#) .
Adjust selector mechanism ⇒ [page 67](#) .
- If complete air filter housing was removed, install it ⇒ Rep. Gr. 24 ; Repairing injection system .
- Connect battery earth ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .

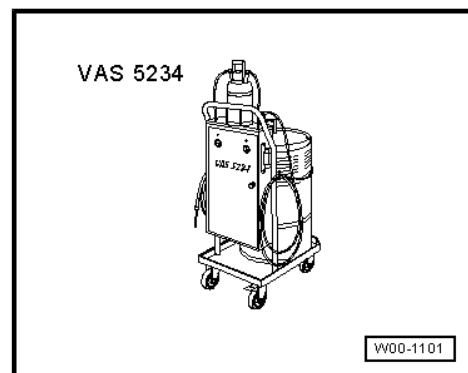




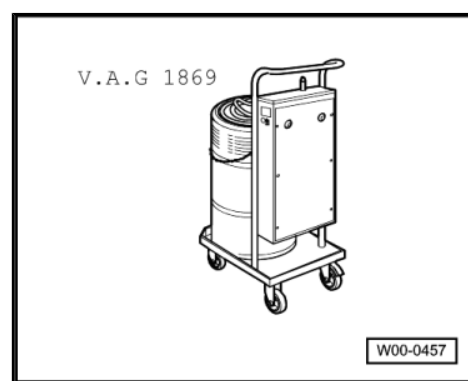
3 Bleeding clutch system

Special tools and workshop equipment required

- ◆ Brake filling and bleeding equipment -VAS 5234- or



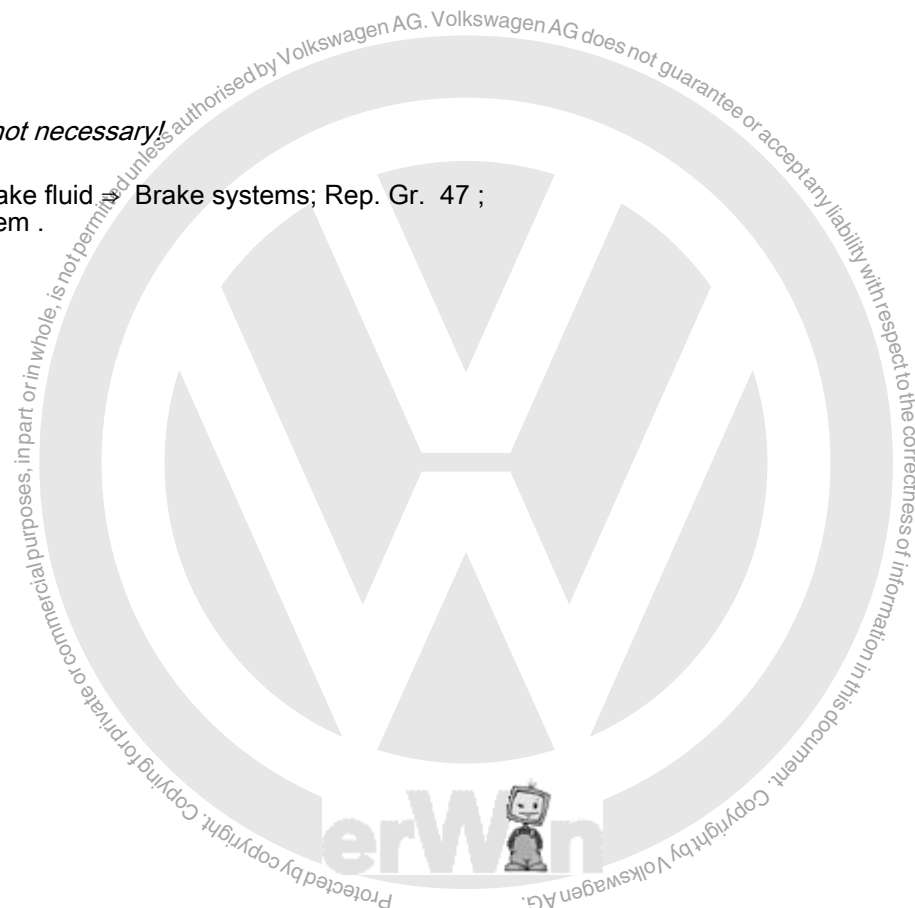
- ◆ Brake filling and bleeding equipment -V.A.G 1869-



Note

Prefilling system is not necessary!

Specifications for brake fluid ➤ Brake systems; Rep. Gr. 47 ;
Bleeding brake system .



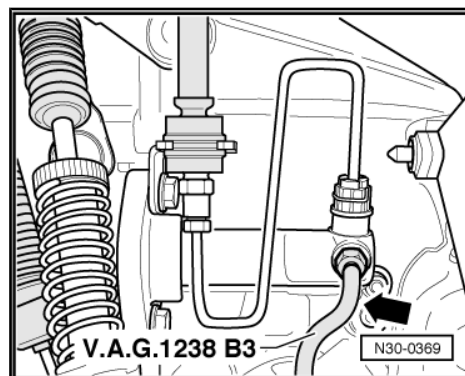


Perform the following steps:

- Remove complete air filter housing if it prevents access to bleeder valve -arrow- ➔ Rep. Gr. 24 ; Repairing injection system .
- Connect brake filling and bleeding equipment -VAS 5234- or -V.A.G 1869- .

To bleed system, use 670 mm bleeder hose -V.A.G 1238/B3- if necessary.

- Connect bleeder hose to collector bottle of brake bleeding equipment.
- Connect bleeder hose to bleeder valve -arrow-.
- Pressurise system to 2 bar.
- Open bleeder valve.
- Allow about 100 cm³ of brake fluid to flow out.
- Close bleeder valve.
- Rapidly operate pedal from stop to stop 10 to 15 times.
- Open bleeder valve again.
- Allow another 50 cm³ of brake fluid to flow out.
- Close bleeder valve.
- Depress clutch pedal several times after completion of bleeding process.
- If complete air filter housing was removed, install it ➔ Rep. Gr. 24 ; Repairing injection system .





4 Repairing clutch release mechanism

4.1 Assembly overview - clutch release mechanism

1 - Release bearing

- ☐ Remove and install together with clutch release lever
⇒ [Item 3 \(page 43\)](#)
and guide sleeve
⇒ [Item 5 \(page 43\)](#)
- ☐ Removing and installing
⇒ [page 44](#)
- ☐ Do not wash out bearing; wipe only
- ☐ Renew noisy bearings

2 - Bolt, 5 Nm + turn 90° further

- ☐ Always renew

3 - Clutch release lever

- ☐ Remove and install together with release bearing
⇒ [Item 1 \(page 43\)](#) and
guide sleeve
⇒ [Item 5 \(page 43\)](#)
- ☐ Removing and installing
⇒ [page 44](#)
- ☐ Remove old grease

4 - Retaining spring

- ☐ Secure to clutch release lever

5 - Guide sleeve

- ☐ Remove and install together with release bearing
⇒ [Item 1 \(page 43\)](#) and
clutch release lever
⇒ [Item 3 \(page 43\)](#)
- ☐ Removing and installing ⇒ [page 44](#)

6 - Input shaft seal

- ☐ Lever out with a screwdriver
- ☐ Driving in ⇒ [page 120](#)

7 - Ball stud, 20 Nm

- ☐ Remove old grease
- ☐ Lubricate with clutch plate spline grease -G 000 100-

8 - Gearbox

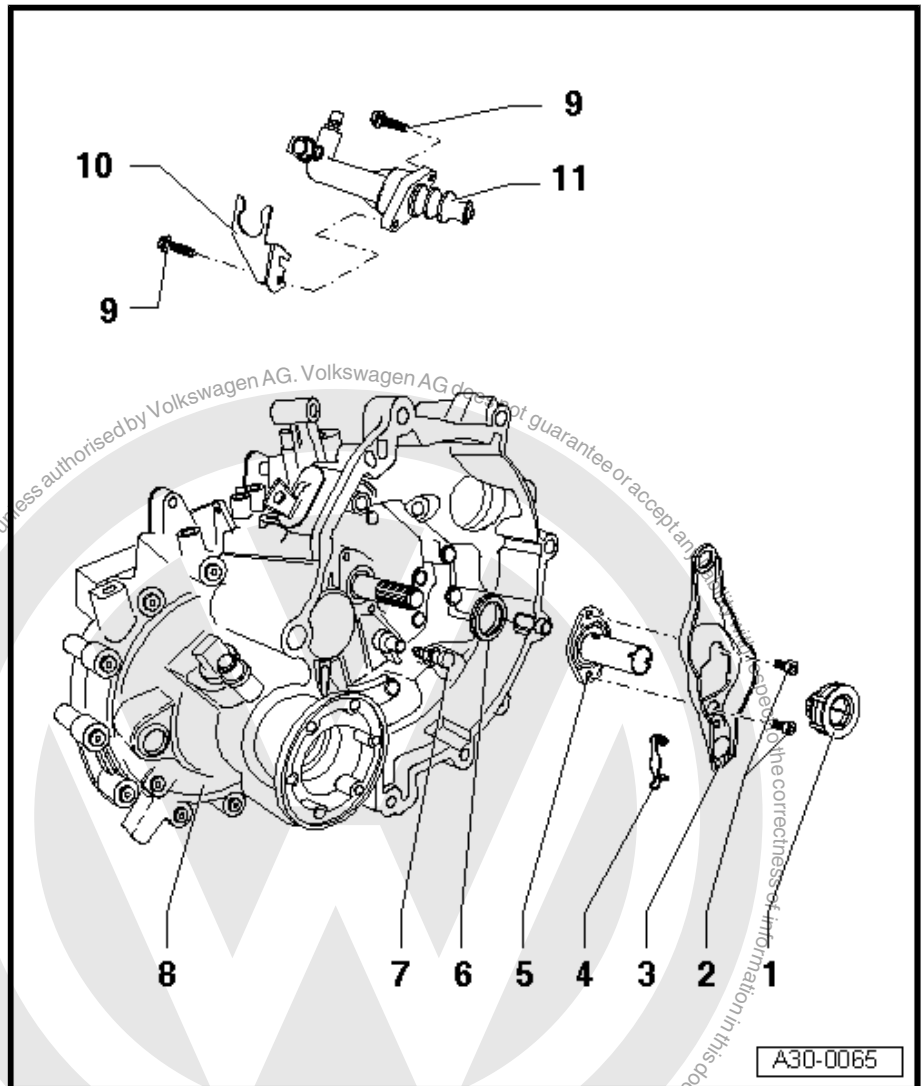
9 - Hexagon bolt, 20 Nm

10 - Retainer

- ☐ For pipe/hose line

11 - Slave cylinder

- ☐ Removing and installing ⇒ [page 38](#)

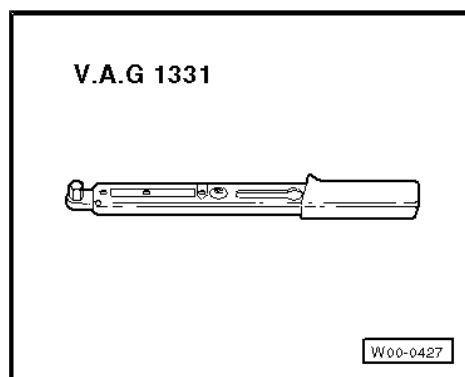




4.2 Removing and installing clutch release lever, release bearing and guide sleeve

Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-



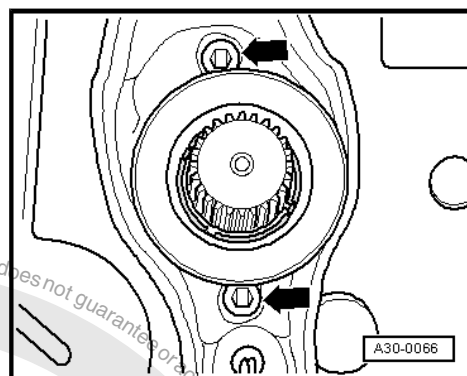
Removing and installing clutch release lever with release bearing and guide sleeve.

- Remove bolts -arrows-.
- Pull clutch release lever with release bearing and guide sleeve off input shaft and ball stud.

Install in reverse order of removal.

- Retaining spring ⇒ [Item 4 \(page 43\)](#) must be hooked into clutch release lever.

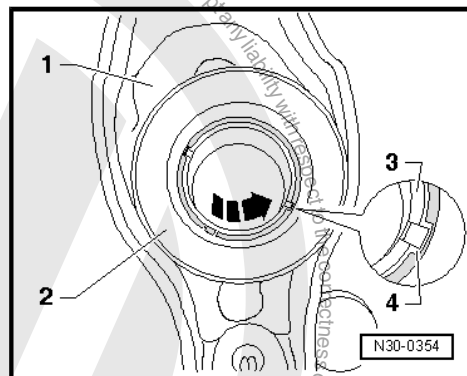
- ◆ Note and torque setting: ⇒ [Item 2 \(page 43\)](#) .



Remove and install guide sleeve.

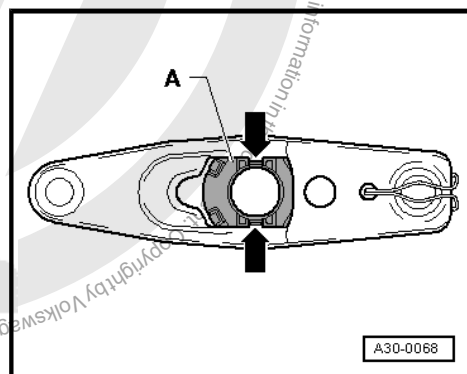
- Clutch release lever removed.
- Push guide sleeve -3- upwards out of release bearing -2-.
- Turn guide sleeve -3- about 90° in -direction of arrow- relative to release bearing -2- until locking lugs of guide sleeve align with grooves -4- of release bearing.
- Pull guide sleeve out of release bearing in this position.

Install in reverse order of removal.



Remove and install release bearing.

- Clutch release lever removed.
- Press together locking lugs -arrows- on back of clutch release lever and remove release bearing -A- from clutch release lever.
- To install, press release bearing -A- into clutch release lever until locking lugs -arrows- engage.

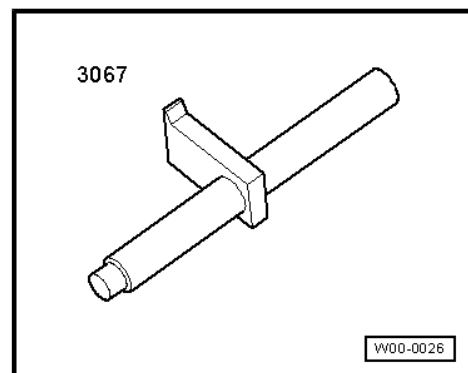




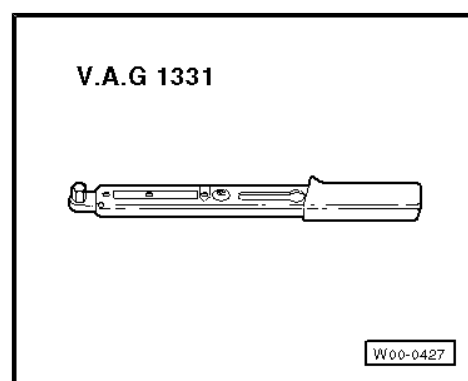
5 Repairing clutch

Special tools and workshop equipment required

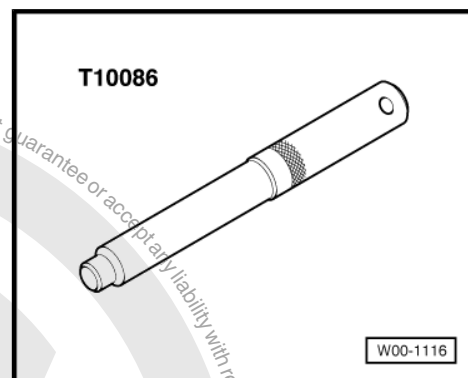
- ◆ Counterhold -3067-



- ◆ Torque wrench -V.A.G 1331-



- ◆ Centring mandrel -T10086-



- ◆ Grease for clutch plate splines -G 000 100-
(Gearbox removed)



Note

- ◆ Check whether dowel sleeves for aligning engine and gearbox are fitted in cylinder block and install if necessary.
- ◆ If dowel sleeves are not fitted, difficulties shifting gears, clutch problems and possible noises from the gearbox (rattling of gears which are not engaged) could occur.
- ◆ Renew clutch plates and pressure plates with damaged or loose rivets.
- ◆ Allocation ⇒ Electronic parts catalogue "ETKA".



1 - Flywheel

- ☐ Ensure that centring pins fit tightly
- ☐ Contact surface for clutch lining must be free of grooves, oil and grease
- ☐ Removing and installing
⇒ Rep. Gr. 13

2 - Clutch plate

Allocation ⇒ Electronic parts catalogue "ETKA"

- ☐ Installation position:
spring cage faces pressure plate.
- ☐ Centring ⇒ [page 46](#)
- ☐ Lightly grease splines



Note

3 - Thrust plate

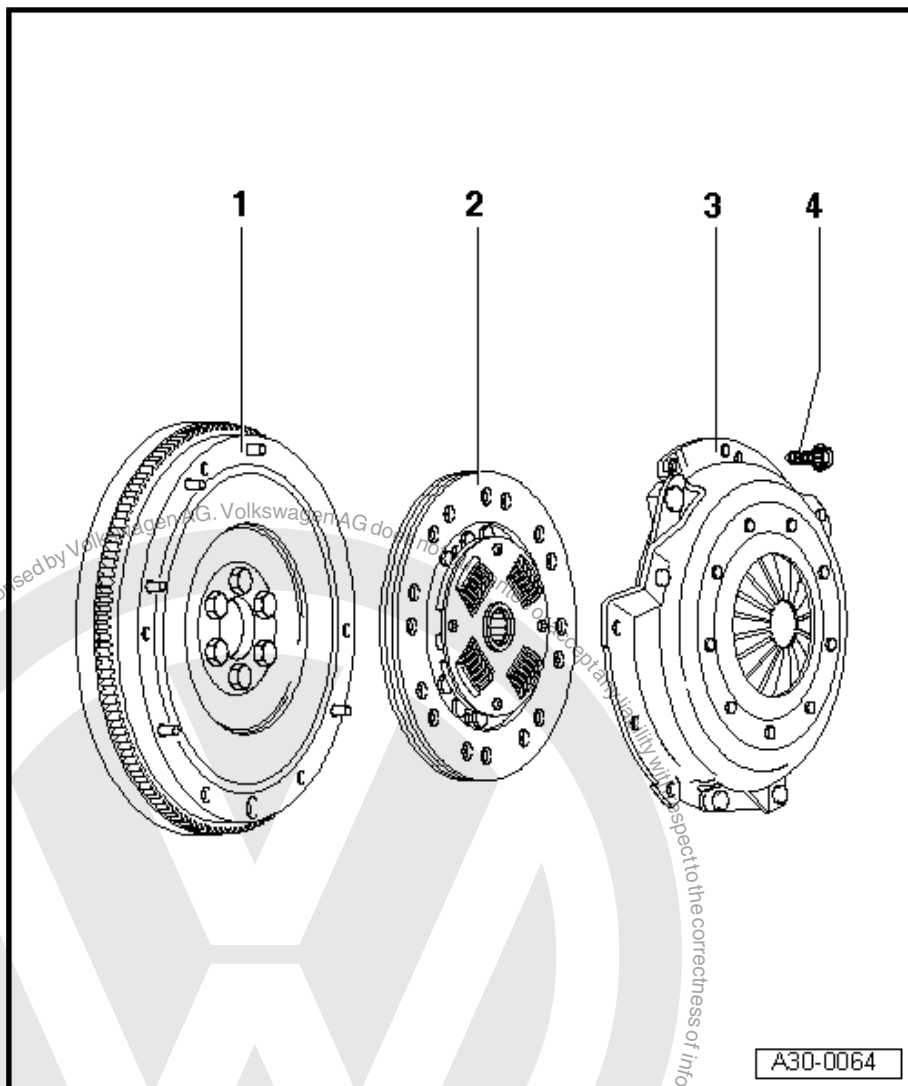
- ☐ Removing and installing
⇒ [page 46](#)
- ☐ Check ends of diaphragm spring
⇒ [page 47](#)



Note

4 - Bolt

- ☐ M 6: 13 Nm
- ☐ M 7: 20 Nm
- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"
- ☐ Loosen or tighten diagonally in small steps



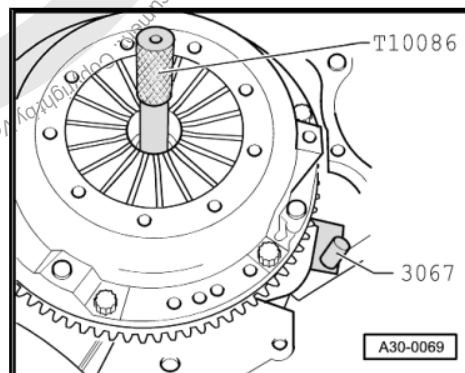
Centring clutch plate and removing and installing pressure plate

- Loosen and tighten bolts diagonally in small steps to prevent damage to thrust plate centring holes and flywheel centring pins.
- Reverse position of counterhold -3067- when removing.



Note

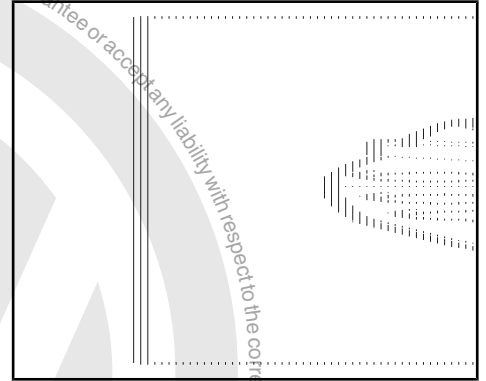
Pressure plate contact surface and clutch plate lining must make full contact with flywheel.





Checking ends of diaphragm spring -arrows-

- Wear up to half the thickness of the diaphragm spring is permitted.





34 – Controls, housing

1 Repairing selector mechanism

1.1 Repairing selector mechanism

-Arrow A- Gear selection movement

-Arrow B- Gate selection movement

A - Gear selector cable

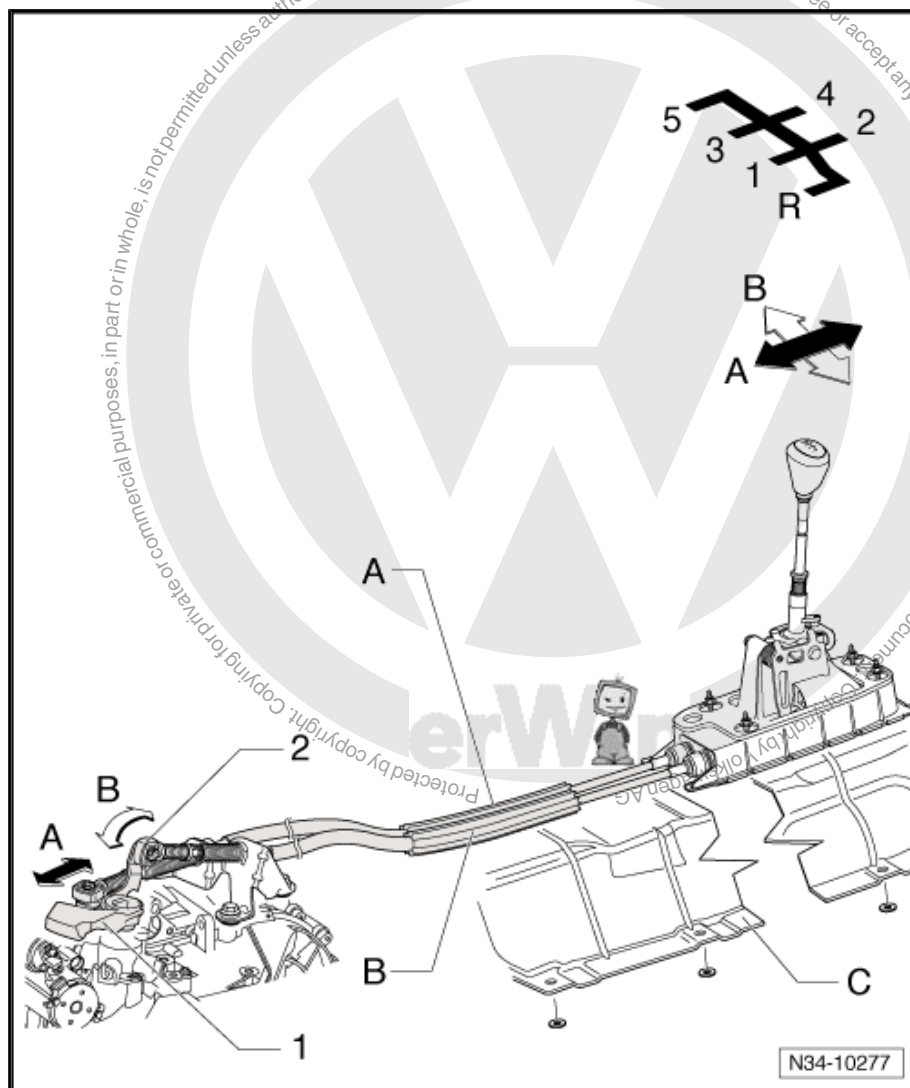
B - Gate selector cable

C - Heat shield

- ☐ Remove before removing selector mechanism.

1 - Gearbox selector lever

2 - Relay lever





Note

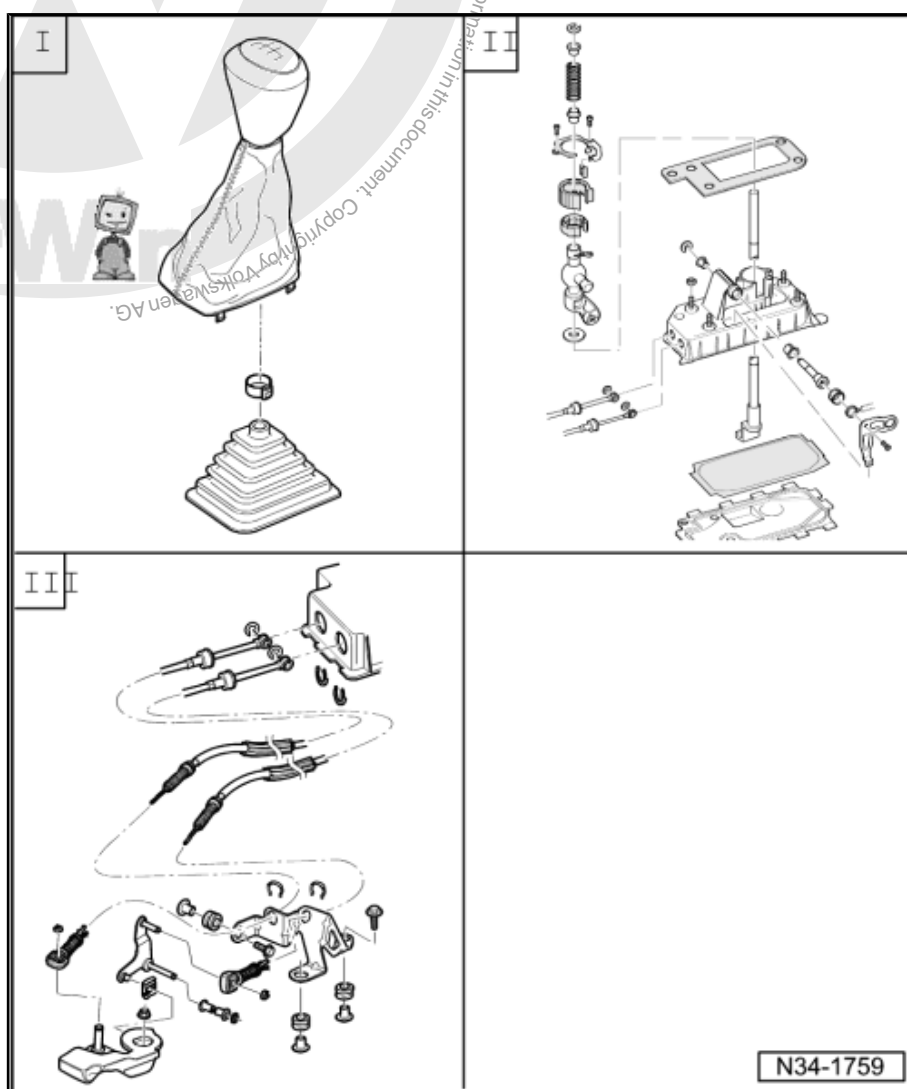
- ◆ Note radio code for vehicles with coded radio.
- ◆ Before working on selector mechanism in engine compartment, disconnect earth strap from battery ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery
- ◆ When reconnecting battery, perform work required after connecting battery ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .
- ◆ For work on selector mechanism in engine compartment, remove complete air filter housing if it is located over selector mechanism ⇒ Rep. Gr. 24 ; Repairing injection system
- ◆ Remove selector mechanism to renew selector cables ⇒ [page 64](#) .
- ◆ Do not kink selector cables.

I - Removing and installing gear knob and cover
⇒ [page 50](#)

II - Repairing gear lever and selector housing (through 10.06) ⇒ [page 52](#)

II - Repairing gear lever and selector housing (from 11.06)
⇒ [page 55](#)

III - Assembly overview - removing and installing selector cables
⇒ [page 61](#)



Removing and installing selector mechanism ⇒ [page 64](#)

Adjust selector mechanism ⇒ [page 67](#) .



1.2 Removing and installing gear knob and cover

1 - Emblem

- ❑ Can be carefully levered off gear knob of plastic or leather

2 - Gear knob

- ❑ With gaiter
- ❑ Selector lever knob and gaiter cannot be separated from one another
- ❑ Always renew together
- ❑ Removing and installing
⇒ [page 50](#)

3 - Clamp

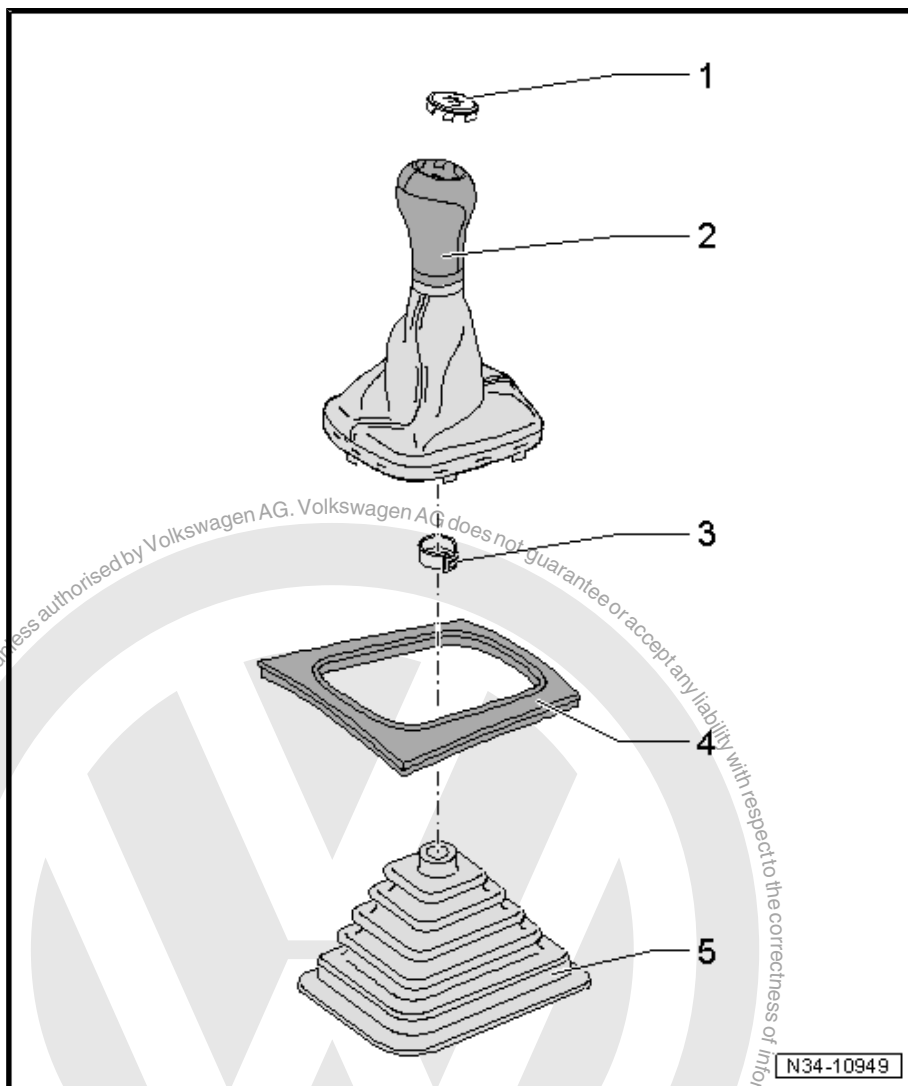
- ❑ For securing gear knob to gear lever
- ❑ Always renew
- ❑ Secure to gear knob using hose clip pliers - V.A.G 1275-

4 - Centre console cover

- ❑ In some equipment versions, forms one part together with centre console

5 - Noise insulation

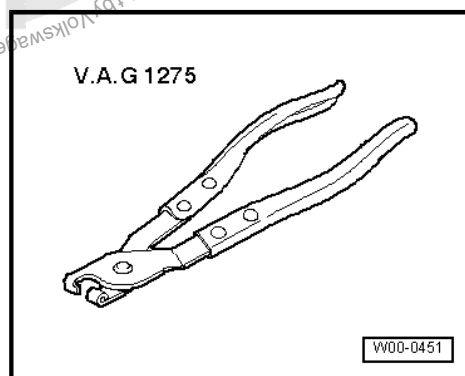
- ❑ Not fitted in all vehicles
- ❑ Arrow on noise insulation points in direction of travel
- ❑ Locking lugs are arranged at varying intervals
- ❑ Therefore it can be installed in only one position



1.3 Removing and installing gaiter with selector lever knob and noise insulation

Special tools and workshop equipment required

- ◆ Hose clip pliers -V.A.G 1275-





Perform the following steps:

- Pull or carefully prise gaiter with centre console cover upwards out of centre console -arrows-.



Note

With some equipment variations, the gaiter must be levered off along the front section.

- Pull gaiter with centre console cover upwards, inside out over gear knob.

- Open clamp -arrow- and pull off gear knob together with gaiter.

In some versions, centre console cover remains in the centre console.

- If necessary, pull or carefully prise off centre console cover.

- Pull off noise insulation -1-.

Installing

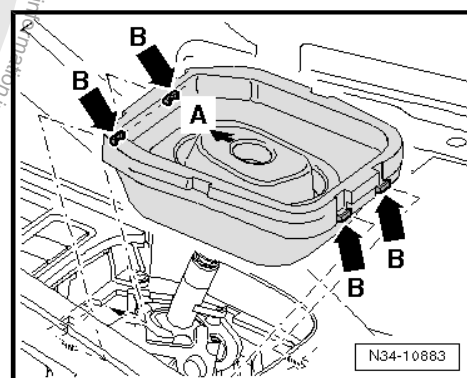
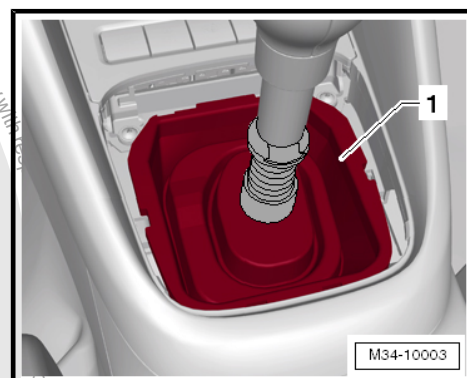
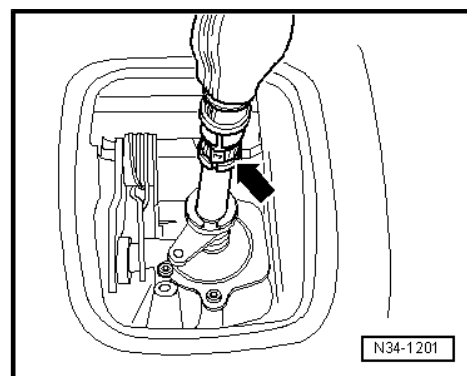
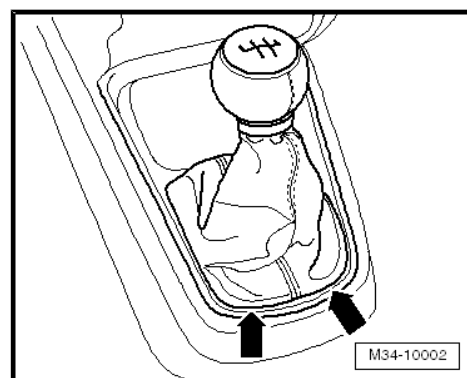
First insert noise insulation.

Installation position of noise insulation:

-Arrow A- points in direction of travel.

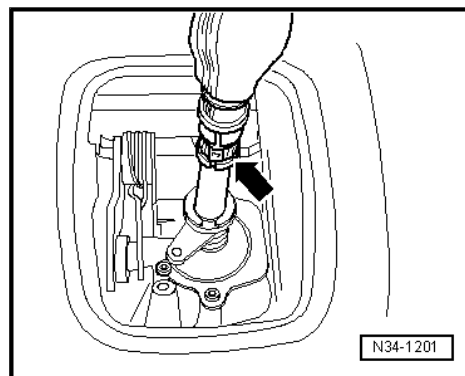
- Catches -arrows B- must engage in centre console.
- If necessary, press centre console cover into centre console.
- Then turn gaiter inside out.

The gear knob must be pressed to stop.





- Install selector lever knob with cover and gaiter and squeeze new clamp -arrow- together.
- Then press gaiter with cover into centre console or press gaiter into cover.



1.4 Repairing gear lever and selector housing (through 10.06)



Note

Lubricate bearing positions and sliding surfaces. Allocate grease according to ⇒ Electronic parts catalogue "ETKA".

- 1 - Securing clip
☐ Removing and installing
⇒ [page 54](#)

2 - Bush

3 - Compression spring

4 - Bush

5 - Torx bolt, 5 Nm

6 - Cover

7 - Damping

8 - Damping

9 - Ball socket

10 - Gear lever guide

11 - Damping washer

12 - Seal

- ☐ Between selector housing and underbody
- ☐ Self-adhesive
- ☐ Bond to selector housing

13 - Selector lever

14 - Selector housing

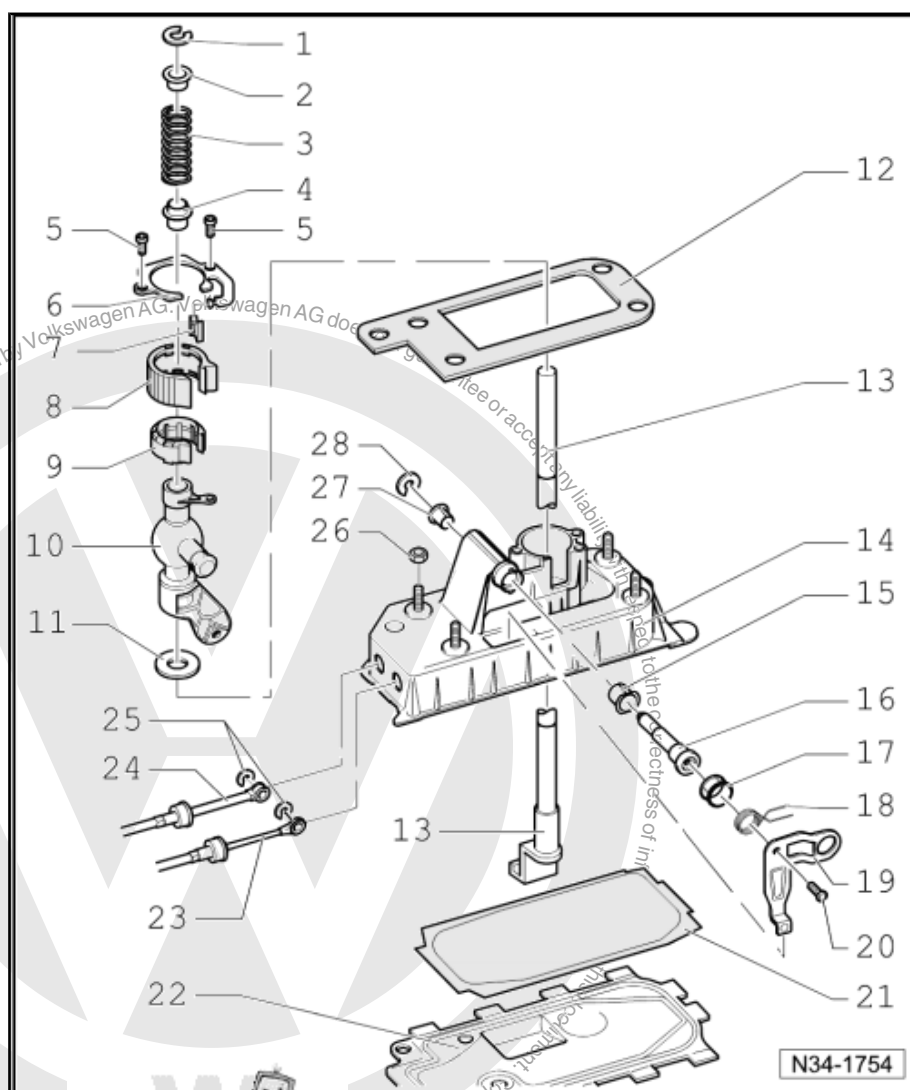
15 - Bearing bush

16 - Pivot pin

17 - Guide bush

18 - Compression spring

- ☐ Installing ⇒ [page 54](#)





19 - Gate selector lever

20 - Torx bolt, 5 Nm

21 - Seal

- ☐ Always renew

22 - Base plate

- ☐ Bend open tabs to remove
- ☐ Always renew

23 - Gate selector cable

- ☐ On gate selector lever
- ☐ Removing and installing ⇒ [page 53](#)

24 - Gear selector cable

- ☐ Removing from and attaching to gear lever guide ⇒ [page 53](#)

25 - Securing clip

- ☐ Always renew

26 - Hexagon nut

- ☐ M 8: 25 Nm
- ☐ M 6: 8 Nm
- ☐ Qty. 4

27 - Bearing bush

- ☐ Fits in one position only

28 - Securing clip

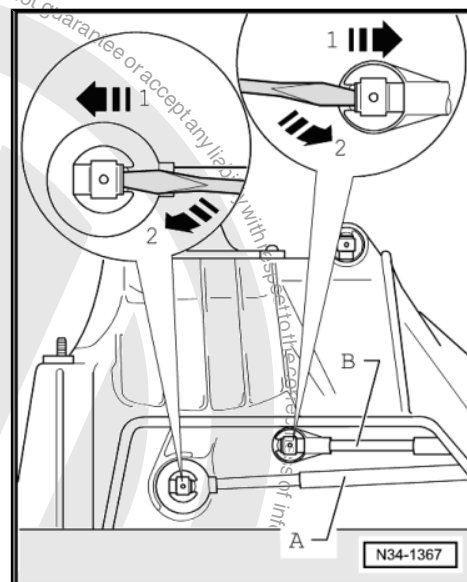
- ☐ Always renew

Removing and installing gate and gear selector cables

- Remove securing clip from gear selector cable -A- and gate selector cable -B-.

To do this, raise tab using screwdriver -arrow 1- and press off securing clip -arrow 2-.

- Remove gear selector cable -A- from gear lever retainer.
- Remove gate selector cable -B- from retainer of gate selector lever.





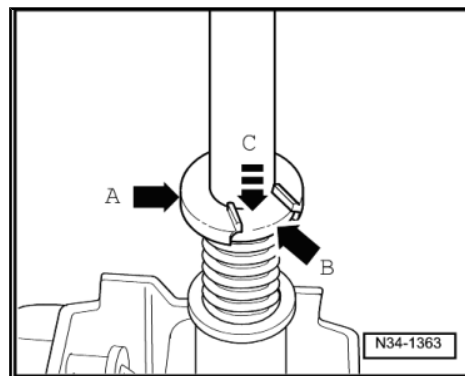
Removing and installing securing clip

- To remove or install securing clip -arrow A-, press spacer bush -arrow B- to stop -in direction of arrow C- using screwdriver and pull off securing clip.



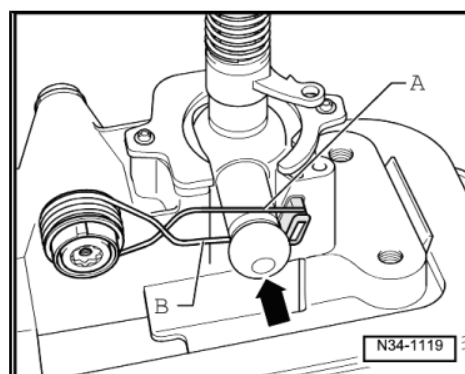
Note

- ◆ Do not cant spacer bush when pushing down.
- ◆ Slot in gear lever for securing clip must be visible.
- ◆ Carefully release tension from spring.



Installing compression spring

- Insert compression spring so that extension -A- lies on top of pin -arrow-.
- Then pull extension -B- down so that it sits below pin -arrow-.





1.5 Repairing gear lever and selector housing (from 11.06)



Note

- ◆ Lubricate bearing positions and sliding surfaces. Allocate grease according to ➔ Electronic parts catalogue "ETKA".
- ◆ Dismantling and assembling selector mechanism ➔ [page 56](#).

1 - Base plate

- ☐ Bend open tabs to remove
- ☐ Always renew

2 - Seal

- ☐ Always renew

3 - Selector lever

- ☐ Can be removed and installed with gear lever guide
➔ [Item 15 \(page 56\)](#) installed

4 - Damping washer

- ☐ Push onto gear lever up to stop -arrow-

5 - Securing clip

- ☐ Do not damage cables when removing
- ☐ Always renew

6 - Gate selector cable

- ☐ Lever off gate selector lever
- ☐ Press onto gate selector lever inside selector mechanism
- ☐ Installation position ➔ [page 48](#)

7 - Bush

8 - Gear selector cable

- ☐ Lever off gear lever guide
- ☐ Press onto gear lever guide inside selector mechanism
- ☐ Installation position ➔ [page 48](#)

9 - Damping

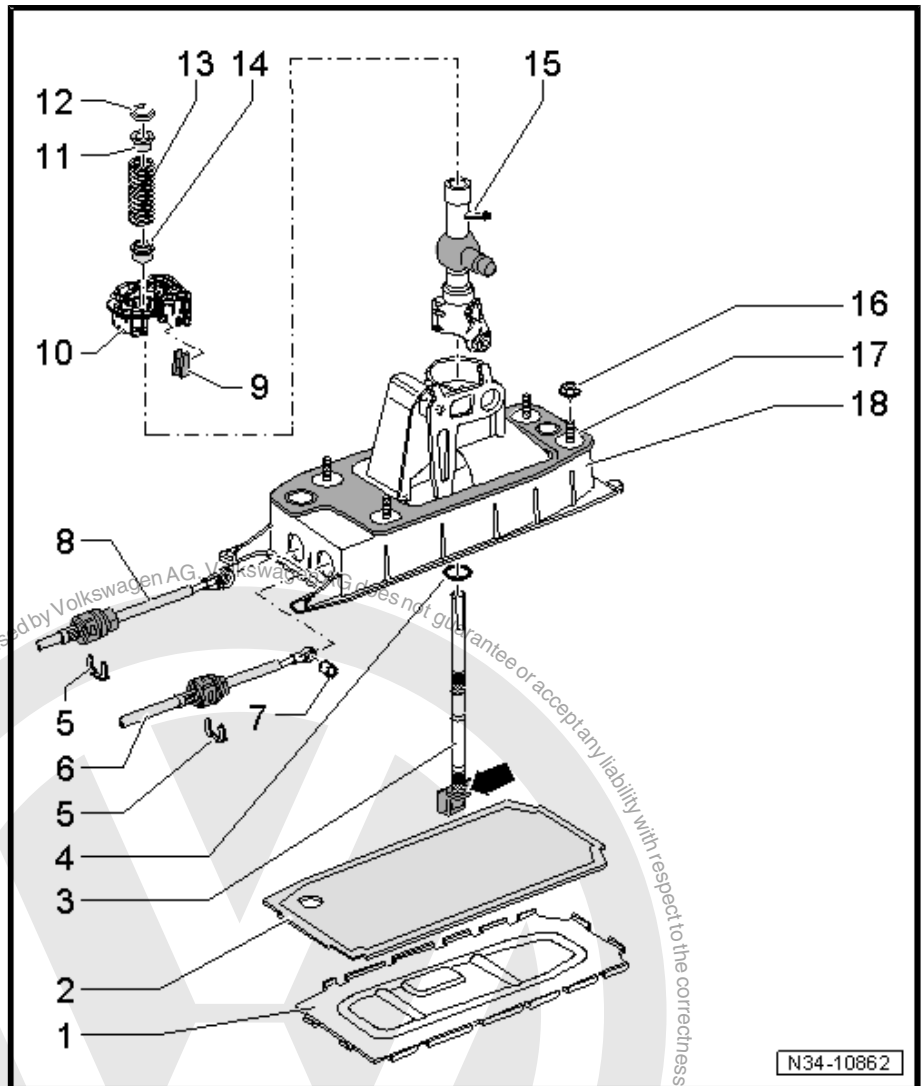
10 - Ball socket

- ☐ Will be damaged when removed.
- ☐ Always renew

11 - Bush

12 - Securing clip

- ☐ Removing and installing ➔ [page 56](#)



N34-10862



13 - Compression spring

14 - Bush

15 - Gear lever guide

16 - Hexagon nut

- ☐ M 8: 25 Nm
- ☐ M 6: 8 Nm
- ☐ Qty. 4

17 - Seal

- ☐ Between selector housing and underbody
- ☐ Self-adhesive
- ☐ Bond to selector housing

18 - Selector housing

- ☐ With compression spring and gate selector lever
- ☐ Compression spring and gate selector lever cannot be removed

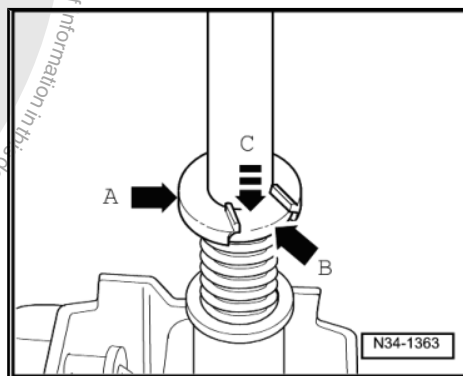
Removing and installing securing clip

- To remove or install securing clip -arrow A-, press spacer bush -arrow B- to stop -in direction of arrow C- using screwdriver and pull off securing clip.



Note

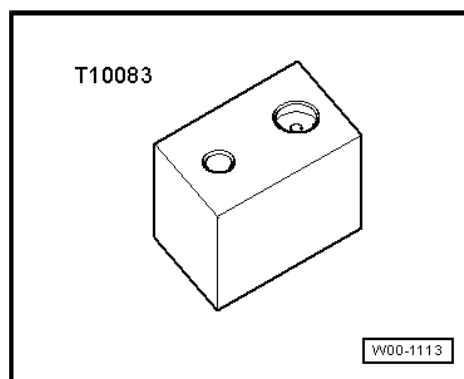
- ◆ Do not cant spacer bush when pushing down.
- ◆ Slot in gear lever for securing clip must be visible.
- ◆ Carefully release tension from spring.



1.5.1 Dismantling and assembling selector mechanism

Special tools and workshop equipment required

- ◆ Thrust piece -T10083-

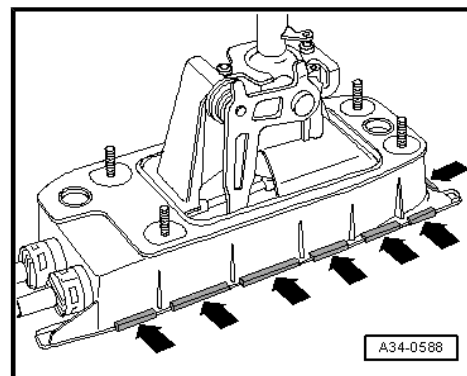


Perform the following steps:

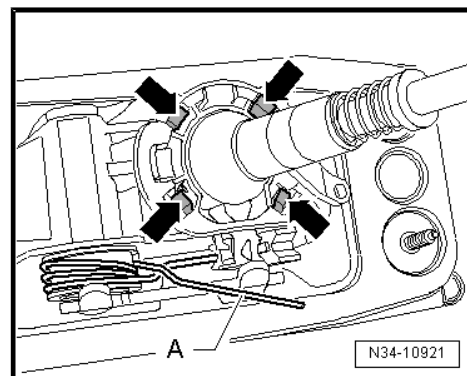
- Remove selector mechanism ➔ [page 64](#) .



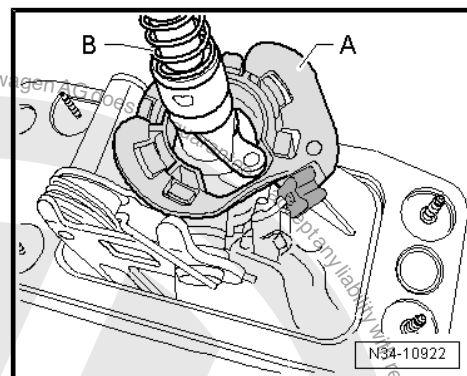
- Bend open tabs -arrows- of selector mechanism base plate using a screwdriver and remove base plate. Tabs in front area of base plate are not illustrated.
- Remove seal from selector housing.
- Remove gear selector cable and gate selector cable from selector housing ➤ [page 55](#) .



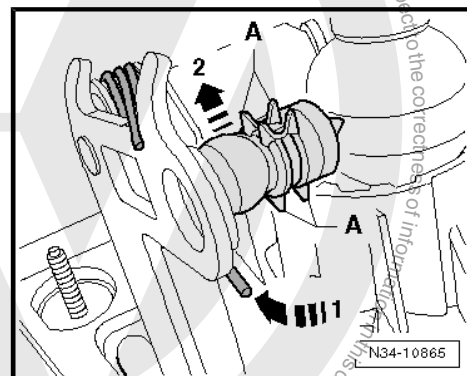
- Lift upper end -A- of compression spring over tab of gate selector lever.
- Use screwdriver to press catches -arrows- of ball socket towards bearing ball of gear lever guide; break off catches if necessary.



- Lever ball socket -A- with gear lever guide -B- out of selector housing.
- Then press ball socket off bearing ball of gear lever guide and remove it.

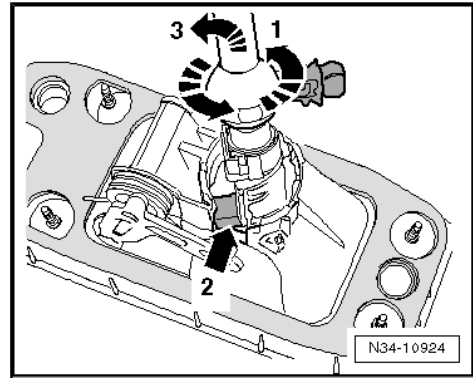


- Please pay attention to guides -A- during the further procedure.
- They must not be broken off.
- Lever lower end -arrow 1- of compression spring onto shoulder on gate selector lever as far as stop.
- Now pull gear lever guide up to stop and pull ball stud out of gate selector lever -arrow 2-.





- Then turn selector lever in -direction of arrow 1-.
- Pin -arrow 2- must be in notch in selector housing.
- Then swing out gear lever guide with gear lever in -direction of arrow 3-.



Assembling selector mechanism



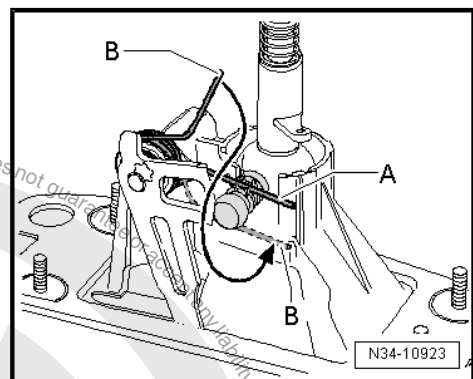
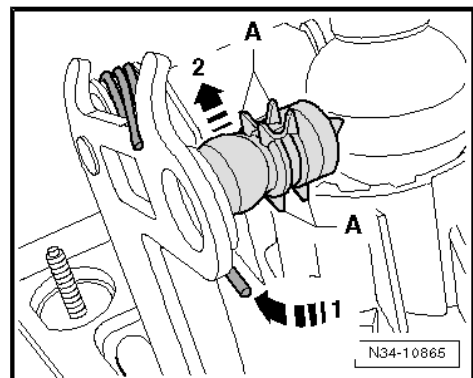
Caution

The lower end of the compression spring -arrow 1- can snap off the shoulder of the gate selector lever out of control during the further procedure.

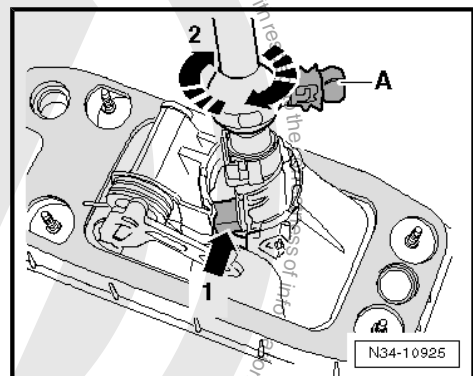
- Therefore, carefully press lower end off shoulder of gate selector lever.

The ends of the compression spring then become tensioned “diagonally” with a loud noise.

- Slacken ends -A- and -B- by turning both round to right.
- Ends -A- and -B- must point in opposite directions.



- Insert selector lever into selector housing.
- Pin -arrow 1- is still located in notch in selector housing.
- Turn gear lever guide in -direction of arrow 2- until ball stud -A- is located in notch in selector housing.





- Place selector housing with gear lever guide into larger recess -arrow- in thrust piece -T10083- .

i Note

To ensure that the selector housing with gear lever guide can be inserted in the thrust piece , first remove gear lever, if necessary.

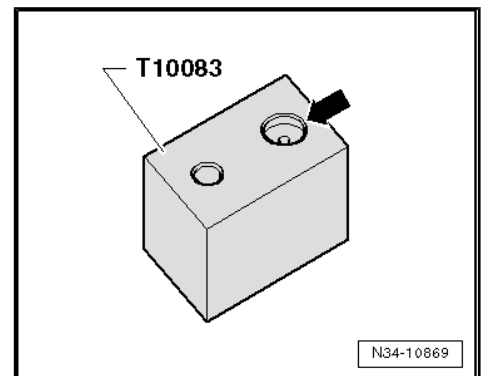
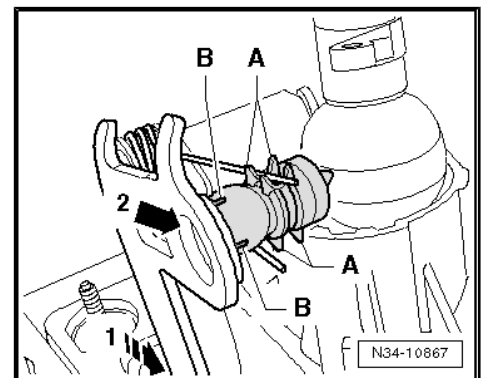
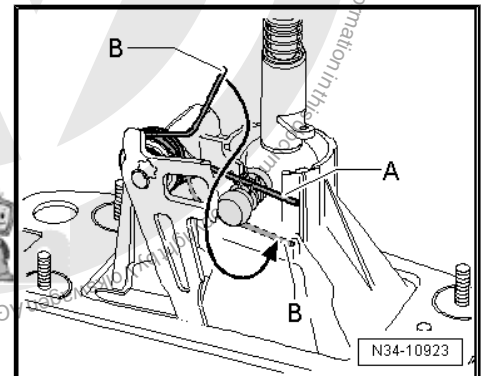
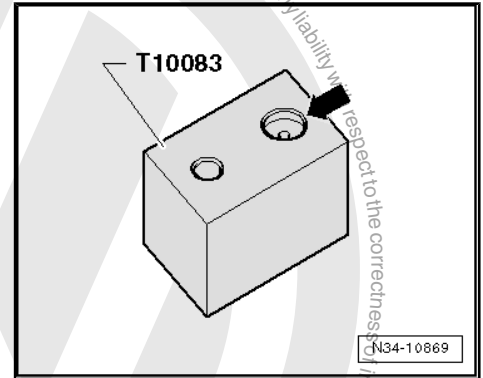
- The gear lever guide must project from the selector housing up to the stop.

i Note

For clarity of illustration, only part of the gate selector lever is shown.

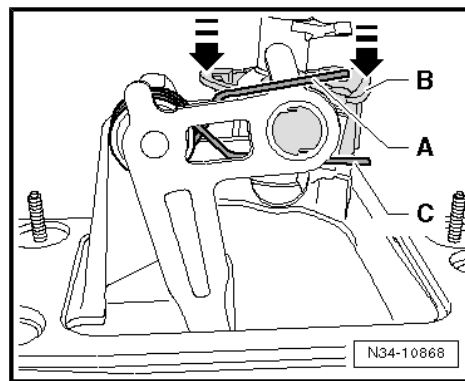
- Insert end -A- of compression spring into guide from top.
- Pull end -B- of compression spring down and insert it next to guide (towards ball head).
- Please pay attention to guides (⇒ figure above) during the further procedure.
- They must not be broken off.
- Carefully remove selector housing with gear lever guide from thrust piece -T10083- .
- Move gate selector lever back to stop, opposite from mounting holes for gear and gate selector cable, -arrow 1-.
- Grease ball-head pin.
- Press ball-head pin into gate selector lever -arrow 2-.
- Guides -A- and tabs -B- are not allowed to be damaged.

- Place selector housing with gear lever guide into larger recess -arrow- in thrust piece -T10083- .





- The gear lever guide must project from the selector housing up to the stop.
- Lever upper end -A- of compression spring over pin of gate selector lever.
- Use a new ball socket -B-.
- Grease ball socket and bearing ball of selector lever guide.
- Push ball socket onto bearing ball of selector lever guide to stop.
- Remove selector housing from thrust block -T10083- .
- Insert lower end -C- of compression spring into guide.
- Lever upper end -A- of compression spring over pin of gate selector lever into guide.
- Push ball socket into selector housing -arrows-.
- All locking lugs must clip in.
- Mount selector lever, gear selector cable, gate selector cable and base plate ⇒ [page 55](#) .
- Install selector mechanism ⇒ [page 64](#) .





1.6 Assembly overview - removing and installing selector cables



Note

Lubricate bearing positions and sliding surfaces. Allocate grease according to ➤ *Electronic parts catalogue "ETKA"*.

1 - Gear selector cable

- ☐ Connect to cable end-piece
➤ [Item 11 \(page 62\)](#)
- ☐ Installation position
➤ [page 48](#)
- ☐ From 11.06, modified attachment to gear lever inside selector mechanism
➤ [Item 8 \(page 55\)](#)

2 - Gate selector cable

- ☐ Connect to cable end-piece
➤ [Item 10 \(page 61\)](#)
- ☐ Installation position
➤ [page 48](#)
- ☐ From 11.06, modified attachment to gate selector lever inside selector mechanism
➤ [Item 6 \(page 55\)](#)

3 - Securing clip

- ☐ Always renew

4 - Selector housing

5 - Securing clip

- ☐ Always renew
- ☐ Do not damage cables when removing

6 - Hexagon bolt, 20 Nm

- ☐ Qty. 3
- ☐ For cable support bracket

7 - Cable support bracket

- ☐ May be made from plastic or metal

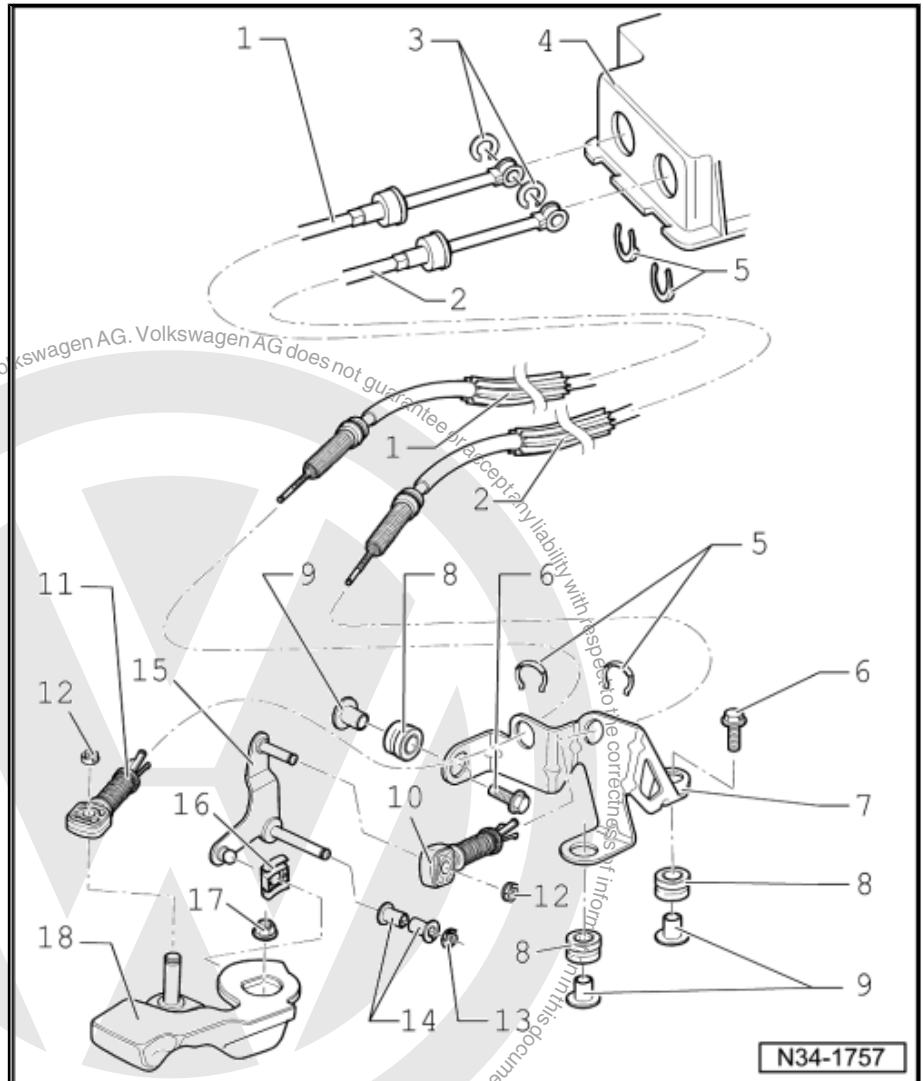
8 - Grommet

- ☐ Cable support bracket mounting on gearbox

9 - Spacer

10 - Cable end-piece

- ☐ After installing, adjust selector mechanism ➤ [page 67](#)
- ☐ For gate selector cable to relay lever
- ☐ Do not interchange; cable end-pieces for gate selector cable to relay lever and gear selector cable to gearbox selector lever are different
- ☐ For metal relay lever, secured with securing clip ➤ [Item 12 \(page 62\)](#)
- ☐ From 05.07, fitted in conjunction with plastic relay lever ➤ [page 70](#)





- ☐ Removing from plastic relay lever ➔ [page 70](#)
- ☐ Pressing onto plastic relay lever ➔ [page 70](#)
- ☐ Allocation ➔ [page 63](#)

11 - Cable end-piece

- ☐ After installing, adjust selector mechanism ➔ [page 67](#)
- ☐ For gear selector cable to gearbox selector lever
- ☐ Do not interchange; cable end-pieces for gate selector cable to relay lever and gear selector cable to gearbox selector lever are different
- ☐ Allocation ➔ [page 63](#)

12 - Securing clip

- ☐ Always renew
- ☐ Not required for plastic relay lever

13 - Securing clip

- ☐ Always renew
- ☐ Not required for plastic relay lever

14 - Bearing bush

- ☐ Not required for plastic relay lever

15 - Relay lever

- ☐ Installation position ➔ [page 64](#)
- ☐ After installing, adjust selector mechanism ➔ [page 67](#)
- ☐ May be made from plastic or metal
- ☐ Metal relay lever is mounted in bearing bush ➔ [Item 14 \(page 62\)](#) and secured with securing clip ➔ [Item 13 \(page 62\)](#)
- ☐ From 05.07, plastic relay lever
- ☐ Remove and install ➔ [page 70](#) relay lever together with cable end-piece
- ☐ Bearing bushes and securing clip not required for plastic relay lever

16 - Shoe

17 - Hexagon nut, 23 Nm

- ☐ Self-locking
- ☐ Always renew

18 - Gearbox selector lever

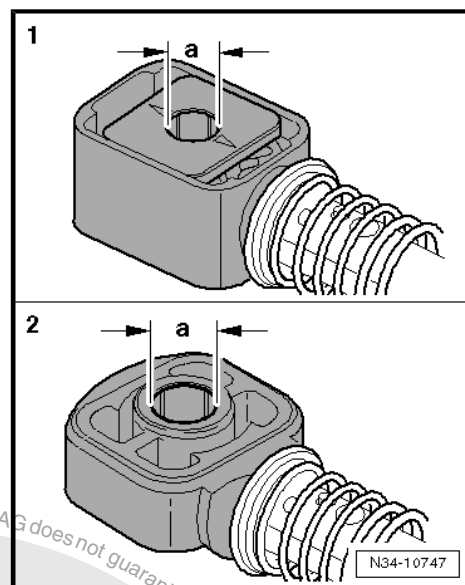
- ☐ With damper weight
- ☐ Installing ➔ [page 63](#)
- ☐ Installation position ➔ [page 64](#)
- ☐ After installing, adjust selector mechanism ➔ [page 67](#)
- ☐ From 06.06, smaller diameter of support pin for cable end-piece ➔ [page 63](#)



Allocation of cable end-pieces

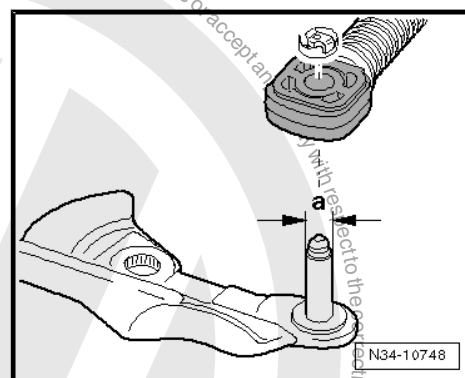
The holes in the cable end-pieces have different diameters.

Cable end-piece for	Dimension "a"
1 - Gear selector cable to gearbox selector lever from 06.06	8.5 mm
2 - Gear selector cable to gearbox selector lever through 05.06	10 mm
2. - Gate selector cable to metal relay lever	8 mm
2. - Gate selector cable to plastic relay lever ⇒ page 70	10 mm



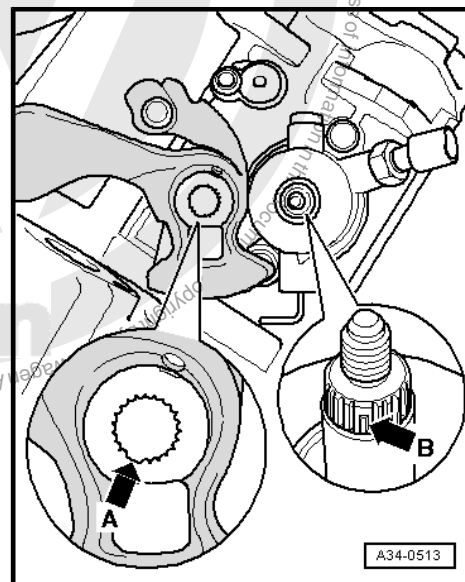
From 06.06, smaller diameter of support pin for gear selector cable end-piece

Support pin for gear selector cable end-piece	Dimension "a"
Through 05.06	10 mm
From 06.06	8.5 mm



Installing gearbox selector lever

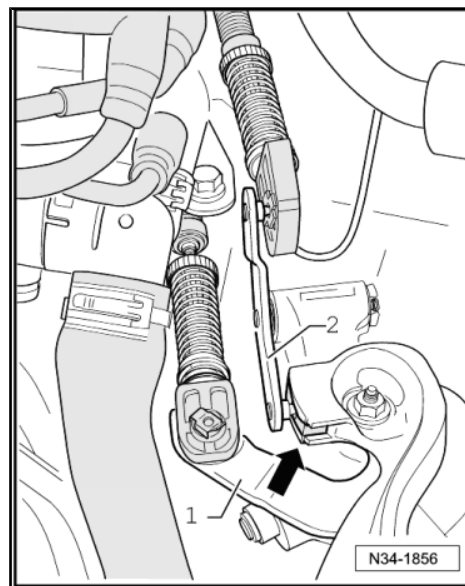
- When fitting the gearbox selector lever, ensure that the gap -arrow A- is aligned with the master spline -arrow B-.
- Tighten hexagon nut to specified torque
⇒ [Item 17 \(page 62\)](#) .





Installation position of gearbox selector lever and relay lever

- 1 - Gearbox selector lever with damper weight
- 2 - Relay lever engages in guide rail of gearbox selector lever via shoe -arrow-.

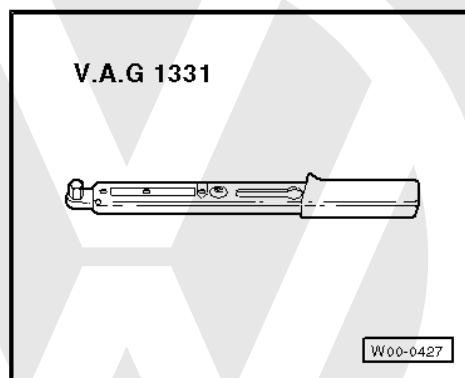


1.7 Removing and installing selector mechanism

1.7.1 Removing

Special tools and workshop equipment required

- ♦ Torque wrench -V.A.G 1331-

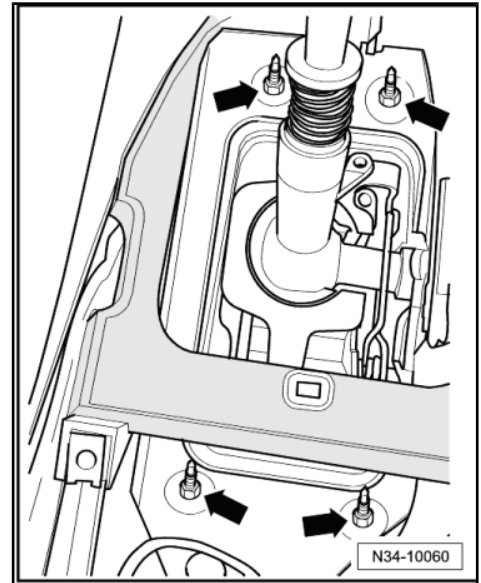


Perform the following steps:

- First check whether a coded radio is fitted. If so, obtain anti-theft code.
- With ignition switched off, disconnect battery earth strap ⇒ Electrical system; Rep. Gr. 27 ; Removing and installing battery .
- Remove gaiter with selector knob and noise insulation ⇒ [page 50](#) .
- Remove centre console and securing bracket for centre console ⇒ General body repairs, interior; Rep. Gr. 68 ; Compartments, covers and trims .



- Remove selector housing nuts -arrows-.
- Remove complete air filter housing if it is located above selector mechanism ➔ Rep. Gr. 24 ; Repairing injection system .

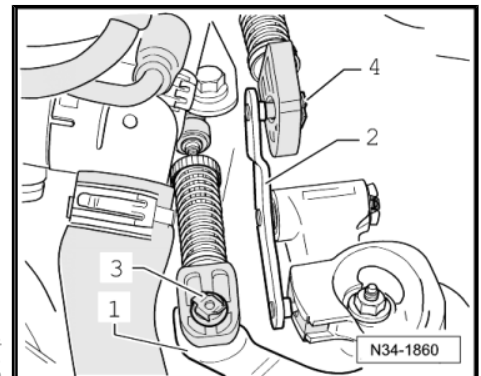


- Remove securing clip -3- for gear selector cable from gearbox selector lever -1-.
- Pull gear selector cable off pin.

Metal relay lever

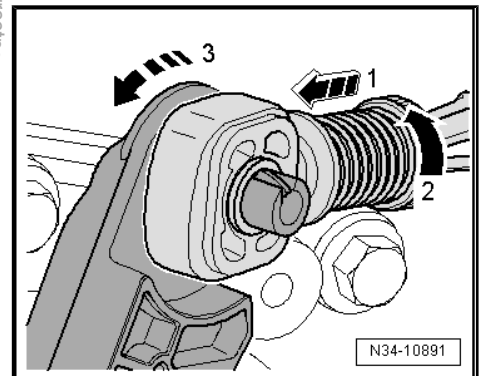
- Remove securing clip -4- for gate selector cable from relay lever -2-.
- Pull gate selector cable from pin.

Plastic relay lever



Releasing cable end-piece from gate selector cable

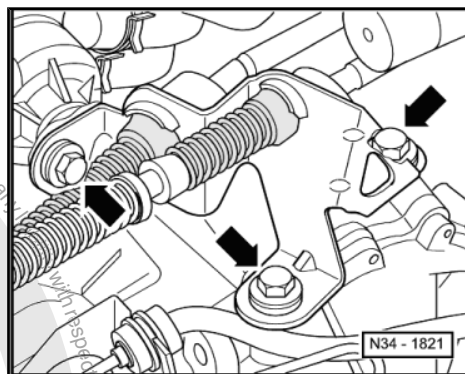
- Pull locking mechanism forward to stop in -direction of arrow 1- and then lock by turning to left in -direction of arrow 2-.
- Then push relay lever forwards (-direction of arrow 3-).
- Relay lever and cable end-piece must be removed jointly ➔ [page 70](#) .



Continued for all selector mechanisms



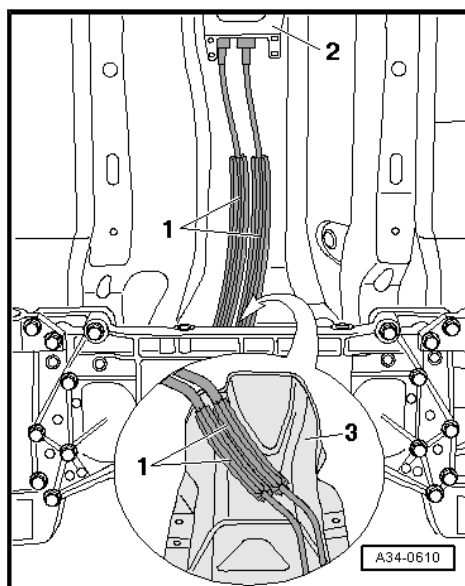
- Remove cable support bracket from gearbox -arrows-; if necessary unclip pipe/hose line first.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. Gr. 50; Noise insulation .
- Remove tunnel cross member ⇒ Rep. Gr. 26; Removing and installing parts of exhaust system .
- Separate front exhaust system at double clamp and detach from subframe ⇒ Rep. Gr. 26; Removing and installing parts of exhaust system .
- Unhook exhaust system ⇒ Rep. Gr. 26; Removing and installing parts of exhaust system .
- Remove underbody panels ⇒ General body repairs, exterior; Rep. Gr. 50 .
- Remove heat shield beneath selector mechanism.
- Swing selector housing down and remove with selector cables.



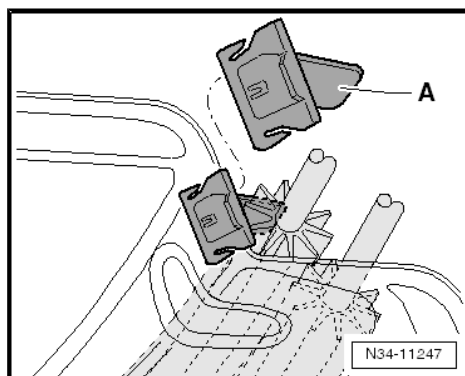
1.7.2 Installing

Install in the reverse order of removal, observing the following:

- Align selector housing parallel to body.
- Distance to body must be same on both sides.
- Secure selector housing ⇒ [Item 16 \(page 56\)](#) .
- Route cables -1- from selector mechanism -2- to gearbox as follows:
- Cables must lie parallel to each other and must not cross.
- Cables must be laid in the intended indentation in heat shield -3-.



Clip -A- holds cables and heat shield together in position.

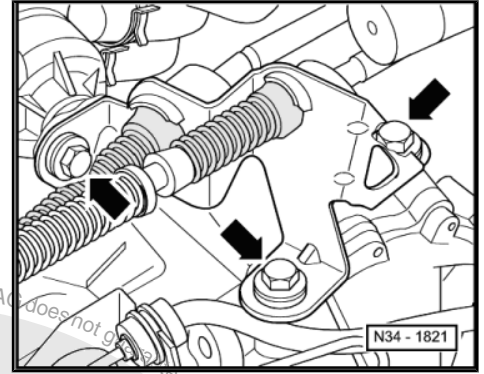




- Install cable support bracket on gearbox and tighten bolts -arrows- to specified torques ➔ [Item 6 \(page 61\)](#) .

The holes in the cable end-pieces have different diameters.

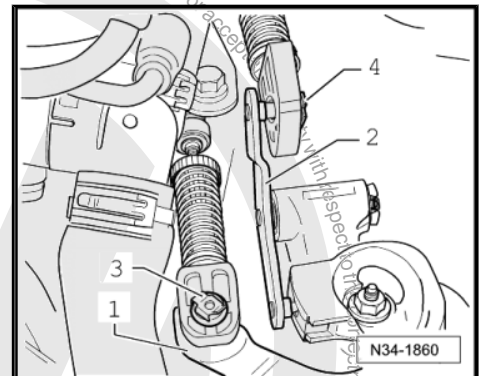
Allocation of cable end-pieces ➔ [page 63](#) .



- Spread a small quantity of grease on pins of gearbox selector lever -1- and relay lever -2-.
- Allocate grease using ➔ Electronic parts catalogue (ETKA) .
- Renew securing clips -3- and, for metal relay lever, securing clip -4- each time they are removed.
- Secure gear selector cable with securing clip -3- and gate selector cable, if necessary with securing clip -4-.

Cable end-piece to plastic relay lever

- Mounting relay lever together with cable end-piece ➔ [page 70](#) .
- Insert gate selector cable in cable end-piece.



Continued for all selector mechanisms

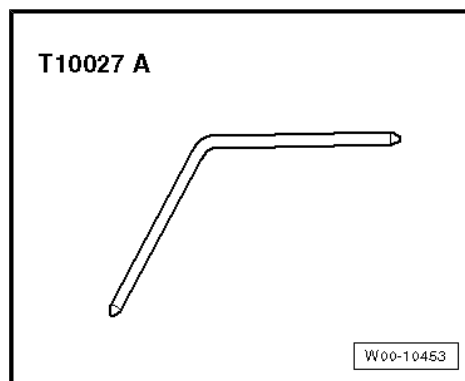
- Install centre console securing bracket and centre console ➔ General body repairs, interior; Rep. Gr. 68 ; Compartments, covers and trims .
- Install gaiter with selector knob and, if present, noise insulation ➔ [page 50](#) .
- Install heat shield beneath selector mechanism. If removed, reinstall underbody panels ➔ General body repairs, exterior; Rep. Gr. 50 .
- Assemble exhaust system free of tension and attach tunnel cross member ➔ Rep. Gr. 26 ; Removing and installing parts of exhaust system .
- Adjust selector mechanism ➔ [page 67](#) .
- If complete air filter housing was removed, install it ➔ Rep. Gr. 24 ; Repairing injection system .
- Follow procedure after connecting battery ➔ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .

1.8 Adjusting selector mechanism

Special tools and workshop equipment required



- ◆ Locking pin -T10027 A-

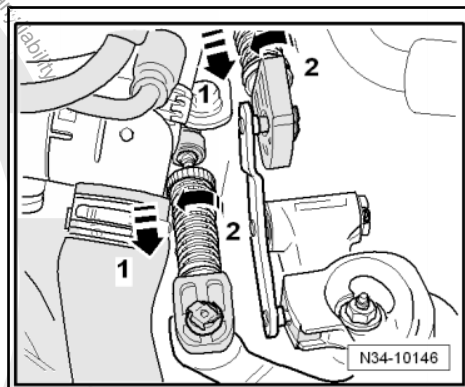


Note

- ◆ *The following points are essential to ensure correct adjustment of selector mechanism:*
 - ◆ *Moving parts of selector mechanism and elements transferring force must be in proper condition.*
 - ◆ *Selector mechanism must move freely.*
 - ◆ *Gearbox, clutch and clutch mechanism must also be in proper condition.*
- Gearbox must be in neutral.

Perform the following steps:

- Remove complete air filter housing if angled rod for securing selector shaft and securing mechanism for gear selector cable and gate selector cable are not accessible ⇒ Rep. Gr. 24 ; Repairing injection system .
- Pull locking mechanisms on gate selector cable and gear selector cable end-pieces forward to stop -direction of arrow 1- and then turn to left to lock -direction of arrow 2-.

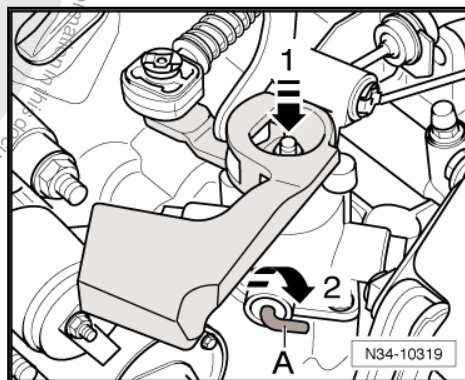


Secure selector shaft as follows:

- Press selector shaft down in -direction of arrow 1-.
- While pressing down selector shaft, turn angled rod -A- in -direction of arrow 2- upwards and at the same time press it in until it engages in selector shaft.
- Remove gaiter with selector knob and cover ⇒ [page 50](#) .
- If noise insulation is present, remove it.

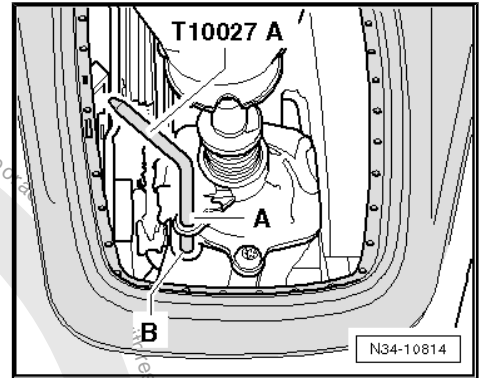
Secure selector lever as follows:

- Select neutral using gear lever.



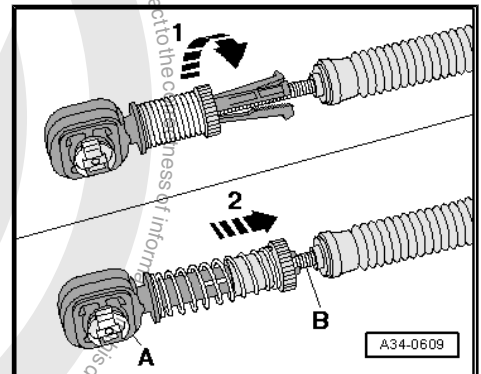


- Guide locking pin -T10027 A- through hole -A- into hole -B-.



- Gate and selector cables -B- must be inserted, free of tension, into locking devices -A-.
- Now turn locking mechanisms on gear selector cable and gate selector cable end pieces clockwise to stop -direction of arrow 1-.

The spring presses the locking mechanism into original position -direction of arrow 2-.

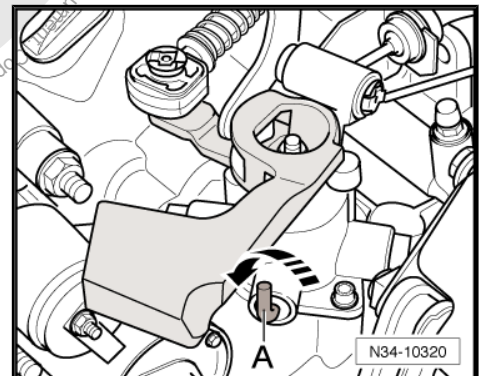


- Then turn angled rod -A- back to original position in -direction of arrow-.

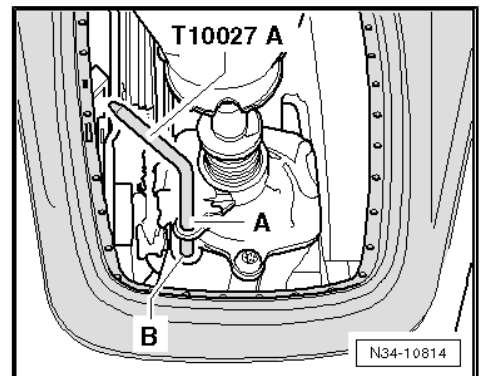


Note

The angled rod -A- must be pressed out of selector housing to stop and point straight up.



- Pull locking pin out of holes -A- and -B-.
- If noise insulation was present, install it.
- Install gaiter with selector knob and cover ➔ [page 50](#) .
- Check selector shaft can move freely.
- If complete air filter housing was removed, install it ➔ Rep. Gr. 24 ; Repairing injection system .



1.8.1 Functional check

- With gearbox in neutral, selector lever must rest in selector lever gate for 3rd and 4th gear.
- Operate clutch.
- Select all gears several times. Pay particular attention to operation of reverse gear lock.



- If it continues to be difficult to engage a gear after repeated attempts, repeat adjustment procedure of selector mechanism
⇒ [page 67](#) .

1.9 Plastic relay lever

From 05.07, relay lever is made from plastic. 2 versions may be installed.

- ◆ Relay lever with catch or
- ◆ relay lever with clip

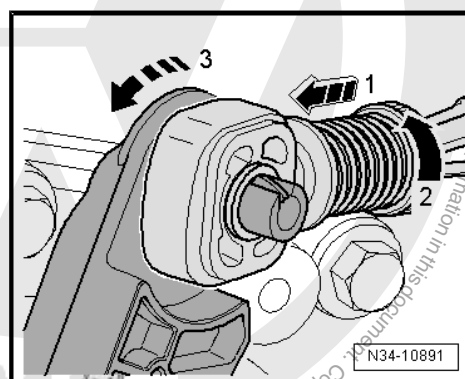
Comply with the following during removal and installation work:

- To remove relay lever, first separate cable end-piece from gate selector cable.

This will avoid damage to the gate selector cable.

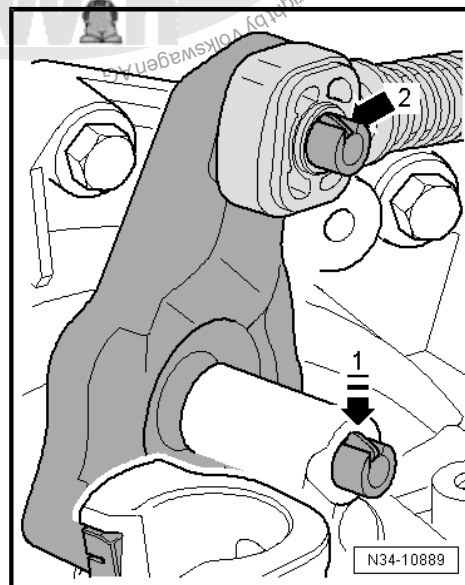
Perform the following steps:

- Pull locking mechanism forward to stop in -direction of arrow 1- and then lock by turning to left in -direction of arrow 2-.
- Then push relay lever forwards (-direction of arrow 3-).



Relay lever with catch -arrow 1-

- Press catch -arrow 1- down to stop and remove relay lever together with cable end-piece. Move relay lever in operating direction.





Relay lever with clip -arrow 1-

- Pull off clip -arrow 1- and remove relay lever together with cable end-piece.

Continuation for all

- Cable end-piece must be located behind catch -arrow 2-.
- Only remove cable end-piece with relay lever removed
⇒ [page 72](#) .



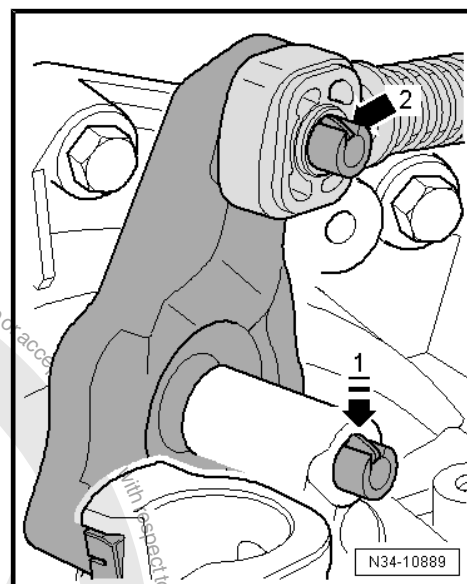
Note

- ◆ When installing, lubricate bearing positions and sliding surfaces.
- ◆ Allocate grease using ⇒ *Electronic parts catalogue (ETKA)* .
- Press cable end-piece onto relay lever ⇒ [page 72](#) .
- Install relay lever together with cable end-piece to stop.



Relay lever with catch -arrow 1-

- Catch -arrow 1- secures relay lever.
- Ensure proper engagement.
- Cable end-piece must be located behind catch -arrow 2-.



Relay lever with clip -arrow 1-

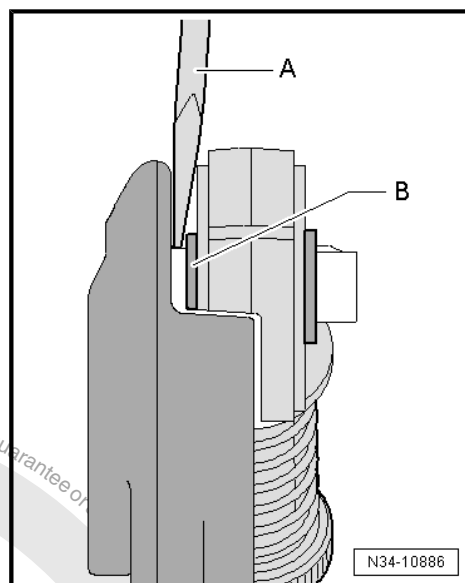
- Clip -arrow 1- secures relay lever.
- Ensure proper engagement of clip.
- Cable end-piece must be located behind catch -arrow 2-.





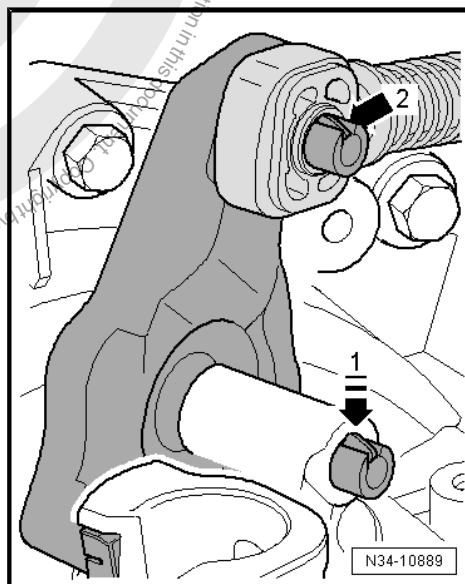
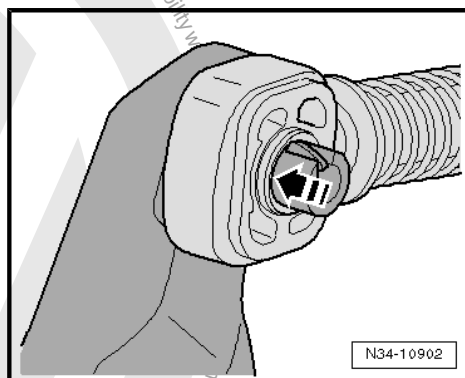
Levering gate selector cable end-piece off plastic relay lever

- Relay lever has been removed.
- Insert a flat-blade screwdriver -A- between bush -B- and relay lever.



Pressing on cable end-piece

- Relay lever has been removed.
- Cable end-piece may be pressed only onto bush -arrow-.
- Cable end-piece must move freely on relay lever.
- It must be located behind catch -arrow 2-.

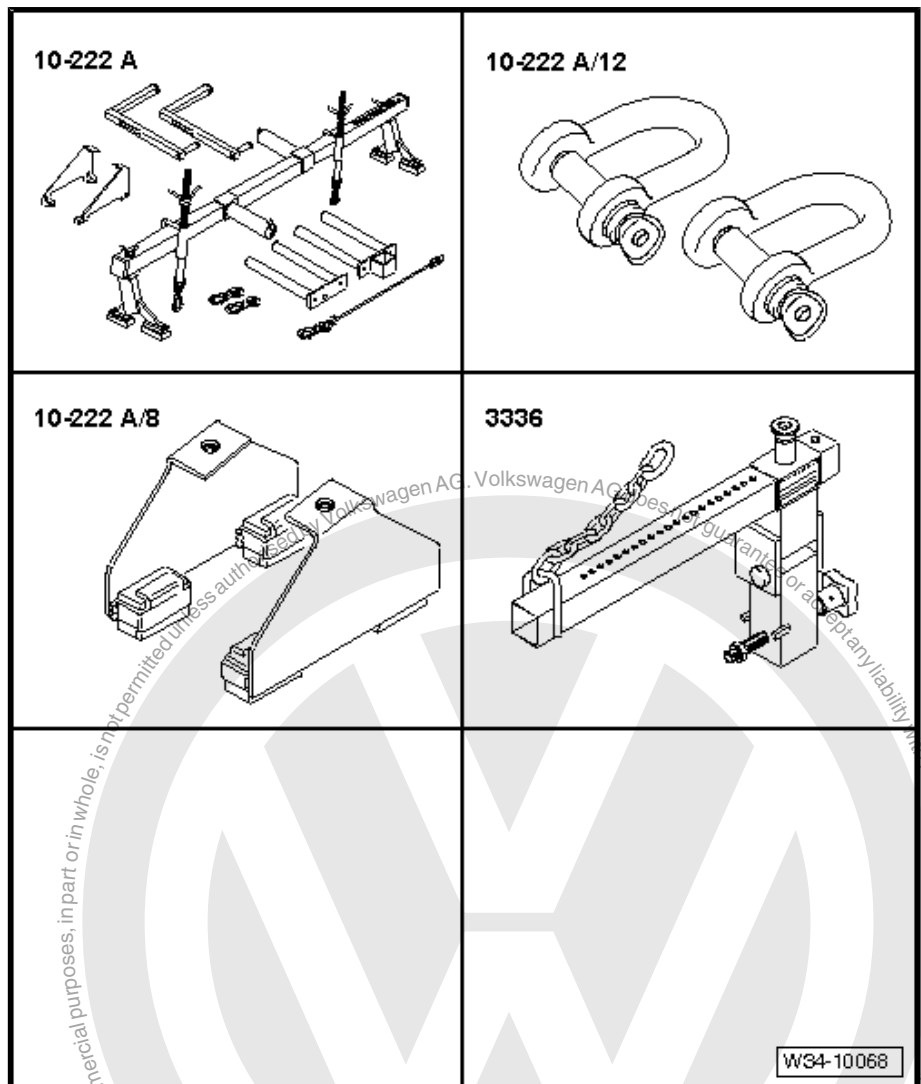




2 Removing and installing gearbox, Jetta 2005 ▶, Golf Variant 2007 ▶ and Golf Variant 2010 ▶

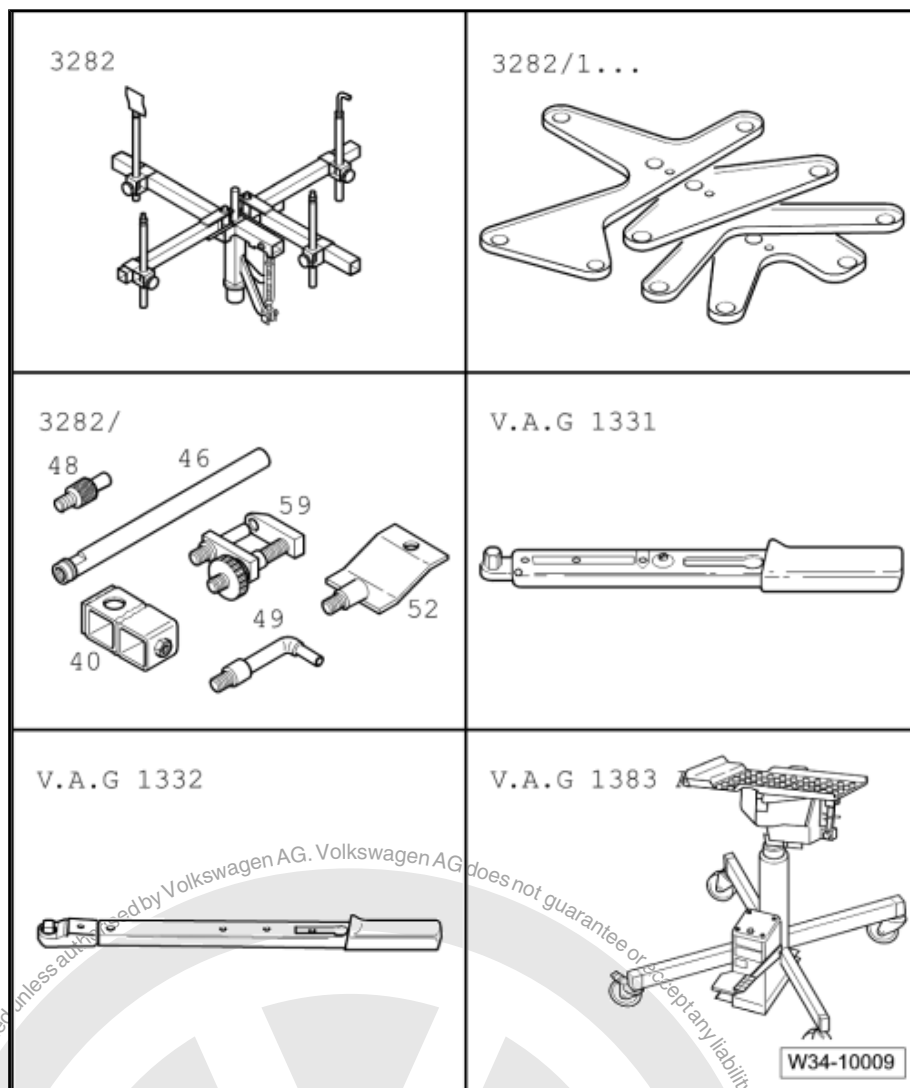
Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adapter -10 - 222 A /8-
- ◆ Shackle -10 - 222 A /12-
- ◆ Gearbox mounting support -3336-





- ◆ Gearbox support -3282-
- ◆ Support elements for gear-
box (determine when set-
ting adjustment plate on
gearbox support)
- ◆ Adjustment plate -3282/31-
- ◆ Torque wrench -
V.A.G 1331-
- ◆ Torque wrench -
V.A.G 1332-
- ◆ Engine and gearbox jack -
V.A.G 1383 A-
- ◆ Grease for clutch plate
splines -G 000 100-
- ◆ Allocate grease using ➔
Electronic parts catalogue
(ETKA) .



2.1 Removing gearbox

Perform the following steps:

- First check whether a coded radio is fitted. If so, obtain anti-theft code.
- With ignition switched off, disconnect battery earth strap ➔ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .
- Remove engine cover if engine lifting eye arrow -10 - 222 A- is not accessible.
- Remove complete air filter housing if it is located above gear-
box ➔ Rep. Gr. 24 ; Repairing injection system .
- Remove battery and battery tray ➔ Electrical system; Rep.
Gr. 27 ; Battery; Removing and installing battery .



- Remove securing clip -arrow 1- for gear selector cable from gearbox selector lever -A-.
- Pull gear selector cable off pin.

Metal relay lever

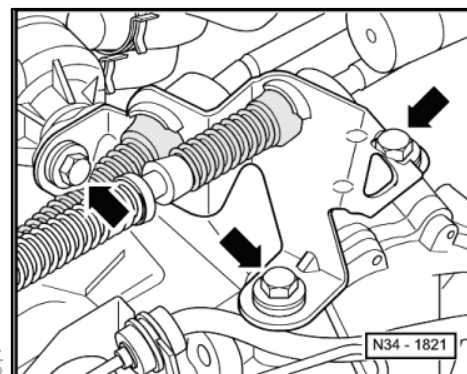
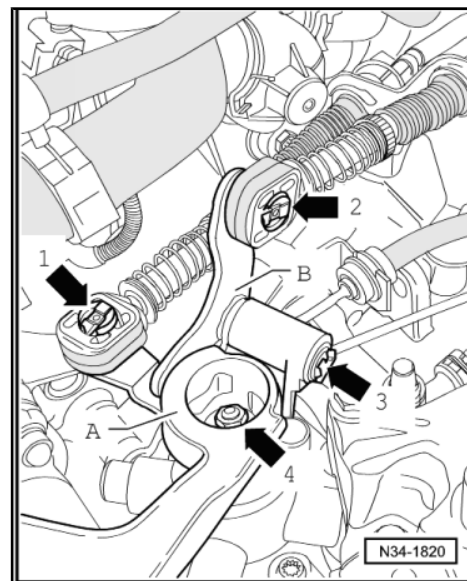
- Remove securing clip -arrow 2- for gate selector cable from relay lever -B-.
- Pull gate selector cable from pin.
- Pull securing clip -arrow 3- off relay lever -B- and remove relay lever.

Plastic relay lever

- Removing relay lever together with cable end-piece
⇒ [page 70](#) .

Continuation for all

- Remove gearbox selector lever -A- by removing nut -arrow 4-.
- Remove cable support bracket from gearbox -arrows-.
- Then tie up gear selector cable and gate selector cable.



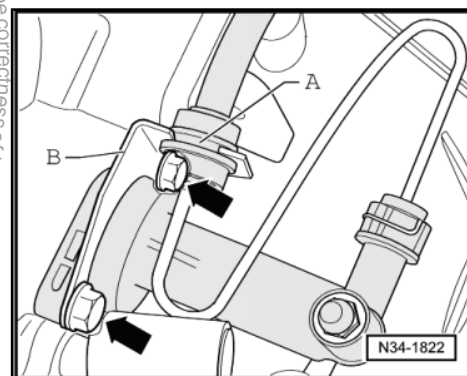
- Pull pipe/hose line -A- out of retainer -B- on gearbox.
- Remove slave cylinder -arrows-, lay to side and secure with wire. Do not disconnect pipes.



Caution

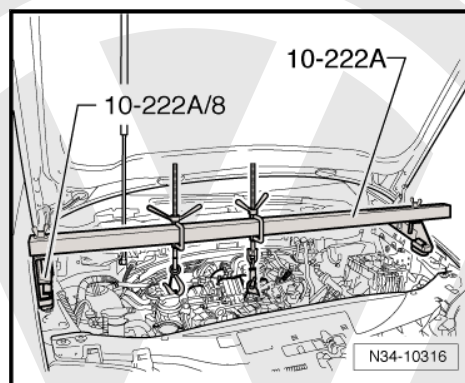
Do not operate clutch pedal any more.

- Remove earth strap at upper engine/gearbox connecting bolt.
- Remove upper engine/gearbox connecting bolts.
- Then remove upper securing bolt on starter.
- Remove foam pieces from upper edge of left and right wings
⇒ General body repairs, exterior; Rep. Gr. 50 ; Wings .

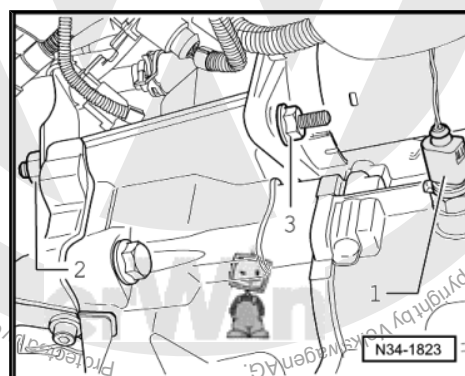




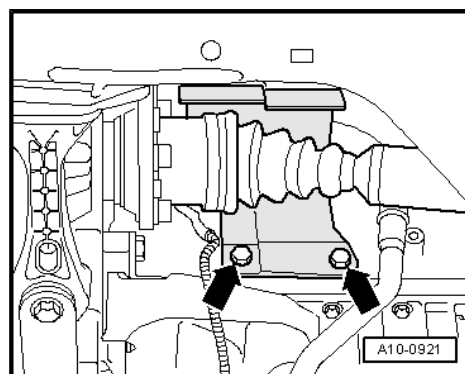
- Set up support bracket -10 - 222 A- together with adapter -10 - 222 A /8- in front of gas struts for bonnet.
- Take up weight of engine/gearbox assembly on spindles.
- Raise vehicle.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. Gr. 50 ; Noise insulation .
- Remove lower part of front left wheel housing liner ⇒ General body repairs, exterior; Rep. Gr. 66 ; Wheel housing liner .



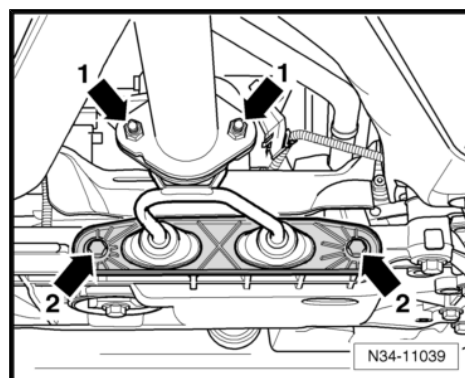
- Pull off connector -1- for reversing light switch -F4- .
- If a nut -2- is installed, remove it now.
- Remove starter (bolt -3-) ⇒ Electrical system; Rep. Gr. 27 ; Starter .



- If heat shield for drive shaft is installed, remove it from engine -arrows-.

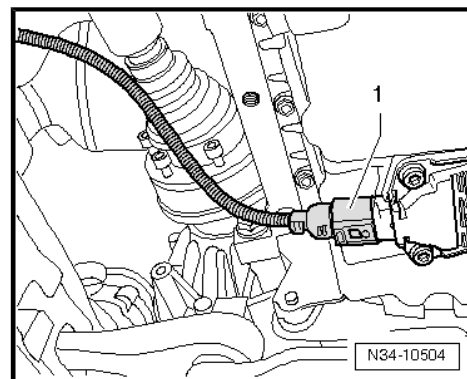


- Separate exhaust system -arrows 1- and remove exhaust pipe bracket from subframe -arrows 2- ⇒ Rep. Gr. 26 ; Removing and installing parts of exhaust system .

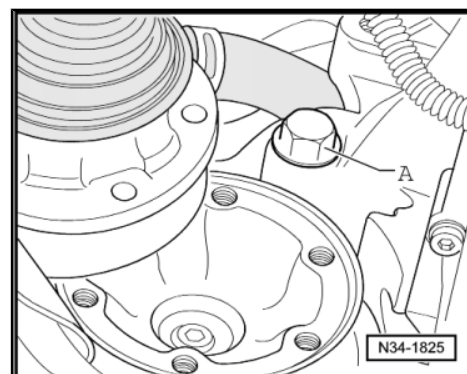




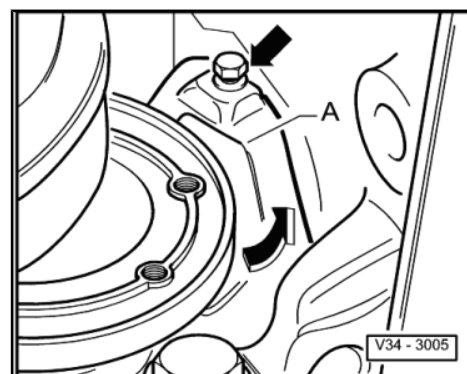
- Pull connector -1- off oil level and oil temperature sender - G266- .
- Disconnect drive shafts from flange shafts and tie up as high as possible, being careful not to damage surface protection.



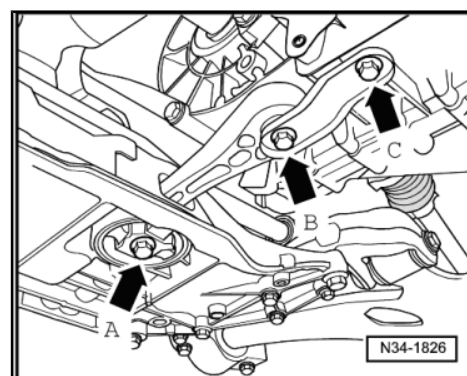
- Remove engine/gearbox connecting bolt -A- in area of right flange shaft.



- Check to see if a cover plate -A- is installed above the right flange shaft.
- If fitted, remove cover plate -A- -arrows-.



- Remove pendulum support -arrows A-, -B- and -C-.



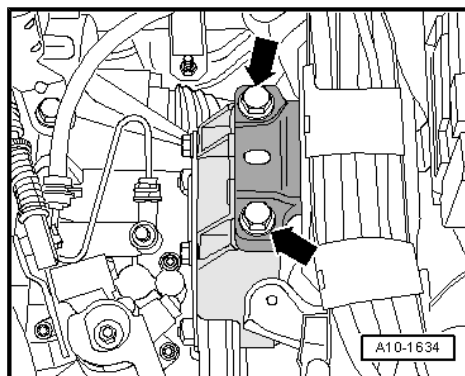


- Remove hexagon bolts -arrows- for left assembly mounting from gearbox mounting.
- Tilt engine/gearbox assembly. To do this, use left spindle of support bracket -10 - 222 A- to lower engine/gearbox assembly.



Note

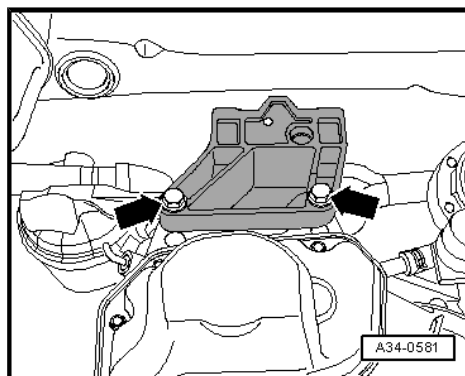
Be careful of all lines when lowering gearbox.



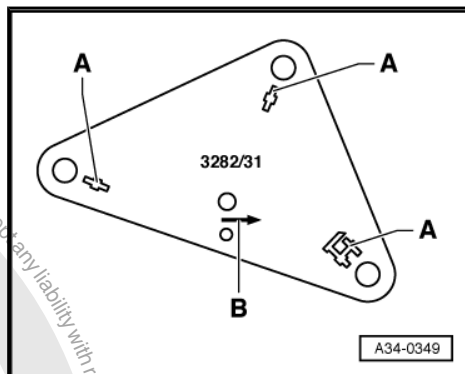
- Unbolt gearbox support from gearbox -arrows-.

To remove gearbox "0AF", set up gearbox support -3282- with adjustment plate -3282/31- .

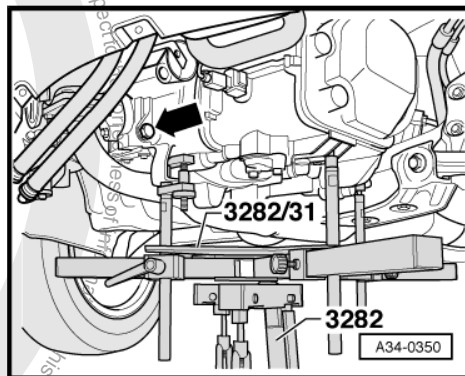
- Insert gearbox support -3282- in engine and gearbox jack - V.A.G 1383A- .
- Align arms of gearbox support according to holes in adjustment plate .



- Attach support elements -A- to adjustment plate as illustrated.
- Position engine and gearbox jack under vehicle. Arrow -B- on adjustment plate points in direction of vehicle travel.



- Align adjustment plate parallel to gearbox and lock safety support on gearbox.
- Remove engine/gearbox connecting bolt -arrow-.



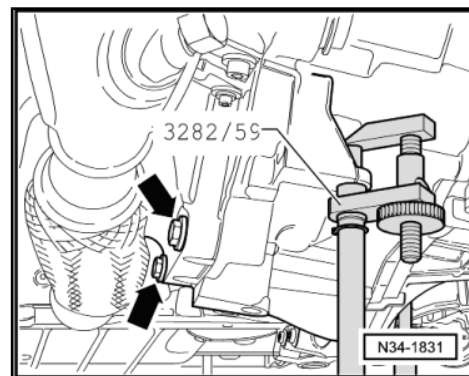


- Remove engine/gearbox connecting bolts -arrows- in vicinity of sump.

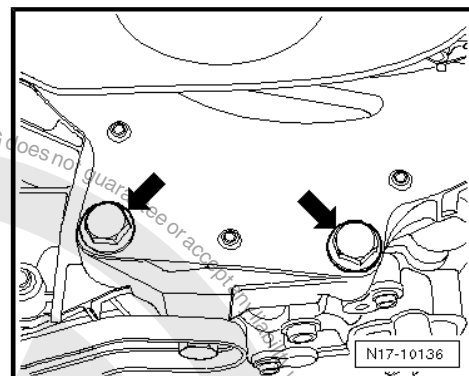


Note

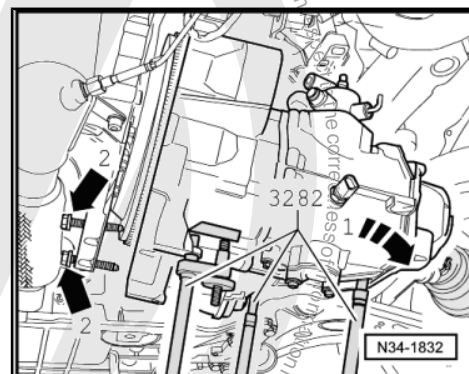
If exhaust system is located in front of bolts -arrows-, bolts remain on engine.



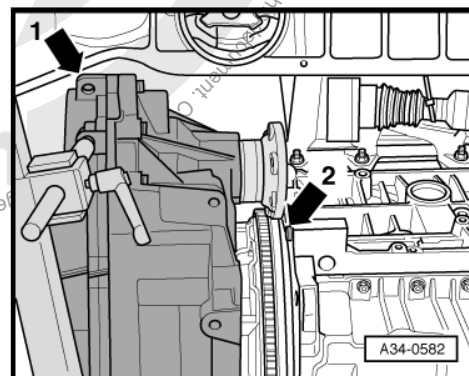
- For vehicles with a sheet metal sump, remove cover plate near sump -arrows-.
- Press gearbox off dowel sleeves.
- Observe intermediate plate on engine.
- Have a second mechanic press engine forwards.



- Turn gearbox downwards in area of differential -arrow 1- and turn rear of gearbox slightly towards front end.
- If engine/gearbox connecting bolts -arrow 2- cannot be removed, ensure that they are backed out until they contact exhaust system.



- Then carefully guide gearbox with right flange shaft past fly-wheel and intermediate plate -arrow 2- as shown.
- Lower gearbox, being careful of subframe -arrow 1-.
- When lowering gearbox, change position of gearbox using spindles of gearbox support -3282- .



Note

Be careful of all lines when lowering gearbox.

2.2 Installing gearbox



Note

*Refer to procedure "Removing gearbox" for required special tools
⇒ [page 74](#) .*



Perform the following steps:

- All threaded holes into which self-locking bolts are to be screwed must be cleaned of residual locking fluid with a thread chaser.
- Always renew self-locking bolts and nuts.
- Check whether dowel sleeves for aligning engine and gearbox are fitted in cylinder block and install if necessary.

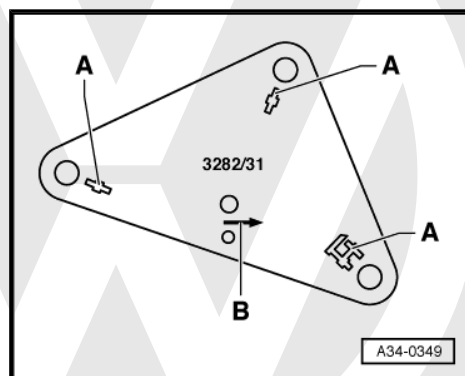
If dowel sleeves are not fitted, difficulties shifting gears, clutch problems and possible noises from the gearbox (rattling of gears which are not engaged) could occur.

- Ensure that intermediate plate is correctly seated on engine.
- Clean input shaft splines and apply thin coat of grease for clutch plate splines -G 000 100- .

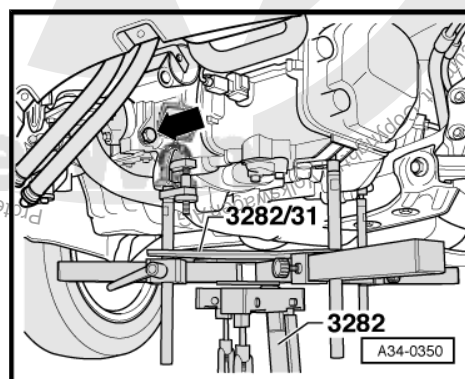
The clutch plate must slide easily to and fro on the input shaft.

To install gearbox "0AF", set up gearbox support -3282- with adjustment plate -3282/31- .

- Insert gearbox support -3282- in engine and gearbox jack - V.A.G 1383 A- .
- Fit adjustment plate -3282/31- on gearbox support -3282- (adjustment plate fits in only one position).
- Align arms of gearbox support according to holes in adjustment plate .
- Attach support elements -A- to adjustment plate as illustrated.
- Arrow symbol B- on adjustment plate points in vehicle driving direction.
- Place gearbox on engine and gearbox jack .



- Align adjustment plate and gearbox parallel to one another.
- Position engine and gearbox jack under vehicle. Arrow symbol on adjustment plate points in direction of vehicle travel.
- Using spindles of gearbox support -3282- , position gearbox so that differential is facing downwards.
- The area of the cover for 5th gear should also be facing slightly downwards.
- Then raise gearbox carefully and guide past subframe.



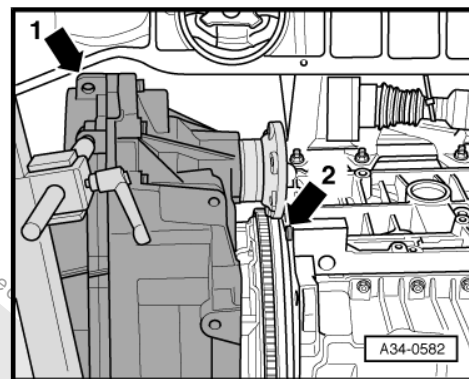
Note

Be careful of all lines when installing gearbox.

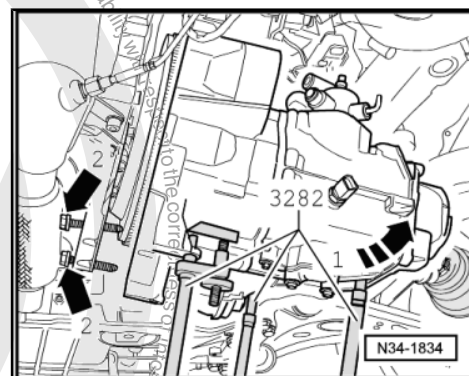
- Have a second mechanic press engine forwards.



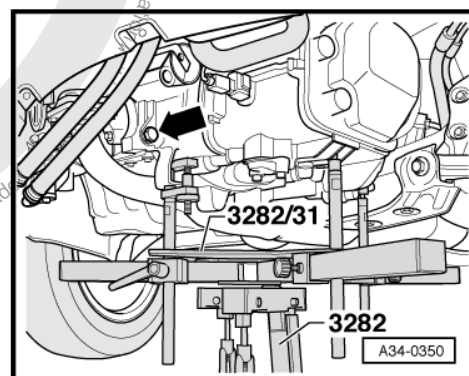
- When doing this, guide gearbox carefully, as shown, past fly-wheel -arrow 2- and subframe -arrow 1-.



- Swivel gearbox upwards in vicinity of 5th gear cover as shown -arrow 1- and towards subframe.

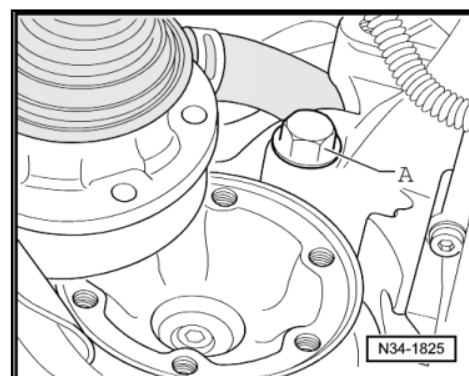


- Insert gearbox, screw in connecting bolt for engine and gearbox -arrow- and tighten to specified torque ⇒ [page 86](#) .



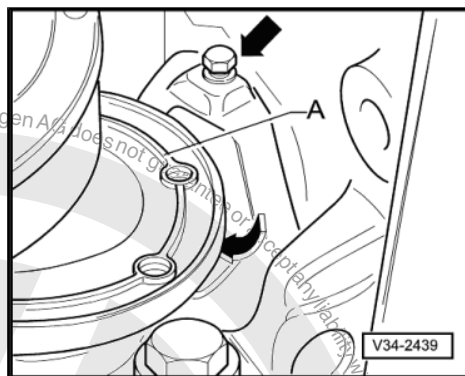
- Then install connecting bolt for engine and gearbox -A- in area of right flange shaft and tighten to specified torque ⇒ [page 86](#) .

- After gearbox has been bolted to engine, remove engine and gearbox jack from gearbox.

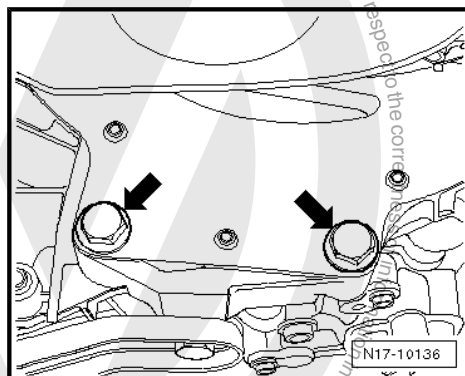




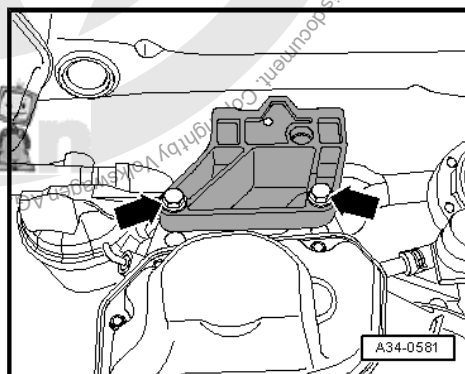
- If small cover plate had been installed behind the right-hand flange shaft -A-, install it -arrows- and tighten securing bolt to 10 Nm.



- Fit cover plate in area of sump -arrows- and tighten to specified torque ➔ [page 86](#) .



- Bolt gearbox support onto gearbox with new bolts -arrows- ➔ [page 86](#) .
- Align engine and gearbox in installation position. To do this, tighten both spindles on the support bracket -10 - 222 A- .



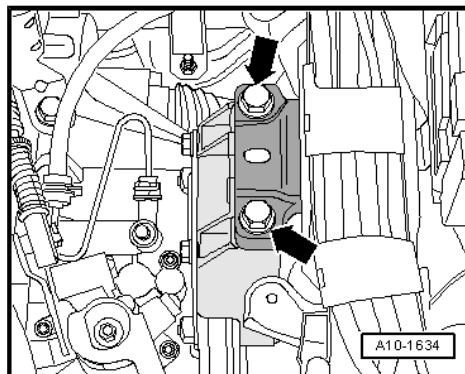
- Screw in new hexagon bolts -arrows- for left engine/gearbox mounting and tighten to specified torque ➔ [page 86](#) .



WARNING

Do not remove support bracket -10 - 222 A- until the bolts securing the left and right assembly mountings have been tightened to specified torque.

- Place foam pieces on upper edge of left and right wings ➔ General body repairs, exterior; Rep. Gr. 50 ; Wings .
- Screw in upper engine/gearbox securing bolts and tighten to specified torque ➔ [page 86](#) .





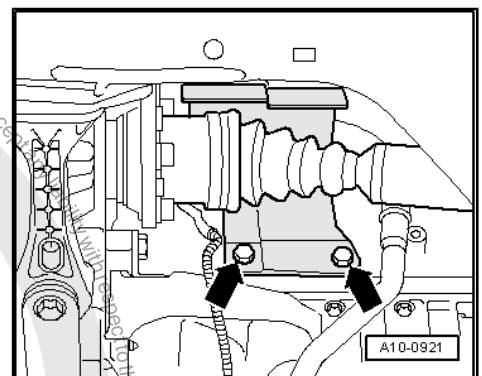
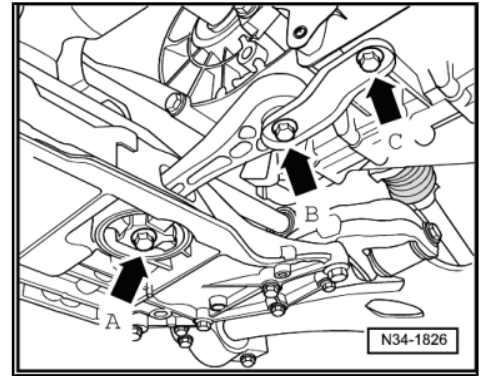
- Install pendulum support arrows -A-, -B- and -C- ⇒ Running gear, axles, steering; Rep. Gr. 40 ; Assembly overview - sub-frame, anti-roll bar, suspension links .
- Use new bolts for securing.



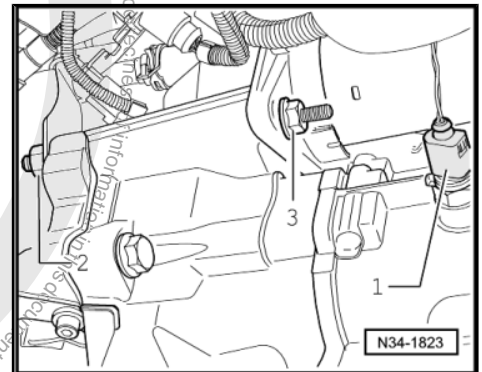
Note

Install engine and gearbox mounting free of tension ⇒ Rep. Gr. 10 ; Removing and installing engine .

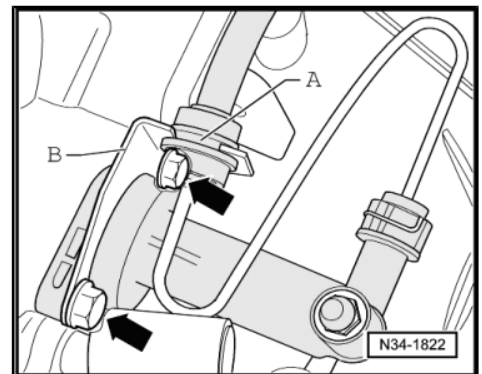
- Assemble exhaust system ⇒ Rep. Gr. 26 ; Removing and installing parts of exhaust system .
- Attach drive shafts to gearbox ⇒ Running gear, axles, steering; Rep. Gr. 40 ; Removing and installing drive shafts .
- Install drive shaft heat shield, if present, on engine -arrows- ⇒ Running gear, axles, steering; Rep. Gr. 40 ; Repairing drive shaft .



- Install starter with bolt -3- and, if present, nut -2- ⇒ Electrical system; Rep. Gr. 27 ; Starter .
- Push connector -1- onto reversing light switch -F4- .

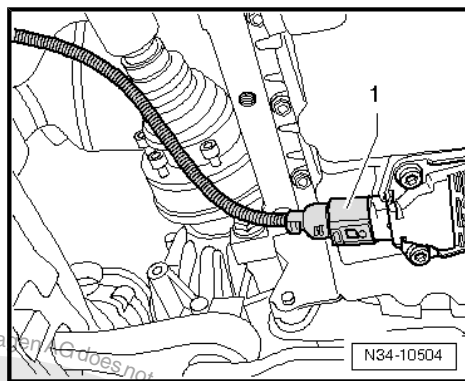


- Install slave cylinder and tighten bolts to specified torque ⇒ [Item 9 \(page 43\)](#) .
- Push line between master and slave cylinders -A- into support -B- on gearbox.

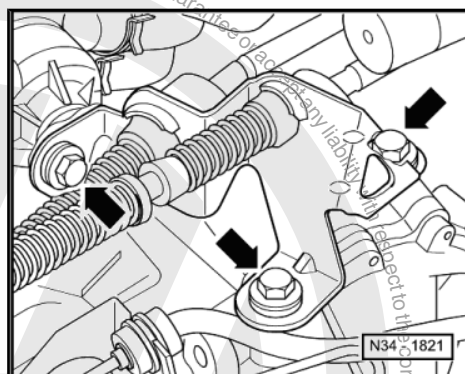




- Attach connector -1- to oil level and oil temperature sender - G266-



- Install cable support bracket on gearbox and tighten bolts -arrows- to specified torque ⇒ [Item 6 \(page 61\)](#).





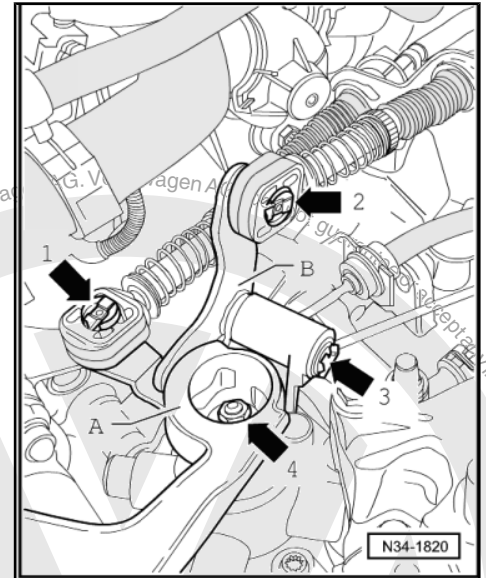
- Install gearbox selector lever -A- ⇒ [page 63](#) and tighten hexagon nut -arrow 4- to specified torque ⇒ [Item 17 \(page 62\)](#) .

Metal relay lever



Note

- ◆ *When installing, lubricate bearing positions and sliding surfaces.*
- ◆ *Allocate grease using ⇒ Electronic parts catalogue (ETKA).*
- Insert relay lever -B- into mounting of selector mechanism cover.
- At the same time, swing relay lever so that shoe engages in guide of gearbox selector lever.
- Secure relay lever with new securing clip -arrow 3-.



Plastic relay lever

- Installing relay lever together with cable end-piece ⇒ [page 70](#) .

Continuation for all

- Spread a small amount of grease on pin of gearbox selector lever -A-.
- Connect gear selector cable to gearbox selector lever -arrow 1- and install a new securing clip.
- Adjust selector mechanism ⇒ [page 67](#) .
- Check gear oil ⇒ [page 100](#) .

If the gearbox comes in contact with other components, repair damaged surface protection with manufacturer-approved materials ⇒ Paint workshop manual .

- Install lower part of front left wheel housing liner ⇒ General body repairs, exterior; Rep. Gr. 66 ; Wheel housing liner .
- Install noise insulation ⇒ General body repairs, exterior; Rep. Gr. 50 ; Noise insulation .
- Mount cover for engine or install air filter housing ⇒ Rep. Gr. 24 ; Repairing injection system .
- Install battery tray, battery cover and battery ⇒ Electrical system; Rep. Gr. 27 ; Removing and installing battery .
- Connect battery; follow procedure after connecting battery ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .



2.2.1 Torque settings

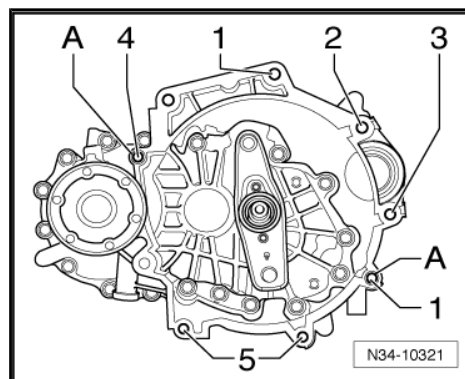
Gearbox to engine

Vehicles with 1.4 l engine

Item	Bolt	Quantity	Nm
1	M12 x 65	2	80
2	M12 x 135 ♦ Additionally, start- er to gearbox	1	80
3	M12 x 150 ♦ Additionally, start- er to gearbox	1	80
4	M12 x 80	1	80
5	M10 x 35	2	40

Item -5-: Attachment of cover plate to gearbox

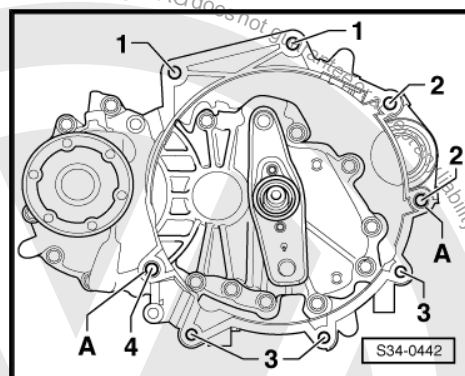
Item -A- Dowel sleeves for centring



Vehicles with 1.6 l engine

Item	Bolt	Quantity	Nm
1	M12 x 65	2	80
2	M12 x 135 ♦ Additionally, start- er to gearbox	2	80
3	M10 x 60	3	40
4	M12 x 90	1	80

Item -A- dowel sleeves for centring

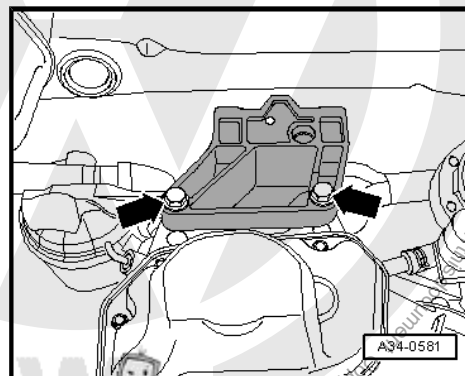


Gearbox support to gearbox

- Renew bolts.

Bolts -arrows-

40 Nm + 90°

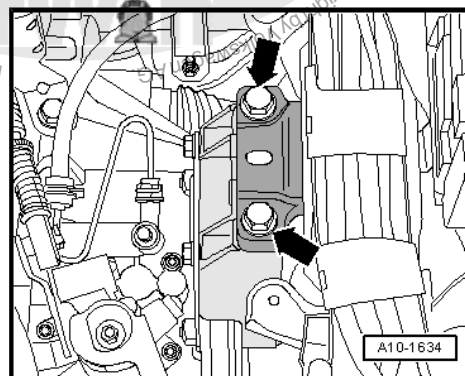


Gearbox support to gearbox mounting

- Renew bolts.

Bolts -arrows-

60 Nm + 90°





3 Removing and installing gearbox, Jetta 2011 ➤

Removing gearbox, Jetta 2011 with 2.0 I - 85 kW engine
⇒ [page 87](#)

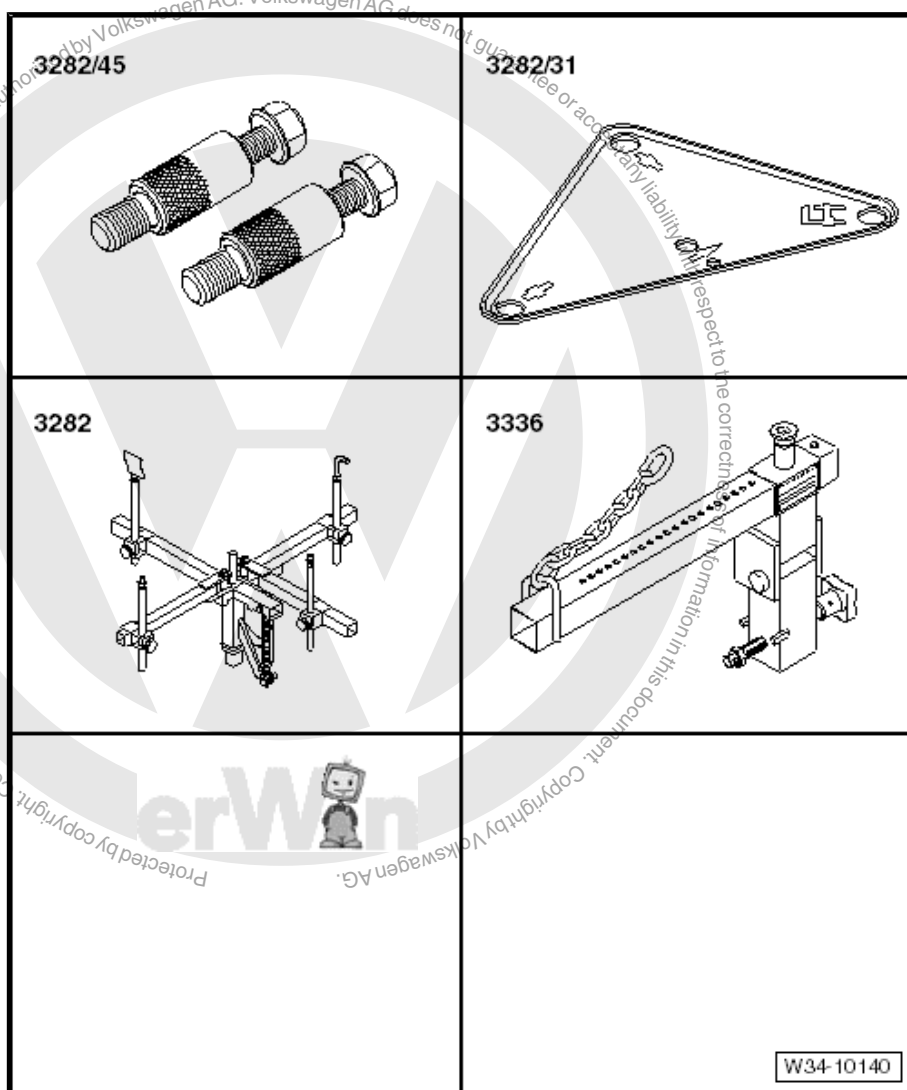
Installing gearbox, Jetta 2011 with 2.0 I - 85 kW engine
⇒ [page 93](#)

Torque settings ⇒ [page 98](#)

3.1 Removing gearbox, Jetta 2011 with 2.0 I - 85 kW engine

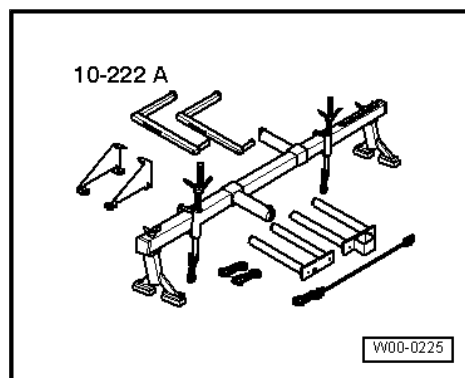
Special tools and workshop equipment required

- ◆ Pin -3282/45-
- ◆ Adjustment plate -3282/31-
- ◆ Support elements for gearbox (determine when setting adjustment plate on gearbox support)
- ◆ Gearbox support -3282-
- ◆ Gearbox mounting support -3336-
- ◆ Grease for clutch plate splines -G 000 100-
- ◆ Allocate grease using ⇒ Electronic parts catalogue (ETKA) .

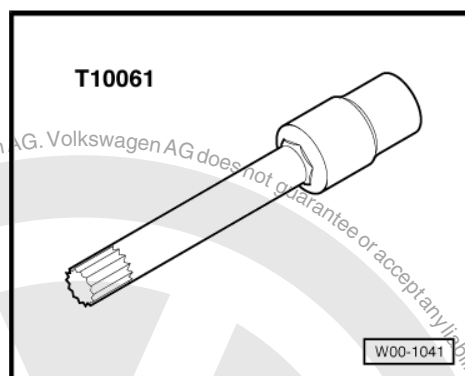




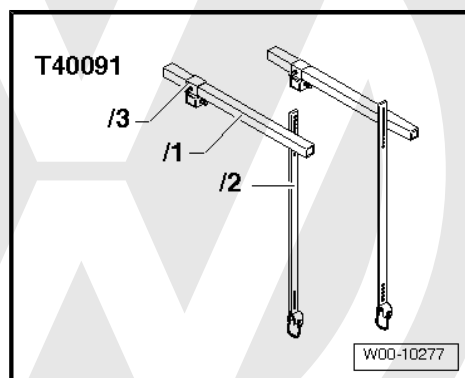
◆ Support bracket -10 - 222 A-



◆ Socket -T10061-



◆ Engine support basic set -T40091-

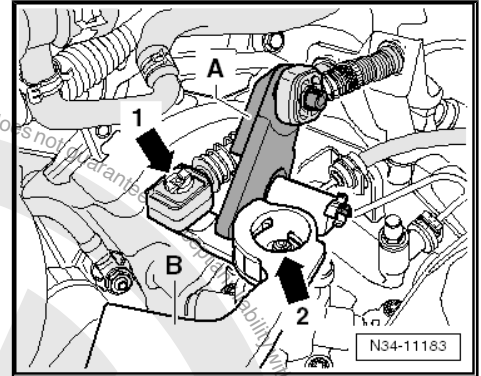


Perform the following steps:

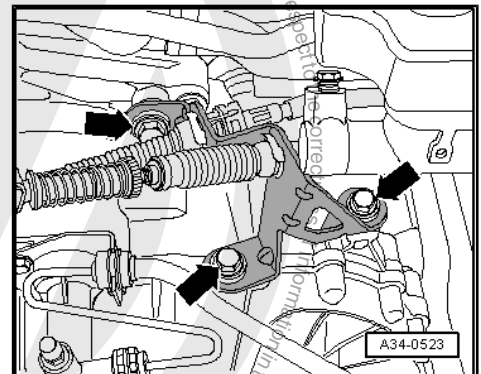
- First check whether a coded radio is fitted. If so, obtain anti-theft code.
- With ignition switched off, disconnect battery earth strap ⇒ Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery .
- Remove complete air filter housing ⇒ Rep. Gr. 24 ; Repairing injection system .
- Remove battery and battery tray ⇒ Electrical system; Rep. Gr. 27 ; Battery; Removing and installing battery .



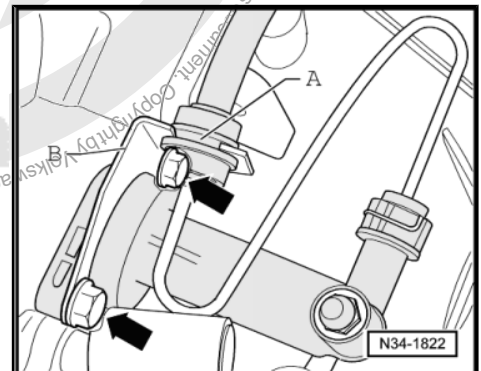
- Remove securing clip -arrow 1- for gear selector cable from gearbox selector lever -B-.
- Pull gear selector cable off pin.
- Release end-piece from gate selector cable ⇒ [page 65](#).
- Remove relay lever -A- together with cable end-piece ⇒ [page 70](#).
- Remove gearbox selector lever -B- by removing nut -arrow 2-.



- Remove cable support bracket from gearbox -arrows-.
- Then tie up gear selector cable and gate selector cable.



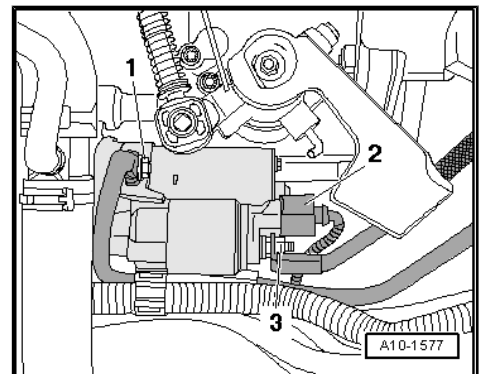
- Pull line between master and slave cylinders -A- out of support -B- on gearbox.
- Remove slave cylinder -arrow B-, lay to side and secure with wire. Do not disconnect pipes.



Caution

Do not operate clutch pedal any more.

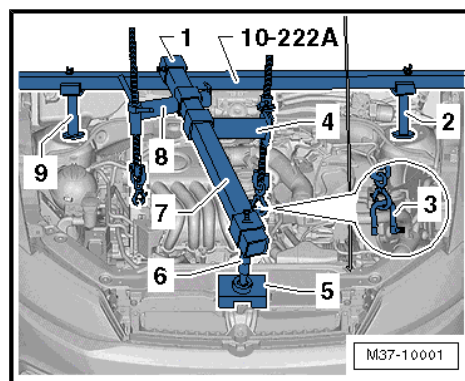
- Remove earth strap from upper securing bolt -1- for starter.
- Pull off connector -2- and remove line -3- from starter.
- Then remove upper securing bolt on starter.
- Remove upper engine/gearbox connecting bolts.
- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. Gr. 50 ; Plenum chamber cover; Removing and installing plenum chamber cover .





- Set up support bracket -10 - 222 A- and support engine and gearbox. Do not raise.

- 1 - -T40091/3-
- 2 - -10-222 A /31-1-
- 3 - -10-222 A /12-
- 4 - -10-222 A /3-
- 5 - -10-222 A /31-4-
- 6 - -10-222 A /31-3-
- 7 - -T40091/1-
- 8 - -10-222 A /18-
- 9 - -10-222 A /31-2-

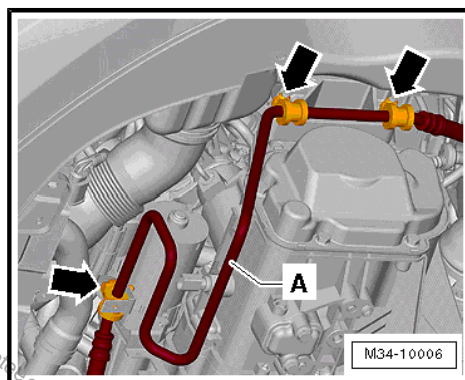


- Raise vehicle and remove front left wheel.
- Remove noise insulation tray.
- Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. Gr. 66 ; Wheel housing liner; Front wheel housing liner .

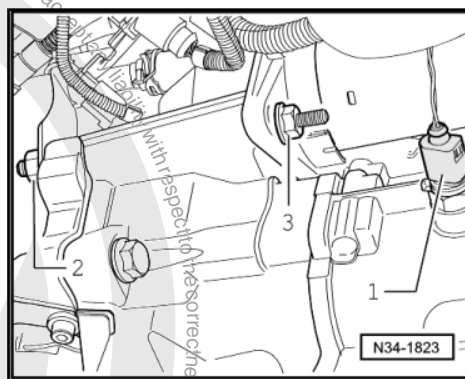
For vehicles with power steering

- Remove brackets with power assisted steering line -A- from gearbox -arrows-.

Continuation for all vehicles

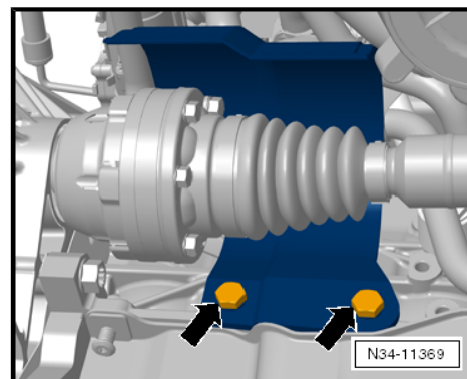


- Pull off connector -1- for reversing light switch -F4- .
- If a nut -2- is installed, remove it now.
- If present, unbolt retainer from lower starter bolt.
- Remove lower securing bolt -3- from starter and remove starter ⇒ Electrical system; Rep. Gr. 27 ; Starter .
- Separate exhaust system at double clamp and remove exhaust pipe bracket from subframe ⇒ Rep. Gr. 26 ; Removing and installing parts of exhaust system .

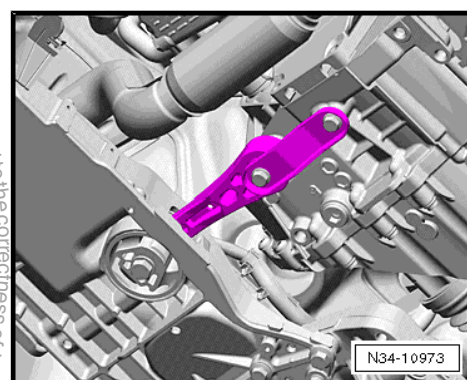




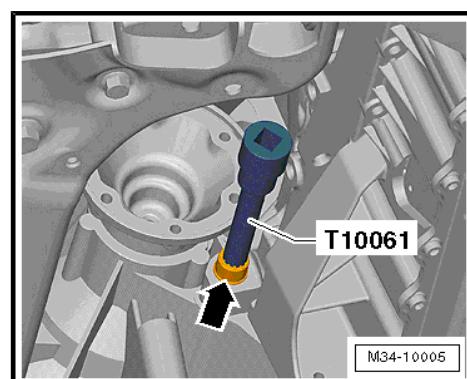
- Remove heat shield above right drive shaft -arrows-.
- Remove drive shafts from flange shafts, raise as high as possible and secure. Do not damage the surface protection ⇒ Running gear, axles, steering; Rep. Gr. 40 ; Removing and installing drive shafts .



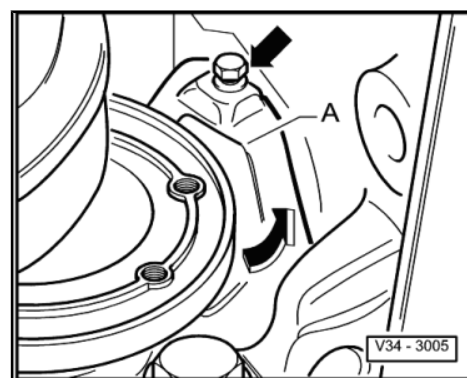
- Remove pendulum support ⇒ Running gear, axles, steering; Rep. Gr. 40 ; Assembly overview: Subframe .



- Remove engine/gearbox connecting bolt -arrow- in area of right flange shaft. Use socket -T10061- to do this.

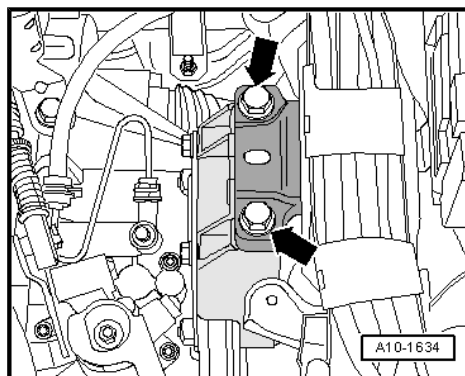


- Remove cover plate -A- -arrows-.





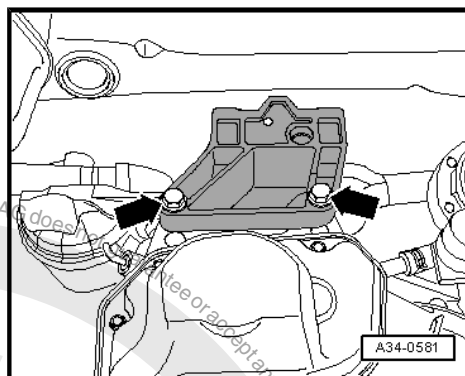
- Remove hexagon bolts -arrows- for left assembly mounting from gearbox mounting.
- Tilt engine/gearbox assembly. To do this, use spindles of support bracket -10 - 222 A- to lower engine/gearbox assembly.
- Securing bolts -arrows- for gearbox support must be accessible.



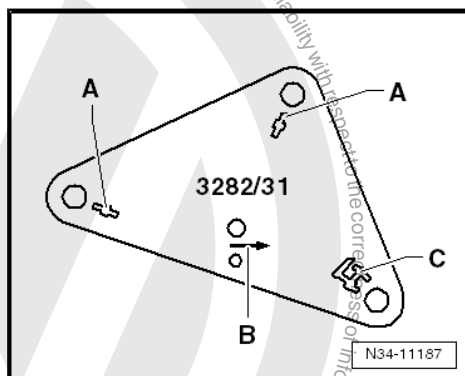
- Remove gearbox support from gearbox -arrows-.

To remove gearbox "0AF", set up gearbox support -3282- with adjustment plate -3282/31- .

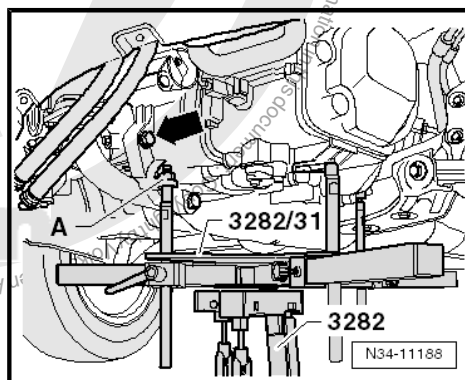
- Insert gearbox support -3282- in engine and gearbox jack - V.A.G 1383A- .
- Align arms of gearbox support according to holes in adjustment plate .



- Attach support elements -A- to adjustment plate as illustrated.
- Screw in pin -3282/45- instead of support element -C-.
- Position engine and gearbox jack under vehicle. Arrow -B- on adjustment plate points in direction of vehicle travel.



- Align adjustment plate parallel to gearbox.
- A- = pin -3282/45- with flange nut M 8.
- Screw flange nut M 8 onto pin -3282/45- to secure gearbox.
- Remove engine/gearbox connecting bolt -arrow-.
- Remove lower engine/gearbox connecting bolts.
- Press gearbox off dowel sleeves and carefully swing towards subframe.
- Observe intermediate plate on engine.
- Have a second mechanic push engine forwards slightly.



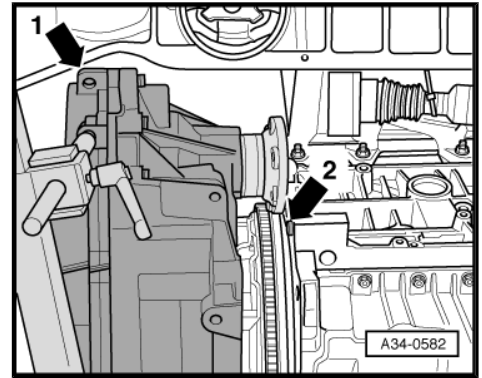


- Then carefully guide gearbox with right flange shaft past fly-wheel and intermediate plate -arrow 2- as shown.
- Lower gearbox, being careful of subframe -arrow 1-.
- When lowering gearbox, guide it past power assisted steering line and past subframe.
- When lowering gearbox, change position of gearbox using spindles of gearbox support -3282- .



Note

Be careful of all lines when lowering gearbox.



3.2 Installing gearbox, Jetta 2011 with 2.0 I - 85 kW engine



Note

Refer to procedure "Removing gearbox" for required special tools
⇒ [page 87](#) .

Perform the following steps:

- All threaded holes into which self-locking bolts are to be screwed must be cleaned of residual locking fluid with a thread chaser.
- Always renew self-locking bolts and nuts.
- Check whether dowel sleeves for aligning engine and gearbox are fitted in cylinder block and install if necessary.

If dowel sleeves are not fitted, difficulties shifting gears, clutch problems and possible noises from the gearbox (rattling of gears which are not engaged) could occur.

- Ensure that intermediate plate is correctly seated on engine.
- Clean input shaft splines and apply thin coat of grease for clutch plate splines -G 000 100- .

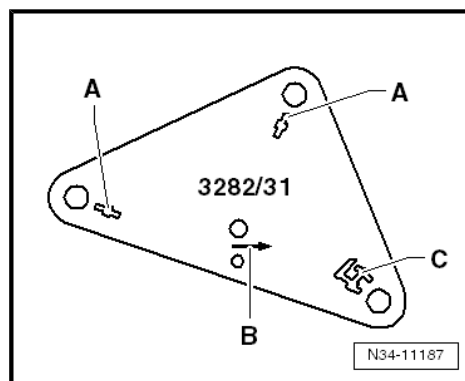
The clutch plate must slide easily to and fro on the input shaft.

To install gearbox "0AF", set up gearbox support -3282- with adjustment plate -3282/31- .

- Insert gearbox support -3282- in engine and gearbox jack - V.A.G 1383 A- .
- Fit adjustment plate -3282/31- on gearbox support -3282- (adjustment plate fits in only one position).
- Align arms of gearbox support according to holes in adjustment plate .



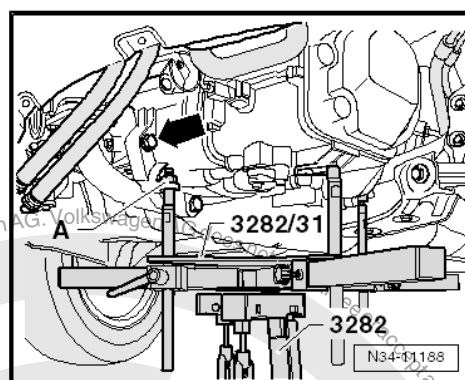
- Attach support elements -A- to adjustment plate as illustrated.
- Screw in pin -3282/45- instead of support element -C-.



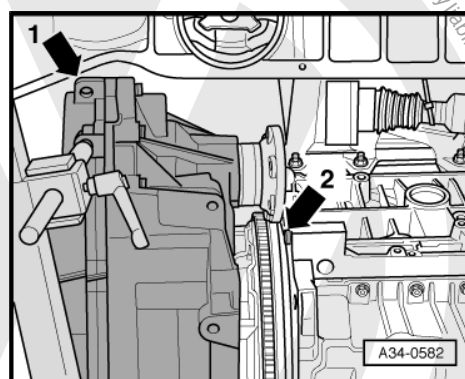
- Align adjustment plate parallel to gearbox.
- Position engine and gearbox jack under vehicle. Arrow -B- on adjustment plate points in direction of vehicle travel.

A = pin -3282/45- with flange nut M 8.

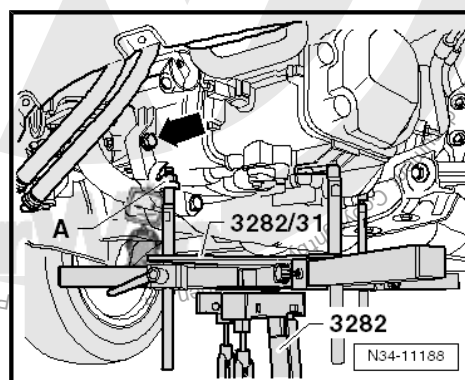
- Screw flange nut M 8 onto pin -3282/45- to secure gearbox.
- Carefully raise gearbox whilst watching out for power steering line.
- Have a second mechanic push engine forwards slightly.



- When doing this, guide gearbox carefully, as shown, past fly-wheel -arrow 2- and subframe -arrow 1-.
- The engine must still be pushed forwards (2nd mechanic).
- Align gearbox to engine and join.
- Screw in lower engine/gearbox securing bolts and tighten to specified torque ➤ [page 98](#) .

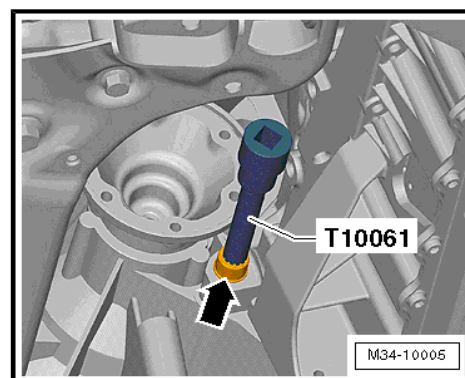


- Screw in connecting bolt for engine and gearbox -arrow- and tighten to specified torque ➤ [page 98](#) .

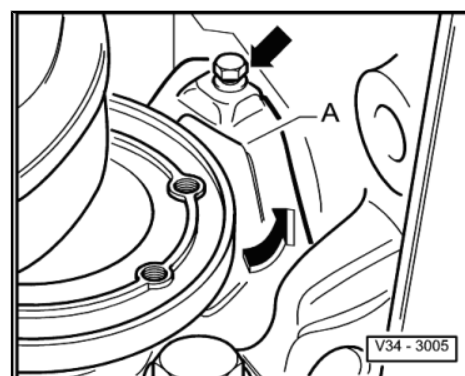




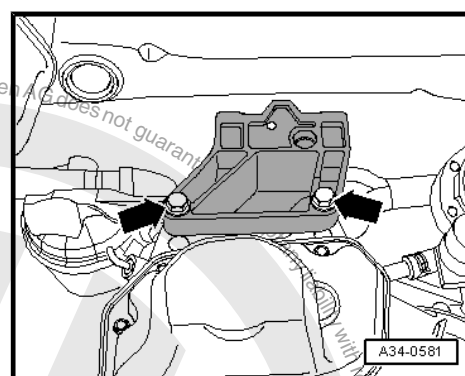
- Then install connecting bolt -arrow- for engine and gearbox in area of right flange shaft and tighten to specified torque ➔ [page 98](#) . Use socket -T10061- to do this.



- Install cover plate -A- -arrows- and tighten securing bolt to 10 Nm.
- After gearbox has been bolted to engine, remove engine and gearbox jack from gearbox.



- Bolt gearbox support onto gearbox with new bolts -arrows- ➔ [page 98](#) .
- Align engine and gearbox in installation position. To do this, tighten both spindles on the support bracket -10-222 A- .

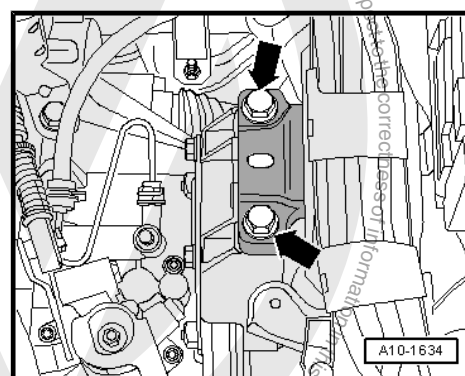


- Screw in new hexagon bolts -arrows- for left engine/gearbox mounting and tighten to specified torque ➔ [page 98](#) .

⚠ WARNING

Do not remove support bracket -10 - 222 A- until the bolts securing the left and right assembly mountings have been tightened to specified torque.

- Screw in upper engine/gearbox securing bolts and tighten to specified torque ➔ [page 98](#)





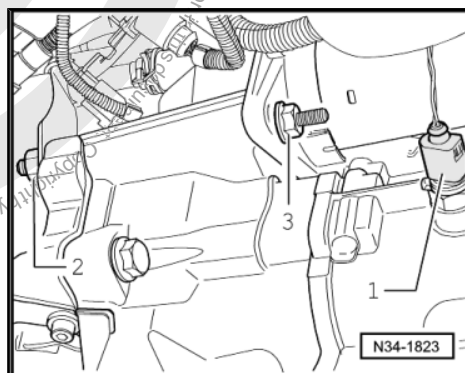
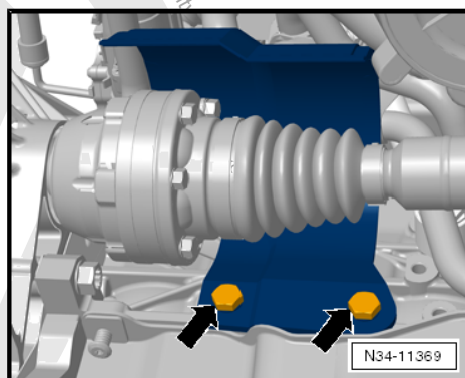
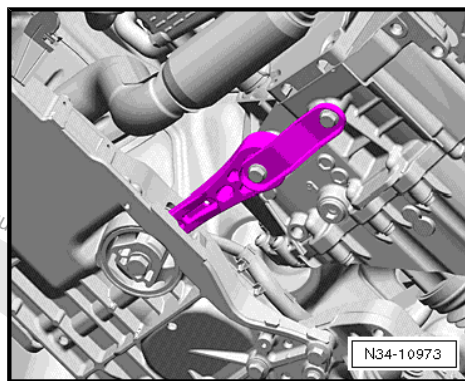
- Install pendulum support ⇒ Running gear, axles, steering;
Rep. Gr. 40 ; Assembly overview: Subframe .
- Use new bolts for securing.



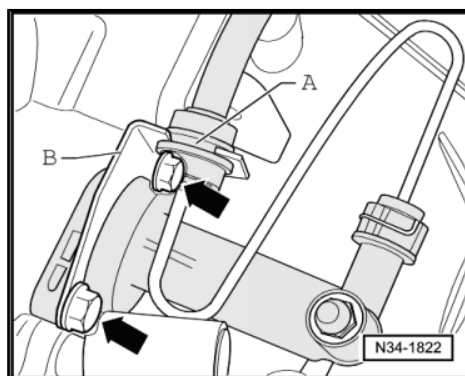
Note

Install engine and gearbox mounting free of tension ⇒ Rep. Gr. 10 ; Removing and installing engine .

- Attach drive shafts to gearbox ⇒ Running gear, axles, steering;
Rep. Gr. 40 ; Removing and installing drive shafts .
- Install drive shaft heat shield, if present -arrows- ⇒ Running gear, axles, steering;
Rep. Gr. 40 ; Repairing drive shafts .
- Assemble exhaust system and attach exhaust system bracket to subframe ⇒ Rep. Gr. 26 ; Removing and installing parts of exhaust system .
- Install starter with bolt -3- and, if present, nut -2- ⇒ Electrical system;
Rep. Gr. 27 ; Starter .
- Push connector -1- onto reversing light switch -F4- .

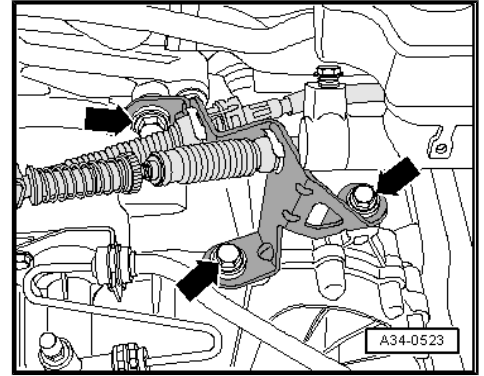


- Install slave cylinder and tighten bolts -arrows- to specified torque ⇒ [Item 9 \(page 43\)](#) .
- Push line between master and slave cylinders -A- into support -B- on gearbox.
- Mount earth strap on upper securing bolt for starter.





- Install cable support bracket on gearbox and tighten bolts -arrows- to specified torque ➔ [Item 6 \(page 61\)](#) .

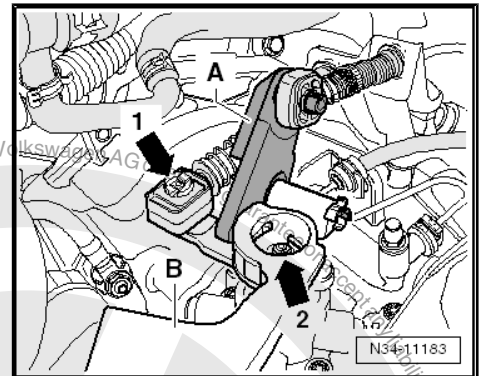


- Install gearbox selector lever -B- ➔ [page 63](#) and tighten hexagon nut -arrow 2- to specified torque ➔ [Item 17 \(page 62\)](#) .



Note

- ◆ When installing, lubricate bearing positions and sliding surfaces.
- ◆ Allocate grease using ➔ *Electronic parts catalogue (ETKA)* .
- Installing relay lever -A- together with cable end-piece ➔ [page 70](#) .
- Spread a small amount of grease on pin of gearbox selector lever -A-.
- Connect gear selector cable to gearbox selector lever -arrow 1- and install a new securing clip.
- Adjust selector mechanism ➔ [page 67](#) .
- Check gear oil ➔ [page 100](#) .



If the gearbox comes in contact with other components, repair damaged surface protection with manufacturer-approved materials ➔ *Paint workshop manual* .

- Install plenum chamber cover ➔ *General body repairs, exterior; Rep. Gr. 50 ; Plenum chamber cover; Removing and installing plenum chamber cover*
- Install battery tray and battery ➔ *Electrical system; Rep. Gr. 27 ; Removing and installing battery* .
- Install air filter ➔ *Rep. Gr. 24 ; Repairing injection system* .
- Connect battery and follow procedure after connecting battery ➔ *Electrical system; Rep. Gr. 27 ; Disconnecting and connecting battery* .
- Install front left wheel housing liner ➔ *General body repairs, exterior; Rep. Gr. 66 ; Wheel housing liner; Front wheel housing liner* .
- Install noise insulation ➔ *General body repairs, exterior; Rep. Gr. 50 ; Noise insulation* .

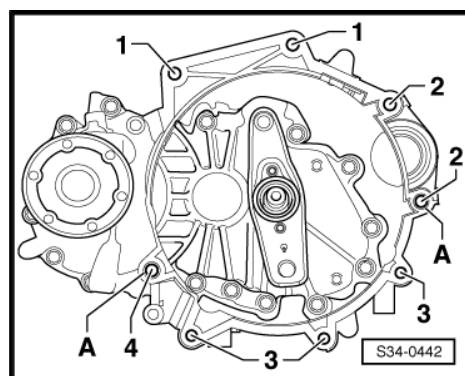


3.2.1 Specified torques

Gearbox to engine

Item	Bolt	Quantity	Nm
1	M12 x 50	2	80
2	M12 x 135 ♦ Additionally, starter to gearbox	2	80
3	M10 x 50	3	40
4	M12 x 60	1	80

Item -A- dowel sleeves for centring

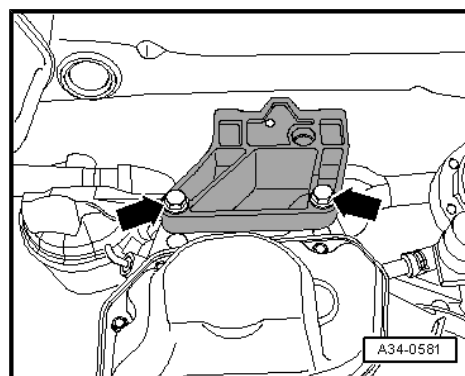


Gearbox support to gearbox

- Renew bolts.

Bolts -arrows-

40 Nm + 90°



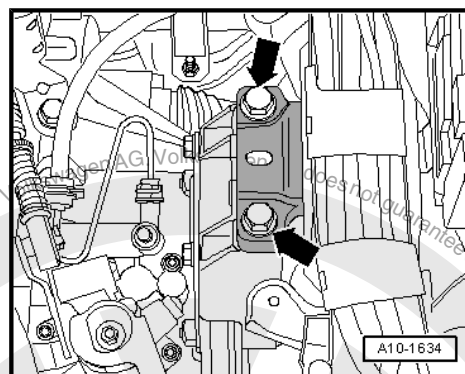
Gearbox support to gearbox mounting

- Renew bolts.
- Screw in all bolts hand-tight.
- Tighten bolts to specified torque.

Bolts -arrows-

60 Nm + 90°

Drive shaft on flange shaft ⇒ Running gear, axles, steering; Rep.
Gr. 40 ; Removing and installing drive shafts .





4 Transporting gearbox

Special tools and workshop equipment required

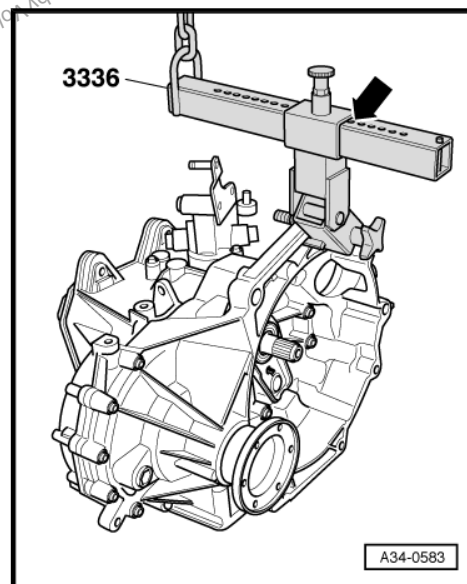
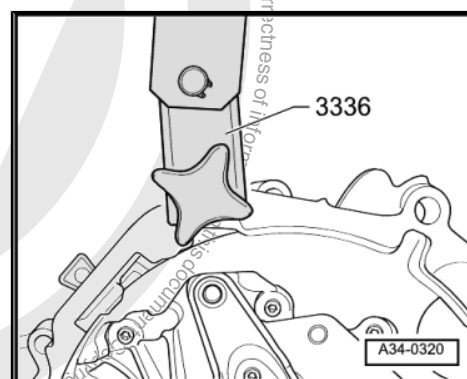
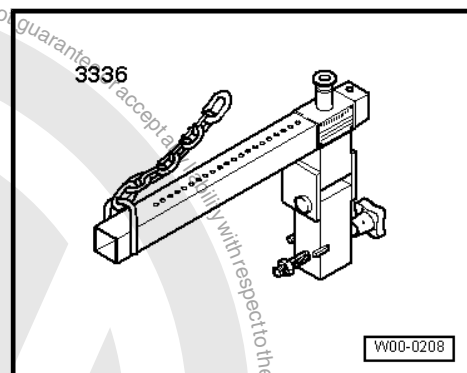
- ◆ Gearbox mounting support -3336-

- Bolt gearbox lifting tackle -3336- to clutch housing.

- Adjust support beam on sliding piece using locking pin -arrow-.

Number of holes visible = 6.

- Lift gearbox using workshop crane and gearbox lifting tackle -3336- .
- Set gearbox aside, for example in a transport container.

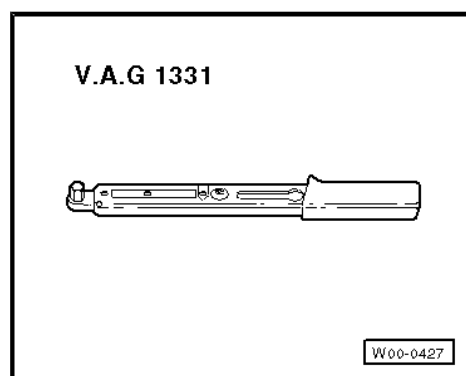




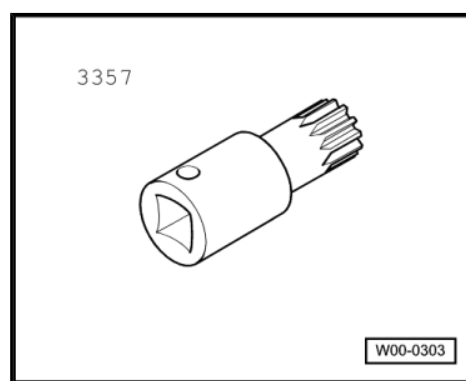
5 Checking gear oil

Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-



- ◆ Multi-point bit -3357-



or

- ◆ Allen key bit, 17 mm

Gearbox oil specification ⇒ Electronic parts catalogue “ETKA” .

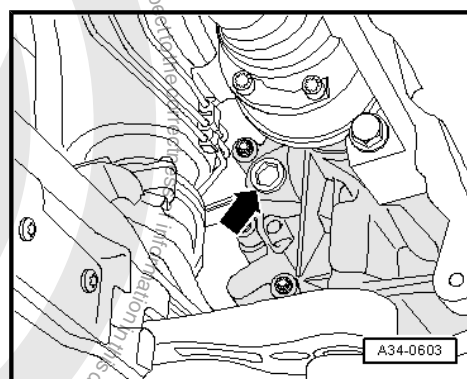
- Remove noise insulation ⇒ General body repairs, exterior;
Rep. Gr. 50 ; Noise insulation .
- To check gear oil, remove oil plug -arrow-.

Oil level is correct when gearbox is filled to lower edge of filler hole.

- Tighten bolt -arrow- to specified torque ⇒ [page 101](#) .

When filling with oil, note the following:

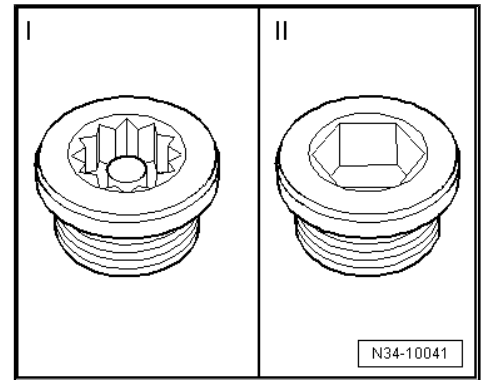
- Remove oil plug -arrow-.
- Fill with gear oil to lower edge of filler hole.
- Screw in plug -arrow-.
- Start engine, engage gear and allow gearbox to turn for approx. 2 minutes.
- Stop engine and remove plug -arrow-.
- Top up with gear oil to lower edge of filler hole.
- Tighten bolt -arrow- to specified torque ⇒ [page 101](#) .





Various versions of oil filler and drain plugs

- I - Oil filler or oil drain plug with multi-point socket head 25 Nm.
- II - Oil filler or oil drain plug with hexagon socket head 30 Nm.
- Install noise insulation ⇒ General body repairs, exterior; Rep. Gr. 50 ; Noise insulation .

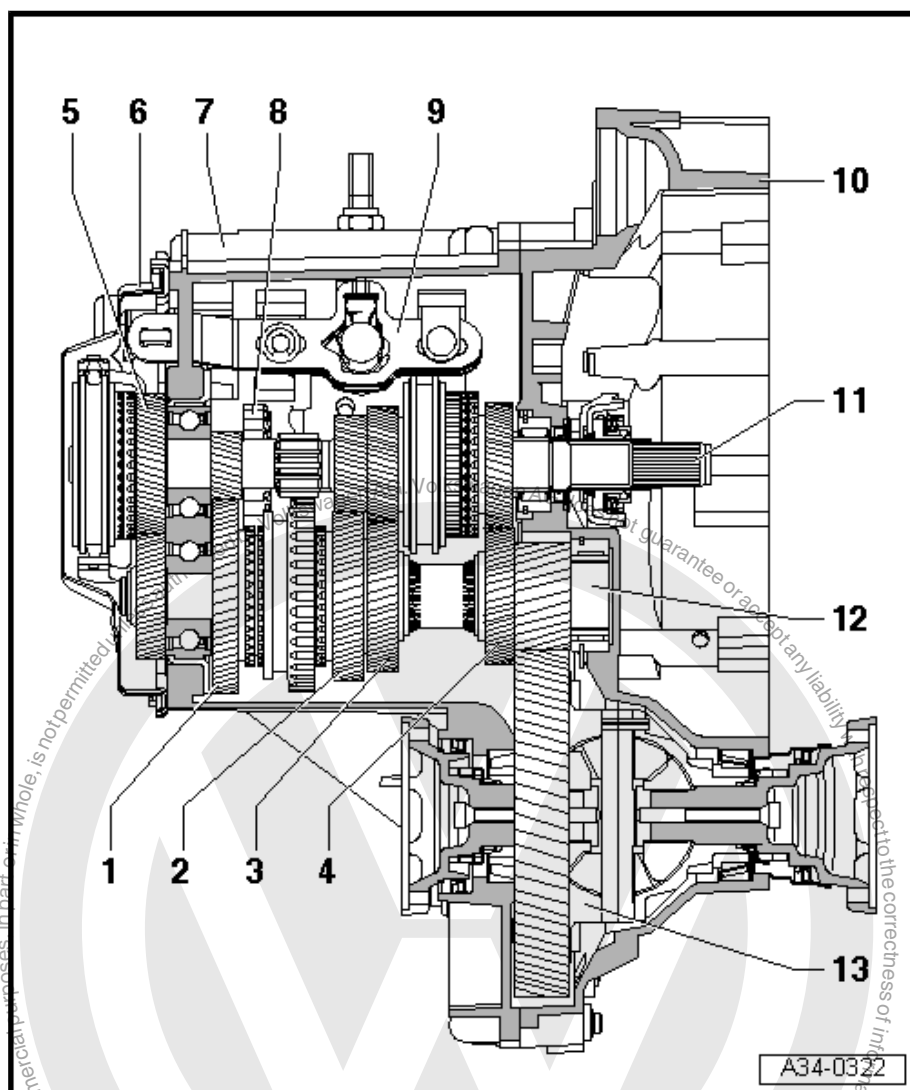




6 Dismantling and assembling gearbox

6.1 Overview - gearbox

- 1 - 1st gear
- 2 - 2nd gear
- 3 - 3rd gear
- 4 - 4th gear
- 5 - 5th gear
- 6 - Gearbox housing cover
- 7 - Gearbox housing
- 8 - Reverse gear
- 9 - Selector mechanism
 - (Selector forks)
- 10 - Clutch housing
- 11 - Input shaft
- 12 - Output shaft
- 13 - Differential



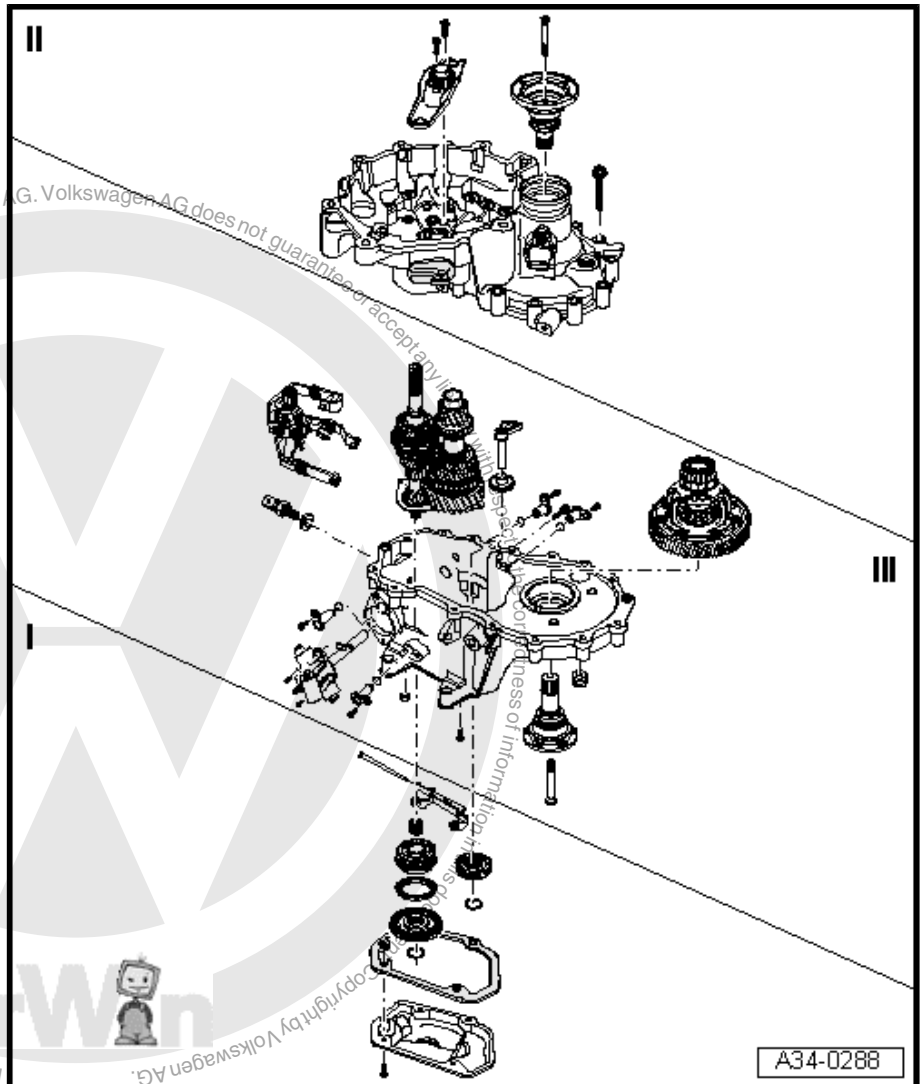


6.2 Assembly overview

I - Assembly overview - removing and installing cover for gearbox housing and 5th gear
⇒ [page 104](#) .

II - Assembly overview - removing and installing clutch housing
⇒ [page 105](#) .

III - Assembly overview - removing and installing input shaft, output shaft, differential, selector mechanism and selector forks
⇒ [page 106](#) .



6.3 Assembly overview - removing and installing cover for gearbox housing and 5th gear

1 - Gearbox housing

2 - Gear wheel for 5th gear

- ☐ Installation position
⇒ [page 115](#)

3 - Retaining ring

- ☐ Renew
- ☐ Determining thickness
⇒ [page 116](#)

4 - Seal

5 - Gearbox housing cover

- ☐ If gearbox housing cover is installed with gearbox installed, check oil level
⇒ [page 100](#)

6 - Bolt, 5 Nm + turn 90° further

- ☐ Always renew

7 - Retaining ring

- ☐ Renew
- ☐ Determining thickness
⇒ [page 116](#)

8 - Synchro-hub with locking collar and stop ring for 5-speed gearbox

- ☐ Dismantling and assembling
⇒ [page 130](#)

9 - Synchro-ring for 5th gear

10 - Synchromeshed gear for 5th gear

11 - Needle bearing

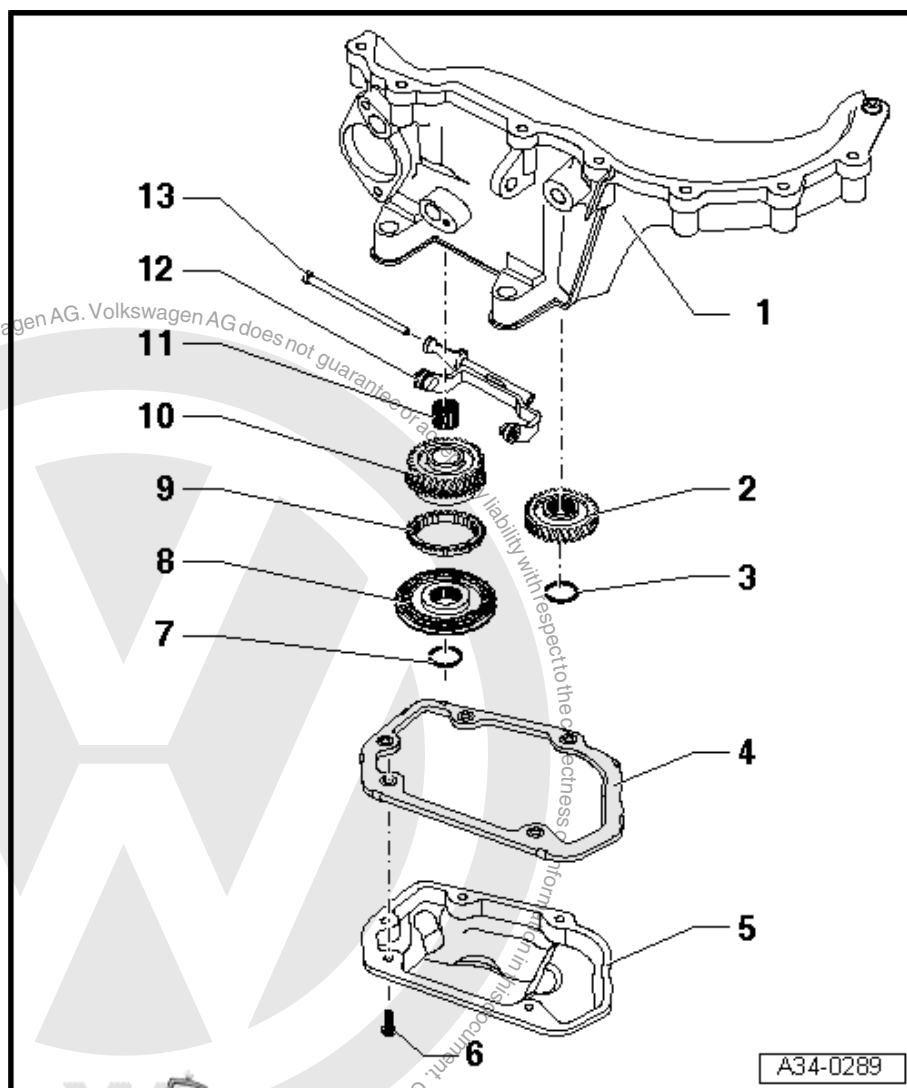
- ☐ For 5th gear

12 - 5th gear selector fork

- ☐ Dismantling and assembling
⇒ [page 125](#)

13 - Pivot pin

- ☐ For 5th gear selector fork.





6.4 Assembly overview - removing and installing clutch housing

1 - Countersunk bolt, 25 Nm

2 - Flange shaft with compression spring

☐ Removing and installing
⇒ [page 107](#)

☐ Assembling
⇒ [page 153](#)

3 - Bolt, 5 Nm + turn 90° further

☐ Always renew

4 - Clutch housing

☐ Repairing ⇒ [page 117](#)

5 - Gearbox housing

☐ Repairing ⇒ [page 117](#)

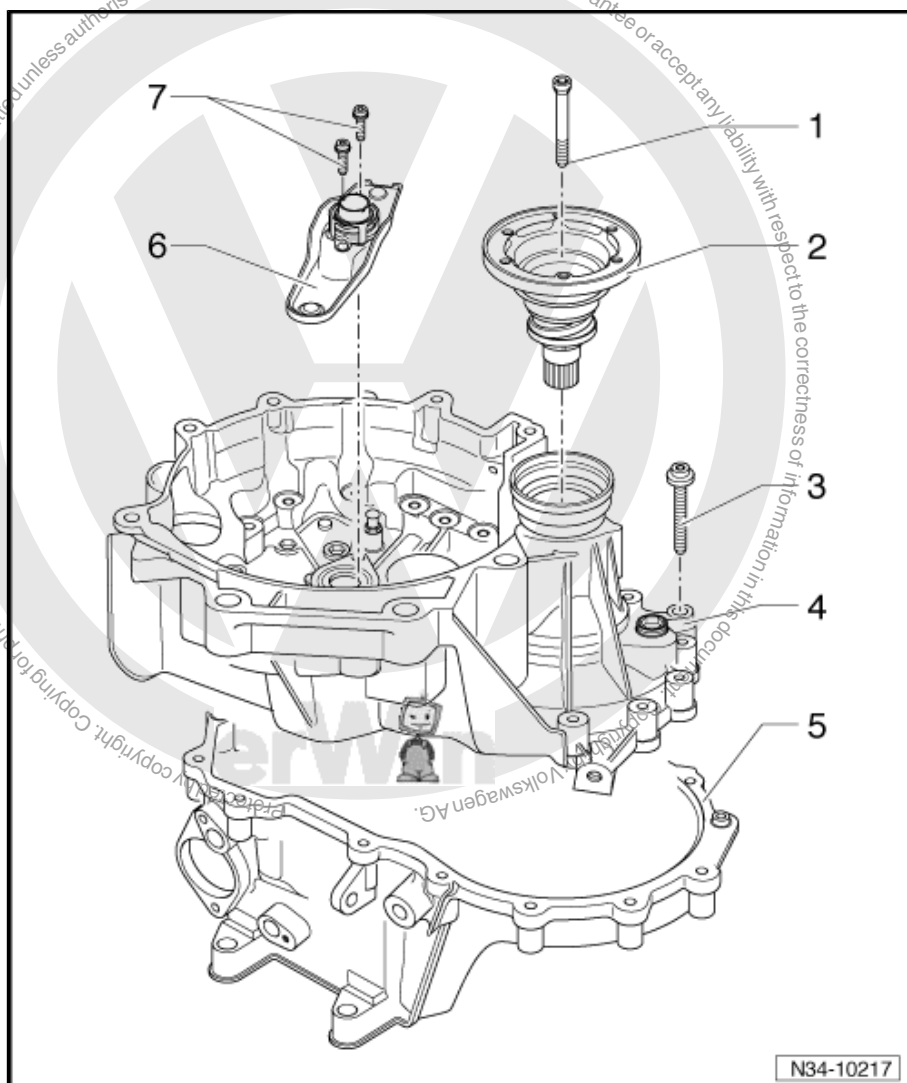
6 - Clutch release lever

☐ With guide sleeve and
release bearing

☐ Removing and installing
⇒ [page 44](#)

7 - Bolt

☐ Note and torque setting:
⇒ [Item 2 \(page 43\)](#)





6.5 Assembly overview - removing and installing input shaft, output shaft, differential, selector mechanism and selector forks

1 - Differential

- ☐ Dismantling and assembling ⇒ [page 153](#)

2 - Gearbox housing

- ☐ Repairing ⇒ [page 117](#) .
- ☐ Shim S1 for outer race of tapered roller bearing for differential from gearbox build date 04 12 6 is discontinued ⇒ [page 163](#)
- ☐ Bearing seat for tapered roller bearing outer race adapted in gearbox housing

3 - Oil drain plug

- ☐ Torque setting ⇒ [page 101](#)

4 - Flange shaft with compression spring

- ☐ Removing and installing ⇒ [page 107](#)
- ☐ Assembling ⇒ [page 153](#)

5 - Countersunk bolt, 25 Nm

6 - Bolt, 5 Nm + turn 90° further

- ☐ Self-locking
- ☐ Always renew
- ☐ To secure bearing mounting with deep groove ball bearing for input and output shafts ⇒ [Item 16 \(page 107\)](#) .

7 - Hexagon flange nut, 23 Nm

- ☐ For selector mechanism ⇒ [Item 15 \(page 107\)](#) .
- ☐ Self-locking
- ☐ Always renew

8 - O-ring

- ☐ Always renew

9 - Pivot pin

10 - Bolt, 5 Nm + turn 90° further

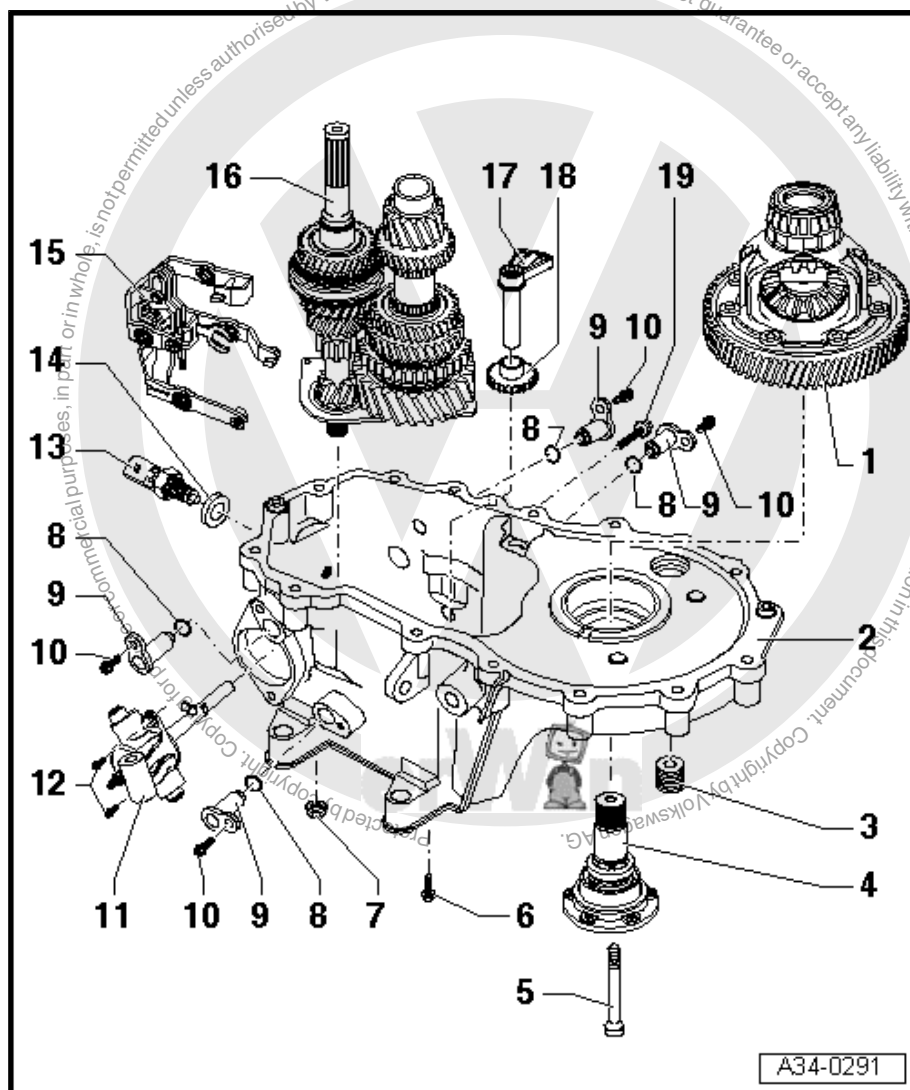
- ☐ Always renew

11 - Selector shaft with selector shaft cover

- ☐ (Selector unit)
- ☐ Repairing ⇒ [page 122](#) .

12 - Bolt, 5 Nm + turn 90° further

- ☐ Always renew





13 - Reversing light switch -F4- , 20 Nm

- ☐ Changed to captive seal shortly after introduction of gearbox.

14 - Seal

- ☐ Always renew, if part of original equipment
- ☐ Not fitted in all gearboxes

15 - Selector mechanism

- ☐ (Selector forks)
- ☐ Repairing ⇒ [page 125](#) .

16 - Input shaft and output shaft with bearing mounting and deep groove ball bearing

- ☐ If bearing mounting is separated from gearbox housing, then mounting must always be renewed.
- ☐ Pressing bearing mounting off and on ⇒ [Item 8 \(page 133\)](#) .
- ☐ Dismantling and assembling input shaft ⇒ [page 130](#)
- ☐ Dismantling and assembling output shaft ⇒ [page 141](#)

17 - Reverse gear shaft

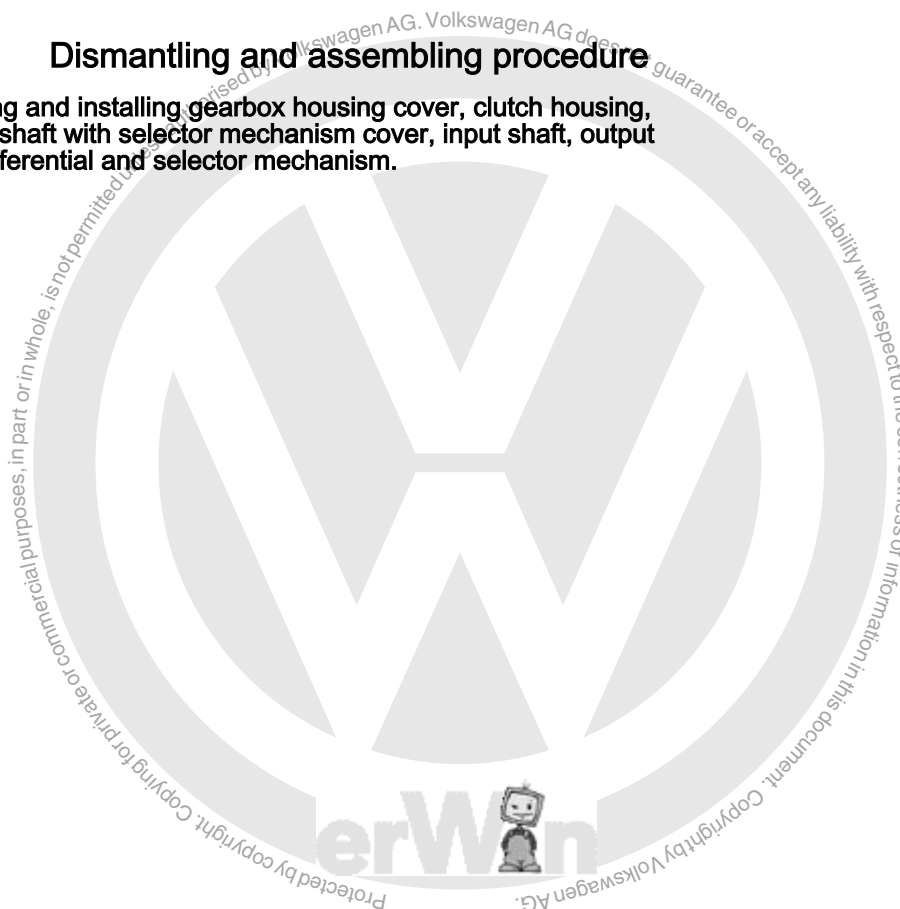
18 - Reverse gear

19 - Bolt, 25 Nm + turn 45° further

- ☐ Always renew
- ☐ For securing shaft for reverse gear

6.6 Dismantling and assembling procedure

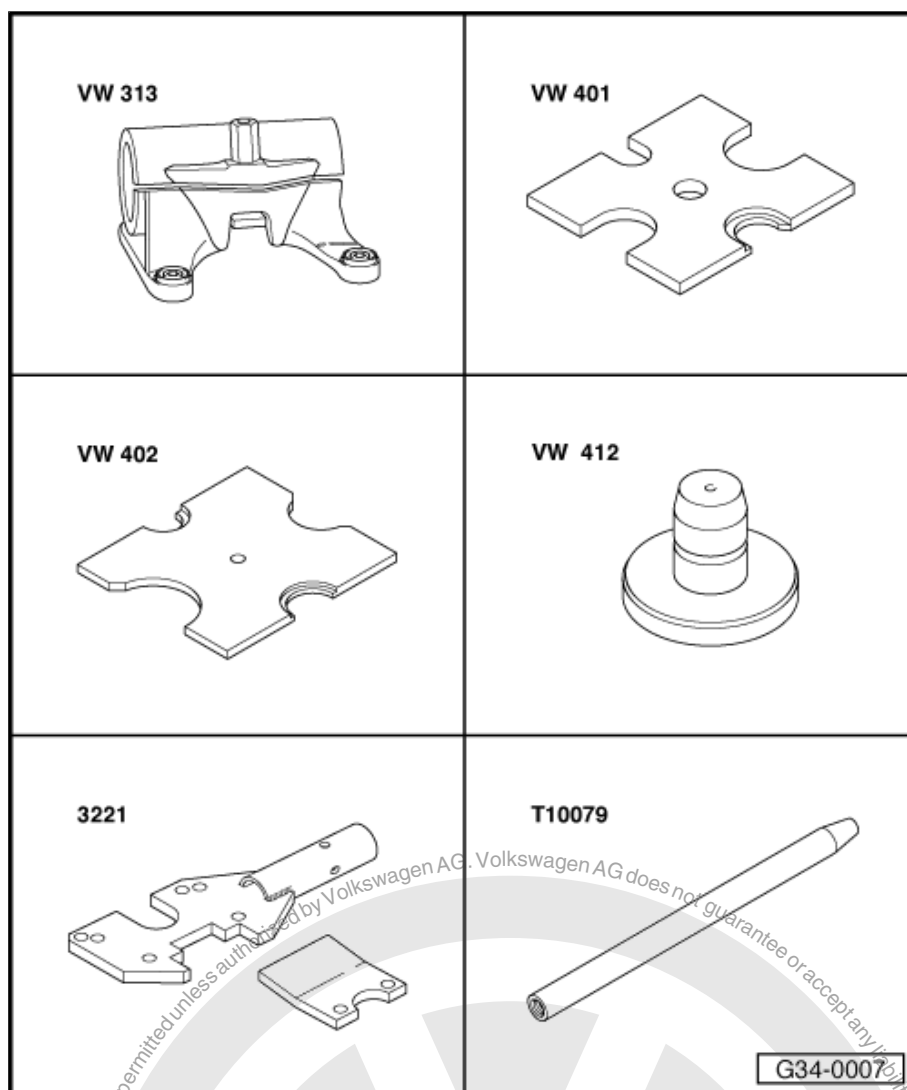
Removing and installing gearbox housing cover, clutch housing, selector shaft with selector mechanism cover, input shaft, output shaft, differential and selector mechanism.





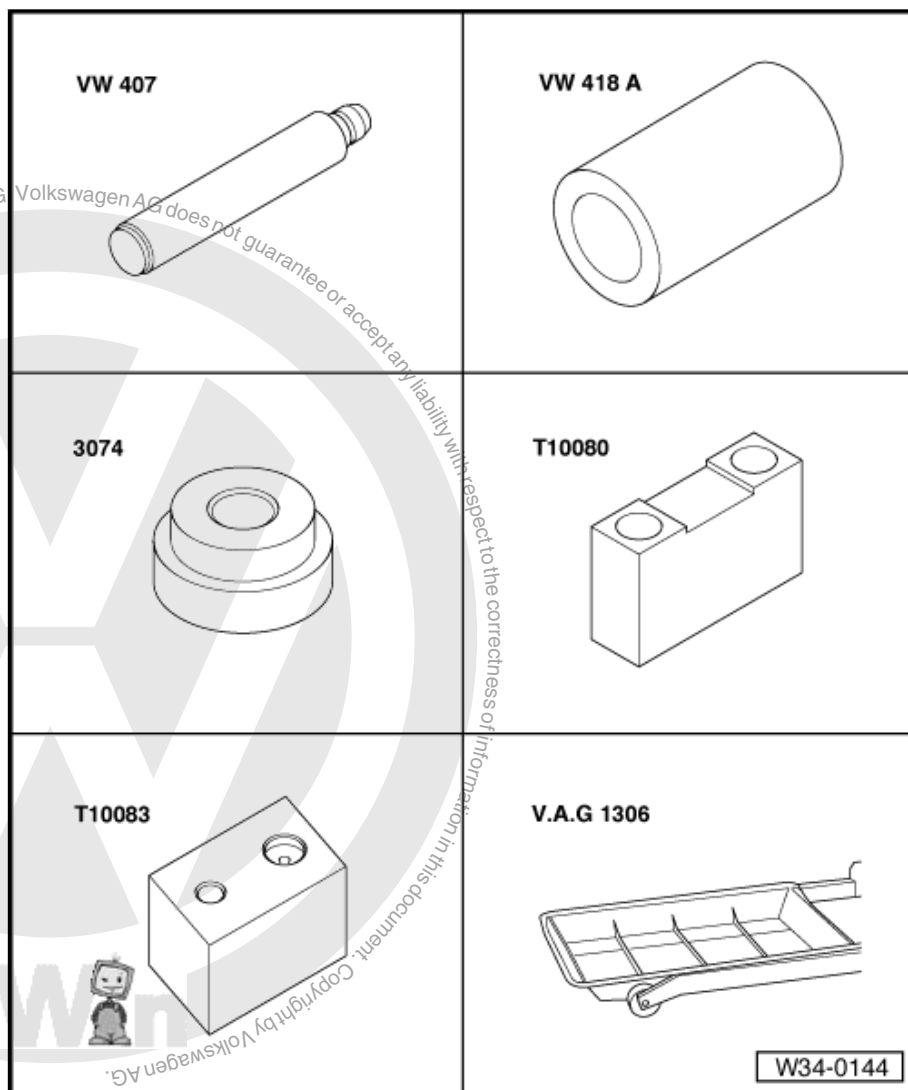
Special tools and workshop equipment required

- ◆ Support clamp -VW 313-
- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 412-
- ◆ Gearbox support -3221-
(modifying ➔ [page 110](#))
- ◆ Guide pin -T10079-



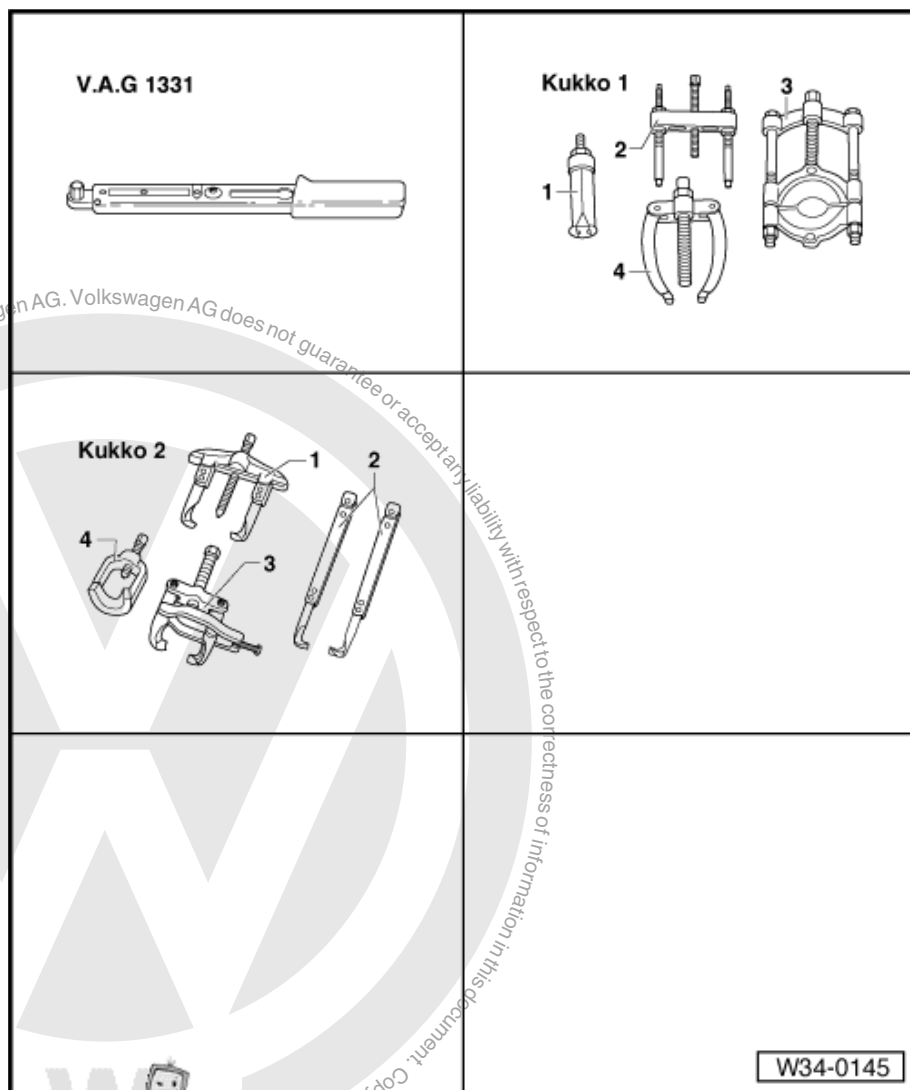


- ◆ Press tool -VW 407-
- ◆ Tube -VW 418 A-
- ◆ Thrust pad -3074-
- ◆ Thrust piece -T10080-
- ◆ Thrust piece -T10083-
- ◆ Drip tray e.g. -V.A.G 1306-





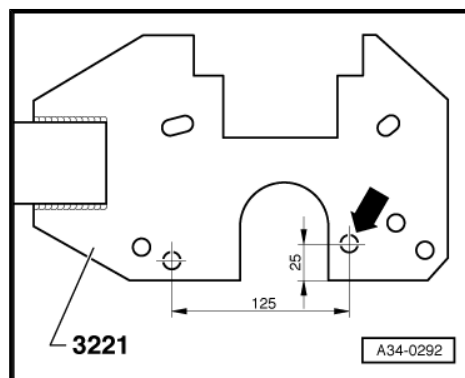
- ◆ Torque wrench -V.A.G 1331-
- ◆ Two arm puller -1 Kukko 20/10-
- ◆ Puller -2 Kukko 18/1-
- ◆ Splitter -3 Kukko 17/1-
- ◆ Hexagon socket head bolt - M 8 x 15-
- ◆ Sealant -AMV 188 200 03-



6.6.1 Removing

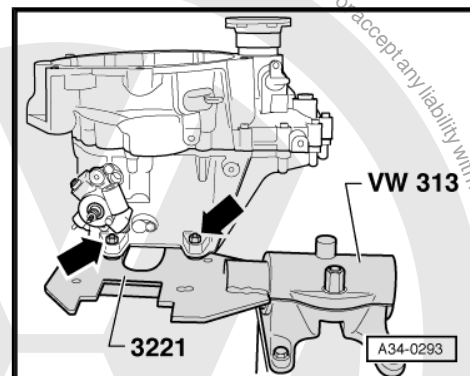
Perform the following steps:

- First change gearbox support -3221- .
- Drill a hole with 11.0 mm Ø -arrow-.

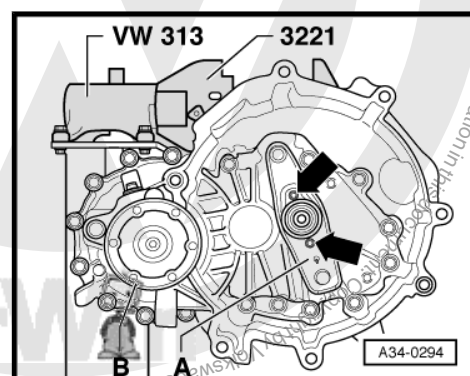




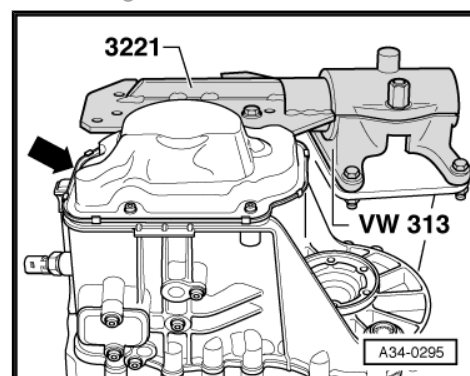
- Secure gearbox to gearbox support -3221- -arrows-.
- Put drip tray underneath, e.g. -V.A.G 1306- .
- Drain gear oil.



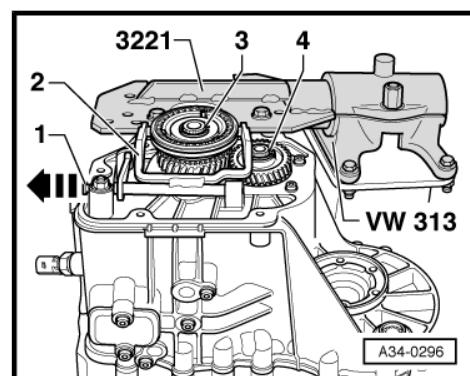
- Remove clutch release lever -A- together with release bearing and guide sleeve -arrows-.
- Remove right flange shaft securing bolt -B-.
- Screw 2 bolts into flange and counterhold flange shaft using a lever.
- Remove flange shaft along with spring, thrust washer and tapered ring.



- Remove gearbox housing cover -arrow-.

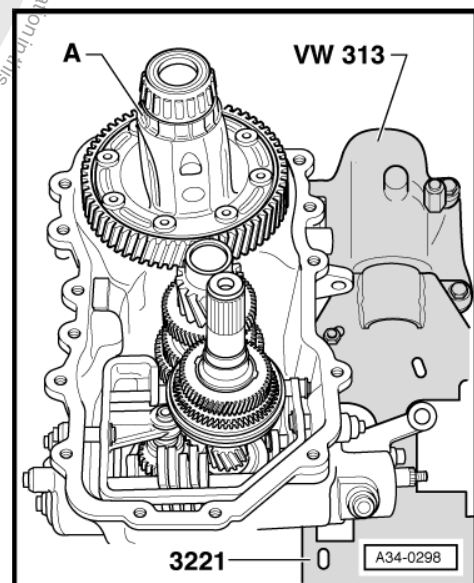
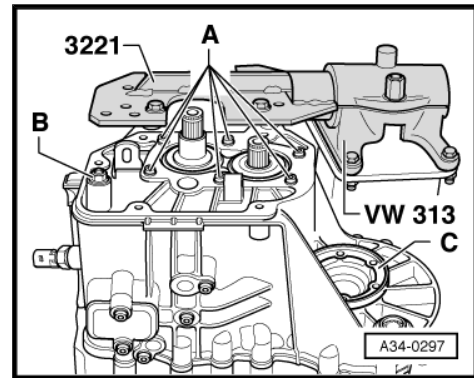


- Pull out pivot pin -1- for 5th gear -2- and remove selector fork.
- Remove securing clip -3- for 5th gear synchro-hub.
- Remove retaining ring -4- for 5th gear wheel.

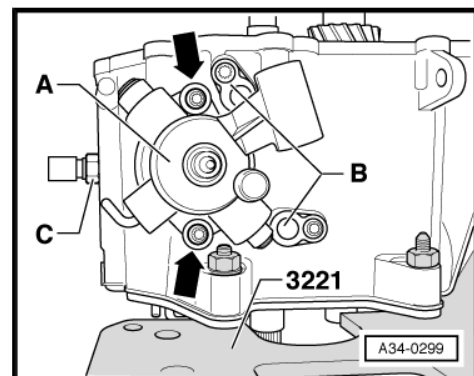




- Remove bearing mounting securing bolts -A- from input and output shafts.
 - Remove 5th gear synchro-hub and 5th gear wheel.
 - Unscrew hexagon collared nut -B- for securing reverse gear selector mechanism.
 - Remove flange shaft securing bolt by screwing 2 bolts into flange and counterholding flange shaft with a lever.
 - Pull out flange shaft -C- with spring.
 - Turn gearbox in support bracket so that clutch housing is upwards.
 - Remove securing bolts from clutch housing side for securing clutch housing to gearbox housing.
 - Remove clutch housing, if necessary carefully levering up all around along protruding housing flange and alternating between sides, being careful not to damage sealing surfaces.
- Note**
- ◆ Do not cant clutch housing when doing this.
 - ◆ Roller bearings and bearing seat on input shaft and output shaft are not allowed to be damaged.
- Remove differential -A- from gearbox housing.



- Remove selector shaft with selector cover -A-. Place selector shaft in neutral. Then remove bolts -arrows- and pull selector shaft out of gearbox housing.
- Remove pivot pins -B- located on underside of gearbox.
- Screw out reversing light switch -F4- -C-.



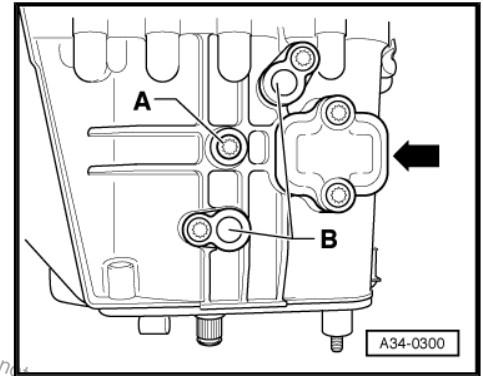


- Remove bolt -A- for securing reverse gear wheel shaft.
- Remove pivot pins -B- located on bottom of gearbox.



Note

Do not remove sealing cover -arrow- when dismantling gearbox.

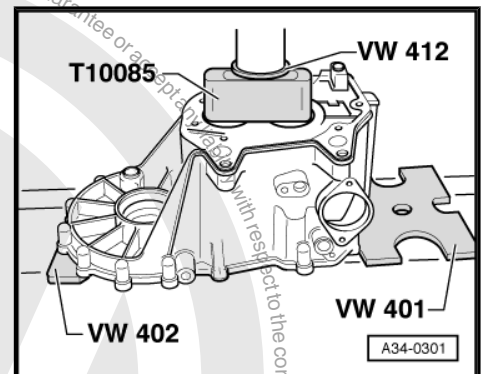


- Press out input shaft, output shaft with bearing mounting, selector mechanism (selector forks) and reverse gear together.



Note

- ◆ *Position gearbox housing so that dowel sleeves in the gearbox will not be damaged.*
- ◆ *When pressing out, get help from second mechanic to ensure components do not fall out.*
- Press input shaft and output shaft off bearing mounting with deep groove ball bearing ⇒ [page 135](#).

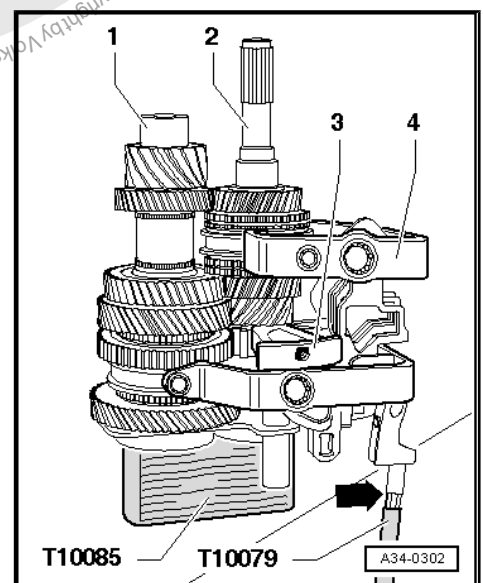


6.6.2 Installing



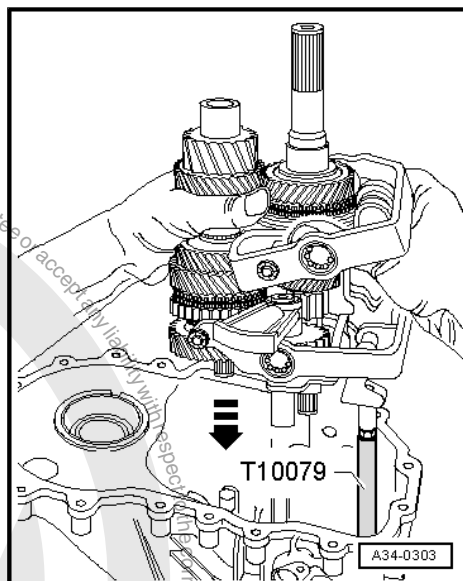
Note

- ◆ *Press bearing mounting with deep groove ball bearing onto input shaft and output shaft ⇒ [page 138](#).*
- ◆ *Press needle roller bearing sleeve for synchromeshed gear for 5th gear onto input shaft ⇒ [page 138](#).*
- Position assembled components, input shaft -2- and output shaft -1- with bearing mounting for deep groove ball bearing, in thrust piece -T10085-.
- Insert selector mechanism (selector forks) -4- in the shaft locking collars.
- Install reverse gear shaft -3- with reverse gear.
- Screw guide pin -T10079- onto stud (secures reverse gear) -arrow-.

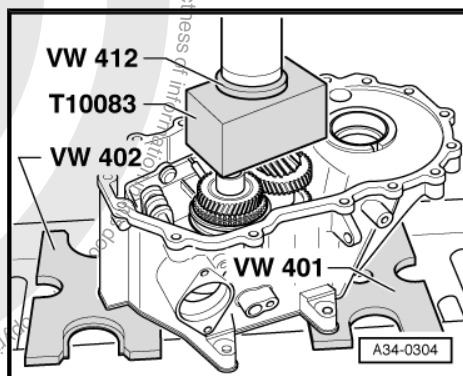




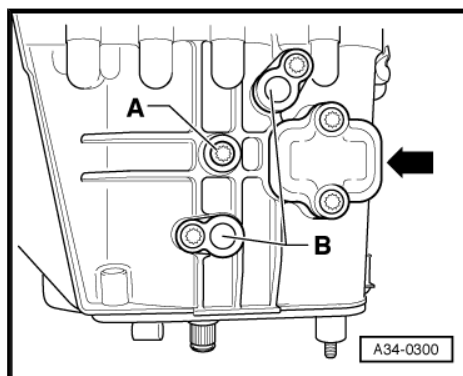
- Insert components together in gearbox housing. To do this, guide guide pin -T10079- through hole for attachment of selector mechanism in gearbox housing.
- Remove guide pin -T10079- .
- Before pressing in bearing mounting, check selector forks are engaged correctly in locking collar.



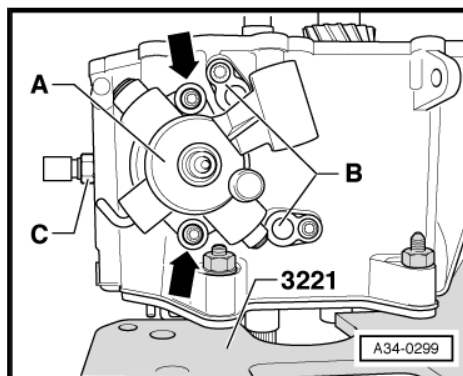
- Carefully press in bearing mounting together with input shaft and output shaft to stop.



- Install bolt -A- for securing reverse gear wheel shaft.
- Install pivot pin -B- in bottom of gearbox.



- Screw in reversing light switch -F4- -C-.
- Install pivot pin -B- in top of gearbox.
- Place selector plates in neutral.
- Apply sealant -AMV 188 200- evenly to sealing surface of selector mechanism cover.
- Install selector shaft with selector cover -A-. Then tighten bolts -arrows-.





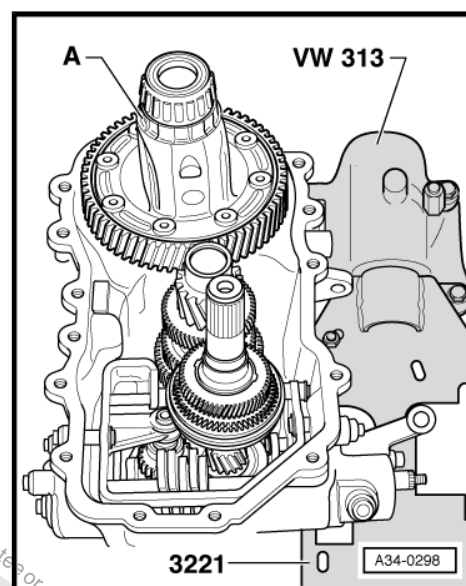
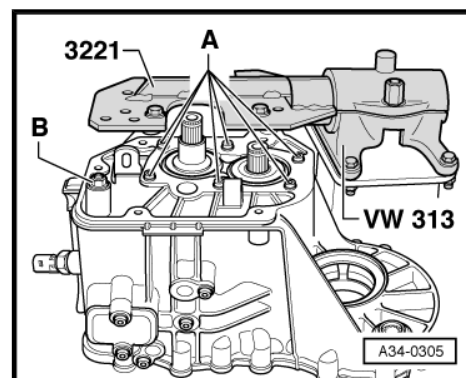
- Using new bolts -A-, tighten bearing mounting for input and output shafts.



Note

Tighten bolts to specified torque, working from centre outwards using alternate sequence.

- Tighten hexagon flange nut -B- for securing selector mechanism (selector forks).
- Install differential -A-.
- Apply sealant -AMV 188 200- evenly to sealing surface.
- Secure clutch housing to gearbox housing.
- Turn gearbox in support bracket so that gearbox housing is upwards.

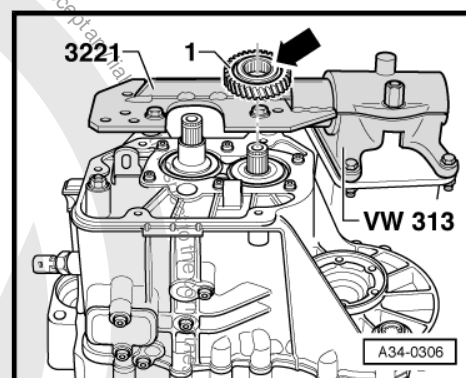


- Install gear wheel for 5th gear -1-.

Installation position of gear wheel for 5th gear:

The high shoulder -arrow- faces gearbox housing cover.

- Install 5th gear synchromeshed gear with needle bearing.
- Place 5th gear synchro-ring on synchromeshed gear.
- Install 5th gear synchro-hub complete with locking collar and stop ring.



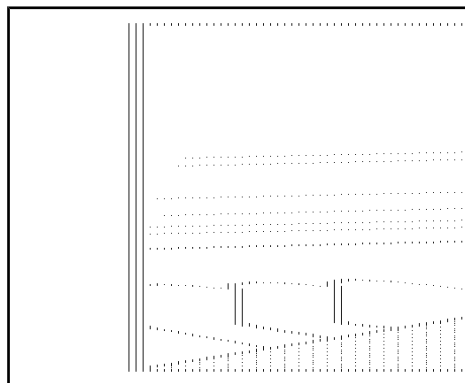
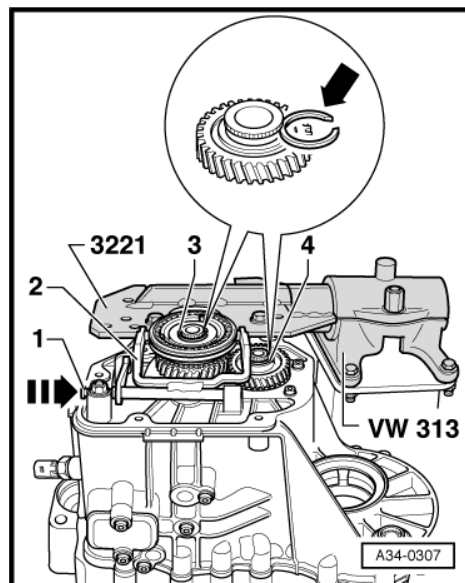


- Insert 5th gear selector fork -2- and push in pivot pin -1- to stop in -direction of arrow-.
- Determine new retaining ring -arrow-.
- Determine thickest retaining rings for input shaft -3- and output shaft -4- which will still fit and install them.

Available retaining rings ⇒ Electronic parts catalogue “ETKA”

Thickness (mm)
2,00
2,10
2,20

- Tighten gearbox housing cover.
- Install both flange shafts with springs, thrust washers and tapered rings.
- Install clutch release lever together with release bearing and guide sleeve ⇒ [page 44](#) .

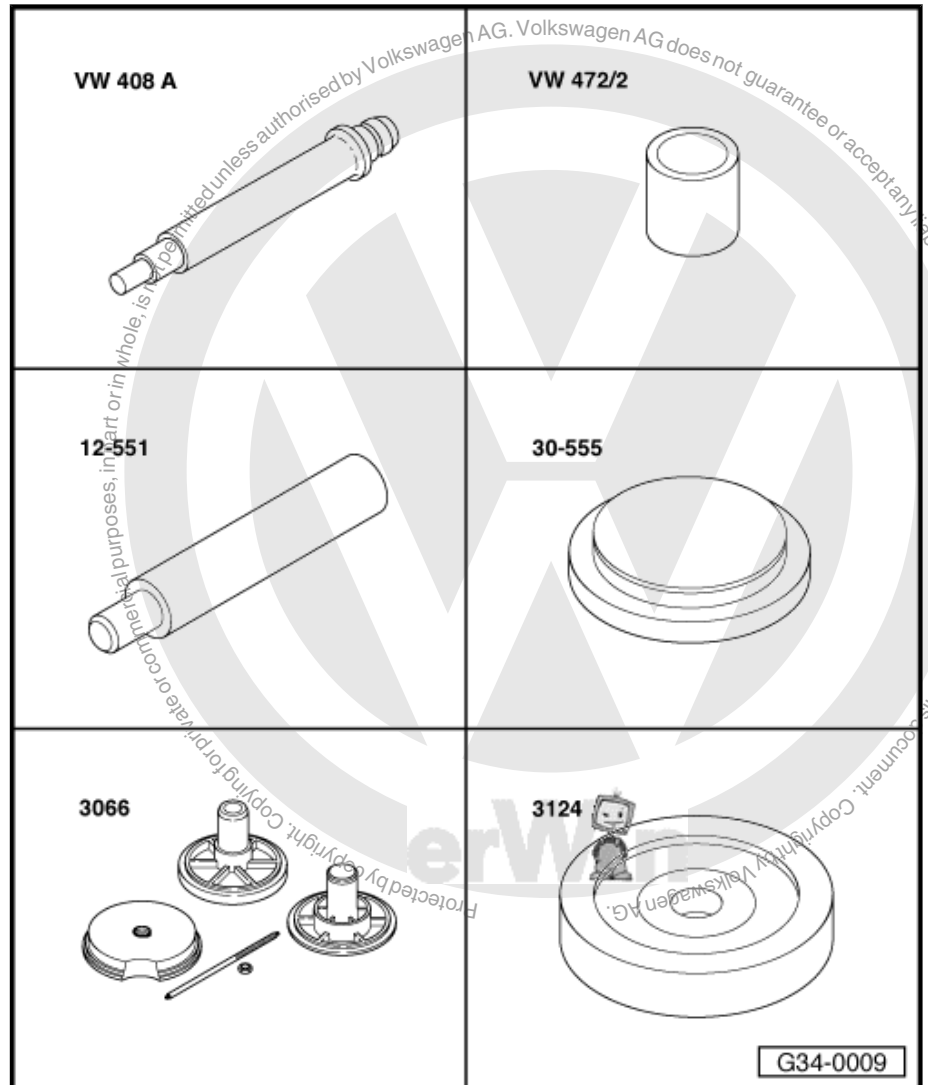




7 Repairing gearbox housing and clutch housing

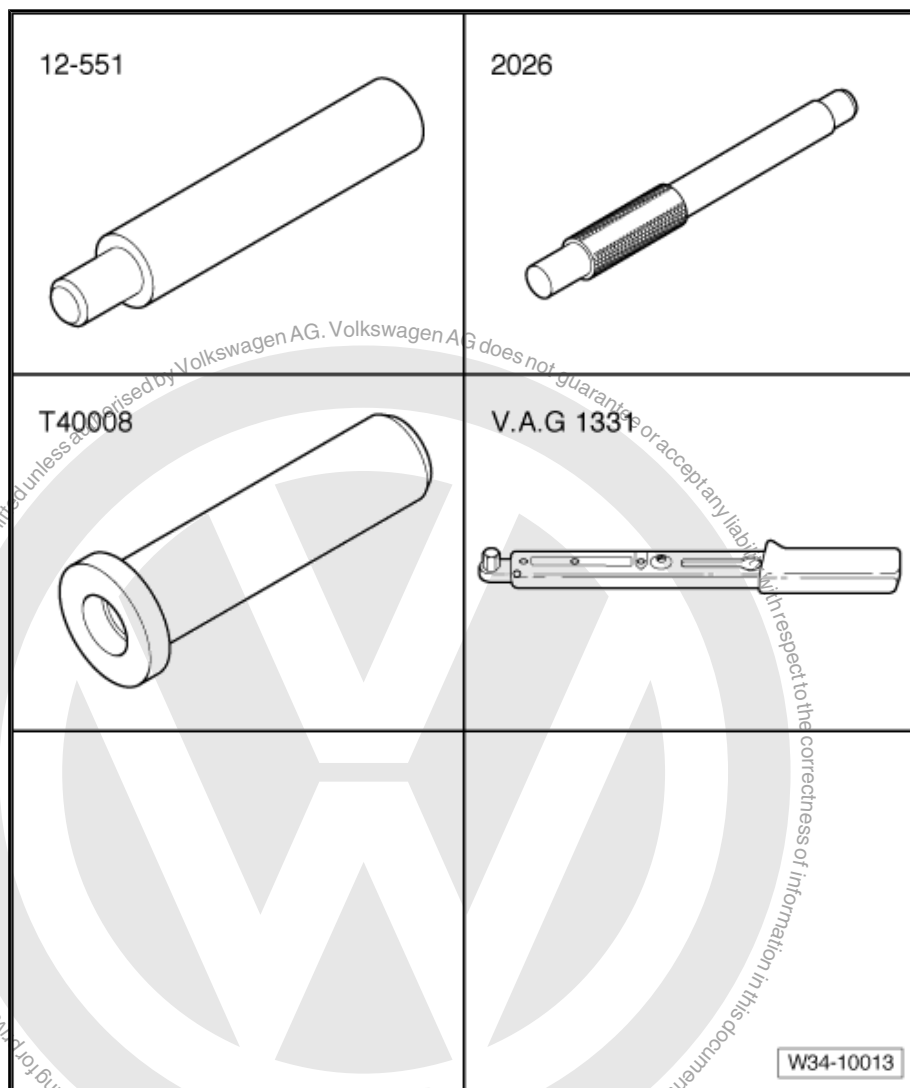
Special tools and workshop equipment required

- ◆ Press tool -VW 408 A-
- ◆ Spacer sleeve -VW 472/2-
- ◆ Centring mandrel -12 - 551-
- ◆ Thrust piece -30 - 555-
- ◆ Threaded rod from assembly device -3066-
- ◆ Thrust piece -3124-

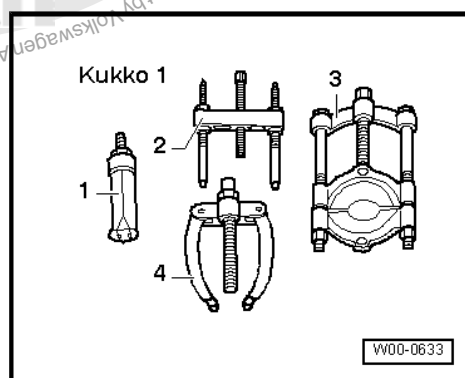




- ◆ Centring mandrel -12 - 551-
- ◆ Drift -2026-
- ◆ Thrust piece -T40008-
- ◆ Torque wrench -V.A.G 1331-



- ◆ Puller -Kukko 18/1-



- ◆ Splitter -Kukko 17/1-



1 - Sleeve

- ☐ For selector shaft
- ☐ Driving out ⇒ [page 121](#)
- ☐ Driving in ⇒ [page 121](#)

2 - Dowel sleeve

3 - Magnet

- ☐ Held in place by housing joint surface

4 - Cover plate

- ☐ Apply sealant -AMV 188 200 03- before bolting on.

5 - Retaining ring

- ☐ Insert in groove of cylindrical roller bearing

6 - Retaining ring

- ☐ Insert in groove of cylindrical roller bearing

7 - Cylindrical roller bearing

- ☐ For input shaft
- ☐ Pulling out and pressing in ⇒ [Item 21 \(page 134\)](#)

8 - Cylindrical roller bearing

- ☐ For output shaft
- ☐ Pulling out and pressing in ⇒ [Item 2 \(page 143\)](#)

9 - Clutch housing

- ☐ If renewed, adjust differential ⇒ [page 161](#)

10 - Input shaft seal

- ☐ Lever out with a screwdriver
- ☐ Driving in ⇒ [page 120](#)

11 - Ball stud, 20 Nm

- ☐ Remove old grease
- ☐ Lubricate with clutch plate spline grease -G 000 100-

12 - Oil seal for right flange shaft

- ☐ Renewing with gearbox installed ⇒ [page 151](#)

13 - Sleeve

- ☐ For oil seal.
- ☐ Removing ⇒ [page 120](#)
- ☐ Installing ⇒ [page 121](#)

14 - Oil filler plug

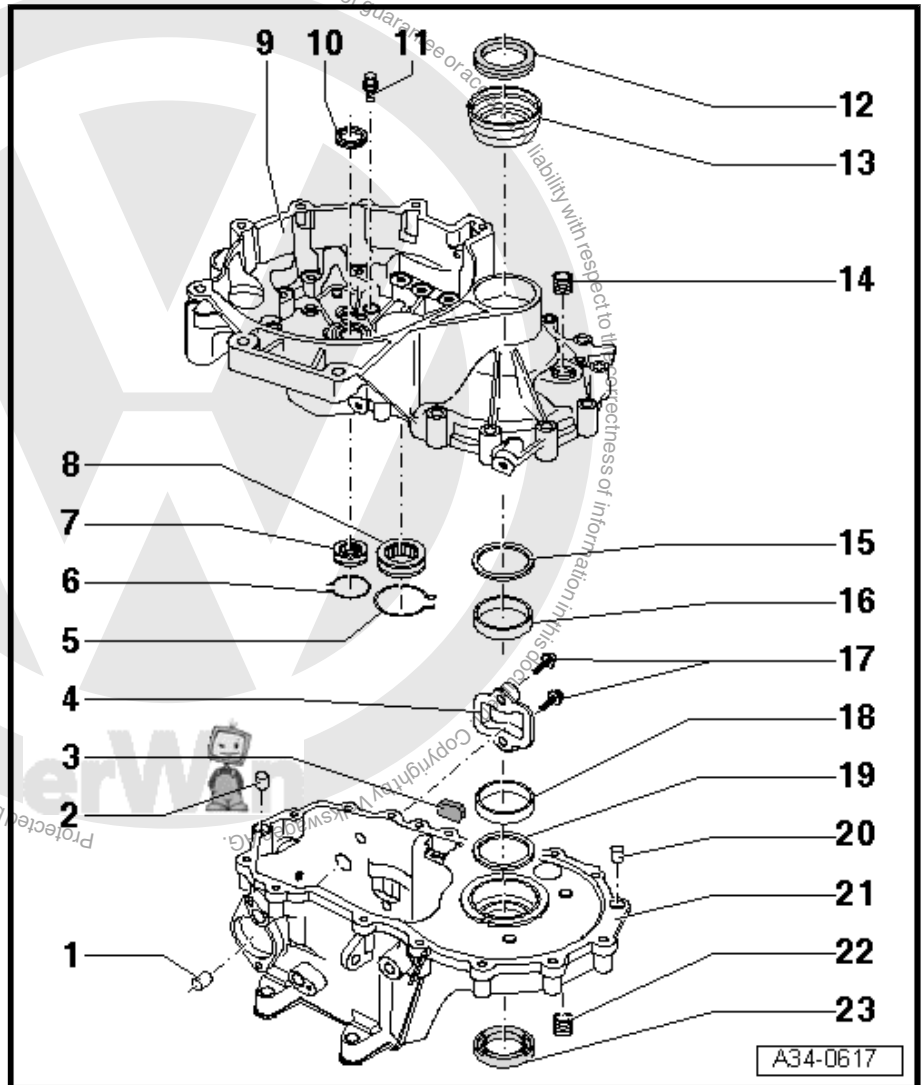
- ☐ Torque setting ⇒ [page 101](#)

15 - Shim S₂

- ☐ For differential
- ☐ Determining thickness ⇒ [page 161](#)

16 - Tapered roller bearing outer race

- ☐ For differential





- ☐ Pressing out of and into clutch housing ➤ [page 153](#)
- ☐ If renewed, adjust differential ➤ [page 161](#)

17 - Bolt, 5 Nm + turn 90° further

- ☐ Always renew

18 - Tapered roller bearing outer race

- ☐ For differential
- ☐ Pulling out of and pressing into clutch housing ➤ [page 153](#)
- ☐ If renewed, adjust differential ➤ [page 161](#)

19 - Shim S₁

- ☐ For differential
- ☐ Always 1 mm thick
- ☐ Shim S₁ discontinued as of production date 04 12 6

➤ [page 163](#)

20 - Dowel sleeve

21 - Gearbox housing

- ☐ Shim S₁ discontinued as of production date 04 12 6 ➤ [page 163](#)
- ☐ Bearing seat for tapered roller bearing outer race adapted in gearbox housing
- ☐ If renewed, adjust differential ➤ [page 161](#)

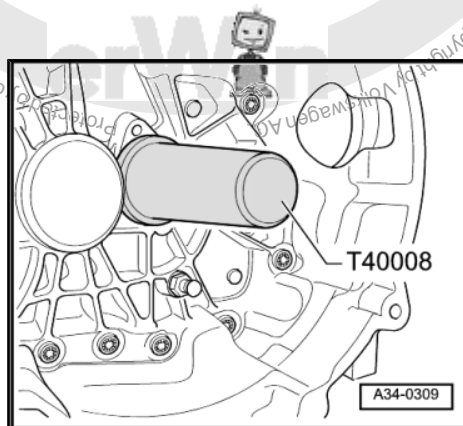
22 - Oil drain plug

- ☐ Torque setting ➤ [page 101](#)

23 - Seal

- ☐ For left flange shaft
- ☐ Renewing with gearbox installed ➤ [page 149](#)

Driving in input shaft oil seal flush

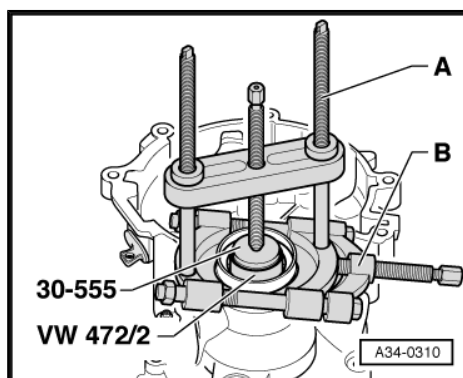


Pulling out sleeve for seal

- Fit spacer sleeve -VW 472/2- and press tool -30 - 555- onto differential.

-A- = Puller -Kukko 18/1-

-B- = Splitter -Kukko 17/1-





Pulling in sleeve for seal

A - Screw threaded rod from assembly device -3066- into threaded piece of differential.

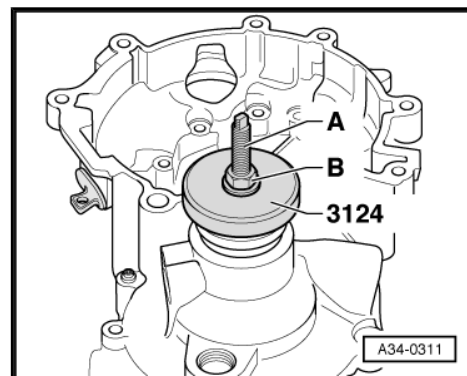
B - Nut M12 with washer.

- Pull sleeve in to stop using thrust piece -3124- by turning nut -B-.

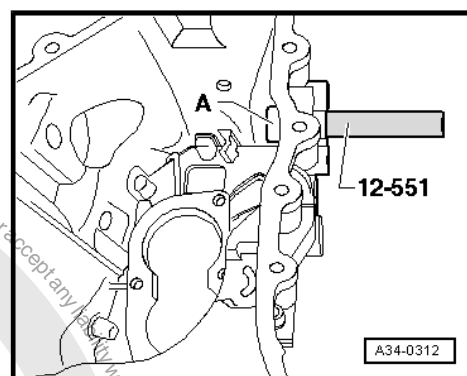


Note

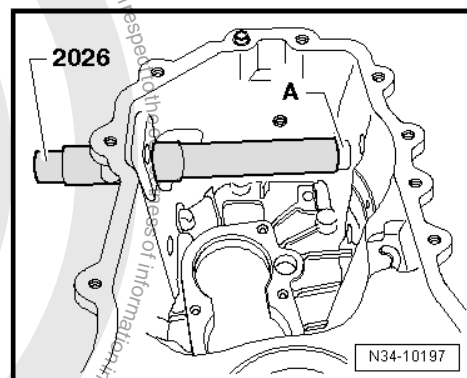
With gearbox dismantled, press sleeve in to stop using thrust piece -3124-.



Driving out selector shaft sleeve -A-



Driving in selector shaft sleeve -A- to stop

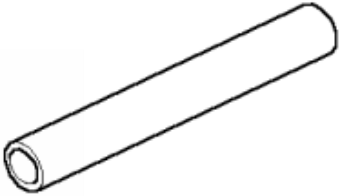

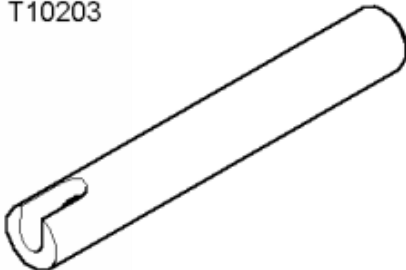




8 Repairing selector unit

Special tools and workshop equipment required

- ◆ Tube -VW 423-
- ◆ Torque wrench -V.A.G 1331-
- ◆ Tube -T10203-

<p>VW 423</p> 	<p>V.A.G 1331</p> 
<p>T10203</p> 	
	<p>W34-10033</p>



1 - Sleeve

- ☐ For selector shaft
- ☐ Driving out ➔ [page 121](#)
- ☐ Driving in ➔ [page 121](#)

2 - Selector shaft with selector shaft cover

- ☐ Renew together

3 - Retaining pin

- ☐ For adjusting selector mechanism
- ☐ Removing ➔ [page 124](#)
- ☐ Driving in ➔ [page 124](#)

4 - Relay lever

- ☐ Installation position ➔ [page 64](#)
- ☐ From 05.07, plastic relay lever ➔ [page 70](#)

5 - Bearing bush

- ☐ Not required for plastic relay lever

6 - Seal

- ☐ For selector shaft
- ☐ Lever out with a screwdriver
- ☐ Installing ➔ [page 124](#)

7 - Cap

- ☐ For gearbox breather

8 - Gearbox selector lever

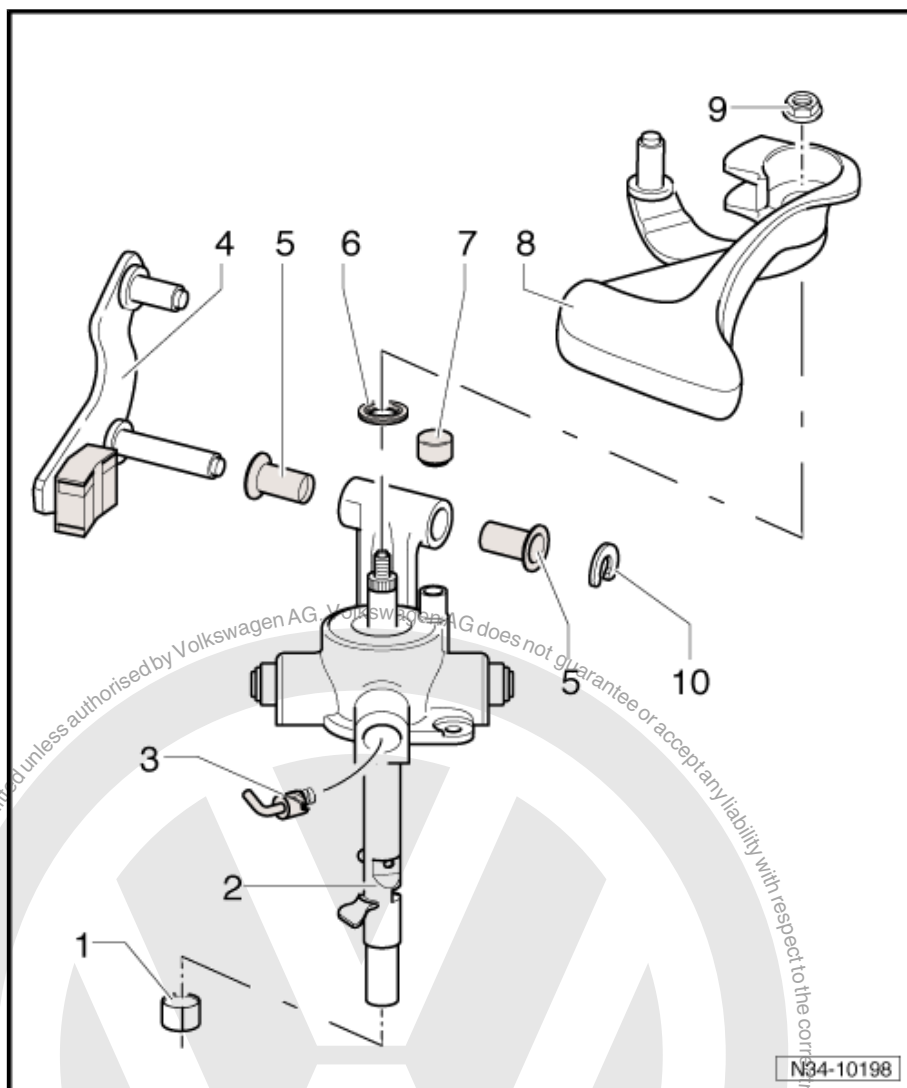
- ☐ With damper weight
- ☐ Installing ➔ [page 63](#)
- ☐ Can be renewed with the selector mechanism installed
- ☐ Installation position ➔ [page 64](#)
- ☐ After installing, adjust selector mechanism ➔ [page 67](#)

9 - Hexagon nut, 23 Nm

- ☐ Self-locking
- ☐ Always renew

10 - Securing clip

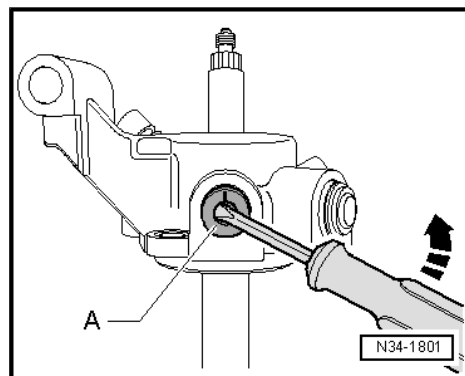
- ☐ Always renew
- ☐ Not required for plastic relay lever





Removing retaining pin -A- from selector shaft cover

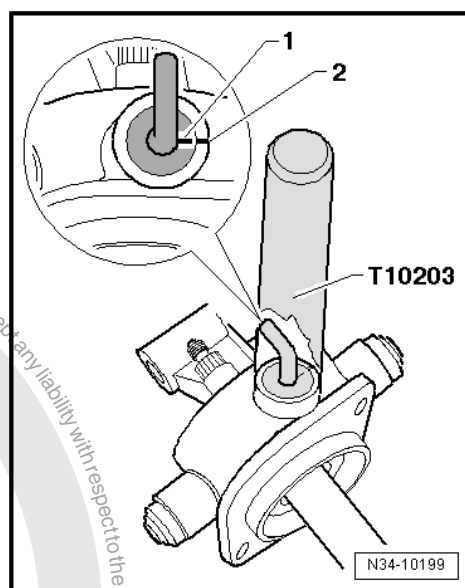
- Remove outer part of retaining pin.
- Then carefully pry out retaining pin using a screwdriver.



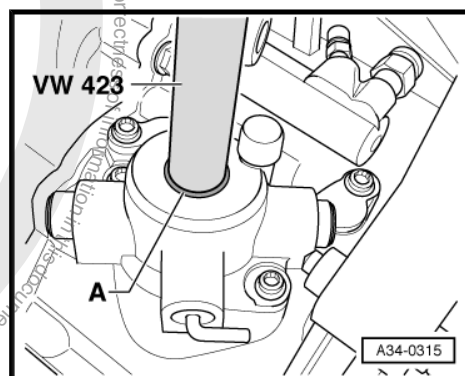
Drive retaining pin -A- into selector shaft cover

Installation position:

Marking -1- points to marking -2- on selector cover.



Inserting oil seal -A- onto stop

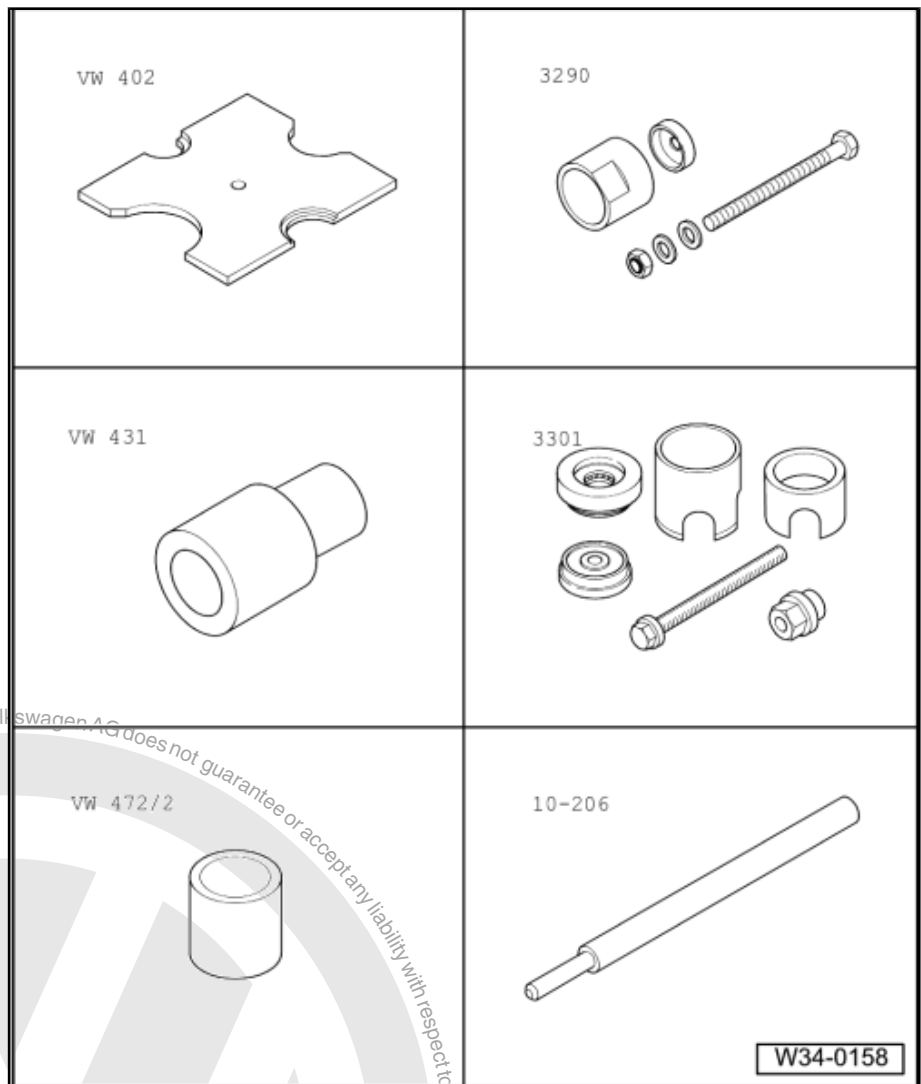




9 Dismantling and assembling selector forks

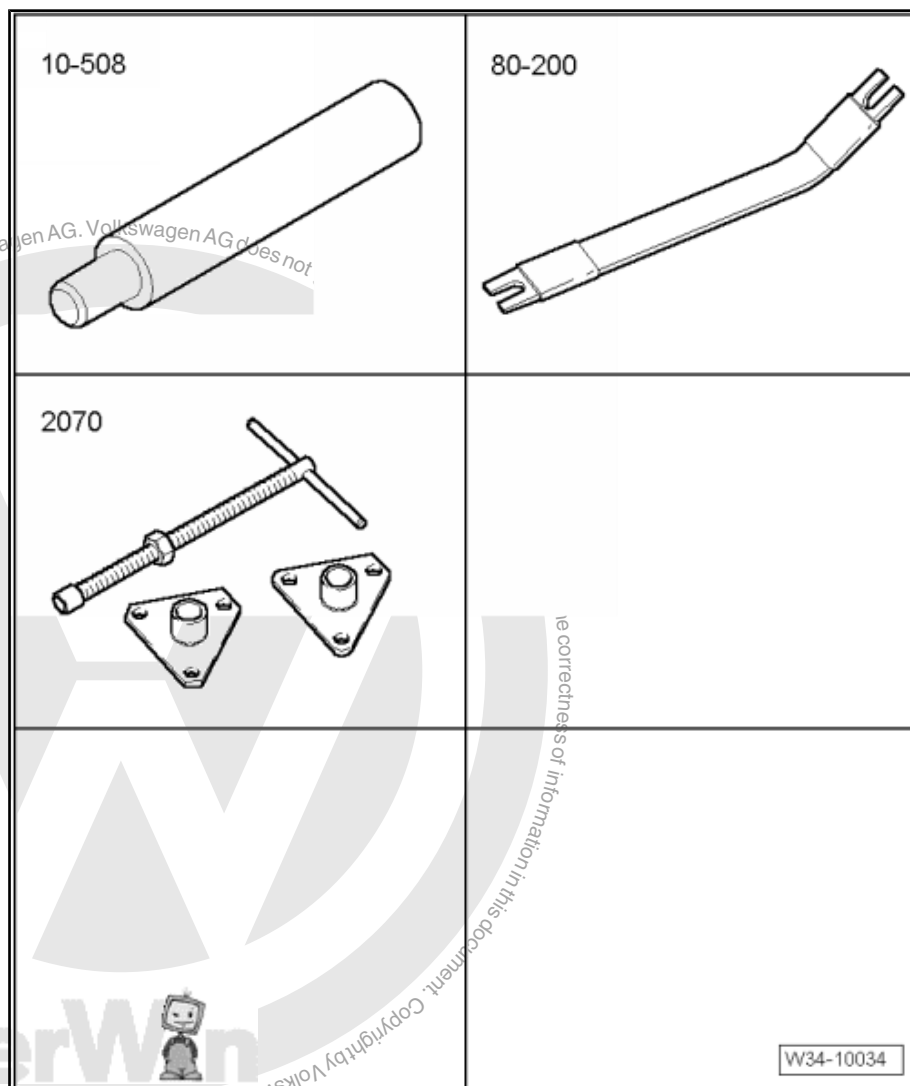
Special tools and workshop equipment required

- ◆ Thrust plate -VW 402-
- ◆ Thrust piece -3290/1-
- ◆ Thrust piece -VW 431-
- ◆ Assembly tool -3301-
- ◆ Spacer sleeve -VW 472/2-
- ◆ Drift -10 - 206-





- ◆ Drift -10 - 508-
- ◆ Removal lever -80-200-
- ◆ Clamp -2070-



Note

It is not necessary to dismantle the selector fork group ⇒ [Item 1 \(page 127\)](#) in order to dismantle and assemble selector segments, lock washers and angular contact ball bearings.



1 - Selector fork group with selector plate

2 - Selector segment for 3rd and 4th gears

- ☐ Identification ⇒ [page 128](#)
- ☐ After installation, selector segment must still rotate freely

3 - Angular contact ball bearing

- ☐ Qty. 4
- ☐ Removing ⇒ [page 129](#)
- ☐ Press inner race into outer race ⇒ [page 129](#)
- ☐ Installing ⇒ [page 129](#)

4 - Lock washer

- ☐ Always renew
- ☐ Removing ⇒ [page 128](#)
- ☐ Installing ⇒ [page 128](#)

5 - Selector segment for 1st and 2nd gears

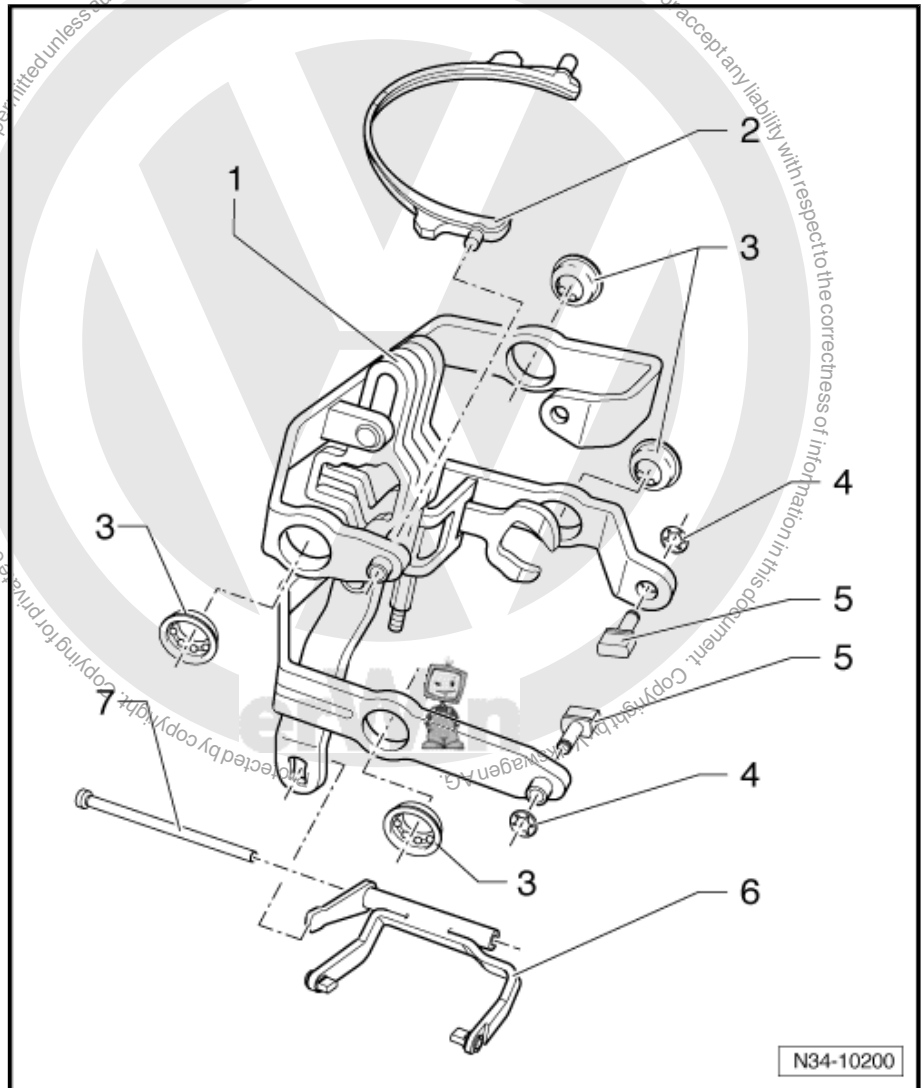
- ☐ Identification ⇒ [page 128](#)
- ☐ After lock washer is installed, segment must still rotate freely
- ☐ Selector fork with selector segment

6 - 5th gear selector fork with selector segment

- ☐ Selector segment is permanently connected to selector fork
- ☐ Identification ⇒ [page 128](#)

7 - Pivot pin

- ☐ For 5th gear selector fork.

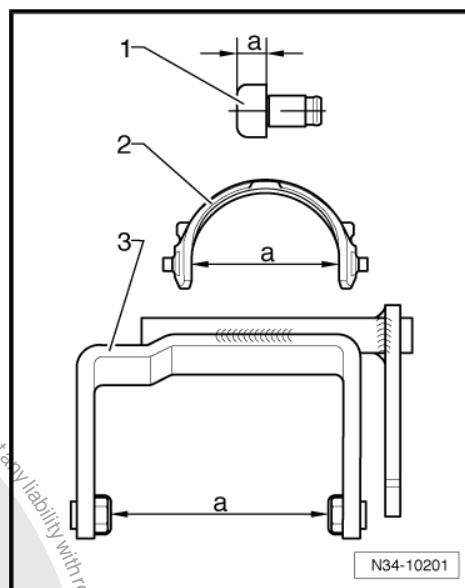




Identification of selector segments and selector fork for 5th gear with selector segments

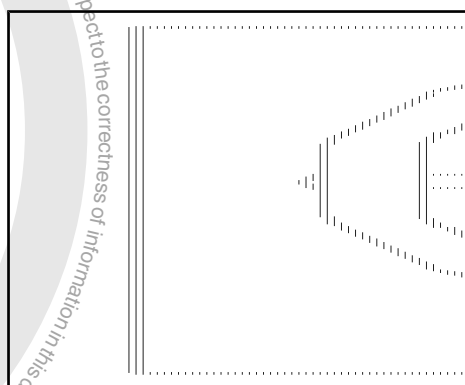
Dimension -a-

- 1 - Selector segment for 1st and 2nd gears = 10.2 mm
- 2 - Selector segment for 3rd and 4th gears = 78.6 mm
- 3 - 5th gear selector fork with selector segments = 79.5 mm



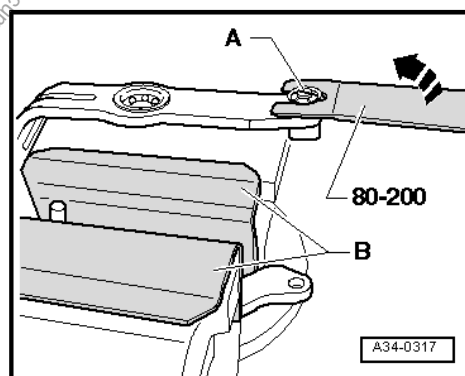
1st and 2nd gear selector fork with selector segments

Dimension -a- = 75 mm



Removing lock washer

- Clamp selector fork in vice with protective jaws -B-.
- Lever off lock washer -A- in -direction of arrow-.



Installing lock washer

- Press lock washer into groove of selector segment using socket and spinner handle.

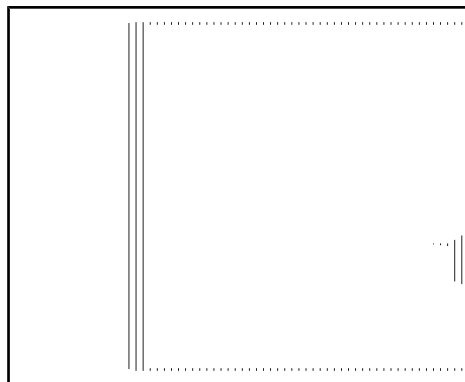


Note

After lock washer is installed, selector segment must still rotate freely.

A - Spinner handle with 10 mm socket

B - Protective jaw covers



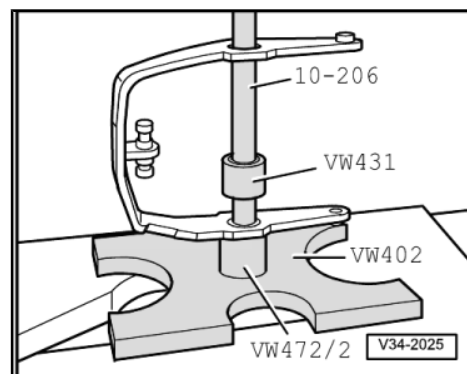


Removing angular contact ball bearing



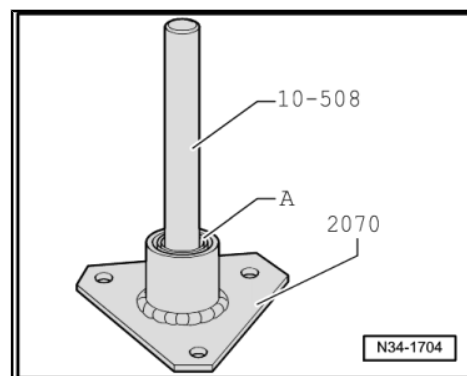
Note

When removing and installing angular contact ball bearing, do not bend selector forks.



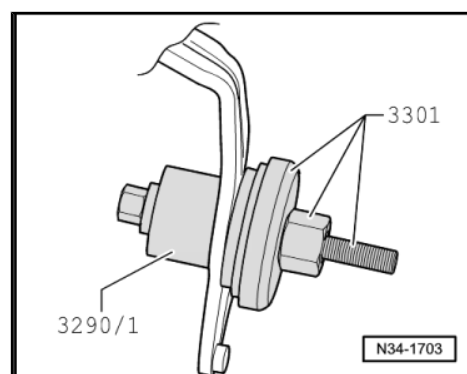
Pressing inner race -A- of angular contact ball bearing into outer race

Inner race must engage in outer race.



Pulling angular contact ball bearing into selector fork to stop

Depression in thrust piece -3290/1- faces ball bearing.





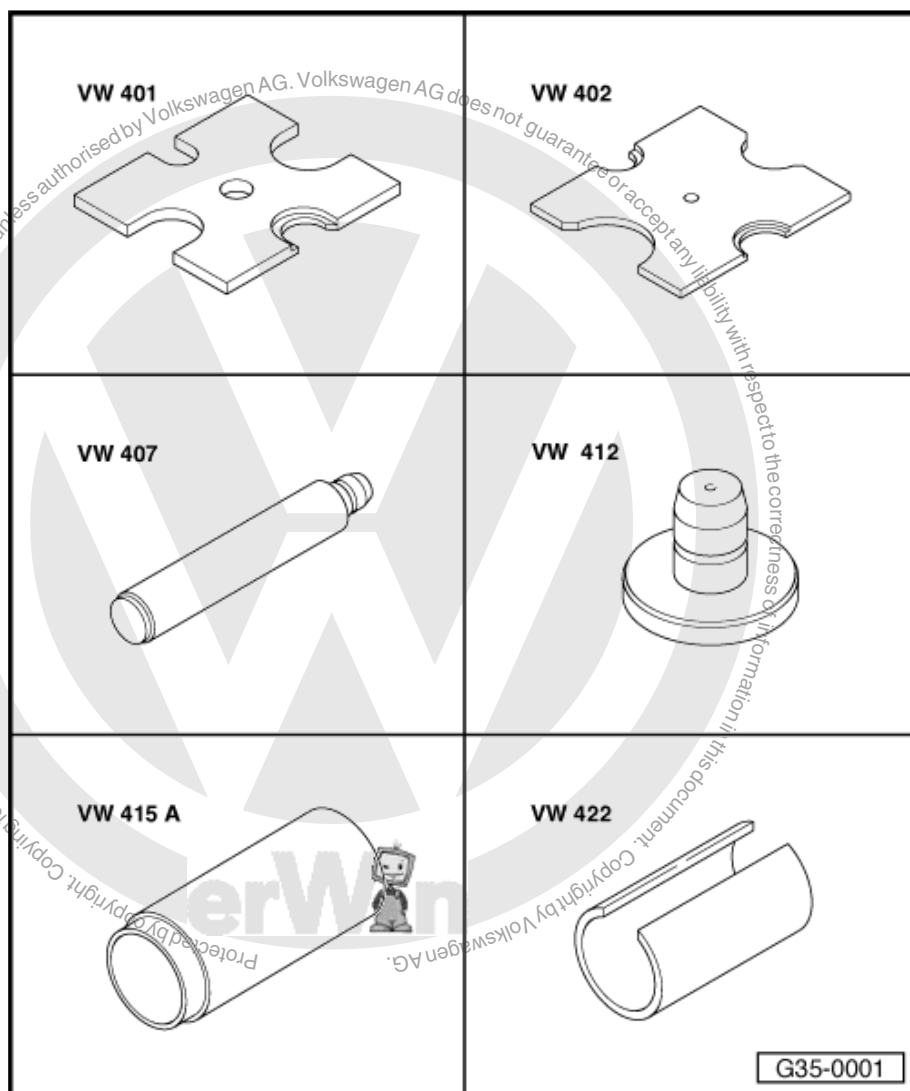
35 – Gears, shafts

1 Input shaft

1.1 Dismantling and assembling input shaft

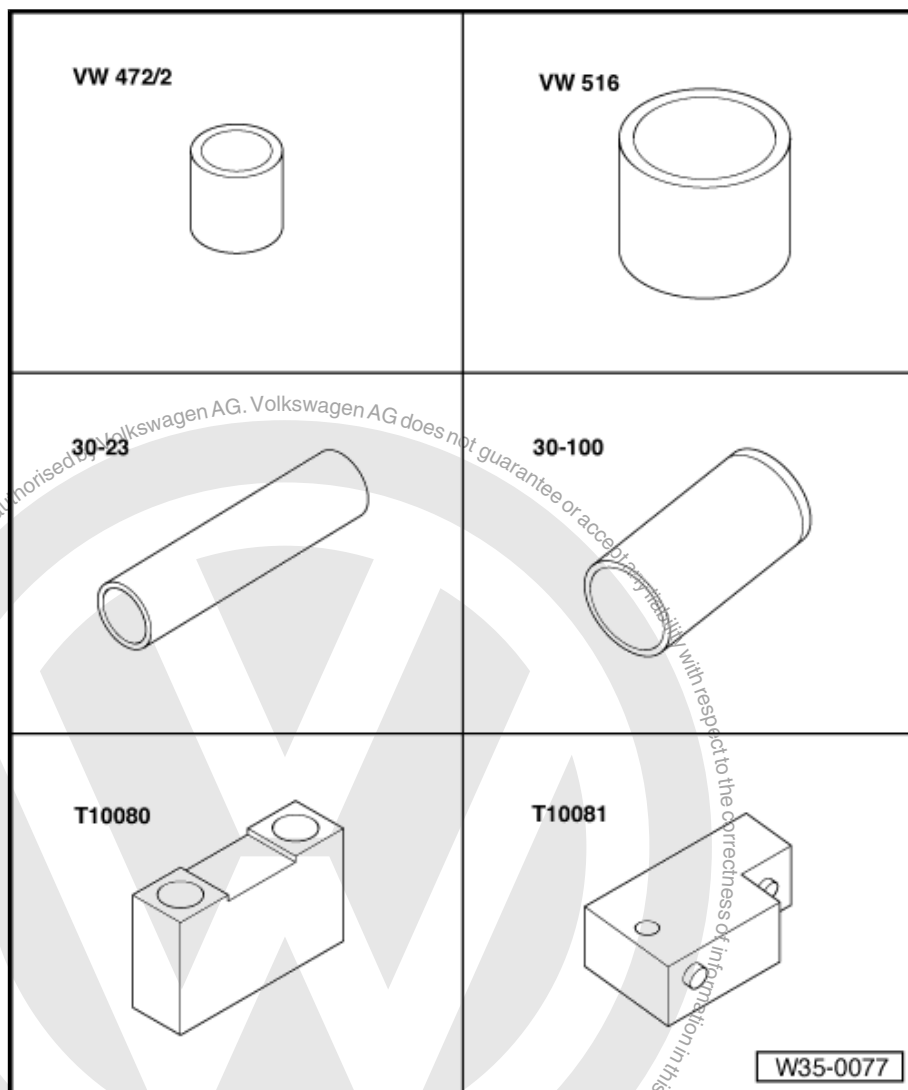
Special tools and workshop equipment required

- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 407-
- ◆ Press tool -VW 412-
- ◆ Tube -VW 415 A-
- ◆ Tube -VW 422-



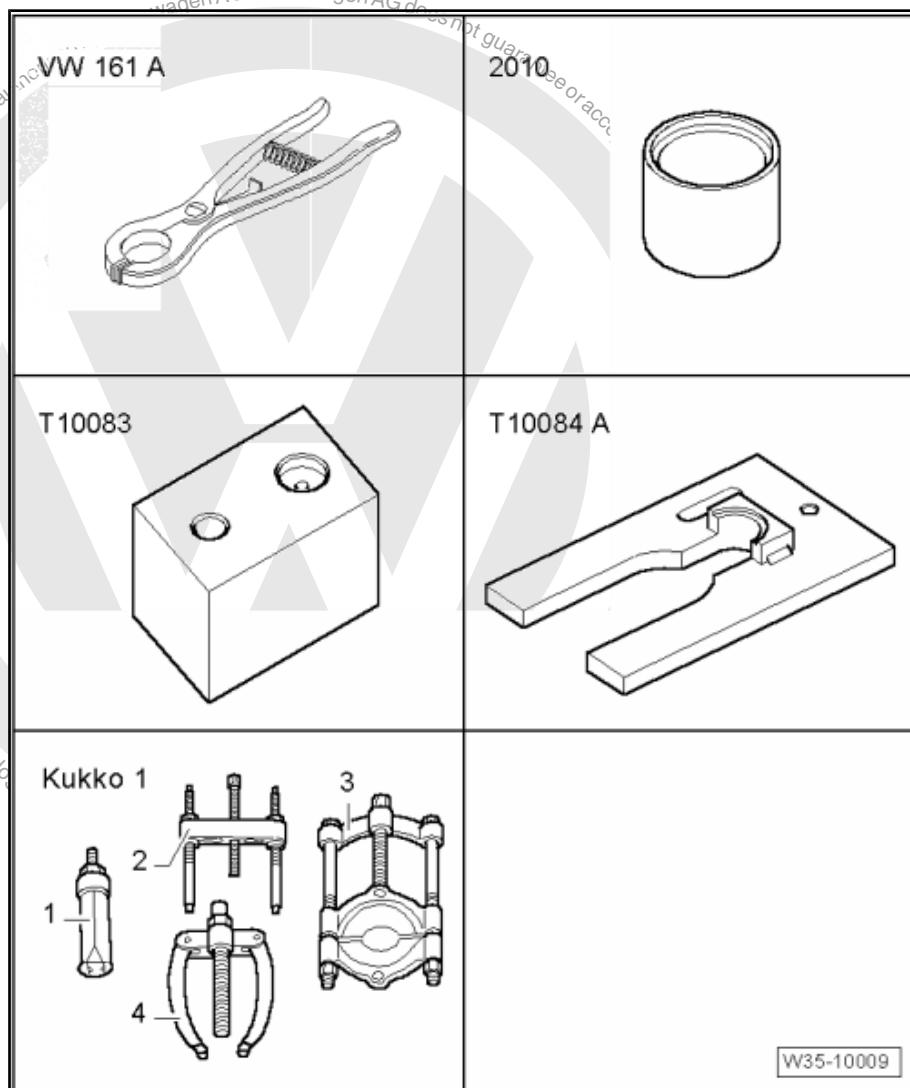


- ◆ Spacer sleeve -VW 472/2-
- ◆ Tube -VW 516-
- ◆ Drift sleeve -30 - 23-
- ◆ Drift sleeve -30 - 100-
- ◆ Thrust piece -T10080-
- ◆ Thrust piece -T10081-

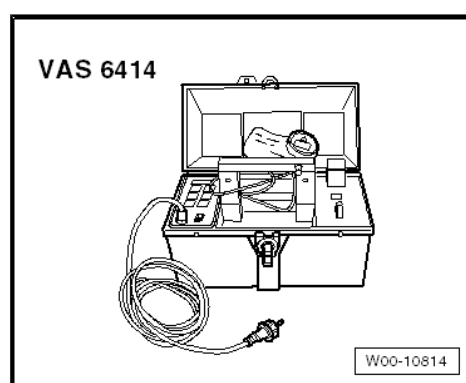




- ◆ Circlip pliers -VW 161 A-
- ◆ Tube -2010-
- ◆ Thrust piece -T10083-
- ◆ Thrust plate -T10084 A-
- ◆ -1- Internal puller -Kukko 21/5-
- ◆ -4- Counter support -Kukko 22/1-
- ◆ -Fühlerblattlehre-



- ◆ Inductive heater -VAS 6414-





Note

- ◆ When installing new gear wheels, consult technical data [⇒ page 1](#) and [⇒ Electronic parts catalogue "ETKA"](#).
- ◆ Install all bearings, synchromeshed gears and synchro-rings on input shaft with gear oil.
- ◆ Do not interchange synchro-rings. When reusing always fit to the original gear.
- ◆ Heat inner races for needle bearing, gear wheels and synchro-hubs to about 100 °C with the inductive heater -VAS 6414- before installing. Wear protective gloves to do this.

1 - Retaining ring

- ☐ Always renew
- ☐ Determining thickness [⇒ page 116](#)

2 - 5th gear locking collar with synchro-hub

- ☐ Removing and installing [⇒ page 107](#)
- ☐ Dismantling [⇒ page 139](#)
- ☐ Assembling 5th gear locking collar and synchro-hub [⇒ page 139](#)
- ☐ Installation position [⇒ page 139](#)

3 - Synchro-ring for 5th gear

- ☐ Check for wear [⇒ page 137](#)

4 - Synchromeshed gear for 5th gear

5 - Needle bearing

- ☐ For 5th gear
- ☐ Renew together with [⇒ Item 6 \(page 133\)](#)

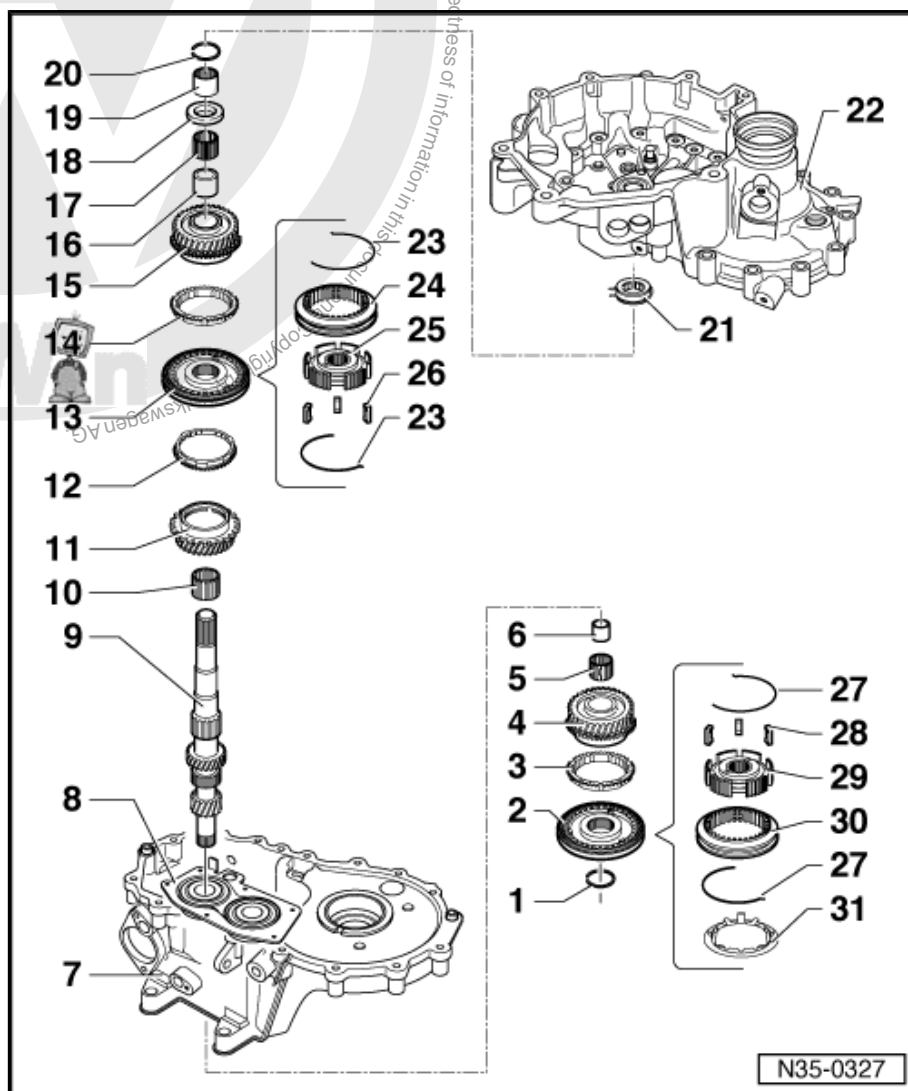
6 - Sleeve

- ☐ For 5th gear needle bearing
- ☐ Renew together with [⇒ Item 5 \(page 133\)](#)
- ☐ Press off with bearing mounting with deep groove ball bearing [⇒ page 135](#)
- ☐ Pressing on [⇒ page 138](#)

7 - Gearbox housing

8 - Bearing mounting with deep groove ball bearing

- ☐ Renew deep groove ball bearing only together with bearing mounting
- ☐ If bearing mounting is separated from gearbox housing, then mounting must always be renewed.
- ☐ Pressing off [⇒ page 135](#)
- ☐ Pressing on [⇒ page 138](#)





9 - Input shaft

10 - Needle bearing

- ☐ For 3rd gear

11 - Synchromeshed gear for 3rd gear

12 - Synchro-ring for 3rd gear

- ☐ Check for wear ➔ [page 137](#)

13 - Locking collar with synchro-hub for 3rd and 4th gear

- ☐ Press off with synchromeshed gear for 3rd gear ➔ [page 136](#)
- ☐ Dismantling ➔ [page 136](#)
- ☐ Installation position, locking collar and synchro-hub ➔ [page 136](#)
- ☐ Assembling ➔ [page 136](#)
- ☐ Pressing on ➔ [page 137](#)

14 - Synchro-ring for 4th gear

- ☐ Check for wear ➔ [page 137](#)

15 - Synchromeshed gear for 4th gear

16 - Sleeve

- ☐ For 4th gear needle bearing
- ☐ Renew together with ➔ [Item 17 \(page 134\)](#)
- ☐ Press off with synchromeshed gear for 3rd gear ➔ [page 136](#)
- ☐ Pressing on ➔ [page 137](#)

17 - Needle bearing

- ☐ For 4th gear
- ☐ Renew together with ➔ [Item 16 \(page 134\)](#)

18 - Thrust washer

19 - Inner race for cylindrical roller bearing

- ☐ Pressing off ➔ [page 136](#)
- ☐ Pressing on ➔ [page 137](#)

20 - Retaining ring

- ☐ Renew
- ☐ Determining thickness ➔ [page 138](#)

21 - Cylindrical roller bearing

- ☐ With retaining ring
- ☐ Pulling out ➔ [page 135](#)
- ☐ Pressing in ➔ [page 135](#)
- ☐ Installation position: retaining ring in bearing faces input shaft

22 - Clutch housing

23 - Spring

- ☐ Installation position ➔ [page 136](#)

24 - 3rd and 4th gear locking collar

25 - 3rd and 4th gear synchro-hub

26 - Locking pieces (Qty. 3)

27 - Spring

- ☐ Installation position ➔ [page 139](#)



28 - Locking pieces (Qty. 3)

29 - Synchro-hub for 5th gear

30 - Locking collar for 5th gear

31 - Stop ring

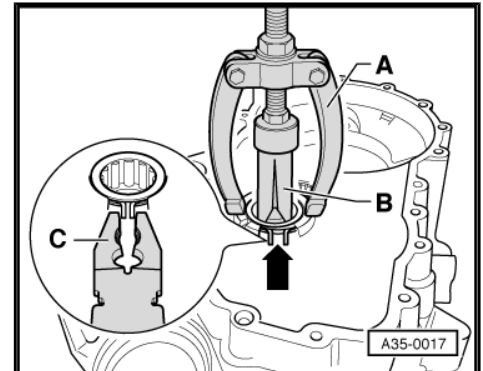
- ☐ Prevents locking pieces from drifting out
- ☐ Removing ➔ [page 139](#)
- ☐ Installing ➔ [page 140](#)

Pulling cylindrical roller bearing out of clutch housing

- When pulling out, squeeze together retaining ring -arrow- of cylindrical roller bearing, using pliers -C-.

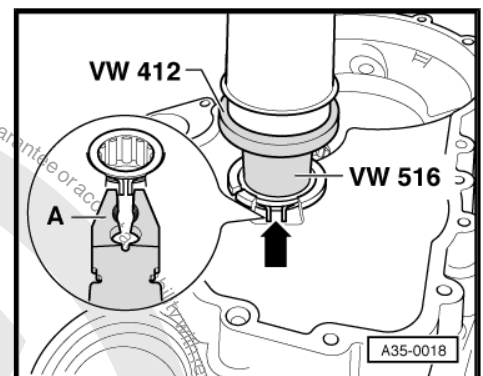
A - Counter support , e.g. -Kukko 22/1-

B - Internal puller, 30 ... 37 mm , e.g. -Kukko 21/5-



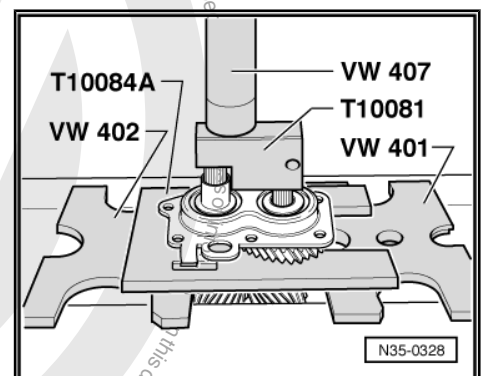
Pressing cylindrical roller bearing into clutch housing

- Support clutch housing with tube -VW 415 A- (not visible in figure) directly below bearing support.
- When pressing in, squeeze together retaining ring -arrow- for cylindrical roller bearing using pliers -A-.
- Remove pliers before cylindrical roller bearing is in installation position. Retaining ring must engage in groove of clutch housing.



Pressing off bearing mounting with deep groove ball bearing

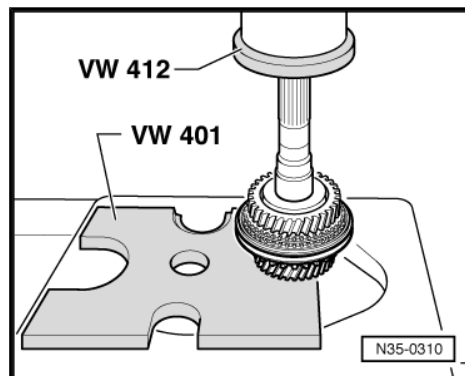
- Slide locking collar for 1st and 2nd gear towards 2nd gear.
- Then slide pressure plate -T10084 A- onto input shaft to stop from side.
- Insert centring pins in thrust piece -T10081- into holes in input and output shafts.





Press off inner race for cylindrical roller bearing

- First remove retaining ring with Circlip pliers -VW 161 A- .
- Press off cylindrical roller bearing inner race together with thrust washer, 4th gear synchromeshed gear with needle bearing, locking collar and synchro-hub for 3rd and 4th gear and 3rd gear synchromeshed gear.

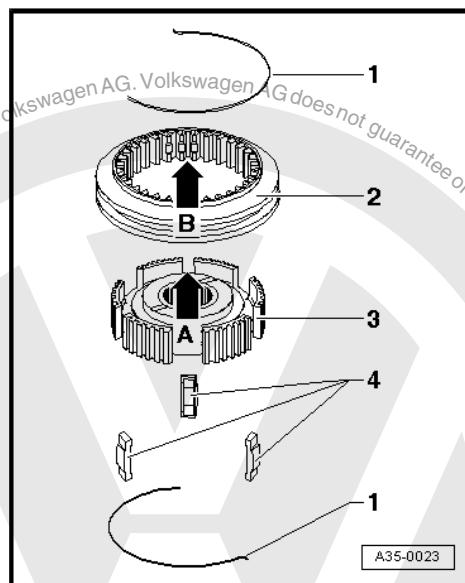


Dismantling and assembling 3rd and 4th gear locking collar and synchro-hub

- 1 - Spring
- 2 - Locking collar
- 3 - Synchro-hub
- 4 - Locking piece

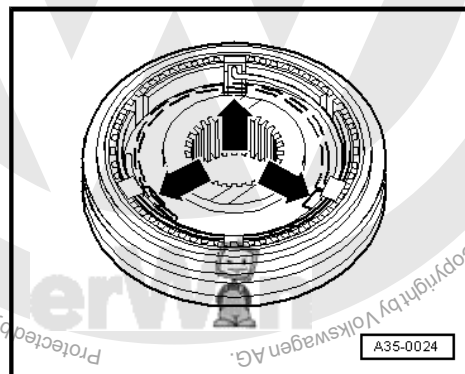
- Slide locking collar over synchro-hub.

Deeper notches -arrow A- for locking pieces in synchro-hub and notches -arrow B- in locking collar must align.



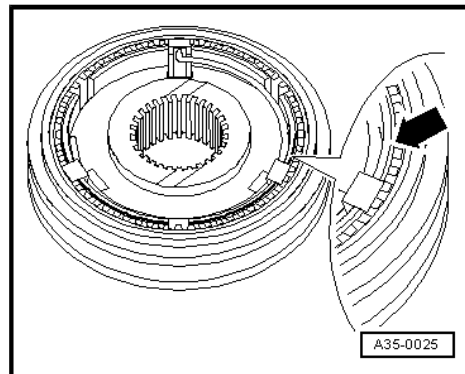
Assembling locking collar and synchro-hub for 3rd and 4th gears

- Locking collar has been pushed over synchro-hub.
- Insert locking pieces in deeper notches -arrows- and install springs offset 120°. Angled end of spring must locate in hollow locking piece.



Installation position of locking collar with synchro-hub for 3rd and 4th gears

Groove on top -arrow- faces 4th gear.

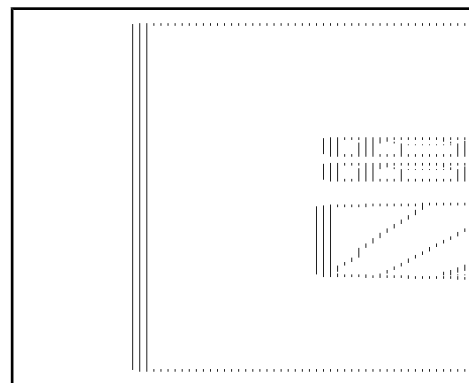




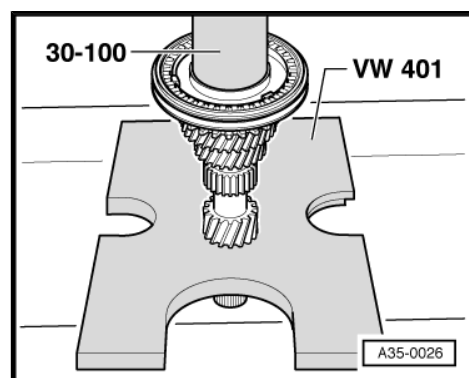
Checking synchro-ring for wear

- Press synchro-ring onto cone of synchromeshed gear and measure gap -a- using feeler gauge.

Gap -a-	Installation (new) dimension	Wear limit
3rd, 4th and 5th gears	1.1 ... 1.7 mm	0.5 mm

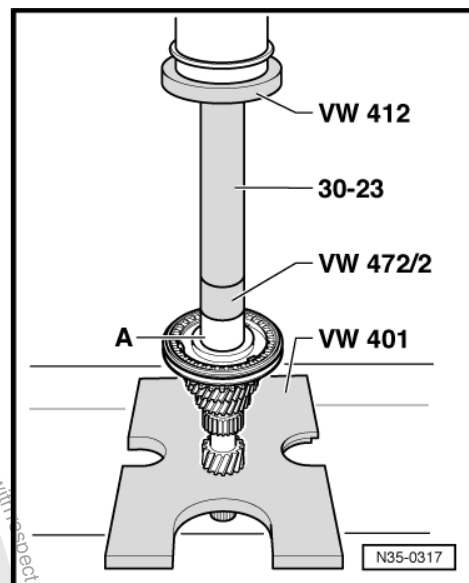


Pressing on synchro-hub with locking collar for 3rd and 4th gears

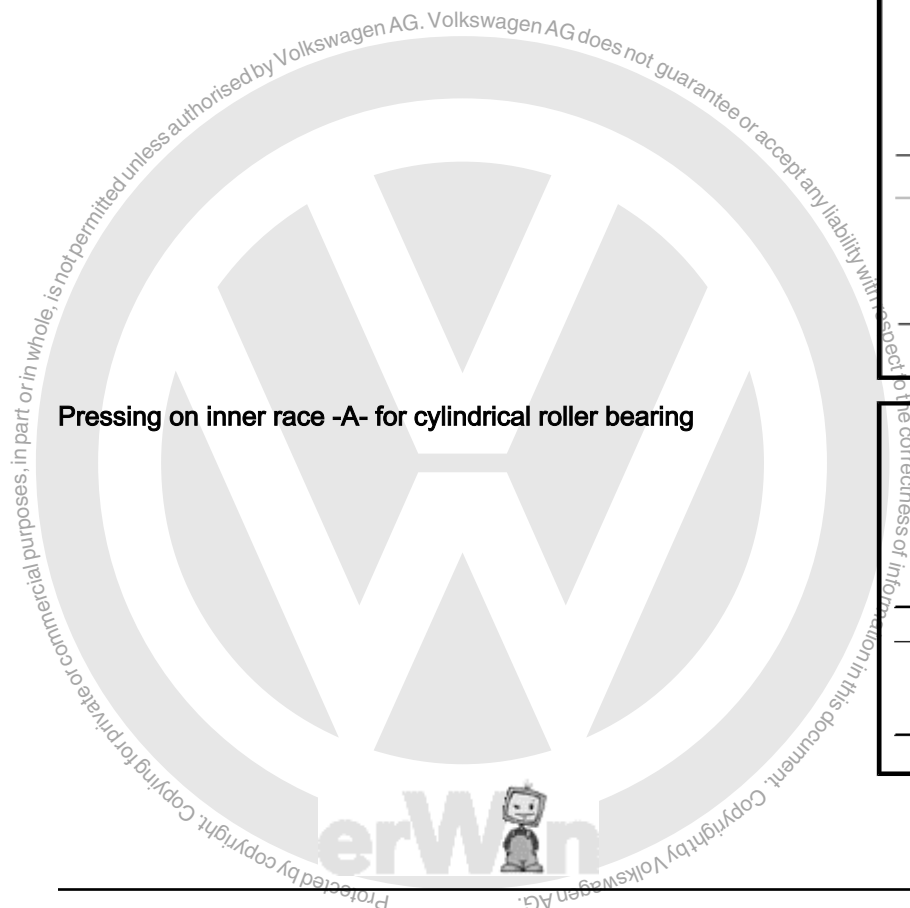
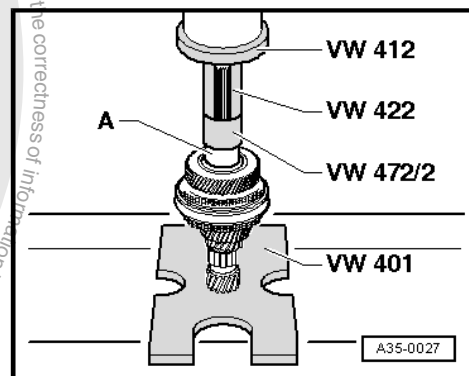


Pressing on sleeve -A- for 4th gear needle bearing

- After pressing on sleeve -A-, fit 4th gear needle bearing, 4th gear synchro-ring with synchromeshed gear and thrust washer.



Pressing on inner race -A- for cylindrical roller bearing





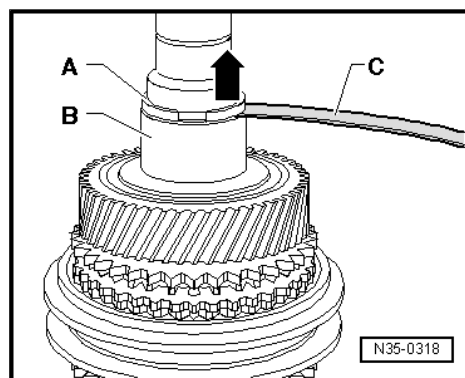
Determining thickness of retaining ring

- Insert a 2.0 mm thick retaining ring -A- in groove of input shaft and press upwards -arrow-.
- Measure distance between inner race -B- and installed retaining ring -A- using feeler gauge -C-.
- Remove retaining ring used for measuring purposes.
- Determine retaining ring from table.



Note

Allocate retaining rings according to ⇒ *Electronic parts catalogue "ETKA"*.



Available retaining rings

Measured value (mm)	Retaining ring thickness (mm)	Axial play (mm)
0.05 ... 0.14	2.0	0.05 ... 0.15
0.15 ... 0.24	2.1	0.05 ... 0.15
0.25 ... 0.34	2.2	0.05 ... 0.15
0.35 ... 0.44	2.3	0.05 ... 0.15
0.45 ... 0.51	2.4	0.05 ... 0.10

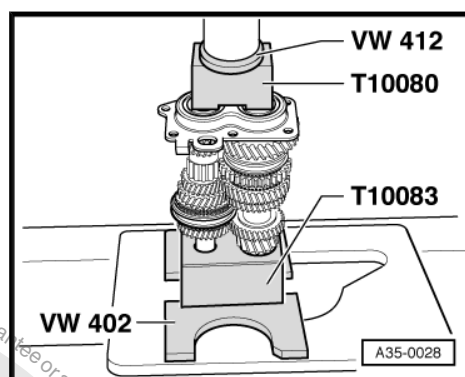
Pressing on bearing mounting with deep groove ball bearing.

- Heat inner bearing mounting to approx. 100 °C before pressing on.

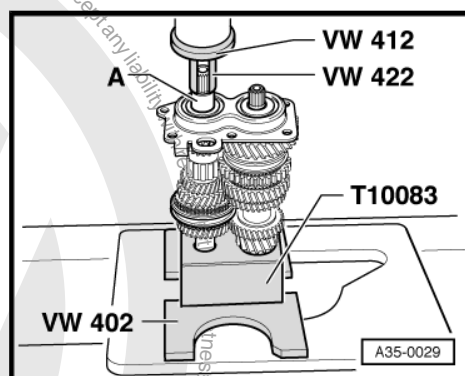


WARNING

Wear protective gloves!



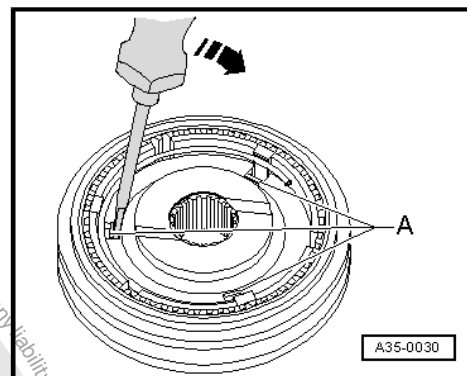
Pressing on sleeve -A- for 5th gear needle bearing





Removing stop ring

- Unclip hooks -A- of stop ring from synchro-hub using a screw-driver.

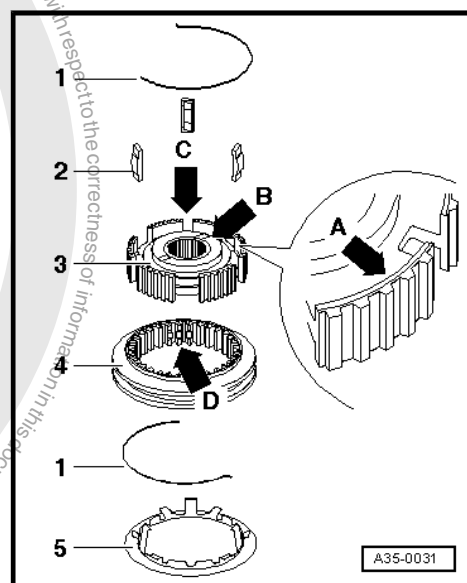


Dismantling and assembling 5th gear locking collar and synchro-hub

- 1 Spring
- 2 Locking piece
- 3 Synchro-hub installation position: groove on face -arrow A- and wide shoulder -arrow B- must face 5th gear.
- 4 Locking collar
- 5 Stop ring

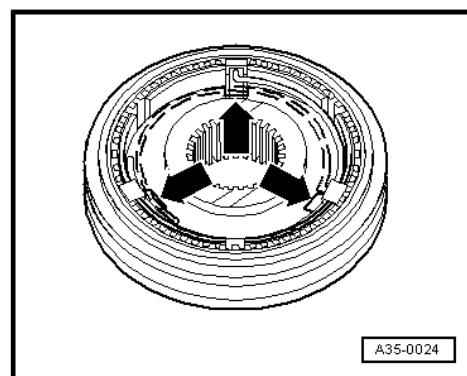
- Slide locking collar over synchro-hub.

Deeper notches -arrow C- for locking pieces in synchro-hub and notches -arrow D- in locking collar must align.



Assembling 5th gear locking collar/synchro-hub

- Locking collar has been pushed over synchro-hub.
- Insert locking pieces in deeper notches -arrows- and install springs offset 120°. Angled end of spring must locate in hollow locking piece.



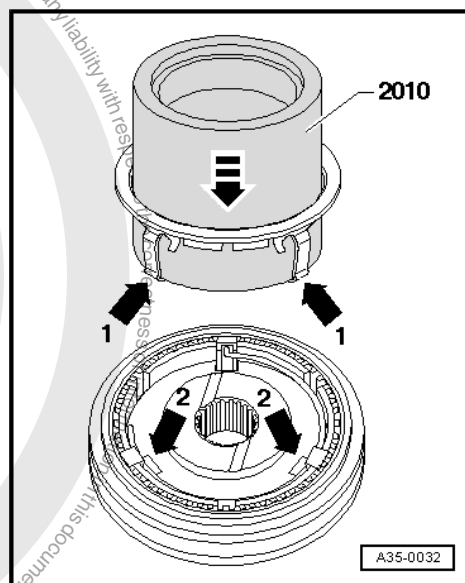


Installing stop ring

- Press on stop ring using tube -2010- .
- Insert stop ring together with tube -2010- into 5th gear synchro-hub/locking collar (observe installation position => [page 139](#)).

The hooks -arrow 1- lock in the recess -arrow 2- of the synchro-hub locking pieces.

- Press stop ring downwards until hooks engage.



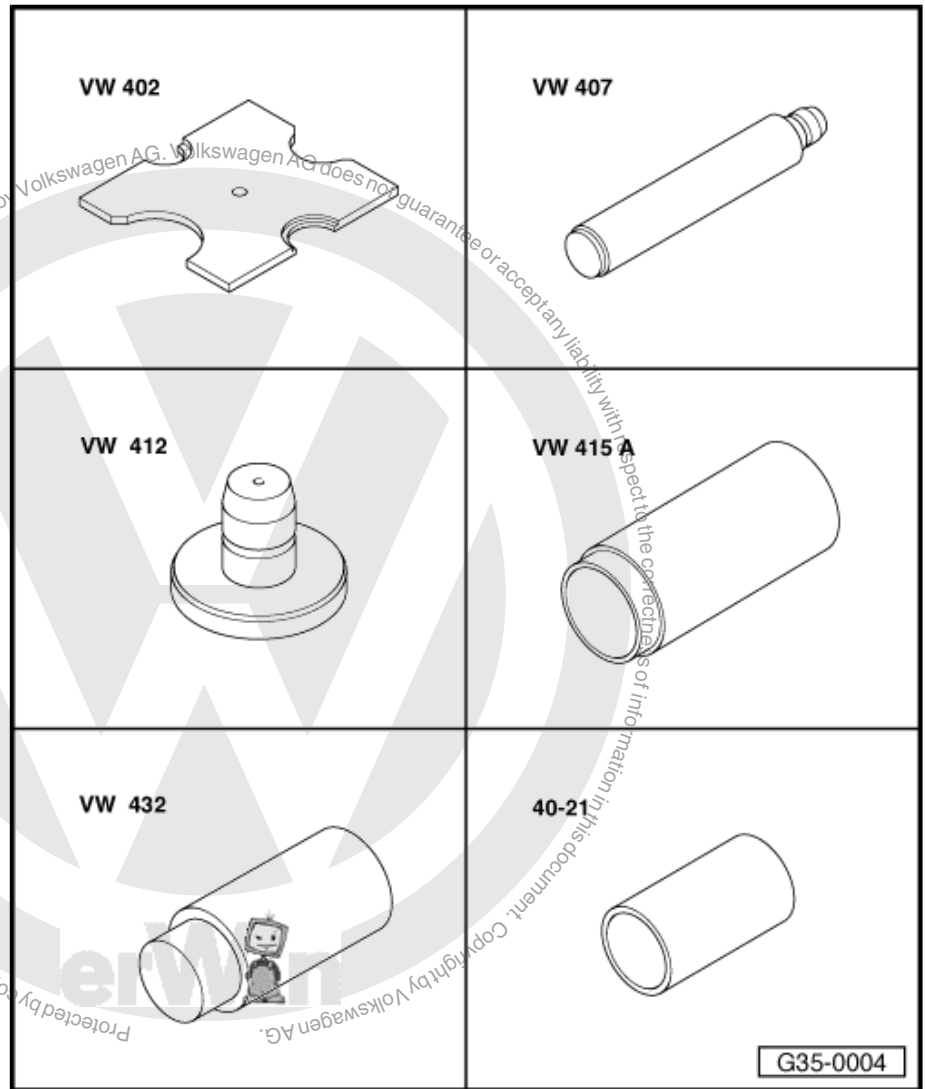


2 Output shaft

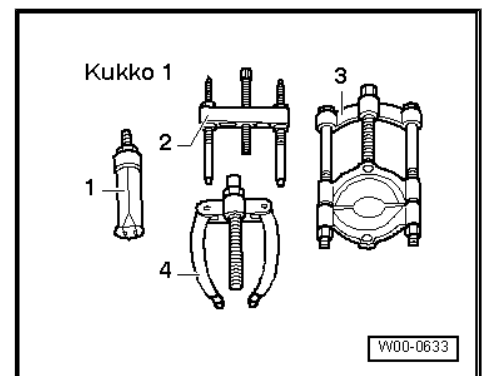
2.1 Dismantling and assembling output shaft

Special tools and workshop equipment required

- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 407-
- ◆ Press tool -VW 412-
- ◆ Tube -VW 415 A-
- ◆ Thrust piece -VW 432-
- ◆ Drift sleeve -30- 100-



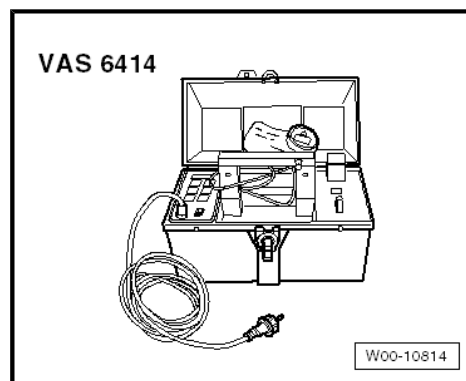
- ◆ -1- Internal puller -Kukko 21/5-



- ◆ -4- Counter support -Kukko 22/1-



◆ Inductive heater -VAS 6414-



Note

- ◆ *When installing new gear wheels or a new output shaft, consult technical data ➔ [page 1](#) and ➔ Electronic parts catalogue "ETKA".*
- ◆ *Install all bearings, synchromeshed gears and synchro-rings on output shaft with gear oil.*
- ◆ *Do not interchange synchro-rings. When reusing always fit to the original gear.*
- ◆ *Heat inner races for needle bearing, gear wheels and synchro-hubs to about 100 °C with the inductive heater -VAS 6414- before installing. Wear protective gloves to do this.*





1 - Clutch housing

2 - Cylindrical roller bearing

- ☐ With retaining ring
- ☐ Pulling out ⇒ [page 145](#)
- ☐ Pressing in ⇒ [page 145](#)
- ☐ Installation position: retaining ring in bearing faces output shaft

3 - Output shaft

- ☐ With inner race for cylindrical roller bearing
- ☐ Inner race cannot be removed from output shaft
- ☐ If inner race of cylindrical roller bearing is damaged or scored, renew output shaft and cylindrical roller bearing together

4 - Gear wheel for 4th gear

- ☐ Installation position: shoulder faces 3rd gear ⇒ [page 146](#)

5 - Retaining ring

- ☐ Always renew retaining rings which have been damaged or overstretched

6 - Retaining ring

- ☐ Always renew retaining rings which have been damaged or overstretched

7 - Gear wheel for 3rd gear

- ☐ Installation position: shoulder faces 4th gear ⇒ [page 146](#)

8 - Retaining ring

- ☐ Always renew retaining rings which have been damaged or overstretched

9 - Synchromeshed gear for 2nd gear

10 - Needle bearing

- ☐ For 2nd gear

11 - Inner ring for 2nd gear

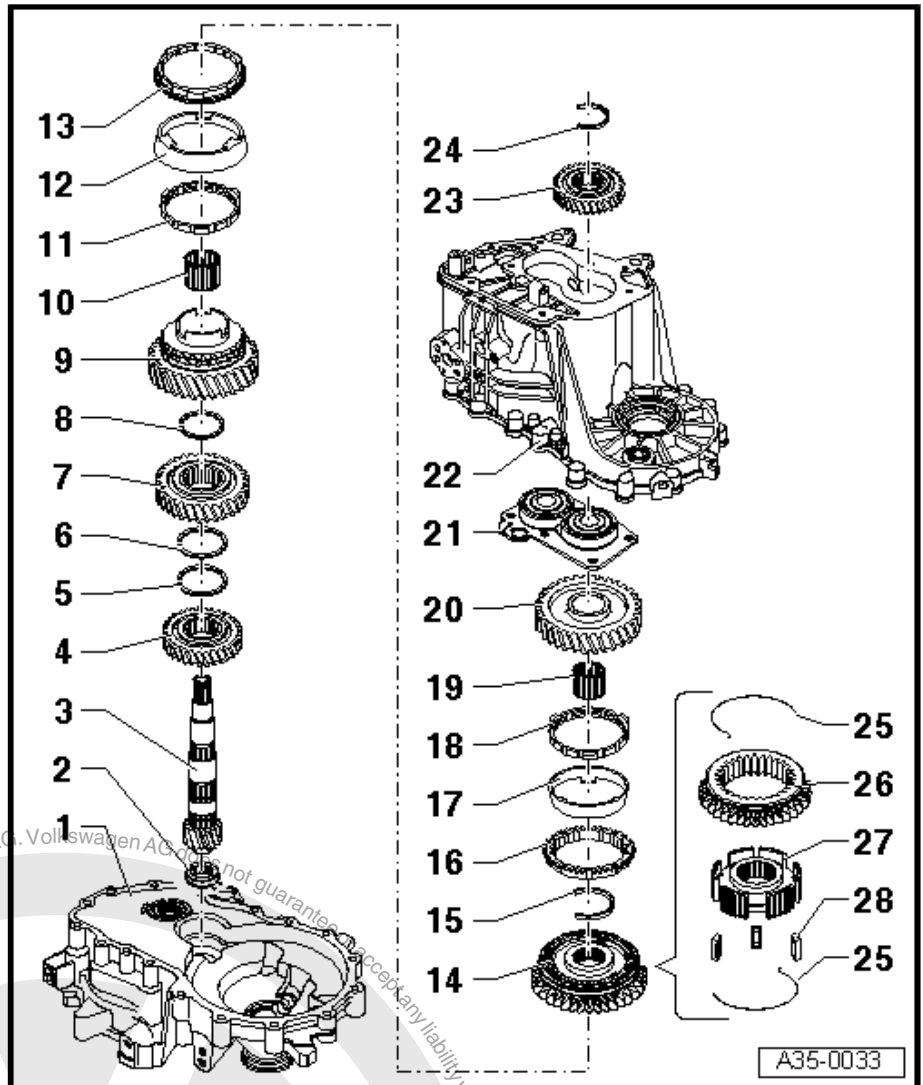
- ☐ Check for wear ⇒ [page 146](#)
- ☐ Installation position ⇒ [page 146](#)

12 - Outer ring for 2nd gear

- ☐ Set on inner ring ⇒ [Item 11 \(page 143\)](#)
- ☐ Renew if scored
- ☐ Installation position ⇒ [page 146](#)

13 - Synchro-ring for 2nd gear

- ☐ Check for wear ⇒ [page 146](#)
- ☐ Installation position ⇒ [page 146](#)





14 - Locking collar with synchro-hub for 1st and 2nd gears

- ☐ After removing retaining ring ⇒ [Item 15 \(page 144\)](#) , press off with 2nd gear synchromeshed gear ⇒ [page 145](#)
- ☐ Dismantling ⇒ [page 147](#)
- ☐ Assembling locking collar and synchro-hub ⇒ [page 147](#) and ⇒ [page 147](#)
- ☐ Installation position ⇒ [page 147](#)
- ☐ Pressing on ⇒ [page 147](#)

15 - Retaining ring

- ☐ Pressing out ⇒ [page 145](#)
- ☐ Installing ⇒ [page 148](#)

16 - Synchro-ring for 1st gear

- ☐ Check for wear ⇒ [page 146](#)
- ☐ Assemble so that notches engage in locking pieces of locking collar ⇒ [Item 14 \(page 143\)](#)

17 - Outer ring for 1st gear

- ☐ Insert in synchro-ring ⇒ [Item 16 \(page 144\)](#) . Installation position ⇒ [page 148](#) .
- ☐ Renew if scored

18 - Inner ring for 1st gear

- ☐ Check for wear ⇒ [page 146](#)
- ☐ Check lugs for scoring
- ☐ Installation position ⇒ [page 148](#)

19 - Needle bearing

- ☐ For 1st gear

20 - Synchromeshed gear for 1st gear

- ☐ Installation position ⇒ [page 148](#)

21 - Bearing mounting with deep groove ball bearing

- ☐ Renew deep groove ball bearing only together with bearing mounting
- ☐ If bearing mounting is separated from gearbox housing, then mounting must always be renewed.
- ☐ Pressing off ⇒ [page 135](#)
- ☐ Pressing on ⇒ [page 138](#)

22 - Gearbox housing

23 - Gear wheel for 5th gear

- ☐ Installation position: shoulder faces gearbox housing cover ⇒ [page 115](#)

24 - Retaining ring

- ☐ Always renew
- ☐ Determining thickness ⇒ [page 116](#)

25 - Spring

- ☐ Installation position ⇒ [page 147](#)

26 - Locking collar

27 - Synchro-hub

28 - Locking pieces

- ☐ Qty. 3

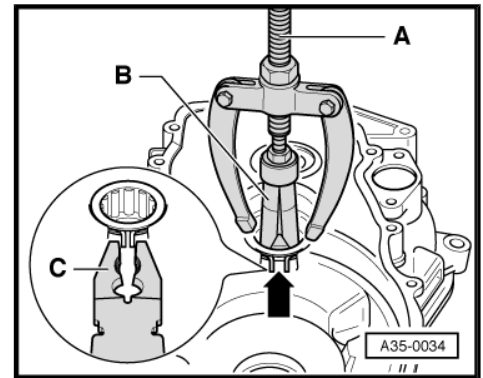


Pulling cylindrical roller bearing out of clutch housing

- When pulling out, squeeze together retaining ring -arrow- of cylindrical roller bearing, using pliers -C-.

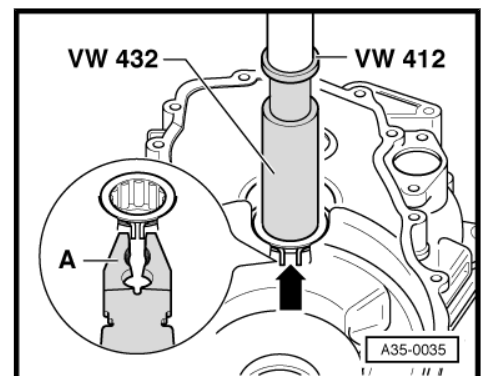
A - Counter support , e.g. -Kukko 22/1-

B - Internal puller, 30 ... 37 mm , e.g. -Kukko 21/5-



Pressing cylindrical roller bearing into clutch housing

- Support clutch housing with tube -VW 415 A- (not visible in figure) directly below bearing support.
- When pressing in, squeeze together retaining ring -arrow- for cylindrical roller bearing using pliers -A-.
- Remove pliers before cylindrical roller bearing is in installation position. Retaining ring must engage in groove of clutch housing.



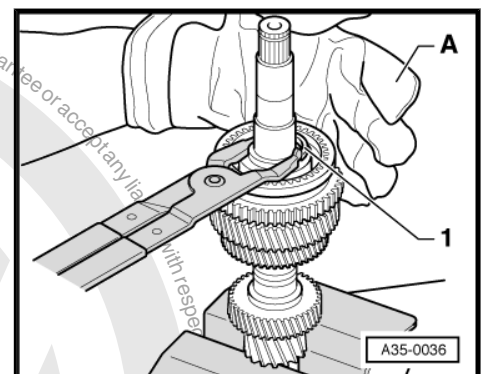
Pressing retaining ring -1- out of groove

A - Protective gloves



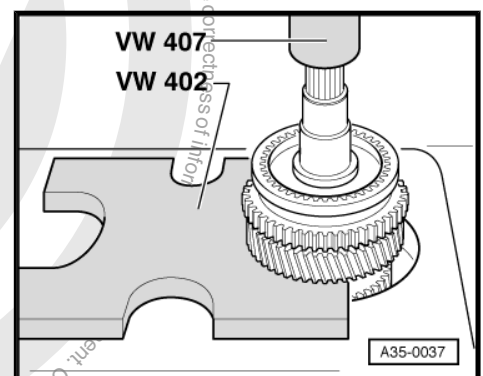
WARNING

Ensure retaining ring does not spring out uncontrolled.



Pressing off 1st and 2nd gear locking collar and synchro-hub

- After removing retaining ring, press off synchromeshed gear for 2nd gear together with locking collar and synchro-hub.





Installation position of 3rd gear and 4th gear

- Install gear wheel for 4th gear -A- on output shaft.

Installation position:

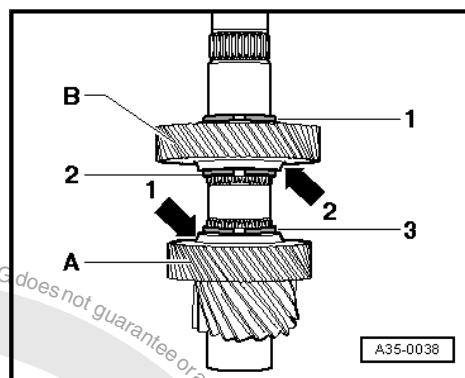
Collar -arrow 1- faces 3rd gear wheel -B-.

- Install retaining rings -2- and -3-.
- Install gear wheel for 3rd gear -B- on output shaft.

Installation position:

Collar -arrow 2- faces gear wheel for 4th gear -A-.

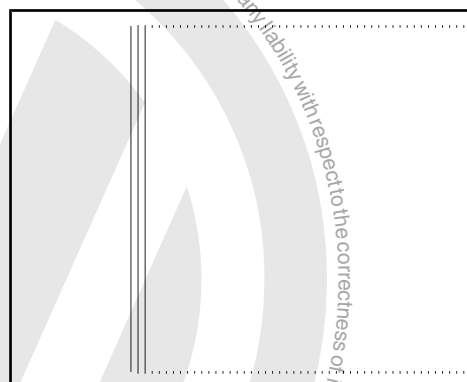
- Install retaining ring -1-.



Checking 1st and 2nd gear inner ring for wear

- Press inner ring onto cone of synchroneshed gear and measure gap -a- using a feeler gauge.

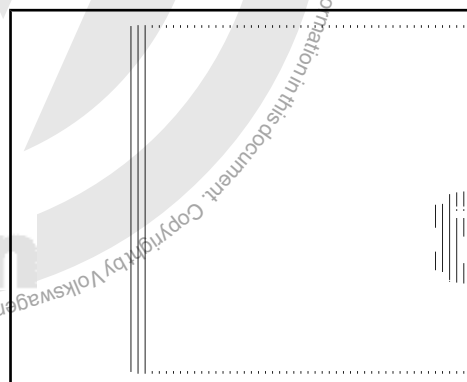
Gap -a-	Installation dimension	Wear limit
1st and 2nd gears	0.75 ... 1.25 mm	0.3 mm



Checking 1st and 2nd gear synchro-rings for wear

- Press synchro-ring, outer ring and inner ring onto cone of synchroneshed gear and measure gap -a- using a feeler gauge.

Gap -a-	Installation dimension	Wear limit
1st and 2nd gears	1.2 ... 1.8 mm	0.5 mm



Installation position of outer ring, inner ring and synchro-ring for 2nd gear

- Place inner ring -A- on synchroneshed gear for 2nd gear.

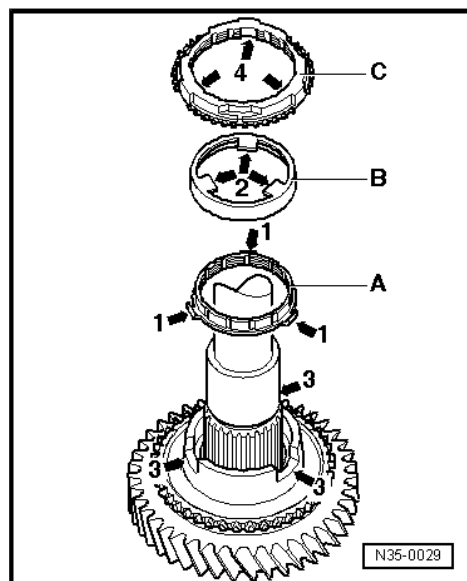
Angled lugs -arrows 1- face outer ring -B-.

- Fit outer ring -B-.

Lugs -arrows 2- engage in notches -arrows 3- of synchroneshed gear.

- Fit synchro-ring -C-.

Notches -arrows 4- engage in lugs -arrows 1- of inner ring -A-.





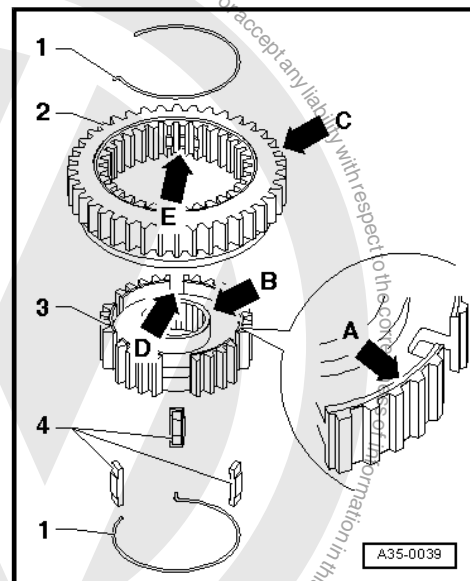
Dismantling and assembling locking collar and synchro-hub for 1st and 2nd gears

- 1 - Spring
- 2 - Locking collar
- 3 - Synchro-hub
- 4 - Locking piece
- Slide locking collar over synchro-hub.

Installation position:

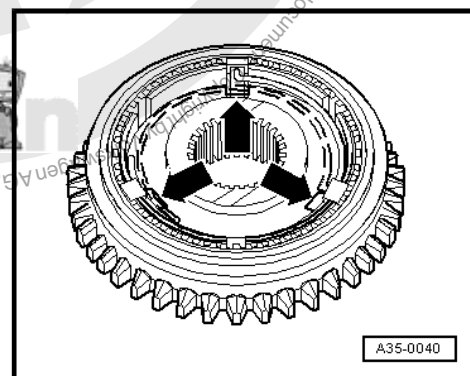
After installation, the groove on the face -arrow A- and the higher shoulder -arrow B- face towards outer splines of the locking collar -arrow C-.

Deeper notches -arrow D- for locking pieces in synchro-hub and notches -arrow E- in locking collar must align.



Assembling locking collar with synchro-hub for 1st and 2nd gears

- Locking collar has been pushed over synchro-hub.
- Insert locking pieces in deeper cut-outs -arrows- and install springs offset 120°. Angled end of spring must locate in hollow locking piece.

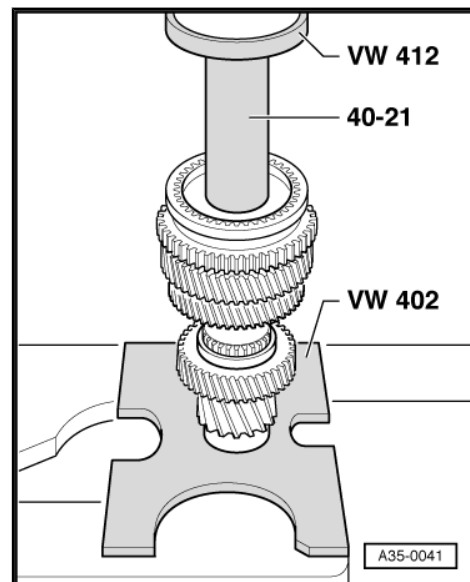


Pressing on locking collar and synchro-hub for 1st and 2nd gears

Installation position:

Groove in locking collar for selector fork faces 1st gear and teeth for reverse gear face 2nd gear.

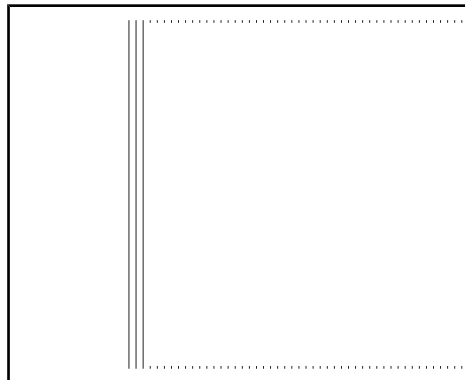
- Turn synchro-ring so that grooves align with locking pieces.





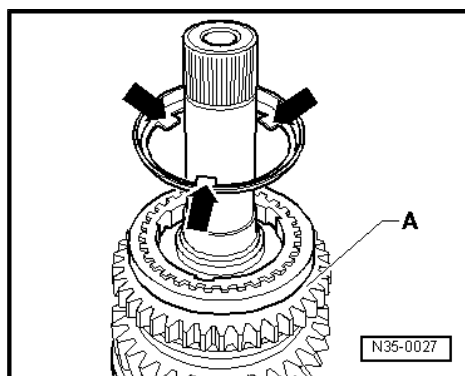
Fitting retaining ring

- Place 1st gear synchro-ring in locking collar/synchro-hub.



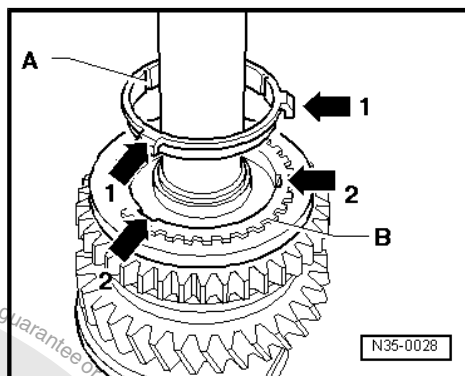
Installation position of 1st gear outer ring

Lugs -arrows- face towards reverse gear teeth.



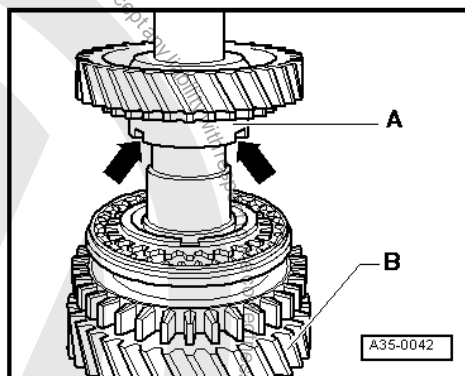
Installation position of 1st gear inner ring -A-

Lugs -arrows 1- locate in notches -arrows 2- of synchro-ring -B-.



Installation position of synchromeshed gear for 1st gear

Higher shoulder -A- faces 2nd gear -B-. Notches in shoulder -arrows- engage in lugs of outer ring (-arrow- ➔ [page 148](#)).





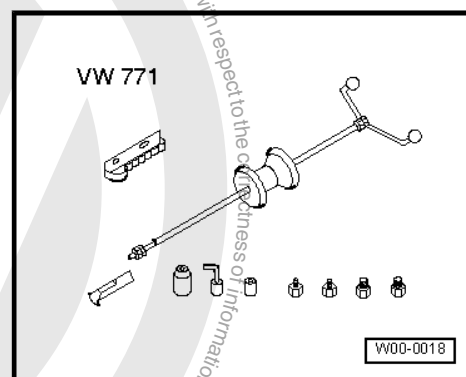
39 – Final drive - rear differential

1 Renewing flange shaft oil seals with gearbox installed

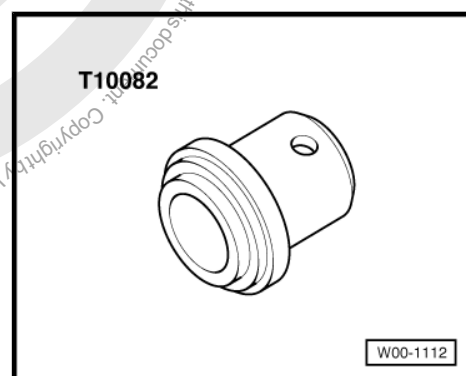
1.1 Renewing oil seal for left flange shaft

Special tools and workshop equipment required

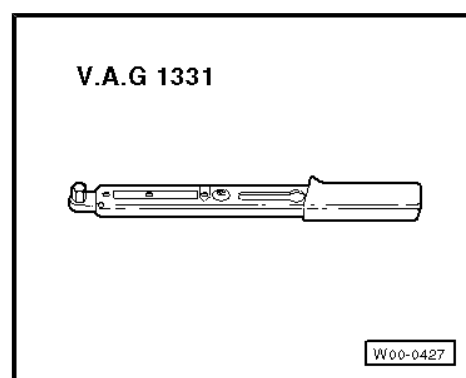
- ◆ Multipurpose tool -VW 771-



- ◆ Thrust piece -T10082-



- ◆ Torque wrench -V.A.G 1331-



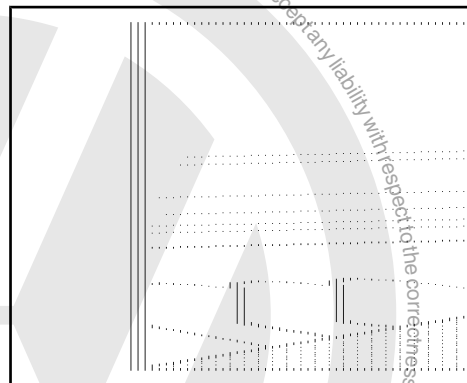
1.1.1 Removing

Perform the following steps:

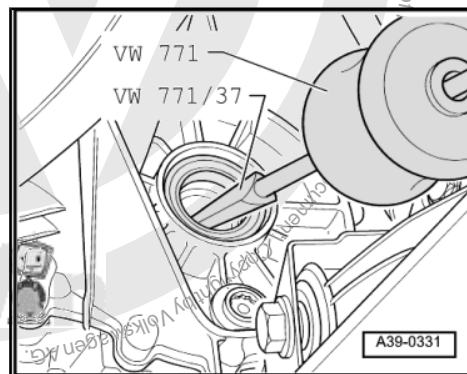
- Remove left wheel.
- Remove noise insulation ⇒ General body repairs, exterior;
Rep. Gr. 50 ; Noise insulation .



- Remove lower part of front left wheel housing liner or front left wheel housing liner ⇒ General body repairs, exterior; Rep. Gr. 66 ; Wheel housing liner .
- Turn steering to left lock.
- Remove drive shaft from flange shaft ⇒ Running gear, axles, steering; Rep. Gr. 40 ; Removing and installing drive shafts .
- Raise drive shaft as high as possible and secure. Take care not to damage paint on drive shaft in the process.
- Place drip tray under gearbox.
- Remove flange shaft securing bolt by screwing 2 bolts into flange and counterholding flange shaft with a lever.
- Pull out flange shaft with compression spring.

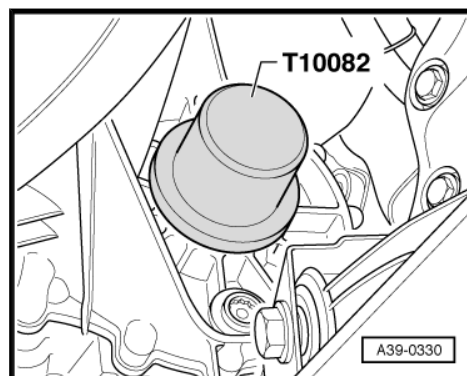


- Pull out flange shaft oil seal using multi-purpose tool -VW 771- and puller hooks -VW 771/37- .



1.1.2 Installing

- Drive in new seal to stop, being careful not to cant seal.
- Half-fill space between sealing lip and dust lip with sealing grease -G 052 128 A1- .
- Insert flange shaft.
- Secure flange shaft using countersunk bolt and tighten to 25 Nm torque.
- Attach drive shafts to gearbox ⇒ Running gear, axles, steering; Rep. Gr. 40 ; Removing and installing drive shafts .
- Check gear oil ⇒ [page 100](#) .
- Install lower part of front left wheel housing liner or front left wheel housing liner ⇒ General body repairs, exterior; Rep. Gr. 66 ; Wheel housing liner .
- Install noise insulation ⇒ General body repairs, exterior; Rep. Gr. 50 ; Noise insulation .
- Install wheel ⇒ Running gear, axles, steering; Rep. Gr. 44 ; Torque settings for mounting wheels .

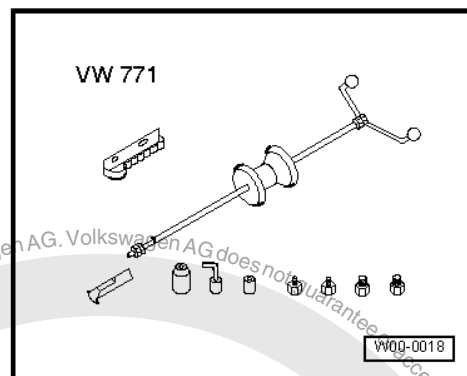




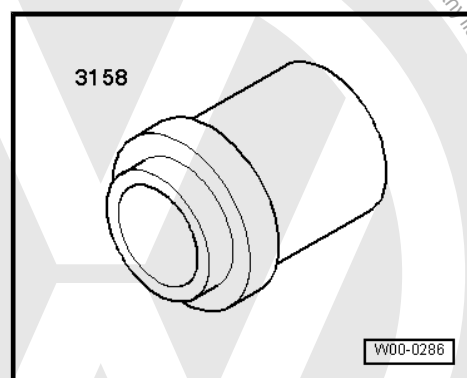
1.2 Renewing seal for right flange shaft

Special tools and workshop equipment required

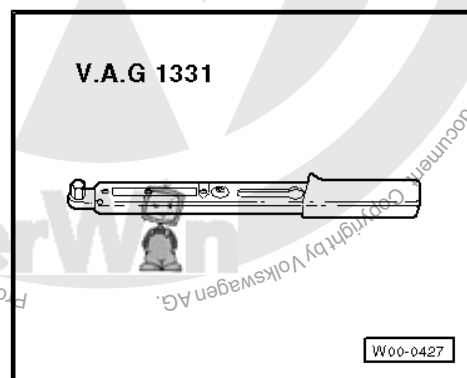
- ◆ Multipurpose tool -VW 771-



- ◆ Drift sleeve -3158-



- ◆ Torque wrench -V.A.G 1331-



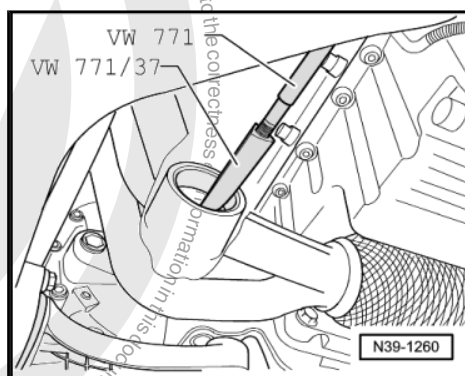
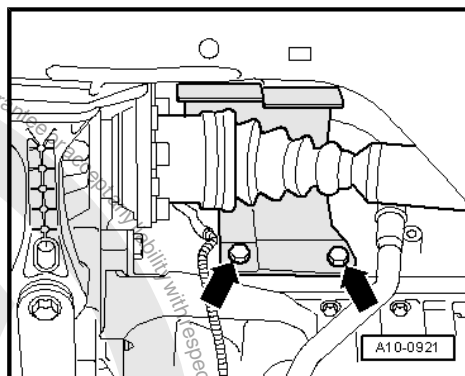
1.2.1 Removing

Perform the following steps:

- Remove noise insulation ⇒ General body repairs, exterior;
Rep. Gr. 50 ; Noise insulation .
- Turn steering to right to full lock.

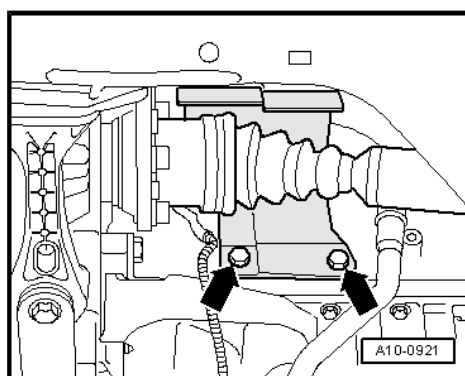
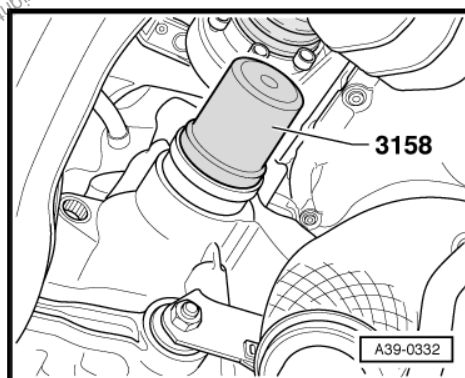


- If heat shield for drive shaft is installed, remove it from engine -arrows-.
- Unbolt drive shaft from flange shaft.
- Tie up drive shaft as high as possible, taking care not to damage paint on drive shaft.
- Place drip tray under gearbox.
- Remove flange shaft securing bolt by screwing 2 bolts into flange and counterholding flange shaft with a lever.
- Pull out flange shaft with compression spring.
- Pull out flange shaft oil seal using multi-purpose tool -VW 771- and puller hooks -VW 771/37- .



1.2.2 Installing

- Drive in new seal to stop, being careful not to cant seal.
- Half-fill space between sealing lip and dust lip with sealing grease -G 052 128 A1- .
- Insert flange shaft.
- Secure flange shaft using countersunk bolt and tighten to 25 Nm torque.
- Screw drive shaft onto flange shaft ⇒ Running gear, axles, steering; Rep. Gr. 40 ; Removing and installing drive shafts .
- Install drive shaft heat shield, if present -arrows- ⇒ Running gear, axles, steering; Rep. Gr. 40 ; Repairing drive shaft, Removing and installing drive shafts .
- Check gear oil ⇒ [page 100](#) .
- Install noise insulation ⇒ General body repairs, exterior; Rep. Gr. 50 ; Noise insulation .



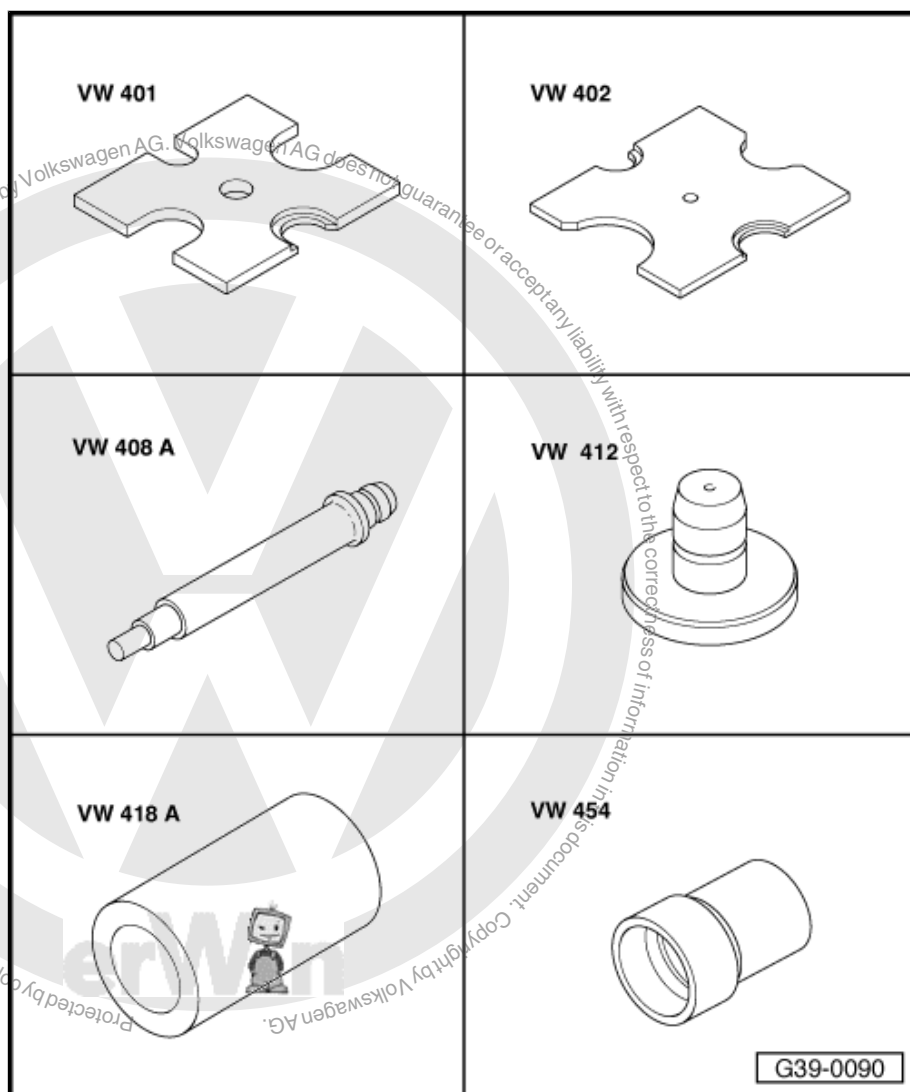


2 Differential

2.1 Dismantling and assembling differential

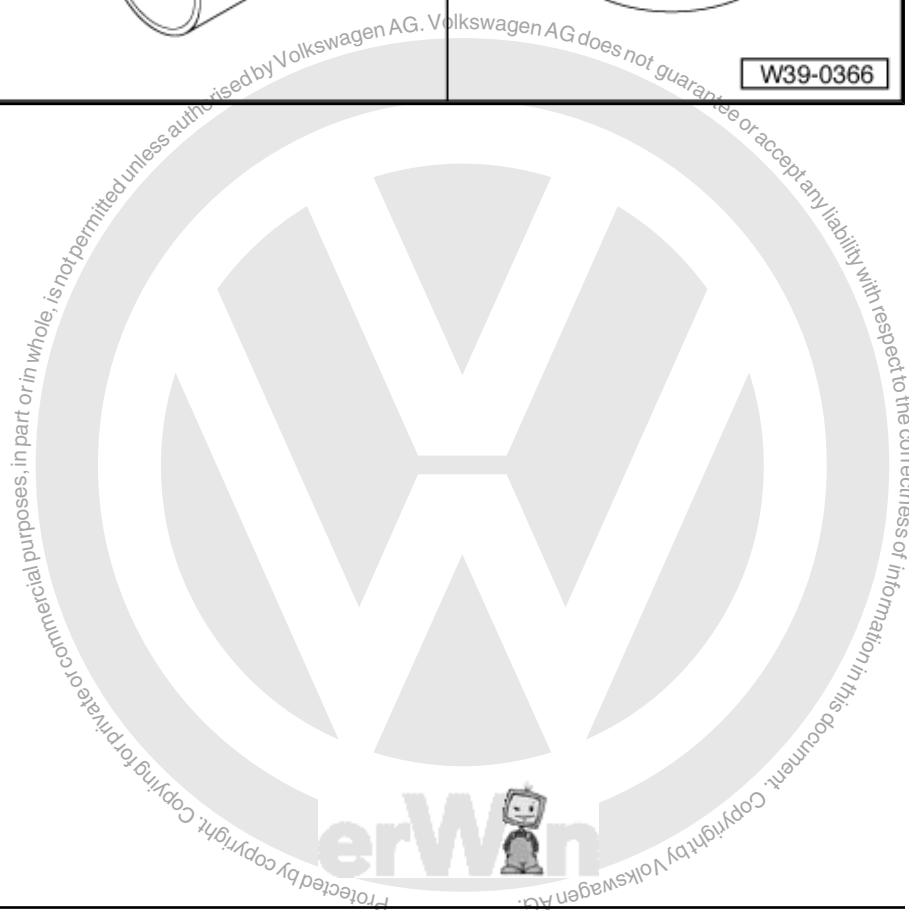
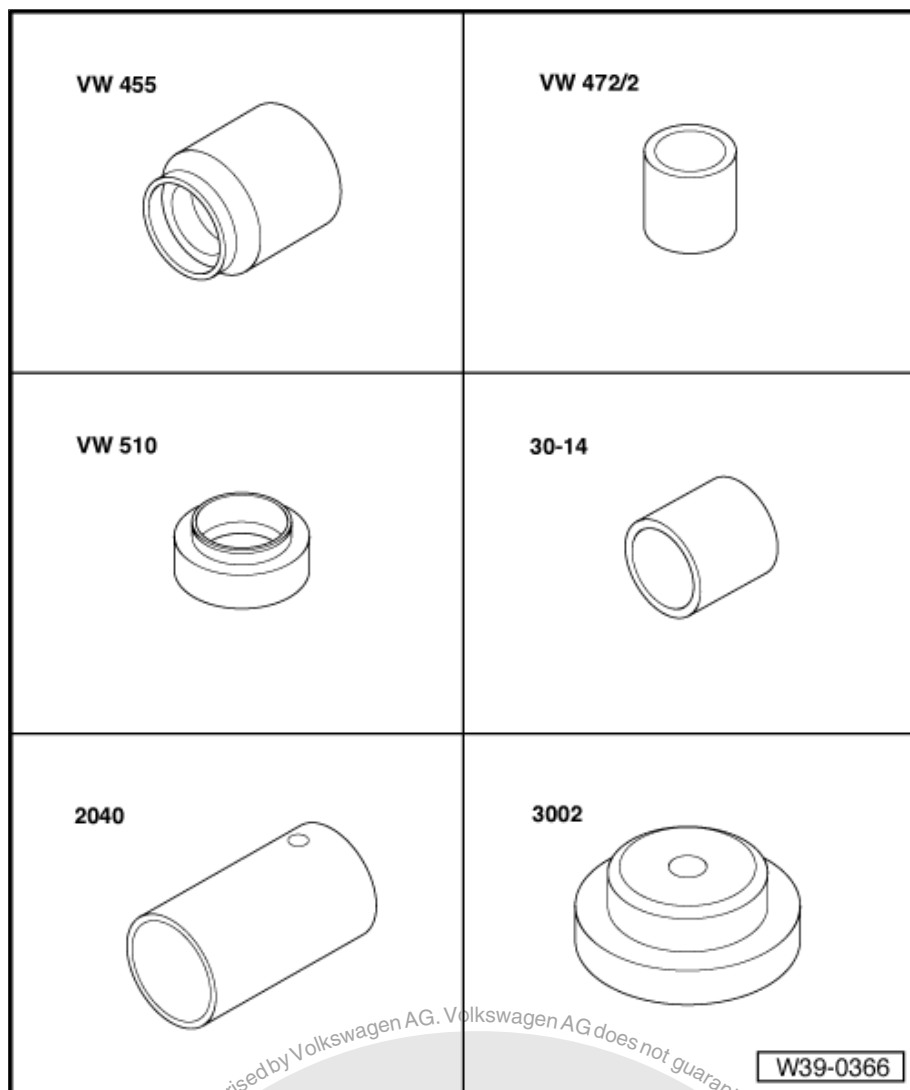
Special tools and workshop equipment required

- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 408 A-
- ◆ Press tool -VW 412-
- ◆ Tube -VW 418 A-
- ◆ Thrust piece -VW 454-



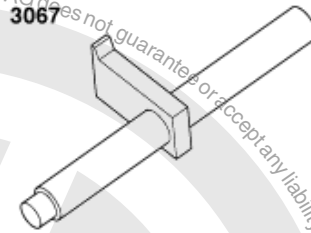


- ◆ Installing sleeve -VW 455-
- ◆ Spacer sleeve -VW 472/2-
- ◆ Thrust pad -VW 510-
- ◆ Tube -30 - 14-
- ◆ Tube -2040-
- ◆ Thrust piece -3002-





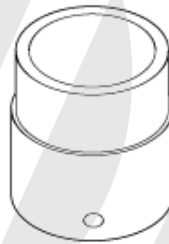
- ◆ Counterhold -3067-
- ◆ Tube -3259-
- ◆ Wheel bearing tube -3345-
- ◆ Tapered roller bearing puller -V.A.G 1582-
- ◆ Adapter -V.A.G 1582/4-
- ◆ -1- Internal puller -Kukko 21/7-
- ◆ -4- Counter support -Kukko 22/2-



3259



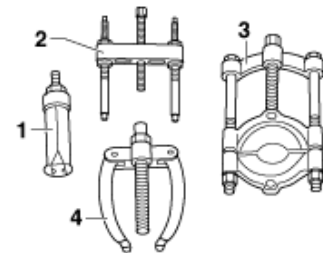
3345



V.A.G 1582



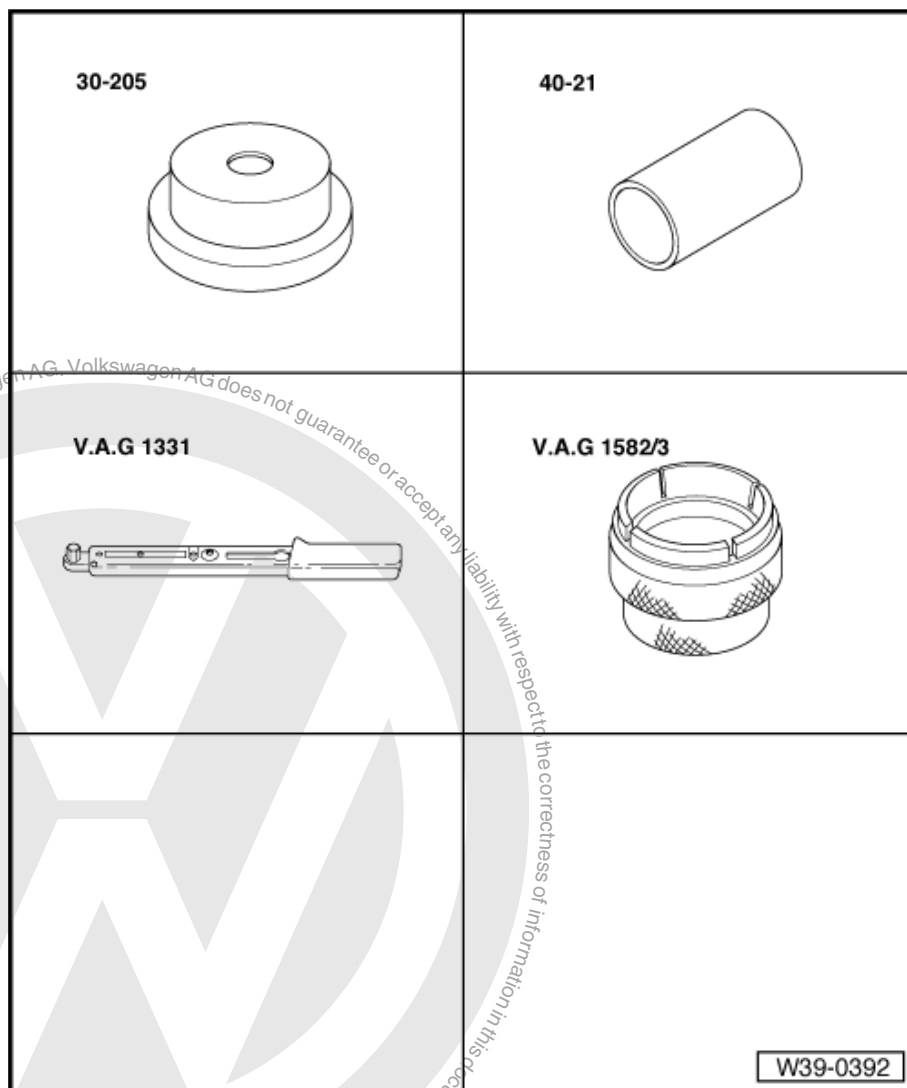
V.A.G 1582/4



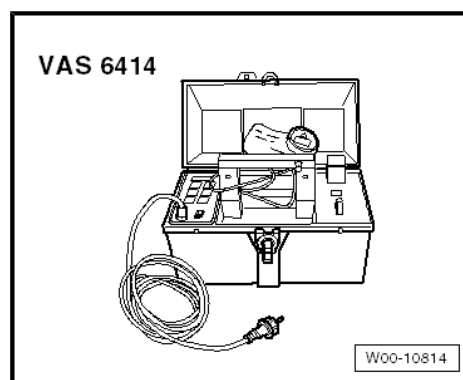
G39-0092



- ◆ Thrust plate -30 - 205-
- ◆ Drift sleeve -40 - 21-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Adapter -V.A.G 1582/3-



- ◆ Inductive heater -VAS 6414-



Note

- ◆ Heat tapered roller bearing inner races to about 100 °C with the inductive heater -VAS 6414- before installing. Wear protective gloves when doing this.
- ◆ Always renew both tapered roller bearings together as a set.
- ◆ If tapered roller bearings, differential cage, gearbox housing or clutch housing is renewed, adjust differential ➔ [page 161](#) .



1 - Countersunk bolt, 25 Nm

- ☐ Screw into threaded piece
⇒ [Item 8 \(page 157\)](#)

2 - Right flange shaft

3 - Compression spring for flange shaft

- ☐ Installed behind flange shafts

4 - Thrust washer

- ☐ Installation position: shoulder towards spring

5 - Tapered ring

- ☐ Installation position: taper towards differential cage

6 - Retaining ring

- ☐ Holds tapered ring, thrust washer and spring in position when flange shaft is removed

7 - Large differential bevel gear

- ☐ Installing ⇒ [page 160](#)

8 - Threaded piece

- ☐ Installing ⇒ [page 160](#)

9 - Differential pinion pin

- ☐ To remove, shear off spring pin
⇒ [Item 18 \(page 158\)](#)
⇒ [page 160](#)
- ☐ Installing ⇒ [page 160](#)

10 - Small differential bevel gear

- ☐ Installing ⇒ [page 160](#)

11 - One-piece thrust washer

- ☐ Coat with gear oil when installing

12 - Left flange shaft

13 - Seal

- ☐ For left flange shaft
- ☐ Renewing with manual gearbox installed ⇒ [page 149](#) .

14 - Shim S₁

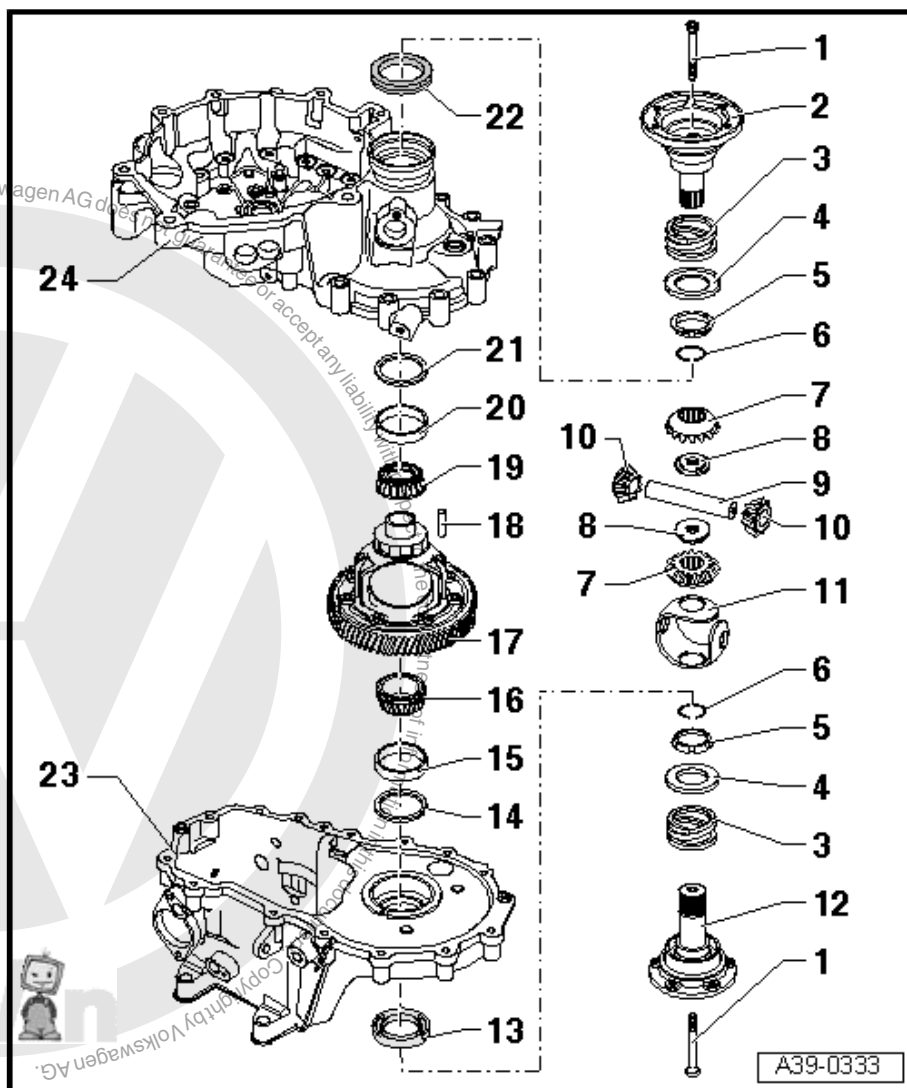
- ☐ For differential
- ☐ Always 1 mm thick
- ☐ Shim S₁ discontinued as of production date 04 12 6 ⇒ [page 163](#)
- ☐ Bearing seat for tapered roller bearing outer race adapted in gearbox housing
- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"

15 - Tapered roller bearing outer race

- ☐ Pulling out ⇒ [page 158](#)
- ☐ Pressing in ⇒ [page 158](#)

16 - Tapered roller bearing inner race

- ☐ Pulling off ⇒ [page 159](#)





- ☐ Pressing on ➤ [page 159](#)

17 - Differential cage

- ☐ With final drive gear

18 - Spring pin

- ☐ For securing planet pinion pin
- ☐ Is sheared off when removed ➤ [page 160](#)

19 - Tapered roller bearing inner race

- ☐ Pulling off ➤ [page 160](#)
- ☐ Pressing on ➤ [page 160](#)

20 - Tapered roller bearing outer race

- ☐ Pressing out ➤ [page 159](#)
- ☐ Pressing in ➤ [page 159](#)

21 - Shim S₂

- ☐ For differential
- ☐ Determining thickness ➤ [page 161](#)

22 - Seal

- ☐ For right flange shaft
- ☐ Renewing with manual gearbox installed ➤ [page 151](#)

23 - Gearbox housing

- ☐ Repairing ➤ [page 117](#)
- ☐ Shim S₁ discontinued as of production date 04 12 6 ➤ [page 163](#)
- ☐ Bearing seat for tapered roller bearing outer race adapted
- ☐ Allocation ➤ Electronic parts catalogue "ETKA"

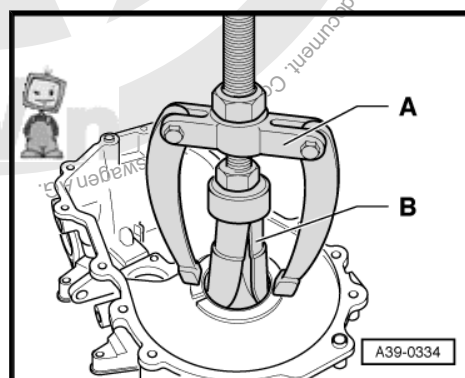
24 - Clutch housing

- ☐ Repairing ➤ [page 117](#)

Pulling outer race for tapered roller bearing out of gearbox housing

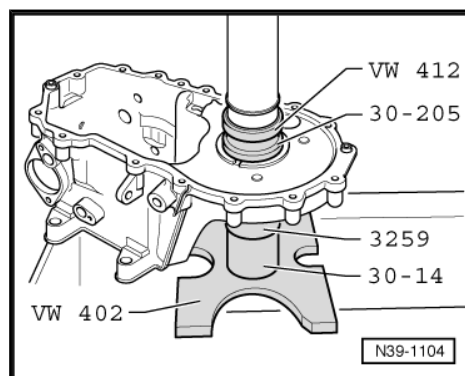
A - Counter support , e.g. -Kukko 22/2-

B - Internal puller, 46 ... 58 mm , e.g. -Kukko 21/7-



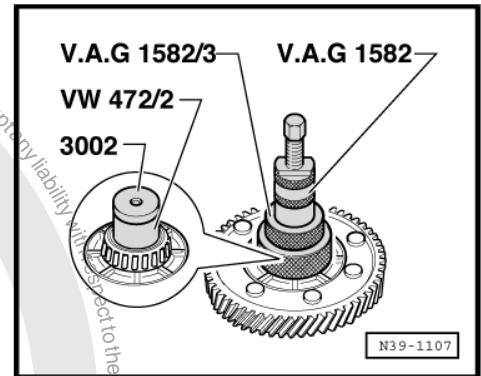
Pressing tapered roller bearing outer race into gearbox housing

- Support gearbox housing with tube -3259- directly below bearing support.
- Check whether a shim S₁ has to be placed under the outer race ➤ [page 163](#) .
- Fit a 1 mm thick shim S₁ under outer race as necessary.





Pulling off tapered roller bearing inner race



Pressing on tapered roller bearing inner race

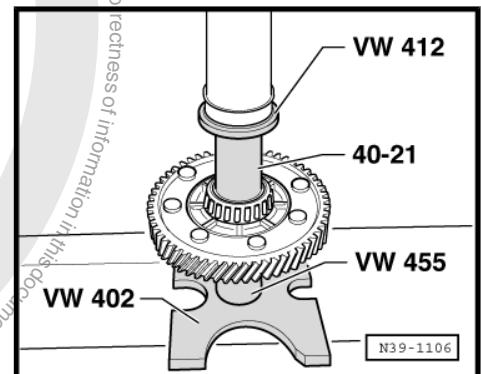


WARNING

Wear protective gloves!

- Heat inner tapered roller bearing race to approx. 100 °C before pressing on.
- Support inner race on opposite side using installing sleeve - VW 455- .

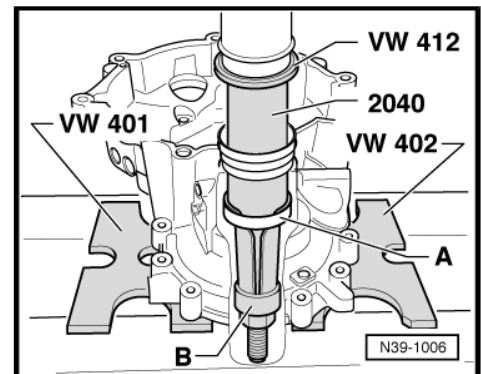
Shoulder of installing sleeve -VW 455- faces towards differential cage.



Pressing tapered roller bearing outer race -A- out of clutch housing

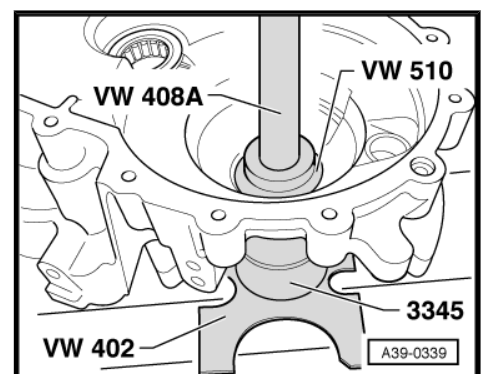
B - Internal puller, 46 ... 58 mm , e.g. -Kukko 21/7-

- Clamp internal puller securely behind tapered roller bearing outer race.



Pressing tapered roller bearing outer race into clutch housing

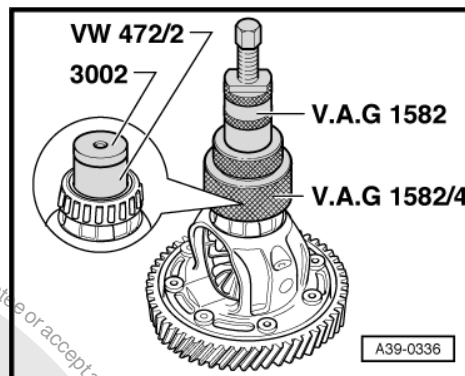
- Support clutch housing with wheel bearing tube -3345- directly below bearing mounting.





Pulling off tapered roller bearing inner race

- Before fitting extractor, position spacer sleeve -VW 472/2- and thrust piece -3002- on differential housing.



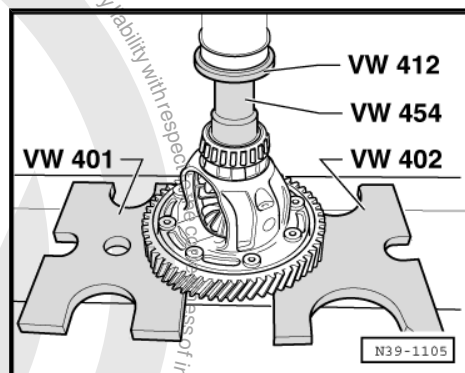
Pressing on tapered roller bearing inner race



WARNING

Wear protective gloves!

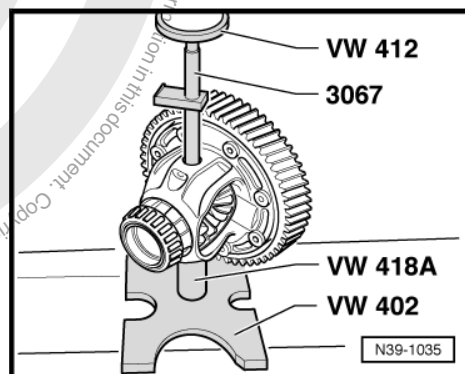
- Heat inner tapered roller bearing race to approx. 100 °C before pressing on.



Pressing out differential pinion pin

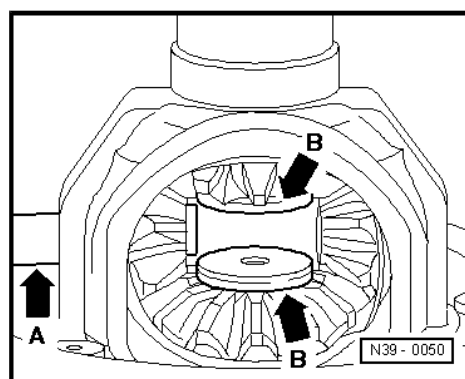
When pressed out, spring pin will be sheared off.

- Drive remainder of spring pin out of differential cage.



Installing differential bevel gears

- Lubricate one-piece thrust washer with gear oil and install.
- Install both sun wheels and secure (e.g. with flange shaft).
- Insert planet pinions offset 180° and pivot into position.
- Press in differential pinion pin (-arrow A-) to first planet pinion.
- Place threaded pieces -arrows B- in sun gears.
- Drive differential pinion pin into final position and secure with spring pin.

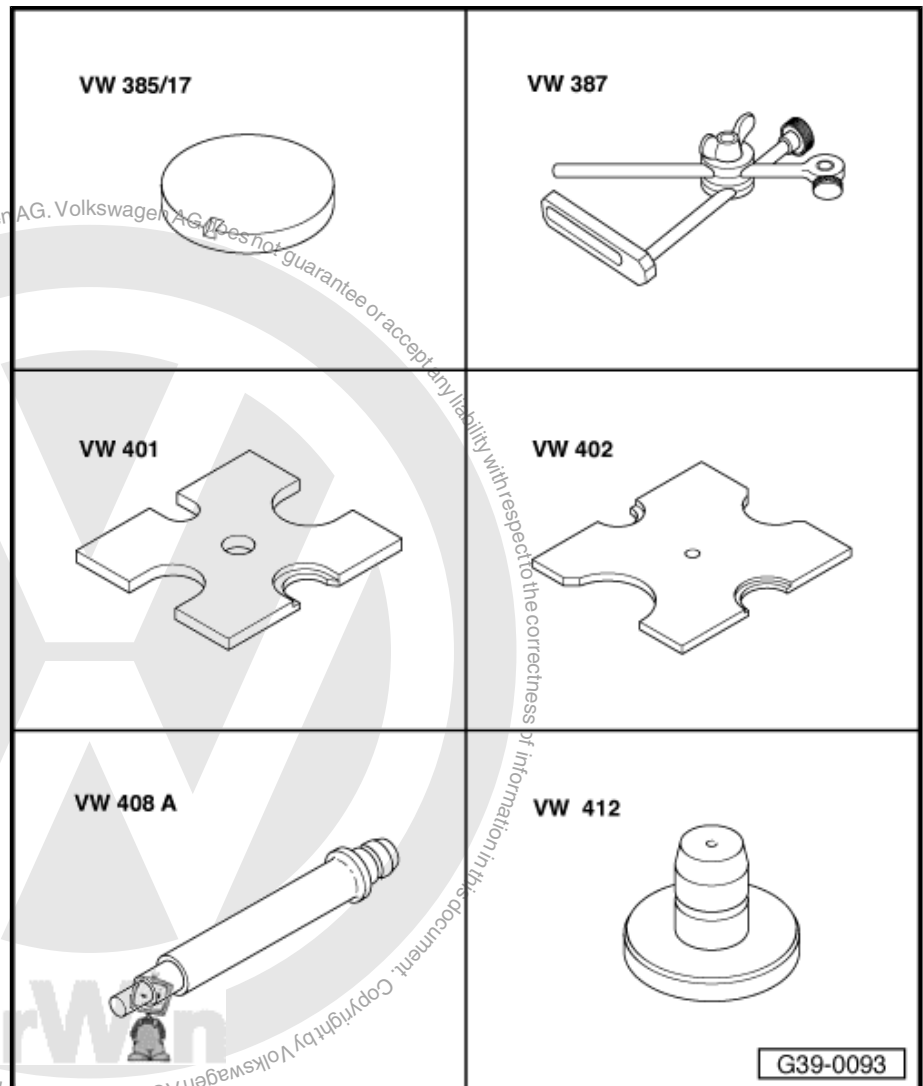




2.2 Adjusting differential

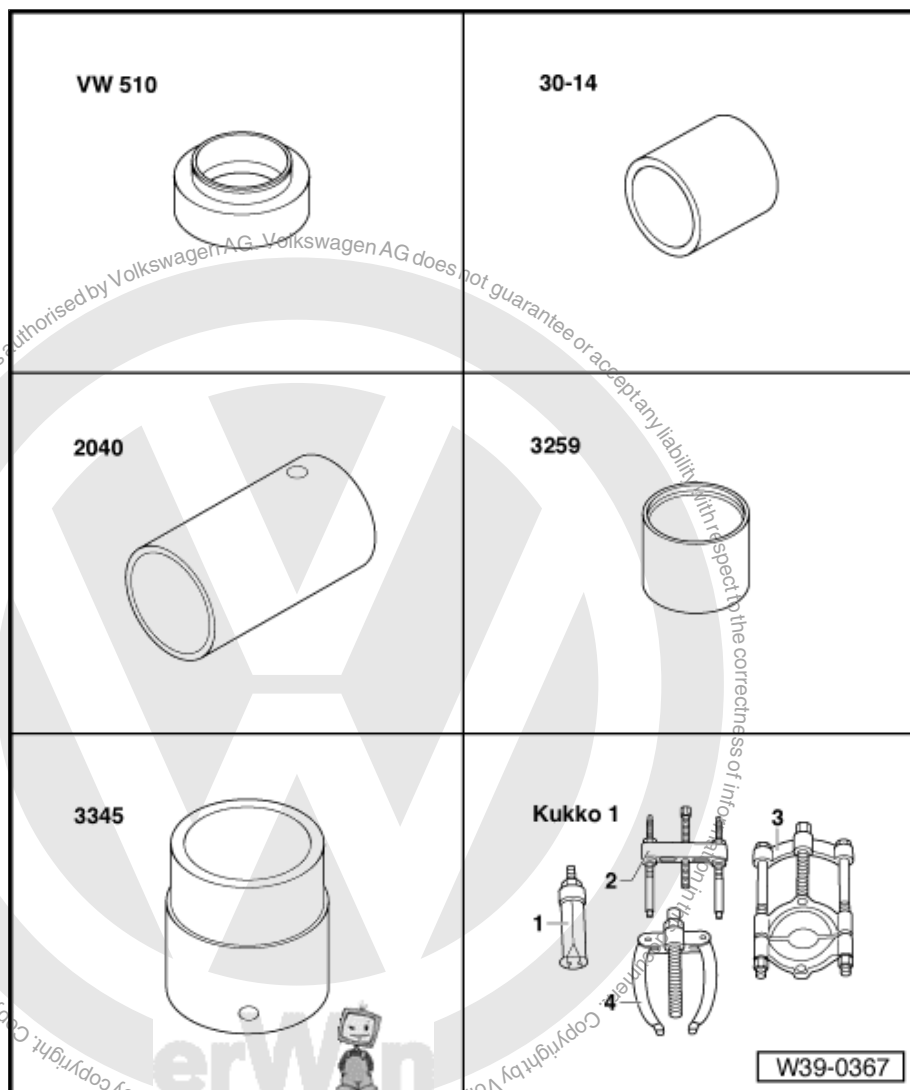
Special tools and workshop equipment required

- ◆ End dimension plate - VW 385/17-
- ◆ Universal dial gauge bracket - VW 387-
- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 408-
- ◆ Press tool - VW 412-

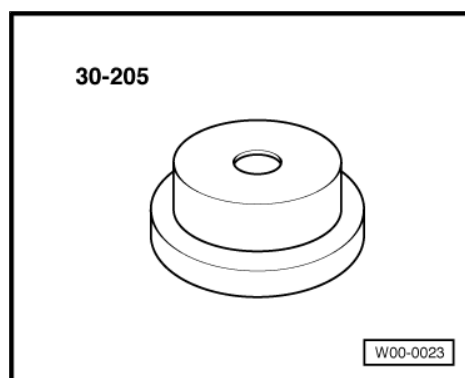




- ◆ Thrust pad -VW 510-
- ◆ Tube -30 - 14-
- ◆ Tube -2040-
- ◆ Tube -3259-
- ◆ Wheel bearing tube -3345-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Dial gauge



- ◆ Thrust plate -30 - 205-



It is necessary to readjust the differential when the following components are renewed:

- ◆ Gearbox housing
- ◆ Clutch housing
- ◆ Differential cage

or the



◆ Tapered roller bearing of differential

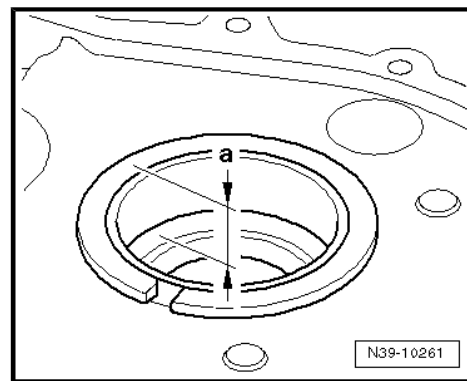
Shim S₁ for the tapered roller bearing outer race has been discontinued as of production date 04 12 6

Bearing seat for tapered roller bearing outer race adapted.

Perform the following steps:

- Measure the depth of the bearing seat for tapered roller bearing outer race in gearbox housing.

Dimension "a"	Shim S ₁
15.2 mm	No
16.2 mm	Yes



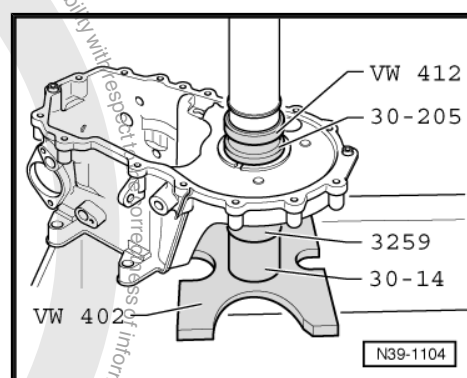
Continuation for all

- Press tapered roller bearing outer race (gear wheel side) into the gearbox housing - if necessary, with shim S₁ (always 1 mm thick).

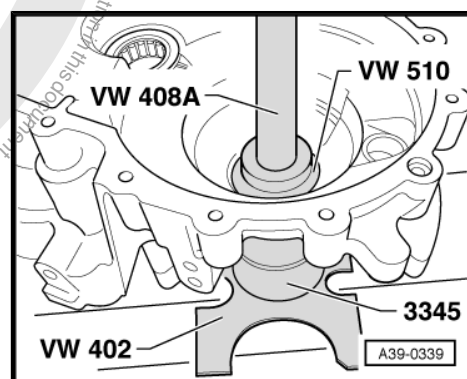


Note

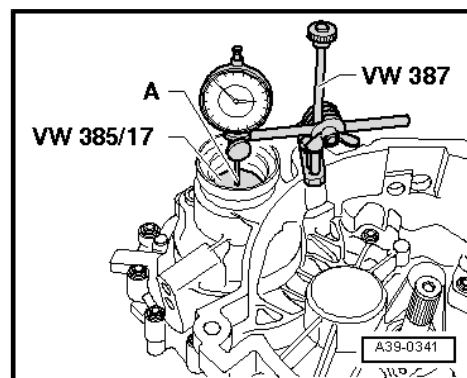
Inner and outer tapered roller bearing races are paired. Do not interchange!



- Press tapered roller bearing outer race (opposite gear wheel) with no shim into gearbox housing.
- Insert differential in gearbox housing.
- Fit clutch housing and tighten 5 bolts to specified torque
⇒ [page 105](#).



- Attach dial gauge and set to "0" with 1 mm preload.
A - 30 mm dial gauge extension
- Move differential up and down. Read and note play indicated on dial gauge. (Example: 1.50 mm)



2.2.1 Determining shim S₂

The specified bearing preload is obtained for S₂ by adding a constant value for preload (0.35 mm) to the measured value.



Example:

Measured value	1.50 mm
+ Preload (constant)	0.35 mm
Thickness of shim S ₂ =	1.85 mm

- Remove clutch housing and press out tapered roller bearing outer race -A-.

B - Internal puller, 46 ... 58 mm , e.g. -Kukko 21/7-

- Allocate shim(s) using ⇒ Electronic parts catalogue “ETKA” .

The various thicknesses make it possible to achieve the exact shim thickness required.

If the size of shim required is larger than those listed in the ⇒ Electronic parts catalogue “ETKA” , insert two shims totalling the correct figure.

- Insert correct S₂ shim (in example 1.85 mm) and press tapered roller bearing outer race into clutch housing again.
- Fit clutch housing and tighten bolts to specified torque setting
⇒ [page 105](#) .

