

## Workshop Manual Audi A8 2003 >

### Electrical system

Edition 08.2014



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## List of Workshop Manual Repair Groups

### Repair Group

- 27 - Starter, current supply, CCS
- 90 - Gauges, instruments
- 92 - Windscreen wash/wipe system
- 94 - Lights, bulbs, switches - exterior
- 96 - Lights, bulbs, switches - interior
- 97 - Wiring



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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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## Contents

<b>27 - Starter, current supply, CCS</b>	<b>1</b>
<b>1 Contact corrosion</b>	<b>1</b>
<b>2 Battery</b>	<b>2</b>
2.1 Battery - general notes	2
2.2 Maintenance-free batteries	2
2.3 Disconnecting and connecting battery	2
2.4 Removing and installing battery	3
2.5 Checking battery	6
2.6 Preparations before measuring no-load voltage	6
2.7 Charging battery	6
2.8 Preparations before charging battery	6
2.9 Preparations for back-up power supply of battery	7
2.10 Removing and installing battery cut-off relay J655	8
2.11 Removing and installing battery isolation igniter N253	8
2.12 Removing and installing energy management control unit J644	8
<b>3 Removing and installing alternator</b>	<b>10</b>
3.1 Vehicles with 3.0 ltr. MPI engine	10
3.2 Vehicles with 2.8 ltr. and 3.2 ltr. FSI engine	14
3.3 Vehicles with 3.7 ltr. and 4.2 ltr. MPI engine	17
3.4 Vehicles with 4.2 ltr. FSI engine	20
3.5 Vehicles with 5.2 ltr. FSI engine	24
3.6 Vehicles with 6.0 ltr. MPI engine	26
3.7 Vehicles with 3.0 ltr. TDI engine	30
3.8 Vehicles with 4.0 ltr. TDI engine	34
3.9 Vehicles with 4.2 ltr. TDI engine	47
<b>4 Checking and servicing alternator</b>	<b>61</b>
4.1 Checking alternator	61
4.2 Servicing alternator	61
<b>5 Removing and installing starter</b>	<b>62</b>
5.1 Vehicles with 2.8 ltr. FSI, 3.0 ltr. MPI and 3.2 ltr. FSI engine	62
5.2 Vehicles with 3.7 ltr. and 4.2 ltr. MPI engine	63
5.3 Vehicles with 4.2 ltr. FSI engine	67
5.4 Vehicles with 5.2 ltr. FSI engine	72
5.5 Vehicles with 6.0 ltr. MPI engine	74
5.6 Vehicles with 3.0 ltr. TDI engine	77
5.7 Vehicles with 4.0 ltr. TDI engine	78
5.8 Vehicles with 4.2 ltr. TDI engine	80
<b>90 - Gauges, instruments</b>	<b>83</b>
<b>1 Instrument cluster</b>	<b>83</b>
1.1 Removing and installing instrument cluster	83
1.2 Pin assignment at multi-pin connectors on instrument cluster	85
1.3 Pin assignment on fuel gauge senders	86
1.4 Pin assignment at coolant temperature sender G62	87
1.5 Removing and installing radio-controlled clock receiver J489	95
1.6 Removing and installing garage door operation control unit J530	95
<b>2 Cigarette lighter, socket</b>	<b>96</b>
2.1 Removing and installing cigarette lighter U1	96
2.2 Removing and installing rear cigarette lighter U9	98
2.3 Removing and installing rear cigarette lighter U9 - vehicles with rear Climatronic operating and display unit E265	99
2.4 Removing and installing cigarette lighter illumination bulb L28	100

2.5	Removing and installing 12 V socket U18 / U19 in long centre console	100
2.6	Removing and installing 12 V socket U5 in luggage compartment - vehicles up to 06.2004	102
2.7	Removing and installing 12 V socket U5 in luggage compartment - vehicles from 06.2004 onwards	103
2.8	Renewing 12 V socket U5 - vehicles from 06.2004 onwards	103
<b>3</b>	<b>Horn</b>	<b>105</b>
3.1	Removing and installing horn and dual tone horn H1	105
<b>4</b>	<b>Data bus diagnostic interface</b>	<b>107</b>
4.1	Data bus diagnostic interface J533	107
4.2	Data bus diagnostic interface J533 - overview	107
4.3	Removing and installing data bus diagnostic interface J533	108
4.4	Connector at data bus diagnostic interface J533	109
<b>92</b>	<b>Windscreen wash/wipe system</b>	<b>111</b>
<b>1</b>	<b>Contact corrosion</b>	<b>111</b>
<b>2</b>	<b>Windscreen wiper system</b>	<b>112</b>
2.1	Moving windscreen wipers to service position	112
2.2	Renewing wiper blade	112
2.3	Removing and installing wiper arms	113
2.4	Adjusting wiper arms	114
2.5	Removing and installing wiper motor with wiper motor control unit J400	115
2.6	Renewing wiper motor with wiper motor control unit J400	118
<b>3</b>	<b>Windscreen washer system</b>	<b>120</b>
3.1	Removing and installing washer fluid reservoir	120
3.2	Removing and installing washer jets - vehicles up to 08.2007	121
3.3	Removing and installing washer jets - vehicles from 09.2007 onwards	121
3.4	Adjusting washer jets	122
<b>4</b>	<b>Headlight washer system</b>	<b>123</b>
4.1	Removing and installing headlight washer jets	123
4.2	Adjusting washer jets	123
4.3	Removing and installing washer fluid reservoir	123
<b>5</b>	<b>Washer fluid hoses</b>	<b>124</b>
<b>94</b>	<b>Lights, bulbs, switches - exterior</b>	<b>125</b>
<b>1</b>	<b>Contact corrosion</b>	<b>125</b>
<b>2</b>	<b>Halogen headlights</b>	<b>126</b>
2.1	Halogen headlights - exploded view	126
2.2	Removing and installing headlights	127
2.3	Adjusting headlights	128
2.4	Preparations for headlight bulb replacement	129
2.5	Renewing bulb for dipped beam headlights	132
2.6	Renewing bulb for main beam headlights	133
2.7	Renewing bulb for side lights	134
2.8	Renewing bulb for turn signal	135
2.9	Renewing headlight holders	136
2.10	Adapting headlights for driving on the left or right side of the road	136
<b>3</b>	<b>Halogen headlights (USA vehicles)</b>	<b>138</b>
3.1	Halogen headlights - exploded view	138
3.2	Removing and installing headlights	139
3.3	Adjusting headlights	140
3.4	Preparations before working on headlights	141
3.5	Renewing bulb for dipped beam headlights	142
3.6	Renewing bulb for main beam headlights	143
3.7	Renewing parking light bulb	144

3.8	Renewing bulb for turn signal	145
3.9	Renewing headlight holders	146
<b>4</b>	<b>Gas discharge headlights</b>	<b>147</b>
4.1	Safety precautions when handling gas discharge bulbs	147
4.2	Gas discharge headlight with cornering light/static cornering light - exploded view	147
4.3	Removing and installing headlights	149
4.4	Adjusting headlights	150
4.5	Preparations for headlight bulb replacement	152
4.6	Renewing gas discharge bulb	158
4.7	Removing and installing starter unit for gas discharge bulb - vehicles up to 08.2007	159
4.8	Removing and installing starter unit for gas discharge bulb - vehicles from 09.2007 onwards	161
4.9	Renewing bulb for main beam headlights	162
4.10	Renewing bulb for daytime running light	164
4.11	Renewing LED light	165
4.12	Renewing bulb for static cornering light	165
4.13	Renewing bulb for side lights - vehicles without static cornering light	166
4.14	Renewing bulb for side lights - vehicles with static cornering light	167
4.15	Removing and installing main and dip beam switch-over solenoid N347 / N348	169
4.16	Removing and installing swivel module position sensor G474 / G475	169
4.17	Renewing bulb for turn signal	169
4.18	Removing and installing dynamic cornering light control motor V318 / V319	170
4.19	Removing and installing headlight range control motor V48 / V49	170
4.20	Removing and installing gas discharge bulb control unit J343 / J344	172
4.21	Removing and installing output module for headlight J667 / J668	172
4.22	Renewing headlight holders	174
4.23	Adapting headlights for driving on the left or right side of the road - vehicles with adjustment lever	174
4.24	Adapting headlights for driving on the left or right side of the road - vehicles without adjustment lever	175
<b>5</b>	<b>Gas discharge headlights - USA vehicles</b>	<b>177</b>
5.1	Safety precautions when handling gas discharge bulbs	177
5.2	Gas discharge headlights - exploded view	177
5.3	Removing and installing headlights	179
5.4	Adjusting headlights	180
5.5	Preparations before working on headlights	182
5.6	Renewing gas discharge bulb	185
5.7	Removing and installing starter unit for gas discharge bulb - vehicles up to 08.2007	186
5.8	Removing and installing starter unit for gas discharge bulb - vehicles from 09.2007 onwards	187
5.9	Renewing bulb for main beam headlights	188
5.10	Renewing bulb for daytime running light	190
5.11	Renewing LED light	191
5.12	Renewing parking light bulb	191
5.13	Removing and installing main and dip beam switch-over solenoid N347 / N348	192
5.14	Removing and installing swivel module position sensor G474 / G475	192
5.15	Renewing bulb for turn signal	192
5.16	Removing and installing dynamic cornering light control motor V318 / V319	193
5.17	Removing and installing headlight range control motor V48 / V49	193
5.18	Removing and installing gas discharge bulb control unit J343 / J344	195
5.19	Removing and installing output module for headlight J667 / J668	195
5.20	Renewing headlight holders	196
<b>6</b>	<b>Side marker light (USA vehicles)</b>	<b>198</b>
6.1	Removing and installing side marker light	198
6.2	Renewing side marker light bulb	199
<b>7</b>	<b>Fog lights - vehicles up to 08.2007</b>	<b>201</b>

7.1	Removing and installing fog lights - Audi A8	201
7.2	Renewing fog light bulb - Audi A8 up to 09.2004	201
7.3	Renewing fog light bulb - Audi A8 from 10.2004 onwards	202
7.4	Removing and installing fog lights - Audi S8	202
7.5	Renewing fog light bulb - Audi S8	203
7.6	Adjusting fog lights	204
<b>8</b>	<b>Fog lights - vehicles from 09.2007 onwards</b>	<b>205</b>
8.1	Removing and installing fog lights	205
8.2	Renewing fog light bulb	205
8.3	Adjusting fog lights	206
<b>9</b>	<b>Turn signal repeaters - vehicles up to 08.2007</b>	<b>207</b>
9.1	Removing and installing turn signal repeater	207
<b>10</b>	<b>Turn signal repeaters - vehicles from 09.2007 onwards</b>	<b>208</b>
10.1	Turn signal in exterior mirror - exploded view	208
10.2	Removing and installing exterior mirror turn signal bulb L131 / L132	208
<b>11</b>	<b>Entry light in exterior mirror - vehicles up to 08.2007</b>	<b>212</b>
11.1	Removing and installing entry light in exterior mirror W52 / W53	212
<b>12</b>	<b>Entry light in exterior mirror - vehicles from 09.2007 onwards</b>	<b>214</b>
12.1	Entry light in exterior mirror - exploded view	214
12.2	Removing and installing entry light in exterior mirror W52 / W53	214
<b>13</b>	<b>Exterior door handle lighting</b>	<b>218</b>
13.1	Removing and installing exterior door handle lighting	218
<b>14</b>	<b>Outer tail light cluster - vehicles up to 08.2007</b>	<b>219</b>
14.1	Outer tail light cluster - exploded view	219
14.2	Removing and installing outer tail light cluster	220
14.3	Removing and installing LED printed circuit boards for tail light cluster	220
14.4	Removing and installing tail light control unit	221
14.5	Aligning tail light cluster with body contour	221
<b>15</b>	<b>Outer tail light cluster - USA vehicles up to 08.2007</b>	<b>223</b>
15.1	Outer tail light cluster - exploded view	223
15.2	Removing and installing outer tail light cluster	224
15.3	Removing and installing LED printed circuit boards for tail light cluster	224
15.4	Removing and installing tail light control unit	225
15.5	Aligning tail light cluster with body contour	225
<b>16</b>	<b>Outer tail light cluster - vehicles from 09.2007 onwards</b>	<b>227</b>
16.1	Outer tail light cluster - exploded view	227
16.2	Removing and installing outer tail light cluster	228
16.3	Aligning tail light cluster with body contour	228
<b>17</b>	<b>Inner tail light cluster - vehicles up to 08.2007</b>	<b>230</b>
17.1	Inner tail light cluster - exploded view	230
17.2	Removing and installing inner tail light cluster	230
17.3	Removing and installing bulb for reversing light and rear fog light	231
17.4	Removing and installing LED printed circuit boards and tail light control unit	232
17.5	Aligning tail light cluster with body contour	232
<b>18</b>	<b>Inner tail light cluster - USA vehicles up to 08.2007</b>	<b>233</b>
18.1	Inner tail light cluster - exploded view	233
18.2	Removing and installing inner tail light cluster	233
18.3	Removing and installing bulb for reversing light and rear fog light	234
18.4	Removing and installing LED printed circuit boards and tail light control unit	235
18.5	Aligning tail light cluster with body contour	235
<b>19</b>	<b>Inner tail light cluster - vehicles from 09.2007 onwards</b>	<b>236</b>
19.1	Inner tail light cluster - exploded view	236
19.2	Removing and installing inner tail light cluster	236
19.3	Removing and installing bulb for reversing light	237

19.4	Removing and installing bulb for rear fog light	238
19.5	Aligning tail light cluster with body contour	239
<b>20</b>	<b>High-level brake light</b>	<b>240</b>
20.1	Removing and installing high-level brake light	240
<b>21</b>	<b>Number plate light</b>	<b>241</b>
21.1	Removing and installing number plate light - vehicles up to 08.2007	241
21.2	Removing and installing number plate light - vehicles from 09.2007 onwards	241
<b>22</b>	<b>Steering column switch module</b>	<b>242</b>
22.1	Steering column switch module - exploded view	242
22.2	Removing and installing steering column switch module	243
22.3	Removing and installing return ring with slip ring	244
22.4	Removing and installing steering angle sender G85	246
22.5	Removing and installing steering column electronics control unit J527	246
22.6	Pin assignment at steering column electronics control unit J527 (front)	247
22.7	Pin assignment at steering column electronics control unit J527 (reverse side)	249
22.8	Removing and installing turn signal switch E2	250
22.9	Removing and installing cruise control system switch E45	251
22.10	Removing and installing intermittent wiper switch E22	251
<b>23</b>	<b>Entry and start authorisation switch E415</b>	<b>253</b>
23.1	Removing and installing entry and start authorisation switch E415	253
23.2	Pin assignment at entry and start authorisation switch E415	254
<b>24</b>	<b>Parking aid</b>	<b>255</b>
24.1	Parking aid - overview	255
24.2	Removing and installing parking aid control unit J446 (vehicles up to 11.2005)	256
24.3	Removing and installing parking aid control unit J446 (vehicles from 11.2005)	257
24.4	Removing and installing front parking aid warning buzzer H22 - 8-channel parking aid	257
24.5	Removing and installing rear parking aid warning buzzer H15	257
24.6	Removing and installing front parking aid senders - vehicles with twin grille	258
24.7	Removing and installing front parking aid senders - vehicles with single-frame radiator grille	260
24.8	Removing and installing rear parking aid senders	260
<b>25</b>	<b>Automatic headlight range control</b>	<b>262</b>
25.1	Automatic headlight range control - overview	262
25.2	Removing and installing control unit for headlight range control J431	262
<b>96 - Lights, bulbs, switches interior</b>		<b>264</b>
<b>1</b>	<b>Contact corrosion</b>	<b>264</b>
<b>2</b>	<b>Lights and switches in dash panel</b>	<b>265</b>
2.1	Removing and installing buttons in instrument cluster trim	265
2.2	Removing and installing light switch	266
2.3	Removing and installing steering column adjustment switch E167	266
2.4	Removing and installing switches in dash panel	267
2.5	Removing and installing glove compartment light	268
2.6	Removing and installing glove compartment light switch E26	268
2.7	Removing and installing footwell light (front)	268
<b>3</b>	<b>Lights and switches in front doors</b>	<b>270</b>
3.1	Removing and installing bulb for door opener light	270
3.2	Removing and installing mirror adjustment switch E43	270
3.3	Removing and installing operating unit for window regulator in driver door E512	272
3.4	Removing and installing window regulator switch in front passenger door E107	273
3.5	Removing and installing driver side interior locking switch E150 / front passenger side interior locking switch E198	273
3.6	Removing and installing interior door lighting strip	274
3.7	Removing and installing switch panel with rear lid remote release button E233 and fuel tank flap release button E319	275

3.8	Removing and installing driver seat/front passenger seat memory operating unit E97 / E277	276
3.9	Removing and installing emergency-off button E190 / E466 for driver seat/front passenger seat memory operating unit	278
3.10	Removing and installing front passenger seat adjustment switch E157	279
3.11	Removing and installing door contact switch	280
3.12	Removing and installing door warning lamp and entry light	281
<b>4</b>	<b>Lights and switches in rear doors</b>	<b>282</b>
4.1	Removing and installing bulb for door opener light	282
4.2	Removing and installing rear left/rear right window regulator switch, in door E52 / E54	282
4.3	Removing and installing interior door lighting strip	283
4.4	Removing and installing background light in storage compartment in door	284
4.5	Removing and installing rear left interior locking switch E273 / rear right interior locking switch E274	285
4.6	Removing and installing door contact switch	285
4.7	Removing and installing door warning lamp and entry light	285
<b>5</b>	<b>Lights and switches in centre console</b>	<b>287</b>
5.1	Removing and installing light for centre console (front)	287
5.2	Removing and installing entry and start authorisation button E408 or driver identification control unit J589	287
5.3	Removing and installing front seat heating switches	289
5.4	Removing and installing rear seat heating switches	289
<b>6</b>	<b>Lights and switches in seats and luggage compartment</b>	<b>290</b>
6.1	Removing and installing footwell light (rear)	290
6.2	Removing and installing luggage compartment lights	290
6.3	Removing and installing button to close rear lid in luggage compartment E406	291
6.4	Removing and installing contact switch in lock cylinder for rear lid, anti-theft system and central locking system F124	291
<b>7</b>	<b>Lights and switches in roof trim</b>	<b>292</b>
7.1	Removing and installing vanity mirror light	292
7.2	Removing and installing front interior light with roof electronics control unit J528 - vehicles up to 08.2007	292
7.3	Removing and installing front interior light with roof electronics control unit J528 - vehicles from 09.2007 onwards	293
7.4	Renewing bulbs for interior light (front)	295
7.5	Removing and installing garage door operating unit E284	296
7.6	Renewing bulbs for reading light (front)	296
7.7	Removing and installing LED for background light (front)	296
7.8	Removing and installing rear interior light/reading light with rear operating unit for roof module E467 - vehicles up to 08.2007	296
7.9	Renewing rear interior light bulb - vehicles up to 08.2007	297
7.10	Renewing rear reading light bulb - vehicles up to 08.2007	298
7.11	Removing and installing rear interior light/reading light with rear operating unit for roof module E467 - vehicles from 09.2007 onwards	298
7.12	Renewing rear interior light bulb - vehicles from 09.2007 onwards	299
7.13	Renewing rear reading light bulb - vehicles from 09.2007 onwards	300
7.14	Removing and installing LED for background light (rear)	300
7.15	Removing and installing illuminated vanity mirror (rear)	300
7.16	Removing and installing vanity mirror light (rear)	301
<b>8</b>	<b>Components on interior mirror</b>	<b>302</b>
8.1	Removing and installing light sensor G399	302
8.2	Removing and installing humidity sender G355 - vehicles without lane departure warning	302
8.3	Removing and installing humidity sender G355 - vehicles with lane departure warning	304
<b>9</b>	<b>Immobiliser</b>	<b>307</b>
<b>10</b>	<b>Entry and start authorisation system</b>	<b>308</b>
10.1	Entry and start authorisation system - overview	308

10.2	Keyless entry system - overview	309
10.3	Exterior door handle for keyless entry system - exploded view	310
10.4	Removing and installing front exterior door handle switches F272 / F273	311
10.5	Removing and installing rear exterior door handle switches F274 / F275	311
10.6	Removing and installing interior aerial 1 for entry and start authorisation R138	311
10.7	Removing and installing entry and start authorisation control unit J518	312
10.8	Removing and installing interior aerial 2 for entry and start authorisation R139	313
10.9	Removing and installing interior aerial 3 for entry and start authorisation R154	313
10.10	Removing and installing luggage compartment aerial for entry and start authorisation R137	314
10.11	Removing and installing rear bumper aerial for entry and start authorisation R136	314
<b>11</b>	<b>Anti-theft alarm with ultrasonic interior monitor</b>	<b>315</b>
11.1	Removing and installing sender/receiver module for interior monitoring system G303 or G305	315
11.2	Removing and installing anti-theft/tilt system control unit J529	315
11.3	Removing and installing alarm horn H12	315
11.4	Removing and installing interior monitoring deactivation switch E183 and alarm system off switch E217	316
<b>12</b>	<b>Lane change assist</b>	<b>318</b>
12.1	Lane change assist - overview	318
12.2	Removing and installing button for lane change assist E530	318
12.3	Removing and installing lane change assist warning lamp in exterior mirror K233 / K234	319
12.4	Removing and installing lane change assist control unit J769 / J770	321
12.5	Calibrating lane change assist - test equipment layout	321
12.6	Calibrating lane change assist control unit J769 / J770	322
<b>13</b>	<b>Towing bracket</b>	<b>329</b>
13.1	Socket for towing bracket	329
13.2	Removing and installing trailer detector control unit J345	329
<b>97 - Wiring</b>		<b>330</b>
<b>1</b>	<b>Contact corrosion</b>	<b>330</b>
<b>2</b>	<b>Component protection</b>	<b>331</b>
<b>3</b>	<b>Relay carriers, fuse carriers (engine compartment)</b>	<b>332</b>
3.1	Removing and installing electronics box (plenum chamber)	332
3.2	Removing and installing relay and fuse holder in electronics box (plenum chamber)	335
<b>4</b>	<b>Relay carriers, fuse carriers (vehicle interior)</b>	<b>338</b>
4.1	Removing and installing fuse holder in dash panel (left-side)	338
4.2	Removing and installing CAN separating connector (left-side) T46a	339
4.3	Unplugging door separating connector (left-side)	340
4.4	Removing and installing onboard supply control unit J519	340
4.5	Removing and installing relay and fuse carrier behind dash panel (left-side)	341
4.6	Removing and installing electronics box (driver's side)	341
4.7	Removing and installing fuse holder at dash panel (right-side)	342
4.8	Removing and installing CAN separating connector (right-side) T46b	343
4.9	Unplugging door separating connector (right-side)	344
4.10	Removing and installing main fuse holder, A-pillar (right-side)	345
4.11	Removing and installing relay carrier in front footwell (right-side)	346
4.12	Removing and installing onboard supply control unit 2 J520	346
4.13	Removing and installing voltage converter for background lighting (driver's/front passenger's door)	347
4.14	Removing and installing voltage converter for rear left/right door background lighting	348
<b>5</b>	<b>Relay carriers, fuse carriers (luggage compartment)</b>	<b>349</b>
5.1	Removing and installing fuse holder in luggage compartment (left-side)	349
5.2	Removing and installing relay and fuse holder in luggage compartment (right-side)	350
5.3	Removing and installing heated windscreen control unit J505	351

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6	Repairing wiring harnesses and electrical connectors .....	353
7	Repairing connector housings and electrical connectors .....	354
8	Releasing and dismantling connector housings .....	355
9	Cleaning contact surfaces with contact surface cleaning set VAS 6410 .....	356
10	Repairing aerial wires .....	357
11	Fibre optic cables .....	358
12	Vehicle diagnostic, testing and information systems .....	359



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## 27 – Starter, current supply, CCS

### 1 Contact corrosion

(ARL003891; Edition 08.2014)

Contact corrosion can occur if unsuitable fasteners (bolts, nuts, washers, etc.) are used.

For this reason, only fasteners with a special surface coating are fitted.

Furthermore, rubber components or plastic components and adhesives are made of non-conductive material.

Always fit new components if you are not sure that the old components are suitable ⇒ Electronic parts catalogue .

**Note:**

- ◆ We recommend the use of genuine replacement parts only; they have been tested and are compatible with aluminium.
- ◆ We recommend using Audi Genuine Accessories.
- ◆ Damage resulting from contact corrosion is not covered by warranty.

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## 2 Battery

Observe notes on contact corrosion ⇒ [page 1](#) .

### 2.1 Battery - general notes

⇒ Electrical system; General information; Rep. gr. 27 ; Battery

### 2.2 Maintenance-free batteries

⇒ Electrical system; General information; Rep. gr. 27 ; Battery

### 2.3 Disconnecting and connecting battery

#### Procedure

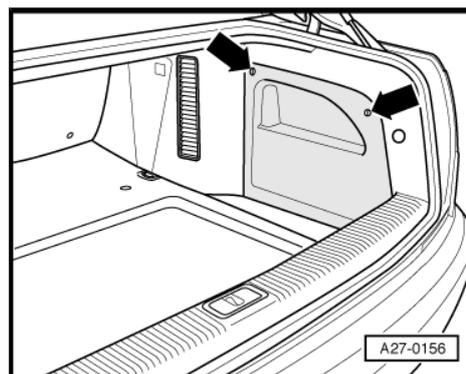


#### Caution

- ◆ *To remove the airbag, the battery must be disconnected with the ignition on.*
- ◆ *On vehicles with telematics system, activate service mode for telematics control unit in "Guided fault-finding" before disconnecting battery ⇒ Vehicle diagnostic tester.*

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- Switch off ignition and take out ignition key.
- Remove cover for luggage compartment side trim (right-side) -arrows-.

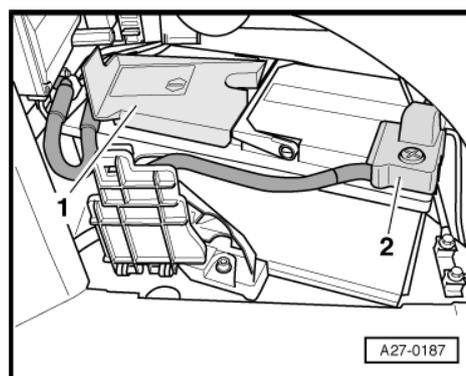


- Remove cover -1- over battery.



#### Note

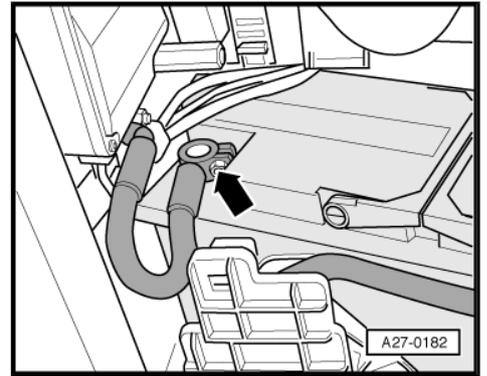
Disregard -item 2-.



- Loosen nut several turns and disconnect battery clamp -arrow- of earth cable from battery terminal.
- When connecting battery, attach battery clamp of earth cable to negative battery terminal “-” by hand and tighten nut.

The following measures must be carried out after re-connecting battery:

- ◆ Deactivate service mode for telematics control unit in “Guided fault-finding”.
- ◆ Activate automatic open/close function of electric window regulators - see ⇒ Owner's Manual .
- ◆ Turn the ignition key in ignition lock once to the left as far as the stop.
- ◆ Synchronise spare keys and additional keys to ensure correct remote control operation.
- ◆ Interrogate event memories of all control units and erase “Low voltage” event if displayed ⇒ Vehicle diagnostic tester.



 **Note**

*After reconnecting the voltage supply, it is possible that the ESP warning lamp will not go out until the vehicle has been driven several metres.*

**Tightening torque**

Component	Nm
Battery clamp to battery terminal	6

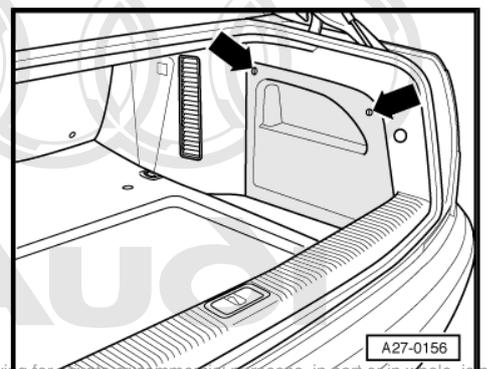
**2.4 Removing and installing battery**

**Removing**

 **Caution**

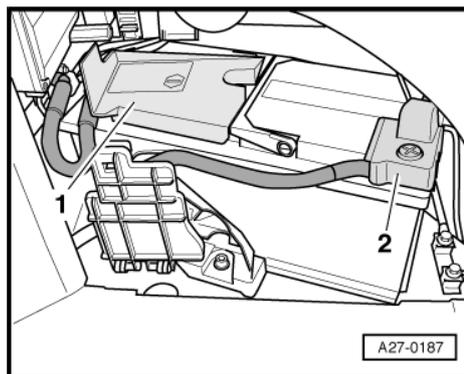
◆ *On vehicles with telematics system, activate service mode for telematics control unit in “Guided Functions” before disconnecting battery ⇒ Vehicle diagnostic tester.*

- Switch off ignition and take out ignition key.
- Remove cover for luggage compartment side trim (right-side) -arrows-.

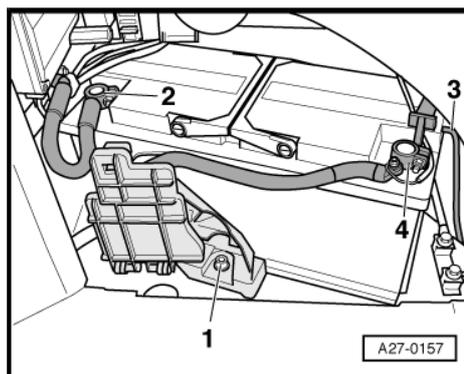


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- Remove covers -1- and -2- above battery.



- Connect battery charger to provide back-up power supply => [page 7](#) .
- Disconnect earth cable -2- and positive cable -4- at battery.
- Disconnect hose -3- for central gas venting system.
- Unscrew bolt -1- on battery retainer plate.
- Lift battery out of luggage compartment (right-side).

**WARNING**

Observe environmental requirements.

- ◆ **When disposing of used batteries, always observe the required disposal procedures for batteries and sulphuric acid => [Electrical system; General information; Rep. gr. 27 ; Battery](#).**

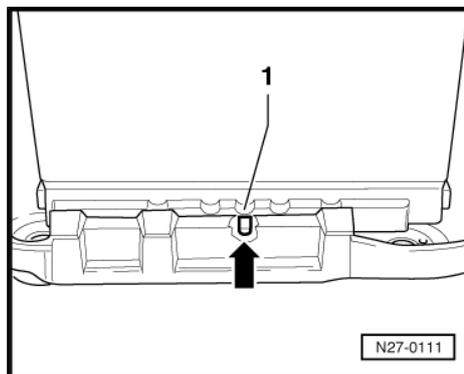
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**Installing**

Installation is carried out in the reverse order; note the following:

**Note**

- ◆ *We recommend using the battery indicated in the electronic parts catalogue to ensure optimum operation of the energy management control unit -J644- .*
- ◆ *Batteries from the Audi parts range feature a base strip adapter for matching to different retainer flanges. The battery operating instructions give details of when and how to use the base strip adapter.*
- Insert battery in battery carrier so that lug at rear of battery carrier -arrow- engages in recess in battery base strip -1-.
- It should no longer be possible to move the battery.



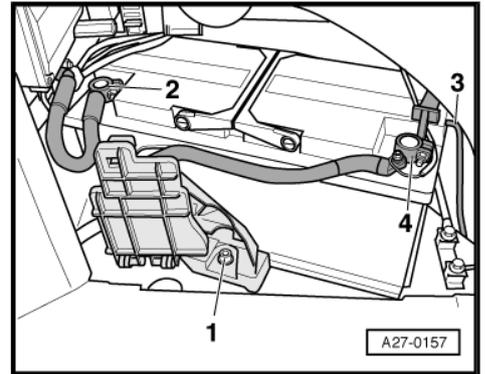
- Secure battery retainer plate with bolt -1-.

 **Note**

*Lug on battery retainer plate must engage in recess on battery base strip.*

Connect up battery in the following sequence with ignition and electrical equipment switched off:

- First connect battery clamp -4- of positive cable by hand to positive battery terminal “+” and tighten nut.
- Attach battery clamp -2- on earth cable to negative battery terminal “-” by hand and tighten nut.
- Attach hose -3- for central gas venting system.
- Check that battery is firmly secured following installation.
- Switch off back-up power supply from battery charger.
- If the battery is renewed, the new battery must be adapted  
 ⇒ Vehicle diagnostic tester.



**Procedure**

⇒ Vehicle diagnostic tester is connected.

- Select **Diagnosis** mode and start diagnosis.
- Select **Test plan** tab.
- Select **Own test** then the following options one after the other:
  - ◆ Body
  - ◆ Electrical system
  - ◆ 27 - Starter, current supply
  - ◆ Electrical components
  - ◆ A - Adapt battery after replacing

Further instructions are given by ⇒ Vehicle diagnostic tester.

If battery was removed and installed without back-up power supply, perform following procedures after connecting the battery:

- ◆ Deactivate service mode for telematics control unit in “Guided fault-finding”.
- ◆ Activate automatic open/close function of electric window regulators - see ⇒ Owner's Manual .
- ◆ Turn the ignition key in ignition lock once to the left as far as the stop.
- ◆ Synchronise spare keys and additional keys to ensure correct remote control operation.
- ◆ Interrogate event memories of all control units and erase “Low voltage” event if displayed ⇒ Vehicle diagnostic tester.

 **Note**

*After reconnecting the voltage supply, it is possible that the ESP warning lamp will not go out until the vehicle has been driven several metres.*

Energy management control unit - J644- must be re-encoded if the battery is renewed ⇒ Vehicle diagnostic tester.

### Tightening torques

Component	Nm
Bolt to retainer plate	24
Battery clamp to battery terminal	6

## 2.5 Checking battery

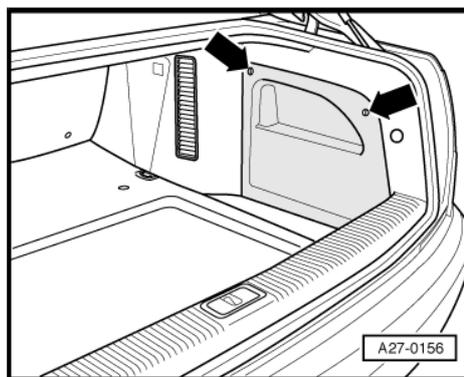
⇒ Electrical system; General information; Rep. gr. 27 ; **Checking battery**

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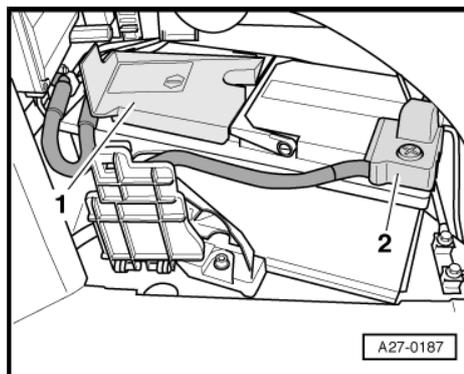
## 2.6 Preparations before measuring no-load voltage

Before measuring no-load voltage of battery, it is necessary to perform the following steps:

- Remove cover for luggage compartment side trim (right-side) -arrows-.



- Remove covers -1- and -2- above battery.
- Connect tester to remote positive terminal “+” and remote negative terminal “-” ⇒ Electrical system; General information; Rep. gr. 27 ; **Checking battery** .



## 2.7 Charging battery

The following descriptions are given in ⇒ Electrical system; General information; Rep. gr. 27 ; **Charging battery**

## 2.8 Preparations before charging battery

### Procedure



### WARNING

*Risk of explosion due to a discharged battery with “magic eye”.*

- ◆ *The battery must NOT be checked or charged if the indicator of the “magic eye” is colourless or yellow. Do NOT jump start the vehicle. There is a risk of explosion when checking or charging the battery or jump starting the vehicle. The battery must be renewed.*

Before connecting battery charger, it is necessary to perform the following steps:

 **Note**

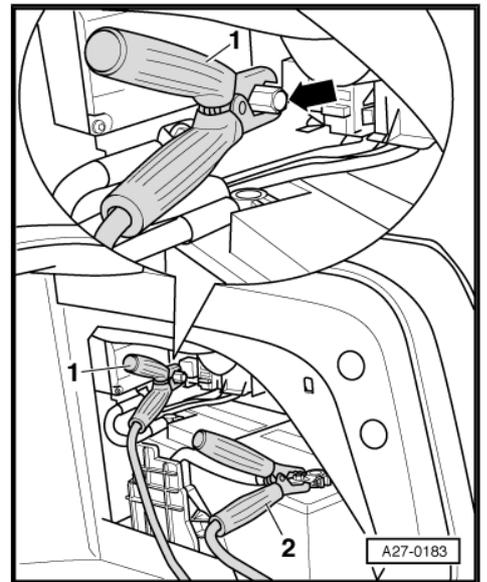
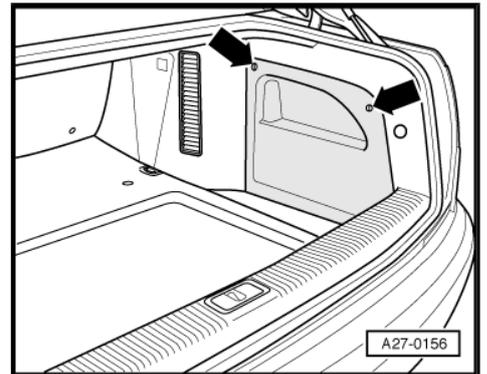
*Wherever possible, the battery should be installed in the vehicle and connected while it is being charged. Otherwise, the charging current will not be taken into account in the capacity calculation of energy management control unit -J644- .*

- Switch off ignition and all electrical equipment; then take out ignition key.
- Remove cover for luggage compartment side trim (right-side -arrows-).

 **Note**

*Battery cover remains fitted.*

- Connect red clamp “+” -item 2- of battery charger to battery clamp “+”.
- Connect black clamp “-” -item 1- of battery charger to earth stud of energy management control unit -J644- .
- Plug in mains connector of battery charger and switch on battery charger ⇒ Electrical system; General information; Rep. gr. 27 ; Charging battery .
- Leave rear lid open during charging.

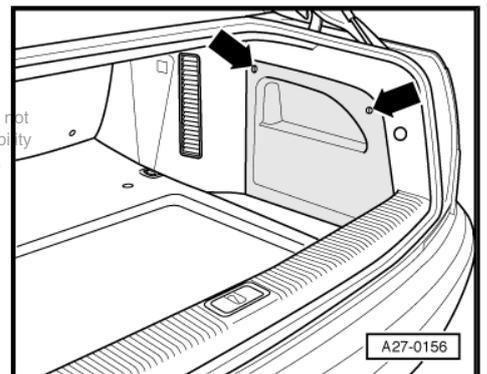


## 2.9 Preparations for back-up power supply of battery

### Procedure

Before connecting battery charger, it is necessary to perform the following steps:

- **Switch off ignition and all electrical equipment.**
- Remove cover for luggage compartment side trim (right-side -arrows-).

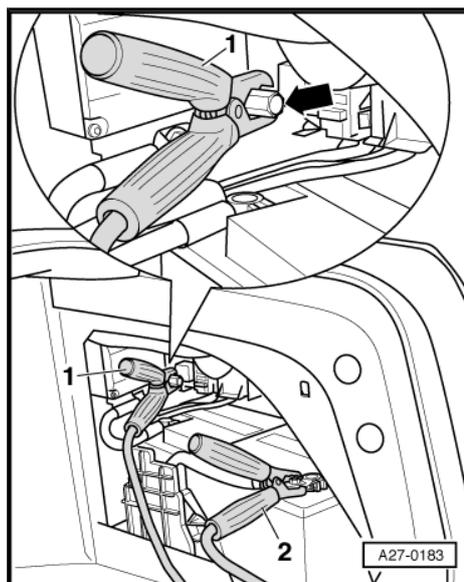
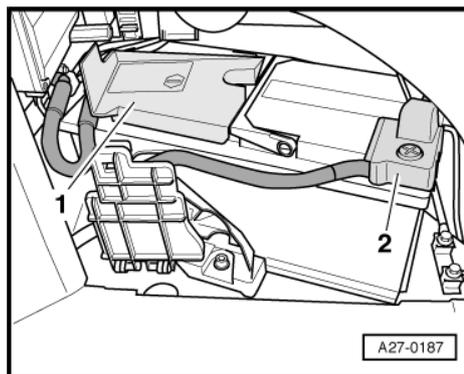


- Remove cover -2- over battery.

 **Note**

*Disregard -item 1-*.

- Connect red clamp “+” -item 2- of battery charger to battery positive terminal.
- Connect black clamp “-” -item 1- of battery charger to earth stud of energy management control unit -J644- .
- Plug in mains connector of battery charger and switch on battery charger → Electrical system; General information; Rep. gr. 27 ; Charging battery .



## 2.10 Removing and installing battery cut-off relay - J655-

The battery cut-off relay - J655- must be renewed if defective or if it has been triggered.

- Renew battery cut-off relay - J655- → Rep. gr. 69 .

## 2.11 Removing and installing battery isolation igniter - N253-

Battery isolation igniter - N253- must be renewed if defective or if it has been triggered.

- Renewing battery isolation igniter - N253- → Rep. gr. 69 .

## 2.12 Removing and installing energy management control unit - J644-

### Removing

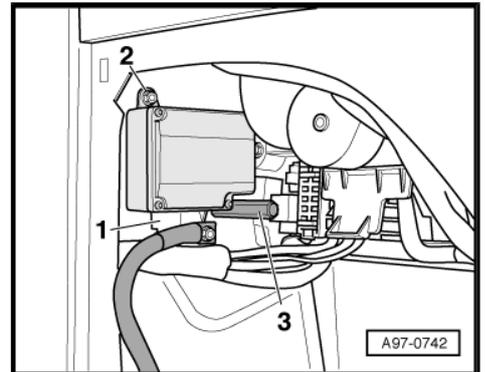
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 **Note**

*Charger must NOT be connected during removal and installation.*

- If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in → Vehicle diagnostic tester.

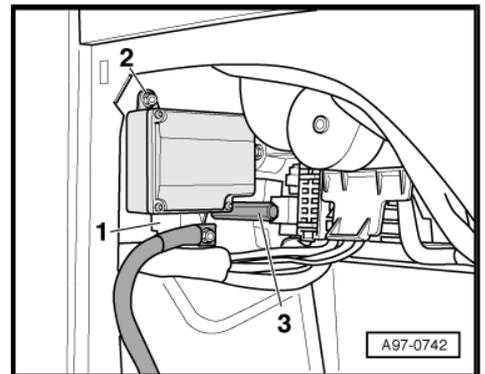
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- With ignition switched off, disconnect earth cable at battery => [page 2](#) .
- Unscrew earth stud -3- and nut -2-.
- Detach energy management control unit - J644- .
- Unplug electrical connector -1-.
- Detach earth cable to battery from energy management control unit - J644- .



### Installing

To ensure the correct function of energy management control unit -J644- it is important to keep to the following sequence during installation:

- 1 - Connect earth wire to battery at energy management control unit - J644- .
- 2 - Secure energy management control unit - J644- to body by screwing in and tightening earth stud -3- and nut -2-.
- 3 - Connect earth cable to battery.
- 4 - Plug in electrical connectors -1- at energy management control unit - J644- .
- 5 - Perform measures required after connecting battery => [page 3](#) .



### Tightening torques

Component		Nm
Control unit to body	Earth stud	20
	Nut	7.5
Earth cable to control unit		9

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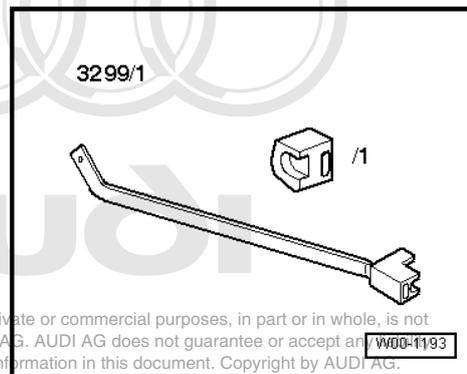
### 3 Removing and installing alternator

Observe notes on contact corrosion ⇒ [page 1](#) .

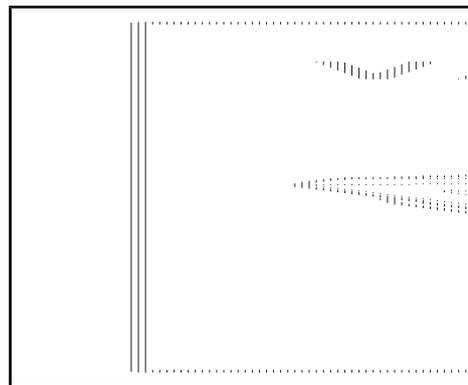
#### 3.1 Vehicles with 3.0 ltr. MPI engine

##### Special tools and workshop equipment required

- ◆ Poly V-belt lever - 3299- with -3299/1-

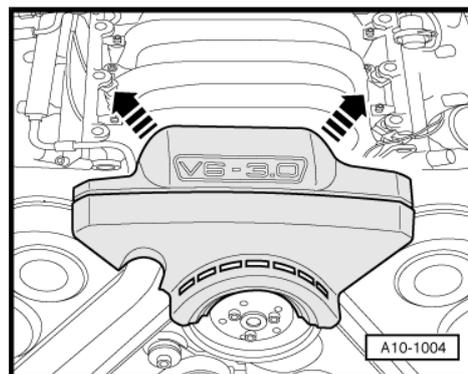


- ◆ Drip tray for workshop hoist - VAS 6208-



##### Removing

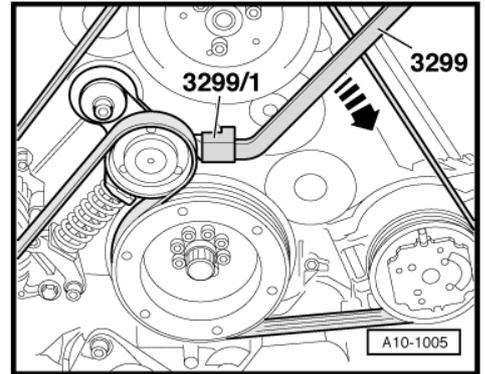
- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Pull off engine cover (front) -arrows-.



 **Note**

*Before removing, mark running direction of poly V-belt with chalk or felt-tipped pen. If the poly V-belt runs in the opposite direction when it is refitted, this can cause breakage.*

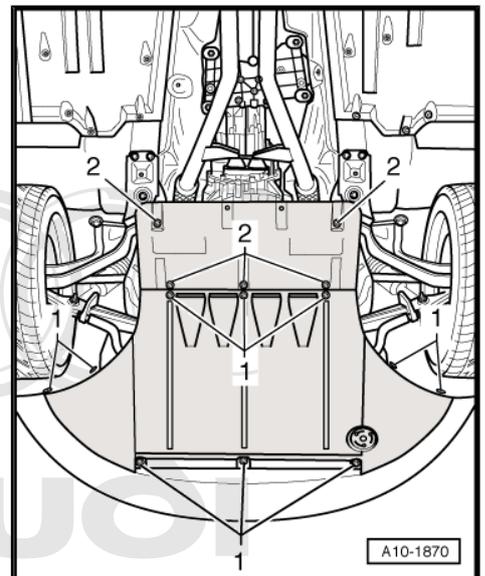
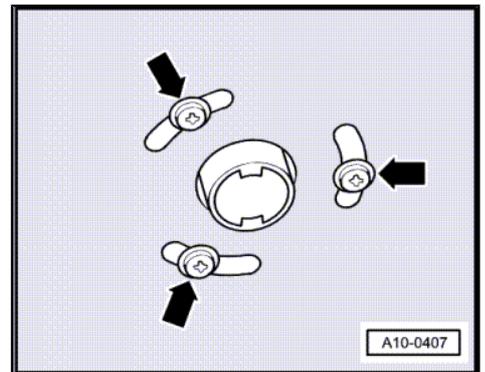
- To slacken poly V-belt, swivel tensioner in direction of -arrow- using poly V-belt lever - 3299- with -3299/1- .
- Detach poly V-belt from power steering pump pulley.
- Release pressure from tensioner.



**WARNING**

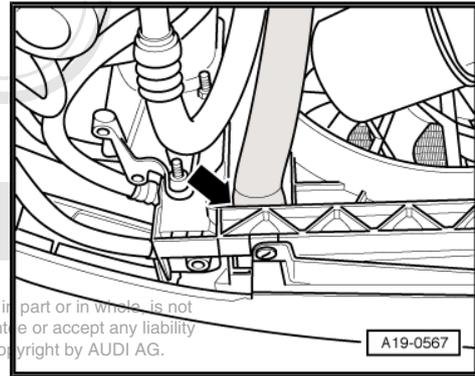
*Hot steam/hot coolant may escape when opening coolant expansion tank. Cover cap with cloth and open carefully.*

- Open filler cap for coolant expansion tank.
- On vehicles with auxiliary heater, unscrew bolts -arrows- for exhaust pipe of auxiliary/supplementary heater at noise insulation.
- Open quick-release fasteners -1- and detach front noise insulation. Leave rear noise insulation in position.

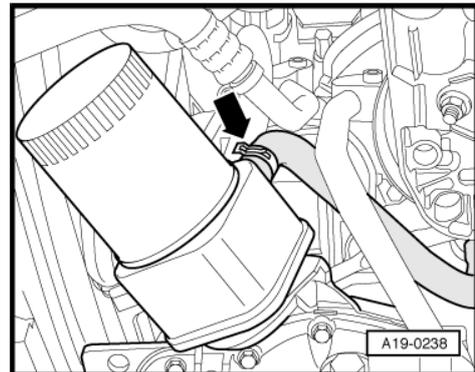


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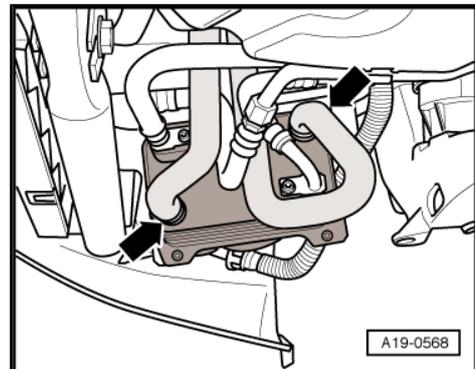
- Place drip tray for workshop hoist - VAS 6208- beneath engine.
- Detach coolant hose -arrow- (bottom left) from radiator.



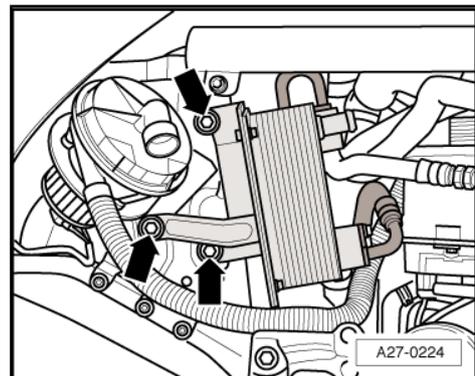
- Additionally detach coolant hose at engine oil cooler -arrow- and allow coolant to drain off.



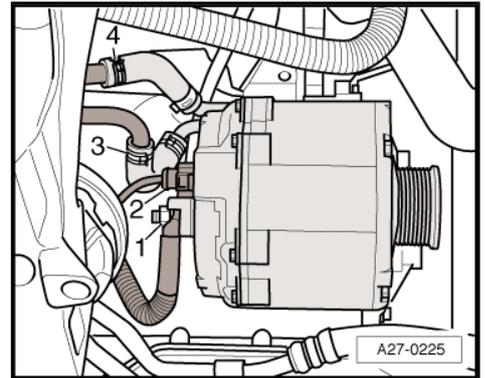
- Disconnect coolant hoses -arrows- at ATF cooler and drain off remaining coolant.



- Unscrew bolts -arrows- and swivel ATF cooler downwards (with lines still connected).



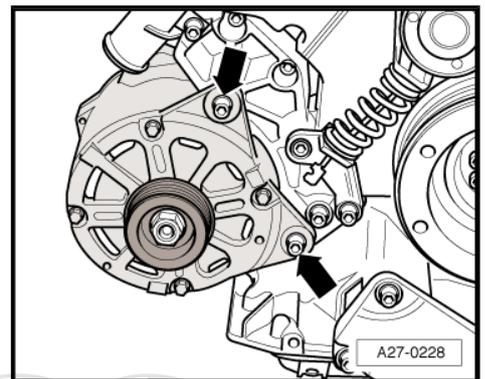
- Detach wires -1- and -2- at alternator.
- Detach coolant hoses -3- and -4- on back of alternator.



- Unscrew bolts -arrows- and detach alternator.

 **Note**

- ◆ *If alternator sticks in bracket, screw bolt back in again down to the last 2 turns.*
- ◆ *Tap carefully on bolt heads with flat side of hammer to release threaded bushes of alternator mount.*



**Installing**

Installation is carried out in the reverse order; note the following:

 **Note**

- ◆ *Renew O-ring.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue.*
- To facilitate positioning of alternator, drive back bushes for securing bolts slightly.

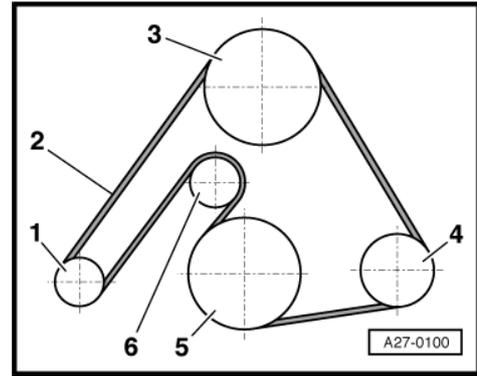
 **Note**

*Stiff alternator mount bushes must be freed; otherwise the clamping force of the bush will not be adequate even when the bolts are tightened to the correct torque.*

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– Make sure poly V-belt -2- is properly seated and correctly routed.

- 1 - Alternator
- 3 - Power steering pump
- 4 - Air conditioner compressor
- 5 - Crankshaft
- 6 - Tensioning roller



**Note**

*When installing poly V-belt, make sure it is properly seated on pulleys.*

- Connect battery. Steps required ⇒ [page 3](#) .
- Fill with coolant ⇒ Rep. gr. 19 .
- Start engine and check that belt runs properly.

**Tightening torques**

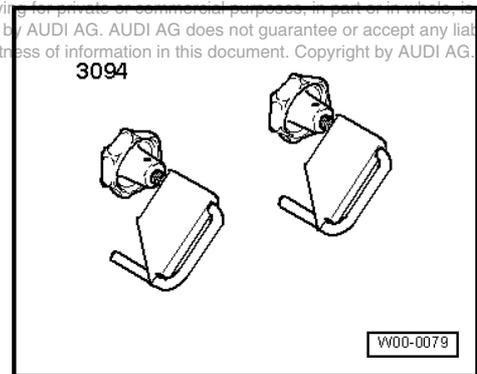
Component	Nm
Alternator to engine	23
30/B+ terminal to alternator	16
ATF cooler to body	10

### 3.2 Vehicles with 2.8 ltr. and 3.2 ltr. FSI engine

**Special tools and workshop equipment required**

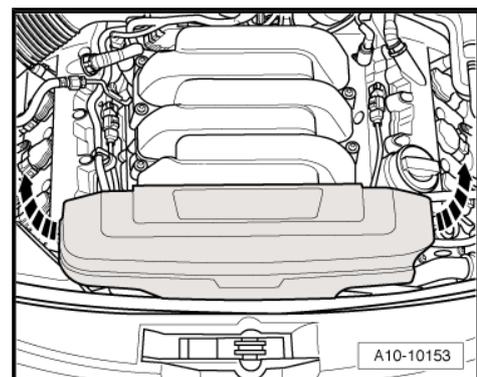
- ◆ Hose clamps up to 25 mm - 3094-

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**Removing**

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Pull off front engine cover panel -arrows-.

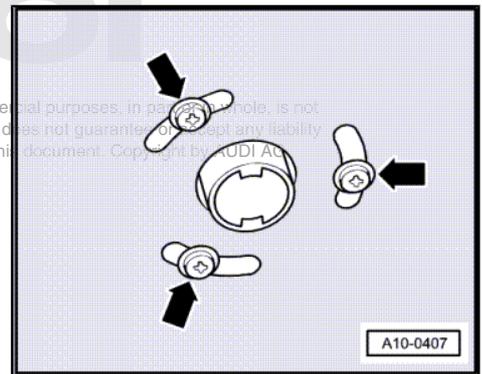
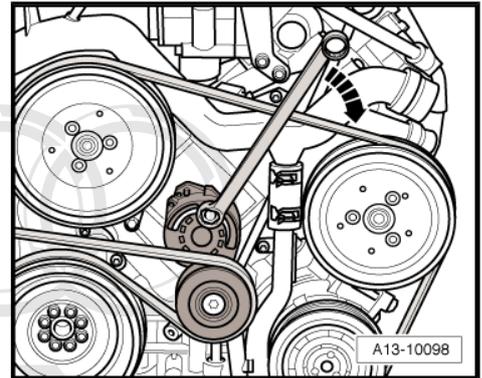


- Pull off bonnet seal at lock carrier and wing panel edges.

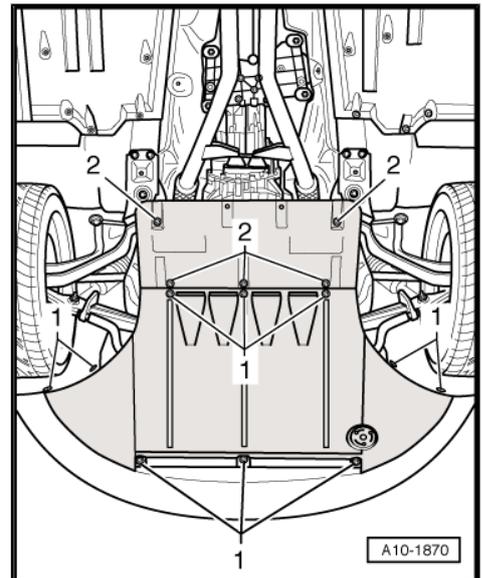
 **Note**

*Before removing, mark running direction of poly V-belt with chalk or felt-tipped pen. If the poly V-belt runs in the opposite direction when it is refitted, this can cause breakage.*

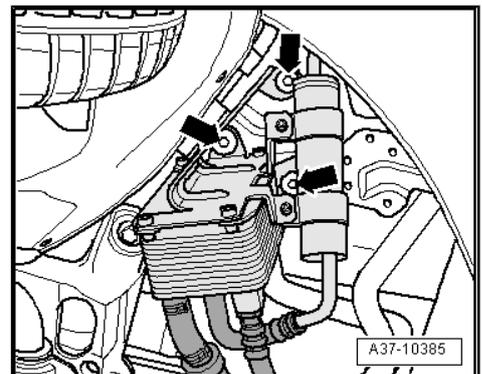
- To slacken poly V-belt turn tensioner in direction of -arrow-.
- Remove poly V-belt from alternator pulley.
- Release pressure from tensioner.
- On vehicles with auxiliary heater, unscrew bolts -arrows- for exhaust pipe of auxiliary/supplementary heater at noise insulation.



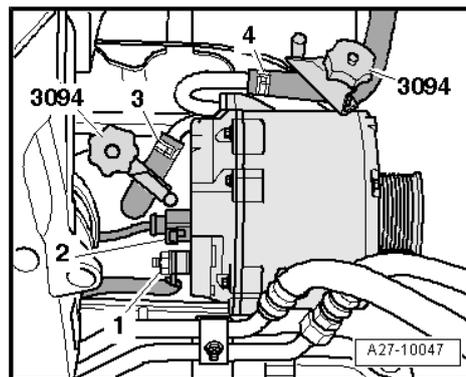
- Open quick-release fasteners -1- and detach front noise insulation. Leave rear noise insulation in position.



- Unscrew bolts -arrows-.
- Swivel aside ATF cooler with lines still connected.



- Detach wires -1- and -2- at alternator.
- Use hose clamps -3094- to clamp off coolant hoses.
- Detach coolant hoses -3- and -4- on back of alternator.



- Unscrew bolts -arrows- and detach alternator.

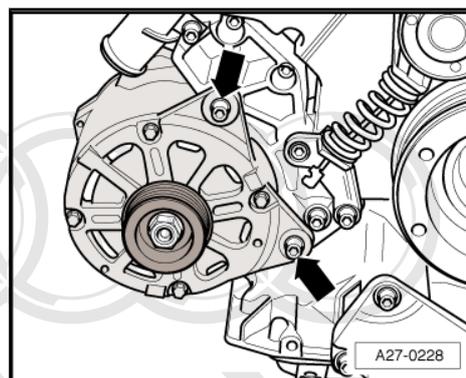
**Note**

- ◆ *If alternator sticks in bracket, screw bolt back in again down to the last 2 turns.*
- ◆ *Tap carefully on bolt heads with flat side of hammer to release threaded bushes of alternator mount.*

**Installing**

Installation is carried out in the reverse order; note the following:

- To facilitate positioning of alternator, drive back bushes for securing bolts slightly.

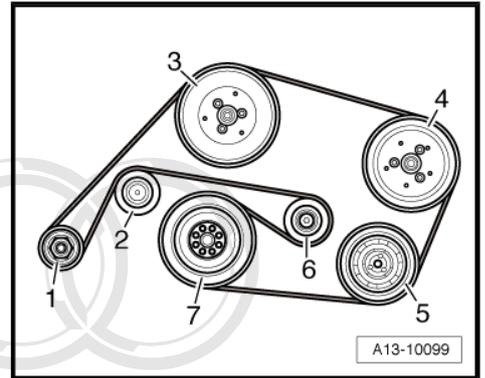
**Note**

*Stiff alternator mount bushes must be freed; otherwise the clamping force of the bush will not be adequate even when the bolts are tightened to the correct torque.*

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– Fit poly V-belt onto pulleys in the following sequence:

- 1 - Alternator
- 2 - Idler roller
- 3 - Coolant pump
- 4 - Power steering pump
- 5 - Air conditioner compressor
- 6 - Tensioner for poly V-belt
- 7 - Crankshaft



 **Note**

*When installing poly V-belt, make sure it is properly seated on pulleys.*

- Connect battery. Steps required ⇒ [page 3](#).
- Fill with coolant ⇒ Rep. gr. 19 .
- Start engine and check that belt runs properly.

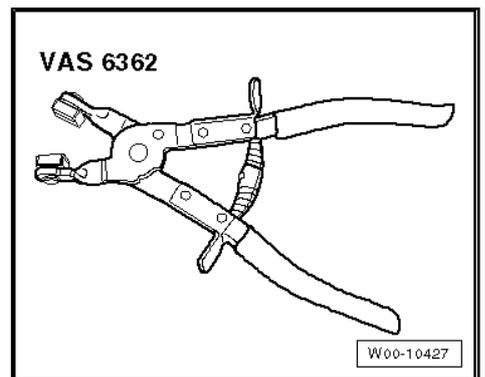
**Tightening torques**

Component	Nm
Alternator to engine	23
30/B+ terminal to alternator	16
ATF cooler to body	10

### 3.3 Vehicles with 3.7 ltr. and 4.2 ltr. MPI engine

**Special tools and workshop equipment required**

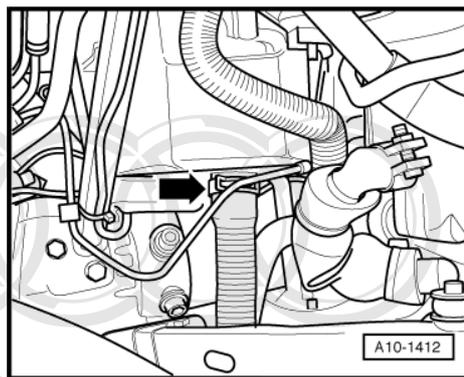
- ◆ Hose clip pliers - VAS 6362-



**Removing**

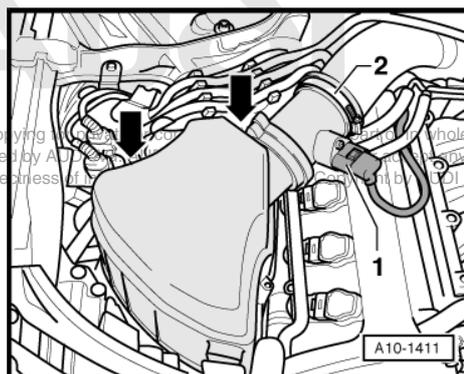
- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Drain off coolant ⇒ Rep. gr. 19 .
- Remove front wheel (right-side).
- Remove front right wheel housing liner ⇒ Rep. gr. 66 .

- Disconnect hose -arrow- going to secondary air pump at bottom of air cleaner housing.

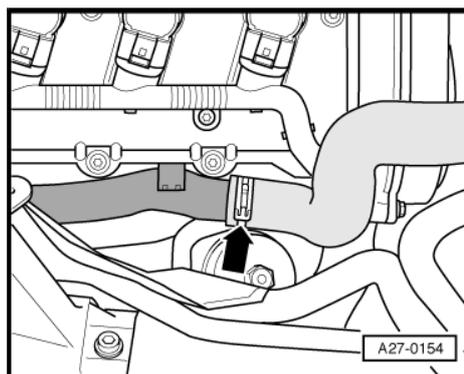


- Detach air hose -2- at air cleaner housing.
- Unplug electrical connector -1-.
- Unscrew bolts -arrows- and take out air cleaner housing.

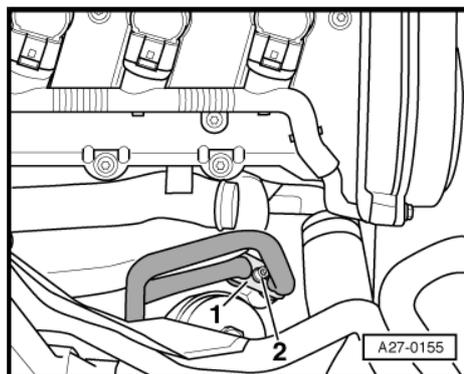
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- Detach coolant hose (top) -arrow- from radiator.



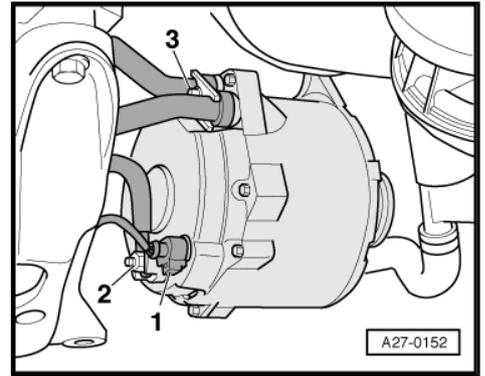
- Unscrew bolt -1- and detach mounting plate -2- beneath it.



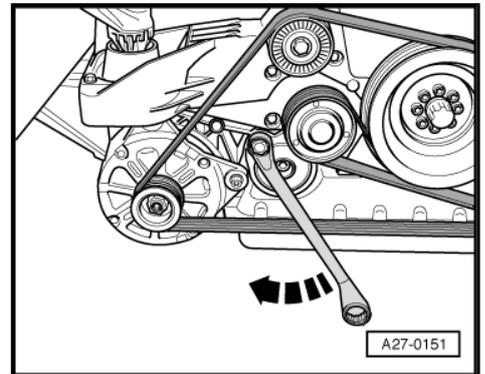
- Unscrew electrical wire -2- at alternator.
- Unplug electrical connector -1-.
- Move wiring clear.
- Unscrew bolt -3- and detach securing plate beneath it.
- Detach coolant pipes at alternator.

 **Note**

*Before removing, mark running direction of poly V-belt with chalk or felt-tipped pen. If the poly V-belt runs in the opposite direction when it is refitted, this can cause breakage.*



- To slacken poly V-belt turn tensioner in direction of -arrow-.
- Remove poly V-belt from alternator pulley.
- Release pressure from tensioner.

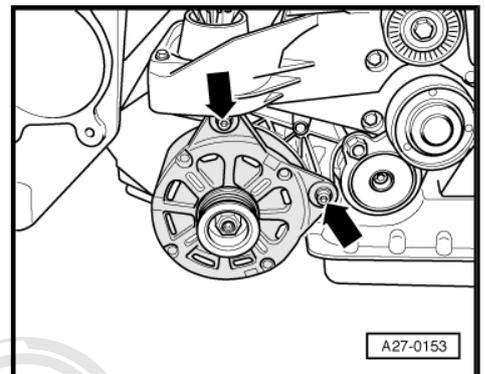


- Unscrew bolts -arrows-.

 **Note**

- ◆ *If alternator sticks in bracket, screw bolt back in again down to the last 2 turns.*
- ◆ *Tap carefully on bolt heads with flat side of hammer to release threaded bushes of alternator mount.*

- Remove alternator.



**Installing**

Installation is carried out in the reverse order; note the following:

 **Note**

*Renew gaskets, seals and self-locking nuts.*

- To facilitate positioning of alternator, drive back bushes for securing bolts slightly.

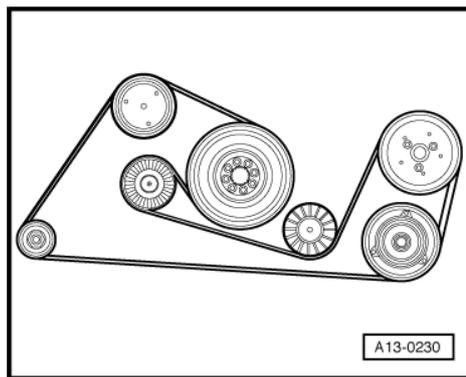
 **Note**

*Stiff alternator mount bushes must be freed; otherwise the clamping force of the bush will not be adequate even when the bolts are tightened to the correct torque.*

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– Fit poly V-belt onto pulleys in the following sequence:

- 1- Upper idler roller
- 2- Crankshaft
- 3- Tensioner for poly V-belt
- 4- Lower idler roller
- 5- Power steering pump
- 6- Air conditioner compressor
- 7- Alternator



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*When installing poly V-belt, make sure it is properly seated on pulleys.*

- Install front right wheel housing liner ⇒ Rep. gr. 66 .
- Connect battery. Steps required ⇒ [page 3](#) .
- Fill with coolant ⇒ Rep. gr. 19 .
- Start engine and check that belt runs properly.

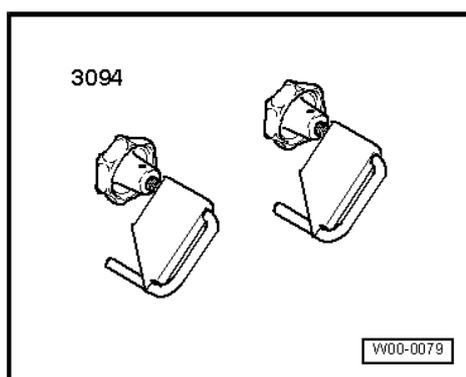
**Tightening torques**

Component		Nm
Alternator to bracket for alternator		23
Terminal 30/B+ to alternator		16
Coolant pipes to:	Oil filter bracket	10
	Alternator	10

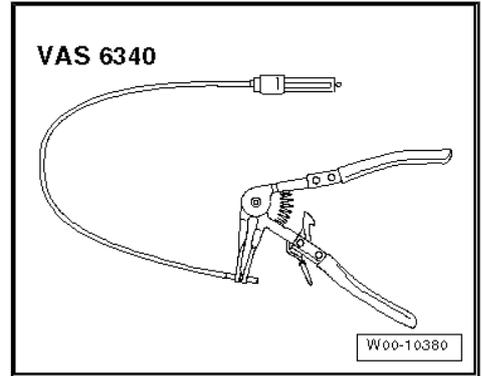
**3.4 Vehicles with 4.2 ltr. FSI engine**

**Special tools and workshop equipment required**

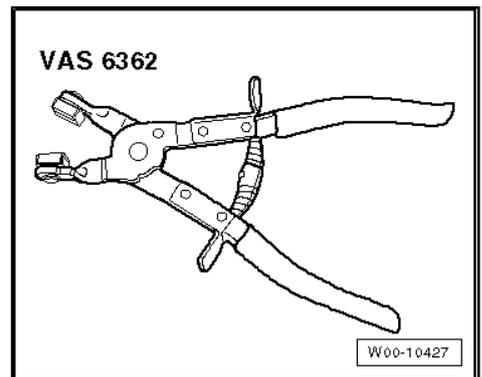
- ◆ Hose clamps up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6340-



- ◆ Hose clip pliers - VAS 6362-



### Removing

- With ignition switched off, disconnect earth cable at battery => [page 2](#) .



**WARNING**

*Hot steam/hot coolant may escape when opening coolant expansion tank. Cover cap with cloth and open carefully.*

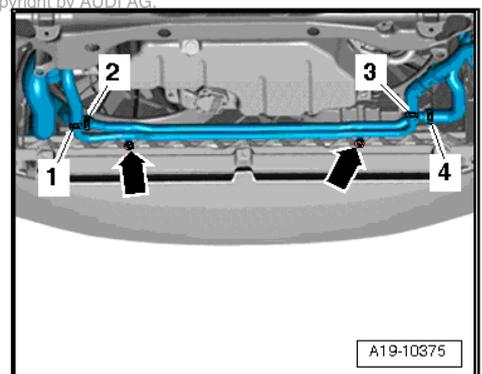
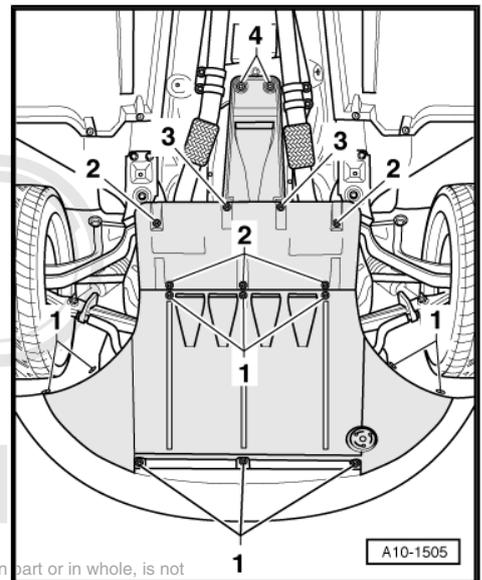
- Open filler cap for coolant expansion tank.
- Open quick-release fasteners -1- and detach front noise insulation.

 **Note**

*Disregard -items 2 ... 4-*

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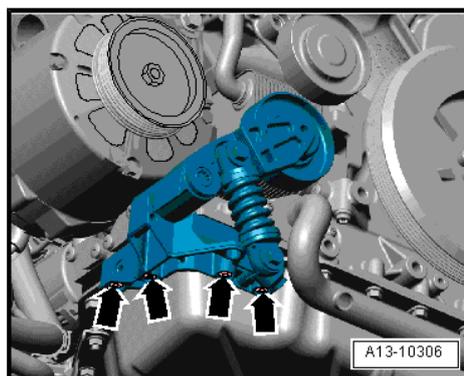
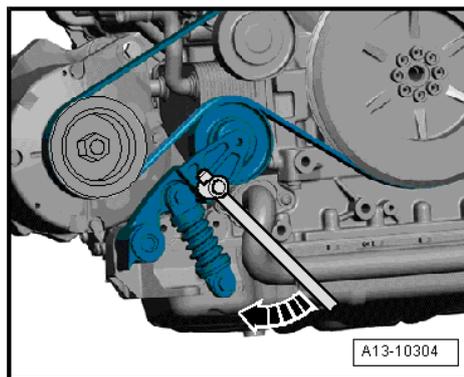
- Unscrew bolts -arrows- and detach pipes with hoses attached -1 ... 4- from lock carrier.



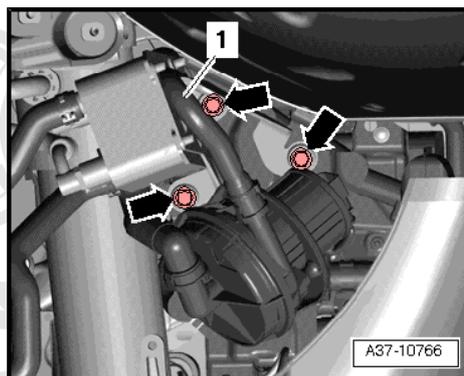
**i** Note

Before removing, mark running direction of poly V-belt with chalk or felt-tipped pen. If the poly V-belt runs in the opposite direction when it is refitted, this can cause breakage.

- To slacken poly V-belt, pivot tensioner in direction indicated -arrow-.
- Remove poly V-belt from tensioner and release tensioner.
- Unscrew bolts -arrows-.
- Remove the poly V-belt tensioner from sump (top section).



- Move air hose -1- for secondary air clear at ATF cooler.
- Unscrew bolts -arrows- and detach ATF cooler.
- Tie ATF cooler with attached coolant hoses and ATF lines to engine cross member.

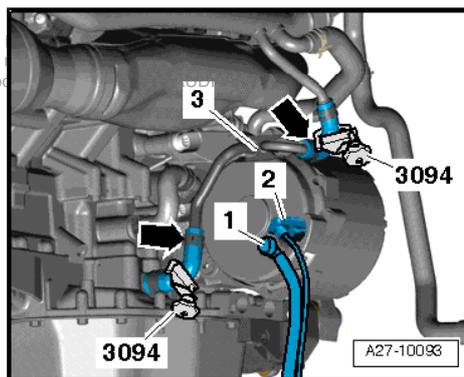


- Clamp off coolant hoses -arrows- with hose clamps - 3094- .

**i** Note

Place a cloth beneath the separating point to catch draining coolant.

- Detach coolant hoses -arrows- from coolant pipes.
- Unplug electrical connector -2- on alternator.
- Unscrew terminal 30/B+ -item 1-.



**i** Note

Disregard -item 3-.

- Unscrew bolts -arrows- and detach alternator.

 **Note**

- ◆ *If alternator sticks in retainer, screw bolt back in again down to the last 2 turns.*
- ◆ *Tap carefully on bolt heads with flat side of hammer to release bushes of alternator mount.*

**Installing**

Installation is carried out in the reverse order; note the following:

 **Note**

*Secure all hose connections with the correct type of hose clips (same as original equipment) => Electronic parts catalogue .*

- To facilitate positioning of alternator, drive back bushes for securing bolts slightly.

 **Note**

*Stiff alternator mount bushes must be freed; otherwise the clamping force of the bush will not be adequate even when the bolts are tightened to the correct torque.*

- Fit poly V-belt -2- onto pulleys in the following sequence:

- 1 - Alternator
- 3 - Idler roller
- 4 - Vibration damper
- 5 - Tensioning roller

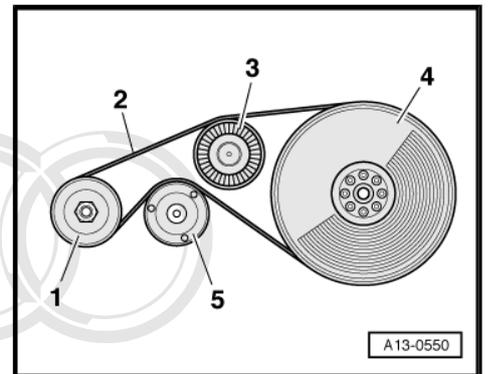
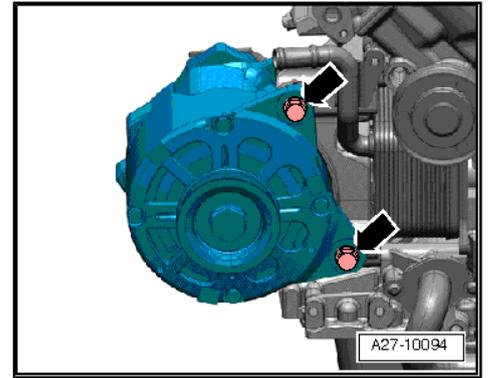
 **Note**

*When installing poly V-belt, make sure it is properly seated on pulleys.*

- Connect battery. Steps required => [page 3](#) .
- Check coolant level => Rep. gr. 19 .
- Start engine and check that belt runs properly.

**Tightening torques**

Component	Nm
Coolant pipes to lock carrier	9
Alternator to engine	23
Terminal 30/B+ to alternator	16
Poly V-belt tensioner to sump (top section)	22
Bracket with ATF cooler to body	9

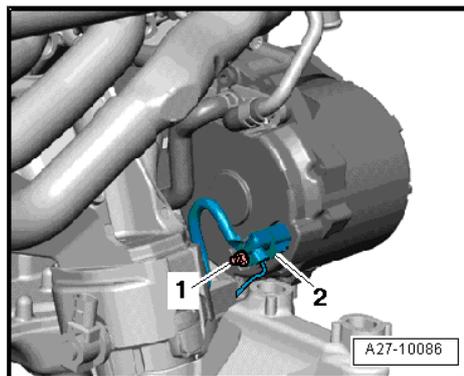


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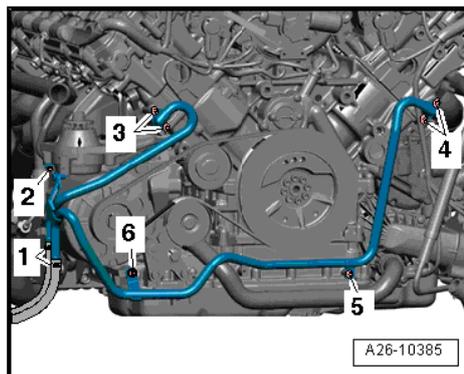
### 3.5 Vehicles with 5.2 ltr. FSI engine

#### Removing

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Remove air cleaner housing (right-side) ⇒ Rep. gr. 24 .
- Drain off coolant ⇒ Rep. gr. 19 .
- Remove radiator ⇒ Rep. gr. 19 .
- Unplug electrical connector -2- on alternator.
- Unscrew terminal 30/B+ -item 1-.



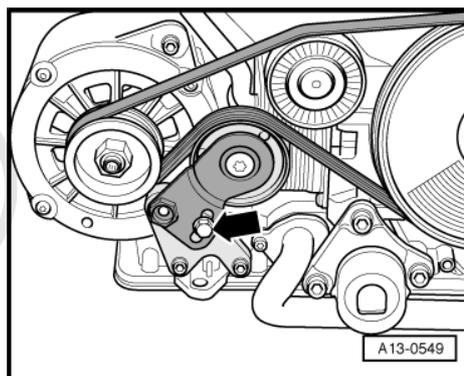
- Detach air hoses -1- from connecting pipes for secondary air.
- Unscrew bolts -2 ... 6-.
- Detach connecting pipes for secondary air system from engine.



#### Note

*Before removing, mark running direction of poly V-belt with chalk or felt-tipped pen. If the poly V-belt runs in the opposite direction when it is refitted, this can cause breakage.*

- Unscrew securing bolt -arrow- and remove poly V-belt.



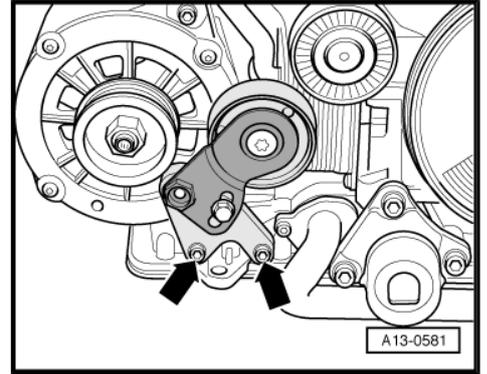
# Audi

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- Unscrew bolts -arrows-.
- Remove the poly V-belt tensioner from sump (top section).

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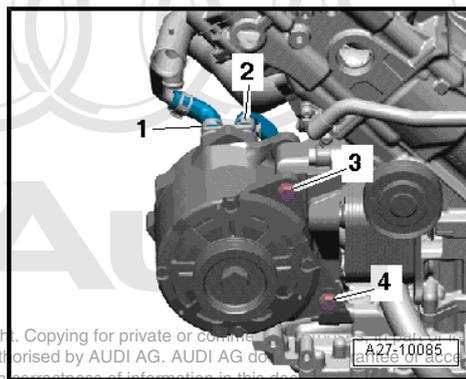


- Remove bolts -3- and -4-.

 **Note**

- ◆ *If alternator sticks in bracket, screw bolt back in again down to the last 2 turns.*
- ◆ *Tap carefully on bolt heads with flat side of hammer to release threaded bushes of alternator mount.*

- Detach coolant hoses -1- and -2- at alternator.



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 **Note**

*Illustration shows engine removed for greater clarity.*

- Remove alternator.

**Installing**

Installation is carried out in the reverse order; note the following:

 **Note**

- ◆ *Renew seals/gaskets.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*

- To facilitate positioning of alternator, drive back bushes for securing bolts slightly.

 **Note**

*Stiff alternator mount bushes must be freed; otherwise the clamping force of the bush will not be adequate even when the bolts are tightened to the correct torque.*

- Install poly V-belt ⇒ Rep. gr. 13 .
- Install radiator ⇒ Rep. gr. 19 .
- Install air cleaner housing (right-side) ⇒ Rep. gr. 24 .
- Connect battery. Steps required ⇒ [page 3](#) .
- Fill with coolant ⇒ Rep. gr. 19 .
- Start engine and check that belt runs properly.

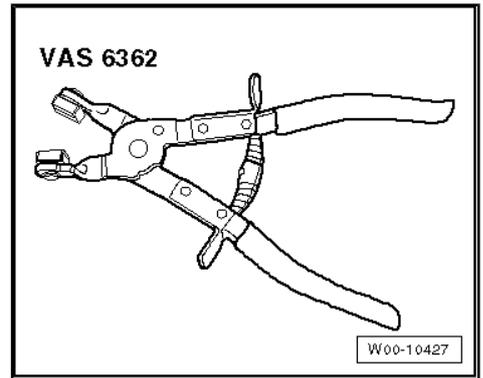
**Tightening torques**

Component		Nm
Alternator to bracket		22
Poly V-belt tensioner to sump (top section)		22
Connecting pipes for secondary air to engine	M6	9
	M8	22
30/B+ terminal to alternator		16

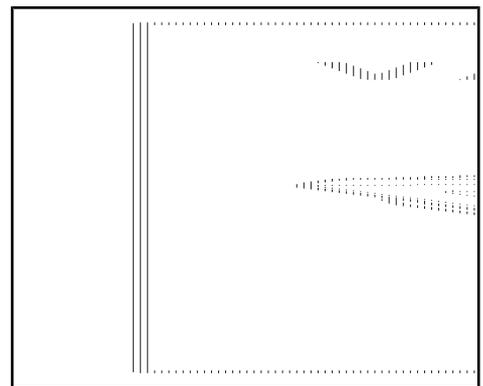
**3.6 Vehicles with 6.0 ltr. MPI engine**

**Special tools and workshop equipment required**

- ◆ Hose clip pliers - VAS 6362-



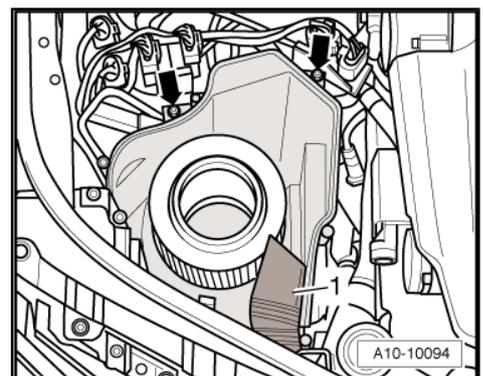
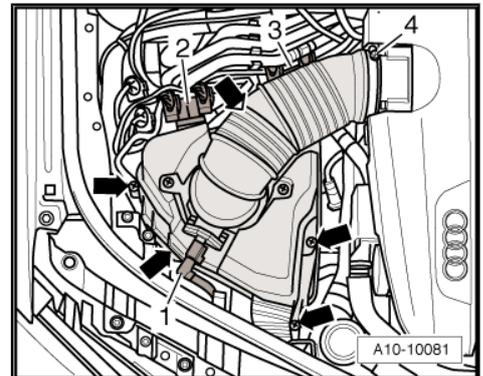
- ◆ Drip tray for workshop hoist - VAS 6208-



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### Removing

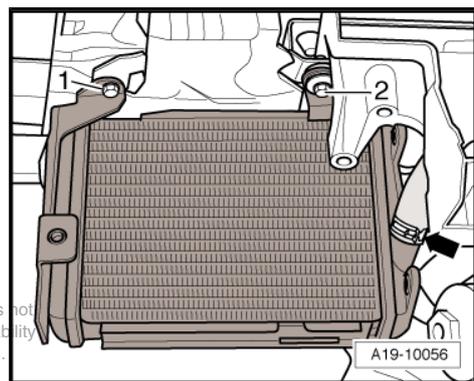
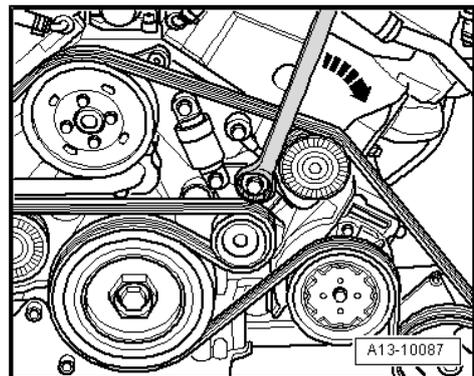
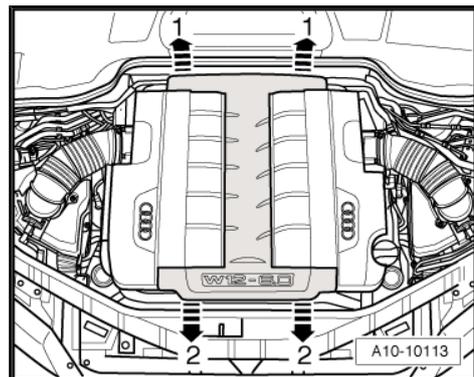
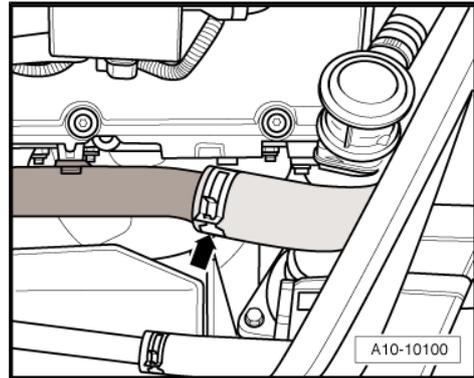
- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Drain off coolant ⇒ Rep. gr. 19 .
- Move lock carrier to service position ⇒ Rep. gr. 13 .
- Unplug electrical connector -1- for air mass meter - G70- .
- Detach air hose -4- at intake manifold.
- Disengage brackets for electrical connectors -2- and -3- at air cleaner (top section).
- Unscrew bolts -arrows-.
- Detach right air cleaner (top section).
  
- Remove air duct -1-.
- Unscrew bolts -arrows-.
- Take out right air cleaner (bottom section).



 **Note**

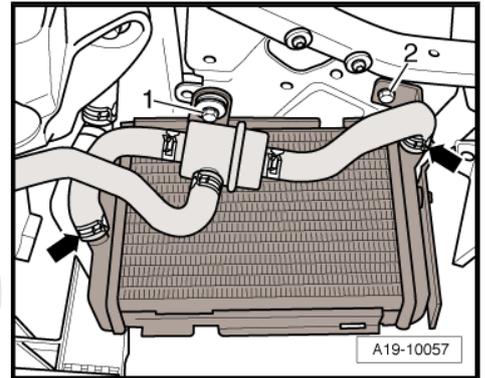
*Place a cloth beneath the separating point to catch draining coolant.*

- Detach coolant hose -arrow- at right on engine.
  
- First carefully pull up engine cover panel at rear and in the centre -arrows 1-.
- Then pull the engine cover panel forwards off the intake manifold -arrows 2-.
  
- To slacken the poly V-belt, apply pressure to tensioner in direction of the -arrow- using a 30 mm ring spanner.
- Remove poly V-belt from alternator pulley.
- Release pressure from tensioner.
  
- Place drip tray for workshop hoist - VAS 6208- beneath engine.
- Detach coolant hose (front) at auxiliary radiator -arrow- and allow coolant to drain off.
- Remove bolts -1- and -2-.

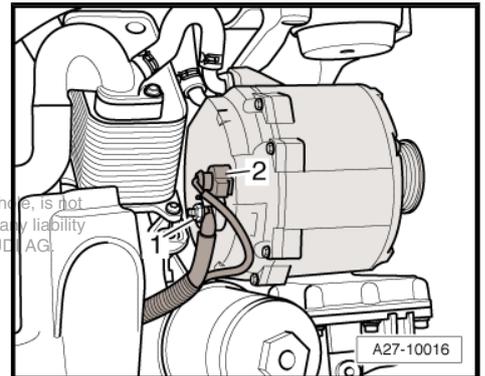


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- Detach coolant hoses -arrows-.
- Remove bolts -1- and -2-.
- Remove the auxiliary radiator.



- Unscrew electrical wire -1- at alternator.
- Unplug electrical connector -2-.



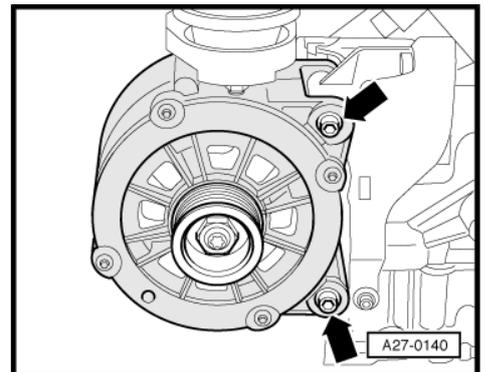
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- Unscrew bolts -arrows-.

**i** Note

- ◆ *If alternator sticks in bracket, screw bolt back in again down to the last 2 turns.*
- ◆ *Tap carefully on bolt heads with flat side of hammer to release threaded bushes of alternator mount.*

- Pivot the alternator slightly down to left.



**i** Note

*A 2nd mechanic is required for the remaining procedures for removing the alternator.*

**!** Caution  
*Coolant will drain out.*

- Detach coolant hose -2- from hose flange at alternator.
- Mark installation position of hose flange on alternator.
- Unscrew bolt -1- and detach bracket.
- Detach both hose flanges from alternator.
- Remove alternator.

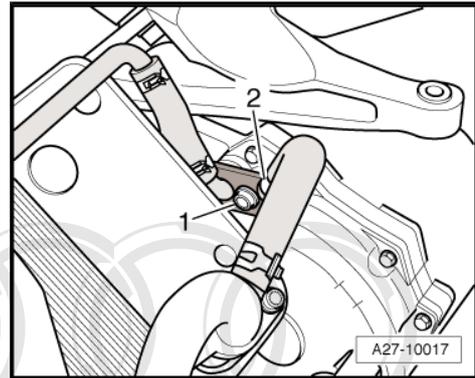
**Installing**

Installation is carried out in the reverse order; note the following:



**Note**

- ◆ *Renew O-rings.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- To facilitate positioning of alternator, drive back bushes for securing bolts slightly.



**Note**

*Stiff alternator mount bushes must be freed; otherwise the clamping force of the bush will not be adequate even when the bolts are tightened to the correct torque.*

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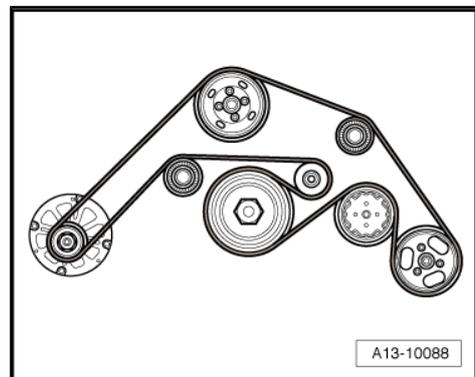
- First fit poly V-belt onto pulley for vibration damper, then onto the remaining pulleys, and lastly onto the tensioning roller.



**Note**

*When installing poly V-belt, make sure it is properly seated on pulleys.*

- Install auxiliary radiator (right-side) ⇒ Rep. gr. 19 .
- Connect battery. Steps required ⇒ [page 3](#) .
- Fill with coolant ⇒ Rep. gr. 19 .
- Start engine and check that belt runs properly.
- Install lock carrier with attachments ⇒ Rep. gr. 50 .
- Install front bumper cover ⇒ Rep. gr. 63 .



**Tightening torques**

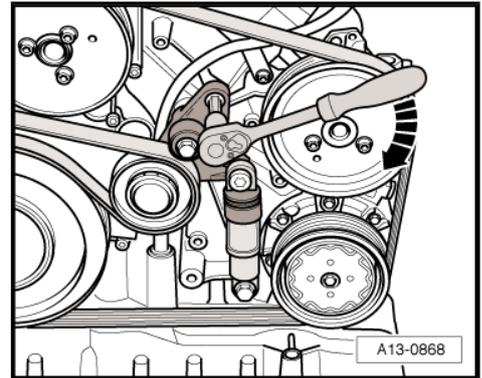
Component	Nm
Hose flange to alternator	10
Terminal 30/B+ to alternator	16
Alternator to engine	23

**3.7 Vehicles with 3.0 ltr. TDI engine**

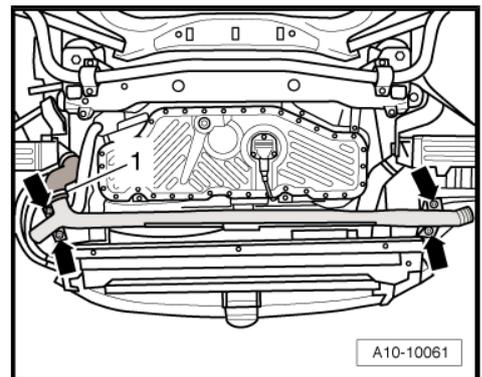
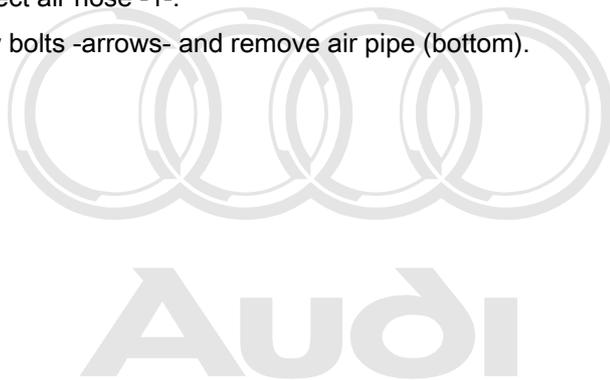
**Removing**

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Move lock carrier to service position ⇒ Rep. gr. 13 .

- To slacken poly V-belt, apply pressure to tensioner in direction of the -arrow- using a lever with 60 mm TORX socket.
- Remove poly V-belt from tensioning roller.
- Release pressure from tensioner.

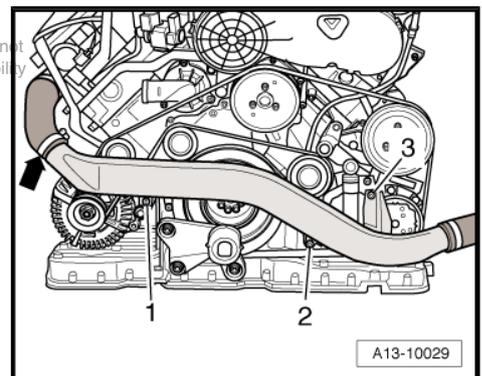


- Disconnect air hose -1-.
- Unscrew bolts -arrows- and remove air pipe (bottom).

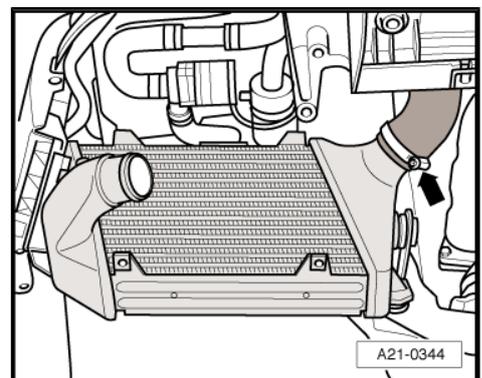


- Detach air hose -arrow- from air pipe (top).
- Unscrew bolts 1 and 3 and remove air pipe (top).

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- Detach air hose -arrow- at front of charge air cooler (right-side).



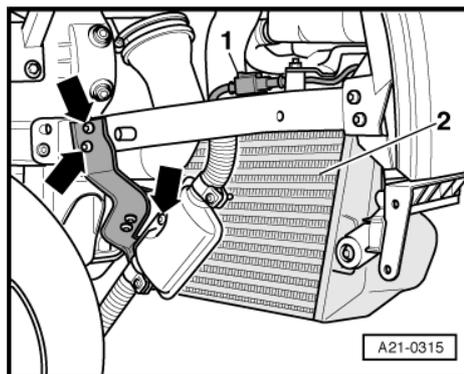


- Unscrew bolts -arrows- and remove bracket for charge air cooler.
- Detach charge air cooler (right-side) -2-.



**Note**

*Disregard -item 1-.*

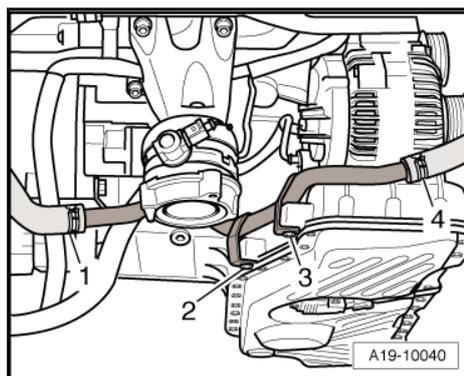


- Remove bolts -2- and -3-.



**Note**

*Hoses -1- and -4- remain connected.*

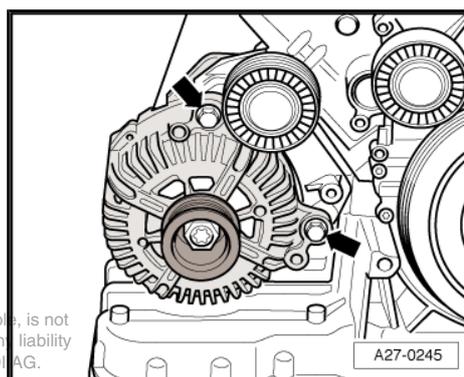


- Unscrew bolts -arrows- and detach alternator.



**Note**

- ◆ *If alternator sticks in bracket, screw bolt back in again down to the last 2 turns.*
- ◆ *Tap carefully on bolt heads with flat side of hammer to release threaded bushes of alternator mount.*



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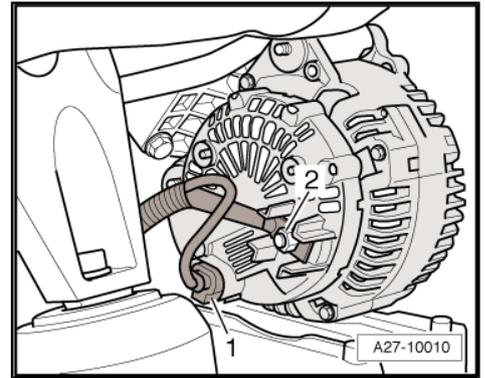
- Detach wires -1- and -2- at alternator.

### Installing

Installation is carried out in the reverse order; note the following:

#### Note

- ◆ *Renew self-locking nuts.*
  - ◆ *Hose flanges and hoses for charge air system must be free from oil and grease before fitting.*
  - ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
  - ◆ *Refit all cable ties at the same locations when reinstalling.*
- To facilitate positioning of alternator, drive back bushes for securing bolts slightly.



#### Note

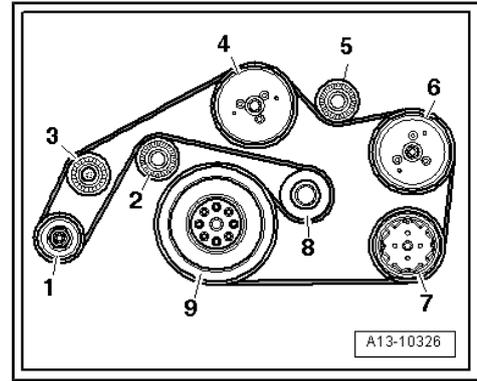
*Stiff alternator mount bushes must be freed; otherwise the clamping force of the bush will not be adequate even when the bolts are tightened to the correct torque.*

- Install charge air cooler (right-side) ⇒ Rep. gr. 21 .



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- Fit poly V-belt over pulleys.
- 1 - Alternator
- 2 - Idler roller
- 3 - Idler roller
- 4 - Coolant pump
- 5 - Idler roller (depending on version)
- 6 - Power steering pump
- 7 - Air conditioner compressor
- 8 - Tensioner for poly V-belt
- 9 - Crankshaft



**Note**

When installing poly V-belt, make sure it is properly seated on pulleys.

- Install lock carrier with attachments ⇒ Rep. gr. 50 .
- Install front bumper cover ⇒ Rep. gr. 63 .
- Connect battery. Steps required ⇒ [page 3](#) .
- Start engine and check that belt runs properly.

**Tightening torques**

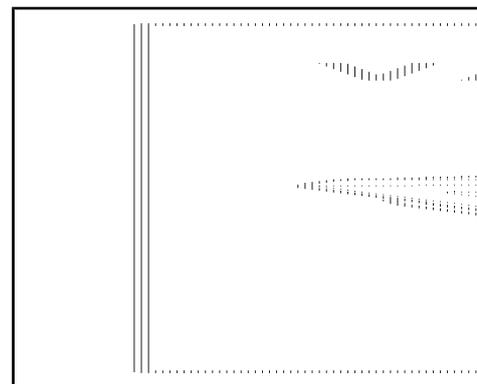
Component	Nm
Alternator to bracket	22
Terminal 30/B+ to alternator	16
Coolant pipe (bottom right) to bottom section of sump	9

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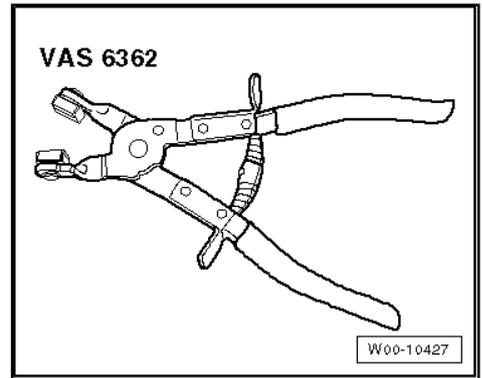
### 3.8 Vehicles with 4.0 ltr. TDI engine

**Special tools and workshop equipment required**

- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Hose clip pliers - VAS 6362-

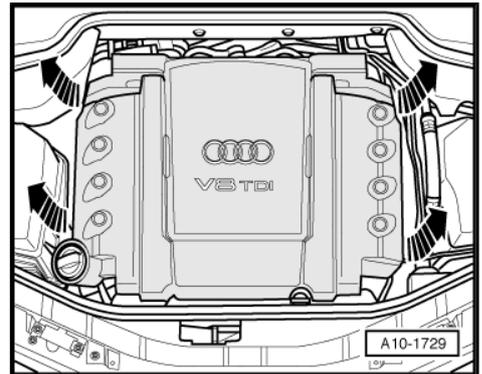


## Removing

### Note

*All cable ties unfastened or cut open during removal must be re-attached in same position when installing.*

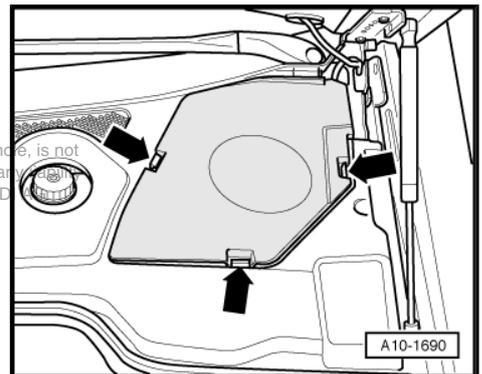
- With ignition switched off, disconnect earth cable at battery => [page 2](#).
- Remove engine cover -arrows-.



- Remove cover over coolant expansion tank -arrows-.

 **WARNING**

**Hot steam/hot coolant may escape when opening coolant expansion tank. Cover cap with cloth and open carefully.**



- Open filler cap for coolant expansion tank.

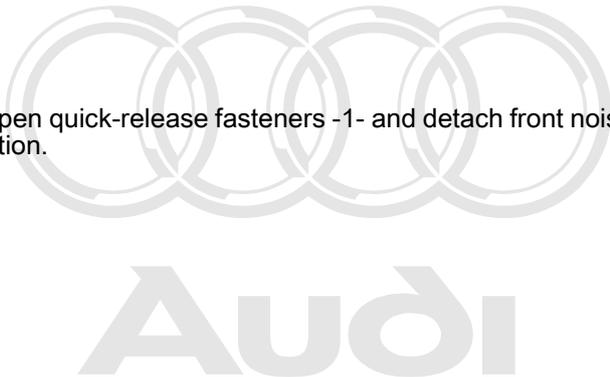
- Remove both front wheels.

 **Note**

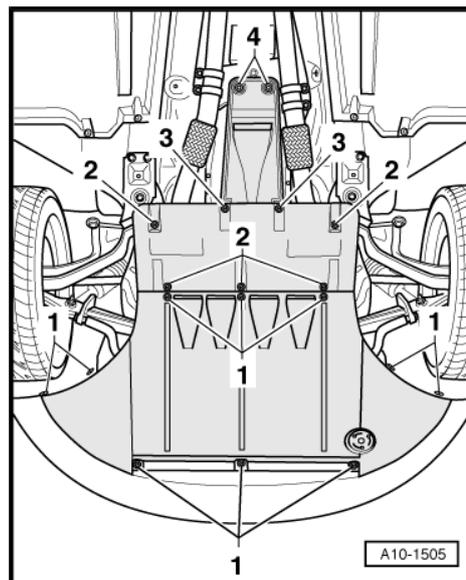
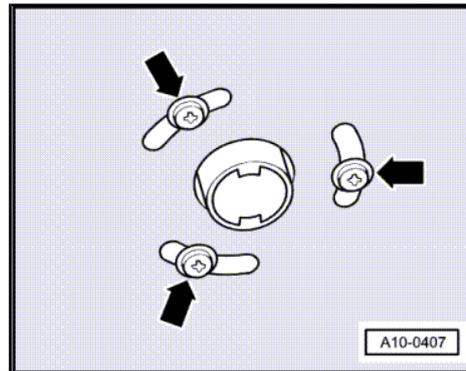
*Secure brake discs with wheel bolts.*

- On vehicles with auxiliary heater, unscrew bolts -arrows- for exhaust pipe of auxiliary/supplementary heater at noise insulation.

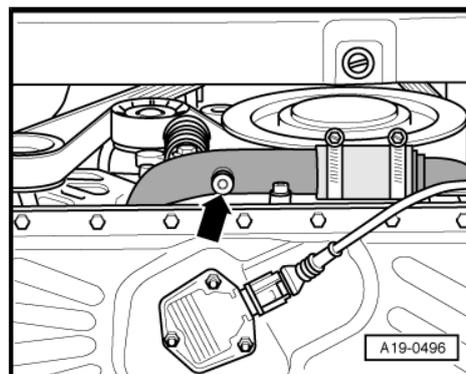
- Open quick-release fasteners -1- and detach front noise insulation.



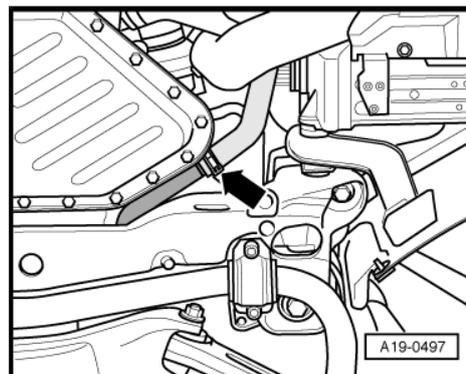
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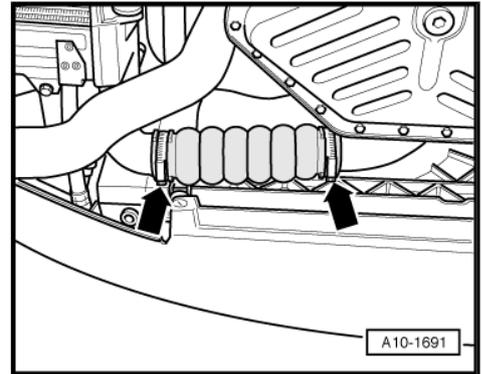
- Place drip tray for workshop hoist - VAS 6208- beneath engine.
- Unscrew drain plug -arrow- and drain off coolant.



- Detach coolant hose -arrow- at coolant pipe and allow remaining coolant to drain out of engine.



- Remove air intake hose (front left) -arrows-.

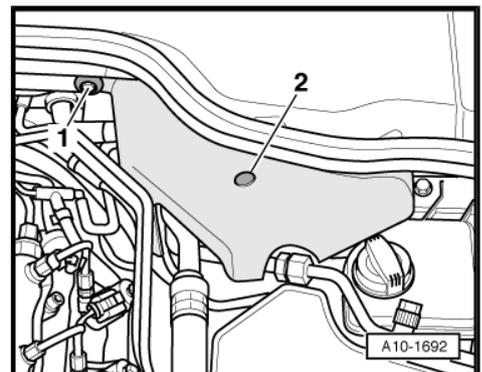
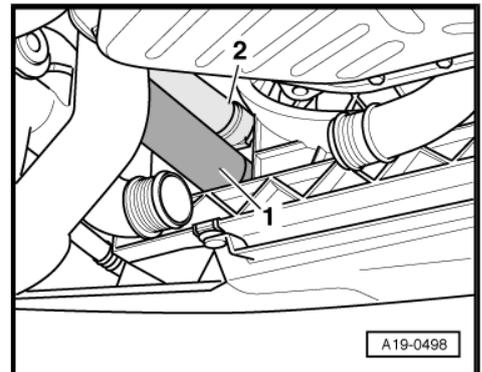


- Pull out clip -arrow- and detach bottom coolant hose -1- from radiator.

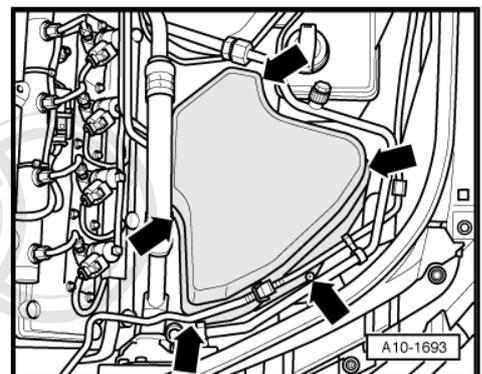
 **Note**

*Disregard -item 2-.*

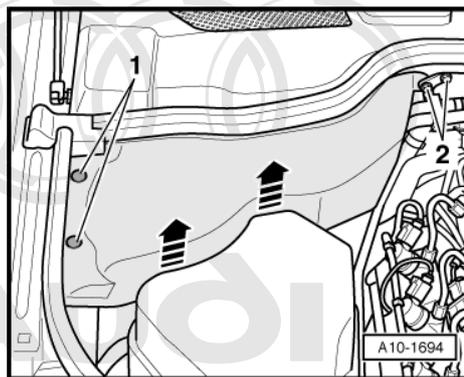
- Remove front section of front wheel housing liner (left and right) ⇒ Rep. gr. 66 .
- Remove front bumper cover ⇒ Rep. gr. 63 .
- Remove cover for left suspension strut turret by unscrewing nut -1- and detaching fastener -2-.



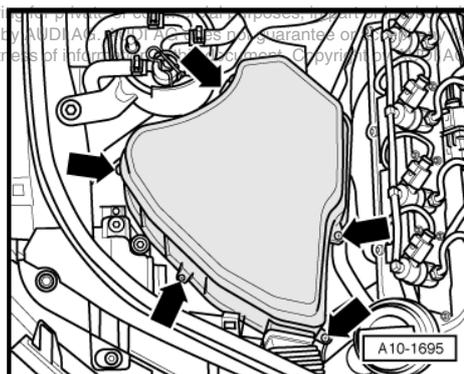
- Unscrew bolts -arrows-.
- Detach left air cleaner (top section).



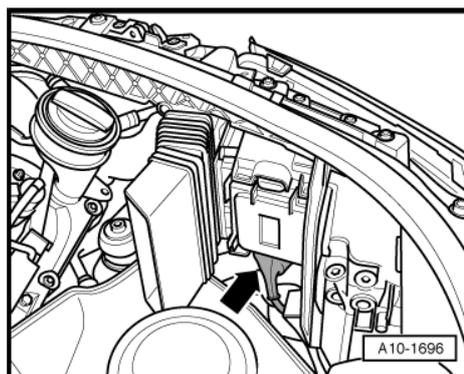
- Remove cover for suspension strut turret (right-side) by detaching spreader clip -1- and unscrewing bolt connection -2-.
- Pull cover out of retainers -arrows-.



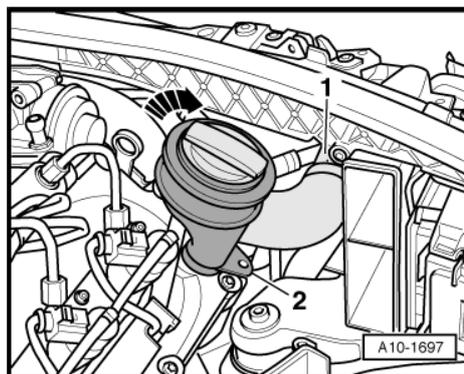
- Remove bolts -arrows- and detach right air cleaner (top section).



- Unplug headlight connector -arrow- on both sides of vehicle.



- Detach oil filler neck by lifting lug -2- and turning oil filler neck in clockwise direction -arrow-.
- Pull out clip and detach coolant hose -1- (top) from radiator.
- Install oil filler neck.





**WARNING**

*Do not open refrigerant circuit of air conditioner.*



**Note**

*To prevent damage to air conditioner compressor and refrigerant pipes/hoses, take care to avoid straining, kinking or bending pipes and hoses.*

- Detach clamp -1- at reservoir.
- Remove bolts -2-.



**Note**

*Do not open refrigerant pipe -3-.*

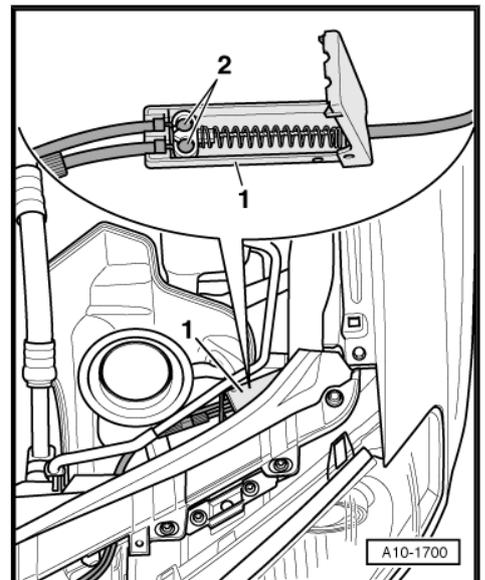
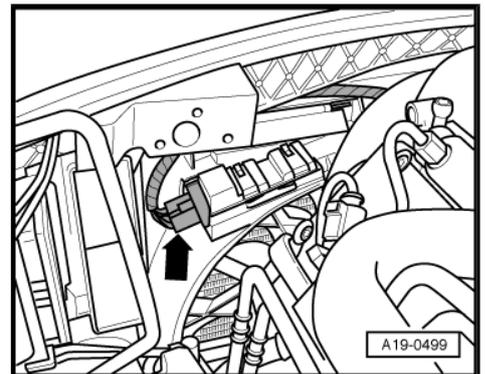
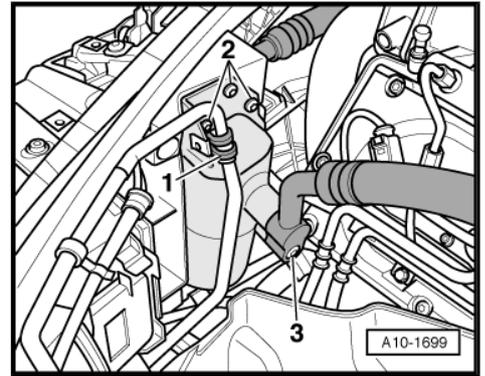
- Unplug electrical connector -arrow- for radiator fan 2 - V177- .



**Note**

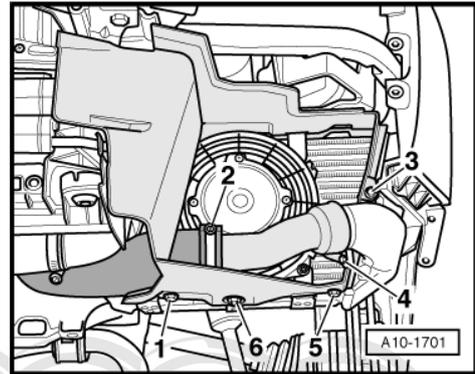
*Shown with reservoir removed for illustration purposes.*

- Detach cable junction -1- from lock carrier.
- Open housing and disengage the two bonnet cables -2-.

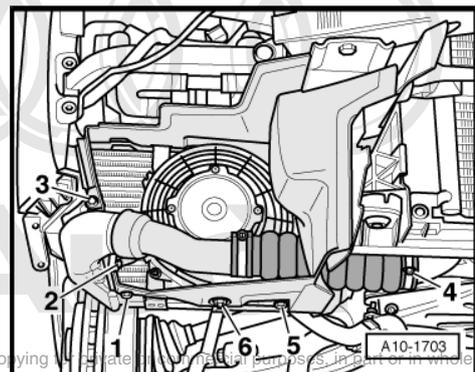


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- Remove bolt -4- and nut -6-.
- Loosen hose clip -2- and remove air pipe.
- Unscrew bolts -1-, -3- and -5-.
- Detach air duct for charge air cooler (left-side).

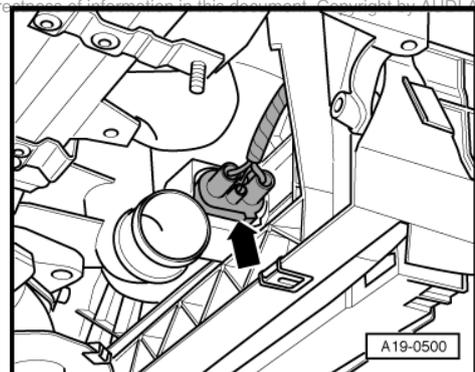


- Remove bolt -2- and nut -6-.
- Loosen hose clip -4- and remove air pipe with hose.
- Unscrew bolts -1-, -3- and -5-.
- Detach air duct for charge air cooler (right-side).

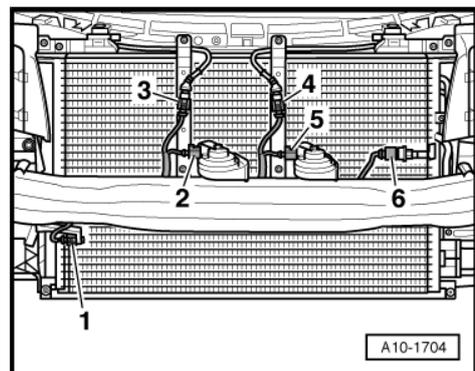


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- Release wiring and electrical connector -arrow- for radiator fan -V7- .

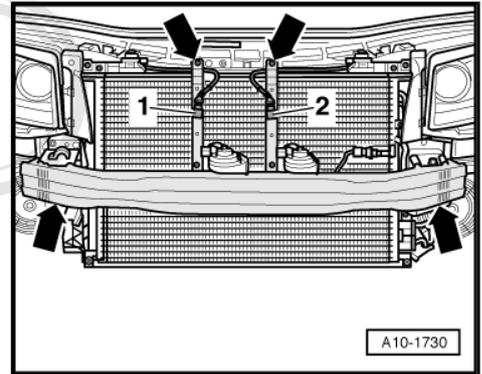


- Move clear electrical connectors -1 ... 6- and electrical wiring.
- Remove retainer for ambient temperature sensor - G17- . To do so, turn retainer 90° clockwise and detach.



- Unclip electrical connectors -1- and -2- from braces.
- Unscrew bolts -arrows-.
- Remove bumper with braces.

 **WARNING**  
 Do not open refrigerant circuit of air conditioner.

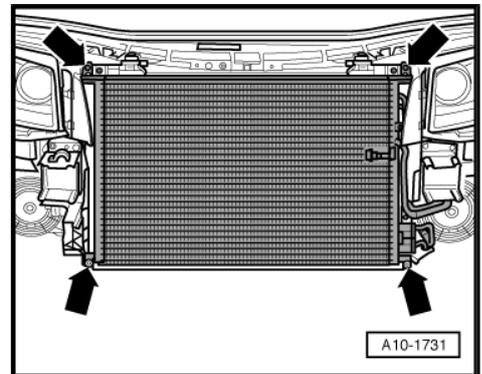


 **Note**

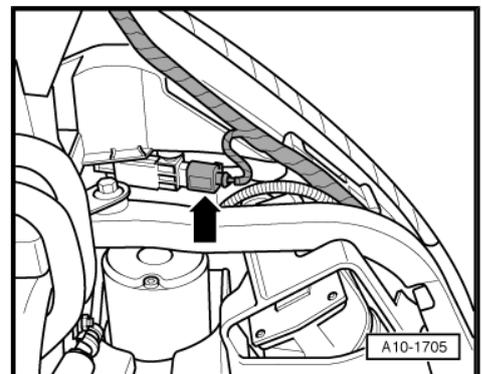
To prevent damage to air conditioner compressor and refrigerant pipes/hoses, take care to avoid straining, kinking or bending pipes and hoses.

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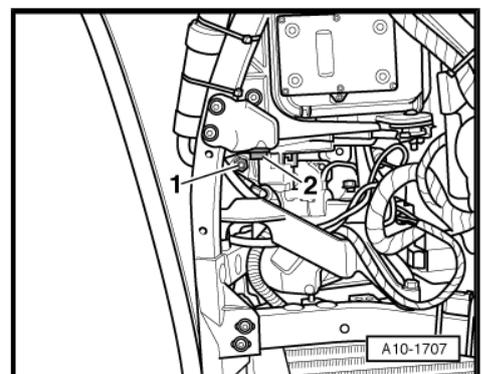
- Unscrew bolts -arrows-.
- Swivel down condenser with cooler for power steering.
- Tie up condenser at bottom to engine.



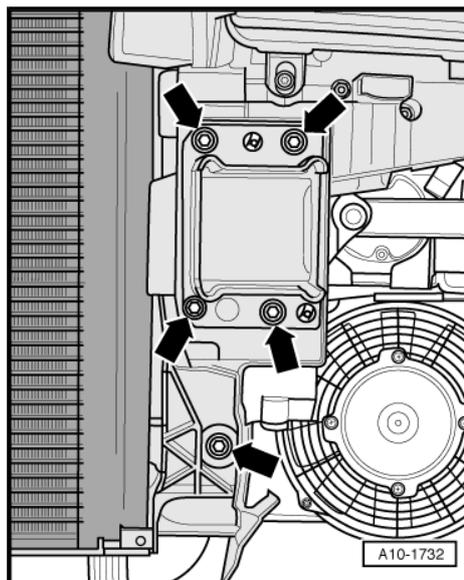
- Unplug electrical connector -arrow- on crash sensor for front airbag (left and right).
- Move all wiring clear at rear of lock carrier.



- Unscrew one nut -1- and one bolt -2- each for lock carrier in left and right wheel housing.



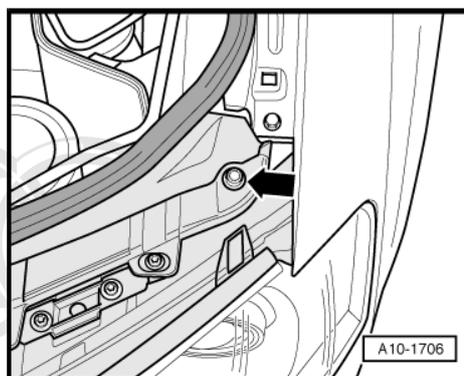
- Unscrew bolts -1 ... 5- on both sides of vehicle.
- Detach bonnet seal at both wings.



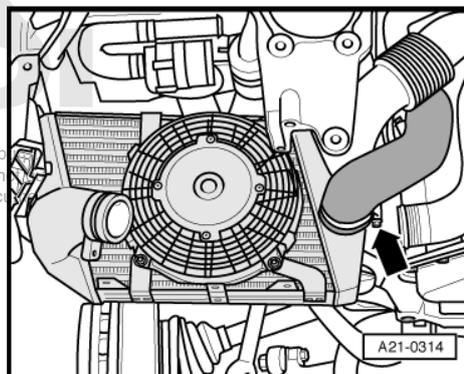
- Unscrew one bolt -arrow- each on left and right at top of lock carrier.
- Remove lock carrier.

**Note**

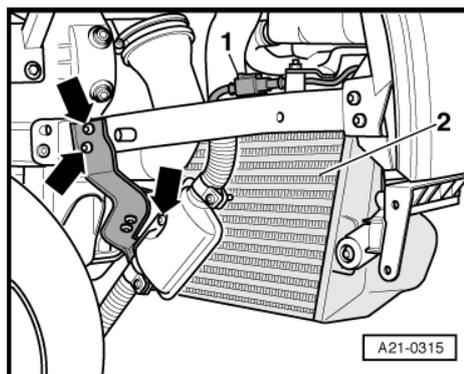
*A second mechanic is required for removing lock carrier.*



- Remove air hose -arrow- at charge air cooler (right-side).

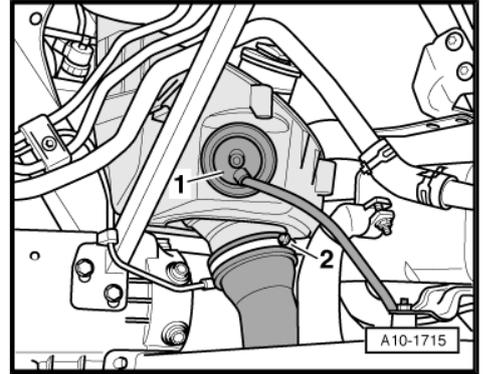


- Unplug electrical connector -1-.
- Unscrew bolts -arrows- and remove bracket for charge air cooler.
- Detach charge air cooler (right-side) -2-.

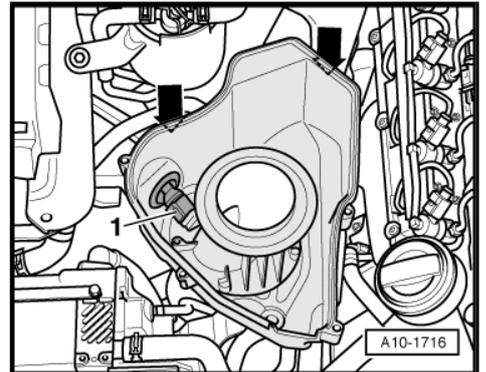


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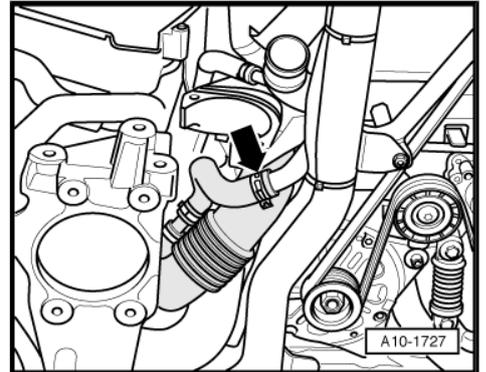
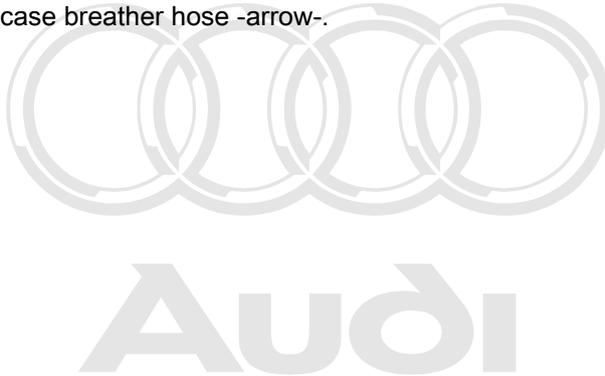
- Detach rubber grommet -1- from air cleaner (bottom section) in wheel housing (right-side).
- Detach air hose -2- from air cleaner (bottom section).



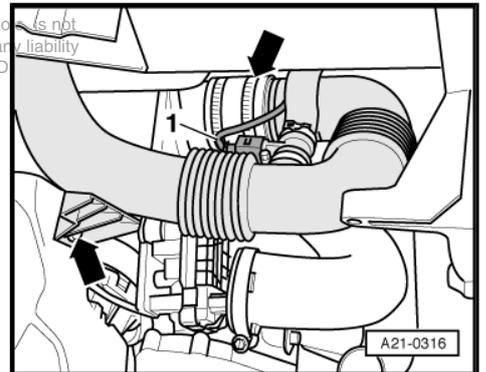
- Unplug electrical connector -1- at air mass meter - G70- .
- Unscrew bolts -arrows-.
- Detach right air cleaner (bottom section).



- Detach crankcase breather hose -arrow-.



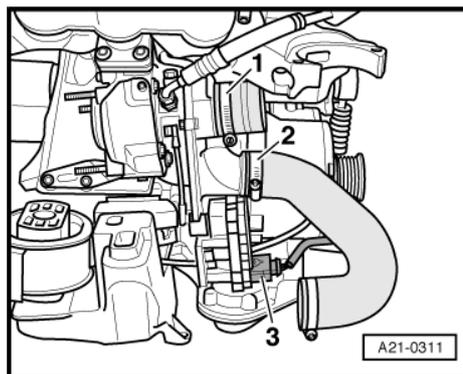
- Unplug electrical connector for heater element for crankcase breather - N79 - item 1.
- Remove air hose between air cleaner and turbocharger -arrows-.



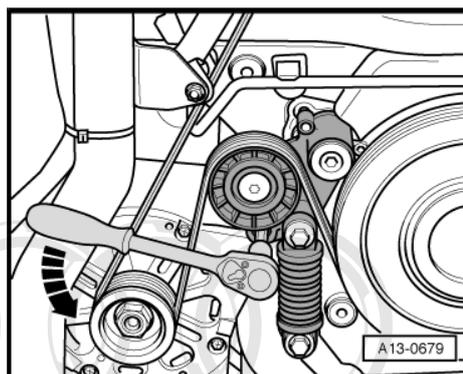
- Detach air hoses -1- and -2- from turbocharger.
- Unplug electrical connector -3-.

 **Note**

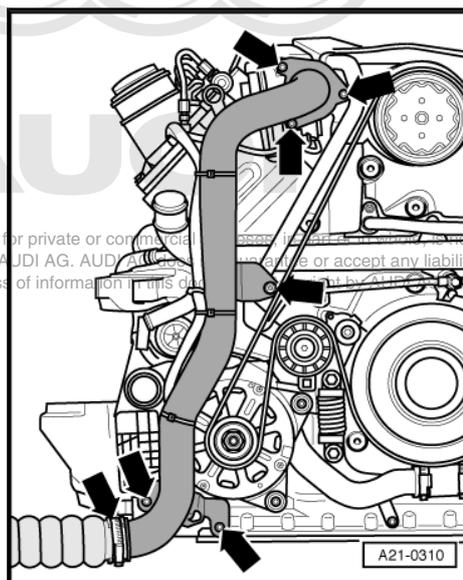
*Before removing, mark running direction of poly V-belt with chalk or felt-tipped pen. If the poly V-belt runs in the opposite direction when it is refitted, this can cause breakage.*



- To slacken poly V-belt turn tensioner in direction of -arrow-.
- Remove poly V-belt from alternator pulley.
- Release pressure from tensioner.
- Move electrical wiring clear at air pipe (front).

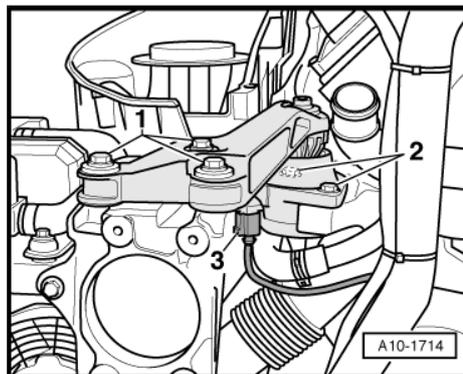


- Remove air pipe (front right) -arrows-.



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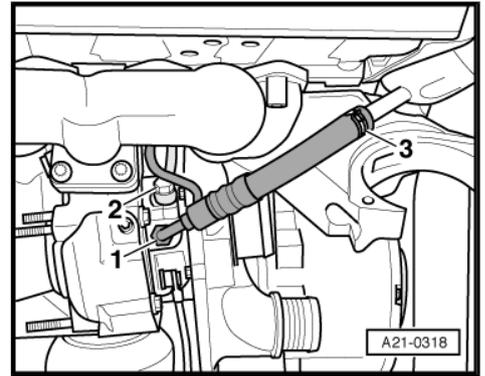
- Unplug electrical connector -3-.
- Remove bolts -1- and -2-.
- Remove bracket and mounting for torque reaction support.



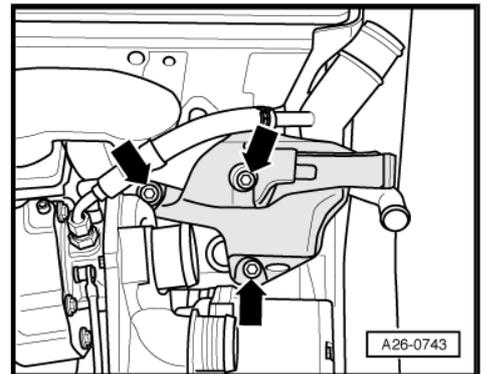
- Unscrew coolant pipe -1- at turbocharger and detach coolant hose -3- at coolant pipe.

 **Note**

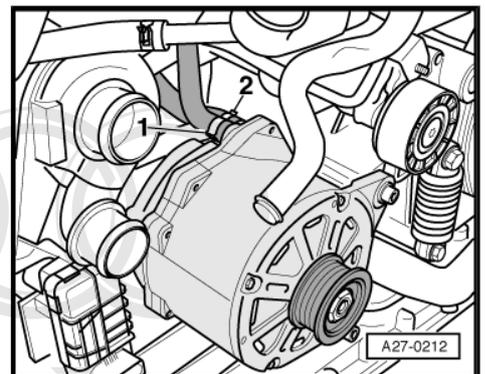
*Leave oil supply pipe -2- connected to turbocharger.*



- Remove torque reaction support -arrows-.



- Detach coolant hoses -1- and -2- on back of alternator.
- Unscrew electrical wire at alternator.
- Unplug electrical connector.



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- Remove bolts -arrows- and detach alternator.

**Note**

- ◆ *If alternator sticks in bracket, screw bolt back in again down to the last 2 turns.*
- ◆ *Tap carefully on bolt heads with flat side of hammer to release threaded bushes of alternator mount.*

**Installing**

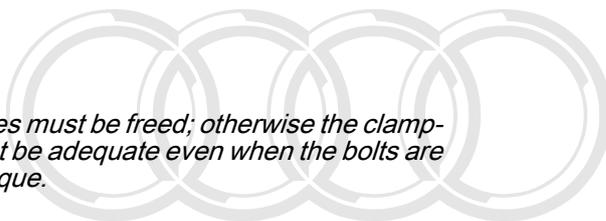
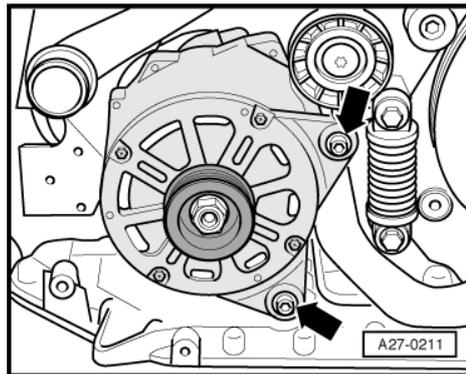
Installation is carried out in the reverse order; note the following:

**Note**

- ◆ *Renew seals and O-rings.*
  - ◆ *Hose flanges and hoses for charge air system must be free from oil and grease before fitting.*
  - ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
  - ◆ *Refit all cable ties at the same locations when reinstalling.*
- To facilitate positioning of alternator, drive back bushes for securing bolts slightly.

**Note**

*Stiff alternator mount bushes must be freed; otherwise the clamping force of the bush will not be adequate even when the bolts are tightened to the correct torque.*



# Audi

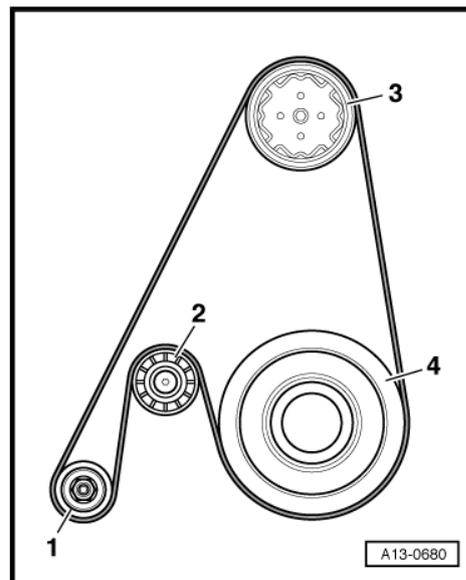
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- Fit poly V-belt over pulleys.
- 1 - Alternator
- 2 - Tensioner for poly V-belt
- 3 - Air conditioner compressor
- 4 - Crankshaft

 **Note**

*When installing poly V-belt, make sure it is properly seated on pulleys.*

- Install charge air cooler (right-side) ⇒ Rep. gr. 21 .
- Install lock carrier with attachments ⇒ Rep. gr. 50 .
- Install front bumper cover ⇒ Rep. gr. 63 .
- Install front wheel housing liner (left and right) ⇒ Rep. gr. 66 .
- Connect battery. Steps required ⇒ [page 3](#) .
- Fill with coolant ⇒ Rep. gr. 19 .
- Start engine and check that belt runs properly.



**Tightening torques**

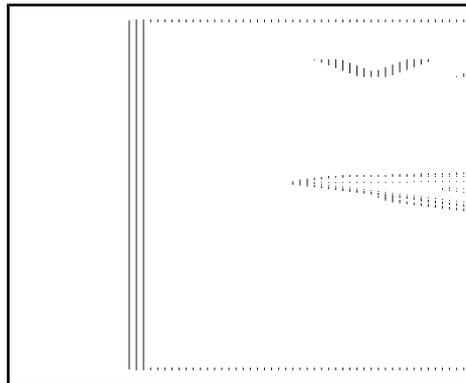
Component	Nm
Alternator to engine	22
Terminal 30/B+ to alternator	16
Coolant pipe to turbocharger	10
Torque reaction support to engine	42
Mounting for torque reaction support to torque reaction support	23
Bracket for torque reaction support to longitudinal member	42
Air pipe (right-side) to engine	10
Condenser to lock carrier	6
Bumper to bracket for lock carrier	23
Reservoir to lock carrier	10
Braces to lock carrier	10 <sup>1)</sup>
Hose clips for air intake hoses	5
• <sup>1)</sup> Apply locking fluid when installing; for locking fluid refer to ⇒ Electronic parts catalogue .	

**3.9 Vehicles with 4.2 ltr. TDI engine**

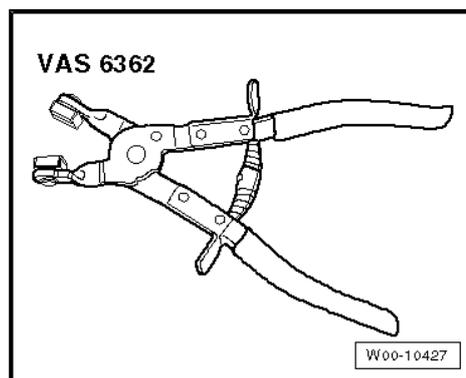
**Special tools and workshop equipment required**

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## ◆ Drip tray for workshop hoist - VAS 6208-



## ◆ Hose clip pliers - VAS 6362-



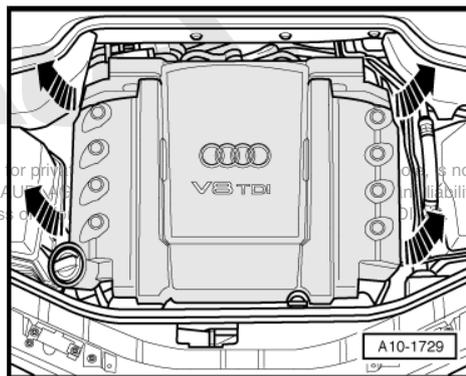
## Removing



## Note

All cable ties unfastened or cut open during removal must be re-attached in same position when installing.

- With ignition switched off, disconnect earth cable at battery  
⇒ [page 2](#) .
- Carefully pull the engine cover panel off the four retaining pins one after the other -arrows-.



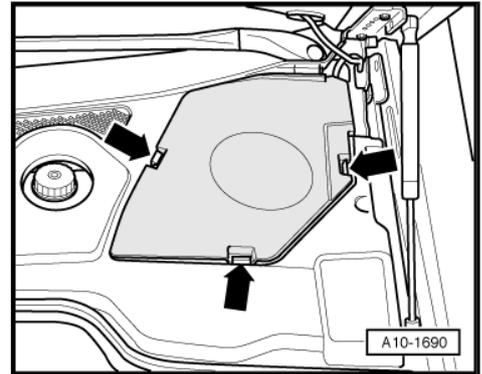
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- Remove cover over coolant expansion tank -arrows-.



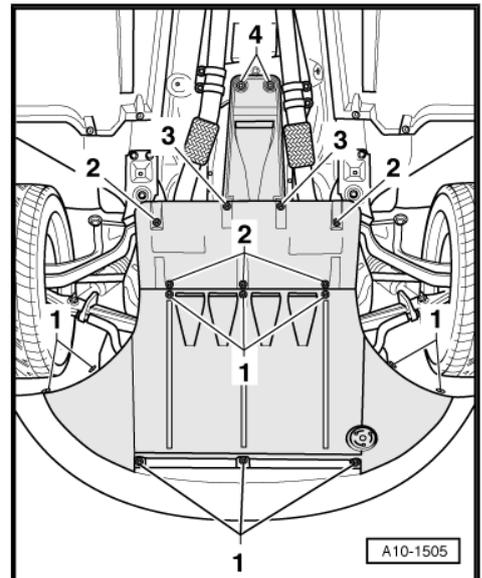
**WARNING**

*Hot steam/hot coolant may escape when opening coolant expansion tank. Cover cap with cloth and open carefully.*

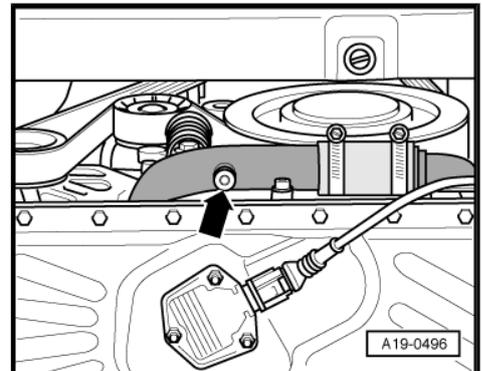
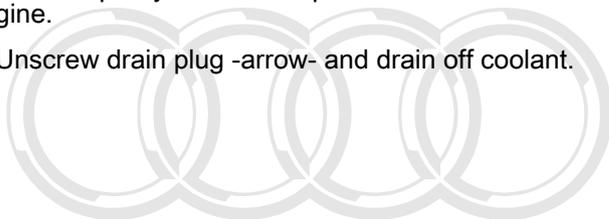


- Open filler cap for coolant expansion tank.

- Remove both front wheels.
- Open quick-release fasteners -1- and detach front noise insulation.

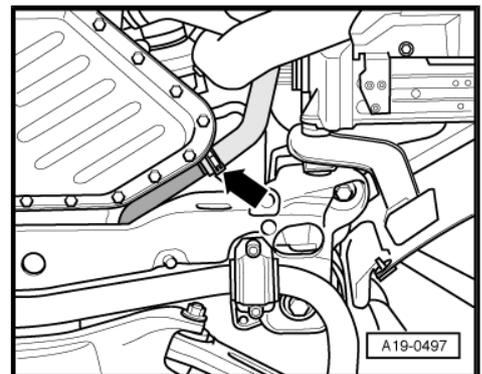


- Place drip tray for workshop hoist - VAS 6208- beneath engine.
- Unscrew drain plug -arrow- and drain off coolant.

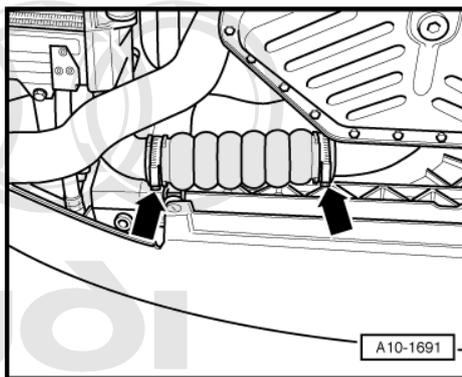


- Detach coolant hose -arrow- at coolant pipe and allow remaining coolant to drain out of engine.

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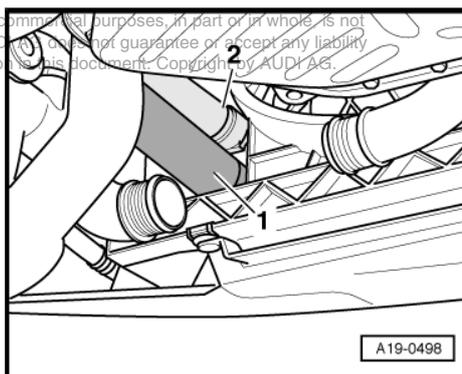


- Remove air intake hose (front left) -arrows-.



- Pull out clip -arrow- and detach bottom coolant hose 1 from radiator.

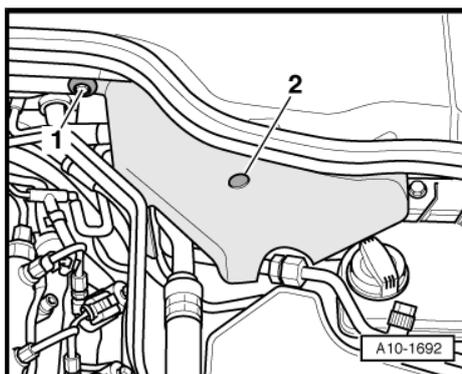
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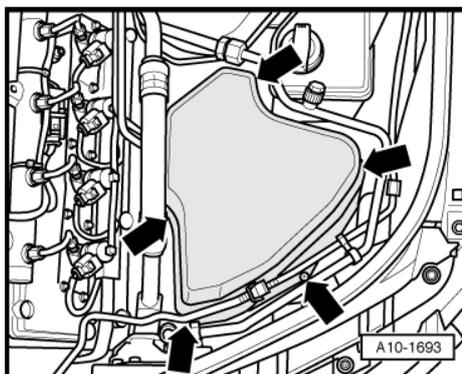
 **Note**

*Disregard -item 2-.*

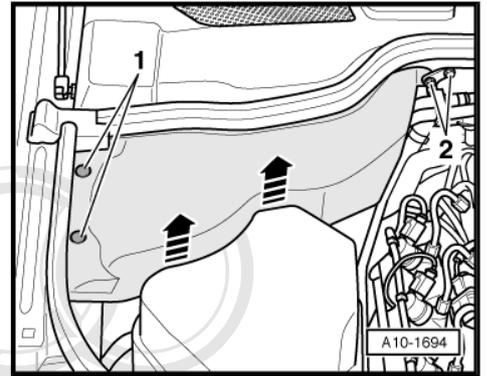
- Remove front section of front wheel housing liner (left and right) ⇒ Rep. gr. 66 .
- Remove front bumper cover ⇒ Rep. gr. 63 .
- Remove cover for left suspension strut turret by unscrewing nut -1- and detaching fastener -2-.



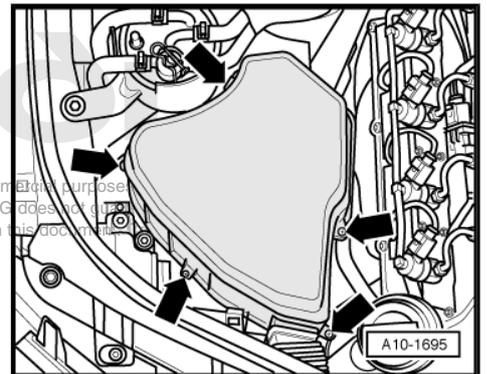
- Unscrew bolts -arrows-.
- Detach left air cleaner (top section).



- Remove cover for suspension strut turret (right-side) by detaching spreader clip -1- and unscrewing bolt connection -2-.
- Pull cover out of retainers -arrows-.

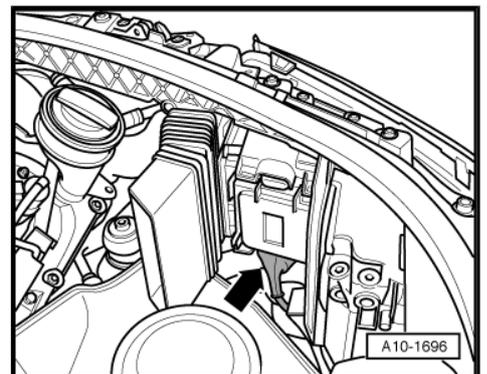


- Remove bolts -arrows- and detach right air cleaner (top section).



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- Unplug headlight connector -arrow- on both sides of vehicle.
- Detach bonnet seal.



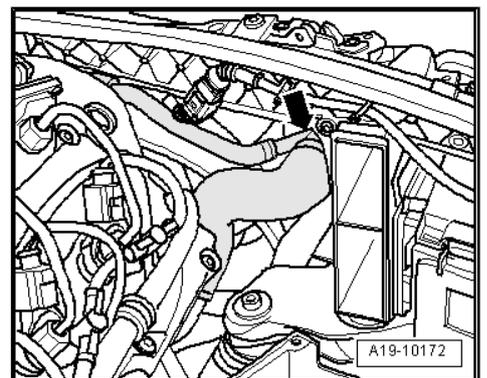
- Pull out retaining clip and detach coolant hose (top) -arrow- from radiator.



**WARNING**  
*Do not open refrigerant circuit of air conditioner.*

 **Note**

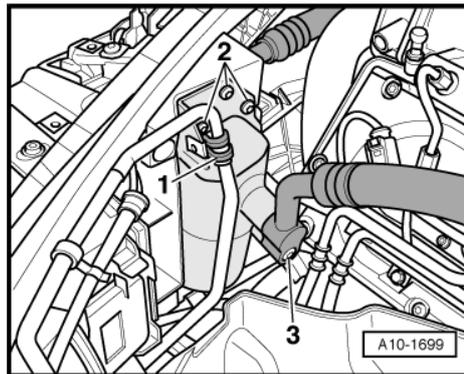
*To avoid damage to the refrigerant pipes/hoses, take care not to strain, kink or bend pipes and hoses.*



- Detach clamp -1- at reservoir.
- Remove bolts -2-.

 **Note**

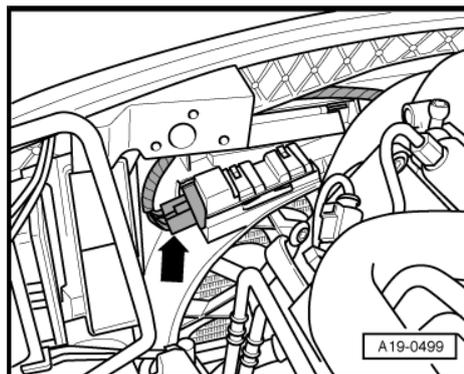
*Do not open refrigerant pipe -3-.*



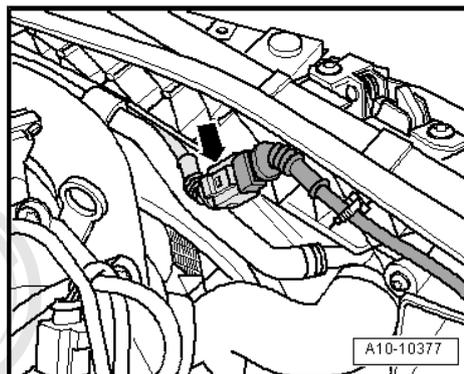
- Unplug electrical connector -arrow- for radiator fan 2 - V177- .

 **Note**

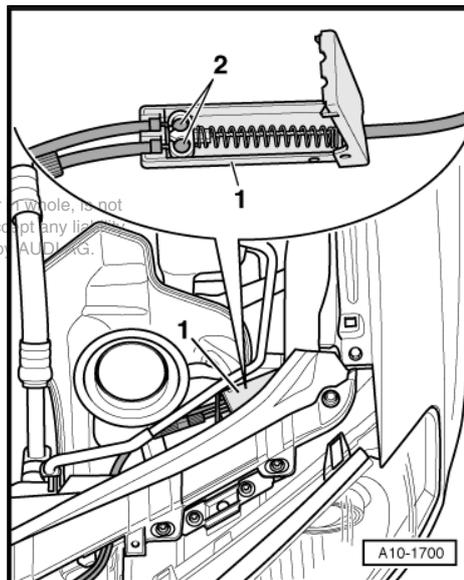
*Shown with reservoir removed for illustration purposes.*



- Unplug electrical connector -arrow- (left and right) at bonnet lock.
- Move wiring clear.

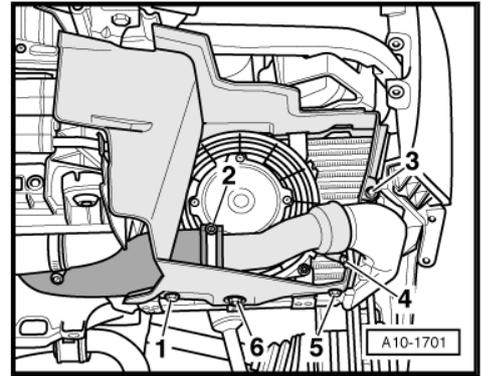


- Detach cable junction -1- from lock carrier.
- Open housing and disengage the two bonnet cables -2-.

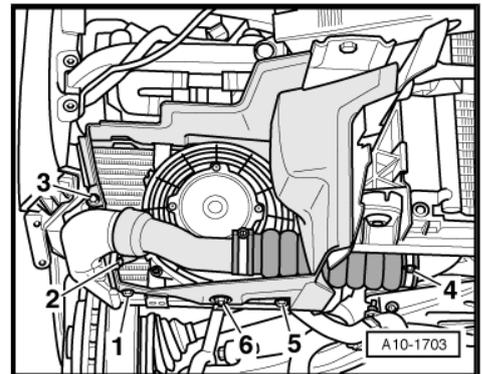


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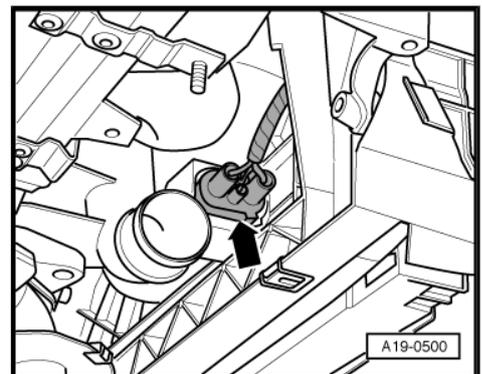
- Unscrew bolts -1-, -3- and -5-.
- Remove bolt -4- and nut -6-.
- Loosen hose clip -2- and remove air pipe.
- Detach air duct for charge air cooler (left-side).



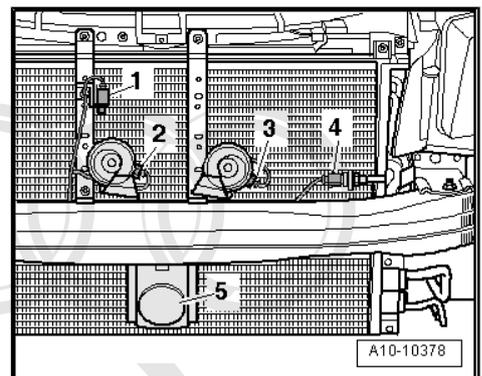
- Unscrew bolts -1-, -3- and -5-.
- Remove bolt -2- and nut -6-.
- Loosen hose clip -4- and remove air pipe with hose.
- Detach air duct for charge air cooler (right-side).



- Unplug electrical connector -arrow- for radiator fan - V7- .
- Move wiring clear.



- Remove ambient temperature sensor - G17- -item 1- from bracket.
- Unplug electrical connectors -2 ... 4-.
- Unbolt adaptive cruise control unit - J428- -item 5- and unplug electrical connector.
- Move harness clear.

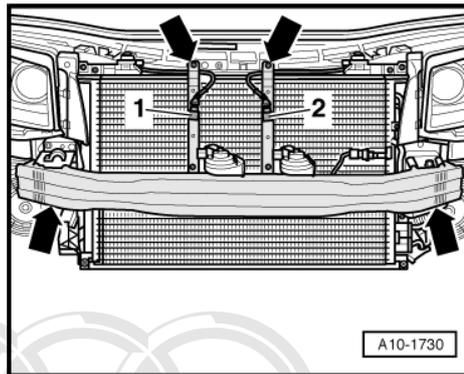


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- Unscrew bolts -arrows-.
- Remove bumper with braces.

**i** Note

Disregard -item 1- and -item 2-.

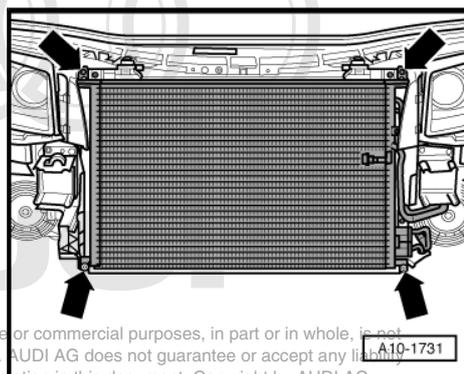


**!** **WARNING**  
 Do not open refrigerant circuit of air conditioner.

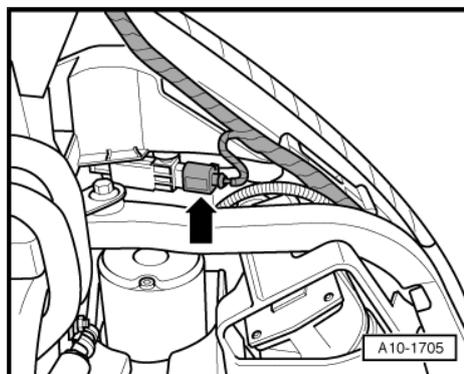
**i** Note

To avoid damage to the refrigerant pipes/hoses, take care not to strain, kink or bend pipes and hoses.

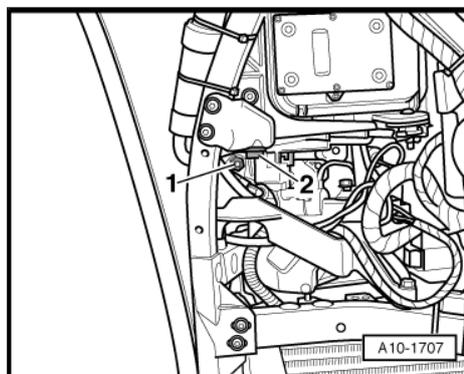
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- Unscrew bolts -arrows-.
- Swivel down condenser with cooler for power steering.
- Tie up condenser at bottom to engine.
- Unplug electrical connector -arrow- on crash sensor for front airbag (left and right).
- Move all wiring clear at rear of lock carrier.



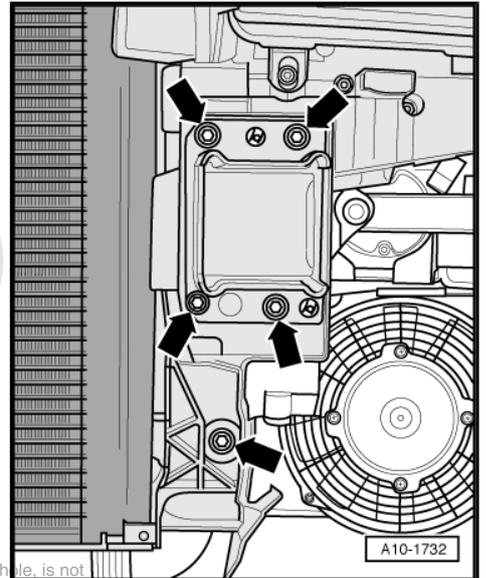
- Unscrew one nut -1- and one bolt -2- each for lock carrier in left and right wheel housing.



- Unscrew bolts -1 ... 5- on both sides of vehicle.



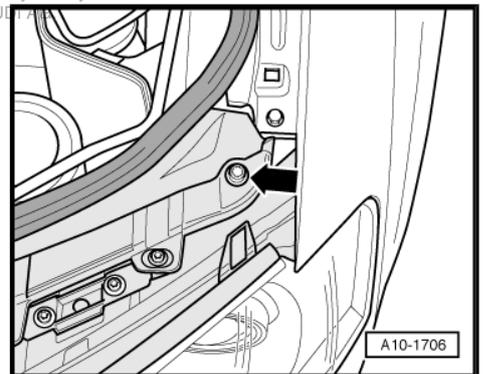
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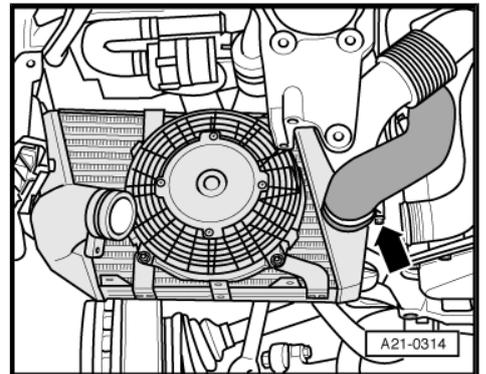
- Unscrew one bolt -arrow- each on left and right at top of lock carrier.
- Remove lock carrier.

 **Note**

*A second mechanic is required for removing lock carrier.*



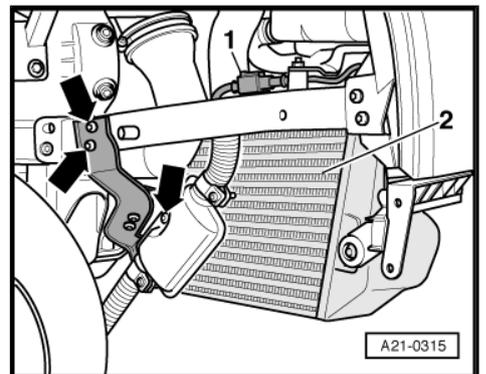
- Remove air hose -arrow- at charge air cooler (right-side).



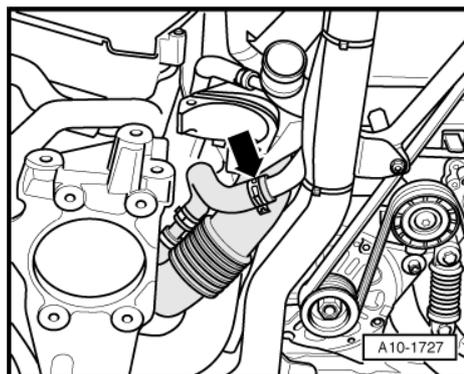
- Unscrew bolts -arrows- and remove bracket for charge air cooler.
- Detach charge air cooler (right-side) -2-.

 **Note**

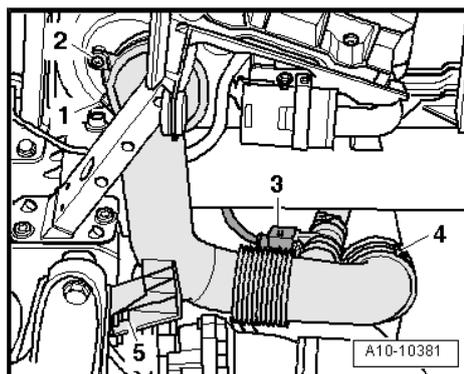
*Disregard -item 1-.*



- Detach crankcase breather hose -arrow-.



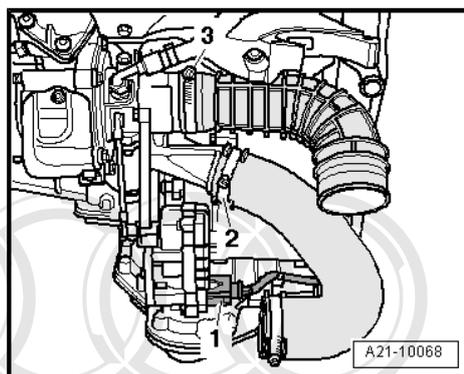
- Unplug electrical connector for heater element for crankcase breather - N79- -item 3-.
- Unscrew locking bolt -2- and retaining bolt -5-.
- Unfasten hose clips -1- and -4- and detach air hose from air cleaner housing to turbocharger (right-side).



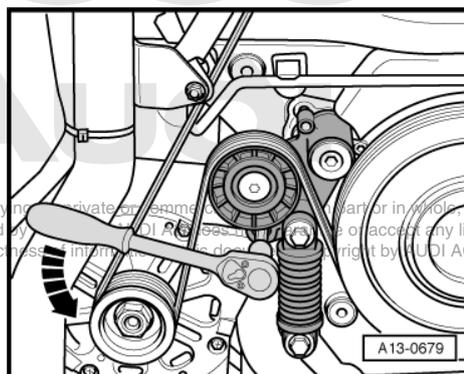
- Unplug electrical connector -1-.
- Detach air hoses -2- and -3- from turbocharger.

 **Note**

*Before removing, mark running direction of poly V-belt with chalk or felt-tipped pen. If the poly V-belt runs in the opposite direction when it is refitted, this can cause breakage.*

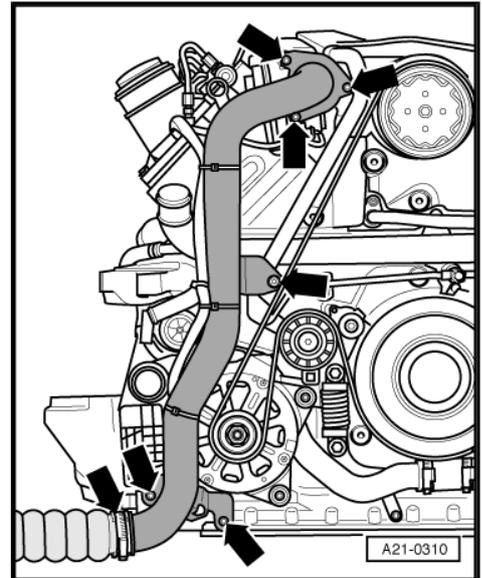


- To slacken poly V-belt, pivot tensioner in direction indicated -arrow- using a lever with  $\frac{3}{8}$ " drive.
- Remove poly V-belt from alternator pulley.
- Release pressure from tensioner.

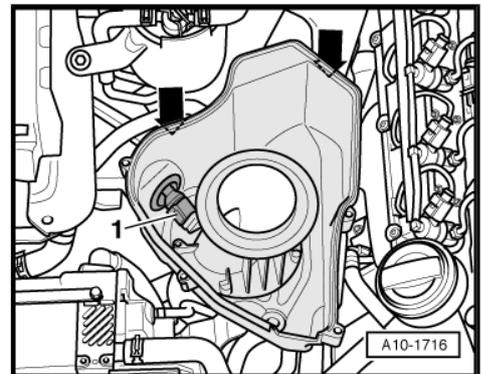


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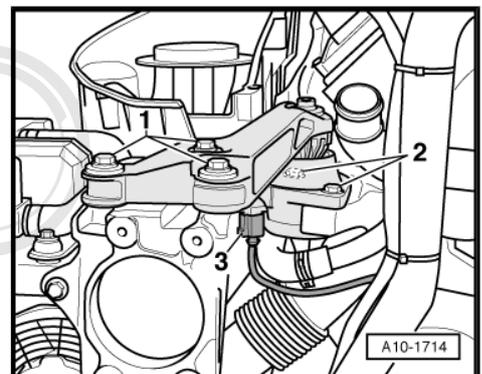
- Move electrical wiring clear at air pipe (front).
- Remove air pipe (front right) -arrows-.



- Unplug electrical connector -1- at air mass meter - G70- .
- Unscrew bolts -arrows-.
- Detach right air cleaner (bottom section).



- Unplug electrical connector -3- if fitted.
- Remove bolts -1- and -2-.
- Remove bracket and mounting for torque reaction support.

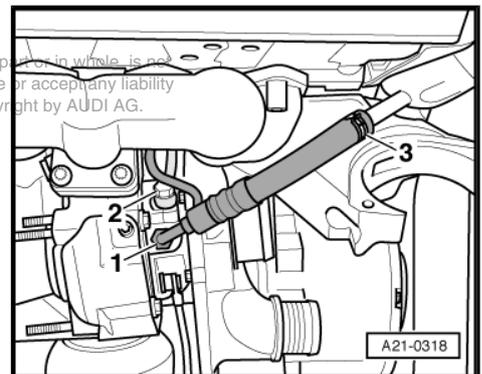


- Unscrew coolant pipe -1- at turbocharger and detach coolant hose -3- at coolant pipe.

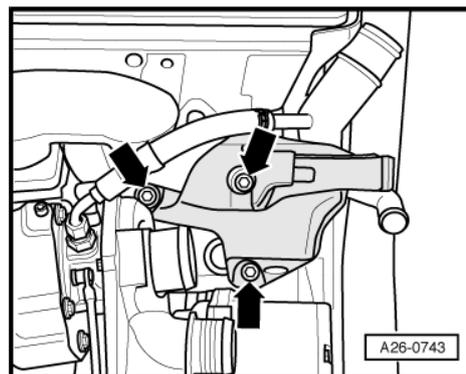
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**i Note**

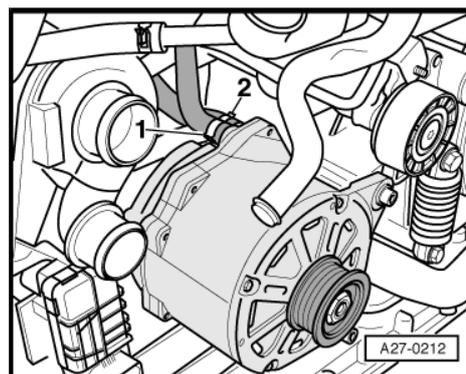
*Leave oil supply pipe -2- connected to turbocharger.*



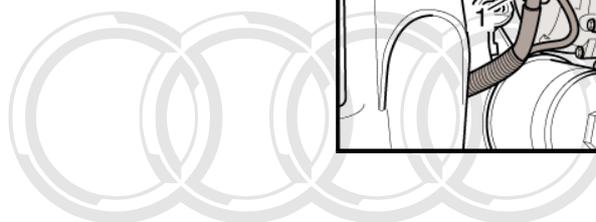
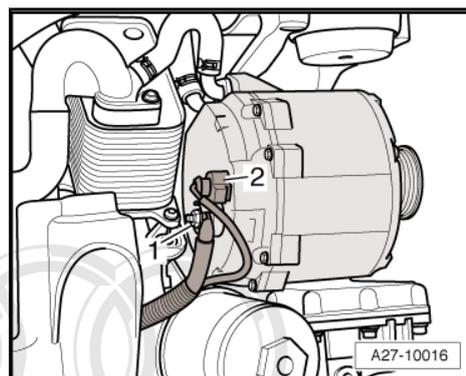
- Remove torque reaction support -arrows-.



- Detach coolant hoses -1- and -2- on back of alternator.



- Unscrew electrical wire -1- at alternator.
- Unplug electrical connector -2-.



# Audi

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- Remove bolts -arrows- and detach alternator.

 **Note**

- ◆ *If alternator sticks in bracket, screw bolt back in again down to the last 2 turns.*
- ◆ *Tap carefully on bolt heads with flat side of hammer to release threaded bushes of alternator mount.*

**Installing**

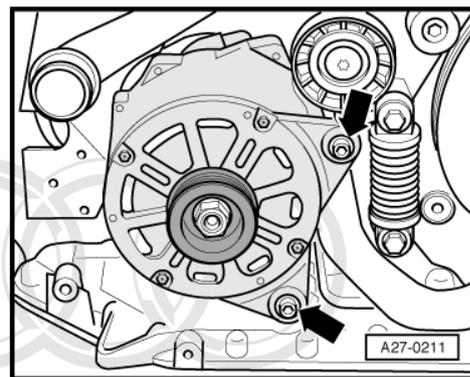
Installation is carried out in the reverse order; note the following:

 **Note**

- ◆ *Renew seals and O-rings.*
  - ◆ *Hose flanges and hoses for charge air system must be free from oil and grease before fitting.*
  - ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
  - ◆ *Refit all cable ties at the same locations when reinstalling.*
- To facilitate positioning of alternator, drive back bushes for securing bolts slightly.

 **Note**

*Stiff alternator mount bushes must be freed; otherwise the clamping force of the bush will not be adequate even when the bolts are tightened to the correct torque.*

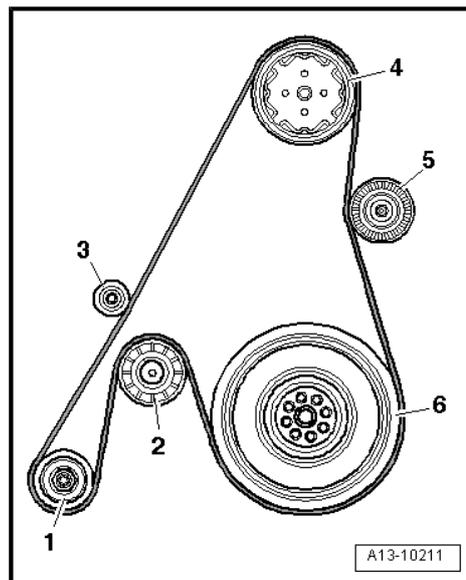


- Fit poly V-belt over pulleys.
- 1 - Alternator
- 2 - Tensioner for poly V-belt
- 3 - Idler roller
- 4 - Air conditioner compressor
- 5 - Idler roller
- 6 - Crankshaft

 **Note**

*When installing poly V-belt, make sure it is properly seated on pulleys.*

- After fitting poly V-belt, use a torque wrench to re-tighten bolts of spring for tensioning roller.
- Install charge air cooler (right-side) ⇒ Rep. gr. 21 .
- Install lock carrier with attachments ⇒ Rep. gr. 50 .
- Install front bumper cover ⇒ Rep. gr. 63 .
- Install front wheel housing liner (left and right) ⇒ Rep. gr. 66 .
- Connect battery. Steps required ⇒ [page 3](#) .
- Fill with coolant ⇒ Rep. gr. 19 .
- Start engine and check that belt runs properly.



**Tightening torques**

Component	Nm
Alternator to engine	22
Bolt for spring to cylinder block	22
Terminal 30/B+ to alternator	16
Coolant pipe to turbocharger	10
Torque reaction support to engine	42
Mounting for torque reaction support to torque reaction support	23
Bracket for torque reaction support to longitudinal member	42
Air pipe (right-side) to engine	10
Condenser to lock carrier	6
Bumper to bracket for lock carrier	23
Reservoir to lock carrier	10
Braces to lock carrier	10 <sup>1)</sup>
Hose clips for air intake hoses	5.5
<ul style="list-style-type: none"> <li>• <sup>1)</sup> Apply locking fluid when installing; for locking fluid refer to ⇒ Electronic parts catalogue .</li> </ul>	

## 4 Checking and servicing alternator

### 4.1 Checking alternator

Checking alternator is performed in "Guided Fault Finding" selecting "Body/Electrical system / 27 - Starter, current supply/ electrical components / C- Alternator, checking" → Vehicle diagnostic tester.

### 4.2 Servicing alternator

⇒ Electrical system; General information; Rep. gr. 27 ; Alternator



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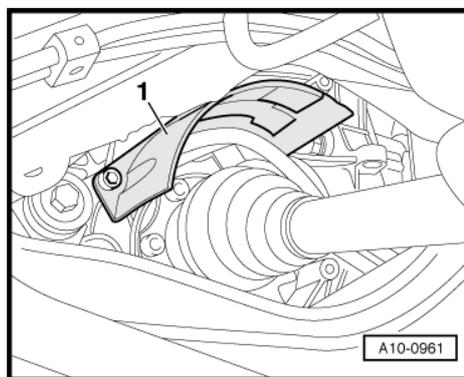
## 5 Removing and installing starter

Observe notes on contact corrosion ⇒ [page 1](#) .

### 5.1 Vehicles with 2.8 ltr. FSI, 3.0 ltr. MPI and 3.2 ltr. FSI engine

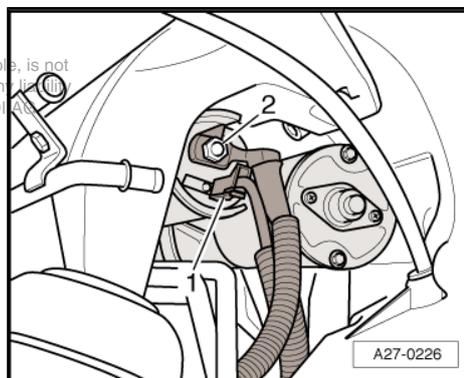
#### Removing

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Remove alternator:
- ◆ Vehicles with 3.0 ltr. MPI engine ⇒ [page 10](#)
- ◆ Vehicles with 2.8 ltr. and 3.2 ltr. FSI engine ⇒ [page 14](#)
- Remove front wheel (right-side).
- Detach heat shield -1- over drive shaft (right-side) from gearbox.



- Unscrew wire for terminal B+ -item 2-.

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- Unplug electrical connector for terminal 50 -item 1-.
- Unscrew starter retaining bolts -arrows- and detach starter.

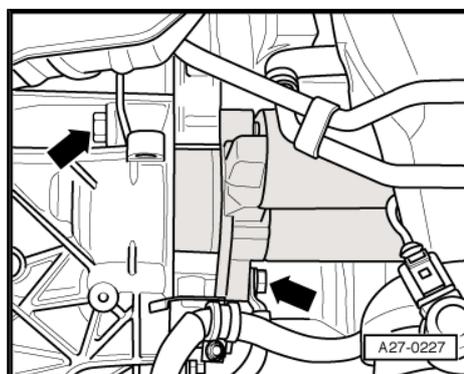
#### Installing

Installation is carried out in the reverse order; note the following:

- Install alternator; observe notes on connecting battery.
- ◆ Vehicles with 3.0 ltr. MPI engine ⇒ [page 10](#)
- ◆ Vehicles with 3.2 ltr. FSI engine ⇒ [page 14](#)

#### Tightening torques

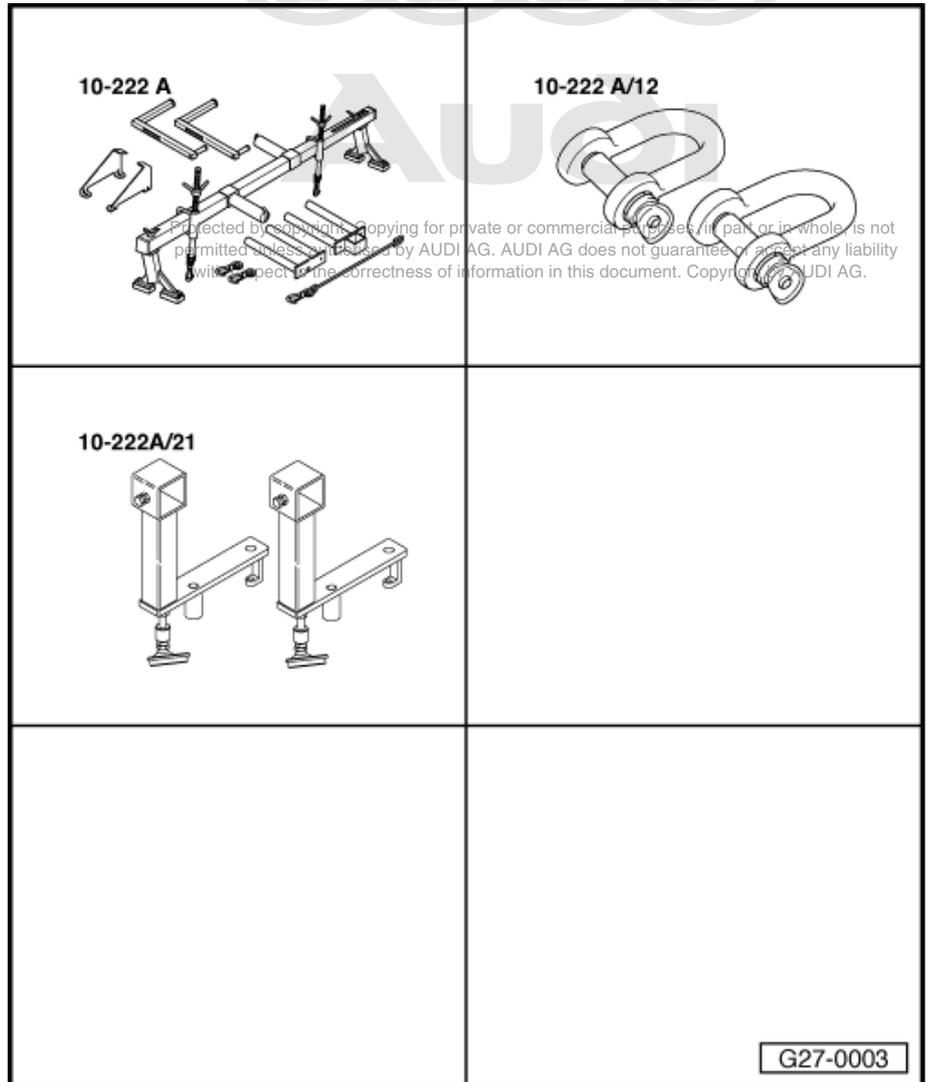
Component	Nm
Starter to engine	65
Terminal B+ to starter	16
Drive shaft heat shield to gearbox	23



## 5.2 Vehicles with 3.7 ltr. and 4.2 ltr. MPI engine

### Special tools and workshop equipment required

- ◆ Support bracket - 10 - 222 A-
- ◆ Shackle - 10 - 222 A /12-
- ◆ Adapter - 10 - 222 A /21-



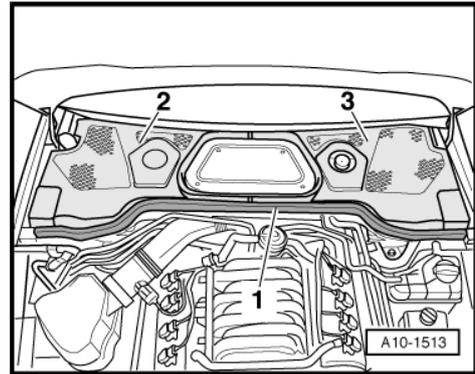
### Removing

- With ignition switched off, disconnect earth cable at battery  
 ⇒ [page 2](#) .

 **Note**

*All cable ties unfastened or cut open during removal must be re-attached in same position when installing.*

- Pull off rubber seal -1- for plenum chamber covers.
- Detach plenum chamber covers -2- and -3-.

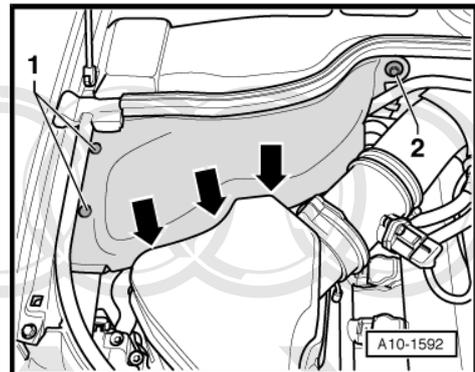


- Remove cover for suspension strut turret (right-side) by detaching fasteners -1- and unscrewing bolt -2-.



**Note**

*Pay attention to retaining clips -arrows- when installing.*

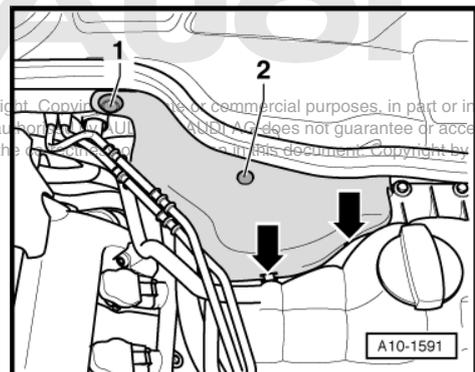


- Remove cover for suspension turret (left-side); to do so, unscrew bolt -2- and detach fasteners -1-.



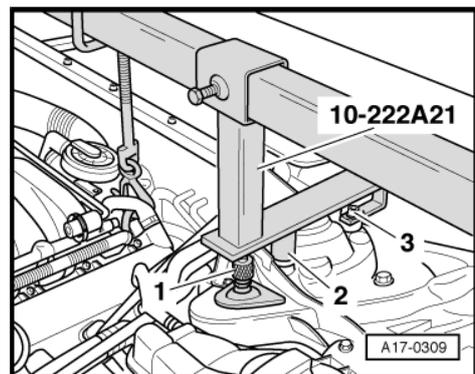
**Note**

*Pay attention to retaining clips -arrows- when installing.*

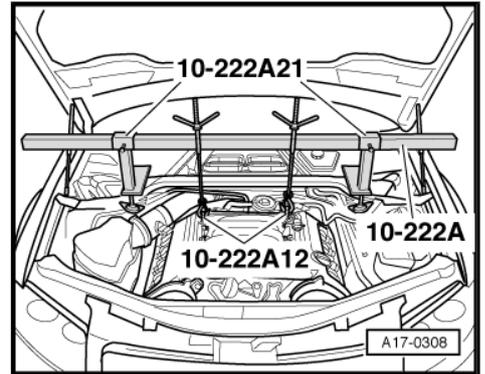


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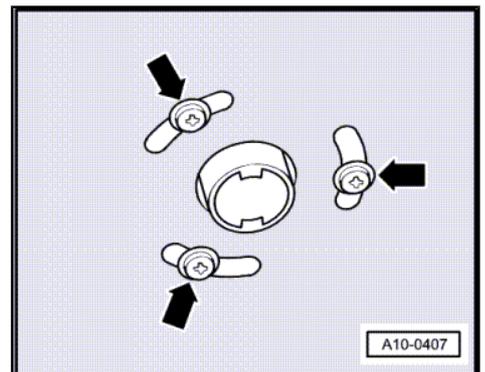
- Remove rear bolts -3- for body brace.
- Attach support bracket - 10 - 222 A- with adapters - 10 - 222 A /21- to suspension turrets.
- Supports are marked for left and right side of vehicle.
- Centre resting point of supports is positioned on front bolts for body brace.
- Adapters - 10 - 222 A /21- are secured with rear bolts -3- for body brace.
- Knurled screw -1- must be screwed down so that support plate rests on suspension strut turret.



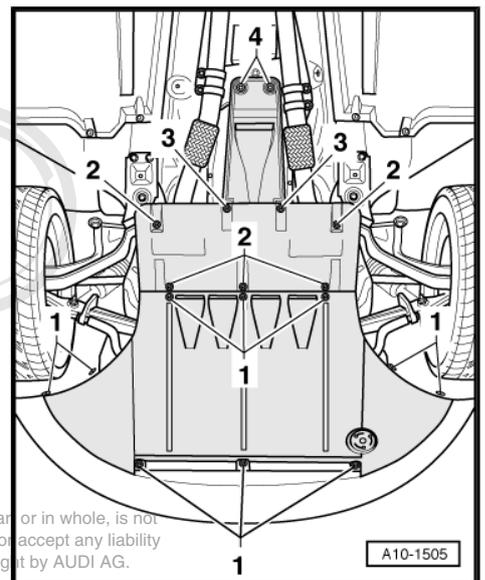
- Attach shackles - 10 - 222 A /12- to rear engine lifting eyes.
- Engage shackles - 10 - 222 A /12- on spindles of support bar - 10 - 222 A- .
- Take up weight of engine slightly with spindles of support bracket.



- On vehicles with auxiliary heater, unscrew bolts -arrows- for exhaust pipe of auxiliary/supplementary heater at noise insulation.

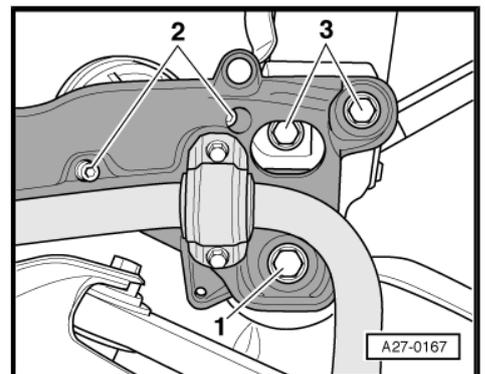


- Unfasten bolts/quick-release fasteners -1- and -2- and detach noise insulation (front).
- Remove front wheel (right-side).
- Remove front right wheel housing liner => Rep. gr. 66 .

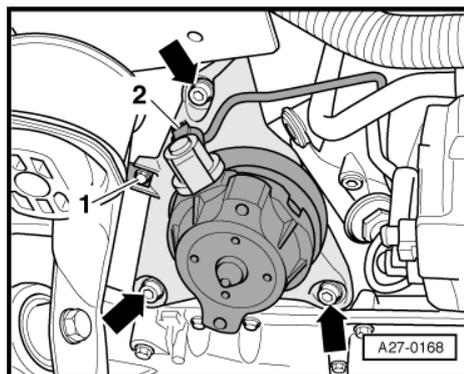


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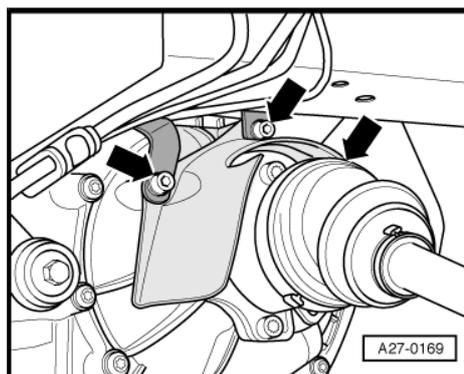
- Unscrew bolts -1 ... 3- on both sides.
- Lower cross member.



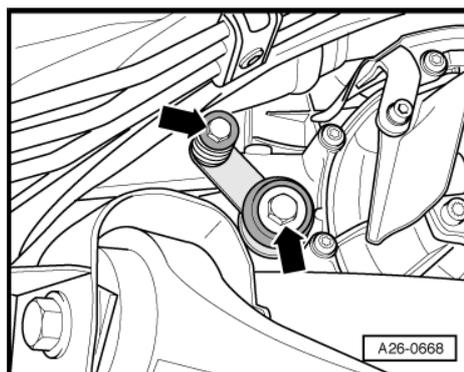
- Unscrew bolts -arrows-.
- Unscrew clamp -1-.
- Unplug electrical connector -2- at engine mounting.



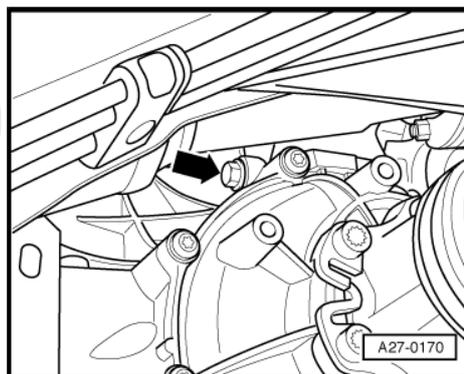
- Unscrew heat shield for drive shaft (right-side) -arrows-.



- Remove link plate for front exhaust pipe (right-side) -arrows-.



- Unscrew bolt -arrow-.



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- Remove bolt -1-.
- Unscrew electrical wire for terminal B+ -item 2-.
- Unplug electrical connector for terminal 50 -item 3-.

 **Note**

*Depending on version, terminal 50 may be screwed to starter.*

- Guide starter downwards and remove.

**Installing**

Installation is carried out in the reverse order; note the following:

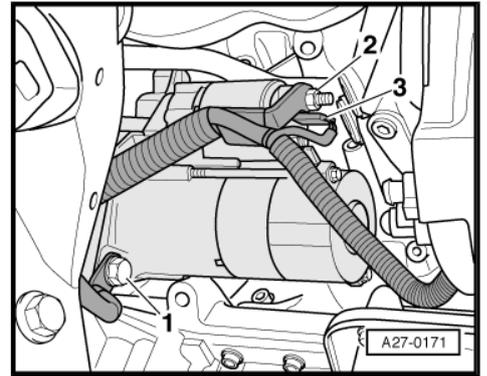
 **Note**

*Refit all cable ties at the same locations when reinstalling.*

- Install cross member ⇒ Rep. gr. 40 .
- Install front right wheel housing liner ⇒ Rep. gr. 66 .
- Connect battery. Steps required ⇒ [page 3](#) .

**Tightening torques**

Component		Nm
Starter	M10	45
To gearbox	M12	65
Terminal B+ to starter		16
Terminal 50 to starter		6.5
Exhaust system bracket		25
Heat shield to gearbox		23
Engine support to cylinder block		40
Clamp to engine support		10
Engine mounting to cross member		23



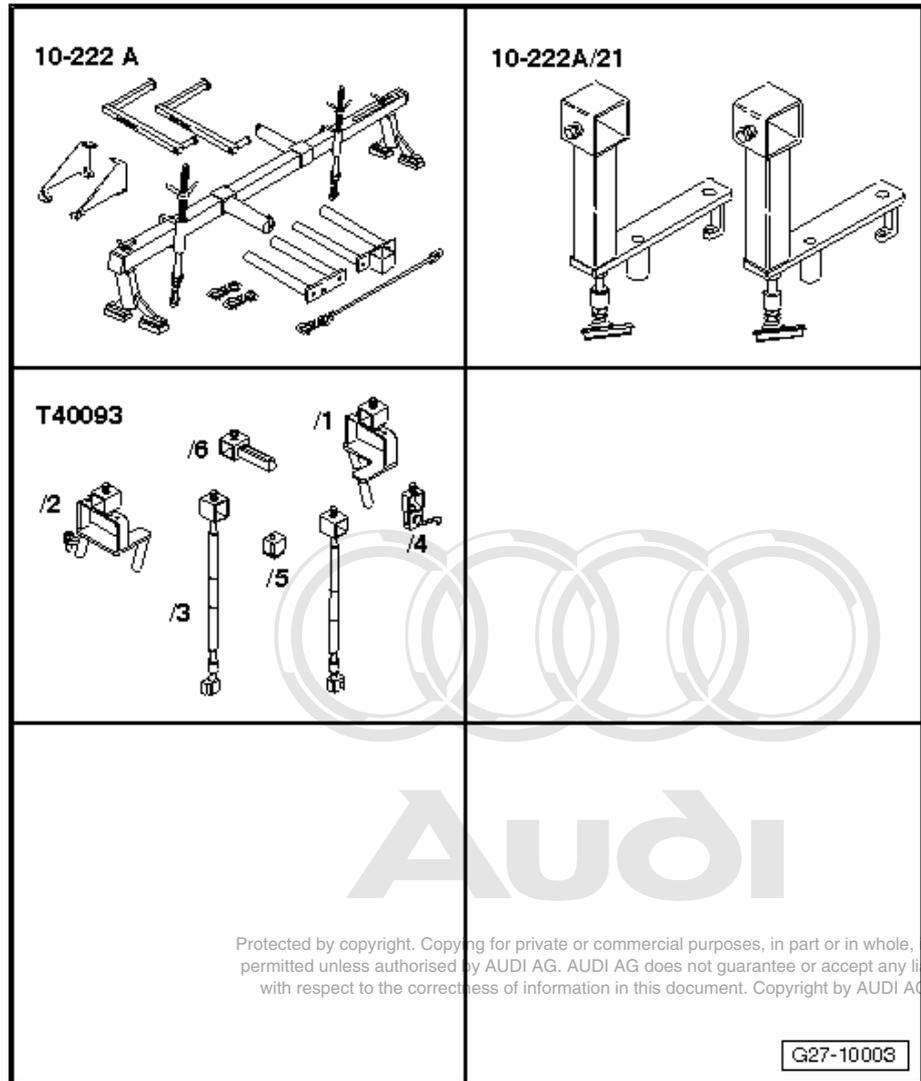
### 5.3 Vehicles with 4.2 ltr. FSI engine

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### Special tools and workshop equipment required

- ◆ Support bracket - 10 - 222 A-
- ◆ Adapter - 10 - 222 A /21-
- ◆ Engine support bracket, adapters - T40093-



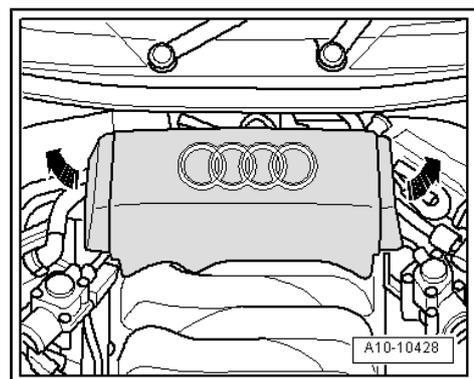
### Removing



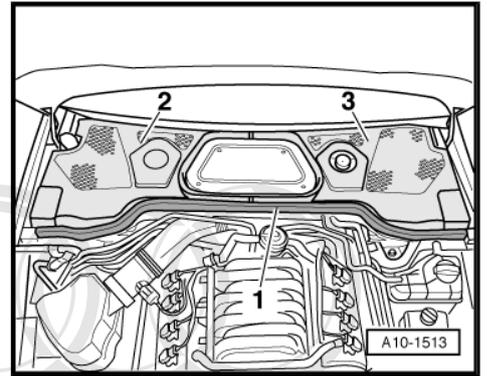
#### Note

*All cable ties which are released or cut open when removing must be fitted in the same position when installing.*

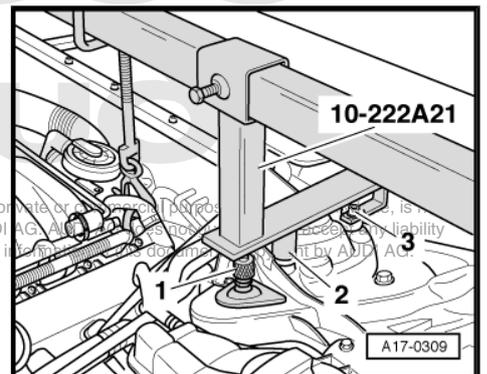
- With ignition switched off, disconnect earth cable at battery => [page 2](#) .
- Pull off engine cover (rear) -arrows-.



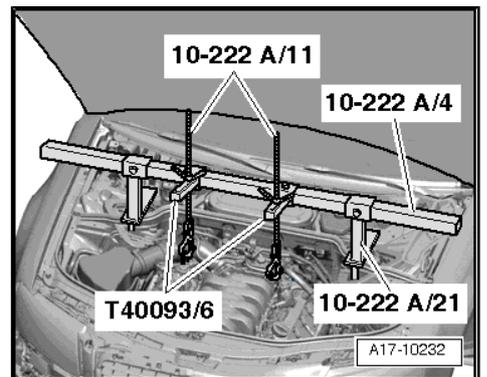
- Pull off rubber seal -1- for plenum chamber covers.
- Detach plenum chamber covers -2- and -3-.



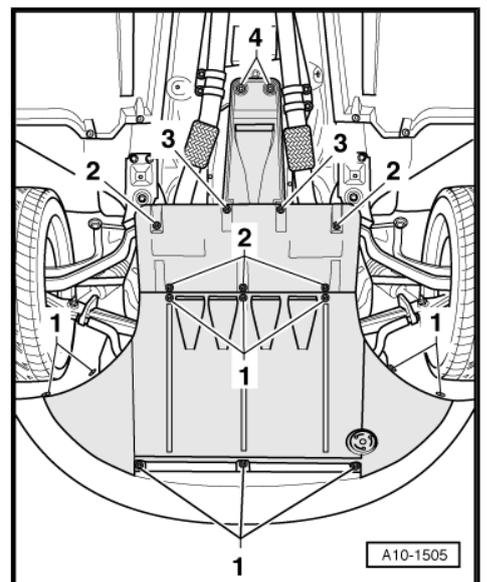
- Remove rear bolts -3- for body brace.
- Attach adapters - 10 - 222 A /21- without cross beam to suspension turrets.
- Supports are marked for left and right side of vehicle.
- Centre resting point -2- of supports is positioned on front bolts for body brace.
- Adapters - 10 - 222 A /21- are secured with rear bolts -3- for body brace.
- Knurled screw -1- must be screwed down so that support plate rests on suspension strut turret.



- Fit cross beam with two adapters -T40093/6- to adapters - 10 - 222 A /21- .
- Attach spindles - 10 - 222 A /11- to rear engine lifting eyes.
- Take up weight of engine slightly with spindles of support bracket.



- Remove the front right wheel.
- Release fasteners -1-, -2- and -4- and remove noise insulation.
- Remove front section of front right wheel housing liner => Rep. gr. 66 .

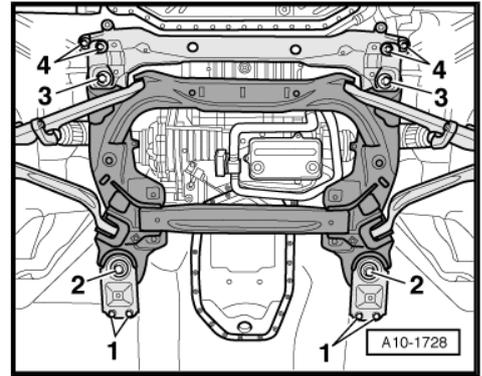




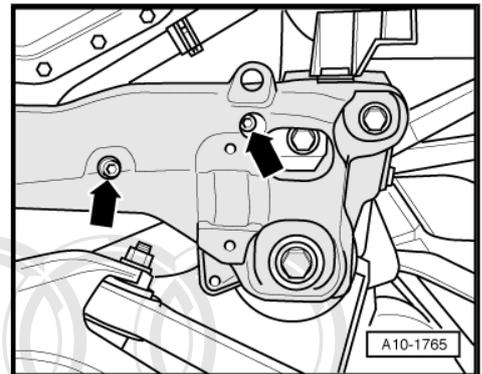
- Remove bolts -3- and -4-.

 **Note**

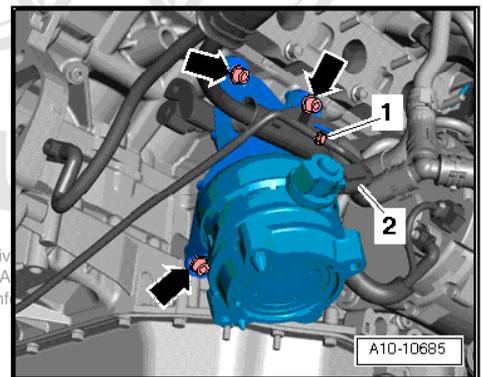
*Disregard -item 1- and -item 2-.*



- Unscrew bolts -arrows- for engine mountings (left and right).
- Remove engine cross member.



- Unplug electrical connector -2- at engine mounting (right-side).
- Unbolt retainer -1- for electrical wiring at engine support.
- Unscrew bolts -arrows-.
- Remove engine support (right-side) with engine mounting.



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**Note**

*B+ wire can only be disconnected after unplugging connector for terminal 50.*

- Unscrew earth cable -1-.
- Detach electrical wiring -3- and -4-.
- Unscrew bolts -2- and -5- and remove starter.

**Installing**

Installation is carried out in the reverse order; note the following:



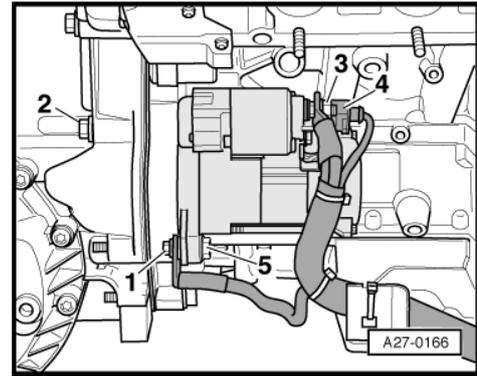
**Note**

*Refit all cable ties at the same locations when reinstalling.*

- Install engine cross member and subframe ⇒ Rep. gr. 40 .
- Install engine support ⇒ Rep. gr. 10 .
- Install anti-roll bar ⇒ Rep. gr. 40 .
- Connect battery. Steps required ⇒ [page 3](#) .

**Tightening torques**

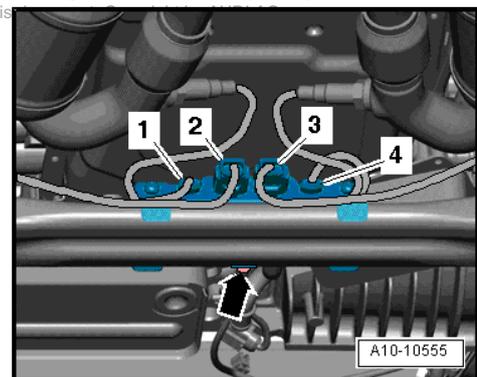
Component		Nm
B+ wire to starter		16
Starter to gearbox	M10 <sup>1)</sup>	65
	M12	65
Heat shield to gearbox		23
Bracket with ATF cooler to body		9
• <sup>1)</sup> Bolt strength rating 10.9.		



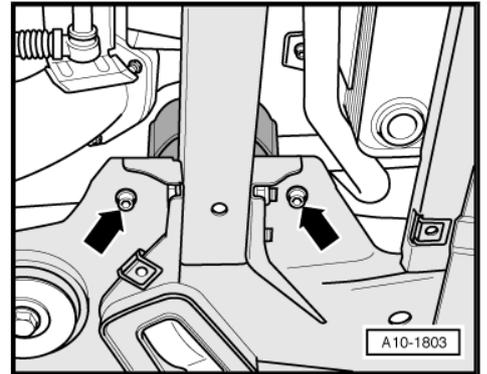
**5.4 Vehicles with 5.2 ltr. FSI engine**

**Removing**

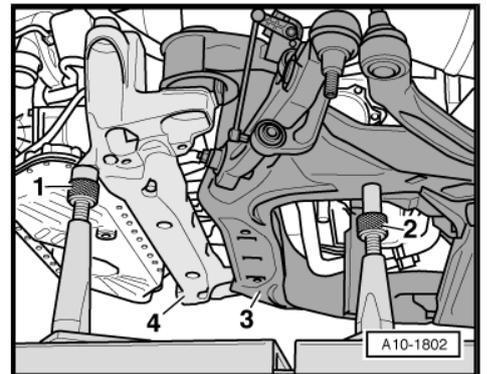
- Remove engine ⇒ Rep. gr. 10 .
- Engine/gearbox assembly remains on scissor-type assembly platform - VAS 6131- .
- Unscrew bolt -arrow-.
- Detach retainer for connectors -1 ... 4- from subframe.



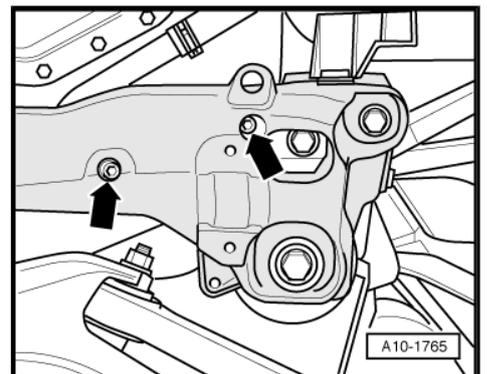
- Unscrew bolts -arrows- at front gearbox mounting (left and right).



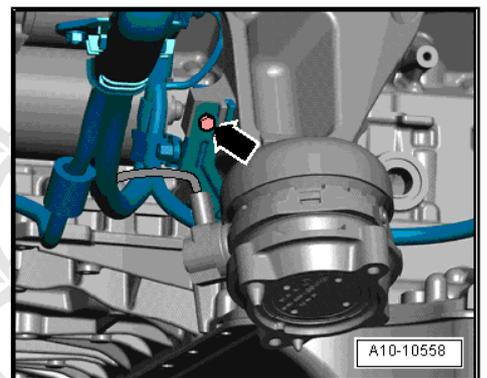
- Screw the spindles for support elements (left and right) at subframe all the way down.
- Unscrew both base plates of support elements for subframe on scissor-type assembly platform - VAS 6131- .
- Detach support elements.
- Remove the subframe to the side.
- Screw the spindles for support elements -1- (left and right) at engine cross member -4- all the way down.



- Unscrew bolts -arrows- for engine mountings (left and right).
- Remove engine cross member.

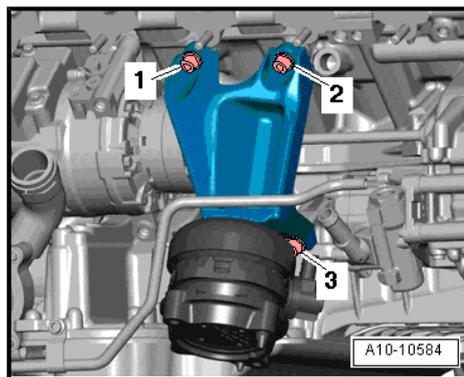


- Unbolt retainer for electrical wiring at engine support (right-side) -arrow-.



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- Unplug electrical connector -arrow- at engine mounting (left-side).
- Unscrew bolts -1 ... 4- and detach engine support with engine mounting.



- Unscrew earth wire -4- at starter.
- Detach electrical wires -2- and -3- at starter.
- Unscrew bolts -1- and -5- and remove starter.

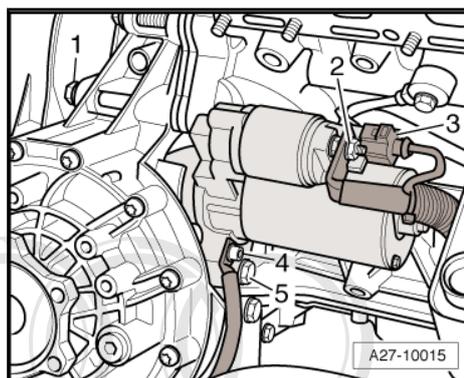
**Installing**

Installation is carried out in the reverse order; note the following:

- Install engine ⇒ Rep. gr. 10 .

**Tightening torques**

Component		Nm
Starter to gearbox	M10x40	45
	M10x135 <sup>1)</sup>	65
Terminal B+ to starter		16
Earth cable to starter		22
Engine support to cylinder block		40
• <sup>1)</sup> Bolt strength rating 10.9.		

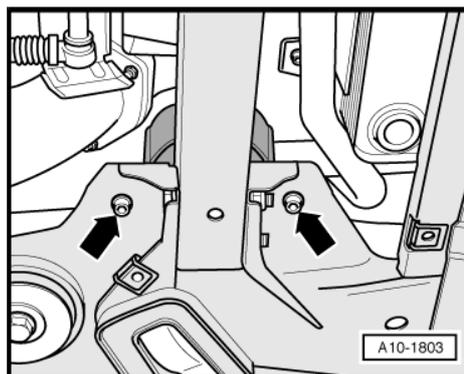


**5.5 Vehicles with 6.0 ltr. MPI engine**

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**Removing**

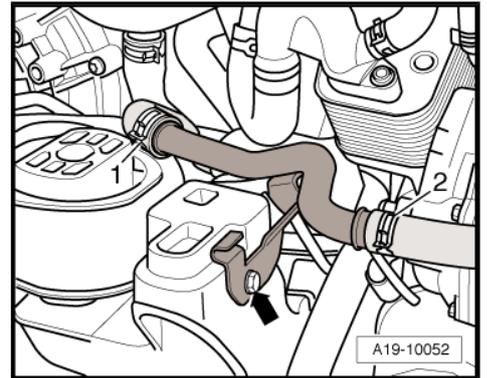
- Engine/gearbox assembly removed and secured to scissor-type assembly platform - VAS 6131- ⇒ Rep. gr. 10 .
- Unscrew bolts -arrows- at front gearbox mounting (left and right).



- Unscrew bolt -arrow-.
- Detach coolant pipe (bottom right) from coolant hose -1-.

 **Note**

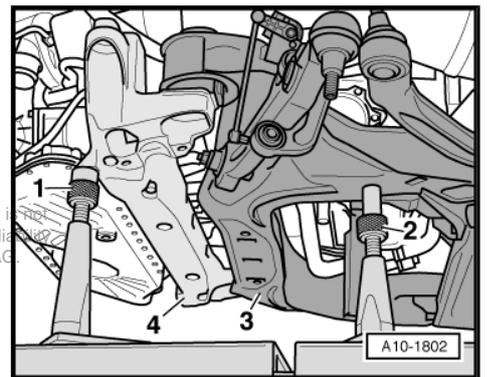
*Disregard -item 2-.*



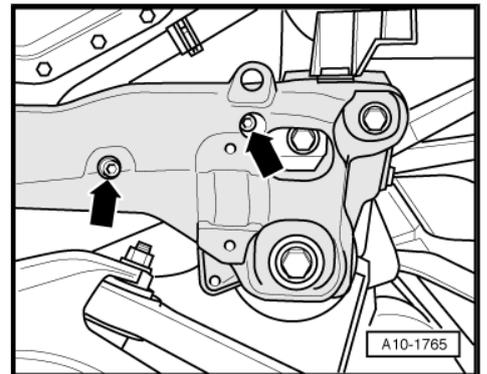
- Screw the spindles for support elements -2- (left and right) at subframe all the way down.
- Remove the locating lugs from the spindles.
- Remove the subframe -3- to the side.

 **Note**

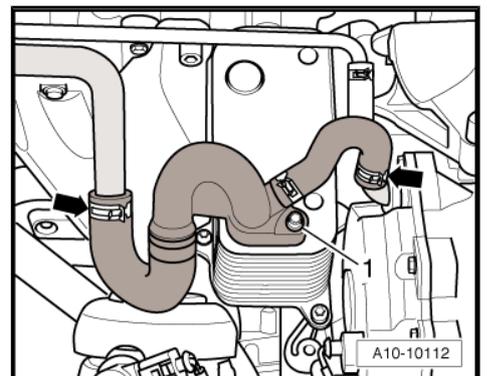
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*A second mechanic is required for removing the subframe.*



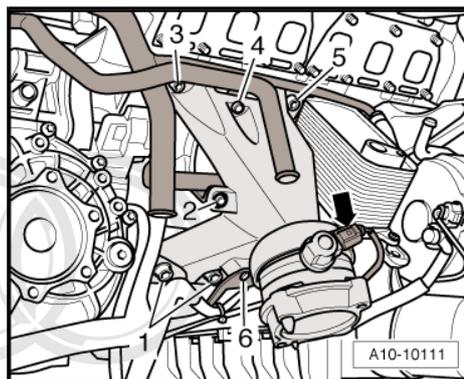
- Screw the spindles for support elements -1- (left and right) at engine cross member -4- all the way down.
- Unscrew bolts -arrows- for engine mountings (left and right).
- Remove engine cross member.



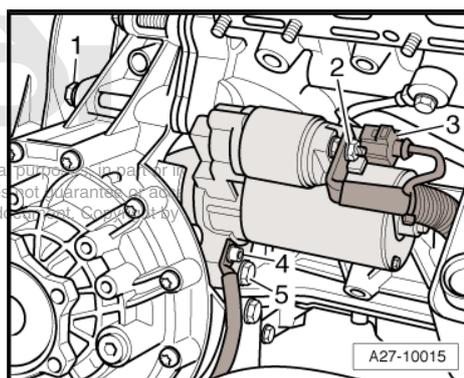
- Detach coolant hoses -arrows-.
- Remove bolt -1-.
- Remove coolant connection at engine oil cooler.



- Unplug electrical connector -arrow- at engine mounting (right-side).
- Unscrew bolts -1 ... 6-.
- Remove engine support with engine mounting.



- Unscrew earth wire -4- at starter.
- Detach electrical wires -2- and -3- at starter.
- Unscrew bolts -1- and -5- and remove starter.



### Installing

Installation is carried out in the reverse order; note the following:



#### Note

- ◆ Refit all cable ties at the same locations when reinstalling.
  - ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue* .
  - ◆ Renew O-ring.
- Install engine ⇒ Rep. gr. 10 .
  - Connect battery. Steps required ⇒ [page 3](#) .

### Tightening torques

Component		Nm
Starter to engine	M10	65 <sup>1)</sup>
	M12	45 <sup>2)</sup>
Earth cable to starter		20
Terminal B+ to starter		16
Engine support to cylinder block		40
Engine support to engine mounting		40
Coolant line to engine oil cooler		10
<ul style="list-style-type: none"> <li>• <sup>1)</sup> Bolt strength rating 10.9.</li> <li>• <sup>2)</sup> Screwed into intermediate plate.</li> </ul>		

## 5.6 Vehicles with 3.0 ltr. TDI engine

### Removing

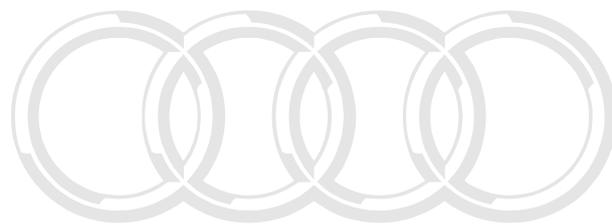
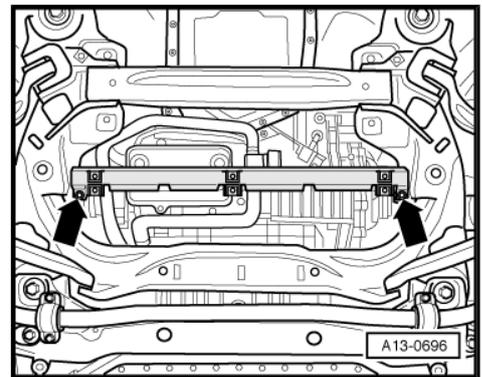
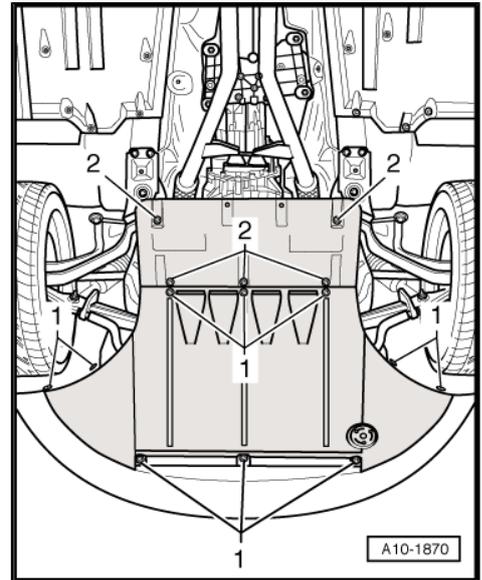
- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Move lock carrier to service position ⇒ Rep. gr. 13 .
- Remove alternator ⇒ [page 30](#) .
- Release quick-release fasteners -2- and remove rear noise insulation.



### Note

*Disregard -item 1-*.

- Unbolt bracket for noise insulation -arrows-.
- Unbolt drive shaft (right-side) from gearbox flange.



# Audi

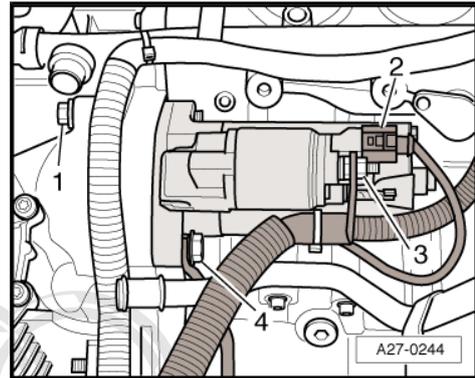
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- Detach electrical wires -2- and -3- at starter.
- Unscrew bolts -1- and -4- and remove starter.



**Note**

*Shown with engine support removed for illustration purposes.*



**Installing**

Installation is carried out in the reverse order; note the following:



**Note**

*Renew self-locking nuts.*

- Install drive shaft (right-side) ⇒ Rep. gr. 40 .
- Install alternator ⇒ [page 30](#) .
- Install lock carrier with attachments ⇒ Rep. gr. 50 .
- Install front bumper cover ⇒ Rep. gr. 63 .

**Tightening torques**

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Component	Nm
Starter to gearbox	65
Earth cable to starter	20
Terminal B+ to starter	16
Bracket for noise insulation to body	9

**5.7 Vehicles with 4.0 ltr. TDI engine**

**Removing**

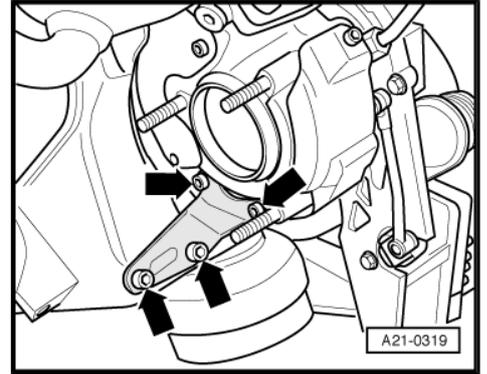
- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .



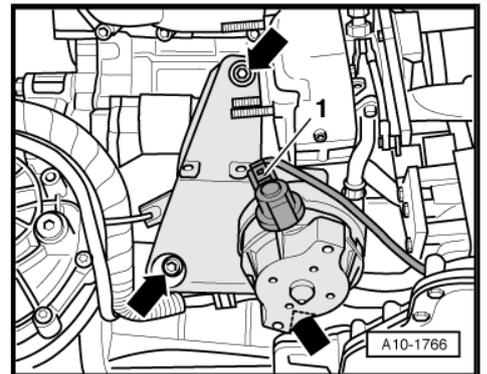
**Note**

- ◆ *All cable ties unfastened or cut open during removal must be reattached in same position when installing.*
- ◆ *Reattach heat shield sleeves at the same locations when re-installing.*
- Lower subframe ⇒ Rep. gr. 13 .
- Remove front exhaust pipe (right-side) ⇒ Rep. gr. 26 .

- Unscrew bracket for turbocharger -arrows-.



- Unplug electrical connector -1- at engine mounting (right-side).
- Move clear electrical wiring at engine support.
- Unscrew bolts -arrows-.
- Remove engine support with engine mounting.



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- Detach clamp -5-.
- Remove bolts -4- and -6-.
- Detach electrical wires -2- and -3- at starter.
- Remove bolts -1- and -7-.
- Take out starter.

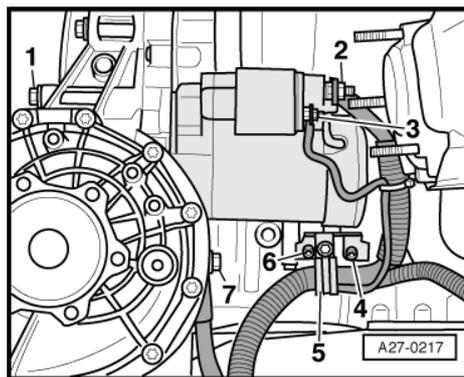
### Installing

Installation is carried out in the reverse order; note the following:



#### Note

- ◆ *All cable ties unfastened or cut open during removal must be reattached in same position when installing.*
  - ◆ *Reattach heat shield sleeves at the same locations when re-installing.*
- Install front exhaust pipe (right-side) ⇒ Rep. gr. 26 .
  - Install subframe ⇒ Rep. gr. 40 .
  - Connect battery. Steps required ⇒ [page 3](#) .



### Tightening torques

Component	Nm
Starter to engine	42
Terminal B+ to starter	16
Terminal 50 to starter	10
Bracket for starter to engine	10
Clamp to bracket	10
Engine support to cylinder block	40
Bracket for Engine support	22
turbocharger to Turbocharger	10 <sup>1)</sup>
• <sup>1)</sup> Coat thread and head resting surface with high-temperature paste; for high-temperature paste refer to ⇒ Electronic parts catalogue .	

## 5.8 Vehicles with 4.2 ltr. TDI engine

### Removing

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .



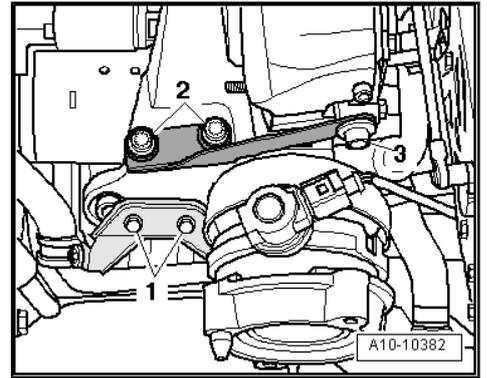
#### Note

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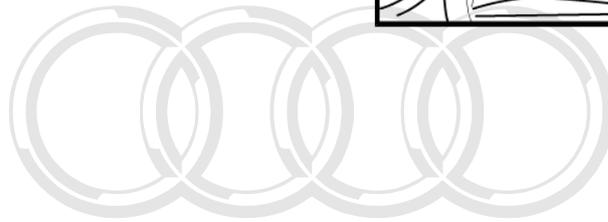
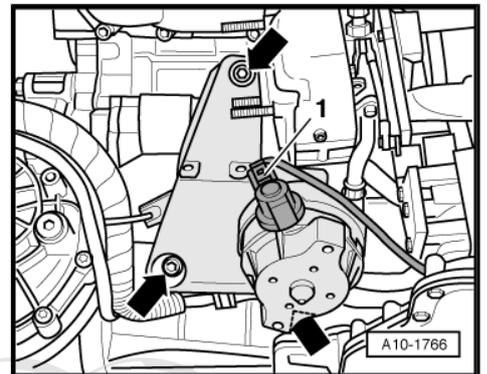
*All cable ties unfastened or cut open during removal must be re-attached in same position when installing.*

- Remove starter catalytic converter (right-side) ⇒ Rep. gr. 26 .

- Remove bolts -2- and -3-.
- Detach turbocharger support.
- Remove bolts -1- and detach retainer for wiring harness.



- Unplug electrical connector -1- at engine mounting (right-side).
- Move clear electrical wiring at engine support.
- Unscrew bolts -arrows-.
- Remove engine support with engine mounting.



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- Remove bolts -4- and -6-.
- Detach electrical wires -2- and -3- at starter.
- Remove bolts -1- and -7-.
- Take out starter.

 **Note**

*Disregard -item 5-.*

**Installing**

Installation is carried out in the reverse order; note the following:

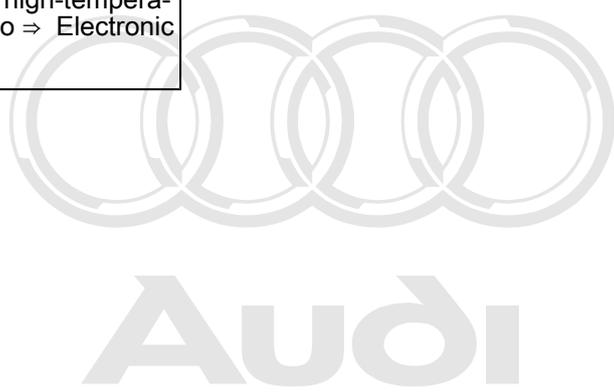
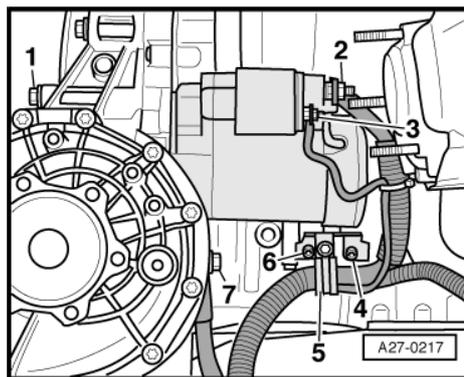
 **Note**

*Refit all cable ties at the same locations when reinstalling.*

- Install starter catalytic converter (right-side) ⇒ Rep. gr. 26 .
- Install subframe ⇒ Rep. gr. 40 .
- Connect battery. Steps required ⇒ [page 3](#) .

**Tightening torques**

Component	Nm
Starter to engine	42
Terminal B+ to starter	16
Terminal 50 to starter	10
Bracket for starter to engine	10
Engine support to cylinder block	42
Bracket for turbocharger	22
to: Engine support	
Turbocharger	10 <sup>1)</sup>
<ul style="list-style-type: none"> <li>• <sup>1)</sup> Coat thread and head resting surface with high-temperature paste; for high-temperature paste refer to ⇒ Electronic parts catalogue .</li> </ul>	



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## 90 – Gauges, instruments

### 1 Instrument cluster

 **Note**

*All warning lamps in instrument cluster are fitted with light-emitting diodes. The instrument cluster must be renewed in the event of a warning lamp failure.*

#### 1.1 Removing and installing instrument cluster

##### Removing

 **Note**

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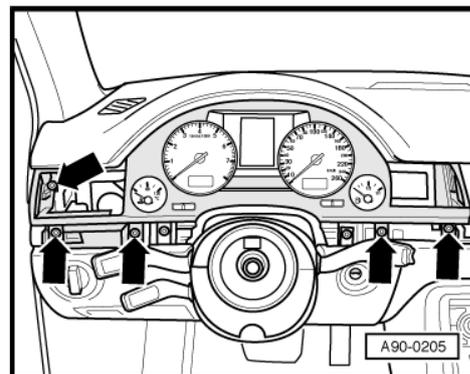
*The instrument cluster must not be dismantled.*

- If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Move steering wheel down and to rear as far as possible, making use of full range of steering column adjuster.
- Switch off ignition and take out ignition key.
- Remove trim panel (left-side) ⇒ Rep. gr. 70 .
- Remove trim panel with switch unit (right-side) ⇒ Rep. gr. 70 .
- Remove dash panel vents ⇒ Rep. gr. 70 .
- Unscrew bolts -arrows-.

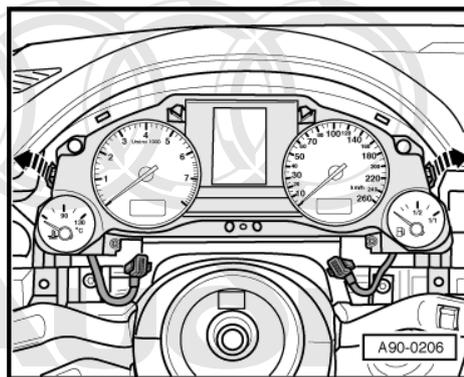
 **Note**

*Attach a cloth with adhesive tape to steering column trim and steering column levers to protect them from damage.*

- Pull trim slightly away from instrument cluster.
- Unplug electrical connectors at instrument cluster trim.
- Engage turn signal switch in bottom switch position.
- Actuate “touch-wipe” function and detach trim for instrument cluster (maintain wiper switch position).

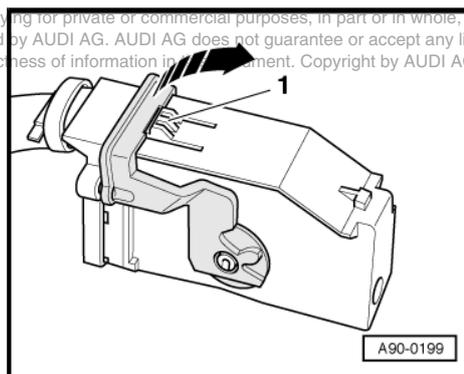


- Release retaining clips -arrows- (left and right) and pull instrument cluster slightly away from dash panel.
- Swivel instrument cluster to rear and pull out towards driver's side between steering wheel and dash panel.



- Press catch -1-, turn retainer in direction of arrow and unplug connector.
- Detach instrument cluster.

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**Installing**

Installation is carried out in the reverse order; note the following:

- Install dash panel vents => Rep. gr. 70 .
- Install trim panel with switch unit (right-side) => Rep. gr. 70 .
- Install trim panel (left-side) => Rep. gr. 70 .

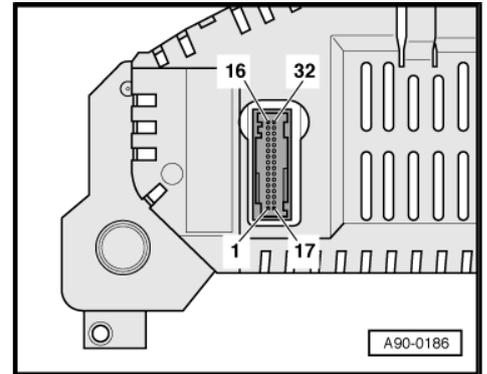
**Tightening torque**

Component	Nm
Instrument cluster/trim for instrument cluster to dash panel	3

## 1.2 Pin assignment at multi-pin connectors on instrument cluster

### Multi-pin connector, 32-pin, blue

- 1 - Terminal 30
- 2 - Terminal 30
- 3 - Terminal 31
- 4 - Terminal 31
- 5 - Data bus diagnostic interface wake-up wire
- 6 - External buzzer
- 7 - Brake pad
- 8 - Oil level
- 9 - Radio-controlled clock signal
- 10 - Radio-controlled clock 5V
- 11 - Electromechanical parking brake 2
- 12 - Electromechanical parking brake 1
- 13 - Not used
- 14 - Brake fluid low
- 15 - Oil pressure switch
- 16 - Not used
- 17 - Terminal 58s
- 18 - Terminal 30
- 19 - Terminal 31
- 20 - Washer fluid low
- 21 - Coolant level low
- 22 - Fuel tank sender earth
- 23 - Fuel gauge sender 4 - G393- (tubular sender, right-side)
- 24 - Ambient temperature
- 25 - Fuel gauge sender 3 - G237- (tubular sender, left-side)
- 26 - Fuel gauge sender 2 - G169- (lever-type sender, right-side)
- 27 - Fuel gauge sender - G- (lever-type sender, left-side)
- 28 - Sender earth
- 29 - Data bus diagnostic interface for CAN bus High
- 30 - Data bus diagnostic interface for CAN bus Low
- 31 - MMI CAN bus High
- 32 - MMI CAN bus Low



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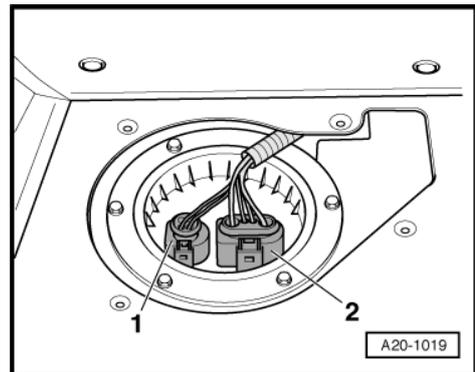
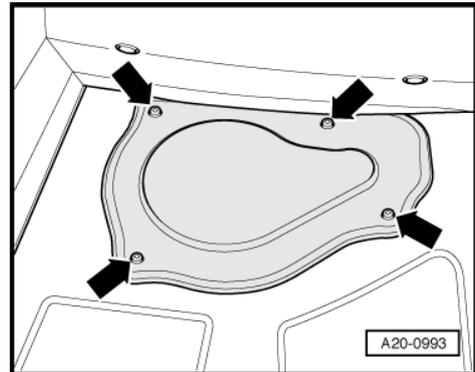
### 1.3 Pin assignment on fuel gauge senders

#### Fuel gauge sender, left-side:

Fuel gauge sender - G- and fuel gauge sender 3 - G237- are accessible at front left of luggage compartment.

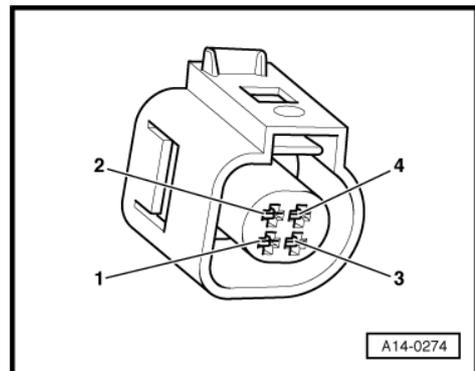
#### Preparations

- Remove lining for luggage compartment floor.
  - Unscrew cover for sealing flange (left-side) -arrows-.
- 
- Carefully release and unplug electrical connectors -1- and -2- at sealing flange (left-side).



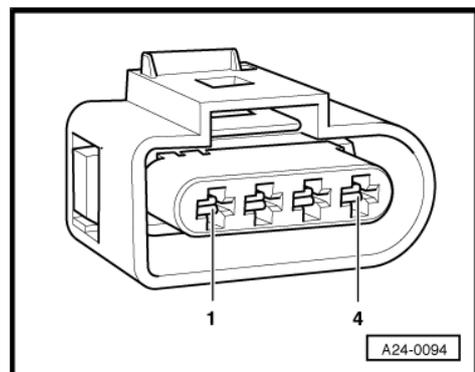
#### Assignment of 4-pin connector at fuel gauge sender - G-

- 1 - Not used
- 2 - Wiring between fuel gauge sender and instrument cluster
- 3 - Not used
- 4 - Earth for fuel gauge sender (sensor earth)



#### Pin assignment for 4-pin connector at fuel gauge sender 3 - G237-

- 1 - Switched positive for electric fuel pump
- 2 - Wiring between fuel gauge sender and instrument cluster
- 3 - Earth for fuel gauge sender (sender earth)
- 4 - Earth for electric fuel pump

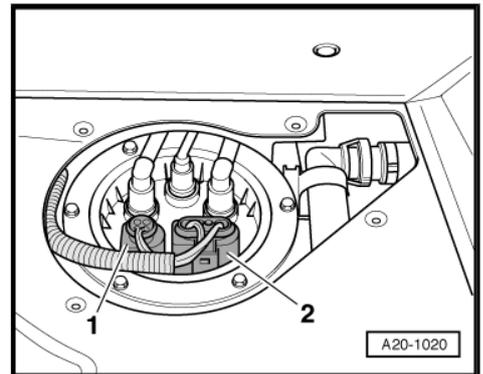
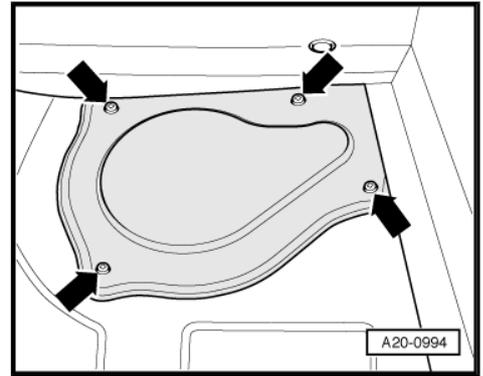


**Fuel gauge sender, right-side:**

Fuel gauge sender 2 - G169- and fuel gauge sender 4 - G393- are accessible at front right of luggage compartment.

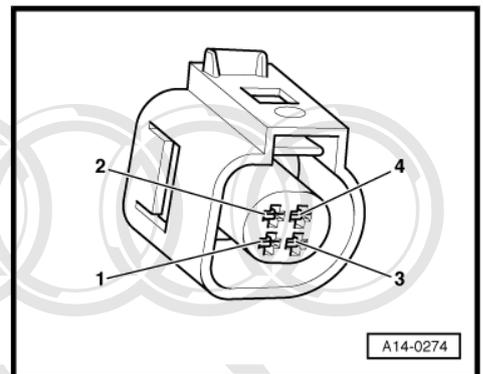
**Preparations**

- Remove lining for luggage compartment floor.
- Unscrew cover for sealing flange (right-side) -arrows-.
  
- Carefully release and unplug electrical connectors -1- and -2- at sealing flange (right-side).



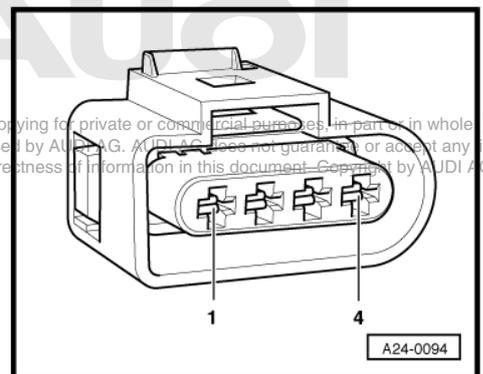
**Pin assignment for 4-pin connector at fuel gauge sender 2 - G169-**

- 1 - Not used
- 2 - Wiring between fuel gauge sender and instrument cluster
- 3 - Not used
- 4 - Earth for fuel gauge sender (sender earth)



**Pin assignment for 4-pin connector at fuel gauge sender 4 - G393-**

- 1 - Switched positive for electric fuel pump
- 2 - Wiring between fuel gauge sender and instrument cluster
- 3 - Earth for fuel gauge sender (sender earth)
- 4 - Earth for electric fuel pump

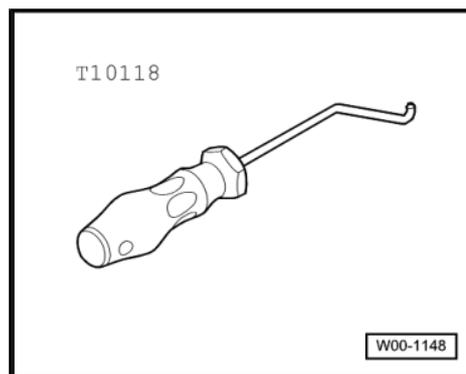


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**1.4 Pin assignment at coolant temperature sender - G62-**

Special tools and workshop equipment required

- ◆ Assembly tool - T10118-



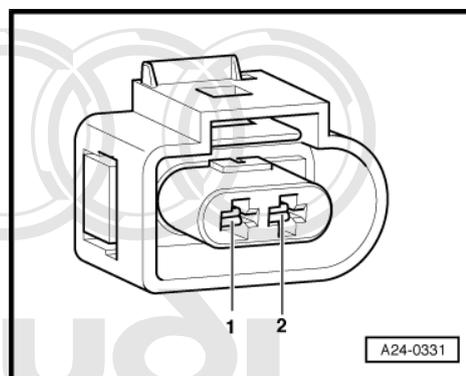
### Preparations

- Unplug electrical connector at coolant temperature sender - G62- :

- ◆ Vehicles with 3.0 ltr. MPI engine ⇒ [page 88](#) .
- ◆ Vehicles with 2.8 ltr. and 3.2 ltr. FSI engine ⇒ [page 89](#)
- ◆ Vehicles with 3.7 ltr. and 4.2 ltr. MPI engine ⇒ [page 90](#) .
- ◆ Vehicles with 4.2 ltr. FSI engine ⇒ [page 90](#) .
- ◆ Vehicles with 5.2 ltr. FSI engine ⇒ [page 91](#) .
- ◆ Vehicles with 6.0 ltr. MPI engine ⇒ [page 93](#) .
- ◆ Vehicles with 3.0 ltr. TDI engine ⇒ [page 93](#) .
- ◆ Vehicles with 4.0 ltr. TDI engine ⇒ [page 94](#) .
- ◆ Vehicles with 4.2 ltr. TDI engine ⇒ [page 94](#) .

### Pin assignment for 2-pin connector at coolant temperature sender - G62-

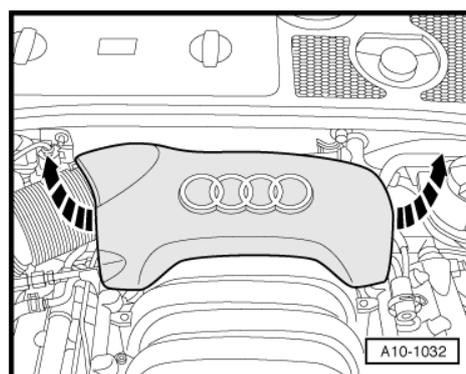
- 1 - Sender earth
- 2 - Wiring connection from coolant temperature sender - G62- to engine control unit



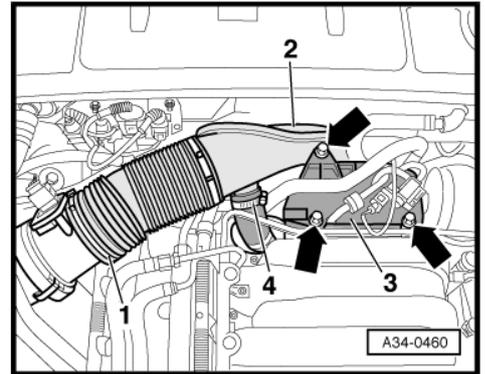
### 1.4.1 Unplugging electrical connector on coolant temperature sender - G62- vehicles with 3.0 ltr. MPI engine

#### Procedure

- Pull off engine cover (rear) -arrows-.



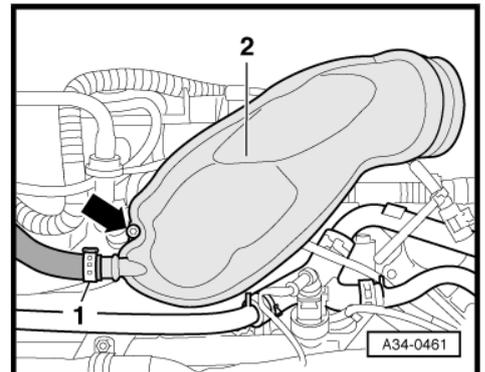
- Unscrew bolts for solenoid valve retaining plate -3- -arrows-.
- Pull off air intake hose -1- at air mass meter - G70- .
- Pull off hose -4- at air duct -2-.



- Unscrew bolt -arrow- and pull off air duct -2- at throttle valve module - J338- .
- If fitted, pull off hose -1- at air duct.

 **Note**

*For illustration purposes the air duct is shown from the rear with the engine removed.*

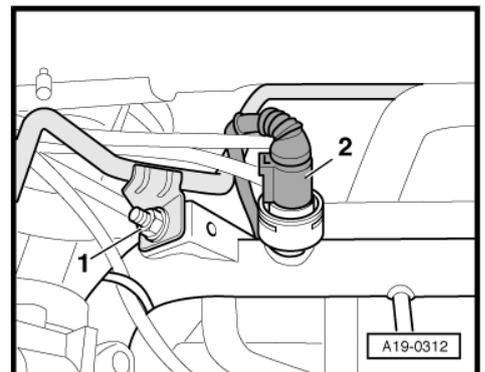


- Unplug electrical connector -2- on coolant temperature sender - G62- using assembly tool - T10118- .

 **Note**

*Disregard -item 1-.*

Install in reverse order.

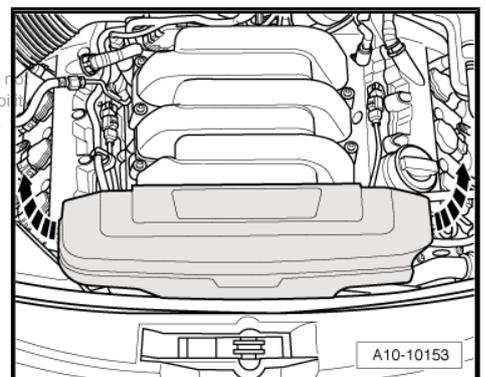


### 1.4.2 Unplugging electrical connector on coolant temperature sender - G62- - vehicles with 2.8 ltr. and 3.2 ltr. FSI engine

**Procedure**

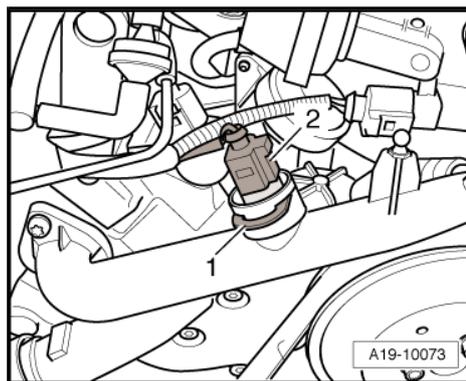
- Pull off engine cover (front) -arrows-

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- Unplug electrical connector -2- on coolant temperature sender - G62- -item 1-.

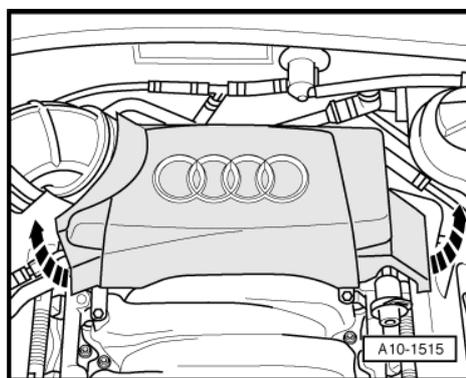
Install in reverse order.



### 1.4.3 Unplugging electrical connector on coolant temperature sender - G62- - vehicles with 3.7 ltr. and 4.2 ltr. MPI engine

#### Procedure

- Pull off engine cover (rear) -arrows-.



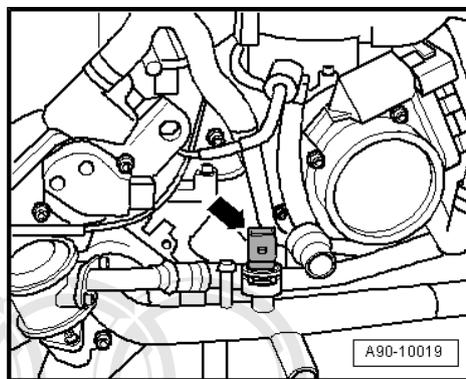
- Unplug electrical connector on coolant temperature sender - G62- -arrow- using assembly tool - T10118- .



#### Note

*Shown from rear with engine removed for illustration purposes.*

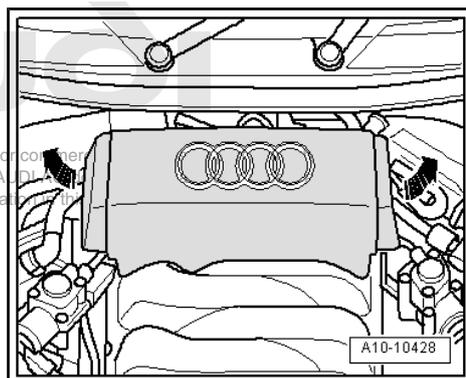
Install in reverse order.



### 1.4.4 Unplugging electrical connector on coolant temperature sender - G62- - vehicles with 4.2 ltr. FSI engine

#### Procedure

- Pull off rear engine cover panel.

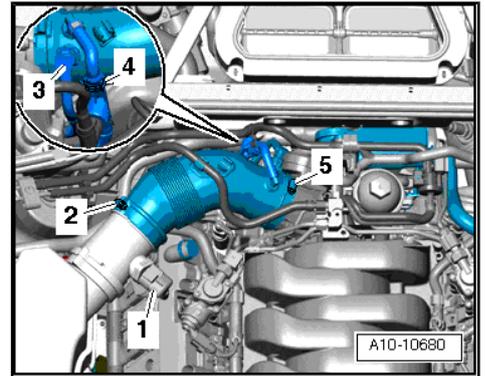


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- Move fuel line and line to activated charcoal filter clear at air pipe.
- Remove air intake hose by releasing hose clips -2 and 5-.
- Move air intake hose with connected pipes -3 and 4- clear to one side.

 **Note**

*Disregard -item 1-.*

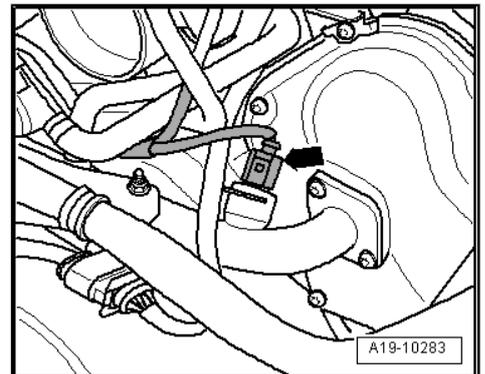


- Unplug electrical connector -arrow- at coolant temperature sender - G62- .

 **Note**

*Illustration shows engine removed for greater clarity.*

Install in reverse order.

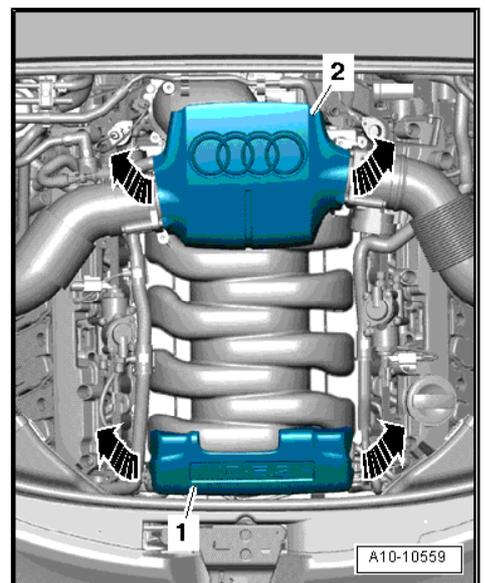


## 1.4.5 Unplugging electrical connector on coolant temperature sender - G62- - vehicles with 5.2 ltr. FSI engine

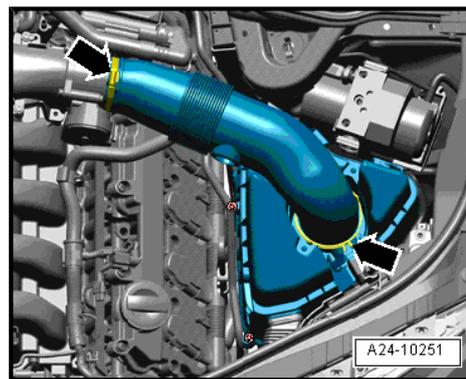
### Procedure

- Pull off front engine cover panel -1- and rear engine cover panel -2- -arrows-.

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- Remove air intake hose (left-side) -arrows-.

**Rest-of-the-world vehicles:**

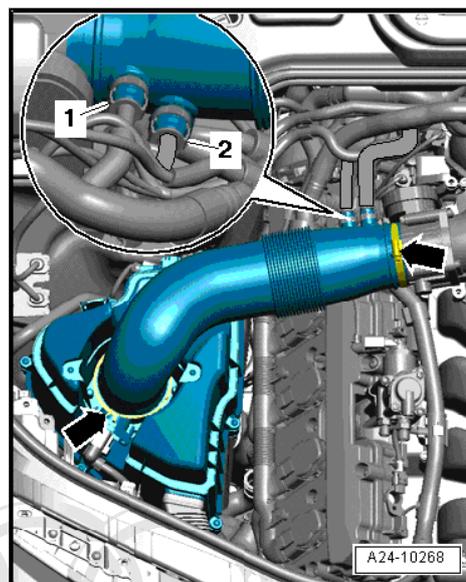
- Detach vacuum line -2- at air intake hose.
- Detach crankcase breather hose -1- from air intake hose (press release tabs).
- Release hose clips -arrows- and pull off air intake hose.

**USA vehicles:**

- Detach vacuum line -2- at air intake hose.
- Release hose clips -arrows- and move air intake hose clear to one side.

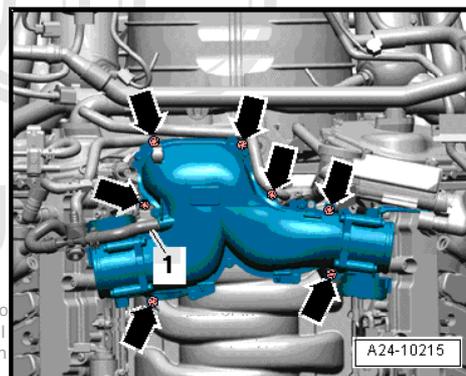
**Caution**

*Do not open hose connection -1- on USA vehicles.*

**All vehicles (continued):**

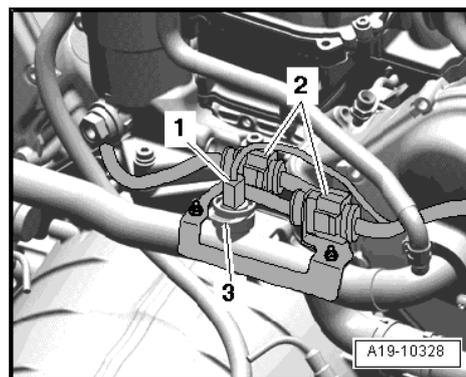
- Detach vacuum hose -1- from intake manifold.
- Unscrew bolts -arrows- and detach air duct system.

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- Remove electrical connectors -2- from retainer.
- Unplug electrical connector -1- at coolant temperature sender - G62- .

Install in reverse order.



### 1.4.6 Unplugging electrical connector on coolant temperature sender - G62- - vehicles with 6.0 ltr. MPI engine

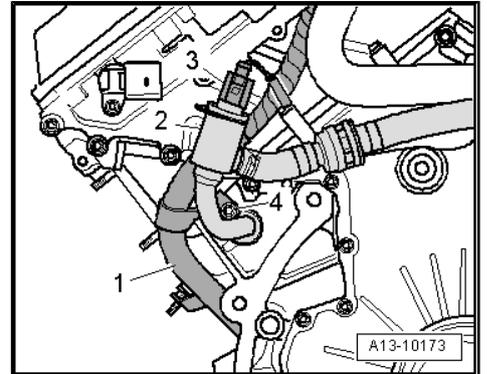
**Procedure**

- Engine removed ⇒ Rep. gr. 10 .
- Unplug electrical connector -3- on coolant temperature sender - G62- using assembly tool - T10118- .



**Note**

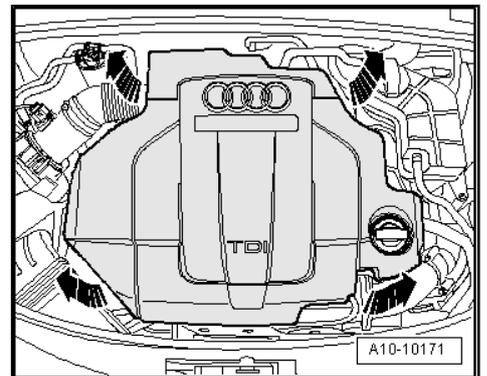
*Disregard -items 1, 2, 4-.*



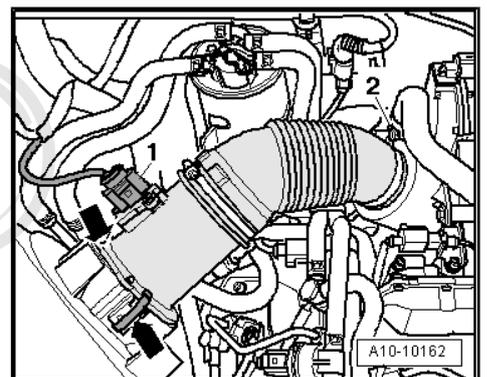
### 1.4.7 Unplugging electrical connector on coolant temperature sender - G62- - vehicles with 3.0 ltr. TDI engine

**Procedure**

- Carefully pull engine cover panel off four retaining pins one after the other -arrows-.



- Unplug electrical connector -1- at air mass meter - G70- .
- Remove air intake hose. To do so, release hose clip -2- and clamps -arrows-.



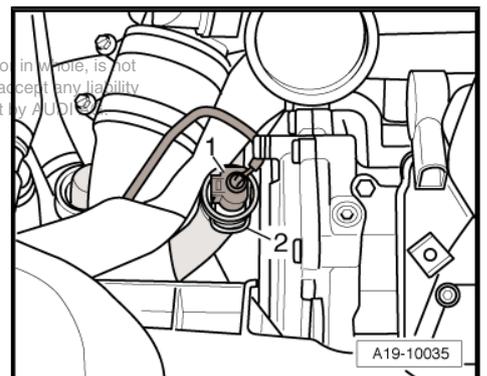
- Unplug electrical connector -1- on coolant temperature sender - G62- using assembly tool - T10118- .



**Note**

*Disregard -item 2-.*

Install in reverse order.



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## 1.4.8 Unplugging electrical connector on coolant temperature sender - G62- - vehicles with 4.0 ltr. TDI engine

### Procedure

- Discharge refrigerant circuit ⇒ Air conditioner with refrigerant R134a .
- Remove air conditioner compressor ⇒ Rep. gr. 87 .
- Unplug electrical connector -1- on coolant temperature sender - G62- using assembly tool - T10118- .

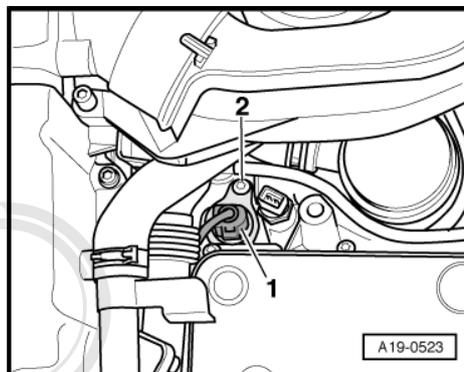


### Note

Disregard -item 2-.

Installation is carried out in the reverse order; note the following:

- Install air conditioner compressor ⇒ Rep. gr. 87 .
- Charge refrigerant circuit ⇒ Air conditioner with refrigerant R134a .

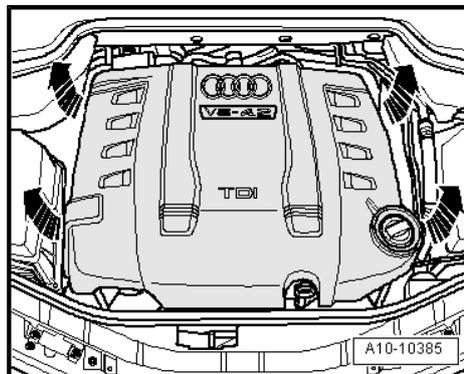


## 1.4.9 Unplugging electrical connector on coolant temperature sender - G62- - vehicles with 4.2 ltr. TDI engine

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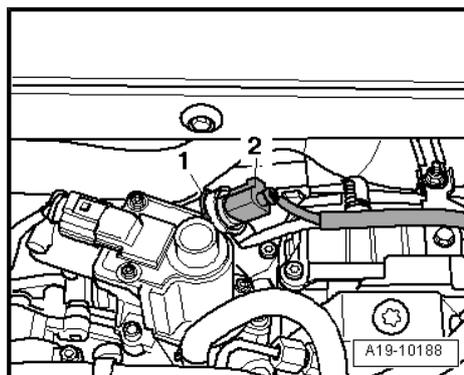
### Procedure

- Carefully pull the engine cover panel off the four retaining pins one after the other -arrows-.



- Unplug electrical connector -2- on coolant temperature sender - G62- -item 1- using assembly tool - T10118- .

Install in reverse order.



## 1.5 Removing and installing radio-controlled clock receiver - J489-

### Removing

- Remove rear bumper cover ⇒ Rep. gr. 63 .
- Unplug electrical connector -2- at radio-controlled clock receiver - J489- -item 1-.
- Unscrew bolts -arrows- and detach radio-controlled clock receiver - J489- .

### Installing

Installation is carried out in the reverse order; note the following:

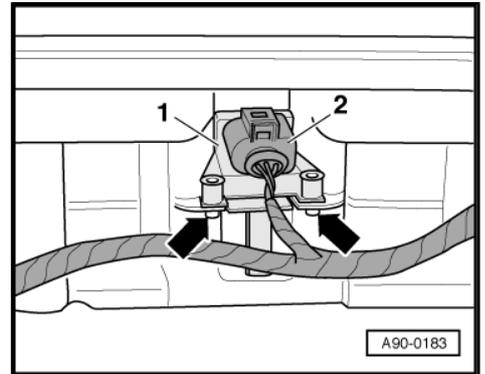
- Install rear bumper cover ⇒ Rep. gr. 63 .

### Vehicles with lane change assist:

Lane change assist control unit -J769- / -J770- must be recalibrated whenever bumper cover has been removed  
 ⇒ [“12.5 Calibrating lane change assist - test equipment layout”](#), page 321 .

### Tightening torque

Component	Nm
Radio-controlled clock receiver to bumper	2.5



## 1.6 Removing and installing garage door operation control unit - J530-

### Removing

- Remove front bumper cover ⇒ Rep. gr. 63 .
- Unscrew bolt -3- and detach retainer.
- Take garage door operation control unit -2- out of bumper cover.
- Unplug electrical connector -1-.

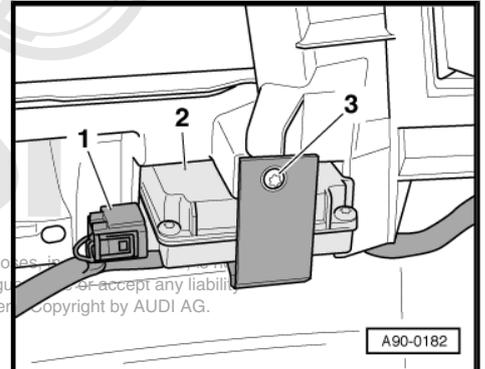
### Installing

Installation is carried out in the reverse order; note the following:

- Install front bumper cover ⇒ Rep. gr. 63 .

### Tightening torque

Component	Nm
Garage door operation control unit to bumper cover	2.5



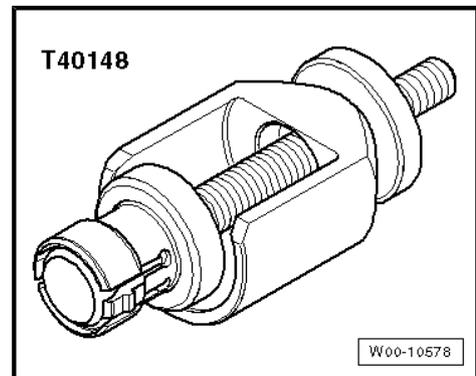
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## 2 Cigarette lighter, socket

### 2.1 Removing and installing cigarette lighter - U1-

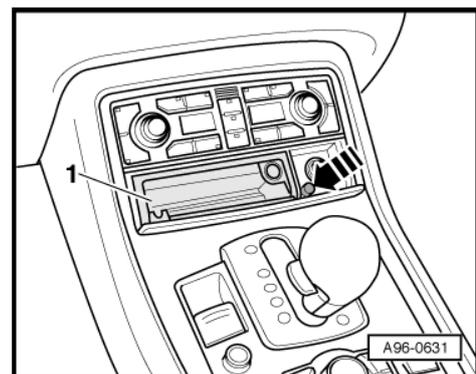
Special tools and workshop equipment required

- ◆ Puller - T40148-

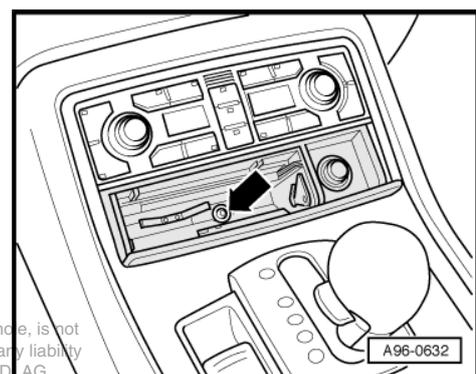


#### Removing

- Switch off ignition and take out ignition key.
- Press button -arrow- and take out front ashtray insert -1-.

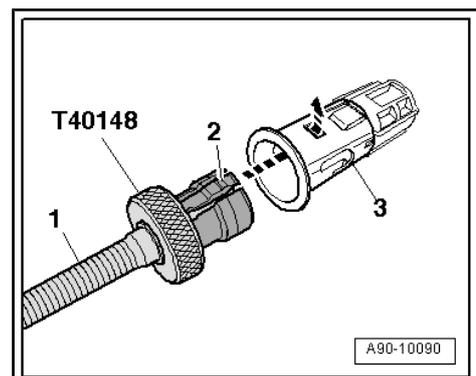


- Unscrew bolt -arrow- and remove front ashtray housing.
- Unplug electrical connector.

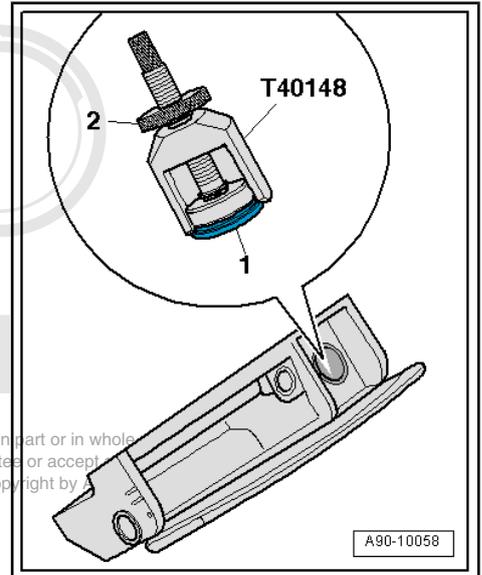


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- Release tabs -2- on puller -T40148- must engage in recesses in cigarette lighter - U1- -item 3- -arrow-; for this purpose, push threaded rod -1- downwards as far as stop.

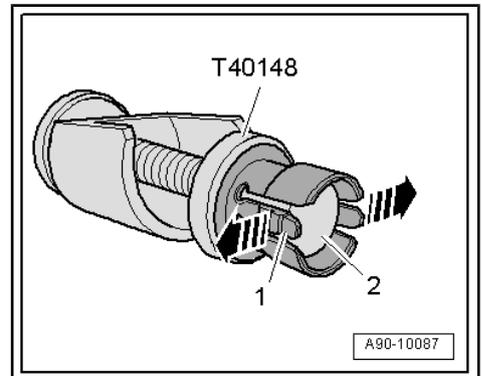


- Insert puller - T40148- into cigarette lighter - U1- -item 1- as far as stop.
- Turn knurled wheel -2- on puller - T40148- clockwise as far as stop.

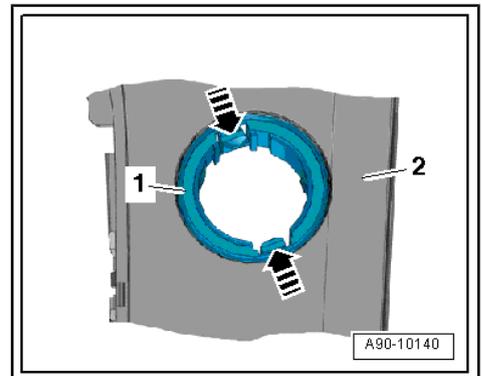


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- The piston -2- moves upwards and the release tabs -1- on puller - T40148- spread apart -arrows-.
- Use puller - T40148- to pull cigarette lighter out of illuminated ring.



- Release retaining clips in direction of -arrows-.
- Take cigarette lighter with illuminated ring -1- out of ashtray (front) -2-.



## Installing

Installation is carried out in the reverse order; note the following:



### Note

Connect new cigarette lighter - U1- with wiring harness of cigarette lighter illumination bulb - L28- .

- Disconnect electrical wiring and connect new cigarette lighter - U1- with electrical wiring for cigarette lighter illumination bulb - L28- => Electrical system, General information; Rep. gr. 97 ; Repairing wiring harnesses and connectors; Repairing wiring harnesses .



### Caution

*Risk of injury.*

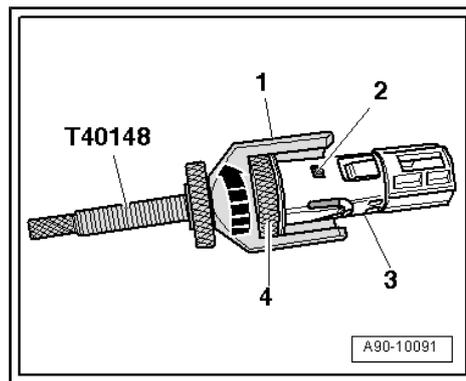
- ◆ After detaching puller - T40148- check that retaining tabs for lighter are not bent.
- ◆ If retaining tabs are bent they must be bent back to prevent lighter from ejecting.

- Detach support -1- from puller - T40148- .
- Push piston downwards and hold in this position.
- Turn knurled wheel -4- on puller - T40148- anti-clockwise -arrow-; this will open release tabs -2- on cigarette lighter - U1- -item 3- and puller - T40148- can be removed.
- Press illuminated ring for cigarette lighter into mounting until retaining clip engages.
- Illuminated ring can only be fitted in one position into mounting.

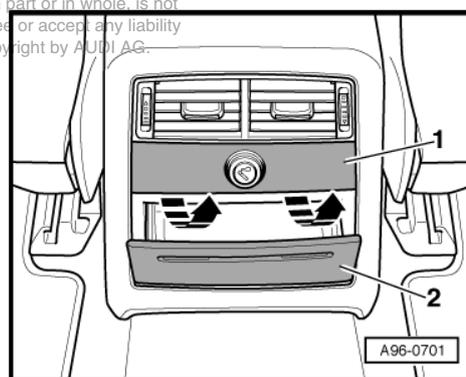
## 2.2 Removing and installing rear cigarette lighter - U9-

### Removing

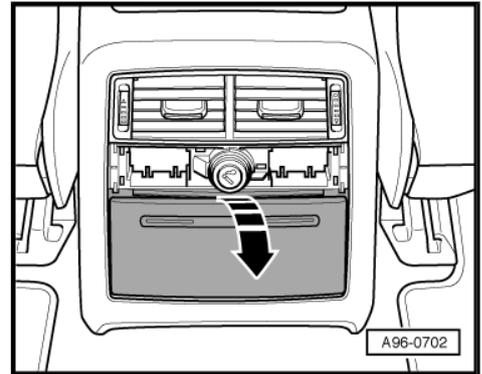
- Open ashtray (rear) -2-.
- Detach trim -1- from mounting frame -arrows-.
- Close ashtray.



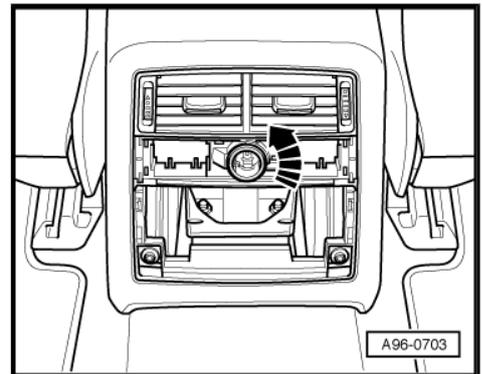
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- Detach ashtray from mounting frame in direction of -arrow-.



- Turn lighter anti-clockwise -arrow-.
- Slide lighter out of mounting frame.
- Unplug electrical connector.



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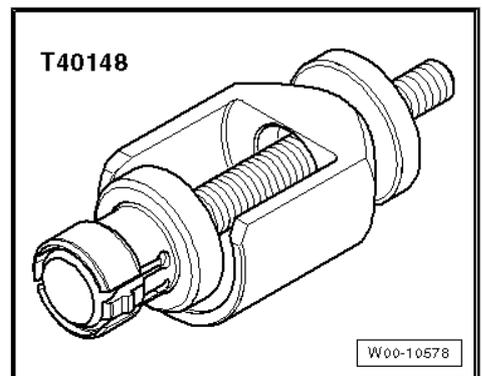
**Installing**

Install in reverse order.

**2.3 Removing and installing rear cigarette lighter - U9- - vehicles with rear Climatronic operating and display unit - E265-**

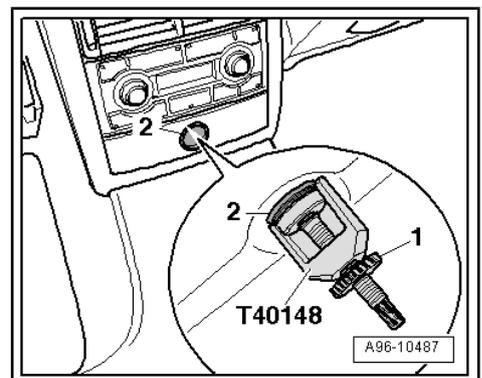
Special tools and workshop equipment required

- ◆ Puller - T40148-



**Removing**

- Insert puller - T40148- into cigarette lighter -item 2- as far as stop.
- Turn knurled wheel -1- on puller - T40148- clockwise as far as stop.



- The piston -2- moves upwards and the release tabs -1- on puller - T40148- spread apart -arrows-.
- Use puller - T40148- to pull cigarette lighter out of illuminated ring.
- Unplug electrical connector.

### Installing

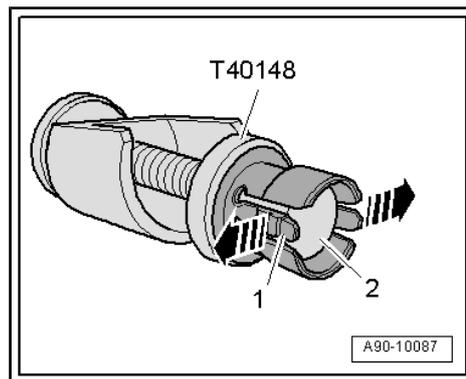
Installation is carried out in the reverse order; note the following:



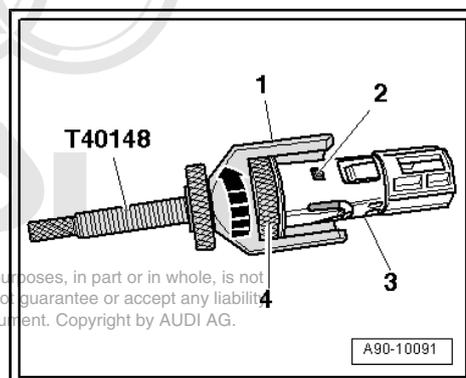
#### Caution

#### Risk of injury.

- ◆ After detaching puller - T40148- check that retaining tabs for lighter are not bent.
- ◆ If retaining tabs are bent they must be bent back to prevent lighter from ejecting.



- Detach support -1- from puller - T40148- .
- Push piston downwards and hold in this position.
- Turn knurled wheel -4- on puller - T40148- anti-clockwise -arrow-; this will open release tabs -2- on cigarette lighter -item 3- and puller - T40148- can be removed.



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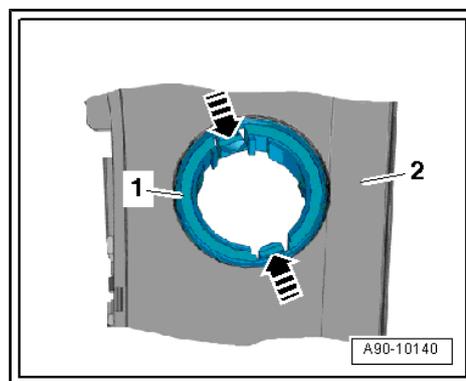
## 2.4 Removing and installing cigarette lighter illumination bulb - L28-

- Remove 12 V socket ⇒ [page 99](#) .
- Release retaining clips in direction of -arrows-.
- Take illuminated ring -1- with cigarette lighter illumination bulb out of rear trim panel -2- for centre console.

### Installing

Installation is carried out in the reverse order; note the following:

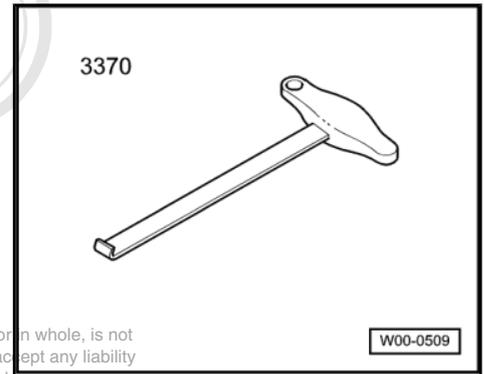
- Illuminated ring can only be fitted in one position into mounting.
- Install 12 V socket ⇒ [page 99](#) .



## 2.5 Removing and installing 12 V socket - U18- / -U19- in long centre console

Special tools and workshop equipment required

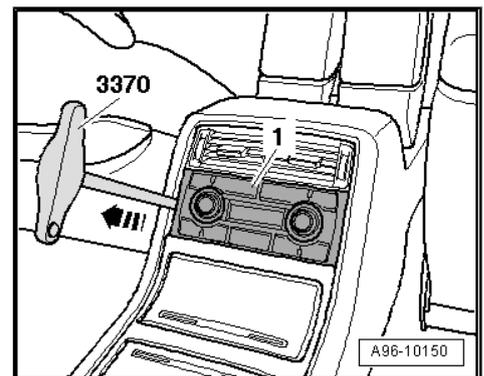
◆ Front-end hook - 3370-



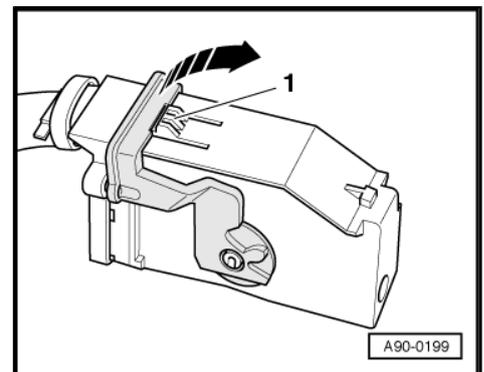
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**Removing**

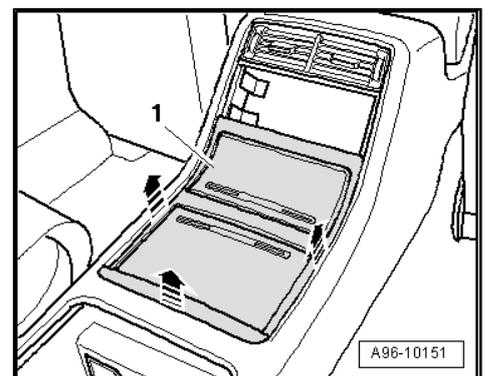
- Carefully detach rear Climatronic operating and display unit - E265- -item 1- using front-end hook - 3370- .



- Press catch -1-, turn retaining clip in direction of -arrow- and unplug electrical connector at rear Climatronic operating and display unit - E265- .



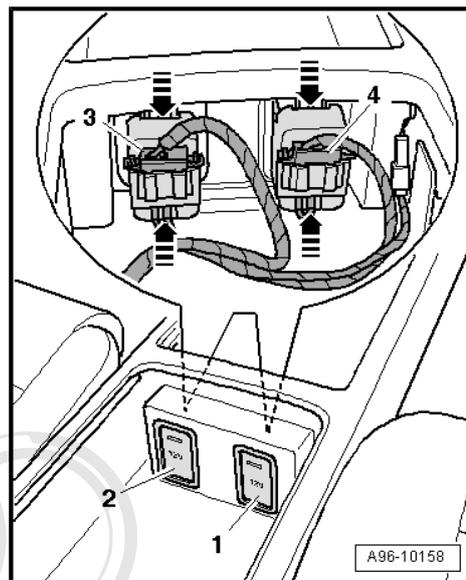
- Lift storage compartment/cup holder -1- out of long centre console -arrows-.
- Unplug electrical connector.



- Unplug electrical connectors -3- and -4-.
- Release retaining clips -arrows- on back and detach 12 V sockets -1- and -2-.

### Installing

Install in reverse order.

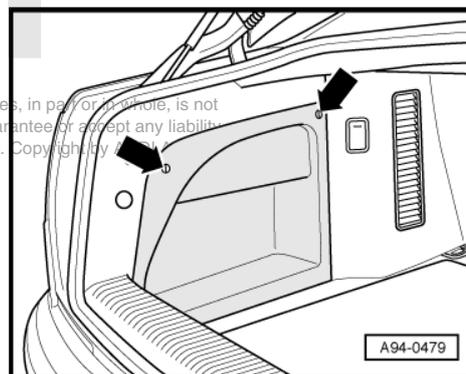


## 2.6 Removing and installing 12 V socket - U5- in luggage compartment - vehicles up to 06.2004

### Removing

- Remove cover for luggage compartment side trim (left-side) -arrows-.
- Open socket.

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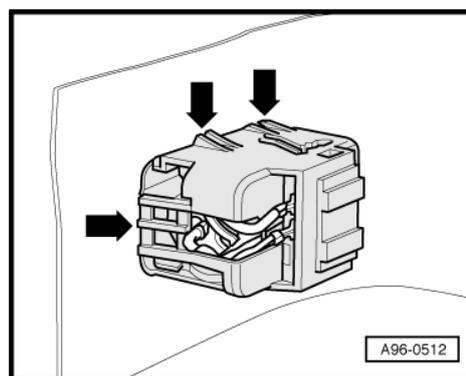


- Release retaining clips -arrows- on back of luggage compartment side trim and detach 12 V socket.
- Unplug electrical connector.

### Installing

Installation is carried out in the reverse order; note the following:

- Socket must be open when installing.



## 2.7 Removing and installing 12 V socket - U5- in luggage compartment - vehicles from 06.2004 onwards

### Removing

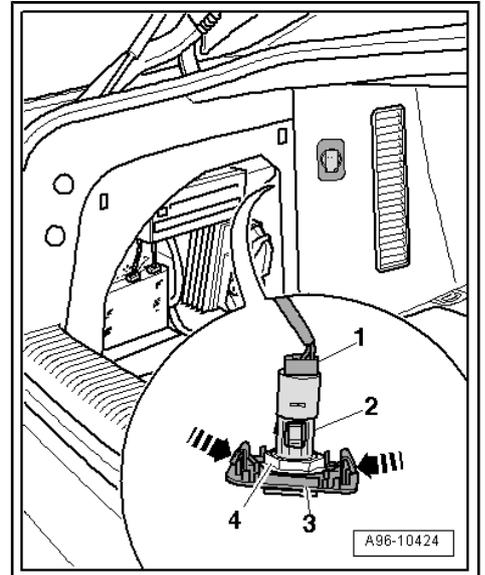
- Remove cover on luggage compartment side trim (left-side).
- Release retaining clips -arrows- on back of luggage compartment side trim and detach 12 V socket.
- Unplug electrical connector -1-.
- Unscrew nut -4-.
- Take 12 V socket -2- out of mounting -3- for 12 V socket.

### Installing

Install in reverse order.

### Tightening torque

Component	Nm
12 V socket to trim	2



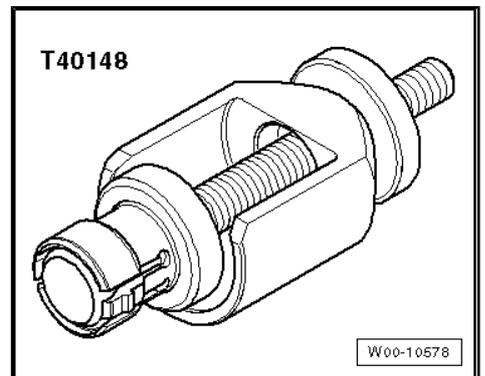
## 2.8 Renewing 12 V socket - U5- - vehicles from 06.2004 onwards

### Special tools and workshop equipment required

- ◆ Puller - T40148-

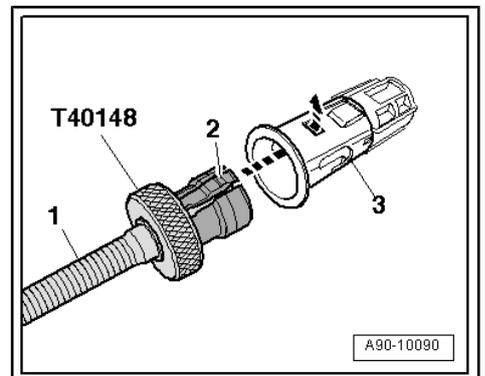


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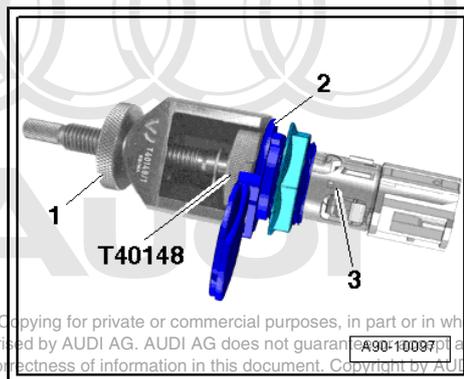


### Removing

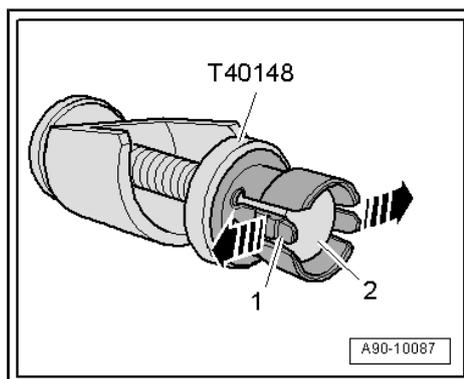
- Release tabs -2- on puller -T40148- must engage in recesses in 12 V socket -3- -arrow-; for this purpose, push threaded rod -1- downwards as far as stop.



- Open cover of mounting -2- and hold in this position.
- Insert puller - T40148- into 12 V socket -3- as far as stop.
- Turn knurled wheel -1- on puller - T40148- clockwise as far as stop.



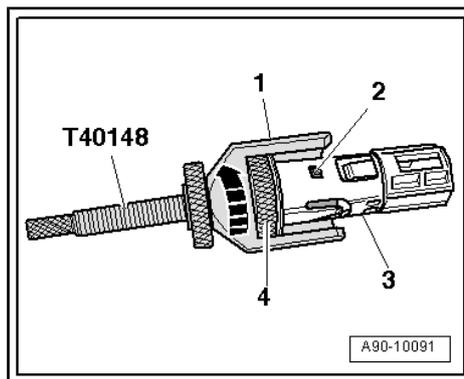
- The piston -2- moves upwards and the release tabs -1- on puller - T40148- spread apart -arrows-.
- Take 12 V socket out of mounting.
- Unplug electrical connector.



### Installing

Installation is carried out in the reverse order; note the following:

- Detach support -1- from puller - T40148- .
- Push piston downwards and hold in this position.
- Turn knurled wheel -4- on puller - T40148- anti-clockwise -arrow-; this will open release tabs -2- on 12 V socket -3- and puller - T40148- can be removed.



### 3 Horn

Observe notes on contact corrosion ⇒ [page 264](#) .

#### 3.1 Removing and installing horn and dual tone horn - H1-

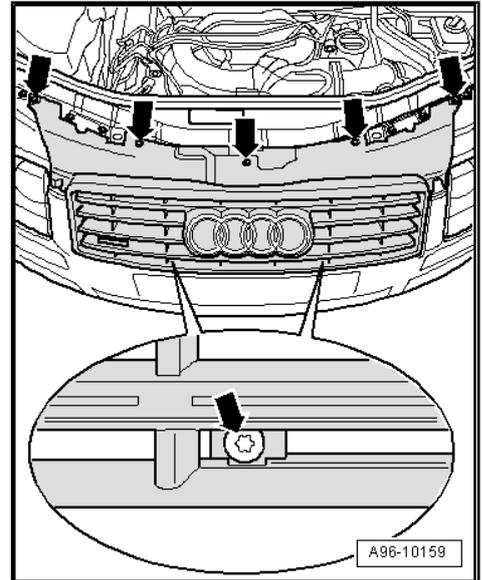
##### Removing

- Switch off ignition and take out ignition key.

##### Vehicles with twin grille:

- Unscrew bolts -arrows- at top of lock carrier and beneath Audi rings.

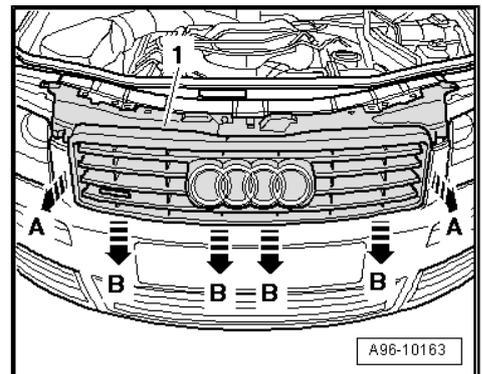
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- Spray silicone-free lubricant all round into gap between radiator grille and bumper cover.
- First pull radiator grille -1- out of bumper cover by pulling it out at locations marked with -arrows A-.
- Then pull bottom of radiator grille -arrows B- out of bumper cover.

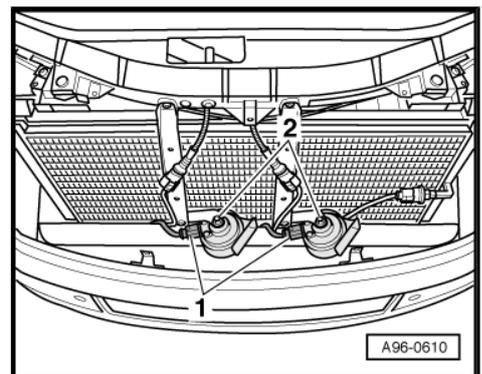
##### Vehicles with single-frame radiator grille:

- Remove bumper cover ⇒ Rep. gr. 63 .



##### All vehicles (continued):

- Unplug electrical connectors -1-.
- Unscrew nut -2- and detach horn or dual tone horn - H1- from mounting.

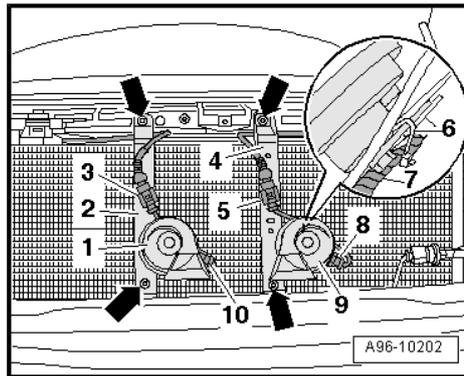


**Installing**

Installation is carried out in the reverse order; note the following:

**Vehicles with petrol engine:**

- Make sure outlet openings of horns -1- and -9- are horizontally aligned with bumper and align if necessary.
- Plug in electrical connectors -8- and -10- at horns.
- Secure electrical wiring harness -7- on back of horns with cable ties -6-.



**Note**

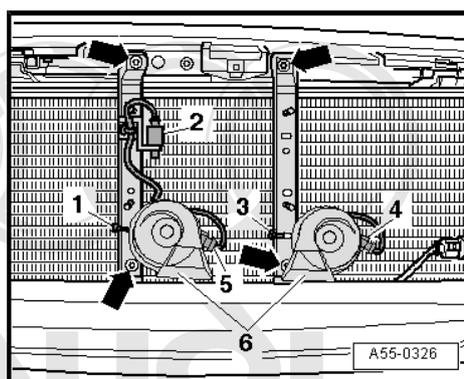
-Arrows- and -items 2 ... 7- can be ignored.

**Vehicles with 3.0 ltr. TDI engine:**

- Make sure outlet openings of horns -6- are horizontally aligned with bumper; align if necessary.
- Plug in electrical connectors -4- and -5- at horns.

**Note**

-Arrows- and -items 1 ... 3- can be ignored.

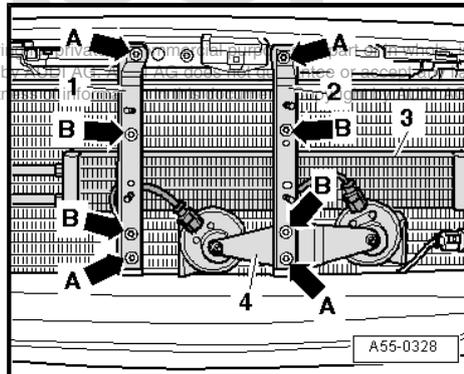


**Vehicles with 4.0 ltr. TDI engine:**

- Make sure bracket -4- for horns is horizontally aligned with bumper; align if necessary.

**Note**

-Arrows A-, -arrows B- and -items 1 ... 3- can be ignored.



**Vehicles with twin grille:**

- Radiator grille must engage audibly in bumper cover.

**Vehicles with single-frame radiator grille:**

- Install bumper cover => Rep. gr. 63 .

**Tightening torques**

Component	Nm
Horn/dual tone horn - H1- to bracket	11
Radiator grille to lock carrier	4

## 4 Data bus diagnostic interface

### 4.1 Data bus diagnostic interface - J533-

#### General description

The data bus diagnostic interface - J533- interlinks the various data buses in the vehicle.

For example, it transfers data from the engine control unit (drive system CAN bus) to the instrument cluster (instrument cluster CAN bus).

Fault finding is performed via the "Guided Fault Finding" → Vehicle diagnostic tester.

### 4.2 Data bus diagnostic interface - J533- - overview

#### 1 - Multimedia system operating unit - E380-

- In front centre console

#### 2 - Display unit for front information display and operating unit control unit - J685-

- In dash panel (centre)

#### 3 - Control unit for front display and information control panel - J523-

- Behind glove box

#### 4 - Control unit in dash panel insert - J285-

- In instrument cluster
- In luggage compartment (left-side), behind side trim

#### 5 - Radio - R-

#### 6 - Chip card reader control unit - J676-

- In glove box

#### 7 - Media player in position 1 - R118-

- In glove box

#### 8 - Digital radio - R147-

- In luggage compartment (left-side), behind side trim

#### 9 - TV tuner - R78-

- In luggage compartment (left-side), behind side trim

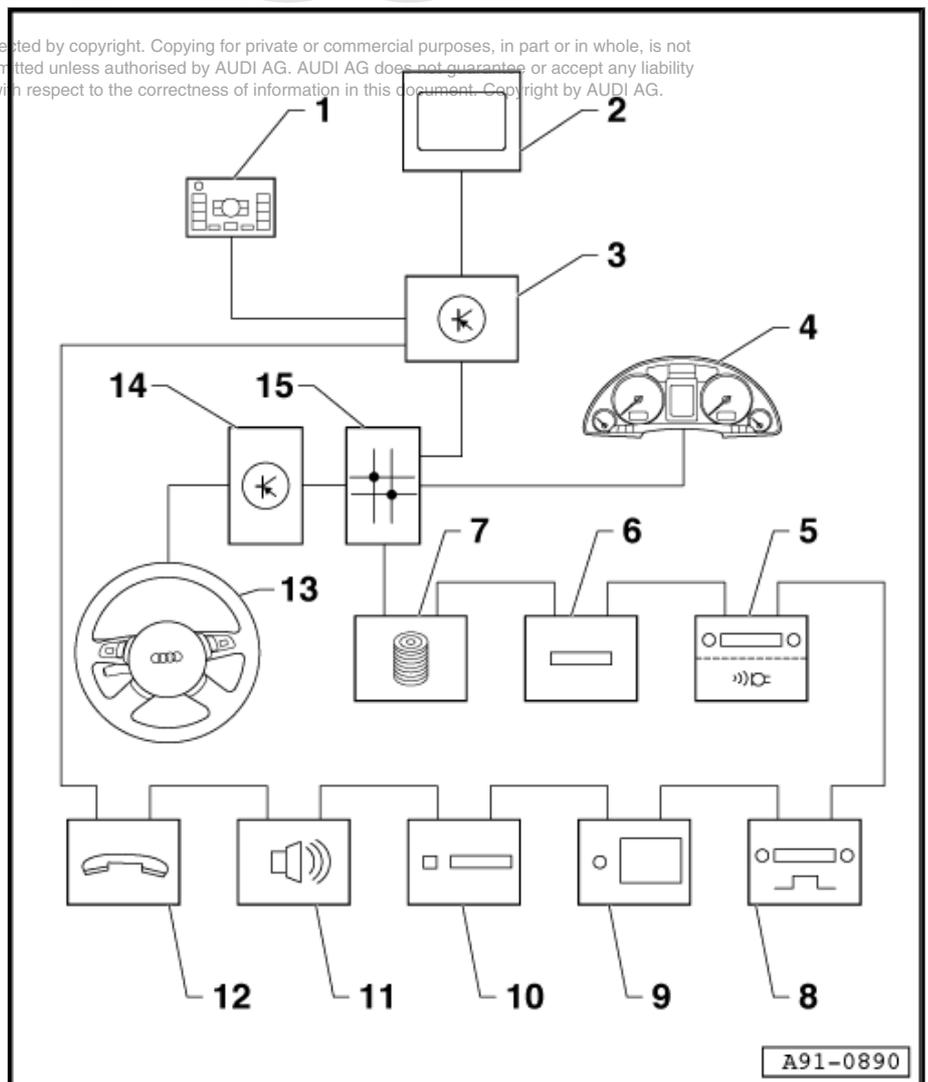
#### 10 - Navigation system with CD drive control unit - J401-

- In luggage compartment (left-side), behind side trim

#### 11 - Digital sound package control unit - J525-

- In luggage compartment (left-side), behind side trim

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**12 - Telephone/telematics control unit - J526- or telephone transmitter and receiver unit - R36-**

- ❑ Beneath floor covering in driver's footwell

**13 - Multi-function steering wheel****14 - Steering column electronics control unit - J527-**

- ❑ On steering column

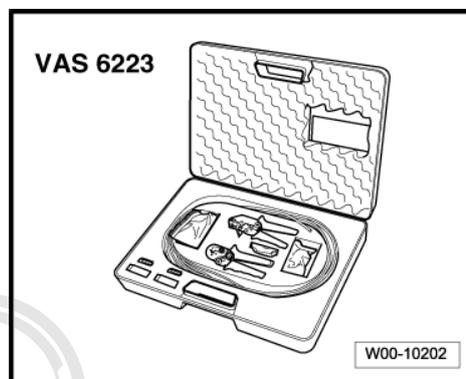
**15 - Data bus diagnostic interface - J533-**

- ❑ Gateway
- ❑ Behind glove box

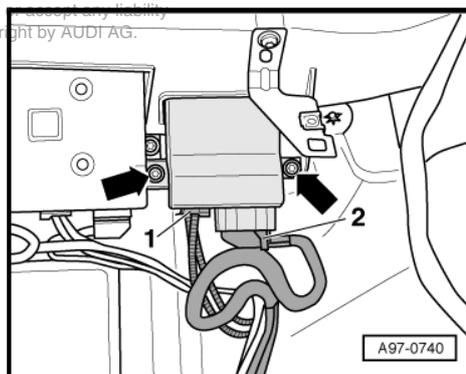
### 4.3 Removing and installing data bus diagnostic interface - J533-

**Special tools and workshop equipment required**

- ◆ Protective cap for cable connector - VAS 6223/9- from fibre-optic conductor repair set - VAS 6223-

**Removing**

- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Switch off ignition and take out ignition key.
- Remove glove box ⇒ Rep. gr. 68.
- Unscrew bolts -arrows- and detach control unit.
- Unplug electrical connector -2-.
- Unplug connector -1- for fibre optic cable.



- Seal open connector plug -2- of fibre optic cable with protective cap for cable connector - VAS 6223/9- -item 1-.

 **Note**

*Protective cap prevents contamination of or mechanical damage to end face of fibre optic cable which would impair light transmission.*

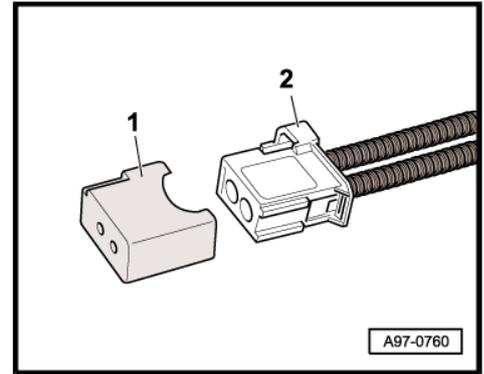
**Installing**

Installation is carried out in the reverse order; note the following:

- Install glove box ⇒ Rep. gr. 58 .

**Tightening torque**

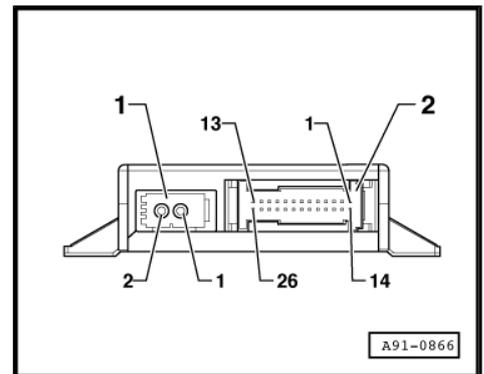
Component	Nm
Control unit to body	4



**4.4 Connector at data bus diagnostic interface - J533-**

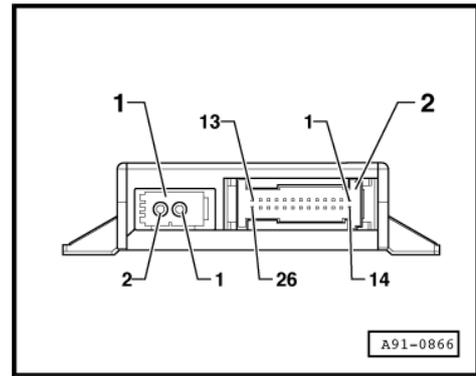
**Connection for optical MOST bus (fibre optic cable) -item 1-**

- 1 - Input
- 2 - Output



**Multi-pin connector, 26-pin -item 2-**

- 1 - Battery + (terminal 30)
- 2 - Battery + (terminal 30)
- 3 - Instrument cluster wake-up
- 4 - Open circuit diagnostic lead
- 5 - Not used
- 6 - CAN bus High (convenience)
- 7 - Not used
- 8 - CAN bus High (drive)
- 9 - CAN bus High (instrument cluster)
- 10 - Not used
- 11 - CAN bus High (diagnosis)
- 12 - Not used
- 13 - E-CAN High
- 14 - Earth – (terminal 31)
- 15 - Earth – (terminal 31)
- 16 - Terminal 15
- 17 - Not used
- 18 - Not used
- 19 - CAN bus Low (convenience)
- 20 - Not used
- 21 - CAN bus Low (drive)
- 22 - CAN bus Low (instrument cluster)
- 23 - Not used
- 24 - CAN bus Low (diagnosis)
- 25 - Not used
- 26 - E-CAN Low



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## 92 – Windscreen wash/wipe system

### 1 Contact corrosion

Contact corrosion can occur if unsuitable fasteners (bolts, nuts, washers, etc.) are used.

For this reason, only fasteners with a special surface coating are fitted.

Furthermore, rubber components or plastic components and adhesives are made of non-conductive material.

Always fit new components if you are not sure that the old components are suitable ⇒ Electronic parts catalogue .

**Note:**

- ◆ We recommend the use of genuine replacement parts only; they have been tested and are compatible with aluminium.
- ◆ We recommend using Audi Genuine Accessories.
- ◆ Damage resulting from contact corrosion is not covered by warranty.



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## 2 Windscreen wiper system

Observe notes on contact corrosion ⇒ [page 111](#) .

### 2.1 Moving windscreen wipers to service position



#### Note

*The bonnet must be completely closed if the wiper motor needs to be run during repair work (the voltage supply to the wiper motor is cut off when the bonnet is open).*

- At sub-zero temperatures, first check that the wiper blades are not frozen onto the glass.
- Switch on ignition.
- Activate menu option: Windscreen wipers - Service position "on" via "MMI control console" ⇒ Owner's Manual .
- The wipers will run to the "service position".
- Switch off ignition.



#### Caution

*The bonnet can be damaged if the wipers are allowed to run back to the park position.*

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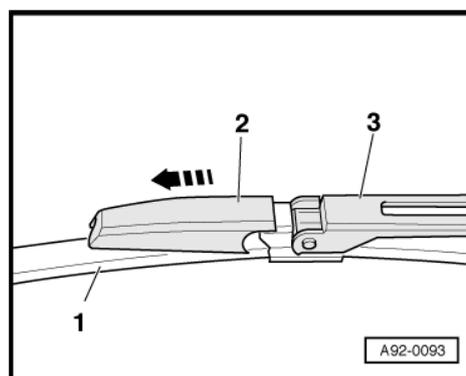
◆ **Do not move the vehicle when the wiper arms are lifted up off the windscreen.**

◆ **The wipers automatically run back to the park position when the wiper switch is operated or when road speed exceeds 6 km/h.**

### 2.2 Renewing wiper blade

#### Removing

- Move windscreen wipers to service position ⇒ [page 112](#) .
- Switch off ignition.
- Lift wiper arm off windscreen.
- Slide retaining clip -2- off wiper arm -3- in direction of -arrow-.
- Detach wiper blade -1- downwards from wiper arm.



## Installing



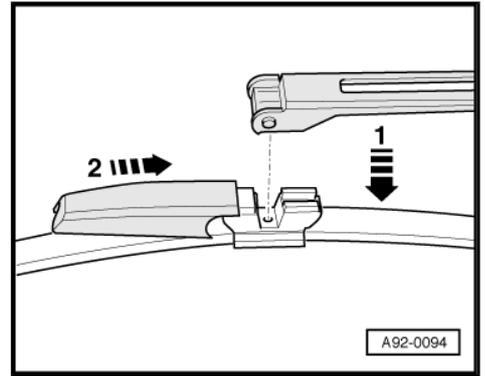
### Caution

*Risk of damage to body.*

- ◆ *The wiper blades for driver's and front passenger's side have different lengths.*

Installation is carried out in the reverse order; note the following:

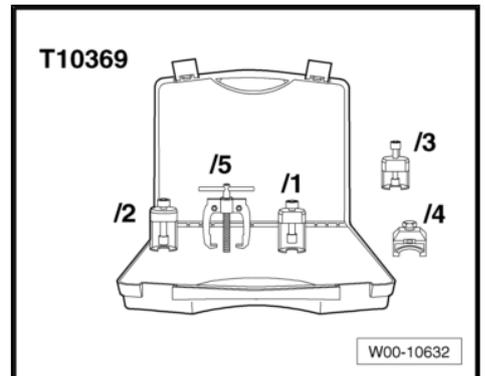
- Insert joint of wiper arm in guide at wiper blade -arrow 1-. Make sure joint is inserted fully in guide.
- Secure wiper blade by fitting retaining clip -arrow 2-.
- Switch on ignition and operate "touch-wipe function"; the wipers will then move out of the "service position".



## 2.3 Removing and installing wiper arms

### Special tools and workshop equipment required

- ◆ Tool kit for wiper arms - T10369-



## Removing

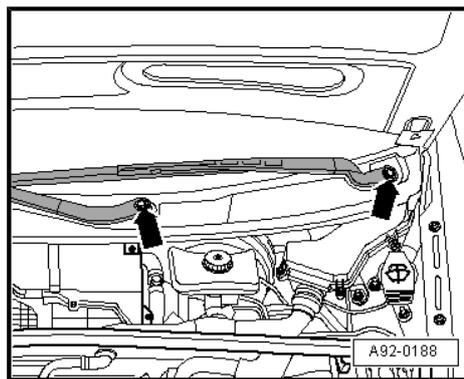


### Note

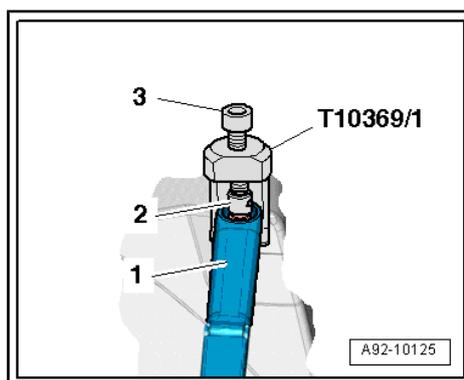
*If the wiper motor needs to be run during repair work, the bonnet must be closed (voltage supply to wiper motor is cut off when bonnet is open).*

- Switch on ignition.
- Operate "touch-wipe function" and allow wiper arms to move to end position.
- Switch off ignition and take out ignition key.

- Use screwdriver to pry cover cap off each wiper arm.
- Loosen nuts -arrows- several turns.



- Apply puller - T10369/1- at wiper arm -1- as shown in illustration.
- Apply thrust piece -2- at wiper shaft.
- Turn bolt -3- clockwise until wiper arm is clear of wiper shaft.
- Remove nuts completely and detach wiper arms.



### Installing



#### Caution

*Risk of damage to body.*

- ◆ *The wiper arms for driver's and front passenger's side have different lengths.*

Installation is carried out in the reverse order; note the following:

- Adjust wiper arms ⇒ [page 114](#) .

## 2.4 Adjusting wiper arms

### Procedure



#### Note

*If the wiper motor needs to be run during repair work, the bonnet must be closed (voltage supply to wiper motor is cut off when bonnet is open).*

- Remove wiper arms ⇒ [page 113](#) .
- Switch on ignition.
- Operate "touch-wipe function" and allow wiper motor to move to end position.

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 Note

- ◆ Every second time the wiper motor is switched off it runs back slightly after reaching the end position, which turns the lip of the wiper blade in the opposite direction.
- ◆ The wiper motor moves the wiper arms down beyond their end position and then back up slightly. This slightly raised position must not be used when aligning the wiper crank.
- ◆ You must use the end setting at which the wiper motor moves directly to its park position (without returning). Operate the "touch-wipe function" again as necessary.

- Switch off ignition.
- Attach wiper arm with fitted wiper blade to wiper shaft and position wiper blade on windscreen as follows:

- Dimension -a- = 10 mm
- Dimension -b- = 10 mm

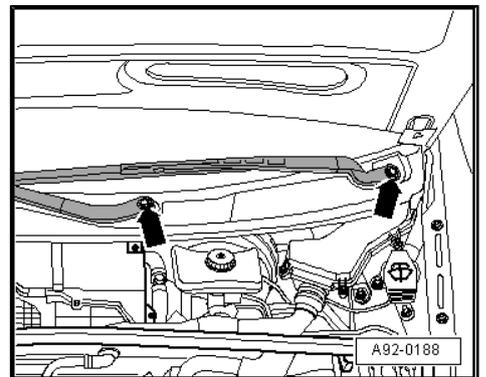
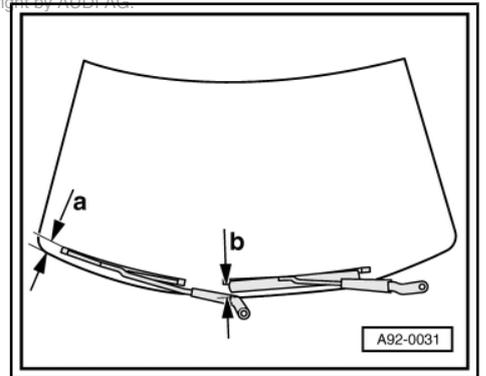
 Note

Dimensions indicate distance between tips of wiper blades and cowl panel trim of plenum chamber at bottom edge of windscreen.

- Tighten securing nuts -arrows- for wiper arms.
- Switch on ignition.
- Operate "touch-wipe function" and allow wiper arms to move to end position.
- Switch off ignition.
- Check setting of wiper arms again. Correct as necessary.

**Tightening torque**

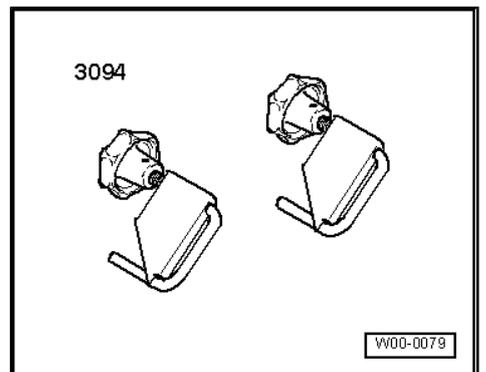
Component	Nm
Wiper arm to wiper shaft	21



## 2.5 Removing and installing wiper motor with wiper motor control unit - J400-

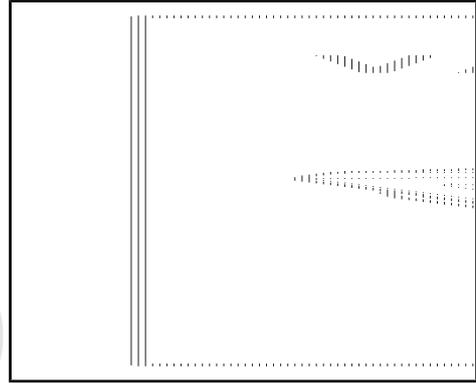
**Special tools and workshop equipment required**

- ◆ Hose clamps up to 25 mm - 3094-

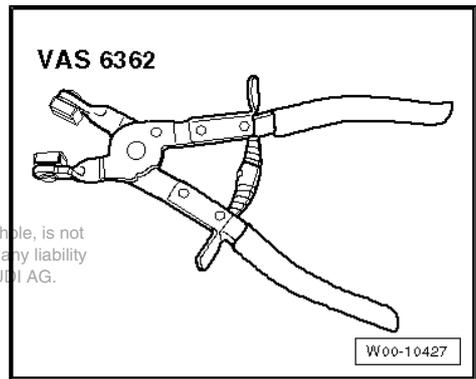




◆ Drip tray for workshop hoist - VAS 6208-



◆ Hose clip pliers - VAS 6362-



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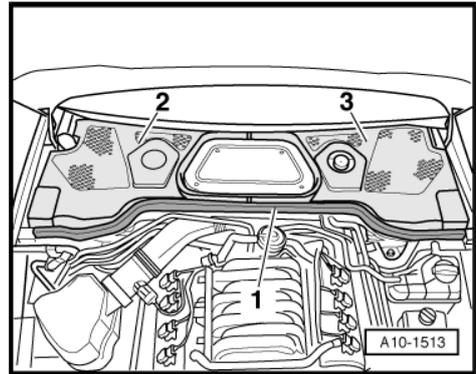
Removing

- Pull off rubber seal -1- for plenum chamber covers.
- Detach plenum chamber covers -2- and -3-.
- Remove dust and pollen filter => Rep. gr. 87 .

**i** Note

Cover air duct at air conditioner housing with clean cloth to stop anything falling in.

- Remove wiper arms => [page 113](#) .
- Unscrew bolts -arrows- for cowl panel trim -1- (left and right).

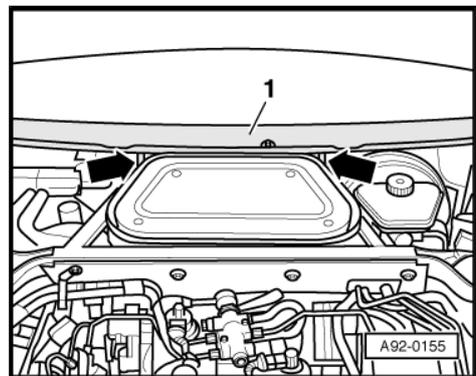


**!** Caution

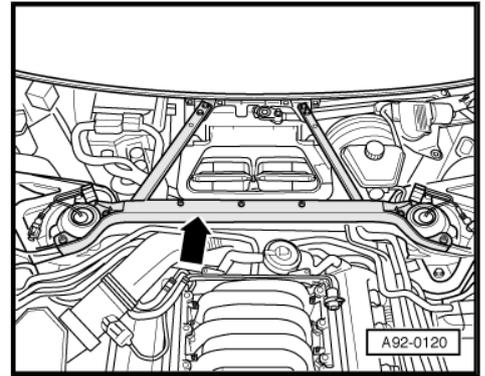
**Risk of damage to cowl panel trim.**

◆ Apply a small quantity of soap solution to transition between windscreen and cowl panel trim -1-. Then, starting at edge of windscreen, pull cowl panel trim vertically up and out of retainer at windscreen.

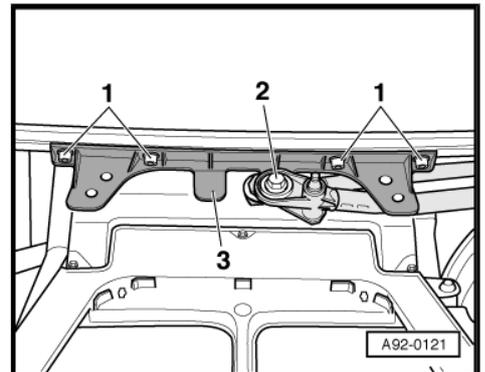
- Carefully pull cowl panel trim off retainer at windscreen.



- Unscrew body brace -arrow-.

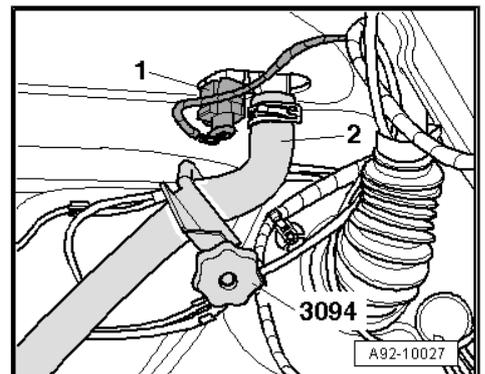


- Remove bolts -1- and -2-.
- Detach bracket -3- for body brace.



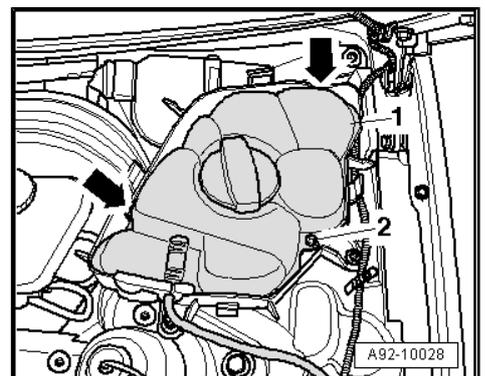
**Vehicles with coolant expansion tank in plenum chamber:**

- Remove rear section of front left wheel housing liner => Rep. gr. 66 .
- Clamp off coolant hose -2- with hose clamp -3094- .
- Unplug electrical connector -1- at coolant shortage indicator.
- Place drip tray for workshop hoist - VAS 6208- beneath coolant expansion tank and detach coolant hose.

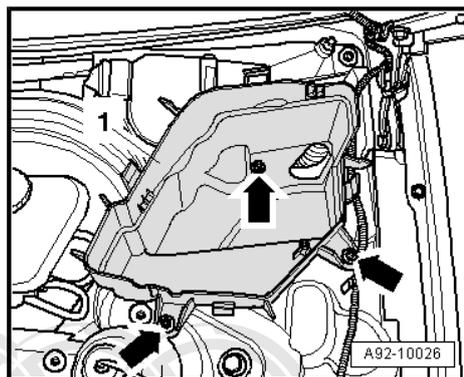


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- Unscrew securing bolt -2- at coolant expansion tank.
- Release retaining clips -arrows- and take coolant expansion tank -1- out of mounting.



- Unscrew nuts -arrows-.
- Remove mounting -1- for coolant expansion tank from plenum chamber.



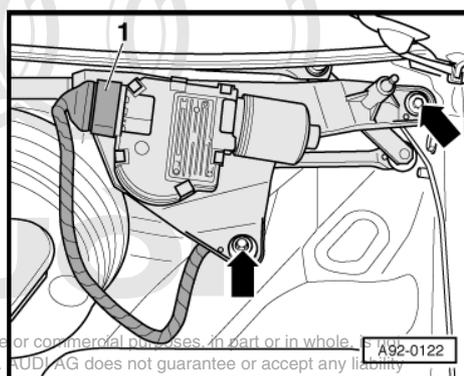
**All vehicles (continued):**

- Unscrew bolts -arrows- and detach entire wiper frame.
- Unplug electrical connector -1-.

**Installing**

Installation is carried out in the reverse order; note the following:

- Fit wiper motor with wiper frame in vehicle.
- Install body brace ⇒ Rep. gr. 40 .



**Vehicles with coolant expansion tank in plenum chamber:**

- Install mounting and coolant expansion tank.
- Install rear section of front left wheel housing liner ⇒ Rep. gr. 66 .
- Fill with coolant ⇒ Rep. gr. 19 .

**All vehicles (continued):**

- Adjust wiper arms ⇒ [page 114](#) .

**Tightening torques**

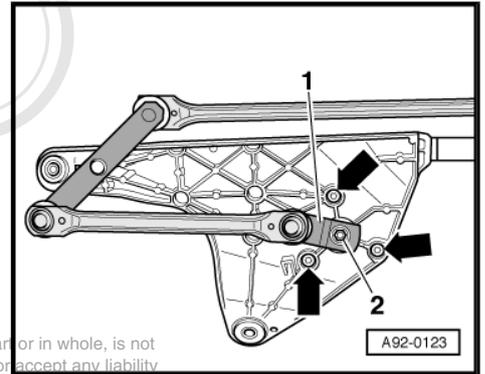
Component	Nm
Wiper frame to plenum chamber	8
Mounting for coolant expansion tank to body	8
Coolant expansion tank to mounting	2.5

## 2.6 Renewing wiper motor with wiper motor control unit - J400-

**Procedure**

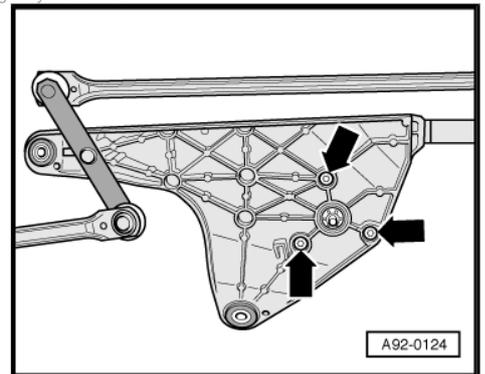
- If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Remove wiper motor ⇒ [page 115](#) .

- Unscrew nut -2- and detach crank from wiper motor.
- Unscrew wiper motor from wiper frame -arrows-.



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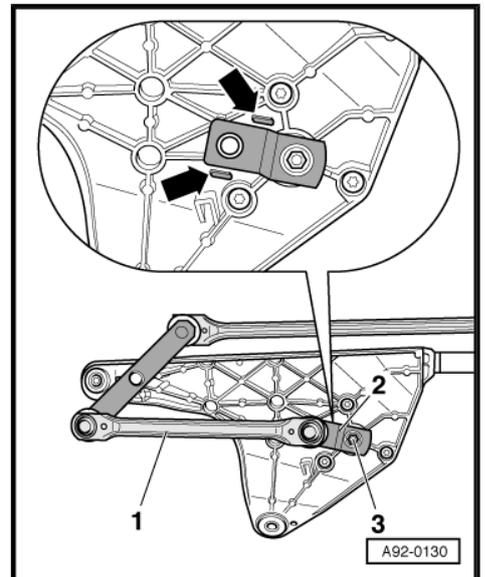
- Secure new wiper motor without crank to wiper frame -arrows-.
- Plug in electrical connector.
- Switch on ignition.
- Perform next step in "Guided Functions" routine => Vehicle diagnostic tester.



 **Note**

*The "Replacement" function in "Guided Functions" disables the wiper motor alternating park position (in addition to other items). The wiper motor then always moves to the "lower" park position used to make the setting.*

- Operate "touch-wipe function" and allow wiper motor to move to end position.
- Switch off ignition and take out ignition key.
- Fit crank -2- with drive rod -1- loosely in position on wiper shaft.
- Align crank with wiper frame.
  - Crank must be positioned between marks -arrows-.
- Brace crank with an open-end spanner and tighten nut -3-.
- Switch on ignition.
- Operate "touch-wipe function" and allow wiper motor to move to end position.
- Check whether crank is positioned between marks and re-align if necessary.
- Switch off ignition and take out ignition key.
- Install wiper motor => [page 115](#) .



**Tightening torques**

Component	Nm
Wiper motor to wiper frame	8
Wiper crank to wiper motor	18

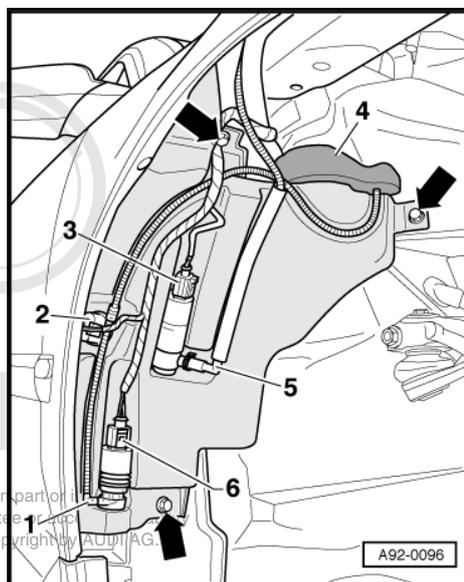
### 3 Windscreen washer system

Observe notes on contact corrosion ⇒ [page 111](#) .

#### 3.1 Removing and installing washer fluid reservoir

##### Removing

- Switch off ignition and take out ignition key.
- Open filler neck for washer fluid reservoir.
- Pull retaining ring of cap for washer fluid reservoir off filler neck.
- Unscrew front right wheel.
- Remove rear section of front right wheel housing liner ⇒ Rep. gr. 66 .
- Unplug electrical connectors -3- and -6-.
- Press release tab and pull off hose connector -5-.
- Detach washer fluid pipe -1- at washer fluid pump.
- Unscrew bolts -arrows-.
- Swivel washer fluid reservoir slightly to rear.
- Unplug electrical connector -2- at low washer fluid sender.
- Lower washer fluid reservoir slightly and pull sealing element -4- off filler neck.
- Take out washer fluid reservoir downwards.



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##### Installing

Installation is carried out in the reverse order; note the following:

- Tighten bolts in the sequence -1 ... 3-.



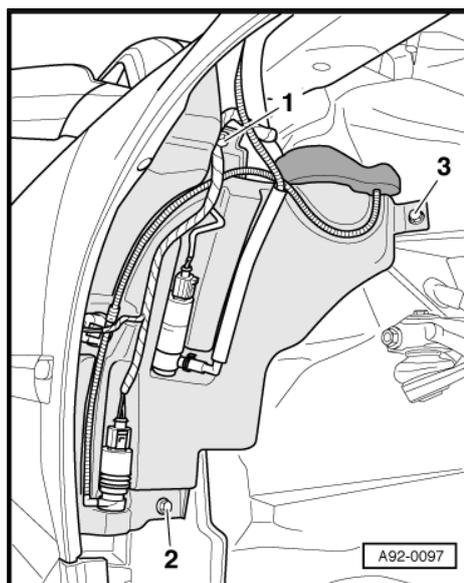
##### Note

*Fluid hose must audibly engage in washer fluid pump connection.*

- Install front right wheel housing liner ⇒ Rep. gr. 66 .

##### Tightening torque

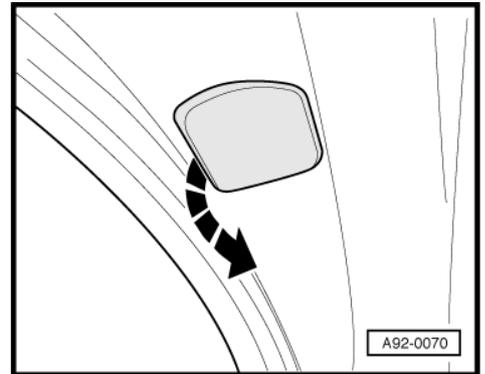
Component	Nm
Washer fluid reservoir to body	7



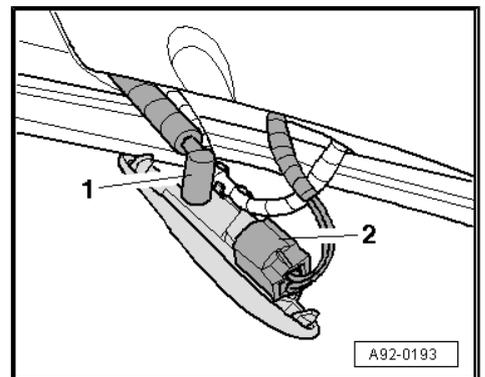
### 3.2 Removing and installing washer jets - vehicles up to 08.2007

#### Removing

- Unclip washer jets from underneath bonnet -arrow-.



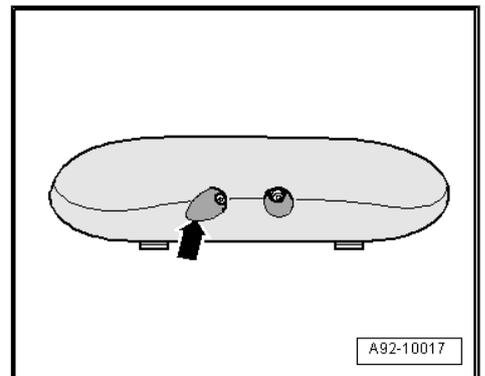
- Detach washer fluid pipe -1- at unclipped washer jet.
- Unplug electrical connector -2-.



#### Installing

Installation is carried out in the reverse order; note the following:

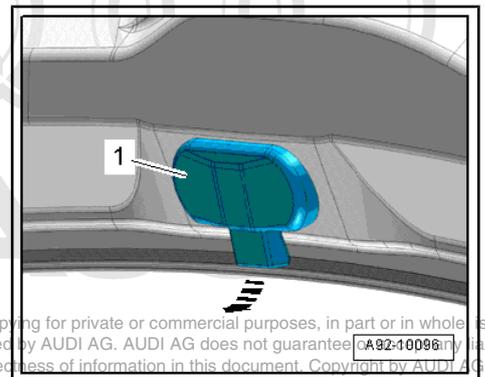
- When installing, make sure that the water hose audibly engages in the connection on the washer jet.
- Insert washer jet in bonnet.
- Oval opening -arrow- for individual washer jet must face outer side of vehicle.



### 3.3 Removing and installing washer jets - vehicles from 09.2007 onwards

#### Removing

- Unclip washer jets -1- from underneath bonnet -arrow-.



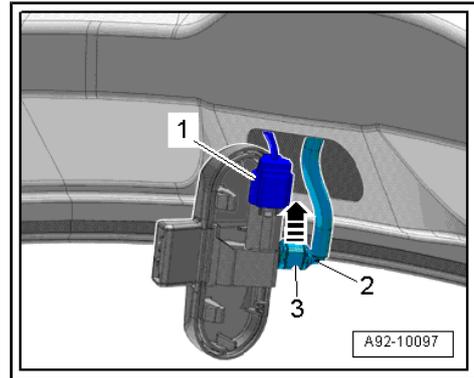
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- Release retaining clip -3- in direction of -arrow- and disconnect washer fluid hose -2- from windscreen washer jet.
- Unplug electrical connector -1- if fitted.

### Installing

Installation is carried out in the reverse order; note the following:

- When fitting washer fluid hose, make sure that retaining clip engages audibly in connection on washer fluid hose.
- Insert washer jet in bonnet.



## 3.4 Adjusting washer jets

- Adjust washer jets for windscreen washer system ⇒ Maintenance ; Booklet 404 ; Maintenance; Windscreen washer system: checking spray pattern and adjusting if necessary .
- If spray pattern does not match specifications, clean the contaminated washer jet.

### Cleaning washer jet:



#### Caution

#### *Risk of damage.*

- ◆ **Do NOT use any tools or implements to clean the washer jets.**

- Remove washer jet - vehicles up to 08.2007 ⇒ [page 121](#) .
- Remove washer jet - vehicles from 09.2007 onwards ⇒ [page 121](#) .
- Rinse washer jet with clear water in opposite direction of spray.
- Always blow through washer jet in opposite direction of spray when removing remaining particles of dirt by applying compressed air.
- If spray pattern still does not match specifications, renew washer jet.



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## 4 Headlight washer system

### 4.1 Removing and installing headlight washer jets

#### Removing

- Switch off ignition and take out ignition key.
- Remove front bumper cover ⇒ Rep. gr. 63 .
- Unplug electrical connector -1-.
- Press release tab and detach fluid hose -4-.
- Unscrew bolts -2- and remove washer jet -3-.

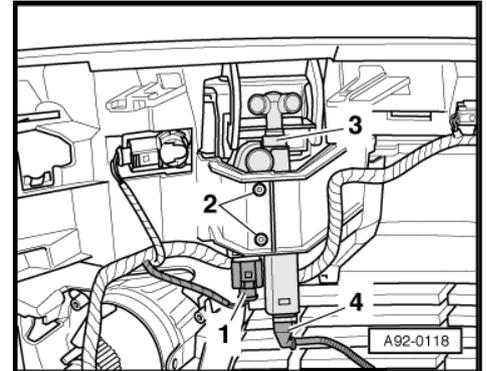
#### Installing

Installation is carried out in the reverse order; note the following:

- Install front bumper cover ⇒ Rep. gr. 63 .

#### Tightening torque

Component	Nm
Washer jet to bumper cover	3



### 4.2 Adjusting washer jets



Note

*The washer jets are pre-set at the factory and do not have to be adjusted following installation.*

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### 4.3 Removing and installing washer fluid reservoir



Note

*The washer fluid reservoir supplies both the windscreen and headlight washer systems, and is located in the front right wheel housing. Removing and installing ⇒ page 120 .*



## 5 Washer fluid hoses

⇒ Electrical system; General information; Rep. gr. 92 ; Washer fluid hoses



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## 94 – Lights, bulbs, switches - exterior

### 1 Contact corrosion

Contact corrosion can occur if unsuitable fasteners (bolts, nuts, washers, etc.) are used.

For this reason, only fasteners with a special surface coating are fitted.

Furthermore, rubber components or plastic components and adhesives are made of non-conductive material.

Always fit new components if you are not sure that the old components are suitable ⇒ Electronic parts catalogue .

#### Note:

- ◆ We recommend the use of genuine replacement parts only; they have been tested and are compatible with aluminium.
- ◆ We recommend using Audi Genuine Accessories.
- ◆ Damage resulting from contact corrosion is not covered by warranty.

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## 2 Halogen headlights

Observe notes on contact corrosion ⇒ [page 125](#) .



### Note

The headlights must be adjusted after any repair work which could affect the headlight settings ⇒ [page 128](#) .

### 2.1 Halogen headlights - exploded view

#### 1 - Headlight housing

#### 2 - Trim cover

#### 3 - 6 Nm

#### 4 - Bracket for headlight housing

#### 5 - Bracket for headlight housing

- To adapt headlight to body contour, slacken off bolt -item 7- and swivel headlight housing

#### 6 - 6 Nm

#### 7 - 3 Nm

#### 8 - Main beam bulb

- H7 - 12 V, 55 W
- Renewing bulb ⇒ [page 133](#)

#### 9 - Bulb for side lights

- Glass base bulb 12 V, 5 W
- Renewing bulb ⇒ [page 134](#)

#### 10 - Bulb holder

- For bulb for side lights

#### 11 - Main beam housing cover

- Release retaining tabs to remove

#### 12 - Adjuster

- To adjust headlight to wing panel contour and bumper contour

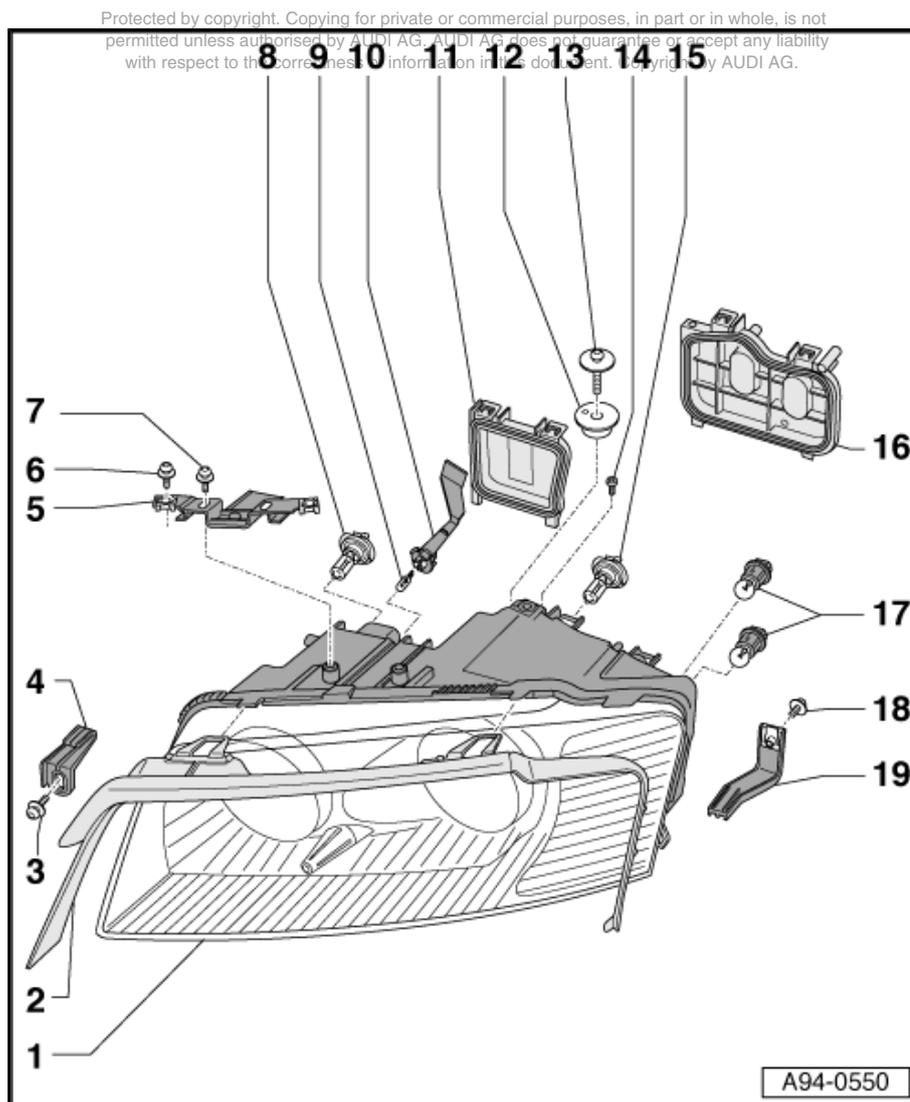
#### 13 - 6 Nm

#### 14 - Locking bolt, 1 Nm

- For dipped beam housing cover

#### 15 - Bulb for dipped beam headlights

- H7 - 12 V, 55 W
- Renewing bulb ⇒ [page 132](#)



16 - Dipped beam housing cover

17 - Turn signal bulb

- 12 V, 16 W
- 2x
- Orange
- Renewing bulb => [page 135](#)

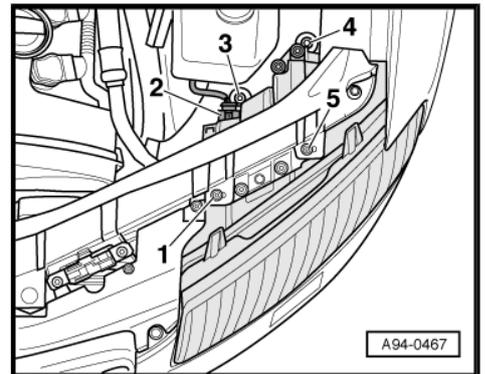
18 - 6 Nm

19 - Bracket for headlight housing

## 2.2 Removing and installing headlights

### Removing

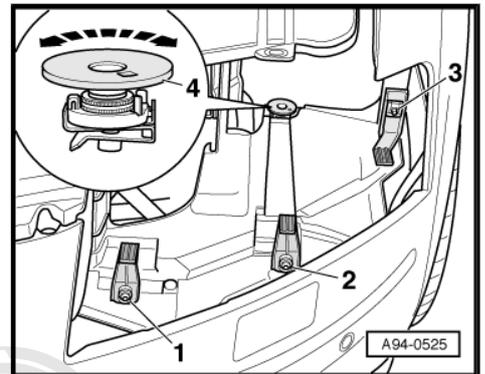
- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Remove front bumper cover => Rep. gr. 63 .
- Unscrew bolts -1- and -3 ... 5-.
- Unplug electrical connector -2-.
- Detach headlight to front.



### Installing

Installation is carried out in the reverse order; note the following:

- Check adjuster nut -4- of adjuster for freedom of movement -arrows-.
- Screw down adjuster nut as far as it will go, but do not tighten.
- Insert headlight.
- Install front bumper cover => Rep. gr. 63 .
- Align headlight with body contours (gap widths).



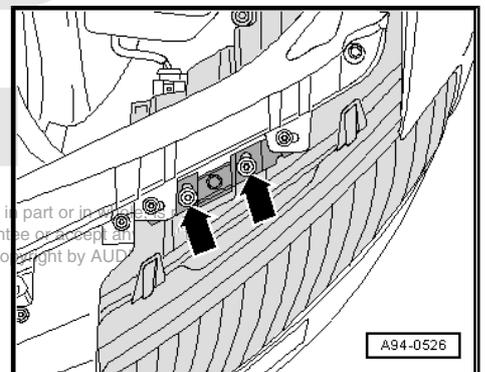
#### Note

*Headlight can be aligned by slackening off bolts -1 ... 3- and altering height of holders.*



#### Note

*Headlight can be aligned at top edge by slackening off both bolts -arrows- and swivelling headlight housing.*



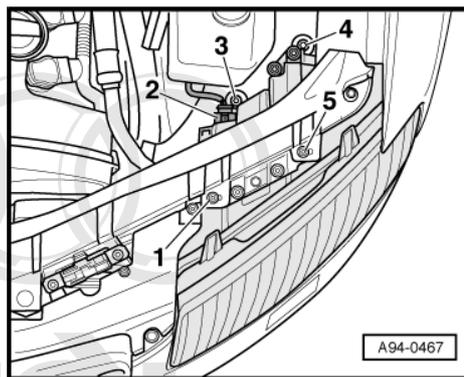
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- Tighten bolts -1- and -3 ... 5-

 **Note**

*When the bolt -3- is tightened the adjusting nut of the adjuster automatically rotates against the mounting point of the headlight housing and fixes it in place.*

- Avoid applying pressure to the bolt when securing; the adjuster nut of the adjuster must remain free to turn.
- Following installation, adjust headlights ⇒ [page 128](#) .



**Tightening torque**

Component	Nm
Headlight to lock carrier	6

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**2.3 Adjusting headlights**

- ◆ The following checking and adjustment procedures apply to all countries.
- ◆ However, national legislation and guidelines for individual countries must be adhered to.

**2.3.1 Requirements for checking and adjusting**

- ◆ Tyre pressure OK
- ◆ Headlight lenses must be clean and dry.
- ◆ Headlight lenses must not be damaged.
- ◆ Reflectors and bulbs OK
- ◆ Air reservoir for air suspension full, if necessary start engine and allow to run at idling speed for approx. 2 minutes then switch off engine.
- ◆ Release electromechanical parking brake to relieve any load on suspension.
- ◆ Make sure steering wheel is at centre position with wheels pointing straight ahead.
- ◆ Vehicle and headlight adjustment unit must be on a level surface.
- ◆ Headlight adjustment unit must be aligned to vehicle ⇒ Operating instructions for headlight adjustment unit .

Ensure that headlight adjustment unit is in front of headlight at a distance of 30 cm.

- ◆ Dip setting must be adjusted.

Dip settings (in “%”) are marked on the top of the headlight. The headlights must be adjusted in accordance with these values. The percentage value is for a range of 10 m. Example: Converting a dip setting of 1.0 % = 10 cm.

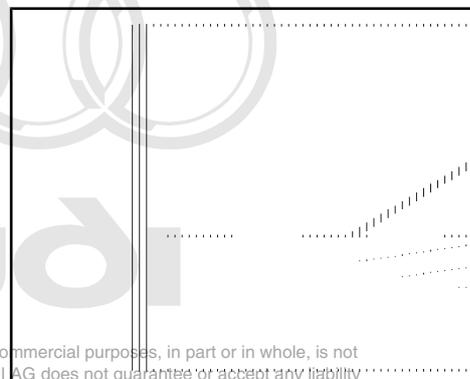
**2.3.2 Checking headlight settings**

- Start engine.
- Switch on dipped headlights.
- Set vehicle level to normal.

- To do so, press the function selector button "CAR" on the MMI operating unit. The main menu "adaptive air suspension" will appear.
- Use the rotary pushbutton to select the "automatic" level.

Further information on the vehicle level can be found in the ⇒ MMI Operating Manual

- ◆ The horizontal light-dark border should coincide with the setting line -1- of the test surface.
- ◆ The break-away point -2- between the horizontal section of the light-dark border on the left and the rising section on the right should coincide with the vertical line running through the central point -3-. The bright spot in the centre of the beam should be to the right of the vertical line.



 **Note**

- ◆ *To make it easier to find the break-away point -2-, cover and uncover the left half of the headlight (as seen in direction of travel) a few times. Then check the dipped beam again.*
  - ◆ *If dipped beams have been adjusted correctly the centre point of the main beam should lie on central point -3-.*
  - ◆ *If using an old test screen with a 15 ° setting line, the adjustment procedure is the same as for the new screen. Disregard the 15 ° setting line to avoid incorrect settings.*
- If headlight setting is not OK, adjust headlights ⇒ [page 129](#) .

## 2.3.3 Adjusting headlights

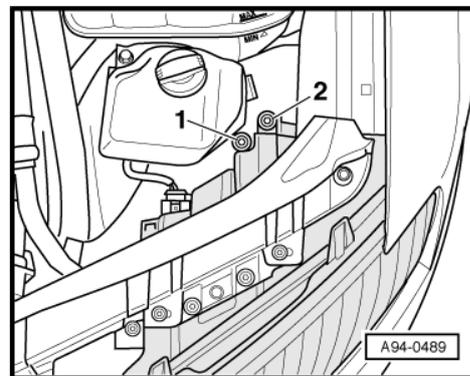
### Headlight (left-side)

Adjuster screws on left headlight:

- 1 - Height/lateral adjuster screw
- 2 - Height adjuster screw

The arrangement on the right headlight is symmetrically opposite.

- Only turn adjuster screw -2- to adjust the height.
- To make a lateral adjustment, turn adjuster screws -1- and -2- the same number of turns.



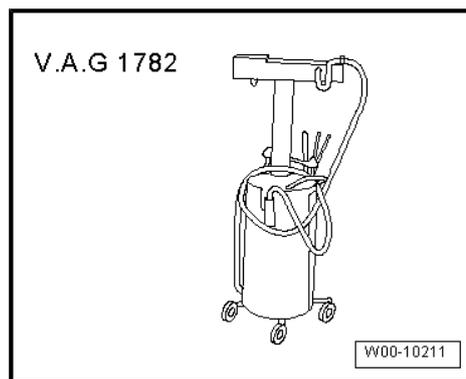
## 2.4 Preparations for headlight bulb replacement

Depending on the engine version, access to the headlight bulbs could be obstructed. In this case, additional steps must be performed.

### 2.4.1 Removing power steering reservoir

Special tools and workshop equipment required

◆ Used oil collection and extraction unit - V.A.G 1782-



**Procedure**

- Use oil collection and extraction unit - V.A.G 1782- to draw off hydraulic fluid for power steering from reservoir.

 **Note**

*Place cloth under power steering reservoir to catch escaping hydraulic fluid.*

- Remove power steering reservoir.

Installation is carried out in the reverse order; note the following:

- Top up power steering fluid and bleed steering system ⇒ Rep. gr. 48 .

**Tightening torque**

Component	Nm
Power steering reservoir to bracket	9

**2.4.2 Removing air cleaner (top section) - vehicles with 6-cyl. and 8-cyl. petrol engine**

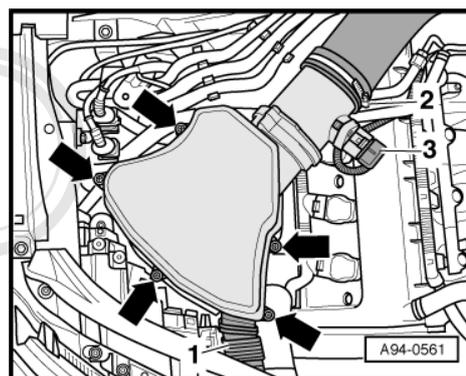
**Procedure**

- Detach air hose -2- at air cleaner housing.
- Unplug electrical connector -3-.
- Remove bolts -arrows- and detach air cleaner (top section).
- Detach connecting hose -1-.

Installation is carried out in the reverse order; note the following:

 **Note**

*Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*

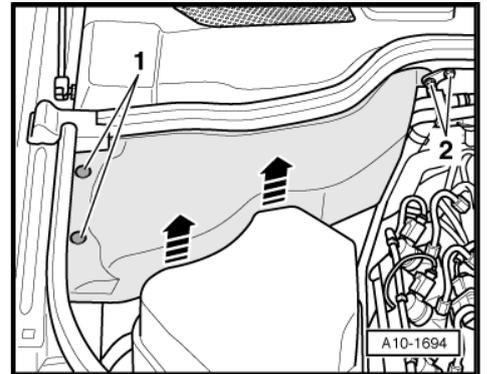


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### 2.4.3 Removing air cleaner housing - vehicles with 6-cyl. TDI engine

#### Procedure

- Remove cover for suspension strut turret (right-side) by detaching spreader clip -1- and unscrewing bolt connection -2-.
- Pull cover out of retainers -arrows-.

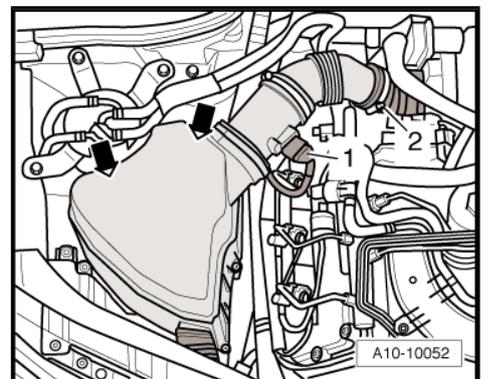


- Detach air hose -2- at turbocharger.
- Unplug electrical connector at air mass meter - G70- .
- Unscrew bolts -arrows-.
- Take out air cleaner housing.

Installation is carried out in the reverse order; note the following:

#### Note

- ◆ *Hose flanges and hoses for charge air system must be free from oil and grease before fitting.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) → Electronic parts catalogue .*

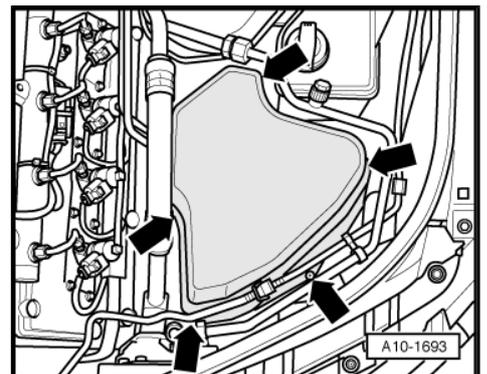


### 2.4.4 Removing left air cleaner (top section) - vehicles with 8-cyl. TDI engine

#### Procedure

- Unscrew bolts -arrows-.
- Detach left air cleaner (top section).

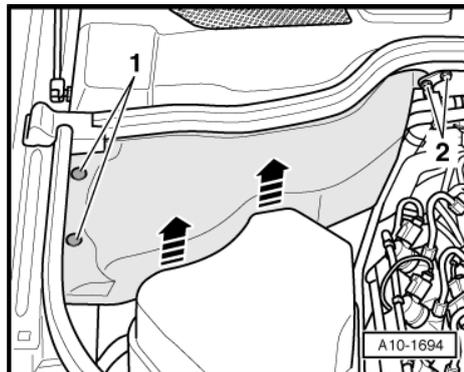
Install in reverse order.



## 2.4.5 Removing right air cleaner (top section) - vehicles with 8-cyl. TDI engine

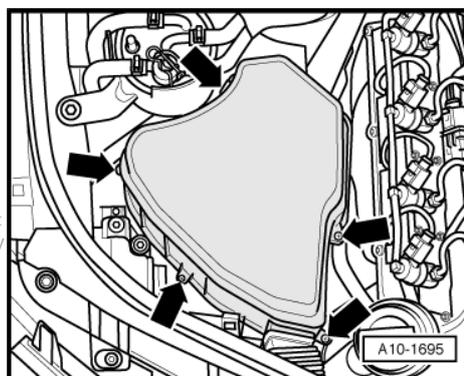
### Procedure

- Remove cover for suspension strut turret (right-side) by detaching spreader clip -1- and unscrewing bolt connection -2-.
- Pull cover out of retainers -arrows-.



- Remove bolts -arrows- and detach right air cleaner (top section).

Install in reverse order.

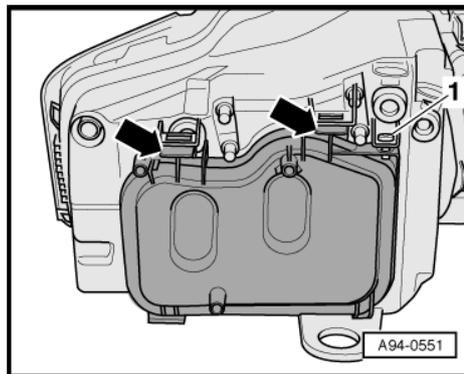


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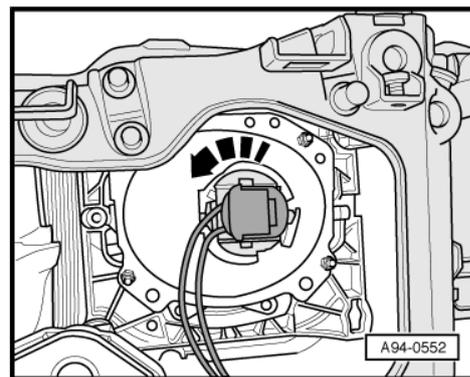
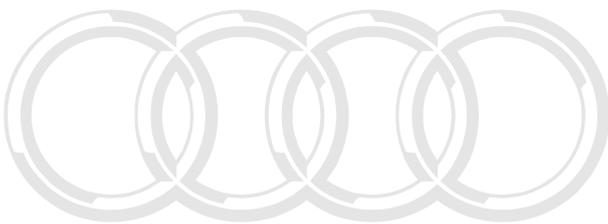
## 2.5 Renewing bulb for dipped beam headlights

### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner => Rep. gr. 66 .
- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.



- Turn bulb holder anti-clockwise -arrow- and pull out of headlight housing.

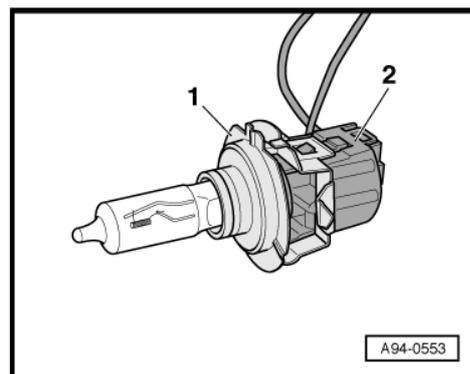


- Pull bulb -1- for dipped beam headlights out of bulb holder -2-.

### Installing

Installation is carried out in the reverse order; note the following:

- ~~Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.~~
- Secure bulb holder by turning clockwise.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner ⇒ Rep. gr. 66 .



## 2.6 Renewing bulb for main beam headlights

### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position “0”.

**Headlight (left-side) - vehicles with 6-cyl. or 8-cyl. petrol engine, vehicles with 6-cyl. TDI engine:**

- Remove power steering reservoir ⇒ [page 129](#) .

**Headlight (left-side) - vehicles with 8-cyl. TDI engine:**

- Remove left air cleaner (top section) ⇒ [page 131](#) .

**Headlight (right-side) - vehicles with 6-cyl. or 8-cyl. petrol engine:**

- Remove air cleaner (top section) ⇒ [page 130](#) .

**Headlight (right-side) - vehicles with 6-cyl. TDI engine:**

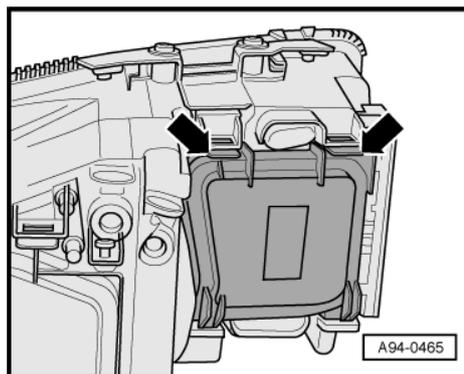
- Remove air cleaner housing ⇒ [page 131](#) .

**Headlight (right-side) - vehicles with 8-cyl. TDI engine:**

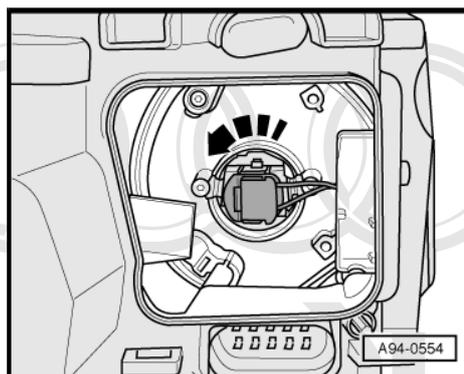
- Remove right air cleaner (top section) ⇒ [page 132](#) .

**All vehicles (continued):**

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.



- Turn bulb holder anti-clockwise -arrow- and pull out of headlight housing.

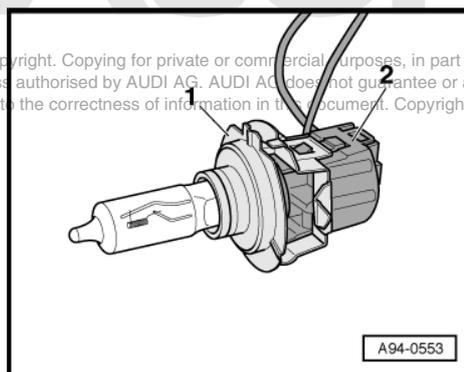


- Pull main beam bulb -1- out of bulb holder -2-.

**Installing**

Installation is carried out in the reverse order; note the following.

- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.
- Secure bulb holder by turning clockwise.
- Close housing cover.



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## 2.7 Renewing bulb for side lights

### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".

**Headlight (left-side) - vehicles with 6-cyl. or 8-cyl. petrol engine, vehicles with 6-cyl. TDI engine:**

- Remove power steering reservoir ⇒ [page 129](#) .

**Headlight (left-side) - vehicles with 8-cyl. TDI engine:**

- Remove left air cleaner (top section) ⇒ [page 131](#) .

**Headlight (right-side) - vehicles with 6-cyl. or 8-cyl. petrol engine:**

- Remove air cleaner (top section) ⇒ [page 130](#) .

**Headlight (right-side) - vehicles with 6-cyl. TDI engine:**

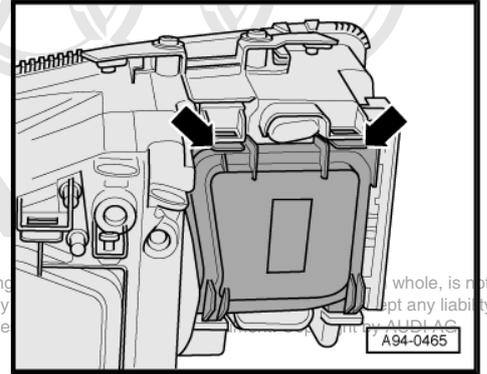
- Remove air cleaner housing ⇒ [page 131](#) .

**Headlight (right-side) - vehicles with 8-cyl. TDI engine:**

- Remove right air cleaner (top section) ⇒ [page 132](#) .

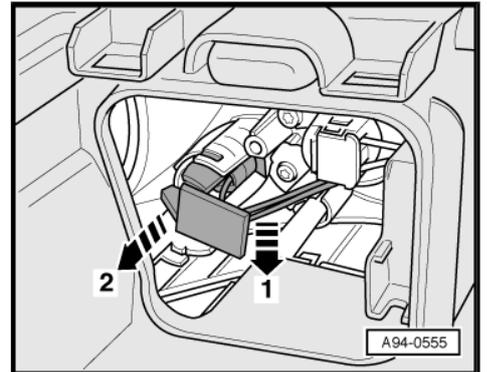
**All vehicles (continued):**

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.



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- Release bulb holder for side light by pressing down handle at holder -arrow 1-.
- Pull bulb holder for side light out of headlight housing -arrow 2-.

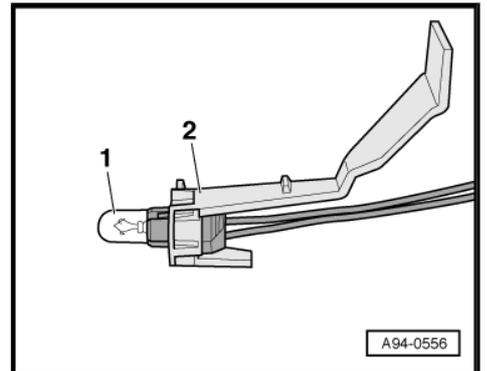


- Pull bulb for side light -1- out of bulb holder -2-.

**Installing**

Installation is carried out in the reverse order; note the following:

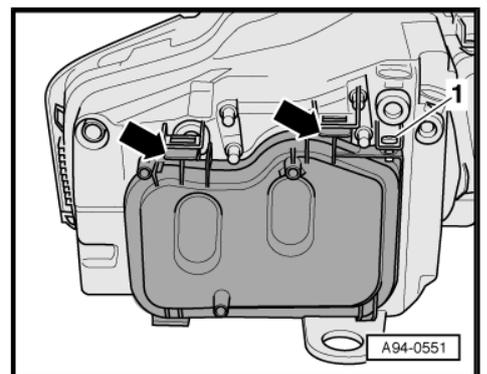
- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.
- Press bulb holder into reflector until you feel it engage.
- Close housing cover.



**2.8 Renewing bulb for turn signal**

**Removing**

- Switch off ignition and take out ignition key.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner => Rep. gr. 66 .
- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.

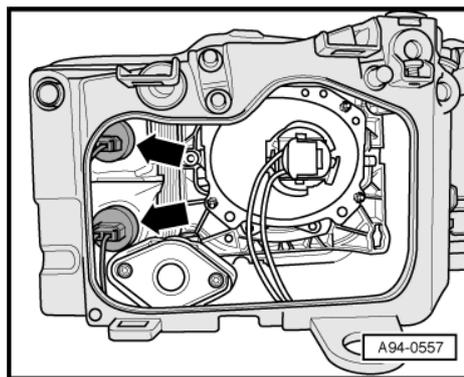


- Pull bulbs -arrows- out of housing.
- Unplug electrical connector at bulb.

### Installing

Installation is carried out in the reverse order; note the following:

- Press bulb holder into reflector until you feel it engage.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner ⇒ Rep. gr. 66 .



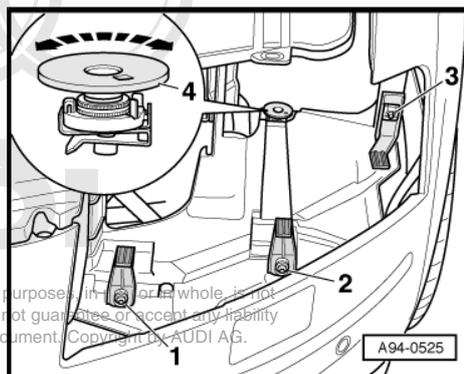
## 2.9 Renewing headlight holders



*Broken headlight holders (e.g. accident damage) can be renewed separately. In many cases this avoids having to renew the entire headlight.*

### Procedure

- Switch off ignition and take out ignition key.
- To renew lower headlight holders, unscrew bolts -1 ... 3-.
- Position adjuster nut -4- from rear on mount at lock carrier.

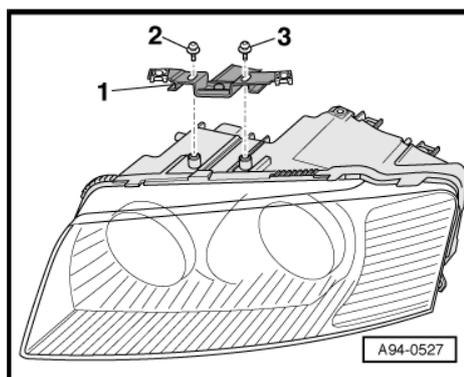


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- To renew upper headlight holder -1-, unscrew bolts -2- and -3- and unclip holder from headlight housing.

### Tightening torques

Component	Nm
Lower headlight holder to lock carrier	6
Upper headlight holder to lock carrier	6



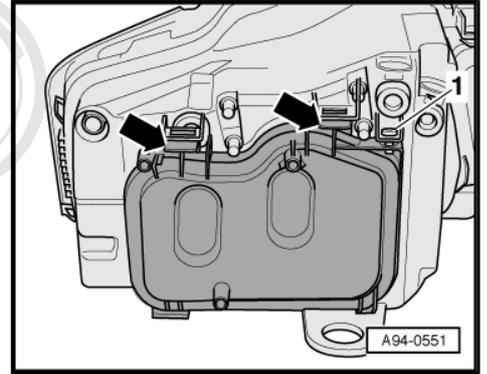
## 2.10 Adapting headlights for driving on the left or right side of the road

When travelling in countries where the vehicle is to be driven on the other side of the road, both headlights must be adjusted to prevent oncoming traffic from being dazzled by the asymmetric dipped beams.

### Procedure

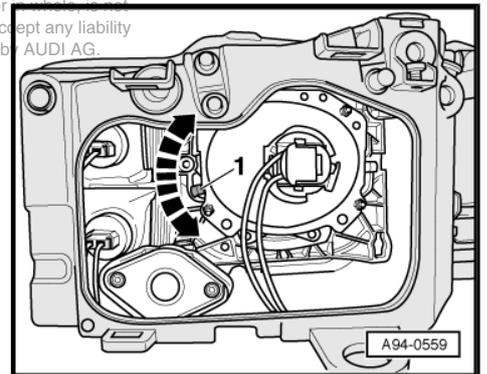
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner ⇒ Rep. gr. 66 .

- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.



- Check position of adjustment lever -1- at both headlights.
- Lever down = Driving on right
- Lever up = Driving on left
- If necessary, swivel lever until it engages in desired position -arrow-.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner ⇒ Rep. gr. 66 .

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### 3 Halogen headlights (USA vehicles)

Observe notes on contact corrosion => [page 125](#) .



#### Note

The headlights must be adjusted after any repair work which could affect the headlight settings => [page 140](#) .

#### 3.1 Halogen headlights - exploded view

##### 1 - Headlight housing

- Removing and installing => [page 139](#)

##### 2 - Trim cover

##### 3 - 6 Nm

##### 4 - Bracket for headlight housing

##### 5 - Bracket for headlight housing

- To adapt headlight to body contour, slacken off bolt -item 7- and swivel headlight housing

##### 6 - 6 Nm

##### 7 - 3 Nm

##### 8 - Main beam bulb

- H1 - 12 V, 55 W
- Renewing bulb => [page 143](#)

##### 9 - Parking light bulb

- Glass base bulb 12 V, 5 W
- Renewing bulb => [page 144](#)

##### 10 - Bulb holder

- For parking light bulb

##### 11 - Main beam housing cover

- Release retaining tabs to remove

##### 12 - Adjuster

- To adjust headlight to wing panel contour and bumper contour

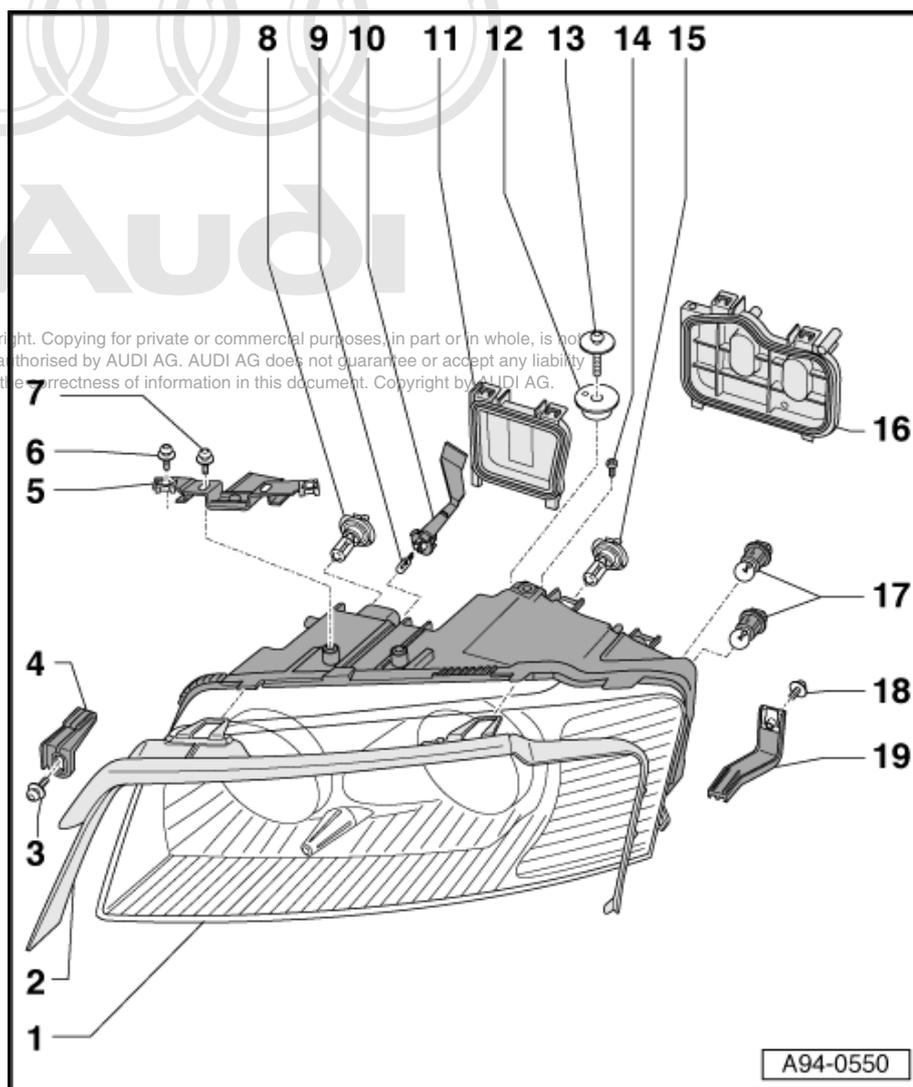
##### 13 - 6 Nm

##### 14 - Locking bolt, 1 Nm

- For dipped beam housing cover

##### 15 - Bulb for dipped beam headlights

- H7 - 12 V, 55 W
- Renewing bulb => [page 142](#)



16 - Dipped beam housing cover

17 - Turn signal bulb

- 12 V, 16 W
- 2x
- Orange
- Renewing bulb => [page 145](#)

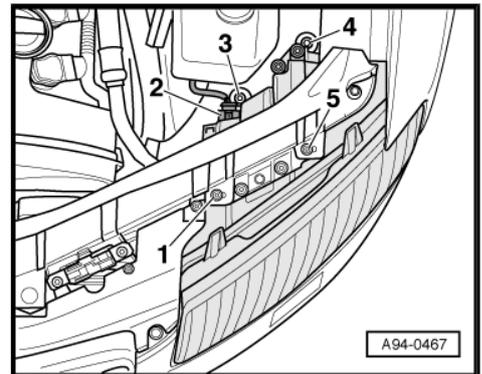
18 - 6 Nm

19 - Bracket for headlight housing

### 3.2 Removing and installing headlights

#### Removing

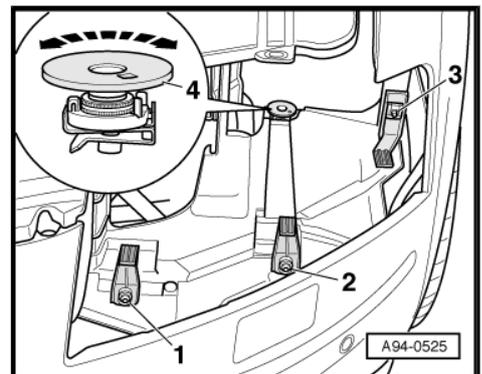
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- **Switch off ignition and take out ignition key.**
  - Turn light switch to position "0".
  - Remove front bumper cover => Rep. gr. 63 .
  - Unscrew bolts -1- and -3 ... 5-.
  - Unplug electrical connector -2-.
  - Detach headlight to front.



#### Installing

Installation is carried out in the reverse order; note the following:

- Check adjuster nut -4- of adjuster for freedom of movement -arrows-.
- Screw down adjuster nut as far as it will go, but do not tighten.
- Insert headlight.
- Install front bumper cover => Rep. gr. 63 .
- Align headlight with body contours (gap widths).

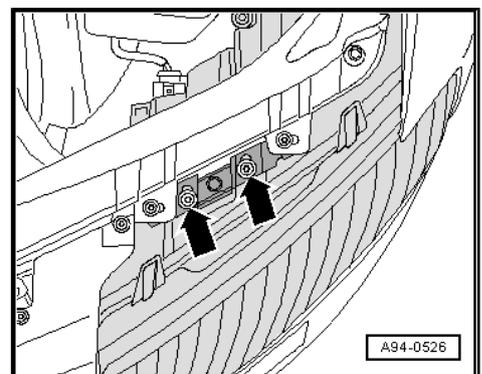


 **Note**

*Headlight can be aligned by slackening off bolts -1 ... 3- and altering height of holders.*

 **Note**

*Headlight can be aligned at top edge by slackening off both bolts -arrows- and swivelling headlight housing.*



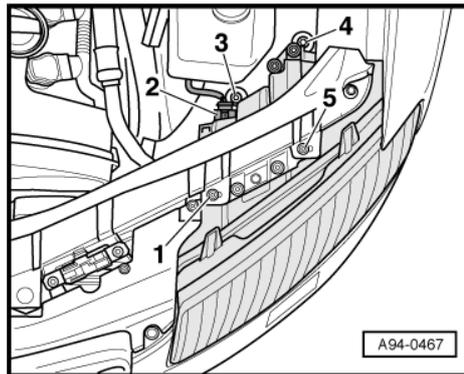
- Tighten bolts -1- and -3 ... 5-



**Note**

*When the bolt -3- is tightened the adjusting nut of the adjuster automatically rotates against the mounting point of the headlight housing and fixes it in place.*

- Avoid applying pressure to the bolt when securing; the adjuster nut of the adjuster must remain free to turn.
- Following installation, adjust headlights => [page 140](#) .



**Tightening torque**

Component	Nm
Headlight to lock carrier	6

**3.3 Adjusting headlights**

- ◆ The following checking and adjustment procedures apply to all countries.
- ◆ However, national legislation and guidelines for individual countries must be adhered to.

**3.3.1 Requirements for checking and adjusting**

- ◆ Tyre pressure OK
- ◆ Headlight lenses must be clean and dry.
- ◆ Headlight lenses must not be damaged.
- ◆ Reflectors and bulbs OK
- ◆ Air reservoir for air suspension full, if necessary start engine and allow to run at idling speed for approx. 2 minutes then switch off engine.
- ◆ Release electromechanical parking brake to relieve any load on suspension.
- ◆ Make sure steering wheel is at centre position with wheels pointing straight ahead.
- ◆ Vehicle and headlight adjustment unit must be on a level surface.
- ◆ Headlight adjustment unit must be aligned to vehicle => Operating instructions for headlight adjustment unit .

Ensure that headlight adjustment unit is in front of headlight at a distance of 30 cm.

- ◆ Dip setting must be adjusted.

Dip settings (in “%”) are marked on the top of the headlight. The headlights must be adjusted in accordance with these values. The percentage value is for a range of 10 m. Example: Converting a dip setting of 1.0 % = 10 cm.

**3.3.2 Checking headlight settings**

- Start engine.
- Switch on dipped headlights.
- Set vehicle level to normal.



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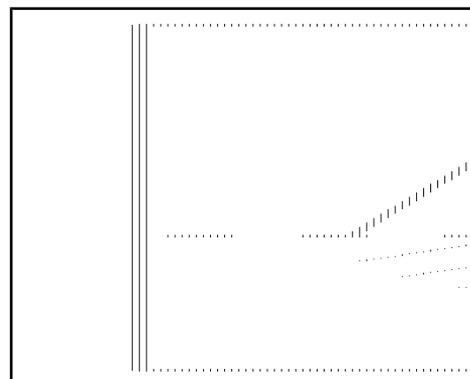
- To do so, press the function selector button "CAR" on the MMI operating unit. The main menu "adaptive air suspension" will appear.
- Use the rotary pushbutton to select the "automatic" level.

Further information on the vehicle level can be found in the ⇒ MMI Operating Manual

- ◆ The horizontal light-dark border should coincide with the setting line -1- of the test surface.
- ◆ The break-away point -2- between the horizontal section of the light-dark border on the left and the rising section on the right should coincide with the vertical line running through the central point -3-. The bright spot in the centre of the beam should be to the right of the vertical line.

 **Note**

- ◆ To make it easier to find the break-away point -2-, cover and uncover the left half of the headlight (as seen in direction of travel) a few times. Then check the dipped beam again.
  - ◆ If dipped beams have been adjusted correctly the centre point of the main beam should lie on central point -3-.
  - ◆ If using an old test screen with a 15 ° setting line, the adjustment procedure is the same as for the new screen. Disregard the 15° setting line to avoid incorrect settings.
- If headlight setting is not OK, adjust headlights ⇒ [page 141](#) .



### 3.3.3 Adjusting headlights

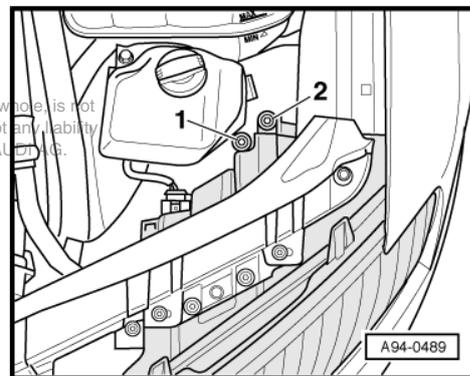
#### Headlight (left-side)

Adjuster screws on left headlight:

- 1 - Height/lateral adjuster screw
- 2 - Height adjuster screw

The arrangement on the right headlight is symmetrically opposite.

- Only turn adjuster screw -2- to adjust the height.
- To make a lateral adjustment, turn adjuster screws -1- and -2- the same number of turns.



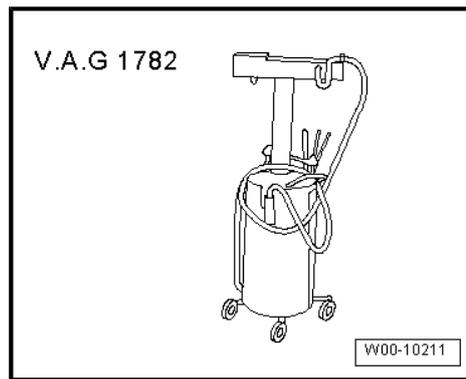
### 3.4 Preparations before working on headlights

Depending on the engine version, access to the headlight bulbs could be obstructed. In this case, additional steps must be performed.

#### 3.4.1 Removing power steering reservoir

Special tools and workshop equipment required

◆ Used oil collection and extraction unit - V.A.G 1782-



**Procedure**

- Use oil collection and extraction unit - V.A.G 1782- to draw off hydraulic fluid for power steering from reservoir.

 **Note**

*Place cloth under power steering reservoir to catch escaping hydraulic fluid.*

- Remove power steering reservoir.

Installation is carried out in the reverse order; note the following:

- Top up power steering fluid and bleed steering system ⇒ Rep. gr. 48 .

**Tightening torque**

Component	Nm
Power steering reservoir to bracket	9

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**3.4.2 Removing air cleaner (top section)**

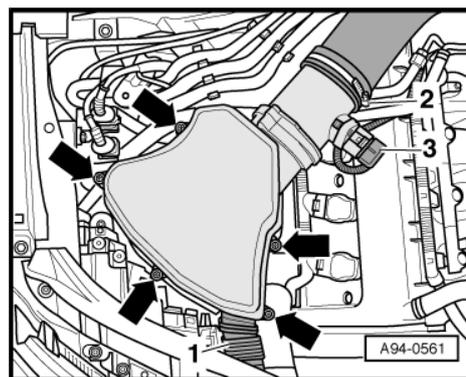
**Procedure**

- Detach air hose -2- at air cleaner housing.
- Unplug electrical connector -3-.
- Remove bolts -arrows- and detach air cleaner (top section).
- Detach connecting hose -1-.

Installation is carried out in the reverse order; note the following:

 **Note**

*Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*

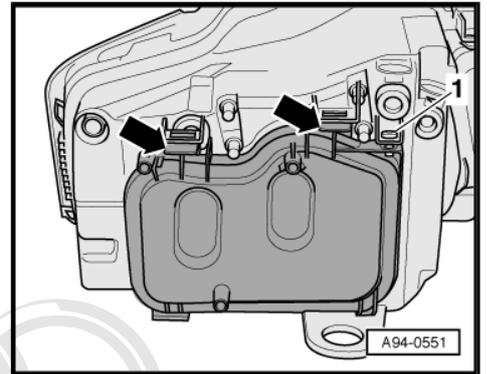


**3.5 Renewing bulb for dipped beam headlights**

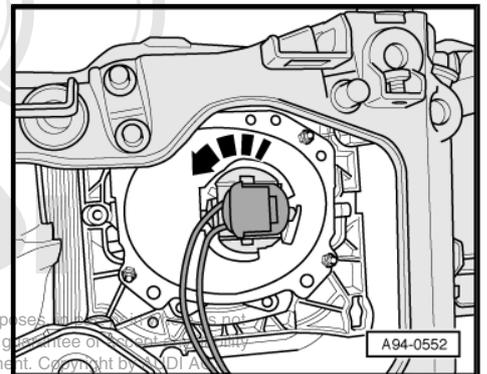
**Removing**

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Remove appropriate front wheel.

- Remove relevant front wheel housing liner ⇒ Rep. gr. 66 .
- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.



- Turn bulb holder anti-clockwise -arrow- and pull out of headlight housing.

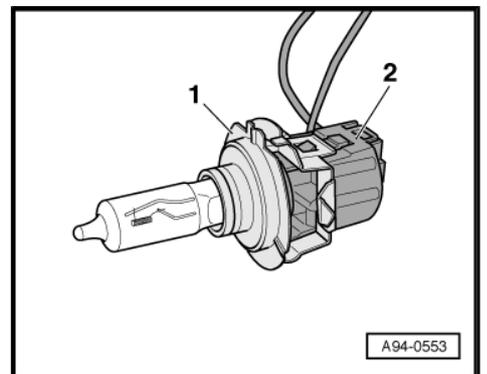


- Pull bulb -1- for dipped beam headlights out of bulb holder -2-.

#### Installing

Installation is carried out in the reverse order; note the following:

- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.
- Secure bulb holder by turning clockwise.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner ⇒ Rep. gr. 66 .



### 3.6 Renewing bulb for main beam headlights

#### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".

#### Headlight (left-side):

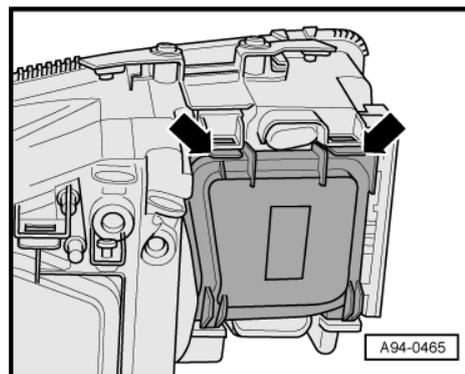
- Remove power steering reservoir ⇒ [page 141](#) .

#### Headlight (right-side):

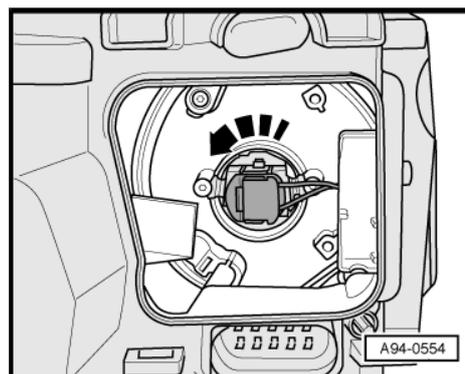
- Remove air cleaner (top section) ⇒ [page 142](#) .

**All vehicles (continued):**

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.



- Turn bulb holder anti-clockwise -arrow- and pull out of headlight housing.



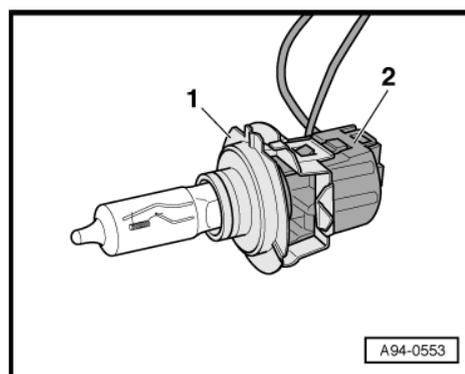
- Pull main beam bulb -1- out of bulb holder -2-.

**Installing**

Installation is carried out in the reverse order; note the following:

Installation is carried out in the reverse order; note the following:

- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.
- Secure bulb holder by turning clockwise.
- Close housing cover.



**3.7 Renewing parking light bulb**

**Removing**

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".

**Headlight (left-side):**

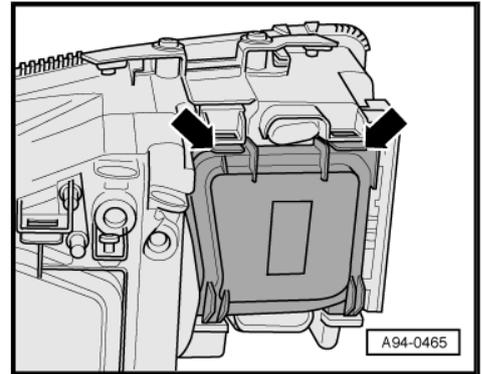
- Remove power steering reservoir => [page 141](#)

**Headlight (right-side):**

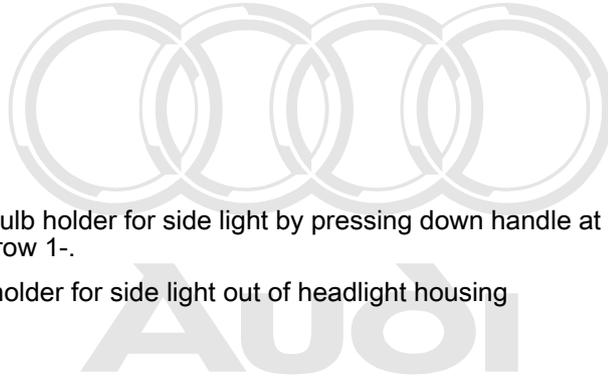
- Remove air cleaner (top section) => [page 142](#) .

**All vehicles (continued):**

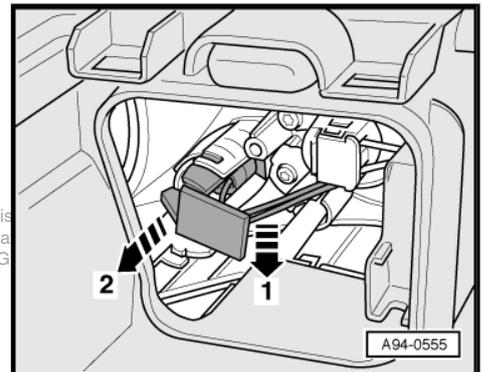
- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.



- Release bulb holder for side light by pressing down handle at holder -arrow 1-.
- Pull bulb holder for side light out of headlight housing -arrow 2-.



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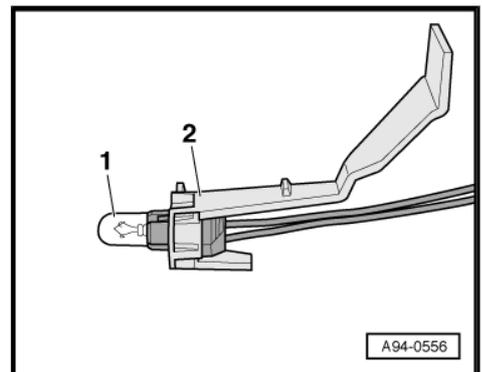


- Pull bulb for side light -1- out of bulb holder -2-.

**Installing**

Installation is carried out in the reverse order; note the following:

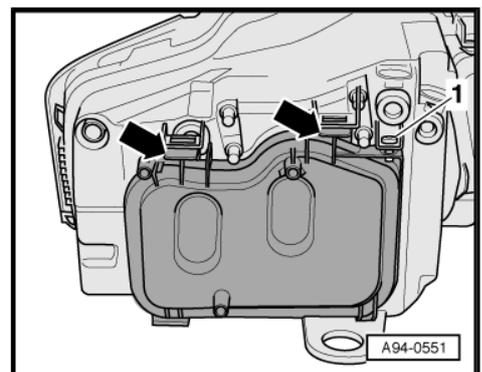
- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.
- Press bulb holder into reflector until you feel it engage.
- Close housing cover.



**3.8 Renewing bulb for turn signal**

**Removing**

- Switch off ignition and take out ignition key.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner => Rep. gr. 66 .
- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.

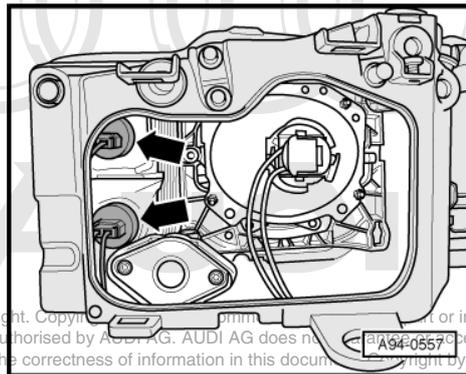


- Pull bulbs -arrows- out of housing.
- Unplug electrical connector at bulb.

### Installing

Installation is carried out in the reverse order; note the following:

- Press bulb holder into reflector until you feel it engage.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner ⇒ Rep. gr. 66 .



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## 3.9 Renewing headlight holders

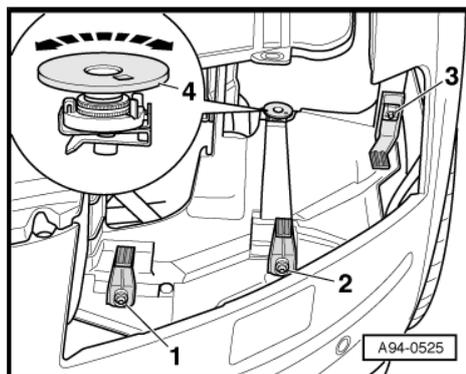


### Note

*Broken headlight holders (e.g. accident damage) can be renewed separately. In many cases this avoids having to renew the entire headlight.*

### Procedure

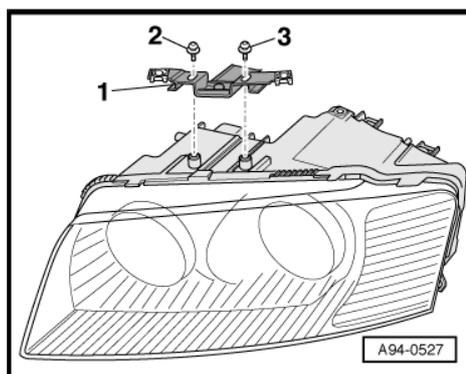
- Switch off ignition and take out ignition key.
- To renew lower headlight holders, unscrew bolts -1 ... 3-.
- Position adjuster nut -4- from rear on mount at lock carrier.



- To renew upper headlight holder -1-, unscrew bolts -2- and -3- and unclip holder from headlight housing.

### Tightening torques

Component	Nm
Lower headlight holder to lock carrier	6
Upper headlight holder to lock carrier	6



## 4 Gas discharge headlights

Observe notes on contact corrosion ⇒ [page 125](#) .



Note

*The headlights must be adjusted after any repair work which could affect the headlight settings ⇒ [page 150](#) .*

### 4.1 Safety precautions when handling gas discharge bulbs

⇒ Electrical system; General information; Rep. gr. 94 ; Safety precautions when handling gas discharge bulbs

### 4.2 Gas discharge headlight with cornering light/static cornering light - exploded view

#### 1 - Headlight housing

- Vehicles with LED daytime running lights: the daytime running light bulbs (LED) are integrated in the headlight housing. The LED lights cannot be renewed separately; the headlight must be renewed as a complete unit
- Removing and installing ⇒ [page 149](#)

#### 2 - Trim cover

3 - 6 Nm

#### 4 - Bracket for headlight housing

#### 5 - Gas discharge bulb control unit

- Left gas discharge bulb control unit - J343-
- Right gas discharge bulb control unit - J344-
- Removing and installing ⇒ [page 172](#)

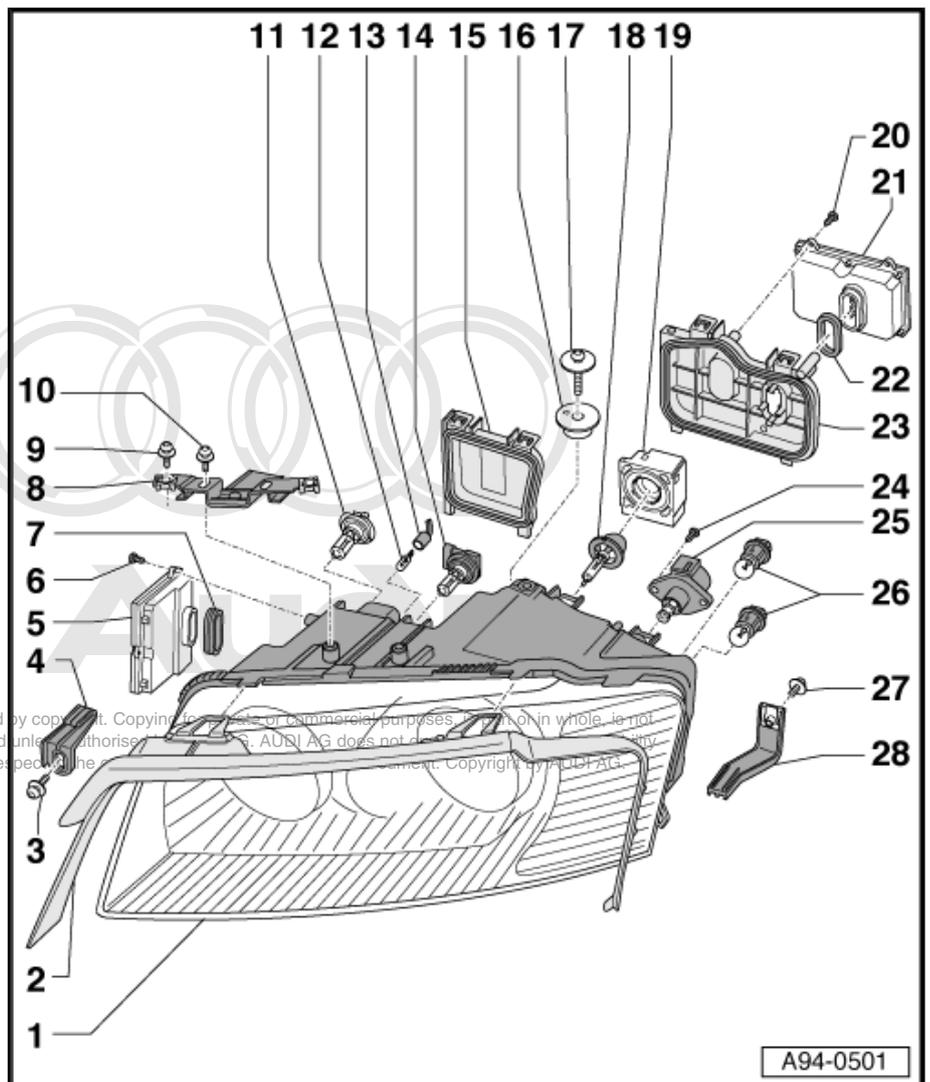
6 - 1 Nm

#### 7 - Seal

- Renew if damaged

#### 8 - Bracket for headlight housing

- To adapt headlight to body contour, slacken off bolt -item 10- and swivel headlight housing



**9 - 6 Nm****10 - 3 Nm****11 - Bulb**

## Main beams

- H7 - 12 V, 55 W
- Renewing bulb ⇒ [page 162](#)

## Daytime running lights

- 12 V, 21 W
- Renewing bulb ⇒ [page 164](#)

## LED light

- If the LED module fails the headlight must be renewed as a complete unit

**12 - Bulb for side lights**

- Glass base bulb 12 V, 5 W
- Changing bulb - vehicles without static cornering light ⇒ [page 166](#)
- Changing bulb - vehicles with static cornering light ⇒ [page 167](#)
- There is no bulb in headlight with LED light; if faulty, the LED module must be renewed as a complete part

**13 - Bulb holder**

- For bulb for side lights

**14 - Bulb for static cornering light**

- H8 - 12 V, 35 W
- Renewing bulb ⇒ [page 165](#)

**15 - Main beam housing cover**

- Release retaining tabs to remove

**16 - Knurled nut**

- To adjust headlight to bumper contour

**17 - 6 Nm****18 - Gas discharge bulb**

- 35 W, D2S
- Renewing bulb ⇒ [page 158](#)

**19 - Starter unit for gas discharge bulb**

- Removing and installing: vehicles up to 08.2007 ⇒ [page 159](#) , vehicles from 09.2007 onwards ⇒ [page 161](#)

**20 - 1 Nm****21 - Output module**

- Depending on version and equipment
- Output module for left headlight - J667-
- Output module for right headlight - J668-
- Removing and installing ⇒ [page 172](#)

**22 - Seal**

- Renew if damaged

**23 - Housing cover for gas discharge bulb****24 - 1 Nm****25 - Headlight range control motor**

- Left headlight range control motor - V48-
- Right headlight range control motor - V49-

- Removing and installing ⇒ [page 170](#)

#### 26 - Turn signal bulb

- 2x
- Orange: 12 V, 16 W
- Silver: 12 V, 24 W
- Depending on version; Assignment ⇒ Electronic parts catalogue
- Renewing bulb ⇒ [page 169](#)

27 - 6 Nm

28 - Bracket for headlight housing

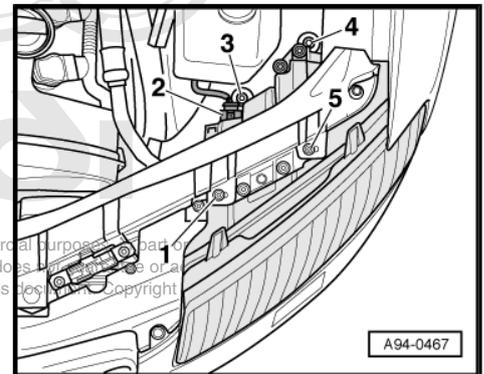
### 4.3 Removing and installing headlights

#### Removing

 **WARNING**

*High voltage! Danger to life!*

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

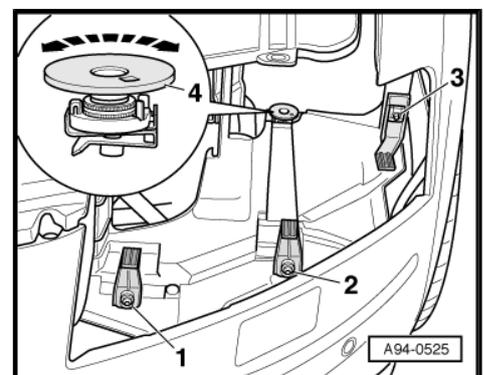


- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Remove front bumper cover ⇒ Rep. gr. 63 .
- Unscrew bolts -1- and -3 ... 5-.
- Unplug electrical connector -2-.
- Detach headlight to front.

#### Installing

Installation is carried out in the reverse order; note the following:

- Check adjuster nut -4- of adjuster for freedom of movement -arrows-.
- Screw down adjuster nut as far as it will go, but do not tighten.
- Insert headlight.
- Install front bumper cover ⇒ Rep. gr. 63 .
- Align headlight with body contours (gap widths).



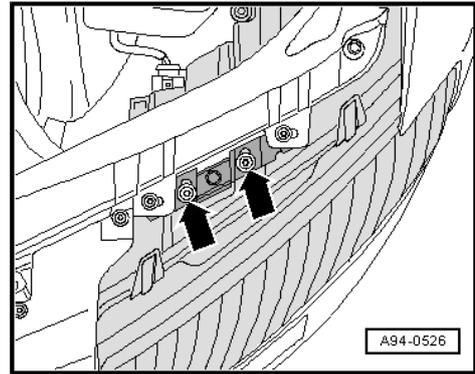
 **Note**

*Headlight can be aligned by slackening off bolts -1 ... 3- and altering height of holders.*



**Note**

Headlight can be aligned at top edge by slackening off both bolts -arrows- and swivelling headlight housing.

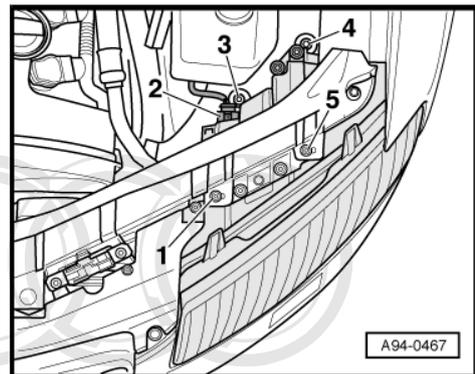


- Tighten bolts -1- and -3 ... 5-



**Note**

When the bolt -3- is tightened the adjusting nut of the adjuster automatically rotates against the mounting point of the headlight housing and fixes it in place.



- Avoid applying pressure to the bolt when securing; the adjuster nut of the adjuster must remain free to turn.
- Check headlight adjustment => [page 150](#) .

**Tightening torque**

Component	Nm
Headlight to lock carrier	6

**4.4 Adjusting headlights**

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- ◆ The following checking and adjustment procedures apply to all countries.
- ◆ However, national legislation and guidelines for individual countries must be adhered to.

**4.4.1 Requirements for checking and adjusting**

- ◆ Tyre pressure OK
- ◆ Headlight lenses must be clean and dry.
- ◆ Headlight lenses must not be damaged.
- ◆ Reflectors and bulbs OK
- ◆ Air reservoir for air suspension full, if necessary start engine and allow to run at idling speed for approx. 2 minutes then switch off engine.
- ◆ Release electromechanical parking brake to relieve any load on suspension.
- ◆ Make sure steering wheel is at centre position with wheels pointing straight ahead.
- ◆ Vehicle and headlight adjustment unit must be on a level surface.
- ◆ Headlight adjustment unit must be aligned to vehicle => Operating instructions for headlight adjustment unit .

Ensure that headlight adjustment unit is in front of headlight at a distance of 30 cm.

- ◆ Dip setting must be adjusted.

Dip settings (in “%”) are marked on the top of the headlight. The headlights must be adjusted in accordance with these values. The percentage value is for a range of 10 m. Example: Converting a dip setting of 1.0 % = 10 cm.

#### 4.4.2 Checking headlight settings

- Start engine.
- Switch on dipped headlights.
- Set vehicle level to normal.
- To do so, press the function selector button “CAR” on the MMI operating unit. The main menu “adaptive air suspension” will appear.
- Use the rotary pushbutton to select the “automatic” level.

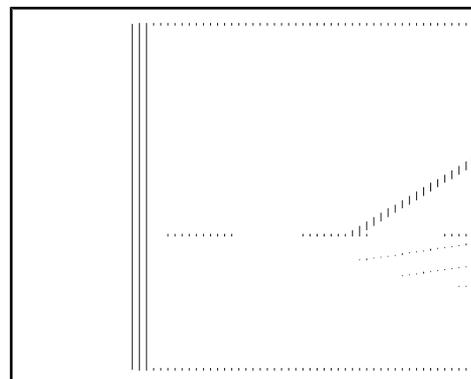
Further information on the vehicle level can be found in the ⇒ MMI Operating Manual

- ◆ The horizontal light-dark border should coincide with the setting line -1- of the test surface.
- ◆ The break-away point -2- between the horizontal section of the light-dark border on the left and the rising section on the right should coincide with the vertical line running through the central point -3-. The bright spot in the centre of the beam should be to the right of the vertical line.



#### Note

- ◆ *To make it easier to find the break-away point -2-, cover and uncover the left half of the headlight (as seen in direction of travel) a few times. Then check the dipped beam again.*
- ◆ *If dipped beams have been adjusted correctly the centre point of the main beam should lie on central point -3-.*
- ◆ *If using an old test screen with a 15 ° setting line, the adjustment procedure is the same as for the new screen. Disregard the 15 ° setting line to avoid incorrect settings.*
- If headlight setting is not OK, adjust headlights ⇒ [page 151](#) .



#### 4.4.3 Adjusting headlights

- Connect vehicle diagnostic tester ⇒ Vehicle diagnostic tester.
- Select **Diagnosis** mode and start diagnosis.
- Select **Test plan** tab. Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the content of this document. Copyright by AUDI AG.
- Select **Own test** then the following options one after the other:
  - ◆ Body
  - ◆ Electrical system
  - ◆ 01 - Self-diagnosis compatible systems
  - ◆ 55 - Dynamic headlight range control
  - ◆ J431/J745 - Dynamic headlight range control, functions
  - ◆ J431/J745 - Control unit for headlight range control, basic setting

 **Note**

*With this programme the headlights return to the basic setting.*

- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- You will be requested to perform headlight adjustment while running through the programme.

**Headlight (left-side)**

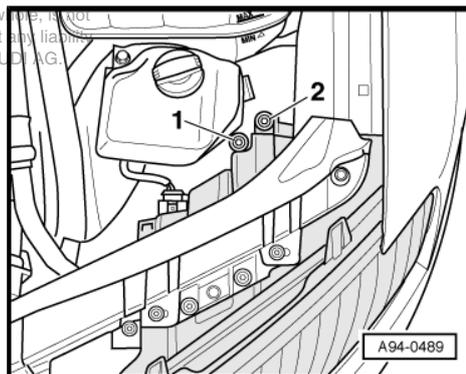
Adjuster screws on left headlight.

1 - Height/lateral adjuster screw

2 - Height adjuster screw

The arrangement on the right headlight is symmetrically opposite.

- Only turn adjuster screw -2- to adjust the height.
- To make a lateral adjustment, turn adjuster screws -1- and -2- the same number of turns.



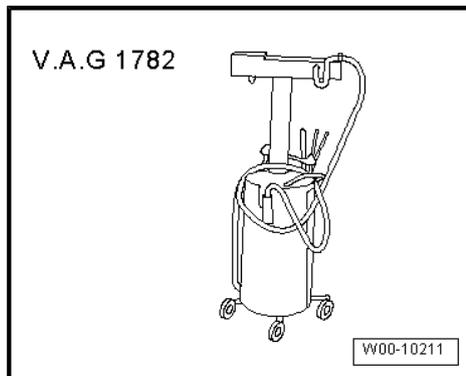
## 4.5 Preparations for headlight bulb replacement

Depending on the engine version, access to the headlight bulbs could be obstructed. In this case, additional steps must be performed.

### 4.5.1 Removing power steering reservoir

**Special tools and workshop equipment required**

- ◆ Used oil collection and extraction unit - V.A.G 1782-



**Procedure**

- Use oil collection and extraction unit - V.A.G 1782- to draw off hydraulic fluid for power steering from reservoir.

 **Note**

*Place cloth under power steering reservoir to catch escaping hydraulic fluid.*

- Remove power steering reservoir.

Installation is carried out in the reverse order; note the following:

- Top up power steering fluid and bleed steering system => Rep. gr. 48 .

**Tightening torque**

Component	Nm
Power steering reservoir to bracket	9

**4.5.2 Removing air cleaner (top section) - vehicles with 6-cyl. and 8-cyl. petrol engine**

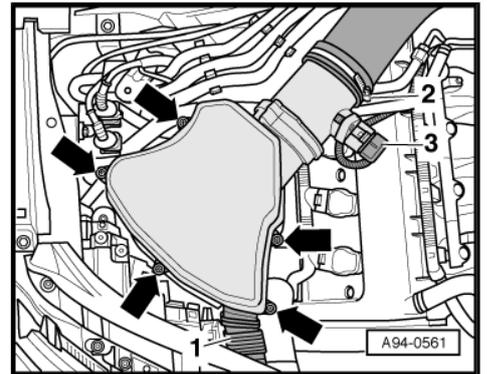
**Procedure**

- Detach air hose -2- at air cleaner housing.
- Unplug electrical connector -3-.
- Remove bolts -arrows- and detach air cleaner (top section).
- Detach connecting hose -1-.

Installation is carried out in the reverse order; note the following:

 **Note**

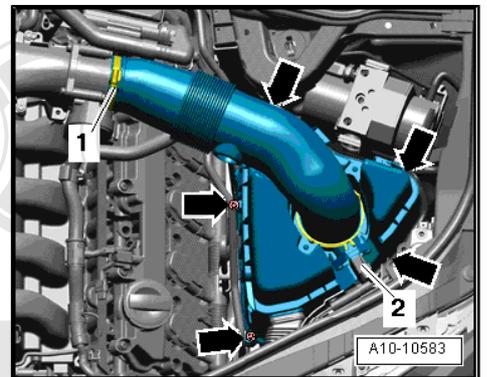
*Secure all hose connections with the correct type of hose clips (same as original equipment) => Electronic parts catalogue .*



**4.5.3 Removing air cleaner housing (left-side) - vehicles with 10-cyl. petrol engine**

**Procedure - version 1**

- Unplug electrical connector -2- for air mass meter 2 - G246- .
- Detach air hose -1- at intake manifold.
- Unscrew bolts -arrows-.
- Detach left air cleaner (top section).



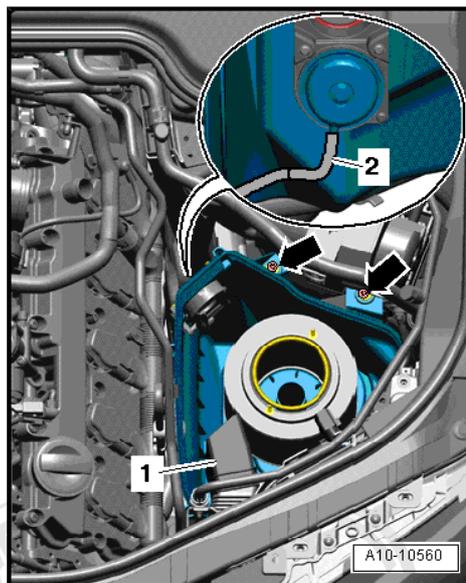
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- Remove air duct -1-.
- Unscrew bolts -arrows-.
- Swivel air cleaner (bottom section) and detach vacuum hose for air flap.
- Take out left air cleaner (bottom section).

Installation is carried out in the reverse order; note the following:

**Note**

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue* .

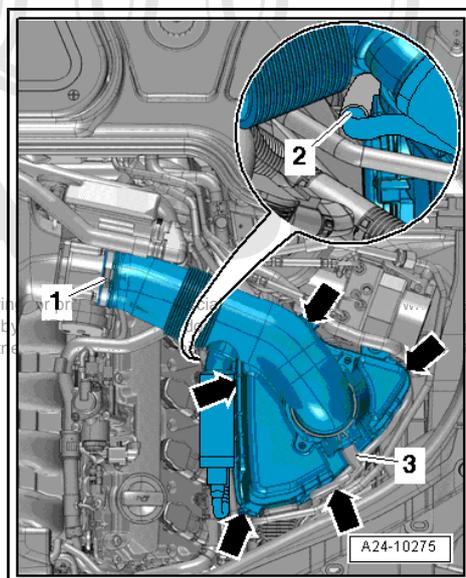
**Procedure - version 2**

- Detach air hose -1- at intake manifold.
- Unscrew bolts -arrows-.
- Press release tabs and disconnect air hose -2-.
- Detach left air cleaner (top section).
- Unplug electrical connector -2- for air mass meter 2 - G246- .

Installation is carried out in the reverse order; note the following:

**Note**

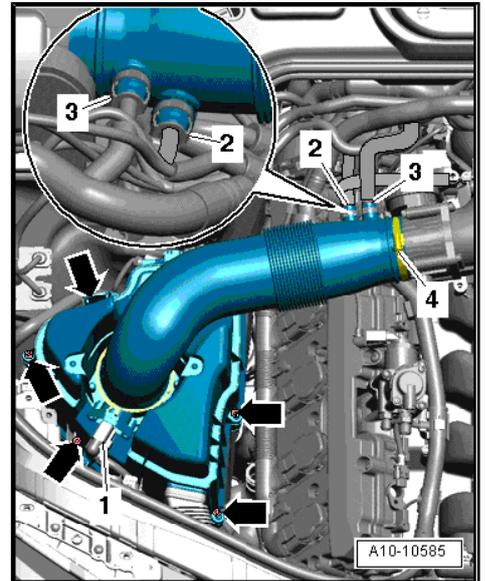
Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue* .



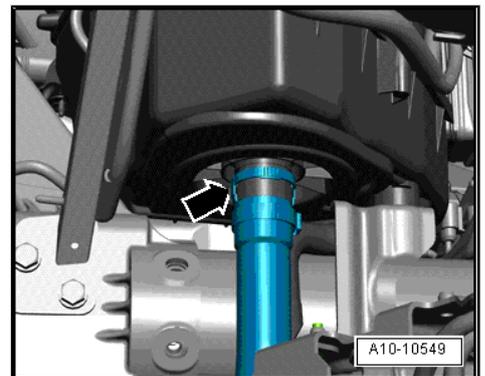
#### 4.5.4 Removing air cleaner housing (right-side) - vehicles with 10-cyl. petrol engine

##### Procedure

- Unplug electrical connector -1- for air mass meter - G70- .
- Detach vacuum line -2- at air intake hose.
- Detach air hose -4- at intake manifold.
- Unscrew bolts -arrows-.
- Detach right air cleaner (top section).



- Press release tabs and detach air hose (bottom) -arrow- at right air cleaner (bottom section).

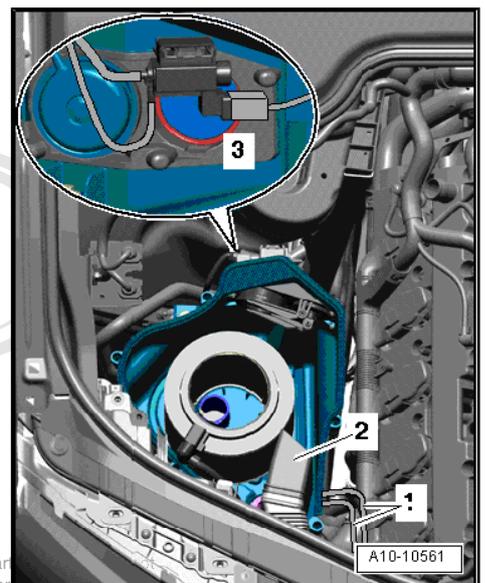


- Disconnect vacuum hoses -1-.
- Remove air duct -2-.
- Unscrew bolts -arrows-.
- Swivel air cleaner (bottom section) and unplug electrical connector -3- at variable intake manifold changeover valve - N335- .
- Take out right air cleaner (bottom section).

Installation is carried out in the reverse order; note the following:

##### Note

*Secure all hose connections with the correct type of hose clips (same as original equipment) => Electronic parts catalogue .*

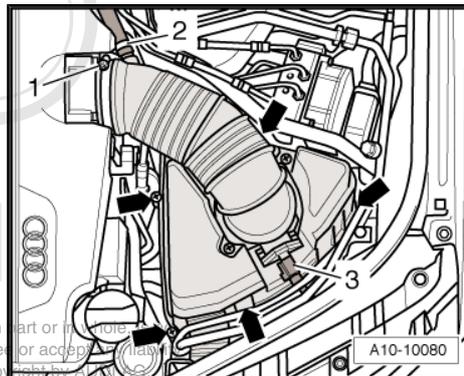


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#### 4.5.5 Removing air cleaner housing (left-side) - vehicles with 12-cyl. petrol engine

##### Procedure

- Unplug electrical connector -3- for air mass meter 2 - G246- .
- Detach hose -2- from air hose.
- Detach air hose -1- at intake manifold.
- Unscrew bolts -arrows-.
- Detach left air cleaner (top section).



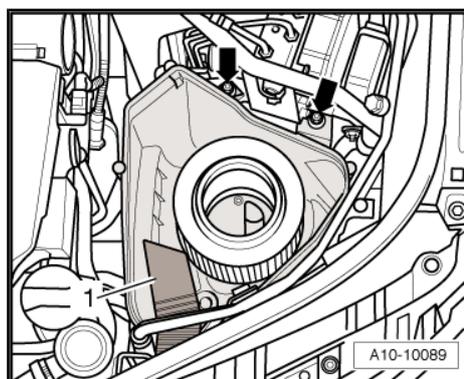
- Remove air duct -1-.
- Unscrew bolts -arrows-.
- Take out left air cleaner (bottom section).

Installation is carried out in the reverse order; note the following:



##### Note

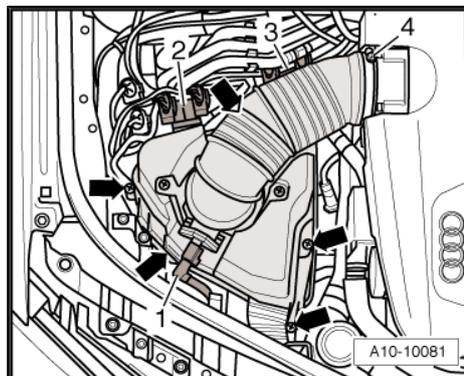
Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue* .



#### 4.5.6 Removing air cleaner housing (right-side) - vehicles with 12-cyl. petrol engine

##### Procedure

- Unplug electrical connector -1- for air mass meter - G70- .
- Detach air hose -4- at intake manifold.
- Disengage brackets for electrical connectors -2- and -3- at air cleaner (top section).
- Unscrew bolts -arrows-.
- Detach right air cleaner (top section).



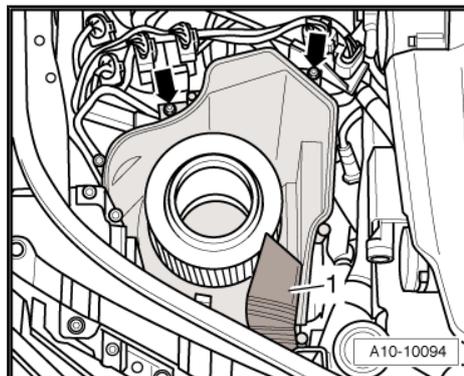
- Remove air duct -1-.
- Unscrew bolts -arrows-.
- Take out right air cleaner (bottom section).

Installation is carried out in the reverse order; note the following:



##### Note

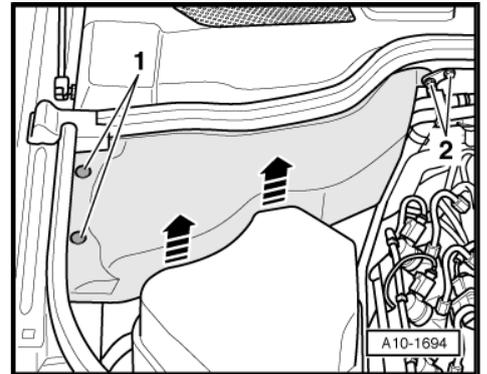
Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue* .



#### 4.5.7 Removing air cleaner housing - vehicles with 6-cyl. TDI engine

##### Procedure

- Remove cover for suspension strut turret (right-side) by detaching spreader clip -1- and unscrewing bolt connection -2-.
- Pull cover out of retainers -arrows-.

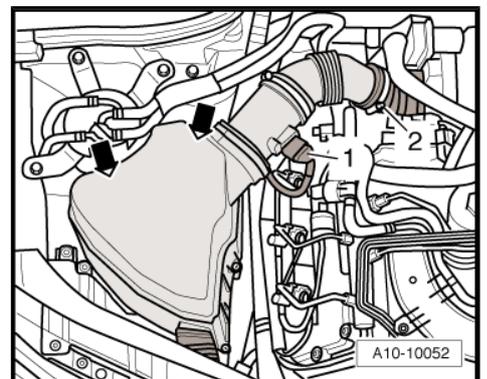


- Detach air hose -2- at turbocharger.
- Unplug electrical connector at air mass meter - G70- .
- Unscrew bolts -arrows-.
- Take out air cleaner housing.

Installation is carried out in the reverse order; note the following:

##### Note

- ◆ *Hose flanges and hoses for charge air system must be free from oil and grease before fitting.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) → Electronic parts catalogue .*

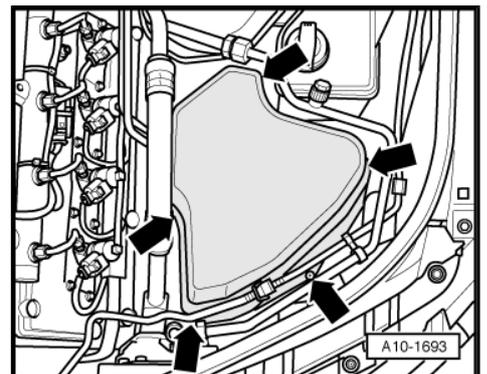


#### 4.5.8 Removing left air cleaner (top section) - vehicles with 8-cyl. TDI engine

##### Procedure

- Unscrew bolts -arrows-.
- Detach left air cleaner (top section).

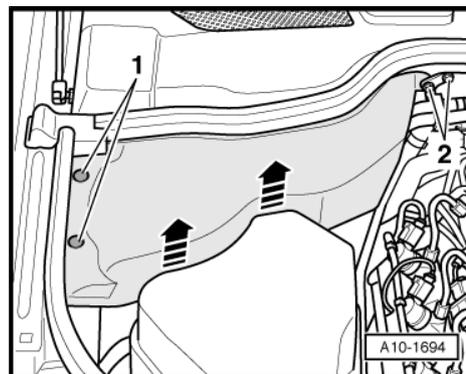
Install in reverse order.



## 4.5.9 Removing right air cleaner (top section) - vehicles with 8-cyl. TDI engine

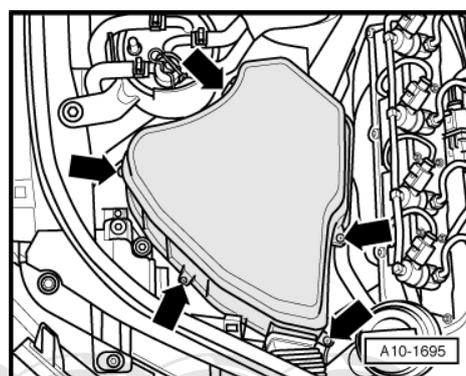
### Procedure

- Remove cover for suspension strut turret (right-side) by detaching spreader clip -1- and unscrewing bolt connection -2-.
- Pull cover out of retainers -arrows-.



- Remove bolts -arrows- and detach right air cleaner (top section).

Install in reverse order.



## 4.6 Renewing gas discharge bulb

### Removing



#### WARNING

*High voltage! Danger to life! Observe environmental requirements.*

- ◆ *Safety precautions when handling gas discharge bulbs => Electrical system; General information; Rep. gr. 94; Safety precautions when handling gas discharge bulbs*



#### WARNING

*High voltage! Danger to life!*

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.

- Remove starter unit for gas discharge bulb: vehicles up to 08.2007 => [page 159](#) , vehicles from 09.2007 onwards => [page 161](#) .
- Disengage retaining clips -1-.
- Pull gas discharge bulb -2- out of headlight housing.

#### Installing

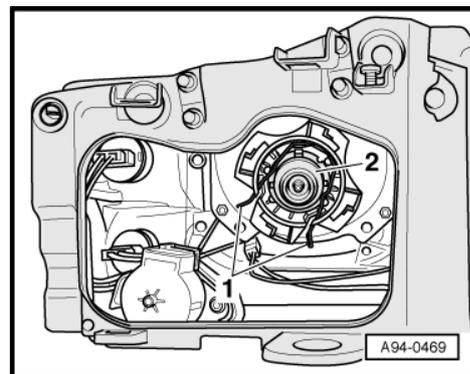
Installation is carried out in the reverse order; note the following:

- Insert new gas discharge bulb in housing; do not touch glass part of bulb with bare hands.



#### Note

*Note correct installation position: lug at top of bulb holder must engage in recess of gas discharge bulb.*



- Secure gas discharge bulb with retaining clip.
- Install starter unit for gas discharge bulb: vehicles up to 08.2007 => [page 159](#) , vehicles from 09.2007 onwards => [page 161](#) .

## 4.7 Removing and installing starter unit for gas discharge bulb - vehicles up to 08.2007

### Removing



#### WARNING

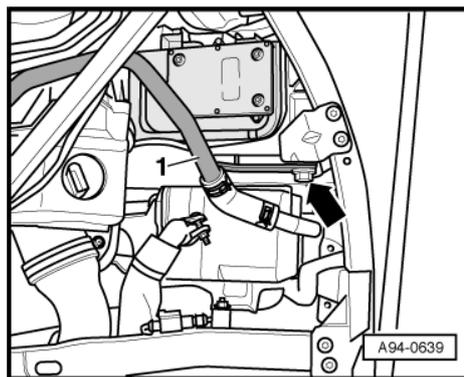
*High voltage! Danger to life!*

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner => Rep. gr. 66 .

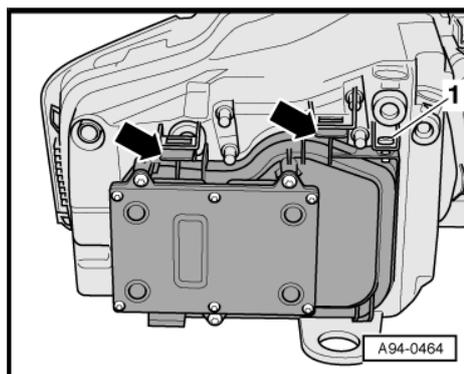
**Headlight (right-side) - vehicles with auxiliary heater:**

- Unscrew bolt -arrow- for coolant pipe -1- and lock carrier.

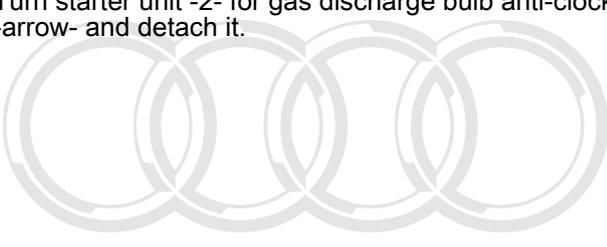
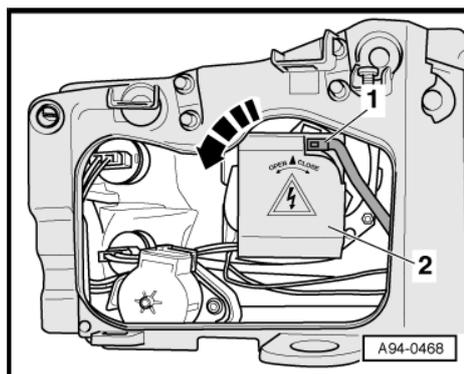


**All vehicles (continued):**

- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.



- Unplug electrical connector -1- at starter unit for gas discharge bulb.
- Turn starter unit -2- for gas discharge bulb anti-clockwise -arrow- and detach it.



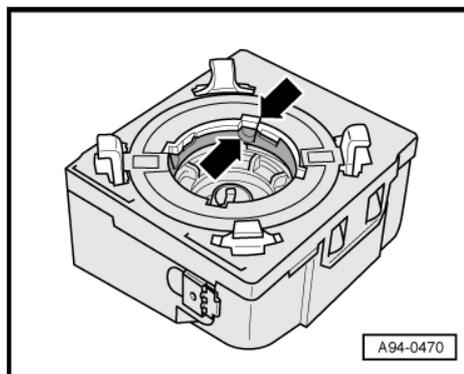
**Installing**

Installation is carried out in the reverse order; note the following:

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*The starter unit must be installed before attaching the connector.*

- Check whether recess in housing of starter unit for gas discharge bulb and recess in contact ring coincide exactly -arrows-.
- Fit starter unit for gas discharge bulb at headlight and turn clockwise as far as it will go.
- The starter unit should be easy to turn.
- Arrow on housing faces upwards.
- Re-attach connector.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner ⇒ Rep. gr. 66 .



## 4.8 Removing and installing starter unit for gas discharge bulb - vehicles from 09.2007 onwards

### Removing

 **WARNING**

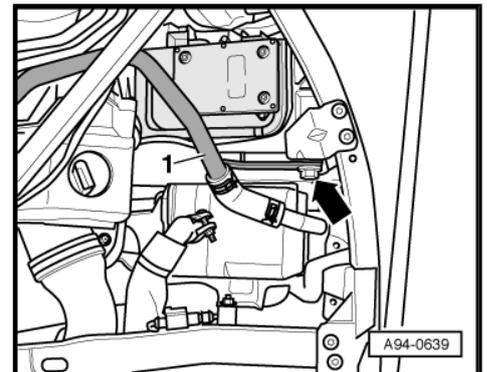
*High voltage! Danger to life!*

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner => Rep. gr. 66 .

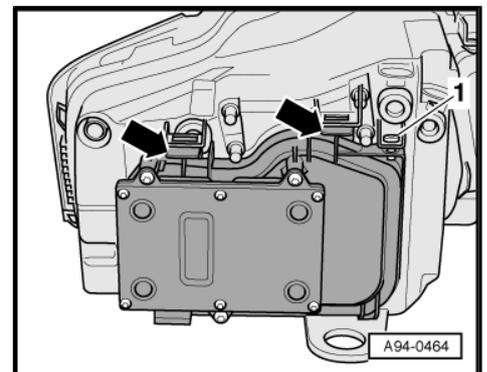
#### Headlight (right-side) - vehicles with auxiliary heater:

- Unscrew bolt -arrow- for coolant pipe -1- and lock carrier.

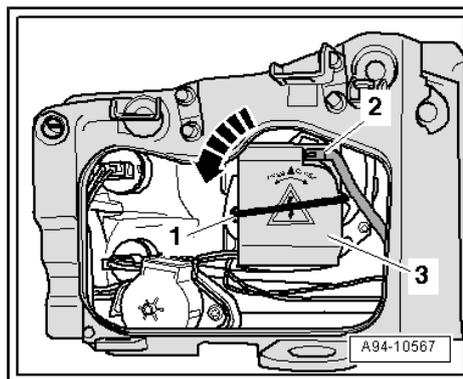


#### All vehicles (continued):

- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for gas discharge bulb from headlight housing.



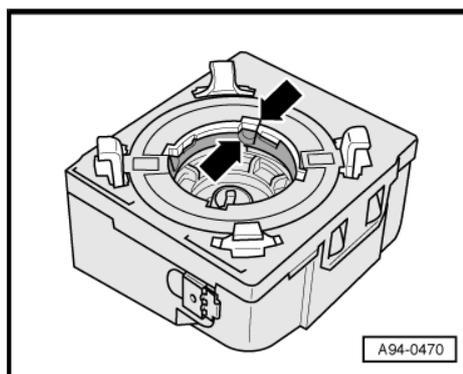
- Disengage retaining clip -1- and swivel to the side.
- Turn starter unit -3- for gas discharge bulb anti-clockwise -arrow-, this will automatically release electrical connector -2-.
- Detach starter unit for gas discharge bulb.



**Note**

*The starter unit must be installed before attaching the connector.*

- Check whether recess in housing of starter unit for gas discharge bulb and recess in contact ring coincide exactly -arrows-.
- Fit starter unit for gas discharge bulb at headlight and turn clockwise as far as it will go.
- The starter unit should be easy to turn.
- Arrow on housing faces upwards.
- Close retaining clip on starter unit for gas discharge bulb.
- Re-attach connector.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner => Rep. gr. 66 .



## 4.9 Renewing bulb for main beam headlights

### Removing



**WARNING**

***High voltage! Danger to life!***

- ◆ ***Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.***
- ◆ ***Switch off ignition and all electrical equipment and remove ignition key.***
- ◆ ***Do not flash the headlights.***

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.

**Headlight (left-side) - vehicles with 6-cyl. or 8-cyl. petrol engine, vehicles with 6-cyl. TDI engine:**

- Remove power steering reservoir => [page 152](#) .

**Headlight (left-side) - vehicles with 8-cyl. TDI engine:**

- Remove left air cleaner (top section) ⇒ [page 157](#) .

**Headlight (right-side) - vehicles with 6-cyl. or 8-cyl. petrol engine:**

- Remove air cleaner (top section) ⇒ [page 153](#) .

**Headlight (right-side) - vehicles with 6-cyl. TDI engine:**

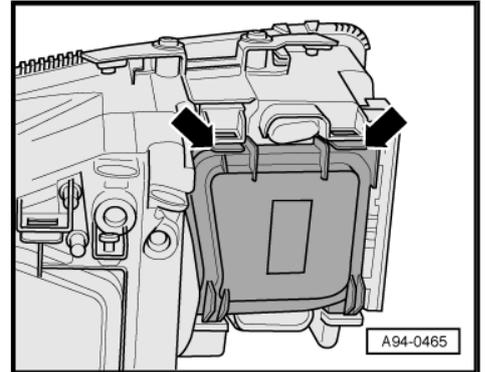
- Remove air cleaner housing ⇒ [page 157](#) .

**Headlight (right-side) - vehicles with 8-cyl. TDI engine:**

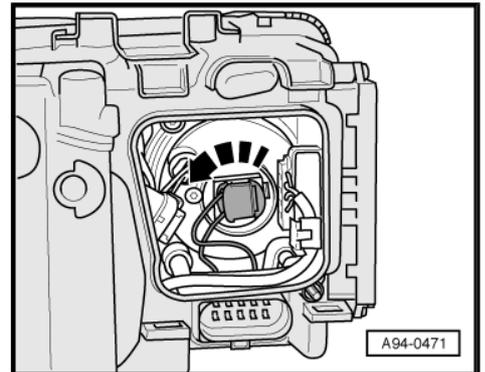
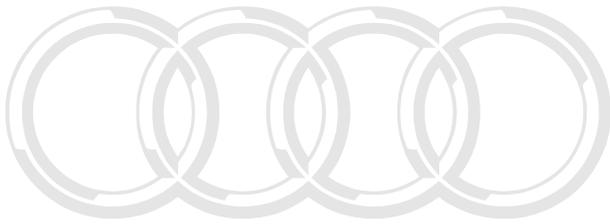
- Remove right air cleaner (top section) ⇒ [page 158](#) .

**All vehicles (continued):**

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.



- Turn bulb holder anti-clockwise -arrow- and pull out of headlight housing.



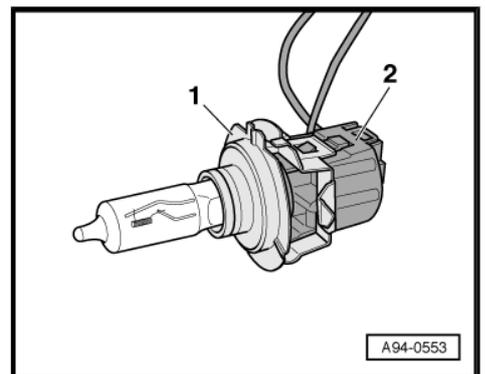
- Pull main beam bulb -1- out of bulb holder -2-.

**Installing**

Installation is carried out in the reverse order; note the following:

**Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.**

- Secure bulb holder by turning clockwise.
- Close housing cover.



## 4.10 Renewing bulb for daytime running light

### Removing



#### WARNING

*High voltage! Danger to life!*

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

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- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.

**Headlight (left-side) - vehicles with 6-cyl. or 8-cyl. petrol engine, vehicles with 6-cyl. TDI engine:**

- Remove power steering reservoir ⇒ [page 152](#) .

**Headlight (left-side) - vehicles with 8-cyl. TDI engine:**

- Remove left air cleaner (top section) ⇒ [page 157](#) .

**Headlight (right-side) - vehicles with 6-cyl. or 8-cyl. petrol engine:**

- Remove air cleaner (top section) ⇒ [page 153](#) .

**Headlight (right-side) - vehicles with 6-cyl. TDI engine:**

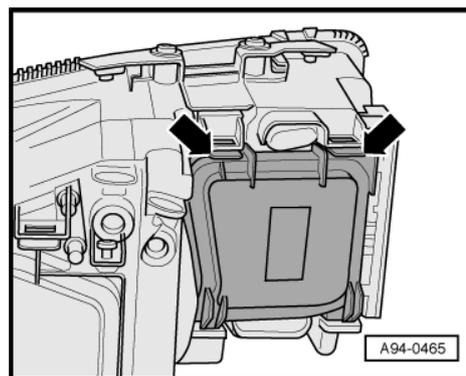
- Remove air cleaner housing ⇒ [page 157](#) .

**Headlight (right-side) - vehicles with 8-cyl. TDI engine:**

- Remove right air cleaner (top section) ⇒ [page 158](#) .

**All vehicles (continued):**

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.

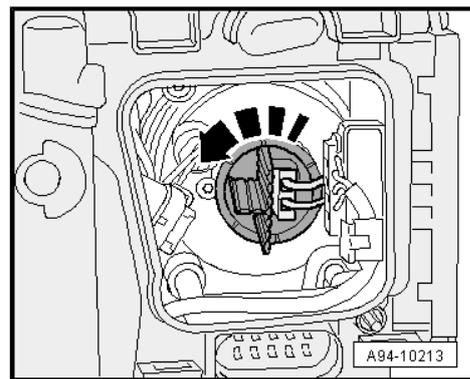


- Turn bulb holder anti-clockwise -arrow- and pull out of headlight housing.

### Installing

Installation is carried out in the reverse order; note the following:

- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.
- Secure bulb holder by turning clockwise.
- Close housing cover.



## 4.11 Renewing LED light

The LED light module is located in the headlight housing in place of the bulb for the main beam or daytime running light. It cannot be renewed separately in the event of a fault.

- Renewing headlight ⇒ [page 149](#) .

## 4.12 Renewing bulb for static cornering light

### Removing

 **WARNING**

*High voltage! Danger to life!*

◆ **Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.**

◆ **Switch off ignition and all electrical equipment and remove ignition key.**

◆ **Do not flash the headlights.**

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.

**Headlight (left-side) - vehicles with 6-cyl. or 8-cyl. petrol engine, vehicles with 6-cyl. TDI engine:**

- Remove power steering reservoir ⇒ [page 152](#) .

**Headlight (left-side) - vehicles with 10-cyl. petrol engine:**

- Remove air cleaner housing ⇒ [page 153](#) .

**Headlight (left-side) - vehicles with 12-cyl. petrol engine:**

- Remove air cleaner housing ⇒ [page 156](#) .

**Headlight (left-side) - vehicles with 8-cyl. TDI engine:**

- Remove left air cleaner (top section) ⇒ [page 157](#) .

**Headlight (right-side) - vehicles with 6-cyl. or 8-cyl. petrol engine:**

- Remove air cleaner (top section) ⇒ [page 153](#) .

**Headlight (right-side) - vehicles with 10-cyl. petrol engine:**

- Remove air cleaner housing ⇒ [page 155](#) .

**Headlight (right-side) - vehicles with 12-cyl. petrol engine:**

- Remove air cleaner housing ⇒ [page 156](#) .

**Headlight (right-side) - vehicles with 6-cyl. TDI engine:**

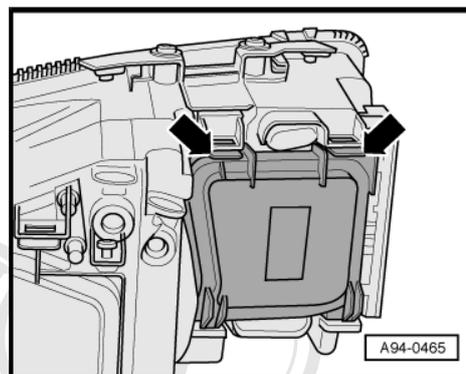
- Remove air cleaner housing ⇒ [page 157](#) .

**Headlight (right-side) - vehicles with 8-cyl. TDI engine:**

- Remove right air cleaner (top section) ⇒ [page 158](#) .

**All vehicles (continued):**

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.



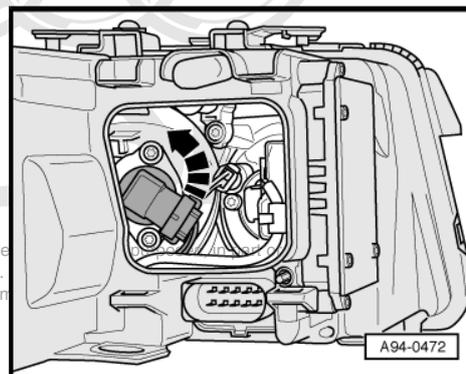
- Turn bulb holder anti-clockwise -arrow- and pull out of headlight housing.
- Unplug electrical connector at bulb.

**Installing**

Installation is carried out in the reverse order; note the following:

- Do not touch glass bulb with bare hands.
- Secure bulb holder by turning clockwise.
- Close housing cover.

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## 4.13 Renewing bulb for side lights - vehicles without static cornering light

**Note**

*On vehicles with gas discharge headlights with LED lights, the LED module replaces the bulb for main beam headlights/daytime running lights and bulb for side lights. The LED module cannot be renewed separately; the headlight must be renewed as a complete unit.*

**Removing****WARNING**

**High voltage! Danger to life!**

- ◆ **Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.**
- ◆ **Switch off ignition and all electrical equipment and remove ignition key.**
- ◆ **Do not flash the headlights.**

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.

**Headlight (left-side) - vehicles with 6-cyl. or 8-cyl. petrol engine, vehicles with 6-cyl. TDI engine:**

- Remove power steering reservoir ⇒ [page 152](#) .

**Headlight (left-side) - vehicles with 8-cyl. TDI engine:**

- Remove left air cleaner (top section) ⇒ [page 157](#) .

**Headlight (right-side) - vehicles with 6-cyl. or 8-cyl. petrol engine:**

- Remove air cleaner (top section) ⇒ [page 153](#) .

**Headlight (right-side) - vehicles with 6-cyl. TDI engine:**

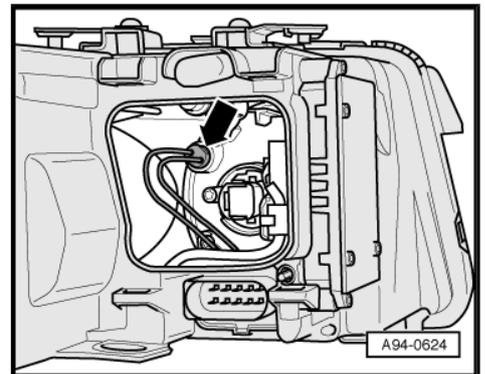
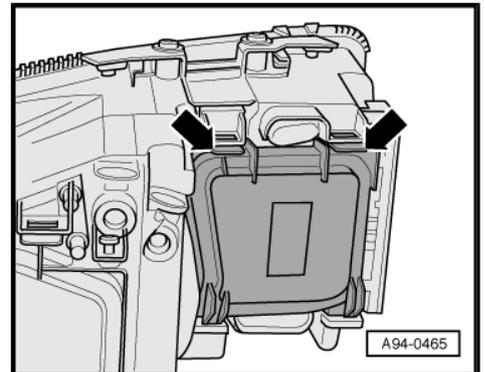
- Remove air cleaner housing ⇒ [page 157](#) .

**Headlight (right-side) - vehicles with 8-cyl. TDI engine:**

- Remove right air cleaner (top section) ⇒ [page 158](#) .

**All vehicles (continued):**

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.



- Pull bulb holder -arrow- for side light bulb out of housing.

- Pull bulb for side lights out of bulb holder.

**Installing**

Installation is carried out in the reverse order; note the following:

- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.
- Press bulb holder into reflector until you feel it engage.
- Close housing cover.

**4.14 Renewing bulb for side lights - vehicles with static cornering light**

 **Note**

*On vehicles with gas discharge headlights with LED lights, the LED module replaces the bulb for main beam headlights/daytime running lights and bulb for side lights. The LED module cannot be renewed separately; the headlight must be renewed as a complete unit.*

## Removing



### WARNING

**High voltage! Danger to life!**

- ◆ **Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.**
- ◆ **Switch off ignition and all electrical equipment and remove ignition key.**
- ◆ **Do not flash the headlights.**

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.

**Headlight (left-side) - vehicles with 6-cyl. or 8-cyl. petrol engine, vehicles with 6-cyl. TDI engine:**

- Remove power steering reservoir ⇒ [page 152](#) .

**Headlight (left-side) - vehicles with 8-cyl. TDI engine:**

- Remove left air cleaner (top section) ⇒ [page 157](#) .

**Headlight (right-side) - vehicles with 6-cyl. or 8-cyl. petrol engine:**

- Remove air cleaner (top section) ⇒ [page 153](#) .

**Headlight (right-side) - vehicles with 6-cyl. TDI engine:**

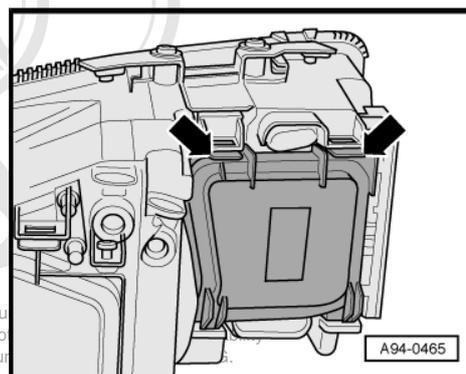
- Remove air cleaner housing ⇒ [page 157](#) .

**Headlight (right-side) - vehicles with 8-cyl. TDI engine:**

- Remove right air cleaner (top section) ⇒ [page 158](#) .

**All vehicles (continued):**

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.



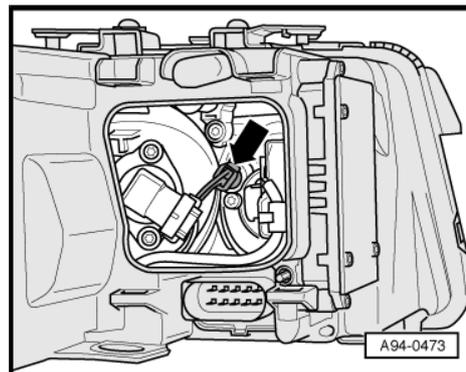
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- Pull bulb holder -arrow- for side light bulb out of housing.
- Pull bulb for side light out of holder.

## Installing

Installation is carried out in the reverse order; note the following:

- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.
- Press bulb holder into reflector until you feel it engage.
- Close housing cover.



#### 4.15 Removing and installing main and dip beam switch-over solenoid -N347- / -N348-

The main and dip beam switch-over solenoid is located in the headlight housing beneath the gas-discharge lamp and cannot be renewed separately in the event of a fault.

- Renewing headlight ⇒ [page 149](#) .

#### 4.16 Removing and installing swivel module position sensor -G474- / -G475-

The swivel module position sensor is located in the headlight housing beneath the gas discharge bulb and cannot be renewed separately in the event of a fault.

- Renewing headlight ⇒ [page 149](#) .

#### 4.17 Renewing bulb for turn signal

##### Removing

 **WARNING**

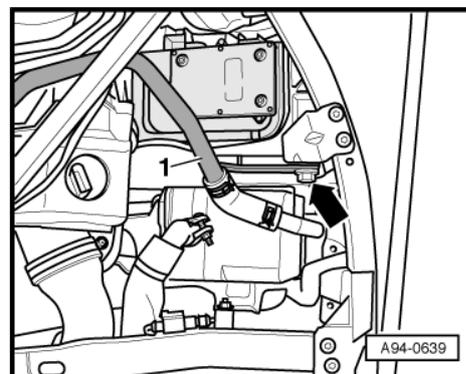
*High voltage! Danger to life!*

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner ⇒ Rep. gr. 66 .

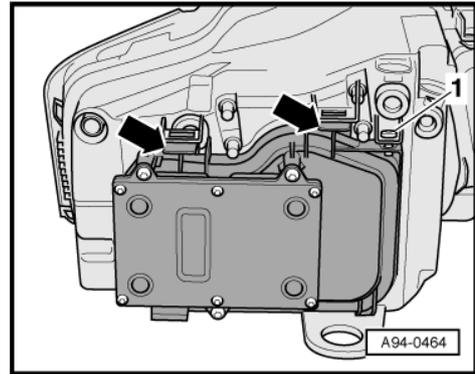
##### Headlight (right-side) - vehicles with auxiliary heater:

- Unscrew bolt -arrow- for coolant pipe -1- and lock carrier.



**All vehicles (continued):**

- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.

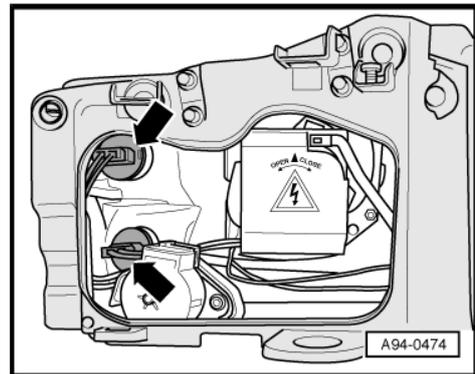


- Pull bulbs -arrows- out of housing.
- Unplug electrical connector at bulb.

**Installing**

Installation is carried out in the reverse order; note the following:

- Press bulb holder into reflector until you feel it engage.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner ⇒ Rep. gr. 66 .



## 4.18 Removing and installing dynamic cornering light control motor -V318- / -V319-

The dynamic cornering light control motor is located in the headlight housing and cannot be renewed separately in the event of a fault.

- Renewing headlight ⇒ [page 149](#) .

## 4.19 Removing and installing headlight range control motor -V48- / -V49-

**Removing****WARNING**

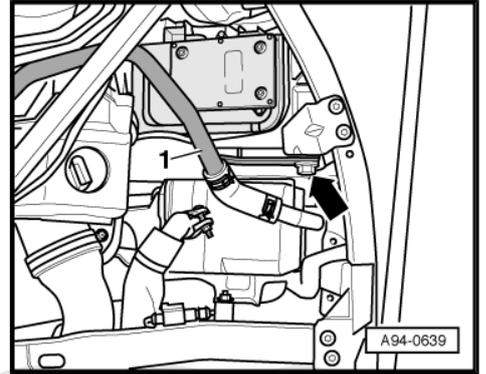
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- ◆ **Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.**
- ◆ **Switch off ignition and all electrical equipment and remove ignition key.**
- ◆ **Do not flash the headlights.**

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner ⇒ Rep. gr. 66 .

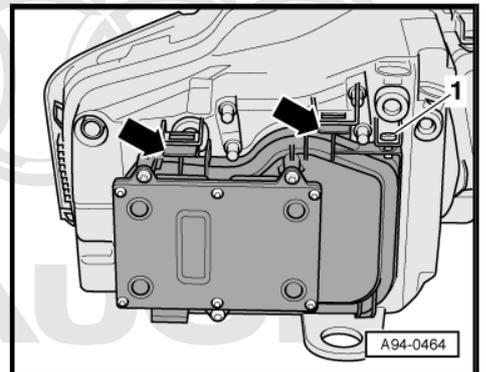
**Headlight (right-side) - vehicles with auxiliary heater:**

- Unscrew bolt -arrow- for coolant pipe -1- and lock carrier.



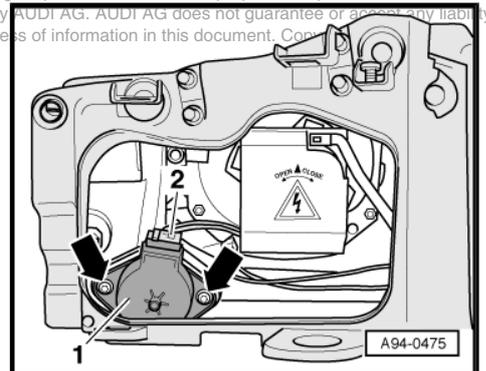
**All vehicles (continued):**

- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.



- Unscrew bolts -arrows-.
- Press ball head of actuator shaft out of its mounting by swivelling control motor -1- downwards.
- Unplug electrical connector -2-.

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**Installing**

Installation is carried out in the reverse order; note the following:

- Start by inserting ball head of actuator shaft in mounting on reflector from below; to do so, pull reflector to rear.

 **Note**

*The headlights must always be re-adjusted if the control motors are removed and installed or renewed => [page 151](#) .*

- Close housing cover and secure with locking bolt.
- Install front wheel housing liner => Rep. gr. 66 .

**Tightening torque**

Component	Nm
Control motor to headlight housing	1

## 4.20 Removing and installing gas discharge bulb control unit -J343- / -J344-

### Removing



#### WARNING

*High voltage! Danger to life!*

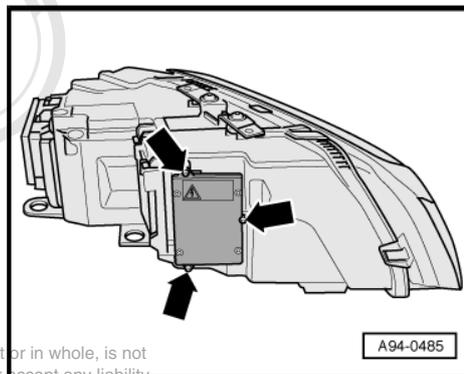
- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

- Remove headlight ⇒ [page 149](#) .
- Unscrew bolts -arrows- and detach control unit from headlight housing.
- Unplug electrical connector.

### Installing

Installation is carried out in the reverse order; note the following:

- Check seal between gas discharge bulb control unit and headlight housing.
- Install headlight ⇒ [page 149](#) .



### Tightening torque

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Component	Nm
Gas discharge bulb control unit to headlight	1

## 4.21 Removing and installing output module for headlight -J667- / -J668-

### Removing



#### WARNING

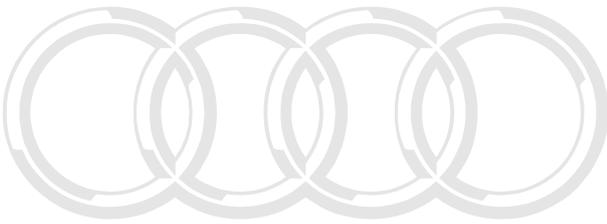
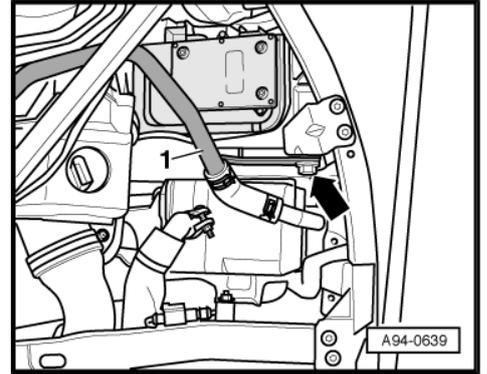
*High voltage! Danger to life!*

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner ⇒ Rep. gr. 66 .

**Headlight (right-side) - vehicles with auxiliary heater:**

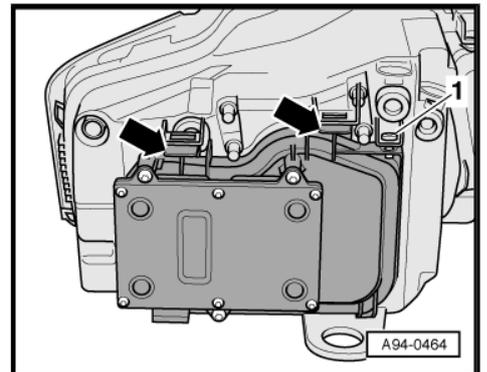
- Unscrew bolt -arrow- for coolant pipe -1- and lock carrier.



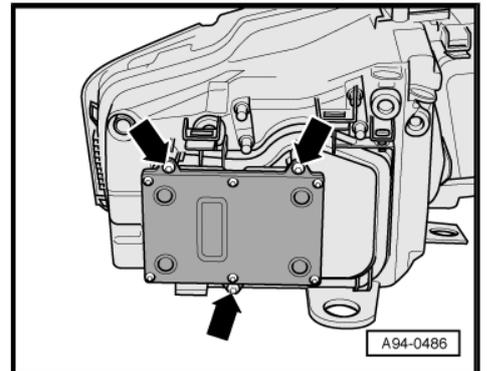
**All vehicles (continued):**

- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.
- Unplug electrical connector.

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- Unscrew bolts -arrows- and detach output module for headlight from housing cover.

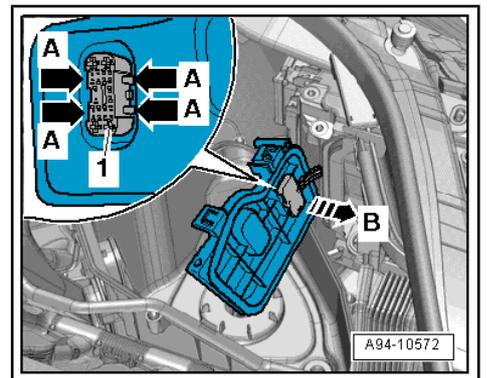


- Release retaining tabs -arrows A- and press connector -1- out of housing cover -2- -arrow B-.
- Detach housing cover.

**Installing**

Installation is carried out in the reverse order; note the following:

- Check seal between output module for headlight and housing cover.
- Re-attach connector.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner => Rep. gr. 66 .



**Tightening torque**

Component	Nm
Output module for headlight (left/right) to headlight	1

## 4.22 Renewing headlight holders

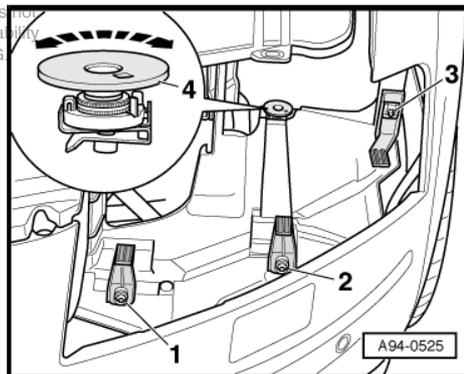


### Note

Broken headlight holders (e.g. accident damage) can be renewed separately. In many cases this avoids having to renew the entire headlight.

### Procedure

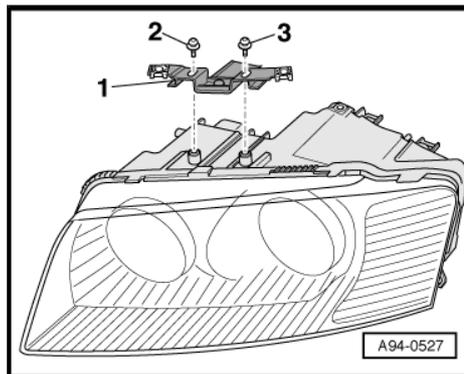
- Switch off ignition and take out ignition key.
- To renew lower headlight holders, unscrew bolts -1 ... 3-.
- Position adjuster nut -4- from rear on mount at lock carrier.



- To renew upper headlight holder -1-, unscrew bolts -2- and -3- and unclip holder from headlight housing.

### Tightening torques

Component	Nm
Lower headlight holder to lock carrier	6
Upper headlight holder to lock carrier	6



## 4.23 Adapting headlights for driving on the left or right side of the road - vehicles with adjustment lever

When travelling in countries where the vehicle is to be driven on the other side of the road, both headlights must be adjusted to prevent dazzling by the asymmetric dipped beam.

### Procedure



### WARNING

*High voltage! Danger to life!*

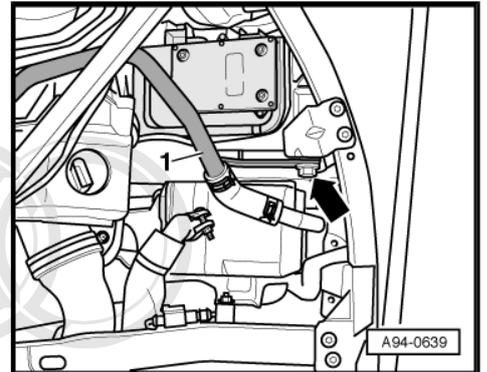
- ◆ Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.
- ◆ Switch off ignition and all electrical equipment and remove ignition key.
- ◆ Do not flash the headlights.

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.

- Do not flash the headlights.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner ⇒ Rep. gr. 66 .

**Headlight (right-side) - vehicles with auxiliary heater:**

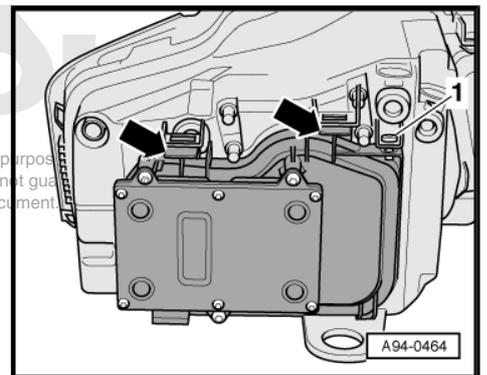
- Unscrew bolt -arrow- for coolant pipe -1- and lock carrier.



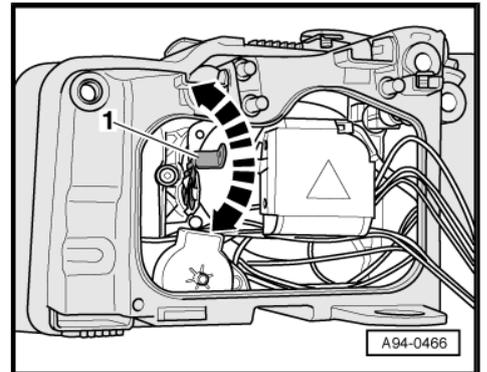
**All vehicles (continued):**

- Loosen locking bolt -1- a few turns.
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.

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- Check position of adjustment lever -1- at both headlights.
  - Lever down = Driving on left
  - Lever up = Driving on right
- If necessary, swivel lever until it engages in desired position -arrow-.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner ⇒ Rep. gr. 66 .



**4.24 Adapting headlights for driving on the left or right side of the road - vehicles without adjustment lever**

When travelling in countries where the vehicle is to be driven on the other side of the road, both headlights must be adjusted to prevent dazzling by the asymmetric dipped beam.

**Procedure**

- The headlights can be adapted for driving on the left or right using the "Headlamp converter" function ⇒ Vehicle diagnostic tester.



**Note**

- ◆ *When the headlamp converter is activated, the event memory stores the event "LHD/RHD switch-over activated" and the lamp in the instrument cluster lights up for a short period each time the engine is started.*
- ◆ *The event memory erases the fault when the headlamp converter is deactivated.*



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## 5 Gas discharge headlights - USA vehicles

Observe notes on contact corrosion ⇒ [page 125](#) .



Note

*The headlights must be adjusted after any repair work which could affect the headlight settings ⇒ [page 180](#) .*

### 5.1 Safety precautions when handling gas discharge bulbs

⇒ Electrical system; General information; Rep. gr. 94 ; Safety precautions when handling gas discharge bulbs

### 5.2 Gas discharge headlights - exploded view

#### 1 - Headlight housing

- ❑ Vehicles with LED daytime running lights: the daytime running light bulbs (LED) are integrated in the headlight housing. The LED lights cannot be renewed separately; the headlight must be renewed as a complete unit
- ❑ Removing and installing ⇒ [page 179](#)

#### 2 - Trim cover

3 - 6 Nm

#### 4 - Bracket for headlight housing

#### 5 - Gas discharge bulb control unit

- ❑ Left gas discharge bulb control unit - J343-
- ❑ Right gas discharge bulb control unit - J344-
- ❑ Removing and installing ⇒ [page 195](#)

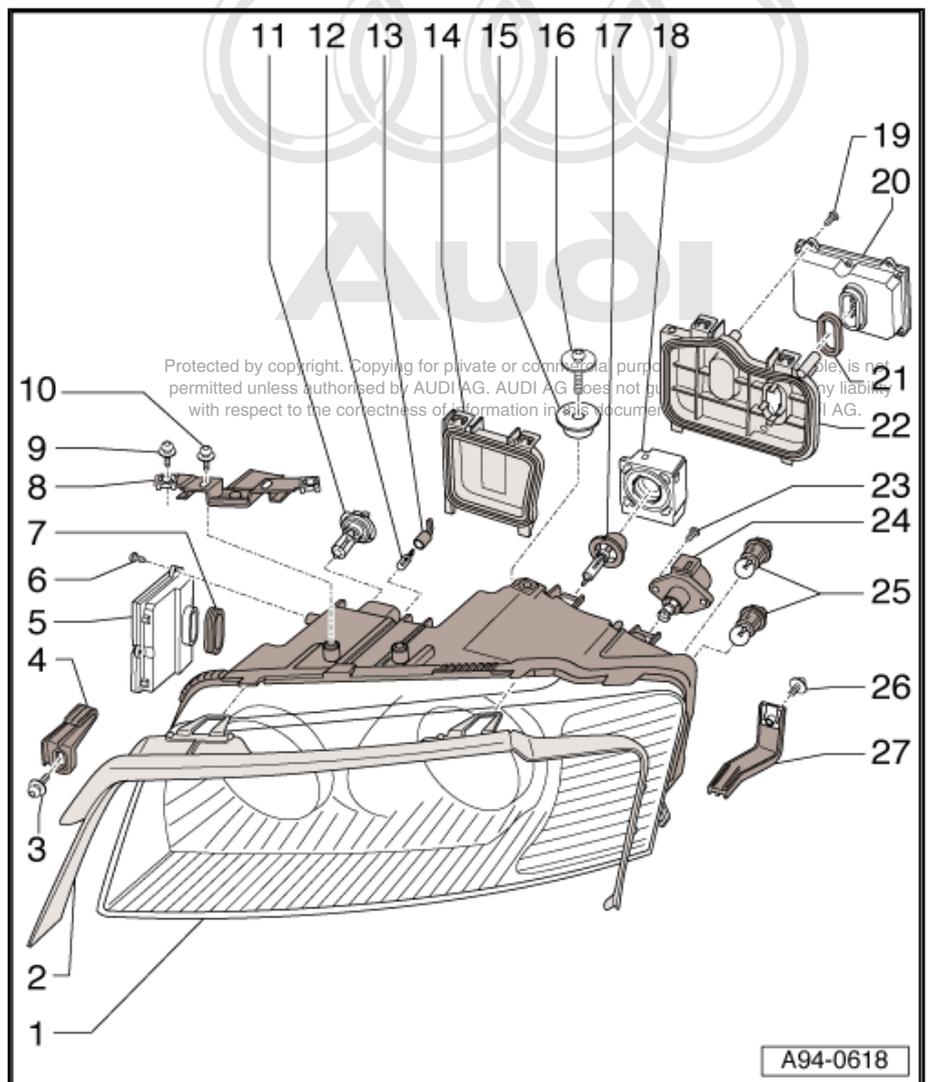
6 - 1 Nm

#### 7 - Seal

- ❑ Renew if damaged

#### 8 - Bracket for headlight housing

- ❑ To adapt headlight to body contour, slacken off bolt -item 10- and swivel headlight housing



**9 - 6 Nm****10 - 3 Nm****11 - Bulb**

- Not on vehicles for Japan

**Main beams**

- H7 - 12 V, 55 W
- Renewing bulb ⇒ [page 188](#)

**Daytime running lights**

- 12 V, 21 W
- Renewing bulb ⇒ [page 190](#)

**LED light**

- If the LED module fails the headlight must be renewed as a complete unit

**12 - Parking light bulb**

- Glass base bulb 12 V, 5 W
- Renewing bulb ⇒ [page 191](#)
- There is no bulb in headlight with LED light; if faulty, the LED module must be renewed as a complete part

**13 - Bulb holder**

- For parking light bulb

**14 - Main beam housing cover**

- Release retaining tabs to remove

**15 - Adjuster**

- To adjust headlight to wing panel contour and bumper contour

**16 - 6 Nm****17 - Gas discharge bulb for dipped beam headlights**

- 35 W, D2S
- Renewing bulb ⇒ [page 185](#)

**18 - Starter unit for gas discharge bulb**

- Removing and installing: vehicles up to 08.2007 ⇒ [page 186](#) , vehicles from 09.2007 onwards ⇒ [page 187](#)

**19 - 1 Nm****20 - Output module**

- Depending on equipment and design status
- Output module for left headlight - J667-
- Output module for right headlight - J668-
- Removing and installing ⇒ [page 195](#)

**21 - Seal**

- Renew if damaged

**22 - Housing cover for gas discharge bulb****23 - Headlight range control motor**

- Left headlight range control motor - V48-

- Right headlight range control motor - V49-

- Removing and installing ⇒ [page 193](#)

**24 - Housing cover****25 - Turn signal bulb**

- 2x

- Orange: 12 V, 16 W
- Silver: 12 V, 24 W
- Depending on version; Assignment ⇒ Electronic parts catalogue
- Renewing bulb ⇒ [page 192](#)

26 - 6 Nm

27 - Bracket for headlight housing

## 5.3 Removing and installing headlights

### Removing

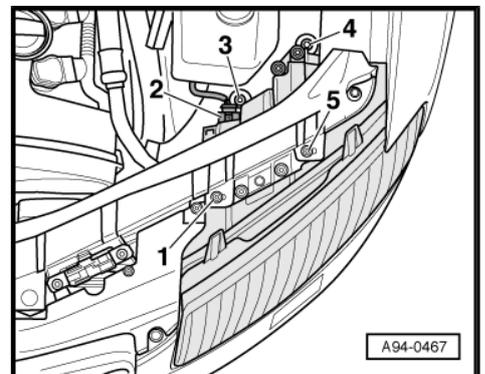


#### WARNING

**High voltage! Danger to life!**

- ◆ **Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.**
- ◆ **Switch off ignition and all electrical equipment and remove ignition key.**
- ◆ **Do not flash the headlights.**

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Remove front bumper cover ⇒ Rep. gr. 63 .
- Unscrew bolts -1- and -3 ... 5-.
- Unplug electrical connector -2-.
- Detach headlight to front.

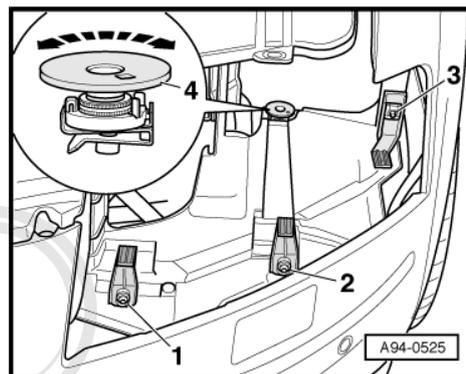




## Installing

Installation is carried out in the reverse order; note the following:

- Check adjuster nut -4- of adjuster for freedom of movement -arrows-.
- Screw down adjuster nut as far as it will go, but do not tighten.
- Insert headlight.
- Install front bumper cover ⇒ Rep. gr. 63 .
- Align headlight with body contours (gap widths).



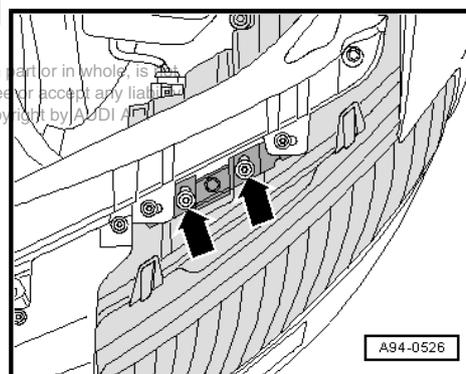
### Note

Headlight can be aligned by slackening off bolts -1 ... 3- and altering height of holders.



### Note

Headlight can be aligned at top edge by slackening off both bolts -arrows- and swivelling headlight housing.



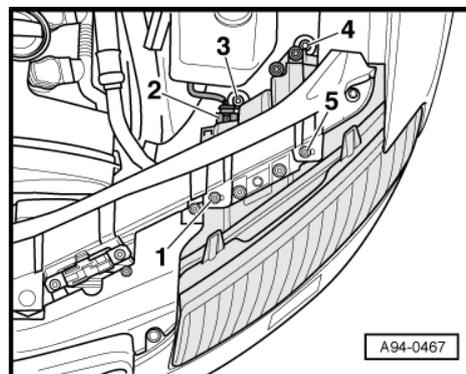
- Tighten bolts -1- and -3 ... 5-.



### Note

When the bolt -3- is tightened the adjusting nut of the adjuster automatically rotates against the mounting point of the headlight housing and fixes it in place.

- Avoid applying pressure to the bolt when securing; the adjuster nut of the adjuster must remain free to turn.
- Following installation, adjust headlights ⇒ [page 180](#) .



## Tightening torque

Component	Nm
Headlight to lock carrier	6

## 5.4 Adjusting headlights

- ◆ The following checking and adjustment procedures apply to all countries.
- ◆ However, national legislation and guidelines for individual countries must be adhered to.

### 5.4.1 Requirements for checking and adjusting

- ◆ Tyre pressure OK

- ◆ Headlight lenses must be clean and dry.
- ◆ Headlight lenses must not be damaged.
- ◆ Reflectors and bulbs OK
- ◆ Air reservoir for air suspension full, if necessary start engine and allow to run at idling speed for approx. 2 minutes then switch off engine.
- ◆ Release electromechanical parking brake to relieve any load on suspension.
- ◆ Make sure steering wheel is at centre position with wheels pointing straight ahead.
- ◆ Vehicle and headlight adjustment unit must be on a level surface.
- ◆ Headlight adjustment unit must be aligned to vehicle ⇒ Operating instructions for headlight adjustment unit .

Ensure that headlight adjustment unit is in front of headlight at a distance of 30 cm.

- ◆ Dip setting must be adjusted.

Dip settings (in “%”) are marked on the top of the headlight. The headlights must be adjusted in accordance with these values. The percentage value is for a range of 10 m. Example: Converting a dip setting of 1.0 % = 10 cm.

## 5.4.2 Checking headlight settings

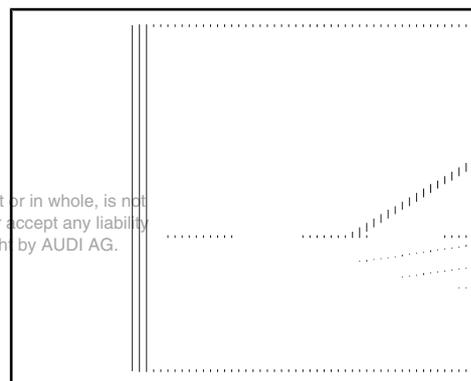
- Start engine.
- Switch on dipped headlights.
- Set vehicle level to normal.
- To do so, press the function selector button “CAR” on the MMI operating unit. The main menu “adaptive air suspension” will appear.
- Use the rotary pushbutton to select the “automatic” level.

Further information on the vehicle level can be found in the ⇒ MMI Operating Manual

- ◆ The horizontal light-dark border should coincide with the setting line -1- of the test surface.
- ◆ The break-away point -2- between the horizontal section of the light-dark border on the left and the rising section on the right should coincide with the vertical line running through the central point -3-. The bright spot in the centre of the beam should be to the right of the vertical line.

### Note

- ◆ *To make it easier to find the break-away point -2-, cover and uncover the left half of the headlight (as seen in direction of travel) a few times. Then check the dipped beam again.*
  - ◆ *If dipped beams have been adjusted correctly the centre point of the main beam should lie on central point -3-.*
  - ◆ *If using an old test screen with a 15 ° setting line, the adjustment procedure is the same as for the new screen. Disregard the 15 ° setting line to avoid incorrect settings.*
- If headlight setting is not OK, adjust headlights ⇒ [page 182](#) .



### 5.4.3 Adjusting headlights

- Connect vehicle diagnostic tester ⇒ Vehicle diagnostic tester.
- Select **Diagnosis** mode and start diagnosis.
- Select **Test plan** tab.
- Select **Own test** then the following options one after the other:
  - ◆ Body
  - ◆ Electrical system
  - ◆ 01 - Self-diagnosis compatible systems
  - ◆ 55 - Dynamic headlight range control
  - ◆ J431/J745 - Dynamic headlight range control, functions
  - ◆ J431/J745 - Control unit for headlight range control, basic setting



#### Note

*With this programme the headlights return to the basic setting.*

- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- You will be requested to perform headlight adjustment while running through the programme.

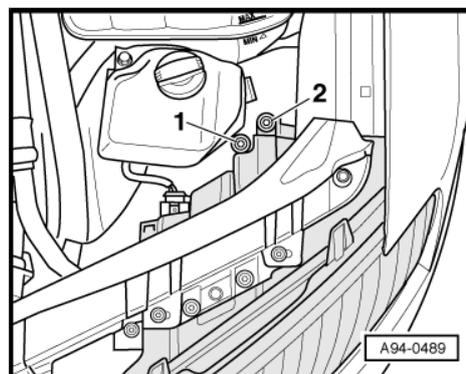
#### Headlight (left-side)

Adjuster screws on left headlight:

- 1 - Height/lateral adjuster screw
- 2 - Height adjuster screw

The arrangement on the right headlight is symmetrically opposite.

- Only turn adjuster screw -2- to adjust the height.
- To make a lateral adjustment, turn adjuster screws -1- and -2- the same number of turns.



## 5.5 Preparations before working on headlights

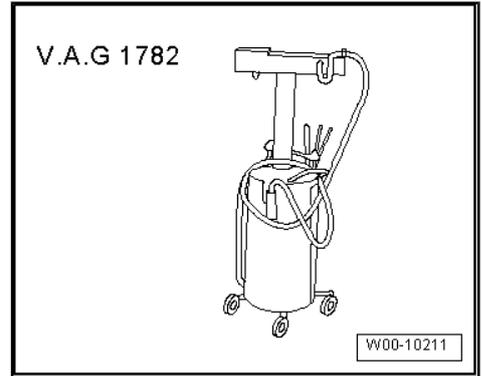
Depending on the engine version, access to the headlight bulbs could be obstructed. In this case, additional steps must be performed.

### 5.5.1 Removing power steering reservoir

#### Special tools and workshop equipment required

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◆ Used oil collection and extraction unit - V.A.G 1782-



**Procedure**

– Use oil collection and extraction unit - V.A.G.1782- to draw off hydraulic fluid for power steering from reservoir.



**Note**

*Place cloth under power steering reservoir to catch escaping hydraulic fluid.*

- Remove power steering reservoir.

Installation is carried out in the reverse order; note the following:

- Top up power steering fluid and bleed steering system ⇒ Rep. gr. 48 .

**Tightening torque**

Component	Nm
Power steering reservoir to bracket	9

**5.5.2 Removing air cleaner (top section) - vehicles with 6-cyl. and 8-cyl. engine**

**Procedure**

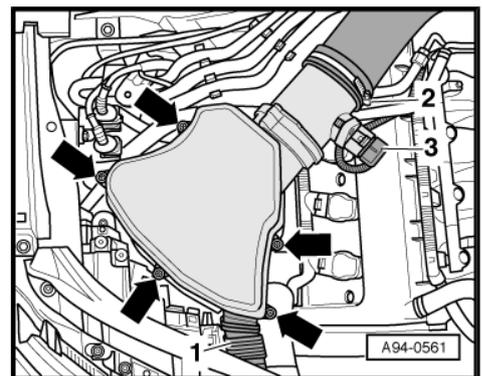
- Detach air hose -2- at air cleaner housing.
- Unplug electrical connector -3-.
- Remove bolts -arrows- and detach air cleaner (top section).
- Detach connecting hose -1-.

Installation is carried out in the reverse order; note the following:



**Note**

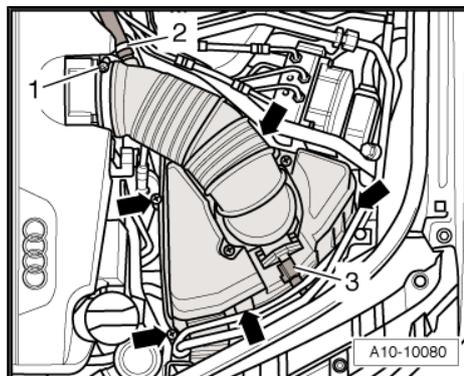
*Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*



### 5.5.3 Removing air cleaner housing (left-side) - vehicles with 12-cyl. engine

#### Procedure

- Unplug electrical connector -3- for air mass meter 2 - G246- .
- Detach hose -2- from air hose.
- Detach air hose -1- at intake manifold.
- Unscrew bolts -arrows-.
- Detach left air cleaner (top section).

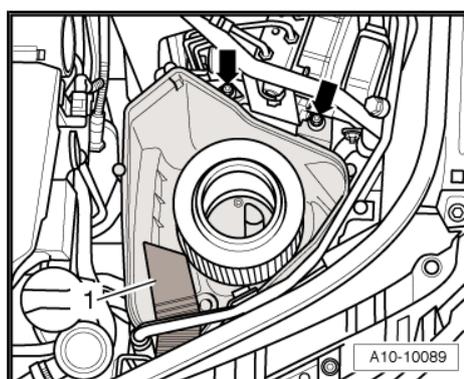


- Remove air duct -1-.
- Unscrew bolts -arrows-.
- Take out left air cleaner (bottom section).

Installation is carried out in the reverse order; note the following:

#### Note

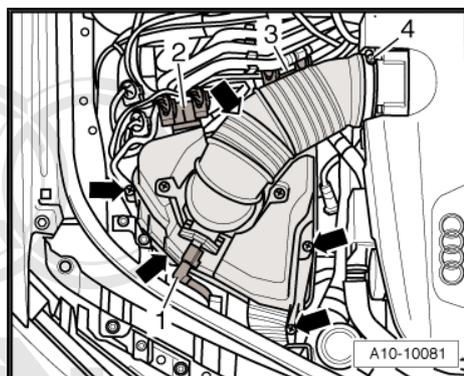
Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .



### 5.5.4 Removing air cleaner housing (right-side) - vehicles with 12-cyl. engine

#### Procedure

- Unplug electrical connector -1- for air mass meter - G70- .
- Detach air hose -4- at intake manifold.
- Disengage brackets for electrical connectors -2- and -3- at air cleaner (top section).
- Unscrew bolts -arrows-.
- Detach right air cleaner (top section).

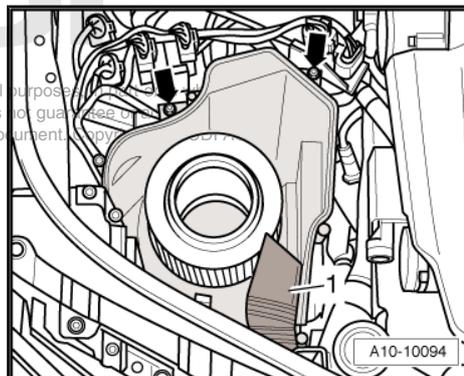


- Remove air duct -1-.
- Unscrew bolts -arrows-.
- Take out right air cleaner (bottom section).

Installation is carried out in the reverse order; note the following:

#### Note

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .



## 5.6 Renewing gas discharge bulb



### WARNING

*High voltage! Danger to life! Observe environmental requirements.*

- ◆ *Safety precautions when handling gas discharge bulbs ⇒ Electrical system; General information; Rep. gr. 94; Safety precautions when handling gas discharge bulbs*



### WARNING

*High voltage! Danger to life!*

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

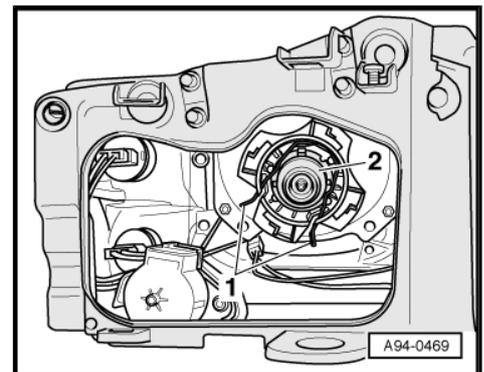
### Removing

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Remove starter unit for gas discharge bulb: vehicles up to 08.2007 ⇒ [page 159](#) , vehicles from 09.2007 onwards ⇒ [page 161](#) .
- Disengage retaining clips -1-.
- Pull gas discharge bulb -2- out of headlight housing.

### Installing

Installation is carried out in the reverse order; note the following:

- Install starter unit for gas discharge bulb: vehicles up to 08.2007 ⇒ [page 186](#) , vehicles from 09.2007 onwards ⇒ [page 187](#) .



## 5.7 Removing and installing starter unit for gas discharge bulb - vehicles up to 08.2007

### Removing

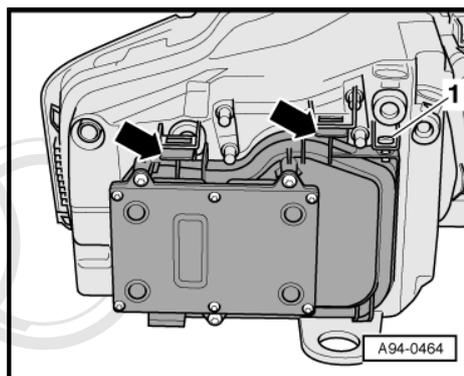


#### WARNING

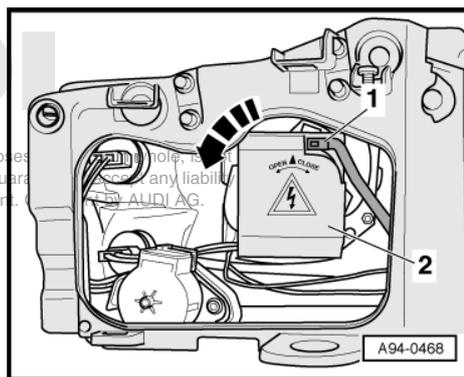
*High voltage! Danger to life!*

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Loosen locking bolt -1- a few turns.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner ⇒ Rep. gr. 66 .
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.



- Unplug electrical connector -1- at starter unit for gas discharge bulb.
- Turn starter unit -2- for gas discharge bulb anti-clockwise -arrow- and detach it.



### Installing

Installation is carried out in the reverse order, note the following.

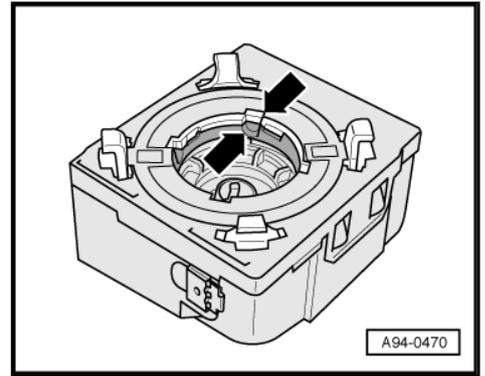


#### Note

*The starter unit must be installed before attaching the connector.*

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- Check whether recess in housing of starter unit for gas discharge bulb and recess in contact ring coincide exactly -arrows-.
- Fit starter unit for gas discharge bulb at headlight and turn clockwise as far as it will go.
- The starter unit should be easy to turn.
- Arrow on housing faces upwards.
- Re-attach connector.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner ⇒ Rep. gr. 66 .



## 5.8 Removing and installing starter unit for gas discharge bulb - vehicles from 09.2007 onwards

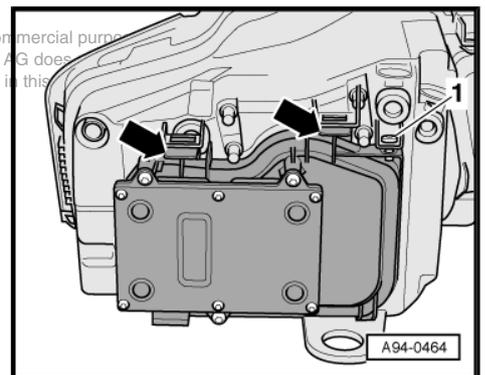
### Removing

 **WARNING**

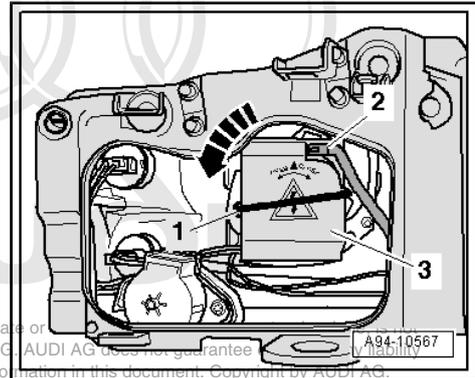
***High voltage! Danger to life!***

- ◆ ***Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.***
- ◆ ***Switch off ignition and all electrical equipment and remove ignition key.***
- ◆ ***Do not flash the headlights.***

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Loosen locking bolt -1- a few turns.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner ⇒ Rep. gr. 66 .
- Release retaining tabs -arrows- and detach housing cover for gas discharge bulb from headlight housing.



- Disengage retaining clip -1- and swivel to the side.
- Turn starter unit -3- for gas discharge bulb anti-clockwise -arrow-, this will automatically release electrical connector -2-.
- Detach starter unit for gas discharge bulb.



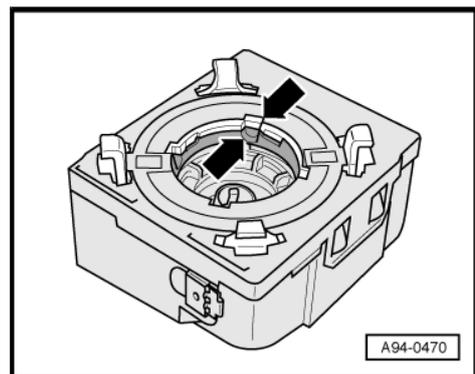
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**Note**

*The starter unit must be installed before attaching the connector.*

- Check whether recess in housing of starter unit for gas discharge bulb and recess in contact ring coincide exactly -arrows-.
- Fit starter unit for gas discharge bulb at headlight and turn clockwise as far as it will go.
- The starter unit should be easy to turn.
- Arrow on housing faces upwards.
- Close retaining clip on starter unit for gas discharge bulb.
- Re-attach connector.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner => Rep. gr. 66 .



## 5.9 Renewing bulb for main beam headlights

### Removing



**WARNING**

***High voltage! Danger to life!***

- ◆ ***Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.***
- ◆ ***Switch off ignition and all electrical equipment and remove ignition key.***
- ◆ ***Do not flash the headlights.***

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.

### Headlight (left-side) - vehicles with 6-cyl. or 8-cyl. engine:

- Remove power steering reservoir => [page 182](#) .

**Headlight (left-side) - vehicles with 12-cyl. engine:**

- Remove air cleaner housing ⇒ [page 184](#) .

**Headlight (right-side) - vehicles with 6-cyl. or 8-cyl. engine:**

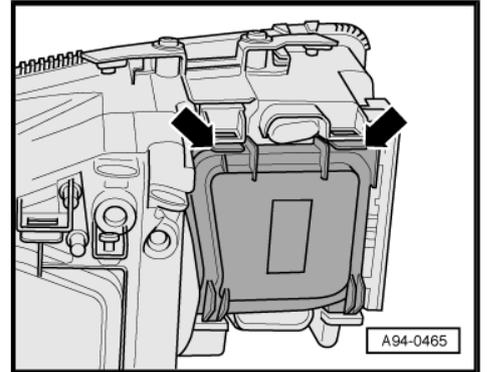
- Remove air cleaner (top section) ⇒ [page 183](#) .

**Headlight (right-side) - vehicles with 12-cyl. engine:**

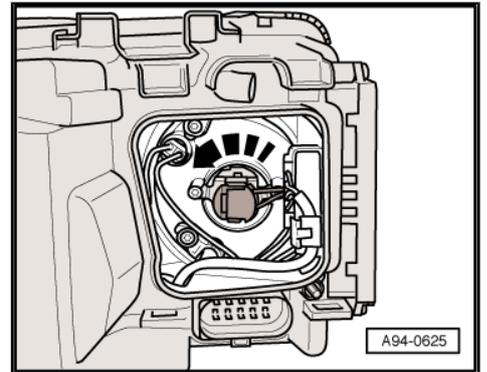
- Remove air cleaner housing ⇒ [page 184](#) .

**All vehicles (continued):**

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.



- Turn bulb holder anti-clockwise -arrow- and pull out of headlight housing.



- Pull main beam bulb -1- out of bulb holder -2-.

**Installing**

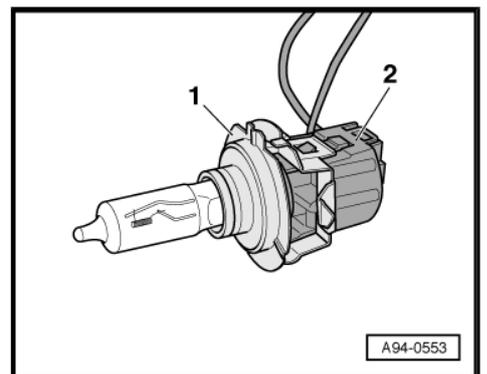
Installation is carried out in the reverse order; note the following:

- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.

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- Secure bulb holder by turning clockwise.

- Close housing cover.



## 5.10 Renewing bulb for daytime running light

### Removing



#### WARNING

**High voltage! Danger to life!**

- ◆ **Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.**
- ◆ **Switch off ignition and all electrical equipment and remove ignition key.**
- ◆ **Do not flash the headlights.**

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- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.

#### Headlight (left-side) - vehicles with 6-cyl. or 8-cyl. engine:

- Remove power steering reservoir ⇒ [page 182](#) .

#### Headlight (left-side) - vehicles with 12-cyl. engine:

- Remove air cleaner housing ⇒ [page 184](#) .

#### Headlight (right-side) - vehicles with 6-cyl. or 8-cyl. engine:

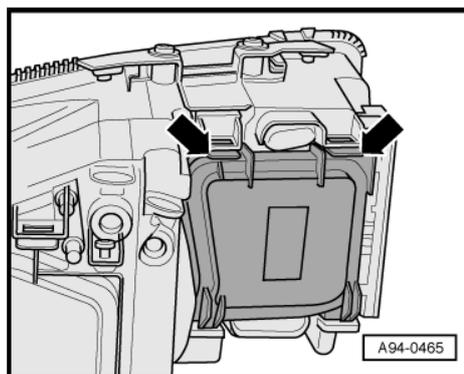
- Remove air cleaner (top section) ⇒ [page 183](#) .

#### Headlight (right-side) - vehicles with 12-cyl. engine:

- Remove air cleaner housing ⇒ [page 184](#) .

#### All vehicles (continued):

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.

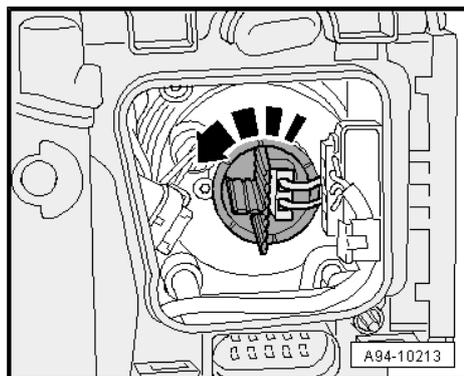


- Turn bulb holder anti-clockwise -arrow- and pull out of headlight housing.

#### Installing

Installation is carried out in the reverse order; note the following:

- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.
- Secure bulb holder by turning clockwise.
- Close housing cover.



## 5.11 Renewing LED light

The LED light module is located in the headlight housing in place of the bulb for the main beam or daytime running light. It cannot be renewed separately in the event of a fault.

- Renewing headlight ⇒ [page 179](#) .

## 5.12 Renewing parking light bulb



Note

*On vehicles with gas discharge headlight with LED light, the LED module replaces the bulb for main beam headlight/daytime running light and the parking light bulb. The LED module cannot be renewed separately; the headlight must be renewed as a complete unit.*

### Removing



**WARNING**

***High voltage! Danger to life!***

- ◆ ***Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.***
- ◆ ***Switch off ignition and all electrical equipment and remove ignition key.***
- ◆ ***Do not flash the headlights.***

- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.

#### Headlight (left-side) - vehicles with 6-cyl. or 8-cyl. engine:

- Remove power steering reservoir ⇒ [page 182](#) .

#### Headlight (left-side) - vehicles with 12-cyl. engine:

- Remove air cleaner housing ⇒ [page 184](#) .

#### Headlight (right-side) - vehicles with 6-cyl. or 8-cyl. engine:

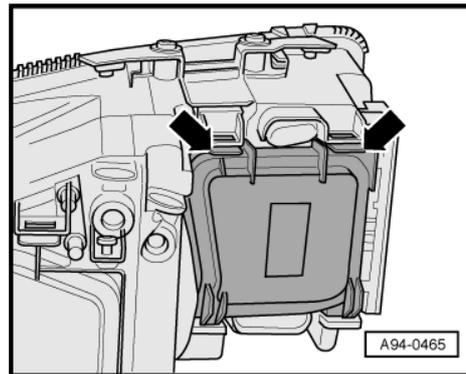
- Remove air cleaner (top section) ⇒ [page 183](#) .

#### Headlight (right-side) - vehicles with 12-cyl. engine:

- Remove air cleaner housing ⇒ [page 184](#) .

**All vehicles (continued):**

- Release retaining tabs -arrows- and detach main beam housing cover from headlight housing.

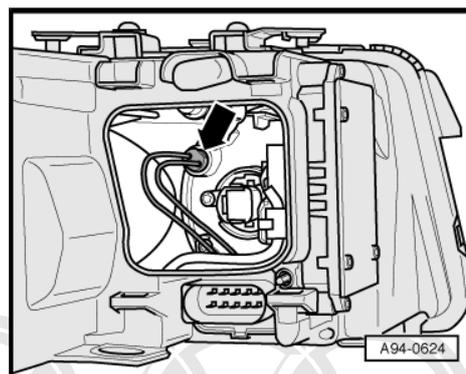


- Pull bulb holder -arrow- for side light bulb out of housing.
- Pull bulb for side lights out of bulb holder.

**Installing**

Installation is carried out in the reverse order; note the following:

- Insert new bulb in bulb holder, taking care not to touch glass bulb with bare hands.
- Press bulb holder into reflector until you feel it engage.
- Close housing cover.



### 5.13 Removing and installing main and dip beam switch-over solenoid -N347- / -N348-

The main and dip beam switch-over solenoid is located in the headlight housing beneath the gas-discharge lamp and cannot be renewed separately in the event of a fault.

- Renewing headlight ⇒ [page 179](#) .

### 5.14 Removing and installing swivel module position sensor -G474- / -G475-

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The swivel module position sensor is located in the headlight housing beneath the gas discharge bulb and cannot be renewed separately in the event of a fault.

- Renewing headlight ⇒ [page 179](#) .

### 5.15 Renewing bulb for turn signal

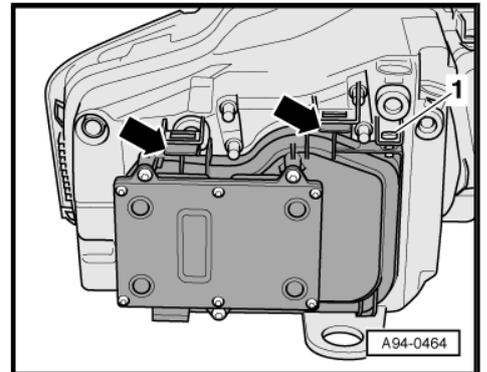
**Removing****WARNING**

**High voltage! Danger to life!**

- ◆ **Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.**
- ◆ **Switch off ignition and all electrical equipment and remove ignition key.**
- ◆ **Do not flash the headlights.**

- Turn light switch to position "0".

- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Loosen locking bolt -1- a few turns.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner ⇒ Rep. gr. 66 .
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.

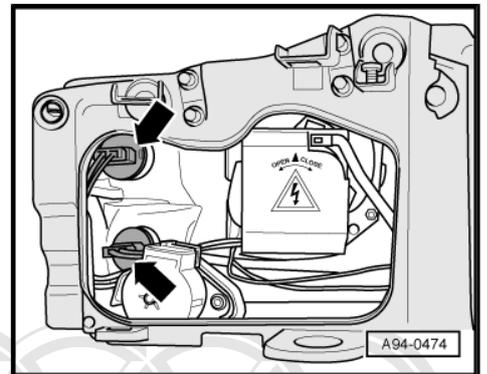


- Pull bulbs -arrows- out of housing.
- Unplug electrical connector at bulb.

**Installing**

Installation is carried out in the reverse order; note the following:

- Press bulb holder into reflector until you feel it engage.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner ⇒ Rep. gr. 66 .



**5.16 Removing and installing dynamic cornering light control motor -V318- / -V319-**

The dynamic cornering light control motor is located in the headlight housing and cannot be renewed separately in the event of a fault.

- Renewing headlight ⇒ [page 179](#) .

**5.17 Removing and installing headlight range control motor -V48- / -V49-**

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**Removing**

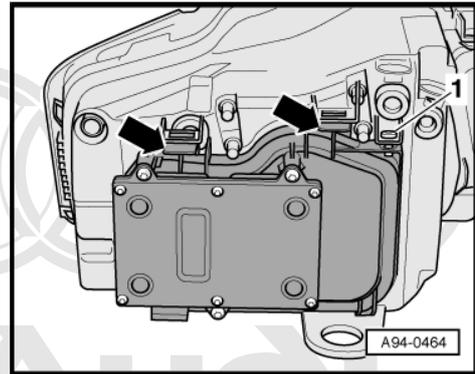
 **WARNING**

*High voltage! Danger to life!*

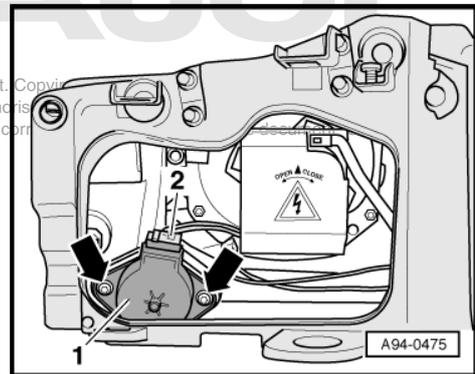
- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

- Turn light switch to position “0”.
- Switch off ignition and all electrical equipment and remove ignition key.

- Do not flash the headlights.
- Loosen locking bolt -1- a few turns.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner => Rep. gr. 66 .
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.



- Unscrew bolts -arrows-.
- Press ball head of actuator shaft out of its mounting by swivelling control motor -1- downwards.
- Unplug electrical connector -2-.



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**Installing**

Installation is carried out in the reverse order; note the following:

- Start by inserting ball head of actuator shaft in mounting on reflector from below; to do so, pull reflector to rear.



**Note**

*The headlights must always be re-adjusted if the control motors are removed and installed or renewed => [page 182](#) .*

- Close housing cover and secure with locking bolt.
- Install front wheel housing liner => Rep. gr. 66 .

**Tightening torque**

Component	Nm
Control motor to headlight housing	1

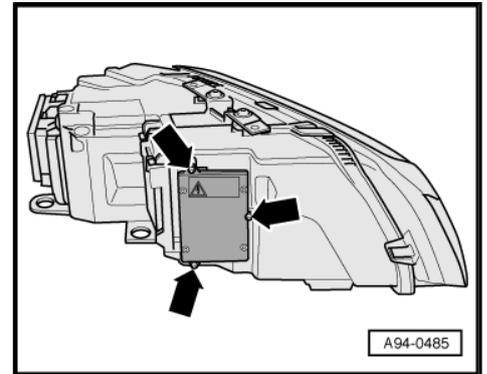
## 5.18 Removing and installing gas discharge bulb control unit -J343- / -J344-

### Removing

 **WARNING**

**High voltage! Danger to life!**

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*



- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.
- Do not flash the headlights.
- Remove headlight => [page 179](#) .
- Unscrew bolts -arrows- and detach control unit from headlight housing.
- Unplug electrical connector.

### Installing

Installation is carried out in the reverse order; note the following:

- Check seal between gas discharge bulb control unit and headlight housing.
- Install headlight => [page 179](#) .

### Tightening torque

Component	Nm
Control unit to headlight	1

## 5.19 Removing and installing output module for headlight -J667- / -J668-

### Removing

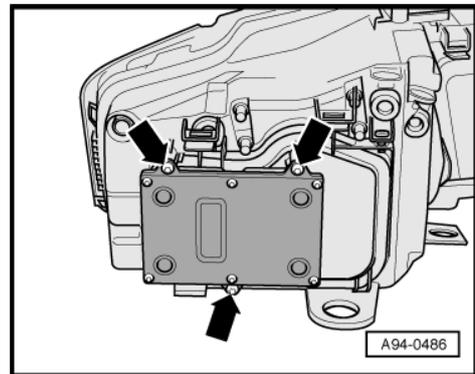
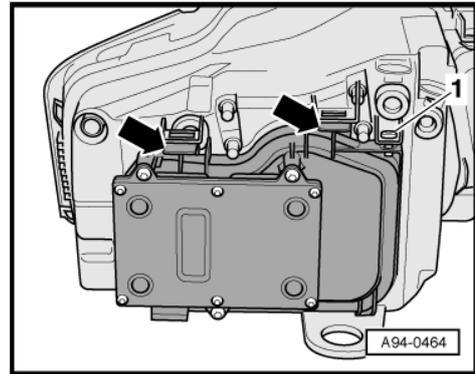
 **WARNING**

**High voltage! Danger to life!**

- ◆ *Ensure that any part of the gas discharge headlights marked with yellow high-voltage warning symbols are de-energised when you are working on them.*
- ◆ *Switch off ignition and all electrical equipment and remove ignition key.*
- ◆ *Do not flash the headlights.*

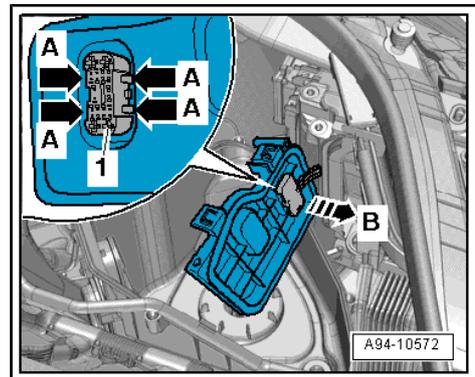
- Turn light switch to position "0".
- Switch off ignition and all electrical equipment and remove ignition key.

- Do not flash the headlights.
- Loosen locking bolt -1- a few turns.
- Remove appropriate front wheel.
- Remove relevant front wheel housing liner => Rep. gr. 66 .
- Release retaining tabs -arrows- and detach housing cover for dipped beam headlights from headlight housing.
- Unplug electrical connector.



- Unscrew bolts -arrows- and detach output module for headlight from housing cover.

- Release retaining tabs -arrows A- and press connector -1- out of housing cover -2- -arrow B-.
- Detach housing cover.



**Installing**

Installation is carried out in the reverse order; note the following:

- Check seal between output module for headlight and housing cover.
- Re-attach connector.
- Close housing cover and secure with locking bolt.
- Install front wheel housing liner => Rep. gr. 66 .

**Tightening torque**

Component	Nm
Output module to headlight	1

**5.20 Renewing headlight holders**

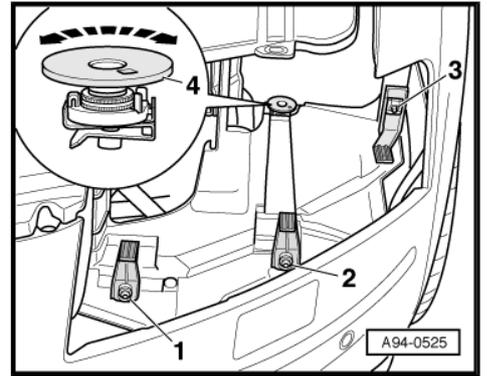


**Note**

*Broken headlight holders (e.g. accident damage) can be renewed separately. In many cases this avoids having to renew the entire headlight.*

**Procedure**

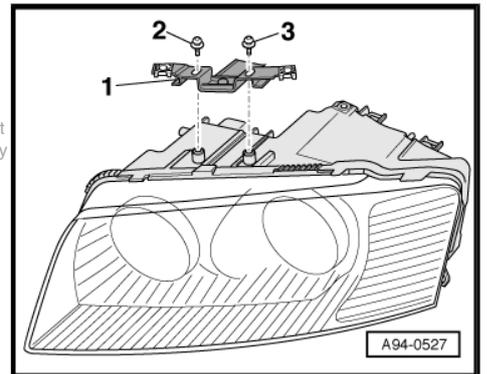
- Switch off ignition and take out ignition key.
- To renew lower headlight holders, unscrew bolts -1 ... 3-.
- Position adjuster nut -4- from rear on mount at lock carrier.



- To renew upper headlight holder -1-, unscrew bolts -2- and -3- and unclip holder from headlight housing.

**Tightening torques**

Component	Nm
Lower headlight holder to lock carrier	6
Upper headlight holder to lock carrier	6

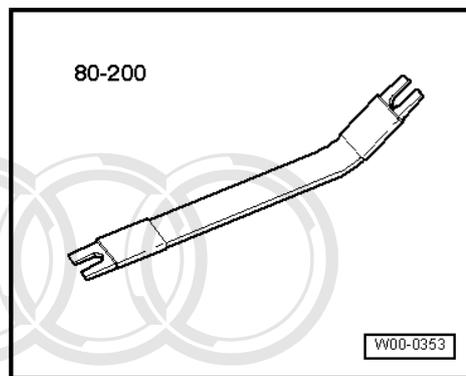


## 6 Side marker light (USA vehicles)

### 6.1 Removing and installing side marker light

#### Special tools and workshop equipment required

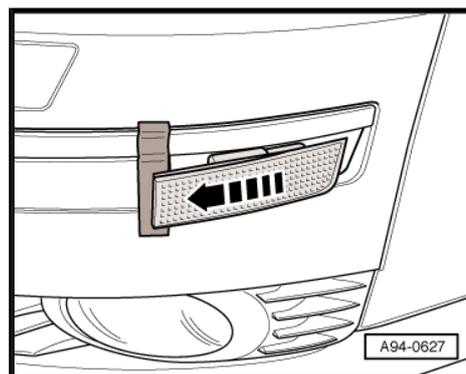
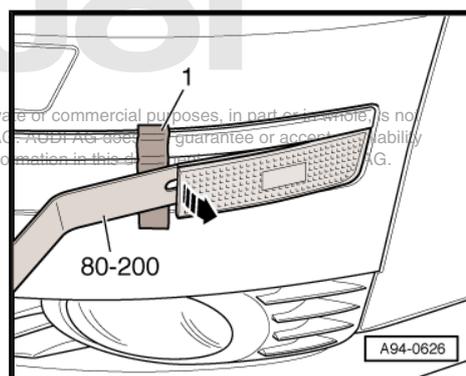
- ◆ Removal lever - 80 - 200-



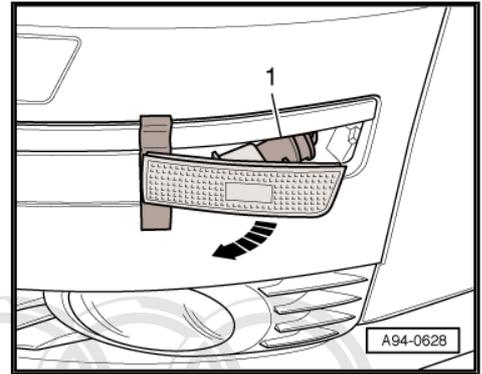
- ◆ Adhesive tape

#### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Mask bumper cover on inside of side marker light with an adhesive strip -1-.
- Use removal lever - 80 - 200- to prise up side marker light approx. 10 mm as shown in illustration.
- Slide side marker light towards centre of vehicle on adhesive strip -arrow- until side marker light with electrical connector can be taken out of bumper cover.



- Holding at rear edge, pull side marker light out of bumper cover -arrow-.
- Unplug electrical connector -1-.



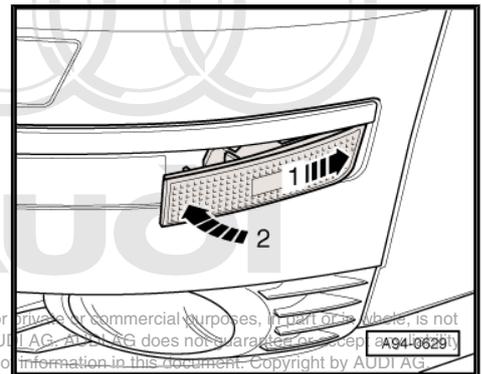
**Installing**

Installation is carried out in the reverse order; note the following:

**i Note**

*The complete front side marker light must be renewed if the LED is defective.*

- Plug in electrical connector.
- Insert side marker light with retaining tab first in bumper cover -arrow 1-.
- Press side marker light into bumper cover -arrow 2-.

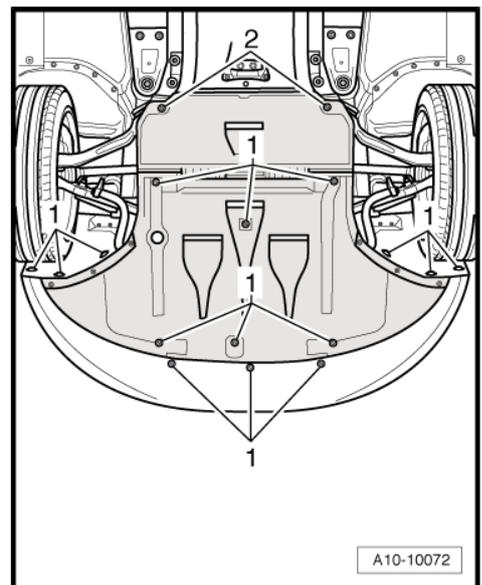


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**6.2 Renewing side marker light bulb**

**Removing**

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Release quick-release fasteners -1- and -2- and take off noise insulation.



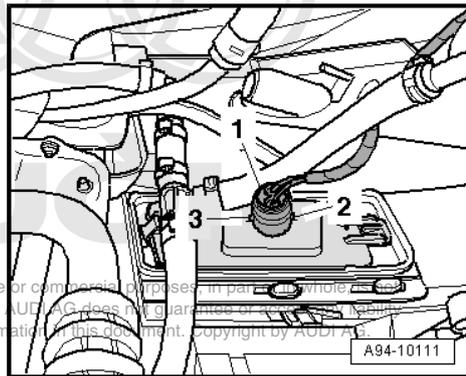


- Pull bulb holder -1- out of housing for side marker light.
- Pull bulb out of bulb holder.

### Installing

Installation is carried out in the reverse order; note the following:

- Fit new bulb (12V, 5W - orange) in housing; do not touch the glass part of the bulb with bare hands.
- Make sure that the marks -2- and -3- are horizontal when fitting.



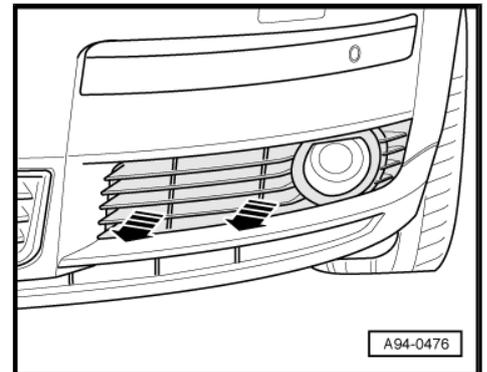
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## 7 Fog lights - vehicles up to 08.2007

### 7.1 Removing and installing fog lights - Audi A8

#### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Pull out air inlet grille in lower section of bumper cover -arrows-.



- Unscrew bolts -arrows- and take fog light housing out of bumper cover.
- Unplug electrical connector.

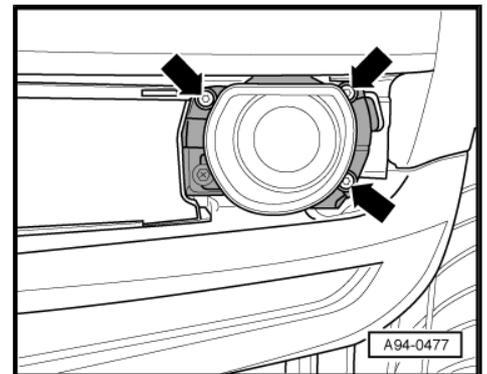
#### Installing

Installation is carried out in the reverse order; note the following:

- Adjust fog lights ⇒ [page 204](#) .

#### Tightening torque

Component	Nm
Fog light housing to bumper cover	2.3



### 7.2 Renewing fog light bulb - Audi A8 up to 09.2004

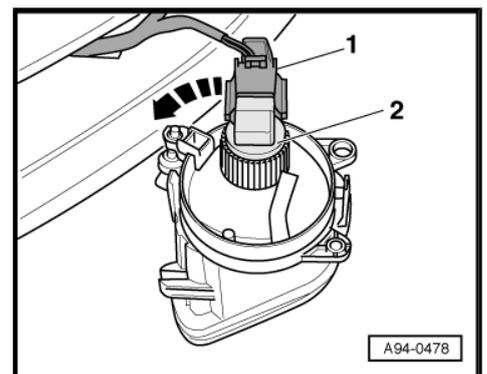
#### Removing

- Remove fog light ⇒ [page 201](#) .
- Unplug electrical connector -1- at bulb.
- Turn bulb -2- anti-clockwise -arrow- and pull it out of fog light housing.

#### Installing

Installation is carried out in the reverse order; note the following:

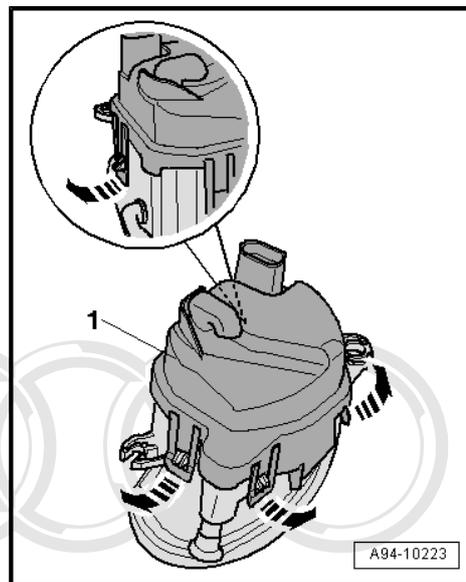
- Do not touch glass bulb with bare hands.
- Secure bulb by turning in clockwise direction.
- Adjust fog lights ⇒ [page 204](#) .



## 7.3 Renewing fog light bulb - Audi A8 from 10.2004 onwards

### Removing

- Remove fog light ⇒ [page 201](#) .
- Release retaining tabs -arrows- on cover cap -1-.

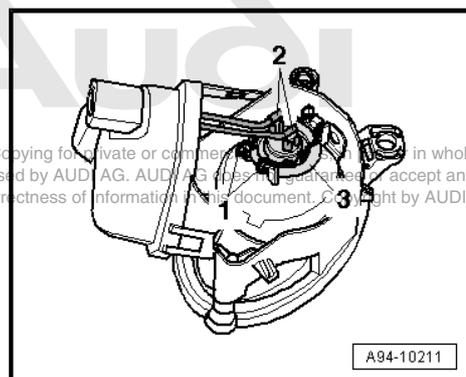


- Unplug electrical connectors -2- at bulb.
- Disengage retaining clip -1- and take bulb -3- out of housing.

### Installing

Installation is carried out in the reverse order; note the following:

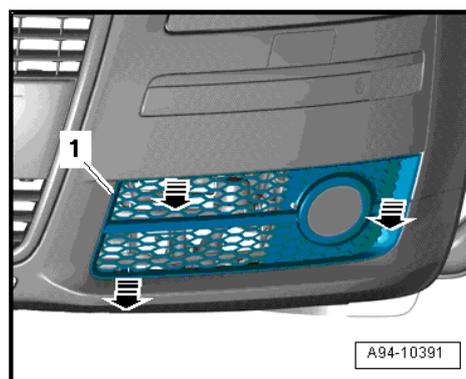
- Fit new bulb (H7 - 12 V, 55 W) in housing; do not touch the glass part of the bulb with bare hands.
- Secure bulb with retaining clip.
- Plug in connectors and close housing cover.
- Adjust fog lights ⇒ [page 204](#) .



## 7.4 Removing and installing fog lights - Audi S8

### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Pull out air intake grille -1- in bottom section of bumper cover -arrows-.



- Remove bolts -1- and -2-.
- Turn fog light housing -3- anti-clockwise on left-side of vehicle -arrow- and clockwise on right-side.
- Take fog light housing out of bumper cover.
- Unplug electrical connector.

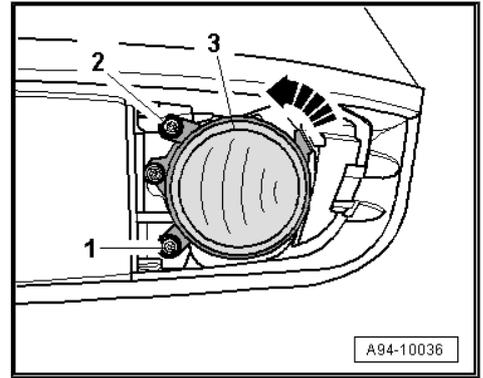
**Installing**

Installation is carried out in the reverse order; note the following:

- Adjust fog lights => [page 204](#) .

**Tightening torque**

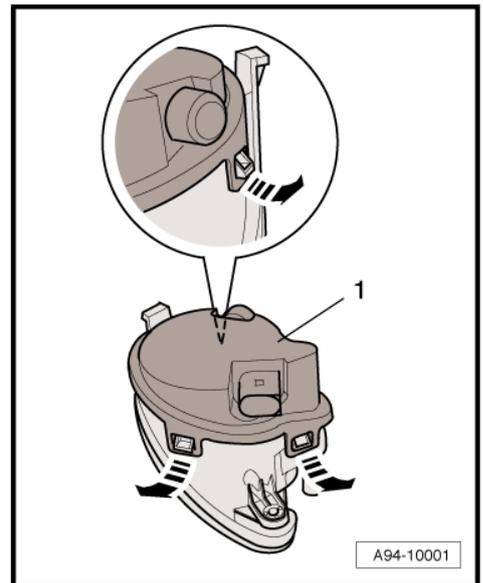
Component	Nm
Fog light housing to bumper cover	1.5



**7.5 Renewing fog light bulb - Audi S8**

**Removing**

- Remove fog light => [page 202](#) .
- Release retaining tabs -arrows- on cover cap -1-.

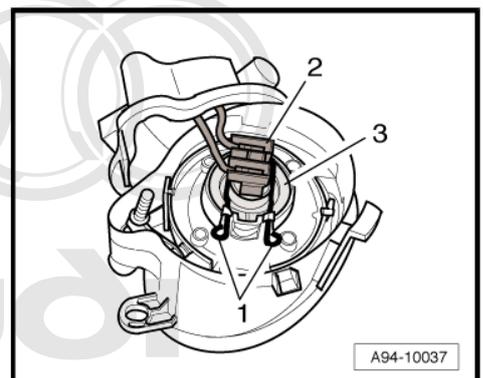


- Unplug electrical connector -2- at bulb.
- Disengage retaining clip -1- and take bulb -3- out of housing.

**Installing**

Installation is carried out in the reverse order; note the following:

- Fit new bulb (H7 - 12 V, 55 W – W5W Longlife) in housing; do not touch the glass part of the bulb with bare hands.
- Secure bulb with retaining clip.
- Plug in connectors and close housing cover.
- Adjust fog lights => [page 204](#) .

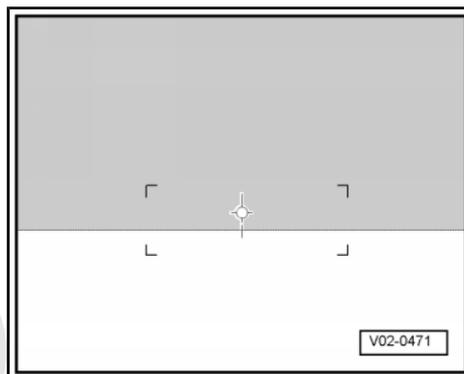


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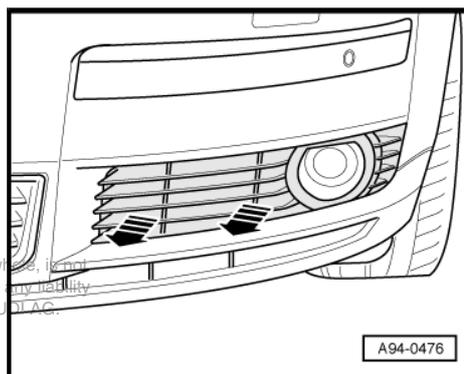
## 7.6 Adjusting fog lights

Dip setting:

- ◆ Fog lights: 2.0 %. The percentage value is for a range of 10 m.  
Example: Converting a dip setting of 2.0% = 20 cm.
- Check whether upper light-dark border touches setting line and ensure that it runs horizontally across the entire width of the measuring screen.



- Detach air inlet grille in lower section of bumper -arrows-.

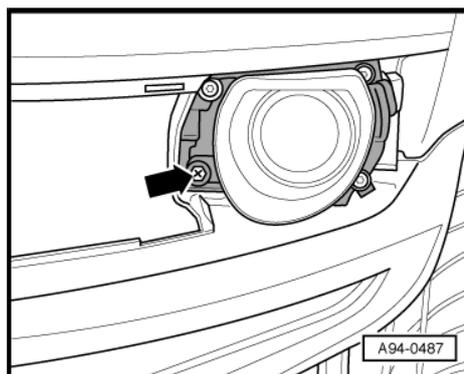


- Turn adjuster screw -arrow- to adjust height; lateral adjustment is not possible.



### Note

*The illustration shows the left fog light. The location of the adjuster screw is symmetrically opposite on the right fog light.*

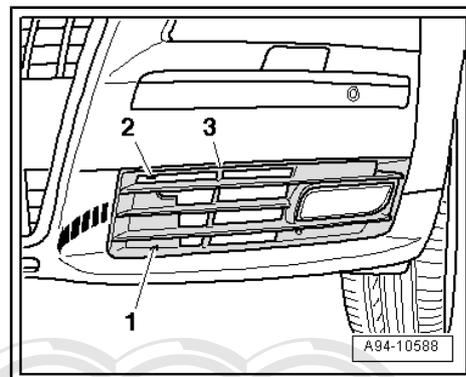


## 8 Fog lights - vehicles from 09.2007 onwards

### 8.1 Removing and installing fog lights

#### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position “0”.
- Release retaining tabs -1- and -2- and pull out air inlet grille in lower section of bumper cover -arrow-.



- Unscrew bolts -arrows- and take fog light housing -1- out of bumper cover.
- Unplug electrical connector.

#### Installing

Installation is carried out in the reverse order; note the following:

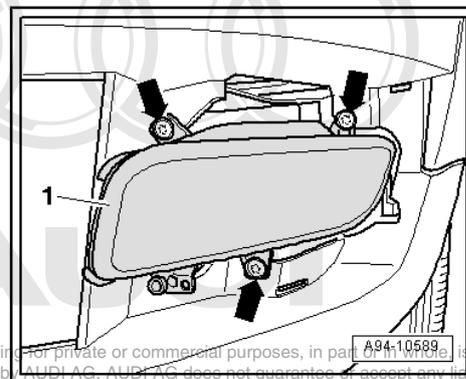


#### Note

*Position washers between fog light housing and bumper cover when positioning outer bolts.*

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- Adjust fog lights ⇒ [page 206](#) .



#### Tightening torque

Component	Nm
Fog light housing to bumper cover	2.3

### 8.2 Renewing fog light bulb

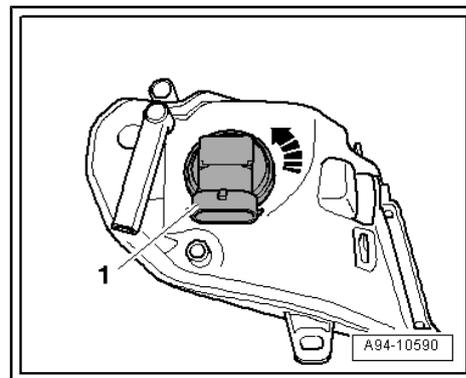
#### Removing

- Remove fog light ⇒ [page 205](#) .
- Turn bulb -1- anti-clockwise -arrow- and pull it out of fog light housing.

#### Installing

Installation is carried out in the reverse order; note the following:

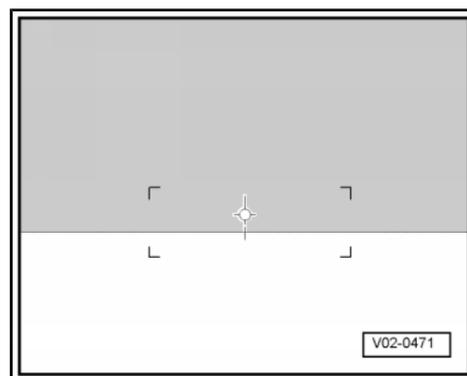
- Do not touch glass bulb with bare hands.
- Secure bulb by turning in clockwise direction.
- Adjust fog lights ⇒ [page 206](#) .



## 8.3 Adjusting fog lights

Dip setting:

- ◆ Fog lights: 2.0 %. The percentage value is for a range of 10 m.  
Example: Converting a dip setting of 2.0% = 20 cm.
- Check whether upper light-dark border touches setting line and ensure that it runs horizontally across the entire width of the measuring screen.
- The adjuster screw can be accessed through a hole in the air intake grille.
- Turn adjuster screw to adjust height; lateral adjustment is not possible.



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## 9 Turn signal repeaters - vehicles up to 08.2007

### 9.1 Removing and installing turn signal repeater

#### Removing

- Switch off ignition and take out ignition key.
- Unfasten and push aside rear section of front wheel housing liner in area of turn signal repeater ⇒ Rep. gr. 66 .
- Press down retainers -arrows- at turn signal housing -1- and carefully take turn signal out of opening in wing.
- Unplug electrical connector -2-.

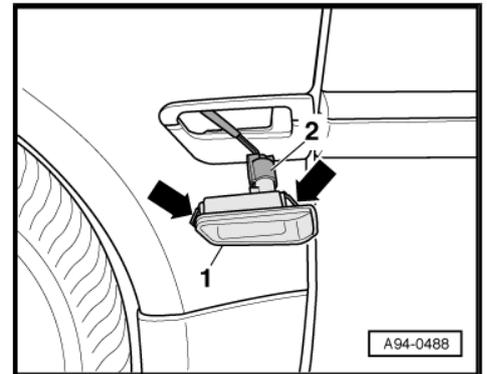


#### Note

*Turn signal repeater must be renewed as a complete unit if LED is defective.*

#### Installing

Install in reverse order.



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## 10 Turn signal repeaters - vehicles from 09.2007 onwards

### 10.1 Turn signal in exterior mirror - exploded view

1 - Mirror glass

2 - Mounting for mirror adjustment unit

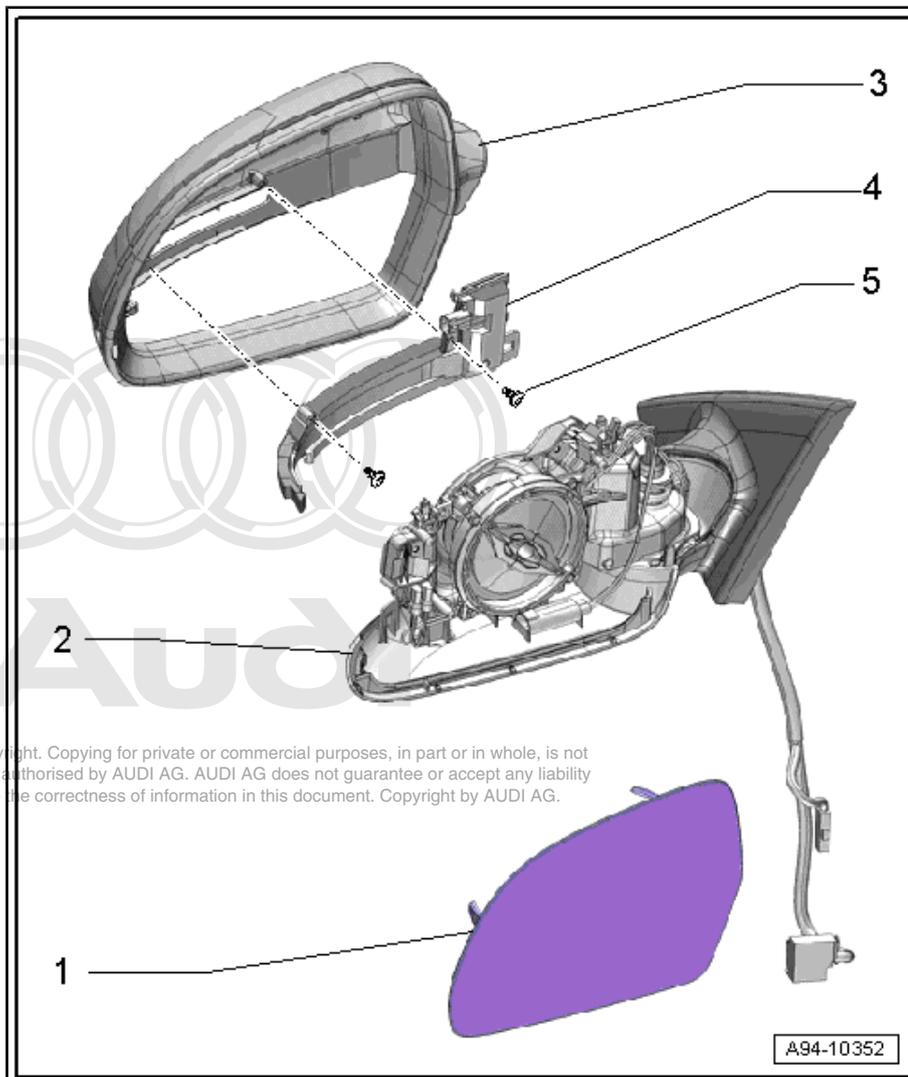
3 - Exterior mirror housing

4 - Exterior mirror turn signal bulb

- Driver side exterior mirror turn signal bulb - L131-
- Front passenger side exterior mirror turn signal bulb - L132-
- Removing and installing ⇒ [page 208](#)

5 - Bolt

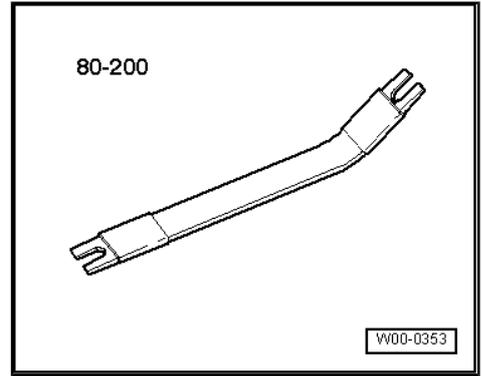
- 0.9 Nm



### 10.2 Removing and installing exterior mirror turn signal bulb -L131- / -L132-

Special tools and workshop equipment required

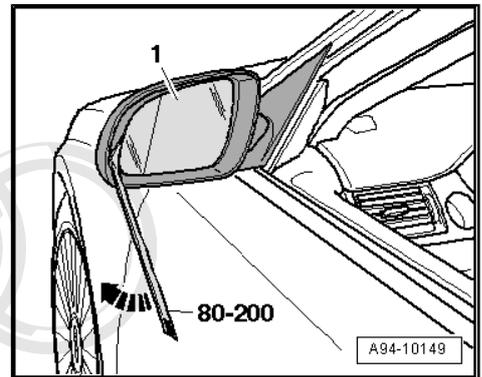
◆ Removal lever - 80 - 200-



◆ Protective gloves

Removing

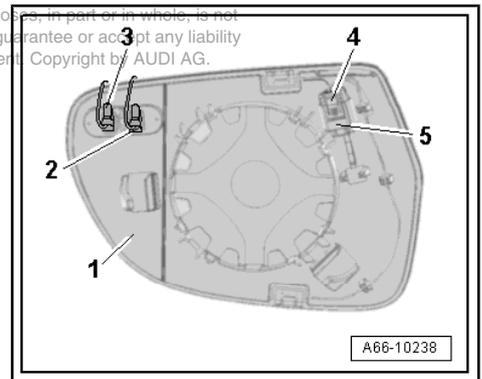
**⚠ WARNING**  
*Risk of injury.*  
 ◆ *Wear protective gloves.*



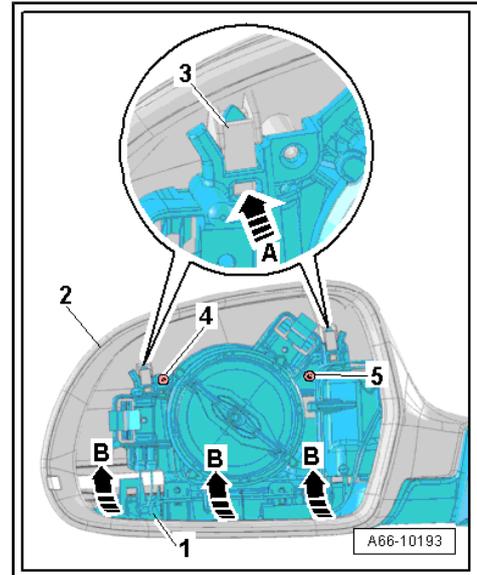
**i Note**

Mask the area around the mirror housing with a soft cloth to protect the paintwork.

- Pry mirror glass -1- off mirror adjustment unit using removal lever - 80 - 200- -arrow-.
- Unplug electrical connectors -2- and -3- for mirror glass heating on rear side of mirror glass -1-.
- Unclip electrical connector -5- from retainer, if fitted.
- Unplug electrical connector -4-.

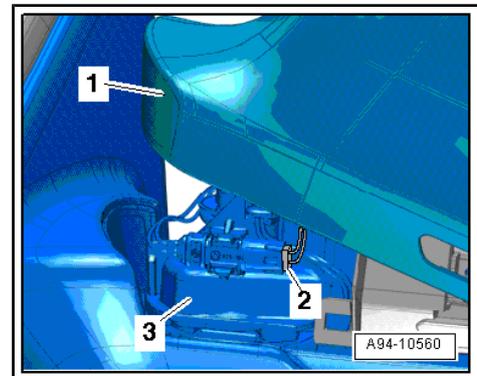


- Remove bolts -4- and -5-.
- Release retaining tabs -3- in direction of -arrow A-.
- Release retaining clip -1- and detach exterior mirror housing from cover -2- -arrows B-.



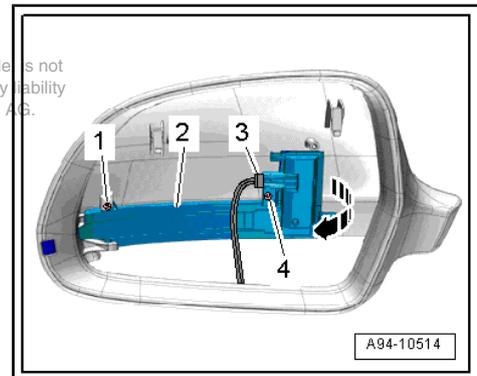
**Vehicles with lane change assist:**

- Press mirror adjustment unit downwards and lift exterior mirror housing -1- off slightly.
- Unplug electrical connector -2- for lane change assist warning lamp at front side of mounting -3- for mirror adjustment unit.



**All vehicles (continued):**

- Press mirror adjustment unit downwards and lift off exterior mirror housing.
- Unplug electrical connector -3- for exterior mirror turn signal bulb.
- Remove bolts -1- and -4-.
- Swivel housing -2- for turn signal bulb out of exterior mirror housing -arrow-.



## Installing

- Tightening torques ⇒ [page 208](#) and ⇒ Rep. gr. 66

Installation is carried out in the reverse order; note the following:

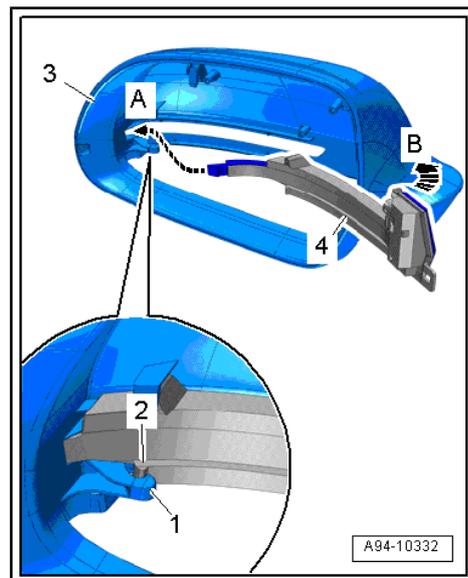
### Note

*Entire turn signal in exterior mirror must be renewed as a complete unit if an LED is defective.*

- Insert tip of turn signal repeater in slot in housing -3- for exterior mirror -arrow A-.
- Swivel housing -4- for turn signal bulb into exterior mirror housing -arrow B-; locking lug -2- must engage in mounting -1-.
- Fit mirror glass onto mirror adjustment unit and press mirror glass into place.

### Note

*When pressing on the mirror glass, apply pressure in the centre of the mirror only.*



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## 11 Entry light in exterior mirror - vehicles up to 08.2007

### 11.1 Removing and installing entry light in exterior mirror -W52- / -W53-

#### Special tools and workshop equipment required

- ◆ Removal lever - 80 - 200-

- ◆ Protective gloves

#### Removing



#### WARNING

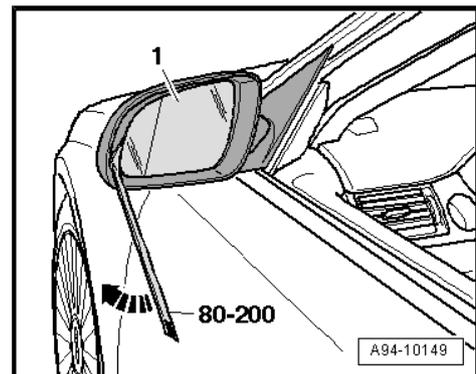
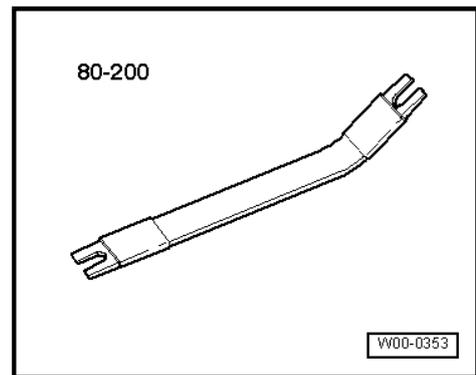
*Wear protective gloves.*



#### Note

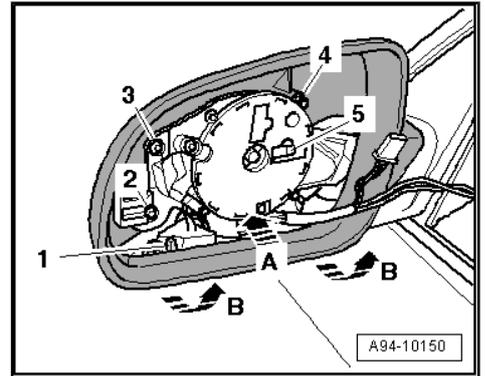
*Mask the area around the mirror housing with a soft cloth to protect the paintwork.*

- Use removal lever - 80 - 200- to press mirror glass -1- out of mirror adjuster -arrow-.
- Unplug electrical connectors -2-.
- Take connector -1- out of retainer at mirror glass.



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- Press down adjustment surface -5- for mirror glass -arrow A-.
- Unscrew bolts -2 ... 4-.
- Release retaining clip -1- at cover.
- Pull housing upwards off cover and detach from mirror mounting -arrows B-.



- Remove bolt -arrow- for cover/mirror mounting -5-.
- Unscrew bolts -1- and -3- and disengage entry light -4- in exterior mirror at cover.
- Unplug electrical connector -2-.

### Installing

Installation is carried out in the reverse order; note the following:

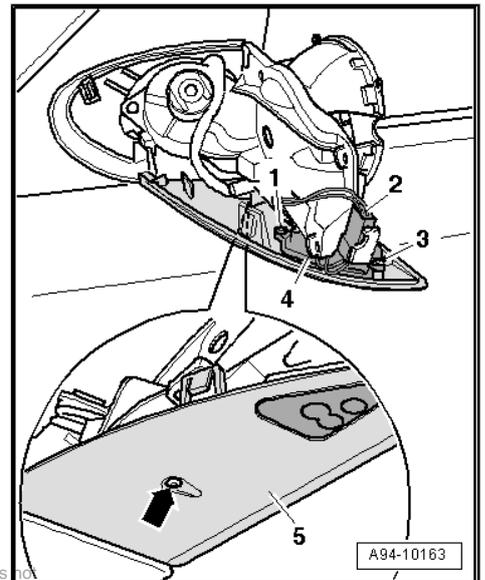
 **Note**

*Entire entry light in exterior mirror must be renewed as a complete unit if LED is defective.*

- Fit mirror glass onto mirror adjustment unit and press mirror glass into place.

 **Note**

*When pressing on the mirror glass, apply pressure in the centre of the mirror only.*



### Tightening torques

Component	Nm
LED for entry light in exterior mirror to cover	1
Cover to mirror mounting	1

## 12 Entry light in exterior mirror - vehicles from 09.2007 onwards

### 12.1 Entry light in exterior mirror - exploded view

1 - Cover (bottom)

2 - Entry light in exterior mirror

- Driver side entry light in exterior mirror - W52-
- Front passenger side entry light in exterior mirror - W53-
- Removing and installing  
[=> page 214](#)

3 - Bolt

- 1 Nm

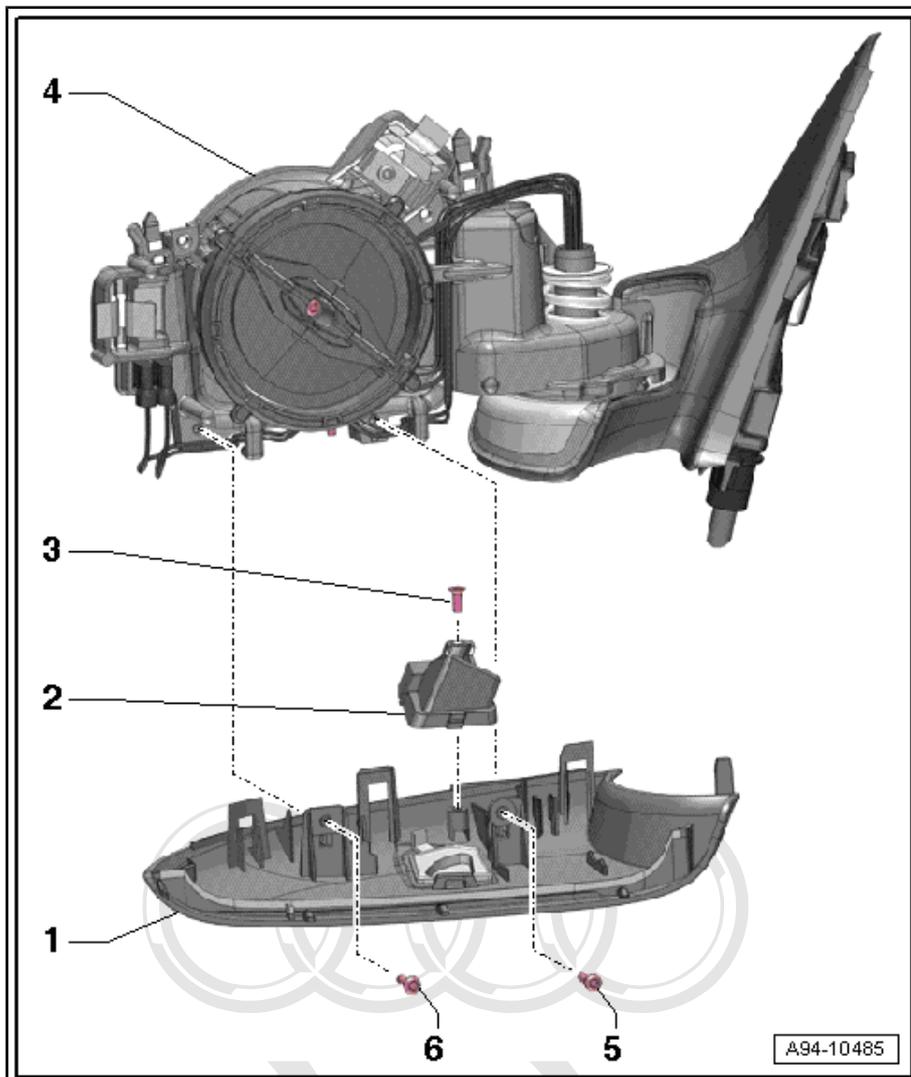
4 - Mounting for mirror adjustment unit

5 - Bolt

- 1 Nm

6 - Bolt

- 1 Nm

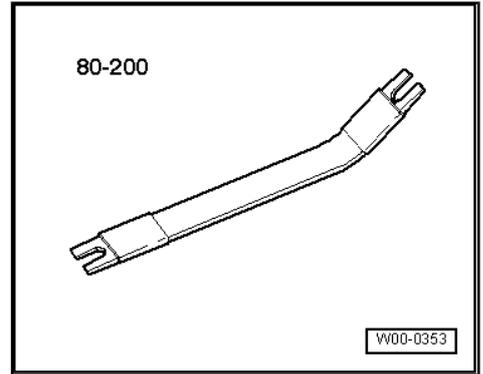


### 12.2 Removing and installing entry light in exterior mirror -W52- / -W53-

**Special tools and workshop equipment required**

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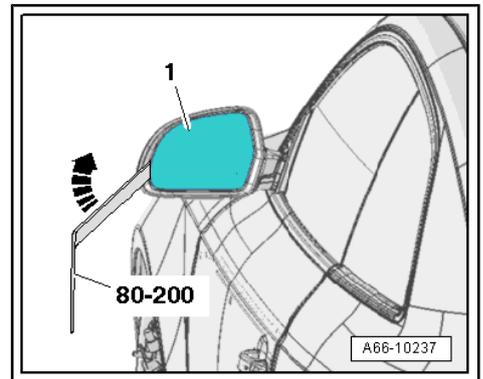
◆ Removal lever - 80 - 200-



◆ Protective gloves

Removing

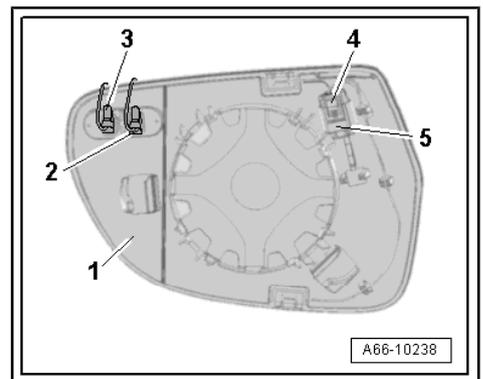
 **WARNING**  
*Risk of injury.*  
 ◆ *Wear protective gloves.*



 **Note**

*Mask the area around the mirror housing with a soft cloth to protect the paintwork.*

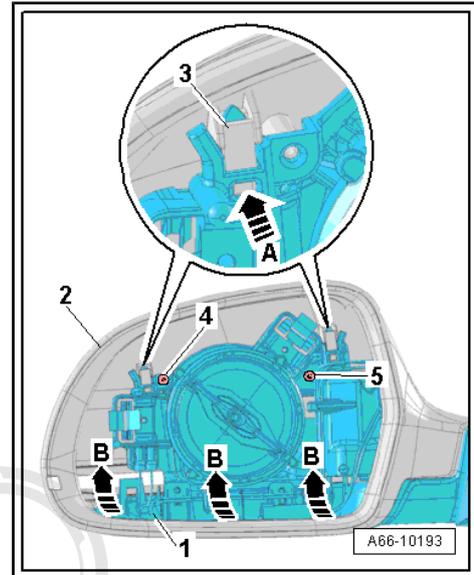
- Pry mirror glass -1- off mirror adjustment unit using removal lever - 80 - 200- -arrow-.
- Unplug electrical connectors -2- and -3- for mirror glass heating on rear side of mirror glass -1-.
- Unclip electrical connector -5- from retainer, if fitted.
- Unplug electrical connector -4-.



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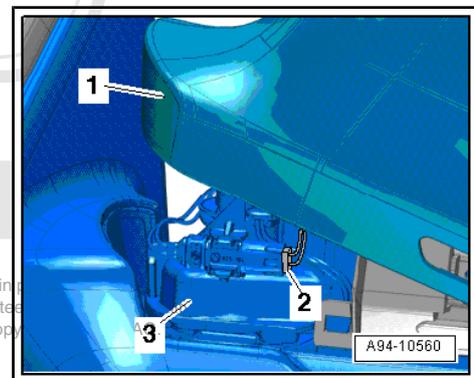
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- Remove bolts -4- and -5-.
- Release retaining tabs -3- in direction of -arrow A-.
- Release retaining clip -1- and detach exterior mirror housing -2- from cover -arrows B-.



**Vehicles with lane change assist:**

- Press mirror adjustment unit downwards and lift exterior mirror housing -1- off slightly.
- Unplug electrical connector -2- for lane change assist warning lamp at front side of mounting -3- for mirror adjustment unit.



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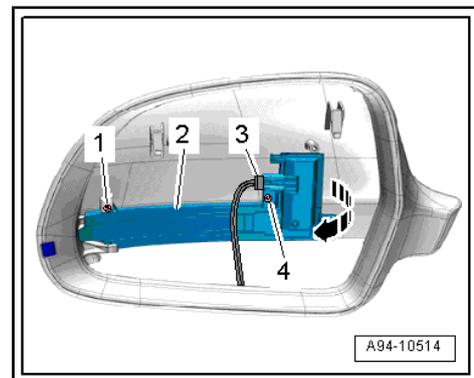
**All vehicles (continued):**

- Lift exterior mirror housing and unplug electrical connector -3- for LED -2- in exterior mirror.

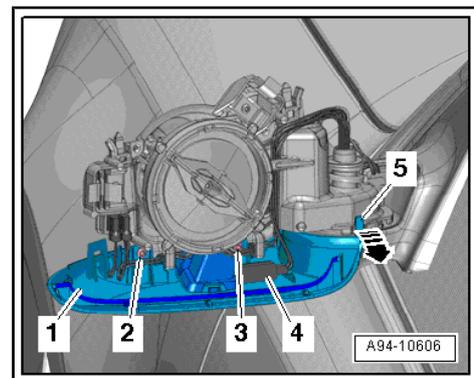


**Note**

*Disregard -items 1, 4- and -arrow-.*



- Remove bolts -2- and -3-.
- Release retaining tab -5- and detach cover/mirror mounting -1-.
- Unplug electrical connector -4-.



- Remove bolt -3-.
- Disengage entry light -2- at retaining tab -1- -arrow- and re-move.

#### Installing

- Tightening torque ⇒ [page 214](#)

Installation is carried out in the reverse order; note the following:

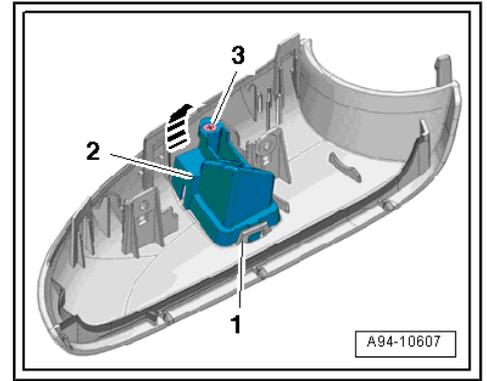
 **Note**

*Entire entry light in exterior mirror must be renewed as a complete unit if LED is defective.*

- Fit mirror glass onto mirror adjustment unit and press mirror glass into place.

 **Note**

*When pressing on the mirror glass, apply pressure in the centre of the mirror only.*



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## 13 Exterior door handle lighting

### 13.1 Removing and installing exterior door handle lighting

#### Removing



#### Note

All cable ties unfastened or cut open during removal must be re-attached in same position when installing.

- Remove relevant door trim ⇒ Rep. gr. 70 .
- Remove relevant door window.
- ◆ Front ⇒ Rep. gr. 57
- ◆ Rear ⇒ Rep. gr. 58
- Remove relevant door handle.
- ◆ Front ⇒ Rep. gr. 57
- ◆ Rear ⇒ Rep. gr. 58
- Release the two retaining clips in direction of -arrow- and take exterior door handle lighting -1- out of door handle -2-.

#### Installing

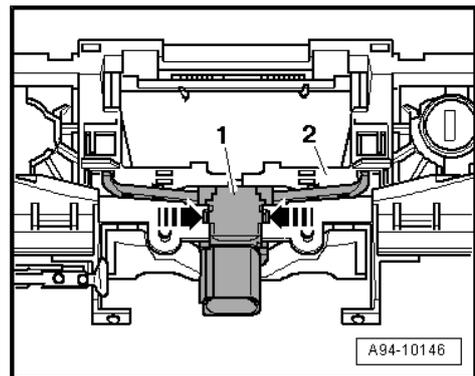
Installation is carried out in the reverse order; note the following:



#### Note

Refit all cable ties at the same locations when reinstalling.

- Install relevant door handle.
- ◆ Front ⇒ Rep. gr. 57
- ◆ Rear ⇒ Rep. gr. 58
- Install relevant door window.
- ◆ Front ⇒ Rep. gr. 57
- ◆ Rear ⇒ Rep. gr. 58



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## 14 Outer tail light cluster - vehicles up to 08.2007

Observe notes on contact corrosion ⇒ [page 125](#) .

### 14.1 Outer tail light cluster - exploded view

#### 1 - Stud

- Screwed into side panel
- For aligning tail light cluster with body contour

#### 2 - LED printed circuit boards

- Removing and installing ⇒ [page 220](#)

#### 3 - 1 Nm

#### 4 - Control unit

- Left tail light control unit - J690-
- Right tail light control unit - J691-
- Removing and installing ⇒ [page 221](#)

#### 5 - Housing cover

- For outer tail light cluster

#### 6 - 1 Nm

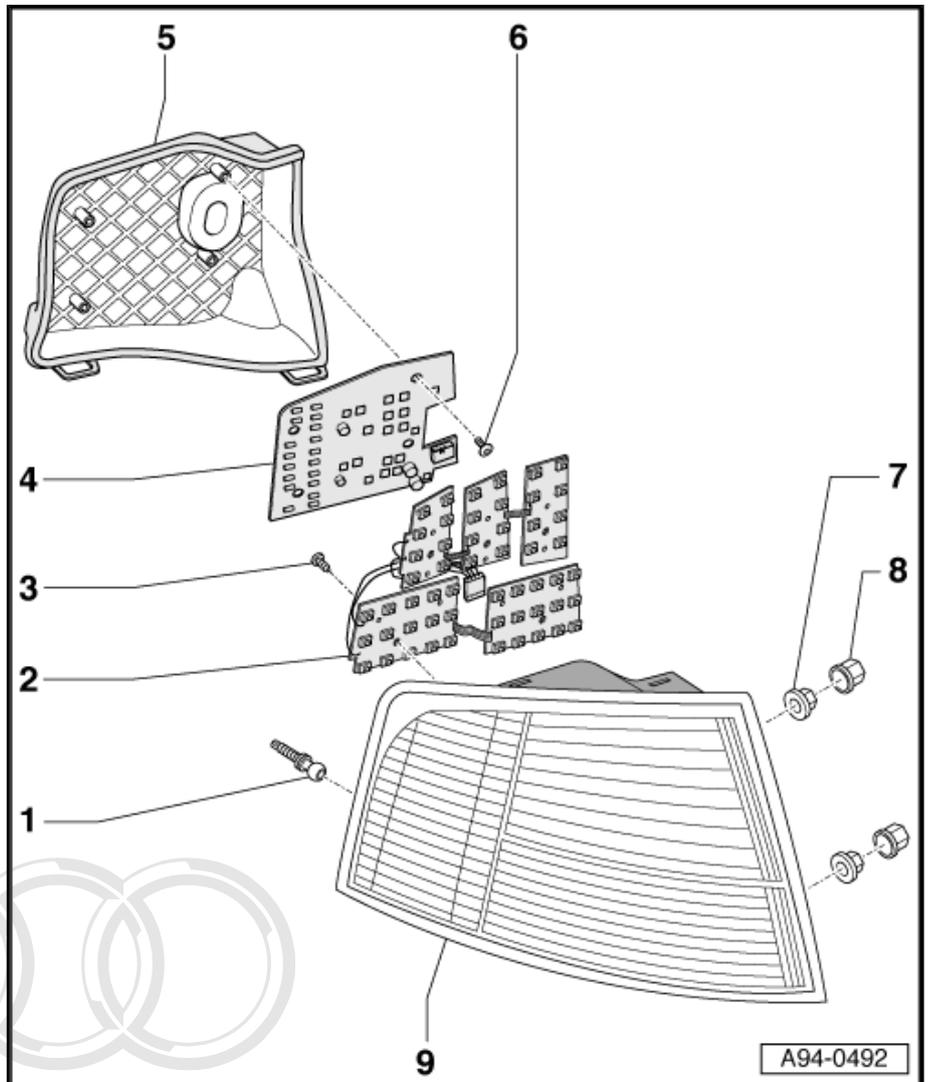
#### 7 - Adjuster nut

- With sealing washer
- For aligning tail light cluster with body contour

#### 8 - 3 Nm

#### 9 - Housing

- Removing and installing ⇒ [page 220](#)
- Aligning with body contour ⇒ [page 221](#)



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## 14.2 Removing and installing outer tail light cluster

### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Unclip plugs -arrows- from luggage compartment lining.
- Unscrew nuts -2-.
- Slide tail light cluster outwards and disengage from retaining pin at body.
- Unplug electrical connector at tail light cluster.

### Installing

Installation is carried out in the reverse order; note the following:



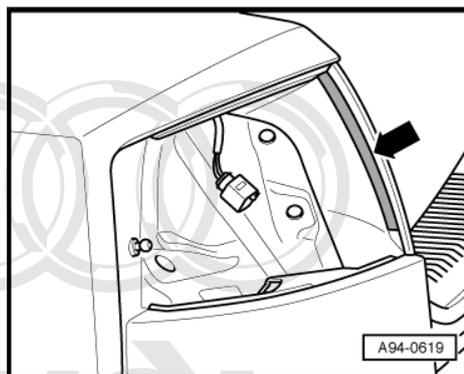
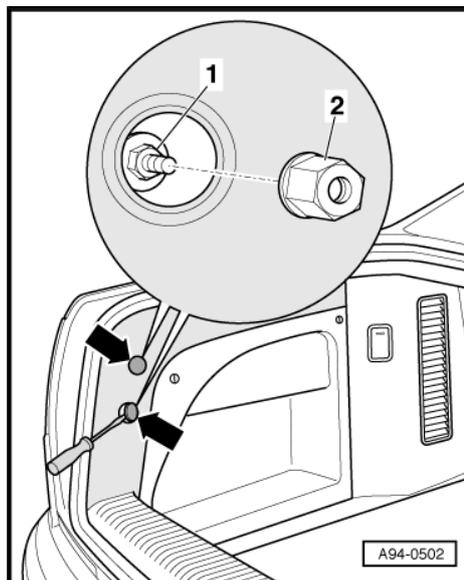
#### Note

*Renew adjuster nuts if sealing washers are damaged.*

- Remove double-sided adhesive tape -arrow- at body cover panel and tail light cluster.
- Attach new adhesive strip and remove protective film.
- Position tail light cluster on retaining pin from outside and press towards centre of vehicle until it engages.
- Press body cover panel onto tail light cluster so that double-sided adhesive tape becomes attached.

### Tightening torque

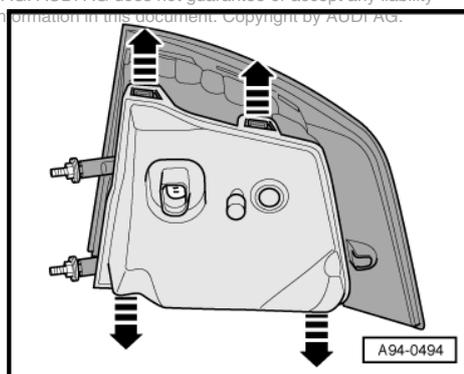
Component	Nm
Tail light to body	3



## 14.3 Removing and installing LED printed circuit boards for tail light cluster

### Removing

- Remove outer tail light cluster => [page 220](#) .
- Press catches apart -arrows- and detach housing cover.
- Unplug electrical connector.



- Unscrew bolts -1 ... 5-
- Take LED printed circuit boards out of tail light cluster.

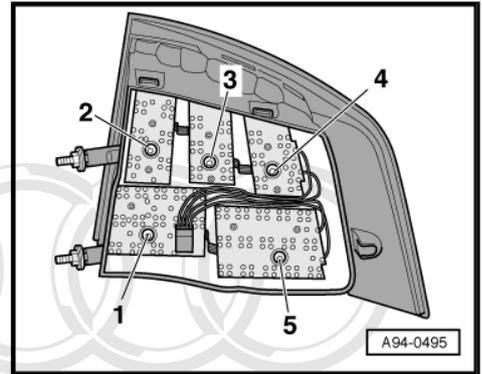
**Installing**

Installation is carried out in the reverse order; note the following:

- Install outer tail light cluster => [page 220](#) .

**Tightening torque**

Component	Nm
LED printed circuit board to tail light cluster	1

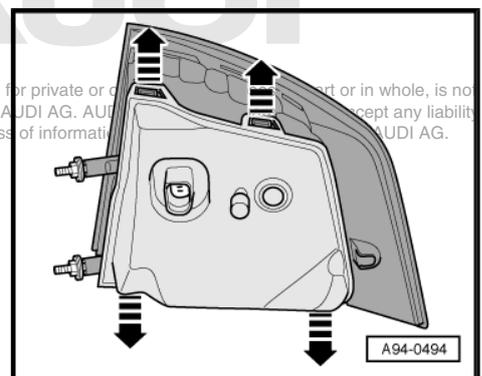


**14.4 Removing and installing tail light control unit**

**Removing**

- Remove outer tail light cluster => [page 220](#) .
- Press catches apart -arrows- and detach housing cover.
- Unplug electrical connector.

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- Unscrew bolts -arrows- and detach tail light control unit from housing cover for tail light cluster.

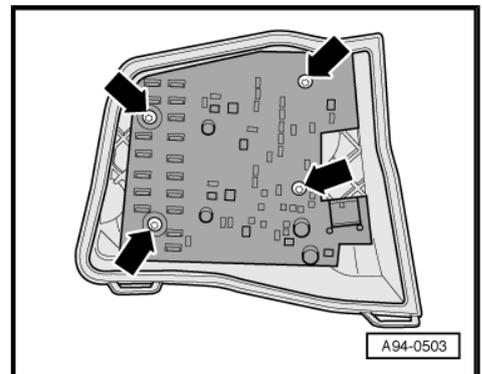
**Installing**

Installation is carried out in the reverse order; note the following:

- Install outer tail light cluster => [page 220](#) .

**Tightening torque**

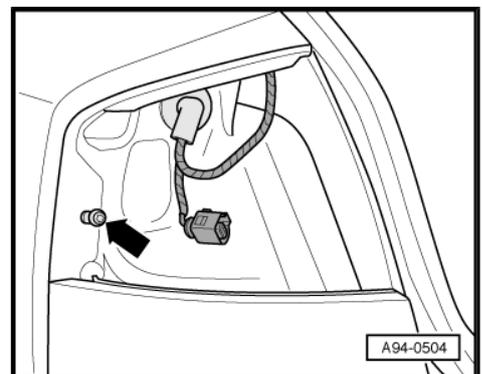
Component	Nm
Tail light control unit to housing cover	1



**14.5 Aligning tail light cluster with body contour**

**Adjustment in direction of travel:**

- Gradually screw retaining pin -arrow- in/out with tail light cluster removed => [page 220](#) .



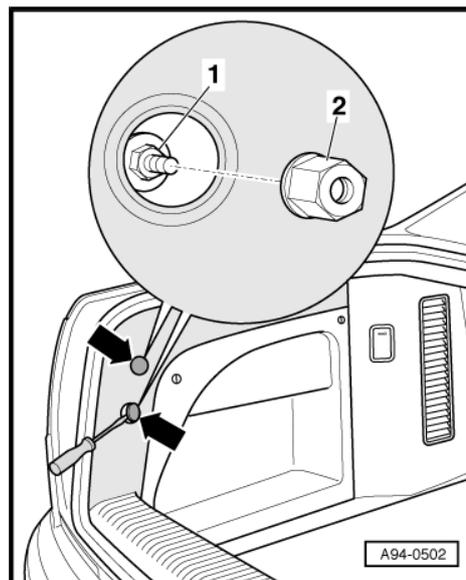


**Adjustment at right angles to direction of travel:**

- Screw adjuster nut -1- in/out after loosening nut -2-.

**Tightening torque**

Component	Nm
Tail light to body	3



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## 15 Outer tail light cluster - USA vehicles up to 08.2007

Observe notes on contact corrosion ⇒ [page 125](#) .

### 15.1 Outer tail light cluster - exploded view

#### 1 - Stud

- Screwed into side panel
- For aligning tail light cluster with body contour

#### 2 - 1 Nm

#### 3 - Control unit

- Left tail light control unit - J690-
- Right tail light control unit - J691-
- Removing and installing ⇒ [page 225](#)

#### 4 - Housing cover

- For outer tail light cluster

#### 5 - 1 Nm

#### 6 - LED printed circuit boards

- Removing and installing ⇒ [page 224](#)

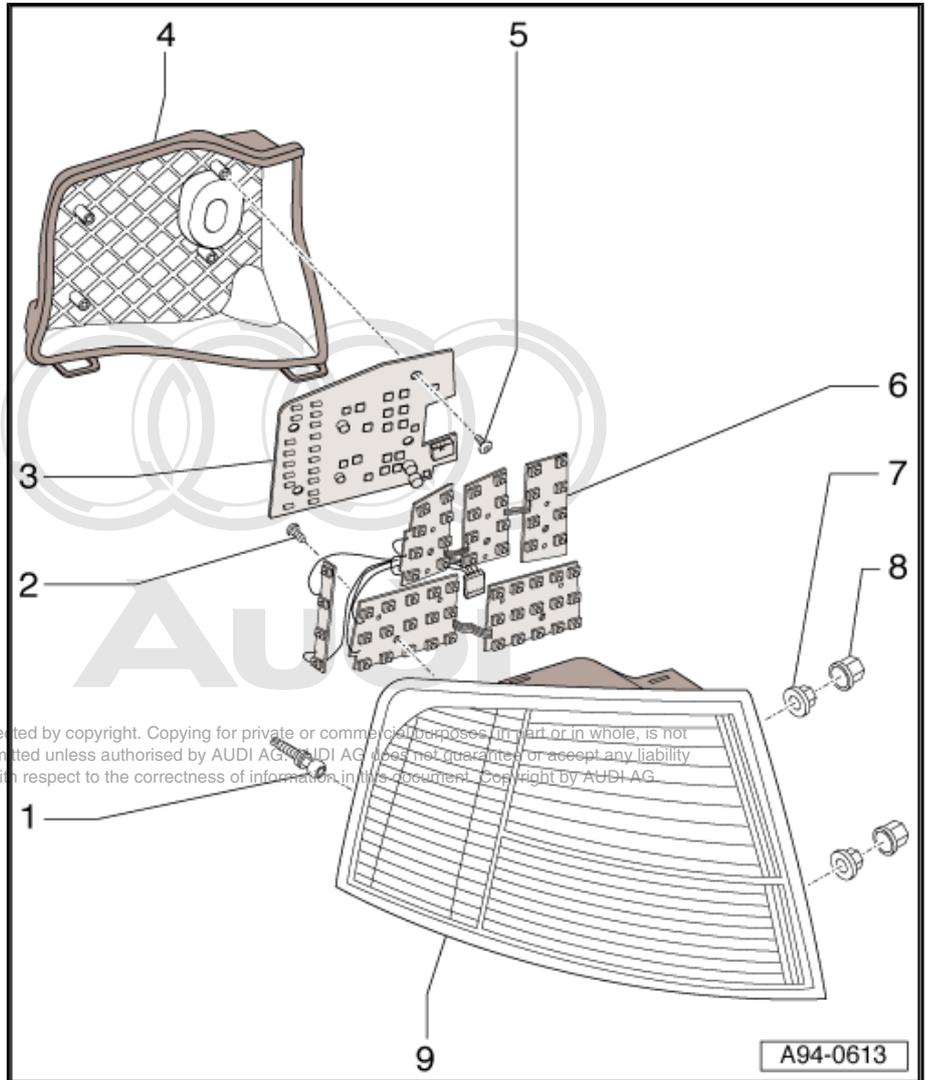
#### 7 - Adjuster nut

- With sealing washer
- For aligning tail light cluster with body contour

#### 8 - 3 Nm

#### 9 - Housing

- Removing and installing ⇒ [page 224](#)
- Aligning with body contour ⇒ [page 225](#)



## 15.2 Removing and installing outer tail light cluster

### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Unclip plugs -arrows- from luggage compartment lining.
- Unscrew nuts -2-.
- Slide tail light cluster outwards and disengage from retaining pin at body.
- Unplug electrical connector at tail light cluster.

### Installing

Installation is carried out in the reverse order; note the following:



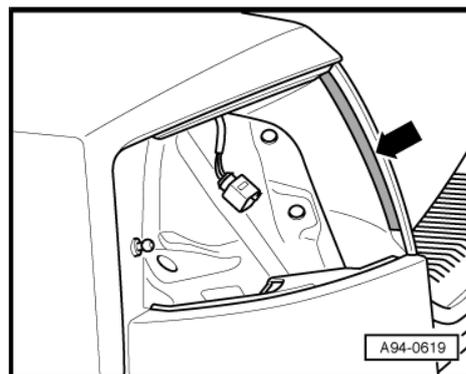
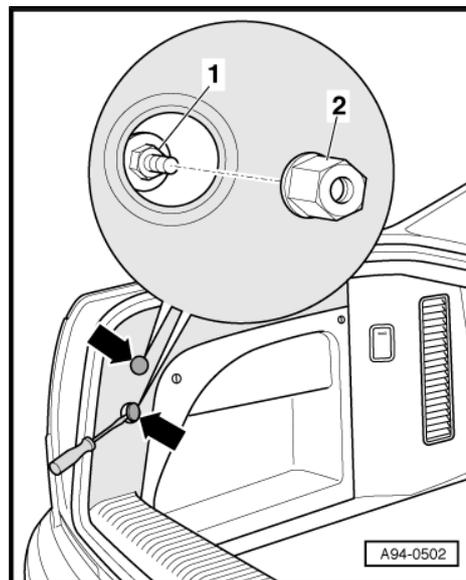
#### Note

*Renew adjuster nuts if sealing washers are damaged.*

- Remove double-sided adhesive tape -arrow- at body cover panel and tail light cluster.
- Attach new adhesive strip and remove protective film.
- Position tail light cluster on retaining pin from outside and press towards centre of vehicle until it engages.
- Press body cover panel onto tail light cluster so that double-sided adhesive tape becomes attached.

### Tightening torque

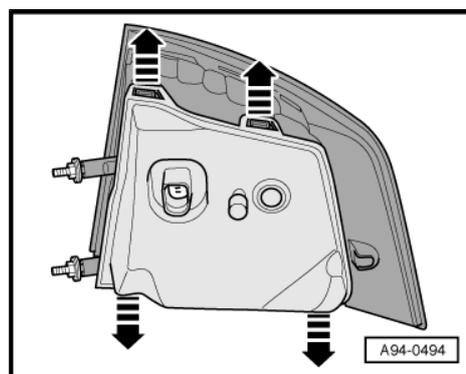
Component	Nm
Tail light to body	3



## 15.3 Removing and installing LED printed circuit boards for tail light cluster

### Removing

- Remove outer tail light cluster => [page 224](#) .
- Press catches apart -arrows- and detach housing cover.
- Unplug electrical connector.



- Unscrew bolts -1 ... 6-
- Take LED printed circuit boards out of tail light cluster.

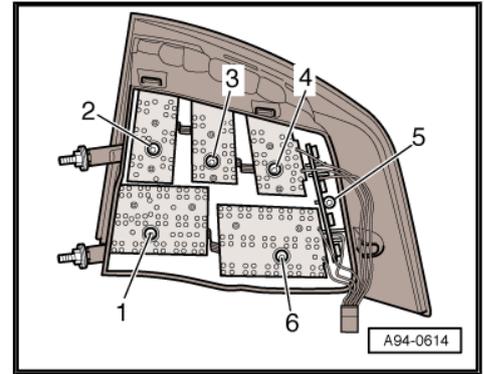
**Installing**

Installation is carried out in the reverse order; note the following:

- Install outer tail light cluster => [page 224](#) .

**Tightening torque**

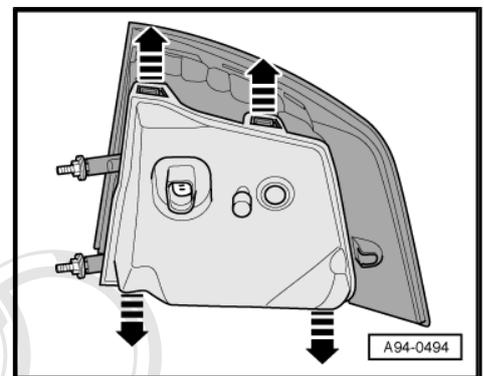
Component	Nm
LED printed circuit board to tail light cluster	1



**15.4 Removing and installing tail light control unit**

**Removing**

- Remove outer tail light cluster => [page 224](#) .
- Press catches apart -arrows- and detach housing cover.
- Unplug electrical connector.



- Unscrew bolts -arrows- and detach tail light control unit from housing cover for tail light cluster.

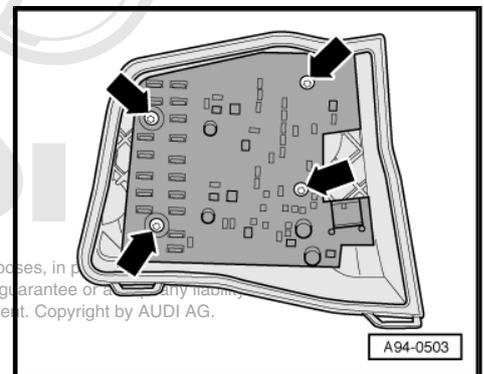
**Installing**

Installation is carried out in the reverse order; note the following:

- Install outer tail light cluster => [page 224](#) .

**Tightening torque**

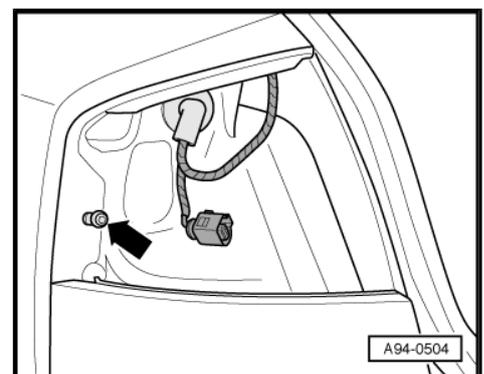
Component	Nm
Tail light control unit to housing cover	1



**15.5 Aligning tail light cluster with body contour**

**Adjustment in direction of travel:**

- Gradually screw retaining pin -arrow- in/out with tail light cluster removed => [page 224](#) .



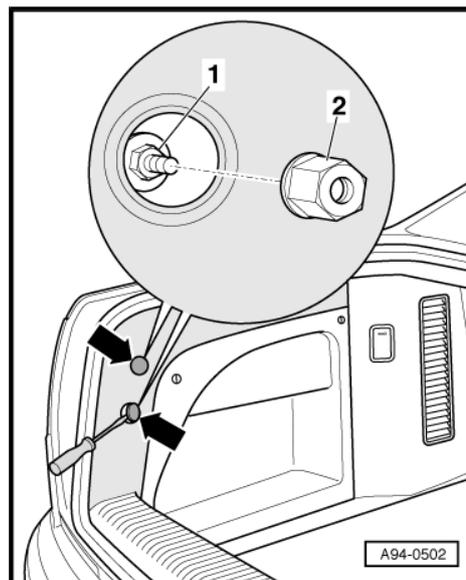


**Adjustment at right angles to direction of travel:**

- Screw adjuster nut -1- in/out after loosening nut -2-.

**Tightening torque**

Component	Nm
Tail light to body	3



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## 16 Outer tail light cluster - vehicles from 09.2007 onwards

Observe notes on contact corrosion ⇒ [page 125](#) .

### 16.1 Outer tail light cluster - exploded view

#### 1 - Tail light

- Removing and installing ⇒ [page 228](#)
- Aligning with body contour ⇒ [page 228](#)

#### 2 - Stud

- Screwed into side panel
- For aligning tail light cluster with body contour

#### 3 - Centre hex stud with hexagon head

- With sealing washer
- For aligning tail light cluster with body contour

#### 4 - Nut

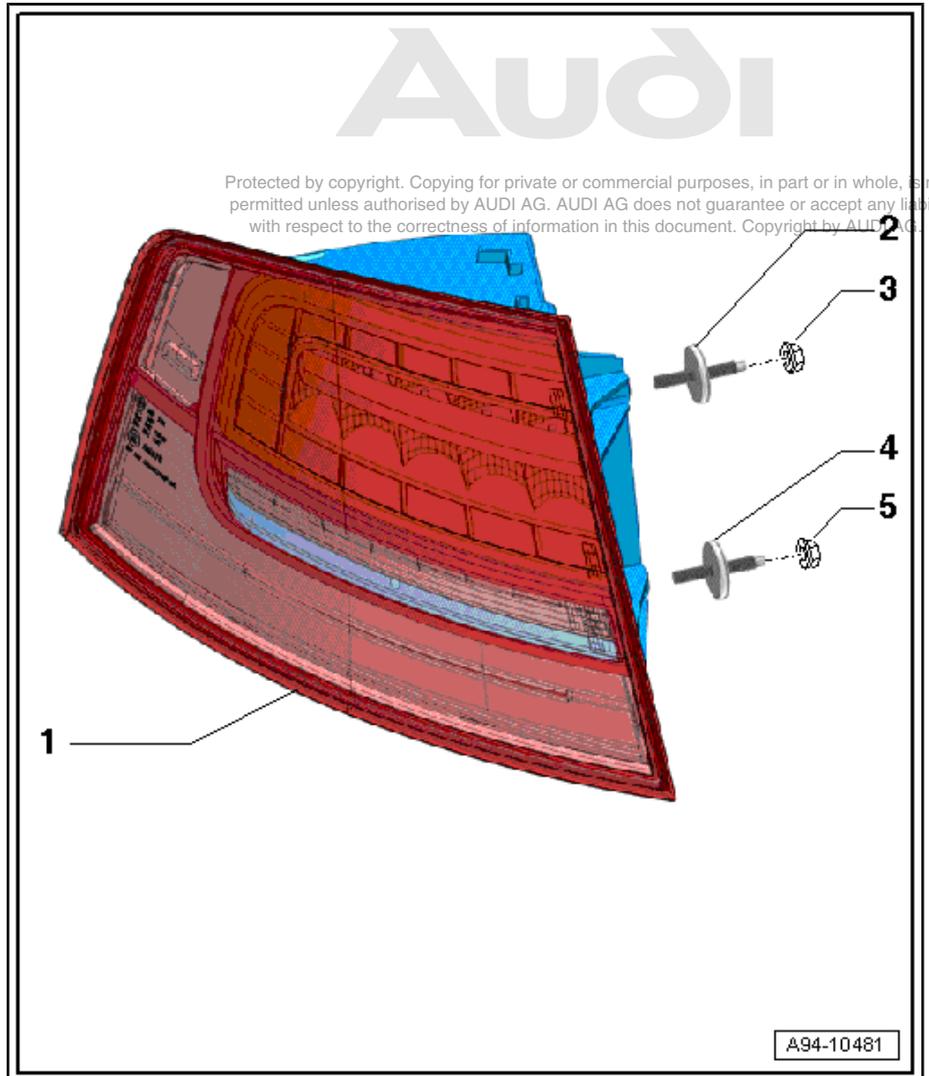
- 3 Nm

#### 5 - Nut

- 3 Nm

#### 6 - Centre hex stud with hexagon head

- With sealing washer
- For aligning tail light cluster with body contour



## 16.2 Removing and installing outer tail light cluster

### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Unclip plugs -1- and -2- from luggage compartment lining.
- Unscrew nuts -3-.
- Slide tail light cluster outwards and disengage from retaining pin at body.
- Unplug electrical connector at tail light cluster.

### Installing

Installation is carried out in the reverse order; note the following:



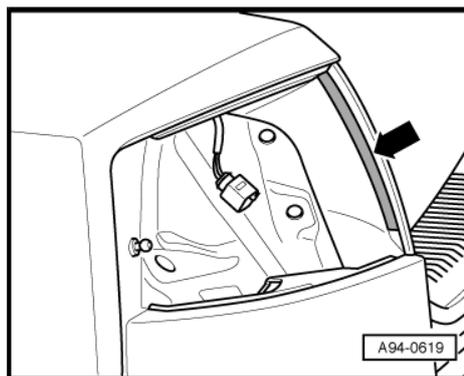
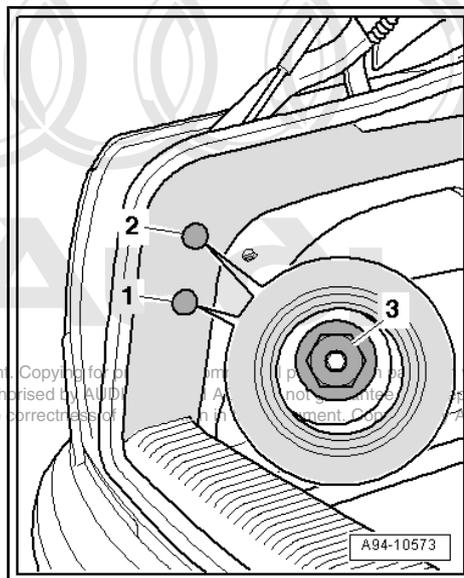
#### Note

Renew centre hex studs if sealing washers are damaged.

- Remove double-sided adhesive tape -arrow- at body cover panel and tail light cluster.
- Attach new adhesive strip and remove protective film.
- Position tail light cluster on retaining pin from outside and press towards centre of vehicle until it engages.
- Press body cover panel onto tail light cluster so that double-sided adhesive tape becomes attached.

### Tightening torque

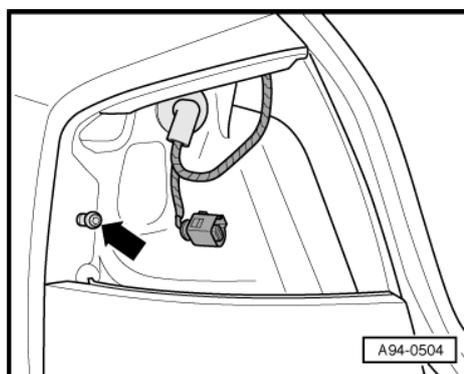
Component	Nm
Tail light to body	3



## 16.3 Aligning tail light cluster with body contour

### Adjustment in direction of travel:

- Gradually screw retaining pin -arrow- in/out with tail light cluster removed => [page 228](#).

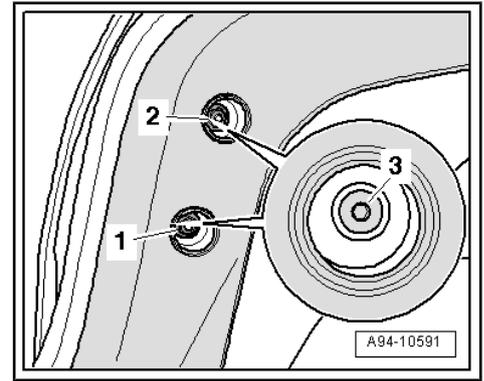


**Adjustment at right angles to direction of travel:**

- After unscrewing nuts -1- and -2- screw centre hex stud -3- in or out at hexagon head.

**Tightening torque**

Component	Nm
Tail light cluster to body	3



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## 17 Inner tail light cluster - vehicles up to 08.2007

Observe notes on contact corrosion ⇒ [page 125](#) .

### 17.1 Inner tail light cluster - exploded view

#### 1 - LED printed circuit boards

- With tail light control unit for lights on left - J692- or tail light control unit for lights on right - J693- in rear lid
- Removing and installing ⇒ [page 232](#)

#### 2 - 1 Nm

#### 3 - Reversing light bulb

- 12 V, 16 W

#### 4 - Housing cover

- For inner tail light cluster

#### 5 - 1 Nm

#### 6 - Bulb for rear fog light

- 12 V, 16 W

#### 7 - 1 Nm

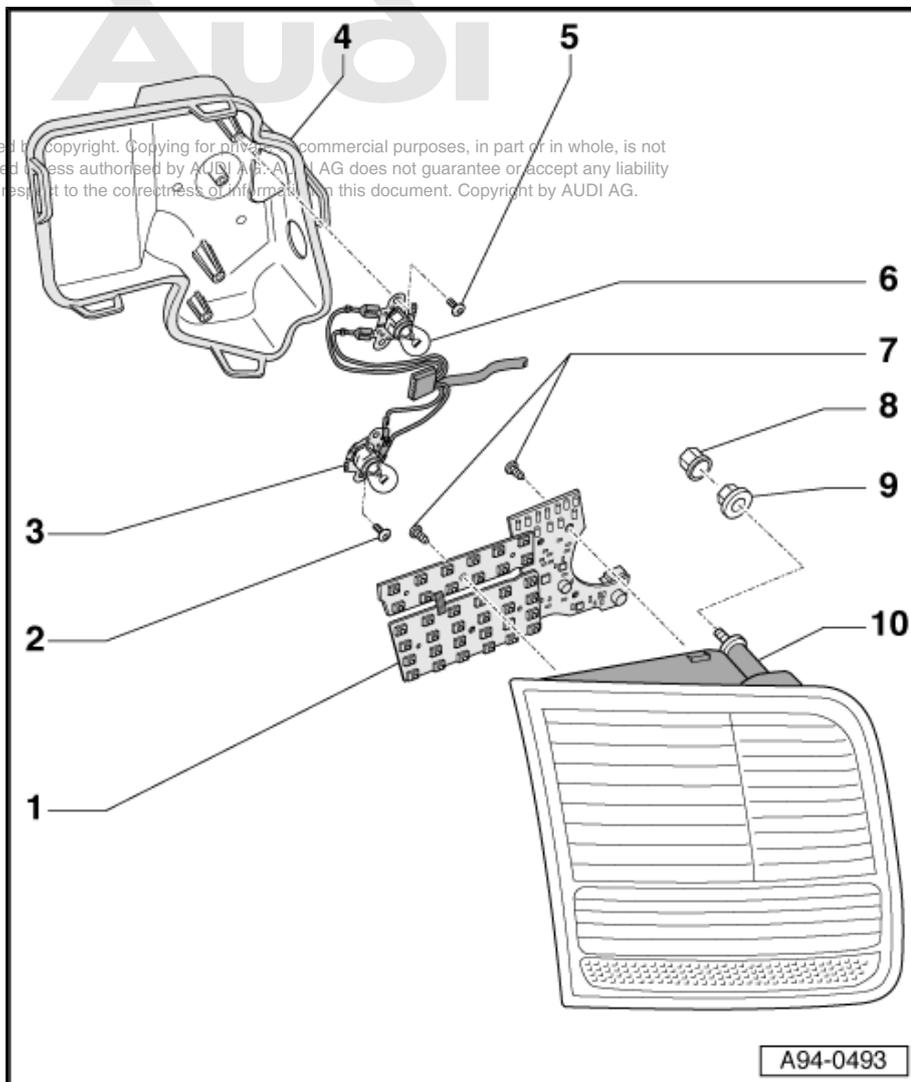
#### 8 - 3 Nm

#### 9 - Adjuster nut

- With sealing washer
- For aligning tail light cluster with body contour

#### 10 - Tail light

- Removing and installing ⇒ [page 230](#)
- Aligning with body contour ⇒ [page 232](#)



### 17.2 Removing and installing inner tail light cluster

#### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Remove rear lid trim ⇒ Rep. gr. 70 .

- Unplug electrical connector -arrow-.
- Unscrew nuts -1- and detach tail light cluster.
- If necessary, pull wire with grommet out of rear lid.

**Installing**

Installation is carried out in the reverse order; note the following:

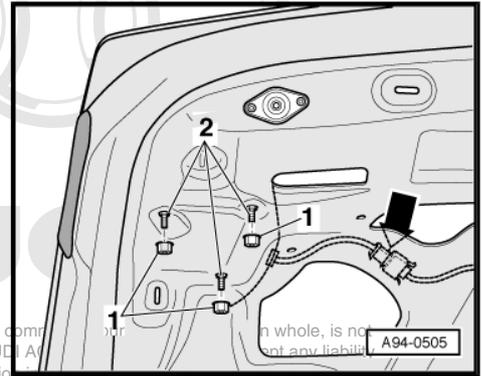
 **Note**

- ◆ *Renew adjuster nuts if sealing washers are damaged.*
- ◆ *Check for proper sealing of grommet between rear lid and wire.*

- Install rear lid trim => Rep. gr. 70 .

**Tightening torque**

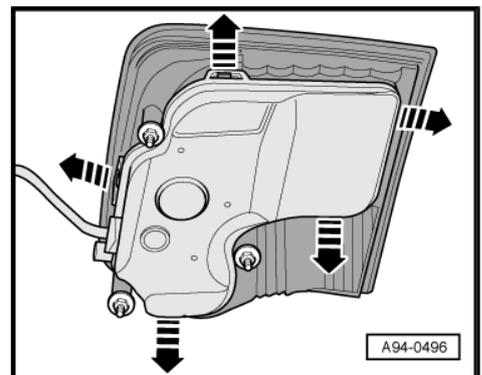
Component	Nm
Tail light cluster to rear lid	3



**17.3 Removing and installing bulb for reversing light and rear fog light**

**Removing**

- Remove inner tail light cluster => [page 230](#) .
- Press catches apart -arrows- and detach housing cover.



- Unplug electrical connectors -2-.
- Unscrew bolts -1- and detach bulb holder with bulb.

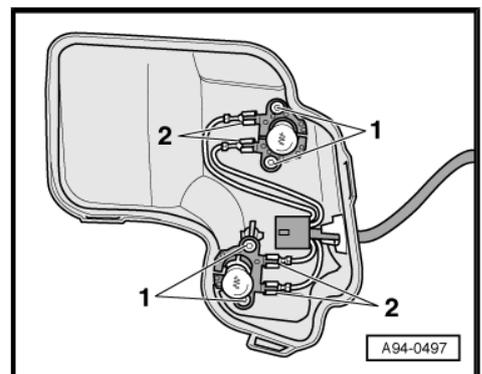
**Installing**

Installation is carried out in the reverse order; note the following:

- Install inner tail light cluster => [page 230](#) .

**Tightening torque**

Component	Nm
Bulb holder with bulb to housing cover	1



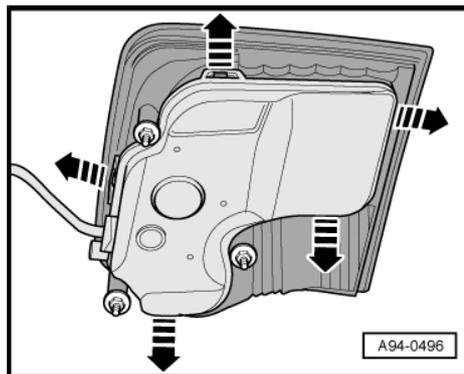
## 17.4 Removing and installing LED printed circuit boards and tail light control unit

### Note

If LED is defective, LED printed circuit boards must be renewed together with control unit.

#### Removing

- Remove inner tail light cluster ⇒ [page 230](#) .
- Press catches apart -arrows- and detach housing cover.
- Unplug electrical connector.



- Unscrew bolts -1 ... 3- and take LED printed circuit boards with control unit out of tail light cluster.

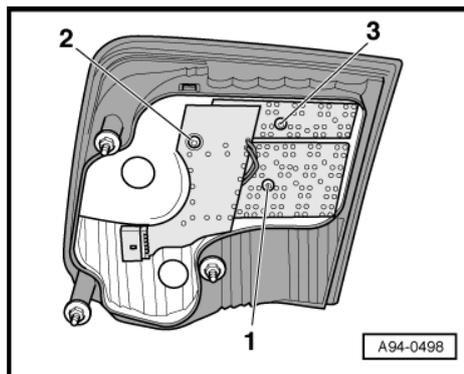
#### Installing

Installation is carried out in the reverse order; note the following:

- Install inner tail light cluster ⇒ [page 230](#) .

#### Tightening torque

Component	Nm
LED printed circuit boards and tail light control unit	1



## 17.5 Aligning tail light cluster with body contour

#### Procedure

- Remove rear lid trim ⇒ Rep. gr. 70 .

#### Adjustment at right angles to direction of travel:

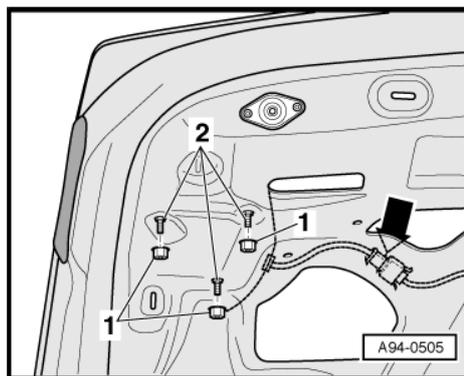
- Unfasten nut -1- and move tail light cluster as required.

#### Adjustment in direction of travel:

- Screw adjusting nuts -2- in/out after unfastening nut -1-.
- Install rear lid trim ⇒ Rep. gr. 70 .

#### Tightening torque

Component	Nm
Tail light cluster to rear lid	3



## 18 Inner tail light cluster - USA vehicles up to 08.2007

Observe notes on contact corrosion ⇒ [page 125](#) .

### 18.1 Inner tail light cluster - exploded view

#### 1 - LED printed circuit boards

- With tail light control unit for lights on left - J692- or tail light control unit for lights on right - J693- in rear lid
- Removing and installing ⇒ [page 235](#)

#### 2 - 1 Nm

#### 3 - Reversing light bulb

- 12 V, 16 W

#### 4 - Housing cover

- For inner tail light cluster

#### 5 - 1 Nm

#### 6 - Bulb for rear fog light

- 12 V, 16 W

#### 7 - 1 Nm

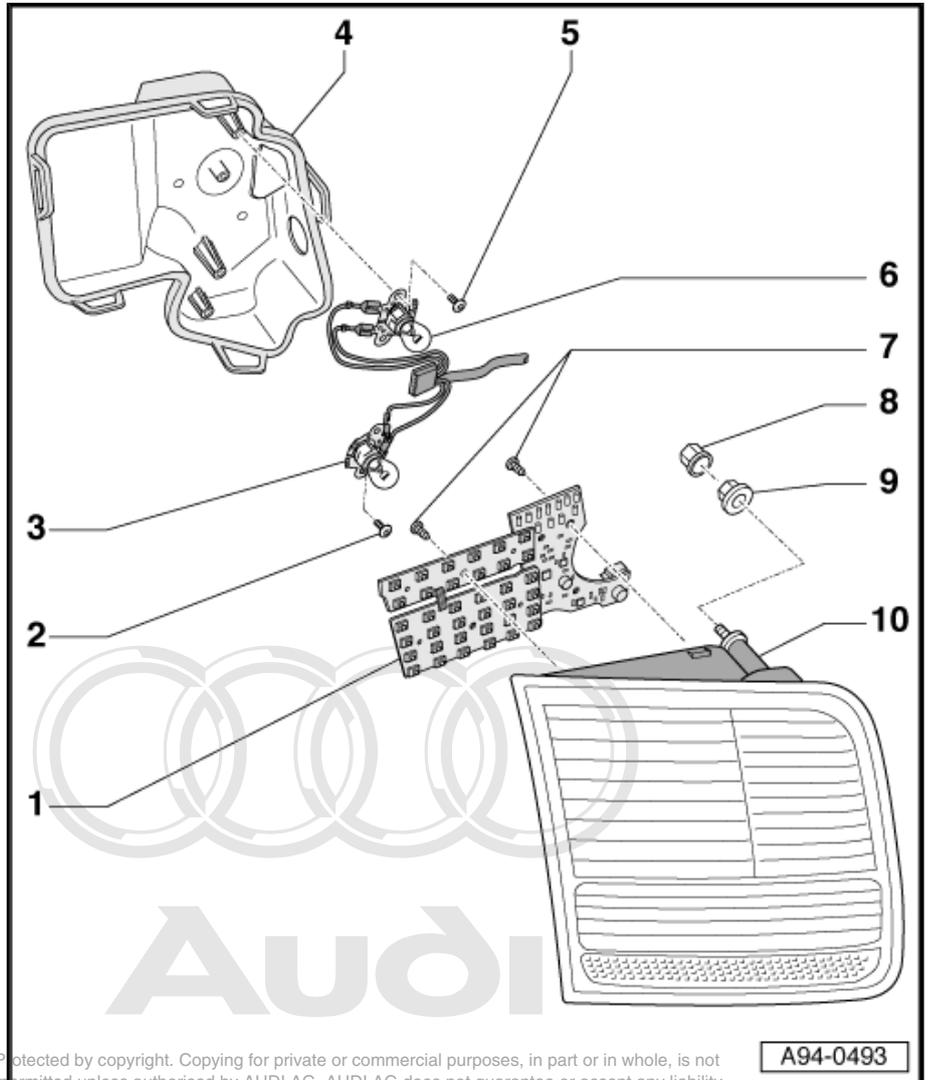
#### 8 - 3 Nm

#### 9 - Adjuster nut

- With sealing washer
- For aligning tail light cluster with body contour

#### 10 - Tail light

- Removing and installing ⇒ [page 233](#)
- Aligning with body contour ⇒ [page 235](#)



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### 18.2 Removing and installing inner tail light cluster

#### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Remove rear lid trim ⇒ Rep. gr. 70 .

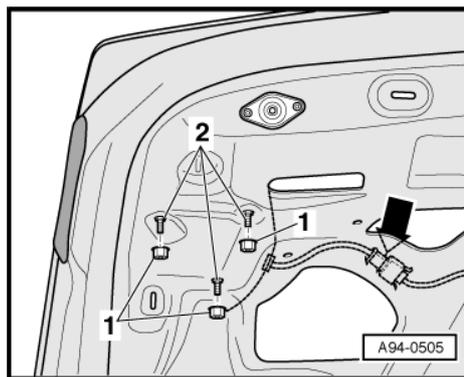
- Unplug electrical connector -arrow-.
- Unscrew nuts -1- and detach tail light cluster.
- If necessary, pull wire with grommet out of rear lid.

**Installing**

Installation is carried out in the reverse order; note the following:

**i Note**

- ◆ Renew adjuster nuts if sealing washers are damaged.
- ◆ Check for proper sealing of grommet between rear lid and wire.



- Install rear lid trim => Rep. gr. 70 .

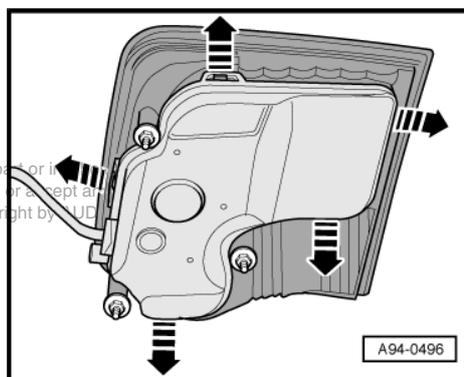
**Tightening torque**

Component	Nm
Tail light cluster to rear lid	3

**18.3 Removing and installing bulb for reversing light and rear fog light**

**Removing**

- Remove inner tail light cluster => [page 233](#) .
- Press catches apart -arrows- and detach housing cover.



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- Unplug electrical connectors -2-.
- Unscrew bolts -1- and detach bulb holder with bulb.

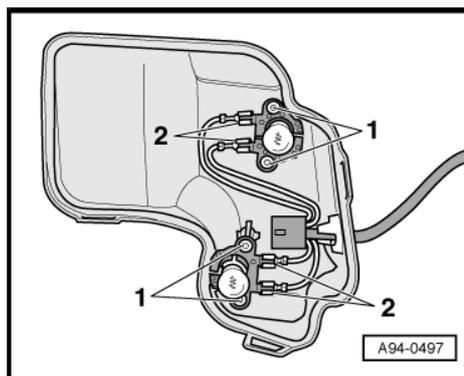
**Installing**

Installation is carried out in the reverse order; note the following:

- Install inner tail light cluster => [page 233](#) .

**Tightening torque**

Component	Nm
Bulb holder with bulb to housing cover	1



## 18.4 Removing and installing LED printed circuit boards and tail light control unit

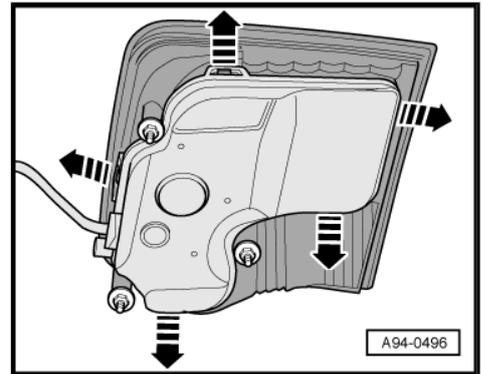


Note

If LED is defective, LED printed circuit boards must be renewed together with control unit.

### Removing

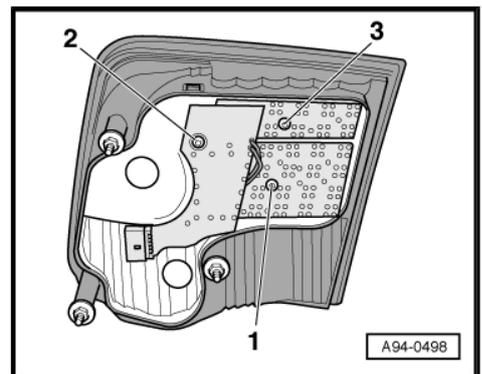
- Remove inner tail light cluster ⇒ [page 233](#) .
- Press catches apart -arrows- and detach housing cover.
- Unplug electrical connector.



- Unscrew bolts -1 ... 3- and take LED printed circuit boards with control unit out of tail light cluster.

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- Install inner tail light cluster ⇒ [page 233](#) .



### Tightening torque

Component	Nm
LED printed circuit boards and tail light control unit	1

## 18.5 Aligning tail light cluster with body contour

### Procedure

- Remove rear lid trim ⇒ Rep. gr. 70 .

### Adjustment at right angles to direction of travel:

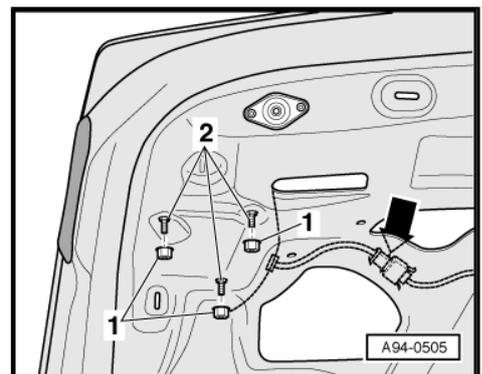
- Unfasten nut -1- and move tail light cluster as required.

### Adjustment in direction of travel:

- Screw adjusting nuts -2- in/out after unfastening nut -1-.
- Install rear lid trim ⇒ Rep. gr. 70 .

### Tightening torque

Component	Nm
Tail light cluster to rear lid	3



## 19 Inner tail light cluster - vehicles from 09.2007 onwards

Observe notes on contact corrosion ⇒ [page 125](#) .

### 19.1 Inner tail light cluster - exploded view

#### 1 - Tail light

- Removing and installing ⇒ [page 236](#)
- Aligning with body contour ⇒ [page 239](#)

#### 2 - Bulb for rear fog light

- 12 V, 19 W
- Removing and installing ⇒ [page 238](#)

#### 3 - Bolt

- 1 Nm

#### 4 - Bolt

- 1 Nm

#### 5 - Housing cover

- For tail light cluster

#### 6 - Bolt

- 1 Nm

#### 7 - Reversing light bulb

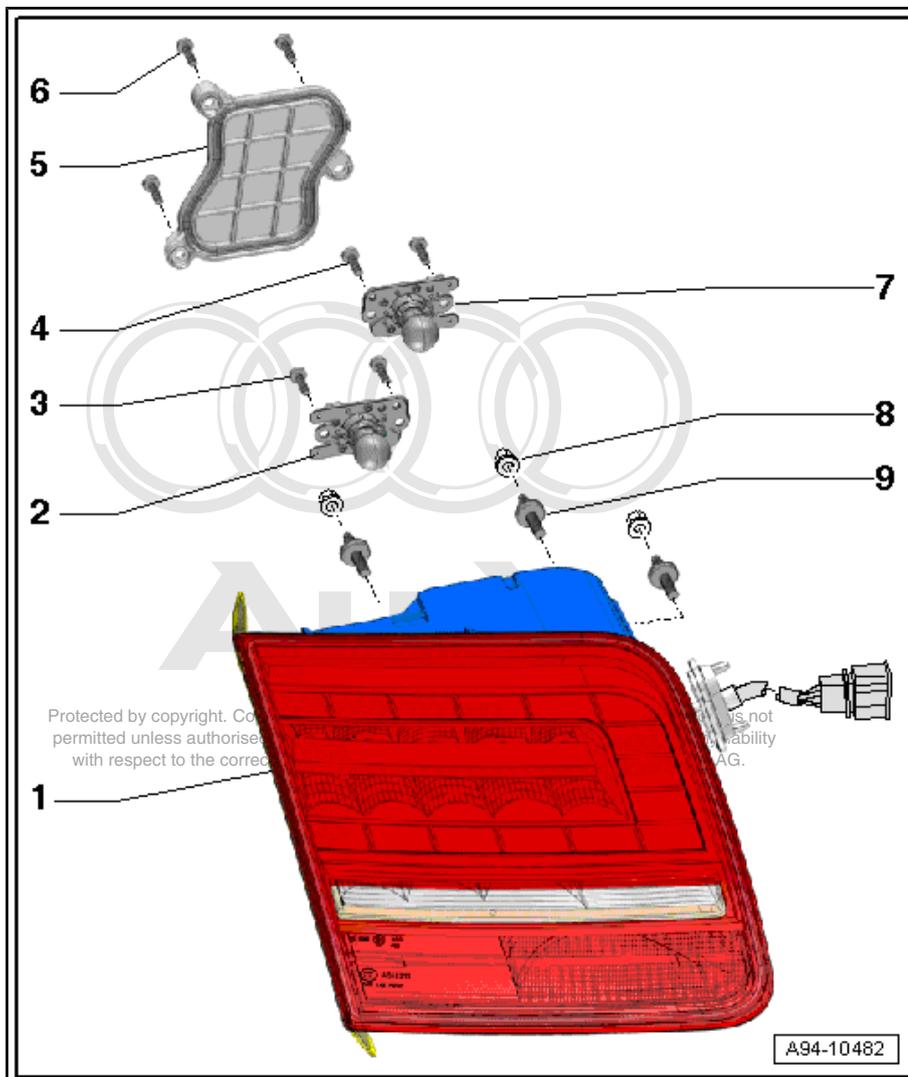
- 12 V, 16 W
- Removing and installing ⇒ [page 237](#)

#### 8 - Nut

- 3 Nm

#### 9 - Centre hex stud with hexagon head

- With sealing washer
- For aligning tail light cluster with body contour



### 19.2 Removing and installing inner tail light cluster

#### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Remove rear lid trim ⇒ Rep. gr. 70 .

- Unplug electrical connector -arrow-.
- Move wiring clear.
- Unscrew nuts -1- and then pull off bonded sealing strip at outer edge to detach tail light cluster.
- Pull wire with grommet out of rear lid.

**Installing**

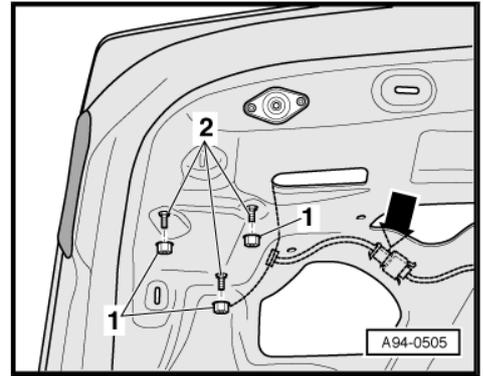
Installation is carried out in the reverse order; note the following:

 **Note**

- ◆ *Renew centre hex studs if sealing washers are damaged.*
- ◆ *Check for proper sealing of grommet between rear lid and wire.*
- Attach new adhesive strip to sealing strip and remove backing.
- Install rear lid trim ⇒ Rep. gr. 70 .

**Tightening torque**

Component	Nm
Tail light cluster to rear lid	3

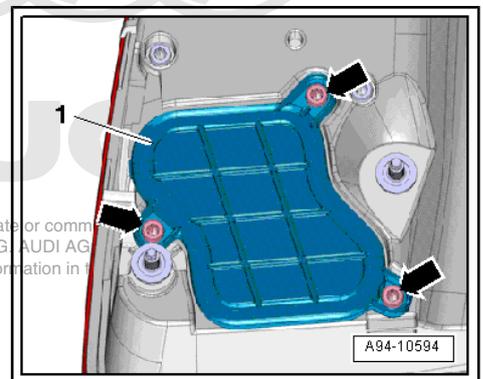


**19.3 Removing and installing bulb for reversing light**

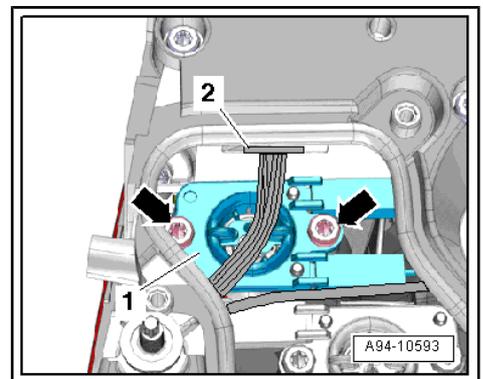
**Removing**

- Remove inner tail light cluster ⇒ [page 233](#) .
- Remove bolts -arrows- and detach housing cover -1-.

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- Unplug electrical connector -2-.
- Unscrew bolts -arrows- and detach bulb holder -1- with bulb.



- Unplug electrical connectors -1- and -2- at bulb holder -3- with bulb.

**Installing**

Installation is carried out in the reverse order; note the following:



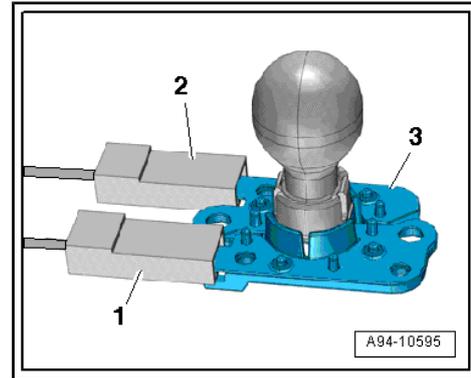
**Note**

*Flat side of flat connector must face bulb holder with bulb.*

- Install inner tail light cluster => [page 233](#) .

**Tightening torques**

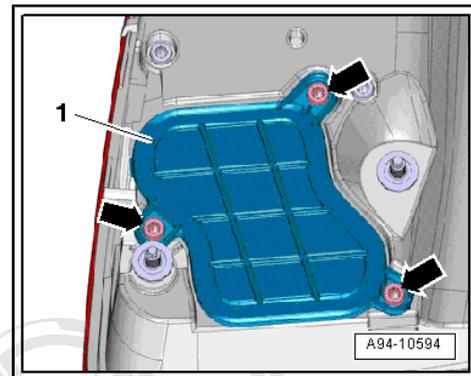
Component	Nm
Bulb holder with bulb to tail light cluster	1
Housing cover to tail light cluster	1



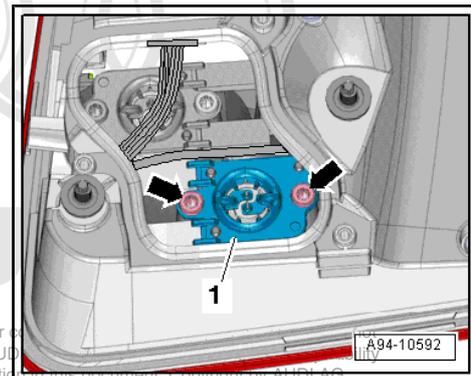
## 19.4 Removing and installing bulb for rear fog light

**Removing**

- Remove inner tail light cluster => [page 233](#) .
- Remove bolts -arrows- and detach housing cover -1-.



- Unscrew bolts -arrows- and detach bulb holder -1- with bulb.



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- Unplug electrical connectors -1- and -2- at bulb holder -3- with bulb.

### Installing

Installation is carried out in the reverse order; note the following:



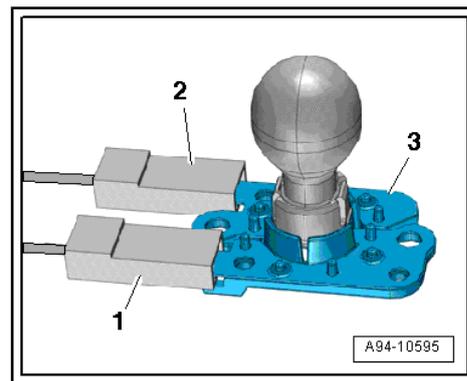
#### Note

*Flat side of flat connector must face bulb holder with bulb.*

- Install inner tail light cluster ⇒ [page 233](#) .

### Tightening torques

Component	Nm
Bulb holder with bulb to tail light cluster	1
Housing cover to tail light cluster	1



## 19.5 Aligning tail light cluster with body contour

### Procedure

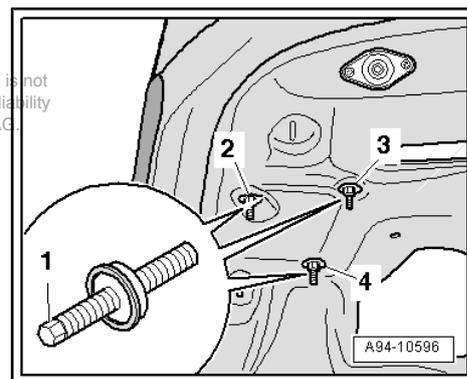
- Remove rear lid trim ⇒ Rep. gr. 70 .

### Adjustment at right angles to direction of travel:

- Unscrew nuts -2, 3, 4- and move tail light cluster as required.

### Adjustment in direction of travel:

- After unscrewing nut -1-, screw centre hex stud -2- in or out.
- Install rear lid trim ⇒ Rep. gr. 70 .
- After unscrewing nuts -2, 3, 4-, screw centre hex stud -1- in or out at hexagon head.



### Tightening torque

Component	Nm
Tail light cluster to rear lid	3

## 20 High-level brake light

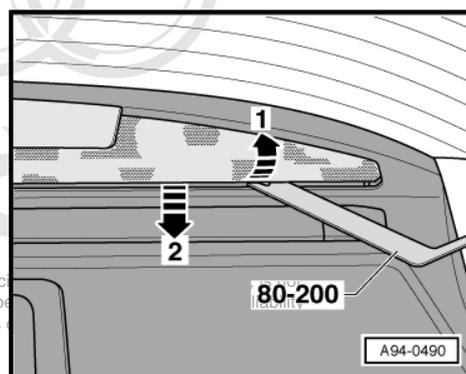
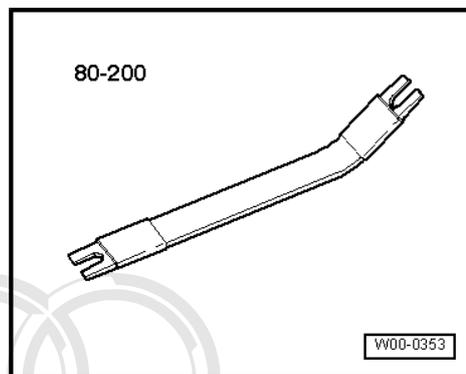
### 20.1 Removing and installing high-level brake light

#### Special tools and workshop equipment required

- ◆ Removal lever - 80 - 200-

#### Removing

- Do not press brake pedal.
- Use removal lever - 80 - 200- to prise cover grille with high-level brake light out of rear shelf -arrow 1-.
- Pull out cover grille to front -arrow 2-.



- Unplug electrical connector -1- at high-level brake light -2-.
- Unscrew bolts -arrows-.
- Detach high-level brake light from cover grille.



#### Note

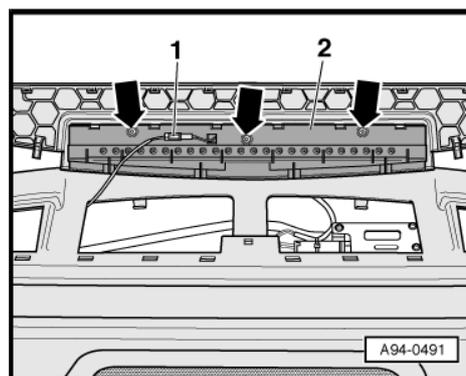
Entire high-level brake light must be renewed if the LED is defective.

#### Installing

Install in reverse order.

#### Tightening torque

Component	Nm
High-level brake light to cover grille	3



## 21 Number plate light

Observe notes on contact corrosion ⇒ [page 125](#) .

### 21.1 Removing and installing number plate light - vehicles up to 08.2007

#### Removing

- Turn light switch to position “0”.
- Unscrew bolt -arrow- in handle trim.



#### Note

*The illustration shows only the number plate light (right-side).*

- Lever bulb carrier out of handle trim.
- Take bulb (12 V, 5 W) out of bulb holder.

#### Installing

Install in reverse order.

### 21.2 Removing and installing number plate light - vehicles from 09.2007 onwards

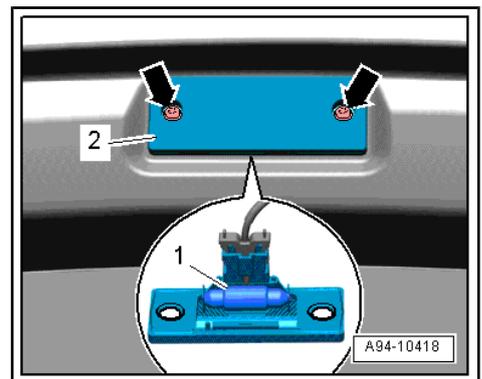
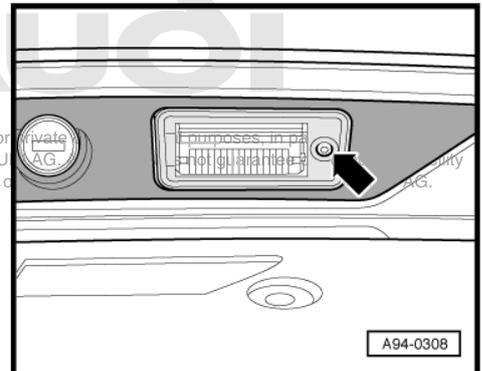
#### Removing

- Turn light switch to position “0”.
- Unscrew bolts -arrows-.
- Pry bulb carrier -2- out of rear lid.
- Take bulb -1- (12 V, 5 W) out of clamp-type holder.

#### Installing

Install in reverse order.

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## 22 Steering column switch module

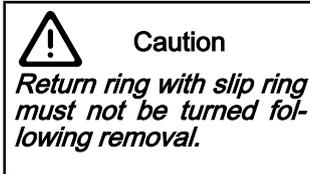
### General description

- ◆ The steering column switch module consists of the return ring with slip ring, steering angle sender - G85-, steering column switches (turn signal switch, wiper switch, cruise control switch) and the steering column electronics control unit - J527-.
- ◆ Fault finding is performed via the "Guided Fault Finding" ⇒ Vehicle diagnostic tester.

### 22.1 Steering column switch module - exploded view

#### 1 - Return ring with slip ring

- Removing and installing ⇒ [page 244](#)



#### 2 - Steering angle sender - G85-

- Removing and installing ⇒ [page 246](#)

#### 3 - Socket head bolt, 0.65 Nm

#### 4 - Cruise control system switch - E45-

- Removing and installing ⇒ [page 251](#)

#### 5 - Socket head bolt, 0.65 Nm

#### 6 - Turn signal switch - E2-

- Removing and installing ⇒ [page 250](#)

#### 7 - Retainer

#### 8 - Steering column electronics control unit - J527-

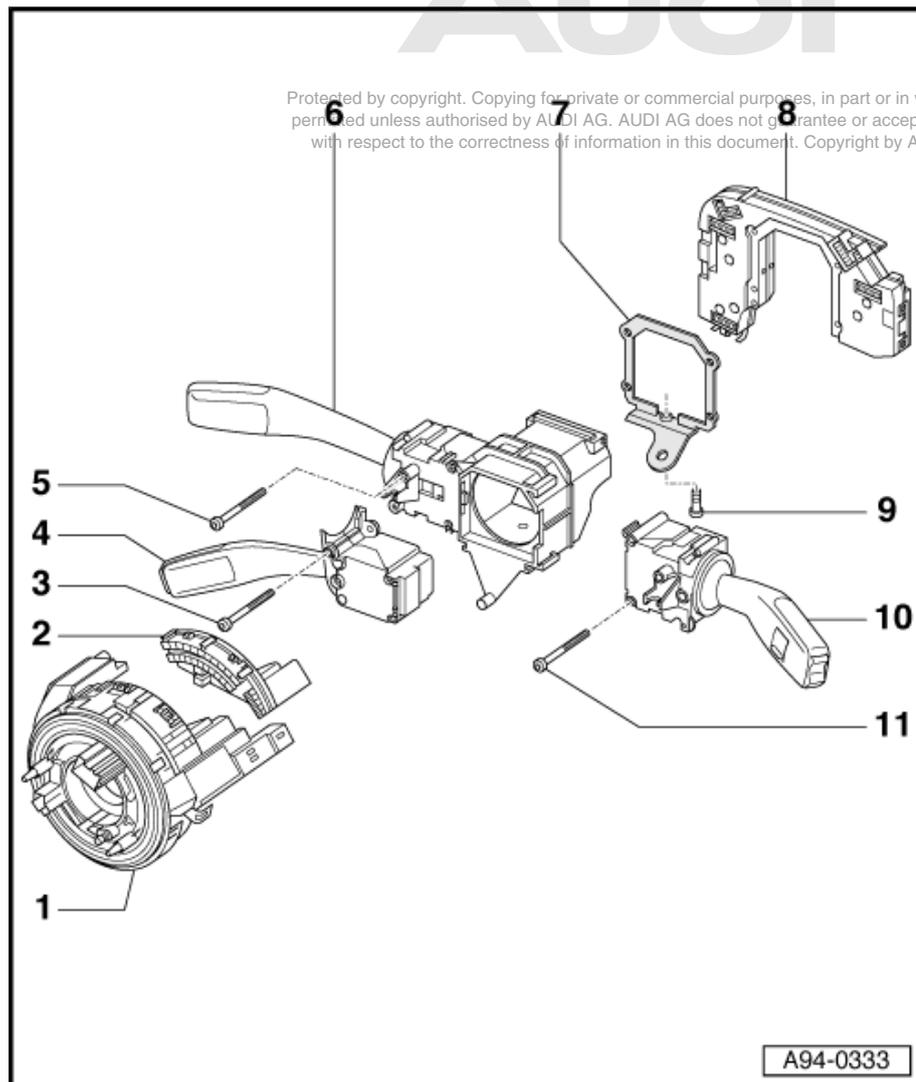
- Removing and installing ⇒ [page 246](#)
- Pin assignment for steering column electronics control unit - J527- ⇒ [page 247](#)

#### 9 - Clamping bolt, 3 Nm

#### 10 - Intermittent wiper switch - E22-

- Removing and installing ⇒ [page 251](#)

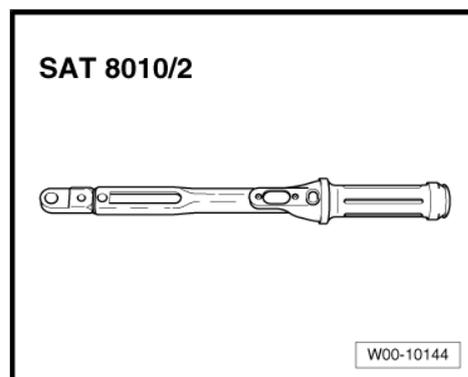
#### 11 - Socket head bolt, 0.65 Nm



## 22.2 Removing and installing steering column switch module

### Special tools and workshop equipment required

- ◆ Special screwdriver T8 - T40056 A-



### Removing



#### WARNING

*When working on knee airbag, observe safety precautions for working on airbags ⇒ Rep. gr. 69 .*

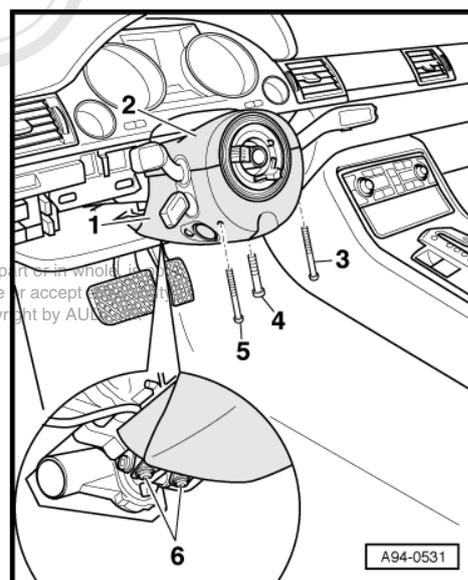
- Remove driver's storage compartment ⇒ Rep. gr. 68 .
- Move steering wheel down and to rear as far as possible, making use of full range of steering column adjuster.



#### Caution

*Contrary to the description under "Connecting and disconnecting the battery", the battery **MUST BE** disconnected to remove the airbag with the ignition switched on.*

- Remove airbag unit ⇒ Rep. gr. 69 .
- Remove steering wheel ⇒ Rep. gr. 48 .
- Unscrew bolts -3- and -5- using special screwdriver T8 - T40056 A- .
- Unscrew TORX bolts -6- and hexagon socket head bolt -4-.
- Separate upper trim -2- for steering column switch from lower trim -1- and remove both sections.



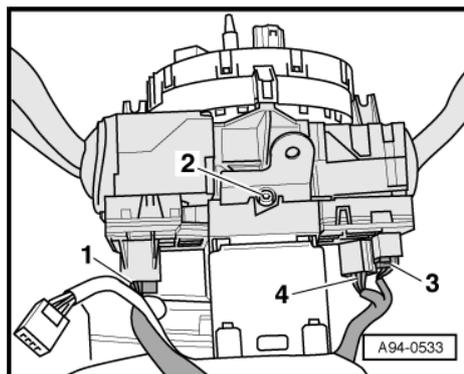
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- Remove bolt -2-.
- Unplug electrical connectors -1- and -3-.
- Unplug electrical connector -4-.



**WARNING**

*Before disconnecting the electrical connection, the mechanic must discharge static by briefly grasping hold of striker plate for door or similar.*

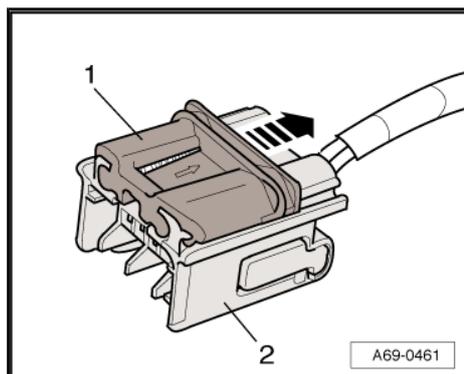


- Press catch -1- in direction of -arrow- until connector -2- disengages.
- Carefully detach steering column switch together with steering column electronics control unit - J527- .

**Installing**

Installation is carried out in the reverse order; note the following:

- Make sure all electrical connectors are properly engaged.
- Insert top trim for steering column switch in hooks for bottom trim, press both sections together and tighten bolts.
- Install driver's storage compartment => Rep. gr. 68 .
- Install steering wheel => Rep. gr. 48 .
- Install airbag unit => Rep. gr. 69 .



**Tightening torques**

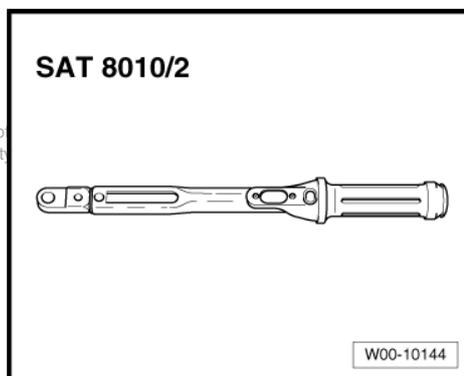
Component	Nm
Steering column switch module	3
Trim for steering column switch	1
Trim (bottom) to steering column	2.5

**22.3 Removing and installing return ring with slip ring**

**Special tools and workshop equipment required**

- ◆ Special screwdriver T8 - T40056 A-

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## Removing



### WARNING

*When working on knee airbag, observe safety precautions for working on airbags ⇒ Rep. gr. 69 .*

- Remove driver's storage compartment ⇒ Rep. gr. 68 .



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*Return ring with slip ring must be removed/installed in centre position (wheels in straight ahead position).*

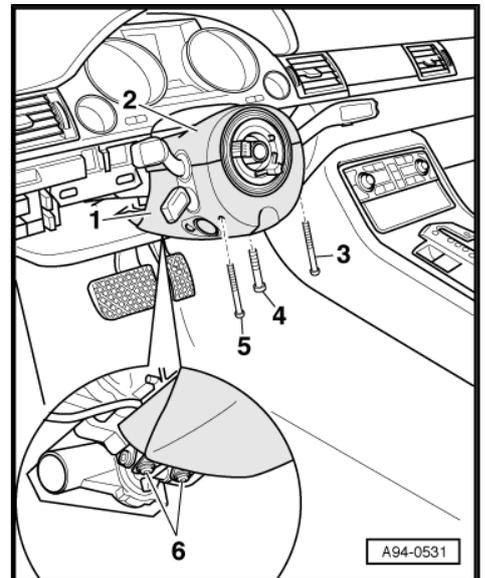
- Move steering wheel down and to rear as far as possible, making use of full range of steering column adjuster.



### Caution

*Contrary to the description under "Connecting and disconnecting the battery", the battery **MUST BE** disconnected to remove the airbag with the ignition switched on.*

- Remove airbag unit ⇒ Rep. gr. 69 .
- Remove steering wheel ⇒ Rep. gr. 48 .
- Unscrew bolts -3- and -5- using special screwdriver T8 - T40056 A- .
- Unscrew TORX bolts -6- and hexagon socket head bolt -4-.
- Separate upper trim -2- for steering column switch from lower trim -1- and remove both sections.

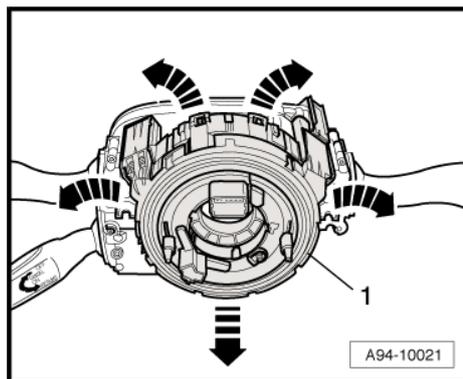


- Unplug electrical connector (top) at return ring with slip ring.
- Carefully release retaining hooks -arrows- and pull return ring with slip ring -1- off steering column switch module.



**Note**

*Steering column switch module has been removed in illustration for greater clarity.*



**Installing**

Installation is carried out in the reverse order; note the following:

- Make sure all retaining hooks and the electrical connectors are properly engaged.
- Insert top trim for steering column switch in hooks for bottom trim, press both sections together and tighten bolts.
- Install driver's storage compartment => Rep. gr. 68 .
- Install steering wheel => Rep. gr. 48 .
- Install airbag unit => Rep. gr. 69 .

**Tightening torques**

Component	Nm
Steering column switch module	3
Trim for steering column switch	1
Trim (bottom) to steering column	2.5

**22.4 Removing and installing steering angle sender - G85-**

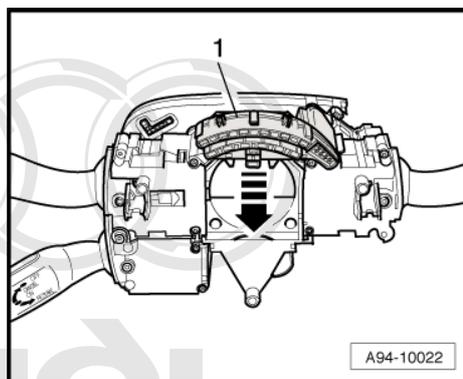
**Removing**

- Remove return ring with slip ring => [page 244](#) .
- Pull off steering angle sender - G85- -item 1- -arrow-.

**Installing**

Install in reverse order.

- Perform calibration of steering angle sender -G85- in "Guided Functions" after renewing steering angle sender => Vehicle diagnostic tester.



**22.5 Removing and installing steering column electronics control unit - J527-**

**Removing**

- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in => Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.

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- Remove steering column switch module ⇒ [page 243](#) .

**Note**

*Return ring with slip ring must be removed/installed in centre position (wheels in straight ahead position).*

- Carefully release retaining hooks -arrows-.
- Detach return ring with slip ring -2- and steering angle sender - G85- -item 1- from steering column switch module.
- Unscrew bolts -arrows-.
- Detach steering column electronics control unit - J527- -item 1- from steering column switch module.

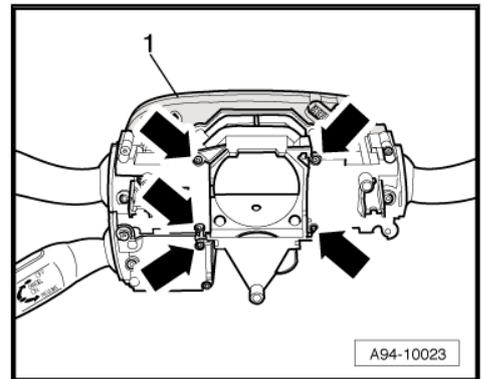
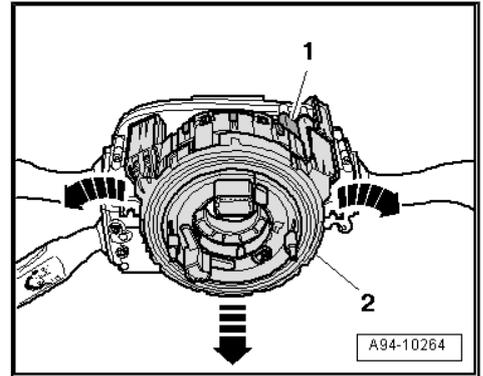
**Installing**

Installation is carried out in the reverse order; note the following:

- Make sure all retaining hooks and the electrical connectors are properly engaged.
- Install steering column switch module ⇒ [page 243](#) .

**Tightening torques**

Component	Nm
Steering column switch module to steering column electronics control unit - J527-	0.65
Intermittent wiper switch - E22- to steering column electronics control unit - J527-	0.65
Cruise control system switch - E45- to steering column electronics control unit - J527-	0.65



**22.6 Pin assignment at steering column electronics control unit - J527- (front)**

- ◆ The steering column electronics control unit - J527- is part of the "steering column switch module". It receives signals e.g. from the steering column switch.
- ◆ Checking steering column electronics control unit -J527- ⇒ Vehicle diagnostic tester.



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**A - Connector for cruise control system**

- 1 - Earth
- 2 - Fix
- 3 - Distance
- 4 - 12 V voltage supply
- 5 - Activation/touch function "Off"
- 6 - Acceleration/deceleration
- 7 - Locked "Off"

**B - Connector for turn signal switch**

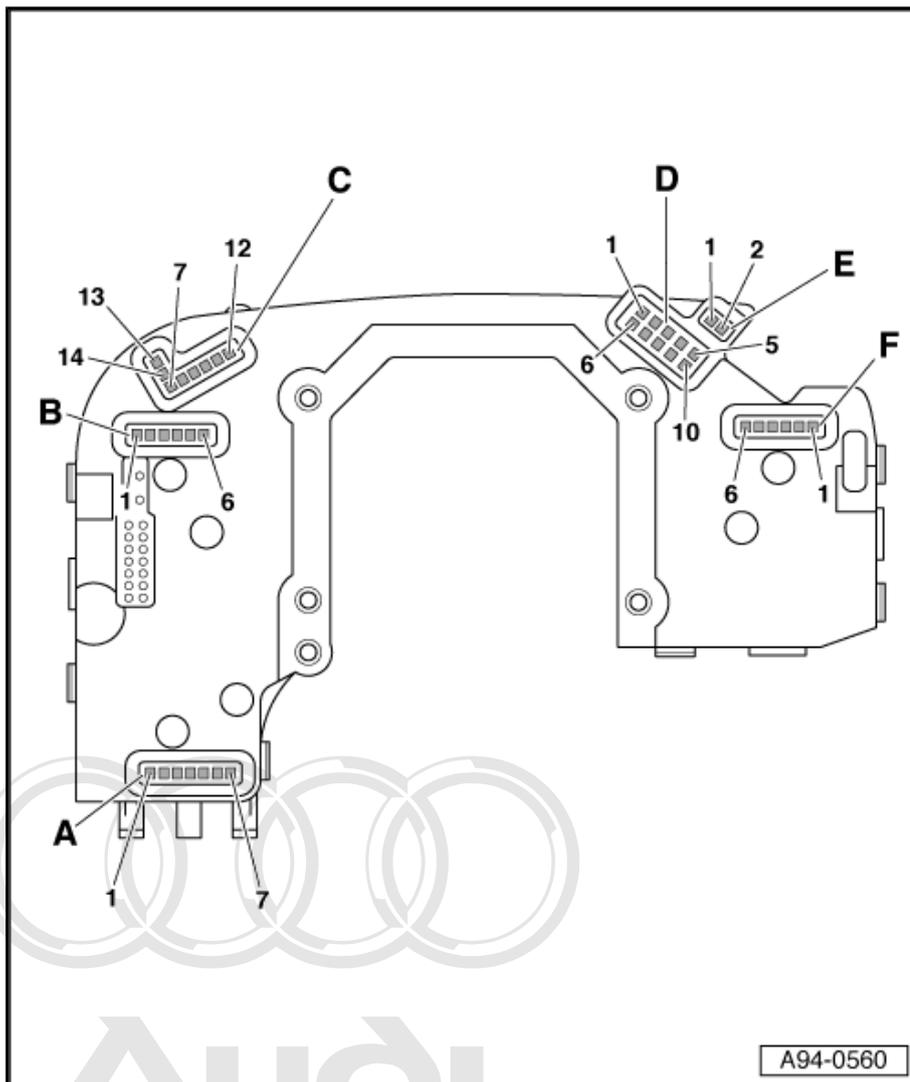
- 1 - Earth
- 2 - Radio telephone (special-purpose vehicles)
- 3 - Alarm (special-purpose vehicles)
- 4 - Not used
- 5 - Headlight flasher/light control
- 6 - Turn signal indicators

**C - Connector for multi-function steering wheel / tiptronic / heated steering wheel**

- 7 tiptronic "-"
- 8 - Multi-function steering wheel "+" voltage supply
- 9 - Multi-function steering wheel data
- 10 - tiptronic "+"
- 11 - Multi-function steering wheel dimmer
- 12 - tiptronic earth
- 13 - Heated steering wheel "+"
- 14 - Heated steering wheel "-"

**D - Steering angle sensor**

- 1 - Light barrier 5
- 2 - Light barrier 3
- 3 - Light barrier 1
- 4 - 12 V voltage supply
- 5 - 5 V voltage supply
- 6 - Light barrier 6
- 7 - Light barrier 4



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- 8 - Light barrier 2
- 9 - Steering angle sensor earth
- 10 - Light barrier 7

**E - Horn**

- 1 - Horn earth
- 2 - Horn

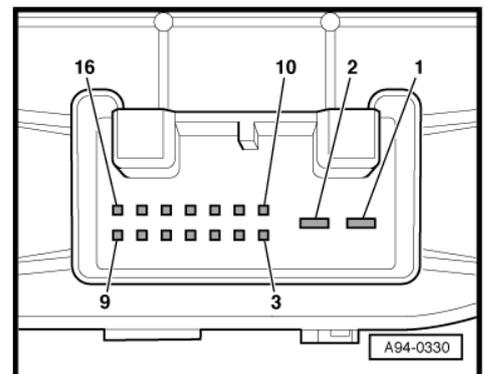
**F - Windscreen wiper system**

- 1 - Earth
- 2 - Intermittent wipe potentiometer
- 3 - On-board computer
- 4 - Not used
- 5 - Wash
- 6 - Wipe

**22.7 Pin assignment at steering column electronics control unit - J527- (reverse side)**

**Multi-pin connector, 16-pin**

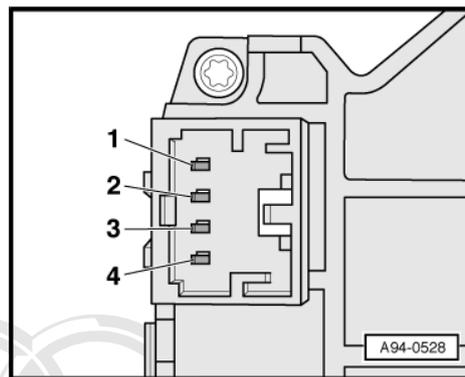
- 1 - Terminal 31
- 2 - Terminal 30
- 3 - Powertrain CAN bus screening
- 4 - Not used
- 5 - Cruise control locked Off
- 6 - Alarm (special-purpose vehicles)
- 7 - Radio telephone (special-purpose vehicles)
- 8 - CAN bus Low (convenience)
- 9 - CAN bus High (convenience)
- 10 - Drive CAN bus High
- 11 - Drive CAN bus Low
- 12 - Terminal 15 CAN
- 13 - Terminal 15
- 14 - Not used
- 15 - Not used
- 16 - Not used



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**Multi-pin connector, 4-pin**

- 1 - Easy Entry facility
- 2 - Steering column adjustment switch
- 3 - Terminal 31
- 4 - Not used



**22.8 Removing and installing turn signal switch - E2-**

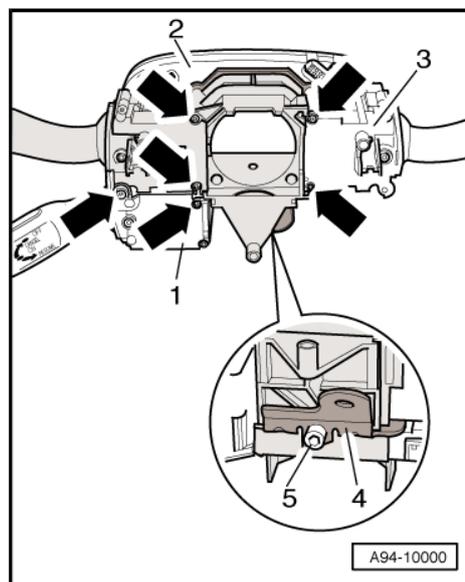
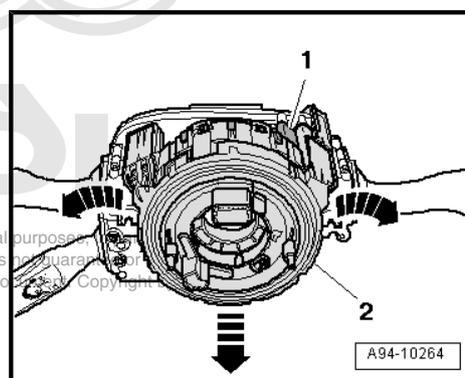
**Removing**

- Remove steering column switch module => [page 243](#) .



*Return ring with slip ring must be removed/installed in centre position (wheels in straight ahead position).*

- Carefully release retaining hooks -arrows-.
- Detach return ring with slip ring -2- and steering angle sender - G85- -item 1- from steering column switch module.
- Unscrew bolts -arrows-.
- Remove steering column electronics control unit - J527- -item 2- and intermittent wiper switch - E22- -item 3- from steering column switch module.
- Detach cruise control system switch - E45- -item 1- at steering column switch module.
- Unscrew bolt -5- and remove retaining clip -4-.



**Installing**

Installation is carried out in the reverse order; note the following:

- Make sure all retaining hooks and the electrical connectors are properly engaged.
- Install steering column switch module => [page 243](#) .

**Tightening torques**

Component	Nm
Steering column switch module to steering column electronics control unit - J527-	0.65
Intermittent wiper switch - E22- to steering column electronics control unit - J527-	0.65
Cruise control system switch - E45- at steering column switch module and steering column electronics control unit - J527-	0.65

## 22.9 Removing and installing cruise control system switch - E45-

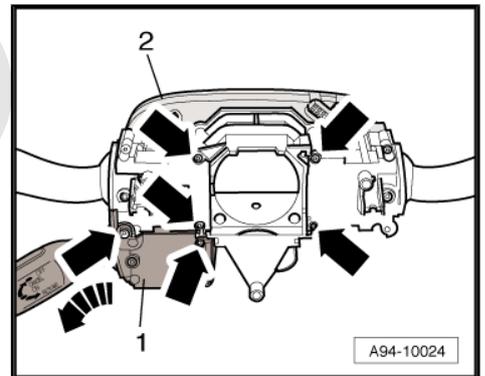
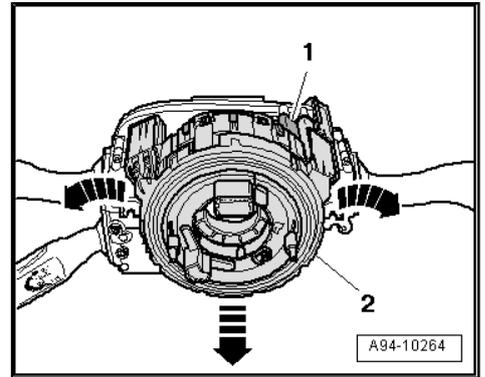
### Removing

- Remove steering column switch module ⇒ [page 243](#) .

#### Note

*Return ring with slip ring must be removed/installed in centre position (wheels in straight ahead position).*

- Carefully release retaining hooks -arrows-.
- Detach return ring with slip ring -2- and steering angle sender - G85- -item 1- from steering column switch module.
- Unscrew bolts -arrows-.
- Detach steering column electronics control unit - J527- -item 2- from steering column switch module.
- Detach cruise control system switch - E45- -item 1- at steering column switch module.



### Installing

Installation is carried out in the reverse order; note the following:

- Make sure all retaining hooks and the electrical connectors are properly engaged.
- Install steering column switch module ⇒ [page 243](#) .

### Tightening torques

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Component	Nm
Steering column switch module to steering column electronics control unit - J527-	0.65
Intermittent wiper switch - E22- to steering column electronics control unit - J527-	0.65
Cruise control system switch - E45- at steering column switch module and steering column electronics control unit - J527-	0.65

## 22.10 Removing and installing intermittent wiper switch - E22-

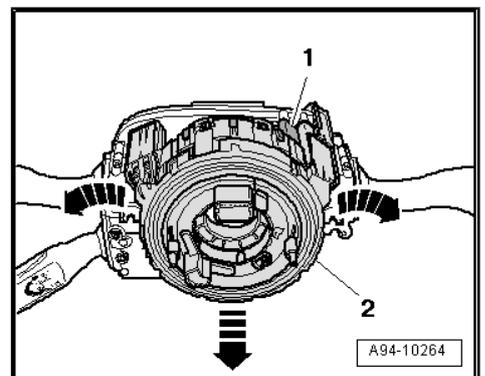
### Removing

- Remove steering column switch module ⇒ [page 243](#) .

#### Note

*Return ring with slip ring must be removed/installed in centre position (wheels in straight ahead position).*

- Carefully release retaining hooks -arrows-.
- Detach return ring with slip ring -2- and steering angle sender - G85- -item 1- from steering column switch module.





- Remove bolts -1- and -2-.
- Detach intermittent wiper switch - E22- -item 3- from steering column switch module -arrow-.

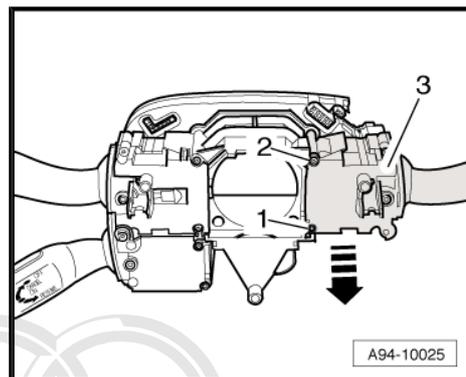
### Installing

Installation is carried out in the reverse order; note the following:

- Make sure all retaining hooks and the electrical connectors are properly engaged.
- Install steering column switch module ⇒ [page 243](#) .

### Tightening torque

Component	Nm
Intermittent wiper switch - E22- to steering column electronics control unit - J527-	0.65



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## 23 Entry and start authorisation switch - E415-

### Note

- ◆ Reader coil for immobiliser is attached to entry and start authorisation switch - E415- and cannot be renewed separately.
- ◆ The entry and start authorisation switch - E415- must be renewed if reading coil is defective.

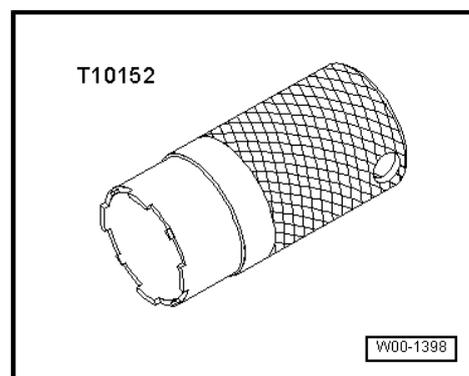
### 23.1 Removing and installing entry and start authorisation switch - E415-

#### Note

- ◆ Adaption to immobiliser is not necessary if the entry and start authorisation switch - E415- is renewed.
- ◆ The lock in the entry and start authorisation switch - E415- is not mechanically coded.
- ◆ Therefore the keys must not be renewed after renewing entry and start authorisation switch -E415- (continue to use old keys).

#### Special tools and workshop equipment required

- ◆ Socket tool - T10152-



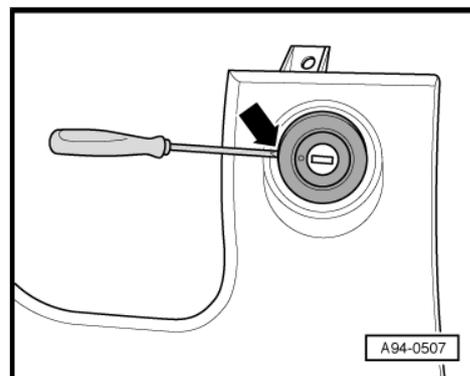
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- Switch off ignition and take out ignition key. Copyright by AUDI AG.

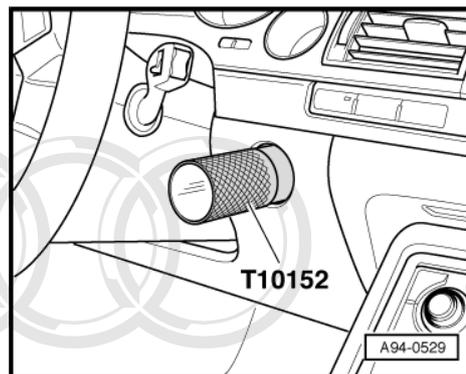
 **WARNING**

*When working on knee airbag, observe safety precautions for working on airbags ⇒ Rep. gr. 69 .*

- Remove driver's storage compartment ⇒ Rep. gr. 68 .
- Use small screwdriver to prise off trim ring at entry and start authorisation switch -arrow-.



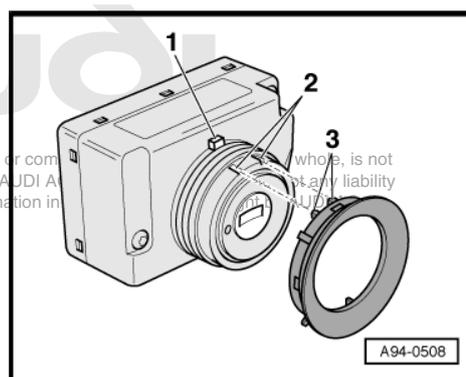
- Unscrew nut on entry and start authorisation switch - E415- using socket tool - T10152- .
- Take switch to rear out of driver's storage compartment.



### Installing

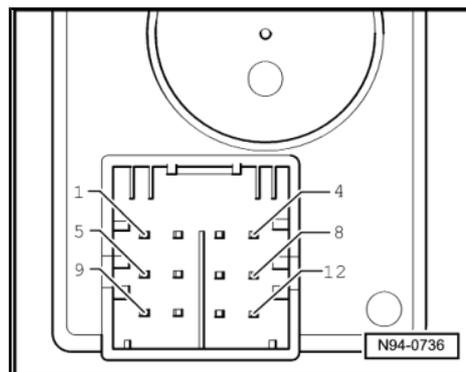
Installation is carried out in the reverse order; note the following:

- Note correct position of entry and start authorisation switch - E415- in relation to driver's storage compartment.
- Lug -1- facing upwards
- Hand-tighten nut using socket tool - T10152- .
- Note correct position of trim ring on entry and start authorisation switch.
- Lugs -3- must engage in recesses -2- at switch.
- Install driver's storage compartment ⇒ Rep. gr. 68 .



## 23.2 Pin assignment at entry and start authorisation switch - E415-

- 1 - Switching matrix S2
- 2 - Ignition key withdrawal lock solenoid
- 3 - Terminal 31
- 4 - Immobiliser serial clock
- 5 - Switching matrix S1
- 6 - Switching matrix S6
- 7 - Switching matrix S3
- 8 - Immobiliser Data 2
- 9 - 12 V
- 10 - Switching matrix S5
- 11 - Switching matrix S4
- 12 - Immobiliser Data 1



## 24 Parking aid

Observe notes on contact corrosion ⇒ [page 125](#) .

### 24.1 Parking aid - overview

#### 1 - Parking aid senders

- In front bumper cover
- Only for 8-channel parking aid
- Removing and installing:

Vehicles with twin grille  
 ⇒ [page 258](#)

Vehicles with single-frame grille ⇒ [page 260](#)

#### 2 - Front parking aid warning buzzer - H22-

- Only for 8-channel parking aid
- Behind driver's side storage compartment
- Removing and installing  
 ⇒ [page 257](#)

#### 3 - Parking aid control unit - J446-

- Vehicles up to 11.2005:  
 In luggage compartment (rear left) at wheel housing

Removing and installing  
 ⇒ [page 256](#)

- Vehicles from 11.2005 onwards:

At rear left of luggage compartment on mounting frame for navigation system with CD drive control unit - J401-

Removing and installing ⇒ [page 257](#)

#### 4 - Parking aid senders

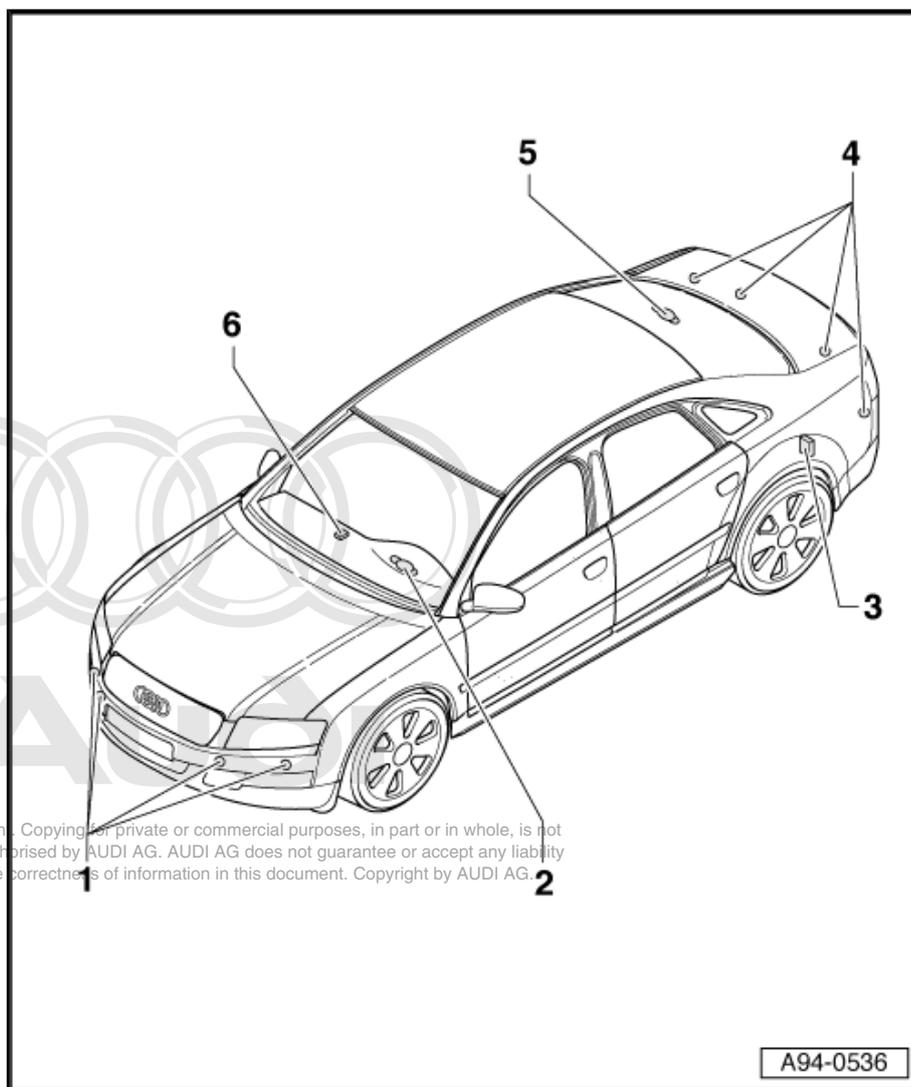
- In rear bumper cover
- Removing and installing ⇒ [page 260](#)

#### 5 - Rear parking aid warning buzzer - H15-

- Beneath rear shelf
- Removing and installing ⇒ [page 257](#)

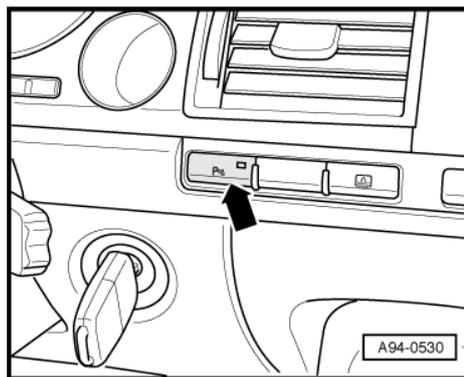
#### 6 - Parking aid button - E266-

- Only for 8-channel parking aid
- With parking aid switch illumination bulb - L117-
- With integrated parking aid warning lamp - K136-
- Fitting location ⇒ [page 256](#)



**Fitting location for parking aid button - E266-**

- ◆ In centre console switch unit
- ◆ Removing and installing ⇒ [page 267](#) .

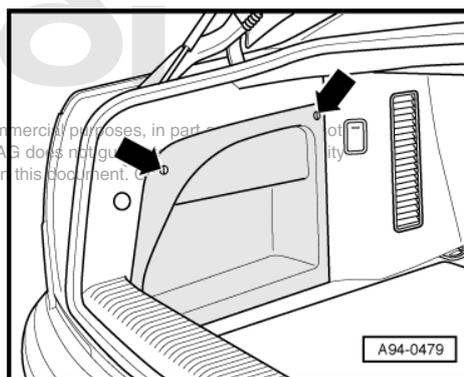


**24.2 Removing and installing parking aid control unit - J446- (vehicles up to 11.2005)**

**Removing**

- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Switch off ignition and take out ignition key.
- Remove cover for luggage compartment side trim (left-side) -arrows-.

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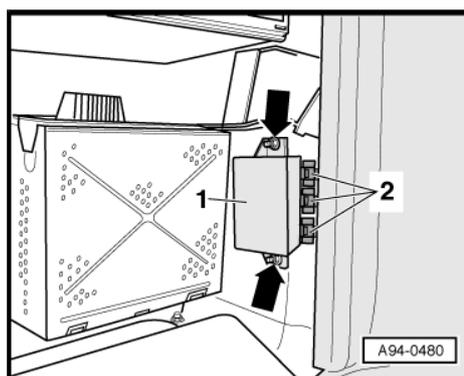
- Unscrew nuts -arrows-.
- Unplug electrical connectors -2-.
- Detach parking aid control unit - J446- -item 1-.

**Installing**

Installation is carried out in the reverse order; note the following:

**Tightening torque**

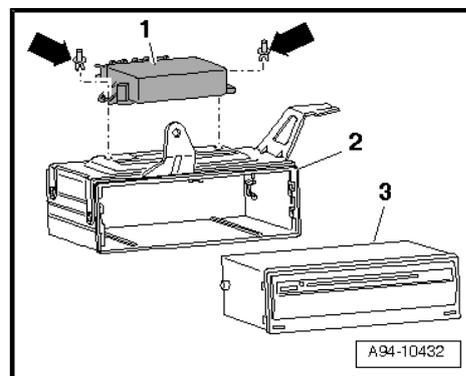
Component	Nm
Control unit to body	2



### 24.3 Removing and installing parking aid control unit - J446- (vehicles from 11.2005)

#### Removing

- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Switch off ignition and take out ignition key.
- Remove navigation system with CD drive control unit - J401- -item 3- together with mounting frame -2- ⇒ Rep. gr. 91 .
- Unplug electrical connectors.
- Press out spring pins -arrows- of fasteners.
- Detach parking aid control unit - J446- -item 1-.



#### Installing

Installation is carried out in the reverse order; note the following:

- Install navigation system with CD drive control unit - J401- and mounting frame ⇒ Rep. gr. 91 .

### 24.4 Removing and installing front parking aid warning buzzer - H22- - 8-channel parking aid

- ◆ Fitting location: on central tube for dash panel behind instrument cluster

#### Removing

- Remove instrument cluster ⇒ [page 83](#) .
- Unplug electrical connector -1-.
- Unscrew nuts -arrows- and detach warning buzzer.

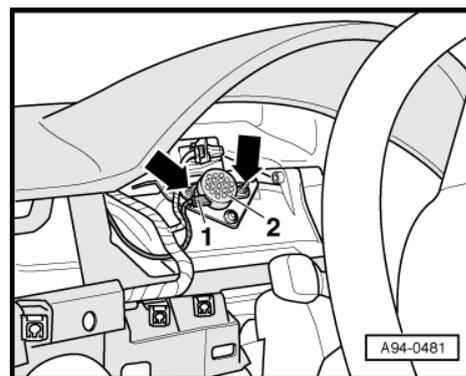
#### Installing

Installation is carried out in the reverse order; note the following:

- Install instrument cluster ⇒ [page 83](#) .

#### Tightening torque

Component	Nm
Front warning buzzer to bracket	2.5

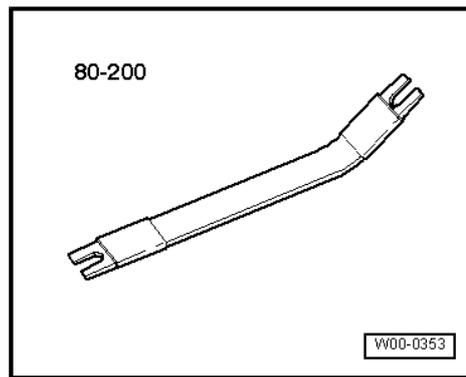


### 24.5 Removing and installing rear parking aid warning buzzer - H15-

- ◆ Fitting location: at rear right under rear shelf

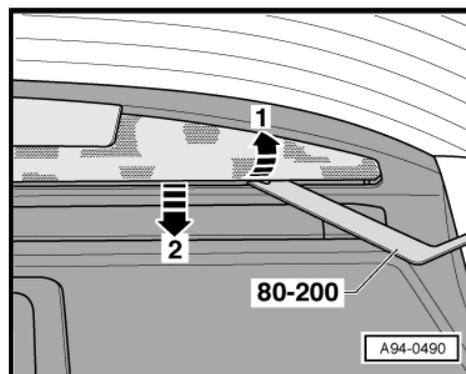
Special tools and workshop equipment required

◆ Removal lever - 80 - 200-



**Removing**

- Switch off ignition and take out ignition key.
- Use removal lever - 80 - 200- to prise cover grille with high-level brake light out of rear shelf -arrow 1-.
- Pull out cover grille to front -arrow 2-.
- Unplug electrical connector at high-level brake light.

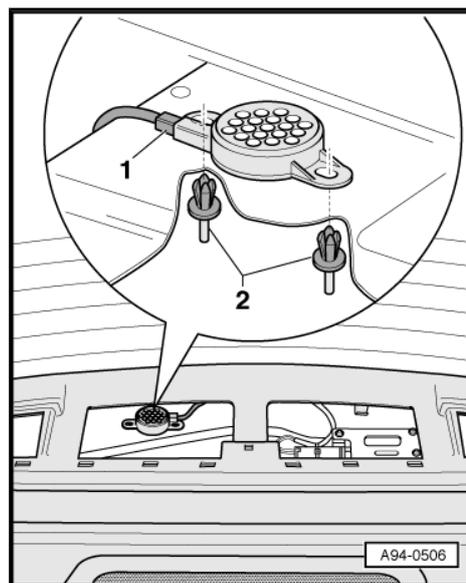


- Unplug electrical connector -1-.
- Press out spring pins -2- of fasteners.
- Lift warning buzzer out of luggage compartment partition.

**Installing**

Installation is carried out in the reverse order; note the following:

- Unfasten lining for luggage compartment partition on rear edge.
- Press spring pins into fasteners.



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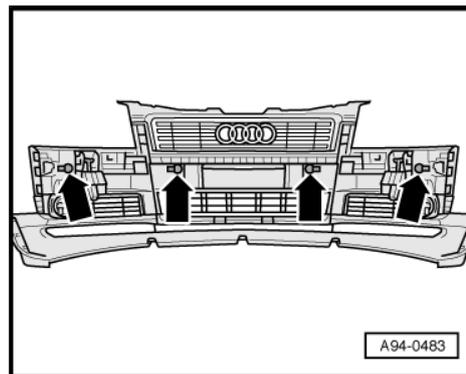
**24.6 Removing and installing front parking aid senders - vehicles with twin grille**

- ◆ Fitting location: in bumper cover -arrows-.

**Removing**

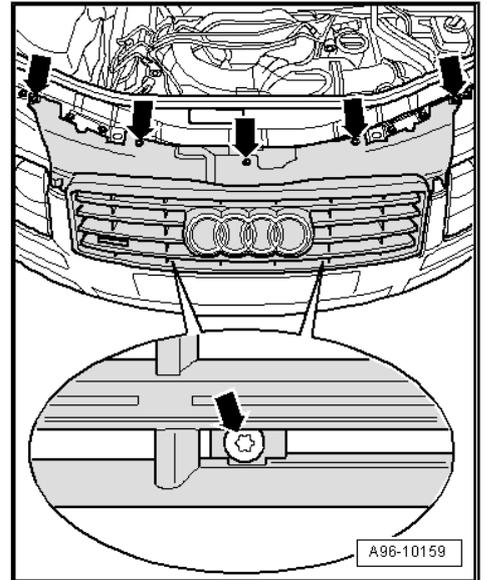
**Outer senders:**

- Remove bumper cover ⇒ Rep. gr. 63 .

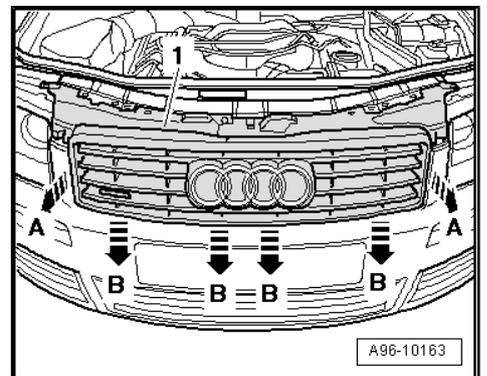


**Inner senders:**

- Switch off ignition and take out ignition key.
- Unscrew bolts -arrows- at top of lock carrier and beneath Audi rings.



- Spray silicone-free lubricant all round into gap between radiator grille and bumper cover.
- First pull radiator grille -1- out of bumper cover by pulling it out at locations marked with -arrows A-.
- Then pull bottom of radiator grille -arrows B- out of bumper cover.



**All senders (continued):**

- Unplug electrical connector -1- at sender.
- Push both retainer tabs aside -arrows- and push out sender inwards.

**Installing**

Installation is carried out in the reverse order; note the following:

**Outer senders:**

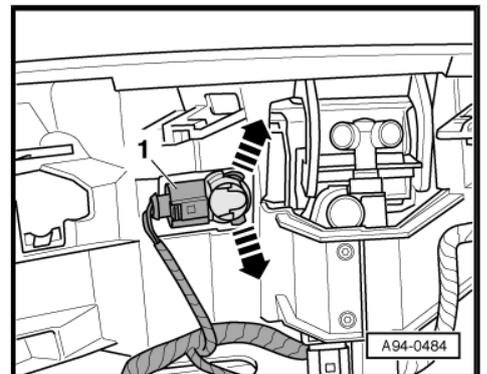
- Install bumper cover => Rep. gr. 63

**Inner senders:**

- Radiator grille must engage audibly in bumper cover.

**Tightening torque**

Component	Nm
Radiator grille to lock carrier	4



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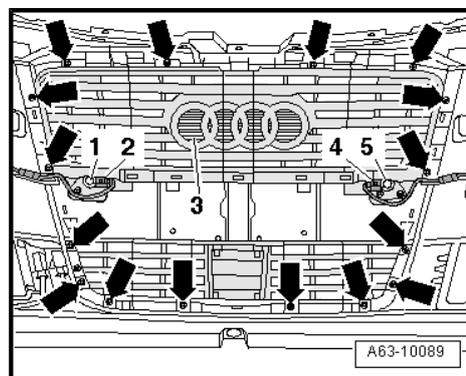
## 24.7 Removing and installing front parking aid senders - vehicles with single-frame radiator grille

### Removing

- Remove bumper cover => Rep. gr. 63 .

#### Inner senders:

- Unplug electrical connectors -2- and -4-.
- Unscrew bolts -arrows-.
- Detach single-frame radiator grille -3- from bumper.
- Press parking aid senders -1- and -5- out of single-frame radiator grille.



#### Outer senders:

- Unplug electrical connector -1- at sender.
- Push both retainer tabs aside -arrows- and push out sender inwards.

### Installing

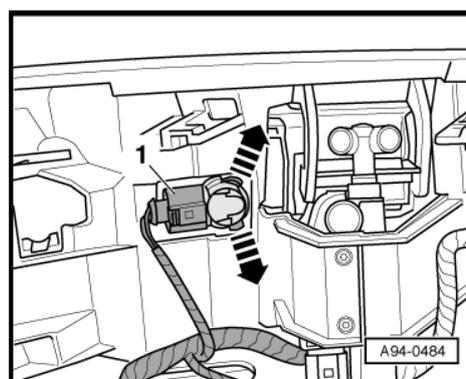
Installation is carried out in the reverse order; note the following:

#### Inner senders:

- Install bumper cover => Rep. gr. 63 .

#### Tightening torque

Component	Nm
Single-frame radiator grille to bumper	2.3



## 24.8 Removing and installing rear parking aid senders

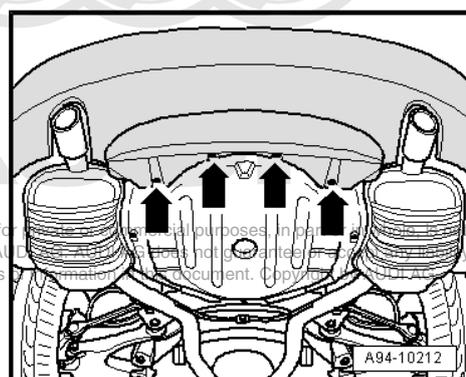
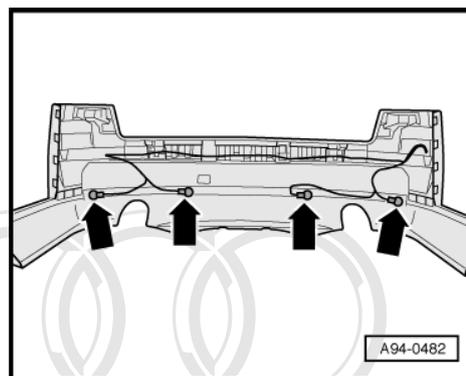
- ◆ Fitting location: in bumper cover -arrows-.

### Note

- ◆ Shown with bumper cover removed for illustration purposes.
- ◆ Senders can be taken out without removing rear bumper cover.

### Removing

- Switch off ignition and take out ignition key.
- Unscrew bolts -arrows-.
- Reach behind the bumper cover.

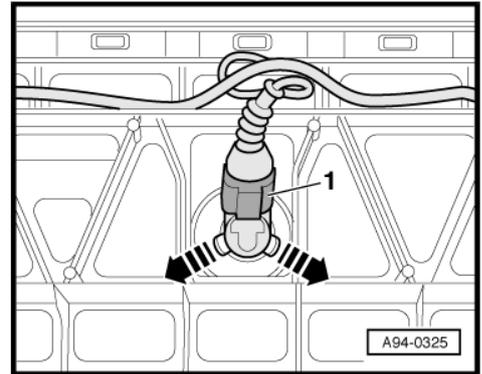


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- Unplug electrical connector -1- at sender.
- Push both retainer tabs aside -arrows- and push out sender inwards.

### Installing

Install in reverse order.



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## 25 Automatic headlight range control

Observe notes on contact corrosion ⇒ [page 125](#) .

### 25.1 Automatic headlight range control - overview

#### 1 - Headlight range control motor

- ❑ Left headlight range control motor - V48-
- ❑ Right headlight range control motor - V49-

#### 2 - Front left vehicle level sender - G78-

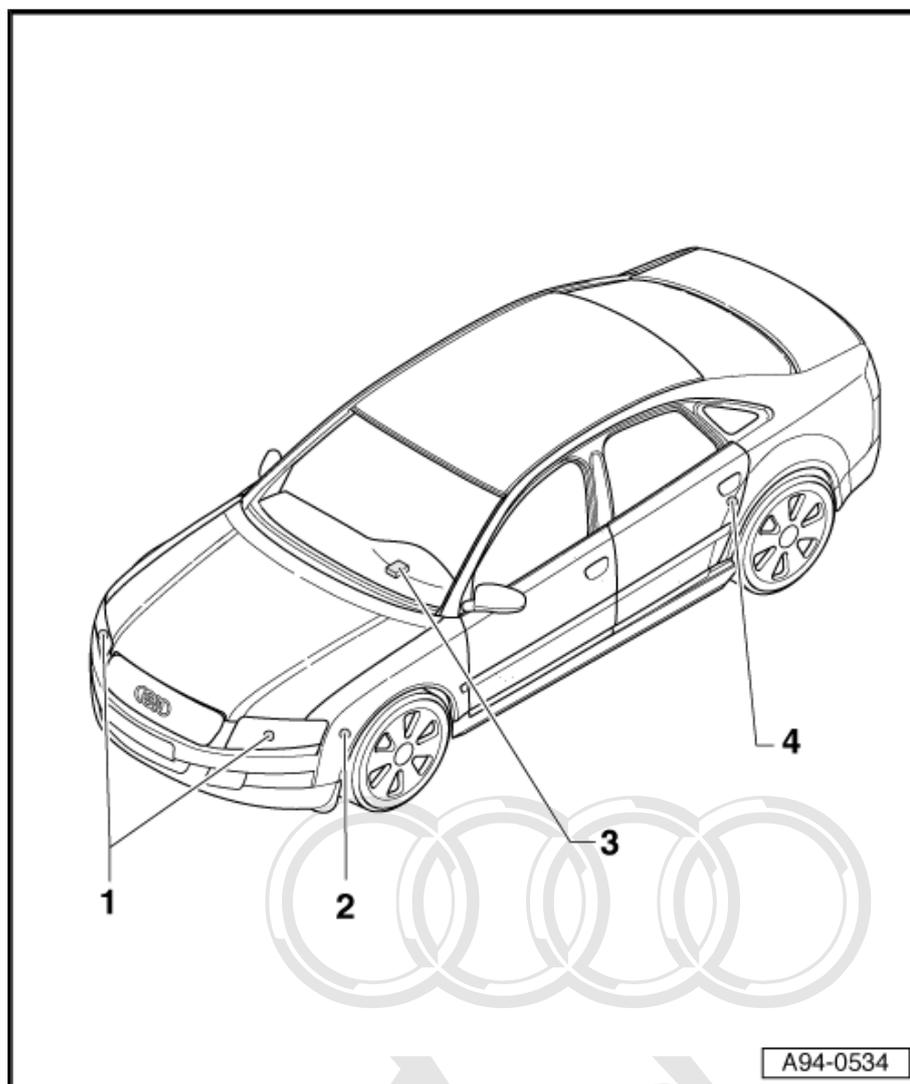
- ❑ At track control link (front axle, left-side)
- ❑ Removing and installing ⇒ Rep. gr. 40

#### 3 - Control unit for headlight range control - J431-

- ❑ Fitting location: behind instrument cluster on central tube for dash panel
- ❑ Removing and installing ⇒ [page 262](#)

#### 4 - Rear left vehicle level sender - G76-

- ❑ At suspension link (rear left)
- ❑ Removing and installing ⇒ Rep. gr. 42



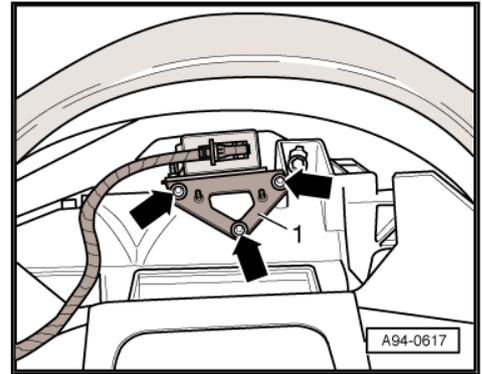
### 25.2 Removing and installing control unit for headlight range control - J431-

- ◆ Fitting location: on central tube for dash panel behind instrument cluster

#### Removing

- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Remove instrument cluster ⇒ [page 83](#) .

- Unscrew bolts -arrows- and detach retainer -1- of control unit for headlight range control -J431- from central tube for dash panel.



- Unplug electrical connector -2-.
- Unscrew nuts -arrows- and detach control unit for headlight range control - J431- -item 1-.

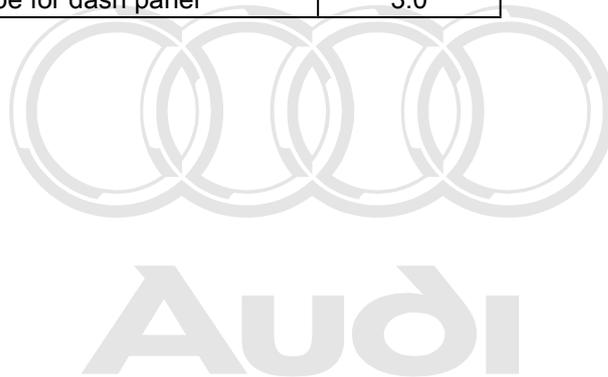
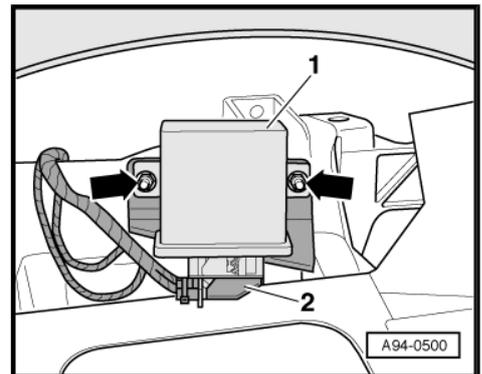
**Installing**

Installation is carried out in the reverse order; note the following:

- Install instrument cluster => [page 83](#) .

**Tightening torques**

Component	Nm
Control unit to bracket	2.5
Bracket to central tube for dash panel	3.0



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## 96 – Lights, bulbs, switches - interior

### 1 Contact corrosion

Contact corrosion can occur if unsuitable fasteners (bolts, nuts, washers, etc.) are used.

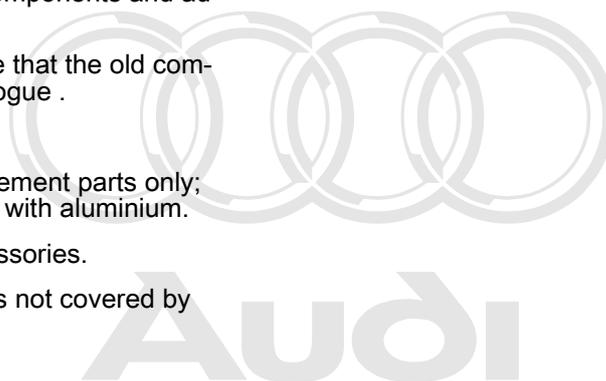
For this reason, only fasteners with a special surface coating are fitted.

Furthermore, rubber components or plastic components and adhesives are made of non-conductive material.

Always fit new components if you are not sure that the old components are suitable ⇒ Electronic parts catalogue .

**Note:**

- ◆ We recommend the use of genuine replacement parts only; they have been tested and are compatible with aluminium.
- ◆ We recommend using Audi Genuine Accessories.
- ◆ Damage resulting from contact corrosion is not covered by warranty.



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## 2 Lights and switches in dash panel

Observe notes on contact corrosion ⇒ [page 264](#) .

### 2.1 Removing and installing buttons in instrument cluster trim

#### Removing

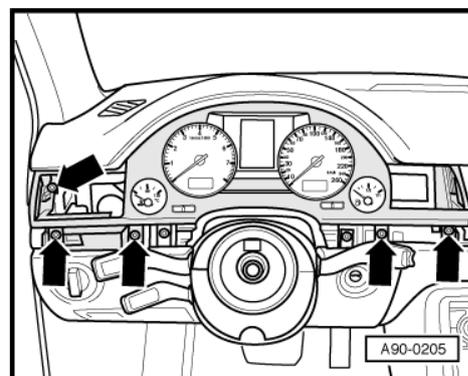
- Move steering wheel down and to rear as far as possible, making use of full range of steering column adjuster.
- Switch off ignition and take out ignition key.
- Remove trim panel (left-side) ⇒ Rep. gr. 70 .
- Remove trim panel with switch unit (right-side) ⇒ Rep. gr. 70 .
- Remove dash panel vents ⇒ Rep. gr. 70 .
- Unscrew bolts -arrows-.



#### Note

*Attach a cloth with adhesive tape to steering column trim and steering column levers to protect them from damage.*

- Pull trim slightly away from instrument cluster.
- Unplug electrical connectors at instrument cluster trim.
- Engage turn signal switch in bottom switch position.
- Actuate "touch-wipe" function and detach trim for instrument cluster (maintain wiper switch position).
- Unscrew bolts -arrows-.
- Detach buttons -1- and -2-.



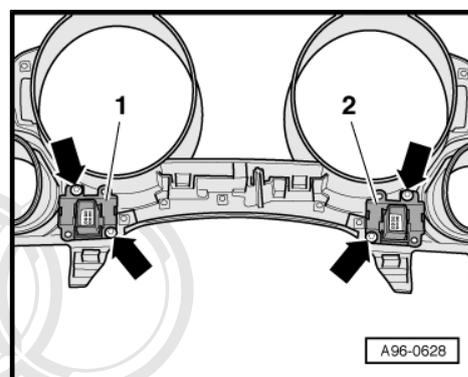
#### Installing

Installation is carried out in the reverse order; note the following:

- Install dash panel vents ⇒ Rep. gr. 70 .
- Install trim panel with switch unit (right-side) ⇒ Rep. gr. 70 .
- Install trim panel (left-side) ⇒ Rep. gr. 70 .

#### Tightening torque

Component	Nm
Instrument cluster/trim for instrument cluster to dash panel	3

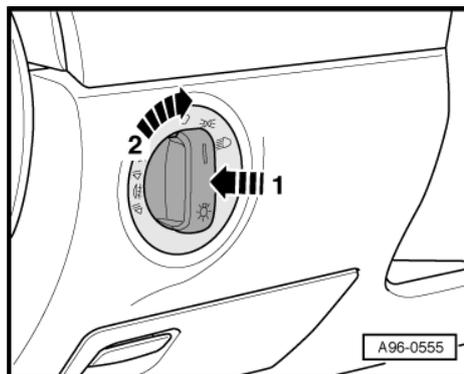


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## 2.2 Removing and installing light switch

### Removing

- Switch off ignition and take out ignition key.
- Turn light switch to position "0".
- Press light switch -arrow 1- and simultaneously turn it clockwise -arrow 2-.

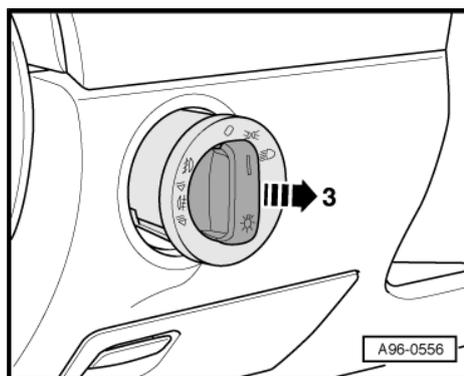


- Hold switch in this position and pull light switch out of switch housing -arrow 3-.
- Unplug electrical connector.

### Installing

Installation is carried out in the reverse order; note the following:

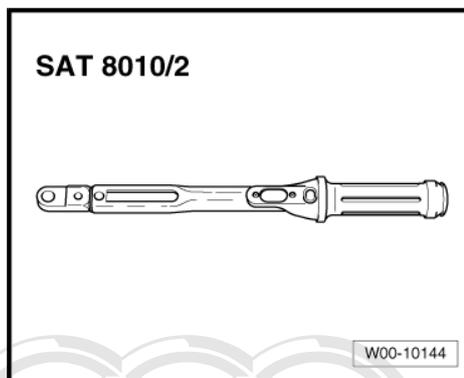
- Press switch into switch housing until catch engages.



## 2.3 Removing and installing steering column adjustment switch - E167-

### Special tools and workshop equipment required

- ◆ Special screwdriver T8 - T40056 A-



### Removing



#### WARNING

*When working on knee airbag, observe safety precautions for working on airbags ⇒ Rep. gr. 69 .*

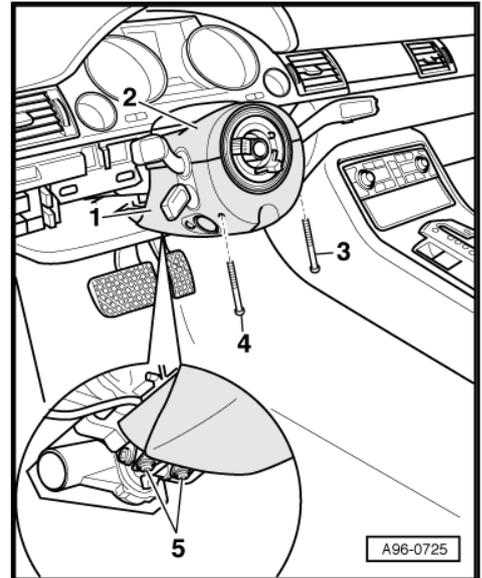
- Remove driver's storage compartment ⇒ Rep. gr. 68 .
- Move steering wheel down and to rear as far as possible, making use of full range of steering column adjuster.

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- Unscrew bolts -3- and -4- using special screwdriver T8 - T40056 A- .
- Unscrew TORX bolts -5-.
- Separate top trim -2- for steering column switch from bottom trim -1- and detach both sections.
- Unplug electrical connector at bottom trim.

**i** Note

*Steering wheel has been removed in illustration for greater clarity.*



- Unscrew bolts -arrows-.
- Lift out steering column adjustment switch - E167- -item 1- from bottom trim.

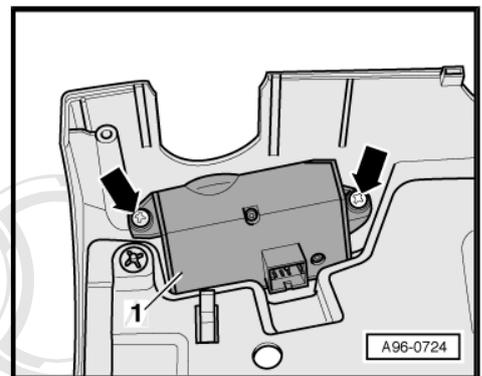
**Installing**

Installation is carried out in the reverse order; note the following:

- Install driver's storage compartment => Rep. gr. 68 .

**Tightening torques**

Component	Nm
Steering column adjustment switch - E167- to bottom trim	2.5
Trim for steering column switch	1
Trim (bottom) to steering column	2.5



## 2.4 Removing and installing switches in dash panel

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**Removing**

- Switch off ignition and take out ignition key.
- Remove trim panel with switch unit (right-side) => Rep. gr. 70 .
- Loosen bolt -3- several turns.
- Unclip switch unit -2- upwards from trim panel -1- -arrow-.

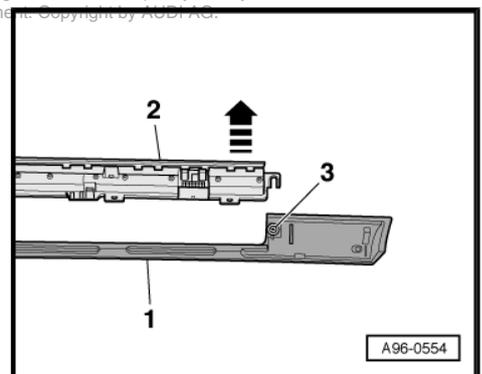
**Installing**

Installation is carried out in the reverse order; note the following:

- Press switch unit into mounting in trim panel and bolt on.
- Install trim panel with switch unit (right-side) => Rep. gr. 70 .

**Tightening torque**

Component	Nm
Switch unit to trim panel	3



## 2.5 Removing and installing glove compartment light

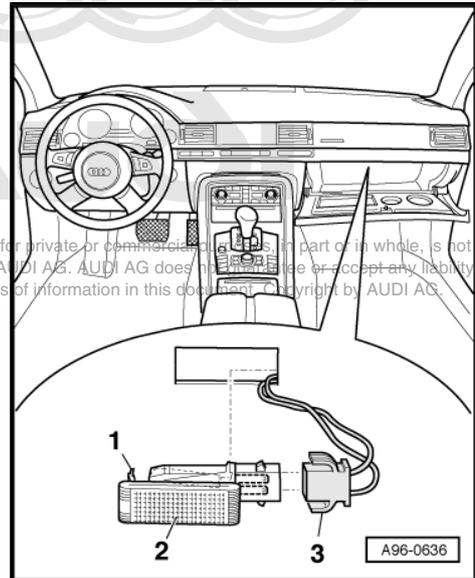
### Removing

- Turn light switch to position "0".
- Use a flat screwdriver to press in retaining tab -1- and pry out glove compartment light -2-.
- Unplug electrical connector -3-.
- Take bulb (12 V, 5 W) on reverse side of glove compartment light out of bulb holder.

### Installing

Installation is carried out in the reverse order; note the following:

- Insert glove compartment light in opening and engage on opposite side.



## 2.6 Removing and installing glove compartment light switch - E26-

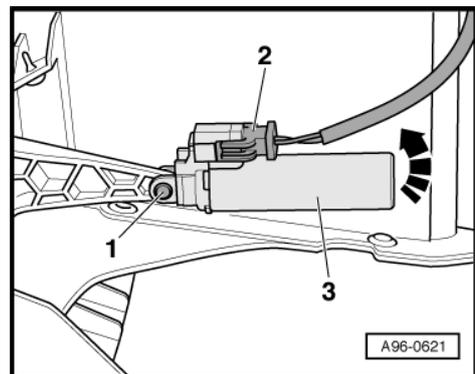
### Removing

- Switch off ignition and take out ignition key.
- Remove glove box ⇒ Rep. gr. 68 .
- Unplug electrical connector -2-.
- Pull out hinge pin -1-.
- Open removed glove box.
- Release switch -3- in anti-clockwise direction -arrow- and detach.

### Installing

Installation is carried out in the reverse order; note the following:

- Install glove box ⇒ Rep. gr. 68 .



## 2.7 Removing and installing footwell light (front)



### Note

*On vehicles with LED footwell light, the entire footwell light must be renewed if the LED is defective.*

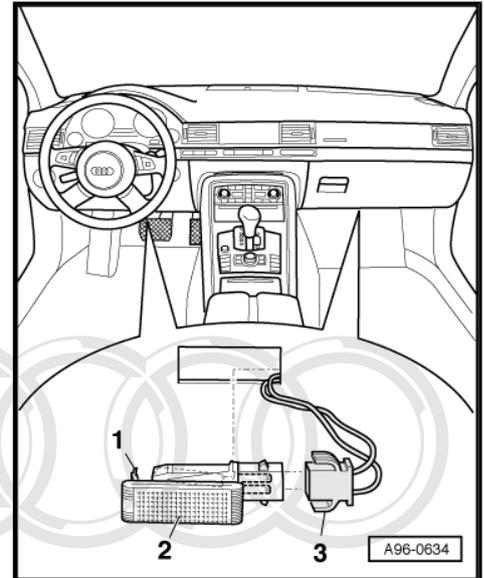
### Removing

- Use a flat screwdriver to press in retaining tab -1- and pry out footwell light -2-.
- Unplug electrical connector -3-.
- Take bulb (12 V, 5 W) on reverse side of footwell light out of bulb holder.

### Installing

Installation is carried out in the reverse order; note the following:

- Insert footwell light in opening and engage on opposite side.



**Audi**

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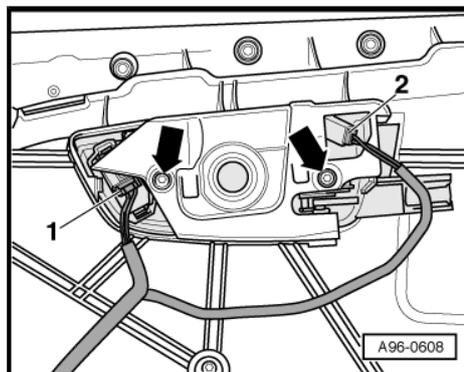
### 3 Lights and switches in front doors

Observe notes on contact corrosion ⇒ [page 264](#) .

#### 3.1 Removing and installing bulb for door opener light

##### Removing

- Remove relevant door trim ⇒ Rep. gr. 70 .
- Unplug electrical connectors -1- and -2-.
- Unscrew bolts -arrows- and detach door opener.

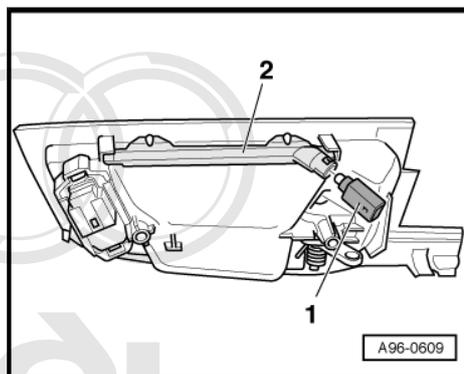


- Turn bulb holder -1- to left and pull out at door opener -2-.

##### Installing

Installation is carried out in the reverse order; note the following:

- Insert bulb for door opener light in opening and engage.
- Install door trim ⇒ Rep. gr. 70 .

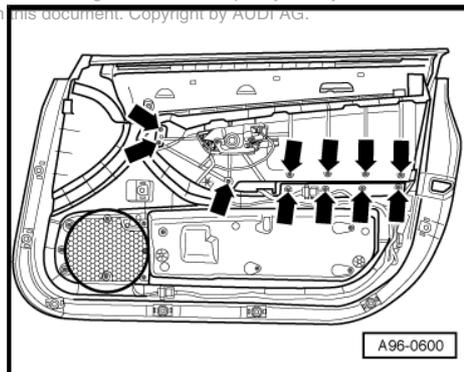


#### 3.2 Removing and installing mirror adjustment switch - E43-

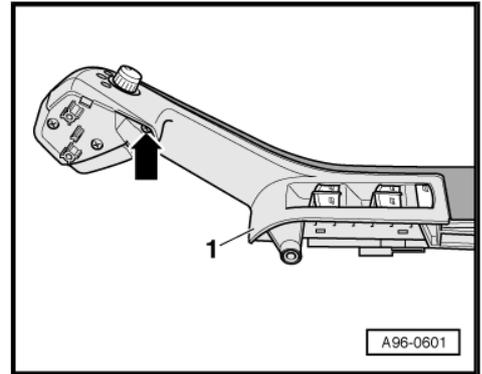
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##### Removing

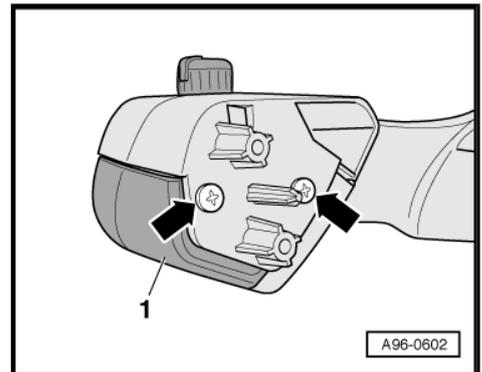
- Switch off ignition and take out ignition key.
- Remove door trim (front) ⇒ Rep. gr. 70 .
- Detach insulating mat from door trim.
- Unscrew bolts -arrows- and detach armrest.



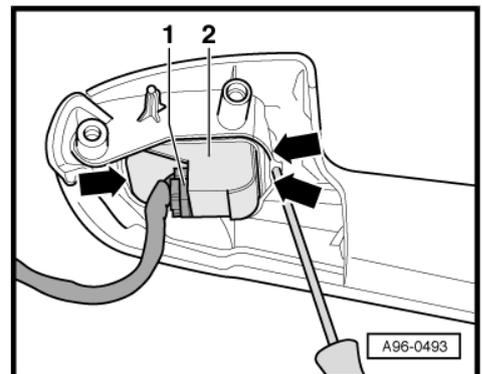
- Unscrew bolt -arrow- and detach switch mounting -1- from armrest.



- Unscrew bolts -arrows- and detach switch mounting with mirror adjustment switch.



- Unplug electrical connector -1-.
- Use small screwdriver to carefully release retaining hooks -arrows-.
- Pull mirror adjustment switch - E43- -item 2- downwards out of switch mounting.



### Installing

Installation is carried out in the reverse order; note the following:



*When installing, make sure symbol trim is inserted before the mirror adjustment switch.*

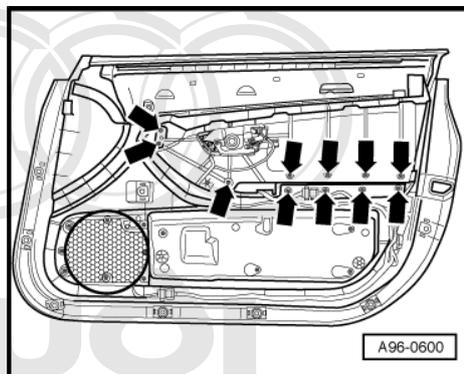
- Press switch into switch mounting until retaining hooks engage.
- Install door trim (front) => Rep. gr. 70

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### 3.3 Removing and installing operating unit for window regulator in driver door - E512-

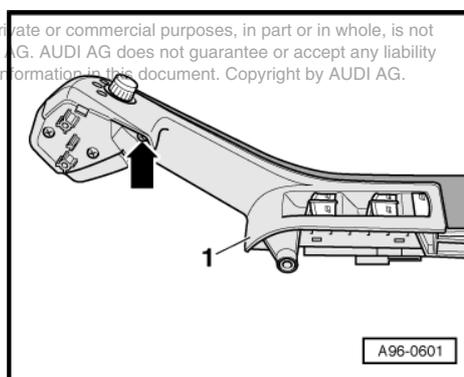
#### Removing

- Switch off ignition and take out ignition key.
- Remove door trim (front) ⇒ Rep. gr. 70 .
- Detach insulating mat from door trim.
- Unscrew bolts -arrows- and detach armrest.

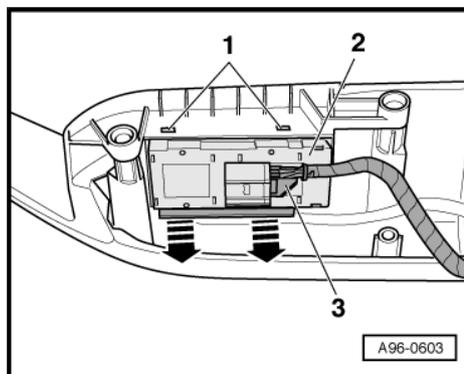


- Unscrew bolt -arrow- and detach switch mounting -1- from armrest.

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- Release retaining hooks on armrest side by pressing retaining element -arrows-.
- Use small screwdriver to carefully release retaining hooks -1- on side of trim.
- Pull window regulator switch -2- downwards out of door trim.
- Unplug electrical connector -3- at window regulator switch.



#### Installing

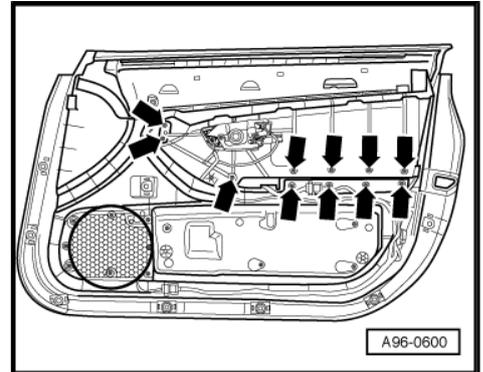
Installation is carried out in the reverse order; note the following:

- Press switch into switch mounting until retaining hooks engage.
- Install door trim (front) ⇒ Rep. gr. 70 .

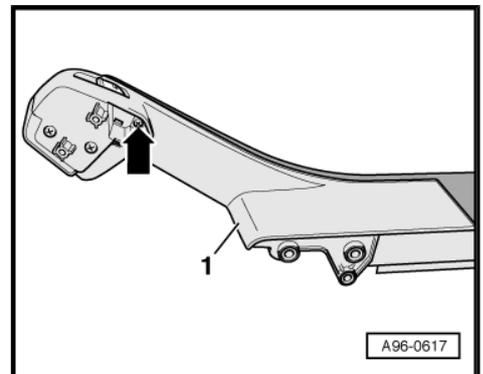
### 3.4 Removing and installing window regulator switch in front passenger door - E107-

#### Removing

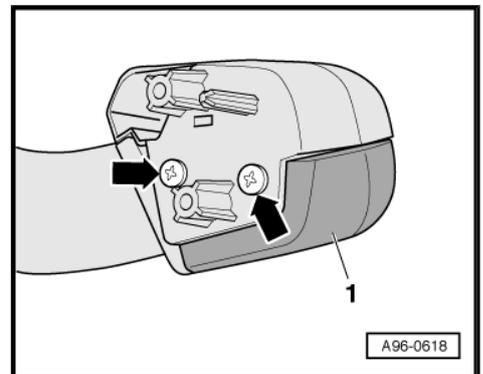
- Switch off ignition and take out ignition key.
- Remove door trim (front) ⇒ Rep. gr. 70 .
- Detach insulating mat from door trim.
- Unscrew bolts -arrows- and detach armrest.



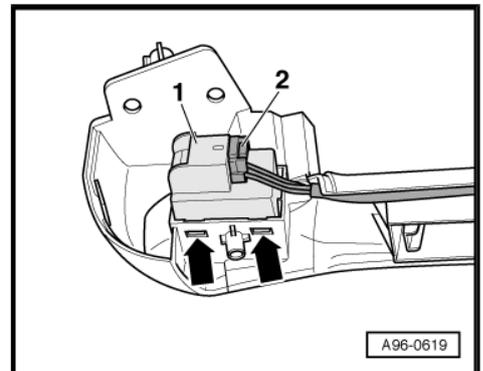
- Unscrew bolt -arrow- and detach switch mounting -1- from armrest.



- Unscrew bolts -arrows- and detach switch mounting with window regulator switch.



- Unplug electrical connector -2-.
- Use small screwdriver to carefully release retaining hooks -arrows-.
- Pull window regulator switch in front passenger door - E107- item 1- downwards out of switch mounting.



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#### Installing

Installation is carried out in the reverse order; note the following:

- Press switch into switch mounting until retaining hooks engage.
- Install door trim (front) ⇒ Rep. gr. 70 .

### 3.5 Removing and installing driver side interior locking switch - E150- / front pas-

## Passenger side interior locking switch - E198-

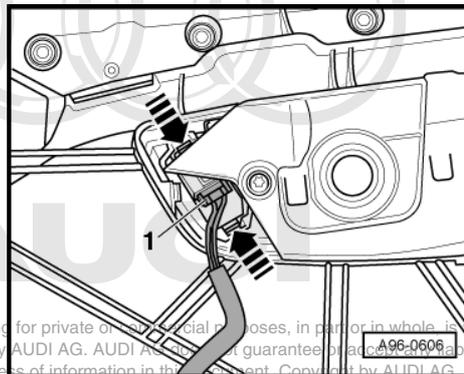
### Removing

- Switch off ignition and take out ignition key.
- Remove relevant door trim ⇒ Rep. gr. 70 .
- Unplug electrical connector -2-.
- Release retainers -arrows- and press central locking switch out of door trim towards passenger's compartment.

### Installing

Installation is carried out in the reverse order; note the following:

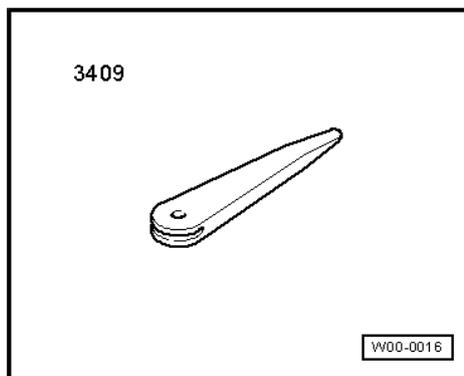
- Install door trim ⇒ Rep. gr. 70 .



## 3.6 Removing and installing interior door lighting strip

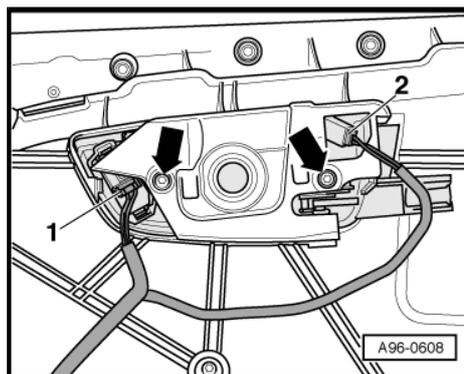
### Special tools and workshop equipment required

- ◆ Removal wedge - 3409-

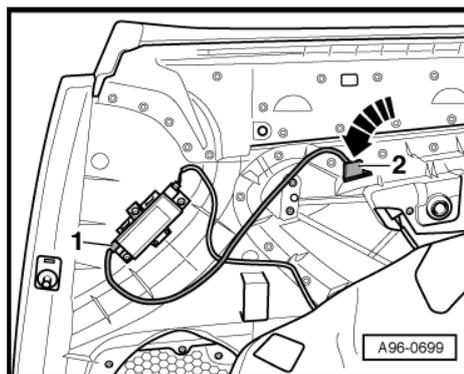


### Removing

- Remove door trim ⇒ Rep. gr. 70 .
- Unplug electrical connectors -1- and -2-.
- Unscrew bolts -arrows- and detach door opener.



- Unplug electrical connector -1-.
- Carefully press lighting strip -2- out of door trim on back -arrow-.

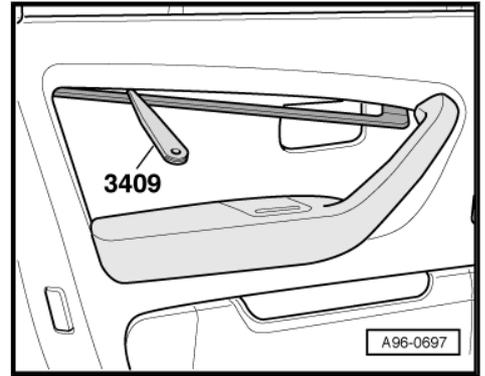


- Use removal wedge - 3409- -item 1- to carefully prise lighting strip out of retaining clips.

**Installing**

Installation is carried out in the reverse order; note the following:

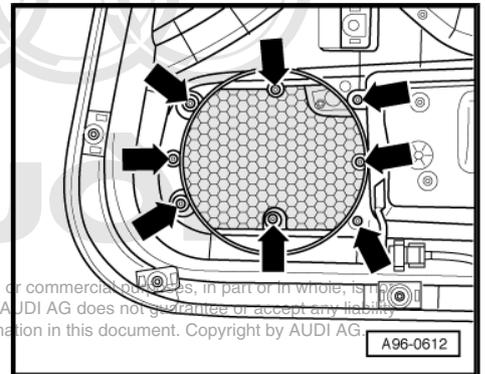
- Install door trim => Rep. gr. 70 .



**3.7 Removing and installing switch panel with rear lid remote release button - E233- and fuel tank flap release button - E319-**

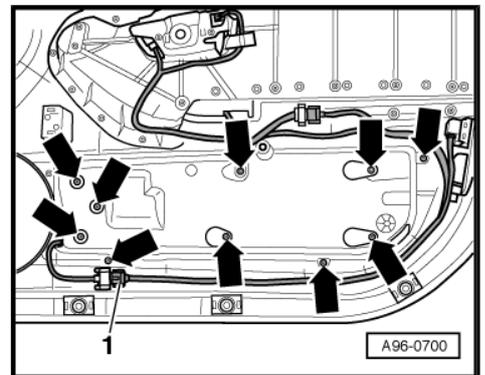
**Removing**

- Switch off ignition and take out ignition key.
- Remove door trim (front) => Rep. gr. 70 .
- Detach insulating mat from door trim.
- Unscrew bolts -arrows- and detach loudspeaker trim.

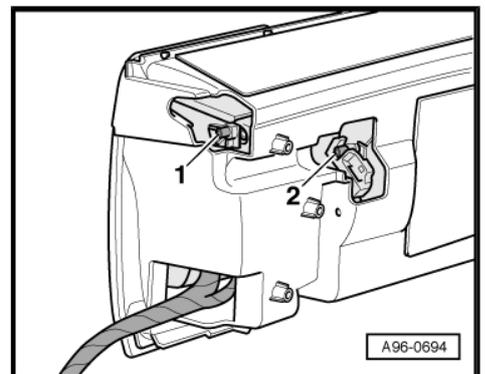


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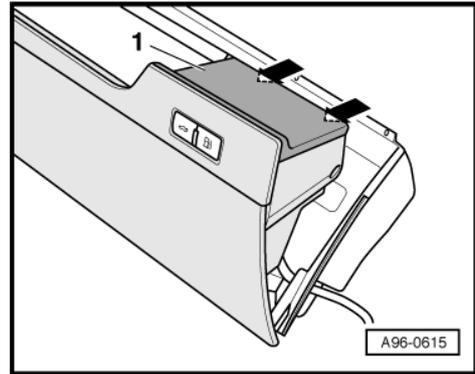
- Unplug electrical connector -1-.
- Unscrew bolts -arrows- and detach storage compartment from door trim.



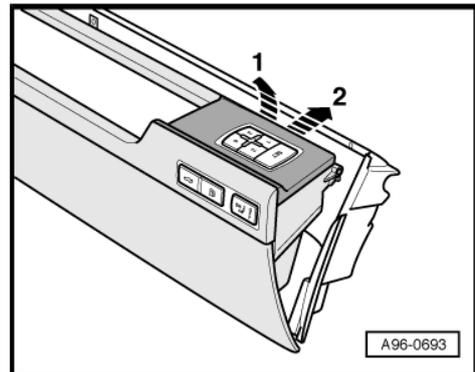
- Use Allen key to remove pin -1- for actuation of storage compartment lock and pin -2- for stop.
- Repeat procedure on other side of storage compartment.
- Open storage compartment.



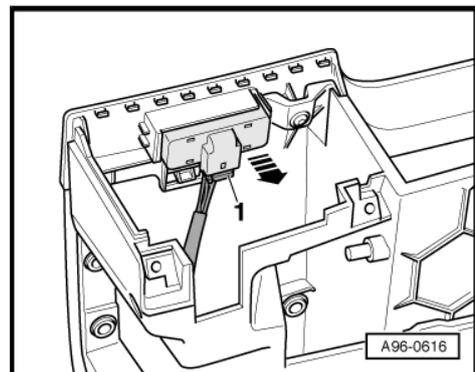
- Remove switch trim -1- -arrows-.



- Lift switch at rear -arrow 1- and detach towards inside of storage compartment -arrow 2-.
- Unplug electrical connector.



- Release switch panel on left and right and press to rear out of switch mounting in storage compartment -arrow-.
- Unplug electrical connector -1-.



#### Installing

Installation is carried out in the reverse order; note the following:

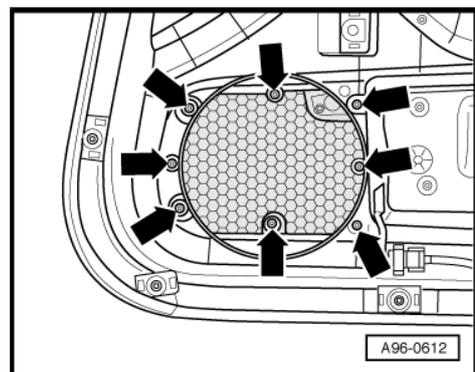
- Press switch panel into mounting until retaining hooks engage.
- Install door trim (front) ⇒ Rep. gr. 70 .

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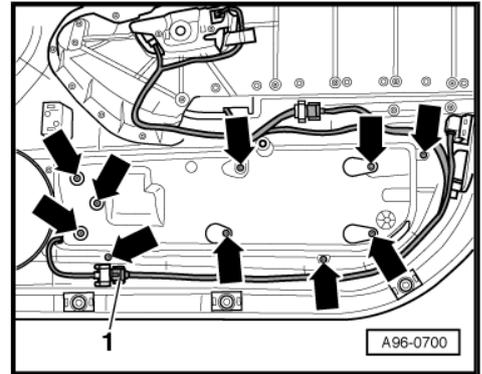
### 3.8 Removing and installing driver seat/front passenger seat memory operating unit - E97- / -E277-

#### Removing

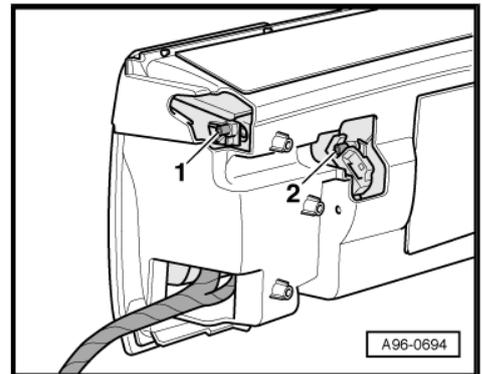
- Switch off ignition and take out ignition key.
- Remove door trim (front) ⇒ Rep. gr. 70 .
- Detach insulating mat from door trim.
- Unscrew bolts -arrows- and detach loudspeaker trim.



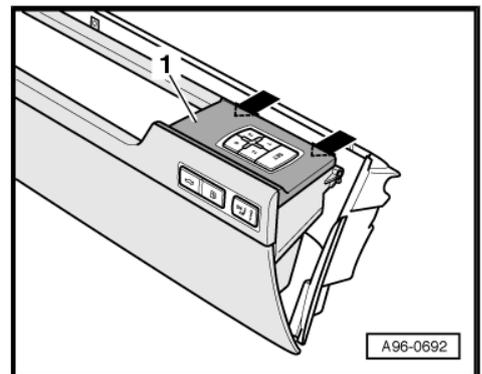
- Unplug electrical connector -1-.
- Unscrew bolts -arrows- and detach storage compartment from door trim.



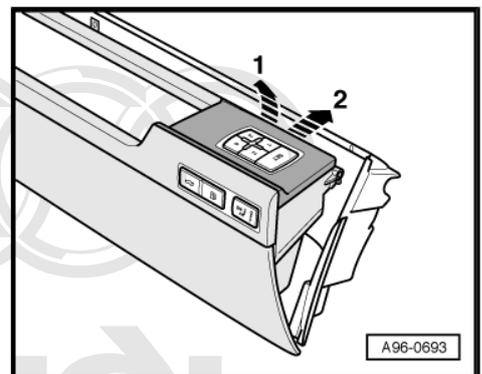
- Use Allen key to remove pin -1- for actuation of storage compartment lock and pin -2- for stop.
- Repeat procedure on other side of storage compartment.
- Open storage compartment.



- Remove switch trim -1- -arrows-.



- Lift switch at rear -arrow 1- and detach towards inside of storage compartment -arrow 2-.



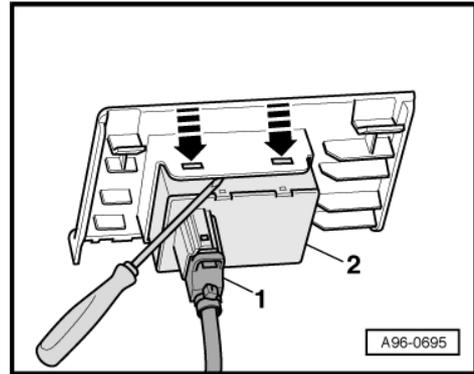
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- Unplug electrical connector -1-.
- Use small screwdriver to carefully release retaining hooks -arrows-.
- Pull driver seat/front passenger seat memory operating unit -2- downwards out of switch mounting.

### Installing

Installation is carried out in the reverse order; note the following:

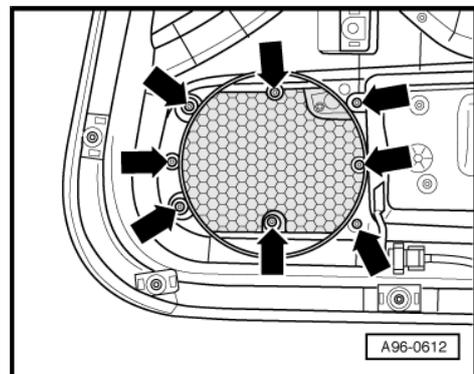
- Press driver seat/passenger seat memory operating unit into switch mounting until retaining hooks engage.
- Install door trim (front) ⇒ Rep. gr. 70 .



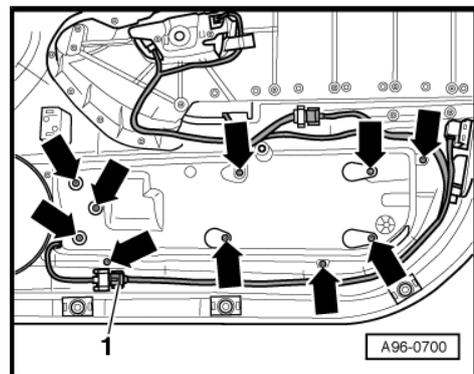
## 3.9 Removing and installing emergency-off button -E190- / -E466- for driver seat/ front passenger seat memory operating unit

### Removing

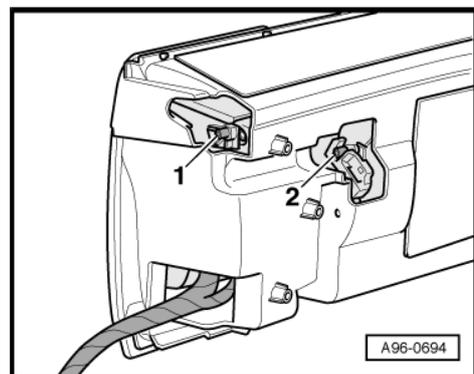
- Switch off ignition and take out ignition key.
- Remove door trim (front) ⇒ Rep. gr. 70 .
- Detach insulating mat from door trim.
- Unscrew bolts -arrows- and detach loudspeaker trim.



- Unplug electrical connector -1-.
- Unscrew bolts -arrows- and detach storage compartment from door trim.

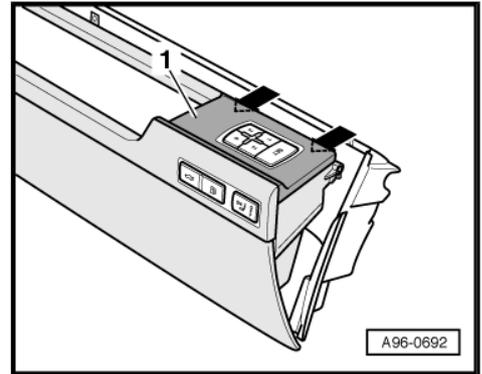


- Use Allen key to remove pin -1- for actuation of storage compartment lock and pin -2- for stop.
- Repeat procedure on other side of storage compartment.
- Open storage compartment.

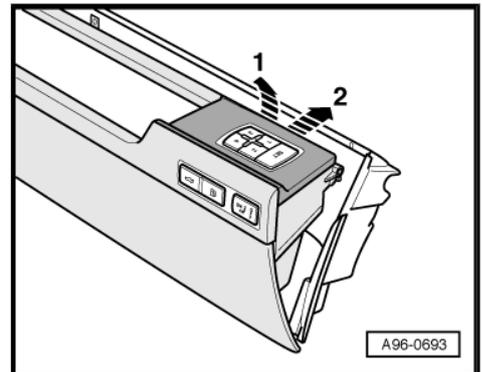


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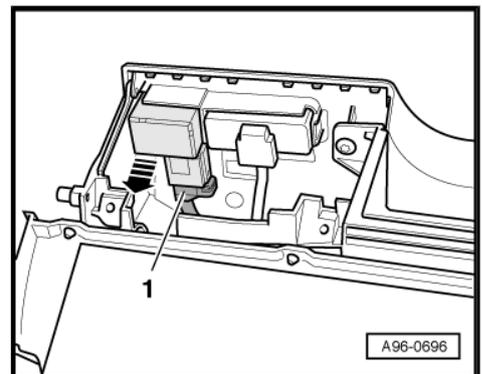
- Remove switch trim -1- -arrows-.



- Lift rear of switch trim -arrow 1- and detach towards inside of storage compartment -arrow 2-.
- Unplug electrical connector.



- Release retaining hooks on left and right and press emergency-off button to rear out of switch mounting in storage compartment -arrow-.
- Unplug electrical connector -1-.



### Installing

Installation is carried out in the reverse order; note the following:

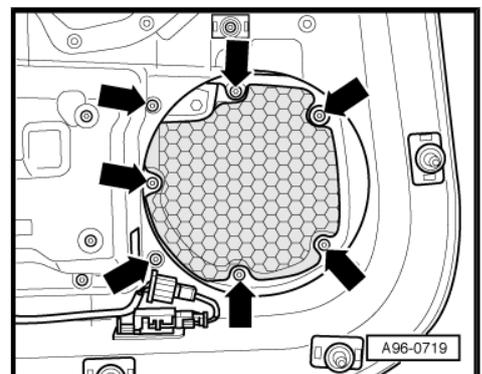
- Press emergency-off button into mounting until retaining hooks engage.
- Install door trim (front) => Rep. gr. 70.

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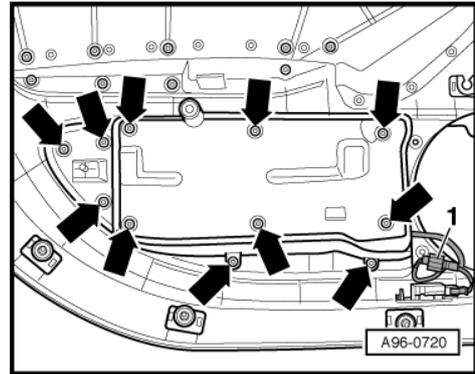
## 3.10 Removing and installing front passenger seat adjustment switch - E157-

### Removing

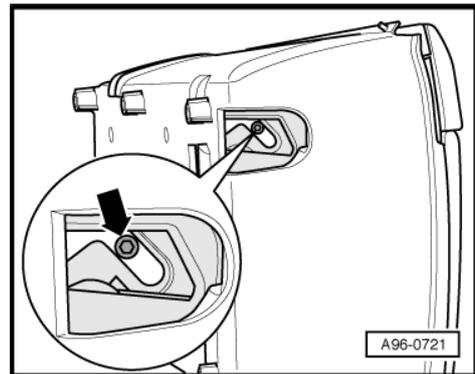
- Switch off ignition and take out ignition key.
- Remove rear door trim => Rep. gr. 70 .
- Detach insulating mat from door trim.
- Unscrew bolts -arrows- and detach loudspeaker trim.



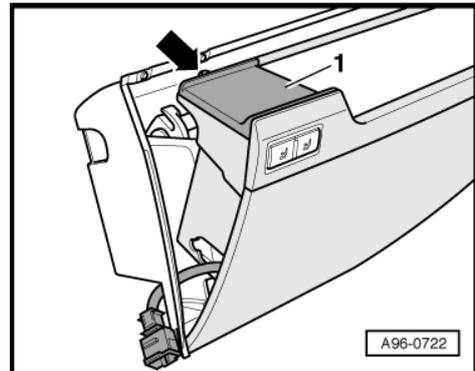
- Unplug electrical connector -1-.
- Unscrew bolts -arrows- and detach small cover panel and storage compartment from door trim.



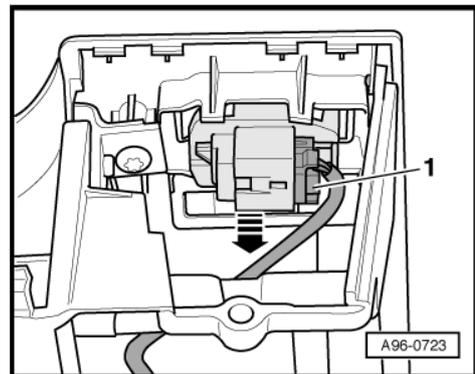
- Remove pin -1- for actuation of storage compartment lock with Allen key.
- Repeat procedure on other side of storage compartment.
- Open storage compartment.



- Remove switch trim -1- -arrow-.



- Release fore-and-aft adjustment switch for front passenger's seat at top and bottom and press to rear out of switch mounting in storage compartment -arrow-.
- Unplug electrical connector -1-.



### Installing

Installation is carried out in the reverse order; note the following:

- Press switch into switch mounting until retaining hooks engage.
- Install rear door trim ⇒ Rep. gr. 70 .

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## 3.11 Removing and installing door contact switch

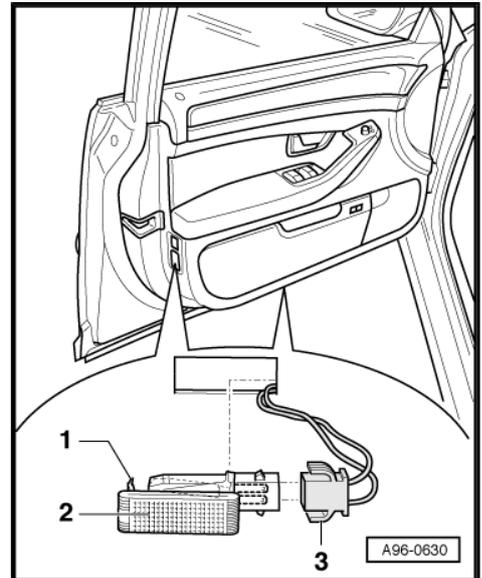
The door contact switch is located in the door lock and cannot be renewed separately if defective.

- Renewing front door lock ⇒ Rep. gr. 57 .

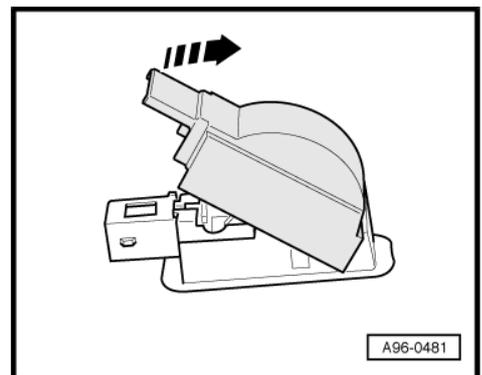
### 3.12 Removing and installing door warning lamp and entry light

#### Removing

- Use flat screwdriver to press in retaining tab -1- and pry out door warning lamp/entry light -2-.
- Unplug electrical connector -3-.



- If fitted, carefully pry off cover at door warning lamp -arrow-.

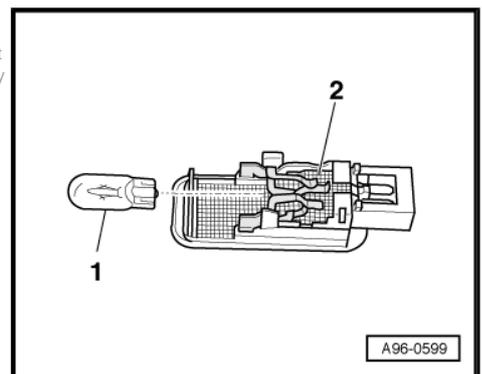


- Take bulb -1- (12 V, 3 W) on back of door warning lamp/entry light out of bulb holder -2-.

#### Installing

Installation is carried out in the reverse order; note the following:

- If fitted previously, attach cover at door warning lamp.
- Insert door warning light/entry light in opening and engage on opposite side.



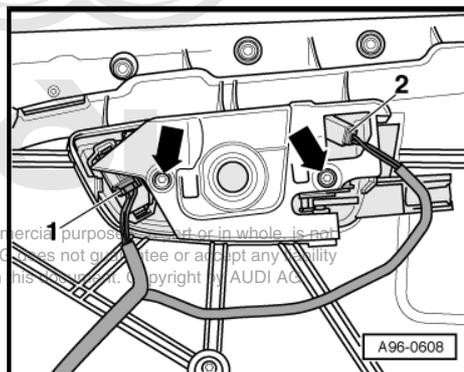
## 4 Lights and switches in rear doors

Observe notes on contact corrosion ⇒ [page 264](#) .

### 4.1 Removing and installing bulb for door opener light

#### Removing

- Remove door trim ⇒ Rep. gr. 70 .
- Unplug electrical connectors -1- and -2-.
- Unscrew bolts -arrows- and detach door opener.



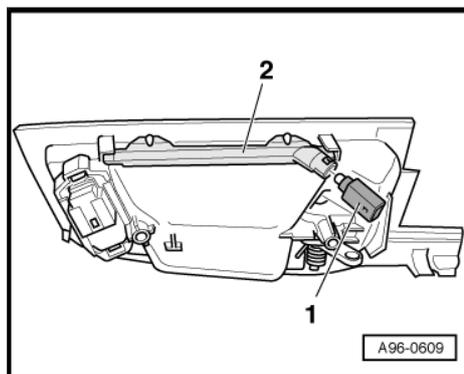
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- Turn bulb holder -1- to left and pull out at door opener -2-.

#### Installing

Installation is carried out in the reverse order; note the following:

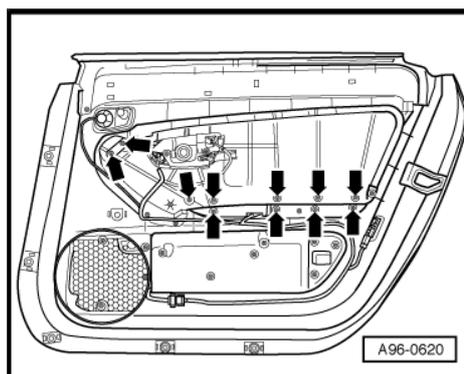
- Insert bulb for door opener light in opening and engage.
- Install door trim ⇒ Rep. gr. 70 .



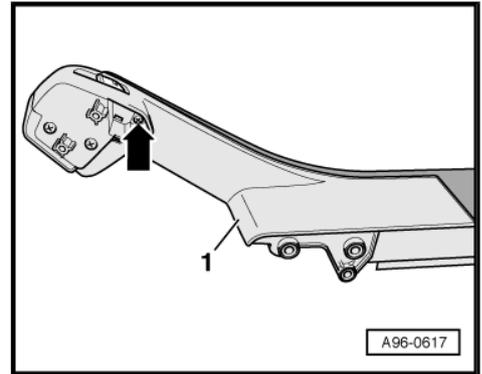
### 4.2 Removing and installing rear left/rear right window regulator switch, in door - E52- / -E54-

#### Removing

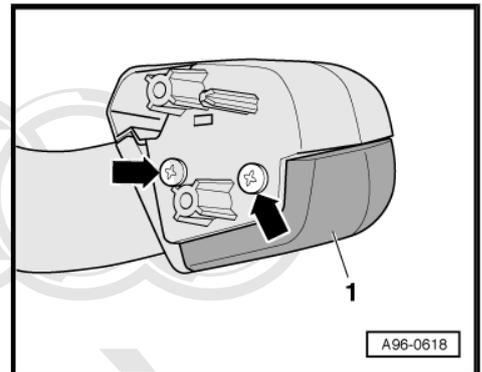
- Switch off ignition and take out ignition key.
- Remove rear door trim ⇒ Rep. gr. 70 .
- Detach insulating mat from door trim.
- Unscrew bolts -arrows- and detach armrest.



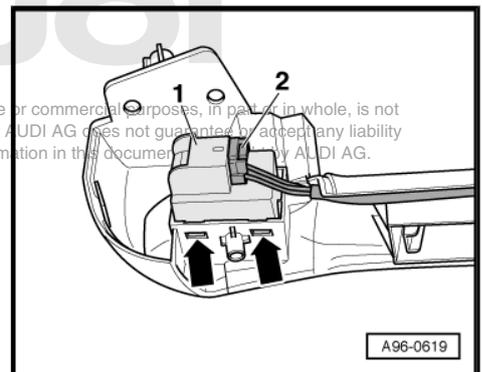
- Unscrew bolt -arrow- and detach switch mounting -1- from armrest.



- Unscrew bolts -arrows- and detach switch mounting with window regulator switch.



- Unplug electrical connector -2-.
- Use small screwdriver to carefully release retaining hooks -arrows-.
- Pull window regulator switch in rear door -E52- / -E54- -item 1- downwards out of switch mounting.



### Installing

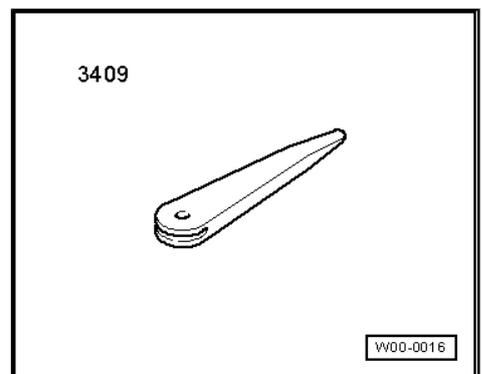
Installation is carried out in the reverse order; note the following:

- Press switch into switch mounting until retaining hooks engage.
- Install rear door trim ⇒ Rep. gr. 70 .

## 4.3 Removing and installing interior door lighting strip

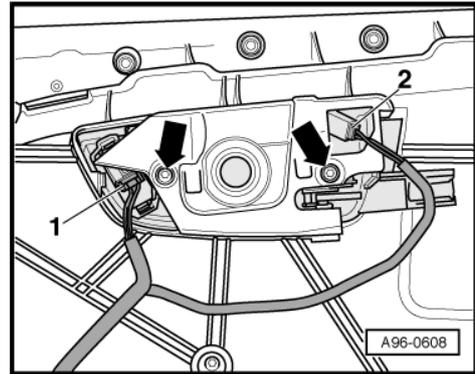
### Special tools and workshop equipment required

- ◆ Removal wedge - 3409-

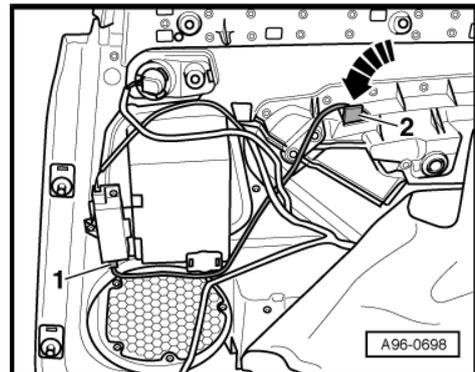


### Removing

- Remove door trim ⇒ Rep. gr. 70 .
- Unplug electrical connectors -1- and -2-.
- Unscrew bolts -arrows- and detach door opener.



- Unplug electrical connector -1-.
- Carefully press lighting strip -2- out of door trim on back -arrow-.

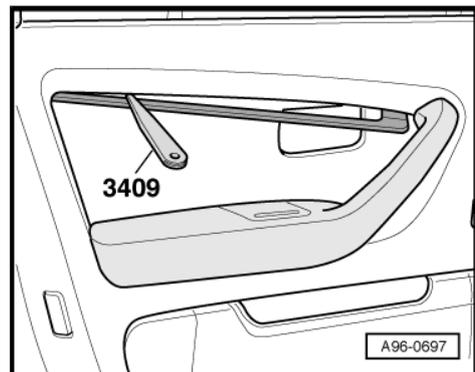


- Use removal wedge - 3409- -item 1- to carefully prise lighting strip out of retaining clips.

### Installing

Installation is carried out in the reverse order; note the following:

- Install door trim ⇒ Rep. gr. 70 .



## 4.4 Removing and installing background light in storage compartment in door

### Removing

- Open storage compartment in door.
- Carefully lever background light -1- out of storage compartment in door -2- using a small screwdriver.
- Unplug electrical connector.

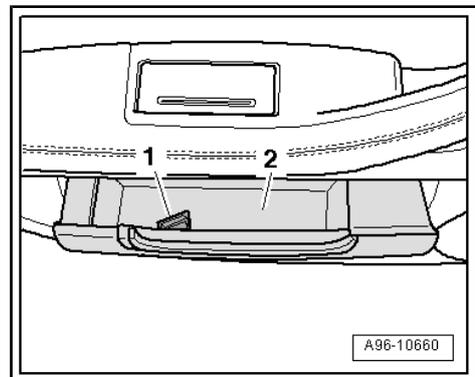
### Installing

Installation is carried out in the reverse order; note the following:

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**Note**



*If the LED is defective, the complete background light must be renewed.*

- Insert background light in opening and engage on opposite side.

## 4.5 Removing and installing rear left interior locking switch - E273- / rear right interior locking switch - E274-

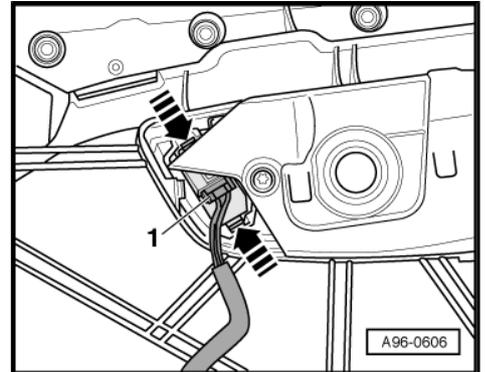
### Removing

- Switch off ignition and take out ignition key.
- Remove relevant door trim ⇒ Rep. gr. 70 .
- Unplug electrical connector -2-.
- Release retainers -arrows- and press central locking switch out of door trim towards passenger's compartment.

### Installing

Installation is carried out in the reverse order; note the following:

- Install door trim ⇒ Rep. gr. 70 .



## 4.6 Removing and installing door contact switch

The door contact switch is located in the door lock and cannot be renewed separately if defective.

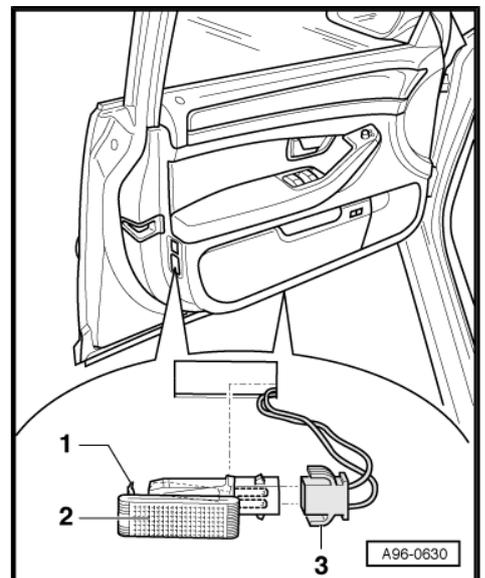
- Renewing rear door lock ⇒ Rep. gr. 58 .

## 4.7 Removing and installing door warning lamp and entry light

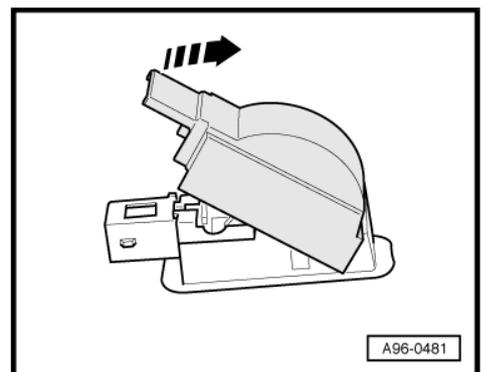
### Removing

- Use flat screwdriver to press in retaining tab -1- and pry out door warning lamp/entry light -2-.
- Unplug electrical connector -3-.

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- If fitted, carefully pry off cover at door warning lamp -arrow-.



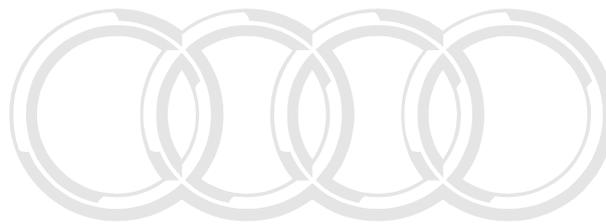
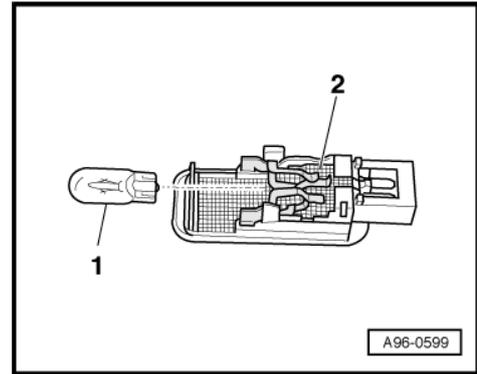


- Take bulb -1- (12 V, 3 W) on back of door warning lamp/entry light out of bulb holder -2-.

### Installing

Installation is carried out in the reverse order; note the following:

- If fitted previously, attach cover at door warning lamp.
- Insert door warning light/entry light in opening and engage on opposite side.



# Audi

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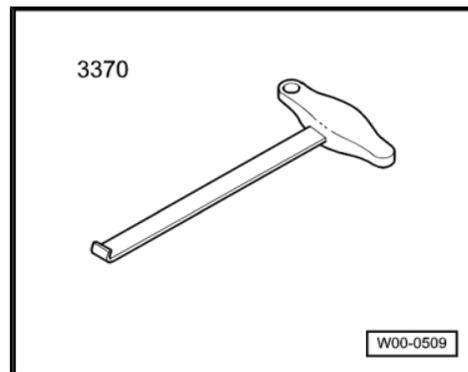
## 5 Lights and switches in centre console

Observe notes on contact corrosion ⇒ [page 264](#) .

### 5.1 Removing and installing light for centre console (front)

Special tools and workshop equipment required

- ◆ Front-end hook - 3370-



#### Removing

- Carefully detach light -1- for centre console (front) using front-end hook - 3370- .
- Unplug electrical connector.

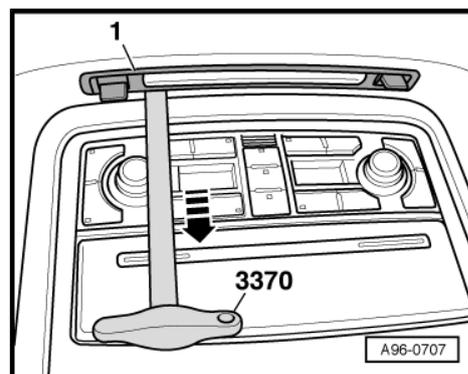
#### Installing

Install in reverse order.



#### Note

*In the event of a defect, the light for centre console (front) must be renewed as a complete unit.*



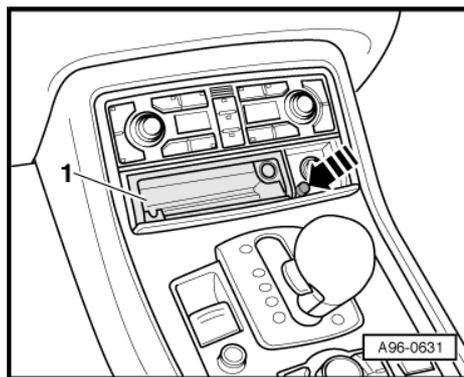
### 5.2 Removing and installing entry and start authorisation button - E408- or driver identification control unit - J589-

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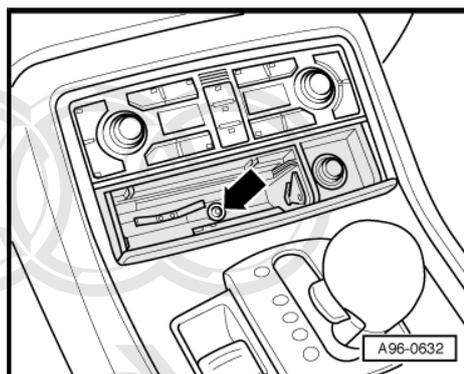
#### Removing

- If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.

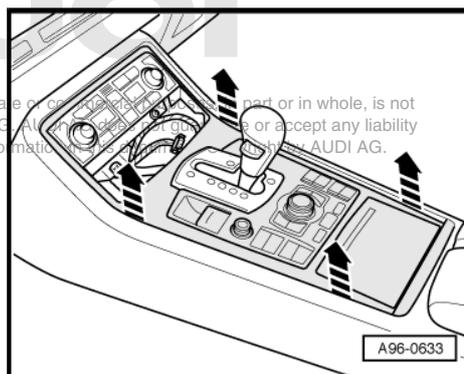
- Switch off ignition and take out ignition key.
- Press button -arrow- and take out front ashtray insert -1-.



- Unscrew bolt -arrow- and remove front ashtray housing.
- Unplug electrical connector.



- Lift off switch trim for centre console -arrows-.
- Unplug electrical connectors.



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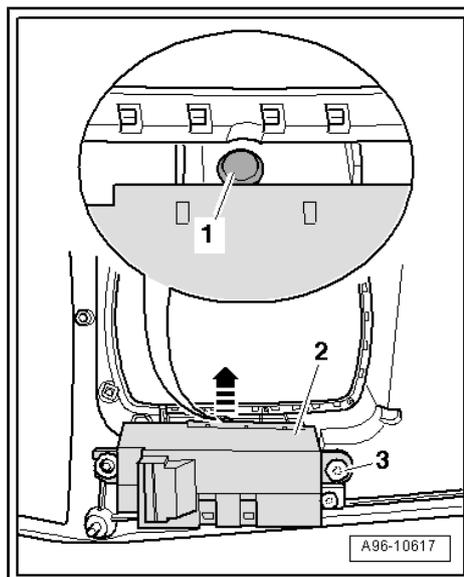
- Remove bolt -3-.
- If fitted, pull out locking pin -1- -arrow-.
- Detach entry and start authorisation button - E408- / driver identification control unit - J589- -item 2-.

### Installing

Install in reverse order.

### Tightening torques

Component	Nm
Entry and start authorisation button - E408- or driver identification control unit - J589- to switch trim	0.8
Ashtray housing to centre console	2.5



### 5.3 Removing and installing front seat heating switches

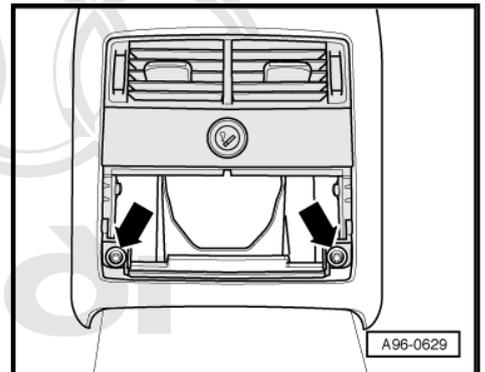
The front seat heating switches are integrated into the Climatronic control unit - J255- (may also be referred to as "front operating and display unit") and cannot be renewed individually.

### 5.4 Removing and installing rear seat heating switches

Front seat heating switches are only integrated into rear Climatronic operating and display unit - E265- on vehicles with air conditioner (rear) and cannot be renewed individually.

#### Removing

- Switch off ignition and take out ignition key.
- Take out rear ashtray.
- Unscrew bolts -arrows- and detach mounting frame with vents.
- Unplug electrical connectors.



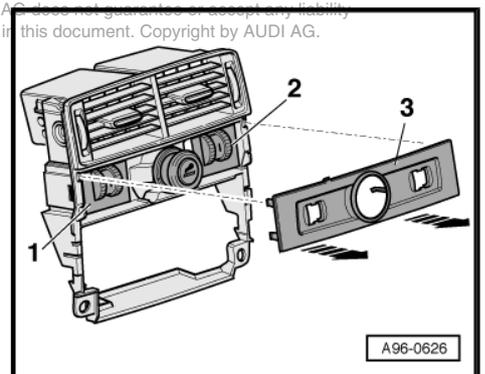
- Detach trim -3- from mounting frame -arrows-.
- Unclip switches -1- and -2- from switch mounting.

#### Installing

Install in reverse order.

#### Tightening torque

Component	Nm
Air vents to centre console (rear)	2.5



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## 6 Lights and switches in seats and luggage compartment

Observe notes on contact corrosion ⇒ [page 264](#) .

### 6.1 Removing and installing footwell light (rear)



#### Note

*On vehicles with LED footwell light, the entire footwell light must be renewed if the LED is defective.*

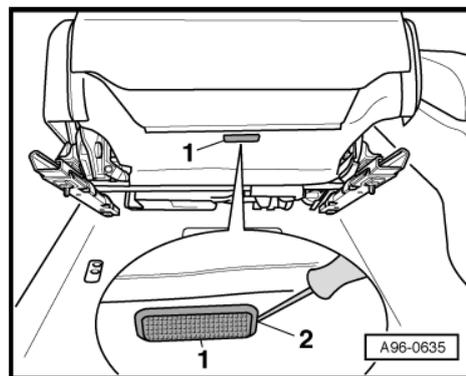
#### Removing

- Use a flat screwdriver to press in retaining tab -2- and pry out footwell light -1-.
- Unplug electrical connector.
- Take bulb (12 V, 5 W) on reverse side of footwell light out of bulb holder.

#### Installing

Installation is carried out in the reverse order; note the following:

- Insert footwell light in opening and engage on opposite side.



### 6.2 Removing and installing luggage compartment lights

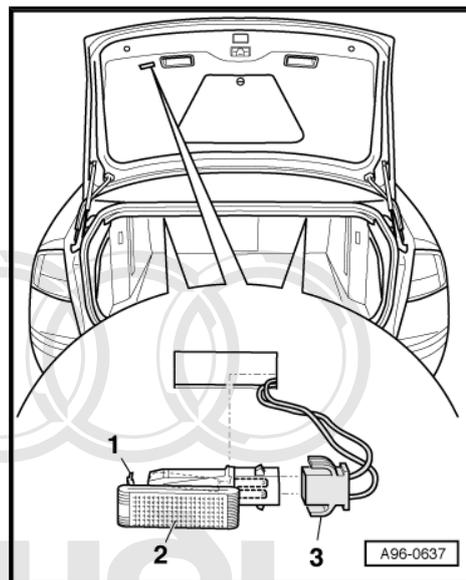
#### Removing

- Use flat screwdriver to press in retainer tab -1- and pry out luggage compartment light -2-.
- Unplug electrical connector -3-.
- Take bulb (12 V, 5 W) on reverse side of luggage compartment light out of holder.

#### Installing

Installation is carried out in the reverse order; note the following:

- Insert luggage compartment light in opening and engage on opposite side.



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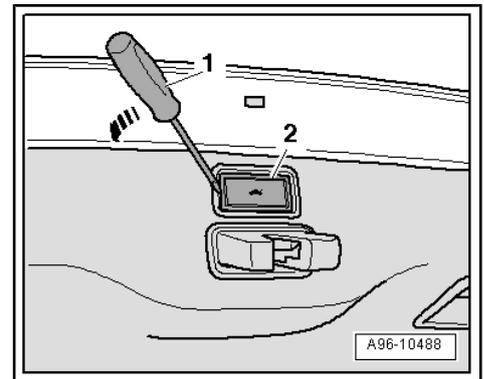
### 6.3 Removing and installing button to close rear lid in luggage compartment - E406-

#### Removing

- Switch off ignition and take out ignition key.
- Use small screwdriver -1- to pry button to close rear lid in luggage compartment - E406- -item 2- out of rear lid trim -arrow-.
- Unplug electrical connector.

#### Installing

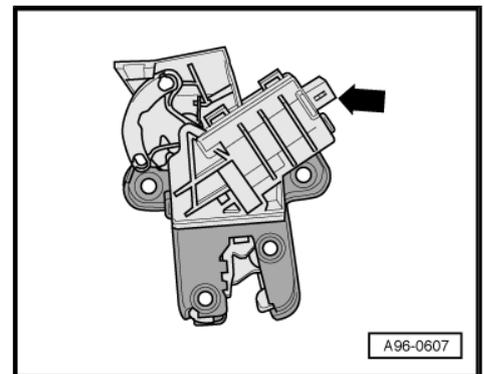
Install in reverse order.



### 6.4 Removing and installing contact switch in lock cylinder for rear lid, anti-theft system and central locking system - F124-

The contact switch in lock cylinder for rear lid, anti-theft system and central locking system - F124- is located in rear lid lock -arrow- and cannot be renewed separately if defective.

- Renewing rear lid lock ⇒ Rep. gr. 55 .



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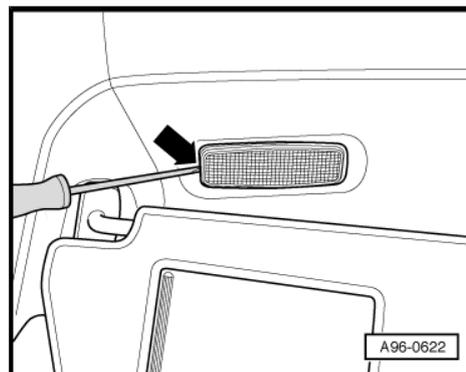
## 7 Lights and switches in roof trim

Observe notes on contact corrosion ⇒ [page 264](#) .

### 7.1 Removing and installing vanity mirror light

#### Removing

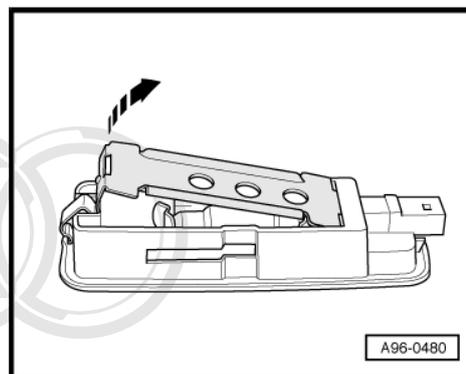
- Use flat screwdriver to carefully pry out vanity mirror light at recess -arrow-.
- Unplug electrical connector.



- Detach cover over bulb -arrow-.
- Remove bulb (12 V, 5 W) from holder on reverse side of vanity mirror light.

#### Installing

Install in reverse order.

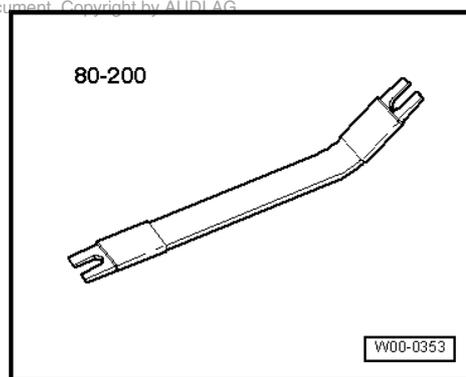


### 7.2 Removing and installing front interior light with roof electronics control unit - J528- - vehicles up to 08.2007

#### Special tools and workshop equipment required

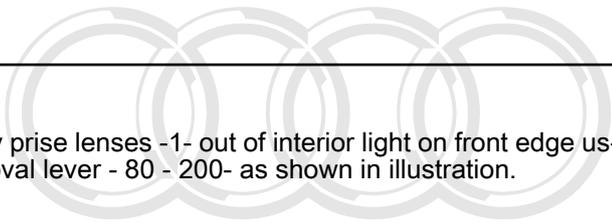
- ◆ Removal lever - 80 - 200-

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#### Removing

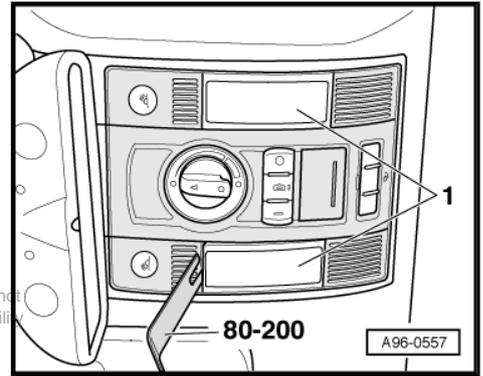
- If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Switch off ignition and take out ignition key.



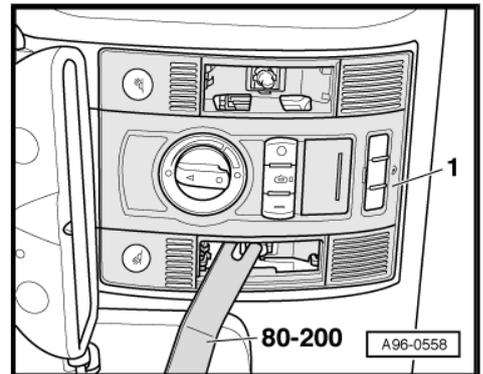
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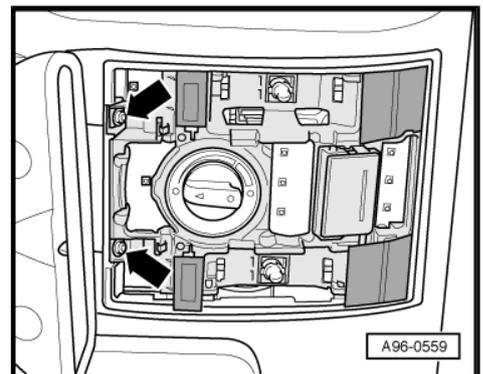
- Carefully prise lenses -1- out of interior light on front edge using removal lever - 80 - 200- as shown in illustration.



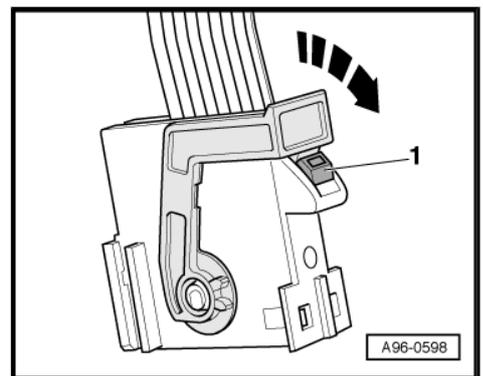
- Pry out switch trim with removal lever - 80 - 200- as shown in illustration.



- Unscrew bolts -arrows-.
- Pivot front interior light downwards and remove from roof trim.
- Unplug multi-pin connector.



- Press retaining tab -1- at multi-pin connector.
- Release retaining clips of connectors -arrow- and unplug connectors.
- Unplug remaining electrical connectors.



**Installing**

Installation is carried out in the reverse order; note the following:

- Fit interior light and secure.

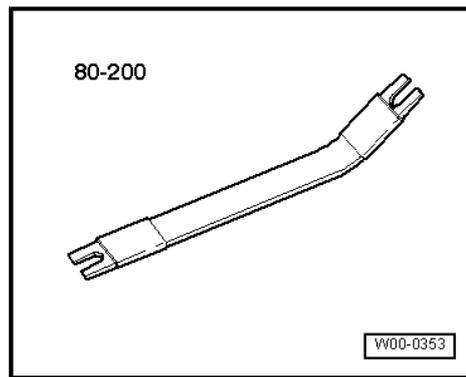
**Tightening torque**

Component	Nm
Interior light to roof trim	4.5

**7.3 Removing and installing front interior light with roof electronics control unit - J528- - vehicles from 09.2007 onwards**

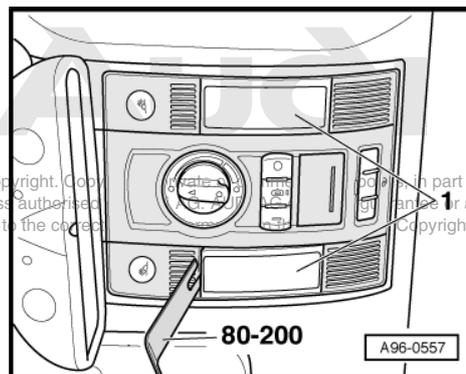
Special tools and workshop equipment required

◆ Removal lever - 80 - 200-

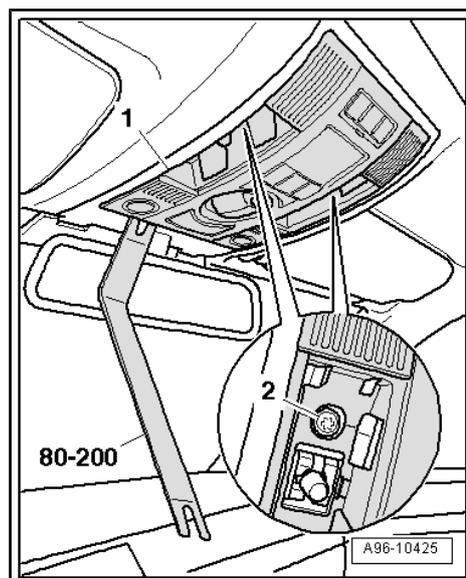


**Removing**

- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Switch off ignition and take out ignition key.
- Carefully prise lenses -1- out of interior light on front edge using removal lever - 80 - 200- as shown in illustration.



- Remove bolts -2-.
- Pry out front interior light -1- with removal lever - 80 - 200- as shown in illustration.
- Pivot front interior light downwards and remove from roof trim.
- Unplug multi-pin connector.



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- Press retaining tab -1- at multi-pin connector.
- Release retaining clips of connectors -arrow- and unplug connectors.
- Unplug remaining electrical connectors.

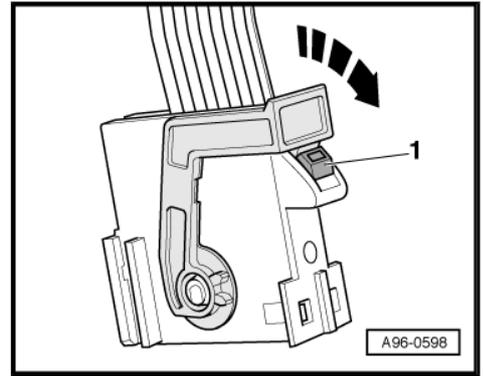
**Installing**

Installation is carried out in the reverse order; note the following:

- Fit interior light and secure.

**Tightening torque**

Component	Nm
Interior light to roof trim	4.5



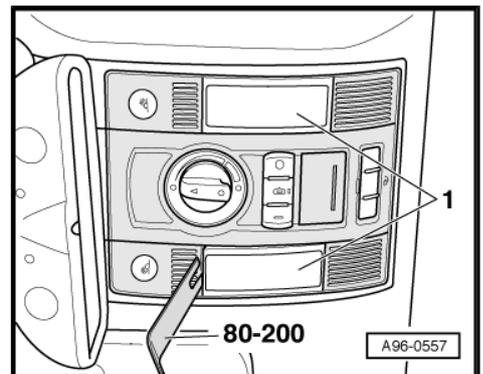
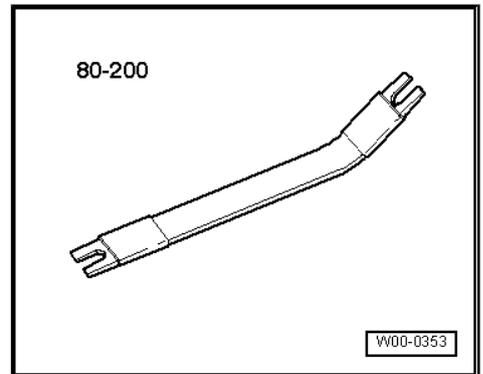
**7.4 Renewing bulbs for interior light (front)**

**Special tools and workshop equipment required**

- ◆ Removal lever - 80 - 200-

**Removing**

- Carefully prise lenses -1- out of interior light on front edge using removal lever - 80 - 200- as shown in illustration.

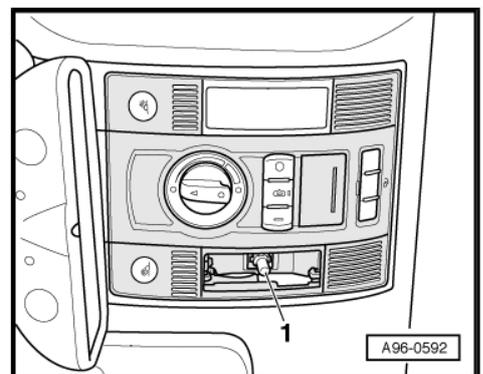


- Take glass base bulb -1- (12 V, 6 W) out of clamp-type holder.

**Installing**

Installation is carried out in the reverse order; note the following:

- Press on lens for interior light until it engages.



## 7.5 Removing and installing garage door operating unit - E284-

Garage door operating unit - E284- is part of front interior light and cannot be renewed separately in the event of a fault.

- Renewing front interior light  
⇒ ["7.2 Removing and installing front interior light with roof electronics control unit J528 - vehicles up to 08.2007", page 292](#) ,  
⇒ ["7.3 Removing and installing front interior light with roof electronics control unit J528 - vehicles from 09.2007 onwards", page 293](#) .

## 7.6 Renewing bulbs for reading light (front)

- ◆ Fitting location: on underside in interior mirror

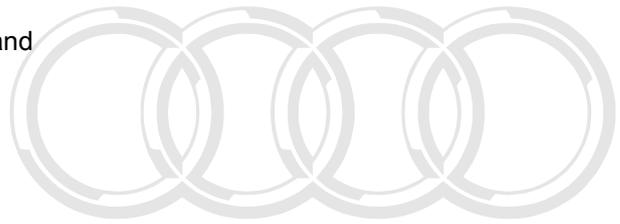
### Removing

- Release retainer tab at lens -2- for reading light and unclip downwards.
- Wrap adhesive tape around tips of flat-nose pliers and pull glass base bulb -1- (12 V, 5 W) out of bulb holder.

### Installing

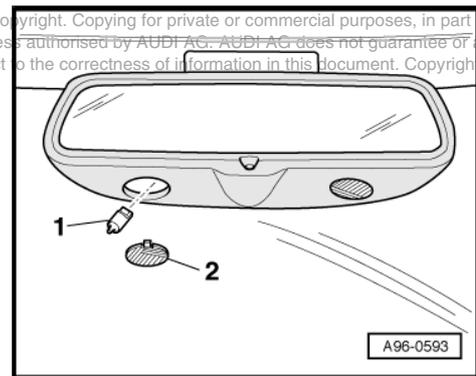
Installation is carried out in the reverse order; note the following:

- Insert lens for reading light and press on until it engages.



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## 7.7 Removing and installing LED for background light (front)

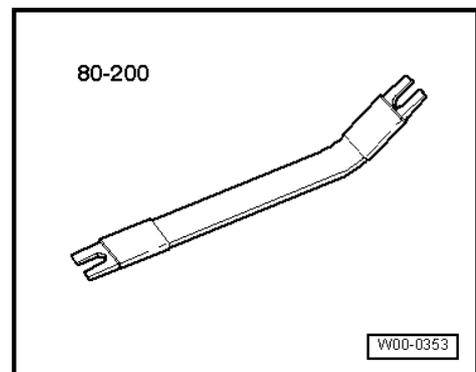
The LEDs for background light (front) are part of the interior mirror and cannot be renewed separately in the event of a fault.

- Renew interior mirror ⇒ Rep. gr. 68 .

## 7.8 Removing and installing rear interior light/reading light with rear operating unit for roof module - E467- - vehicles up to 08.2007

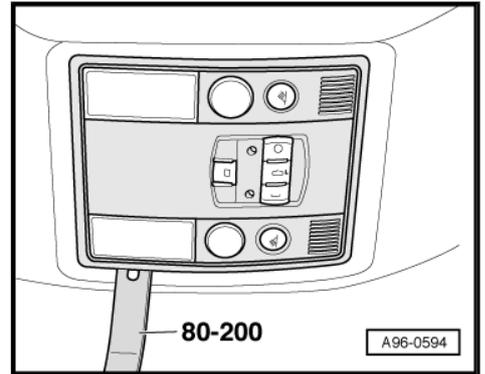
### Special tools and workshop equipment required

- ◆ Removal lever - 80 - 200-

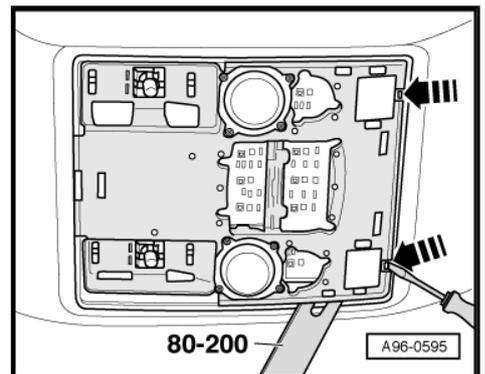


### Removing

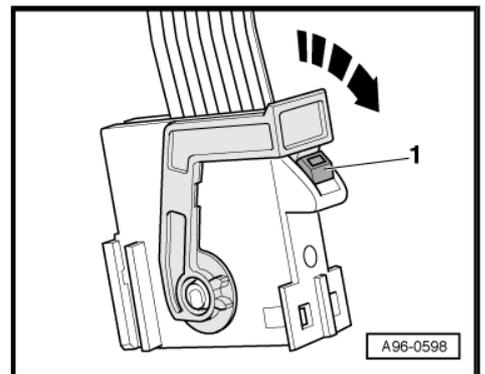
- Use removal lever - 80 - 200- to carefully pry off cover panel of interior light/reading light as shown.



- Insert removal lever - 80 - 200- between housing of interior light/reading light and mounting frame in headliner as shown.
- Release retaining tabs -arrows- and take interior light/reading light (rear) downwards out of opening in headliner.



- Press retaining tab -1- at multi-pin connector.
- Release retaining clips of connectors -arrow- and unplug connectors.



### Installing

Installation is carried out in the reverse order; note the following:

- Insert rear interior light/reading light into roof trim and clip into place.

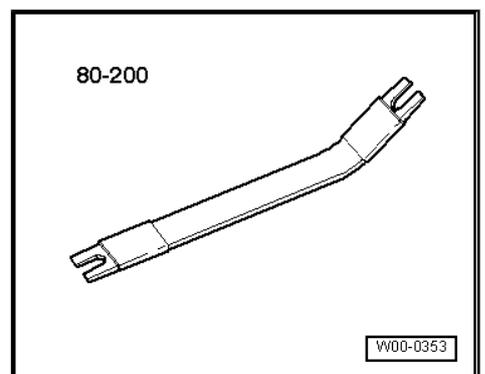
## 7.9 Renewing rear interior light bulb - vehicles up to 08.2007

### Special tools and workshop equipment required

- ◆ Removal lever - 80 - 200-

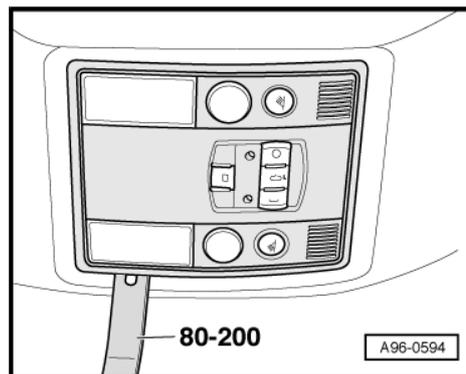


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### Removing

- Use removal lever - 80 - 200- to carefully pry off cover panel of interior light/reading light as shown.

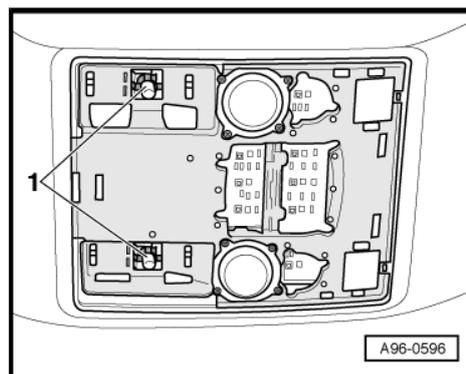


- Take glass base bulb -1- (12 V, 6 W) out of clamp-type holder.

### Installing

Installation is carried out in the reverse order; note the following:

- Press on lens for interior light until it engages.



## 7.10 Renewing rear reading light bulb - vehicles up to 08.2007

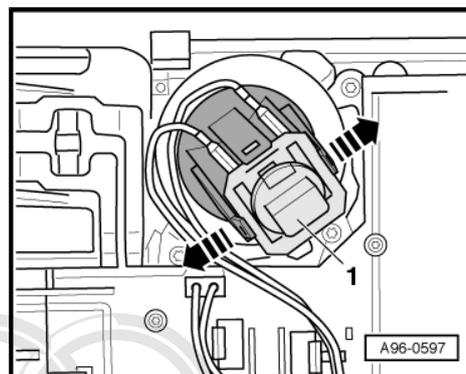
### Removing

- Remove interior light/reading light (rear) ⇒ [page 296](#) .
- Release retaining tabs -arrows- and swivel bulb holder out of mounting.
- Take glass base bulb (12 V, 6 W) out of clamp-type holder.

### Installing

Installation is carried out in the reverse order; note the following:

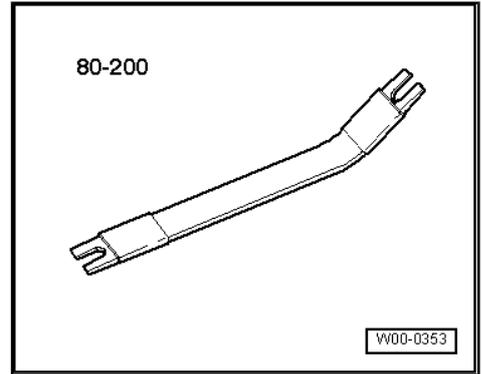
- Insert rear interior light/reading light into roof trim and clip into place.



## 7.11 Removing and installing rear interior light/reading light with rear operating unit for roof module - E467- - vehicles from 09.2007 onwards

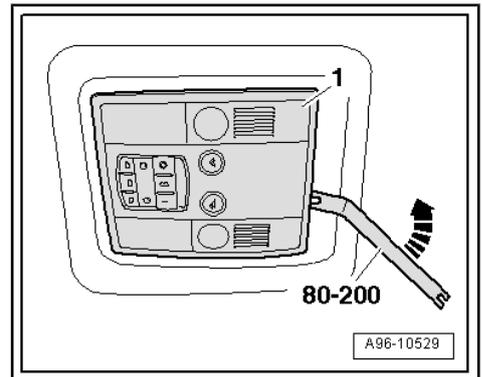
Special tools and workshop equipment required

◆ Removal lever - 80 - 200-



**Removing**

- Use removal lever - 80 - 200- to carefully pry off interior light/reading light -1- -arrow- as shown in illustration.

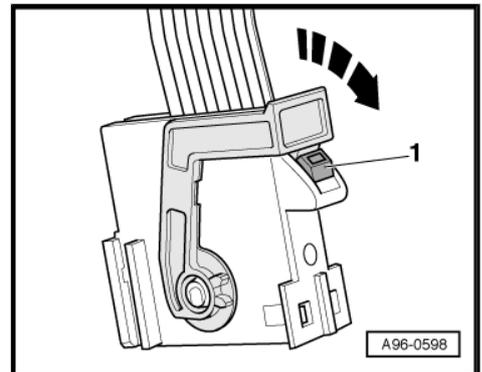


- Press retaining tab -1- at multi-pin connector.
- Release retaining clips of connectors -arrow- and unplug connectors.

**Installing**

Installation is carried out in the reverse order; note the following:

- Insert rear interior light/reading light into roof trim and clip into place.



**7.12 Renewing rear interior light bulb - vehicles from 09.2007 onwards**

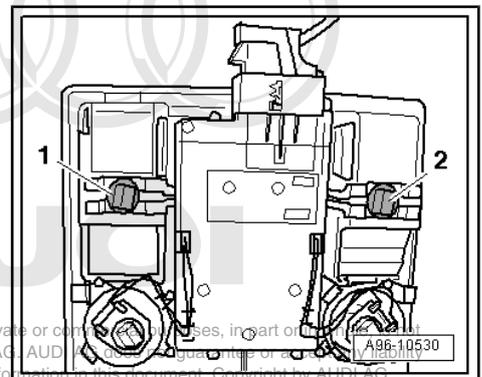
**Removing**

- Remove interior light/reading light (rear) => [page 298](#) .
- Unscrew bulb holder -1- or -2- from interior light/reading light -3-.

**Installing**

Installation is carried out in the reverse order; note the following:

- Install interior light/reading light (rear) => [page 298](#) .



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## 7.13 Renewing rear reading light bulb - vehicles from 09.2007 onwards

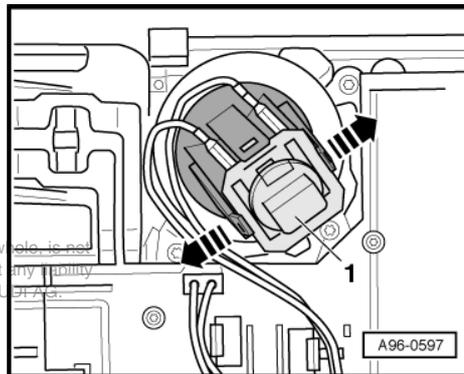
### Removing

- Remove interior light/reading light (rear) ⇒ [page 298](#) .
- Release retaining tabs -arrows- and swivel bulb holder out of mounting.
- Take glass base bulb (12 V, 6 W) out of clamp-type holder.

### Installing

Installation is carried out in the reverse order; note the following:

- Install interior light/reading light (rear) ⇒ [page 298](#) .



## 7.14 Removing and installing LED for background light (rear)

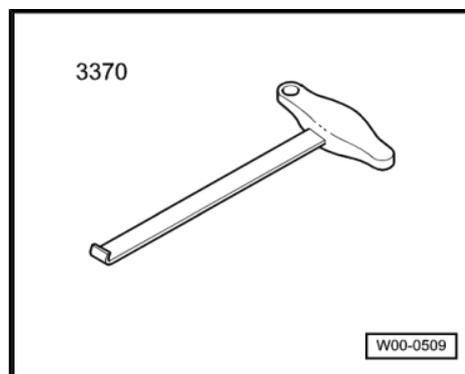
The LEDs for background lighting (rear) are part of the rear operating unit for roof module - E467- and cannot be renewed separately in the event of a fault.

- Renew rear interior light ⇒ [page 296](#) .

## 7.15 Removing and installing illuminated vanity mirror (rear)

### Special tools and workshop equipment required

- ◆ Front-end hook - 3370-

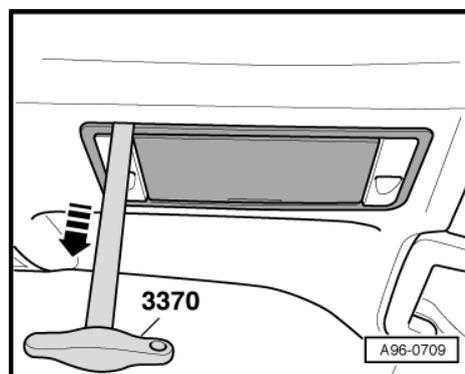


### Removing

- Use front-end hook - 3370- to carefully detach front side of rear vanity mirror housing.
- Swivel down front of vanity mirror and remove from headliner opening.
- Unplug electrical connector.

### Installing

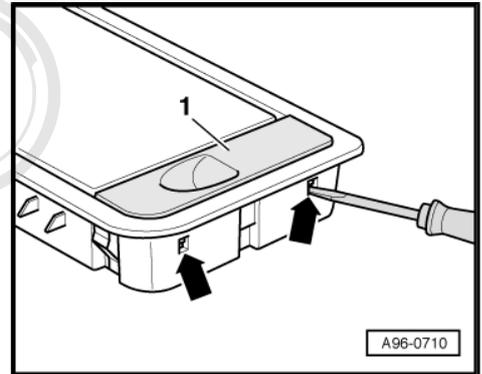
Install in reverse order.



## 7.16 Removing and installing vanity mirror light (rear)

### Removing

- Remove vanity mirror (rear) ⇒ [page 300](#) .
- Use small screwdriver to release lens -arrows-.

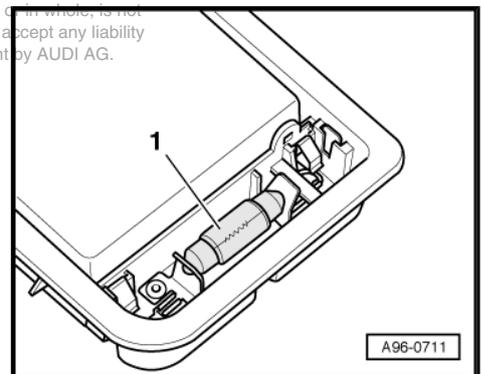


- Take bulb -1- (12 V, 6 W) out of clamp-type holder.

### Installing

Installation is carried out in the reverse order; note the following:

- Press on lens for interior light until it engages.



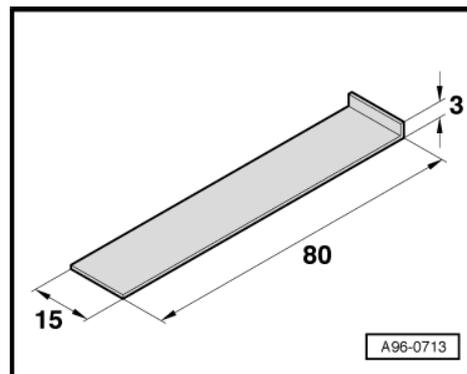
## 8 Components on interior mirror

Observe notes on contact corrosion ⇒ [page 264](#) .

### 8.1 Removing and installing light sensor - G399-

Special tools and workshop equipment required

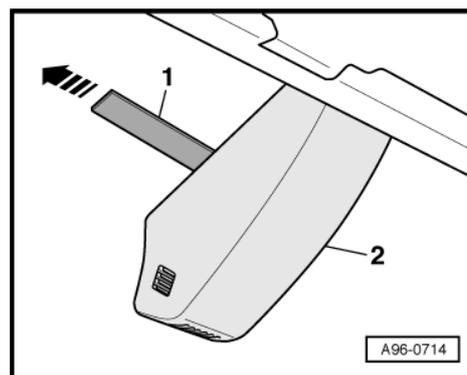
- ◆ Improved tool



- Use 0.7 mm thick metal strip to make suitable tool with dimensions in mm as shown in illustration.

#### Removing

- Guide offset end of improvised tool -1- under side of trim -2- as shown in illustration.
- Release retaining tabs of trim by pulling improvised tool in direction of arrow.
- Repeat procedure on opposite side.

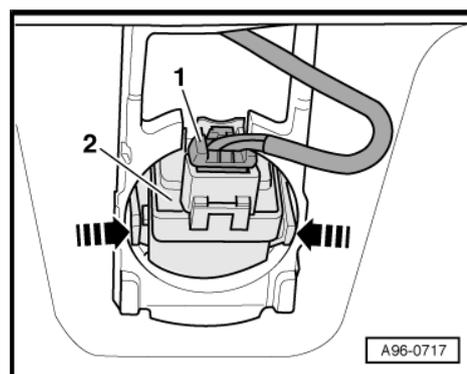


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- Unplug electrical connector -1-.
- Press retaining clips together -arrows- and take light sensor - G399- -item 2- out of mounting.

#### Installing

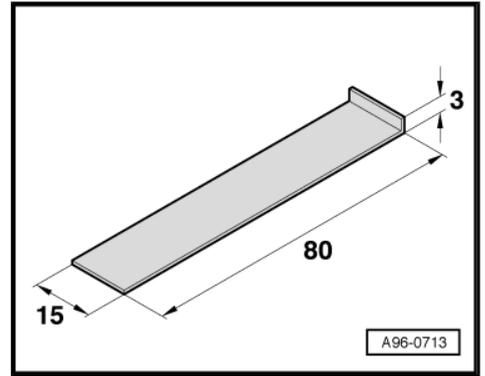
Install in reverse order.



### 8.2 Removing and installing humidity sender - G355- - vehicles without lane departure warning

Special tools and workshop equipment required

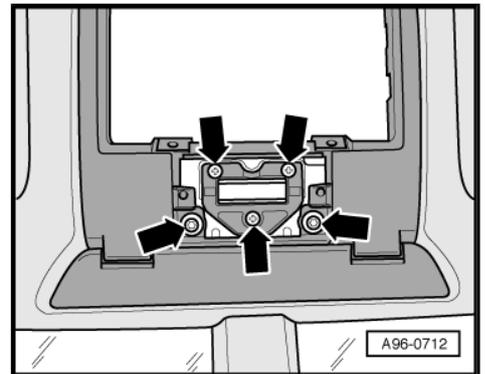
◆ **Improvised tool**



- Use 0.7 mm thick metal strip to make improvised tool with dimensions shown.

**Removing**

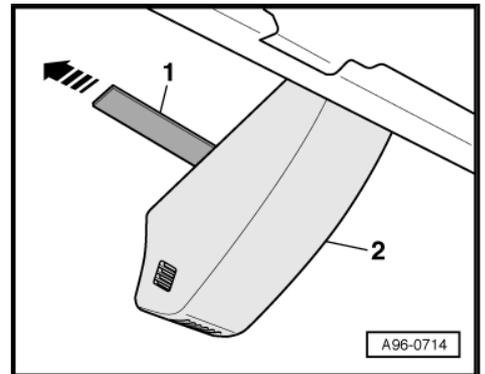
- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Remove front interior light: vehicles up to 08.2007 ⇒ [page 292](#) , vehicles from 08.2007 onwards ⇒ [page 293](#) .
- Remove interior mirror ⇒ Rep. gr. 68 .
- Unscrew bolts -arrows-.
- Unclip cover for centre bracket for sun visor and remove bolts.
- Take out centre bracket for sun visor.



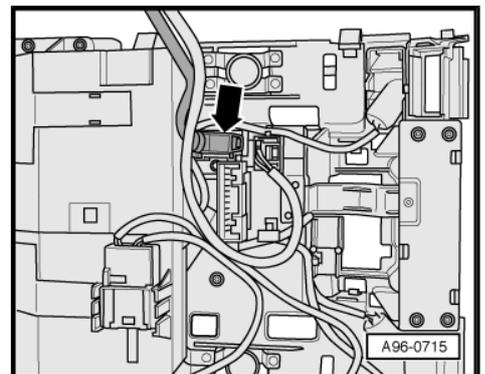
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Guide offset end of improvised tool -1- under side of trim -2- as shown in illustration.

- Release retaining tabs for trim by pulling improvised tool in direction of -arrow-.
- Repeat procedure on opposite side.



- Unplug electrical connector -arrow- at front interior light.
- Guide out wiring for humidity sender - G355- between moulded headliner and body.



- Press cover apart slightly at both sides -arrows- and take out humidity sender - G355- -item 1-.

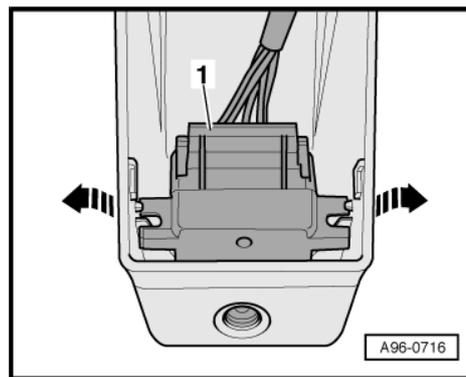
### Installing

Installation is carried out in the reverse order; note the following:



#### Note

- ◆ After removing centre bracket for sun visor, tapped holes for centre bracket for sun visor must be cleaned of remaining locking fluid. Otherwise the new bolts can seize when screwing in and they can shear off if they have to be removed again later.
  - ◆ Use a thread tap to clean.
  - ◆ Renew self-locking bolts.
- Carefully insert humidity sender - G355- in side guides.



#### Note

If humidity sender - G355- is not installed correctly, it will not be centred in hole in cover.

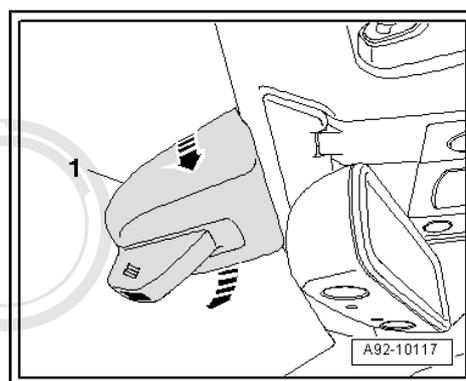
- Install interior mirror ⇒ Rep. gr. 68 .
- Install front interior light: vehicles up to 08.2007 ⇒ [page 292](#) , vehicles from 08.2007 onwards ⇒ [page 293](#) .

### Tightening torques

Component	Nm
Moulded headliner to body	4
Centre bracket for sun visor to body	4 <sup>1)</sup>
• <sup>1)</sup> Renew bolts.	

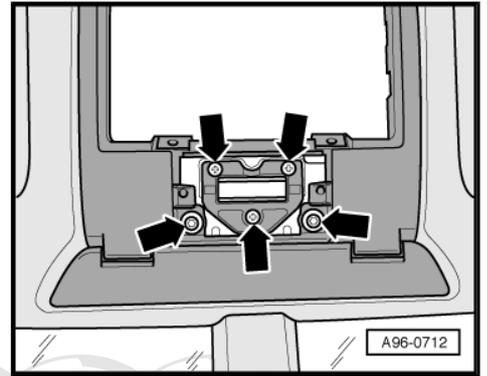
## 8.3 Removing and installing humidity sender - G355- - vehicles with lane departure warning

- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Pry open cover -1- (top) at interior mirror base -arrows-.

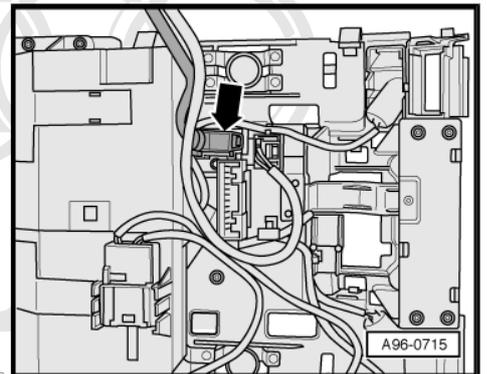


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- Remove front interior light ⇒ [page 293](#) .
- Remove interior mirror ⇒ Rep. gr. 68 .
- Unscrew bolts -arrows-.
- Unclip cover for centre bracket for sun visor and remove bolts.
- Take out centre bracket for sun visor.



- Unplug electrical connector -arrow- at front interior light.
- Guide out wiring for humidity sender - G355- between moulded headliner and body.



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- Press cover -1- apart slightly at both sides -arrows- and take out humidity sender - G355- -item 2-.

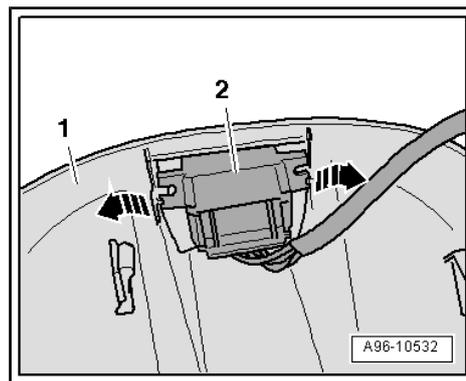
### Installing

Installation is carried out in the reverse order; note the following:



#### Note

- ◆ After removing centre bracket for sun visor, tapped holes for centre bracket for sun visor must be cleaned of remaining locking fluid. Otherwise the new bolts can seize when screwing in and they can shear off if they have to be removed again later.
  - ◆ Use a thread tap to clean.
  - ◆ Renew self-locking bolts.
- Carefully insert humidity sender - G355- in side guides.



#### Note

If humidity sender - G355- is not installed correctly, it will not be centred in hole in cover.

- Install interior mirror ⇒ Rep. gr. 68 .
- Install front interior light ⇒ [page 293](#) .

### Tightening torques

Component	Nm
Moulded headliner to body	4
Centre bracket for sun visor to body	4 <sup>1)</sup>
• <sup>1)</sup> Renew bolts.	

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## 9 Immobiliser

- ◆ Immobiliser control system is integrated in entry and start authorisation control unit - J518- ⇒ Electrical system; General information; Rep. gr. 96 ; Immobiliser
- ◆ Fitting location of entry and start authorisation control unit - J518- : under driver's seat, removing and installing  
⇒ [page 312](#) .



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## 10 Entry and start authorisation system

Observe notes on contact corrosion ⇒ [page 264](#) .

### 10.1 Entry and start authorisation system - overview

#### 1 - Entry and start authorisation switch - E415-

- ❑ Fitting location: in dash panel on driver's side
- ❑ Removing and installing ⇒ [page 253](#)

#### 2 - Entry and start authorisation button - E408- or driver identification control unit - J589-

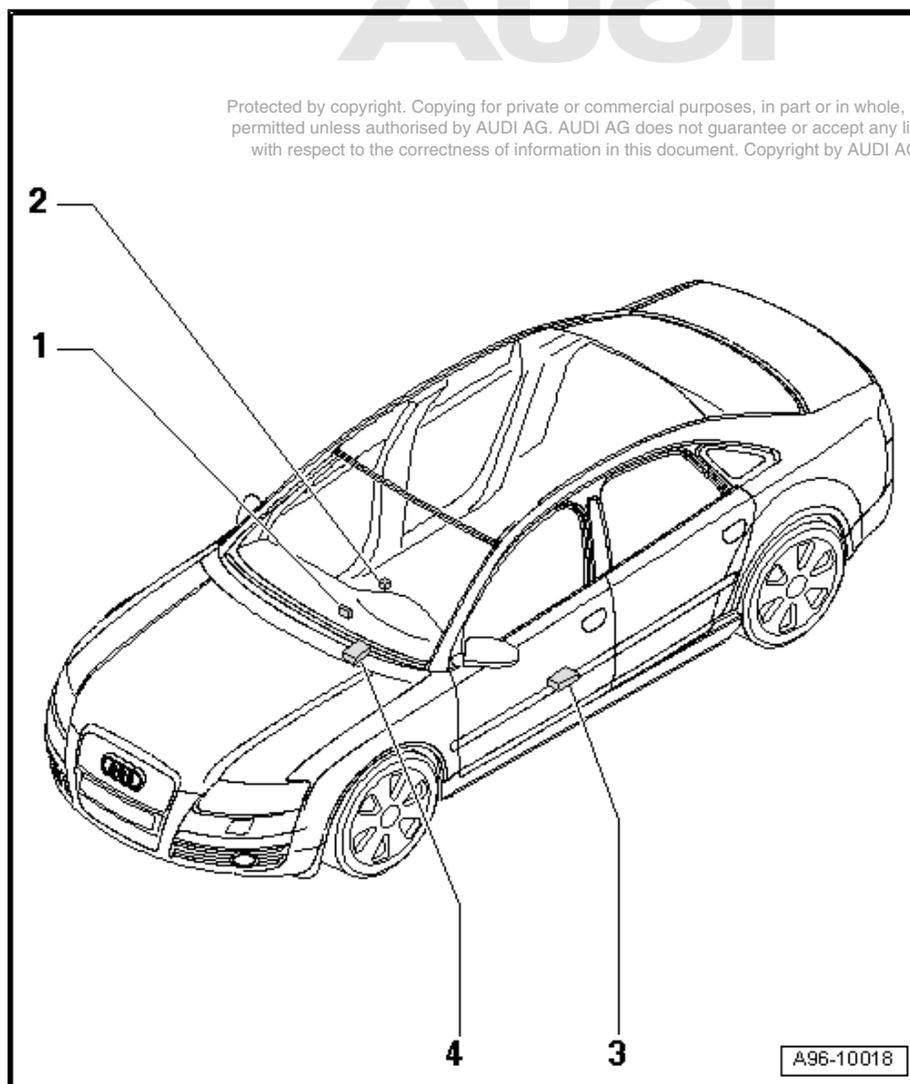
- ❑ Fitting location: in mounting frame for multimedia system operating unit - E380-
- ❑ Removing and installing ⇒ [page 287](#)

#### 3 - Entry and start authorisation control unit - J518-

- ❑ Fitting location: beneath floor covering under driver's seat
- ❑ Removing and installing ⇒ [page 312](#)

#### 4 - Steering column lock control element - N360-

- ❑ Removing and installing ⇒ Rep. gr. 48



## 10.2 Keyless entry system - overview

### 1 - Interior aerial 1 for entry and start authorisation - R138-

- Fitting location: beneath front centre console
- Removing and installing ⇒ [page 311](#)

### 2 - Front passenger's exterior door handle

- Exploded view ⇒ [page 310](#)

### 3 - Interior aerial 2 for entry and start authorisation - R139-

- Fitting location: beneath floor covering behind centre console (rear)
- Removing and installing ⇒ [page 313](#)

### 4 - Rear right exterior door handle

- Exploded view ⇒ [page 310](#)

### 5 - Interior aerial 3 for entry and start authorisation - R154-

- Fitting location: in rear centre armrest
- Removing and installing ⇒ [page 313](#)

### 6 - Luggage compartment aerial for entry and start authorisation - R137-

- Fitting location: in top of luggage compartment beneath rear shelf
- Removing and installing ⇒ [page 314](#)

### 7 - Rear bumper aerial for entry and start authorisation - R136-

- Fitting location: on left and right of bumper
- Removing and installing ⇒ [page 314](#)

### 8 - Rear left exterior door handle

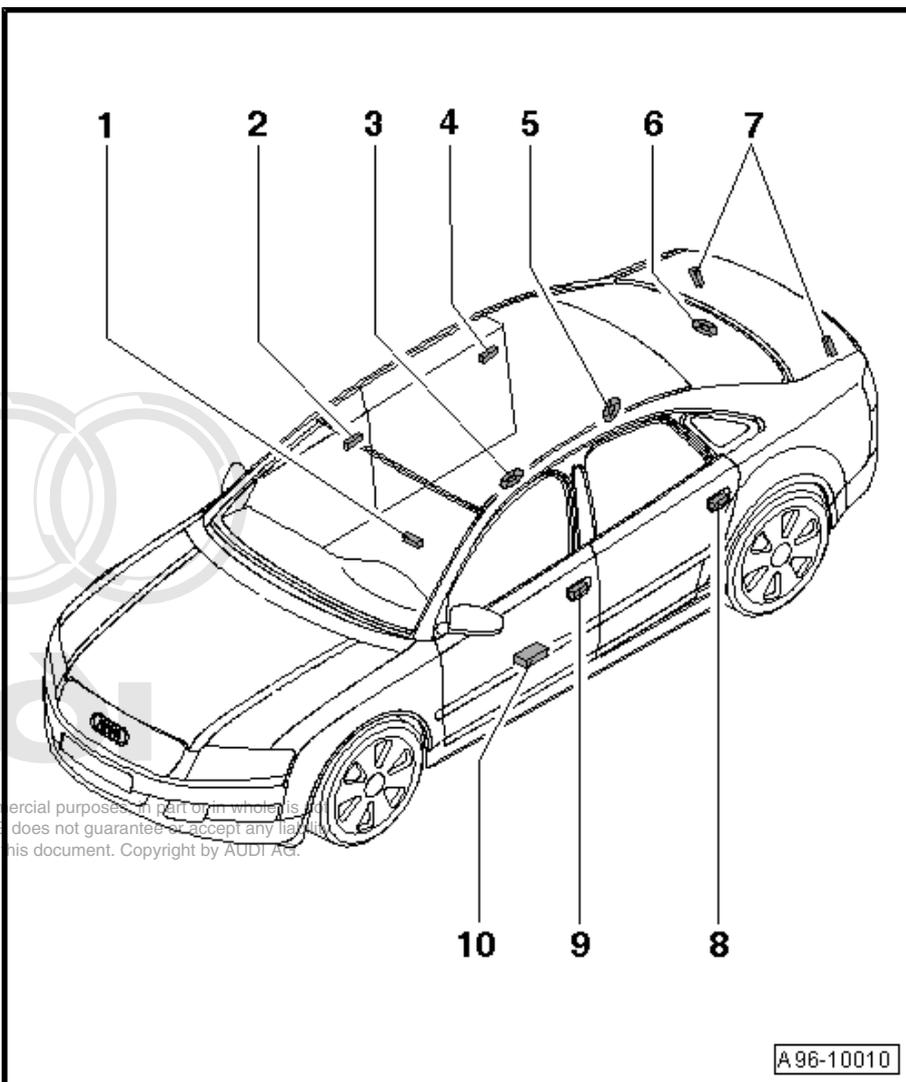
- Exploded view ⇒ [page 310](#)

### 9 - Driver's exterior door handle

- Exploded view ⇒ [page 310](#)

### 10 - Entry and start authorisation control unit - J518-

- Fitting location: beneath floor covering under driver's seat
- Removing and installing ⇒ [page 312](#)



## 10.3 Exterior door handle for keyless entry system - exploded view

### 1 - Cover

### 2 - Entry and start authorisation aerial

- Driver side aerial for entry and start authorisation - R134- , front passenger side aerial for entry and start authorisation - R135-
- Cannot be renewed separately
- Renewing exterior door handle ⇒ Rep. gr. 57
- Driver side aerial for entry and start authorisation - R155- , front passenger side aerial for entry and start authorisation - R156-
- Cannot be renewed separately
- Renewing exterior door handle ⇒ Rep. gr. 58

### 3 - Exterior door handle switch

- Driver door exterior handle switch - F272- , front passenger door exterior handle switch - F273-
- Removing and installing ⇒ [page 311](#)
- Rear left door exterior handle switch - F274- / rear right door exterior handle switch - F275-
- Removing and installing ⇒ [page 311](#)

### 4 - Mounting bracket

### 5 - Lock cylinder

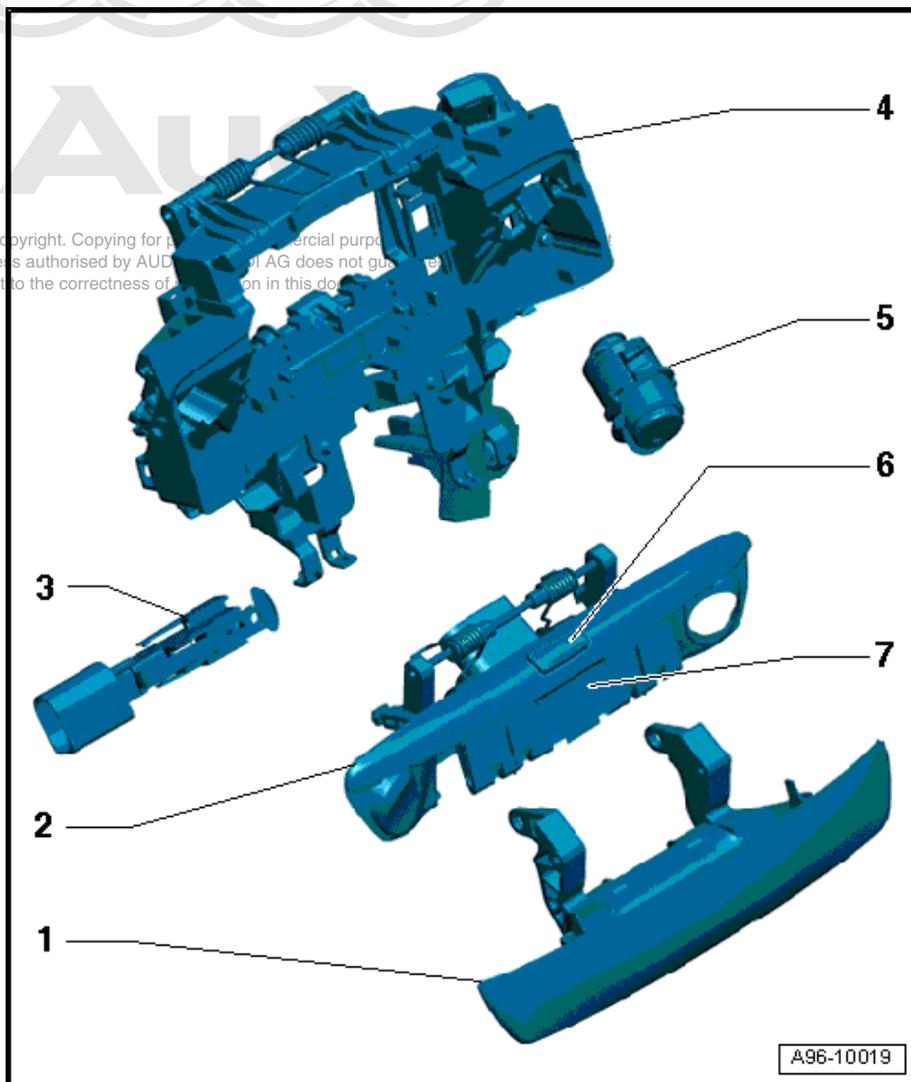
- Only on driver's side

### 6 - Central locking button in exterior door handle

- Driver door exterior handle central locking button - E369- , front passenger door exterior handle central locking button - E370-
- Cannot be renewed separately
- Renewing exterior door handle ⇒ Rep. gr. 57
- Rear left door exterior handle central locking button - E371- , rear right door exterior handle central locking button - E372-
- Cannot be renewed separately
- Renewing exterior door handle ⇒ Rep. gr. 58

### 7 - Exterior door handle touch sensor located in exterior door handle

- Driver door exterior handle touch sensor - G415- , front passenger door exterior handle touch sensor - G416-
- Cannot be renewed separately
- Renewing exterior door handle ⇒ Rep. gr. 57



- Rear right door exterior handle touch sensor - G418- , rear left door exterior handle touch sensor - G417-
- Cannot be renewed separately
- Renewing exterior door handle ⇒ Rep. gr. 58

## 10.4 Removing and installing front exterior door handle switches -F272- / -F273-

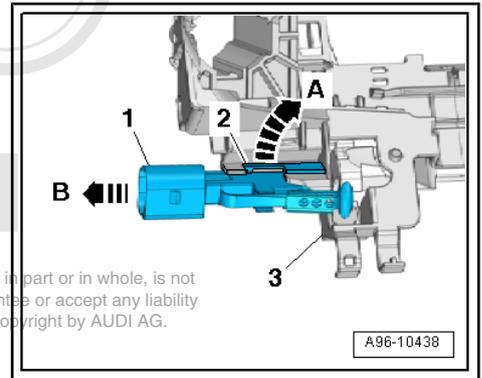
### Removing

- Remove exterior door handle ⇒ Rep. gr. 57 .
- Remove mounting bracket ⇒ Rep. gr. 57 .
- Carefully release retaining clip -2- in direction of -arrow A- and detach front exterior door handle switch -1- from mounting bracket -3- -arrow B-.

### Installing

Installation is carried out in the reverse order; note the following:

- Install mounting bracket ⇒ Rep. gr. 57 .
- Install exterior door handle ⇒ Rep. gr. 57 .



## 10.5 Removing and installing rear exterior door handle switches -F274- / -F275-

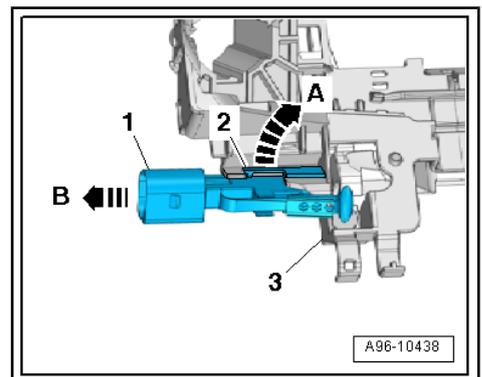
### Removing

- Remove exterior door handle ⇒ Rep. gr. 58 .
- Remove mounting bracket ⇒ Rep. gr. 58 .
- Carefully release retaining clip -2- in direction of -arrow A- and detach front exterior door handle switch -1- from mounting bracket -3- -arrow B-.

### Installing

Installation is carried out in the reverse order; note the following:

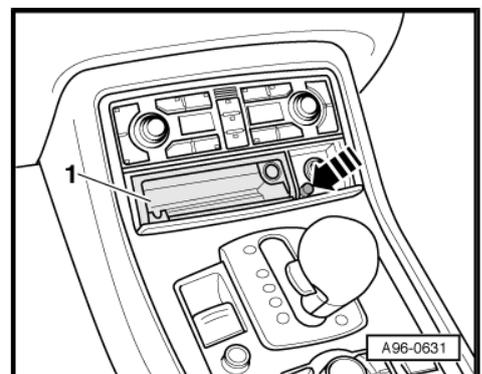
- Install mounting bracket ⇒ Rep. gr. 58 .
- Install exterior door handle ⇒ Rep. gr. 58 .



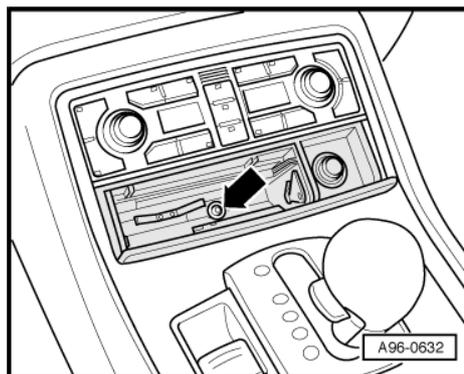
## 10.6 Removing and installing interior aerial 1 for entry and start authorisation - R138-

### Removing

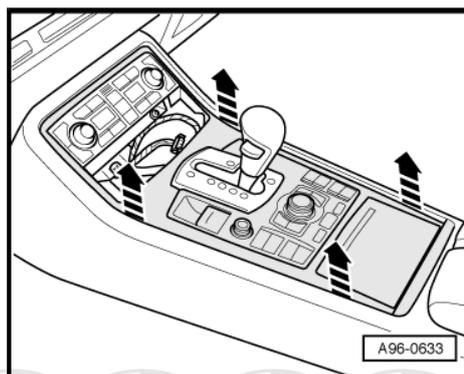
- Switch off ignition and take out ignition key.
- Press button -arrow- and take out front ashtray insert -1-.



- Unscrew bolt -arrow- and remove front ashtray housing.
- Unplug electrical connector.



- Lift off switch trim for centre console -arrows-.
- Unplug electrical connectors.



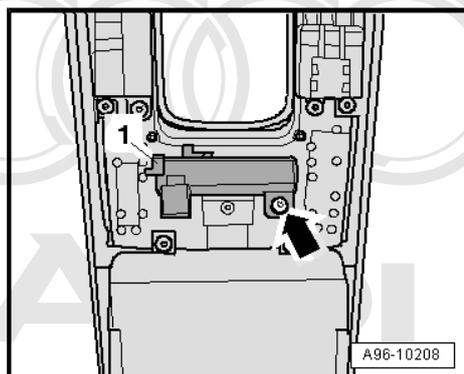
- Unscrew bolt -arrow-.
- Remove the interior aerial 1 for entry and start authorisation - R138- -item 1-.

### Installing

Install in reverse order.

### Tightening torques

Component	Nm
Interior aerial 1 for entry and start authorisation - R138- to switch trim	0.8
Ashtray housing to centre console	2.5



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## 10.7 Removing and installing entry and start authorisation control unit - J518-

- ◆ Fitting location: beneath floor covering under driver's seat

### Removing

- To renew control unit, select the "Replacement" function for the appropriate control unit in "Guided Fault Finding" ⇒ Vehicle diagnostic tester.
- Remove driver's seat ⇒ Rep. gr. 72 .
- Switch off ignition and take out ignition key.
- Remove lower A-pillar and B-pillar trim ⇒ Rep. gr. 70 .
- Fold back floor covering.

- If fitted, unscrew bolts -arrows- and lay retainer with wiring harness to side.
- Unscrew nuts -1- and -2-.
- Unplug electrical connectors -3- and -4- and take out entry and start authorisation control unit - J518- .

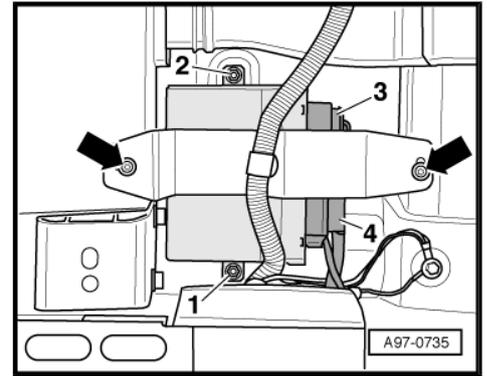
**Installing**

Installation is carried out in the reverse order; note the following:

- Install lower A-pillar and B-pillar trim => Rep. gr. 70 .
- Install driver's seat => Rep. gr. 72 .

**Tightening torques**

Component	Nm
Entry and start authorisation control unit - J518- to body	2
Retaining clip to body	2



**10.8 Removing and installing interior aerial 2 for entry and start authorisation - R139-**

**Removing**

- Remove centre console => Rep. gr. 68 .
- Reach beneath floor covering -arrow- with your hand and unfasten locating strip -1-.
- Take interior aerial 2 for entry and start authorisation -R139- item 2- out of foam padding -3-.
- Unplug electrical connector.

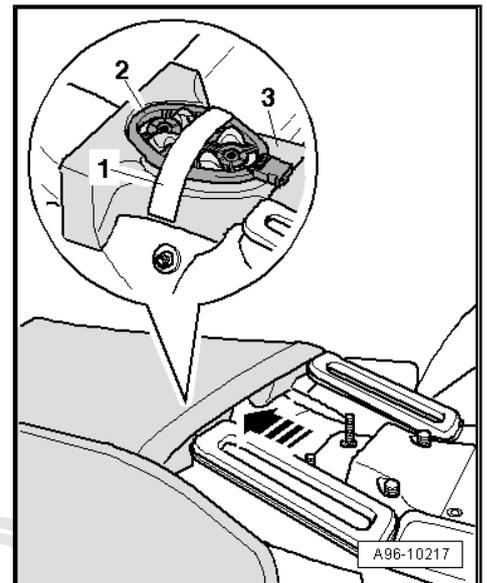
**Installing**

Installation is carried out in the reverse order; note the following:

 **Note**

*The locating strip is used for initial fixing on the assembly line and does not have to be renewed when replacing the interior aerial 2 for entry and start authorisation -R139- .*

- Install centre console => Rep. gr. 68 .

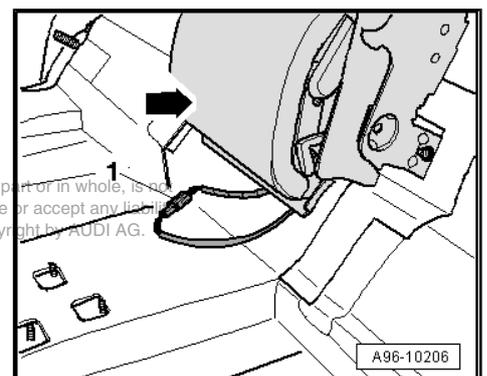


**10.9 Removing and installing interior aerial 3 for entry and start authorisation - R154-**

The interior aerial 3 for entry and start authorisation - R154- is located in the rear centre armrest -arrow- and cannot be renewed separately in the event of a fault.

- 1 - Electrical connector for interior aerial 3 for entry and start authorisation -R154- .
- Renew rear centre armrest => Rep. gr. 72 .

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## 10.10 Removing and installing luggage compartment aerial for entry and start authorisation - R137-

### Removing

- Remove lower rear shelf trim ⇒ Rep. gr. 70 .
- Unplug electrical connector -3-.
- Remove bolts -1- and -2- and detach luggage compartment aerial for entry and start authorisation -R137- -item 4-.

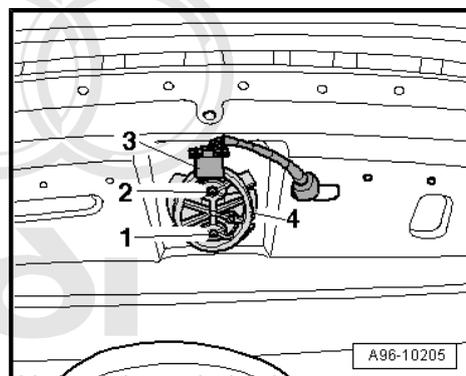
### Installing

Installation is carried out in the reverse order; note the following:

- Install lower rear shelf trim ⇒ Rep. gr. 70 .

### Tightening torque

Component	Nm
Luggage compartment aerial for entry and start authorisation - R137- to body	1.4



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## 10.11 Removing and installing rear bumper aerial for entry and start authorisation - R136-

### Removing

- Remove rear bumper cover ⇒ Rep. gr. 63 .
- Unplug electrical connector -2-.
- Unscrew bolts -arrows-.
- Take rear bumper aerial for entry and start authorisation - R136- -item 1- out of bumper cover.

### Installing

Installation is carried out in the reverse order; note the following:

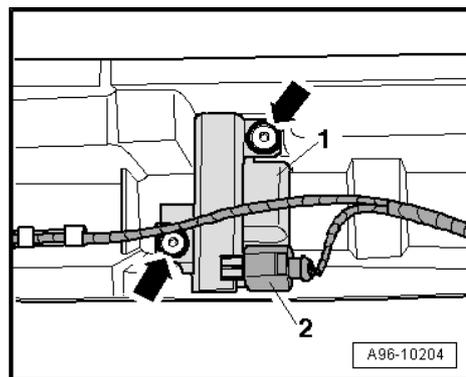
- Install rear bumper cover ⇒ Rep. gr. 63 .

### Vehicles with lane change assist:

Lane change assist control unit -J769- / -J770- must be recalibrated whenever bumper cover has been removed ⇒ ["12.5 Calibrating lane change assist - test equipment layout", page 321](#) .

### Tightening torque

Component	Nm
Rear bumper aerial for entry and start authorisation - R136- to rear bumper cover	2.5



## 11 Anti-theft alarm with ultrasonic interior monitor

Observe notes on contact corrosion ⇒ [page 264](#) .

### 11.1 Removing and installing sender/receiver module for interior monitoring system -G303- or -G305-

Interior monitor send and receive module 1 - G303- and interior monitor send and receive module 2 - G305- are part of front interior light and cannot be renewed separately in the event of a fault.

- Renewing front interior light  
 ⇒ [“7.2 Removing and installing front interior light with roof electronics control unit J528 - vehicles up to 08.2007”](#), [page 292](#) ,  
 ⇒ [“7.3 Removing and installing front interior light with roof electronics control unit J528 - vehicles from 09.2007 onwards”](#), [page 293](#) .

### 11.2 Removing and installing anti-theft/tilt system control unit - J529-

- ◆ Fitting location: beneath rear seat bench (right-side)

#### Removing

- If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Switch off ignition and take out ignition key.
- Remove rear seat bench or electrically operated individual rear seat (right-side) ⇒ Rep. gr. 72 .
- Unscrew nuts -arrows- and detach anti-theft/tilt system control unit - J529- -item 1-.
- Unplug electrical connector -2-.

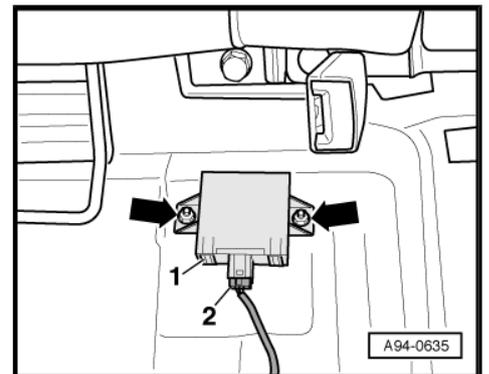
#### Installing

Installation is carried out in the reverse order; note the following:

- Install rear seat bench or electrically operated individual rear seat (right-side) ⇒ Rep. gr. 72 .

#### Tightening torque

Component	Nm
Anti-theft/tilt system control unit - J529- to body	1.5



### 11.3 Removing and installing alarm horn - H12-

- ◆ Fitting location: in plenum chamber (front right) beneath side trim

### Removing

- Switch off ignition and take out ignition key.
- Pull off rubber seal -1- for plenum chamber covers.
- Remove plenum chamber cover -2-.

 **Note**

Disregard -item 3-.

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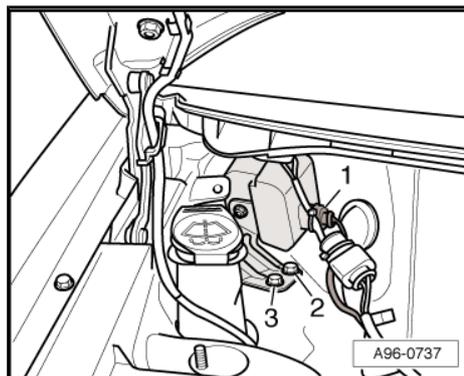
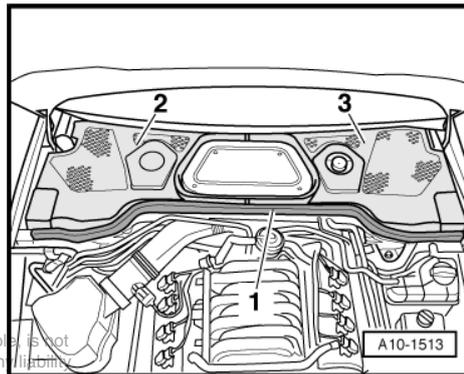
- Unscrew bolts -2- and -3- and take alarm horn - H12- out of plenum chamber.
- Unplug electrical connector -1-.

### Installing

Install in reverse order.

### Tightening torque

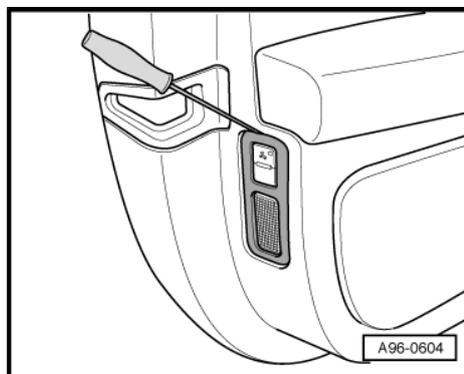
Component	Nm
Alarm horn - H12- to bracket	4



## 11.4 Removing and installing interior monitoring deactivation switch - E183- and alarm system off switch - E217-

### Removing

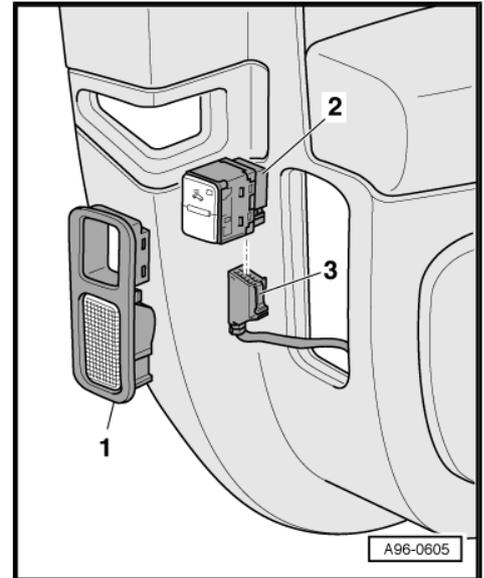
- Switch off ignition and take out ignition key.
- Carefully prise trim panel out of door trim.
- Unplug electrical connector to door warning lamp.



- Unplug electrical connector -3-.
- Carefully unfasten retaining hook and press button -2- to rear out of trim panel -1-.

### Installing

Install in reverse order.



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## 12 Lane change assist

### 12.1 Lane change assist - overview

#### 1 - Lane change assist warning lamp in driver side exterior mirror - K233-

- ❑ Removing and installing  
 ⇒ [page 319](#)

#### 2 - Button for lane change assist - E530-

- ❑ Removing and installing  
 ⇒ "2.4 Removing and installing switches in dash panel", [page 267](#)

#### 3 - Lane change assist warning lamp in front passenger side exterior mirror - K234-

- ❑ Removing and installing  
 ⇒ [page 319](#)

#### 4 - Bolt

- ❑ 3.5 Nm

#### 5 - Electrical connector

#### 6 - Bolt

- ❑ 3.5 Nm

#### 7 - Lane change assist control unit 2 - J770-

- ❑ Removing and installing  
 ⇒ [page 321](#)

#### 8 - Lane change assist control unit - J769-

- ❑ Removing and installing  
 ⇒ [page 321](#)

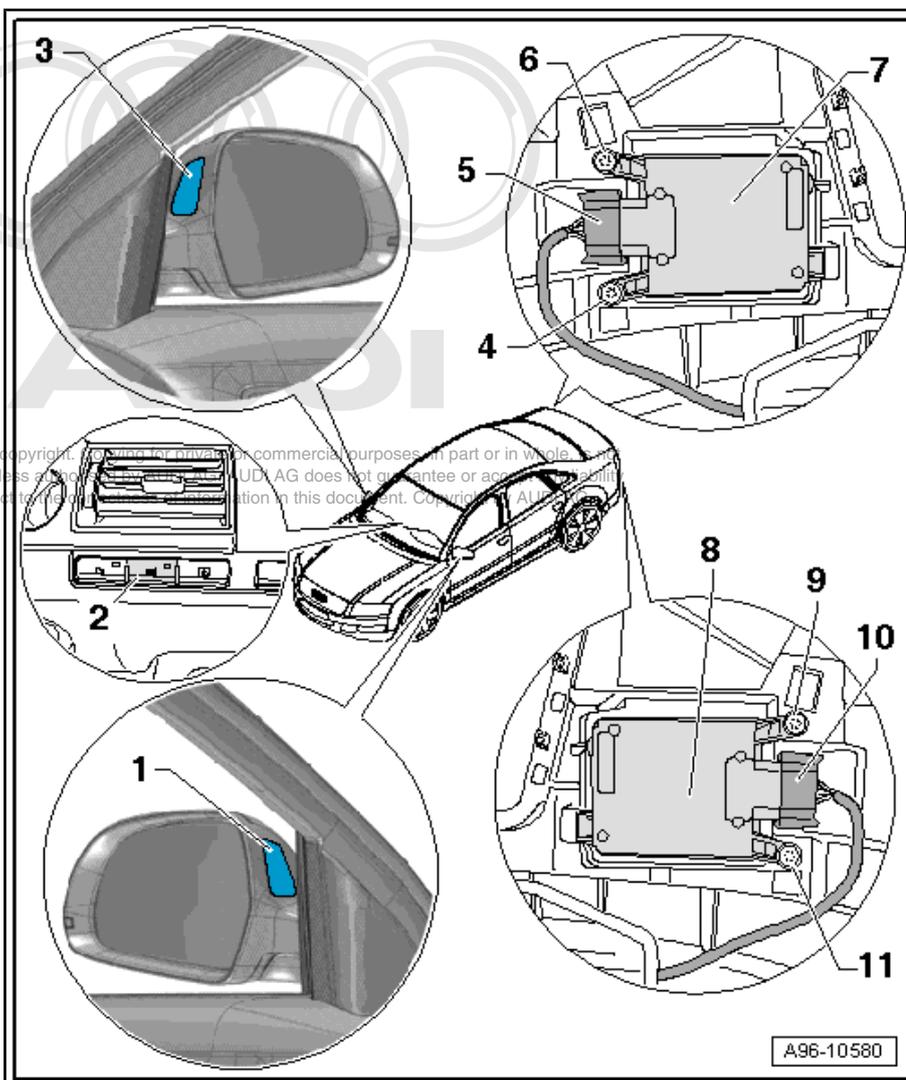
#### 9 - Bolt

- ❑ 3.5 Nm

#### 10 - Electrical connector

#### 11 - Bolt

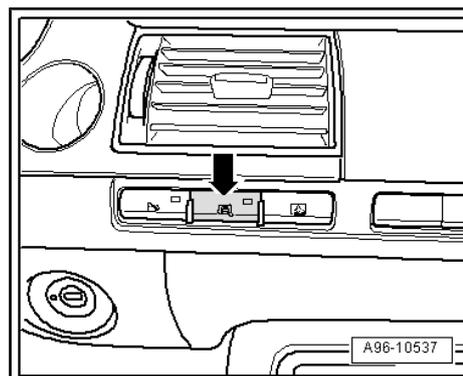
- ❑ 3.5 Nm



### 12.2 Removing and installing button for lane change assist - E530-

The button for lane change assist - E530- -arrow- is located in the switch unit and cannot be renewed separately if defective.

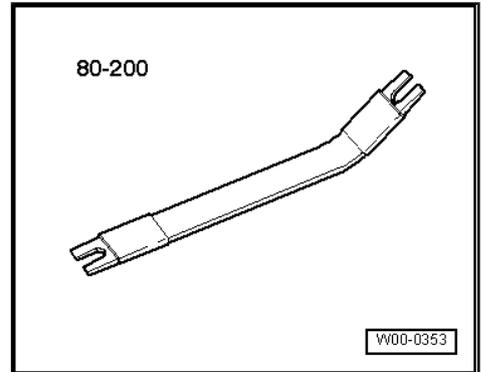
- Renew button in dash panel ⇒ [page 267](#) .



### 12.3 Removing and installing lane change assist warning lamp in exterior mirror - K233- / -K234-

#### Special tools and workshop equipment required

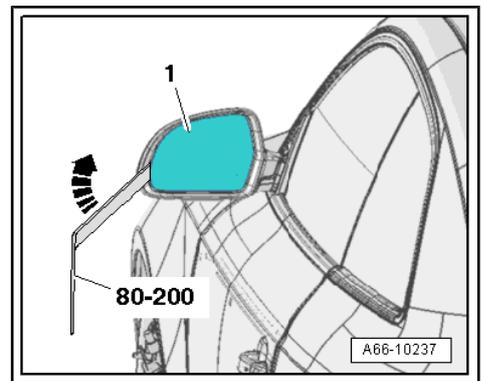
- ◆ Removal lever - 80 - 200-



- ◆ Protective gloves

#### Removing

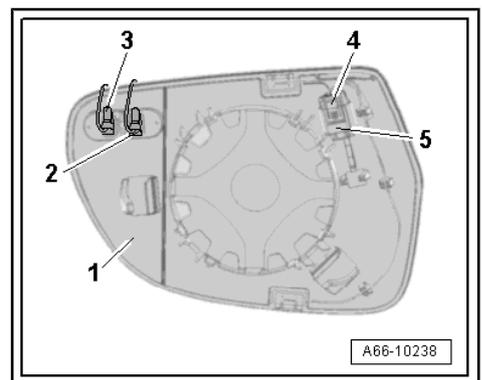
**! WARNING**  
*Risk of injury.*  
 ◆ *Wear protective gloves.*



#### **i** Note

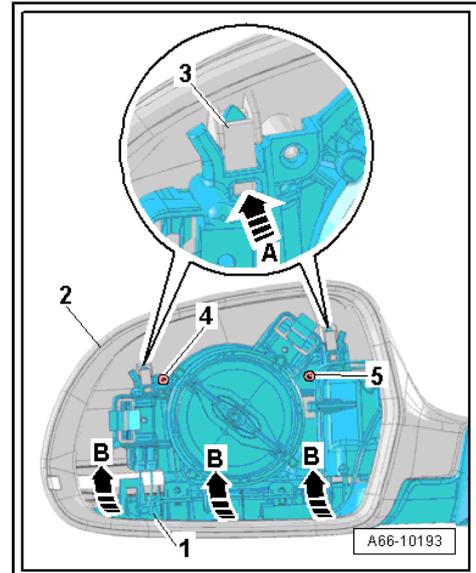
Mask the area around the mirror housing with a soft cloth to protect the paintwork.

- Pry mirror glass -1- off mirror adjustment unit using removal lever - 80 - 200- -arrow-.
- Unplug electrical connectors -2- and -3- for mirror glass heating on rear side of mirror glass.
- Unclip electrical connector -5- from retainer, if fitted.
- Unplug electrical connector -4-.

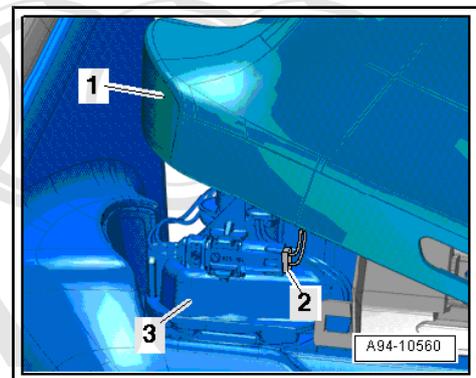


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- Remove bolts -4- and -5-.
- Release retaining tabs -3- in direction of -arrow A-.
- Release retaining clip -1- and detach exterior mirror housing -2- from cover -arrows B-.



- Press mirror adjustment unit downwards and lift exterior mirror housing -1- off slightly.
- Unplug electrical connector -2- for lane change assist warning lamp at front side of mounting -3- for mirror adjustment unit.

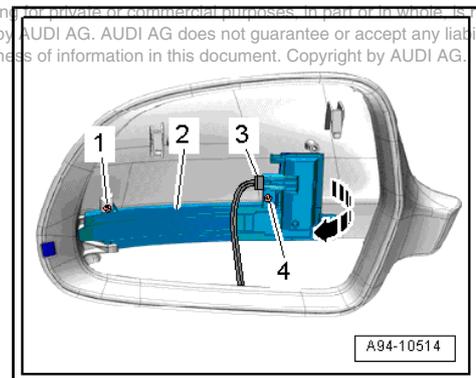


- Lift exterior mirror housing and unplug electrical connector -3- for LED -2- in exterior mirror.

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**Note**

Disregard -items 1, 4- and -arrow-.



- Release retainers -arrows A- and press lane change assist warning lamp -1- out of exterior mirror housing -2- -arrow B-.

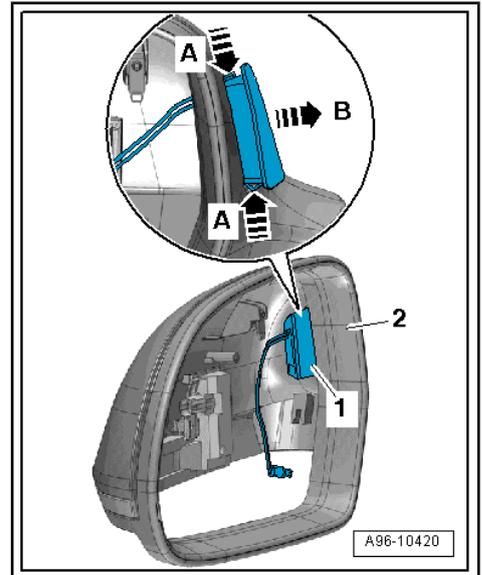
**Installing**

Installation is carried out in the reverse order; note the following:

**i Note**

*Warning lamp for lane change assist in exterior mirror must be replaced completely with a new unit if the LED is defective.*

- Install exterior mirror housing => Rep. gr. 66 .



**12.4 Removing and installing lane change assist control unit -J769- / -J770-**

**Removing**

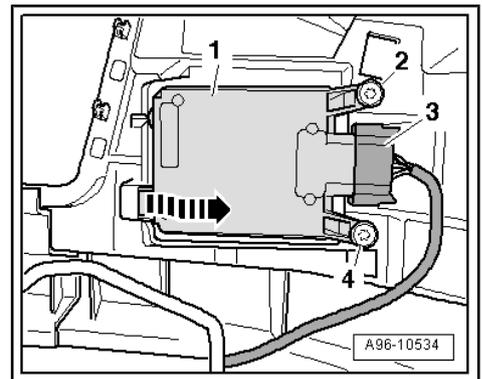
- Remove rear bumper cover => Rep. gr. 63
- Unplug electrical connector -3-.
- Remove bolts -2- and -4-.
- Pull lane change assist control unit -1- out of mounting on bumper -arrow-.

**Installing**

Installation is carried out in the reverse order; note the following:

- Install rear bumper cover => Rep. gr. 63 .

Lane change assist control unit -J769- / -J770- must be recalibrated whenever bumper cover is removed => ["12.5 Calibrating lane change assist - test equipment layout", page 321](#) .



**12.5 Calibrating lane change assist - test equipment layout**

**1 - Spacing laser -VAS 6350/2-**

- For distance measurement
- For use refer to ⇒ operating instructions

**2 - Calibration unit - VAS 6350-****3 - Spirit level**

- On calibration unit - VAS 6350-
- For checking horizontal position of calibration unit - VAS 6350-

**4 - Locating bracket**

- For mounting spacing laser -VAS 6350/2- for distance measurement
- Distance to wheel centre mountings -VAS 6350/1- on rear wheels: dimension -a- =  $1,700 \pm 2$  mm

**5 - Calibration unit for lane change assist -VAS 6350/4-**

- Is moved from one side of measuring field to other during calibration
- Voltage supply must be connected to bottom left of calibration unit for lane change assist (in direction of travel)

**6 - Wheel centre mounting - VAS 6350/1-**

- With wheel bolt adapter (19 mm) and measuring paddle

**7 - Logo**

- Laser pointer is aligned with centre of logo

**8 - Measuring scale**

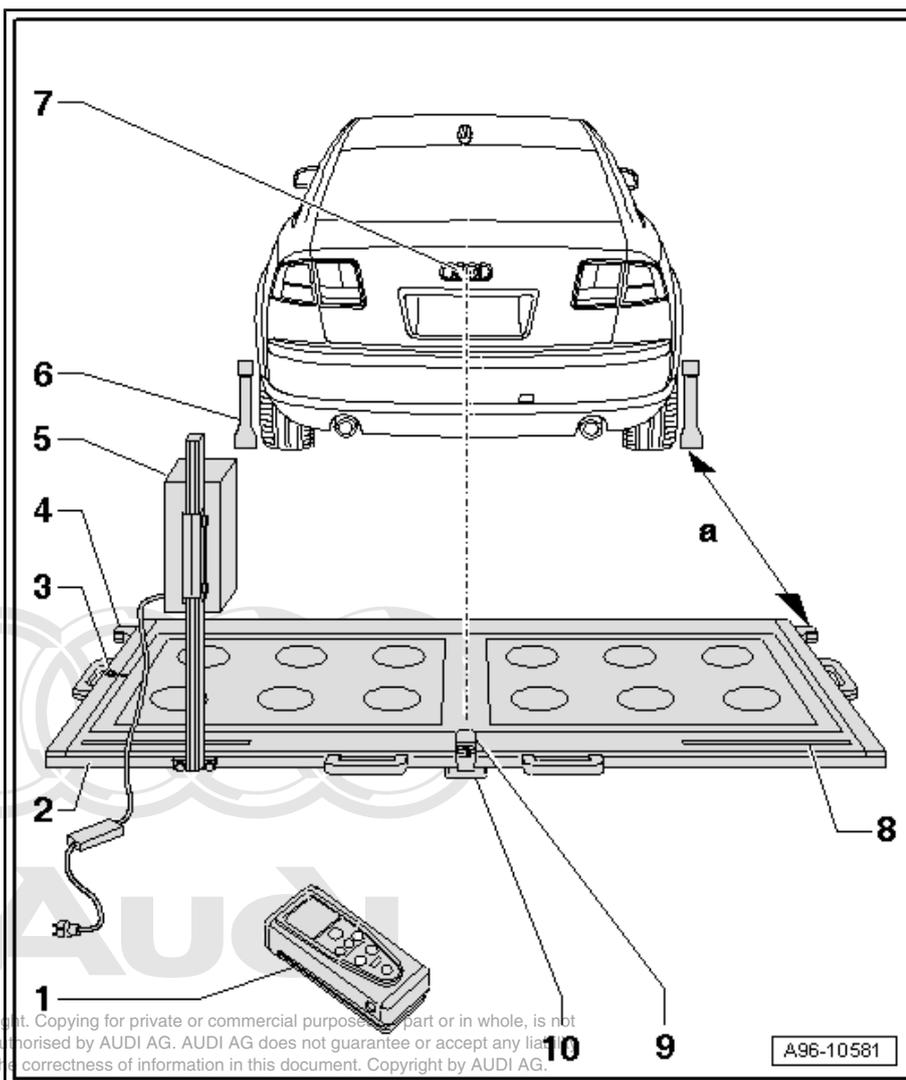
- For positioning the calibration unit for lane change assist -VAS 6350/4-

**9 - Linear laser - VAS 6350/3-**

- With "laser protection goggles"
- On calibration unit - VAS 6350-
- Switching on and off ⇒ Operating instructions

**10 - Plastic foot**

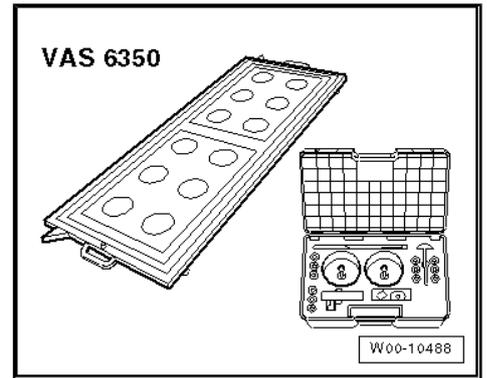
- 3x
- Adjustable, for aligning horizontal position of calibration unit - VAS 6350-



## 12.6 Calibrating lane change assist control unit -J769- / -J770-

Special tools and workshop equipment required

◆ Calibration unit - VAS 6350-



### Requirements

- The lane change assist control unit -J769- / -J770- must be calibrated in the following situations (⇒ Vehicle diagnostic tester):
- If lane change assist control unit - J769- or lane change assist control unit 2 - J770- has been renewed.
- If the rear bumper cover has been damaged, for instance when parking the car.
- If the rear bumper cover has been removed and installed.
- If the event memory contains the entry “no or incorrect basic setting/adaption”.

### Preparations

- The vehicle must be standing on a firm and even surface.
- Apply parking brake – the vehicle must not be moved while the calibration procedure is being performed.
- Make sure steering wheel is at centre position with wheels pointing straight ahead.
- Connect vehicle diagnostic tester ⇒ Vehicle diagnostic tester.

 **Note**

*If a fault message appears on the display, refer to ⇒ Operating instructions for vehicle diagnostic tester .*

- Switch on ignition.
- Remove any stickers with metal film from the bumper cover.

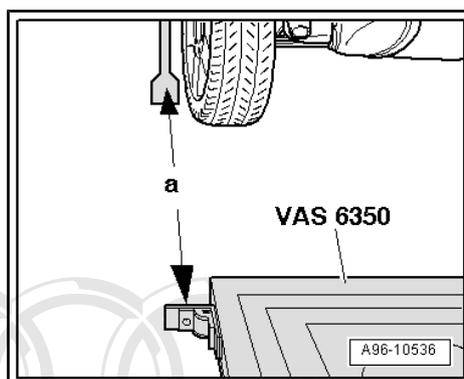
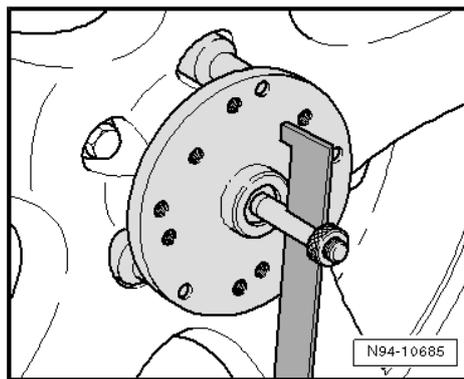
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- Fit three wheel bolt adapters (19 mm) onto each wheel centre mounting - VAS 6350/1- .
- Fit measuring paddle onto each of the wheel centre mountings -VAS 6350/1- and secure each paddle with lock nut.
- Fit wheel centre mountings - VAS 6350/1- onto wheel bolts on both rear wheels.
- Centre of rotation of wheel centre mounting must align with centre of rotation of wheel.

 **Note**

*When fitting the wheel centre mountings - VAS 6350/1- onto the wheels, make sure that the "anti-theft wheel bolts" do not come into contact with the wheel centre mounting.*

- Use lock nuts to adjust measuring paddles so that they are free to move just slightly above the ground.
- Measuring paddles must move freely.
- Measuring paddle must be in an upright position.
- Position the calibration unit - VAS 6350- at a distance of -a- from rear wheels.
- Dimension -a- = 1,700 mm



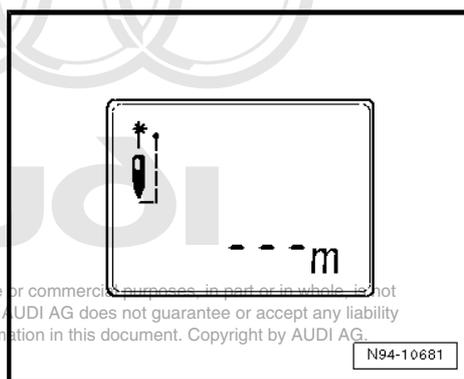
- Switch on spacing laser -VAS 6350/2- by pressing  button.

Display on -VAS 6350/2- :

- " - - - m"

 **Note**

*The laser is switched on simultaneously.*

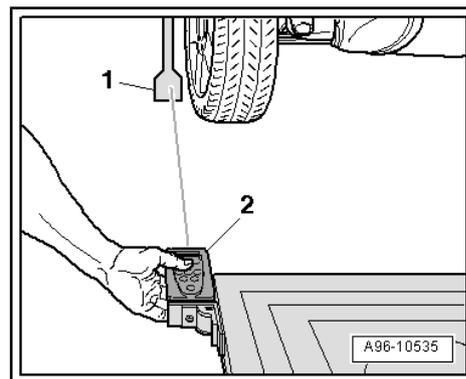


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- To measure distance, hold spacing laser -VAS 6350/2- item 2- flush with locating bracket as shown in illustration.
- Spacing laser -VAS 6350/2- must be steady and flush with locating bracket.
- Make sure that laser beam for distance measurement hits lower (larger) part of measuring paddle -1-.

If this is not the case, adjust height of measuring paddles using lock nuts on wheel centre mountings - VAS 6350/1- .

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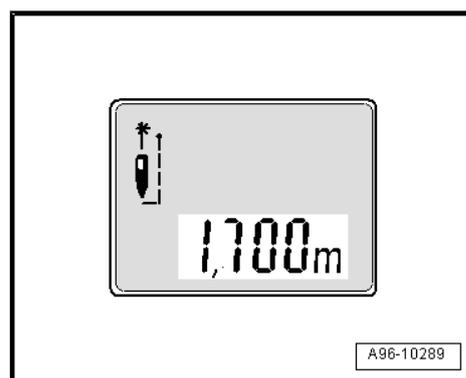


- Press **ON** button briefly to measure distance.

Display on -VAS 6350/2- :

- "1.700 m" (specification: 1,700 ± 2 mm).
- Repeat measurement from locating bracket (right-side) to rear right wheel.
- Measured distance value must be identical on both sides.

If the two measured values are not identical, re-align calibration unit - VAS 6350- .



### Performing calibration

⇒ Vehicle diagnostic tester is connected.

- Select **Diagnosis** mode and start diagnosis.
- Select **Test plan** tab.
- Select **Own test** then the following options one after the other:
  - ◆ Body
  - ◆ Electrical system
  - ◆ 01 - Self-diagnosis compatible systems
  - ◆ 3C - Lane change assist control unit - J769
  - ◆ 3C - Lane change assist control unit, functions
  - ◆ 3C - Calibration

Further instructions are given by ⇒ Vehicle diagnostic tester during calibration procedure.

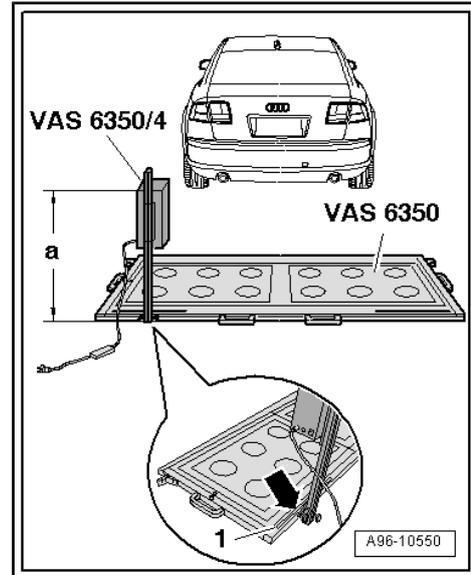


### Note

- ◆ *The system will now inform you which lane change assist version is fitted in the vehicle (e.g. version 1.0).*
- ◆ *This information for setting the calibration unit is important for the work sequence to be followed and to avoid malfunctions.*

- Secure calibration unit for lane change assist -VAS 6350/4- to mounting bracket (rear left) on calibration unit - VAS 6350- .
- Voltage supply must be connected to bottom left of calibration unit for lane change assist (in direction of travel)

Dimension -a- (measured between top edge of calibration unit and ground).

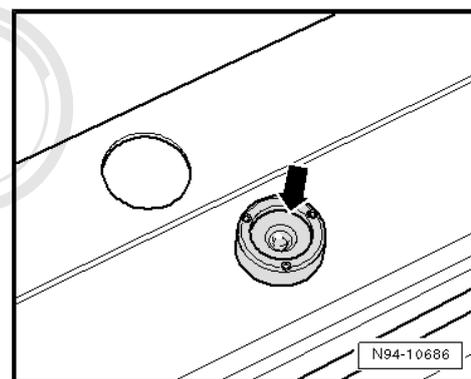


	Lane change assist 1.0	Lane change assist 1.5
Setting dimension in mm Dimension -a-	800	770

- Pointer at base of calibration unit for lane change assist -VAS 6350/4- must align with setting dimension on graduated scale -1- at measuring field -arrow-.

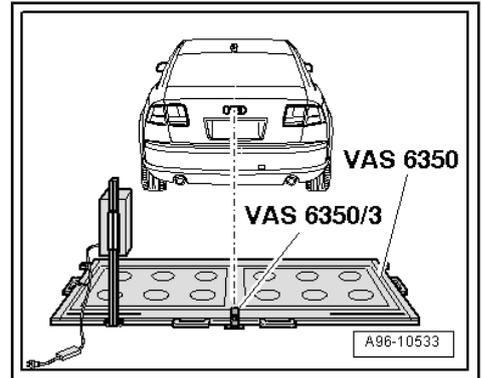
	Lane change assist 1.0	Lane change assist 1.5
Setting dimension (left-side) read off in mm from measuring scale -1-	679	790

- Connect calibration unit for lane change assist -VAS 6350/4- up to voltage supply.
- Align calibration unit - VAS 6350- horizontally by turning plastic feet.
- Check spirit level on calibration unit - VAS 6350- -arrow-.



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- Switch on linear laser - VAS 6350/3- on calibration unit - VAS 6350- .
- Put on "laser protection goggles".
- Align calibration unit - VAS 6350- so that beam from linear laser - VAS 6350/3- hits centre of Audi rings on rear lid.

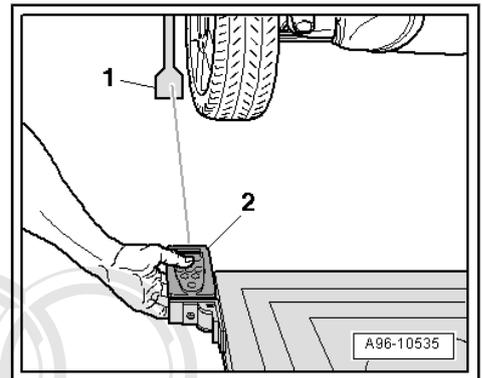


- Check distance (left and right) between locating brackets of calibration unit - VAS 6350- and measuring paddles -1- on wheel mountings.
- Specification:  $1,700 \pm 2$  mm

**Calibration procedure**

Please adhere to the following rules during the calibration procedure:

- There must not be any metallic reflectors (e.g. tool trolleys, metal cabinets) within 2 metres of the calibration unit.
- Vehicle doors must not be opened or closed.
- No-one must sit in vehicle.
- Do not allow any person to walk between vehicle and calibration unit for lane change assist -VAS 6350/4- .



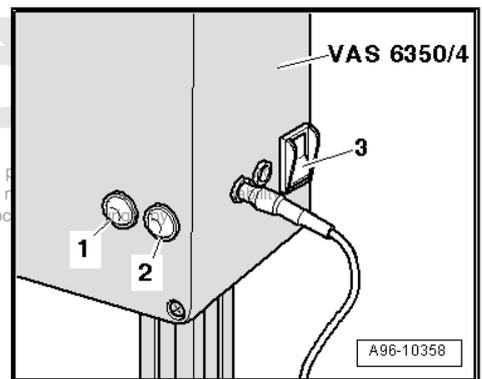
**Procedure**

- Switch on calibration unit for lane change assist -VAS 6350/4- with power switch -3-.
- The green LED -1- must light up.

**Note**

*If the red LED -2- lights up: check calibration unit for lane change assist -VAS 6350/4- .*

- Continue to follow the instructions on the display of the vehicle diagnostic tester.

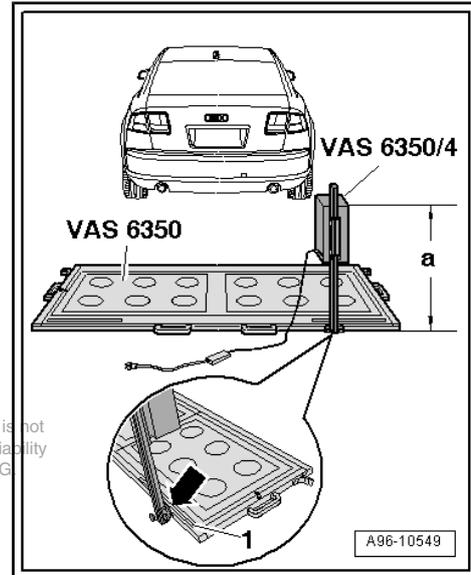


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During the program, you are prompted to move the calibration unit for lane change assist -VAS 6350/4- from the left to the right side of the calibration platform - VAS 6350- .

- Switch off calibration unit for lane change assist -VAS 6350/4- and move calibration unit to the other side.
- Voltage supply must be connected to bottom left of calibration unit for lane change assist (in direction of travel)

Dimension -a- (measured between top edge of calibration unit and ground).



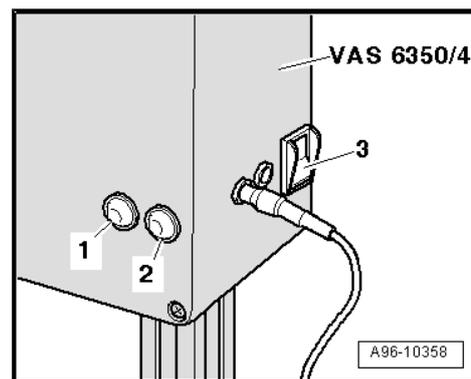
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	Lane change assist 1.0	Lane change assist 1.5
Setting dimension in mm Dimension -a-	800	770

- Pointer at base of calibration unit for lane change assist -VAS 6350/4- must align with setting dimension on graduated scale -1- at measuring field -arrow-.

	Lane change assist 1.0	Lane change assist 1.5
Setting dimension (right-side) read off in mm from measuring scale -1-	679	790

- Switch on calibration unit for lane change assist -VAS 6350/4- with power switch -3-.
- The green LED -1- must light up.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- After completing calibration of lane change assist, end "Calibration", switch off ignition and unplug diagnostic connector.



## 13 Towing bracket

Observe notes on contact corrosion ⇒ [page 264](#) .

### 13.1 Socket for towing bracket

⇒ Electrical system; General information; Rep. gr. 96 ; Towing bracket

### 13.2 Removing and installing trailer detector control unit - J345-

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 Trailer detector control unit J345- is located on right side of luggage compartment beneath battery.

#### Removing

- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Remove battery ⇒ [page 3](#) .
- Unplug electrical connectors -1- and -2-.
- Unscrew bolts -3- and take out trailer detector control unit - J345- .

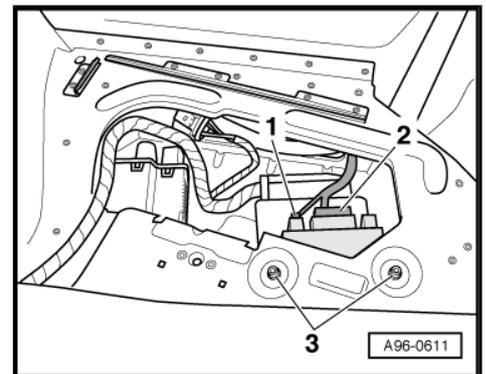
#### Installing

Installation is carried out in the reverse order; note the following:

- Install battery ⇒ [page 4](#) .

#### Tightening torque

Component	Nm
Trailer detector control unit - J345- to body	3



## 97 – Wiring

### 1 Contact corrosion

Contact corrosion can occur if unsuitable fasteners (bolts, nuts, washers, etc.) are used.

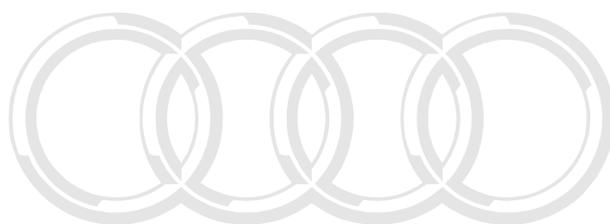
For this reason, only fasteners with a special surface coating are fitted.

Furthermore, rubber components or plastic components and adhesives are made of non-conductive material.

Always fit new components if you are not sure that the old components are suitable ⇒ Electronic parts catalogue .

**Note:**

- ◆ We recommend the use of genuine replacement parts only; they have been tested and are compatible with aluminium.
- ◆ We recommend using Audi Genuine Accessories.
- ◆ Damage resulting from contact corrosion is not covered by warranty.



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## 2 Component protection

Most of the control units in the Audi A8 are equipped with component protection.

In the event of replacement, the new control unit must be adapted to the vehicle via an on-line link. Failure to do so will result in activation of the component protection for the newly installed control unit.

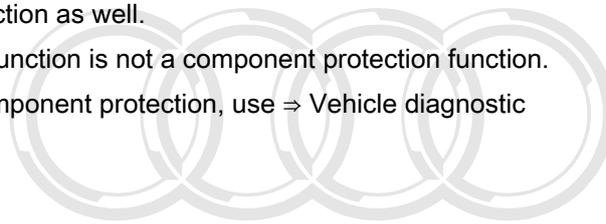
If component protection is active, the new control unit in the vehicle will only operate to a limited extent (e.g. no rev. counter function). Component protection is activated:

- ◆ When a new control unit is installed or
- ◆ When a control unit from a different vehicle is installed.

If the component protection function in the drive authorisation system is activated, it will be active for all other control units with component protection as well.

The immobiliser function is not a component protection function.

To deactivate component protection, use ⇒ Vehicle diagnostic tester.


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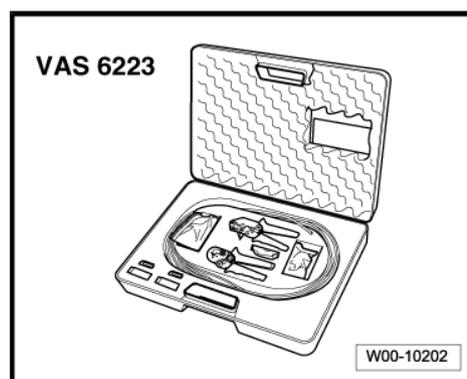
### 3 Relay carriers, fuse carriers (engine compartment)

Observe notes on contact corrosion ⇒ [page 330](#) .

#### 3.1 Removing and installing electronics box (plenum chamber)

##### Special tools and workshop equipment required

- ◆ Protective cap for cable connector - VAS 6223/9- from fibre-optic conductor repair set - VAS 6223-



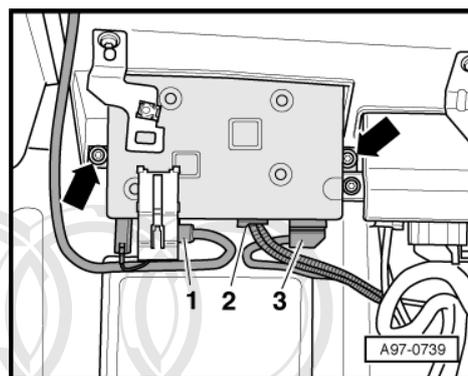
##### Removing



##### Note

*All cable ties unfastened or cut open during removal must be re-attached in same position when installing.*

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Remove glove box ⇒ Rep. gr. 68 .
- Fold back floor covering.
- Unscrew bolts -arrows- and detach control unit for front display and information control panel - J523- .
- Unplug electrical connectors -1- and -3-.
- Unplug connector -2- for fibre optic cable.



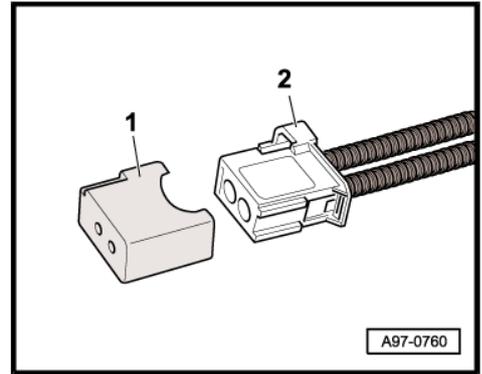
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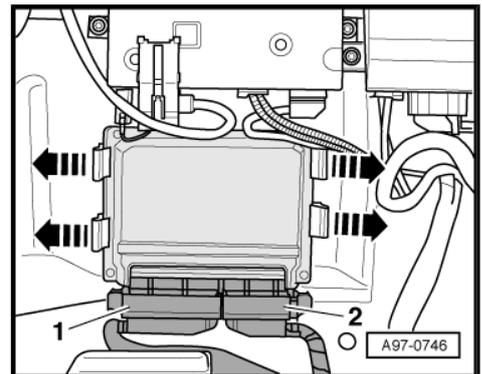
- Seal open connector plug -2- of fibre optic cable with protective cap for cable connector - VAS 6223/9- -item 1-.

**i** Note

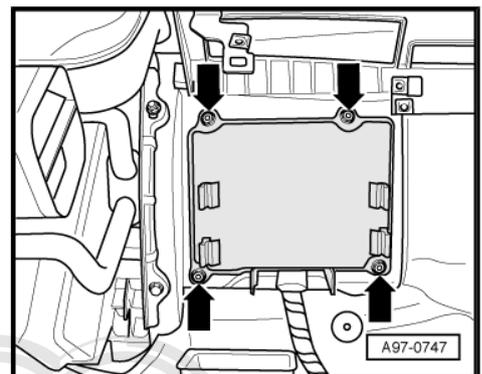
*Protective cap prevents contamination of or mechanical damage to end face of fibre optic cable which would impair light transmission.*



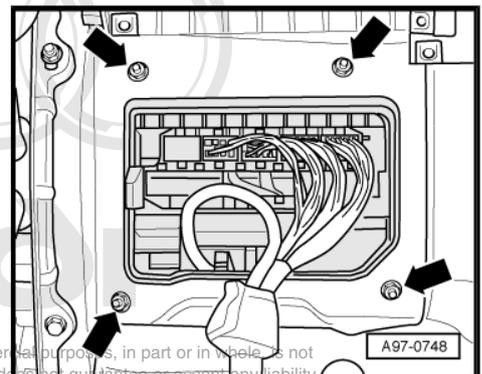
- Release retaining clips -arrows- and detach adaptive suspension control unit - J197- .
- Unplug electrical connectors.



- Detach insulating mat behind adaptive suspension control unit - J197- .
- Unscrew nuts -arrows- and detach cover.



- Unscrew nuts -arrows-.



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- Pull off rubber seal -1- for plenum chamber covers.
- Detach plenum chamber covers -2- and -3-.
- Remove dust and pollen filter ⇒ Rep. gr. 87 .

**Note**

Cover air duct at air conditioner housing with clean cloth to stop anything falling in.

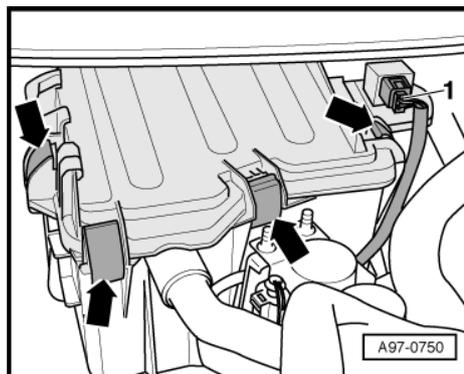
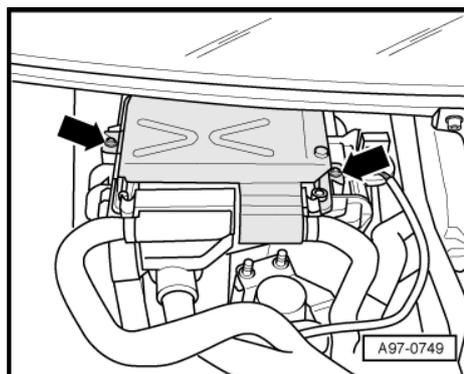
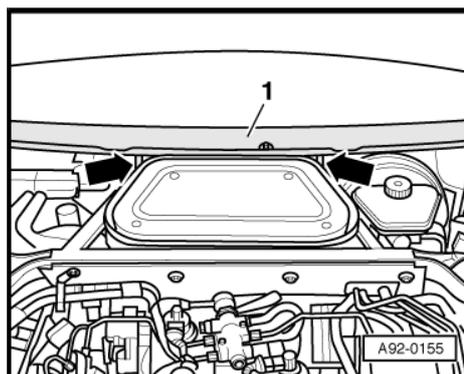
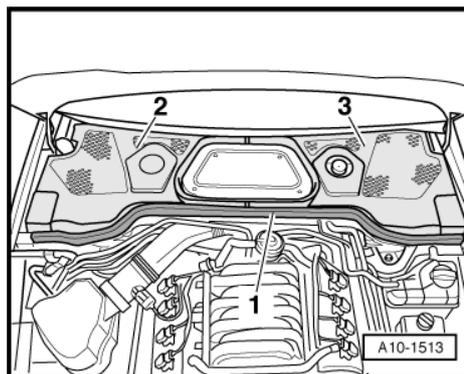
- Remove wiper arms ⇒ [page 113](#) .
- Unscrew bolts -arrows- for cowl panel trim -1- (left and right).

**Caution**

*Risk of damage to cowl panel trim.*

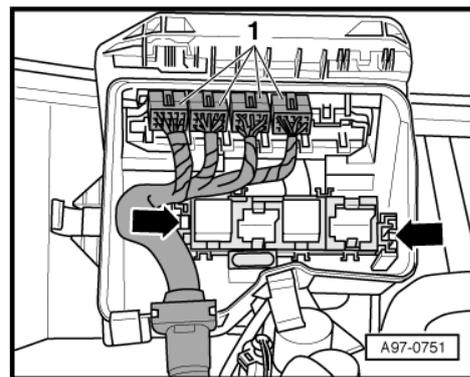
- ◆ *Apply a small quantity of soap solution to transition between windscreen and cowl panel trim -1-. Then, starting at edge of windscreen, pull cowl panel trim vertically up and out of retainer at windscreen.*

- Carefully pull cowl panel trim off retainer at windscreen.
- Unscrew bolts -arrows-.
- Detach both retainers and engine control unit from electronics box (plenum chamber).
- Move engine control unit to side with connectors attached.
- Turn air quality sensor - G238- -item 1- 90° in anti-clockwise direction and take sensor out of mounting.
- Release retaining clips -arrows-.
- Slightly open cover for electronics box (plenum chamber) and pull off to front.



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- Unplug electrical multi-pin connectors -1-.
- Release fasteners -arrows- and lift off auxiliary relay carrier in electronics box.
- Disengage engine wiring harness at electronics box and move clear.
- Unbolt and lift off electronics box.
- Unclip plug-in sockets for electrical multi-pin connectors.



**Installing**

Installation is carried out in the reverse order; note the following:

 **Note**

*Refit all cable ties at the same locations when reinstalling.*

- Install glove box ⇒ Rep. gr. 68 .
- Connect battery. Steps required ⇒ [page 3](#) .
- Adjust wiper arms ⇒ [page 114](#) .

**Tightening torques**

Component	Nm
Electronics box (plenum chamber) to outside of body	2
Engine control unit to electronics box (plenum chamber)	2
Electronics box (plenum chamber) to inside of body	3
Inner cover inside to electronics box (plenum chamber)	3
Control unit for front display and information control panel - J523- to body	4

**3.2 Removing and installing relay and fuse holder in electronics box (plenum chamber)**

**Removing**

 **Note**

*All cable ties unfastened or cut open during removal must be re-attached in same position when installing.*

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .

- Pull off rubber seal -1- for plenum chamber covers.
- Detach plenum chamber covers -2- and -3-.
- Remove dust and pollen filter ⇒ Rep. gr. 87 .

**Note**

Cover air duct at air conditioner housing with clean cloth to stop anything falling in.

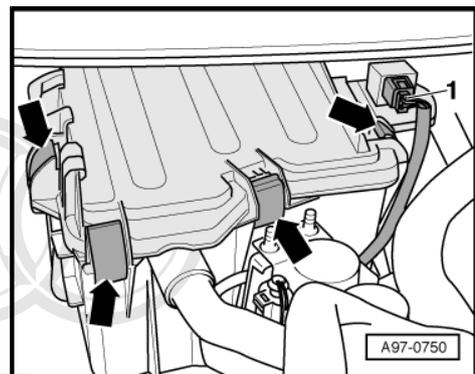
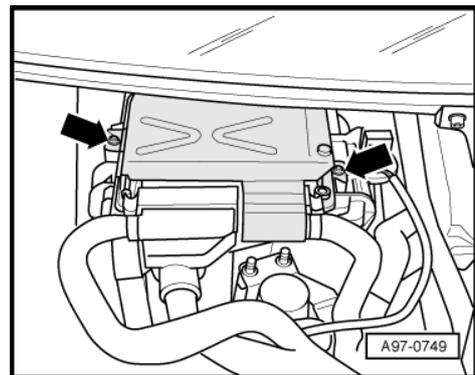
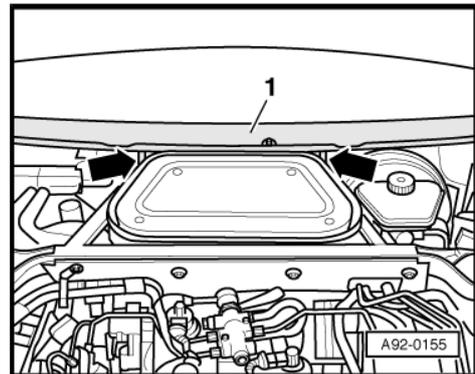
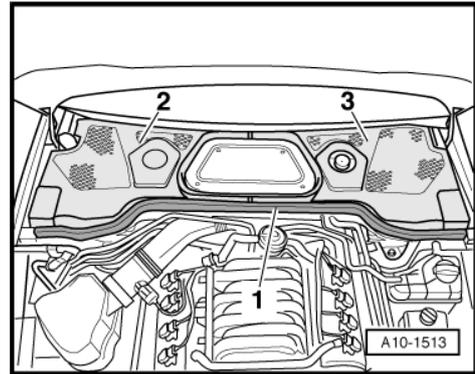
- Remove wiper arms ⇒ [page 113](#) .
- Unscrew bolts -arrows- for cowl panel trim -1- (left and right).

**Caution**

*Risk of damage to cowl panel trim.*

- ◆ *Apply a small quantity of soap solution to transition between windscreen and cowl panel trim -1-. Then, starting at edge of windscreen, pull cowl panel trim vertically up and out of retainer at windscreen.*

- Carefully pull cowl panel trim off retainer at windscreen.
- Unscrew bolts -arrows-.
- Detach both retainers and engine control unit from electronics box (plenum chamber).
- Move engine control unit to side with connectors attached.
- Turn air quality sensor - G238- -item 1- 90° in anti-clockwise direction and take sensor out of mounting.
- Release retaining clips -arrows-.
- Slightly open cover for electronics box (plenum chamber) and pull off to front.



- Release fasteners -arrows- and lift off relay and fuse holder in electronics box.

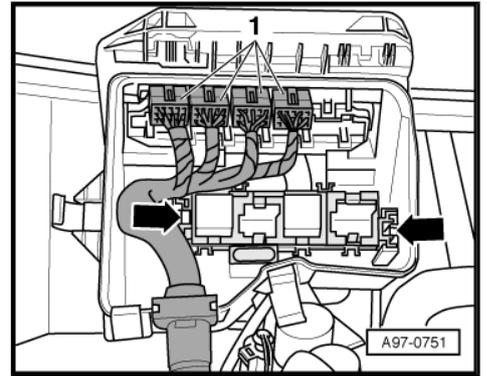
 **Note**

*Disregard -item 1-.*

- Unclip plug-in sockets for electrical multi-pin connectors.

 **Note**

*Exact assignment of contacts in relay and fuse holder in electronics box (plenum chamber) can be found in appropriate current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*



**Installing**

Installation is carried out in the reverse order; note the following:

 **Note**

*Refit all cable ties at the same locations when reinstalling.*

- Connect battery. Steps required ⇒ [page 3](#) .
- Adjust wiper arms ⇒ [page 114](#) .

**Tightening torque**

Component	Nm
Engine control unit to electronics box (plenum chamber)	2



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## 4 Relay carriers, fuse carriers (vehicle interior)

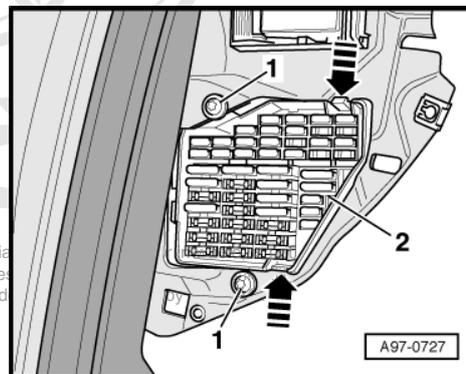
Observe notes on contact corrosion ⇒ [page 330](#) .

### 4.1 Removing and installing fuse holder in dash panel (left-side)

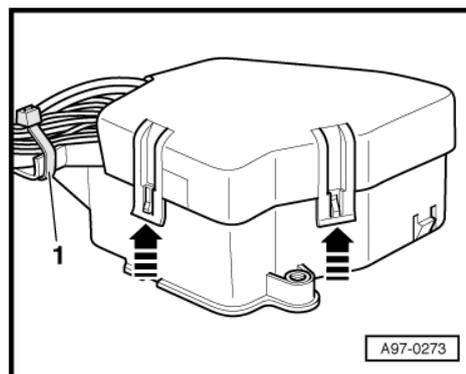
#### Removing

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Remove driver's storage compartment ⇒ Rep. gr. 68 .
- Unscrew bolts -1- for fuse holder -2-.
- Release retaining tabs and detach fuse holder from central tube for dash panel.

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- Cut open cable tie -1-.
- Release cover for fuse holder -arrows-.
- Detach fuses at fuse holder.



- Pull off retaining strip for connectors -arrows- and take connectors out of fuse holder.
- Unclip socket -1-.

**i Note**

Exact assignment of contacts in fuse holder in dash panel (left-side) can be found in applicable current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

**Installing**

Installation is carried out in the reverse order; note the following:

**i Note**

Refit all cable ties at the same locations when reinstalling.

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Install driver's storage compartment ⇒ Rep. gr. 68.

- Connect battery. Steps required ⇒ [page 3](#).

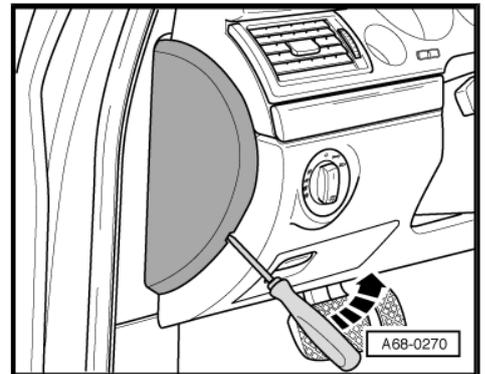
**Tightening torque**

Component	Nm
Fuse holder to central tube for dash panel	3

## 4.2 Removing and installing CAN separating connector (left-side) -T46a-

**Removing**

- Switch off ignition and take out ignition key.
- Use screwdriver to pry off trim (left-side) at dash panel -arrow-.



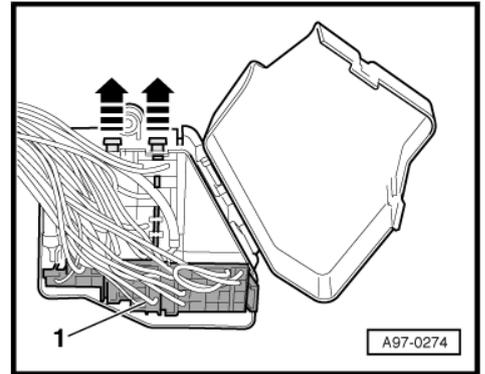
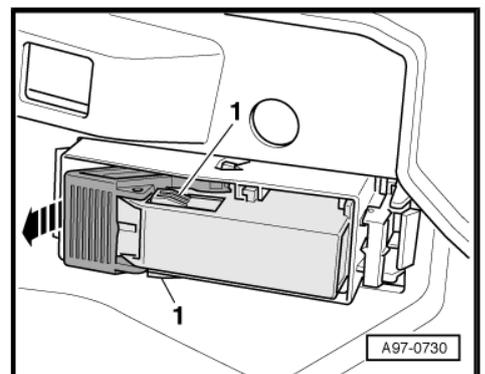
- Press retaining tabs -1- at multi-pin connector.
- Release retaining clip -arrow- and unplug connector.

**i Note**

The exact contact assignment of the CAN separating connector (left-side) can be found in the appropriate current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

**Installing**

Install in reverse order.



### 4.3 Unplugging door separating connector (left-side)

#### Procedure

- Press dust cover -1- at location marked with -arrow- and detach.

# Audi

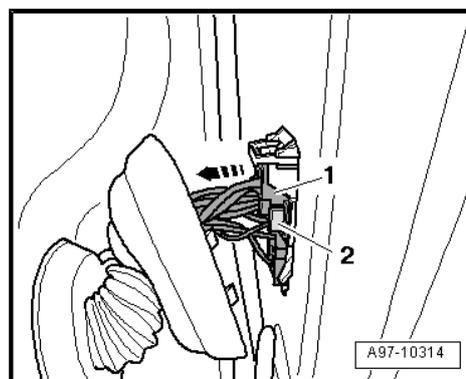
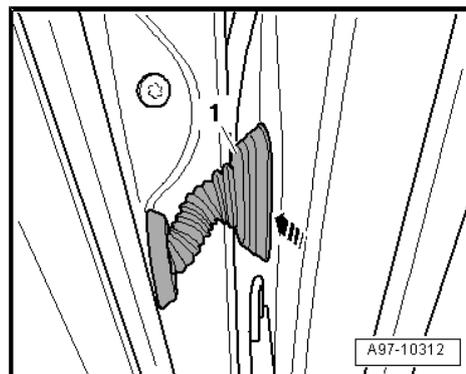
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- Release door separating connector -1- and remove outwards -arrow- (press retainer tab -2-).
- Make sure connector is pressed onto connection piece so it engages audibly.
- Press on dust cover so it engages audibly.



#### Note

Make sure sealing lip of dust cover makes contact with A pillar evenly all round.



### 4.4 Removing and installing onboard supply control unit - J519-

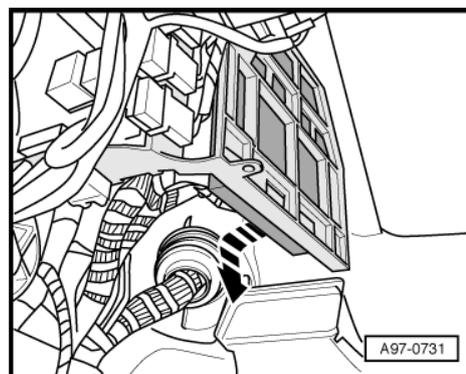
#### Removing

- If control unit is to be renewed, select the “Replace control unit” function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Switch off ignition and take out ignition key.
- Remove driver's storage compartment ⇒ Rep. gr. 68 .
- Remove heating duct in driver's footwell.
- Detach onboard supply control unit - J519- from mounting frame in direction of -arrow-.
- Unplug electrical connectors on onboard supply control unit.

#### Installing

Installation is carried out in the reverse order; note the following:

- Install driver's storage compartment ⇒ Rep. gr. 68 .



## 4.5 Removing and installing relay and fuse carrier behind dash panel (left-side)

### Removing

- With ignition switched off, disconnect earth cable at battery => [page 2](#) .
- Remove driver's storage compartment => Rep. gr. 68 .
- Remove bolts -2-.
- Disengage retaining pin -3- of relay and fuse carrier at side guide -arrow-.
- Detach relay and fuse carrier -1-.

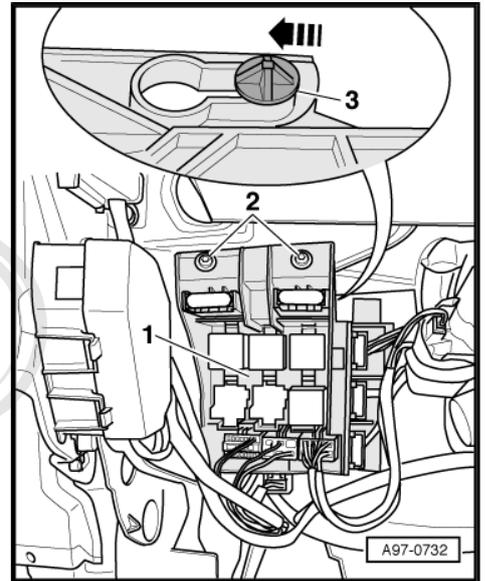
Perform additional operations as required.

- Unclip fuse holders.
- Unplug electrical connectors.
- Disconnect relays and unclip corresponding relay carrier.



### Note

*Exact contact assignment of relay and fuse carrier behind dash panel (left-side) can be found in the appropriate current flow diagram => Current flow diagrams, Electrical fault finding and Fitting locations.*



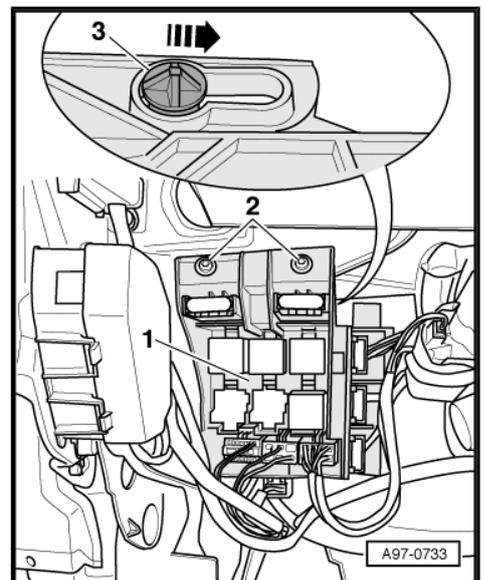
### Installing

Installation is carried out in the reverse order; note the following:

- Engage retaining pin -3- of relay and fuse carrier at side guide -arrow-.
- Install driver's storage compartment => Rep. gr. 68 .
- Connect battery. Steps required => [page 3](#) .

### Tightening torque

Component	Nm
Relay and fuse carrier to central tube for dash panel	3



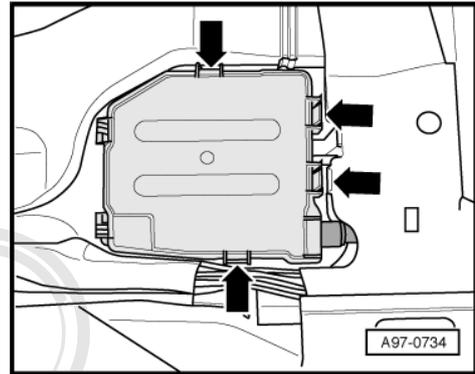
## 4.6 Removing and installing electronics box (driver's side)

- ◆ Fitting location: beneath floor covering under driver's seat

### Removing

- Remove driver's seat => Rep. gr. 72 .
- Switch off ignition and take out ignition key.
- Remove lower A-pillar trim => Rep. gr. 70 .
- Fold back floor covering.

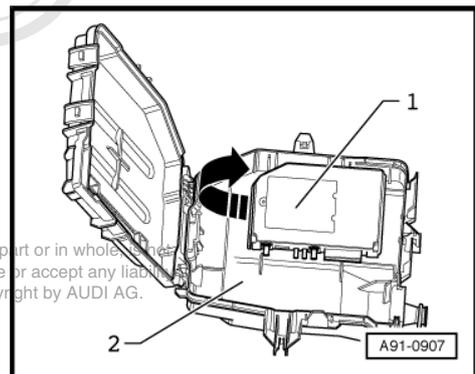
- Release cover for electronics box (driver's side) -arrows- and fold aside.



- Take control units -1- out of electronics box (driver's side) -2-.
- Take out electronics box.

**i Note**

*Exact assignment of contacts in driver's side electronics box can be found in appropriate current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*



**Installing**

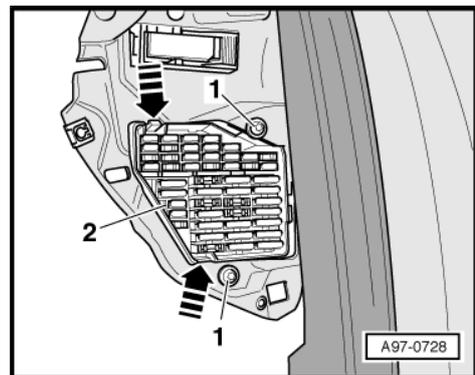
Installation is carried out in the reverse order; note the following:

- Install lower A-pillar trim ⇒ Rep. gr. 70 .
- Install driver's seat ⇒ Rep. gr. 72 .

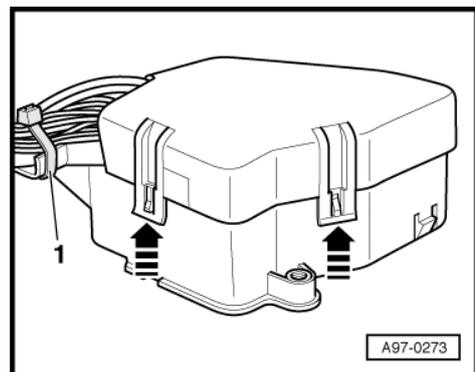
**4.7 Removing and installing fuse holder at dash panel (right-side)**

**Removing**

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Remove glove box ⇒ Rep. gr. 68 .
- Unscrew bolts -1- for fuse holder -2-.
- Release retaining tabs and detach fuse holder from central tube for dash panel.



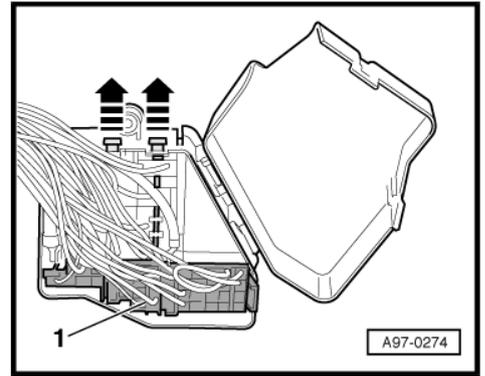
- Cut open cable tie -1-.
- Release cover for fuse holder -arrows-.
- Detach fuses at fuse holder.



- Detach retaining strip for connectors -arrows- and take connectors out of fuse holder.
- Unclip socket -1-.

**i** Note

*Exact contact assignment of fuse holder in dash panel (right-side) can be found in applicable current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*



**Installing**

Installation is carried out in the reverse order; note the following:

**i** Note

*Refit all cable ties at the same locations when reinstalling.*

- Install glove box ⇒ Rep. gr. 68 .
- Connect battery. Steps required ⇒ [page 3](#) .

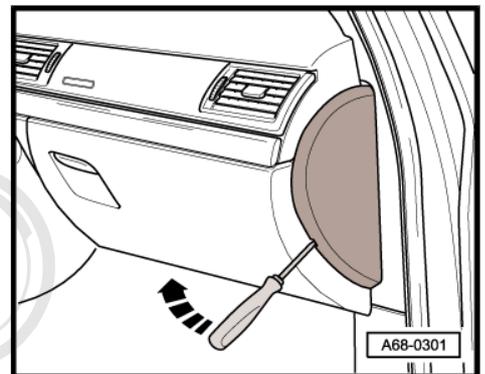
**Tightening torque**

Component	Nm
Fuse holder to central tube for dash panel	3

## 4.8 Removing and installing CAN separating connector (right-side) -T46b-

**Removing**

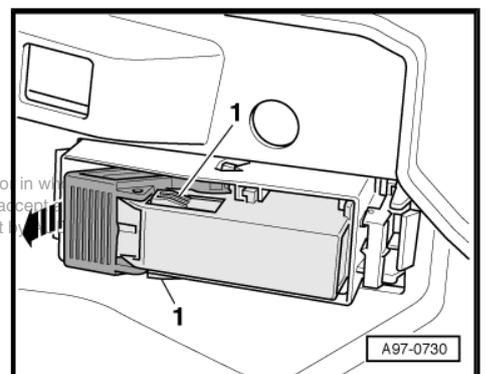
- Switch off ignition and take out ignition key.
- Use screwdriver to pry off dash panel end trim (right-side) -arrow-.



- Press retaining tabs -1- at multi-pin connector.
- Release retaining clip -arrow- and unplug connector.

**i** Note

*Exact contact assignment of CAN separating connector (right-side) can be found in appropriate current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*



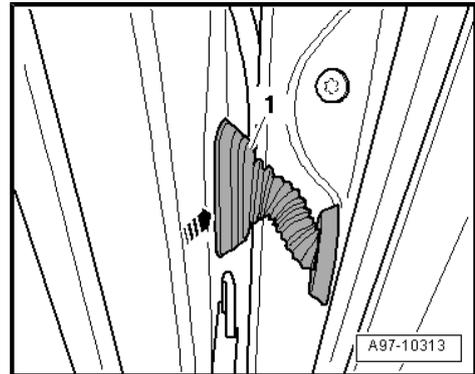
**Installing**

Install in reverse order.

## 4.9 Unplugging door separating connector (right-side)

### Procedure

- Press dust cover -1- at location marked with -arrow- and detach.

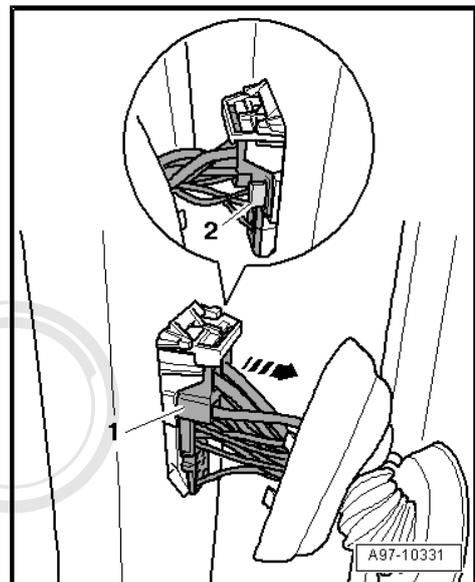


- Release door separating connector -1- and remove outwards -arrow- (press retainer tab -2-).
- Make sure connector is pressed onto connection piece so it engages audibly.
- Press on dust cover so it engages audibly.



### Note

*Make sure sealing lip of dust cover makes contact with A pillar evenly all round.*



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## 4.10 Removing and installing main fuse holder, A-pillar (right-side)

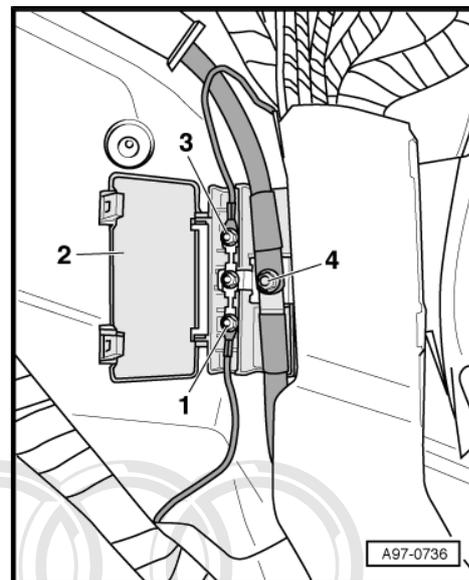
### Removing

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Remove lower A-pillar trim ⇒ Rep. gr. 70 .
- Fold back floor covering.
- Unscrew protective cover above main fuse holder.
- Fold cap -2- to side.
- Unscrew nuts -1- and -3- for fuse.
- Unscrew nut -4- for battery cable.
- If necessary, detach fuse holder from bulkhead.



### Note

*Exact assignment for main fuse holder (right A-pillar) can be found in applicable current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*



### Installing

Installation is carried out in the reverse order; note the following:

- Install lower A-pillar trim ⇒ Rep. gr. 70 .
- Connect battery. Steps required ⇒ [page 3](#) .

### Tightening torques

Component	Nm
Electrical wire to fuse holder (M6)	7.5
Battery cable to fuse holder	20

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## 4.11 Removing and installing relay carrier in front footwell (right-side)

### Removing

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Remove glove box ⇒ Rep. gr. 68 .
- Remove lower A-pillar trim ⇒ Rep. gr. 70 .
- Fold back floor covering.
- **Take out foot rest.**
- Disconnect relay -1-.
- Unscrew bolts -arrows- and detach relay carrier from bulk-head.
- Disconnect relays/fuses from relay carrier.
- Unclip fuse holders and relay carriers at relay carrier.



### Note

*Exact assignment of contacts in relay carrier in front right footwell can be seen from appropriate current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*

### Installing

Installation is carried out in the reverse order; note the following:

- Install lower A-pillar trim ⇒ Rep. gr. 70 .
- Install glove box ⇒ Rep. gr. 68 .
- Connect battery. Steps required ⇒ [page 3](#) .

### Tightening torque

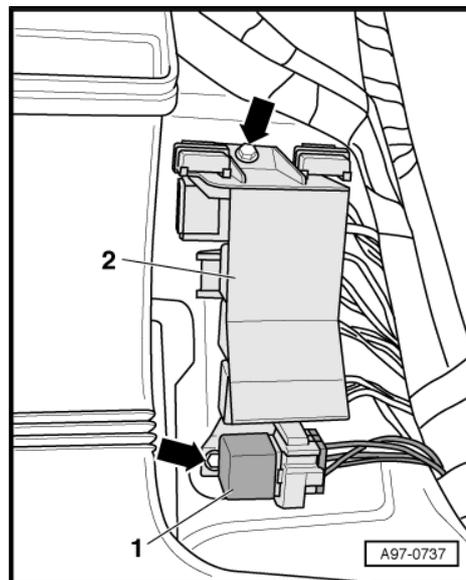
Component	Nm
Relay carrier to body	9.5

## 4.12 Removing and installing onboard supply control unit 2 - J520-

- ◆ Fitting location: beneath floor covering under front passenger's seat

### Removing

- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Continue to follow the instructions on the display of the vehicle diagnostic tester.
- Remove front passenger seat ⇒ Rep. gr. 72 .
- Switch off ignition and take out ignition key.
- Remove lower A-pillar trim ⇒ Rep. gr. 70 .
- Fold back floor covering.



- Unscrew nuts -arrows- and detach onboard supply control unit 2 - J520- .
- Unplug electrical connector -1-.

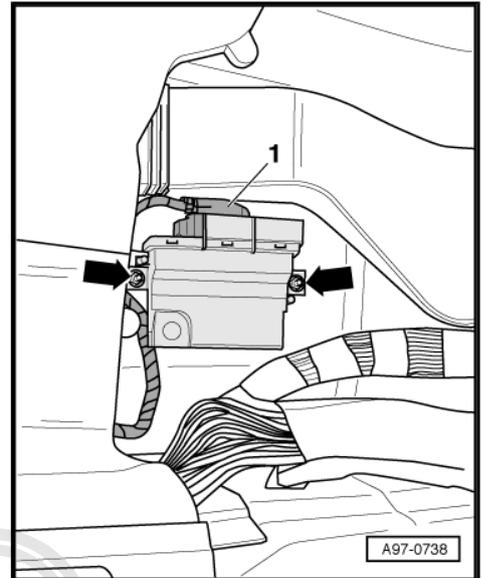
**Installing**

Installation is carried out in the reverse order; note the following:

- Install lower A-pillar trim => Rep. gr. 70 .
- Install front passenger seat => Rep. gr. 72 .

**Tightening torque**

Component	Nm
Onboard supply control unit 2 - J520- to body	2.0



### 4.13 Removing and installing voltage converter for background lighting (driver's/ front passenger's door)

**Removing**

- Remove relevant door trim => Rep. gr. 70 .
- Unplug electrical connectors -1- and -2-.
- Unscrew bolts -arrows- and detach voltage converter for background lighting (front).

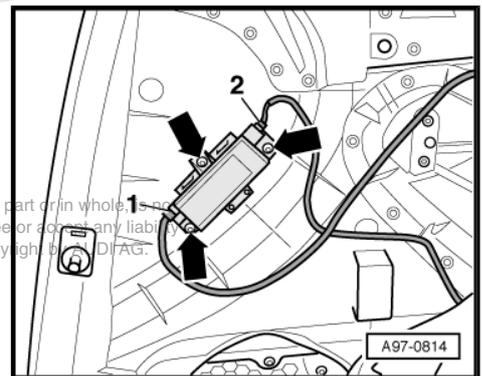
**Installing**

Installation is carried out in the reverse order; note the following:

- Install door trim => Rep. gr. 70 .

**Tightening torque**

Component	Nm
Voltage converter for background lighting to door trim	1.2



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## 4.14 Removing and installing voltage converter for rear left/right door background lighting

### Removing

- Remove relevant door trim ⇒ Rep. gr. 70 .
- Unplug electrical connectors -1- and -2-.
- Unscrew bolts -arrows- and detach voltage converter for background lighting (rear).

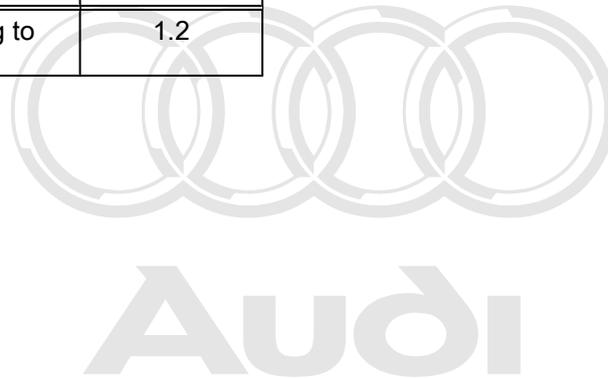
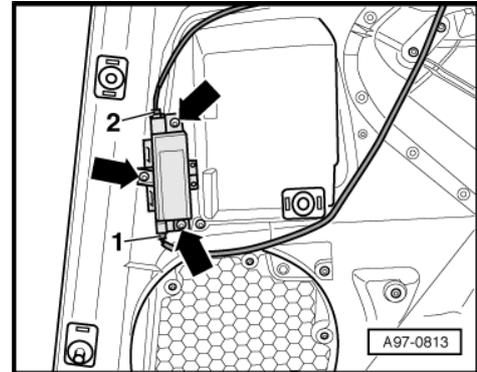
### Installing

Installation is carried out in the reverse order; note the following:

- Install door trim ⇒ Rep. gr. 70 .

### Tightening torque

Component	Nm
Voltage converter for background lighting to door trim	1.2



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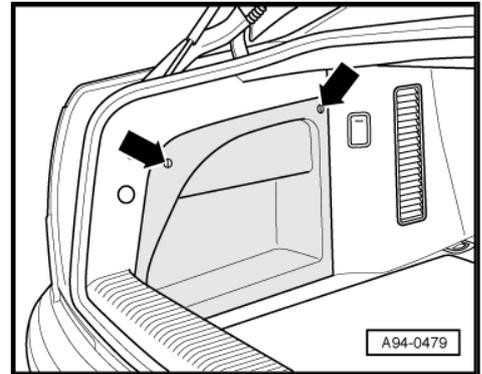
## 5 Relay carriers, fuse carriers (luggage compartment)

Observe notes on contact corrosion ⇒ [page 330](#) .

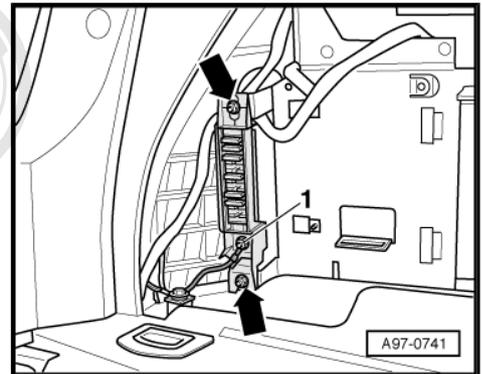
### 5.1 Removing and installing fuse holder in luggage compartment (left-side)

#### Removing

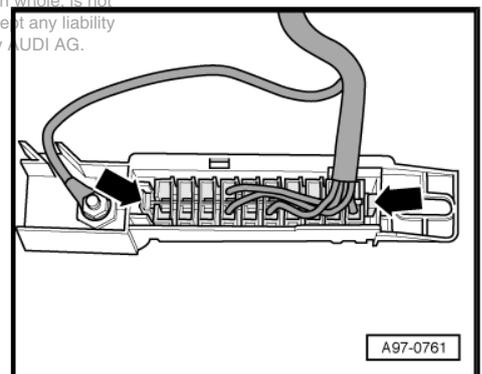
- Switch off ignition and take out ignition key.
- Remove cover for luggage compartment side trim (left-side) -arrows-.



- Unscrew nuts -arrows-.
- Detach positive wire -1- and fuse holder.
- Detach fuses at fuse holder.



- Release retaining clips -arrows- and take plug-in socket out of fuse holder.



- Detach retaining strip for connectors -arrow- and take connectors out of plug-in socket.



**Note**

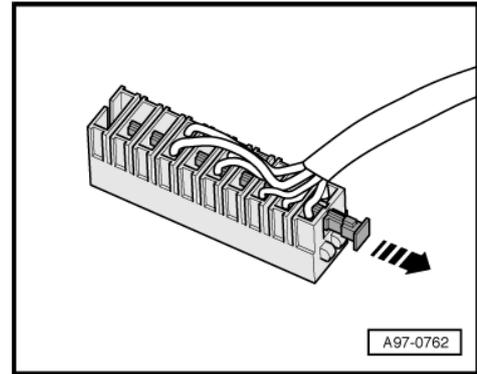
Exact contact assignment of fuse holder in luggage compartment can be found in applicable current flow diagram → Current flow diagrams, Electrical fault finding and Fitting locations.

**Installing**

Install in reverse order.

**Tightening torques**

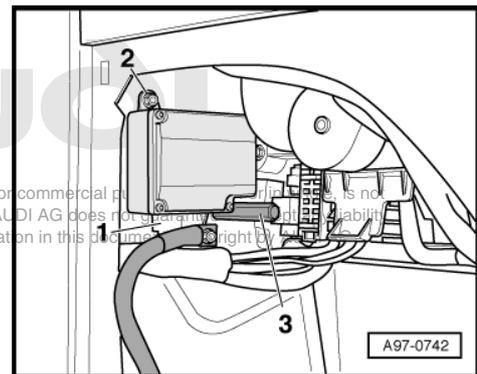
Component	Nm
Fuse holder to body	3
Positive wire to fuse holder	7.5



## 5.2 Removing and installing relay and fuse holder in luggage compartment (right-side)

**Removing**

- With ignition switched off, disconnect earth cable at battery ⇒ [page 2](#) .
- Unscrew earth stud -3- and nut -2-.
- Detach energy management control unit - J644-
- Unplug electrical connectors -1-.

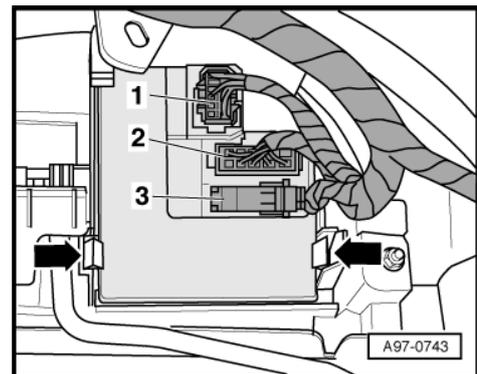


- Release convenience system central control unit - J393- -arrows- and detach it from relay and fuse holder.



**Note**

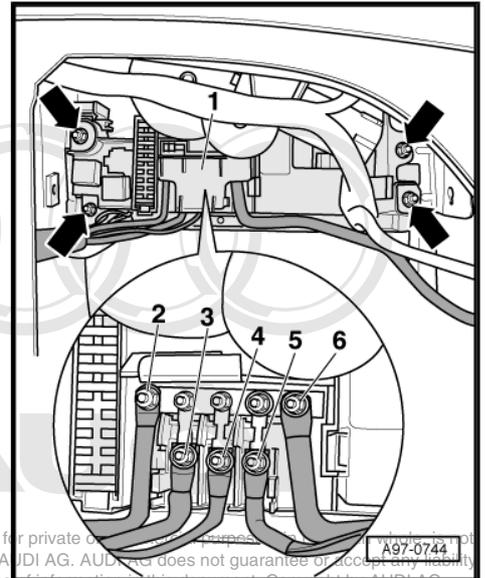
Electrical connectors remain connected.



- Open cover -1-.
- Unscrew electrical wiring -2 ... 6-.
- Unscrew nuts -arrows- and detach relay and fuse holder.
- Unclip fuse holders at relay and fuse holder.
- Detach relays and control units and then unclip appropriate relay carrier.

 **Note**

*Exact contact assignment of relay and fuse holder in luggage compartment (right-side) can be found in appropriate current flow diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*



**Installing**

Installation is carried out in the reverse order; **note the following:**

- Install energy management control unit - J644- ⇒ [page 9](#) , ensuring that assembly sequence is followed.

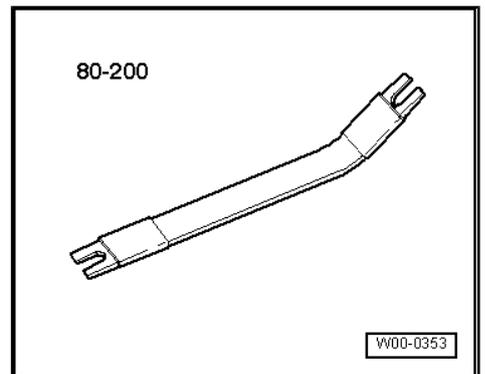
**Tightening torques**

Component	Nm
Relay and fuse holder to body	7.5
Electrical wiring to fuse holder	7.5

**5.3 Removing and installing heated wind-screen control unit - J505-**

**Special tools and workshop equipment required**

- ◆ Removal lever - 80 - 200-



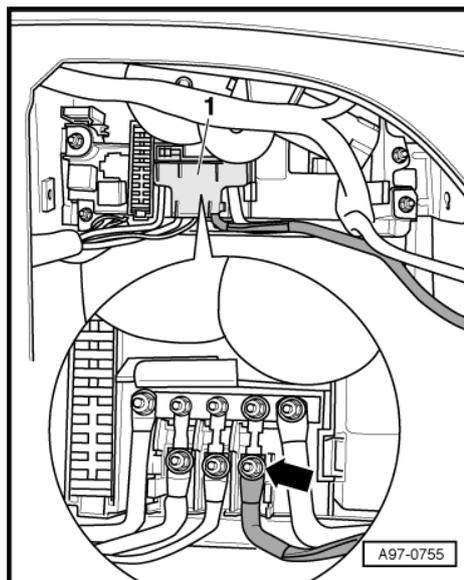
**Removing**

 **Note**

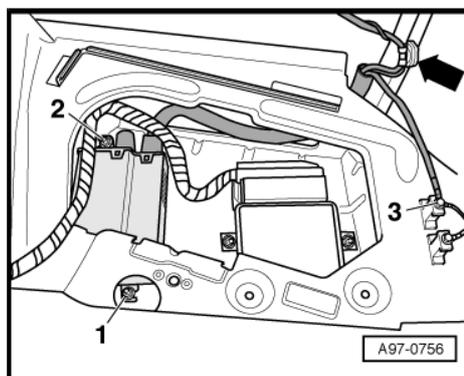
*All cable ties unfastened or cut open during removal must be re-attached in same position when installing.*

- If control unit is to be renewed, select the "Replace control unit" function for appropriate control unit in ⇒ Vehicle diagnostic tester.
- Remove battery ⇒ [page 3](#) .

- Open cover -1-.
- Unscrew electrical wire -arrow-.



- Pry out wiring clip -arrow- using removal lever - 80 - 200- .
- Unscrew bolt -3- at earth point.
- Unscrew nut -2-.
- Loosen nut -1- one turn and detach heated windscreen control unit - J505- with wires connected.



### Installing

Installation is carried out in the reverse order; note the following:



### Note

*Refit all cable ties at the same locations when reinstalling.*

- Install battery ⇒ [page 4](#) .

### Tightening torques

Component	Nm
Heated windscreen control unit - J505- to body	5
Earth cable to body	9.5
Electrical wire to fuse holder	7.5

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## 6 Repairing wiring harnesses and electrical connectors

⇒ Electrical system; General information; Rep. gr. 97 ; Repairing wiring harnesses and connectors

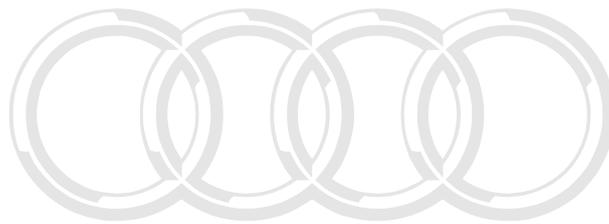


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## 7 Repairing connector housings and electrical connectors

⇒ Electrical system; General information; Rep. gr. 97 ; Repairing wiring harnesses and connectors; Repairing connector housings and electrical connectors



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## 8 Releasing and dismantling connector housings

⇒ Electrical system; General information; Rep. gr. 97 ; Repairing wiring harnesses and connectors; Releasing and dismantling connector housings

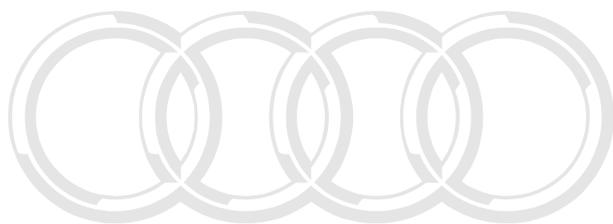


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## 9 Cleaning contact surfaces with contact surface cleaning set - VAS 6410-

⇒ Electrical system; General information; Rep. gr. 97 ; Contact surface cleaning set VAS 6410



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## 10 Repairing aerial wires

⇒ Electrical system; General information; Rep. gr. 97 ; Repairing wiring harnesses and connectors; Repairing aerial wires



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## 11 Fibre optic cables

⇒ Electrical system; General information; Rep. gr. 97 ; Repairing wiring harnesses and connectors; Repairing fibre optic cables

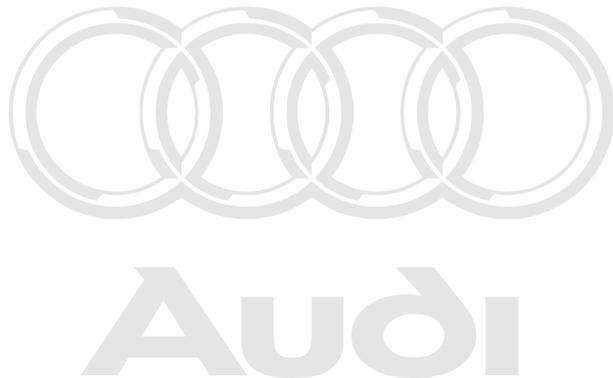


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## 12 Vehicle diagnostic, testing and information systems

⇒ Electrical system; General information; Rep. gr. 97 ; Vehicle diagnostic, testing and information systems



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