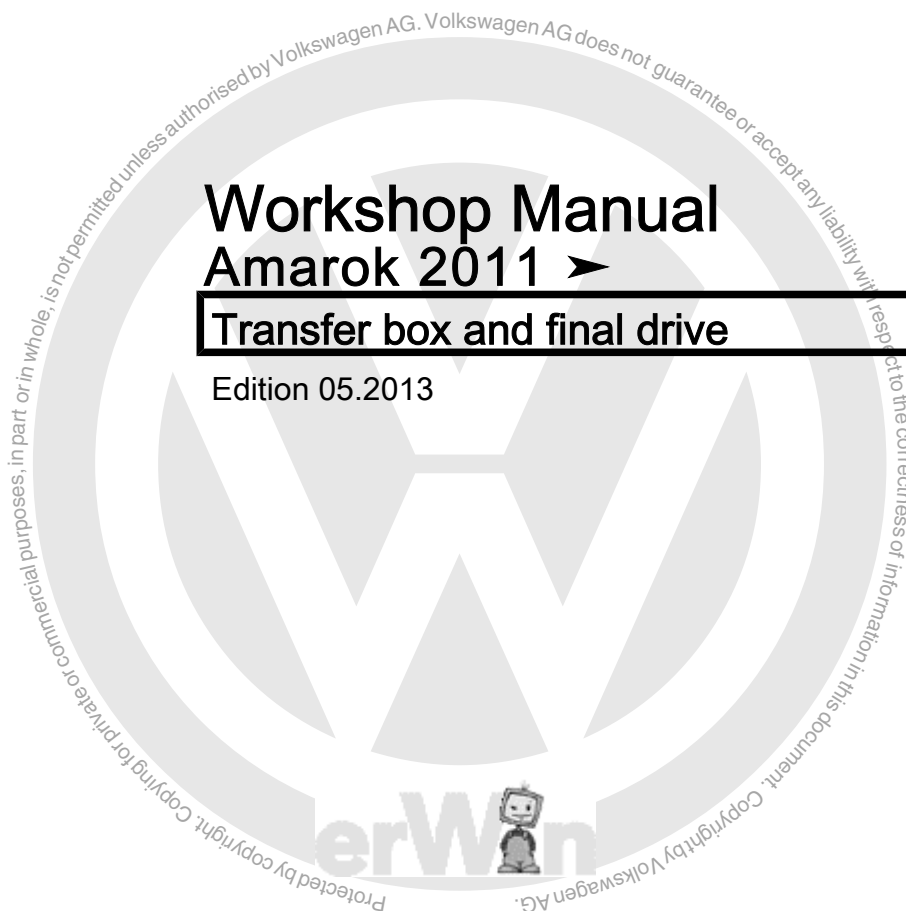




Workshop Manual Amarok 2011 ➤

Transfer box and final drive

Edition 05.2013





List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

39 - Final drive - rear differential

39 - Final drive - front differential

39 - Final drive - 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 Identification

(VRL005429; Edition 05.2013)

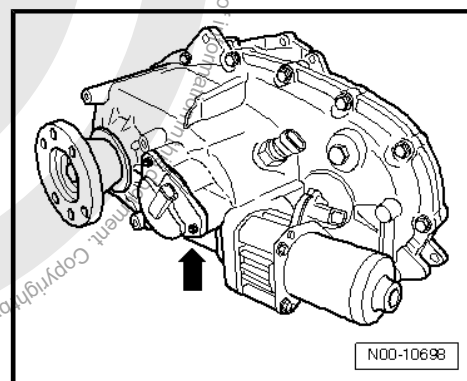
⇒ [“1.1 Identification of gearbox”, page 1](#)

⇒ [“1.2 Identification of final drive”, page 1](#)

1.1 Identification of gearbox

A reduction gearing is integrated into the transfer box.

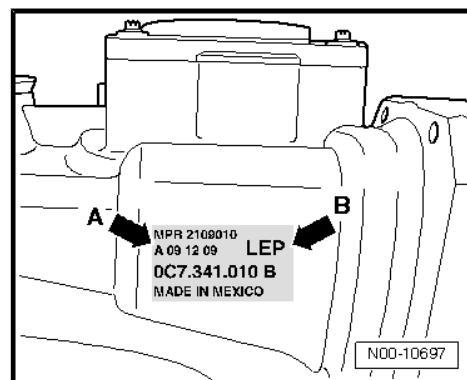
Location on transfer box -arrow-.



Production date -arrow A- and identification code -arrow B- of transfer box

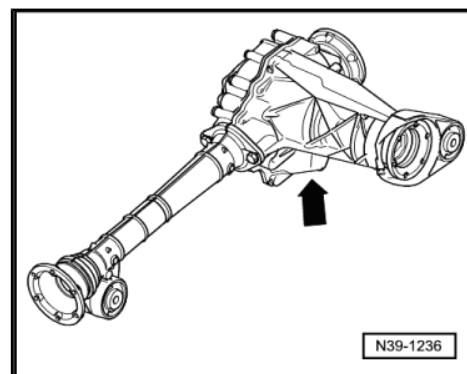
Example	LEP	09	12	09
	Identifica- tion code	Day	Month	Year (2009) of manufac- ture

Additional data depend on manufacture.



1.2 Identification of final drive

Location on front final drive -arrow-

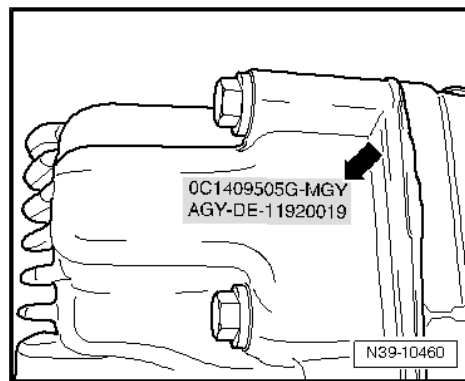




Codes -arrow- and manufacturing data for front final drive

Identification code	Year	Day	Serial number
MGY	x	xxx	xxxx

Additional data depend on manufacture.





2 Technical data

⇒ ["2.1 Allocation of rear final drive - engine/capacities", page 3](#)

⇒ ["2.2 Allocation of front final drive - engine/capacities", page 3](#)

⇒ ["2.3 Allocation of transfer box - engine/capacities", page 3](#)

⇒ ["2.4 Allocation of rear axle - engine/capacities", page 4](#)

⇒ ["2.5 Calculation of gear ratios", page 4](#)

2.1 Allocation of rear final drive - engine/capacities

Rear final drive	0CC		
Identification code	MQA		MQB
Allocation	Model	Amarok 2011 ►	Amarok 2011 ►
	Engine	2.0 l - 120 kW	2.0 l - 120 kW
Ratio	Final drive	i = 4.1	i = 4.1
Capacity	2.0 l ¹⁾		2.0 l ¹⁾

1) 2.1 l for new fill

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

- ◆ Allocation to corresponding vehicle
- ◆ Specification of gear oil

2.2 Allocation of front final drive - engine/capacities

Front final drive	0C1		
Identification code	MQL		
Allocation	Model	Amarok 2011 ►	
	Engine	2.0 l - 120 kW	
Capacity	0.8 l		

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

- ◆ Allocation to corresponding vehicle by engine code
- ◆ Specification of gear oil

2.3 Allocation of transfer box - engine/capacities

Transfer box	0C7		
Identification code	LEP		NHY
Allocation	Model	Amarok 2011 ►	Amarok 2011 ►
	Engine	2.0 l - 120 kW	
Capacity	1.25 l		1.25 l

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

- ◆ Allocation to corresponding vehicle by identification code of manual gearbox



◆ Specification of gear oil

2.4 Allocation of rear axle - engine/capacities

VW part number (with brake)	2H0.500.025. AH	2H0.500.025. AJ	2H0.500.025. AF
VW part number (without brake)	2H0.501.011. AH	2H0.501.011. AJ	2H0.501.011. AF
Manufacturer's part number	40073724	40073725	40073722
Rear-axle code	MQA	MQB	MPY
Gear ratio ¹⁾ Z2 : Z1 = i	41 : 10 = 4.10	41 : 10 = 4.10	43 : 10 = 4.30
Differential type	Standard	Lockable	Standard
Engine allocation	2.0 l 120 kW TDI	2.0 l 120 kW TDI	2.0 l 11 kW petrol 2.0 l 90 kW TDI
Capacity (dry axle) ²⁾	2.1 l ± 0.1 l	2.1 l ± 0.1 l	2.1 l ± 0.1 l

VW part number (with brake)	2H0.500.025. AG	2H0.500.029. D	2H0.500.029. E
VW part number (without brake)	2H0.501.011. AG	2H0.501.011. AP	2H0.501.011. AQ
Manufacturer's part number	40073723	40094736	40101793
Rear-axle code	MPZ	NAL	NAM
Gear ratio ¹⁾ Z2 : Z1 = i	43 : 10 = 4.30	37 : 10 = 3.70	37 : 10 = 3.70
Differential type	Lockable	Standard	Lockable
Engine allocation	2.0 l 118 kW petrol 2.0 l 90 kW TDI	2.0 l 132 kW TDI	2.0 l 132 kW TDI
Capacity (dry axle) ²⁾	2.1 l ± 0.1 l	2.1 l ± 0.1 l	2.1 l ± 0.1 l

¹⁾ Data shown on axle type plate.

²⁾ If the oil was merely drained, the capacity is 2.0 l.

³⁾ For current part numbers and codes refer to ⇒ Electronic Parts Catalogue (ETKA) .

2.5 Calculation of gear ratios

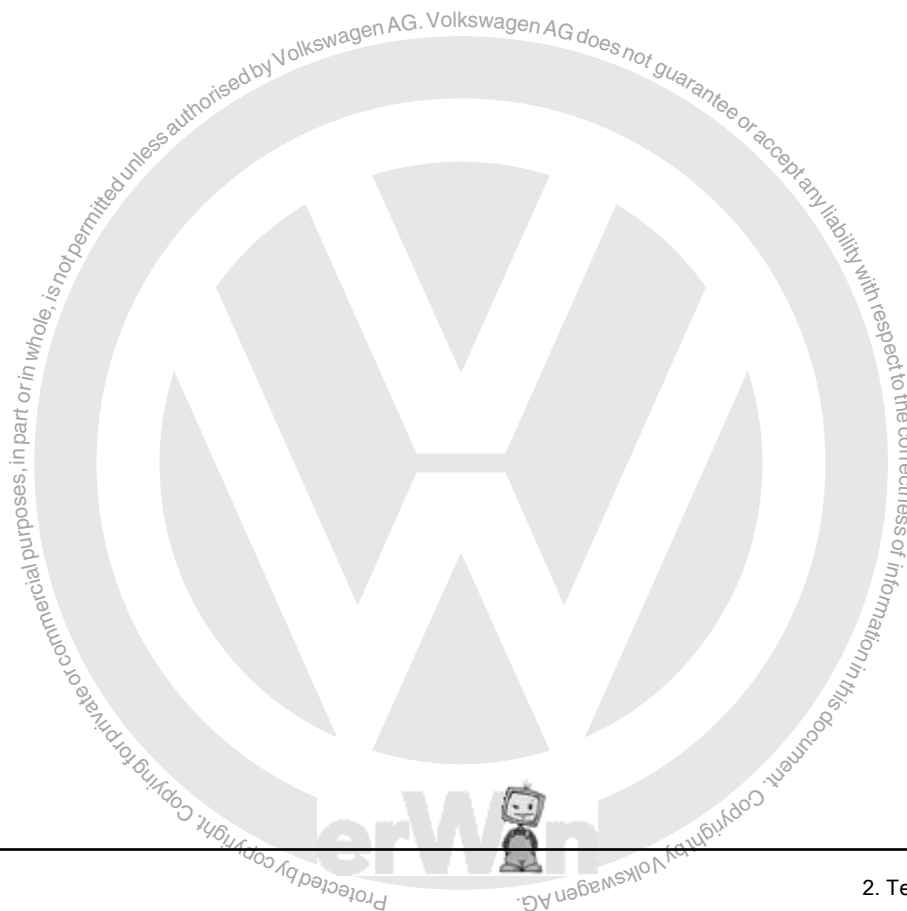
Example: **41 : 10 = 4.10**

Z2 : Z1 = "i" ¹⁾



1)

- ◆ $Z1$ = no. of teeth on drive gear
- ◆ $Z2$ = no. of teeth on driven gear
- ◆ i = gear ratio





3 Overview - power transmission

⇒ **"3.1 Overview - power transmission - four-wheel drive", page 6**

3.1 Overview - power transmission - four-wheel drive

1 - Front final drive

- ❑ Removing and installing
⇒ **page 68** .

2 - Front propshaft

- ❑ Removing and installing
⇒ **page 56** .

3 - From manual gearbox

4 - Transfer box

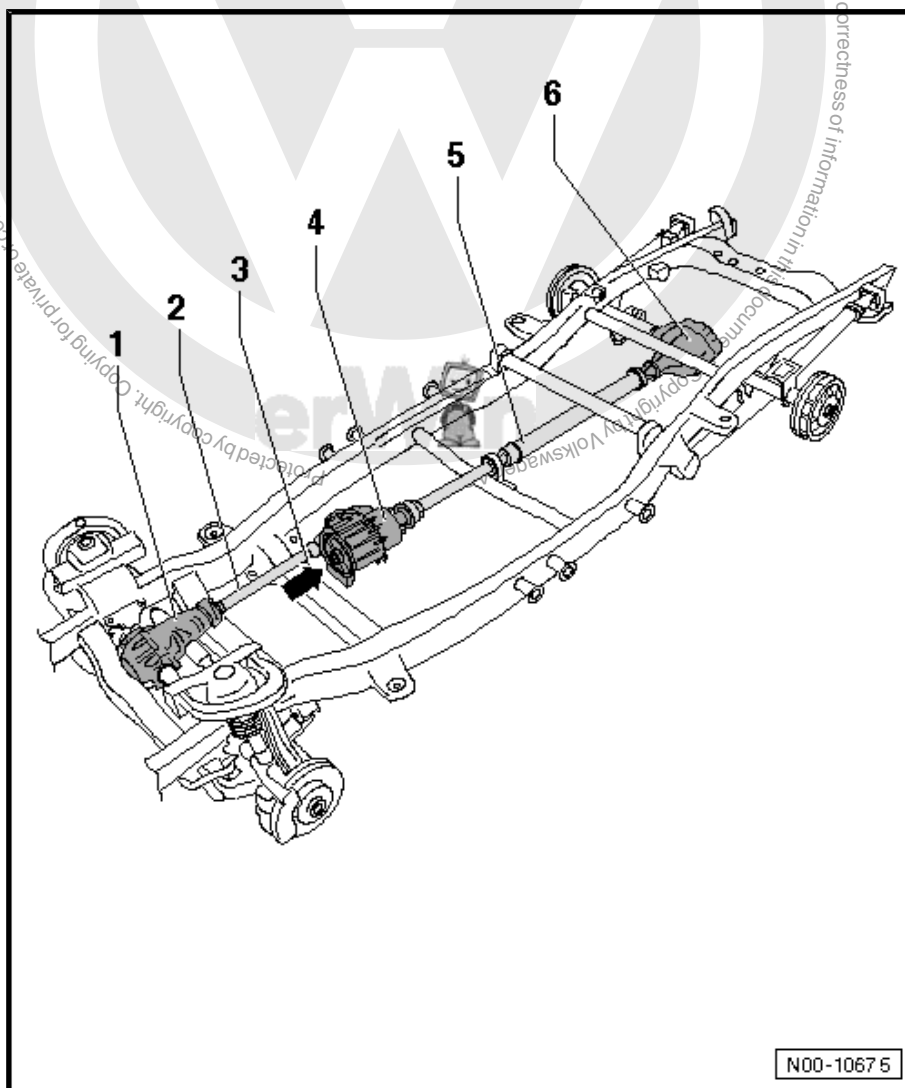
- ❑ With reduction gearing
- ❑ Changing between on-road range "HIGH" and offroad range "LOW" is performed using running gear programme switch - E631-
⇒ **page 94**
- ❑ Removing and installing
⇒ **page 95** .

5 - Rear propshaft

- ❑ Removing and installing
⇒ **page 57** .

6 - Rear final drive

- ❑ Optionally with rear axle differential lock
⇒ **page 51**





4 Repair instructions

⇒ ["4.1 Gearbox", page 7](#)

⇒ ["4.2 Rear axle", page 7](#)

⇒ ["4.3 Seals and sealing rings", page 7](#)

⇒ ["4.4 Locking devices", page 7](#)

⇒ ["4.5 Nuts and bolts", page 8](#)

⇒ ["4.6 Bearing", page 8](#)

⇒ ["4.7 Shims", page 8](#)

4.1 Gearbox

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 generally applicable instructions for the various repair procedures which were previously repeated at numerous places in the workshop manual are summarised here. They apply to this workshop manual.

- ◆ When installing the transfer box, ensure that the dowel sleeves between the gearbox and transfer box are correctly installed.
- ◆ Always renew retaining rings for front propshaft on transfer box and front final drive.
- ◆ 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) .
- ◆ Capacity of transfer box ⇒ [page 3](#) .
- ◆ Capacity of front final drive ⇒ [page 3](#) .

4.2 Rear axle

- ◆ When a dry, clean rear axle is filled for the first time or refilled (new or completely cleaned rear axle) the oil capacity is 2.1 l ± 0.1 l.
- ◆ If a used rear axle is filled after the oil was merely drained, the capacity is 2.0 l ± 0.1 l.
- ◆ Axle must be in horizontal position while oil is drained.

4.3 Seals and sealing rings

- ◆ Thoroughly clean joint surfaces.
- ◆ Apply sealing paste ⇒ Electronic Parts Catalogue (ETKA) to drive pinion splines or propshaft flange. Spread a 2-3 mm Ø bead around drive pinion teeth.
- ◆ Renew O-rings if damaged.
- ◆ Renew cover seal.
- ◆ Renew both pinion seals if leaking.

4.4 Locking devices

- ◆ Do not overstretch retaining rings.



- ◆ Retaining rings must locate properly in grooves. With opening towards floor.
- ◆ Renew compression sleeve.

4.5 Nuts and bolts

- ◆ Loosen and tighten bolts and nuts for covers and housings diagonally.
- ◆ Torque settings are specified for uncoiled bolts and nuts.
- ◆ Always renew self-locking bolts and nuts.
- ◆ Always renew M14 brake bolts.
- ◆ Ensure with threaded connections that contact surfaces as well as nuts and bolts are rewaxed only after assembly, if necessary.
- ◆ Use a thread chaser to clear residual locking fluid from all threaded holes into which self-locking bolts are to be screwed. Otherwise there is a danger of bolts shearing when subsequently being removed.

4.6 Bearing

- ◆ Note the installation position of the sealed wheel bearings: the flat metal oil seal facing the wheel and the rubber oil seal facing the axle.
- ◆ Do not interchange the inner and outer races of same size bearings.

4.7 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.
- ◆ Note the shims' location. There must be no gap between the shim and the adjacent surface.



39 – Final drive - rear differential





1 Final drive

- ⇒ ["1.1 Assembly overview - final drive", page 10](#)
- ⇒ ["1.2 Assembly overview - differential", page 13](#)
- ⇒ ["1.3 Removing and installing actuator", page 13](#)
- ⇒ ["1.4 Removing and installing drive pinion and differential", page 14](#)
- ⇒ ["1.5 Dismantling and assembling differential", page 24](#)
- ⇒ ["1.6 Removing and installing crown wheel", page 26](#)
- ⇒ ["1.7 Checking backlash and contact pattern", page 27](#)
- ⇒ ["1.8 Pulling tapered roller bearing for drive pinion off and pressing it on", page 30](#)
- ⇒ ["1.9 Pulling tapered roller bearing for differential off and pressing it on", page 32](#)
- ⇒ ["1.10 Overview of shims", page 34](#)
- ⇒ ["1.11 Adjustment overview", page 35](#)
- ⇒ ["1.12 Determining shims for crown wheel", page 36](#)
- ⇒ ["1.13 Determining shims for drive pinion", page 39](#)
- ⇒ ["1.14 Renewing propshaft flange seal", page 43](#)
- ⇒ ["1.15 Repairing propshaft flange", page 49](#)

1.1 Assembly overview - final drive

1 - Oil filler plug

- ☐ Renew after removal
- ☐ 33 Nm

2 - Final drive cover

- ☐ Vehicles with a digital tachograph have a sensor mounting on the cover ⇒ [page 18](#).



Caution

Repair work which may affect the function of the tachograph must always be carried out in certified workshops.

3 - Bolt

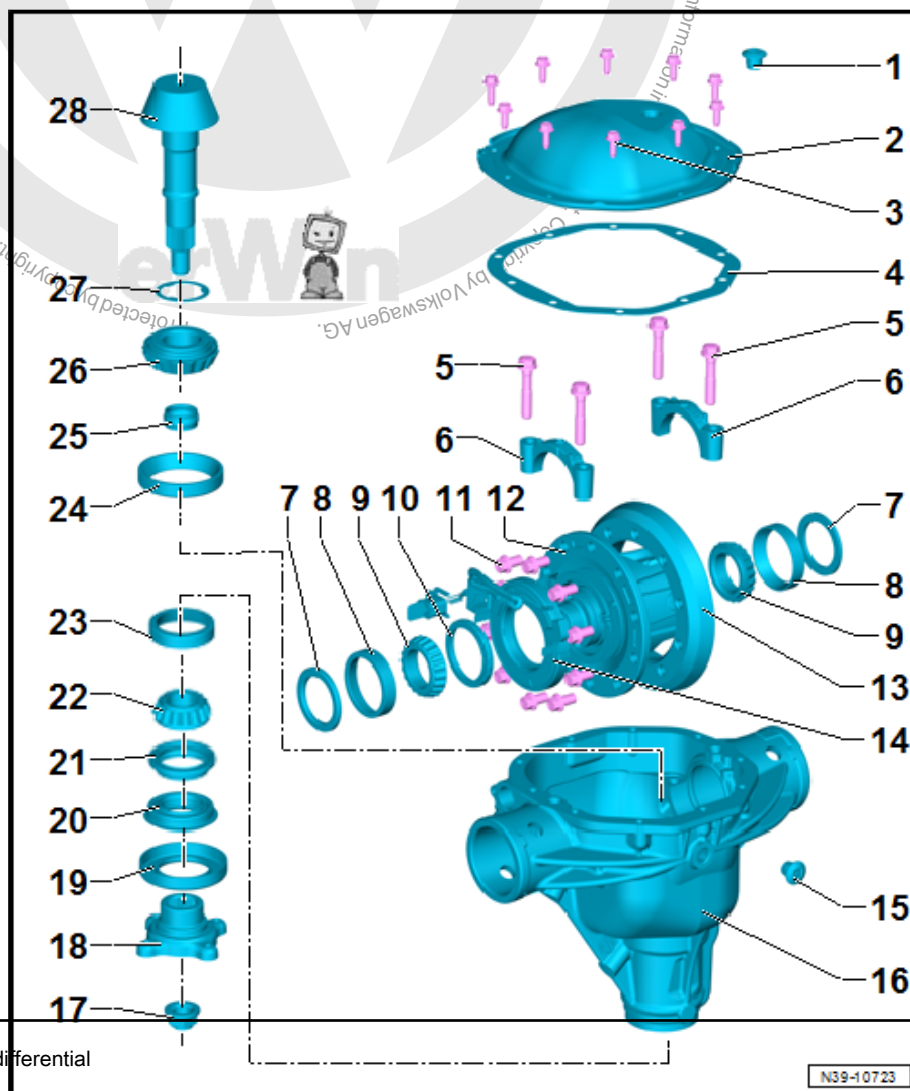
- ☐ Renew after removal
- ☐ Apply locking fluid - D 185 410 A2- before starting bolt.
- ☐ 44 Nm

4 - Seal

- ☐ Renew after removal

5 - Bolt

- ☐ 85 Nm





6 - Bearing bracket

- ☐ Paired with axle beam
- ☐ Mark installation position

7 - Shim

- ☐ For adjusting crown wheel.
- ☐ Installation position: chamfered side faces axle tube.
- ☐ Determining shims ⇒ [page 36](#) .

8 - Outer ring

- ☐ For tapered roller bearing

9 - Tapered roller bearing

- ☐ Pulling off and pressing on ⇒ [page 32](#) .

10 - Retaining ring

11 - Bolt

- ☐ Left-hand thread
- ☐ 140 Nm

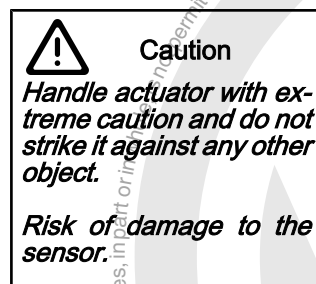
12 - Differential

- ☐ Removing and installing ⇒ [page 14](#) .
- ☐ Dismantling ⇒ [page 24](#)

13 - Crown wheel

- ☐ Removing and installing ⇒ [page 26](#)
- ☐ Determining shims ⇒ [page 36](#) .

14 - Actuator



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

15 - Oil drain plug

- ☐ Renew after removal
- ☐ 33 Nm

16 - Axle beam

- ☐ Removing and installing ⇒ Rep. gr. 42 ; Rear axle; Removing and installing rear axle .

17 - Flange nut

- ☐ Renew after removal

18 - Propshaft flange

- ☐ Removing and installing ⇒ [page 43](#)

19 - Dust cap

20 - Sealing sleeve

- ☐ Renew after removal
- ☐ Removing and installing ⇒ [page 43](#) .

21 - Seal

- ☐ Renew after removal



Caution

*If the seal is renewed, the friction torque must be determined before starting repair work
⇒ [page 44](#) .*

If the friction torque has not been determined before removal, the compression sleeve and the drive pinion bearings will have to be renewed.

- ☐ Removing and installing ⇒ [page 43](#) .

22 - Outer tapered roller bearing

- ☐ Remove to renew drive pinion.

23 - Outer ring

- ☐ For outer tapered roller bearing
- ☐ Remove and install using drift - 3138- .

24 - Outer ring

- ☐ For inner tapered roller bearing
- ☐ Remove and install using drift - 3138- .

25 - Compression sleeve

- ☐ Remove to renew drive pinion.
- ☐ Renewing ⇒ [page 20](#)

26 - Inner tapered roller bearing

- ☐ Pulling off and pressing on ⇒ [page 30](#) .

27 - Shim

- ☐ For adjusting drive pinion
- ☐ Determining shims ⇒ [page 39](#) .

28 - Drive pinion

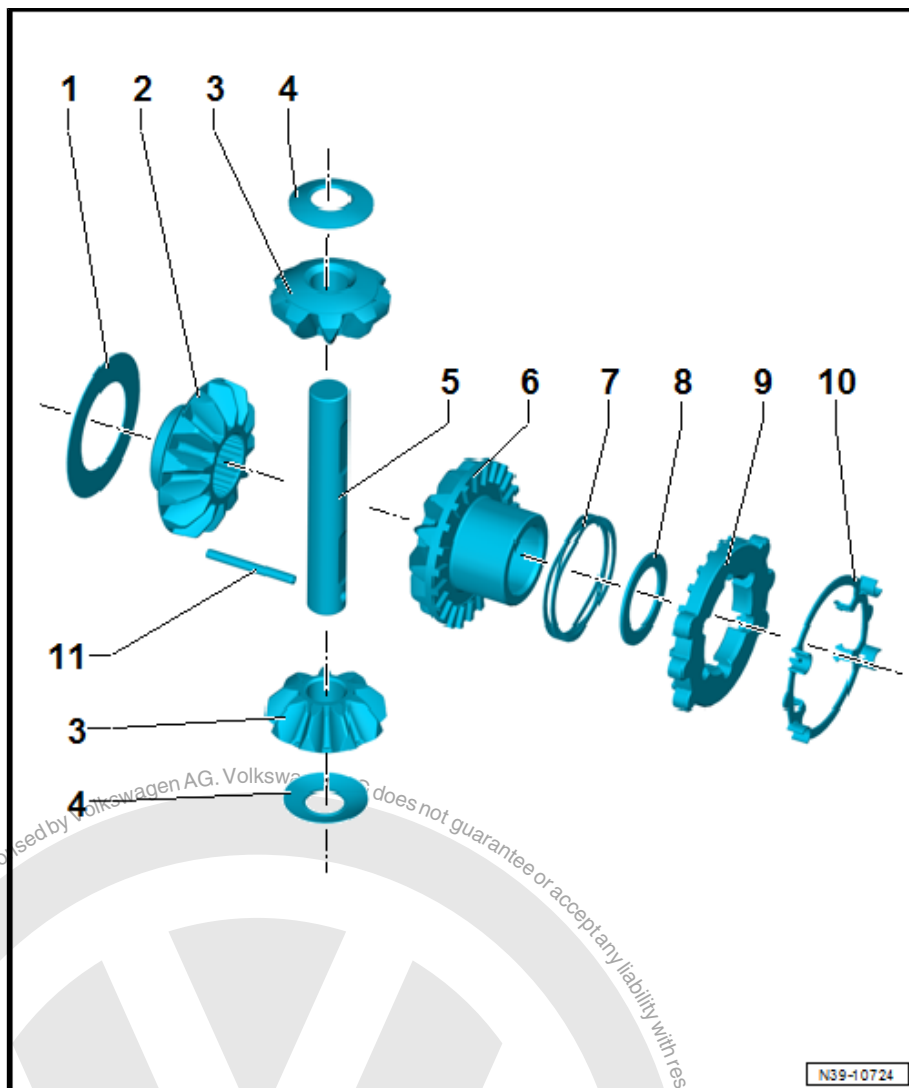
- ☐ Removing and installing ⇒ [page 14](#) .





1.2 Assembly overview - differential

- 1 - Thrust washer
 - 2 - Differential pinion
 - ☐ "Large"
 - 3 - Differential pinion
 - ☐ "Small"
 - 4 - Thrust washer
 - 5 - Pin
 - 6 - Differential pinion
 - ☐ "Large"
 - 7 - Return spring
 - 8 - Thrust washer
 - ☐ Only in vehicles with differential lock.
 - 9 - Selector fork
 - ☐ Only in vehicles with differential lock.
 - 10 - Guide ring
 - ☐ Renew after removal
 - ☐ Will be destroyed during removal and installation process.
 - ☐ Only in vehicles with differential lock.
 - 11 - Securing pin
 - ☐ Renew after removal
 - ☐ Will be destroyed during removal and installation process.
 - ☐ Remains of pin remain in differential housing.
- The depth of the hole allows for shearing off the pin twice as well as for two remnants to remain in the hole (new version). In case of the old versions the securing pin must be removed completely.



1.3 Removing and installing actuator

Removing



Note

On vehicles with differential lock the guide ring may be damaged during the removal of the actuator ➔ [Item 10 \(page 13\)](#). Check the guide ring for damage after the actuator has been removed. For this, the differential must be dismantled ➔ [page 24](#).

- Remove drive pinion and differential ➔ [page 14](#).





- Remove outer race -arrow- from tapered roller bearing -1- on left and right.



Note

The tapered roller bearing on the actuator end will be damaged when being removed and must be renewed.

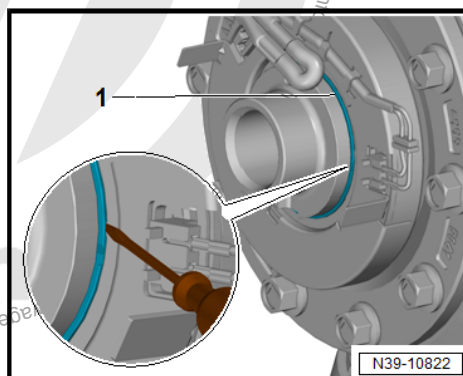
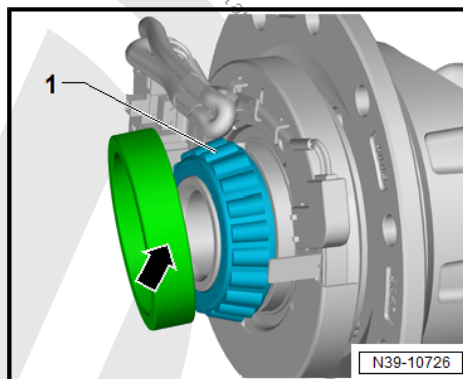
- Press tapered roller bearing on actuator end off differential
⇒ [page 32](#) .
- Remove circlip -1- of actuator with a screwdriver or circlip pliers.



Caution

Handle actuator with extreme caution and do not strike it against any other object.

Risk of damage to the sensor.



- Carefully remove actuator -arrow- from differential.

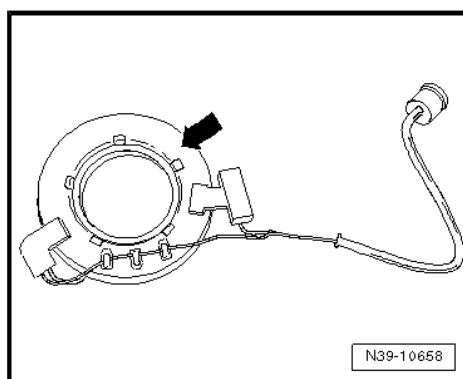
Installing

Install in reverse order of removal, observing the following:

- Installing drive pinion and differential ⇒ [page 14](#)

Specified torques

- ♦ ⇒ [“1.1 Assembly overview - final drive”, page 10](#)



1.4 Removing and installing drive pinion and differential



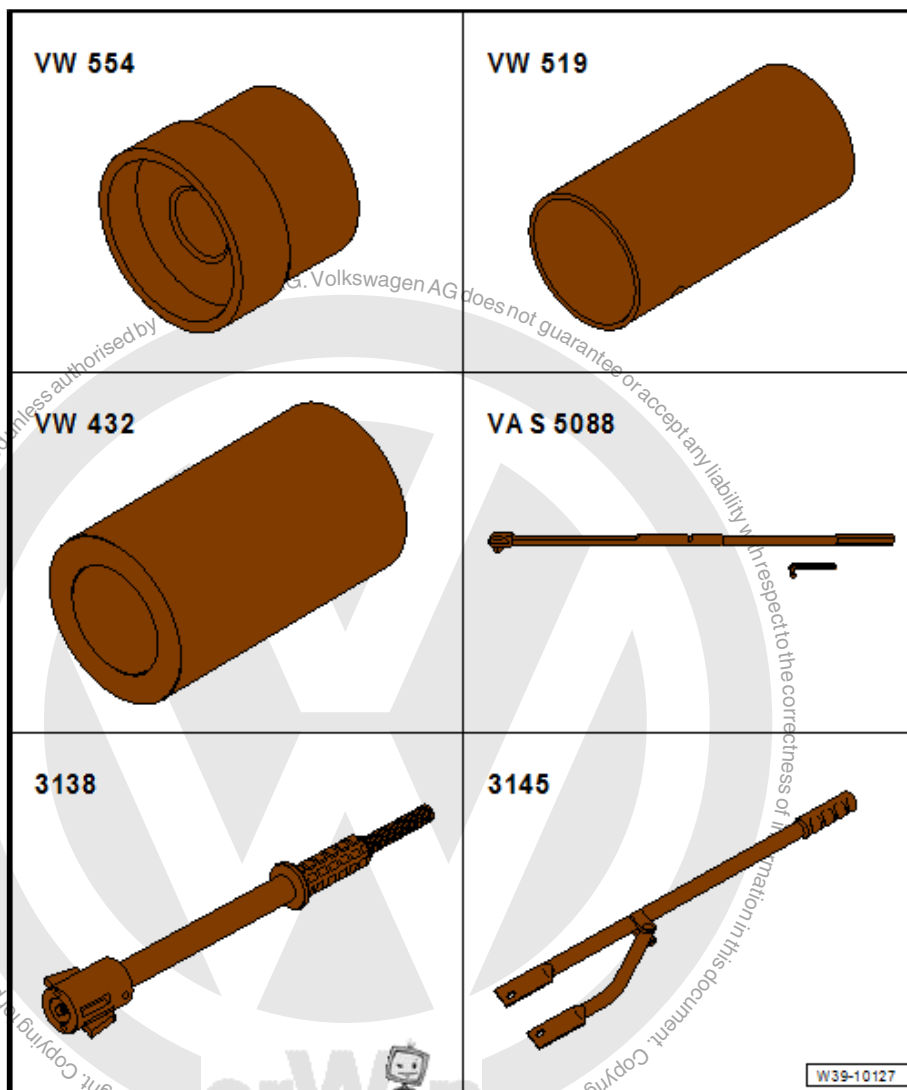
Note

- ♦ *The final drive gear set can be removed and installed with axle installed.*
- ♦ *The final drive gear set (drive pinion and crown wheel) may only be replaced as a complete unit.*



Special tools and workshop equipment required

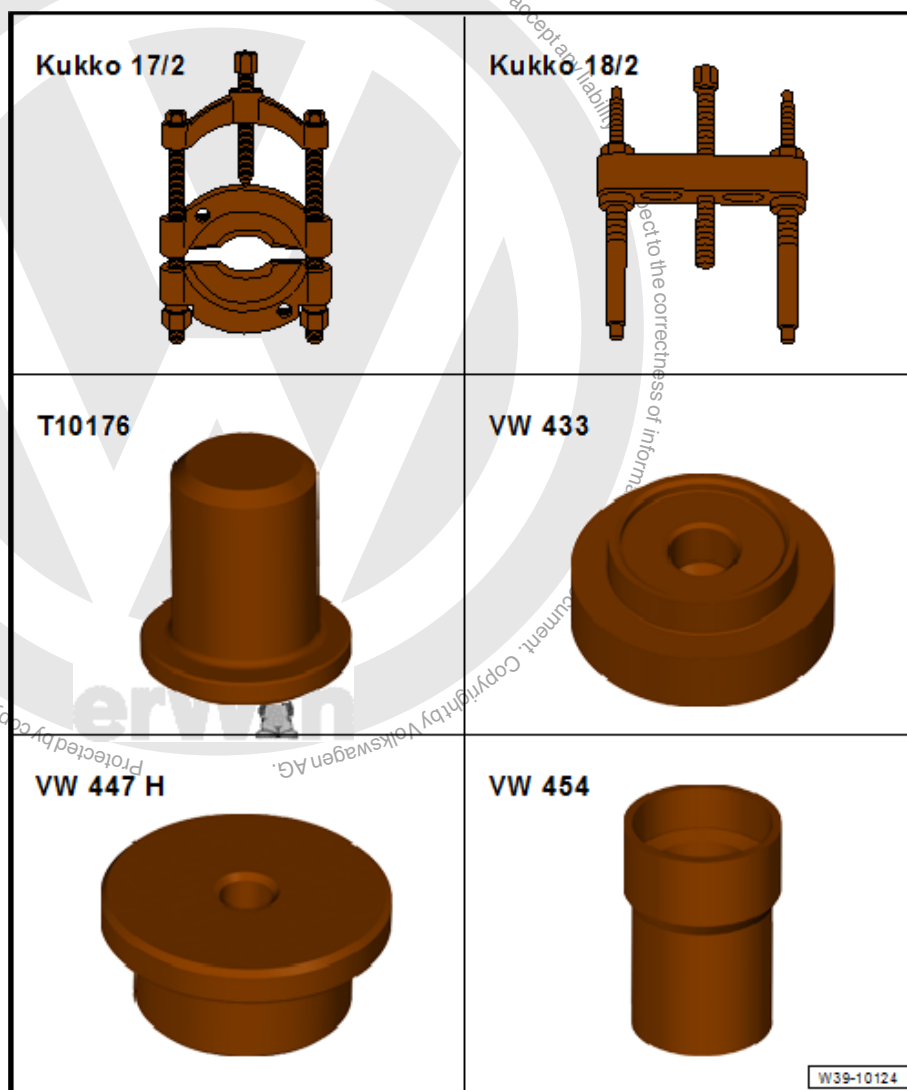
- ◆ Thrust piece - VW 554-
- ◆ Tube - VW 519-
- ◆ Thrust piece - VW 432-
- ◆ Torque wrench - VAS 5088-
- ◆ Drift - 3138-
- ◆ Counter-hold tool - 3145-
(modify holes on old version => [page 44](#))





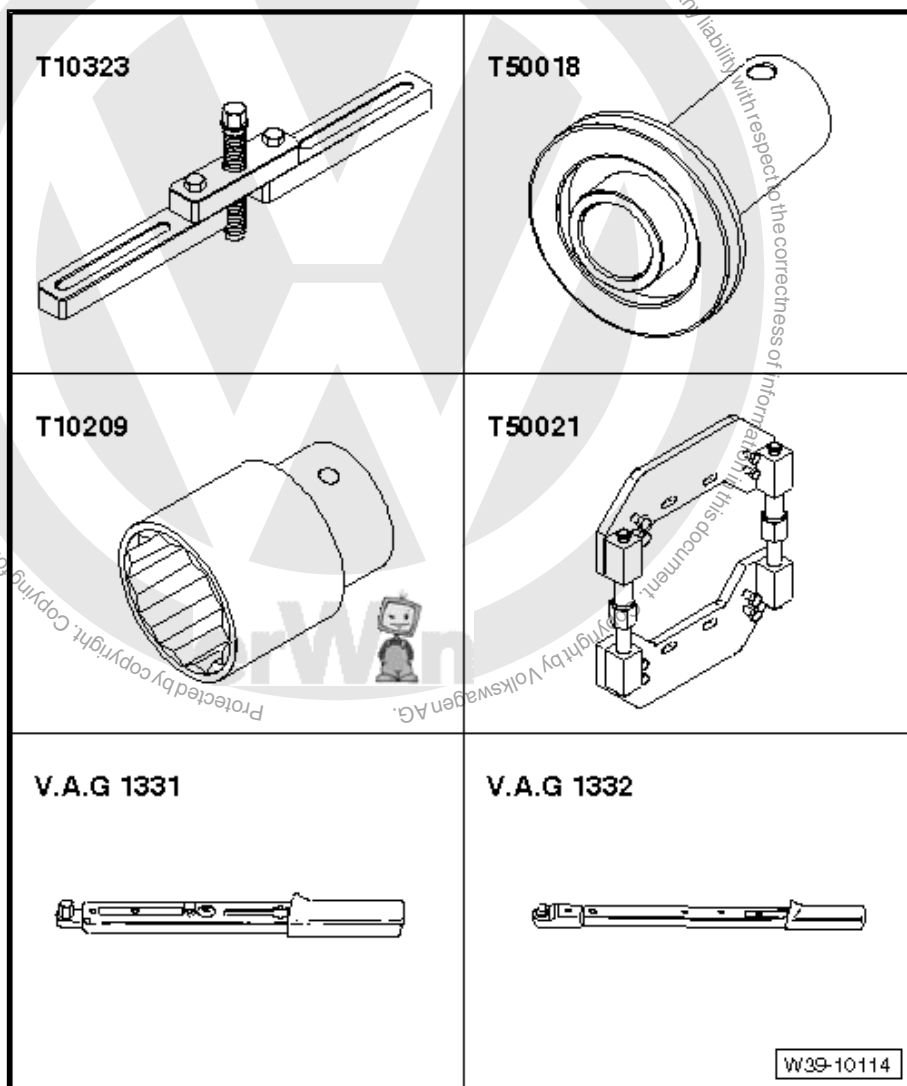
Special tools and workshop equipment required

- ◆ Counter support Kukko 18-2
- ◆ Separating tool Kukko 17-2
- ◆ Fitting tool - T50023-
- ◆ Thrust piece - VW 433-
- ◆ Thrust piece - T50048/1-
- ◆ Thrust piece - T50048/2-





- ◆ Support device - T10323
- ◆ Thrust piece - T50018
- ◆ Socket 32 mm - T10209
- ◆ Expander - T50021 (renew washers and M8 securing bolts with new bolts with property class 12.9 before each installation)
- ◆ Torque wrench - V.A.G 1331-
- ◆ Torque wrench - V.A.G 1332-



- ◆ Loctite 565

Removing differential

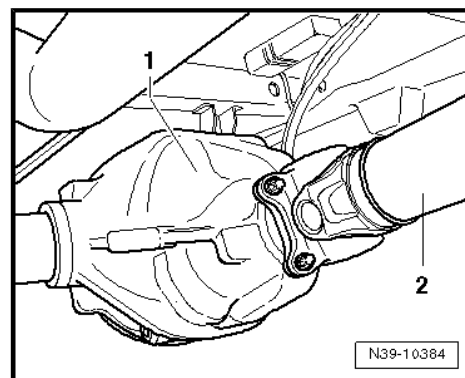
- Drain gear oil ⇒ [Item 15 \(page 11\)](#) .
- Remove rear axle shafts ⇒ Rear suspension; Rep. gr. 42 ; Rear axle; Removing and installing rear axle shaft .
- Mark position of propshaft in relation to propshaft flange.
- Unscrew propshaft -2- from rear axle -1-.
- Secure propshaft to body.
- If fitted, remove spare wheel.

Vehicles with tachograph



Caution

Repair work which may affect the function of the tachograph must always be carried out in certified workshops.





Tachograph

Continuation for all vehicles

- Unscrew final drive cover from axle beam.

Vehicles with lockable differential

- Disconnect connector of wiring harness from differential.
- Unscrew securing bolt for wiring harness from bearing bracket.

Continuation for all vehicles

- Mark installation position of bearing brackets -1 and 2- and remove -arrows-.



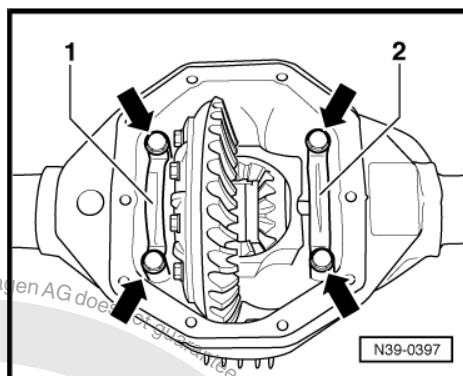
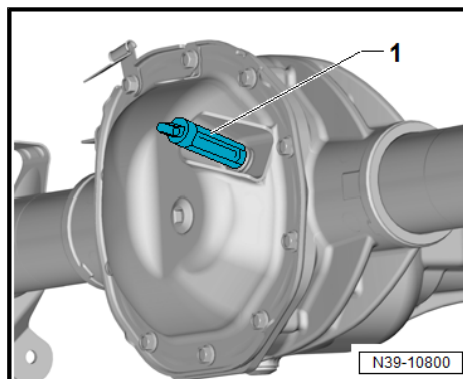
Caution

Always renew M8 securing bolts of expander - T50021- with new bolts with property class 12.9 and washers before installation.

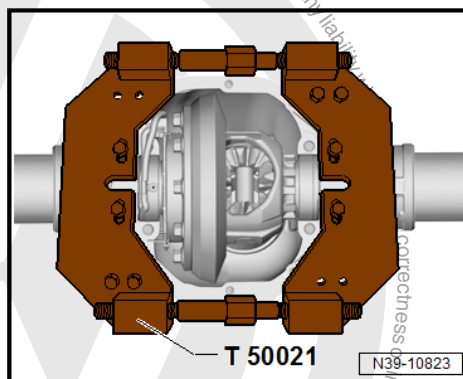
Part number for M8 × 35 bolts: N10534803

Part number for washers: WHT003198

Specified torque: 44 Nm



- Fit spreader - T50021- on rear axle.





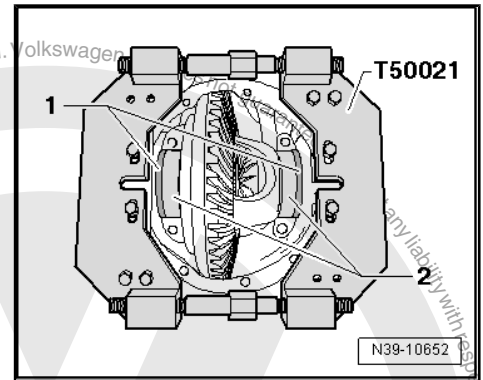
- Mark installation side of tapered roller bearing outer races -2- and shims -1-.



WARNING

Fit a bearing bracket again to prevent differential falling out when expanding axle beam.

Wear safety goggles. Securing bolts of expander - T50021- are highly stressed when axle is expanded.



- Tension spreader - T50021- until differential can be removed from axle beam without significant effort.

Vehicles with lockable differential



Note

- ◆ *Handle differential with extreme caution and do not strike it against any other object.*
- ◆ *When driving connector out inwards, ensure that it does not strike against actuator.*
- ◆ *Risk of damage to axle differential lock Hall sender 1 - G460-.*
- Remove retainer for connector. Then, press connector inwards out of axle housing and remove it together with differential. Carefully pull connector out inwards.

Continuation for all vehicles

- Slacken spreader - T50021- and remove.
- Carry out visual inspection of tapered roller bearings on differential. Renew them if necessary ⇒ [page 32](#) .

Removing drive pinion

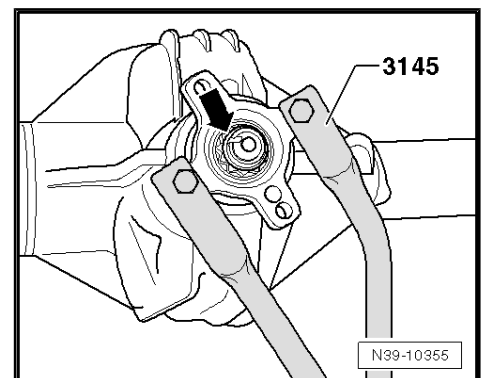


Caution

If the same drive pinion bearings are reinstalled, the friction torque must be measured and recorded before dismantling further. This is not necessary when installing new bearings.

Determining friction torque ⇒ [page 44](#) .

- Remove locking device for nut -arrow-. If necessary, modify counter-hold tool - 3145- ⇒ [page 44](#) .
- Screw counter-hold tool - 3145- onto propshaft flange.
- Loosen securing nut using 32 mm socket - T10209- .





- Mount puller and remove propshaft flange.
- A - Separating tool Kukko 17-2
B - Counter support Kukko 18-2
- Carry out visual inspection of sealing sleeve. Renew it if necessary ⇒ [page 49](#) .
 - Use a plastic hammer for driving drive pinion out of housing.

If only the compression sleeve is to be renewed
⇒ [Item 25 \(page 12\)](#) , the last step that remains is to remove the seal ⇒ [Item 21 \(page 11\)](#) .

- Drive out seal -1- using a chisel.

If the compression sleeve and the tapered roller bearings are to be renewed, drive out outer races of tapered roller bearings.

- Use drift - 3138- to drive out outer race of tapered roller bearing (flange side) with seal.
- Use drift - 3138- to drive out outer race of tapered roller bearing (pinion side).
- Carry out visual inspection of tapered roller bearings. Renew them if necessary.
- Press tapered roller bearing ⇒ [Item 26 \(page 12\)](#) off drive pinion ⇒ [page 30](#) .

Installing

Install in reverse order of removal, observing the following:

If only the compression sleeve is to be removed, note
⇒ [page 20](#) .

If the compression sleeve is to be renewed together with the tapered roller bearings, do the following:

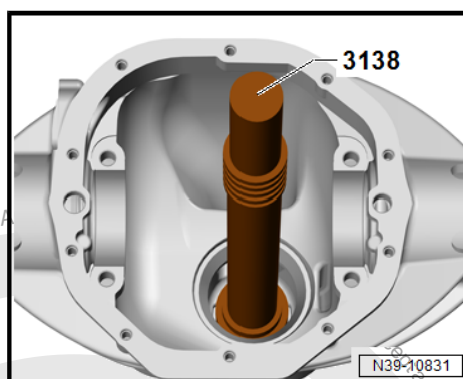
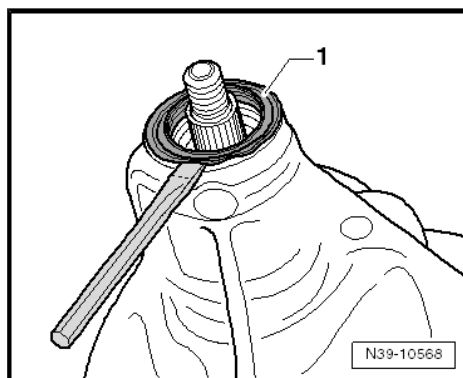
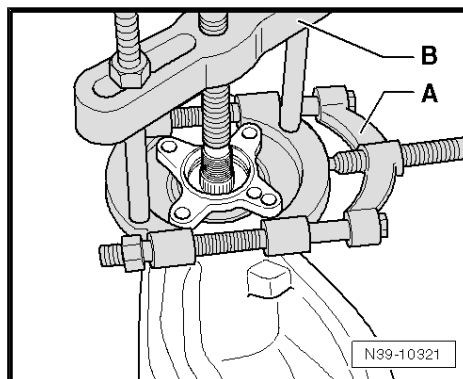
- Drive in outer races and determine shim for drive pinion
⇒ [page 39](#) .
- Then, fit determined shim onto drive pinion and press on tapered roller bearing ⇒ [page 30](#) .



Note

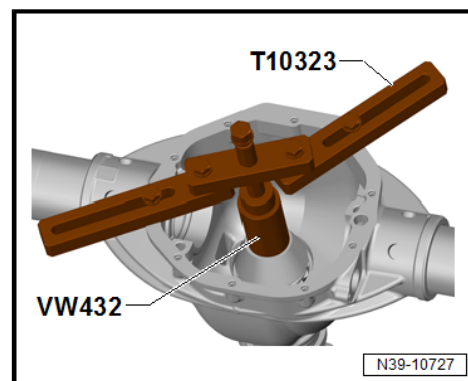
Remove any sealant residue from splines of flange before inserting the drive pinion.

Continuation for all cases:

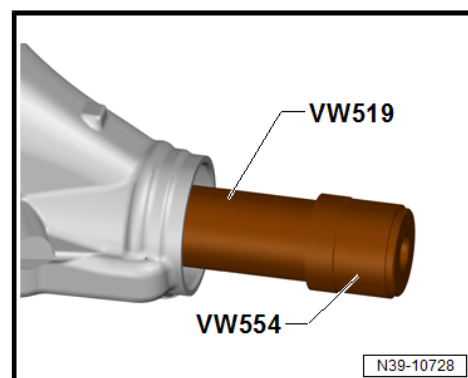




- Insert drive pinion and support it using support device - T10323- and press tool - VW 432- .
- Fit new compression sleeve [⇒ Item 25 \(page 12\)](#) on drive pinion.



- Drive in tapered roller bearing (flange side) using tube - VW 519- and press tool - VW 554- until axial play is approx 2 mm.



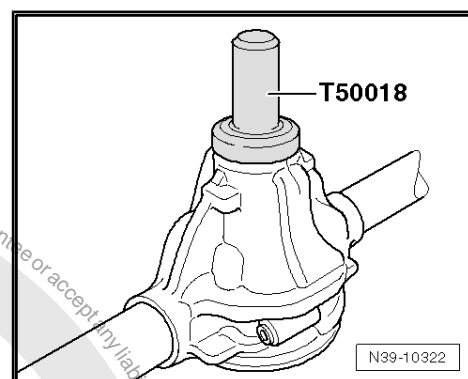
- Drive in new seal flush using thrust piece - T50018-



Note

Remove sealant residue thoroughly from splines on flange before applying the new sealant.

- Apply Loctite 565 to inner splines of flange.
- Install propshaft flange with new securing nut.

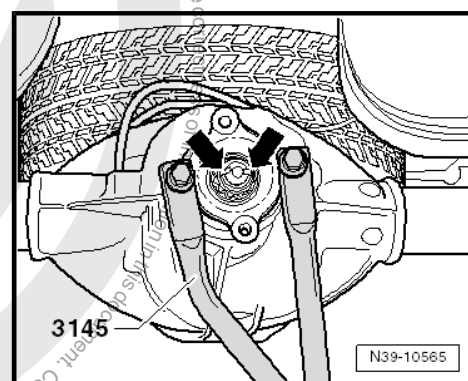


Caution

Determine friction torque with crown wheel removed.

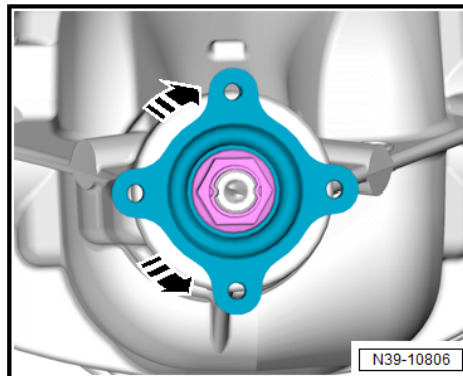
Determining friction torque

- Bolt counter-hold tool - 3145- to propshaft flange.
- Tighten flange nut with socket 32 mm - T10209- until the bearing has zero play.
- Remove counter-hold tool - 3145- .





- To align tapered roller bearings, rotate propshaft flange 15 times clockwise and 15 times anticlockwise.

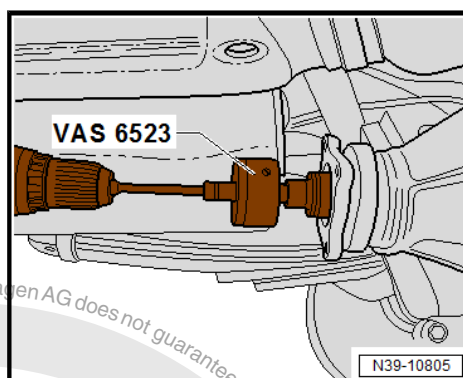


- Measure friction torque on propshaft flange with a commercially available 32 mm socket, bearing preload gauge - VAS 6523- and cordless power driver 12 V/1.4 Ah - VAS 5825-.



Note

To avoid incorrect measurements, measure friction value at approx. 50 rpm and turning at least 5 times.



Friction torque:

- With new, uncoiled bearing: 2.25 Nm to 2.82 Nm
- With used bearing: previously determined value + 0.1 Nm to 0.5 Nm



Caution

If the determined friction torque is too low, tighten flange nut further in small steps. Then, align propshaft flange again (rotate 15 times in clockwise and 15 times in anticlockwise direction). After that, determine friction torque again. Repeat this procedure until the friction torque is within the specified range.

It is very likely that this procedure has to be repeated several times.

*It is not permitted for friction torque to be attained by loosening securing nut. Renew the compression sleeve if the permissible friction torque has been exceeded ⇒ **Item 25 (page 12)**. The drive pinion must be removed for this purpose.*



- Secure flange nut by peening.

If the final drive gear set has been dismantled completely (compression sleeve and tapered roller bearing), do the following:

- Determine shims for crown wheel ➔ [page 36](#).

Continuation for all cases:



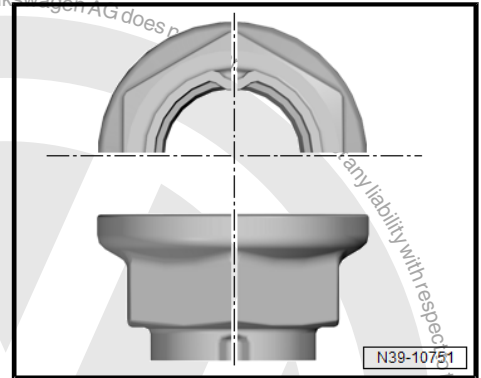
WARNING

Always renew M8 securing bolts of expander - T50021- with new bolts with property class 12.9 and washers before installation.

Part number for M8 × 35 bolts: N10534803

Part number for washers: WH1001323

Specified torque: 44 Nm



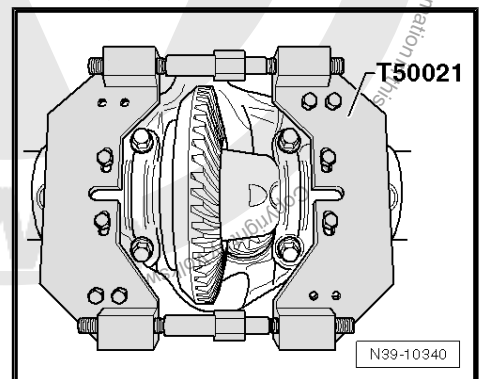
- Install spreader - T50021- .



WARNING

Wear safety goggles. Securing bolts of expander - T50021- are highly stressed when axle is expanded.

- Tension spreader - T50021- until differential can be fitted into axle beam without significant effort complete with tapered roller bearings and determined shims.



Vehicles with lockable differential

- Plug electrical connector into gearbox housing, taking due note of following:
 - Wiring harness must not be kinked or pinched.
 - The connector stop faces downwards.

Continuation for all vehicles



Note

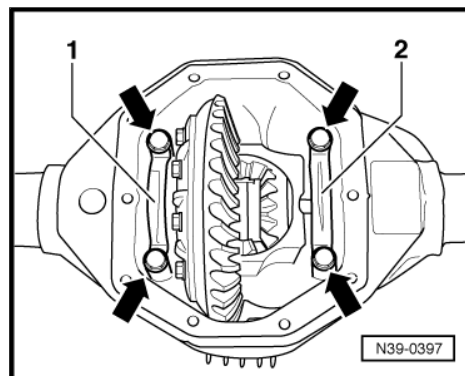
- ◆ Do not interchange shims and tapered roller bearing outer races for left and right sides.
- ◆ Install chamfered side of shims towards axle tube.
- ◆ When installing new shims, insert thinner shim (crown wheel side) so as to achieve a backlash in all cases.



- Install bearing brackets -1 and 2- in accordance with marked installation position. Screw in bolts -arrows- finger-tight.
- Slacken expander - T50021- and remove.
- Tighten bearing brackets -1 and 2- to final torque.
- Check backlash and contact pattern on newly adjusted final drive gear sets ⇒ [page 27](#) .

Vehicles with lockable differential

- Tighten bolt for wiring harness securing plate bracket and ensure that wiring harness is not in contact with crown wheel bolts.



Continuation for all vehicles

- Clean sealing surfaces.
- Secure final drive cover with new gasket and new bolts.
- Install rear axle shafts ⇒ Rep. gr. 42 ; Rear axle shafts .
- Install propshaft ⇒ [page 57](#) .
- Fill with gear oil ⇒ [page 67](#) .

Vehicles with lockable differential

- Connect wiring harness to sender.
- Secure wiring harness bracket to rear axle.

Specified torques

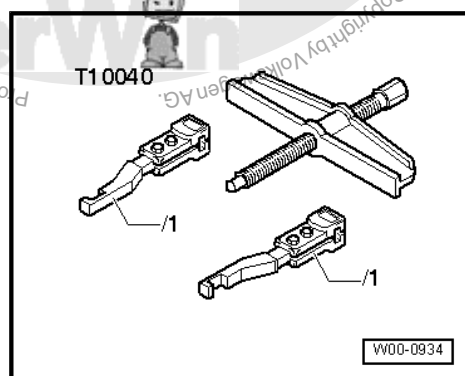
- ♦ ⇒ ["1.1 Assembly overview - final drive", page 10](#)
- ♦ ⇒ ["3.2 Assembly overview - Tirsan propshaft", page 54](#)
- ♦ Rear axle shafts, Assembly overview rear axle shafts ⇒ Running gear, axles, steering; Rep. gr. 42 ; Assembly overview - rear axle shafts .

Component	Specified torque
Sender to gearbox housing	13 Nm

1.5 Dismantling and assembling differential

Special tools and workshop equipment required

- ♦ Convert two arm puller - T10040- with claw - T40001/2-



or

Special tools and workshop equipment required

- ♦ -handelsüblicher Zweiarmabzieher-

Removing

- Remove differential ⇒ [page 14](#) .



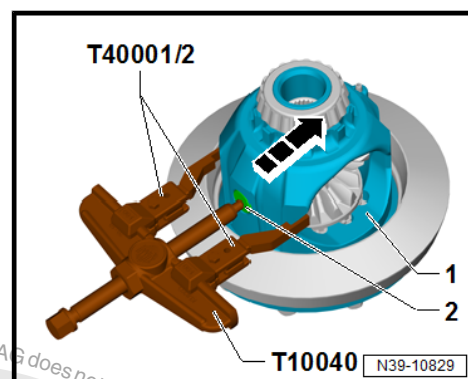
i Note

- ◆ *When pressing out pin, securing pin breaks between pin and housing. Remove remains of securing pin, then, remove remains from housing as described below.*
- ◆ *Fit a commercially available M6 nut between the two arm puller - T10040- and stud -3- in order to prevent the tool from being damaged.*
- Convert two arm puller - T10040- with claws - T40001 /2- .
- Fit two arm puller - T10040- (or a -handelsüblicher Zweiar-mabzieher-) on housing -1- and press pin -2- in -direction of arrow- out of housing.



WARNING

The securing pin is removed in three parts. The first part is removed when driving out the pin, the remaining part must be "sheared" off into two parts, the two parts must then be removed from the housing.



i Note

The hole is so deep that differential can be dismantled twice.

The securing pin breaks when removing pin -1- and a part remains in the pin -arrow a-.

When the pin is removed from the housing, the remaining part of the securing pin -arrow b- must be removed in two parts from the housing in the -direction of arrow- using a commercially available driver. The lower part of the securing pin -arrow c- remains in the housing hole.

- Remove differential bevel gears and thrust washer from differential cage.

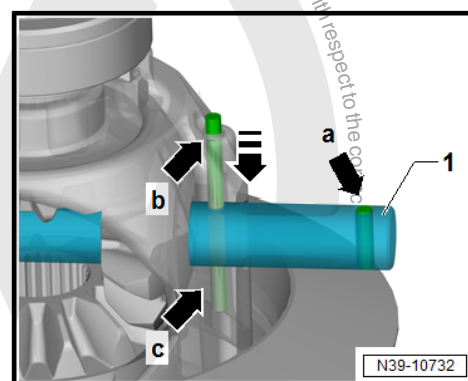


WARNING

The repair can be made 2 - 3 times.

When driving out the pin, a part of the securing pin remains in the lower part of the differential housing.

When a new securing pin is inserted it presses the remains of the old securing pin into the housing.



i Note

- ◆ *The guide ring will be destroyed during removal.*
- ◆ *Renew guide ring if it is damaged.*
- ◆ *If a damaged guide ring is used, the proper function of the lock is no longer guaranteed.*



- Release guide ring -1- at locking lugs -arrows- and remove selector fork from housing.
- Remove guide ring and check it for damage.

Installing

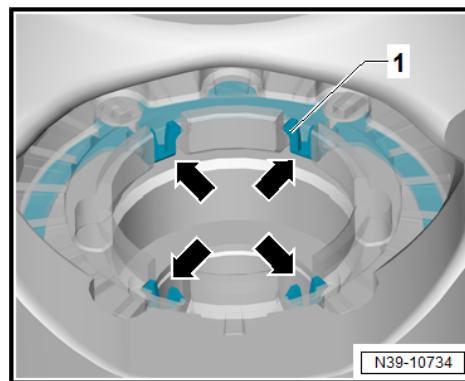
Install in reverse order of removal, observing the following:

- Use new guide ring.
- Install thrust washers (qty. 4).



Note

- ◆ *Turn bevel gears by hand and check if they rotate freely before installing the securing pin.*
- ◆ *Drive new securing pin "flush" into differential housing.*
- Install differential ⇒ [page 14](#) .



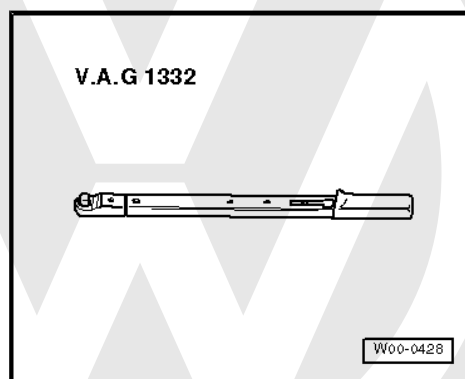
Specified torques

- ◆ ⇒ ["1.1 Assembly overview - final drive", page 10](#)
- ◆ ⇒ ["3.2 Assembly overview - Tirsan propshaft", page 54](#)
- ◆ ⇒ ["1.2 Assembly overview - differential", page 13](#)

1.6 Removing and installing crown wheel

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-



Removing

- Remove differential ⇒ [page 14](#) .



Note

The bolts have a left-hand thread.



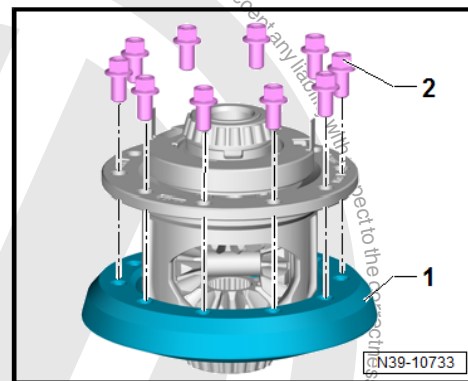
- Loosen bolts -2- of crown wheel -1-.
- Using light blows, release crown wheel from drive. Then remove bolts and remove crown wheel.

Installing

Install in reverse order of removal, observing the following:

Specified torques

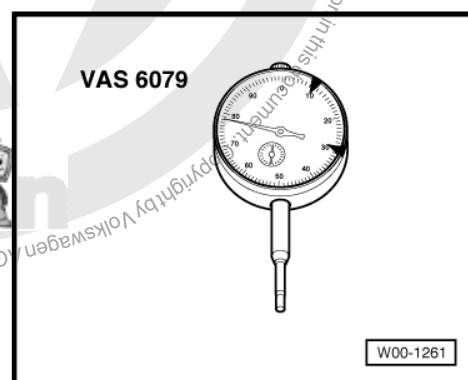
- ◆ ⇒ ["1.1 Assembly overview - final drive", page 10](#)
- ◆ ⇒ ["3.2 Assembly overview - Tirsan propshaft", page 54](#)



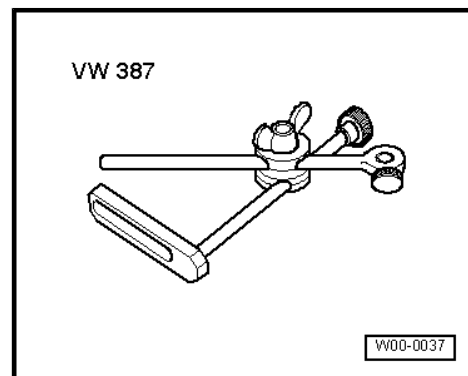
1.7 Checking backlash and contact pattern

Special tools and workshop equipment required

- ◆ Dial gauge - VAS 6079-



- ◆ Universal dial gauge bracket - VW 387-



or

Without illustration:

Special tools and workshop equipment required

- ◆ Dial gauge extension - T 50047/3-

Checking backlash:



Note

- ◆ *Only required for readjusting final drive gear set.*
- ◆ *Align tip of dial gauge - VAS 6079- at a 90° angle with tooth flank.*
- Adjust preload of dial gauge - VAS 6079- .



- Install universal dial gauge bracket - VW 387- with dial gauge - VAS 6079- and gauge extension - T 50047/3- on axle housing.
- Measure backlash; specification: 0.102 ... 0.177 mm



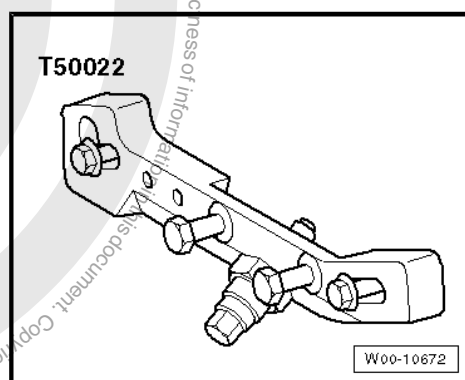
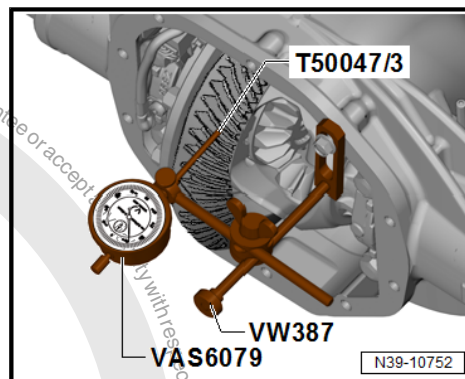
Note

Backlash can be changed using shims ⇒ Item 7 (page 11). If a thinner shim is installed on one side, a shim that is thicker by corresponding amount must be installed on other side so as to maintain bearing preload of differential bearings.

Checking contact pattern:

Special tools and workshop equipment required

- ◆ Retaining tool - T50022-



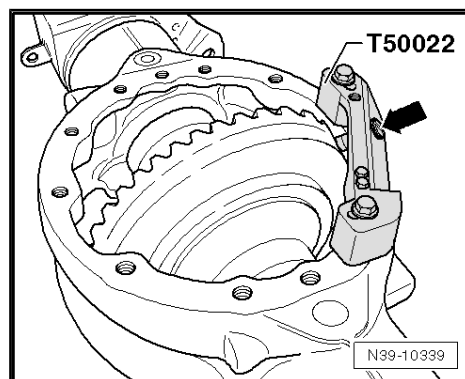
- ◆ Spotting ink



Note

Only required for readjusting final drive gear set.

- To check contact pattern, apply spotting ink to two teeth of crown wheel offset by 180°.
- Mount retainer - T50022- and brake differential using setscrew -arrow-.
- Rotate differential at propshaft flange in both directions.
- Check contact pattern.



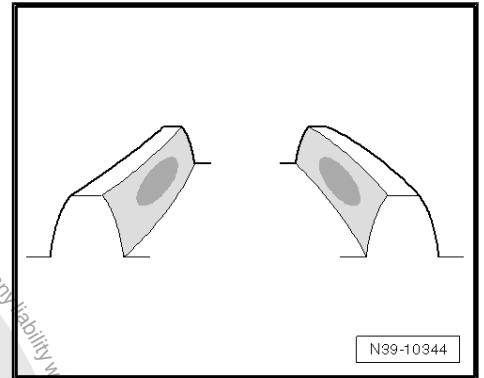


Correct contact pattern



Note

In practice, it is not possible to achieve such an ideal contact pattern. It is important that no point touches outer edge of tooth surface.

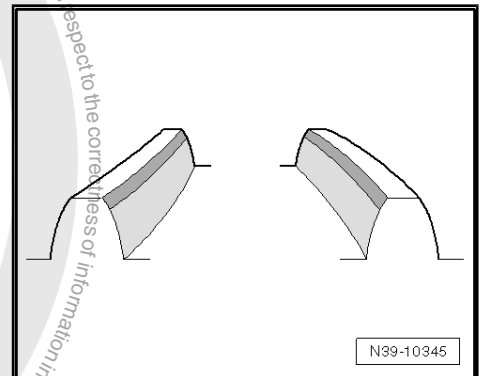


Contact at tooth tip:



Note

Reduce installation distance of crown wheel somewhat (crown wheel closer to drive pinion) ⇒ [page 35](#). This causes teeth to engage somewhat more deeply whilst maintaining backlash.

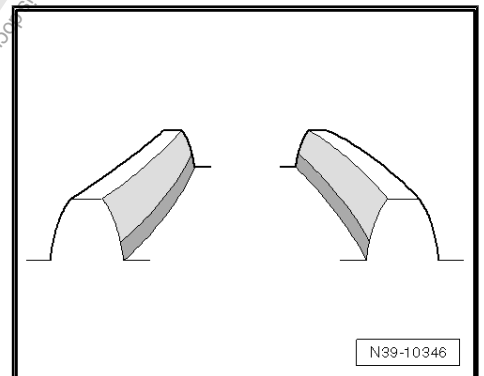


Contact at tooth root:



Note

Increase installation distance of crown wheel somewhat (remove crown wheel from drive pinion) ⇒ [page 35](#). This causes teeth to engage somewhat less deeply whilst maintaining backlash.

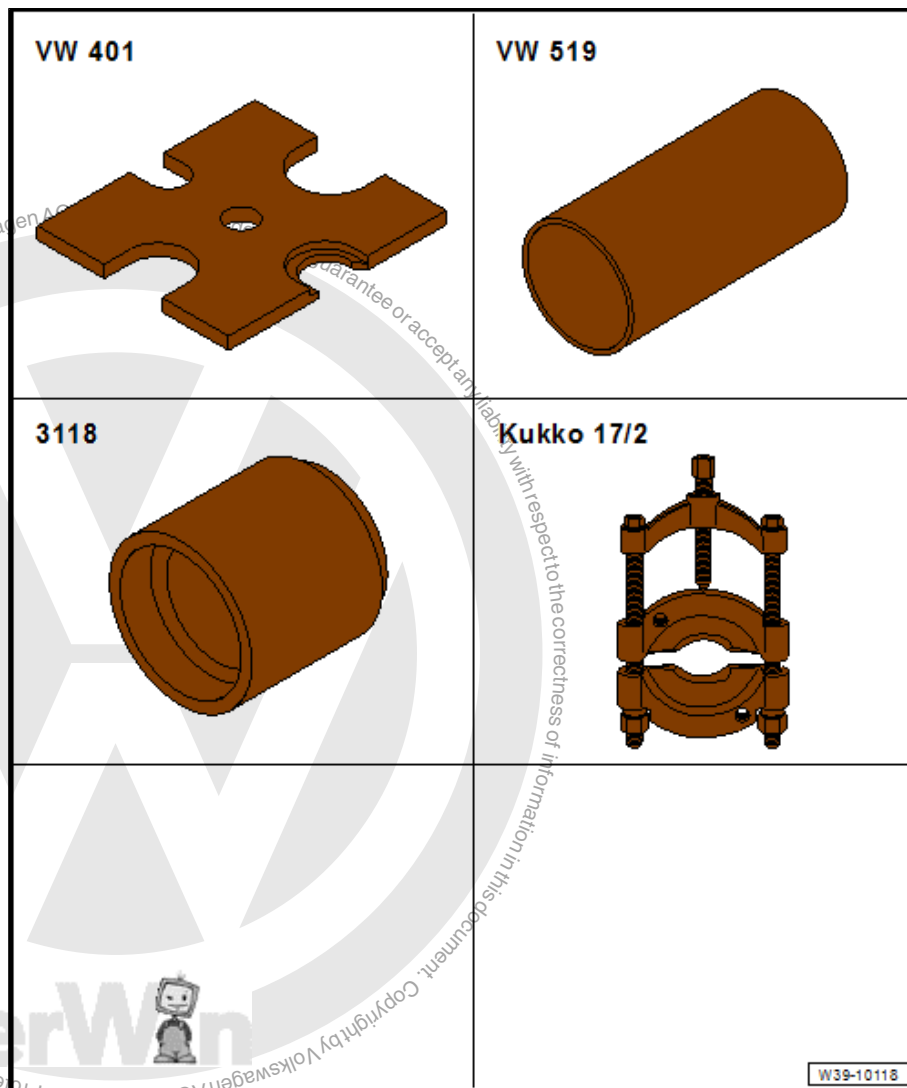




1.8 Pulling tapered roller bearing for drive pinion off and pressing it on

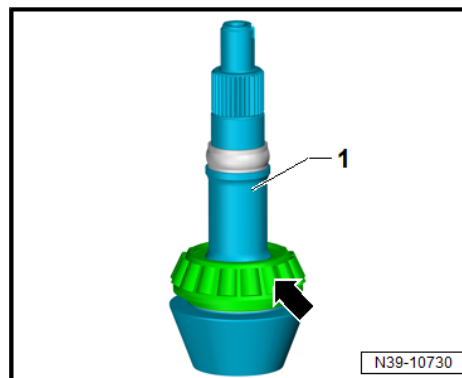
Special tools and workshop equipment required

- ◆ Pressure plate - VW 401-
- ◆ Tube - VW 519-
- ◆ Thrust piece - 3118-
- ◆ Separating tool Kukko 17-2



Procedure:

- Remove drive pinion ➔ [page 14](#) .
- Then press tapered roller bearing -arrow- off drive pinion -1-.

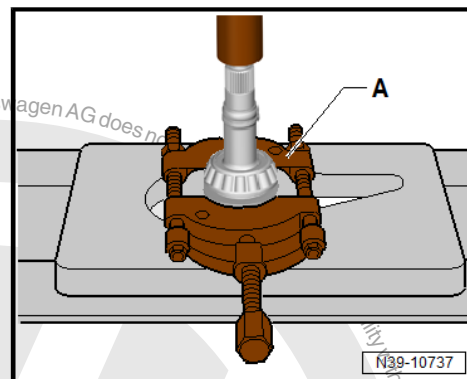




- Press tapered roller bearing inner race off drive pinion.

A - Separating tool Kukko 17-2

- Determine shim for drive pinion before pressing on tapered roller bearing ⇒ [page 39](#).

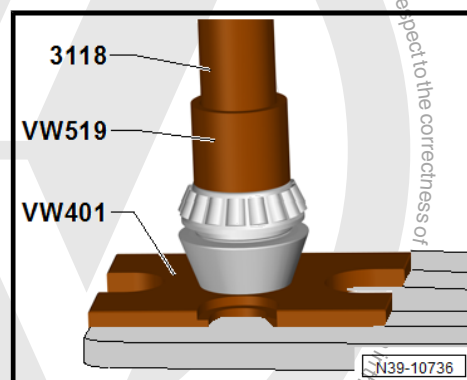


- Press tapered roller bearing onto drive pinion.



Note

Ensure that drive pinion shim is correctly seated on back of drive pinion head. Bearing must be fully in contact with shim. There must be no gap between them.

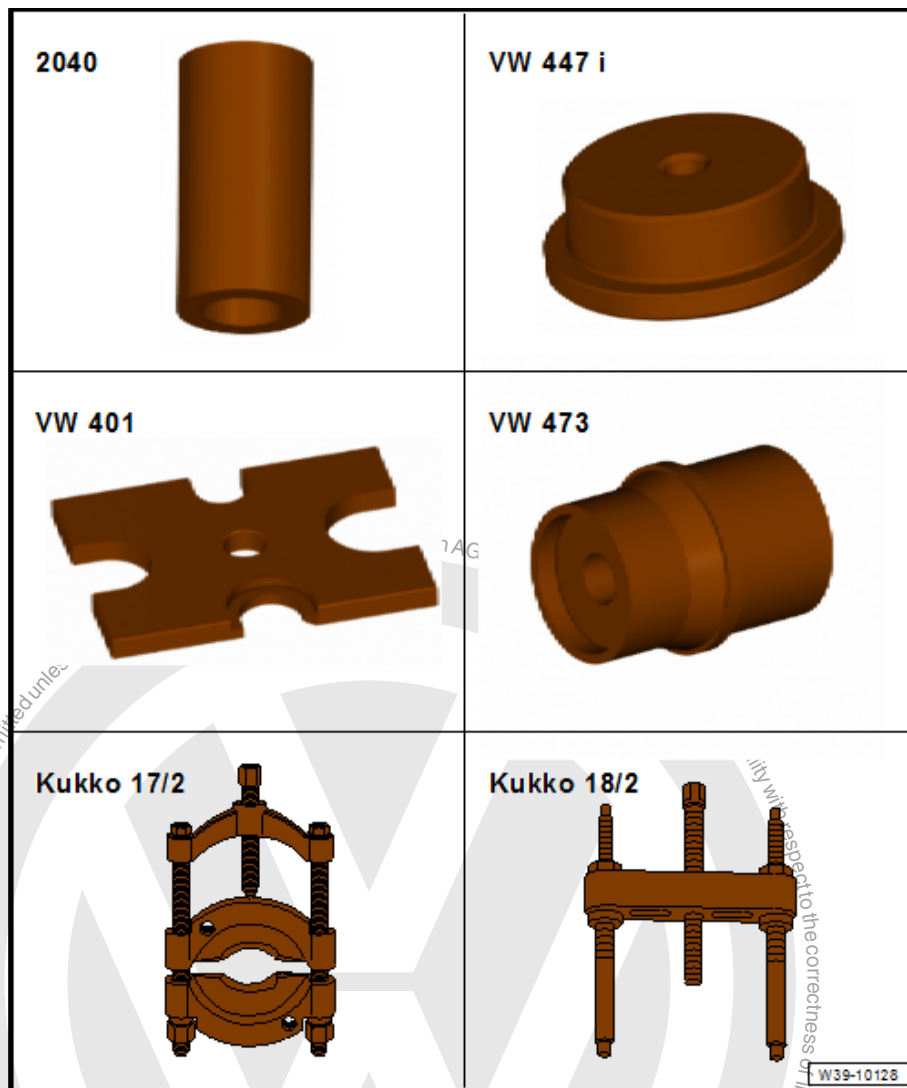




1.9 Pulling tapered roller bearing for differential off and pressing it on

Special tools and workshop equipment required

- ◆ Tube - 2040-
- ◆ Thrust pad - VW 447 i-
- ◆ Pressure plate - VW 401-
- ◆ Thrust piece - VW 473-
- ◆ Counter support Kukko 18-2
- ◆ Separating tool Kukko 17-2



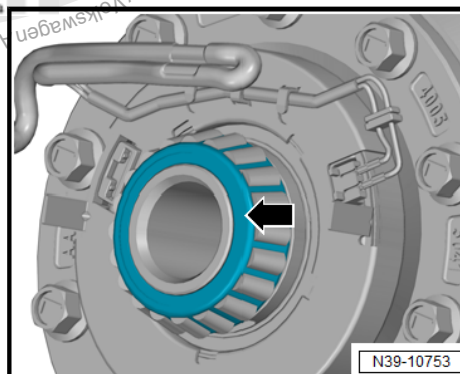
Dismantling



Note

The tapered roller bearings are damaged beyond repair when being removed and must be renewed.

- Open tapered roller bearing cage -arrow- with side cutters and remove cage with rollers.





- Pull off inner rings with thrust plate - VW 447 i- and tube - 2040- .

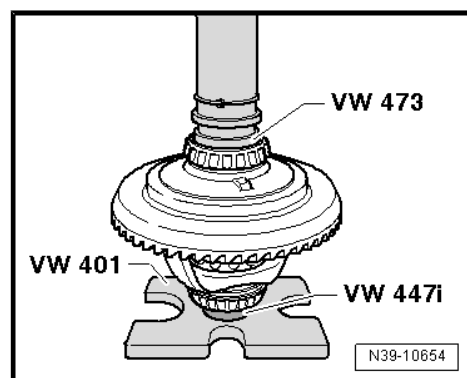
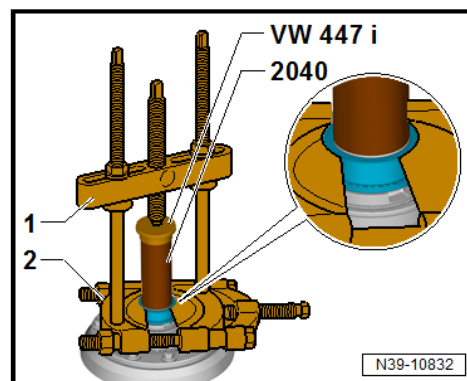
- 1 - Counter support Kukko 18-2
- 2 - Separating tool Kukko 17-2

Assembling



Note

- ◆ For pressing on 2nd tapered roller bearing, place thrust pad - VW 447 i- under inner race of 1st tapered roller bearing.
- ◆ Tapered roller bearings must make flush contact.





1.10 Overview of shims

1 - Compression sleeve

- ❑ Renew

2 - Shim

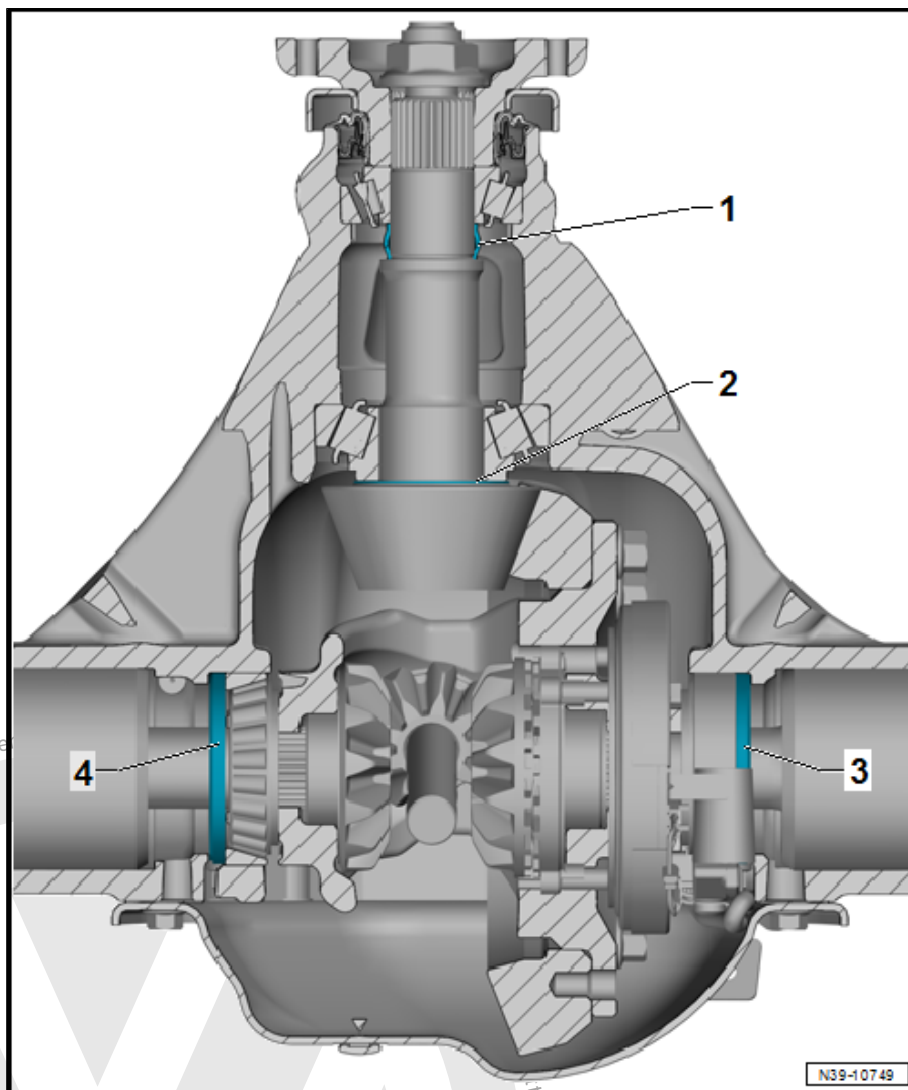
- ❑ For adjusting drive pinion

3 - Shim

- ❑ On crown wheel side
- ❑ For adjusting crown wheel
- ❑ Fitting position: chamfered side faces axle tube.

4 - Shim

- ❑ Opposite side of crown wheel.
- ❑ For adjusting crown wheel
- ❑ Fitting position: chamfered side faces axle tube.



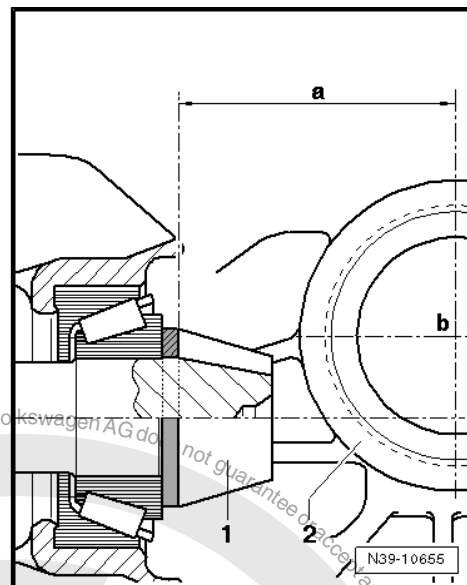


1.11 Adjustment overview



Note

- ◆ Careful adjustment of the crown wheel and drive pinion is essential to ensure that the final drive gives long service and runs silently. Therefore, the drive pinion and crown wheel are matched during manufacture, and checked to ensure a good mesh pattern and quiet running in both directions of rotation. The position of quietest running is found by moving the drive pinion axially while simultaneously lifting the crown wheel from the zero-play mesh position by the amount necessary to maintain the backlash within the specified tolerance.
- ◆ The purpose of this adjustment is to re-establish the position offering the quietest running as calculated on the test device during production.
- ◆ The utmost care and cleanliness during all assembly work and measurements are essential to achieve a good result.
- ◆ Observe the general repair notes for tapered roller bearings and shims ➔ [page 7](#).



Basic dimension to be set

- 1 - Drive pinion
- 2 - Crown wheel
- a - Nominal default value = 112 mm
- b - Middle of crown wheel

Adjustment overview



Note

If repairs have been carried out on the final drive gear set it is only necessary to adjust the drive pinion or crown wheel if components have been renewed which have a direct effect on the adjustments of the final drive. To prevent unnecessary adjustments, refer to the following table:

Renewed component	Adjusting drive pinion ➔ page 39	Adjusting crown wheel ➔ page 36
Axle beam ¹⁾	X	X
Final drive gear set (drive pinion and crown wheel) ¹⁾	X	X
Tapered roller bearing ²⁾	X	X
Compression sleeve ³⁾	-	-
Differential cage	-	X

¹⁾ Renew tapered roller bearing of drive pinion as well.

²⁾ Renew all tapered roller bearings of final drive gear set.

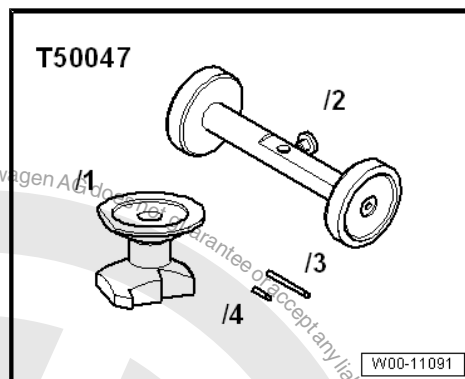
³⁾ If the required friction torque was not achieved when the seal for the propshaft flange was renewed, and therefore only the compression sleeve was renewed, there is no need to readjust the final drive gear set.



1.12 Determining shims for crown wheel

Special tools and workshop equipment required

- ♦ Measuring piece - T50047/2-



- ♦ Feeler gauge



Note

To avoid mistakes when adjusting crown wheel, it is a good idea to print out tables for calculating shim ➔ [page 36](#) and enter measured values.

- Differential removed.

A - Measuring inside dimension of rear final drive housing:

- Insert measuring piece - T50047/2- and measure gap using feeler gauge .
- Calculate rear axle housing inside dimension by adding together measured gap and measuring piece.

Example:

Measuring piece dimension	212.50 mm
+ Measured gap size	0.70 mm
= Rear final drive housing inside dimension	213.20 mm

B - Measuring differential axle dimension:

- Place differential with tapered roller bearing outer races -1- on level surface and measure total height.

C - Calculating shims for differential



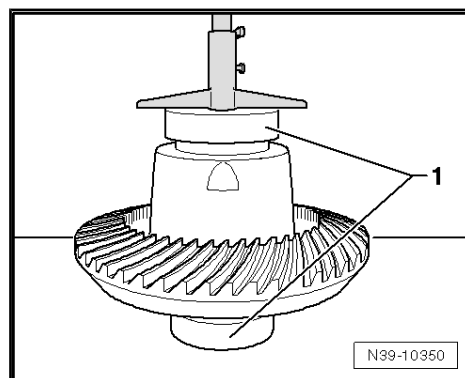
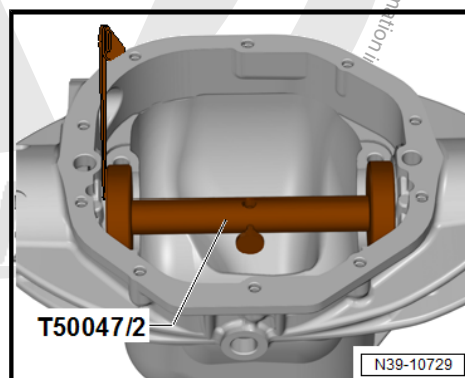
Note

- ♦ To achieve specified bearing preload, it is necessary to add a constant value (pressure) to calculated basic dimension.
- ♦ This range must be achieved using shims ➔ [page 37](#) .

Bearing preload: 0.029 mm ... 0.048 mm

Calculation:

Tables for printing out, crown wheel adjustment





A - Measuring inside dimension of rear final drive housing:		Measured:	Example:
Measuring piece dimension		mm	212.50 mm
Measured gap size		mm	+0.70 mm
Rear final drive housing inside dimension	A =	mm	213.20 mm

B - Measuring differential axle dimension:		Measured:	Example:
Differential axle dimension	B =	mm	201.00 mm



Note

The size of the individual shims corresponds approximately to half of dimension -C-.

C - Calculating total thickness of shims:		Measured:	Example:
Rear final drive housing inside dimension (A)		mm	213.20 mm
Value for bearing preload		mm	+0.03 mm
Differential axle dimension (B)	-	mm	-201.00 mm
Total thickness of shims	C =	mm	12.23 mm
$\frac{1}{2} \times C =$		mm	6.115 mm



Note

◆ Insert thinner shim on crown wheel side so as to achieve a backlash in all cases, e.g. for a total shim thickness of 12.23 mm: crown wheel side, 6.102 mm and opposite side 6.128 mm.

◆ Shims ⇒ [page 37](#)

◆ 1 mm shim thickness corresponds to approx. 1.4 mm backlash.

Crown wheel shims

No.	Thickness t (mm)	VW part number
13	5.645	WHT 006 443
14	5.671	WHT 006 443 A
15	5.696	WHT 006 443 B
16	5.721	WHT 006 443 C
17	5.747	WHT 006 443 D
18	5.772	WHT 006 443 E
19	5.798	WHT 006 443 F
20	5.823	WHT 006 443 G
21	5.848	WHT 006 443 H
22	5.874	WHT 006 443 J



No.	Thickness t (mm)	VW part number
23	5.899	WHT 006 443 K
24	5.925	WHT 006 443 L
25	5.950	WHT 006 443 M
26	5.975	WHT 006 443 N
27	6.001	WHT 006 443 P
28	6.026	WHT 006 443 Q
29	6.052	WHT 006 443 R
30	6.077	WHT 006 443 S
31	6.102	WHT 006 443 T
32	6.128	WHT 006 443 W
33	6.153	WHT 006 443 Y
34	6.179	WHT 006 443 Z
35	6.204	WHT 006 443 AA
36	6.229	WHT 006 443 AB
37	6.255	WHT 006 443 AC
38	6.280	WHT 006 443 AD
39	6.306	WHT 006 443 AE
40	6.331	WHT 006 443 AF
41	6.356	WHT 006 443 AG
42	6.382	WHT 006 443 AH
43	6.407	WHT 006 443 AJ
44	6.433	WHT 006 443 AK
45	6.458	WHT 006 443 AL

If the shims for the crown wheel have been determined, do the following:

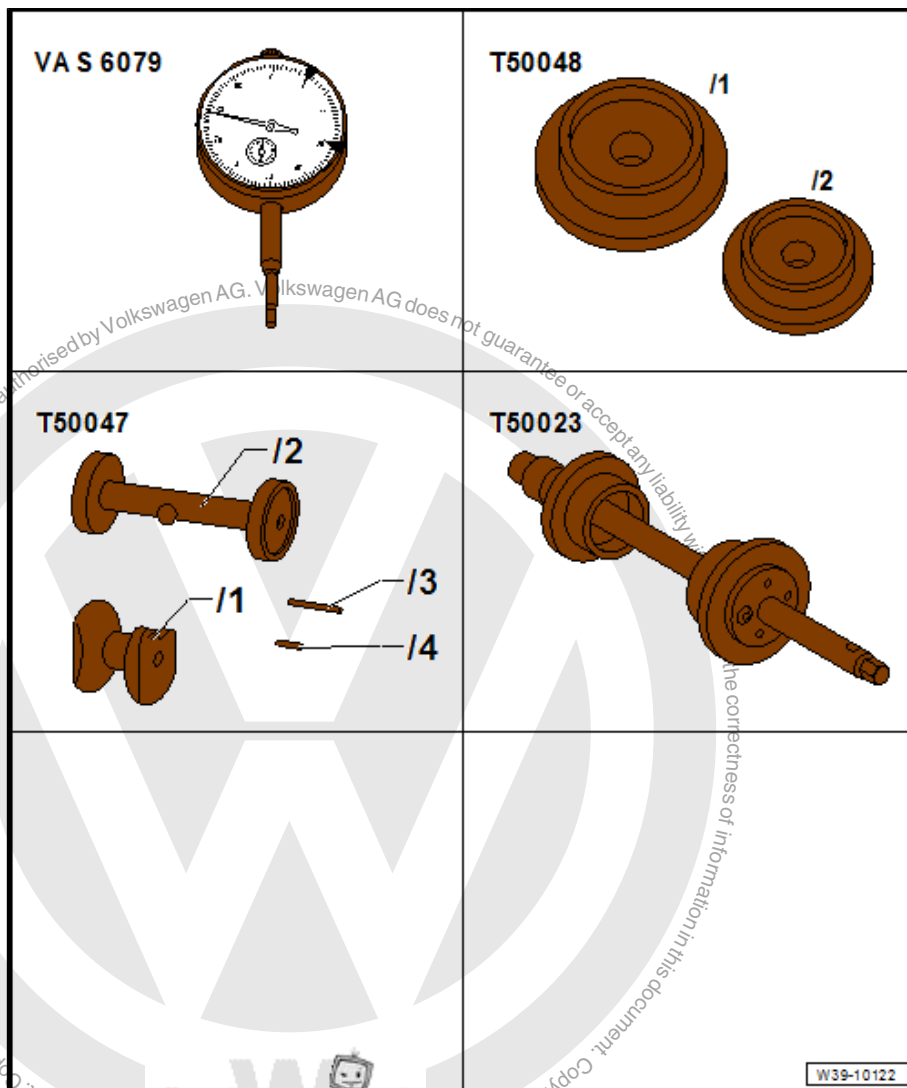
- Reinstall drive pinion and differential ⇒ [page 20](#) .
- Check backlash and contact pattern ⇒ [page 27](#) .



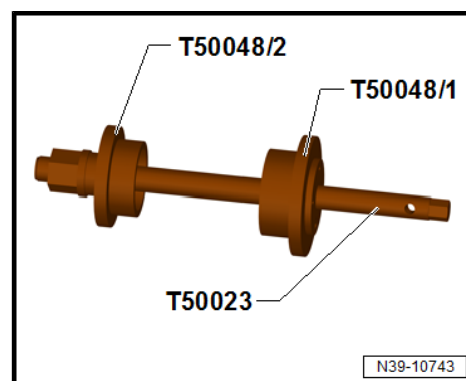
1.13 Determining shims for drive pinion

Special tools and workshop equipment required

- ◆ Dial gauge - VAS 6079-
- ◆ Setting tool - T 50047-
- ◆ Fitting tool - T50023-
- ◆ Thrust piece - T 50048-
- ◆ Depth gauge
- ◆ Feeler gauge



- Drive pinion removed.
- Drive pinion bearing shells must be pulled in.
- Pull in outer races of tapered roller bearings as far as stop using fitting tool - T50023- as well as thrust piece - T50048/1- and thrust piece - T50048/2- .



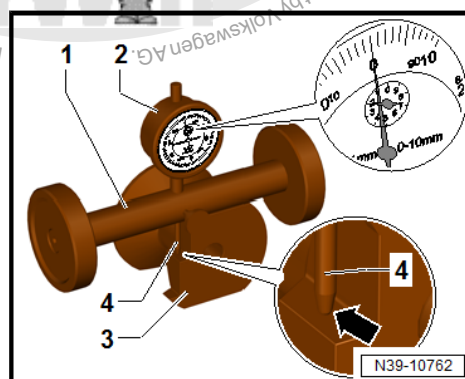
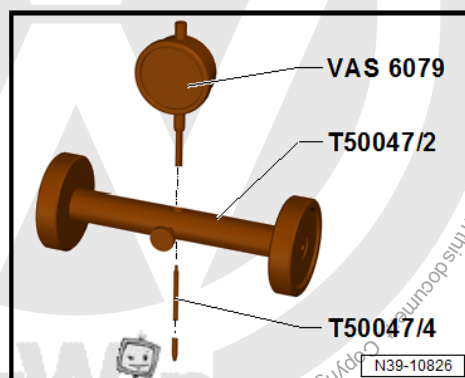
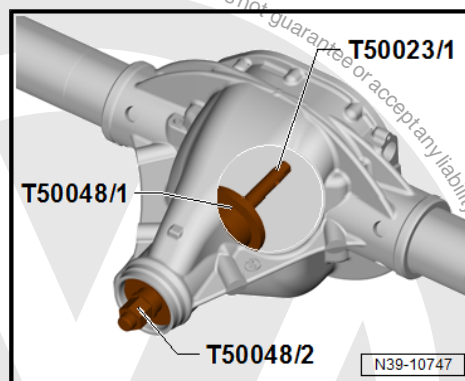


Installation position of fitting tool - T50023- in rear final drive housing.

Measuring basic dimension (production tolerance) on rear axle housing

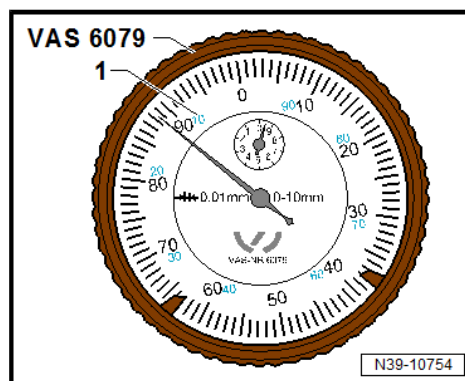
- Secure dial gauge extension - T50047/4- on dial gauge - VAS 6079- , then insert it in measuring piece - T50047/2- and secure it using knurled screw. Secure tip of dial gauge - VAS 6079- on extension.

- Adjust preload of dial gauge - VAS 6079- to 2 mm. Then, set dial gauge - VAS 6079- to »0«.



Note

- ◆ *Contact surfaces must be clean and free of burrs.*
- ◆ *This means measuring piece is set to nominal basic dimension.*
- ◆ *Use dial gauge extension - T50047/4- .*





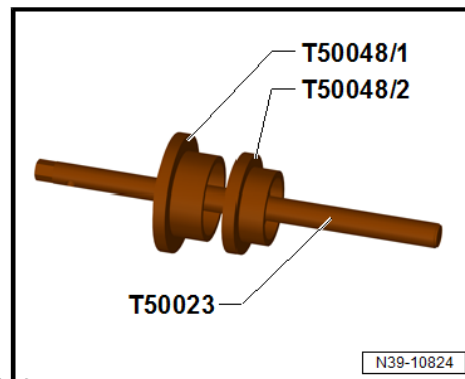
- Convert fitting tool - T50023- . To do this, turn thrust piece - T50048/2- around and slide it onto fitting tool - T50023- .



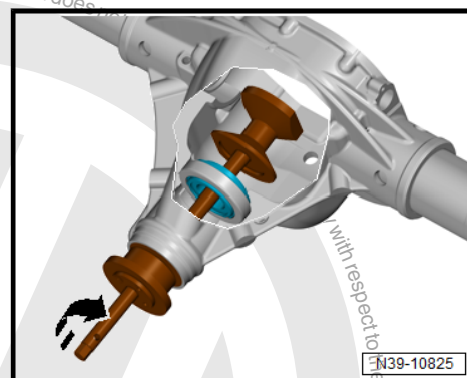
Caution

To avoid incorrect measurements, the value must be determined with tapered roller bearing installed.

Bolt measuring piece - T50047/1- to fitting tool - T50023- and tighten it "so that it barely has zero play".



- Insert the converted fitting tool - T50023- in the rear final drive housing. Insert tapered roller bearing with measuring piece - T50047/1- in rear final drive housing and bolt the two parts together using the threaded rod.



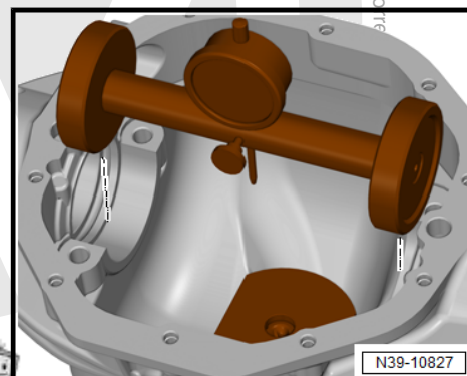
- Insert measuring piece - T50047/2- with dial gauge - VAS 6079- and dial gauge extension - T50047/4- in rear final drive housing.



Caution

The dial gauge must be read anti-clockwise at the red figures.

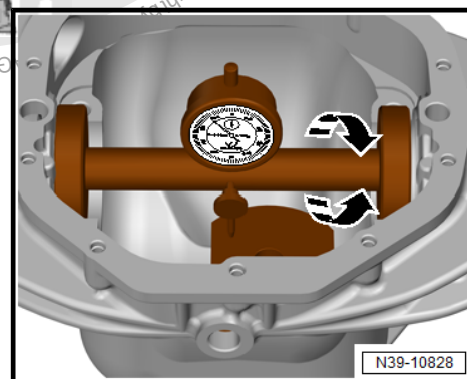
The thickness of the required shim is read directly on the dial gauge - VAS 6079- .



- Determine reversal point on dial gauge - VAS 6079- by turning it slightly back and forth in -direction of arrow-. Note the determined value.

Shims ⇒ [page 41](#)

Drive pinion shims



No.	Thickness t (mm)	VW part number
20	0.508	WHT 006 444
21	0.533	WHT 006 444 A
22	0.559	WHT 006 444 B
23	0.584	WHT 006 444 C
24	0.610	WHT 006 443 D
25	0.635	WHT 006 443 E



No.	Thickness t (mm)	VW part number
26	0.660	WHT 006 444 F
27	0.686	WHT 006 444 G
28	0.711	WHT 006 444 H
29	0.737	WHT 006 444 J
30	0.762	WHT 006 444 K
31	0.787	WHT 006 444 L
32	0.813	WHT 006 444 M
33	0.838	WHT 006 444 N
34	0.864	WHT 006 444 P
35	0.889	WHT 006 444 Q
36	0.914	WHT 006 444 R
37	0.940	WHT 006 444 S
38	0.965	WHT 006 444 T
39	0.991	WHT 006 444 W

If the shim for the drive pinion has been determined, do the following:

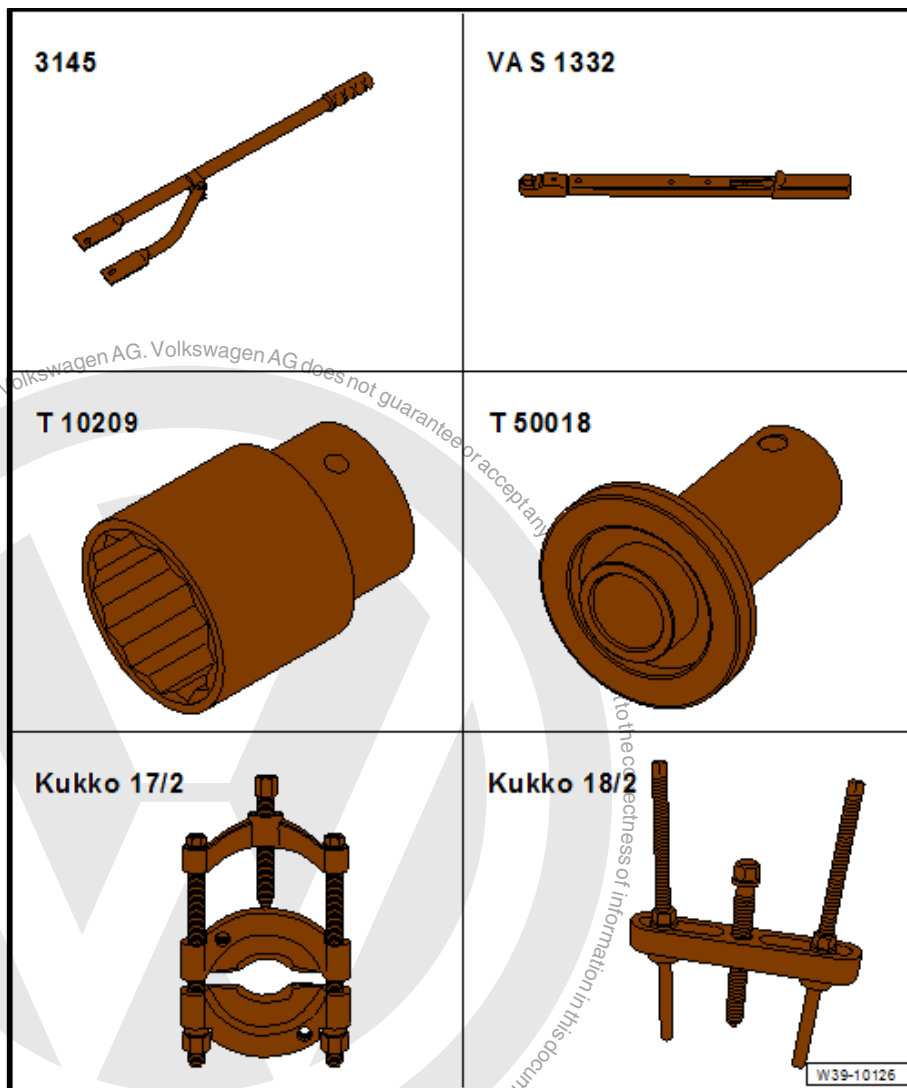
- Fit new shim onto drive pinion and press on tapered roller bearing ⇒ [page 30](#) .
- Reinstall drive pinion and differential into rear final drive housing ⇒ [page 20](#) .



1.14 Renewing propshaft flange seal

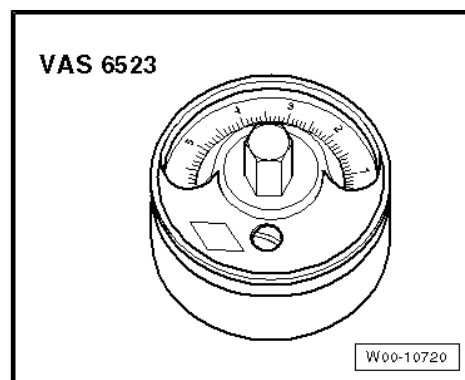
Special tools and workshop equipment required

- ◆ Counter-hold tool - 3145- (modify holes)
- ◆ Torque wrench - V.A.G 1332-
- ◆ Thrust piece - T50018-
- ◆ Socket 32 mm - T10209-
- ◆ Separating tool Kukko 17-2
- ◆ Counter support Kukko 18-2



Special tools and workshop equipment required

- ◆ Bearing preload gauge - VAS 6523-



- ◆ e.g. cordless power driver 12 V/1.4 Ah - VAS 5825-
- ◆ Loctite 565



Caution

If the seal is renewed, the friction torque must be determined before starting repair work ➔ [page 44](#) .

If the friction torque has not been determined before removal, the compression sleeve and the drive pinion bearings will have to be renewed.

Modifying counter-hold tool - 3145-

- Counter-hold tool - 3145- is used to loosen and tighten securing nut for propshaft flange. In case of an unmodified tool, drill out both holes in counter-hold tool - 3145- to dimension -a- = 10.5 mm Ø.



Note

A new counter-hold tool - 3145- with 10.5 mm Ø holes will be supplied.

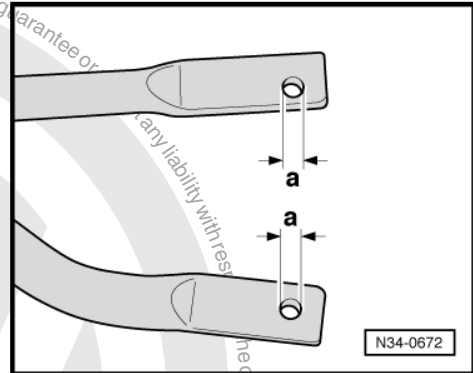
Removing



Note

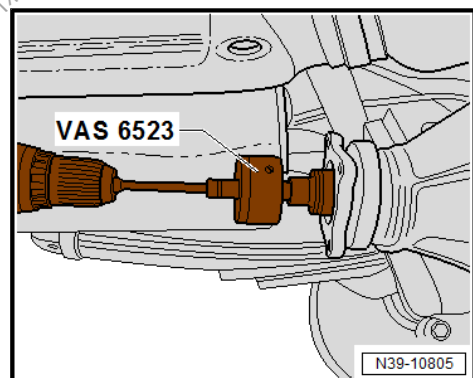
The brake drums must be removed, in order to prevent a potentially dragging brake from falsifying the measurement and causing incorrect values.

- Remove rear brake drums ➔ Brake systems; Rep. gr. 46 ; Rear brakes; Resetting drum brake .
- Unbolt propshaft from rear axle ➔ [page 57](#) .
- Secure propshaft to body.
- Check drive pinion bearing for axial play (no play permitted).
- Measure friction torque on propshaft flange with a commercially available 32 mm socket , bearing preload gauge - VAS 6523- and a cordless power driver 12 V/1.4 Ah - VAS 5825- , for example.



Caution

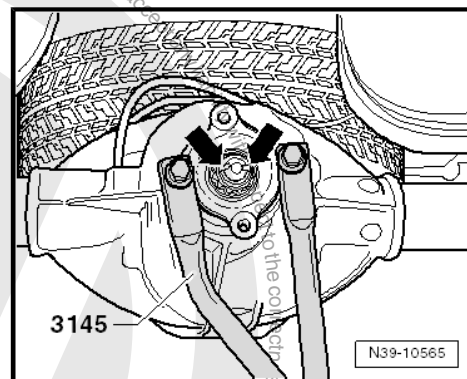
- ◆ *To avoid incorrect measurements, measure friction torque at approx. 50 rpm and turning at least 5 times.*
- ◆ *Perform measurements carefully and accurately to prevent replacement of axle body.*
- ◆ *Do not take any actions to alter friction torque before installing seal on axle.*



- Note reading.



- Remove locking device for nut -arrows-.
- Screw counter-hold tool - 3145- onto propshaft flange.
- Loosen securing nut using 32 mm socket - T10209- .

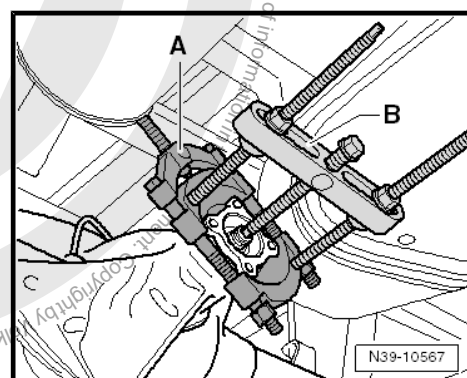


- Fit puller, as shown, and pull off propshaft flange.

A - Separating tool Kukko 17-2

B - Counter support Kukko 18-2

Removing oil seal

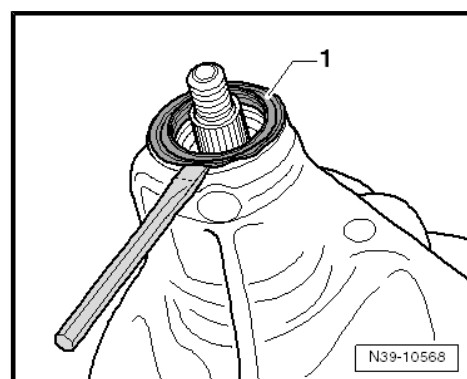


- Drive out seal -1- using a chisel.



Caution

Do not damage axle body when driving out seal.



Installing

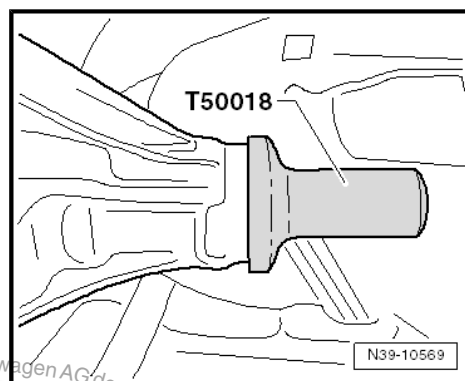


Note

- ◆ Remove any sealant residue from drive pinion and propshaft flange.
- ◆ If leaks are detected during repair work on the flange, always renew the seal ⇒ [Item 21 \(page 11\)](#) .
- ◆ Check the contact surface of the propshaft flange seal for traces of wear. Renew sealing sleeve if necessary ⇒ [page 49](#) .
- ◆ Before fitting the flange, seal the splines between the drive pinion and the flange with Loctite 565 .



- Drive in new seal flush using thrust piece - T50018-
- Install propshaft flange with new securing nut.



- Bolt counter-hold tool - 3145- to propshaft flange.
- Tighten securing nut using 32 mm socket - T10209- .

Initial tightening torque

Component	Specified torque
Nut	30 Nm

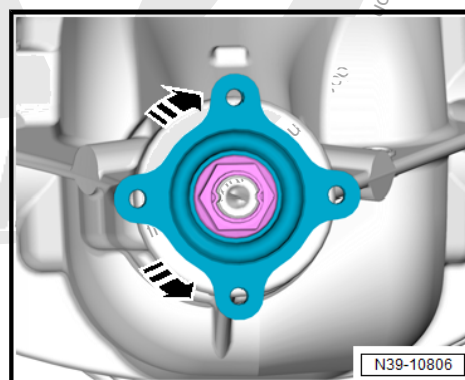
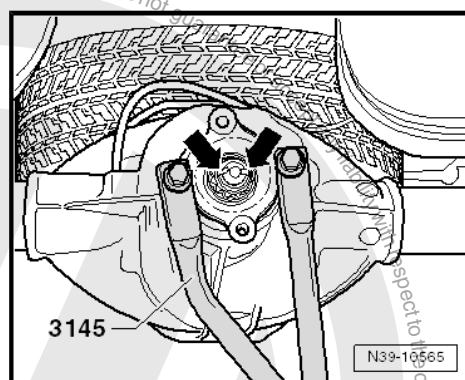
- Check drive pinion bearing for axial play (no play permitted).



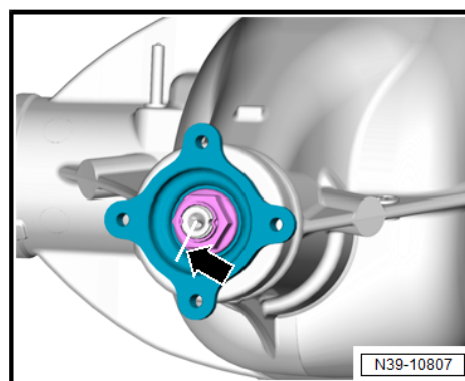
Note

If bearing is not without play, specified torque can be increased in 10 Nm steps to max. 60 Nm. Renew compression sleeve if bearing is not yet without play after the nut has been tightened to 60 Nm.

- Remove counter-hold tool - 3145- .
- To align tapered roller bearings, rotate propshaft flange 15 times clockwise and 15 times anticlockwise.

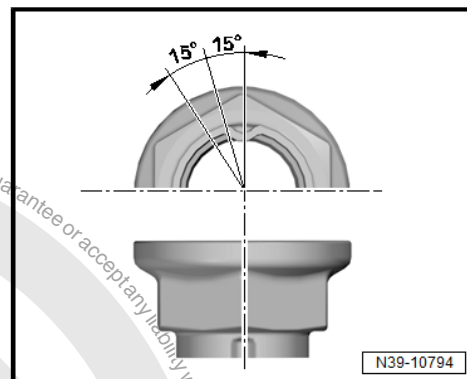


- Mark position of drive pinion in relation to one edge of securing nut.
- Bolt counter-hold tool - 3145- to propshaft flange.

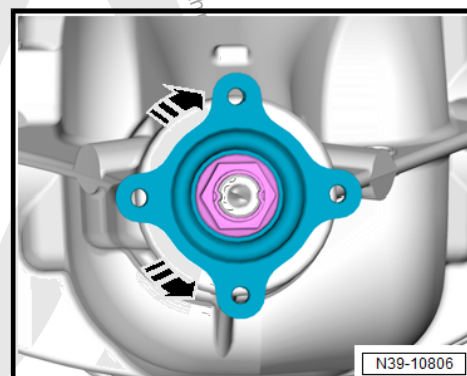




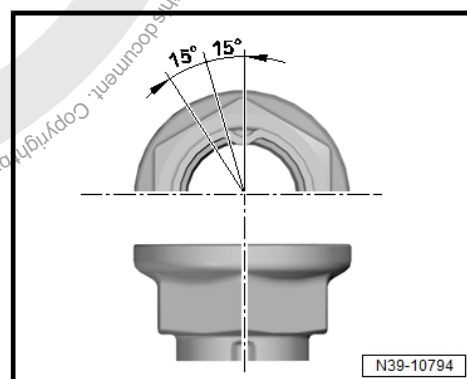
- Tighten securing nut by further 15° using 32 mm socket - T10209- .
- Remove counter-hold tool - 3145- .



- To align tapered roller bearings, rotate propshaft flange 15 times clockwise and 15 times anticlockwise.
- Bolt counter-hold tool - 3145- to propshaft flange.



- Tighten securing nut 15° further using 32 mm socket - T10209- .
- Remove counterhold tool - 3145- .





- To align tapered roller bearings, rotate propshaft flange 15 times clockwise and 15 times anticlockwise.
- Measure friction torque on propshaft flange with 32 mm socket - T10209- , bearing preload gauge - VAS 6523- and e.g. cordless power driver 12 V/1.4 Ah - VAS 5825- .

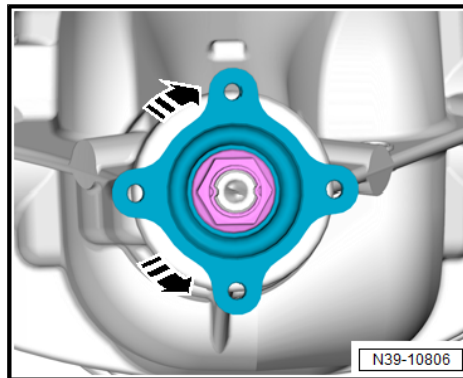


Note

To avoid incorrect measurements, measure friction value at approx. 50 rpm and turning at least 5 times.

Friction torque:

- With new, unoled bearing: 2.25 Nm to 2.82 Nm
- With used bearing: previously determined value + 0.1 Nm to 0.5 Nm



Caution

If the determined friction torque is too low, tighten nut in small steps. Then, align propshaft flange again (rotate 15 times in clockwise and 15 times in anticlockwise direction). After that, determine friction torque again. Repeat this procedure until the friction torque is within the specified range.

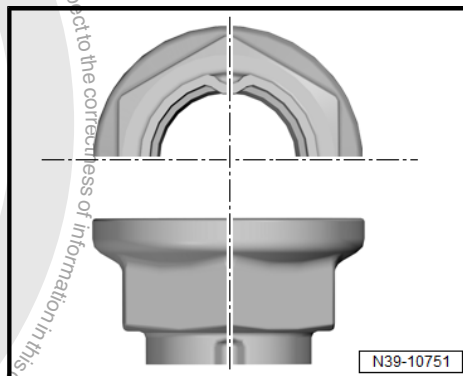
It is very likely that this procedure has to be repeated several times.

It is not permitted for friction torque to be attained by loosening securing nut. Renew the compression sleeve if the permissible friction torque has been exceeded ➔ [Item 25 \(page 12\)](#) . The drive pinion must be removed for this purpose.

- Secure securing nut by peening.
- Install propshaft ➔ [page 57](#) .
- Install brake drums ➔ Brake systems; Rep. gr. 46 ; Rear brakes; Resetting drum brake .
- Operate brake pedal several times until brake shoes are in contact with brake drum.
- Check oil level and top up if necessary ➔ [page 67](#) .

Specified torques

- ◆ ➔ [1.1 Assembly overview - final drive", page 10](#)
- ◆ ➔ ["3.2 Assembly overview - Tirsan propshaft", page 54](#)
- ◆ ➔ ["3.3 Assembly overview - Dana propshaft", page 55](#)

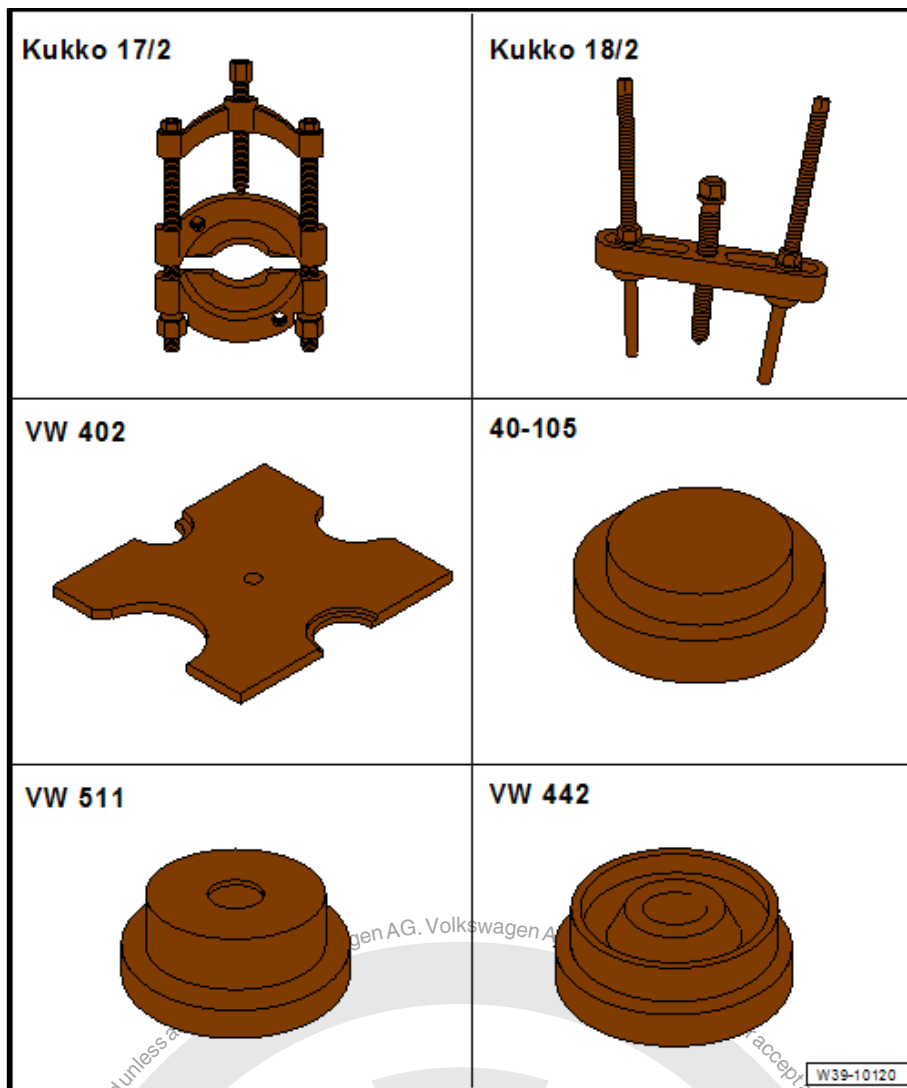




1.15 Repairing propshaft flange

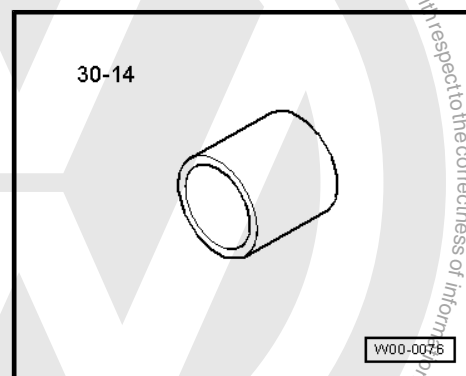
Special tools and workshop equipment required

- ◆ Pressure plate - VW 402-
- ◆ Thrust piece - 40-105-
- ◆ Thrust pad - VW 511-
- ◆ Thrust piece - VW 442-
- ◆ Counter support Kukko 18-2
- ◆ Separating tool Kukko 17-2



Special tools and workshop equipment required

- ◆ Tube - 30 - 14-



Pressing out

- Propshaft flange removed ⇒ [page 43](#)

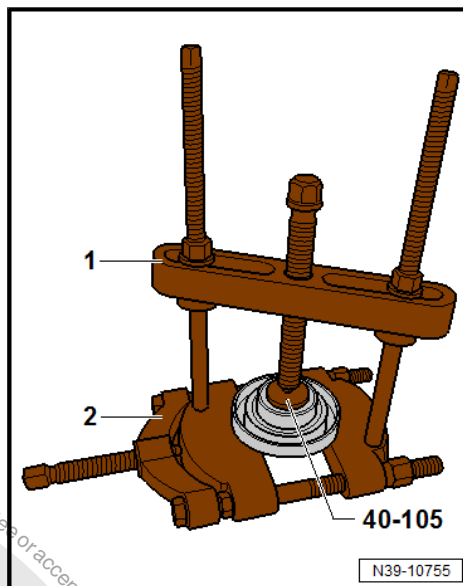


- Press out propshaft flange using thrust piece - 40-105- .

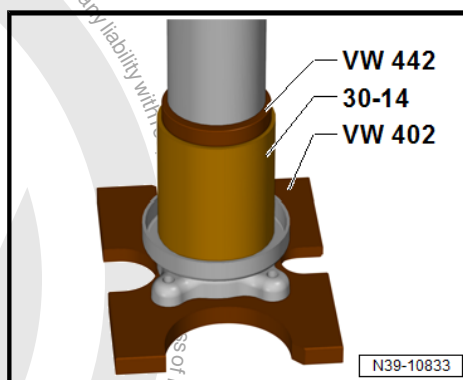
1 - Counter support Kukko 18-2

2 - Separating tool Kukko 17-2

Pressing on

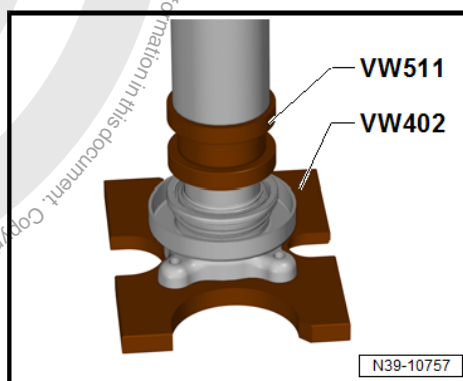


- Press dust cap onto propshaft flange using thrust piece - VW 442- and tube - 30 - 14- .



- Press sealing sleeve onto dust cap using thrust plate - VW 511- .

- Then reinstall propshaft flange ➔ [page 43](#) .





2 Differential lock

⇒ ["2.1 Functional check", page 51](#)

⇒ ["2.2 Rear-axle differential lock components and their locations", page 51](#)

2.1 Functional check

A mechanical rear axle differential lock is now available as an option in the Amarok with four-wheel drive.

When driving offroad, rear axle differential lock improves propulsion on heavy ground, in particular when performing a hill start. All functions that assist braking are deactivated when rear axle differential lock is engaged, therefore rear axle differential lock is only allowed to be engaged when moving off on heavy ground or if carriageway is very soft.

In case of a selectable four-wheel drive the rear differential lock can be activated in offroad range "LOW".

The differential lock is switched on or off via the rear differential lock switch - E121- . The differential lock control unit - J187- checks via the CAN-Bus if the conditions to switch the rear axle differential lock on have been fulfilled. If they have, then rear axle differential lock is activated via axle differential lock Hall sender 1 - G460- and control solenoid - N5- .

Refer to ➤ Self-study programme No. 464 ; Power transmission for more information about function.

Refer to ➤ Amarok owner's manual for more information and notes on safety.

2.2 Rear-axle differential lock components and their locations



Note

Electrical/electronic components and their locations for four-wheel drive ⇒ [page 94](#)



1 - Differential lock control unit - J187-

Remove by removing centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims; Removing and installing centre console .

2 - Diagnostic connection

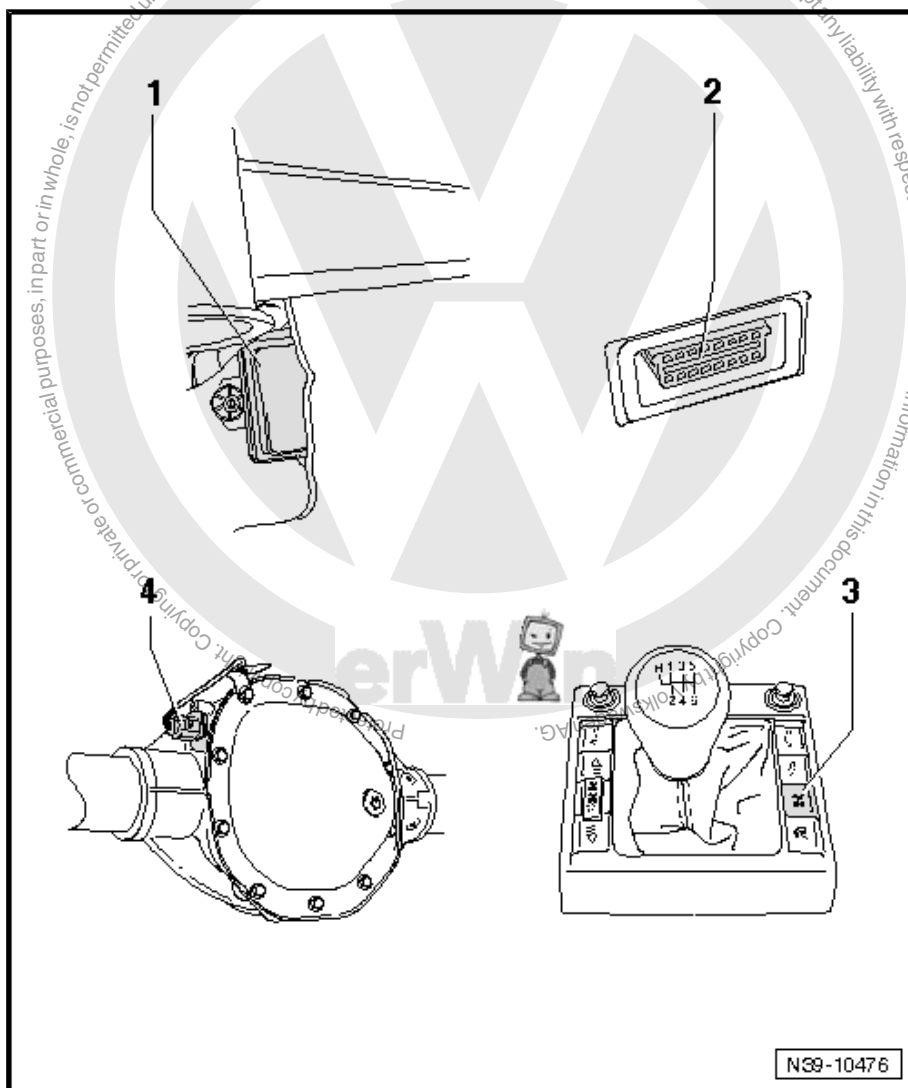
- ☐ Location: in driver footwell

3 - Rear differential lock switch - E121-

- ☐ Rear axle differential lock warning lamp in transfer box operating unit - K184-
- ☐ Remove by removing selector mechanism cover ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims; Removing and installing centre console .

4 - Hall sender 1 for axle differential lock - G460-

- ☐ With control solenoid - N5-
- ☐ Location: on rear axle





3 Propshaft

⇒ [“3.1 Assembly overview - flexible coupling for propshaft”, page 53](#)

⇒ [“3.2 Assembly overview - Tirsan propshaft”, page 54](#)

⇒ [“3.3 Assembly overview - Dana propshaft”, page 55](#)

⇒ [“3.4 Removing and installing front propshaft”, page 56](#)

⇒ [“3.5 Removing and installing rear propshaft”, page 57](#)

⇒ [“3.6 Dismantling and assembling propshaft intermediate bearing, Dana propshaft”, page 60](#)

⇒ [“3.7 Dismantling and assembling propshaft intermediate bearing, Tirsan propshaft”, page 63](#)

3.1 Assembly overview - flexible coupling for propshaft

1 - Bolt

- ☐ Renew after removal
- ☐ 60 Nm +90°

2 - Flexible coupling

- ☐ Allocation ⇒ Electronic Parts Catalogue (ET-KA) .

3 - Bolt

- ☐ Renew after removal
- ☐ For securing on gear-box.
- ☐ 90 Nm +90°

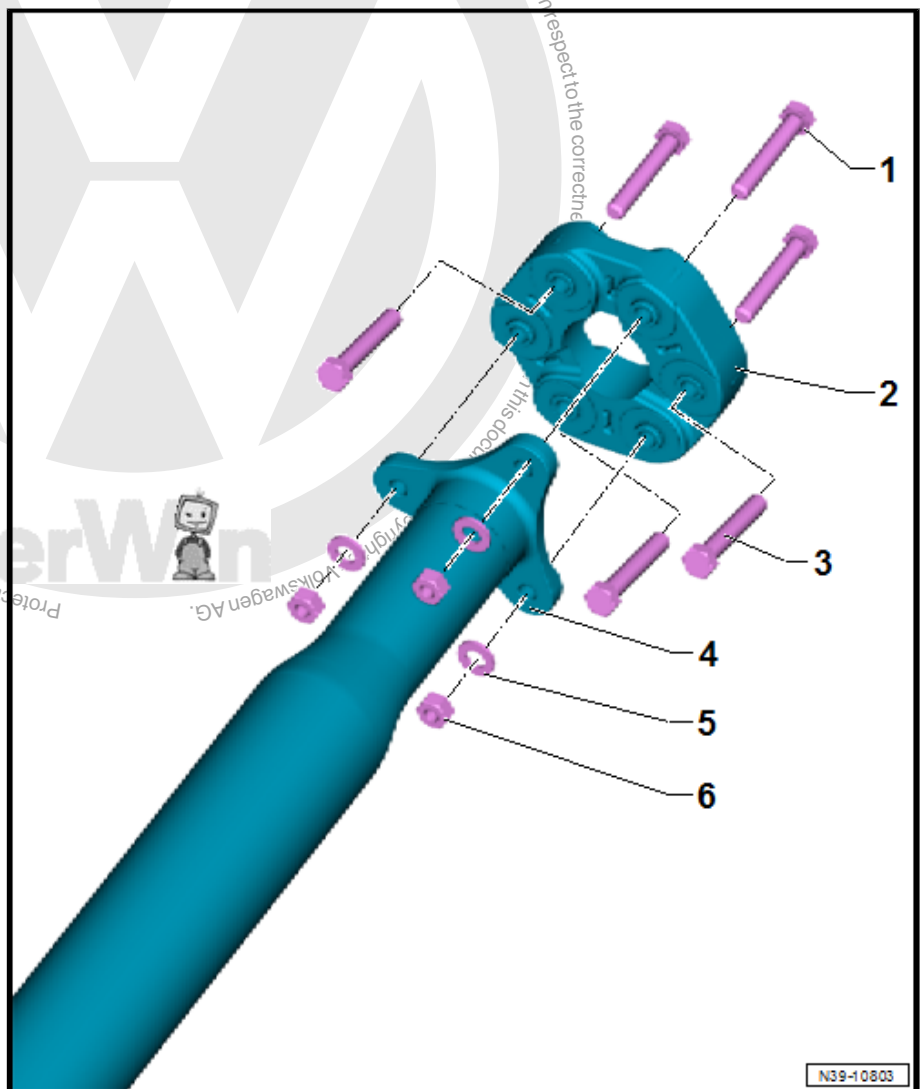
4 - Propshaft

- ☐ Assembly overview - “Tirsan” propshaft
⇒ [page 54](#) .
- ☐ Assembly overview - “Dana” propshaft
⇒ [page 55](#) .
- ☐ Removing and installing
⇒ [page 57](#)

5 - Washer

6 - Nut

- ☐ Renew after removal



N39-10803



3.2 Assembly overview - "Tirsan" propshaft



Note

- ♦ If propshaft is disconnected only from the rear axle, the propshaft must be raised and secured or supported.
- ♦ Keep propshaft straight; store and transport fully extended only.

1 - Bolt

- ☐ Renew after removal
- ☐ 50 Nm +90°

2 - Rear propshaft

- ☐ Removing and installing
⇒ [page 57](#)

3 - Dust cap

- ☐ Renew after removal

4 - Propshaft intermediate bearing

- ☐ Dismantling and assembling propshaft intermediate bearing
⇒ [page 63](#)

5 - Nut

- ☐ Renew after removal
- ☐ 20 Nm +90°

6 - Bolt

- ☐ Renew after removal
- ☐ 66 Nm

7 - Dust cap

- ☐ Renew after removal

8 - Washer

9 - Rear propshaft

- ☐ Removing and installing
⇒ [page 57](#)

10 - Bolt

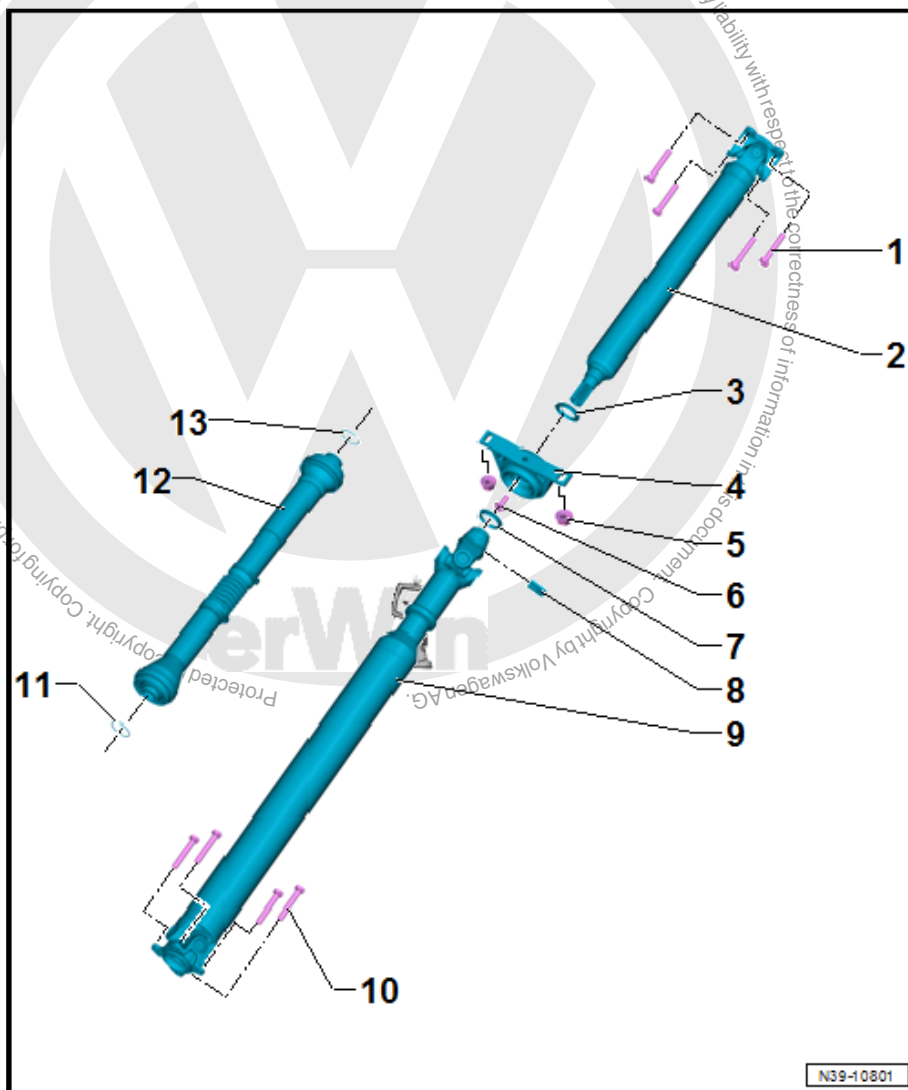
- ☐ Renew after removal
- ☐ 50 Nm +90°

11 - Retaining ring

- ☐ On front final drive
- ☐ Renew after removal

12 - Front propshaft

- ☐ All-wheel drive only
- ☐ Coloured markings on pin of front final drive and front propshaft must be in alignment.
- ☐ Always renew retaining rings ⇒ [Item 11 \(page 54\)](#) and ⇒ [Item 13 \(page 55\)](#) after propshaft has been removed.
- ☐ Removing and installing ⇒ [page 56](#)





13 - Retaining ring

- ☐ Renew after removal

3.3 Assembly overview - "Dana" propshaft



Note

- ◆ If propshaft is disconnected only from the rear axle, the propshaft must be raised and secured or supported.
- ◆ Keep propshaft straight; store and transport fully extended on-ly.

1 - Bolt

- ☐ Renew after removal
- ☐ 50 Nm +90°

2 - Rear propshaft

- ☐ Removing and installing
⇒ [page 57](#)

3 - Dust cap

- ☐ Renew after removal

4 - Rubber ring

5 - Bearing bracket

6 - Nut

- ☐ Renew after removal
- ☐ 20 Nm +90°

7 - Propshaft intermediate bearing

- ☐ Dismantling and assembling propshaft intermediate bearing
⇒ [page 60](#)

8 - Seal

- ☐ Renew after removal

9 - Dust cap

- ☐ Renew after removal

10 - Rear propshaft

- ☐ Removing and installing
⇒ [page 57](#)

11 - Bolt

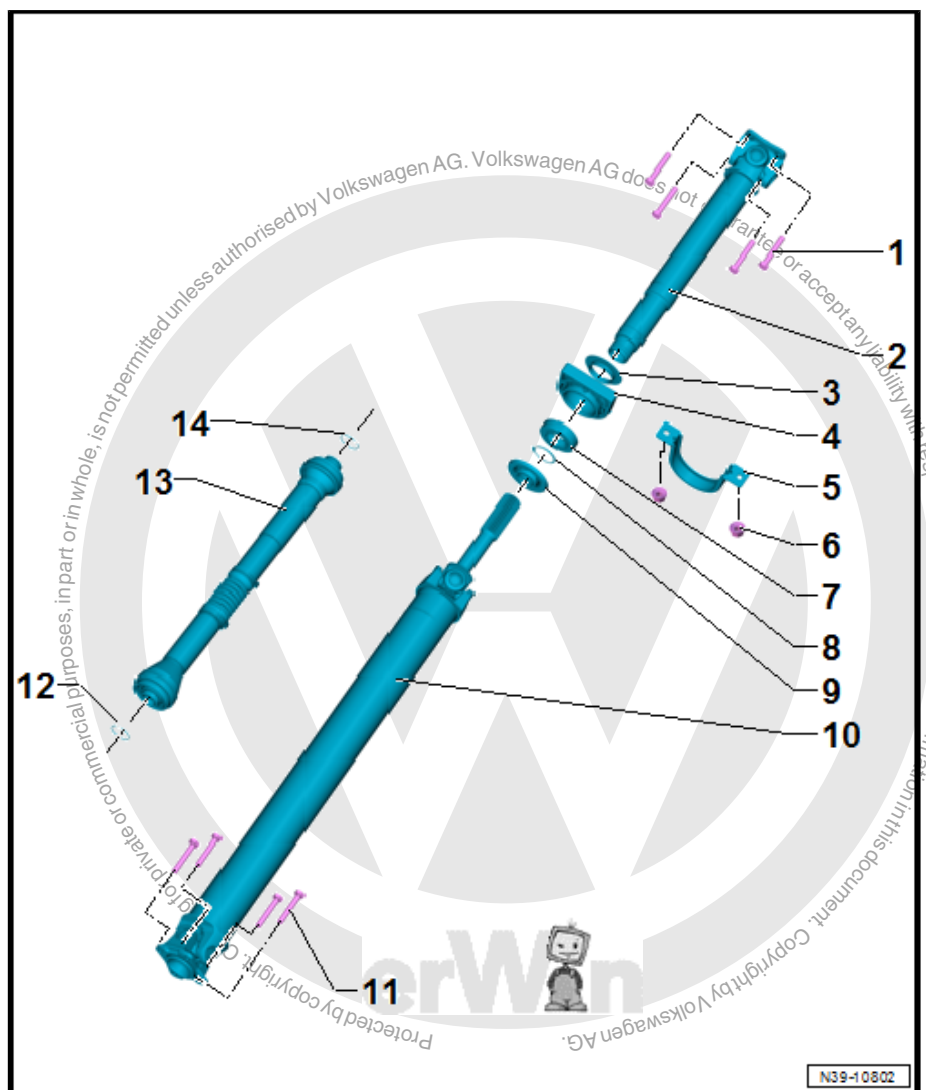
- ☐ Renew after removal
- ☐ 50 Nm +90°

12 - Retaining ring

- ☐ On front final drive
- ☐ Renew after removal

13 - Front propshaft

- ☐ Four-wheel drive only
- ☐ Coloured markings on pin of front final drive and front propshaft must be in alignment.





- ☐ Always renew retaining rings ⇒ [Item 12 \(page 55\)](#) and ⇒ [Item 14 \(page 56\)](#) after propshaft has been removed.
- ☐ Removing and installing ⇒ [page 56](#)

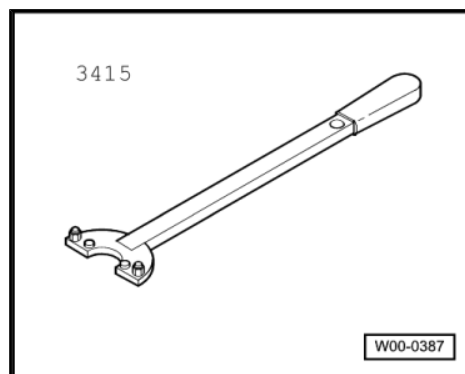
14 - Retaining ring

- ☐ Renew after removal

3.4 Removing and installing front propshaft

Special tools and workshop equipment required

- ◆ Counter-hold tool - 3415-

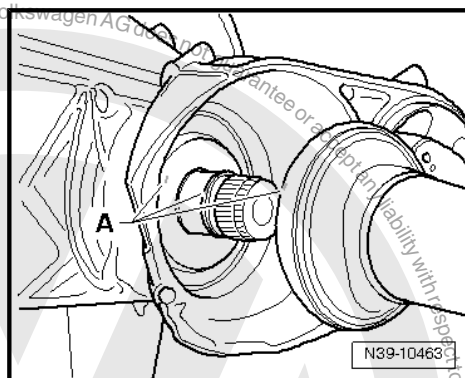


- ◆ Drive shaft grease ⇒ Electronic Parts Catalogue (ETKA)

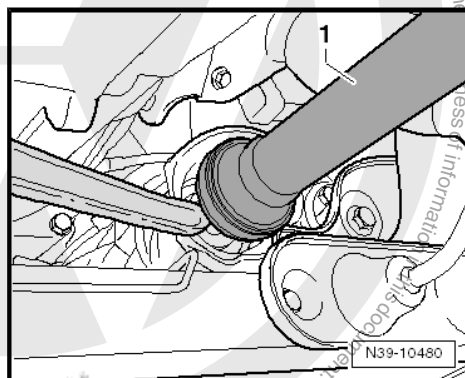
Removing

Before removing, mark positions of all parts relative to each other. Reinstall in the same position otherwise imbalance will be excessive, the mountings could be damaged causing rumbling noises.

- Raise vehicle ⇒ Maintenance ; Booklet 11 .
- Remove engine/gearbox guard ⇒ General body repairs, exterior; Rep. gr. 50 ; Engine/gearbox guard .
- Check if there are markings (paint spots) -A- on front propshaft and on front final drive.
- If these markings are not present, then mark position of propshaft flange in relation to front final drive with paint.



- Prise front propshaft -1- off final drive using assembly lever.



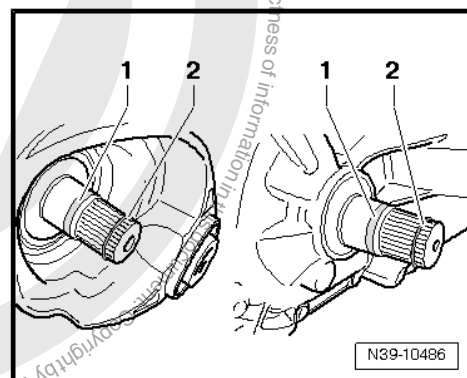
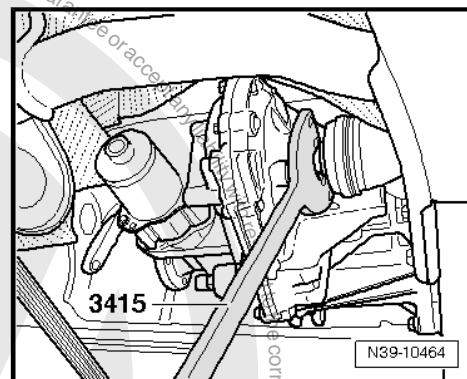


- Push front propshaft off transfer box using counter-hold tool - 3415- .
- Remove front propshaft.

Installing .

Install in reverse order of removal, observing the following:

- Renew oil seals -1- if damaged.
- Renew retaining rings -2-.
- Grease splines of shafts and oil seals -1- with drive shaft grease ⇒ Electronic Parts Catalogue (ETKA) .

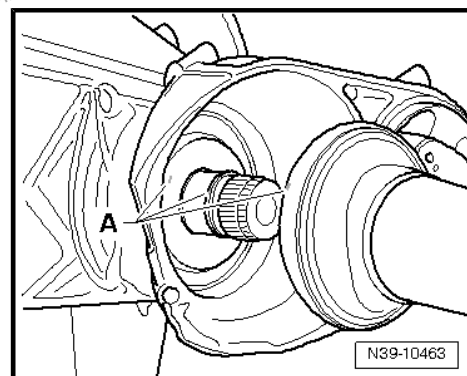


- Markings -A- must be aligned with one another as far as possible.
- Position front propshaft on front final drive.

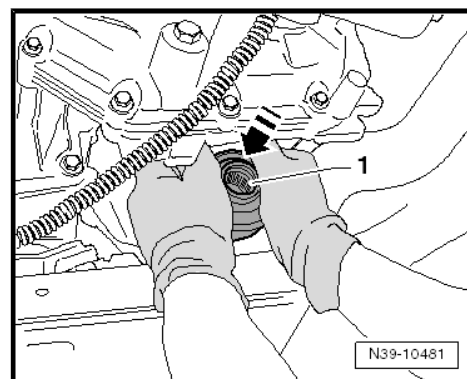


Caution

Wear protective gloves!



- Then push front propshaft -1- onto shaft forcefully by hand until it engages.
- Pull on front propshaft to check propshaft has engaged correctly.
- Position front propshaft on transfer box.
- Push front propshaft onto shaft until it engages.
- Pull on front propshaft to check propshaft has engaged correctly.
- Install engine/gearbox guard ⇒ General body repairs, exterior; Rep. gr. 50 ; Engine/gearbox guard .



Specified torques

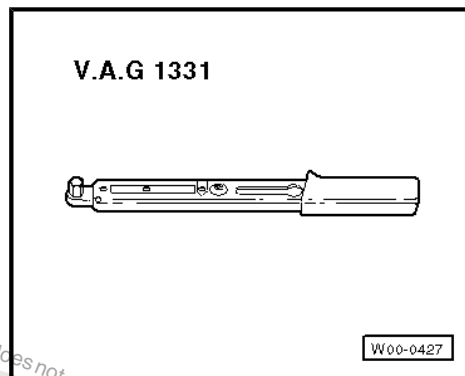
- ♦ ⇒ ["3.2 Assembly overview - Tirsan propshaft", page 54](#)

3.5 Removing and installing rear propshaft

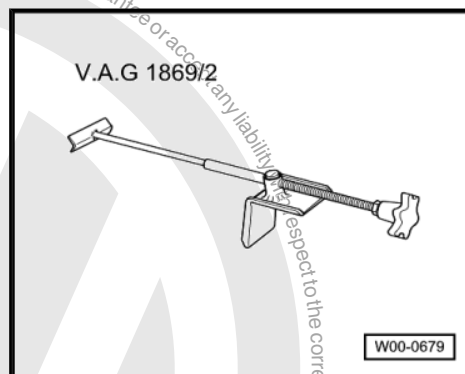
Special tools and workshop equipment required



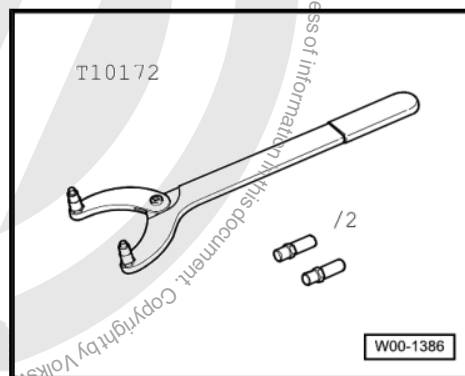
- ◆ Torque wrench - V.A.G 1331-



- ◆ Brake pedal actuator - V.A.G 1869/2- (vehicles with rear-wheel drive)



- ◆ Counter-hold tool - T10172- (vehicles with four-wheel drive)



Note

- ◆ If possible, use a twin pillar lifting platform when working on the propshaft.
- ◆ Remove and install propshaft with the help of a second mechanic.
- ◆ Before removing, mark positions of all parts relative to each other. Reinstall in the same position otherwise imbalance will be excessive, the mountings could be damaged causing rumbling noises.
- ◆ Keep propshaft straight; store and transport fully extended only.
- ◆ Do not let propshaft »hang« during removal; always support it.
- ◆ Always pull propshaft from or push it onto drive flange horizontally.



Removing

Vehicles with rear-wheel drive

- Fit brake pedal actuator - V.A.G 1869/2- .
- Raise vehicle ⇒ Maintenance ; Booklet 11 .
- Unscrew securing bolts for propshaft on propshaft flanges, but do not remove them yet.

Vehicles with four-wheel drive

- Raise vehicle ⇒ Maintenance ; Booklet 11 .
- Unscrew securing bolts for propshaft on propshaft flanges, but do not remove them yet. Brace using counter-hold tool - T10172- .

Continuation for all vehicles



Caution

To prevent noises due to imbalance, mark the position of the propshaft relative to the flanges.

- Mark position of propshaft in relation to propshaft flanges.
- Install hexagon nuts for intermediate bearing -arrows-



Note

A second mechanic is required for the further removal of the propshaft.



Caution

To avoid damaging the protective boot in the intermediate bearing, remove, store and install the propshaft with the joint as straight as possible.

- Unscrew propshaft at propshaft flanges and remove propshaft with joint positioned as straight as possible.

Installing

Install in reverse order of removal, observing the following:

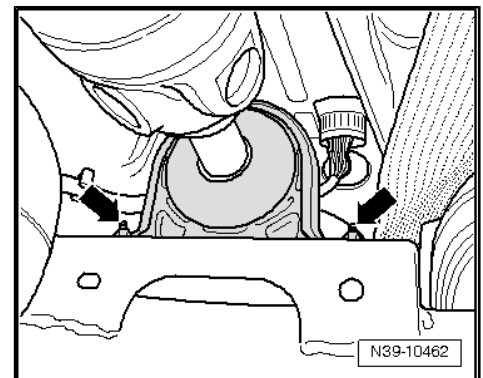
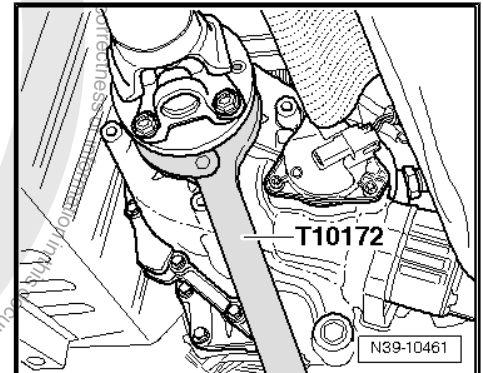
- Install all parts which were marked in relation to each other in their original positions.
- Install propshaft with new bolts.

Installing intermediate bearing free of tension

- All propshaft bolts are tightened.
- Align intermediate bearing in its elongated holes so that neither propshaft nor intermediate bearing is under tension.
- Tighten new hexagon nuts.

Specified torques

- ◆ ⇒ [“3.2 Assembly overview - Tirsan propshaft”, page 54](#)

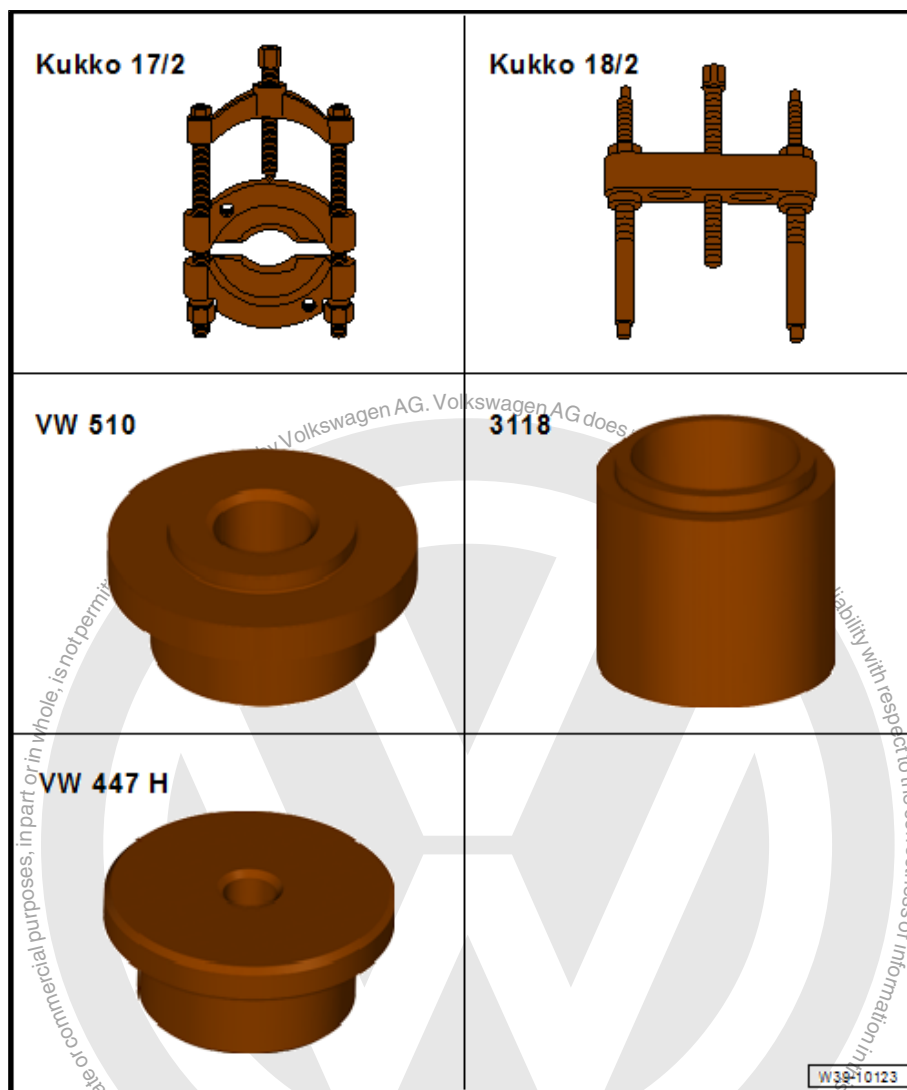




3.6 Dismantling and assembling propshaft intermediate bearing, "Dana" propshaft

Special tools and workshop equipment required

- ◆ Thrust piece - 3118-
- ◆ Thrust pad - VW 510-
- ◆ Separating tool Kukko 17-2
- ◆ Counter support Kukko 18-2
- ◆ Thrust pad - VW 447 H-



Note

- ◆ *Distinguishing features of propshafts:*
- ◆ *Sticker on propshaft or, if not legible anymore, the 11th position of the vehicle identification number.*
- ◆ *H = Tirsan propshaft*
- ◆ *A or 8 = Dana propshaft*

Dismantling

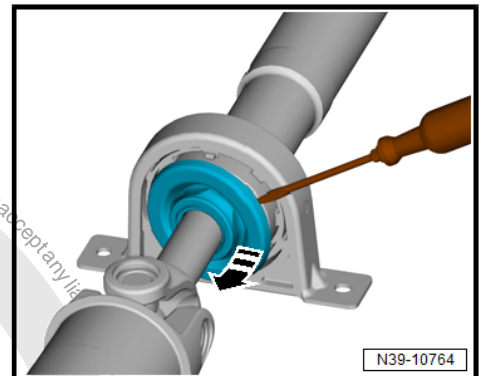
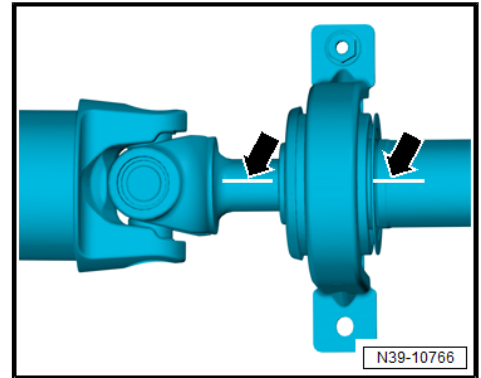
Remove propshaft ➔ [page 57](#) .



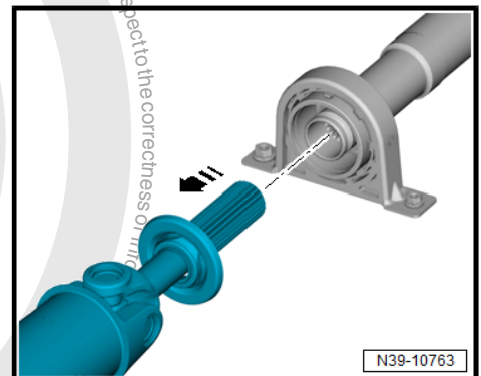
i Note

- ◆ Mark position of propshaft before removing it.
- ◆ The propshaft may also be installed reversed by 180°.

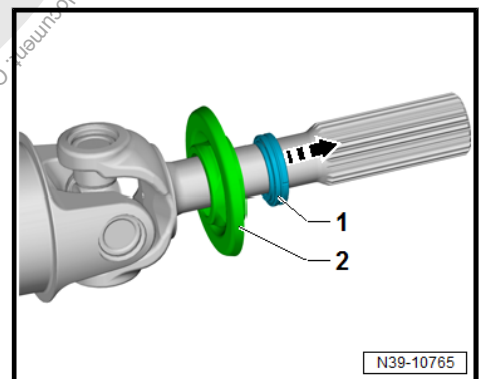
- Release dust cap.



- Clamp propshaft in a vice und pull shafts apart by hand.

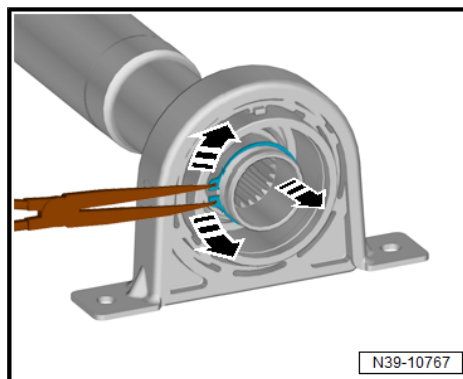


- Pull seal -1- and dust cap -2- off shaft.

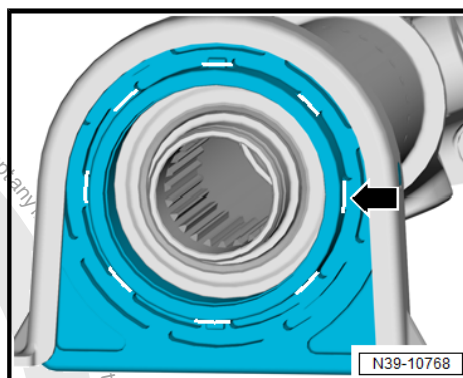




- Remove retaining ring.



- Cut rubber ring in marked area - arrow - with a knife to ease removal and pull it off.



- Fit separating tool Kukko 17-2 and counter support Kukko 18-2 and press off propshaft using thrust plate - VW 447 H- .

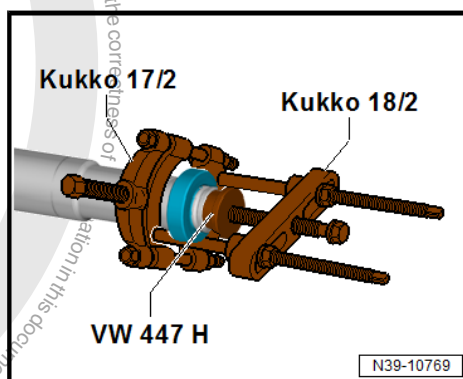
Assembling

Install in reverse order of removal, observing the following:

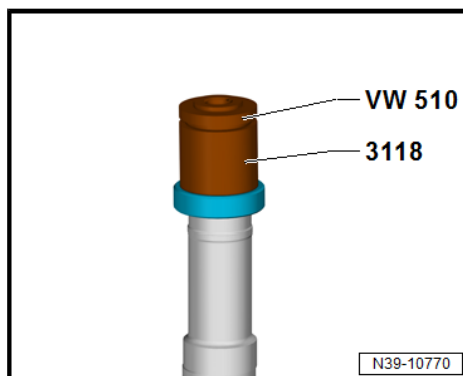


Note

- ♦ Use silicone lubricant - D 007 000 A2- to ease the installation of the rubber ring.
- ♦ Installation position of elastomer components in direction of travel.



- Using thrust piece - 3118- and thrust plate - VW 510- drive propshaft intermediate bearing onto propshaft as far as stop.

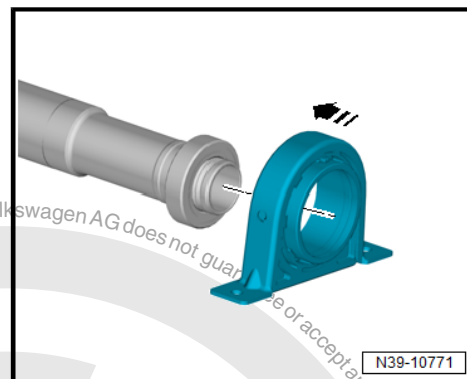




- Then, install rubber ring by hand using silicone lubricant - D 007 000 A2- to ease installation.
- Renew dust cap and seal. Grease splines.
- Join parts of propshaft in area of splines and “abruptly” push them together until the dust cap engages.

Specified torque

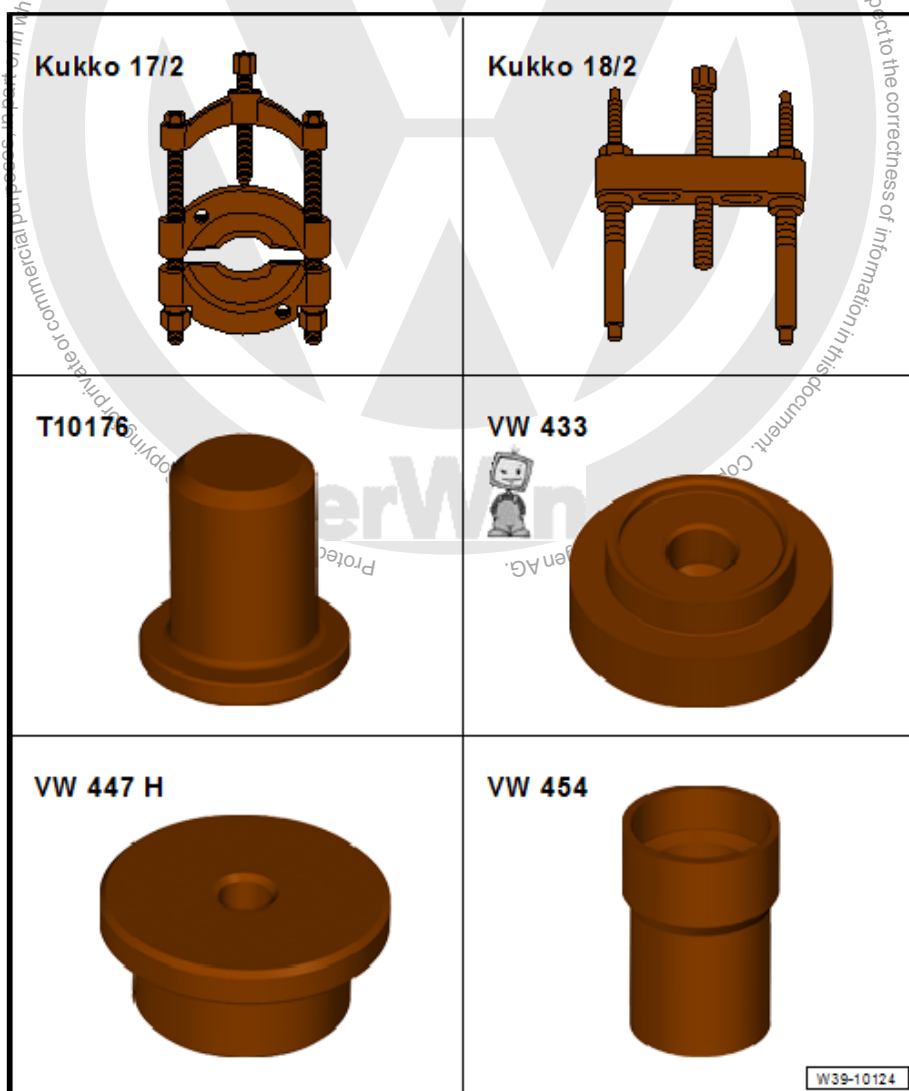
- ◆ ⇒ [“3.3 Assembly overview - Dana propshaft”, page 55](#)



3.7 Dismantling and assembling propshaft intermediate bearing, “Tirsan” propshaft

Special tools and workshop equipment required

- ◆ Separating tool Kukko 17-2
- ◆ Counter support Kukko 18-2
- ◆ Thrust piece - VW 433-
- ◆ Thrust pad - VW 447 H-
- ◆ Thrust piece - VW 454-





Note

- ◆ Distinguishing features of propshafts:
- ◆ Sticker on propshaft or, if not legible anymore, the 11th position of the vehicle identification number.
- ◆ H = Tirsan propshaft
- ◆ A or 8 = Dana propshaft

Dismantling

Remove propshaft ⇒ [page 57](#) .



Note

Mark position of propshaft before removing it.

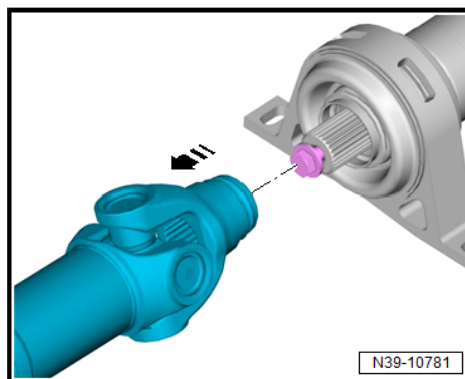
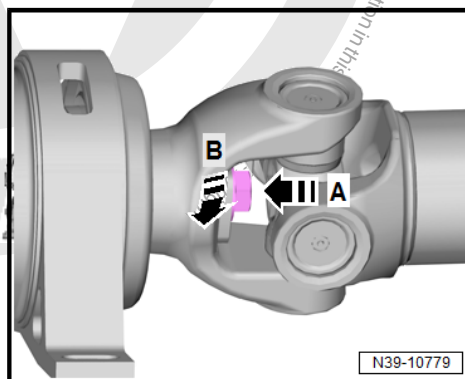
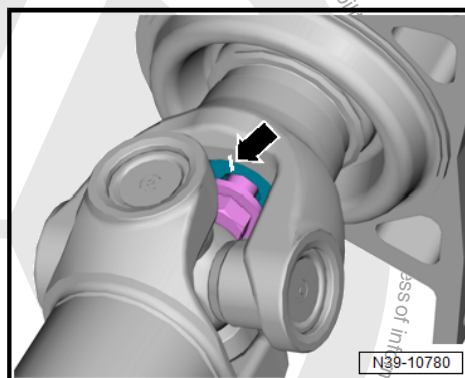
- Clamp propshaft in a vice.
- Initially loosen bolt until the washer plate can be removed.
- Then, apply light pressure on the bolt head -arrow A- using a commercially available assembly lever . Loosen bolt further while doing so -arrow B-. This will cause the propshaft to be pressed off.



Note

- ◆ Due to space restrictions it may be necessary to grind off the edges of the spanner.
- ◆ If the bolt is not long enough to press the propshaft parts apart completely, the splines can be separated by light blows with a -Kunststoffhammer- after the bolt has been loosened as far as possible. Only strike against the joint section with inner splines.

- Pull propshaft apart.





i Note

- ◆ Tighten separating tool Kukko 17-2 only slightly (so that it barely has zero play).
- ◆ Otherwise the paintwork of the propshaft may be damaged.

- Fit separating tool Kukko 17-2 and counter support Kukko 18-2 with thrust piece - VW 433- to propshaft as shown in illustration and press propshaft out of intermediate bearing.
- Remove dust cap from propshaft.

Assembling

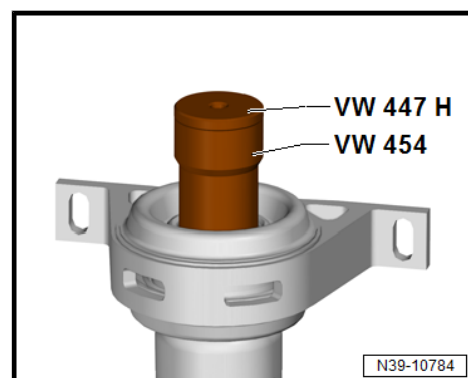
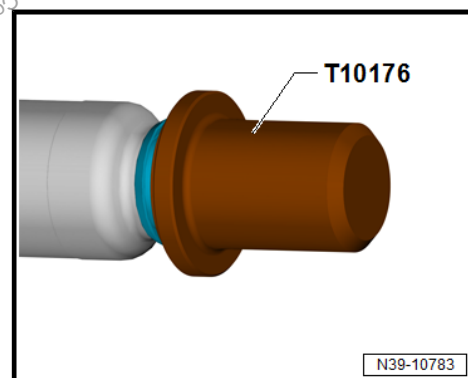
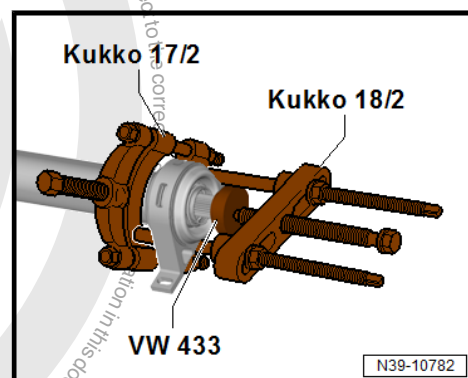
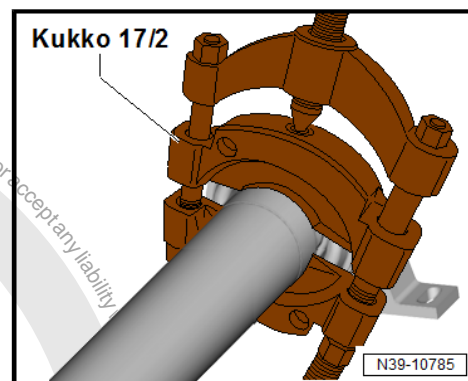
Install in reverse order of removal, observing the following:

i Note

The blue marking on the propshaft intermediate bearing must face in direction of travel.

- Drive new dust cap evenly onto propshaft as far as stop using thrust piece - T10176- and a -Kunststoffhammer- .

- Drive propshaft intermediate bearing onto propshaft as far as stop using thrust plate - VW 447 H- , thrust piece - VW 454- and a -Kunststoffhammer- .
- Screw in bolt by several turns and join parts of propshaft (observe marking). If necessary apply light blows with a plastic hammer on the propshaft to join the parts.



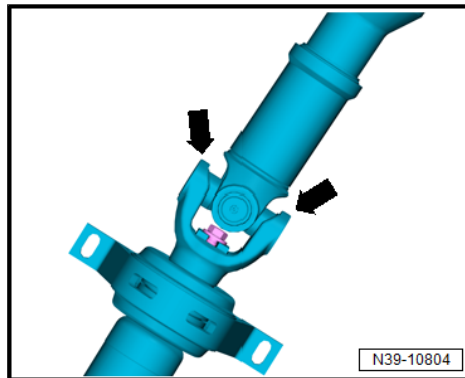


Note

- ◆ If necessary, clamp the propshaft in a vice and strike it with a plastic hammer at the marked positions -arrows-.
- ◆ Do not strike against the universal joint.

Specified torque

- ◆ ⇒ ["3.2 Assembly overview - Tirsan propshaft", page 54](#)





4 Gear oil

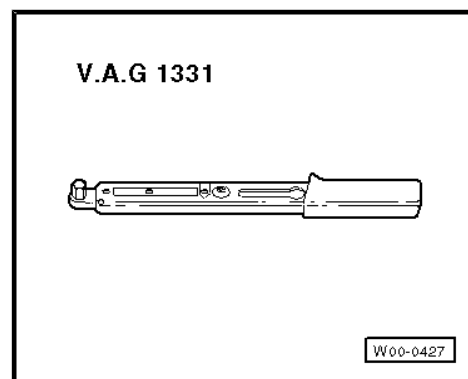
⇒ [“4.1 Checking gear oil level in bevel box”, page 67](#)

4.1 Checking gear oil level in bevel box

Gear oil for the rear final drive is available as a part ⇒ Electronic parts catalogue “ETKA” .

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



Test precondition

- Vehicle standing on level ground

Procedure

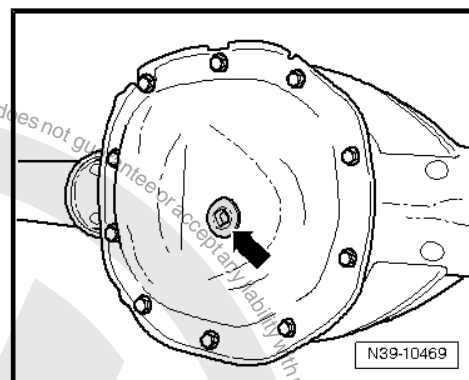
- Raise vehicle ⇒ Maintenance ; Booklet 11 .
- Remove oil filler plug -arrow-.

The oil level is correct when the rear final drive is filled to the lower edge of the filler hole; top up as required.

- Screw in oil filler plug -arrow- and tighten.

Specified torques

- ◆ ⇒ [“1.1 Assembly overview final drive”, page 10](#)





39 – Final drive - front differential

1 Final drive

⇒ "1.1 Assembly overview - final drive", page 68

⇒ "1.2 Removing and installing front final drive", page 68

⇒ "1.3 Renewing bonded rubber bush on rear of final drive", page 73

⇒ "1.4 Renewing bonded rubber bush on front of final drive", page 75

⇒ "1.5 Renewing bonded rubber on left of final drive", page 77

1.1 Assembly overview - final drive

1 - Front final drive

- Removing and installing
⇒ page 68 .

2 - Bolt

- 50 Nm +90°

3 - Support bracket

4 - Hexagon collar bolt

- 90 Nm +90°

5 - Retainer

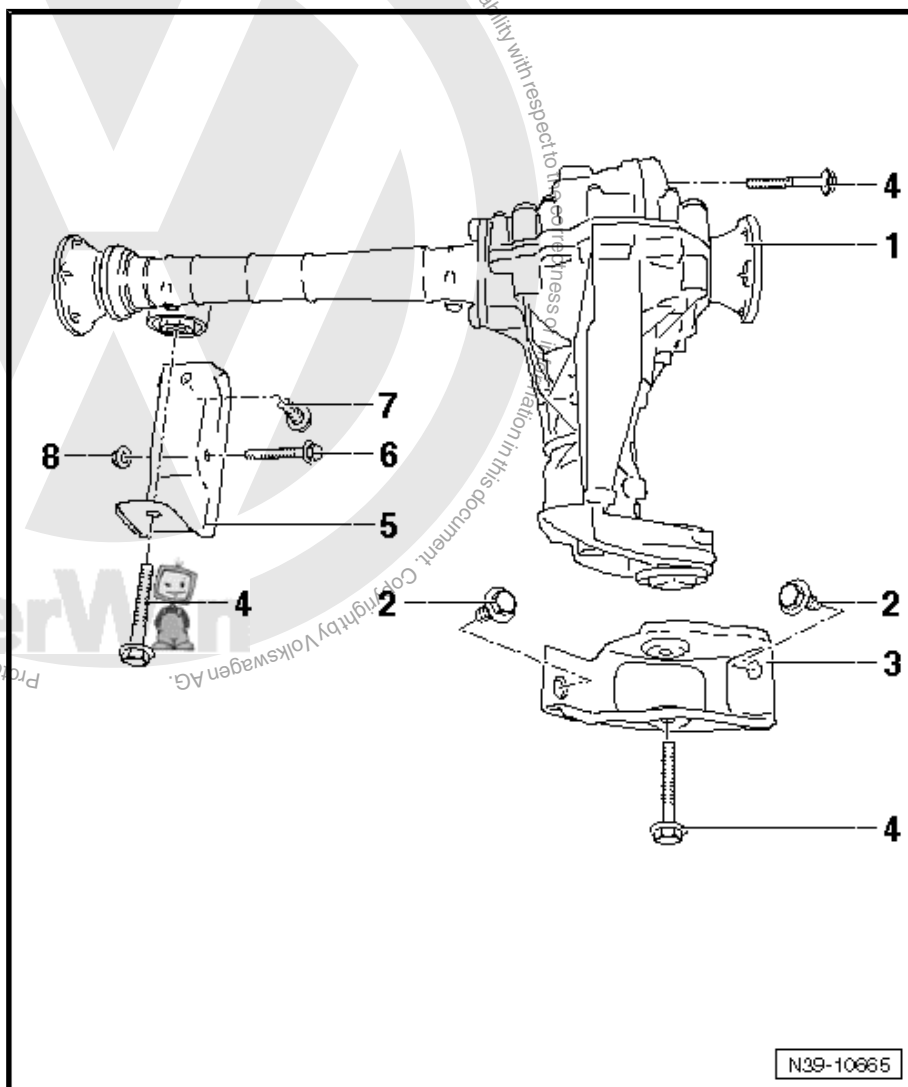
6 - Hexagon collar bolt

- 90 Nm +90°

7 - Hexagon collar bolt

- 50 Nm +90°

8 - Hexagon collar nut



1.2 Removing and installing front final drive

Special tools and workshop equipment required

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



- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Retainer - T10149-

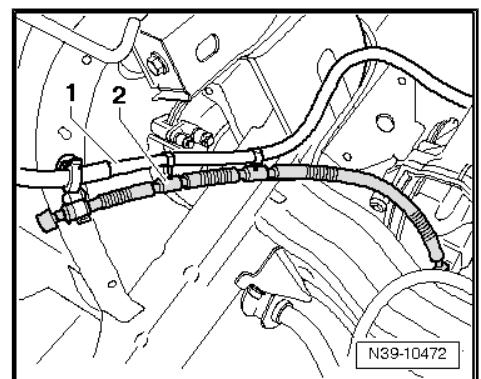
Removing

- Raise vehicle ⇒ Maintenance ; Booklet 11 .
- Remove front right wheel.
- If fitted, remove engine/gearbox guard ⇒ General body repairs, exterior; Rep. gr. 50 ; Engine/gearbox guard .
- Remove front propshaft ⇒ [page 56](#) .
- Remove right and left drive shafts from front final drive ⇒ Running gear, axles, steering; Rep. gr. 40 .
- Remove front right transverse link ⇒ Running gear, axles, steering; Rep. gr. 40 .
- Unclip breather hose
-2- at earth cable -1-.



Note

Illustration does not show engine to improve clarity.



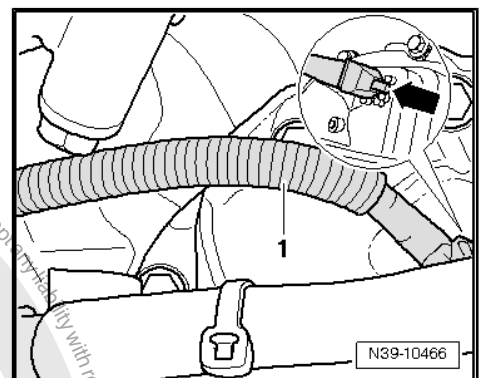
- Carefully pull breather hose -1- off front final drive -arrow-.

Right wheel suspension must be raised in order to remove front securing bolt for front final drive.



WARNING

Before the wheel suspension is raised, the vehicle must be strapped to the lifting platform arms on both sides using tensioning straps - T10038- ⇒ Maintenance ; Booklet 11 Raise vehicle.



- Turn right wheel hub until one of the wheel bolt holes is at the top.



- Attach support - T10149- to wheel hub using wheel bolt and tighten.
- Insert support - T10149- in engine and gearbox jack - V.A.G 1383 A- .



WARNING

If the vehicle is not strapped down, there is a danger that the vehicle will slip off the lifting platform!

- Unscrew and remove securing bolt for front final drive.
- Lower wheel suspension again with engine and gearbox jack - V.A.G 1383 A- .
- Turn steering wheel to right lock.
- Place engine and gearbox jack - V.A.G 1383 A- under front final drive.
- Remove support -A- and support bracket -B-.
- Lower front final drive with engine and gearbox jack - V.A.G 1383 A- .
- Remove engine and gearbox jack - V.A.G 1383 A- .

A second mechanic is required to remove front final drive.

- First pull right drive shaft off front final drive, followed by left drive shaft.
- Remove front final drive downwards.

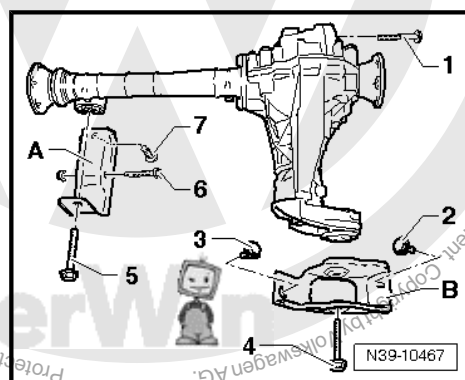
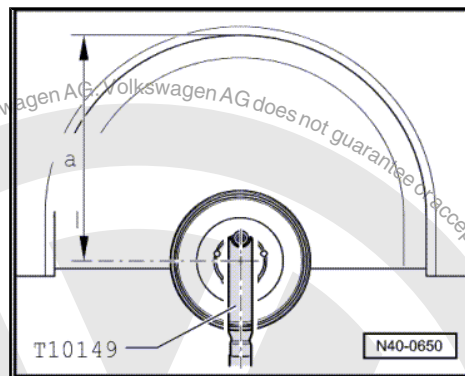
Installing



Note

Always renew securing bolts and hexagon nuts.

- Check oil level in front final drive ⇒ [page 79](#) .
- Turn steering wheel to right lock.
- Insert front axle drive with help from a second mechanic.
- First position left drive shaft on front final drive, followed by right drive shaft.
- Support front final drive with engine and gearbox jack - V.A.G 1383 A- .





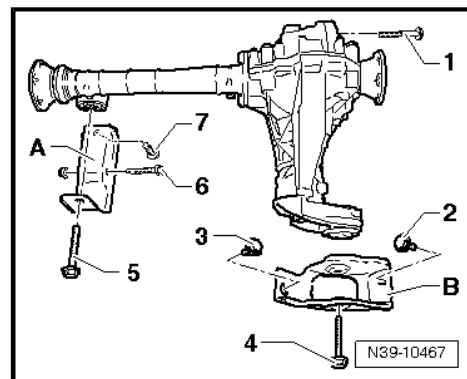
- Insert support bracket -B-.
- Position new securing bolts -2- and -3-, but do not tighten yet.
- Remove engine and gearbox jack - V.A.G 1383 A- .

Right wheel suspension must be raised in order to install front securing bolt for front final drive.



WARNING

Before the wheel suspension is raised, the vehicle must be strapped to the lifting platform arms on both sides using tensioning straps - T10038- ⇒ Maintenance ; Booklet 11 Raise vehicle.

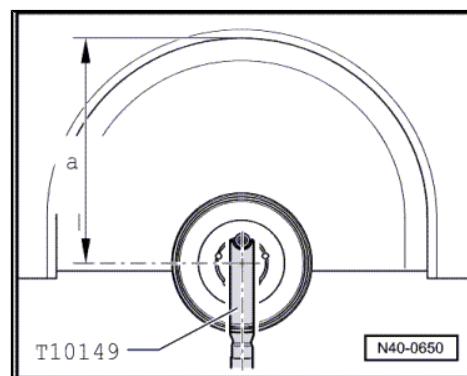


- Turn right wheel hub until one of the wheel bolt holes is at the top.
- Attach support - T10149- to wheel hub using wheel bolt and tighten.
- Insert support - T10149- in engine and gearbox jack - V.A.G 1383 A- .

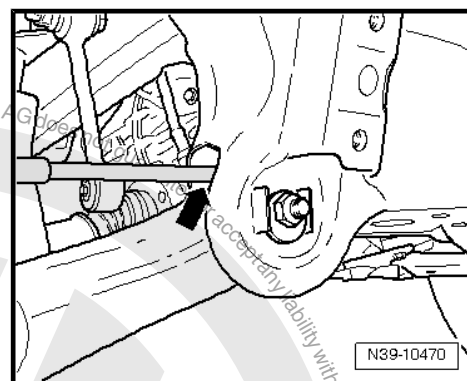


WARNING

If the vehicle is not strapped down, there is a danger that the vehicle will slip off the lifting platform!

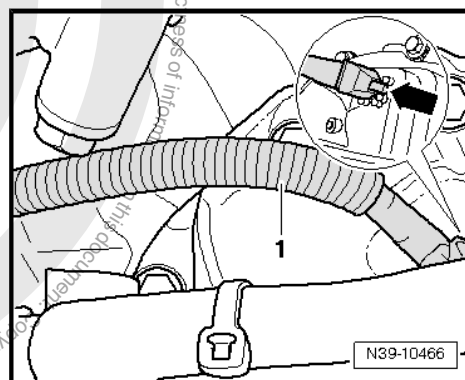
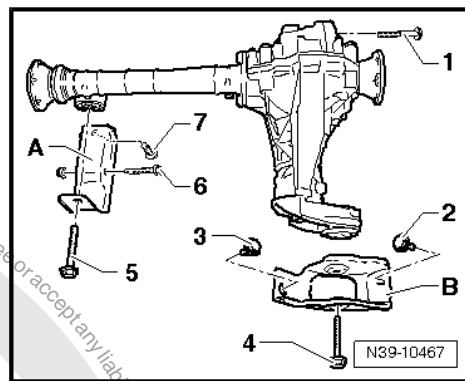


- Raise wheel suspension using engine and gearbox jack - V.A.G 1383 A- until securing bolt for front final drive is accessible above transverse link -arrow-.





- Position new securing bolt for front final drive -1-, but do not tighten yet.
- Position new securing bolt for front final drive -4-, but do not tighten yet.
- Insert support -A-.
- Position new securing bolt for front final drive -5-, but do not tighten yet.
- Position new securing bolts -6- and -7-.
- First tighten securing bolt -7- and then securing bolt -6-.
- Tighten securing bolt for front final drive -1-.
- Lower wheel suspension again with engine and gearbox jack - V.A.G 1383 A- .
- Tighten securing bolt for front final drive -4-.
- Tighten securing bolt for front final drive -5-.
- First tighten securing bolt -2- and then securing bolt -3-.
- Carefully push connection nipple of breather line -1- into front final drive. When doing this the connecting nipple must be inserted between the raised portions of the housing and be horizontal -arrow-.

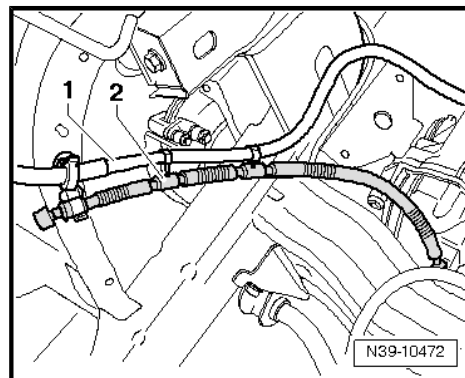


- Clip breather hose -2- to earth cable -1-.

**Note**

Illustration does not show engine to improve clarity.

- Install front propshaft ⇒ [page 56](#) .
- Attach drive shafts to flange shafts ⇒ Running gear, axles, steering; Rep. gr. 40 .
- Install engine/gearbox guard ⇒ General body repairs, exterior; Rep. gr. 50 ; Engine/gearbox guard .
- Install wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Fitting wheel and tyre; Fitting wheel .

**Specified torques**

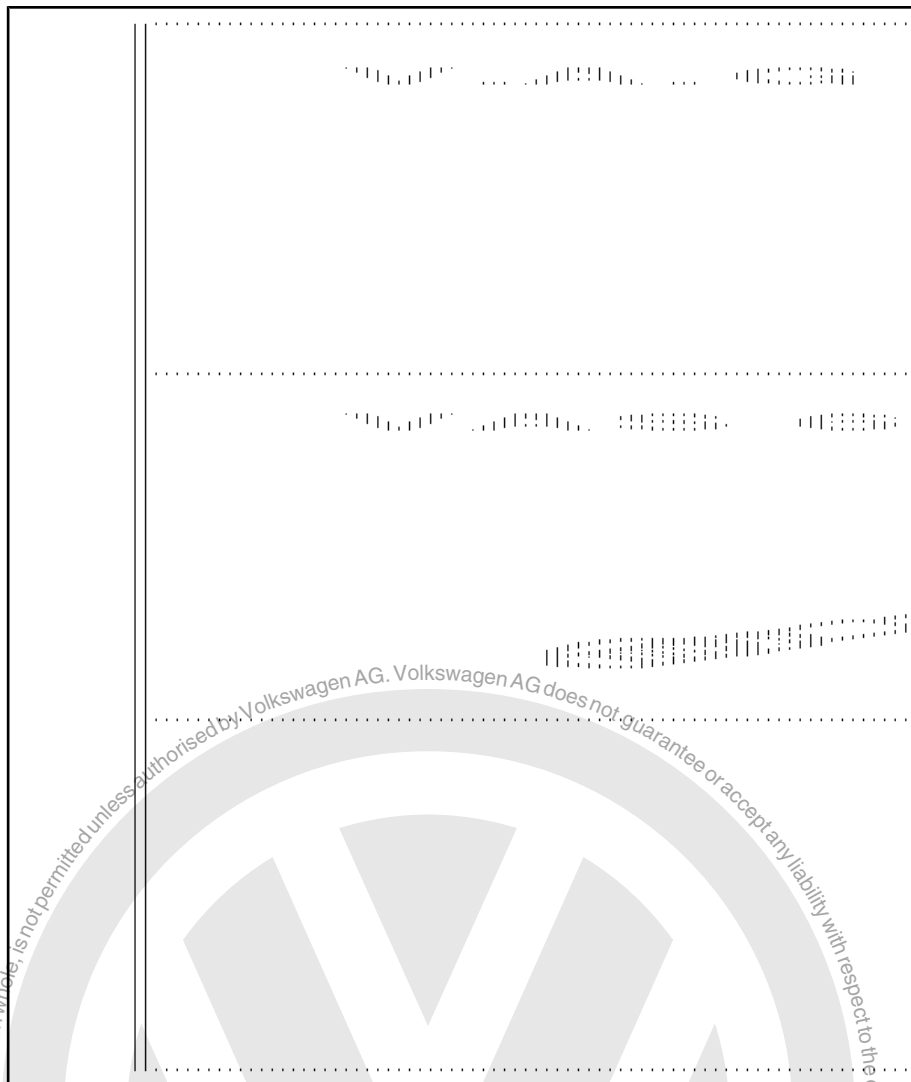
- ◆ ⇒ ["1.1 Assembly overview - final drive", page 68](#)
- ◆ ⇒ ["3.2 Assembly overview - Tirsan propshaft", page 54](#)



1.3 Renewing bonded rubber bush on rear of final drive

Special tools and workshop equipment required

- ◆ Assembly tool - T10435-
- ◆ Assembly tool - T10254-
- ◆ Foot pump - VAS 6179-
- ◆ Hydraulic press - VAS 6178-
- ◆ Tube - 30 - 14-



Pulling out

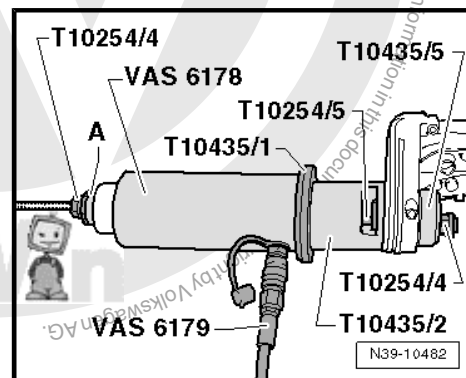
- Set foot pump - VAS 6179- to lowest setting.
- Pulling out bonded rubber bush.



Note

Washer -A- from assembly tool - T10435-

Pulling in





- Position bonded rubber bush in installation position on front final drive.



Note

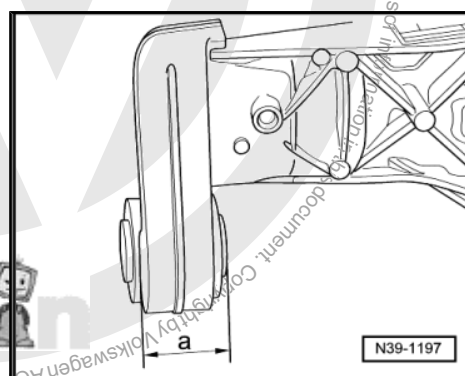
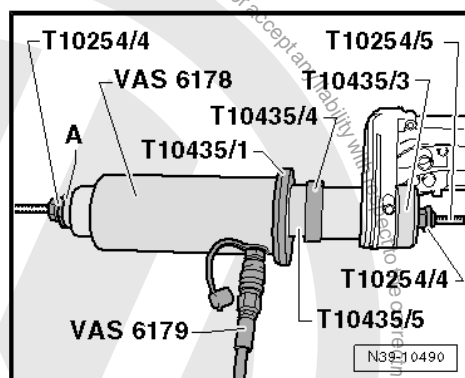
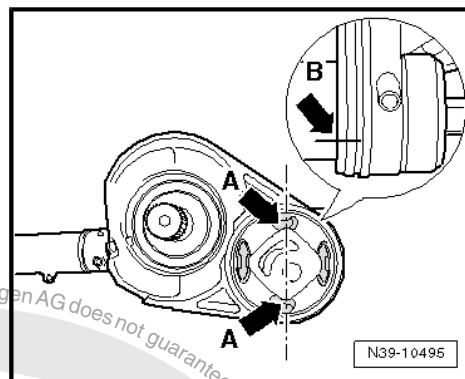
Corners and small recesses of bonded rubber bush -arrows A- must be at right angles to final drive.

- Mark installation position -arrow B- of bonded rubber bush.

- Pull in bonded rubber bush until dimension -a- [⇒ page 74](#) is reached.

- Pull-in depth for bonded rubber bush

Dimension -a- = 47.4 mm

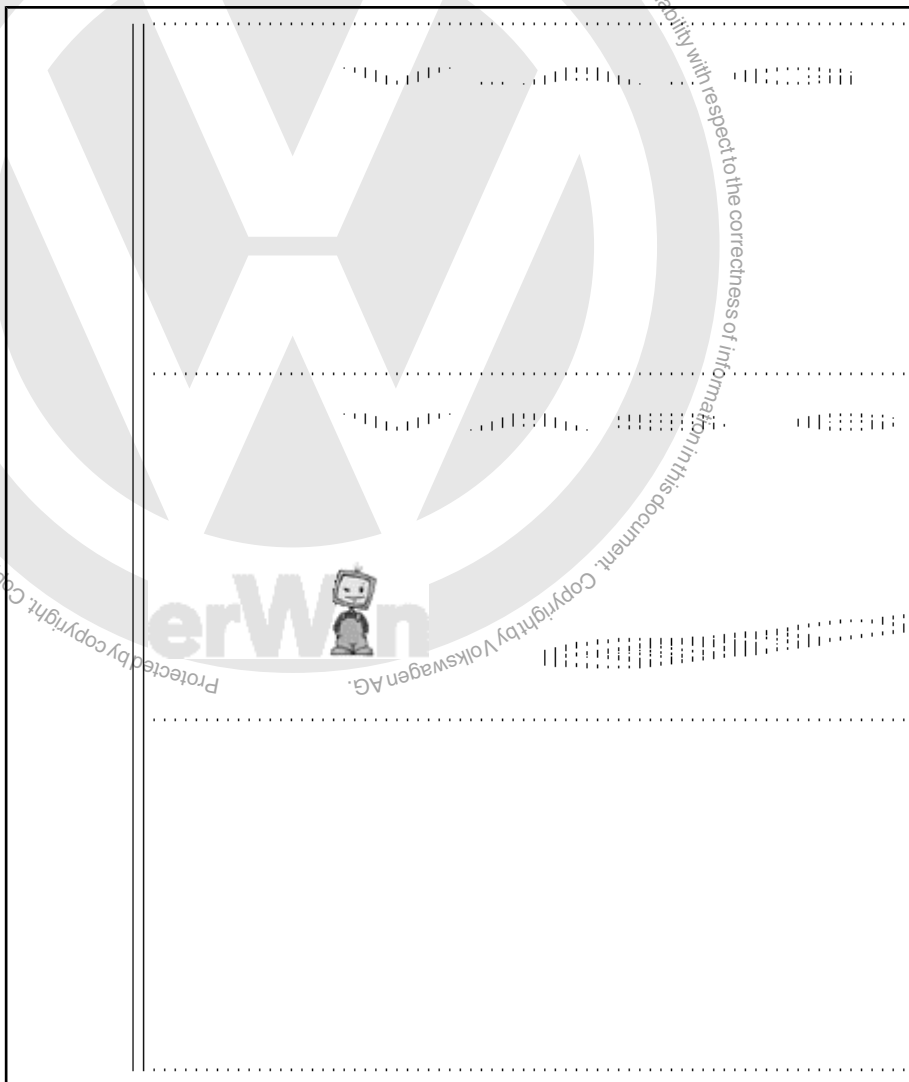




1.4 Renewing bonded rubber bush on front of final drive

Special tools and workshop equipment required

- ◆ Assembly tool - T10435-
- ◆ Assembly tool - T10254-
- ◆ Foot pump - VAS 6179-
- ◆ Hydraulic press - VAS 6178-
- ◆ Tube - 30 - 14-



Pulling out

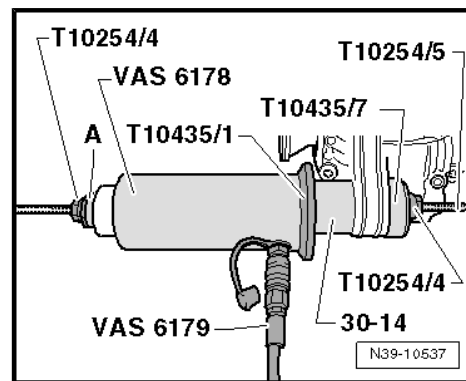
- Set foot pump - VAS 6179- to lowest setting.
- Pulling out bonded rubber bush.



Note

Washer -A- from assembly tool - T10435-

Pulling in





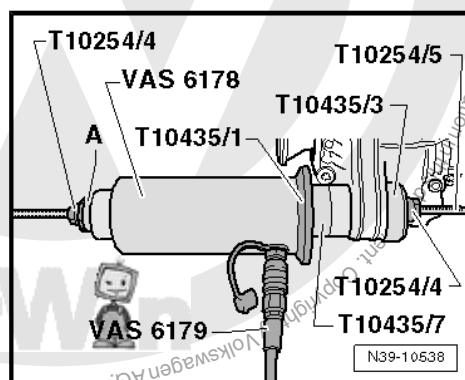
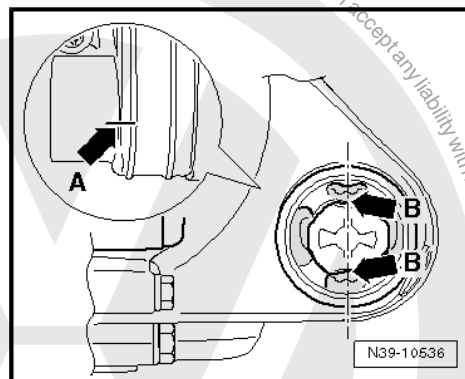
- Position bonded rubber bush in installation position on front final drive.



Note

Small recesses of bonded rubber bush -arrows B- must be at right angles to final drive.

- Mark installation position -arrow A- of bonded rubber bush.
- Pull in bonded rubber bush until it is centred in front final drive housing.

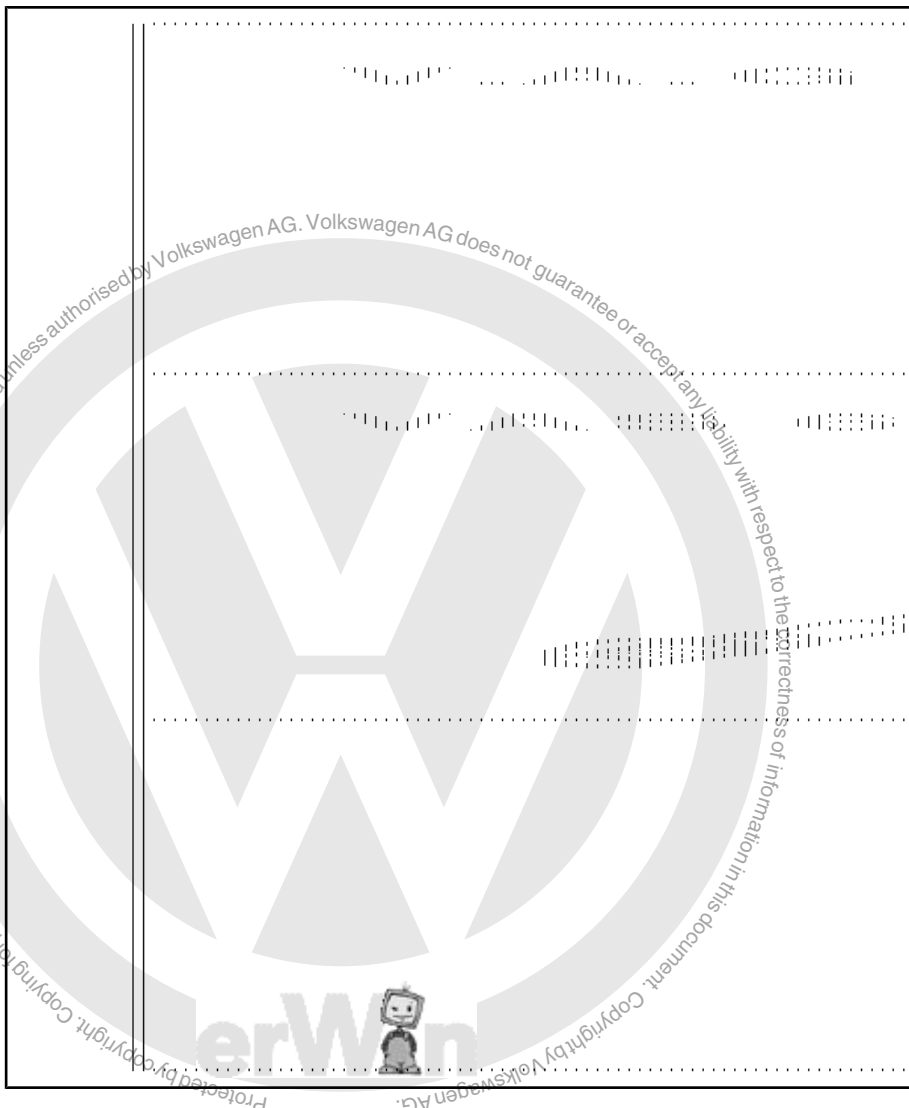




1.5 Renewing bonded rubber on left of final drive

Special tools and workshop equipment required

- ◆ Assembly tool - T10435-
- ◆ Assembly tool - T10254-
- ◆ Foot pump - VAS 6179-
- ◆ Hydraulic press - VAS 6178-
- ◆ Tube - 30 - 14-



Pulling out

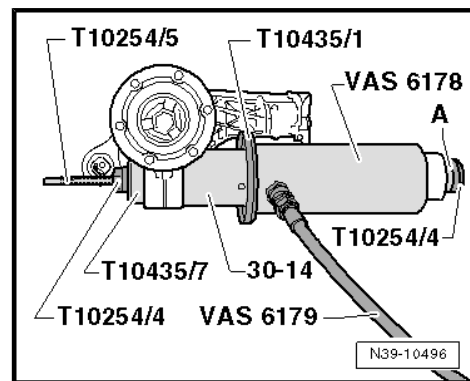
- Set foot pump - VAS 6179- to lowest setting.
- Pulling out bonded rubber bush.



Note

Washer -A- from assembly tool - T10435-

Pulling in





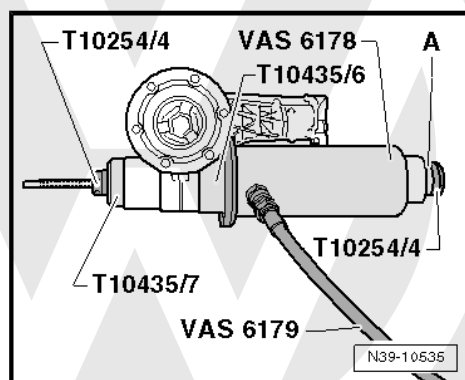
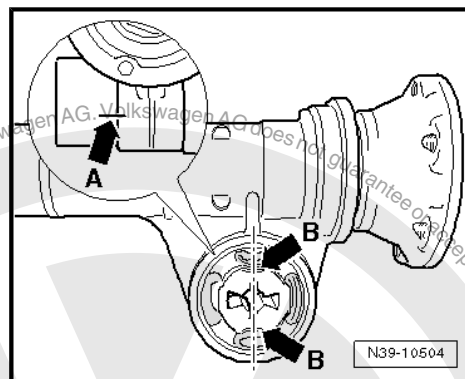
- Position bonded rubber bush in installation position on left of final drive.



Note

Small recesses of bonded rubber bush -arrows B- must be at right angles to final drive.

- Mark installation position -arrow A- of bonded rubber bush.
- Pull in bonded rubber bush until it is centred in housing on left of final drive.





2 Gear oil

⇒ ["2.1 Checking level of gear oil", page 79](#)

2.1 Checking level of gear oil

Gear oil for the front final drive is available as a part ⇒ Electronic parts catalogue "ETKA".

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

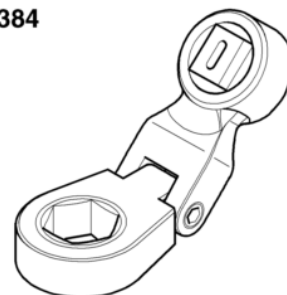
V.A.G 1331



W00-0427

- ◆ Ring ratchet spanner, 13 mm AF - T10384-

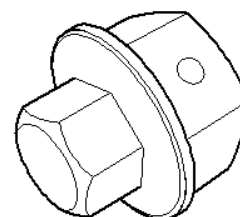
T10384



W00-10649

- ◆ Bit - T50039-

T50039



W00-10920



Note

- ◆ *Front final drive has a fill-for-life oil fill. It is only necessary to check oil level or to top up oil after renewal of oil seal or if final drive is replaced. Due to poor accessibility of oil filler plug when installed, oil level should be checked or oil should be replenished prior to installation.*
- ◆ *The special tool indicated is to be used.*



Test precondition

- Front final drive in installation position

Procedure

- Remove oil filler plug -arrow-.

The oil level is correct when the front final drive is filled to the lower edge of the filler hole; top up as required.

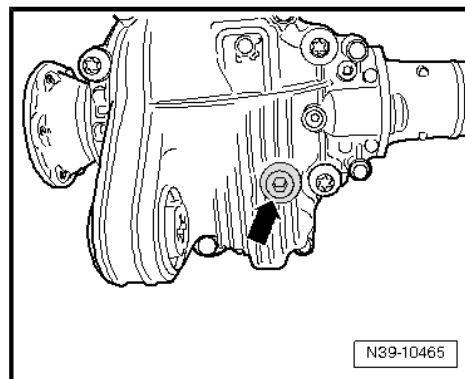
- Install oil filler plug -arrow- and tighten to 35 Nm.

With the component in its installed position

- Unscrew the oil filler plug -arrow- with a combination of ring ratchet spanner, 13 mm AF, - T10384- and bit - T50039- .

The oil level is correct when the front final drive is filled to the lower edge of the filler hole; top up as required.

- If necessary, replenish oil via breather hose, using a standard funnel.



WARNING

Danger of burning.

Exhaust system can be hot.

Allow exhaust system to cool down before replenishing oil.

- Screw in oil filler plug -arrow- in combination with 13 mm ring ratchet spanner - T10384- and bit - T50039- and tighten.

Specified torque

Component	Specified torque
Oil filler plug	35 Nm



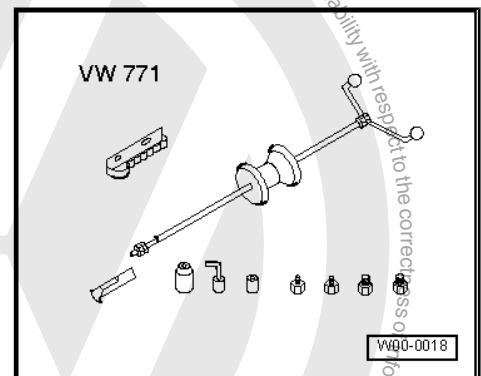
3 Oil seals

- ⇒ ["3.1 Renewing left flange shaft oil seal", page 81](#)
- ⇒ ["3.2 Renewing oil seal for right flange shaft", page 82](#)
- ⇒ ["3.3 Renewing input shaft seal", page 84](#)
- ⇒ ["3.4 Renewing dust cap for left flange shaft", page 87](#)
- ⇒ ["3.5 Renewing dust cap for right flange shaft", page 88](#)
- ⇒ ["3.6 Renewing needle bearing for left flange shaft", page 90](#)

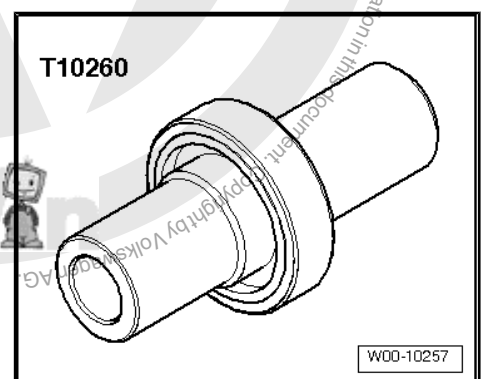
3.1 Renewing left flange shaft oil seal

Special tools and workshop equipment required

- ◆ Multipurpose tool - VW 771-



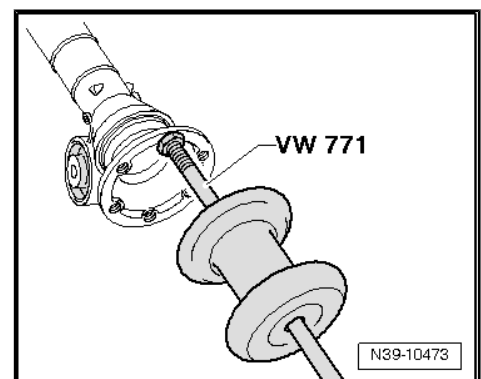
- ◆ Thrust piece - T10260-



- ◆ Sealing grease ⇒ Electronic Parts Catalogue (ETKA)

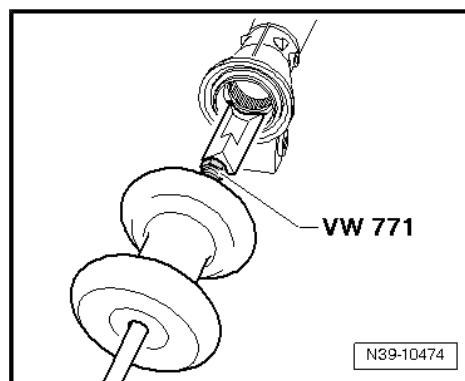
Procedure

- Remove front final drive ⇒ [page 68](#) .
- Pull out left flange shaft using multipurpose tool - VW 771- .

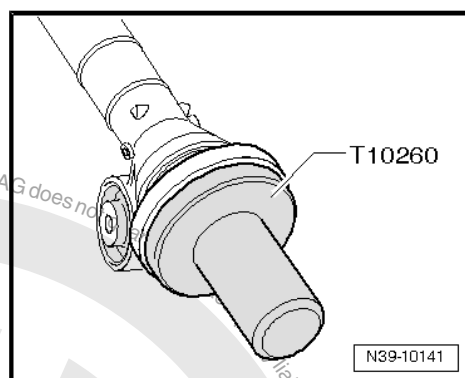




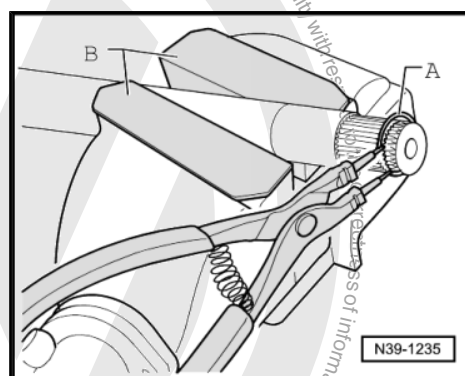
- Pull out oil seal for flange shaft using multipurpose tool - VW 771- .



- Drive in new oil seal to stop using thrust piece - T10260- .
- Fill space between dust lip and sealing lip half full with sealing grease ⇒ Electronic Parts Catalogue (ETKA) .
- Before installing flange shaft, check dust cap for damage and renew if necessary ⇒ [page 87](#) .



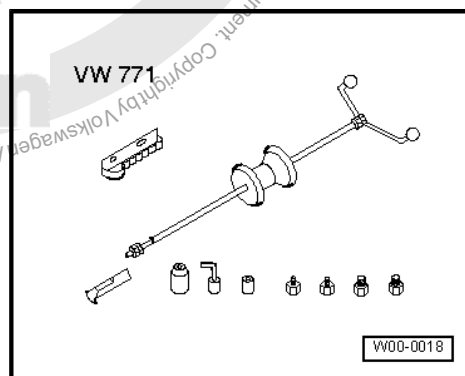
- Clamp flange shaft in vice using jaw protectors -B-.
- Remove retaining ring -A- using pliers .
- Insert new retaining ring in groove in flange shaft, being careful not to overstretch ring.
- Drive in flange shaft using a plastic head hammer .
- Check oil in front final drive ⇒ [page 79](#) .
- Install front final drive ⇒ [page 68](#) .



3.2 Renewing oil seal for right flange shaft

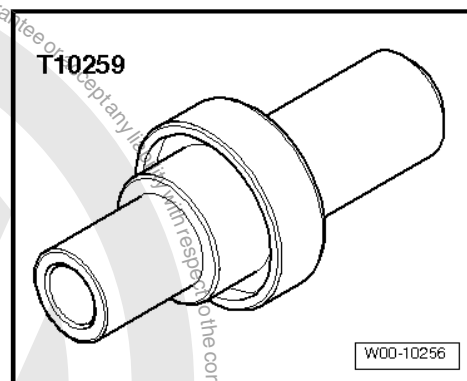
Special tools and workshop equipment required

- ◆ Multipurpose tool - VW 771-





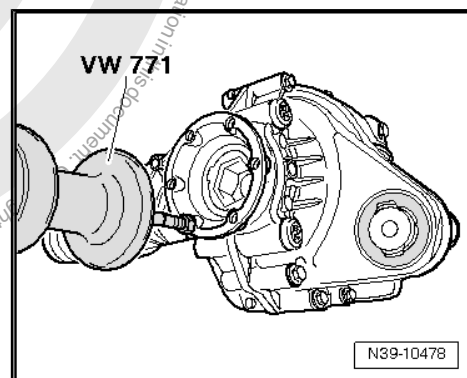
◆ Thrust piece - T10259-



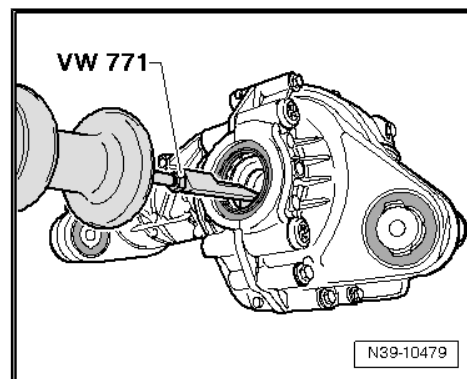
◆ Sealing grease ⇒ Electronic Parts Catalogue (ETKA)

Procedure

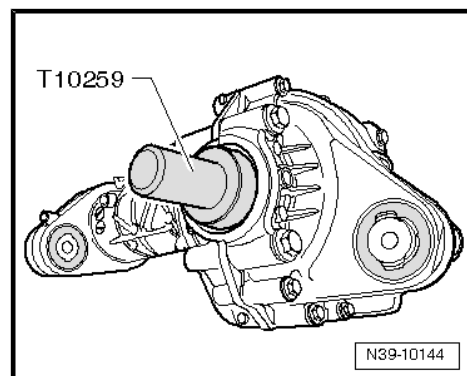
- Remove front final drive ⇒ [page 68](#) .
- Pull out right flange shaft using multipurpose tool - VW 771- .



- Pull out oil seal for flange shaft using multipurpose tool - VW 771- .

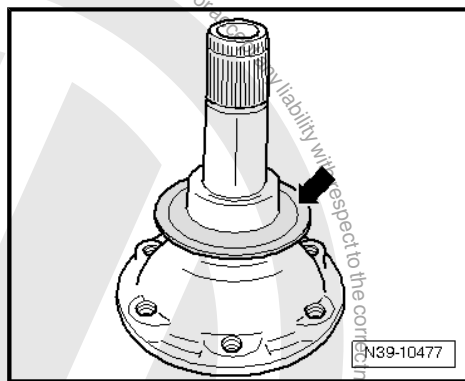


- Drive in new oil seal to stop using thrust piece - T10259- .
- Fill space between dust lip and sealing lip half full with sealing grease ⇒ Electronic Parts Catalogue (ETKA) .

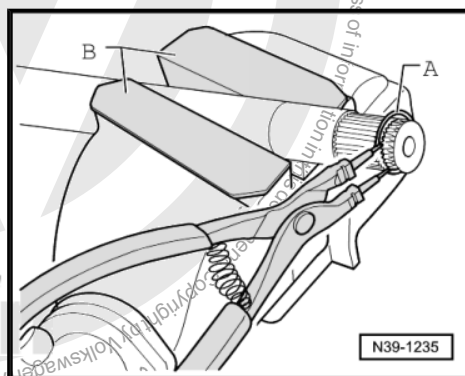




- Before installing flange shaft, check dust cap -arrow- for damage and renew if necessary ⇒ [page 88](#) .



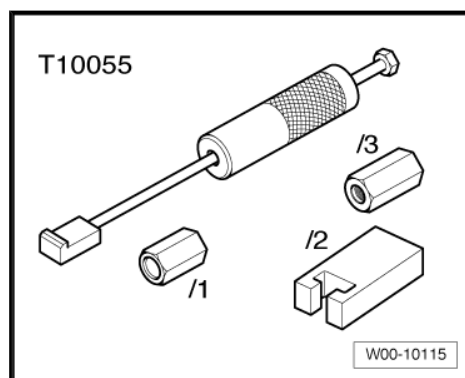
- Clamp flange shaft in vice using jaw protectors -B-.
- Remove retaining ring -A- using pliers .
- Insert new retaining ring in groove in flange shaft, being careful not to overstretch ring.
- Drive in flange shaft using a plastic head hammer .
- Check oil in front final drive ⇒ [page 79](#) .
- Install front final drive ⇒ [page 68](#) .



3.3 Renewing input shaft seal

Special tools and workshop equipment required

- ◆ Puller - T10055-



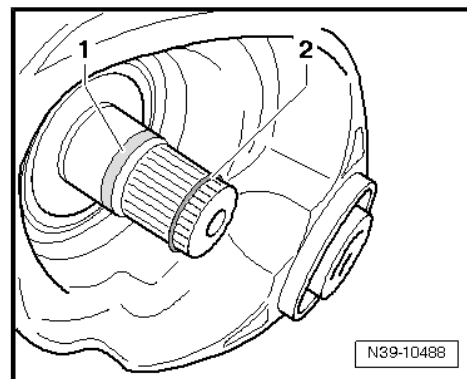
- ◆ Thrust piece - T10430-
- ◆ Thrust piece - T10430/1-
- ◆ 2 self-tapping screws with 4 mm diameter
- ◆ Sealing grease ⇒ Electronic Parts Catalogue (ETKA)

Procedure

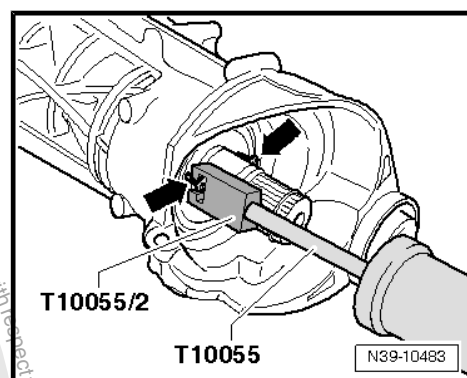
- Remove front propshaft ⇒ [page 56](#) .



- Pull off oil seal -1- and retaining ring -2-.
- To be able to screw self-tapping screws -arrows- into sealing cover, first use drift to punch 2 holes in sealing cover.



- Screw in self-tapping screws with 4 mm diameter.
- Pull out dust cap using puller - T10055- .
- Use a drift to punch 2 holes in oil seal.



- Screw in self-tapping screws with 4 mm diameter.

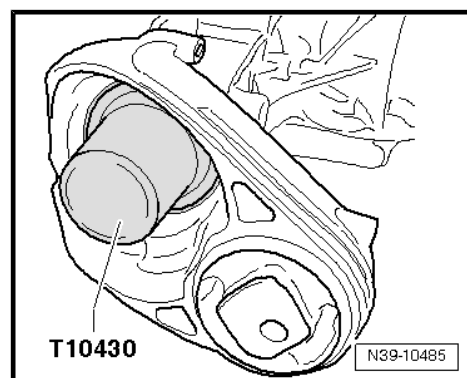
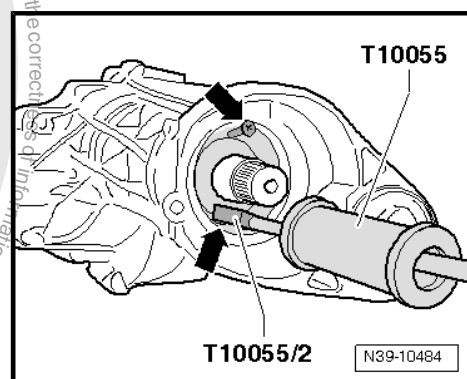


Note

Do not screw in sheet metal screw too far to avoid damaging bearing behind it.

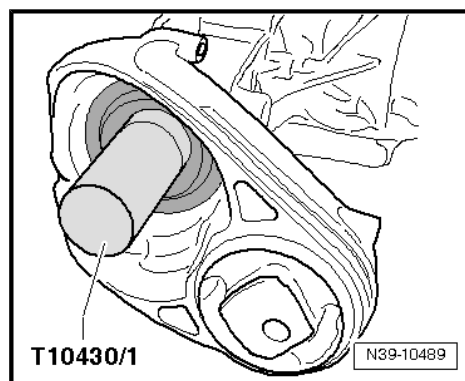
Pull out seal using puller - T10055- .

- On new seal, fill space between dust lip and sealing lip half full with sealing grease ⇒ Electronic Parts Catalogue (ETKA) .
- Mask off splines of stub shaft with adhesive tape.
- Push new oil seal as far as oil seal seat on final drive.
- Drive in seal to stop with thrust piece - T10430- , being careful not to cant seal.

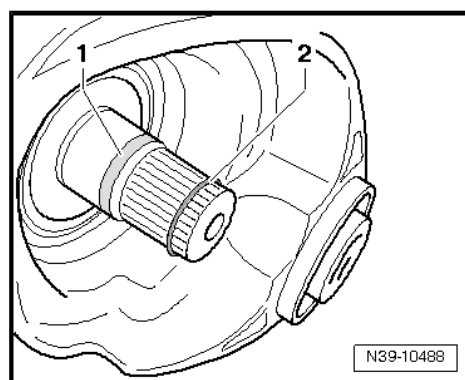




- Drive on new dust cap with thrust piece - T10430/1- .



- Insert new oil seal -1- and new retaining ring -2-.
- Check oil in front final drive ⇒ [page 79](#) .
- Install front propshaft ⇒ [page 56](#)

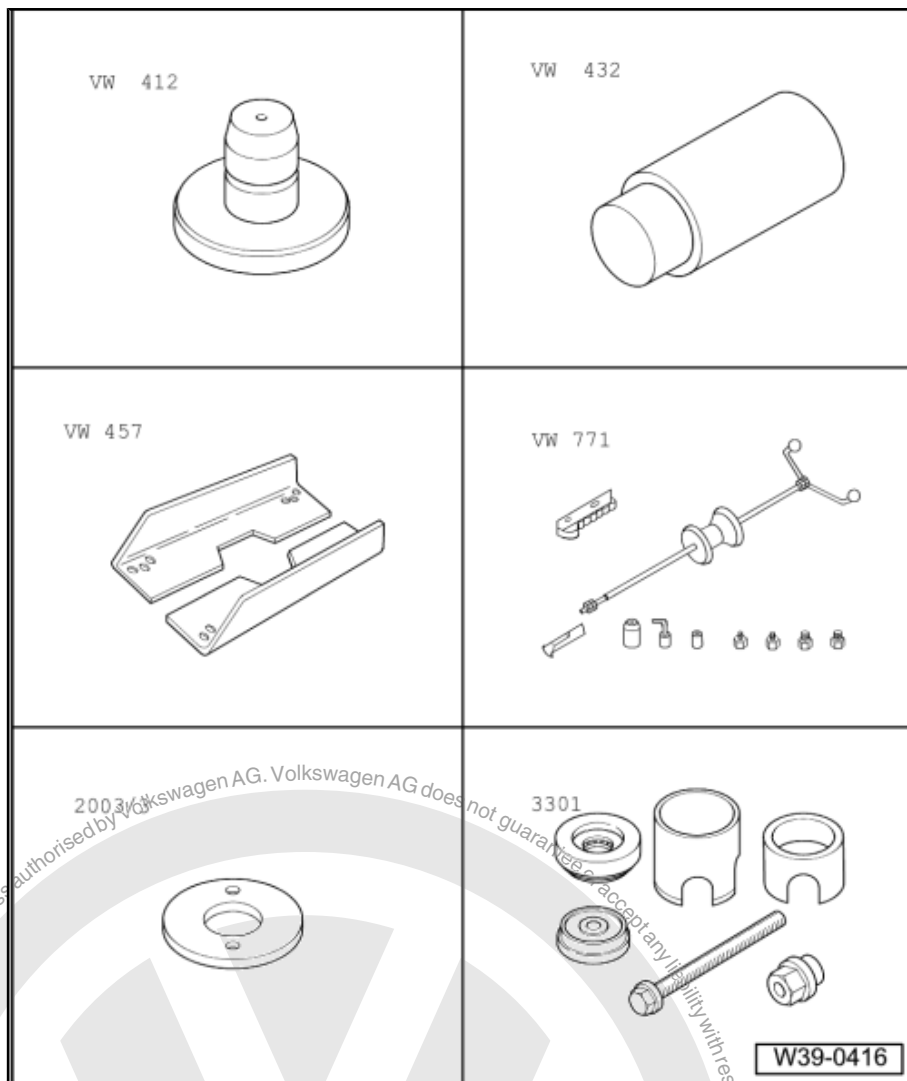




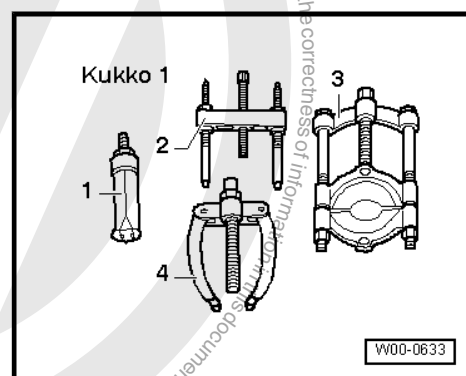
3.4 Renewing dust cap for left flange shaft

Special tools and workshop equipment required

- ◆ Press tool - VW 412-
- ◆ Thrust piece - VW 432-
- ◆ Support rails - VW 457-
- ◆ Pulling ring - 2003/3-
- ◆ Assembly tool - 3301-
- ◆ Sealing grease ⇒ Electronic Parts Catalogue (ETKA)



- ◆ -3- - Separating device Kukko 17-2



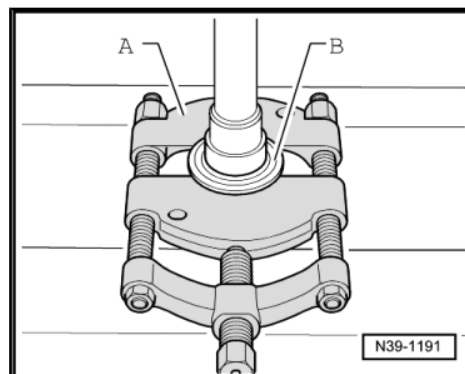
- Flange shaft removed, removing [page 81](#)



Procedure

- Press dust cap -B- off flange shaft.

A - Separating tool Kukko 17-2

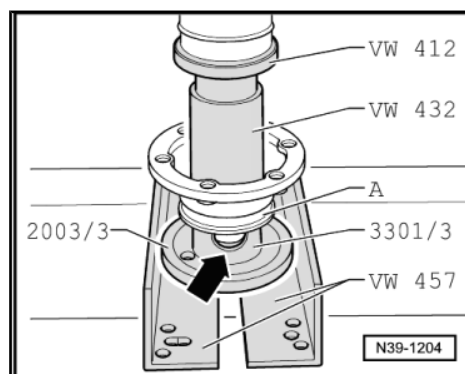


- Press on dust cap for flange shaft -A-.



Note

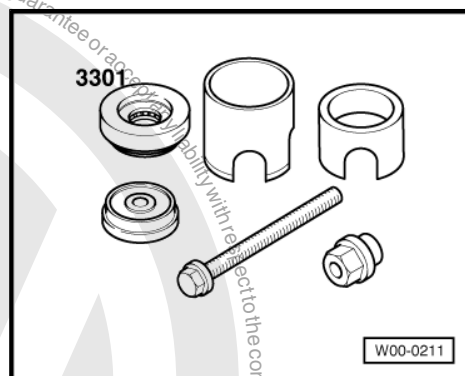
Position sleeve - 3301/3- with notch -arrow- facing dust cap -A-.



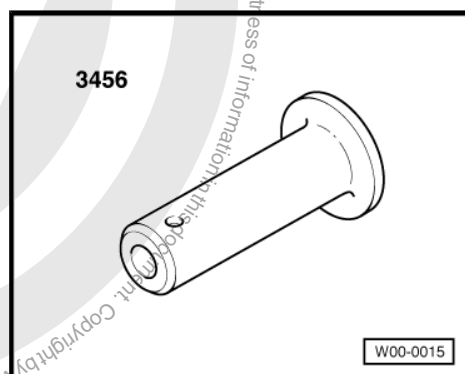
3.5 Renewing dust cap for right flange shaft

Special tools and workshop equipment required

- ◆ Assembly tool - 3301-

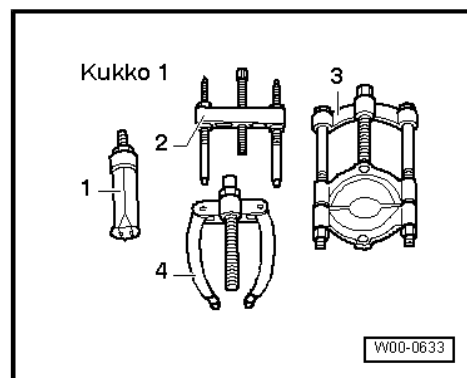


- ◆ Thrust piece - 3456-





◆ -3- - Separating device Kukko 17-2

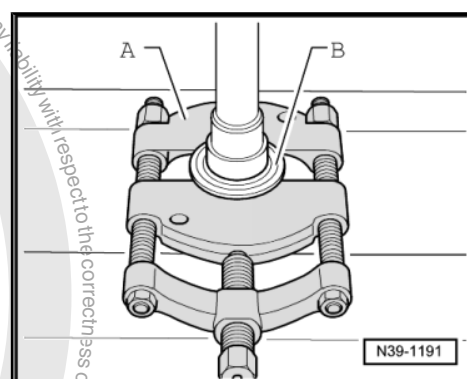


- Flange shaft removed, removing ⇒ [page 82](#)

Procedure

- Press dust cap -B- off flange shaft.

A - Separating tool Kukko 17-2

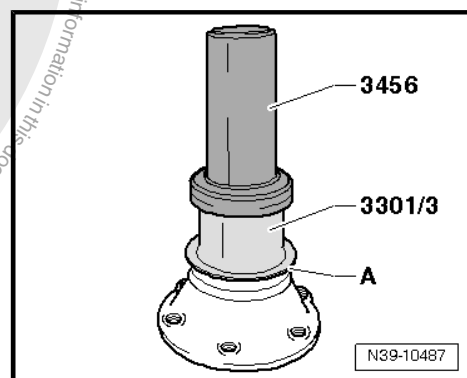


- Drive on new dust cap for flange shaft -A- using thrust piece - 3456- and sleeve - 3301/3- .



Note

Position sleeve - 3301/3- with notch facing dust cap -A-.

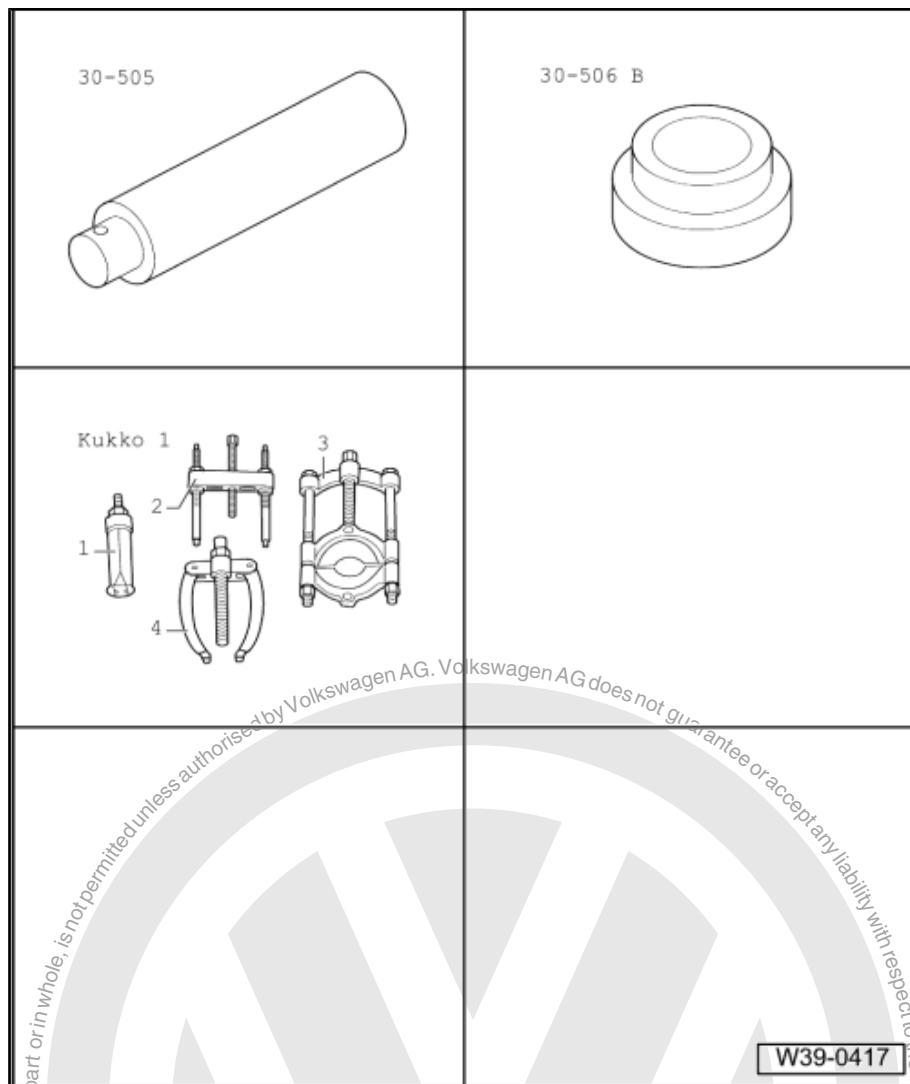




3.6 Renewing needle bearing for left flange shaft

Special tools and workshop equipment required

- ◆ Press tool - 30 - 505-
- ◆ Press tool - 30 - 506 B-
- ◆ Internal puller Kukko 21-6 -1-
- ◆ Counter support Kukko 22-2 -4-

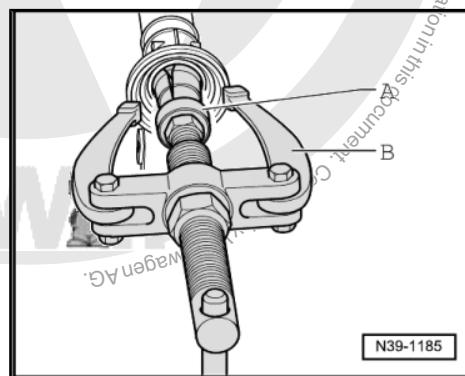


Procedure

- Remove front final drive ⇒ [page 68](#) .
- Remove left flange shaft and oil seal ⇒ [page 81](#) .
- Pull out left flange shaft needle bearing.

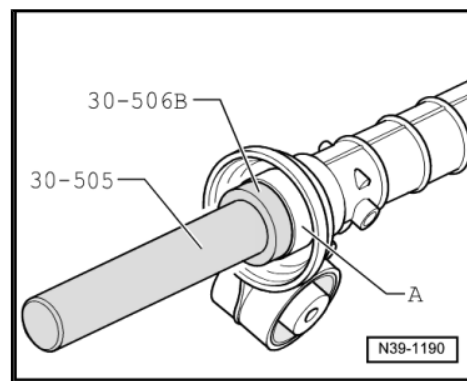
A - Internal puller Kukko 21-6

B - Counter support Kukko 22-2





- Drive in needle bearing for left flange shaft -A- to stop.
- Install left flange shaft and oil seal ⇒ [page 81](#) .
- Check oil in front final drive ⇒ [page 79](#) .
- Install front final drive ⇒ [page 68](#) .





39 – Final drive - differential

1 Transfer box

⇒ "1.1 Assembly overview - transfer box", page 92

⇒ "1.2 Components and their locations", page 94

⇒ "1.3 Removing and installing transfer box", page 95

⇒ "1.4 Checking gear oil level", page 97

⇒ "1.5 Removing and installing transfer box control unit J646",
page 99

⇒ "1.6 Removing and installing transfer box Hall sender G759",
page 99

⇒ "1.7 Removing and installing transfer box control motor V455",
page 100

1.1 Assembly overview - transfer box

1 - Transfer box

- ❑ Removing and installing
⇒ page 95 .

2 - Breather pipe

- ❑ Removing ⇒ page 94
- ❑ Driving in ⇒ page 94

3 - Seal

- ❑ For input shaft
- ❑ Removing and installing
⇒ page 102 .

4 - Seal

- ❑ Renew after removal
- ❑ Insert in groove in input
shaft ⇒ page 94

5 - Dowel sleeve

- ❑ Qty. 2
- ❑ For centring gearbox/
transfer box

6 - Transfer box inter-axle lock- up switch - F438-

- ❑ 27 Nm

7 - Seal

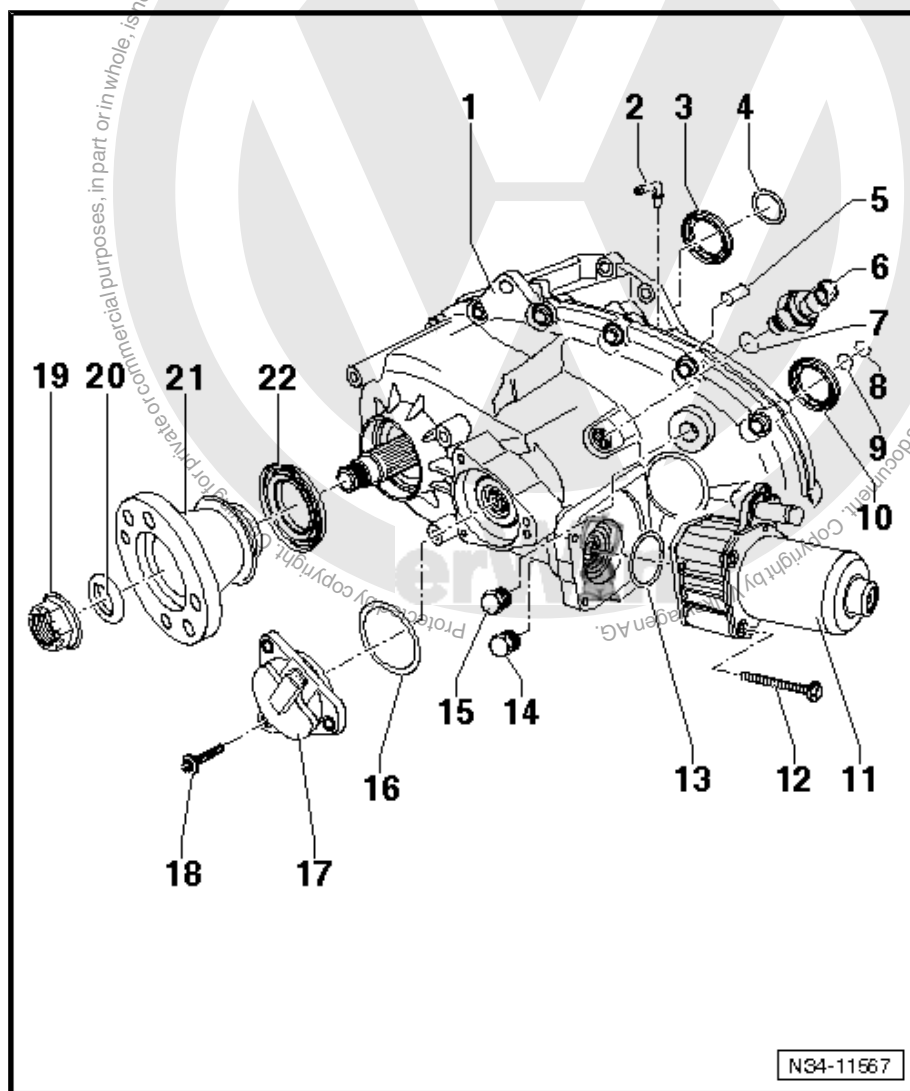
- ❑ Renew if damaged

8 - Retaining ring

- ❑ Renew after removal
- ❑ On input shaft for front
propshaft

9 - Seal

- ❑ On output shaft for front
propshaft
- ❑ Renew if damaged



N34-11567



10 - Seal

- ☐ For output shaft for front propshaft
- ☐ 2-piece

11 - Transfer box control motor - V455-

- ☐ Removing and installing ⇒ [page 100](#) .

12 - Bolt

- ☐ 12 Nm

13 - Seal

- ☐ Renew if damaged
- ☐ Must lie in peripheral groove of transfer box control motor - V455-

14 - Oil drain plug

- ☐ Renew after removal
- ☐ 27 Nm

15 - Oil filler plug

- ☐ Renew after removal
- ☐ 27 Nm

16 - Seal

- ☐ Cannot be obtained individually

17 - Transfer box Hall sender - G759-

- ☐ Removing and installing ⇒ [page 99](#) .

18 - Bolt

- ☐ 7 Nm

19 - Nut

- ☐ Renew after removal
- ☐ Unscrewing ⇒ [page 106](#)
- ☐ Screwing on ⇒ [page 107](#)
- ☐ 150 Nm

20 - Seal

- ☐ Renew after removal
- ☐ Coat with gear oil when installing

21 - Propshaft flange

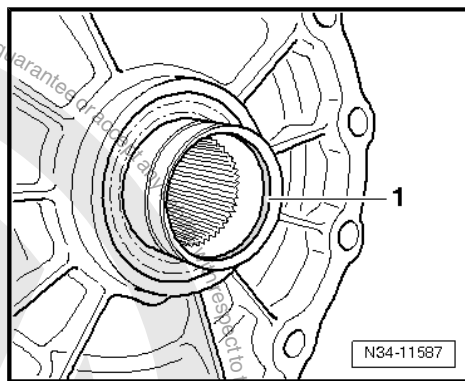
- ☐ For rear propshaft.
- ☐ Removing and installing ⇒ [page 105](#) .

22 - Seal

- ☐ For propshaft flange
- ☐ Renew with propshaft flange ⇒ [page 105](#)

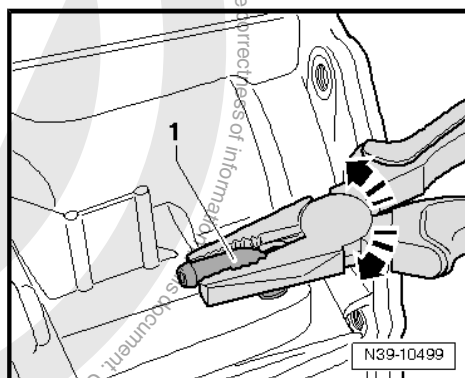


Inserting oil seal into groove in input shaft -1-



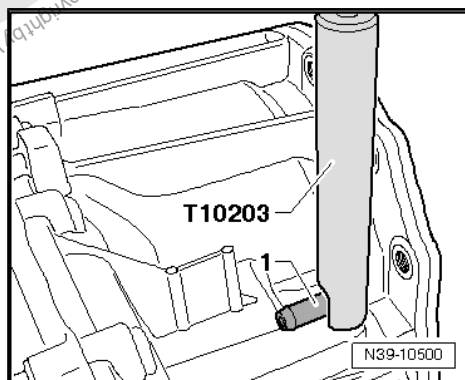
Removing breather pipe

- Use pliers to move breather pipe -1- in directions of both arrows and pull out.



Driving in breather pipe

- Before driving in breather pipe -1-, coat it with Loctite locking fluid ⇒ Electronic Parts Catalogue (ETKA) .
- Drive breather pipe to stop with thrust piece - T10203- .



1.2 Components and their locations



Note

- ◆ *Electrical and electronic components of rear-axle differential lock ⇒ [page 51](#)*
- ◆ *Refer to ⇒ Self-study programme No. 464 ; Power transmission for more information about function.*
- ◆ *Refer to ⇒ Amarok owner's manual for more information and notes on safety.*



1 - Transfer box control unit - J646-

- ☐ Location: under dash panel
- ☐ Removing and installing ⇒ [page 99](#).

2 - Diagnostic connection

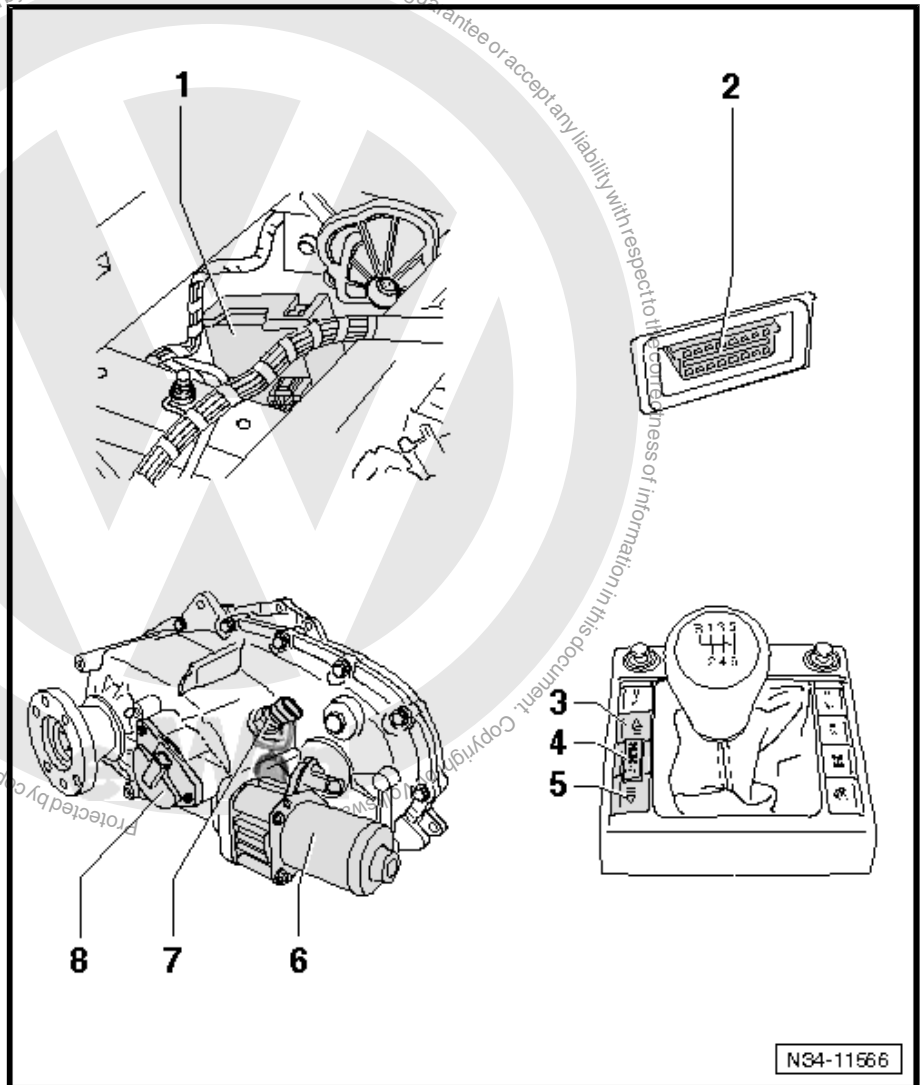
- ☐ Location: in driver footwell

3 - Running gear programme switch - E631-

- ☐ Deactivate for four-wheel drive
- ☐ Remove by removing selector mechanism cover ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims; Removing and installing centre console

4 - Transfer box operating unit

- ☐ With reduction gearing warning lamp in transfer box operating unit - K182-
- ☐ With inter-axle lock-up warning lamp in transfer box operating unit - K183-
- ☐ With rear axle differential lock warning lamp in transfer box operating unit - K184-
- ☐ Remove by removing selector mechanism cover ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims; Removing and installing centre console



5 - Running gear programme switch - E631-

- ☐ Activate for four-wheel drive
- ☐ Remove by removing selector mechanism cover ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims; Removing and installing centre console

6 - Transfer box control motor - V455-

- ☐ Location: on transfer box
- ☐ Removing and installing ⇒ [page 100](#).

7 - Transfer box inter-axle lock-up switch - F438-

- ☐ Location: on transfer box
- ☐ Removing and installing ⇒ [page 92](#).

8 - Transfer box Hall sender - G759-

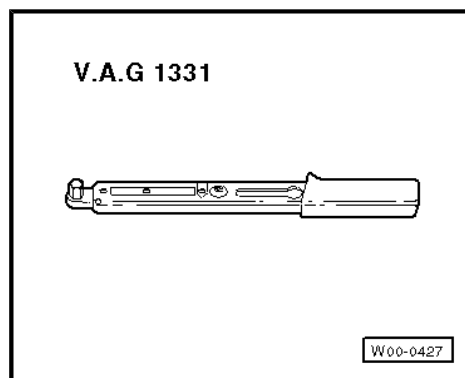
- ☐ Location: on transfer box
- ☐ Removing and installing ⇒ [page 99](#).

1.3 Removing and installing transfer box

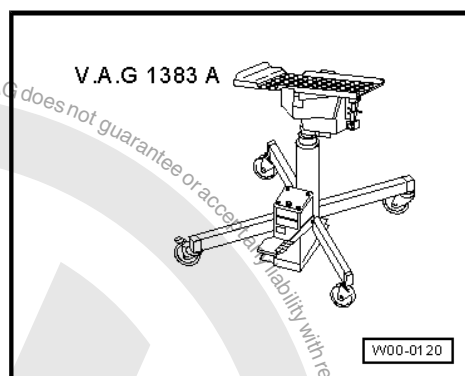
Special tools and workshop equipment required



◆ Torque wrench - V.A.G 1331-



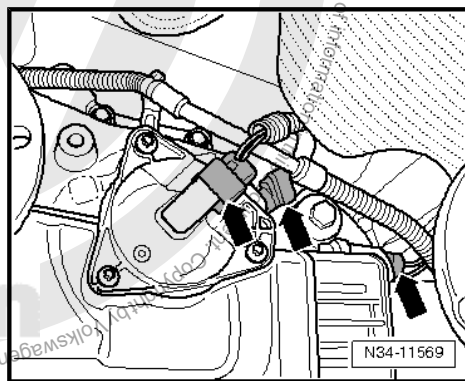
◆ Engine and gearbox jack - V.A.G 1383 A-



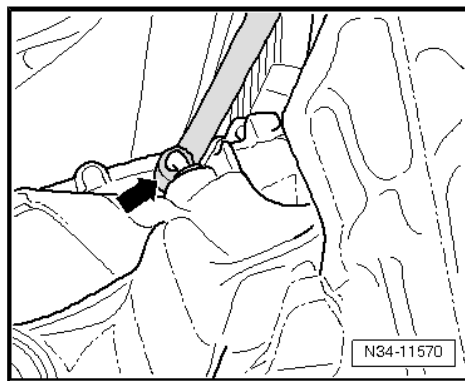
◆ Drive shaft grease ⇒ Electronic Parts Catalogue (ETKA)

Removing

- Remove rear propshaft ⇒ [page 57](#) .
- Remove front propshaft ⇒ [page 56](#) .
- Detach connector -arrows- and unclip wiring harness from transfer box.



- Pull breather line -arrow- off transfer box.



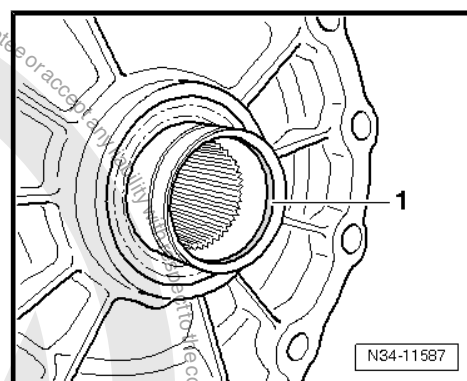
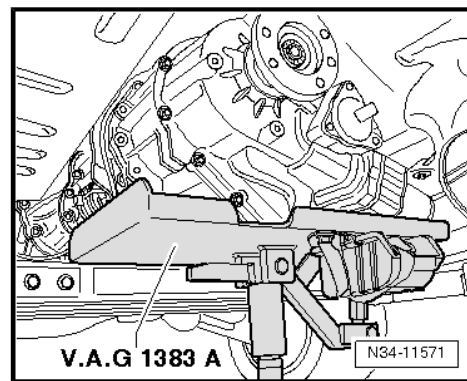


- Position engine and gearbox jack - V.A.G 1383 A- under transfer box.
- Unscrew and remove transfer box/gearbox connecting bolts.
- Press transfer box off gearbox.
- Lower transfer box with engine and gearbox jack - V.A.G 1383 A- .

Installing

Install in reverse order of removal, observing the following:

- Check whether dowel sleeves for aligning gearbox and transfer box are fitted in gearbox; install if necessary.
- Always renew oil seal to seal transfer box and gearbox -1- and lubricate lightly.
- Grease transfer box input shaft splines and gearbox output shaft splines with drive shaft grease ⇒ Electronic Parts Catalogue (ETKA) .
- Push transfer box completely onto gearbox, ensuring that transfer box input shaft splines are centred as they are guided onto the gearbox output shaft.



Caution

Do not use securing bolts to pull transfer box onto the gearbox. Otherwise transfer box will cant.

If splines are correctly positioned and shafts are centred, then transfer box will slide to stop against gearbox.

- Install front propshaft ⇒ [page 56](#) .
- Install rear propshaft ⇒ [page 57](#) .
- Check oil level in transfer box ⇒ [page 97](#) .

Specified torques

- ◆ ⇒ [“1.1 Assembly overview - transfer box”, page 92](#)
- ◆ ⇒ [“3.2 Assembly overview - Tirsan propshaft”, page 54](#)

Component	Specified torque
Transfer box to gearbox	45 Nm

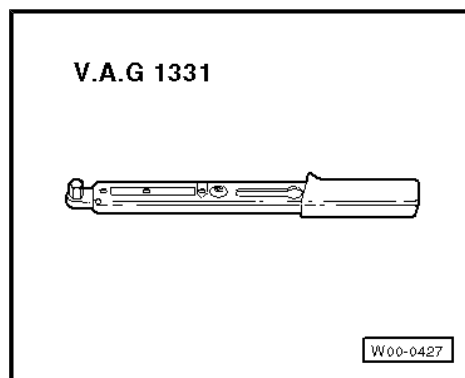
1.4 Checking gear oil level

Gearbox oil specification ⇒ Electronic parts catalogue “ETKA”

Special tools and workshop equipment required



- ◆ Torque wrench - V.A.G 1331-



Note

- ◆ Oil level is below oil filler hole.
- ◆ Make a tool to check oil level.

Dimension -a- = 37 mm

Dimension -b- = 60 mm

Procedure

- Raise vehicle ⇒ Maintenance ; Booklet 11 .
- Remove oil filler plug -1-.
- Insert locally manufactured tool into filler hole downwards as far as possible.
- Pull out tool and check oil level on tool. Top up oil if necessary.

The oil level must be within a range of 32 to 37 mm below lower edge of filler hole.

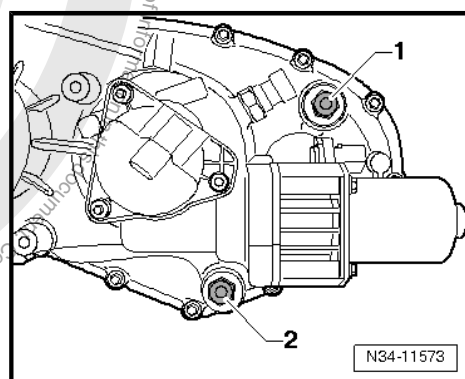
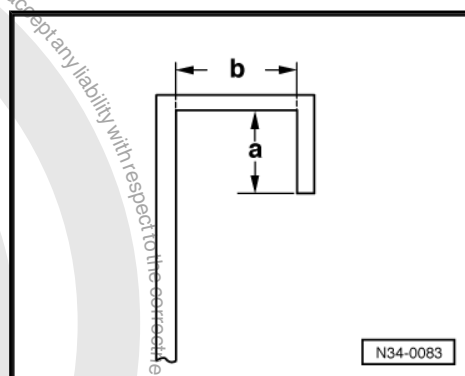
- Tighten new oil filler plug.

When filling with oil, note the following:

- Remove oil filler plug -1-.
- Fill 1.25 l of gear oil.
- Tighten new oil filler plug.

Specified torques

- ◆ ⇒ ["1.1 Assembly overview - transfer box", page 92](#)





1.5 Removing and installing transfer box control unit - J646-

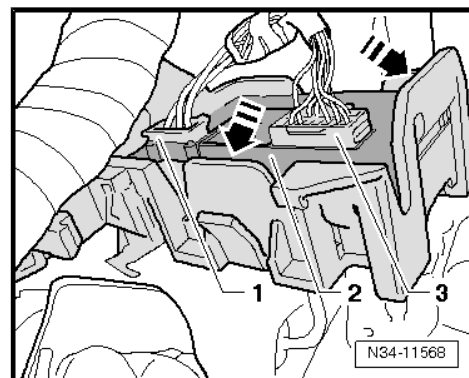
Removing

- Remove connectors -1- and -3- on transfer box control unit - J646- -2-.
- Push locks on bracket in direction of arrow and remove transfer box control unit - J646- .

Installing

Install in reverse order of removal, observing the following:

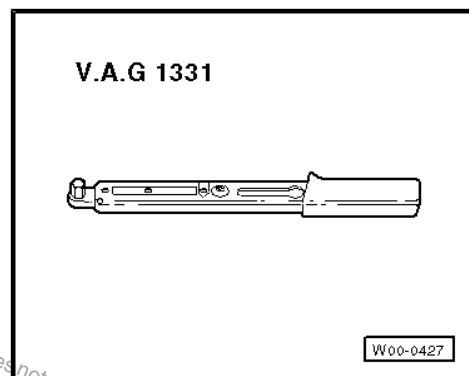
Transfer box control unit - J646- must engage in bracket.



1.6 Removing and installing transfer box Hall sender - G759-

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

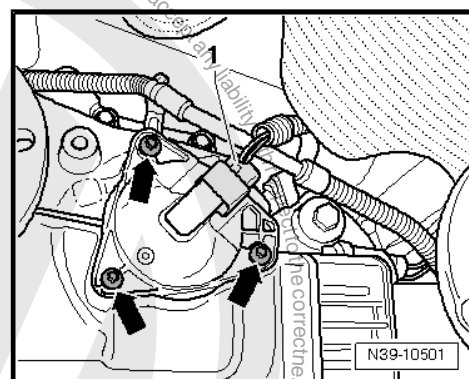


Removing

- Pull off connector -1-.
- Place drip tray under transfer box.
- Remove bolts -arrows- and pull transfer box Hall sender - G759- off transfer box.

Installing

Install in reverse order of removal, observing the following:





- Renew oil seal -1- if damaged.

**Note**

- ♦ *The drive for the transfer box Hall sender - G759- -arrow B- and the mounting for the transfer box -arrow A- are offset. The drive only fits in one position in the mounting for the transfer box.*
- ♦ *When positioning transfer box Hall sender - G759- , insert centring pin into hole in transfer box -A-.*

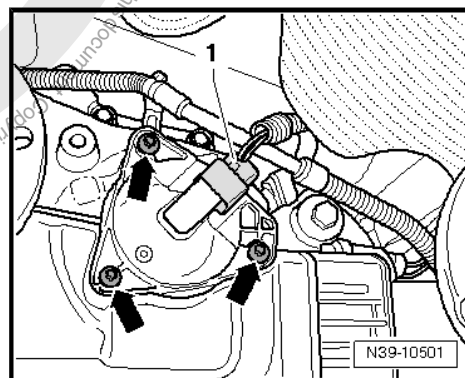
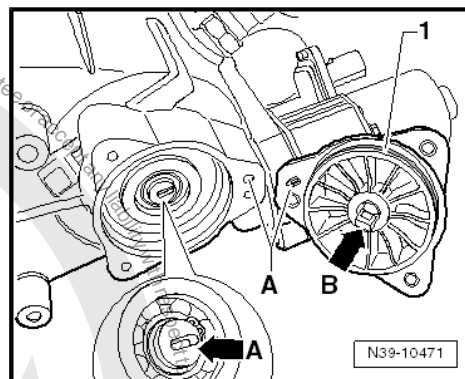
**Caution**

- ♦ *It must be possible to insert transfer box Hall sender - G759- without exerting great pressure, if necessary check whether driver -arrow B- has been turned through 180° to mounting -arrow A-.*

- Insert transfer box Hall sender - G759- .
- Tighten bolts of transfer box Hall sender - G759- -arrows-.
- Push on connector -1-.
- Check oil in transfer box ⇒ [page 97](#) .

Specified torques

- ♦ ⇒ ["1.1 Assembly overview - transfer box", page 92](#)



1.7 Removing and installing transfer box control motor - V455-

Special tools and workshop equipment required

- ♦ Torque wrench - V.A.G 1331-

V.A.G 1331

W00-0427

Removing

- Raise vehicle ⇒ Maintenance ; Booklet 11 .

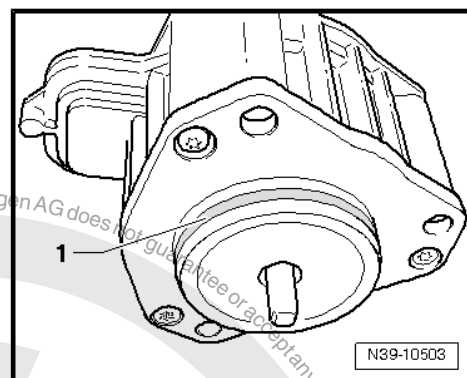
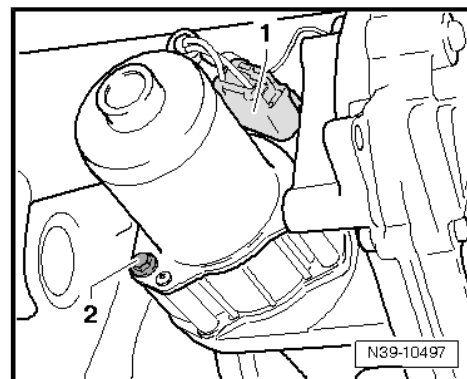


- Pull connector -1- off transfer box control motor - V455- .
- Place drip tray under transfer box.
- Remove bolts -2- and pull transfer box Hall sender - V455- off transfer box.

Installing

Install in reverse order of removal, observing the following:

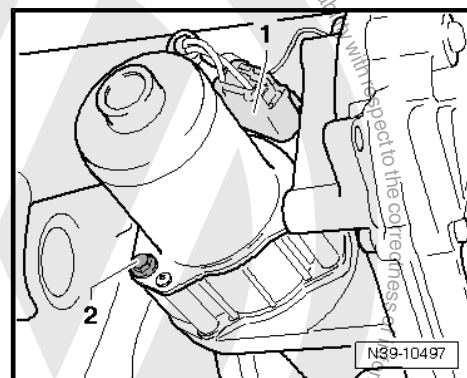
- Renew oil seal -1- if damaged.



- Tighten bolts -2- for transfer box control motor - V455- .
- Push on connector -1-.
- Check oil in transfer box [page 97](#) .

Specified torques

- ◆ ⇒ [“1.1 Assembly overview - transfer box”, page 92](#)





2 Oil seals

⇒ "2.1 Renewing input shaft seal", page 102

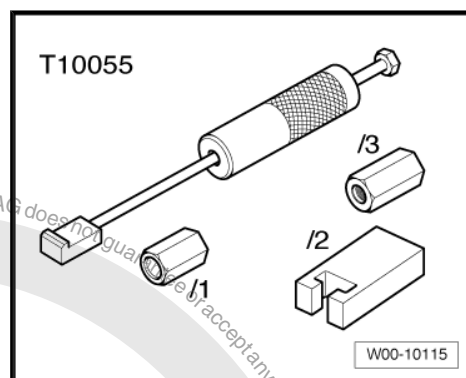
⇒ "2.2 Renewing output shaft seal", page 103

⇒ "2.3 Renewing propshaft flange seal", page 105

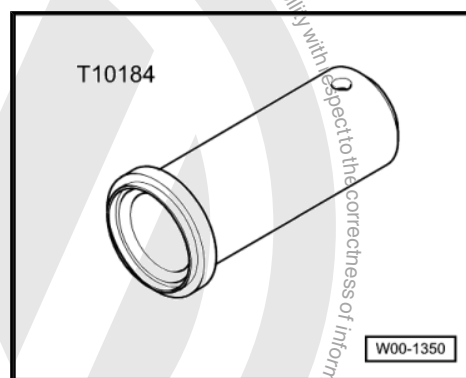
2.1 Renewing input shaft seal

Special tools and workshop equipment required

◆ Puller - T10055-



◆ Thrust piece - T10184-



◆ Sealing grease ⇒ Electronic Parts Catalogue (ETKA)

◆ Sheet metal screw, approx. 4 mm in diameter

Removing

– Remove transfer box ⇒ [page 95](#).



- To pull out seal, screw sheet metal screw of about 4 mm diameter -arrow- into seal.



Caution

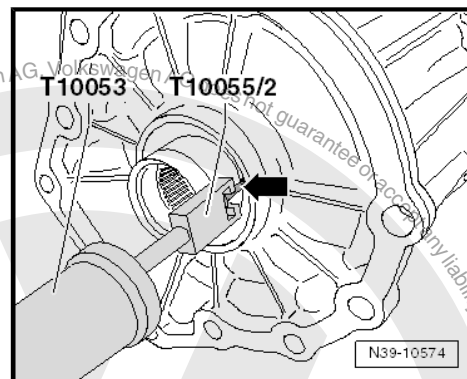
Do not screw in sheet metal screw too far to avoid damaging bearing behind it.

- Pull out seal using puller - T10055- .

Installing

Install in reverse order of removal, observing the following:

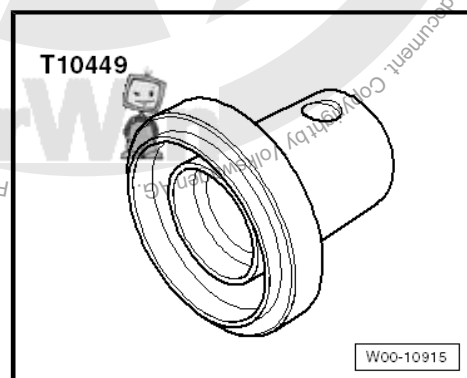
- Fill space between dust lip and sealing lip half full with sealing grease ⇒ Electronic Parts Catalogue (ETKA) .
- Drive in new seal to stop with thrust piece - T10184- , being careful not to cant seal.
- Install transfer box ⇒ [page 95](#) .
- Check oil in transfer box ⇒ [page 97](#)



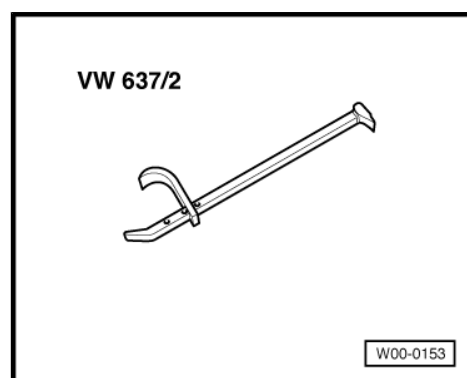
2.2 Renewing output shaft seal

Special tools and workshop equipment required

- ◆ Thrust piece - T10449-

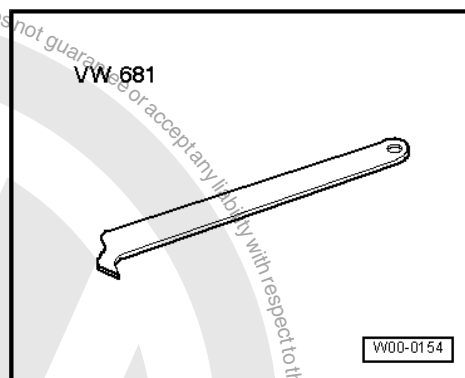


- ◆ Hub grease cap puller - VW 637/2-





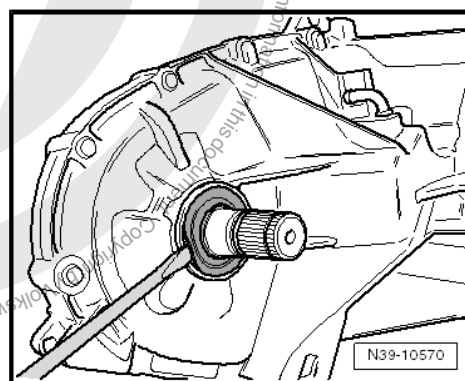
◆ extractor lever - VW 681-



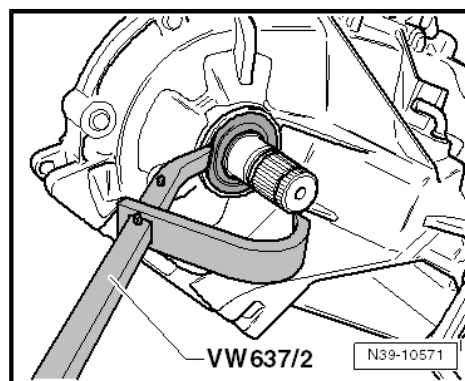
◆ Sealing grease ➤ Electronic Parts Catalogue (ETKA)

Removing

- Remove front propshaft ➤ [page 56](#) .
- Lift inner part of seal in three places using a screwdriver, offset 120°



- Pull out seal using hub grease cap puller - VW 637/2- .

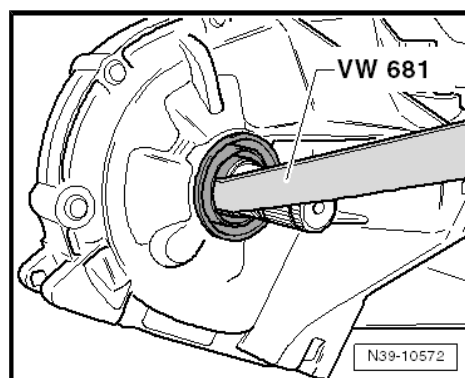


- Pull seal out with oil seal extractor lever - VW 681- .

Installing

Install in reverse order of removal, observing the following:

- Fill space between dust lip and sealing lip half full with sealing grease ➤ Electronic Parts Catalogue (ETKA) .
- Position new seal on transfer box.
- Push inner part of seal onto output shaft as far as possible.
- Drive in new seal to stop with thrust piece - T10449- , being careful not to cant seal.
- Install front propshaft ➤ [page 56](#) .
- Check oil in transfer box ➤ [page 97](#) .

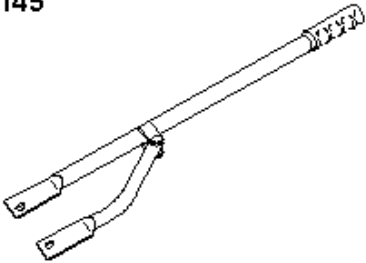
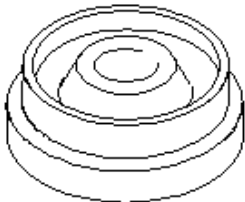

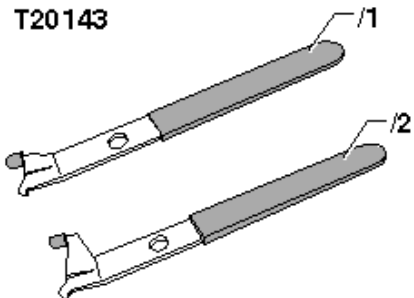
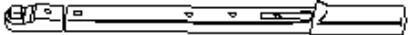




2.3 Renewing propshaft flange seal

Special tools and workshop equipment required

- ◆ Counter-hold tool - 3145-
- ◆ Thrust piece - VW 442-
- ◆ Removal and installing tool - VW 459/2-
- ◆ Puller hooks - T20143/2-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Sealing grease ⇒ Electronic Parts Catalogue (ETKA)
- ◆ Bolts M10 x 25 (Qty. 2)

<p>3145</p> 	<p>VW 442</p> 
<p>VW 459/2</p> 	<p>T20143</p> 
<p>V.A.G 1332</p> 	<p style="text-align: right;">W39-10091</p>



Note

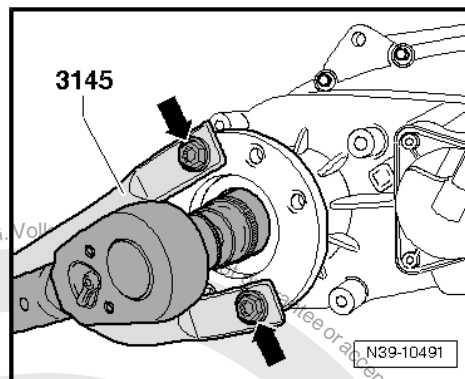
- ◆ If leaks are detected during repair work on the flange, always renew the seal ⇒ [Item 23 \(page 12\)](#) and the sealing sleeve ⇒ [Item 20 \(page 11\)](#).
- ◆ Always renew oil seal and propshaft flange together.

Removing

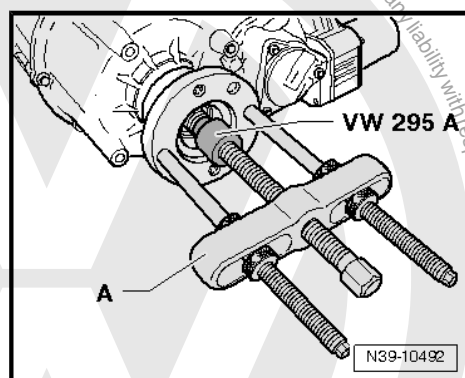
- Remove rear propshaft ⇒ [page 57](#).



- Unscrew nut for propshaft flange. Screw counter-hold tool - 3145- onto propshaft flange using two M10 x 25 bolts -arrows- in order to counter-hold tool.
- Place drip tray under transfer box.



- If necessary, pull off propshaft flange using puller Kukko 18-1 -A- and adapter - VW 295 A- .

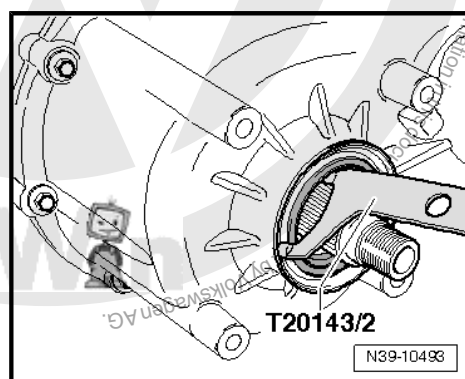


- Pull out seal using puller hooks - T20143/2- .

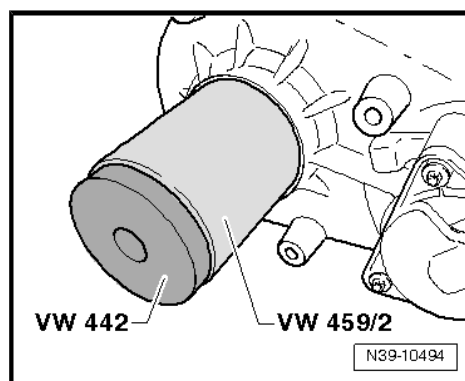
Installing

Install in reverse order of removal, observing the following:

- Lightly oil outer circumference of new oil seal.
- Fill space between dust lip and sealing lip half full with sealing grease ⇒ Electronic Parts Catalogue (ETKA)

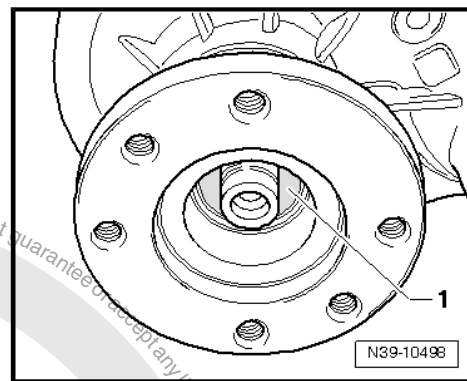


- Drive in new oil seal to stop with thrust piece - VW 442- and removal and installing tool - VW 459/2- , being careful not to cant oil seal.
- Insert new propshaft flange.





- Moisten new oil seal -1- with gear oil and insert.



- Install new nut for propshaft flange and tighten. Screw counter-hold tool - 3145- onto propshaft flange using two M10 x 25 bolts -arrows- in order to counter-hold tool.
- Install rear propshaft ⇒ [page 57](#) .
- Check oil in transfer box ⇒ [page 97](#) .

Specified torques

- ♦ ⇒ ["1.1 Assembly overview - transfer box", page 92](#)

