39-64

Driveshaft, servicing

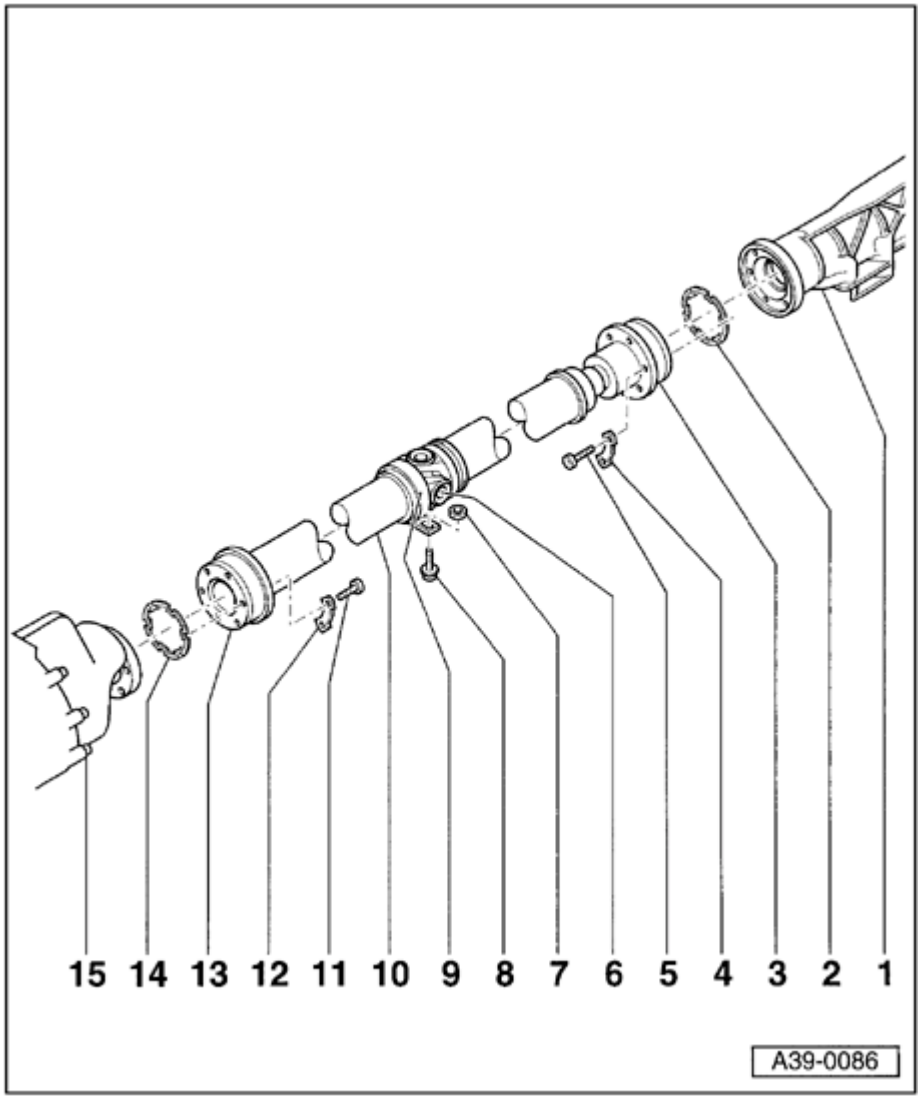
Note:

- *Observe general repair instructions ⇒ Page 00-11 .*
- *Do not bend the driveshaft more than 25° at the central joint, otherwise the universal joint will be damaged.*
- *Only store and transport driveshaft extended.*
- *No repair work can be carried out on the driveshaft with the exception of removing, installing and adjusting.*
- *If the driveshaft is only detached at the transmission or from rear final drive then the driveshaft is to be tied-up or supported at the constant velocity joint.*
- *Before removing, mark the position of the rear driveshaft joint in relation to the flange on the rear final drive. Reinstall in the same position, otherwise this can cause excessive imbalance, bearing damage and droning noise.*
- *If complaints are received (noises, vibrations), it*

is essential to check whether correct adjustment of the driveshaft rectifies the fault before replacing the driveshaft.

- *After removing the driveshaft from the rear final drive, the additional balance disc (thick washer) that may be located between the lock plate and the bolt head must not be reinstalled.*

39-65



1 - Rear final drive

2 - Gasket

- Always replace
- Pull off backing foil, and stick self-adhesive side of gasket to drive flange.
- Remove grease from drive flange

3 - Constant velocity joint

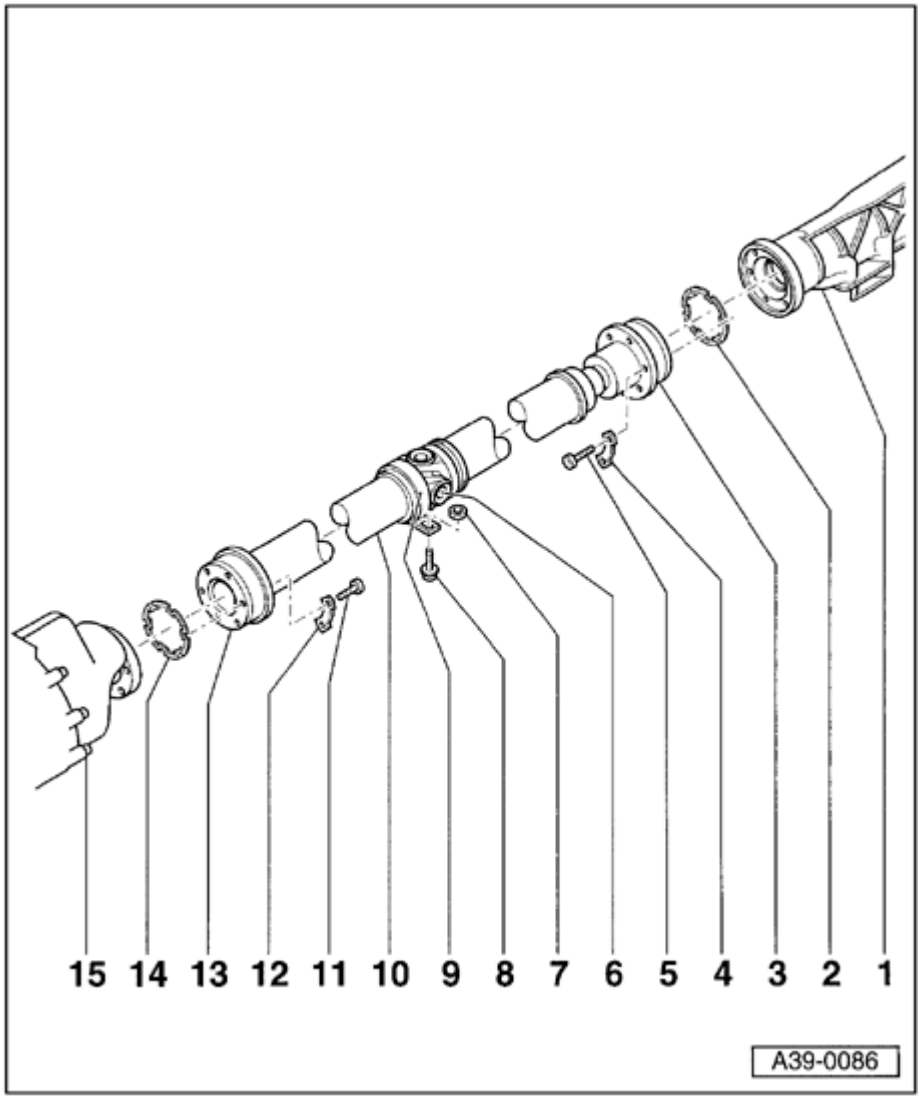
- Maximum permissible angle of deflection 8°

4 - Lock plate

5 - Hex socket head bolt, 55 Nm

- Self-locking
- Always replace
- Threads for bolts in drive flanges must always be cleaned (e.g. with a thread tap)

39-66



6 - Universal joint

- Maximum permissible angle of deflection 25°

7 - Shim

- Determining thickness ⇒ Page 39-76

8 - Hex bolt, 23 Nm

9 - Driveshaft center mounting

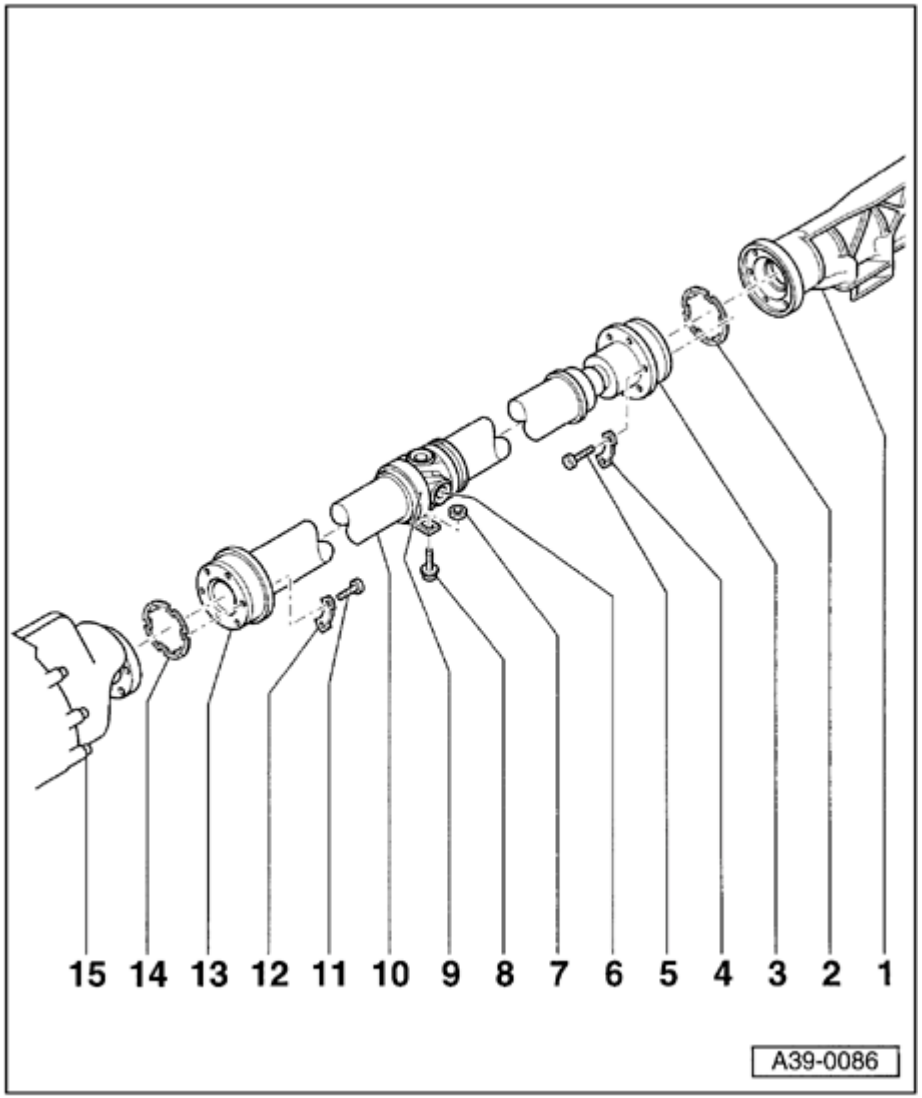
10 - Driveshaft

- Adjusting ⇒ Page 39-75

11 - Hex socket head bolt, 55 Nm

- Self-locking
- Always replace
- Threads for bolts in drive flanges must always be cleaned (e.g. with a thread tap)

39-67



12 - Lock plate

13 - Constant velocity joint

- Maximum permissible angle of deflection 8°

14 - Gasket

- Always replace
- Pull off backing foil, and stick self-adhesive side of gasket to drive flange.
- Remove grease from drive flange

15 - Transmission

39-68

Driveshaft, removing and installing

Special tools, testers and auxiliary items

- Assembly appliance 3405

- Observe notes ⇒ Page 39-64 .

Removing

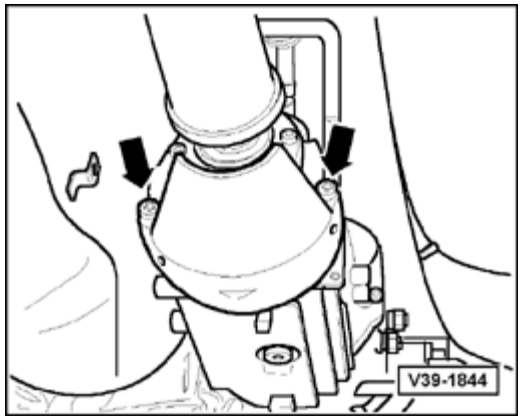
- If fitted, remove cross piece below exhaust system.

- Remove rear section of exhaust system (rearward of exhaust pipe clamp(s)):

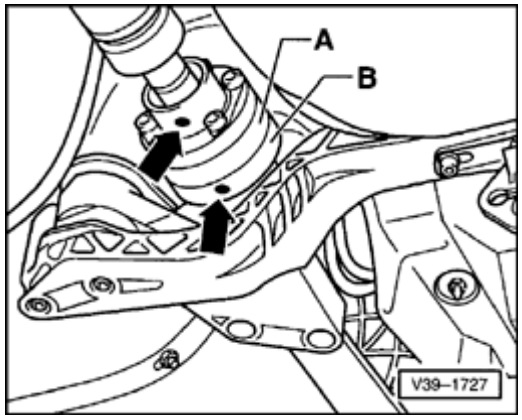
⇒ *Repair Manual, 2.7 Liter V6 5V BiTurbo Engine Mechanical, Engine Code(s): APB, Repair Group 26*

Removing

- Remove heat shields above driveshaft.



- Remove heat shield for driveshaft from cover for Torsen differential (arrows).



- Check whether there is a factory marking (paint spots (arrows)) on the driveshaft flange and the flange on the rear final drive. If not, mark the position of the driveshaft flange -A- in relation to the rear final drive (arrow -B-) with paint.

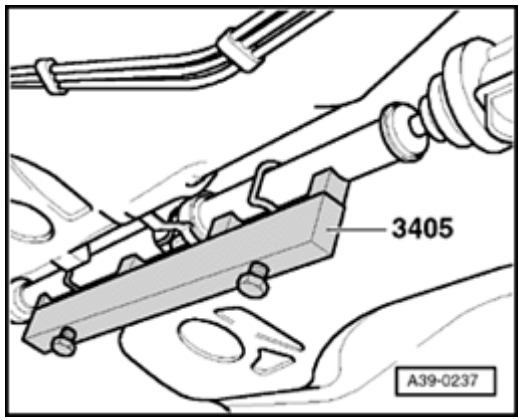
Note:

Only mark if the same driveshaft is to be reinstalled.

- Loosen securing bolts on both driveshaft flanges.

- Unscrew three upper securing bolts on each driveshaft constant velocity joint.

- Loosen securing bolts of center driveshaft mounting slightly.



- Attach assembly appliance 3405 and tighten the plastic nuts.

Note:

Never fit assembly appliance onto balance plates.

- Remove securing bolts of flange to transmission and to rear final drive as well as securing bolts of center driveshaft mounting.
- Slide driveshaft together toward rear final drive. Constant velocity joints move along their axis.
- Guide out driveshaft with assembly appliance past transmission flange.

Note:

Only transport and store driveshaft when extended.

39-71

Installing

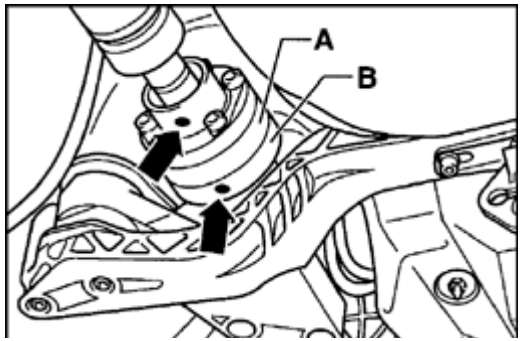
Installation is carried out in the reverse order, when doing this note the following:

Note:

- *It is essential that the locking fluid remaining in the threads in the drive flanges on the transmission and rear final drive is cleaned out after removing the driveshaft. Otherwise there is a danger that the new bolts will seize when they are screwed in and then shear if they have to removed later.*

- *The threaded holes can be cleaned with a thread tap.*

- *Replace the gaskets on the drive flanges (remove backing foil and stick gaskets onto drive flange; make sure that the surfaces are free of grease).*



- *To prevent imbalance, the flanges on the driveshaft -A- and on the rear final drive -B- must be installed so that the factory markings (or the markings made on removal) are in alignment (arrows).*

- *If a new driveshaft is being installed and the factory paint marking on the rear final drive flange is no longer visible, the radial run-out at the flange for the driveshaft must be measured ⇒ Page 39-73 , and the paint marking on the driveshaft must be aligned with the marking on*

the flange.

- *After removing the driveshaft from the rear final drive, the additional balance disk (thick washer) that may be located between the lock plate and the bolt head must not be reinstalled. Always replace all flange bolts after disassembling.*
- *Replace driveshaft bolts (self-locking).*

- Adjust driveshaft after installing ⇒ Page 39-75 .

- Align exhaust system free of stress.

⇒ *Repair Manual, 2.7 Liter V6 5V BiTurbo Engine Mechanical, Engine Code(s): APB, Repair Group 26; Removing and installing parts of exhaust system*

Tightening torques

Component	**Nm**
Driveshaft to transmission (output flange)	55
Driveshaft to final drive (input flange)	55
Driveshaft center mounting to body	23
Heat shield for driveshaft to transmission	23
Cross member to body	25
Nuts for clamp	40

39-73

Radial run-out at driveshaft flange and marking, measuring

Special tools, testers and auxiliary items

- Universal dial gauge bracket VW 387
- Lifting tackle 2024 A
- Dial gauge
- M10 x 85 bolt

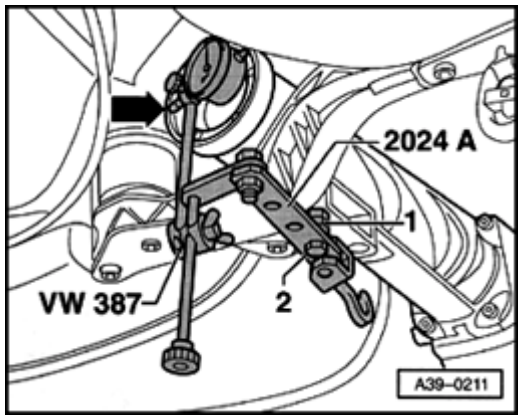
Note:

- *The radial run-out must always be measured when the drive flange housing is removed. Remove old paint marking and make new marking.*
- *If a new driveshaft is being installed and the marking on the drive flange of the rear final drive is no longer visible, the point of maximum radial run-out must be measured with a dial gauge and marked with paint.*
- *The paint marking on the driveshaft is then brought into alignment with this paint marking*

⇒ *Page 39-71* .

- *The radial run-out can be measured when the rear final drive is installed, but the driveshaft must be disconnected at the rear final drive. Observe notes* ⇒ *Page 39-64* .

39-74



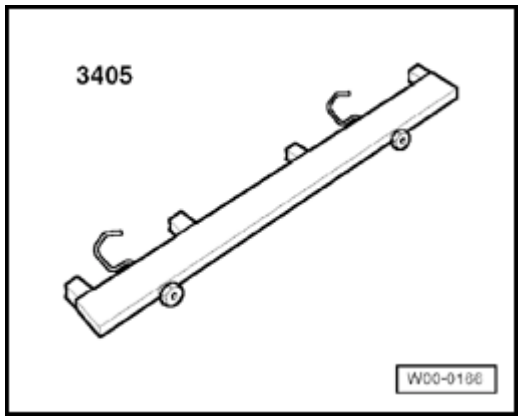
- Remove bolt on front left of rear final drive support.

- Remove bar from lifting appliance 2024 A and secure it to free hole with an M10 x 85 mm bolt -2-. Use approx. 5 M12 nuts -1- as spacers.
- Secure dial gauge bracket VW 387 to the bar when it is secured in position.
- Position dial gauge on ground circumference in driveshaft flange (arrow) and set to zero with a preload of 1 mm.
- Turn differential via both rear wheels (left and right drive flanges) until flange on rear final drive completes one rotation.
- Make a paint marking at point of greatest radial run-out on outside of flange (= greatest distance from axis of rotation).
- Remove old marks on driveshaft flange.
- Install driveshaft ⇒ Page 39-71 .

39-75

Driveshaft, adjusting

Special tools, testers and auxiliary items



- Assembly appliance 3405

- Observe notes ⇒ Page 39-64 .

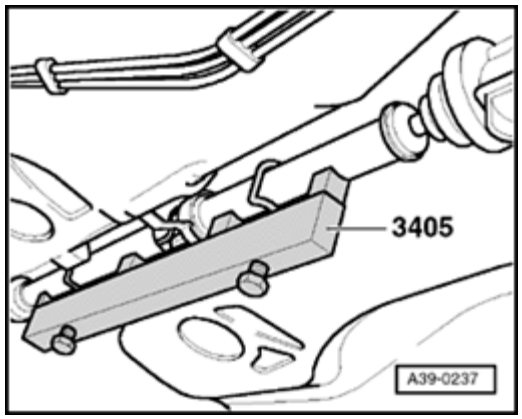
Adjustments should be carried out with care, because a badly adjusted driveshaft is often the cause of vibration and droning.

- If fitted, remove cross-piece below exhaust system.
- Remove rear section of exhaust system (rearward of exhaust pipe clamp(s)):

⇒ *Repair Manual, 2.7 Liter V6 5V BiTurbo Engine Mechanical, Engine Code(s): APB, Repair Group 26*

- Remove heat shields above driveshaft.

- Loosen securing bolts of center driveshaft mounting slightly.

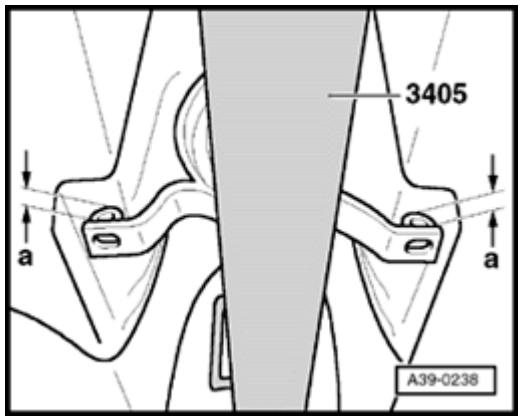


- Attach assembly appliance 3405 and tighten the plastic nuts.

Note:

Never fit assembly appliance onto balance plates.

- Remove securing bolts and shims from center mounting.



- Align center driveshaft mounting so that distance -a- is the same on left and right.
- Measure -a- on both sides.
- Select shims from table.

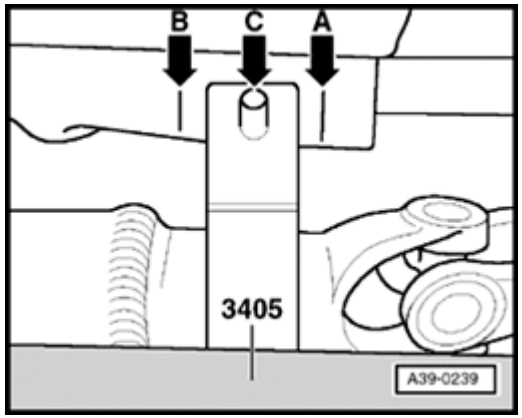
⇒ *Parts catalog*

39-77

The following shims are available:

Dimension -a- (mm)	Shim thickness (mm)
0-3.0	-
3.1-5.0	2
5.1-7.0	4
7.1-9.0	6
9.1-11.0	8
11.1-13.0	10

- Install the correct shims on both sides.



Aligning driveshaft longitudinally

- Using assembly appliance, push driveshaft toward rear as far as it will go.
- Mark position of center mounting on body (arrow -A-).
- Using assembly appliance, push driveshaft toward front as far as it will go.
- Mark position of center mounting on body (arrow -B-).
- Align driveshaft -arrow C-.
  - The center mounting must be positioned centrally between the markings -A- and -B-
- Install securing bolts of driveshaft center mounting and previously determined shims and tighten.
- Remove assembly appliance.
- Install heat shield above driveshaft.

39-79

The remaining installation steps are carried out in the reverse order of removal. Note the following points:

- Align exhaust system free of stress.

⇒ *Repair Manual, 2.7 Liter V6 5V BiTurbo Engine Mechanical, Engine Code(s): APB, Repair Group 26*

Tightening torques

Component	Nm
Driveshaft center mounting to body	23
Cross member to body	25
Nuts for clamps	40