Shift control mechanism, servicing

Part I

Notes:

- Grease bearings and sliding surfaces with polycarbamide grease, part nr. G 052 142 A2.
- Adjusting shift control mechanism ⇒ Page 34-12.

1 - Shift knob
2 - Bushing
3 - Housing cover
   - Carefully pry out latch in rear section of center console
4 - Top part of retaining frame
5 - Bottom part of retaining frame
6 - Bushing
7 - Sleeve
8 - Nut, 8 Nm
9 - Noise insulation cover
10 - Shift control mechanism with shift housing
11 - Nut, 10 Nm
Part II

1 - Shift control mechanism with shift housing
2 - Tensioning ring
3 - Boot
   ♦ Carefully pull over shift rod during removal
   ♦ Set onto marks of shift rod and pivot rod when installing
4 - Socket head bolt, 25 Nm
5 - Clamp
6 - Shift rod
   ♦ Do not disconnect connecting rod Fig. -8- from shift rod; observe note ⇒ Page 34-9
7 - Nut, 25 Nm
8 - Connecting rod
  ♦ Do not disconnect from shift rod; observe note ⇒ Page 34-9
9 - Bolt, 25 Nm
10 - Washer
11 - Socket head bolt, 25 Nm
12 - Front shift rod
  ♦ With bearing bushing, bolt and washers
13 - Bolt, 40 Nm
  ♦ Part of front shift rod
Selector mechanism, removing and installing

Removing

- Unscrew shift knob from shift lever.

**Note:**

*Shift cover is removed together with the cover for center console.*

- Slightly lift off cover for center console upward (arrows -A-).
- Pull cover slightly toward back (arrow -B-), then lift complete cover upward.
- Remove noise insulation cover for shift mechanism housing (arrows).

- Unscrew nuts securing shift mechanism housing (arrows).
- Remove heat shield for left-hand inner joint -1- from transmission (arrows).
- Disconnect left-hand drive axle -1-, lift toward front and tie up.
- 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 shield above driveshaft.

  - Remove heat shield for driveshaft from cover for Torsen differential (arrows).
  - Remove driveshaft ⇒ Page 39-68.
- Unscrew bolts -1- and -2- on left and right.

- Lower subframe at the rear.
  ♦ -a- = max. 50 mm
Important notice for the following procedures:

- Under no circumstances may the ball head (arrow -A-) of connecting rod -2- be pulled off shift rod -1- during removal of shift linkage.

  The ball head is destroyed when pulled off.

  Nut (arrow -B-) and Bolt (arrow -C-) must be removed to remove shift rod.

- Unbolt connecting rod -2- on right-hand side of transmission.
- Remove hex socket head bolt from push rod -1-.
- Unscrew nut -1- and pull selector rod lever -2- off transmission selector shaft.
- Swing gear shift housing with selector rod and push rod down and remove.

**Installing**

Installation is carried out in the reverse order, when doing this note the following:
- Adjust driveshaft ⇒ Page 39-75.
- Adjust gear selector mechanism ⇒ Page 34-12.
- 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

<table>
<thead>
<tr>
<th>Component</th>
<th>Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex bolt -1-</td>
<td>75</td>
</tr>
<tr>
<td>Combi bolt -2-</td>
<td>110 + 90°</td>
</tr>
<tr>
<td>Gear shift housing to body</td>
<td>10</td>
</tr>
<tr>
<td>Selector rod to transmission</td>
<td>25</td>
</tr>
<tr>
<td>Connecting rod to transmission</td>
<td>25</td>
</tr>
<tr>
<td>Push rod to transmission</td>
<td>40</td>
</tr>
<tr>
<td>Drive axle to drive flange M8</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>M10</td>
</tr>
<tr>
<td></td>
<td>80</td>
</tr>
<tr>
<td>Heat shield for drive axle</td>
<td>25</td>
</tr>
<tr>
<td>Clamp for exhaust pipe</td>
<td>40</td>
</tr>
</tbody>
</table>
Gear selector mechanism, adjusting

Requirements

- Selector mechanism, operating and relay elements must be in proper condition.

- Selector mechanism must move freely.

- Transmission, clutch and clutch mechanism must be in proper condition.

- Transmission in neutral.

- Unscrew gear shift knob from gear shift.

- Remove cover (gaiter) for gear shift.

- Remove noise insulation for selector mechanism housing (arrows).
- Measure distance between body and rear push rod (in selector mechanism).

◊ Specification: distance a = 43 mm

If that is not the case, obtain distance -a- as follows:

- Loosen bolt (arrow) for pivot rod.
  ◊ Rear pivot rod (in shift control mechanism) must move freely back and forth on sliding piece.
- Adjust measurement -a- by moving pivot rod rear (in shift control mechanism).
- Tighten bolt for pivot rod to 25 Nm.
- Loosen bolt for selector rod (arrow).
  Connection between selector rod and selector mechanism should move freely.
- Adjust gear shift as follows:

  ♦ Gear shift vertical, maximum inclination of 3° to the right (angle $\alpha$)

**Note:**

*The illustration shows the gear shift from behind (looking towards the front of the vehicle).*
Note:

The illustration shows the gear shift from the right.

- Hold gear shift in this position.
- Tighten selector rod bolt to 25 Nm.

Note:

The gear shift must remain in the same position while the bolt is being tightened.
Gear shift adjustment, checking

- The gear shift lever must rest in the 3rd/4th gear gate when transmission is in neutral.

- Check operation of 1st and 2nd gear stop.

- Engage 2nd gear and push gear shift to the left against the stop.

- Reduce pressure on gear shift until it moves back to pressure point.

Spring-back measured at gear shift handle: 3-5 mm

- Check that all gears can be engaged.

- Check operation of reverse gear lock.

  ◆ It should only be possible to engage reverse gear after pressing the gear shift down to overcome the reverse gear lock.

  ◆ It must be possible to move the gear shift, without pushing and without force, forwards from the reverse gear lock to the 3rd/4th gear plane
If the gear shift setting is incorrect it can be adjusted as follows:

- Loosen bolt for selector rod (arrow).

**Note:**

The angle of forwards/backwards inclination of the gear shift must not be changed while the following adjustments are being made.

- Move gear shift to the left or to the right until distance "x" is 8.5 mm.
- Hold gear shift in this position.
- Tighten selector rod bolt.

**Tightening torques**

<table>
<thead>
<tr>
<th>Component</th>
<th>Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selector rod to selector fork (in selector mechanism)</td>
<td>25</td>
</tr>
</tbody>
</table>

- Check gear shift setting again.
- Fit covers and gear shift knob.