



**2008-2009
Volkswagen
A5 Jetta and
SportWagen**

Quick Reference
Specification Book

2008–2009 Volkswagen

A5 Jetta and SportWagen

Quick Reference Specification Book

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GENERAL INFORMATION

Decimal and Metric Equivalents

Distance/Length

To calculate: mm x 0.03937 = in.

mm	in.	mm	in.	mm	in.	mm	in.
0.002	0.00008	0.01	0.0004	0.1	0.004	1	0.04
0.004	0.00016	0.02	0.0008	0.2	0.008	2	0.08
0.006	0.00024	0.03	0.0012	0.3	0.012	3	0.12
0.008	0.00031	0.04	0.0016	0.4	0.016	4	0.16
0.010	0.00039	0.05	0.0020	0.5	0.020	5	0.20
0.020	0.00079	0.06	0.0024	0.6	0.024	6	0.24
0.030	0.00118	0.07	0.0028	0.7	0.028	7	0.28
0.040	0.00157	0.08	0.0031	0.8	0.031	8	0.31
0.050	0.00197	0.09	0.0035	0.9	0.035	9	0.35
0.060	0.00236	0.10	0.0039	1.0	0.039	10	0.39
0.070	0.00276	0.20	0.0079	2.0	0.079	20	0.79
0.080	0.00315	0.30	0.0118	3.0	0.118	30	1.18
0.090	0.00354	0.40	0.0157	4.0	0.157	40	1.57
0.100	0.00394	0.50	0.0197	5.0	0.197	50	1.97
0.200	0.00787	0.60	0.0236	6.0	0.236	60	2.36
0.300	0.01181	0.70	0.0276	7.0	0.276	70	2.76
0.400	0.01575	0.80	0.0315	8.0	0.315	80	3.15
0.500	0.01969	0.90	0.0354	9.0	0.354	90	3.54
0.600	0.02362	1.00	0.0394	10.0	0.394	100	3.94
0.700	0.02756	2.00	0.0787	20.0	0.787		
0.800	0.03150	3.00	0.1181	30.0	1.181		
0.900	0.03543	4.00	0.1575	40.0	1.575		
1.000	0.03937	5.00	0.1969	50.0	1.969		
2.000	0.07874	6.00	0.2362	60.0	2.362		
3.000	0.11811	7.00	0.2756	70.0	2.756		
4.000	0.15748	8.00	0.3150	80.0	3.150		
5.000	0.19685	9.00	0.3543	90.0	3.543		
6.000	0.23622	10.00	0.3937	100.0	3.937		
7.000	0.27559	20.00	0.7874				
8.000	0.31496	30.00	1.1811				
9.000	0.35433	40.00	1.5748				
10.000	0.39370	50.00	1.9685				
20.000	0.78740	60.00	2.3622				
30.000	1.18110	70.00	2.7559				
40.000	1.57480	80.00	3.1496				
50.000	1.96850	90.00	3.5433				
60.000	2.36220	100.00	3.9370				
70.000	2.75591						
80.000	3.14961						
90.000	3.54331						
100.000	3.93701						

Tightening Torque

N·m -to- lb·ft (ft·lb)

To calculate: $N \cdot m \times 0.738 = lb \cdot ft$

N·m	lb·ft (ft·lb)		N·m	lb·ft (ft·lb)		N·m	lb·ft (ft·lb)
10	7		55	41		100	74
11	8		56	41		105	77
12	9		57	42		110	81
13	10		58	43		115	85
14	10		59	44		120	89
15	11		60	44		125	92
16	12		61	45		130	96
17	13		62	46		135	100
18	13		63	46		140	103
19	14		64	47		145	107
20	15		65	48		150	111
21	15		66	49		155	114
22	16		67	49		160	118
23	17		68	50		165	122
24	18		69	51		170	125
25	18		70	52		175	129
26	19		71	52		180	133
27	20		72	53		185	136
28	21		73	54		190	140
29	21		74	55		195	144
30	22		75	55		200	148
31	23		76	56		205	151
32	24		77	57		210	155
33	24		78	58		215	159
34	25		79	58		220	162
35	26		80	59		225	166
36	27		81	60		230	170
37	27		82	60		235	173
38	28		83	61		240	177
39	29		84	62		245	181
40	30		85	63		250	184
41	30		86	63		260	192
42	31		87	64		270	199
43	32		88	65		280	207
44	32		89	66		290	214
45	33		90	66		300	221
46	34		91	67		310	229
47	35		92	68		320	236
48	35		93	69		330	243
49	36		94	69		340	251
50	37		95	70		350	258
51	38		96	71		360	266
52	38		97	72		370	273
53	39		98	72		380	280
54	40		99	73		390	288
55	41		100	74		400	295

N·m -to- lb·in (in·lb), kg·cm

To calculate: $N \cdot m \times 8.85 = lb \cdot in$ • $N \cdot m \times 10.20 = kg \cdot cm$

N·m	lb·in (in·lb)	kg·cm	N·m	lb·in (in·lb)	kg·cm
1	9	10	26	230	265
2	18	20	27	239	275
3	27	31	28	248	286
4	35	41	29	257	296
5	44	51	30	266	306
6	53	61	31	274	316
7	62	71	32	283	326
8	71	82	33	292	337
9	80	92	34	301	347
10	89	102	35	310	357
11	97	112	36	319	367
12	106	122	37	327	377
13	115	133	38	336	387
14	124	143	39	345	398
15	133	153	40	354	408
16	142	163	41	363	418
17	150	173	42	372	428
18	159	184	43	381	438
19	168	194	44	389	449
20	177	204	45	398	459
21	186	214	46	407	469
22	195	224	47	416	479
23	204	235	48	425	489
24	212	245	49	434	500
25	221	255	50	443	510

N·cm -to- lb·in (in·lb), kg·cm

To calculate: $N \cdot cm \times 0.089 = lb \cdot in$ • $N \cdot cm \times 0.102 = kg \cdot cm$

N·cm	lb·in (in·lb)	kg·cm	N·cm	lb·in (in·lb)	kg·cm
50	4	5	250	22	25
60	5	6	300	27	31
70	6	7	350	31	36
80	7	8	400	35	41
90	8	9	450	40	46
100	9	10	500	44	51
110	10	11	550	49	56
120	11	12	600	53	61
130	12	13	650	58	66
140	12	14	700	62	71
150	13	15	750	66	76
160	14	16	800	71	82
170	15	17	850	75	87
180	16	18	900	80	92
190	17	19	950	84	97
200	18	20	1000	89	102

kg·cm -to- lb·in (in.lb), N·cm

To calculate: kg·cm x 0.868 = lb·in • kg·cm x 9.81 = N·cm

kg·cm	lb·in (in·lb)	N·cm		kg·cm	lb·in (in·lb)	N·cm
5	4	49		110	95	1079
6	5	59		120	104	1177
7	6	69		130	113	1275
8	7	78		140	122	1373
9	8	88		150	130	1471
10	9	98		160	139	1569
20	17	196		170	148	1667
30	26	294		180	156	1765
40	35	392		190	165	1863
50	43	490		200	174	1961
60	52	588		210	182	2059
70	61	686		220	191	2157
80	69	785		230	200	2256
90	78	883		240	208	2354
100	87	981		250	217	2452

Warnings and Cautions

WARNINGS

- Some repairs may be beyond your capability. If you lack the skills, tools and equipment, or a suitable workplace for any procedure described in this manual, we suggest you leave such repairs to an authorized dealer service department or other qualified shop.
- Do not reuse any fasteners that have become worn or deformed during normal use. Many fasteners are designed to be used only once and become unreliable and may fail when used a second time. This includes, but is not limited to, nuts, bolts, washers, self-locking nuts or bolts, circlips and cotter pins. Always replace these fasteners with new parts.
- Never work under a lifted car unless it is solidly supported on stands designed for the purpose. Do not support a car on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a car that is supported solely by a jack. Never work under the car while the engine is running.

- If you are going to work under a car on the ground, make sure the ground is level. Block the wheels to keep the car from rolling. Disconnect the battery negative (-) terminal (ground strap) to prevent others from starting the car while you are under it.
- Never run the engine unless the work area is well ventilated. Carbon monoxide kills.
- Remove rings, bracelets and other jewelry so they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Tie back long hair. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not attempt to work on your car if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset, or have taken medication or any other substance that may keep you from being fully alert.
- Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the car. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel, vapors or oil.
- Use a suitable container to catch draining fuel, oil, or brake fluid. Do not use food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store oily rags which can ignite and burn spontaneously.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with battery acid. Wear gloves or other protective clothing whenever the job requires working with harmful substances.
- Greases, lubricants and other automotive chemicals contain toxic substances, many of which are absorbed directly through the skin. Read the manufacturer's instructions and warnings carefully. Use hand and eye protection. Avoid direct skin contact
- Disconnect the battery negative (-) terminal (ground strap) whenever you work on the fuel or electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.

- Friction materials (such as brake pads or shoes or clutch discs) contain asbestos fibers or other friction materials. Do not create dust by grinding, sanding, or cleaning with compressed air. Avoid breathing dust. Breathing any friction material dust can lead to serious diseases and may result in death.
- Batteries give off explosive hydrogen gas during charging. Keep sparks, lighted matches and open flame away from the top of the battery. If hydrogen gas escaping from the cap vents is ignited, it ignites the gas trapped in the cells and causes the battery to explode.
- Connect and disconnect battery cables, jumper cables or a battery charger only with the ignition off. Do not disconnect the battery while the engine is running.
- Do not quick-charge the battery (for boost starting) for longer than one minute. Wait at least one minute before boosting the battery a second time.
- Do not allow battery charging voltage to exceed 16.5 volts. If the battery begins producing gas or boiling violently, reduce the charging rate. Boosting a sulfated battery at a high charging rate can cause an explosion.
- The A/C system is filled with chemical refrigerant, which is hazardous. The A/C system should be serviced only by trained technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat increases system pressure and may cause the system to burst.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.

- Some cars are equipped with a Supplemental Restraint System (SRS) that automatically deploys airbags and pyrotechnic seat belt tensioners in the event of a frontal or side impact. These are explosive devices. Handled improperly or without adequate safeguards, they can be accidentally activated and cause serious injury.
- The ignition system produces high voltages that can be fatal. Avoid contact with exposed terminals and use extreme care when working on a car with the engine running or the ignition on.
- Place jack stands only at locations specified by manufacturer. The vehicle lifting jack supplied with the vehicle is intended for tire changes only. Use a heavy duty floor jack to lift the vehicle before installing jack stands.
- Battery acid (electrolyte) can cause severe burns. Flush contact area with water, seek medical attention.
- Aerosol cleaners and solvents may contain hazardous or deadly vapors and are highly flammable. Use only in a well ventilated area. Do not use on hot surfaces (such as engines or brakes).
- Do not remove coolant reservoir or radiator cap with the engine hot. Burns and engine damage may occur.

CAUTIONS

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized dealer or other qualified shop.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly and do not attempt shortcuts. Use tools appropriate to the work and use only replacement parts meeting original specifications. Makeshift tools, parts and procedures will not make good repairs.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque specification listed.

- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond or lake. Dispose of in accordance with Federal, State and Local laws.
- The control module for the Anti-lock Brake System (ABS) cannot withstand temperatures from a paint-drying booth or a heat lamp in excess of 95°C (203°F) and should not be subjected to temperatures exceeding 85°C (185°F) for more than two hours.
- Before doing any electrical welding on cars equipped with ABS, disconnect the battery negative (-) terminal (ground strap) and the ABS control module connector.
- Always make sure the ignition is off before disconnecting battery.
- Label battery cables before disconnecting. On some models, battery cables are not color coded.
- Disconnecting the battery may erase fault code(s) stored in control module memory. Check for fault codes prior to disconnecting the battery cables.
- If a normal or rapid charger is used to charge the battery, disconnect the battery and remove it from the vehicle to avoid damaging paint and upholstery.
- Do not quick-charge the battery (for boost starting) for longer than one minute. Wait at least one minute before boosting the battery a second time.
- Connect and disconnect a battery charger only with the battery charger switched off.
- Sealed or "maintenance free" batteries should be slow-charged only, at an amperage rate that is approximately 10% of the battery's ampere-hour (Ah) rating.
- Do not allow battery charging voltage to exceed 16.5 volts. If the battery begins producing gas or boiling violently, reduce the charging rate. Boosting a sulfated battery at a high charging rate can cause an explosion.

Maintenance



Jetta SportWagen - 2009 FLUID CAPACITY CHART updated 13 Feb 2009



Vehicle (Sales Code)	Engine Oil approx. qty. w/filter change	Manual Trans	Auto Trans	Rear Final Drive	Cooling System	Power Steering	Brake System	A/C System	Windshield and Headlight Fluid
Jetta SportWagen FWD-Manual (1K57S1) (1K59S1)	2.5L 170 hp (CBTA/CBUA) 6.0L (6.3 qt)	5-Spd (0A4) 1.9L (2.0 qt) OIL PN G 052 128 A2*	N/A	N/A	9.5L (10.0 qt)***	Electro- Mechanical (No Fluid)	1.2 L (1.3qt) (approximately) VW Brake Fluid <u>Specification:</u> Use new fluid only: VW 501 14 or FMVSS 116 DOT 4	Refrigerant Use only R134a Refrin. Capacity 525 + 25 grams Refrigerant Oil Use a PAG oil with R134a	5.0L (5.3qt) Windshield Only 3.0L (3.2qt)
Jetta SportWagen FWD - Auto (1K57S3) (1K59S3)	VW Oil Spec: VW 502 00** Use synthetic oil SAE 5W-40, SAE 5W-30	N/A	6-Spd (09G) New Fill: 7.0L (7.4 qt) OIL PN G 055 025 A2*	Capacity included with transmission.					
Jetta SportWagen FWD-Manual (1K57W2)	2.0T 200 hp (CCTA/CBFA) 4.6L (4.9 qt)	5-Spd (02Q) 2.3L (2.4 qt) OIL PN G 052 171 A2*	N/A	N/A	8.0L (8.6 qt)***		Fluid PN B 000 750*	Oil PN & Capacity Sanden Unit: G 052 154 A2* 110 cc + 10 cc	
Jetta SportWagen FWD - Auto (1K57W3)	VW Oil Spec: VW 502 00** Use synthetic oil SAE 5W-40, SAE 5W-30	N/A	6-Spd DSG (02E) New Fill: 7.2L (7.6 qt) Change: 5.2L (5.5 qt) OIL PN G 052 171 A2*	Capacity included with transmission.					
Jetta SportWagen TDI-Manual (1K577L)	2.0T 140 hp Diesel (CBEA) 4.0L (4.2 qt)	5-Spd (02Q) 2.3L (2.4 qt) OIL PN G 052 171 A2*	N/A	N/A	8.2L (8.7 qt)***				
Jetta SportWagen TDI-Auto (1K577M)	VW Oil Spec: VW 507 00** Use synthetic oil SAE 5W-30	N/A	6-Spd DSG (02E) New Fill: 7.2L (7.6 qt) Change: 5.2L (5.5 qt) OIL PN G 052 171 A2*	Capacity included with transmission.					
For proper fluid level and filling information, see the Repair Manual and/or Maintenance Manual in ElsaWeb. * Oil and fluid part numbers are for reference only. Always check with your Parts Department for the latest part information. ** Refer to Technical Bulletin 17-08-02 (2012855) for engine oils that meet this VW oil specification. *** VW Coolant Additive Specification and Part Number: (color is purple) G 12 plus-plus (TL-VW 774 G) PN- G 012 A8G or G 12 plus (TL-VW 774 F) PN- G 012 A8F.									

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Jetta, GLI - 2008 FLUID CAPACITY CHART updated 10 Feb 2009

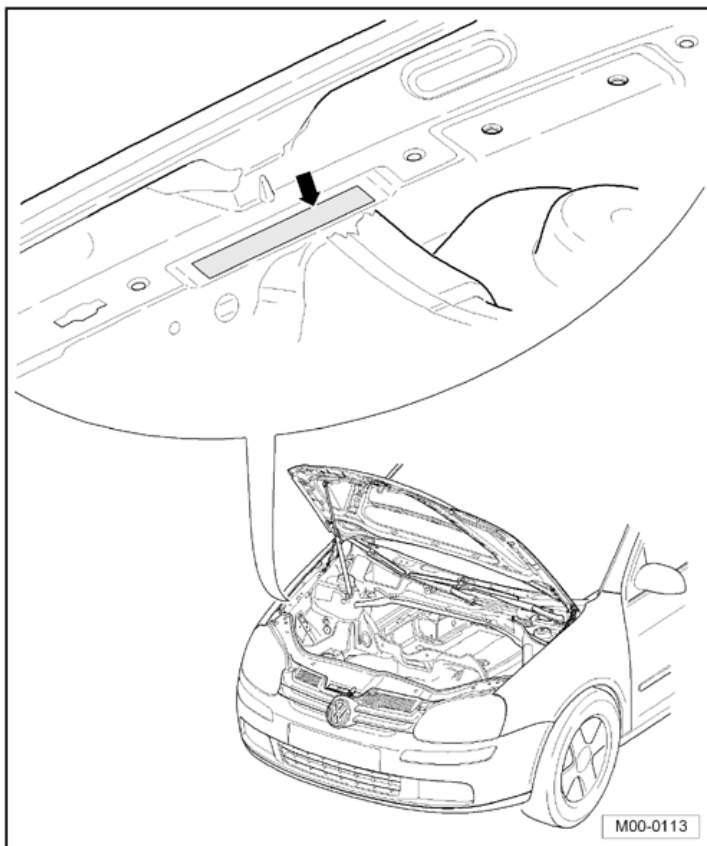


Vehicle (Sales Code)	Engine Oil approx. qty. w/filter change	Manual Trans	Auto Trans	Rear Final Drive	Cooling System	Power Steering	Brake System	A/C System	Windshield and Headlight Fluid
Jetta Sedan FWD-Manual (1K26S1) (1K27S1)	2.5L 170 hp (CBTA/CBUA) 6.0L (6.3 qt)	5-Spd (0A4) 1.9L (2.0 qt) OIL PN G 052 152 A2*	N/A	N/A	9.5L (10.0 qt)***	Electro- Mechanical (No Fluid)	1.2 L (1.3qt) (approximately) VW Brake Fluid <u>Specification:</u> Use new fluid only: VW 501 14 or FMVSS 116 DOT 4	Refrigerant Use only R134a Refrin. Capacity 525 + 25 grams Refrigerant Oil Use a PAG oil with R134a	5.0L (5.3qt) Windshield Only 3.0L (3.2qt)
Jetta Sedan FWD - Auto (1K26S3) (1K27S3) (1K29S3)	VW Oil Spec: VW 502 00** Use synthetic oil SAE 5W-40, SAE 5W-30	N/A	6-Spd (09G) New Fill: 7.0L (7.4 qt) OIL PN G 052 025 A2*	Capacity included with transmission.					
Jetta Wolfsburg FWD-Manual (1K27V2)	2.0T 200 hp (BPY) 4.6L (4.9 qt)	5-Spd (02Q) 2.3L (2.4 qt) OIL PN G 052 171 A2*	N/A	N/A	8.0L (8.6 qt)***		Fluid PN B 000 750 *	Oil PN & Capacity For Sanden Unit: G 052 200 A2* 110 cc + 10 cc	
Jetta Wolfsburg FWD - Auto (1K27V3)	VW Oil Spec: VW 502 00** Use synthetic oil SAE 5W-40, SAE 5W-30	N/A	6-Spd DSG (02E) New Fill: 7.2L (7.6 qt) OIL PN G 052 182 A2*	Capacity included with transmission.					
GLI FWD-Manual (1K28W2)	2.0T 200 hp (CCTA/CBFA) 4.6L (4.9 qt)	5-Spd (02Q) 2.3L (2.4 qt) OIL PN G 052 171 A2*	N/A	N/A					
GLI FWD - Auto (1K28W3)	VW Oil Spec: VW 502 00** Use synthetic oil SAE 5W-40, SAE 5W-30	N/A	6-Spd DSG (02E) New Fill: 7.2L (7.6 qt) OIL PN G 052 182 A2*	Capacity included with transmission.					
For proper fluid level and filling information, see the Repair Manual and/or Maintenance Manual in ElsaWeb. * Oil and fluid part numbers are for reference only. Always check with your Parts Department for the latest part information. ** Refer to Technical Bulletin 17-08-02 (2012855) for engine oils that meet this VW oil specification. *** VW Coolant Additive Specification and Part Number: (color is purple) G 12 plus-plus (TL-VW 774 G) PN- G 012 A8G or G 12 plus (TL-VW 774 F) PN- G 012 A8F.									

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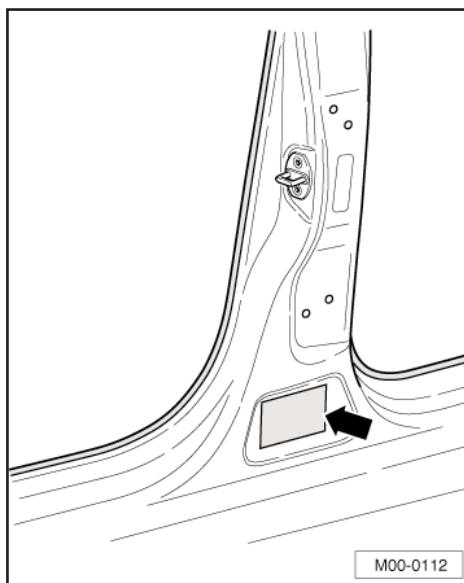
VEHICLE IDENTIFICATION

Vehicle Identification Number (VIN) on Lower Edge of Front Window

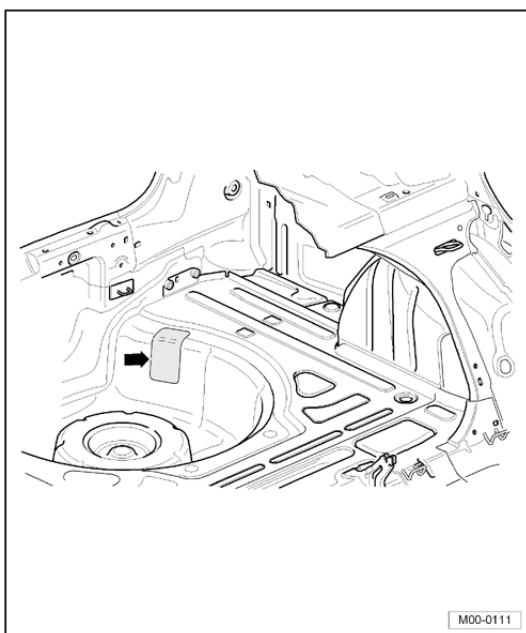


The VIN ➡ is located on the right side of the vehicle in the area of the fender threaded connection. Other VINs are located on the right side of the vehicle on the outer seat console and on the forward edge of the floor plate under the rear seat bench.

Vehicle Data Plate



On some vehicles, the data plate ➡ is located on the left B-pillar and visible after opening the front door.



On some vehicles, the data plate ➡ is located in the spare wheel well on the left side in the direction of travel.

VIN Decoder

Series:

A= Eos Turbo / Komfort
Jetta TDI wo snrf,
 Passat Sedan
B= Eos Turbo / Komfort
 Rabbit 2dr w/Man Trans,
 Tiguan w/ Manual Trans,
B= Eos Turbo / Komfort
 w/automatic Trans,
 GLI 4dr
 Rabbit 2dr w/Man Trans,
 Tiguan w/ 2 VE FSI,
 Tiguan w/ Auto Trans and
 Motion.
C= Jetta TDI/Lowell Edition,
 Rabbit 4dr w/Man Edits,
 Tiguan w/ 2 VE FSI,
 Tiguan w/ Manual Trans,
C= Jetta TDI/Lowell Edition,
 Rabbit 4dr w/Man Trans,
 Tiguan w/ 2 VE FSI,
 Tiguan w/ Manual Trans,
CC VR6 Sport
 F= Eos Lux w/Man Trans,
 GLI 4dr w/AltoBahn PKI,
 Tiguan 2dr w/Man Trans,
 GT= 4dr w/Man Trans,
CC VR6 4Motion
 H= Jetta 4dr "S" w/roof,
 GT= 4dr w/Man Trans,
CC Lux-Auto Trans
 J= Jetta 4dr "S",
 Passat Sedan Komfort

K= Jetta Sportwagen "S"
 L=Passat Wagon Komfort
 M= **CC Sport - Auto,**
 Tiguan w/ 2 VE FSI
 w/VR6 Supp,
 Tiguan Sportwagen 2.5L
 w/ Sunroof
HC CC Sport-Manual
 P= New Beetle "S",
 Jetta Sportwagen 2
 TDI,
 Jetta Sportwagen 2.5 SE,
 Jetta Sportwagen 2.0T SEL
 R= Jetta "SE, SEL, TDI &
 Wolfsburg Edition,
 New Beetle "S"
 w/Sunroof and "SE",
 New Beetle Convertible
 T= Jetta Sportwagen
 2.0L TDI w/Sunroof,
 Jetta Sportwagen 2.5 SE,
 Jetta Sportwagen 2.0T SEL
 w/Sunroof
X=Passat Wagon
 Komfort

2009 Volkswagen VIN Decoder (except Routan)

9 = 2009

Sequential product number (position 12-17)

Country of origin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Manufacturer	W	V	G	B	V	S	3	5	N	7	9	W	0	0	2	8	8
Vehicle Type																	
Series																	
Engine																	
Restraint system																	
Model (7&8)																	
Check digit																	
Model year																	
Assembly plant																	

See back

Calculate per
NHTSA Code

2009

WWW = Europe - West Car
WVG = Europe - SUV
WVW = Mexico - Pass. Car

"C" = New Beetle
1F = Eos
1K = Rabbit / GTI / Jetta / GLI and Jetta Sportwagen**
1Y = New Beetle Convertible
3C - CC / Passat
BN = Tiguan
TL = Touareg 2

"P" = Jetta, Tiguan and GLI models are identified by manufacturer's code of
WVG
GTI and Rabbit models are identified by manufacturer's code of
WWW

E = Bratislava
M = Mexico
E = Madrid
V = Portugal
V = Wolfsburg

A= 4 cyl 2.0L 2009h (CCTA) Eos
A= 4 cyl 2.0L 2009h (CBFA) GLI
A= 4 cyl 2.5L 170hp (CBFA) Rabbit
B= VR6 3.2L 250hp (CBFA) Eos
B= 4 cyl 2.5L 170hp (CBFA) Rabbit
B= 4 cyl 2.0L 200h (CBFA) GTI
E= VR6 3.6L 280hp (BHW) Touareg 2
F= 4 cyl 2.5L 150hp (BPS) New Beetle Conv
F= New Beetle Convertible
F= 4 cyl 2.0L 150hp (BPR) New Beetle / New Beetle Convertible
G= 4 cyl 2.0L 200h (CCTA) GLI, Jetta (A5) and Jetta Sportwagen
K= 4 cyl 2.0L 200h (CCTA) Passat / P.W
L= 4 cyl 2.0L 2009h (CCTA) CC
L= 4 cyl 2.0L 140hp (CBFA) Jetta
L= Jetta Sportwagen
M= 5 cyl 2.5L 170hp (CBTA) Jetta (A5) and Jetta Sportwagen
R= VR6 4.2L 350hp (BAR) Touareg 2
V= VR6 3.6L 280hp (BLV) CC
Passat and Passat Wagon
V= 4 cyl 2.0L 2009h (CCTA) GTI, Tiguan
W= 5 cyl 2.5L 150hp (BPS) New Beetle
Z= 5 cyl 2.5L 170hp (CBUA) Jetta and Jetta Sportwagen

2009 Restraint System:

- 6 = Front Air Bags - Side Impact Air Bags - Front Air Bags - Front
- 7 = Advanced Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side
- 8 = Advanced Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side
- 9 = Advanced Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side
- 10 = Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side
- 11 = Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side
- 12 = Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side
- 13 = Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side
- 14 = Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side
- 15 = Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side
- 16 = Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side
- 17 = Front Air Bags - Side Impact Air Bags - Side Impact Air Bags - Side

2009 Volkswagen VIN Decoder (except Routan)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Country of origin	Manufacturer	Vehicle Type	Series	Engine	Restraint system	Model	(position 7 & 8)	Check digit	Model year	Assembly plant	Sequential product number (position 12 - 17)					

Calculate per NHTSA Code

J = 1988
 K = 1989
 L = 1990
 M = 1991
 N = 1992
 P = 1993
 R = 1994
 S = 1995
 T = 1996
 V = 1997
 W = 1998
 X = 1999
 Y = 2000
 1 = 2001
 2 = 2002
 3 = 2003
 4 = 2004
 5 = 2005
 6 = 2006
 7 = 2007
 8 = 2008
 9 = 2009

SALES CODES

Engine

Engine Codes

BPY/BWA/CCTA/CBFA	2.0L 4-cylinder 4V turbo
BGP/BGQ	2.5L 5-cylinder 4V
CBTA/CBUA	2.5L 5-cylinder 4V
CBEA	2.0L TDI

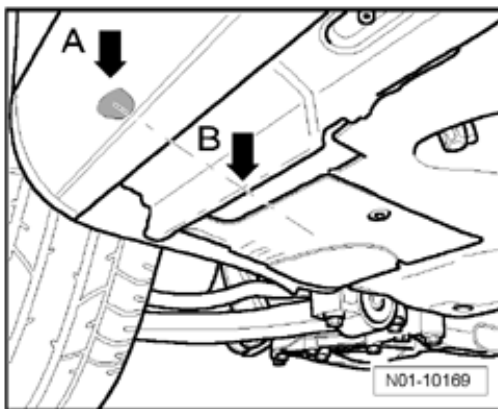
Transmission

Transmission Codes

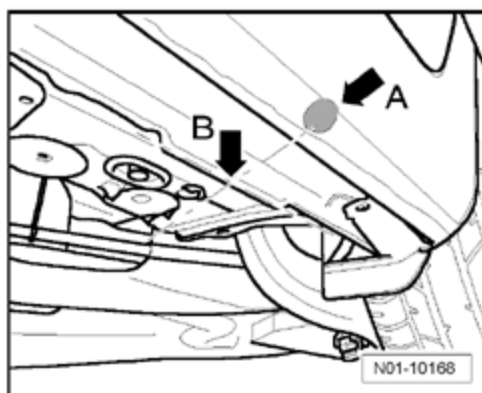
0A4	5-speed manual
02Q	6-speed manual
02E	6-speed direct shift automatic
09G	6-speed automatic

VEHICLE LIFTING

Lifting Points for Lifting Platform and Trolley Jack



Front: Place the support plate in the area of the side member marking A ➡, on the vertical stiffener of the floor plate B ➡.

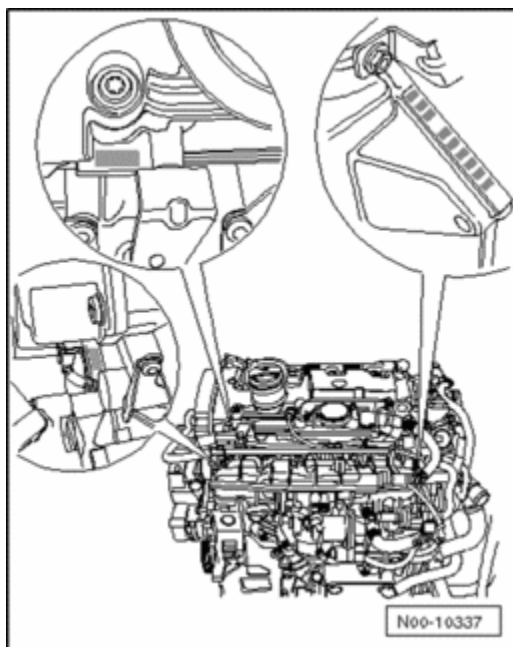


Rear: Place the support plate in the area of the side member marking A ➡, on the vertical stiffener of the floor plate B ➡.

ENGINE MECHANICAL, FUEL INJECTION & IGNITION

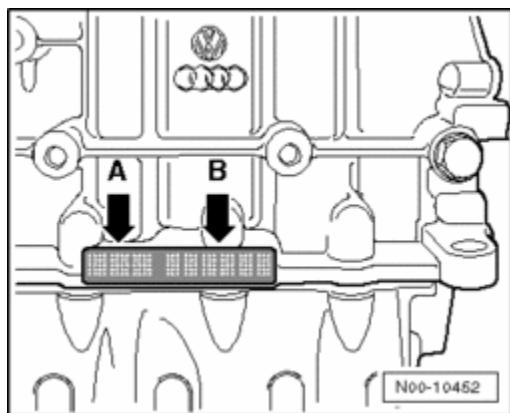
General, Technical Data

Engine Number – Location – 2.0L BPY/BWA/CCTA



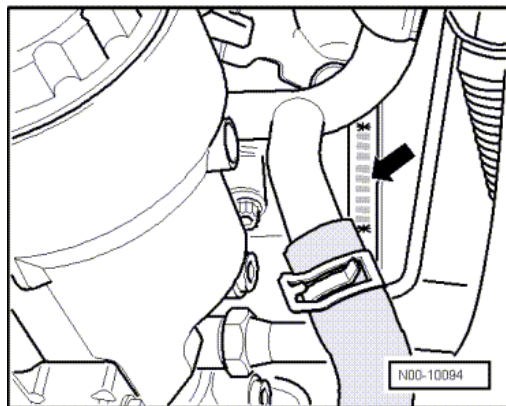
The engine number (engine code and serial number) is located on the left side of the engine/transmission partition. The engine code is also stamped on the right side of the cylinder head and on the cylinder block. In addition, a sticker with engine code and serial number is affixed to the timing belt cover. The engine code is also on the vehicle data plate.

Engine Number – Location – 2.5L CBTA/CBUA



Engine code A ➡ and engine number B ➡ (serial number) are located on the rear side of the engine, above the partition of the cylinder block/upper section of the oil pan. In addition, a sticker with engine code and engine number is applied on the cylinder head cover. The engine code letters are also located on the vehicle data plate. The data plate is located in the customer service plan as well as on the vehicle at the rear in the spare wheel well or on the luggage compartment floor.

Engine Number – Location – 2.0L TDI CBEA



The engine number (engine code and serial number) are located at the engine/transmission joint ➡. In addition, a sticker with engine code and serial number is affixed to the toothed belt guard. The four-digit engine code is on the type label, the vehicle data sticker and on the engine control module. The data plate is also located in the customer service plan as well as on the vehicle at the rear in the spare wheel well or on the luggage compartment floor.

Engine Data

Engine code		BPY
Manufactured		03.05
Emission values in accordance with		ULEV 2
Displacement	cm ³	1984
Output	kW at RPM	147/5700
Torque	Nm at rpm	280/2000
Bore	Dia. mm	82.5
Stroke	mm	92.8
Compression ratio		10.5
Valves per cylinder		4
RON		95 unleaded ¹⁾
Fuel injection, ignition		Motronic MED 9.1
Type of fuel mixture generation		Homogenous
Knock control		2 sensors
Oxygen sensor regulation		2 sensors
3-way catalytic converter		Yes
Variable valve timing		Yes
Electronic Power Control (EPC)		Yes

¹⁾ 91 RON is acceptable, but will result in decreased engine performance

Code letters		CBFA	CCTA
Manufactured		from 11.07	from 11.07
Emissions values	Standard	SULEV	ULEV 2
Displacement	liter	2.0	2.0
Output	kW at RPM	147 at 5100	147 at 5100
Torque	Nm at RPM	280 at 1700	280 at 1700
Bore	dia. mm	82.5	82.5
Stroke	mm	92.8	92.8
Compression ratio		10.3:1	9.6:1
Valves per cylinder		4	4
RON		min. 95	min. 95
Fuel injection and ignition system		TSI	TSI
Ignition sequence		1-3-4-2	1-3-4-2
On Board Diagnostic (OBD)		Yes	Yes
Knock control		1 sensor	1 sensor
Catalytic converter		Yes	Yes
Oxygen sensor regulation		3 sensors	2 sensors
Exhaust gas recirculation		No	No
Turbocharger, G-Charger		Yes	Yes
Variable intake manifold		No	No
Variable valve timing		Yes	Yes
Secondary Air Injection (AIR) system		Yes	No
Valves per cylinder		4	4

Engine code		BGP	BGQ
Manufactured		01.06	01.06
Emission values in accordance with		ULEV 2 ¹⁾	SULEV ²⁾
Displacement	cm ³	2480	2480
Output	kW at 1/rpm	110/5000	110/5000
Torque	Nm at rpm	228/3750	228/3750
Bore	dia. mm	82.5	82.5
Stroke	mm	92.8	92.8
Compression ratio		10.0	10.0
Valves per cylinder		4	4
RON	min.	91 unleaded	91 unleaded
Fuel injection, ignition		Motronic ME 7.1.1	Motronic ME 7.1.1
Knock control		2 sensors	2 sensors
Variable valve timing		Yes	Yes
Variable intake manifold		No	No
Oxygen sensor regulation		2 sensors	3 sensors
Catalytic converter		Yes	Yes
Exhaust gas recirculation		No	No
Charging		No	No
Secondary Air Injection (AIR) system		Yes	Yes

¹⁾ ULEV 2: Ultra Low Emission Vehicles 2

²⁾ SULEV: Super Ultra Low Emission Vehicles

Engine code		CBTA	CBUA
Manufactured		07.07	07.07
Emission values in accordance with		ULEV 2 ¹⁾	SULEV ²⁾
Displacement	cm ³	2480	2480
Output	kW at 1/rpm	110/5000	110/5000
Torque	Nm at rpm	228/3750	228/3750
Bore	dia. mm	82.5	82.5
Stroke	mm	92.8	92.8
Compression ratio		10.0	10.0
Valves per cylinder		4	4
RON	min.	91 unleaded	91 unleaded
Fuel injection, ignition		Motronic ME 7.1.1	Motronic ME 7.1.1
Knock control		2 sensors	2 sensors
Variable valve timing		Yes	Yes
Variable intake manifold		No	No
Oxygen sensor regulation		2 sensors	3 sensors
Catalytic converter		Yes	Yes
Exhaust gas recirculation		No	No
Charging		No	No
Secondary Air Injection (AIR) system		Yes	Yes

¹⁾ ULEV 2: Ultra Low Emission Vehicles 2

²⁾ SULEV: Super Ultra Low Emission Vehicles

Code letters		CBEA
Manufactured		from 04.08
Emissions values	in accordance with	LEV 2 Standard
Displacement	liter	2.0
Output	kW at RPM	103 at 4000
Torque	Nm at RPM	320 at 1750 to 2500
Bore	dia. mm	81.0
Stroke	mm	95.5
Valves per cylinder		4
Compression ratio		16.5
Diesel fuel	in accordance with	ASTM Standard D 975 ¹⁾
Ignition sequence		1-3-4-2
NOx reduction catalytic converter		Yes
Reduction catalytic converter		Yes
Exhaust gas recirculation		Yes
Turbocharger, G-Charger		Yes
Charge air cooler		Yes
Particle filter		Yes

¹⁾ With a sulfur content less than 15 mg/kg of diesel fuel.

Engine – Removing and Installing – 2.0L BPY/BWA/CCTA/CBFA, 2.5L CBTA/ BGP/CBUA/BGQ

Engine – Tightening Torques

Bolted connection		Nm
Bolts, nuts	M 6	10
	M 7	15
	M 8	25
	M10	40
	M 12	60

Assembly Mountings – Tightening Torques

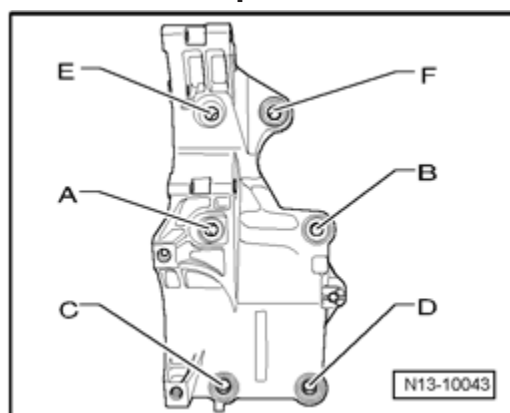
Component	Nm
Mounting to body (always replace)	40 plus an additional 90° (¼ turn)
Mounting/bracket to body (always replace)	60 plus an additional 90° (¼ turn)
Support to mounting at body (always replace)	20 plus an additional 90° (¼ turn)
Transmission assembly mount to body (always replace)	60 plus an additional 90° (¼ turn)
Transmission assembly mounting/bracket to body (always replace)	40 plus an additional 90° (¼ turn)
Pendulum support mounting to body (always replace)	100 plus an additional 90° (¼ turn)
Pendulum support mounting/bracket to body (always replace)	40 plus an additional 90° (¼ turn)

Crankshaft/Cylinder Block – 2.0L BPY/BWA

Assembly Attachments Mounting – Tightening Torques

Component	Nm
Generator to engine bolt and nut	23
Accessory assembly bracket bolt	45
A/C compressor bolt	25
Pulley with divided toothed belt guard bolt	10 plus an additional 90° (¼ turn)
Divided toothed belt tensioner bolt	23
Upper toothed belt cover bolt	10
Camshaft gear to rear toothed belt cover bolt	50 plus an additional 180° (½ turn)
Rear toothed belt cover bolt	10
Semi-automatic tensioning roller to rear toothed belt cover bolt	25
Damper roller to rear toothed belt cover bolt	25
Coolant pump bolt	15
Damper roller to sealing flange bolt	35
Crankshaft toothed belt gear to sealing flange bolt	90 plus an additional 90° (¼ turn)
Engine mount bolt	45
Knock Sensor (KS) 1 G61 bolt	20
Knock Sensor (KS) 2 G66 bolt	20
Oil filter bracket to engine bolt	15 plus an additional 90° (¼ turn)
Engine speed (RPM) sensor G28 to intake manifold support to engine bolt	10
Coolant thermostat housing with coolant thermostat to engine bolt	15

Accessory Assembly Bracket Tightening Sequence



Sealing Flange – Tightening Torques

Component	Nm
Crankshaft toothed belt gear to sealing flange on belt pulley side to cylinder block bolt	90 plus an additional 90° (¼ turn)
Sealing flange on belt pulley side to cylinder block bolt	15

Flywheel/Drive Plate – Tightening Torques

Component	Nm
Flywheel/drive plate to cylinder block bolt	60 plus an additional 90° (¼ turn)
Dual-mass flywheel to crankshaft	60 plus an additional 90° (¼ turn)

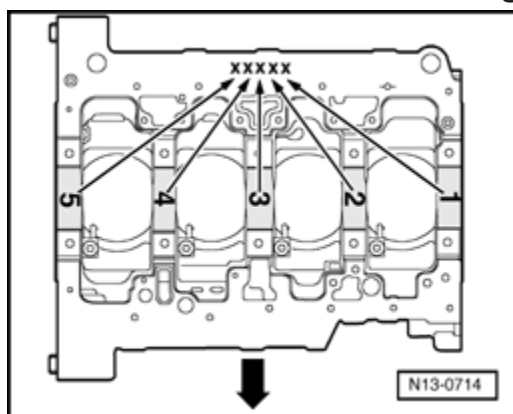
Crankshaft Assembly – Tightening Torques

Component	Nm
Bearing cap to cylinder block bolts	65 plus an additional 90° (¼ turn)
Sensor wheel to crankshaft bolts	10 plus an additional 90° (¼ turn)

Crankshaft Dimensions

Honing dimension	Crankshaft bearing pins-diameter (mm)		Connecting rod bearing pins-diameter (mm)	
Basic dimension	54.00	-0.017 -0.037	47.80	-0.022 -0.042
1st oversize	53.75	-0.017 -0.037	47.55	-0.022 -0.042
2nd oversize	53.50	-0.017 -0.037	47.30	-0.022 -0.042
Stage III	53.25	-0.017 -0.037	47.05	-0.022 -0.042

Identification on Crankshaft Bearing, Top



The arrow points in the direction of travel.

The upper bearing shells are allocated to the cylinder block with the correct thickness from the factory. Colored spots identify the bearing thicknesses. The letters marked on the lower sealing surface of the cylinder block identify which bearing thickness must be installed in which location. If color markings can no longer be read, use the blue bearing shell. The lower crankshaft bearing shells are always shipped as replacement part with a yellow color marking.

Letter on cylinder block	Color of bearing
S	Black
R	Red
G	Yellow
B	Blue
W	White

Piston and Connecting Rod – Tightening Torques

Component	Nm
Connecting rod bearing cap to connecting rod bolts	30 plus an additional 90° (¼ turn)
Pressure relief valve to oil spray jet	27

Piston Ring End Gaps

Piston ring		Gap	
		New	Wear limit
Compression ring	mm	0.20 to 0.40	0.8
Oil scraping ring	mm	0.25 to 0.50	0.8

Piston Ring Clearance

Piston ring		Ring to groove clearance	
		New	Wear limit
Compression ring	mm	0.06 to 0.09	0.20
Oil scraping ring	mm	0.03 to 0.06	0.15

Piston and Cylinder Dimensions

Nominal dimension ¹⁾		Piston diameter	Cylinder bore diameter
Basic dimension	mm	82.465 ²⁾	82.51

¹⁾ Do not hone BPY cylinder liners.

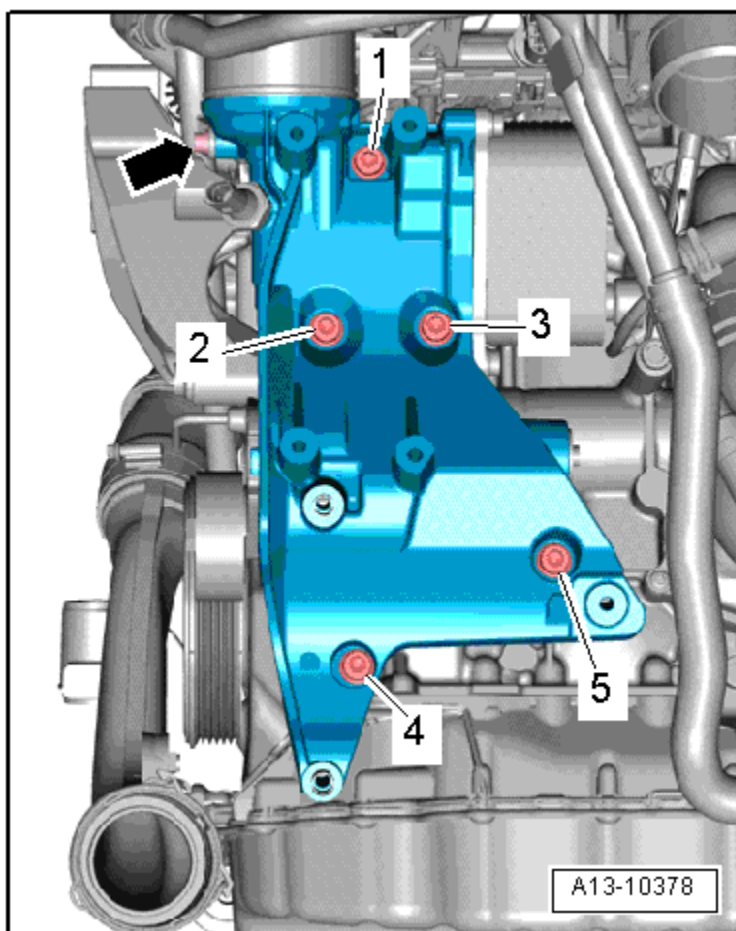
²⁾ Dimension without graphite coating (thickness 0.02 mm). The graphite coating wears away.

Crankshaft/Cylinder Block – 2.0L CCTA

Camshaft Timing Chain – Tightening Torques

Component	Nm
Timing chain tensioner bolts	9
Sensor wheel hub to crankshaft (replace sensor wheel if bolts are loosened)	10
Intake camshaft control valve (left thread)	35
Timing chain tensioner rail – guide pins	20
Timing chain guide rail – guide pins	20
Camshaft bearing bracket bolts	9
Exhaust camshaft bearing bolt M6, sprocket side (always replace)	8 plus an additional 90° (¼ turn)
Exhaust camshaft bearing bolt M6, sprocket side (always replace)	20 plus an additional 90° (¼ turn)
Coolant pump drive sprocket bolt (left thread, always replace)	10 plus an additional 90° (¼ turn)
Ribbed belt tensioner to accessory assembly bracket bolt	10
A/C compressor to accessory assembly bracket bolts	25
Vibration damper bolt	150 plus an additional 90° (¼ turn)

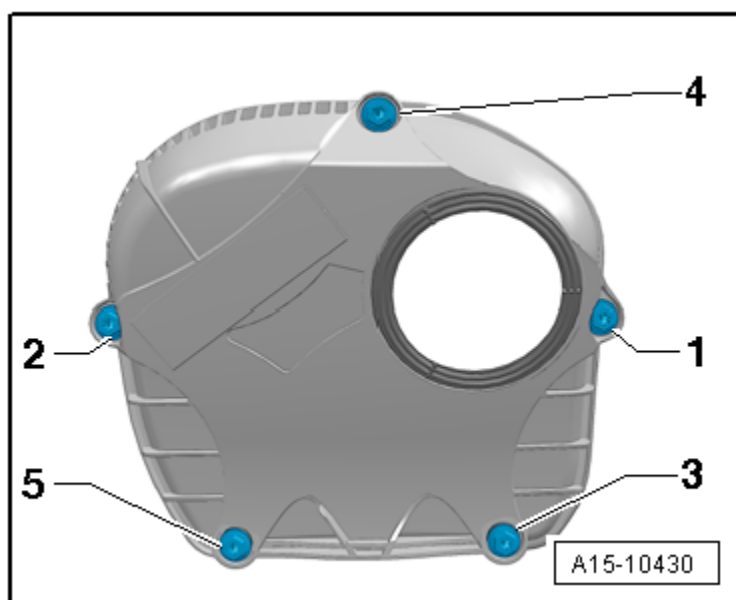
Accessory Assembly Bracket – Tightening Sequence



Accessory Assembly Bracket – Tightening Torques

Step	Tighten
1	Tighten bolts by hand
2	Tighten the bolts in the sequence shown to 20 Nm
3	Tighten the bolts in the sequence shown an additional 90° (¼ turn)

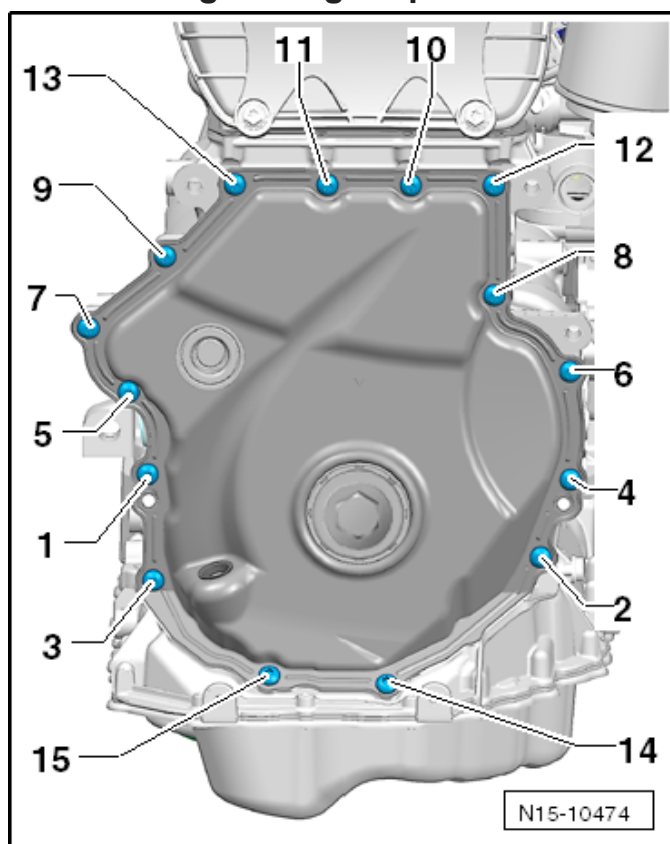
Upper Timing Chain Cover – Tightening Sequence



Upper Timing Chain Cover – Tightening Torques

Step	Tighten
1	Tighten bolts by hand in the sequence shown
2	Tighten the bolts in the sequence shown to 9 Nm using a torque wrench (V.A.G 1783) and open end spanner insert AF 10 (V.A.G 1783/1)

Lower Timing Chain Cover – Tightening Sequence



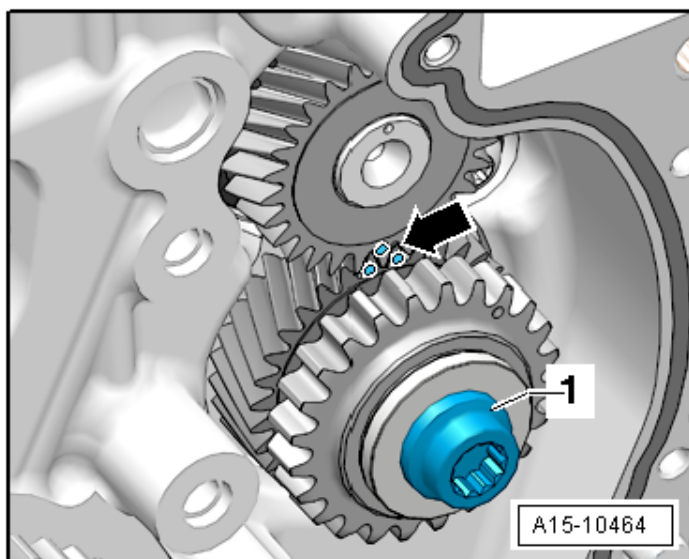
Lower Timing Chain Cover – Tightening Torques

Step	Tighten
1	Tighten the bolts in the sequence shown to 8 Nm
2	Tighten the bolts in the sequence shown an additional 90° (¼ turn)

Balance Shaft Timing Chain – Tightening Torques

Component	Nm
Exhaust side balance shaft bearing to engine block	9
Intake side balance shaft bearing to engine block	9
Exhaust side balance shaft timing chain guide rail guide pins	20
Intake side balance shaft timing chain guide rail guide pins	20
Balance shaft timing chain tensioning rail guide pins	20

Balance Shaft – Intermediate Shaft Sprocket Bolt – Tightening Sequence



Intermediate Shaft Sprocket Bolt – Tightening Torques

Step	Tighten
1	Pre-tighten to 10 Nm using a torque wrench
2	Turn the chain sprocket ¹⁾
3	Tighten to 30 Nm using a torque wrench
4	Tighten an additional 90° (¼ turn) using a rigid wrench

¹⁾ If the chain sprocket does not have any play, loosen and tighten again.

Engine – Tightening Torques

Component	Nm
Engine speed sensor (crankshaft position) to cylinder block	10
Camshaft position sensor to cylinder head	10
Thermostat housing to coolant pump bolts	15

Dual-Mass Flywheel/Drive Plate

Component	Nm
Flywheel to crankshaft (always replace)	60 plus an additional 90° (¼ turn)
Drive plate to crankshaft	30

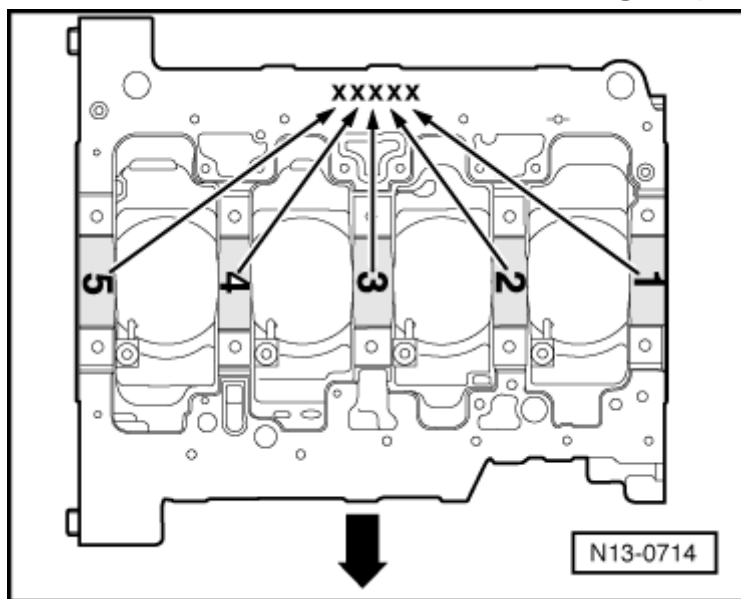
Crankshaft – Tightening Torques

Component	Nm
Bearing caps to cylinder block (always replace)	60 plus an additional 90° (¼ turn)
Sensor wheel to crankshaft (always replace)	10 plus an additional 90° (¼ turn)

Pistons and Connecting Rods – Tightening Torques

Component	Nm
Connecting rod cap to connecting rod (always replace)	30 plus an additional 90° (¼ turn)

Identification on Crankshaft Bearing, Top



The upper bearing shells are allocated to the cylinder block with the correct thickness from the factory. Colored spots identify the bearing thicknesses. The letters marked on the lower sealing surface of the cylinder block identify which bearing thickness must be installed in which location. Yellow coded crankshaft bearing shells are the only ones available as a replacement.

Color Identification

Letter on cylinder block	Color of bearing
S	Black
R	Red
G	Yellow

Crankshaft Dimensions

Honing dimension	Crankshaft bearing pins-diameter (mm)	Connecting rod bearing pins-diameter (mm)
Basic dimension	58.00 ¹⁾	47.80 ¹⁾

¹⁾ There are no provisions for machining worn crankshafts.

Piston Ring End Gaps

Piston ring		Gap	
		New	Wear limit
1st compression ring	mm	0.20 to 0.40	0.8
2nd compression ring	mm	0.20 to 0.40	0.8
Oil scraping ring	mm	0.25 to 0.50	0.8

Piston Ring to Groove Clearance

Piston ring		Ring to groove clearance	
		New	Wear limit
Compression rings	mm	0.06 to 0.09	0.20
Oil scraping ring	mm	0.03 to 0.06	0.15

Piston and Cylinder Dimensions

Nominal dimension		Piston diameter	Cylinder bore diameter
Basic dimension (do not hone CCTA cylinder liners)	mm	82.465 ¹⁾	82.51

¹⁾ Measurement without graphite coating (0.02 mm thick). The graphite coating wears off.

Crankshaft/Cylinder Block – 5-Cylinder – 4V Engine – 2.5L CBTA/CBUA

Assembly Attachments Mounting – Tightening Torques

Component	Nm
Assembly bracket bolts	25
Bracket with lower relay pulley for ribbed belt for A/C compressor to assembly bracket bolt	25
A/C compressor to assembly bracket bolts	25
Belt pulley/vibration damper bolt	70
Generator to assembly bracket bolt	25
Bracket with upper relay pulley	8
Engine mount to assembly bracket bolts	40 plus an additional 90° (¼ turn)
Vacuum pump for brake booster bracket to cylinder block bolt	10
Oil filter bracket with attachments to cylinder block bolt	25
Thermostat housing bolts	10
Intake manifold support bolts	25
Engine mount and thermostat housing assembly bracket to cylinder block bolt	25
Cylinder block bracket bolts	25
Coolant pump to cylinder block bolts	10
Cylinder block locking bolt	30
Knock Sensor (KS) 1 G61 to cylinder block bolt	20
Knock Sensor (KS) 2 G66 to cylinder block bolt	20
Trim strip to cylinder block bolt	10

Drive Chain – Tightening Torques

Component	Nm
Chain tensioner bolts	10
Chain sprocket for exhaust camshaft to engine bolt	60 plus an additional 90° (¼ turn)
Pin for tensioning track	40

Brake Booster Vacuum Pump – Tightening Torques

Component	Nm
Vacuum pump to control housing cover	10
Coolant pipe to bracket	10

Sealing Flanges and Flywheel Drive Plate – Tightening Torques

Component	Nm
Belt pulley/vibration damper to cylinder block bolt	70
Sealing flange on belt pulley side to cylinder block bolts	10
Drive plate/flywheel bolts (always replace)	60 plus an additional 90° (¼ turn)
Control housing cover bolts	25
Engine speed (RPM) sensor G28 to control housing cover bolts	5
Tensioning element to auxiliary component bracket	35
Sealing plug to cylinder block at rear	30

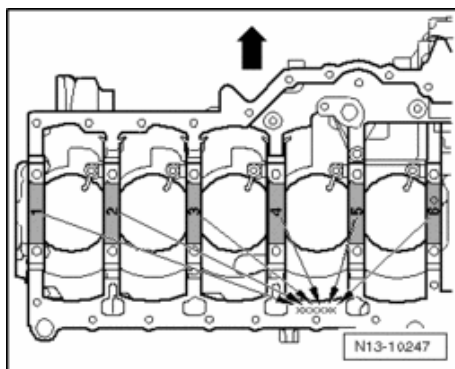
Crankshaft Assembly – Tightening Torques

Component	Nm
Bearing cap to cylinder block bolts	40 plus an additional 90° (¼ turn)

Crankshaft Dimensions

Honing dimension	Crankshaft bearing pins-diameter (mm)		Connecting rod bearing pins-diameter (mm)	
Basic dimension	58.00	-0.022 -0.042	47.80	-0.022 -0.042
1st oversize	57.75	-0.022 -0.042	47.55	-0.022 -0.042
2nd oversize	57.50	-0.022 -0.042	47.30	-0.022 -0.042
Stage III	57.25	-0.022 -0.042	47.05	-0.022 -0.042

Identification of Top Crankshaft Bearing Shells



The arrow points in the direction of travel. The upper bearing shells are allocated to the cylinder block with the correct thickness from the factory. Colored spots identify the bearing thicknesses. The letters marked on the lower sealing surface of the cylinder block identify which bearing thickness must be installed in which location. If color markings can no longer be read, use the blue bearing shell. The lower crankshaft bearing shells are always shipped as replacement part with a yellow color marking.

Letter on cylinder block	Color of bearing
G	Yellow
B	Blue
W	White

Piston and Connecting Rod – Tightening Torques

Component	Nm
Connecting rod bearing cap to connecting rod bolts	30 plus an additional 90° (¼ turn)
Pressure relief valve to oil spray jet	27

Piston Ring End Gaps

Piston ring		Gap	
		New	Wear limit
Compression ring	mm	0.20 to 0.40	0.8
Oil scraping ring	mm	0.25 to 0.50	0.8

Piston Ring Clearance

Piston ring		Ring to groove clearance	
		New	Wear limit
Compression rings	mm	0.06 to 0.09	0.20
Oil scraping ring	mm	0.03 to 0.06	0.15

Piston and Cylinder Dimensions

Honing dimension		Piston diameter	Cylinder bore diameter
Basic dimension	mm	82.465*	82.51

* Dimension without graphite coating (thickness 0.02 mm). The graphite coating wears away.

Crankshaft/Cylinder Block – 2.0L TDI CBEA

Toothed Belt Drive – Tightening Torques

Component	Nm
Crankshaft toothed belt sprocket bolt (always replace)	120 plus an additional 90° (¼ turn)
Lower idler roller nut	20
Tensioning roller bolt (always replace)	20 plus an additional 45° (⅛ turn)
Camshaft sprocket bolt (always replace)	20 plus an additional 90° (¼ turn)
Upper idler roller bolt	25
Camshaft hub bolt	100
Inner rear toothed belt guard bolt (always replace)	20
Outer rear toothed belt guard bolt (always replace)	10
Middle idler roller bolt	50 plus an additional 90° (¼ turn)
High pressure fuel pump hub nut	95
High pressure fuel pump toothed belt sprocket bolt	20 plus an additional 90° (¼ turn)
Coolant pump bolt	15
Toothed belt guard bolt	10
Belt pulley/vibration damper bolt	10 plus an additional 90° (¼ turn)
Protective plate bolt	5
Engine mount	40

Cylinder Block – Tightening Torques

Component	Nm
Oil filter bracket to engine block bolt (always replace)	Fasten upper left and lower right bolts, then tighten all four bolts in a diagonal sequence to 15 plus an additional 90° (¼ turn)
Wiring harness bracket to oil filter bracket bolt	10
Thermostat connecting piece bolt	15
Tensioning element bolt (always replace, do not lubricate or grease)	20 plus an additional 180° (½ turn)
Accessory mounting bracket (always replace)	40 plus an additional 90° (¼ turn)
Oil pan bolt (fasten in diagonal pattern)	15

Sealing Flange and Flywheel – Tightening Torques

Component	Nm
Flywheel bolt (always replace)	60 plus an additional 90° (¼ turn)
Sealing flange/engine speed sensor wheel bolt	15
Engine speed sensor bolt	5

Piston and Connecting Rod – Tightening Torques

Component	Nm
Oil spray jet bolt (do not use sealant)	27
Connecting rod bolt (always replace)	30 plus an additional 90° (¼ turn)

Piston Ring Groove Clearance

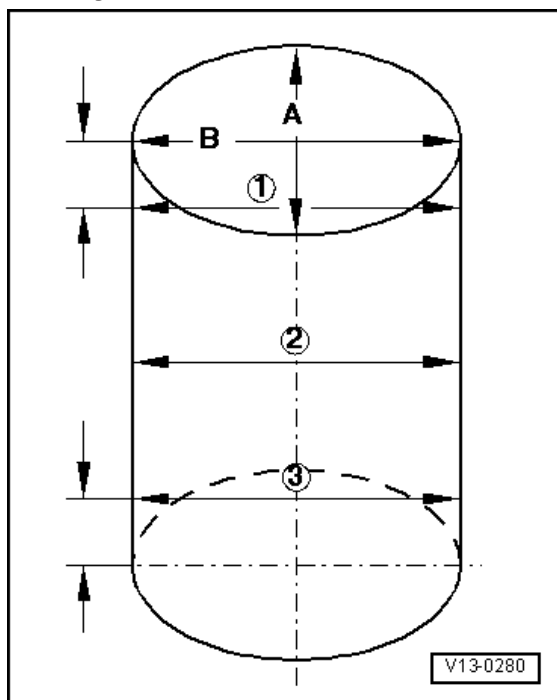
Piston ring	Gap	
	New	Wear limit
1st compression ring	0.20 to 0.40	1.0
2nd compression ring	0.20 to 0.40	1.0
Oil scraping ring	0.25 to 0.50	1.0

Piston and Cylinder Dimensions

Honing dimension	Piston and Cylinder Dimensions	
Dimensions in mm	Piston diameter ¹⁾	Cylinder bore diameter
Basic dimension	80.960	81.010

¹⁾ Take the measurement approximately 12 mm in from the lower edge of the piston and offset 90°.

Cylinder Bore Dimensions



Measure the bores at three locations in both directions **A** across engine and **B** in line with crankshaft. Deviations from nominal dimension cannot be greater than 0.10 mm. **Note:** Do not measure the cylinder bore when the cylinder block is mounted on the engine and transmission holder (VAS 6095) because the measurements may be incorrect.

Cylinder Bore Clearances

Piston ring	Ring to groove clearance	
Dimensions in mm	New	Wear limit
1st compression ring	0.06 to 0.09	0.25
2nd compression ring	0.05 to 0.08	0.25
Oil scraping ring	0.03 to 0.06	0.15

Crankshaft – Tightening Torques

Component	Nm
Bearing cap bolt (always replace)	65

Crankshaft Dimensions

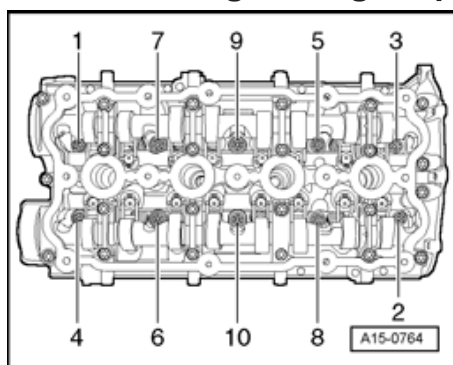
Dimension	Crankshaft bearing pins-diameter (mm)		Connecting rod bearing pins-diameter (mm)	
Basic dimension	54.000	-0.022 -0.042	50.900	-0.022 -0.042

Cylinder Head - 2.0L BPY/BWA

Cylinder Head – Tightening Torques

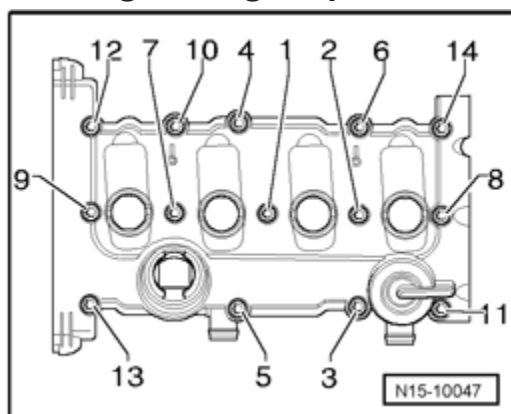
Component	Nm
Cylinder head cover bolt	10
Valve housing to cylinder head cover bolt	4
Camshaft adjustment valve 1 N205 to housing bolt	4
Cable bracket to housing bolt	10
Housing to cylinder block bolt	10
Transport strap to cylinder block bolt	20
Stud bolt for intake manifold	10
Camshaft Position (CMP) sensor G40 to cylinder block bolt	10
Stud bolt for tensioning roller	10
Stud bolt for exhaust manifold	20

Cylinder Head – Tightening Sequence



Step	Nm
1	Using torque wrench, tighten to 40
2	With Torx® key, tighten an additional 90° (¼ turn)
3	With Torx® key, tighten an additional 90° (¼ turn)

Cylinder Head (Valve) Cover – Tightening Sequence



Cylinder Head (Valve) Cover – Tightening Torques

Component	Nm
Cylinder head cover to cylinder head	10
Toothed belt guard to cylinder block	10*

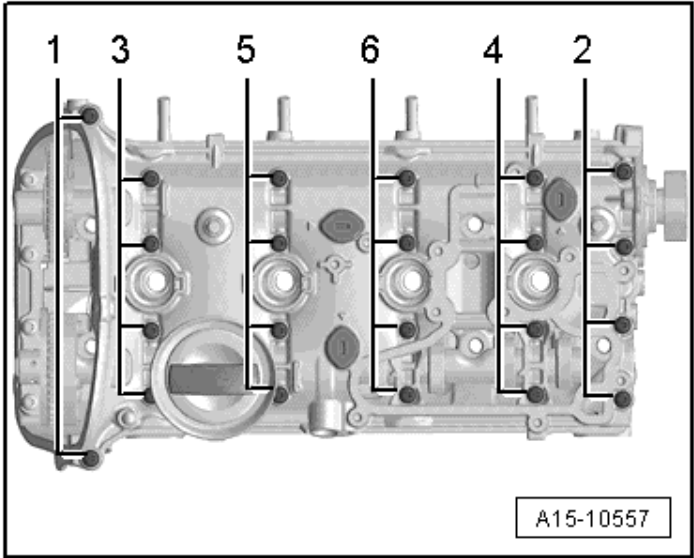
* Insert with locking fluid

Compression Pressures

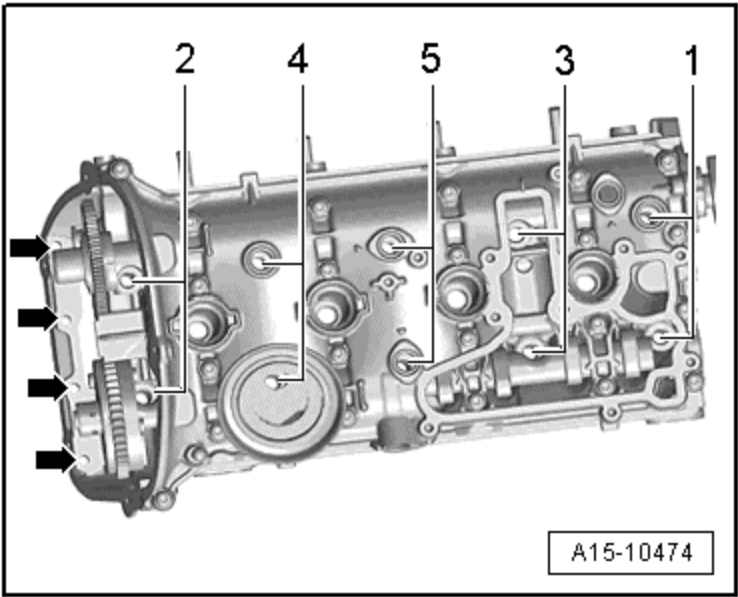
Engine code	New bar positive pressure	Wear limit bar positive pressure	Difference between cylinders bar positive pressure
BPY	11.0 to 14.0	7.0	max. 3.0

Cylinder Head and Valvetrain – 2.0L CCTA

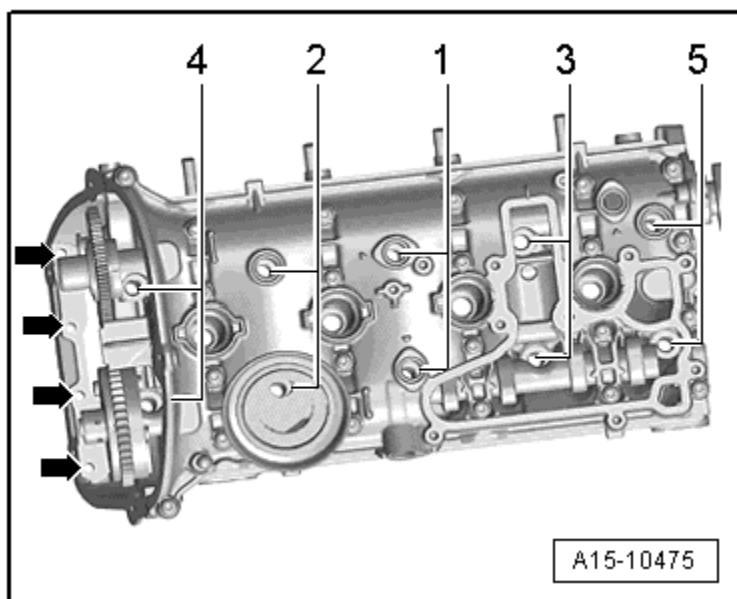
Cylinder Head Cover – Loosening Sequence



Cylinder Head – Loosening Sequence



Cylinder Head – Tightening Sequence



Cylinder Head – Tightening Torques

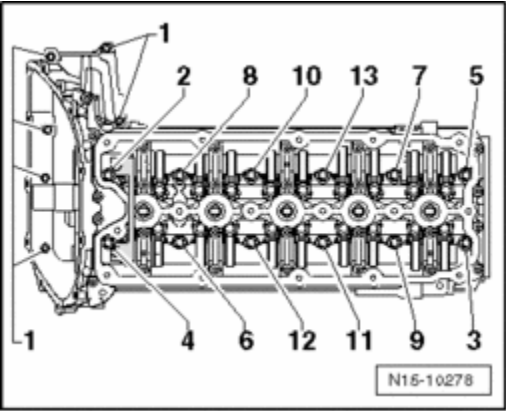
Step	Tighten
1	Using a torque wrench, tighten to 40 Nm
2	With a rigid wrench, tighten an additional 90° (¼ turn)
3	With a rigid wrench, tighten an additional 90° (¼ turn)
4	Pre-tighten bolts (arrows) to 8 Nm
5	With a rigid wrench, tighten bolts (arrows) an additional 90° (¼ turn)

Cylinder Head – 2.5L CBTA/CBUA

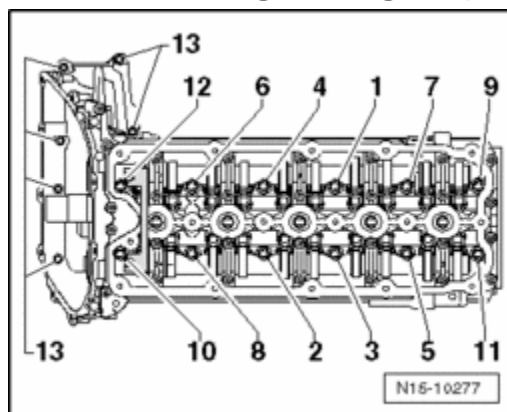
Cylinder Head – Tightening Torques

Component	Nm
Cylinder head cover bolt	10
Chain case cover to cylinder block bolts	10
Chain case cover to cylinder head	10
Coolant distribution housing to chain case cover	10
Cable bracket to chain case cover bolt	10
Camshaft adjustment aalve 1 N205 to cylinder block bolt	2
Camshaft Position (CMP) sensor G40 to cylinder block bolt	10
Motor transport loop to cylinder block bolt	25
Cylinder head bolt	40 plus an additional 180° (½ turn)

Cylinder Head – Removal Sequence

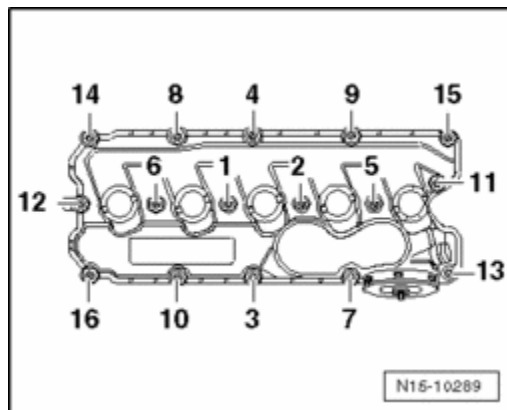


Cylinder Head – Tightening Sequence



Step	Component	Nm
1	Bolts 1-12	Using torque wrench, tighten to 40
2		With Torx® key, tighten an additional 90° (¼ turn)
3		With Torx® key, tighten an additional 90° (¼ turn)
4	Bolt 13	10

Cylinder Head Cover – Tightening Sequence



Cylinder Head Cover – Tightening Torques

Component	Nm
Cylinder head cover to cylinder head	10
Connecting pipe for Secondary Air Injection (AIR) at cylinder head	10

Compression Pressures

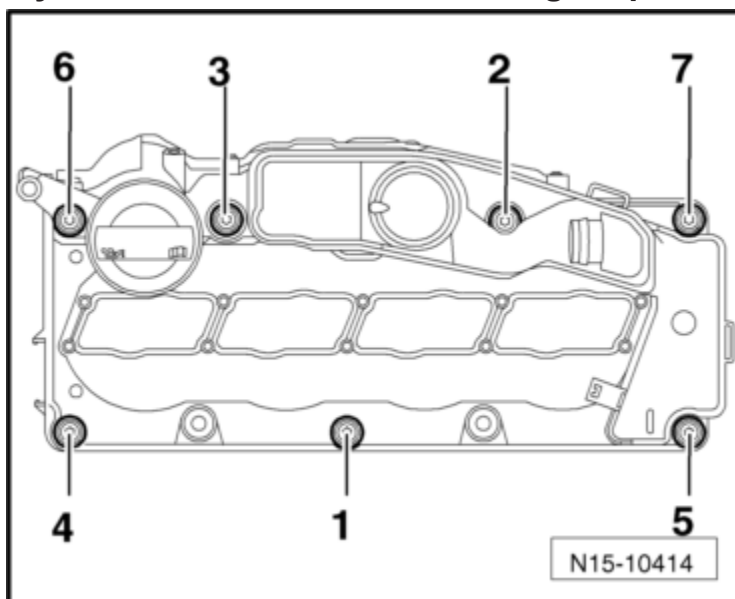
New bar positive pressure	Wear limit bar positive pressure	Difference between cylinders bar positive pressure
9.0 to 13.0	8.0	max. 3.0

Cylinder Head - 2.0L TDI CBEA

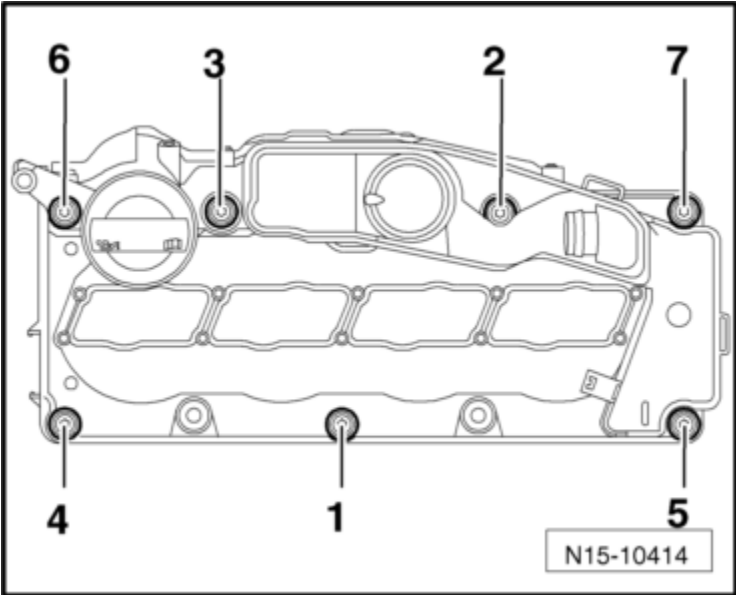
Cylinder Head Cover – Tightening Torques

Component	Nm
Heat shield bolt	5
Rail element bolt	22
Injection unit bolt	5
Injection unit cover	10
Cylinder head cover	10

Cylinder Head Cover – Loosening Sequence



Cylinder Head Cover – Tightening Sequence



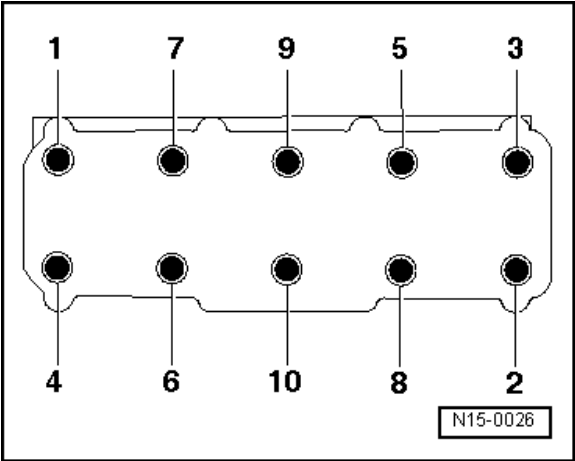
Cylinder Head Cover – Tightening Torques

Step	Tighten
1	Hand tighten bolts in several stages in the sequence shown
2	Using a torque wrench, tighten to 10 Nm in the sequence shown

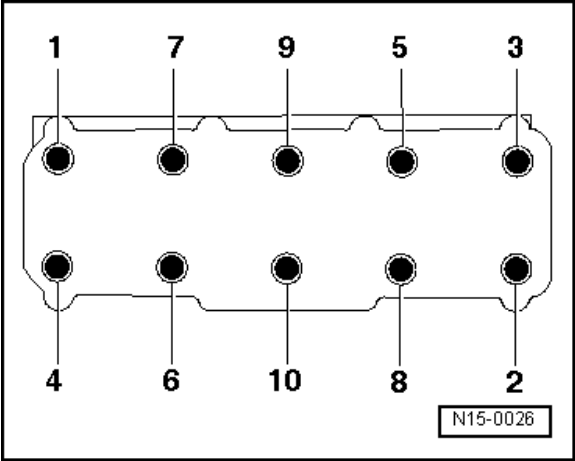
Cylinder Head – Tightening Torques

Component	Nm
Vacuum pump bolt	10
Coolant connection bolt	10
Lifting eye bolt	25
Camshaft Position (CMP) sensor bolt	10

Cylinder Head – Loosening Sequence



Cylinder Head – Tightening Sequence



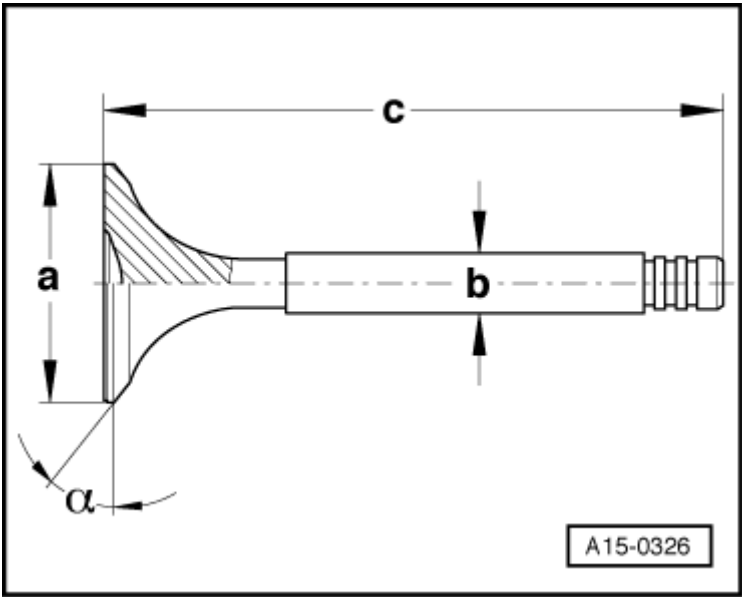
Step	Component	Nm
1	Bolts 1-10	Using a torque wrench, tighten to 35.
2		Using a torque wrench, tighten to 60.
3		Using a rigid wrench, tighten an additional 90° (¼ turn)
4		Using a rigid wrench, tighten an additional 90° (¼ turn)

Valvetrain – 2.0L BPY/BWA

Valvetrain – Tightening Torques

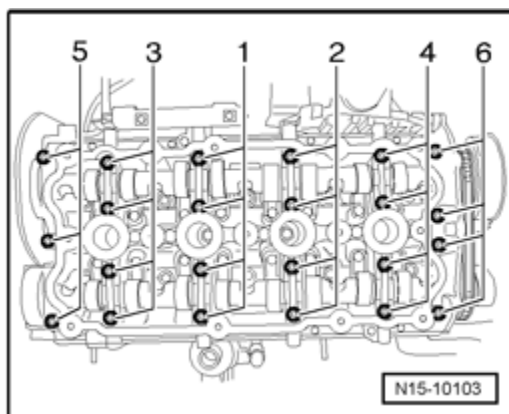
Component	Nm
Camshaft sprocket to cylinder head bolt	50 plus an additional 180° (½ turn)
Bearing bracket bolts	8 plus an additional 90° (¼ turn)
Camshaft adjuster to exhaust camshaft bolt	20 plus an additional 45° (⅛ turn)
Chain tensioner bolts	10
Camshaft Position (CMP) sensor G40 to cylinder head bolt	10

Valve Dimensions



Dimension		Intake valve	Exhaust valve
Dia. A	mm	33.85 ± 0.10	28.0 ± 0.1
Dia. B	mm	5.98	5.95
c	mm	103.97	101.87
α	degrees	45	45

Camshaft – Tightening Sequence

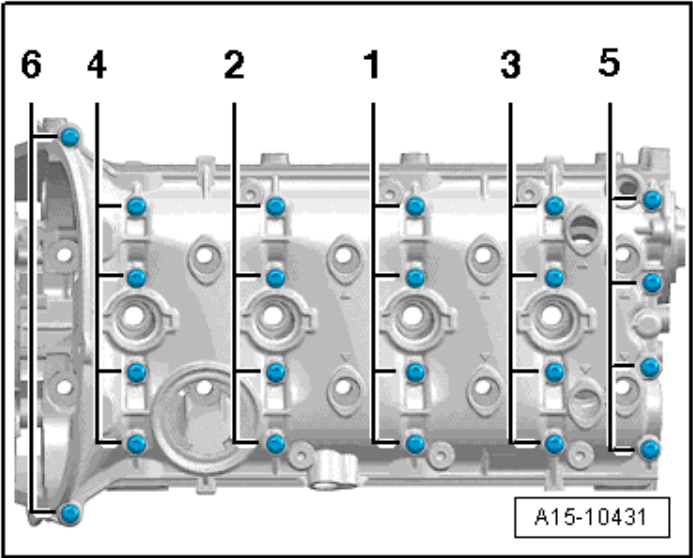


Camshaft – Tightening Torques

Component	Nm
Camshaft sprocket to camshaft	60 plus an additional 180° (½ turn)
Camshaft bearing bracket to cylinder head (always replace)	8 plus an additional 90° (¼ turn)
Camshaft adjuster	20 plus an additional 45° (⅛ turn)
Valve 1 for camshaft adjustment to camshaft adjuster	4
Camshaft position sensor to cylinder head	10

Valvetrain – 2.0L CCTA

Cylinder Head Cover – Tightening Sequence



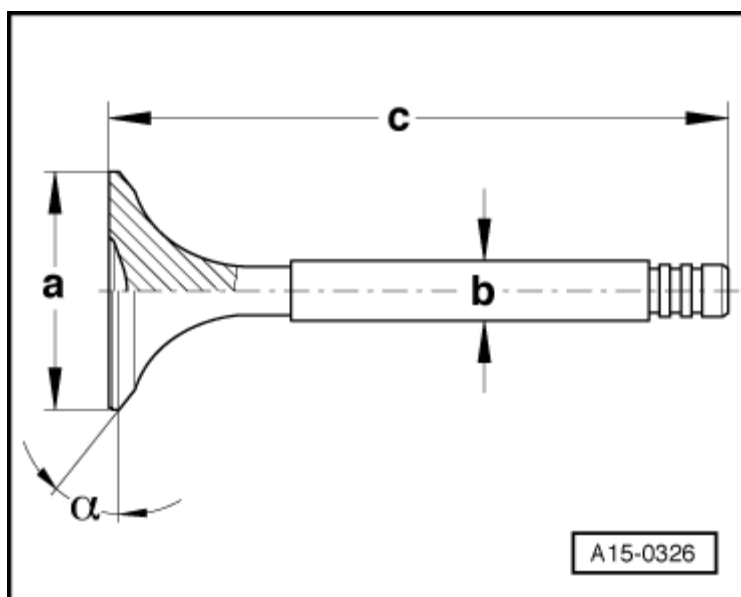
Cylinder Head Cover – Tightening Torques

Step	Tighten
1	Hand tighten bolts in several stages in the sequence shown (always replace)
2	Using a torque wrench, tighten to 8 Nm in the sequence shown
3	Using a rigid wrench, tighten an additional 90° (¼ turn)

Compression Pressures

New	11 to 14 bar
Wear limit	7 bar
Permissible difference between all cylinders	3 bar

Valve Dimensions



Dimension		Intake valve	Exhaust valve
Dia. a	mm	33.85 ± 0.10	28.0 ± 0.1
Dia. b	mm	5.98 ± 0.007	5.955 ± 0.007
c	mm	103.97	101.87
α	degrees	45	45

Valvetrain – 2.5L CBTA/CBUA

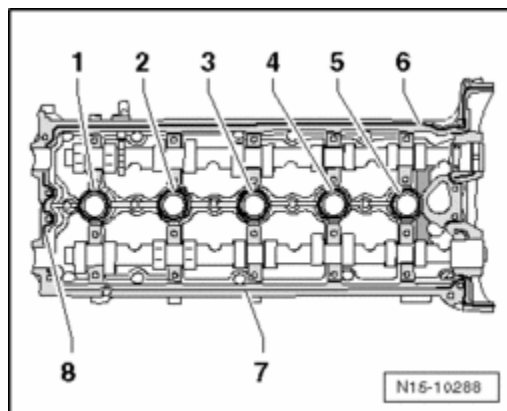
Valvetrain – Tightening Torques

Component	Nm
Bearing bracket bolts	8 plus an additional 90° (¼ turn)
Chain sprocket for exhaust camshaft bolt	60 plus an additional 90° (¼ turn)
Camshaft adjuster for intake camshaft bolt	60 plus an additional 90° (¼ turn)

Valve Dimensions

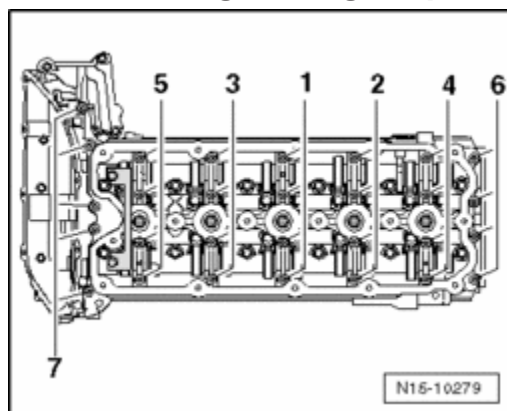
Dimension		Intake valve	Exhaust valve
Dia. A	mm	26.90 ± 0.10	29.90 ± 0.10
Dia. B	mm	5.96 ± 0.01	5.945 ± 0.005
c	mm	105.09 ± 0.25	103.89 ± 0.25
α	degrees	45	45

Camshaft Guide Frame Sealant Bead Width



Component	mm
Grooves 1 – 5	3.0
Grooves 6 – 8	4.0

Camshaft – Tightening Sequence



Camshaft – Tightening Torques

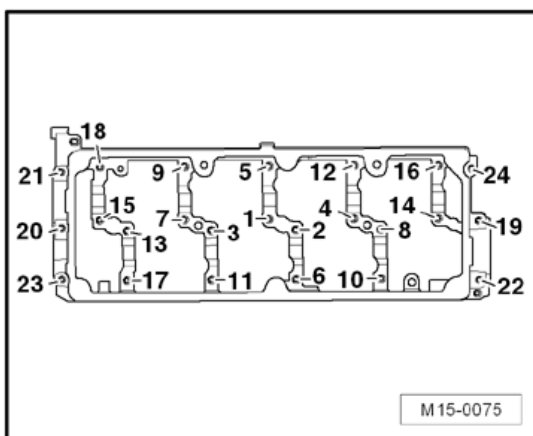
Component	Nm
Camshaft bolts	8 plus an additional 90° (¼ turn)

Valvetrain – 2.0L TDI CBEA

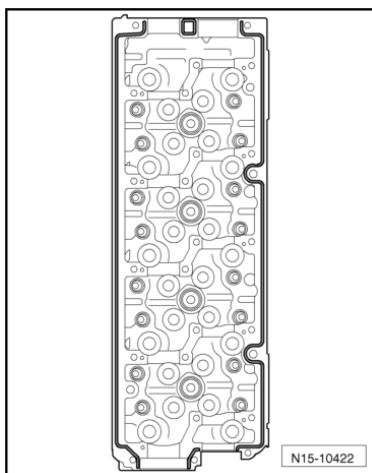
Valvetrain – Tightening Torques

Component	Nm
Bearing frame bolt	10
Bearing frame nut	10

Camshaft Bearing Frame – Loosening Sequence

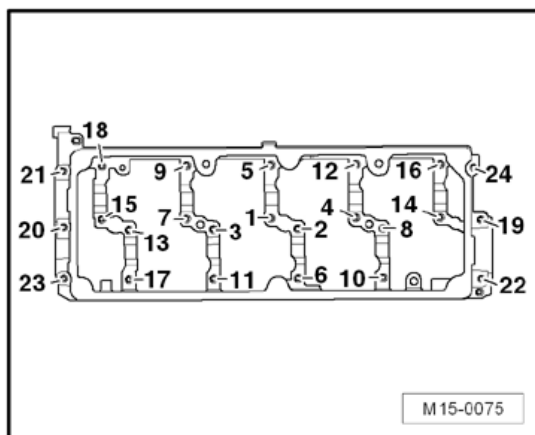


Camshaft Bearing Frame Sealant Bead Width



Component	mm
Inner side in area with threaded holes	2.0-3.0

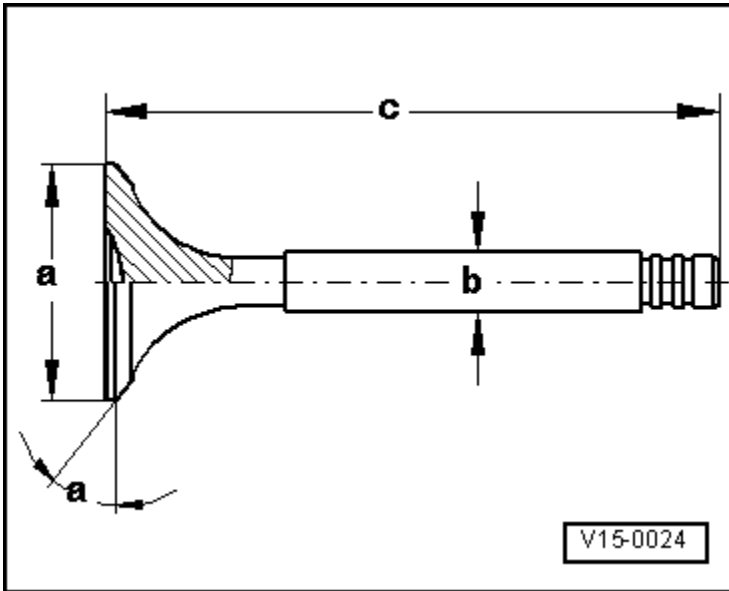
Camshaft Bearing Frame – Tightening Sequence



Camshaft Bearing Frame – Tightening Torques

Component	Nm
Camshaft bearing frame nuts and bolts	10 in the sequence shown

Valve Dimensions



Dimension		Intake valve	Exhaust valve
Dia. a	mm	26.60	26.00
Dia. b	mm	5.940	5.940
c	mm	99.30	99.10
α	degrees	45	45

Engine Lubrication – 2.0L BPY/BWA

Lubrication System Components – Tightening Torques

Component	Nm
Sealing flange to engine bolt	15
Oil pump with balance shaft drive to cylinder block bolt	15 plus an additional 90° (¼ turn)
Oil pan bolt	15
Oil drain plug to oil pan bolt	15
Oil level thermal sensor G266 protective cap bolt (not for engine code BPY)	10
Chain sprocket to oil pump with balance shaft drive bolt	20 plus an additional 90° (¼ turn)
Oil pump with balance shaft drive cover to oil pump with balance shaft drive bolt	9
Oil pump with balance shaft drive cover bolt	40
Oil pump with balance shaft drive bolts	15 plus an additional 90° (¼ turn)
Chain sprocket to oil pump cover to inner rotor to outer rotor to oil pump with balance shaft drive bolt	20 plus an additional 90° (¼ turn)
Chain tensioner with tensioning rail to oil pump with balance shaft drive bolt	15

Oil Filter Bracket – Tightening Torques

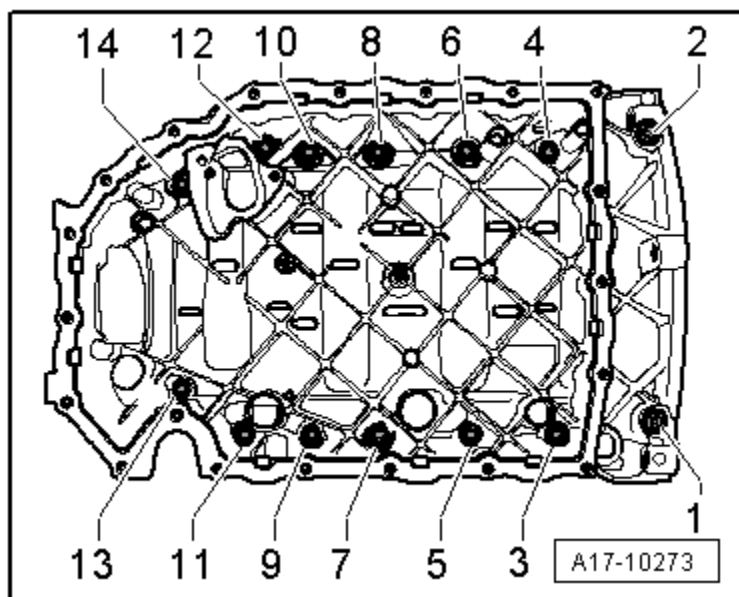
Component	Nm
Oil pressure switch F1 to oil filter bracket	20
Oil pressure switch F1 bolt	15
Oil cooler bracket to oil filter bracket bolts	25
Oil filter bracket bolts	15
Oil filter housing to oil filter element	25

Engine Lubrication – 2.0L CCTA

Lubrication System Components – Tightening Torques

Component	Nm
Oil pump with balance shaft drive to cylinder block bolt	15 plus an additional 90° (¼ turn)
Oil drain plug to oil pan bolt	15
Oil level thermal sensor G266 protective cap bolt	10
Chain sprocket to oil pump with balance shaft drive bolt	20 plus an additional 90° (¼ turn)
Oil pump with balance shaft drive cover to oil pump with balance shaft drive bolt	9
Oil pump with balance shaft drive cover bolt	40
Oil pump with balance shaft drive bolts	15 plus an additional 90° (¼ turn)
Chain sprocket to oil pump cover to inner rotor to outer rotor to oil pump with balance shaft drive bolt	20 plus an additional 90° (¼ turn)
Chain tensioner with tensioning rail to oil pump with balance shaft drive bolt	15

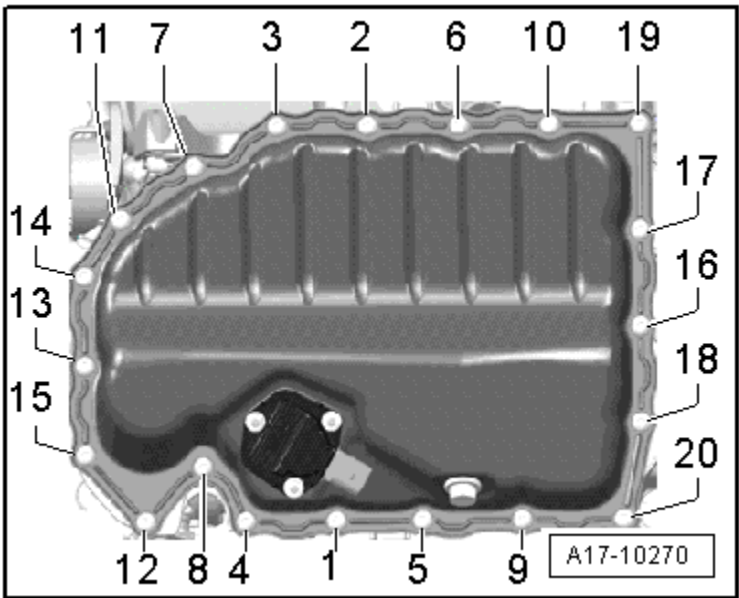
Upper Oil Pan Section – Tightening Sequence



Upper Oil Pan Section – Tightening Torques

Step	Tighten
1	Tighten bolts to 15 Nm in the sequence shown
2	Tighten an additional 90° (¼ turn)

Lower Oil Pan Section – Tightening Sequence

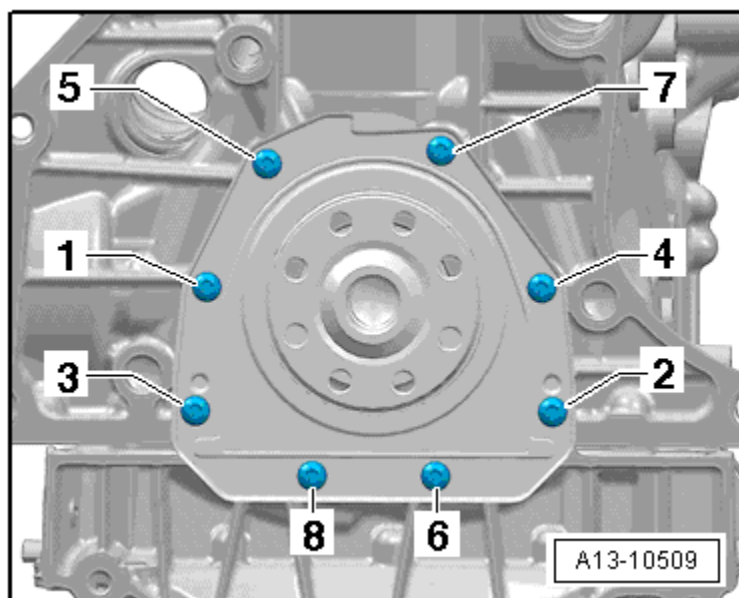


Lower Oil Pan Section – Tightening Torques

Step	Tighten
1	Tighten bolts to 8 Nm in the sequence shown
2	Tighten an additional 90° (¼ turn) ¹⁾

¹⁾ After installing oil pan, allow sealant to dry for approximately 30 minutes before filling with oil.

Transmission Sealing Flange – Tightening Sequence



Transmission Sealing Flange

Step	Tighten
1	Hand tighten bolts in the sequence shown
2	Tighten bolts to 9 Nm

Engine Lubrication – 2.5L CBTA/CBUA

Lubrication System Components – Tightening Torques

Component	Nm
Timing chain to chain sprocket for oil pump bolt	20 plus an additional 90° (¼ turn)
Oil filter bracket with attachments to cylinder block bolt	25
Oil pump to cylinder block bolt	25
Intake manifold support to guide tube to cylinder block bolt (for engines with Secondary Air Injection [AIR] system only)	25
Oil intake pipe bracket to oil intake pipe bolt	10
Oil pan lower part bolt	10
Oil drain plug to oil pan lower part	30
Decoupling element bolt	10
Oil pan upper part bolt	25

Oil Filter Bracket – Tightening Torques

Component	Nm
Oil filter bracket bolts	25
Oil pressure switch F1 to oil filter bracket	20
Oil filter housing to oil filter element	25
Oil cooler bracket to oil filter bracket bolts	25
Lower section of oil pan to upper section of oil pan	10
Upper section of oil pan to cylinder block	25
Intake line to oil pump	10
Intake line to upper section of oil pan	10

Engine Lubrication – 2.0L TDI CBEA

Lubrication System Components – Tightening Torques

Component	Nm
Oil pump to engine block bolt	10
Intake connection to oil pump bolt	10
Balance shaft spur gear bolt (always replace)	20 plus an additional 90° (¼ turn)
Intermediate sprocket hub bolt (always replace)	90 plus an additional 90° (¼ turn)
Oil suction pipe	10
Oil pan to cylinder block bolt – transmission side	40
Oil pan to transmission	45
Oil pan to cylinder block (tighten following a diagonal sequence)	15
Oil drain plug	30
Oil spray jet bolt	27

Oil Filter Bracket – Tightening Torques

Component	Nm
Oil filter bracket to cylinder block (always replace, fasten upper left and lower right, then tighten all four bolts in a diagonal sequence)	15 plus an additional 90° (¼ turn)
Oil supply line connection	30
Oil supply line	22
Oil pressure switch	22
Oil filter cover	25
Sealing plug	25
Wiring harness bracket	

Engine Cooling – 2.0L BPY/BWA

Cooling System Components (on Engine) – Tightening Torques

Component	Nm
Coolant line upper bolt	30
Coolant line lower bolt	40
Engine Coolant Temperature (ECT) sensor G62 connecting piece to engine bolt	10
Engine Coolant Temperature (ECT) sensor G62 coolant line to engine bolt	5
Coolant thermostat housing coolant line bolt	5
Coolant thermostat housing to engine bolts	15
Coolant pump to engine bolts	15

Cooling System Components (on Body) – Tightening Torques

Component	Nm
Expansion tank bolt	5
Coolant fan to air shroud bolts	5
Air shroud to radiator bolts	5

Coolant Pump V50 – Tightening Torques

Component	Nm
Coolant line upper nut	3
Coolant line lower nut	5
Coolant pump to bracket bolt	5

Coolant Pump – Tightening Torques

Component	Nm
Coolant pump to cylinder block	15
Toothed belt guard to cylinder block	10*

* Insert with locking fluid.

Recommended Coolant Mixture Ratios

Frost protection to	Anti-freeze quantity	G 12	Water
-25°C	40%	3.2L	4.8L
-35°C	50%	4.0L	4.0L

Engine Cooling – 2.0L CCTA

Cooling System Components (on Engine) – Tightening Torques

Component	Nm
Coolant line upper bolt	30
Coolant line lower bolt	40
Engine Coolant Temperature (ECT) sensor G62 connecting piece to engine bolt	10
Engine Coolant Temperature (ECT) sensor G62 coolant line to engine bolt	5
Coolant thermostat housing coolant line bolt	5
Coolant thermostat housing to engine bolts	15

Cooling System Components (on Body) – Tightening Torques

Component	Nm
Expansion tank bolt	5
Coolant fan to air shroud bolts	5
Air shroud to radiator bolts	5

Coolant Pump V50 – Tightening Torques

Component	Nm
Coolant line upper nut	3
Coolant line lower nut	5

Coolant Pump – Tightening Torques

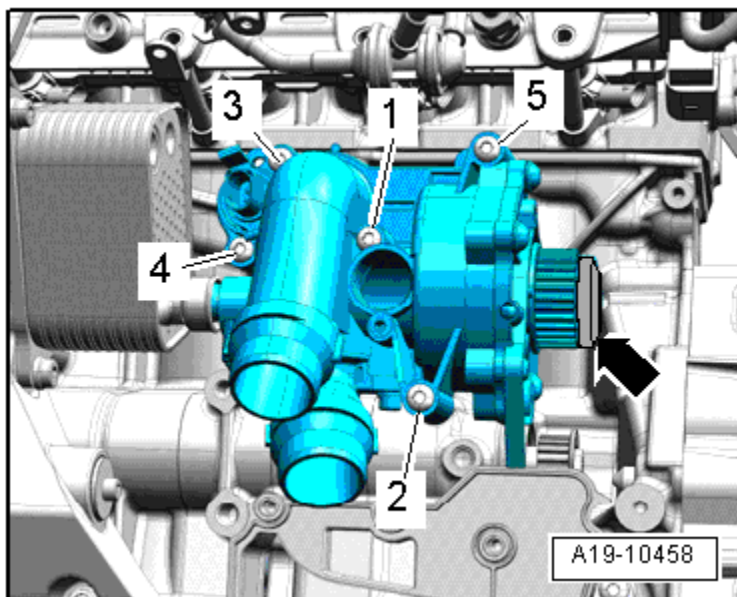
Component	Nm
Coolant pump to cylinder block	15
Toothed belt guard to cylinder block	10*

* Insert with locking fluid.

Recommended Coolant Mixture Ratios

Frost protection to	Anti-freeze quantity	G 12	Water
-25°C	40%	3.2L	4.8L
-35°C	50%	4.0L	4.0L

Coolant Pump Assembly – Tightening Sequence



Coolant Pump Assembly – Tightening Torques

Component	Nm
Coolant pump to engine block (tighten in sequence shown)	9

Engine Cooling – 2.5L CBTA/CBUA

Cooling System Components (on Engine) – Tightening Torques

Component	Nm
Oil cooler to cylinder block bolt	25
Coolant line to heater core of heater, bottom bolts	10
Connecting piece to coolant thermostat to coolant thermostat housing bolt	5
Coolant thermostat housing to cylinder block bolt	25
Coolant pump to cylinder block bolts	10
Coolant distribution housing to pipe connection nut	10
Automatic Transmission Fluid (ATF) cooler coolant line nut (only for vehicles with automatic transmission)	10

Cooling System Components (on Body) – Tightening Torques

Component	Nm
Expansion tank bolt	3
Radiator bracket to radiator bolt	5
Air shroud nut	5
Air shroud to radiator bolts	5
Coolant fan to intake air elbow	5
Intake air elbow to radiator	5
Radiator mounting to lock carrier	5
Condenser to radiator	5

Recommended Coolant Mixture Ratios

Frost protection to	Anti-freeze quantity	G 12	Water
-25°C	40%	3.6L	5.4L
-35°C	50%	4.5L	4.5L

Engine Cooling – 2.0L TDI CBEA

Cooling System Components (on Engine) – Tightening Torques

Component	Nm
Ventilation pipe	10
Thermostat connecting piece	15
Coolant pump bolt	40

Cooling System Components (on Body) – Tightening Torques

Component	Nm
Coolant reservoir bolt	3
Coolant fan to air shroud nut	5
Air shroud to radiator bolt	5
Engine pre-warmer bracket bolts	10

Fuel Storage and Supply – 2.0L BPY/BWA/CCTA, 2.5L CBTA/CBUA

Fuel Pump – Tightening Torques

Component	Nm
Vacuum line bolts	10
Fuel tank bolt	25
Fuel delivery unit locking ring	110

Fuel Tank – Tightening Torques

Component	Nm
Fuel tank to chassis bolts M6 (always replace)	10
Fuel tank to chassis bolts M8 (always replace)	25
Fuel tank mounting strap bolts	25
Fuel filler tube protective plate bolts	8
Flange with fuel filter locking ring	110
Fuel filter bracket bolt	3
Bolt cup for fuel filter	3

Accelerator Pedal Module – Tightening Torques

Component	Nm
Accelerator pedal module to body bolt	25

EVAP Canister System – Tightening Torques

Component	Nm
EVAP canister to body bolt	8
Air filter housing bolt	3
Leak Detection Pump (LDP) V144 bracket to LDP V144 bolt	2
Leak Detection Pump (LDP) V144 bracket to LDP V144 nut	6

Fuel Storage and Supply – 2.0L TDI CBEA

Fuel Tank – Tightening Torques

Component	Nm
Fuel filler door unit mounting bolt	5
Fuel filler tube mounting bolt	11
Fuel tank mounting bolt	25
Fuel delivery unit locking ring	110

Fuel Filter – Tightening Torques

Component	Nm
Fuel filter upper bolt	9
Locking bolt (water extraction)	5
Fuel filter lower bolt	8

Accelerator Pedal Module – Tightening Torques

Component	Nm
Accelerator pedal module to body bolt	9

Turbocharger – 2.0L BPY/BWA/CCTA

Turbocharger – Tightening Torques

Component	Nm
Exhaust manifold stud bolt to turbocharger nuts	20
Coolant return line to turbocharger bolt	35
Coolant return line bracket to turbocharger, upper bolt	23
Coolant return line bracket to turbocharger, lower bolt	9
Turbocharger bracket bolt	30
Turbocharger bracket to fastening strip bolt	23
Turbocharger bracket to fastening strip nut	30
Oil supply line to turbocharger nut	30
Turbocharger bolt	9
Oil supply line to turbocharger bolt	30
Coolant supply line to turbocharger bolt	35
Coolant supply line bracket bolt	23
Coolant supply line bolt	35
Oil return line bolts	9
Oil return line to turbocharger bolts	9
Heat shield bolts	9
Wastegate bypass regulator valve N75 bolts	3
Ring connection bolt	8
Connection to turbocharger bolt	7
Bracket to turbocharger bolt	7
Turbocharger recirculating valve N249 to turbocharger bolt	7
Exhaust manifold/turbocharger to cylinder head (replace nuts)	20
Oil supply line to exhaust turbocharger	30
Oil return line to exhaust turbocharger	9
Coolant supply line to turbocharger	35
Bracket for turbocharger to cylinder block (use hot bolt paste G-052-112-A3)	30

Component	Nm
Turbocharger bracket to turbocharger (use hot bolt paste G-052-112-A3)	30
Right charge air pipe to oil pan	10
Vacuum diaphragm to turbocharger	10

Charge Air Cooler – Tightening Torques

Component	Nm
Air charge cooler bearing to air charge cooler	5
Charge air pipe to charge air hose bolt	10
Charge air pipe (with charge air pressure sensor G31) bolt	8
Charge air pressure sensor G31 to charge air pipe bolts	5

Noise Booster – Tightening Torques

Component	Nm
Plenum chamber bulkhead bolts	8
Spacer sleeves to noise booster to noise amplifier bracket bolts	8
Noise amplifier bracket bolts	8

Turbocharger – 2.0L TDI CBEA

Turbocharger – Tightening Torques

Component	Nm
Warm air collector plate bolt	8
Oil supply line	22
Heat shield to wiring harness bracket bolt	8
Security clamp	7
Exhaust manifold heat shield nut	23
Exhaust Gas Recirculation (EGR) filter bracket stud bolt	20
EGR filter bracket nut	23
Control wire	23
Turbocharger brace – banjo bolt	60
Oil return line bolt	15
Connecting pipe nut (lubricate exhaust manifold stud bolts with hot bolt paste G-052-112-A3)	20
Intake scoop bolt	8
Exhaust gas temperature sensor	45

Charge Air Cooler – Tightening Torques

Component	Nm
Charge air cooler mounting bolt	5
Screw clamp	5
Charge air pressure sensor bolt	3
Charge air pipe bolts	8

Fuel Injection – 2.0L BPY/BWA/CCTA

Fuel Injection System Data

Engine codes		BPY
Idle check		
Idle speed ¹⁾	RPM	620 to 800
Engine Control Module (ECM) ²⁾		
System designation		Motronic MED 9.1
Replacement part number		Electronic Parts Catalog (ETKA)
Engine speed (RPM) limitation	RPM	approximately 6800
Fuel pressure		
Low pressure	bar	approximately 4.0 to 6.0
High pressure	bar	approximately 40 to 120

¹⁾ If voltage supply of ECM drops below 12 volts, idle speed is raised in stages up to 990 RPM. The idle speed cannot be adjusted.

²⁾ Replace ECM.

Engine codes	CBFA	CCTA
Idle check		
Engine idle speed ¹⁾	640 to 800 1 RPM	640 to 800 1 RPM
Engine speed (RPM) limitation	Approximately 6500 RPM	Approximately 6500 RPM

¹⁾ If voltage supply of ECM drops below 12 volts, idle speed is raised in stages up to 990 RPM. The idle speed cannot be adjusted.

Engine Cover/Air Filter – Tightening Torques

Component	Nm
Mass Air Flow (MAF) sensor G70 to upper section of air filter/engine cover bolt	3
Air filter lower part bolts	3
Heat shield to air filter lower part bolts	3

Intake Manifold – Tightening Torques

Component	Nm
Retaining clip to intake manifold bolt	3
Intake manifold support bonded rubber bushing to intake manifold nuts	10
Retaining clip stud bolt	10
Intake flap motor V157 with intake manifold runner position sensor G336 bolt	7
Intake manifold support bolt	25
Throttle valve control module J338 bolts	7
Intake Air Temperature (IAT) sensor G42 to intake manifold bolt	5
Mounting bolts for intake manifold	10
Bolt for intake manifold support	23
Nut for intake manifold support	10
Fuel supply line to high pressure pump	25
Fuel return line to high pressure pump (replace banjo fitting)	17

High Pressure Pump – Tightening Torques

Component	Nm
High pressure pump with fuel pressure regulator valve N276 bolts	10
High pressure pump with fuel pressure regulator valve N276 high pressure line union nut	25
High pressure pump with fuel pressure regulator valve N276 banjo bolt with conical seal seat	17
Low fuel pressure sensor G410 to high pressure pump with fuel pressure regulator valve N276	15

Fuel Injection – 2.5L CBTA/CBUA

Fuel Injection System Data

Engine code		BGP, BGQ	CBTA, CBUA
Idle check			
Engine idle speed ¹⁾	1 RPM	680	680
Engine Control Module (ECM) ²⁾			
System designation		Motronic ME 7.1.1	Motronic ME 7.1.1
Replacement part number		Electronic Parts Catalog (ETKA)	Electronic Parts Catalog (ETKA)
Engine speed (RPM) limitation	1 RPM	approx. 5800	approx. 6300

¹⁾ Applies to manual and automatic transmission. If voltage supply of ECM drops below 12 volts, idle speed is raised in stages up to 780 RPM. Idle speed is not adjustable.

²⁾ Replace ECM.

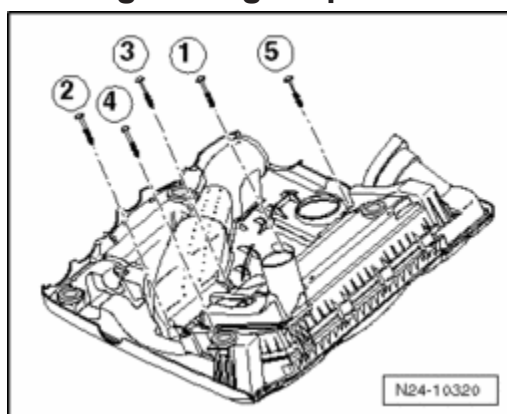
Intake Manifold – Tightening Torques

Component	Nm
Throttle valve control module to intake manifold	6.5
Intake manifold to cylinder head	9
Intake manifold support to intake manifold, engine codes BGP and BGQ	20
Intake manifold support to intake manifold, engine codes CBTA and CBUA	16
Intake manifold support to intake manifold	20
Intake manifold support to cylinder block	25
Transport strap to cylinder head	25
Oil dip stick guide tube to cylinder block	25
Manifold Absolute Pressure (MAP) sensor G71 to intake manifold	3.5
Fuel distributor to intake manifold	3.5

Air Filter Assembly – Tightening Torques

Component	Nm
Mass Air Flow (MAF) Sensor G70 with Intake Air Temperature (IAT) Sensor G42 bolt	3
Intake tube on upper part of air filter bolts	1.5
Lower section of air filter bolts	2

Lower Section of Air Filter – Tightening Sequence



Lower Section of Air Filter – Tightening Torques

Component	Nm
Lower section of air filter bolts	2

Exhaust System – 2.0L BPY/BWA/CCTA

Exhaust System – Tightening Torques

Component	Nm
Catalytic converter to exhaust manifold stub bolts nuts	40
Oxygen Sensor (O2S) behind Three-Way Catalytic Converter (TWC) G130	55
Rear clamping sleeve nut	25
Center muffler suspended mount bolts	25
Front clamp sleeve nut	25
Oxygen sensor G39	55
Front exhaust pipe to turbocharger	40
Tunnel bridge to body	25
Mount to subframe	25

Exhaust System – 2.5L CBTA/CBUA

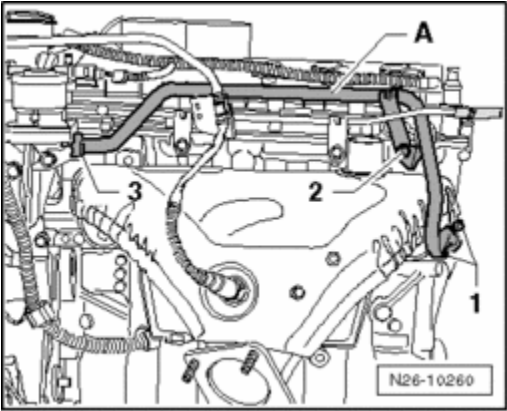
Exhaust System – Tightening Torques

Component	Nm
Exhaust manifold to cylinder head stud bolts nuts	25
Heat shield to exhaust manifold nut	10
Oxygen sensor G39	55
Suspended mount bolts	25
Front exhaust pipe to exhaust manifold nuts (always replace)	25
Repair clamp nut	25
Mount to subframe	25
Exhaust manifold to front exhaust pipe nuts (BGP)	25
Oxygen Sensor (O2S) in center Three-Way Catalytic Converter (TWC), bank 1 G465 (BGQ)	55
Front exhaust pipe clamp nut (BGQ)	25
Front crossmember nut (BGQ)	23
Oxygen Sensor (O2S) behind Three-Way Catalytic Converter (TWC) G130 (BGQ)	55
Heat shield to front exhaust pipe spring nut bolts (BGQ)	5
Heat shield to front exhaust pipe bolts (BGQ)	10

Secondary Air Injection (AIR) System – Tightening Torques

Component	Nm
Connecting pipe bolts	10
Secondary Air Injection (AIR) solenoid valve N112 bolts	10
Intake manifold support with mount for Secondary Air Injection (AIR) pump motor V101 bolt	25
Intake manifold support with mount for Secondary Air Injection (AIR) pump motor V101 nut	10
Secondary Air Injection (AIR) pump motor V101 to intake manifold support	10

Connecting Tube – Tightening Sequence



Connecting Tube – Tightening Torques

Component	Nm
Connecting tube bolts (replace all seals)	10

Ignition System – 2.0L BPY/BWA/CCTA, 2.5L CBTA/CBUA

Ignition – Tightening Torques

Component	Nm
Spark plug	25
Knock Sensor (KS) 1 G61 bolt	20
Knock Sensor (KS) 2 G66 bolt	20
Camshaft Position (CMP) sensor G40 bolt	10

Spark Plug Data

Engine code	BPY, BWA, CCTA
Ignition sequence	1-3-4-2
Spark plugs	
VW/Audi	101 905 631 B
Manufacturers designation	F6KPP 332 S
Electrode gap	0.7 to 0.8 mm
Torque specification	25 Nm
Engine code	BGP, BGQ
Ignition sequence	1-2-4-5-3
Spark plugs	
VW/Audi	101 905 600
Manufacturers designation	PZFR5J-11
Electrode gap	1.0 to 1.1 mm
Tightening torque	25 Nm
Engine code	BGP, BGQ, CBTA, CBUA
Ignition sequence	1-2-4-5-3
Spark plugs	101 905 600 C
Electrode gap	1.0 to 1.1 mm
Tightening specification	25 Nm

MANUAL TRANSMISSION

General, Technical Data

0A4 Manual Transmission Specifications

Manual transmission		5-Speed Manual Transmission 0A4		
Code letters		FNE	GQQ	HGR
Manufactured	from to	05.05 05.05	05.05 08.06	05.05 08.06
Application	Model	Jetta from MY 2005	Jetta from MY 2005	Jetta from MY 2005
	Engine	1.9L - 77 kW Turbo-Diesel	1.9L - 74 kW Turbo-Diesel 1.9L - 77 kW Turbo-Diesel	2.5L - 110 kW
Ratio Z1:Z2	Final drive	61:18 = 3.389	61:18 = 3.389	62:17 = 3.647
Manual transmission capacity (transmission completely disassembled)		1.9 liters	1.9 liters	1.9 liters
Manual transmission capacity (transmission partly disassembled)		1.7 liters	1.7 liters	1.7 liters
Driveshaft flange diameter		100 mm	100 mm	100 mm

Manual transmission		5-Speed Manual Transmission 0A4		
Code letters		JCR	GTB	JCT
Manufactured	from to	05.06	05.05 05.05	05.06
Application	Model	Jetta from MY 2005	Jetta from MY 2005	Jetta from MY 2005
	Engine	1.9L - 74 kW Turbo-Diesel 1.9L - 77 kW Turbo-Diesel	2.5L - 110 kW	2.5L - 110 kW
Ratio Z1:Z2	Final drive	61:18 = 3.778	62:17 = 4.235	62:17 = 4.235
Manual transmission capacity (transmission completely disassembled)		1.9 liters	1.9 liters	1.9 liters
Manual transmission capacity (transmission partly disassembled)		1.7 liters	1.7 liters	1.7 liters
Driveshaft flange diameter		108 mm	108 mm	108 mm

Manual transmission		5-Speed Manual Transmission 0A4
Code letters		KBL
Manufactured	from to	12.06
Application	Model	Jetta from MY 2005
	Engine	1.9L - 77 kW Turbo-Diesel
Ratio Z1:Z2	Final drive	61:18 = 3.778
Manual transmission capacity (transmission completely disassembled)		1.9 liters
Manual transmission capacity (transmission partly disassembled)		1.7 liters
Driveshaft flange diameter		100 mm

02Q Manual Transmission Specifications

Manual transmission		6 speed 02Q
Code letters		GVT
Manufactured	from to	05.05 11.05
Allocation	Model	Jetta from 2005
	Engine	2.0L - 147 kW Turbo-TFSI
Ratio:Z2:Z1	Final drive I ¹⁾	71:18 = 3.944
	Final drive II ²⁾	71:23 = 3.087
Manual transmission capacities		2.3 liters
Drive axle flange diameter		107 mm

¹⁾ Final drive for 1st to 4th gear.

²⁾ Final drive for 5th/6th and reverse gear

Clutch - 0A4/02Q

Pedal Cluster – Tightening Torques

Component	Nm
Self-locking nut	25
Hex nut	25

Over-Center Spring – Tightening Torques

Component	Nm
Clutch pedal to mounting bracket (replace self-locking nut)	25
Impact bolster to mounting bracket/steering column	10

Hydraulic System – Tightening Torques

Component	Nm
Self-locking nut	25
Hydraulic system bolts	20

Clutch Release Mechanism – Tightening Torques

Component	Nm
Ball head pin	25
Socket head cap bolt	20
Clutch master cylinder collar bolts	20
Slave cylinder with release bearing for metal slave cylinder bolts (02Q)	12
Slave cylinder with release bearing for plastic slave cylinder bolts (02Q)	15

Slave Cylinder – Tightening Torques

Component	Nm
Slave cylinder bolts	20 plus an additional 90° (¼ turn)

Clutch (Sachs) – Tightening Torques

Component	Nm
Bolt M7	20

Clutch (LuK) – Tightening Torques

Component	Nm
Bolt M6	13

Manual Transmission – Controls – 0A4

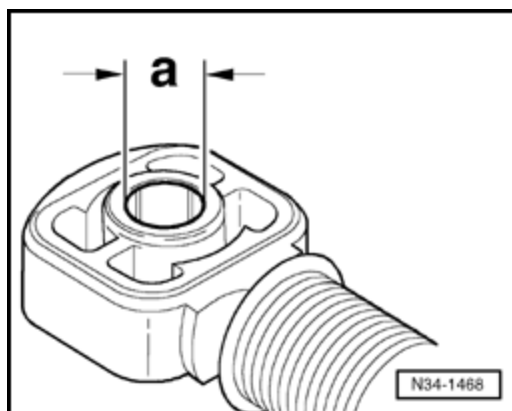
Shift Lever and Shift Housing – Tightening Torques

Component	Nm
Shift lever guide damper cover Torx® bolts	5
Selector bracket Torx® bolt	5
Nut M8	25
Nut M6	8

Operating Cables – Tightening Torques

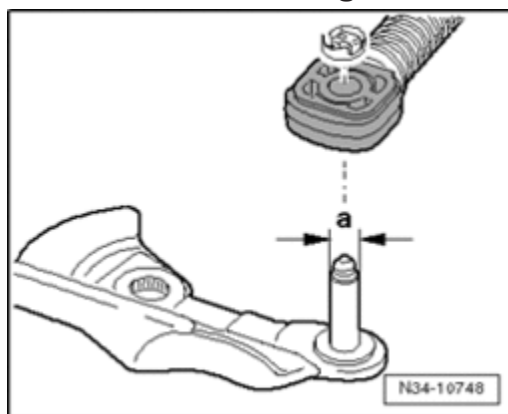
Component	Nm
Cable mounting bracket to transmission bolts	20
Cable mounting bracket nut	20
Transmission shift lever self-locking nut (always replace)	23

Cable Retainer Dimensions



Cable retainer for:	mm
Shift cable to transmission shift lever from 06/06	8.5
Shift cable to transmission shift lever to 05/06	10
Selector cable to relay lever	8

Shift Cable Retainer Mounting Bolts Dimensions



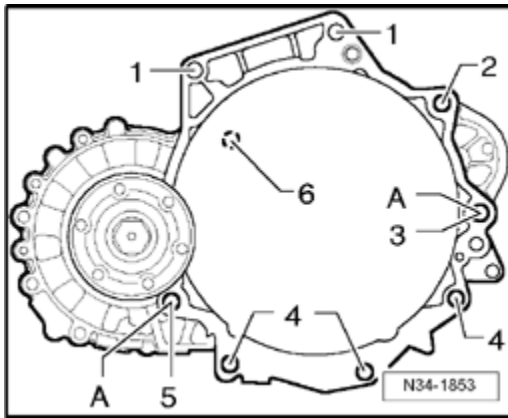
Shift cable retainer mounting bolts	mm
from 05/06	10
from 06/06	8.5

Manual Transmission – Installing – 0A4/02Q

0A4/02Q Selector Mechanism – Tightening Torques

Component	Nm
Selector housing to body M8	25
Selector housing to body M6	8
Cable mounting bracket to transmission	20

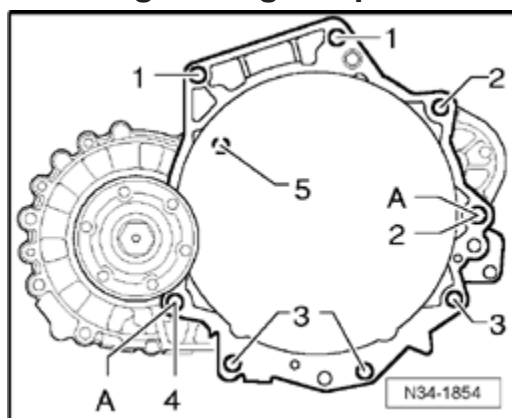
0A4 Transmission (To Gasoline Engine) – Tightening Torques



Item	Bolt	Qty.	Nm
1	M 12 x 65	2	80
2	M 12 x 150 (also starter to transmission)	1	80
3	M 12 x 165 (also starter to transmission)	1	80
4	M 10 x 50	3	40
5	M 12 x 85	1	80
6	M 6 x 8 (small cover plate for flywheel)	1	10

Pos. - A - Alignment sleeves for centering.

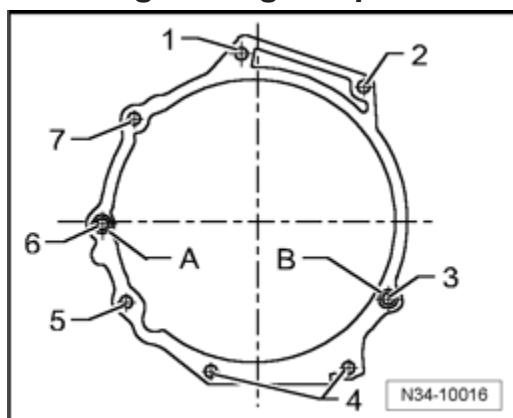
0A4 Transmission (To Diesel Engine) – Tightening Torques



Item	Bolt	Qty.	Nm
1	M 12 x 55	2	80
2	M 12 x 150 (also starter to transmission)	2	80
3	M 10 x 50	3	40
4	M 12 x 60	1	80
5	M 6 x 8 (small cover plate for flywheel)	1	10

Pos. - A - Alignment sleeves for centering

02Q Transmission (To Engine) – Tightening Torques



Item	Bolt	Qty.	Nm
1	M12 x 55 (with short threaded pin M8)	1	80
2	M12 x 55 (with long threaded pin M8)	1	80
3	M12 x 70	1	80
4	M10 x 50	2	40
5	M10 x 105	1	40
6	M12 x 165 (with short threaded pin M8) (also starter to transmission)	1	80
7	M12 x 165 (with short threaded pin M8) (also starter to transmission)	1	80

0A4/02Q Transmission – Tightening Torques

Location/Fastener	Nm
Transmission console to transmission bolts (0A4)	40 plus an additional 90° (¼ turn)
Transmission console to transmission bolts (02Q)	60 plus an additional 90° (¼ turn)
Transmission mount to body bolts	60 plus an additional 90° (¼ turn)
Transmission support to transmission console and transmission bolts	20 plus an additional 90° (¼ turn)

0A4 Cover for Transmission Housing and 5th Gear – Tightening Torques

Component	Nm
Transmission housing cover bolts	10
Plate spring bolts M10	80
Socket head cap bolts for pivot pin to transmission housing	25

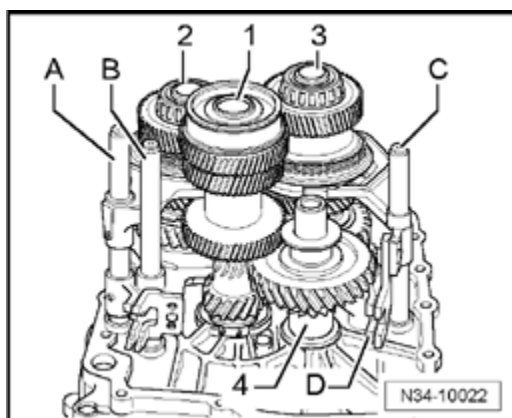
0A4 Transmission Housing and Shift Mechanism – Tightening Torques

Component	Nm
Flange shaft with spring countersunk bolt	25
Self-locking internal Torx® head bolt for support reverse shaft support (always replace)	25
Self-locking internal Torx® head bolt for support reverse shaft support (always replace)	30
Pivot pin bolts	25
Multipoint socket head bolts for support reverse shaft support (always replace)	25
Selector mechanism hex bolt	25 plus an additional 90° (¼ turn)

02Q Transmission Housing and Shift Mechanism – Tightening Torques

Component	Nm
Back up light switch F4	20
Selector shaft locking bolt	30
Clutch housing bolts (always replace)	15 plus an additional 90° (¼ turn)
Selector mechanism bolts (always replace)	20

02Q Installation Position of Shafts and Selector Rods in Transmission



Component	
1 - Input shaft	
2 - Output shaft 1st to 4th gears	
3 - Output shaft for 5th, 6th and reverse gear	
4 - Reverse shaft	
A - Selector rod for 3rd and 4th gear	
B - Selector rod for 1st and 2nd gear	
C - Selector rod for 5th and 6th gear	
D - Reverse gearshift fork	

0A4/02Q Input Shaft, Output Shaft (Pinion Shaft), Differential and Shift Forks – Tightening Torques

Component	Nm
Reverse gearshift fork internal Torx® head bolt	25
Bearing mount nuts	25 plus an additional 90° (¼ turn)
Flange shaft with spring countersunk bolt	25

0A4/02Q Transmission Housing and Clutch Housing – Tightening Torques

Component	Nm
Oil filter plug	30
Self-locking socket head cap bolt (always replace)	20
Oil drain plug	30

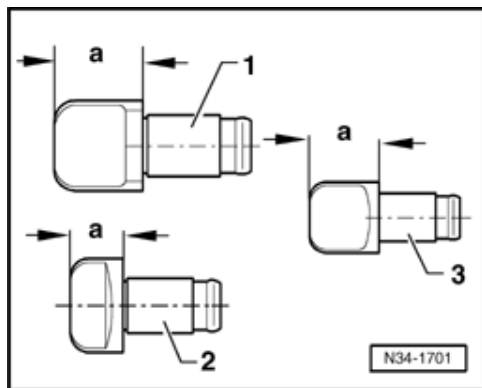
0A4 Shift Mechanism – Tightening Torques

Component	Nm
Back up light switch F4	20
Self-locking hex nut (always replace)	23

0A4 Shift Forks – Tightening Torques

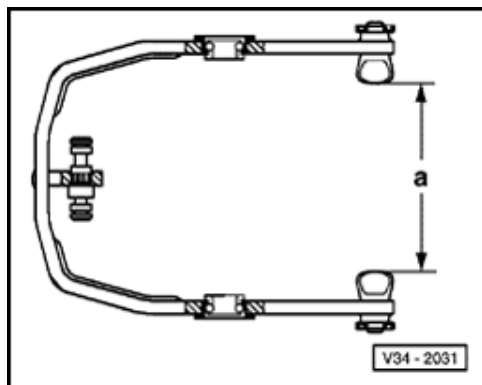
Component	Nm
5th gearshift jaw bolt	25

0A4 Identification of Shift Segments



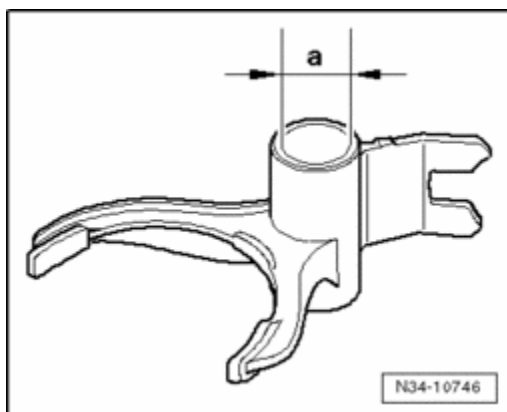
Component	Dimension - a - (mm)
1st/2nd gearshift segments	11.4
3rd/4th gear selector segments	7.7
5th gearshift segments	12.1

0A4 Shift Fork with Shift Segments Installed



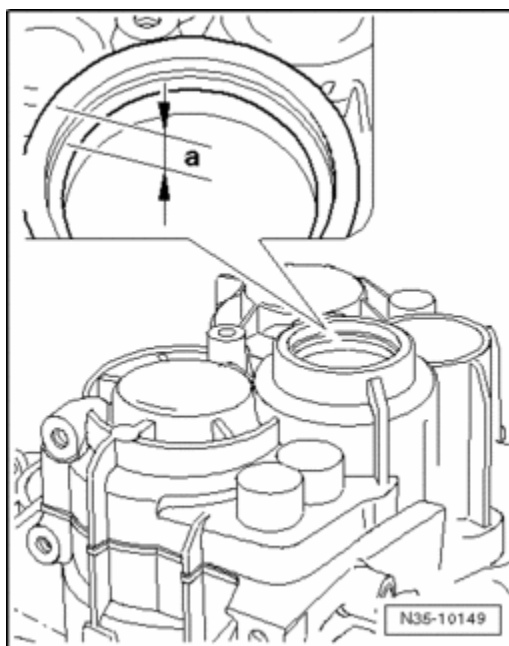
Component	Dimension a (mm)
1st/2nd gearshift fork	87.2 to 87.4
3rd/4th gearshift fork	93.6 to 93.8

02Q Reverse Gearshift Fork Differentiation



Transmission manufacture date	Dimension a (mm)
through 05 03 6	24
from 06 03 6	18

02Q Area Above Grooved Ball Bearing



Area above grooved ball bearing	Dimension a (mm)
From transmission build date 10 04 6	10.7
Through transmission build date 09 04 6	10

AUTOMATIC TRANSMISSION

General, Technical Data

02E Transmission Specifications

If replacement parts are required for a repair, always refer to transmission code letters on the transmission.			
Direct Shift Gearbox (DSG) 02E front wheel drive code letters			
With oil drain plug	GYQ, HLH	HBQ, HRW	up to September 20, 2004
Without oil drain plug	GPW, HQH, HQN, HXU	HUS, HUT, HXW	after September 20, 2004
	1.9 l - 77 kW TDI	2.0L - 147 kW FSI-Turbo	
Installed in	Jetta from 2005		

09G Transmission Specifications

Automatic transmission 09G			
Identification code	GHE, HGA, HTT	GGZ, HFZ, HMD	HHG, HTU
Engine	1.8L - 110 kW	2.0L - 85 kW	2.5L - 110 kW

02E Direct Shift Capacities

Capacities	Direct shift transmission 02E
Initial fill in factory	7.2L
Replacement capacity in service	approximately 5.2 liters
Lubricant:	DSG oil ¹⁾

¹⁾ The oil is obtainable as a replacement part.

09G Planetary Gear and Final Drive Capacities

Capacities	6 Speed Automatic Transmission 09G
Initial filling	Approximately 7.0L
Changing	Filled for life no replacement
Lubricant	ATF is available as a replacement part. Refer to Electronic Parts Catalog (ETKA) for the replacement number.

Clutch – 02E

02E Clutch Cover (End Cover) – Tightening Torques

Component	Nm
Oil drain plug	45
Oil filter housing	20

Automatic Transmission Controls – 02E/09G

09G Multifunction Transmission Range (TR) Switch F125 – Tightening Torques

Component	Nm
Selector shaft nut	7
Selector shaft lever nut	13
Selector shaft adjustment fixture bolts	6

02E/09G Selector Mechanism – Tightening Torques

Component	Nm
Selector lever and selector mechanism bolt with spring	3
Shift housing nuts	9
Selector lever and selector mechanism hex bolt with washer	8
Selector lever cable adjustment bolt (02E)	13
Selector lever cable adjustment bolt (09G)	15

02E Selector Mechanism – Tightening Torques

Component	Nm
Shielding plate/driveshaft to bevel gear transfer case	25
Secure flange shaft with new conical head bolt	30
Install new conical head bolt for securing stub shaft or flange shaft	30
Secure flange shaft with countersunk bolt	30

02E Selector Shaft – Tightening Torques

Component	Nm
Selector shaft lever to transmission	20

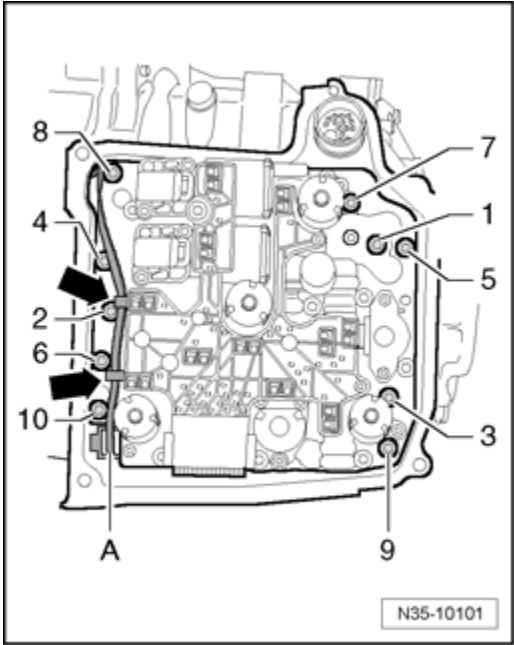
02E Transmission Input Speed (RPM) Sensor G182 and Clutch Oil Temperature Sensor G509 – Tightening Torques

Component	Nm
Sensor	10

02E Direct Shift Gearbox (DSG) Mechatronic J743 (Transmission Installed) – Tightening Torques

Component	Nm
Pendulum support overflow tube (8mm hex socket head)	3
Mechatronic cover bolts	10
Oil pump cover bolts (install bolts in a diagonal sequence)	8
Cable bracket on large cover nuts	10

02E Direct Shift Gearbox (DSG) Mechatronic J743 (Transmission Installed) – Tightening Sequence

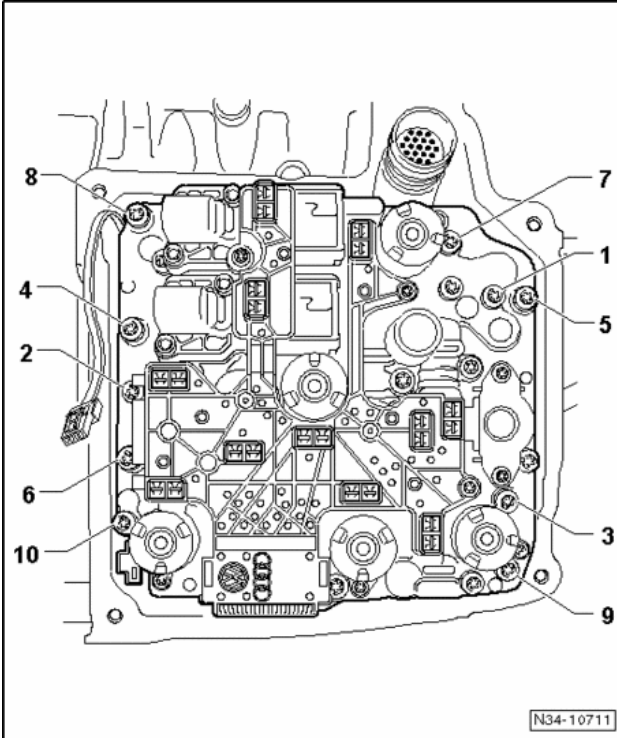


Component	Nm
Install bolts 1-10	5 plus an additional 90° (¼ turn)

02E Direct Shift Gearbox (DSG) Mechatronic J743 (Transmission Removed) – Tightening Torques

Component	Nm
Pendulum support overflow tube (8mm hex socket head)	3
Oil filter housing	20
Mechatronic cover bolts	10

02E Direct Shift Gearbox (DSG) Mechatronic J743 (Transmission Removed) – Tightening Sequence



Component	Nm
Install bolts 1-10 (install bolts in a diagonal sequence)	5 plus an additional 90° (¼ turn)

Automatic Transmission Installing – 02E/09G

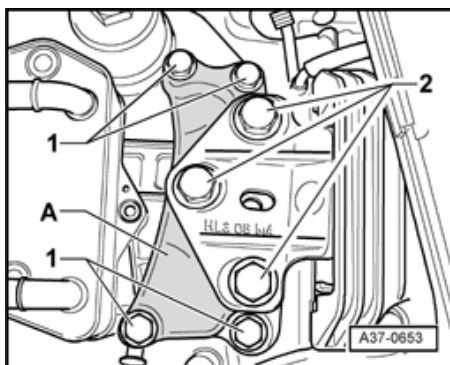
09G/02E Oil Cooler – Tightening Torques

Component	Nm
Oil cooler bolts	20 plus an additional 90° (¼ turn)
Oil filter housing	20

09G/02E Oil Pump – Tightening Torques

Step	Component	Nm
1	Oil pump bolts (all four)	5 plus an additional 90° (¼ turn)
2	Oil pump countersunk bolt	8
3	Oil pump remaining 3 bolts	8 plus an additional 90° (¼ turn)
4	Oil pump cover (tighten diagonally)	8

02E/09G Transmission – Tightening Torques



Component	Nm
M12	80
M12 (if socket SW 18 T10179 is used)	65
M10	40
Bolts 1 to plate A to transmission	40 plus an additional 90° (¼ turn)
Bolts 2	60 plus an additional 90° (¼ turn)
Nuts	8

09G Transmission Automatic Transmission Fluid (ATF) Lines – Tightening Torques

Component	Nm
ATF line bolts	20
ATF line nut	9

09G External Automatic Transmission Fluid (ATF) Cooler – Tightening Torques

Component	Nm
External ATF cooler bracket bolt	8
External ATF cooler nuts	9
External ATF cooler bolts	9
External ATF return line bracket nut	9
Oil filling adapter hole sealing bolt	15

09G Automatic Transmission Fluid (ATF) Lines – Tightening Torques

Component	Nm
ATF return line from the auxiliary cooler	25
ATF supply line to the auxiliary cooler	25
Nut	9

09G Auxiliary Automatic Transmission Fluid (ATF) Cooler – Tightening Torques

Component	Nm
Auxiliary ATF cooler bolts	5
Return line bracket to auxiliary ATF cooler bolt	9
ATF supply line to transmission bolt	5
ATF return line to transmission bolt	9

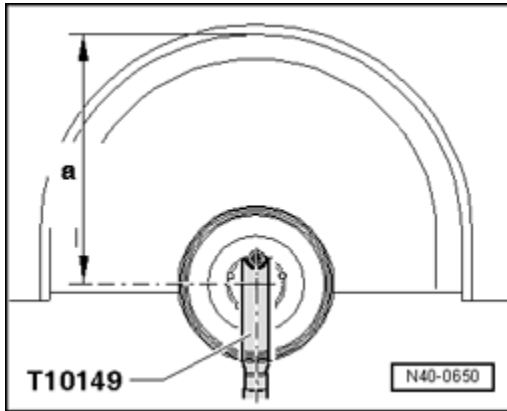
09G Valve Body – Tightening Torques

Component	Nm
Transmission input speed (RPM) sensor G195 bolt	6
Transmission output speed (RPM) sensor G182 bolt	7
Wiring harness with 8-pin connector bolt	6
ATF drain plug	40
Shift lever nut	10
Valve body bolts	8 plus an additional 90° (¼ turn)
Oil filter to valve body bolts	11
Wiring harness with 14-pin connector bolt	6
Overflow tube	2
ATF check plug	27
Oil pan bolts	7

SUSPENSION, WHEELS, BRAKES, STEERING

Front Suspension

Front Axle – Curb Weight Data



Perform tightening of respective bolts/nuts only when dimension $a = 356 \text{ mm}$ is reached between wheel hub center and lower edge of wheel housing.

Subframe – Tightening Torques

Threaded connection	Thread	Nm
To body	M12 x 1.5 x 100	70 plus an additional 90° (¼ turn)
To console	M12 x 1.5 x 75	70 plus an additional 90° (¼ turn)
Console to body	M12 x 1.5 x 90	70 plus an additional 90° (¼ turn)
Left front level control system sensor G78 to console	M6 x 16	9
Shielding plate	M6 self-tapping	6

Control Arm– Tightening Torques

Threaded connection	Thread	Nm
To console	M12 x 1.5 x 110	70 plus an additional 180° (½ turn)
To ball joint	M10	60
Mounting bracket to body	M12 x 1.5 x 90	70 plus an additional 90° (¼ turn)
Mounting bracket to console	M10 x 76	50 plus an additional 90° (¼ turn)
Left front level control system sensor G78	M6	9

Stabilizer Bar – Tightening Torques

Threaded connection	Thread	Nm
To subframe	M8 x 80	20 plus an additional 90° (¼ turn)
To coupling rod	M12	65
Coupling rod to suspension strut	M12	65

Pendulum Support – Tightening Torques

Threaded connection	Thread	Nm
To subframe	M14 x 1.5 x 70	100 plus an additional 90° (¼ turn)
To transmission	M10 x 35	40 plus an additional 90° (¼ turn)
	M10 x 75	40 plus an additional 90° (¼ turn)

Suspension Strut – Tightening Torques

Threaded connection	Thread	Nm
To body	M8 x 26	15 plus an additional 90° (¼ turn)
To wheel bearing housing	M12 x 1.5 x 80	70 plus an additional 90° (¼ turn)
Strut mounting to piston rod	M14 x 1.5	60

Drive Axle – Tightening Torques

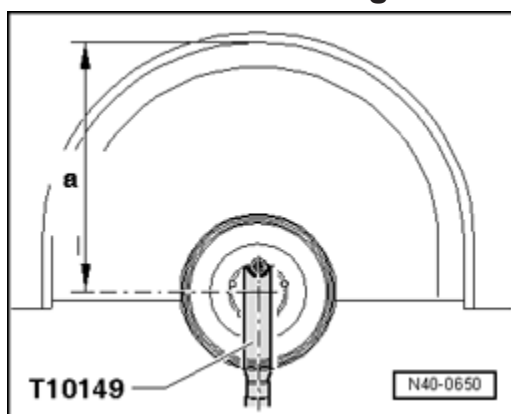
Threaded connection	Thread	Nm
To wheel hub with wheel bearing	M16 x 1.5 x 80	200 plus an additional 180° (½ turn)
To transmission flange, first to 10 Nm, then in diagonal sequence to	M8 x 48 M10 x 52 M10 x 23	40 70 70
Intermediate shaft to mounting bracket	M8 x 25	20
Mounting bracket to cylinder block	M8 x 25	First tighten to 5 then 35

Wheel Bearing Housing – Tightening Torques

Threaded connection	Thread	Nm
Wheel hub with wheel bearing to	M12 x 1.5 x 45	70 plus an additional 90° (¼ turn)
Ball joint to	M12 x 1.5	60
Shielding plate to	M6 x 10	10
Front speed sensor to	M6 x 16	8
Tie rod end to	M12 x 1.5	20 plus an additional 90° (¼ turn)

Rear Suspension – Front Wheel Drive

Rear Axle – Curb Weight Data



Perform tightening of respective bolts/nuts only when dimension a = 354 mm is reached between wheel hub center and lower edge of wheel housing.

Subframe – Tightening Torques

Threaded connection	Thread	Nm
To lower transverse link	M12 x 1.5	95
To upper transverse link	M12 x 1.5	95
To body	M12 x 1.5 x 90	90 plus an additional 90° (¼ turn)
To tie rod	M12 x 1.5 x 90	90 plus an additional 90° (¼ turn)

Left Rear Level Control System Sensor G76 – Tightening Torques

Threaded connection	Thread	Nm
To subframe	M5 x 20	5
To lower transverse link	M5 x 20	5

Wheel Bearing Housing – Tightening Torques

Threaded connection	Thread	Nm
To lower transverse link	M12 x 1.5 x 75	90 plus an additional 90° (¼ turn)
To upper transverse link	M14 x 1.5 x 95	130 plus an additional 90° (¼ turn)
To tie rod	M14 x 1.5 x 95	130 plus an additional 90° (¼ turn)
To wheel hub with wheel bearing	M16 x 1.5 x 70	180 plus an additional 180° (½ turn)
To speed sensor	M6 x 16	8
To shielding plate	M6 x 12	12

Trailing Link – Tightening Torques

Threaded connection	Thread	Nm
To wheel bearing housing	M12 x 25	90 plus an additional 90° (¼ turn)
To mounting bracket	M12 x 1.5 x 80	90 plus an additional 90° (¼ turn)
Mounting bracket to body	M10 x 35	50 plus an additional 45° (⅛)

Lower Transverse Link – Tightening Torques

Threaded connection	Thread	Nm
Stone impact protection on transverse link	M6 x 12	8

Shock Absorbers – Tightening Torques

Threaded connection	Thread	Nm
To wheel bearing housing	M14 x 1.5 x 70	180
To shock absorber mount	M10 x 1.0	25
To body	M10 x 35	50 plus an additional 45° ($\frac{1}{8}$)

Stabilizer Bar – Tightening Torques

Threaded connection	Thread	Nm
To subframe	M8 x 35	25 plus an additional 45° ($\frac{1}{8}$)
To coupling rod	M10	45
Coupling rod to wheel bearing housing	M10	40

Wheels, Tires, Wheel Alignment

Wheel Bolts – Tightening Torques

Component	Nm
Wheel bolts to wheel hub for all vehicles	120

Tire Pressure Sensor – Tightening Torques

Component	Nm
Union nut to tire pressure sensor	8

Wheel Alignment Data

Front axle	Basic suspension	Sport suspension	Sport suspension GLI
PR Numbers	2UA	2UC	G10
Overall toe (wheels not pressed)	$10^{\circ} \pm 10'$	$10^{\circ} \pm 10'$	$10^{\circ} \pm 10'$
Camber (in straight-ahead position)	$-30' \pm 30'$	$-41' \pm 30'$	$-41' \pm 30'$
Maximum permissible difference between sides	max. 30'	max. 30'	max. 30'
Toe angle difference with steering wheel turned 20° to left and right	$1^{\circ}38' \pm 20'$	$1^{\circ}40' \pm 20'$	$1^{\circ}40' \pm 20'$
Caster	$7^{\circ} 34' \pm 30'$	$7^{\circ} 47' \pm 30'$	$7^{\circ} 47' \pm 30'$
Maximum permissible difference between sides	max. 30'	max. 30'	max. 30'
Standing height	382.5 ± 10 mm	382.5 ± 10 mm	382.5 ± 10 mm

Rear axle	Basic suspension	Sport suspension	Sport suspension GLI
PR Numbers	1JA	1JC	1JF
Camber	$-1^{\circ} 20' \pm 30'$	$-1^{\circ} 20' \pm 30'$	$-1^{\circ} 20' \pm 30'$
Maximum permissible difference between sides	max. 30'	max. 30'	max. 30'
Total toe (at prescribed camber)	$+10' \pm 12.5'$	$+10' \pm 12.5'$	$+10' \pm 12.5'$
Maximum permissible deviation from the direction of rotation	max. 20'	max. 20'	max. 20'
Standing height	379.5 ± 10 mm	379.5 ± 10 mm	379.5 ± 10 mm

Light Alloy Wheels with Metal Valve – Tightening Torques

Component	Nm
Metal valve hex nut	4
Decoration element self-locking hex socket bolts	5

Brake System

Front Brakes – Technical Data

Engine version	PR No.	Front brakes
2.5L - 110 kW	1ZP	FN3 (15")
2.0L - 147 kW T-FSI	1ZD	FN3 (16")

Rear Brakes Front Wheel Drive – Technical Data

Engine version	PR No.	Rear brakes
2.5L - 110 kW	1KE	CII 41 (15")
2.0L - 147 kW T-FSI	1KJ	CII 41 (16")
2.0L - 147 kW T-FSI Jetta GLI only	1KY	CII 38 (16")

Brake Master Cylinder and Brake Booster – Technical Data

Brake master cylinder	diameter in mm	22
Brake booster (left-hand drive)	diameter in inches	11

Front Wheel Brakes – Front Brake FN3 – Technical Data

Item	PR. No.		1ZE/1ZP
1	Brake caliper		FN3 (15")
2	Brake pad, thickness	mm	14
3	Brake disc	diameter in mm	288
	Brake disc, thickness	mm	25
4	Brake caliper, piston	diameter in mm	54

Item	PR. No.		1LL/1ZD
1	Brake caliper		FN3 (16")
2	Brake pad, thickness	mm	14
3	Brake disc	diameter in mm	312
	Brake disc, thickness	mm	25
4	Brake caliper, piston	diameter in mm	54

Rear Brakes (Disc Brakes) – Rear Brake CII 38 – Technical Data

Item	PR. No.		1KY
1	Brake caliper		CII 38 (16")
2	Brake pad, thickness	mm	11
3	Brake disc	diameter in mm	286
	Brake disc, thickness	mm	12
4	Brake caliper, piston	diameter in mm	38

Rear Brakes (Disc Brakes) – Rear Brake CII 41 – Technical Data

Item	PR. No.		1KF/1KE
1	Brake caliper		CII 41 (15")
2	Brake pad, thickness	mm	11
3	Brake disc	diameter in mm	260
	Brake disc, thickness	mm	12
4	Brake caliper, piston	diameter in mm	41

Item	PR. No.		1KJ
1	Brake caliper		CII 41 (16")
2	Brake pad, thickness	mm	11
3	Brake disc	diameter in mm	286
	Brake disc, thickness	mm	12
4	Brake caliper, piston	diameter in mm	41

Hydraulic Unit, Brake Booster/Brake Master Cylinder – ABS Mark 70 (ABS/ASR) and 60 (ABS/EDL/ASR/ESP) – Tightening Torques

Component	Nm
ABS control module J104 inner Torx® bolts	5.5
ABS hydraulic unit N55 bracket hex bolts	8
Dual brake master cylinder hex nuts (always replace)	25
Thread M10 x 1	14
Thread M12 x 1	14

Anti-lock Brake (ABS) Components on Front and Rear Axles – Tightening Torques

Component	Nm
ABS wheel speed sensor hex socket head bolt	8

ESP Sensor Unit G419 – Tightening Torques

Component	Nm
Securing nuts	9

Front Wheel Brakes – Brake Caliper FN3 – Tightening Torques

Component	Nm
Cover plate hex head Torx® bolts (Hex head bolt M6x10 changed from Torx® bolt M6x12) ¹⁾	12
Brake disc Phillips/Torx® bolts	4
Brake caliper guide pins	30
ABS wheel speed sensor hex socket head bolt	8
Guide pin to brake carrier	30
Brake line to brake caliper	35
Wheel bearing housing with fastened brake carrier ribbed bolt (FN3)	190
Brake hose bracket bolt	15
Brake line to brake hose	14

¹⁾ Replace hex head bolt with hex head bolt and Torx® bolt with Torx® bolt

Rear Brakes (Disc Brakes) – Rear Brake CII 38 – Tightening Torques

Component	Nm
ABS wheel speed sensor hex socket head bolt	8
Wheel bearing housing multipoint socket head bolts	90 plus an additional 90° (¼ turn)
Cover plate hex head bolts (Hex head bolt M6x10 changed from Torx® bolt M6x12) (CII 41) ¹⁾	9
Cover plate Torx® bolts (Hex head bolt M6x10 changed from Torx® bolt M6x12) ¹⁾	12
Brake disc Phillips head bolt	4
Brake line to brake hose	14
Brake caliper self-locking hex bolts (always replace)	35
Brake line to brake caliper	14

¹⁾ Replace hex head bolt with hex head bolt and Torx® bolt with Torx® bolt

Parking Brake Lever – Tightening Torques

Component	Nm
Parking brake lever hex nuts	15

Brake Pedal – Tightening Torques

Component	Nm
Mounting bracket self-locking hex nuts	25
Brake pedal self-locking hex nut	25

Hydraulic Components – Front Brake Caliper FN3 – Tightening Torques

Component	Nm
Brake caliper bleed valve	10
Brake caliper bleed valve	12
Brake caliper guide pins	30

Hydraulic Components – Rear Brake Caliper CII 38/CII 41 - Tightening Torques

Component	Nm
Brake caliper bleed valve	10
Brake caliper with parking brake cable lever self-locking hex bolts	35

Hydraulic Unit, Brake Booster/Brake Master Cylinder – Tightening Torques

Component	Nm
Pedal assembly self-locking hex nuts	25
Brake light switch F (includes brake pedal switch F47) inner Torx® bolt	5
Heat shield self-locking hex nuts (always replace)	25
Master brake cylinder/secondary piston circuit to hydraulic unit brake line	14
Master brake cylinder/primary piston circuit to hydraulic control unit brake line	14
Brake system vacuum pump V192 to bracket	8
Bracket to automatic transmission	25
Torx® bolt to brake master cylinder	5
Master brake cylinder at brake booster (always replace)	25
Brake lines to main brake cylinder	14
Brake booster to foot pedal assembly/cross panel (always replace)	25

Steering

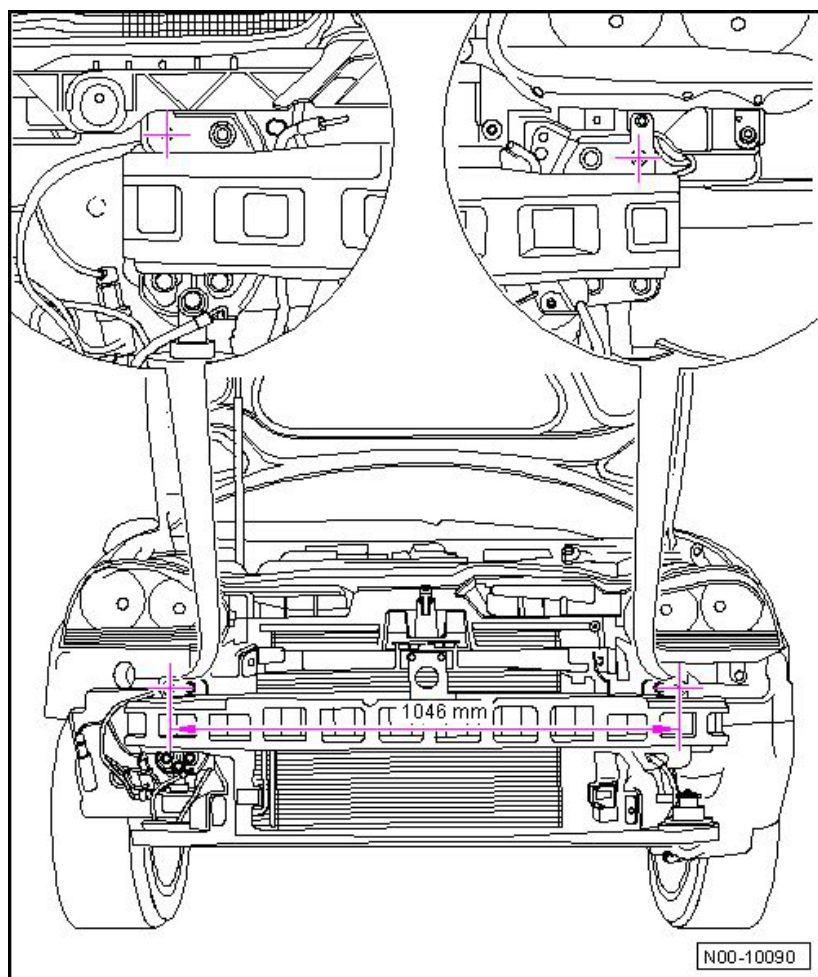
Steering Column – Tightening Torques

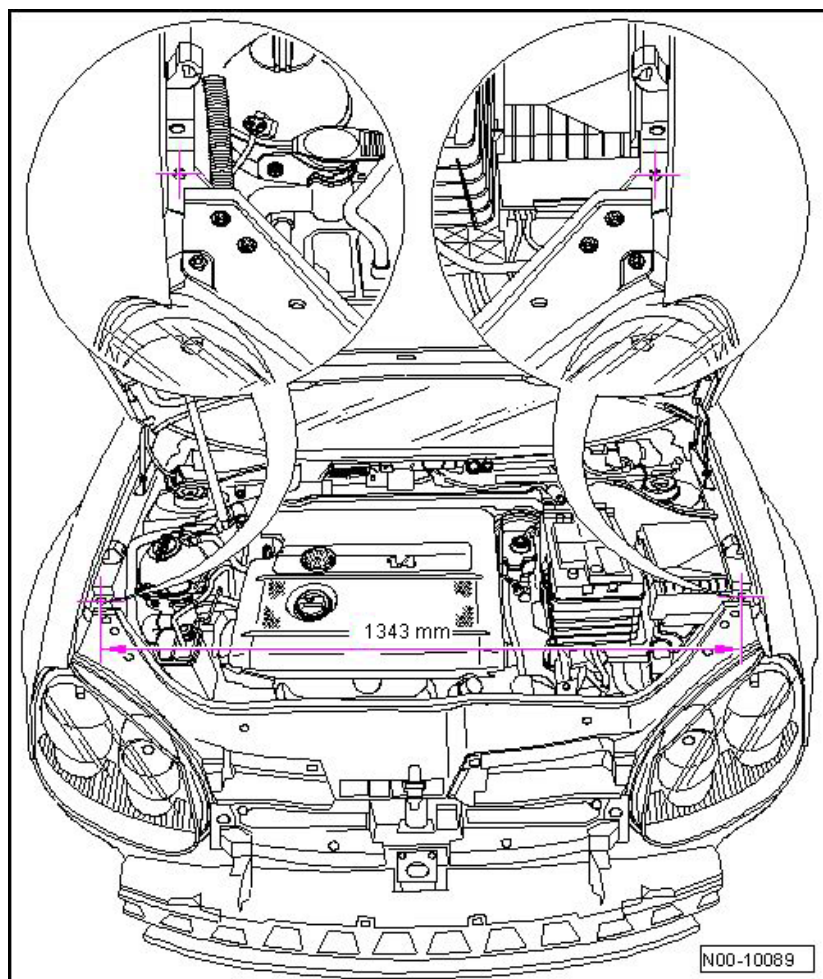
Threaded connection	Thread	Nm
To mounting bracket	M8 x 30	20
Mounting bracket to body	M8 x 30	20
Strut to mounting bracket	M8 x 94	20
Strut to body	M8 x 48	25
Universal joint to steering gear	M8 x 32	20 plus an additional 90° (¼ turn)
Handle	M6 x 10	3
Steering wheel	M18 x 1.5 x 18	50

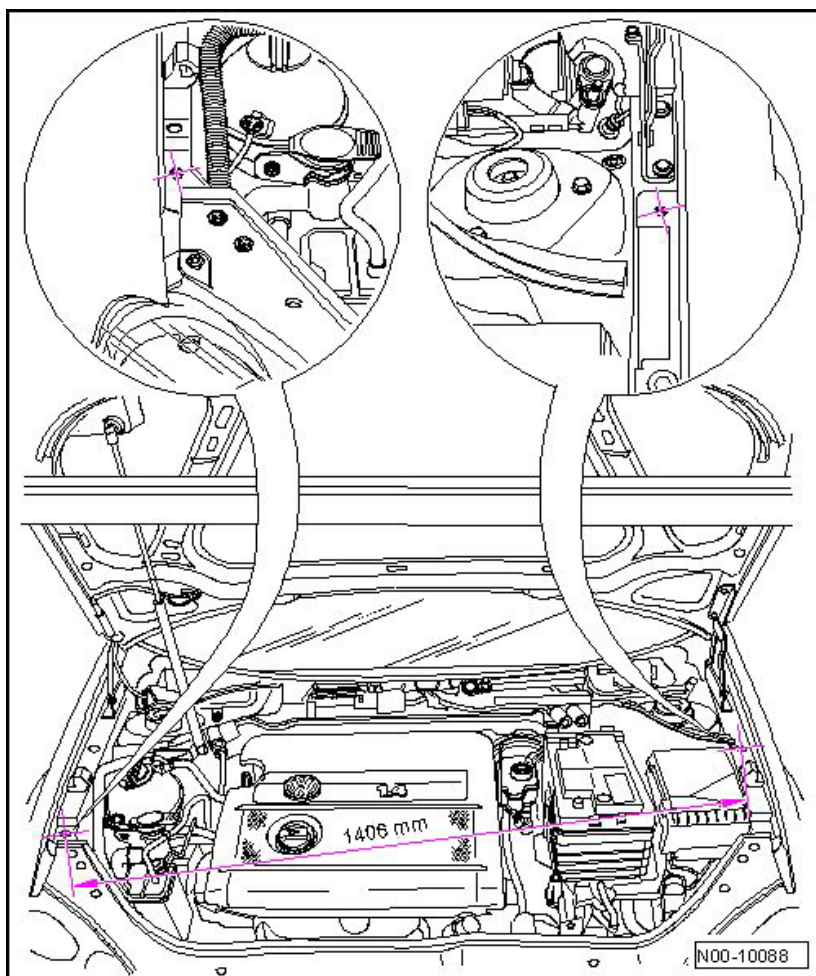
BODY

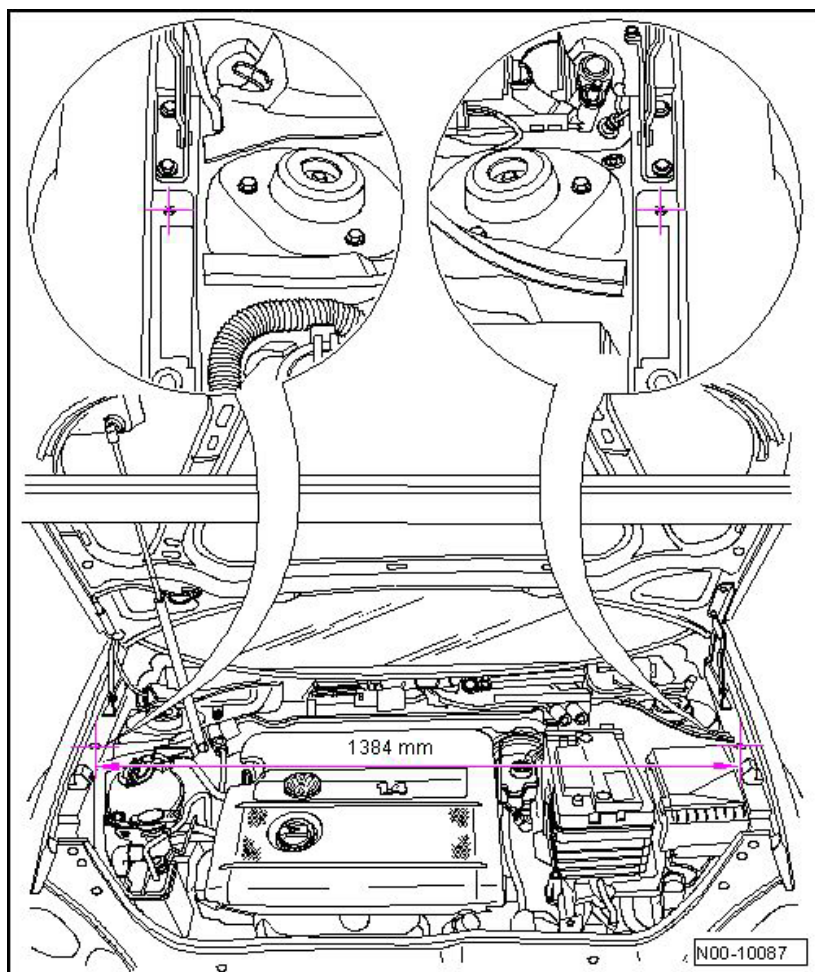
Body Dimensions

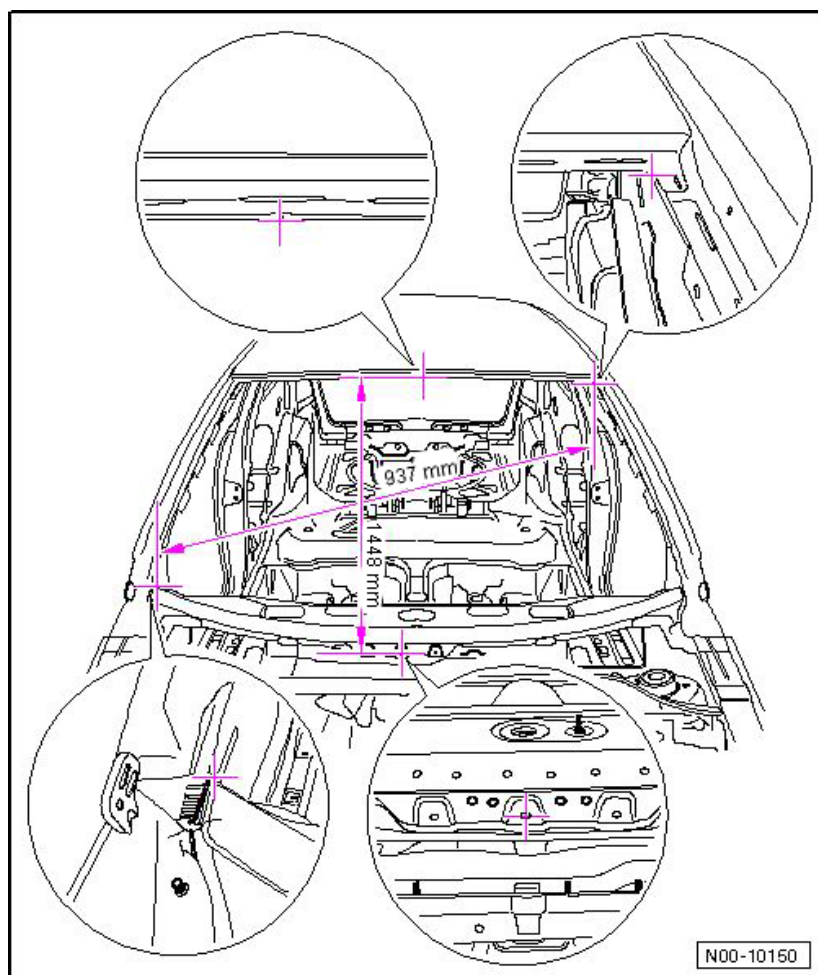
Front Dimensions



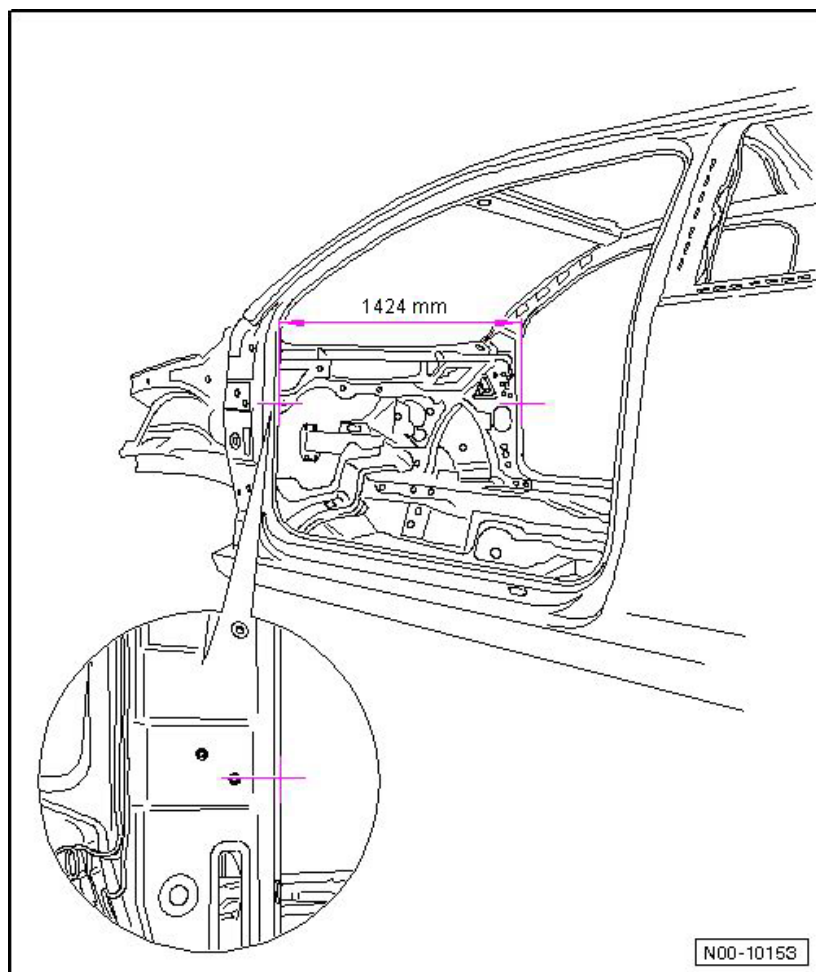




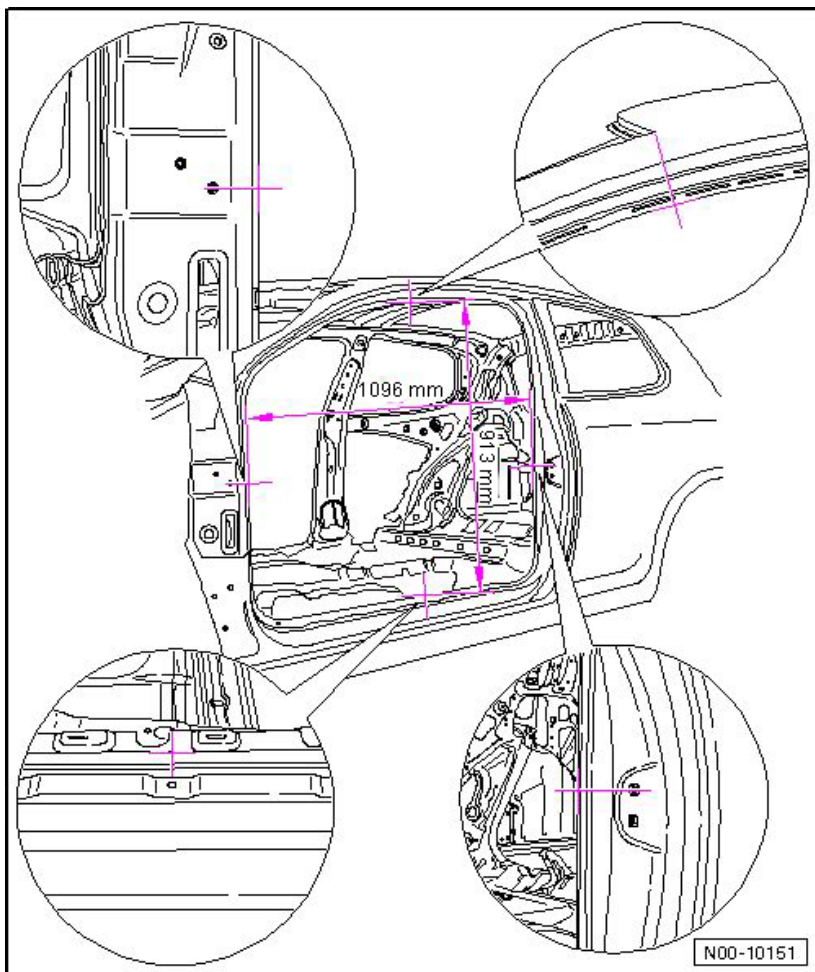




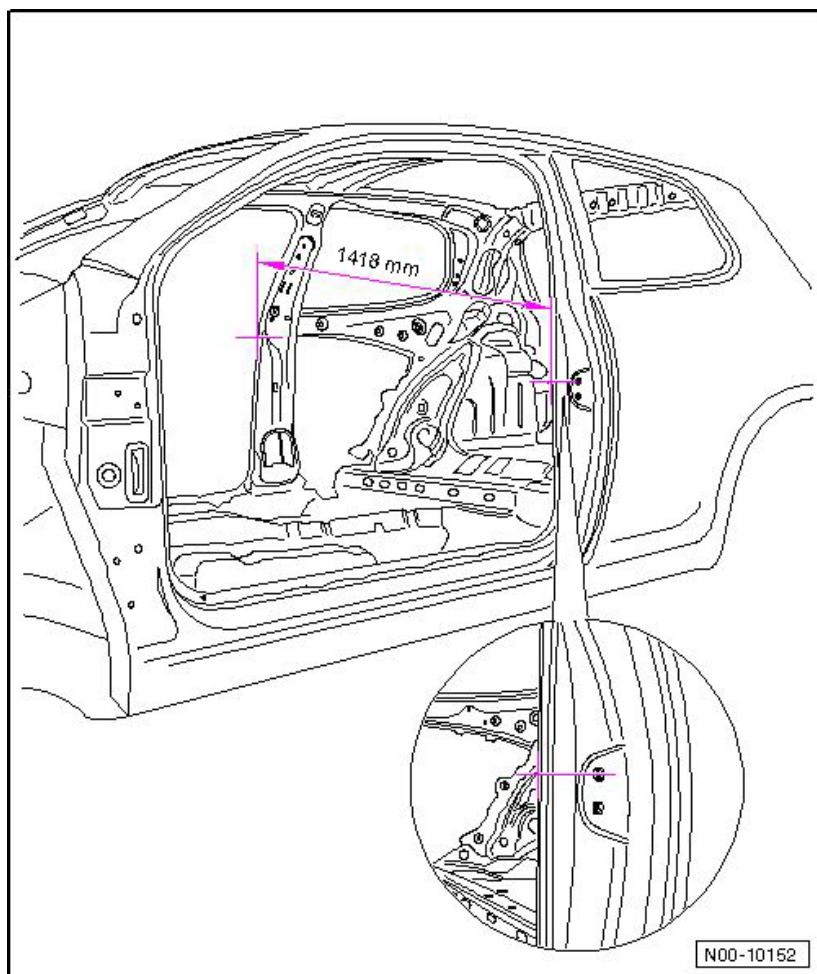
Center Dimensions



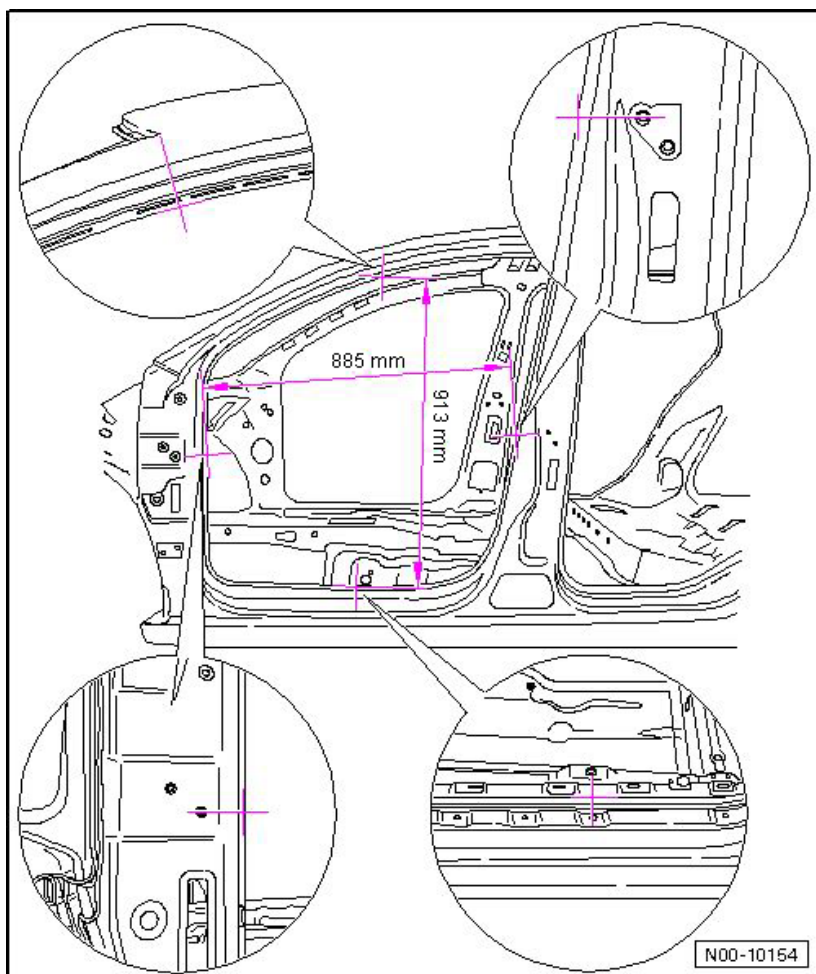
2-door dimension between A-pillars
This dimension is the same in 2 and 4 door vehicles



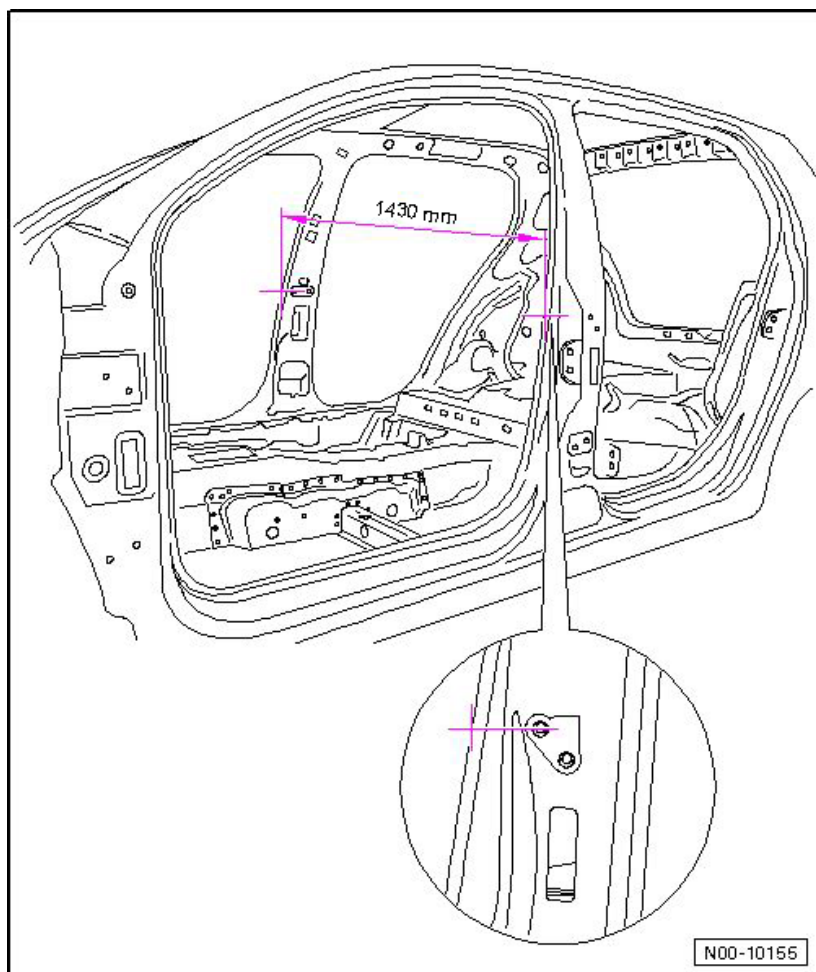
2-door vehicle door cut out



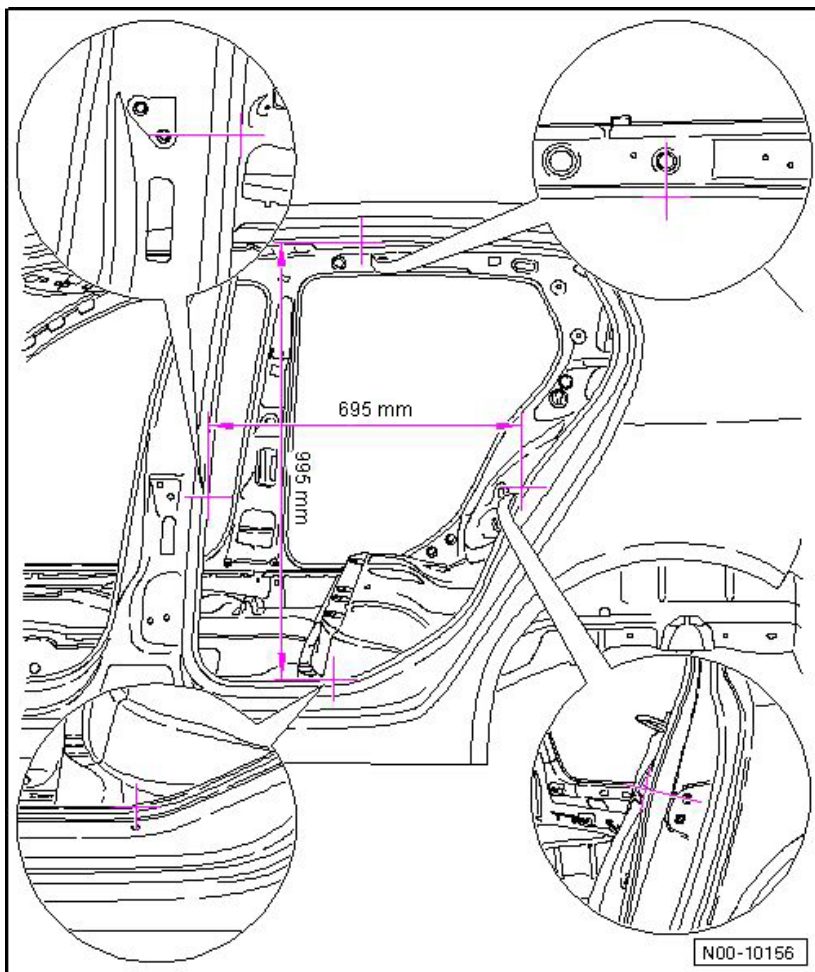
Dimension between B-pillars



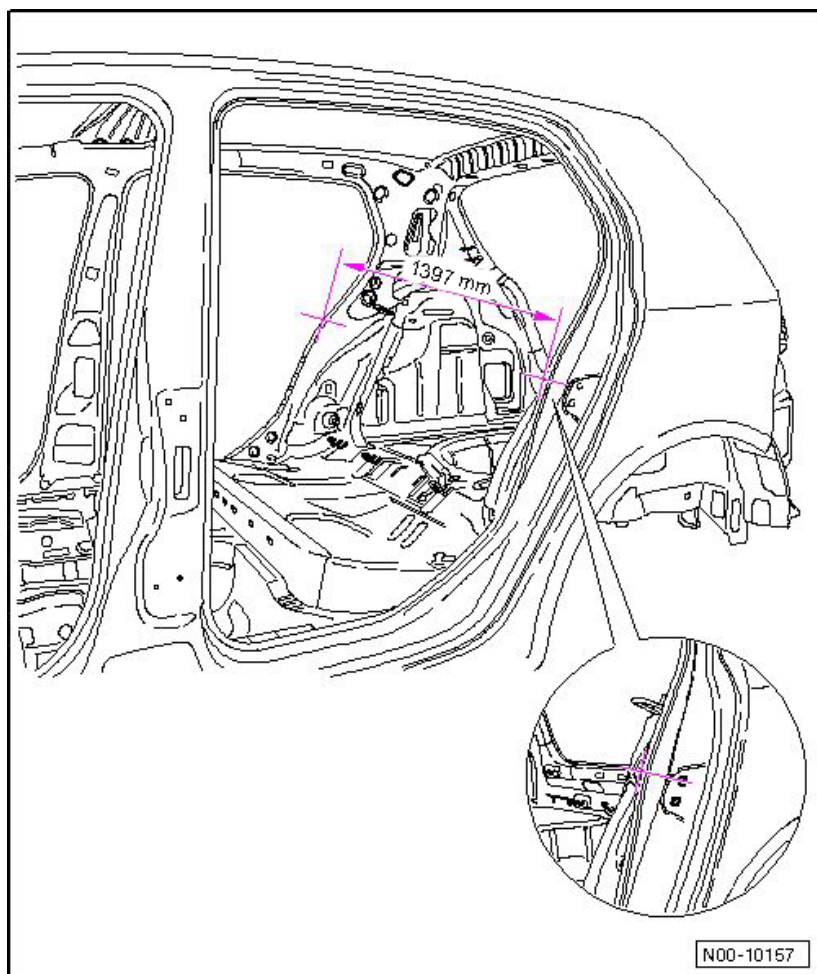
4-door vehicle dimension between A-pillars front door cut out



4-door vehicle dimension between B-pillars

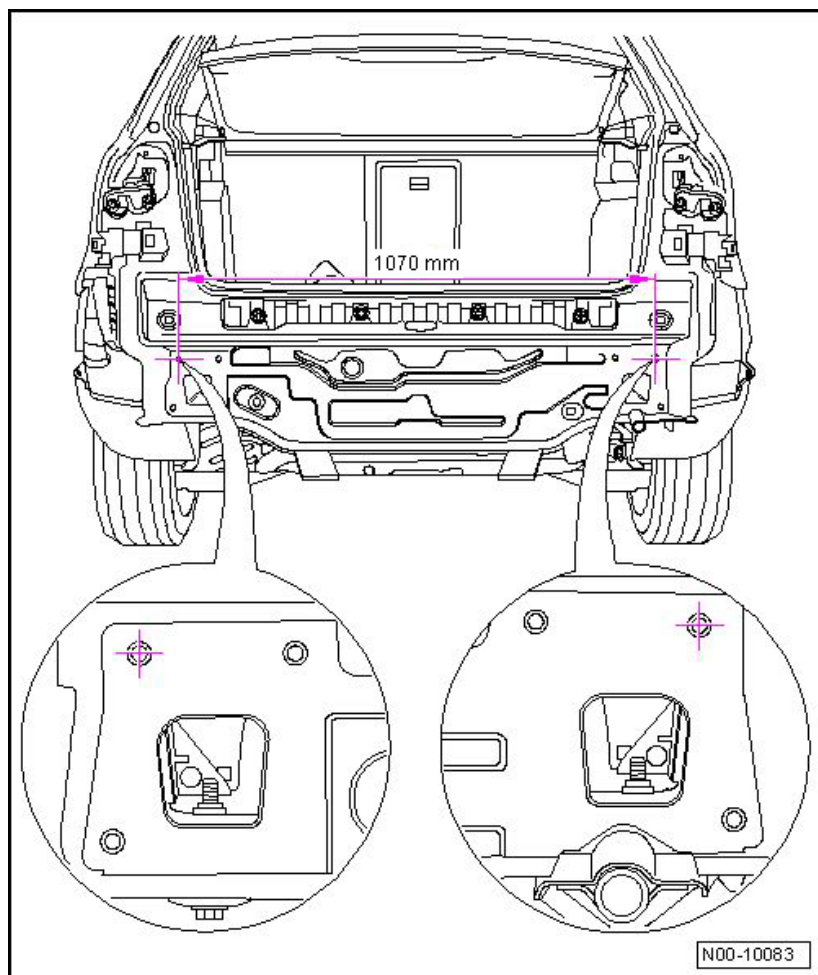


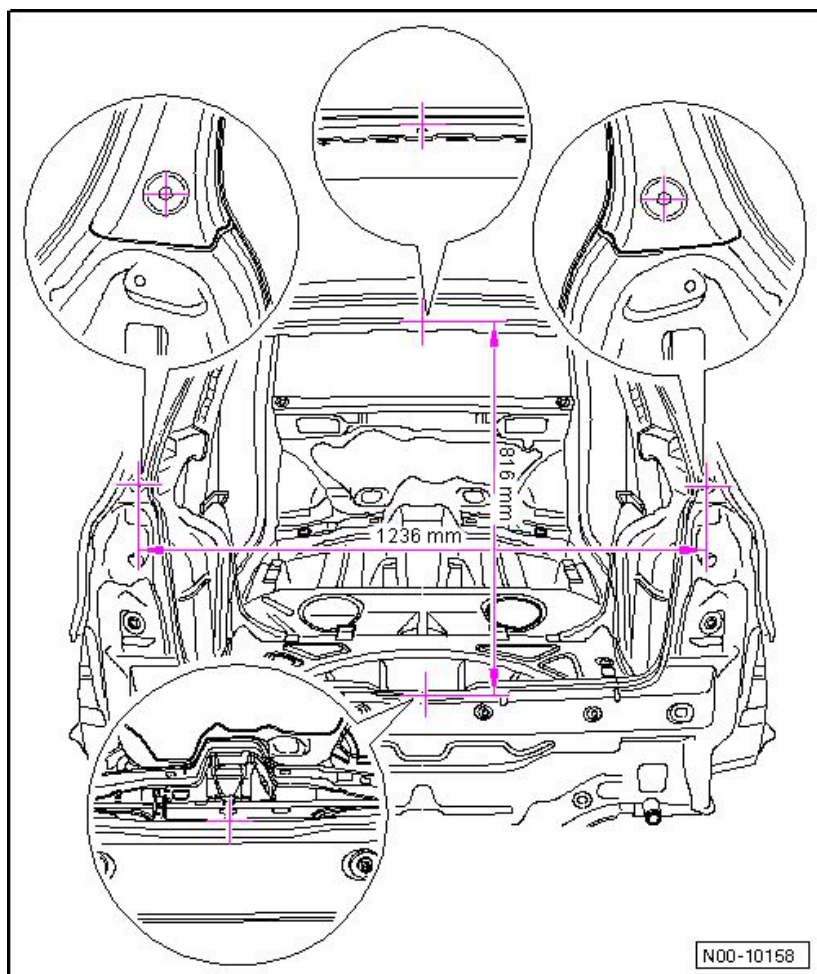
4-door vehicle rear door cutout



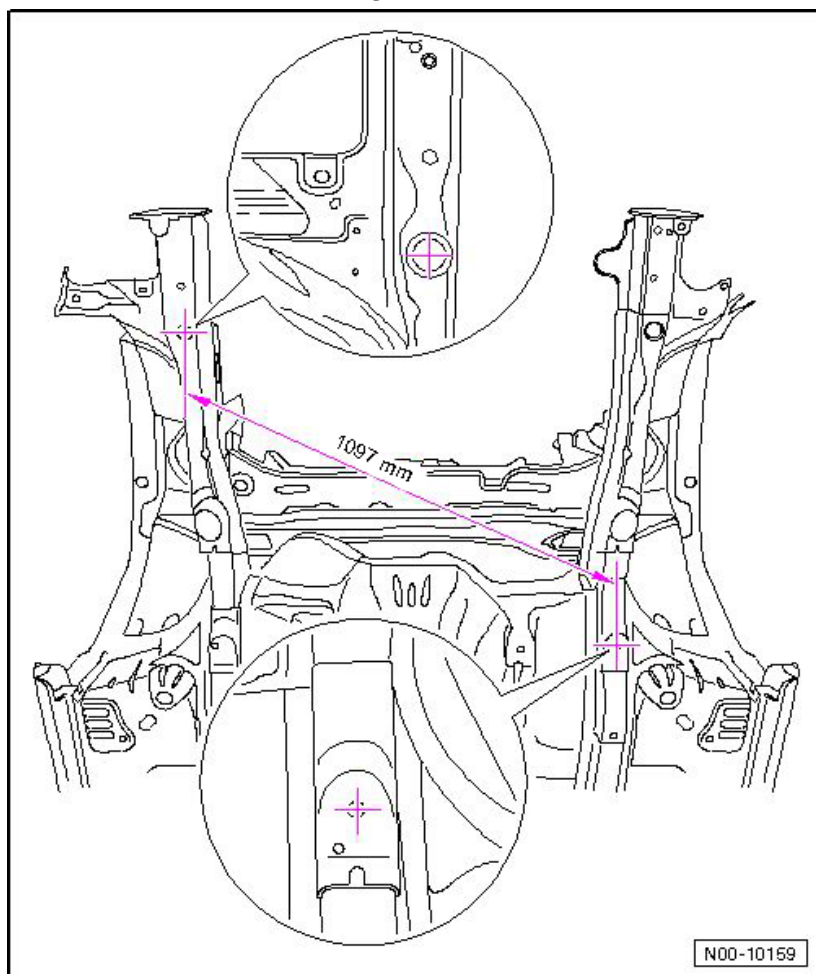
4-door vehicle dimension between C-pillars

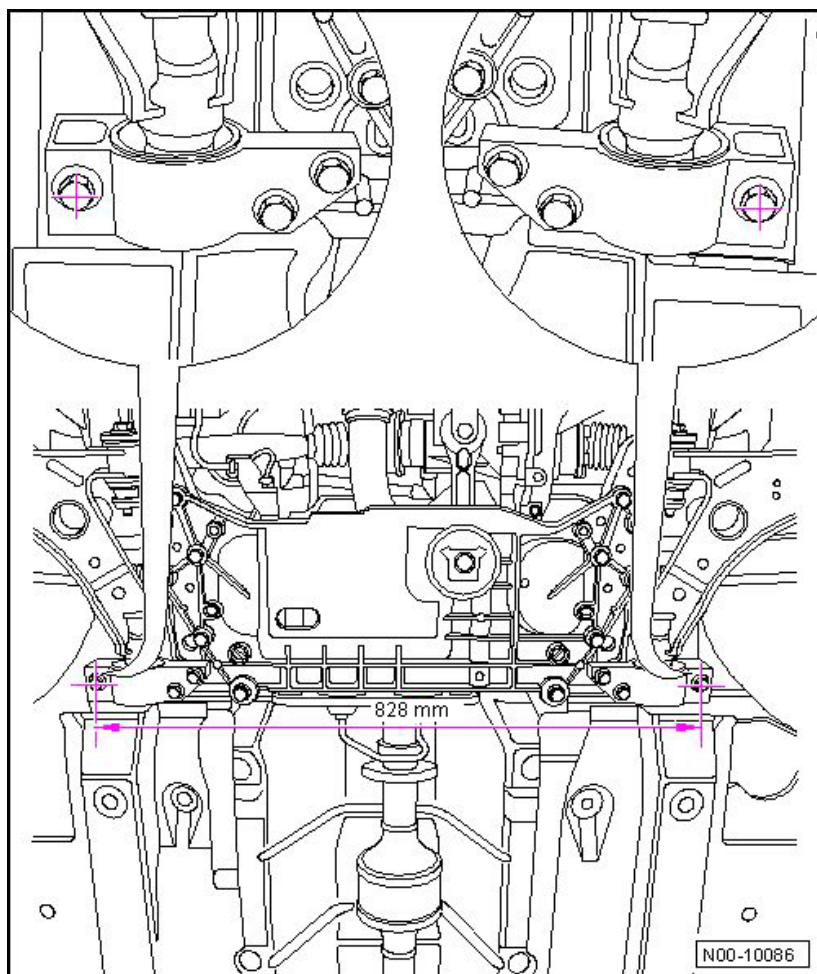
Rear Dimensions



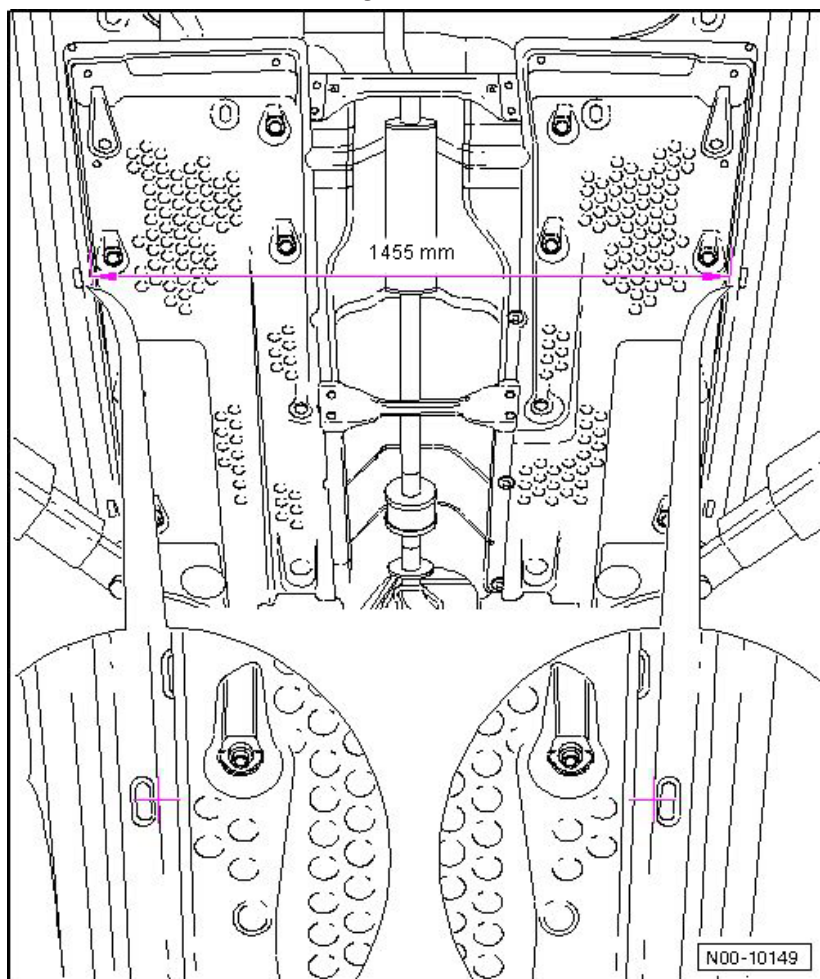


Floor Assembly Front Dimensions



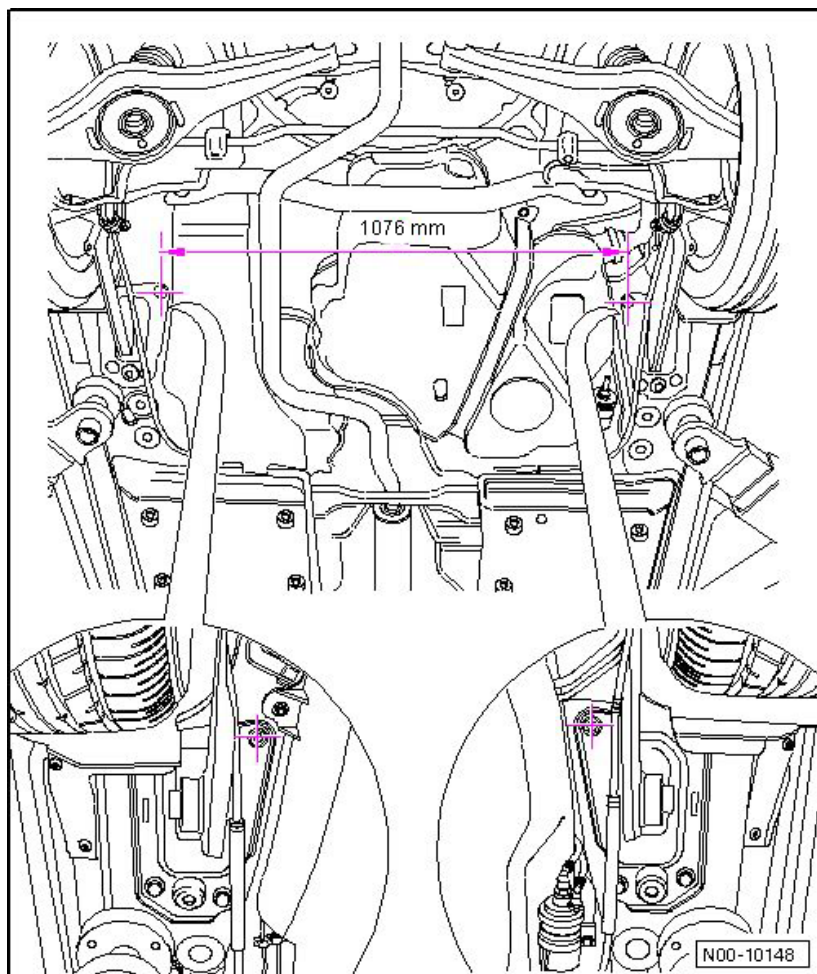


Floor Assembly Center Dimensions



This dimension is measured on inside of sill panel flange

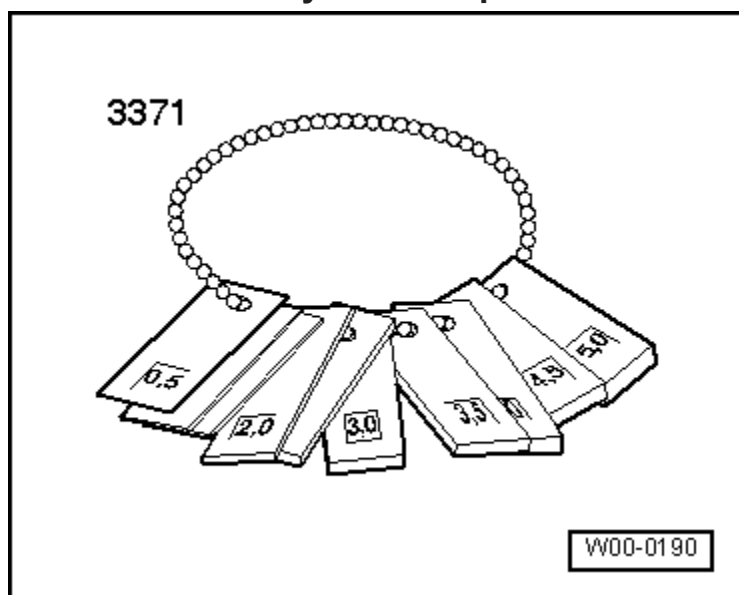
Floor Assembly Rear Dimensions

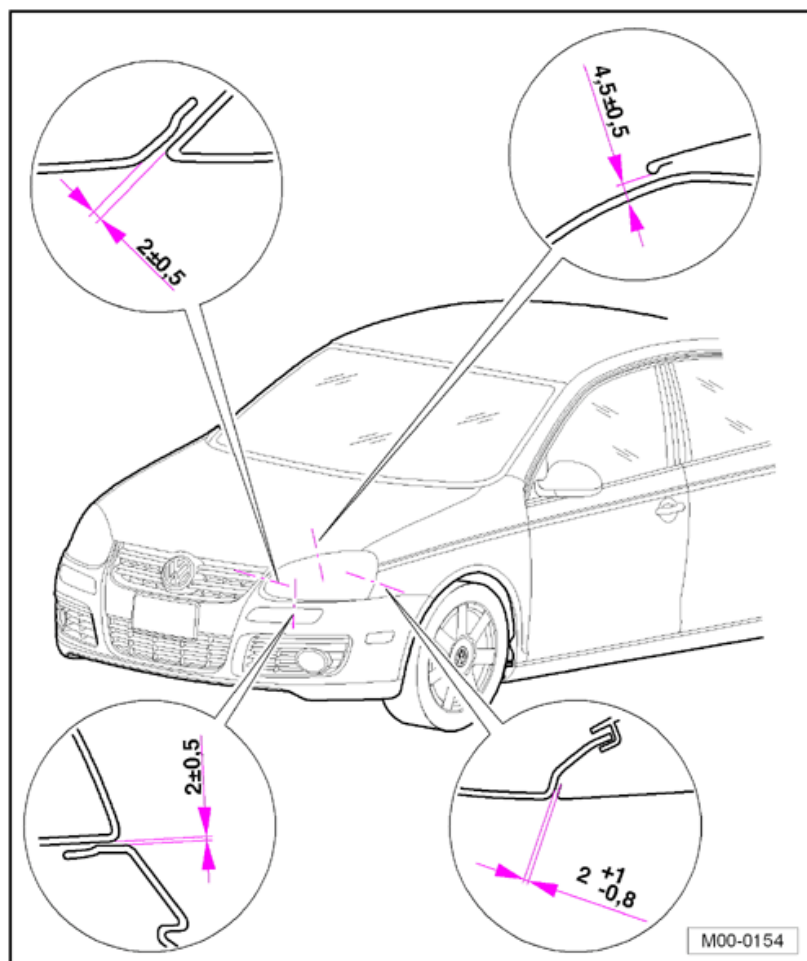


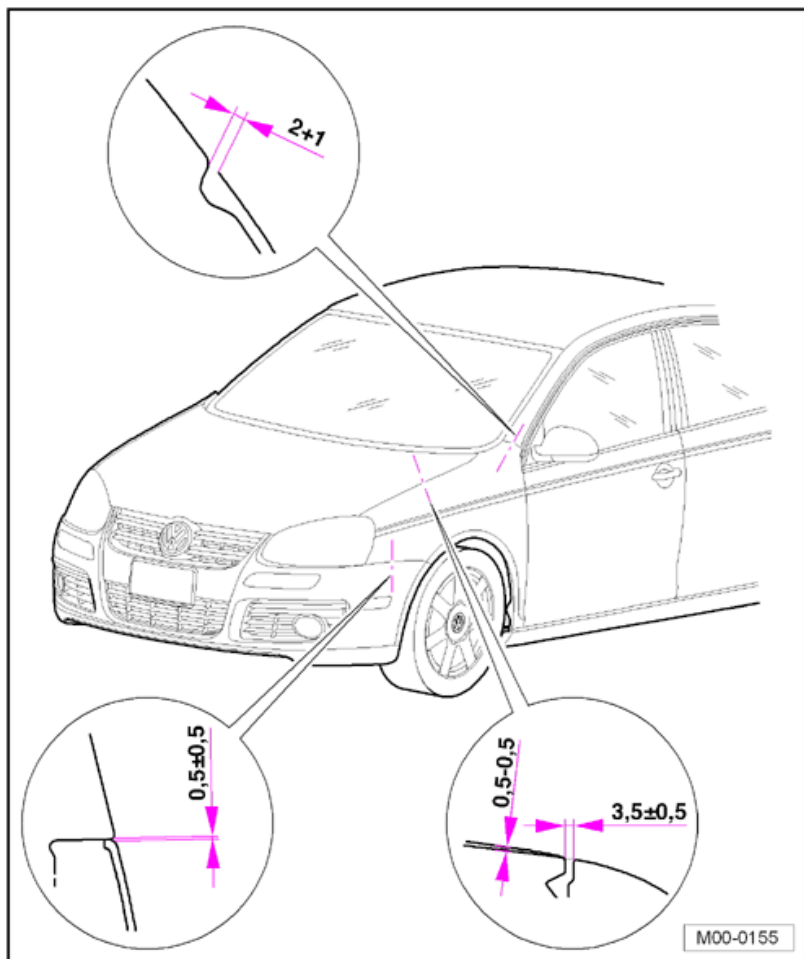
Body

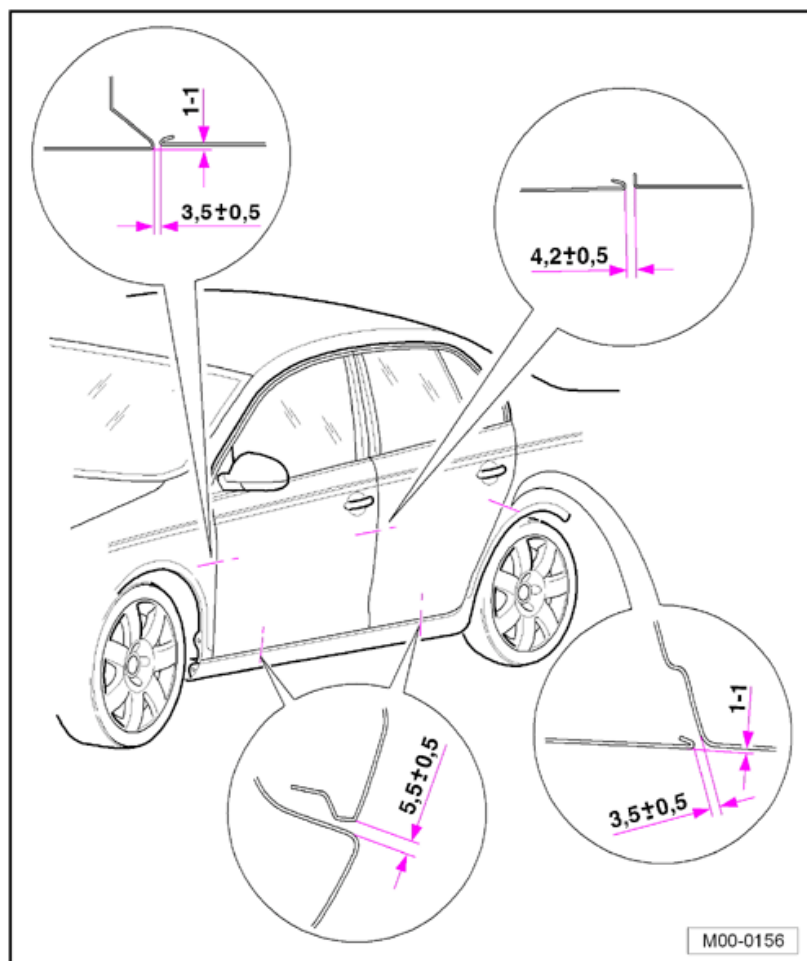
Body Panel Gaps

Body Panel Gaps

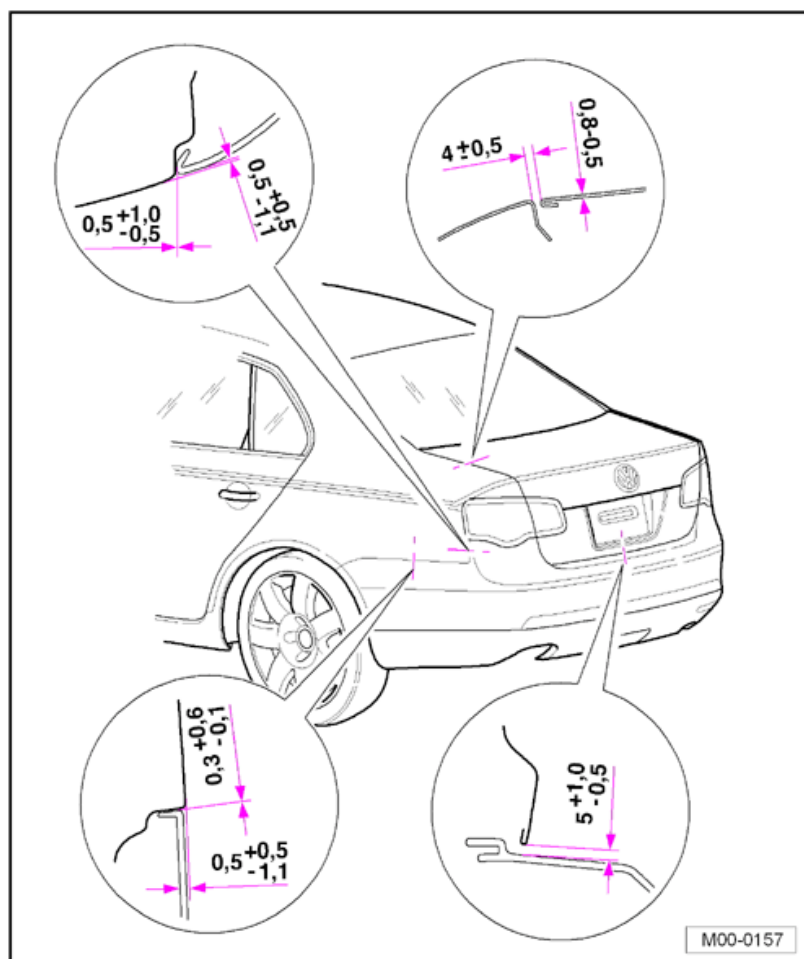


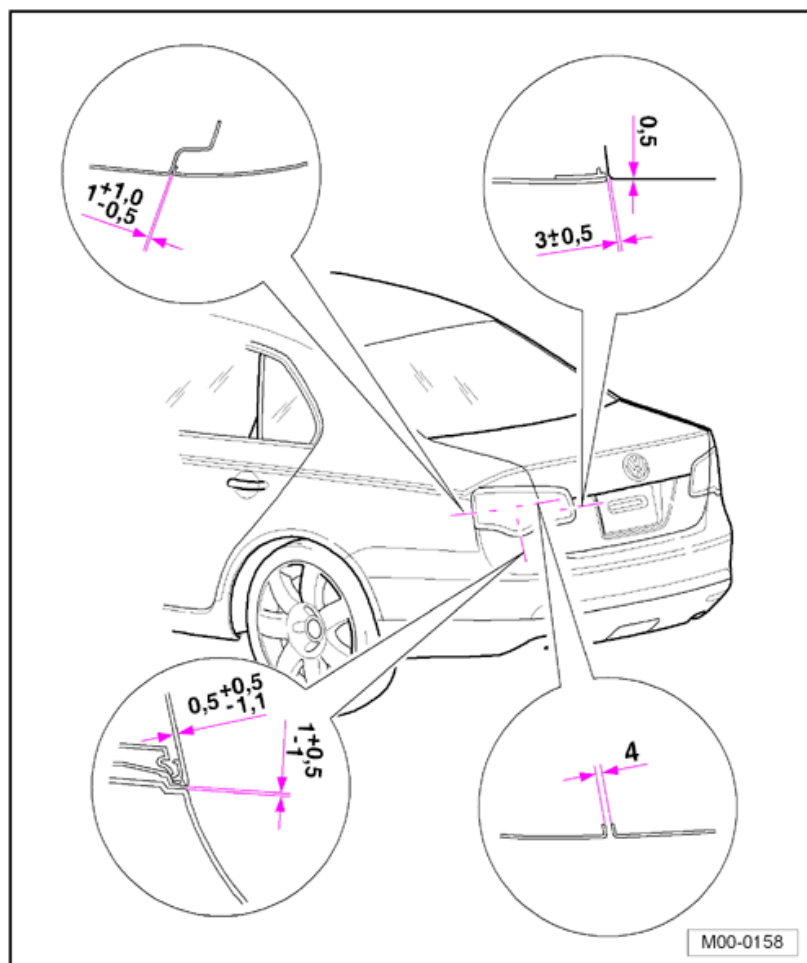


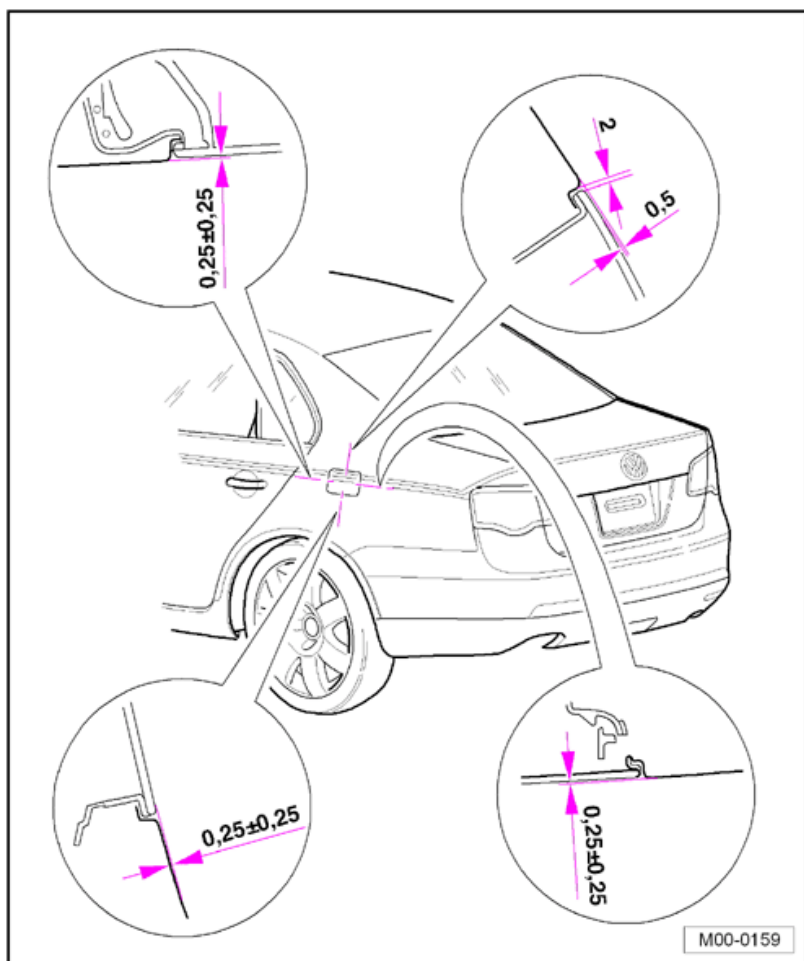




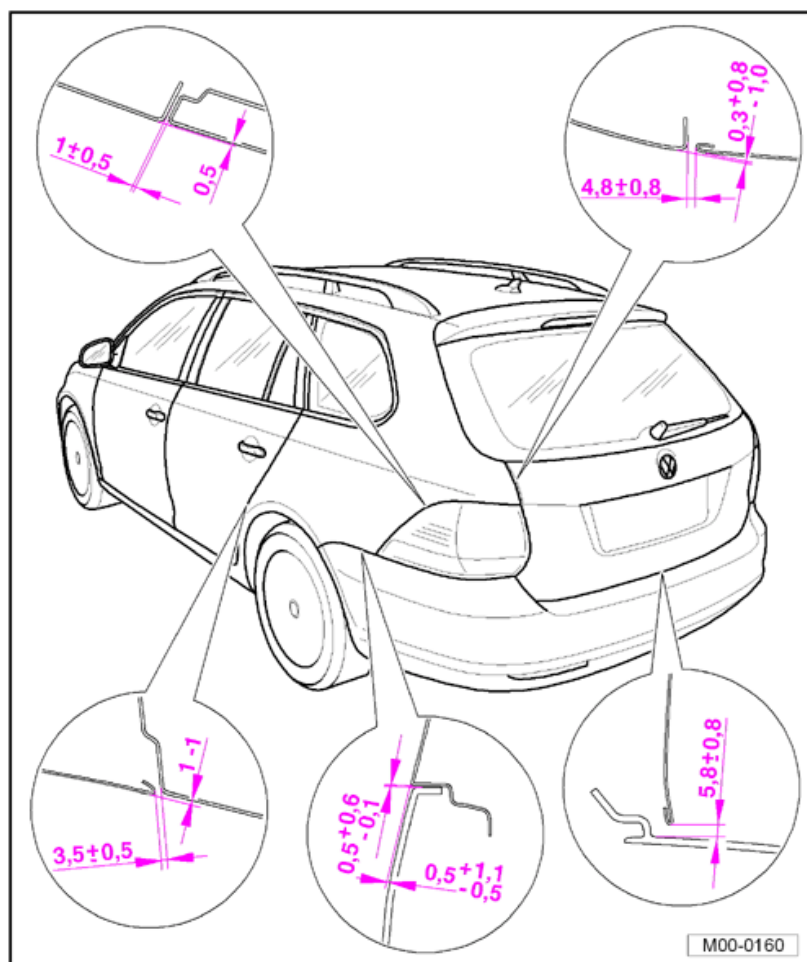
Sedan, Rear







Wagon, Rear



Body

Body Exterior

Lock Carrier Service Position – Tightening Torques

Component	Nm
Lock carrier bolts, upper	8
Lock carrier bolts, lower	60

Front Fender – Tightening Torques

Component	Nm
Front fender bolts	6
Fender connecting piece hex nut	6

Noise Insulation Panel – Tightening Torques

Component	Nm
Noise insulation panel side bolts	2
Noise insulation panel end bolts	3

Underbody Trim – Tightening Torques

Component	Nm
Underbody cover hex nuts	1.5
Rear underbody bolts	2

Plenum Chamber Bulkhead – Tightening Torques

Component	Nm
Plenum chamber hex nut	8
Plenum chamber bolt	8

Front Hood – Tightening Torques

Component	Nm
Hood hex nut	22
Gas filled strut ball studs	22
Hood hinge bolts	22
Hood catch bolts	10
Release lever bracket bolts	1.5
Hood lock bolts	12

Rear Lid – Tightening Torques

Component	Nm
Rear lid bolts	10
Gas filled strut ball studs	21
Rear lid hinge hex head nut	24
Rear lid latch bracket bolts	23
Rear lid handle unlock switch E234 bolts	4
Rear lid lock bolts	23

Tank Flap Unit – Tightening Torques

Component	Nm
Tank lid unit bolt	1.5
Mounting bolt for actuator	1.5

Front and Rear Door – Tightening Torques

Component	Nm
Outer door plate bolts (bolt has point and thinner washer)	10
Inner door part bolts (bolt without point but with thick washer)	14
Inner door part bolts (bolt with point and thick washer)	10
Door hinge with door arrester guide bolt	10
Door hinge with door arrester socket head bolt	20 plus an additional 90° (¼ turn)
Door lock to inner door part bolt	18
Side impact protection bolts	20
Side impact protection nuts	20

Sunroof – Tightening Torques

Component	Nm
Spring glider bolts (always replace)	1.8
Electrical drive motor bolts	3.5
Slotted guide rail Torx® bolts	5
Installation unit bolts	8

Front Bumper – Tightening Torques

Component	Nm
Bumper cover bolts (1 per side)	1.5
Bumper cover bolts (4 per side)	2
Bumper cover bolts (2 in front)	5
Bumper cover bolts (6 in front)	1.5
Bumper cover bolts (2 on top)	5
Vent grille bolt	1.5
Left guide piece bolts	2
Crossmember bolts	8
Right guide piece bolts	2
Guide trim bolts	2
Bumper carrier bolts (4 per side)	60
Bumper carrier bolts (6 across top)	8
Lower part of spoiler bolts	1.5

Rear Bumper – Tightening Torques

Component	Nm
Rear bumper cover bolts (1 per side)	2
Rear bumper cover bolts (4 in front)	5
Rear bumper cover bolts (3 per back side)	2
Rear bumper cover bolts (4 on top)	5
Securing strip hex nuts	2
Guide trim hex nuts	2
Crossmember bolts	20
Tow hitch bolts top	20
Tow hitch bolts side (always replace)	50 plus an additional 90° (¼ turn)

Front and Rear Door Window – Tightening Torques

Component	Nm
Window regulator bolts	8
Window regulator motor bolts	3.5
Window guide trim bolts	2

Front Wheel Housing Liner – Tightening Torques

Component	Nm
Wheel housing liner bolts	2

Rear View Mirror – Tightening Torques

Component	Nm
Mirror base plate bolts	8
Assembly component bolts	1

Radiator Grille – Tightening Torques

Component	Nm
Radiator grille bolts	2

Strips and Trim – Tightening Torques

Component	Nm
Sill panel extension bolts	2
Retaining strip to sill panel bolts	1.2

Body Interior

Storage Compartment – Tightening Torques

Component	Nm
Front center console bolts	1.5
Center console mounting bracket bolts	8
Storage compartment/ashtray unit bolts	1.5
Instrument panel center vent bolts	1.5
Center instrument panel trim bolts	1.5
Steering column trim bolts	1.5
Driver side trim bolts	1.5
Sun visor bolts	2
Glove compartment bolts	1.5
Driver side footwell cover bolts	1.5
Roof grab handle bolts	2

Passenger Protection – Tightening Torques

Component	Nm
Front seat belt bolt	20
Front seat belt to window anchor rail bolt	40
Belt guide bolts	4.5
Belt guide ring bolt	40
Belt anchor bolt	40
Front seat belt B-pillar bolt	40
Front seat belt height adjuster bolt	20
Belt latch bolt	20
Automatic belt retractor bolt	40
Rear center 3-point seatbelt belt latch hex nut	40
Rear center lap belt bolt	40
Rear double belt latch bolt	40
Airbag control module J234 nuts	9
Passenger side airbag unit bolts	9
Side airbag bolts	9
Side head curtain airbag cap nuts	9
Seat occupied recognition pressure sensor G452 and similarly at seat occupied recognition control module J706 bolts	1.5
Seat occupied recognition control module J706 bracket bolts	2.5
Front door crash sensor bolts	2.5
Rear wheel housing crash sensor bolts	9

Interior Trim – Tightening Torques

Component	Nm
Instrument panel bolts	3
Instrument panel above tunnel bolts	8
Instrument panel aligning bolts	2
Footwell trim bolts	1.5
Instrument panel below heating or A/C mechanism (2 bolts)	9
Instrument panel tunnel area bolts	20
Instrument panel tunnel area nuts	18
Fuse holder bolts	2
Fuse holder nuts	18
Door trim handle molding area bolts	1.5
Door trim handle molding area (4 surrounding bolts)	2
Door mirror triangle cover bolt	2
Upper A-pillar and B-pillar trim airbag emblem bolt	4
B-pillar trim bolts	4
C-pillar trim nut	1.5
Side trim bolts	2
Rear lid trim handle recess bolts	2
Luggage compartment cover side storage compartment bolts	1.5
Luggage compartment side trim bolts	8
Molded headliner bolts	2

Seat Frames – Tightening Torques

Component	Nm
Front seat frame bolts	40
Seat trim bolts	2.5
Seat drawer mount bolts	2
Seat bracket and operation lever bolts	3.5
Front seat backrest bolts (always replace)	34.5
Bucket seat pan bolts	24
Rear seat center backrest bolt	9
Rear seat belt buckle to floor bolt	40
Rear seat side upholstery bolt	8
Rear seat side upholstery nut	8
Rear seat storage unit with center armrest bolts	9

HEATING AND AIR CONDITIONING

Refrigerant R134a – Capacity

A/C compressor	Manufacturer	Total capacity (grams)
7SEU17C	Denso	525 ± 25
PXE16	Sanden	525 ± 25
DSC17E	Zexel	525 ± 25

Refrigerant (PAG) Oil Identification

Obtain using following Part No.:	
7SEU17C; Denso	G 052 300 A2
PXE16; Sanden	G 052 154 A2
DSC17E; Zexel	G 052 200 A2

Refrigerant (PAG) Oil Capacities

Model	Production	Total capacity (cm ³)
1K0 820 803 G Sanden	from 10.04	110 ± 10
1K0 820 803 K Sanden	from 10.04	110 ± 10
1K0 820 803 E Denso	from 10.04	140 ± 10
1K0 820 803 H Zexel	from 10.04	120 ± 10

Refrigerant Oil Distribution

Component	Approximate % of total amount of oil in component
A/C compressor	50
Condenser	10
Suction hose	10
Evaporator	20
Fluid Reservoir	10

Refrigerant R134a Vapor Pressure Table

Temperature in°C	Pressure in bar (positive pressure) of R134a
-45	-0.61
-40	-0.49
-35	-0.34
-30	-0.16
-25	0.06
-20	0.32
-15	0.63
-10	1.00
-5	1.43
0	1.92
5	2.49
10	3.13
15	3.90
20	4.70
25	5.63
30	6.70
35	7.83
40	9.10
45	10.54
50	12.11
55	13.83
60	15.72
65	17.79
70	20.05
75	22.52
80	25.21
85	28.14
90	31.34

Physical Data of Refrigerant R134a

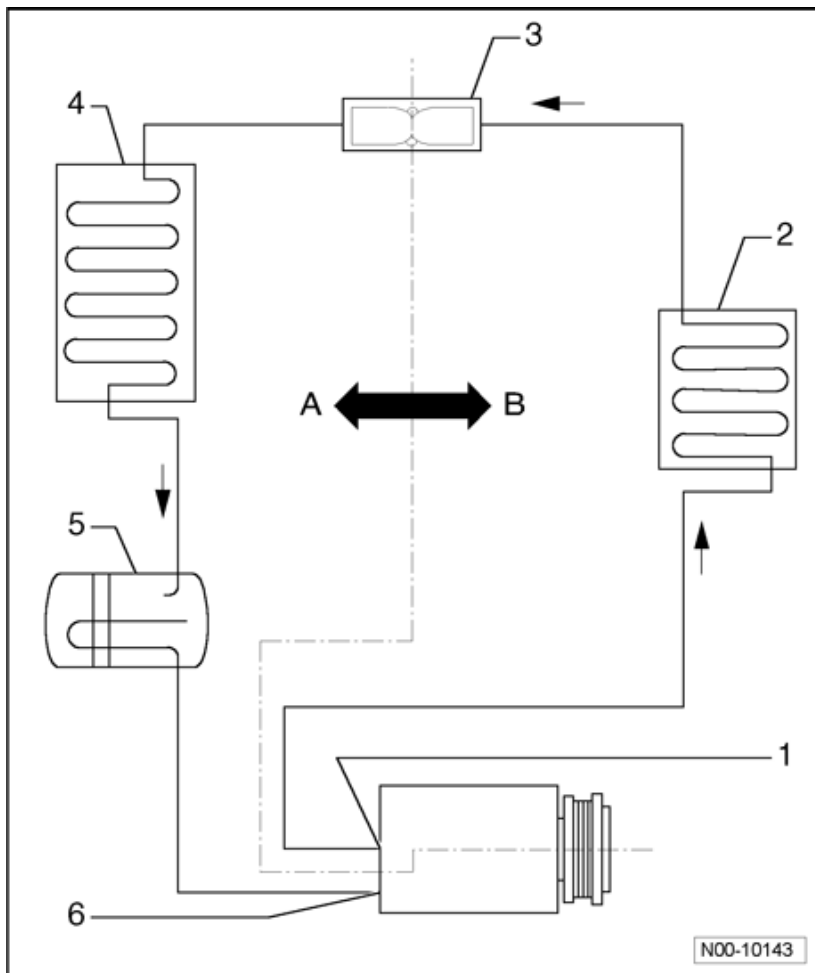
Chemical formula	CH ₂ FCF ₃ or CF ₃ CH ₂ F
Chemical designation	Tetrafluoroethane
Boiling point at 1 bar	- 26.5°C
Solidification point	-101.6°C
Critical temperature	100.6°C
Critical pressure	40.56 bar (absolute)

[illegible]

B - High pressure side of refrigerant circuit.

Component	Aggregate state of refrigerant	Pressure	Temperature
1 - Evaporator, from input to output	Vapor	Approximately 1.2 bar	Approximately -7°C
		(Approximately 1.8 bar)	(Approximately -1°C)
2 - A/C compressor A- side	Gas	Approximately 1.2 bar	Approximately -1°C
		(Approximately 1.8 bar)	(Approximately + 1°C)
3 - A/C compressor B- side	Gas	Approximately 14 bar	Approximately + 65°C
4 - Condenser	Gas, vapor, fluid	Approximately 14 bar	Approximately + 55°C at outlet
5 - Receiver	Fluid	Approximately 14 bar	Approximately + 55°C
6 - Charging and evacuating valve B- side	Fluid	Approximately 14 bar	Approximately + 55°C
7 - Expansion valve	Fluid, released as vapor	Approximately 14 bar	Approximately + 55°C, reduced to -7°C
8 - Charging and evacuating valve A- side	Gas	Approximately 1.2 bar	Approximately -7°C
		(Approximately 1.8 bar)	(Approximately -1°C)

A/C Refrigerant Pressure and Temperature – Refrigerant Circuit with Restrictor and Reservoir – Specifications



A – Low pressure side of refrigerant circuit.
B – High pressure side of refrigerant circuit.

Component	Aggregate state of refrigerant	Pressure	Temperature
1 - A/C compressor B-side	Gas	up to 20 bar	up to + 70°C
2 - Condenser	From gas to vapor to fluid	up to 20 bar	up to + 70°C
3 - Restrictor	From fluid to vapor	B-side up to 20 bar, A-side greater than 1.5 bar	B-side up to + 60°C, A-side warmer than - 4°C
4 - Evaporator	From vapor to gas	Greater than 1.5 bar	Warmer than - 4°C
5 - Reservoir	Gas		
6 - A/C compressor A- side	Gas		

Heating and Ventilation System – Tightening Torques

Component	Nm
Fresh air blower V2 bolt	1
Coolant pipe clamps	2
Connecting flange between heater core connections	2
Auxiliary heater heating element Z35 voltage supply and ground connection mounting nut	6
Heating and ventilation unit cable bracket bolts	4.5 ± 0.7
Assembly carrier bracket bolts	8
Heating and ventilation unit bracket bolts	9 ± 1.3

A/C System – Tightening Torques

Component	Nm
Shielding plate nut	6
Refrigerant lines to engine compartment bolts	12
Heating and A/C unit cable bracket bolts	4.5 ± 0.7
Assembly carrier bracket bolts	8
Heating and A/C unit bracket bolts	9 ± 1.3
Heating and A/C controls to center console bolts	1.5 ± 0.2
Climatronic control module J255 with A/C control head E87 to center instrument control panel bolts	1.5 ± 0.2
A/C compressor and bracket - 2.5L 5-cylinder gasoline engine multipoint socket head bolt M8x60	25
A/C compressor and bracket - 2.5L 5-cylinder gasoline engine multipoint socket head bolt M8 x 110	25
A/C compressor and bracket - 2.5L 5-cylinder gasoline engine multipoint socket head bolt M8 x 30	25
A/C compressor and bracket - 2.5L 5-cylinder gasoline engine multipoint socket head bolt M8 x 85	25
A/C compressor and bracket - 2.0L 4-cylinder TFSI engine hex socket bolt M10 x 45	40
A/C compressor and bracket - 2.0L 4-cylinder TFSI engine hex socket bolt M8 x 100	25

A/C Refrigerant System – Tightening Torques

Component	Nm
Coolant line bracket hex nuts	20
Fluid reservoir with dryer bolts	4.2 ± 0.7
Refrigerant lines to A/C compressor bolts	22 ± 1
A/C compressor hex bolts	25
Shielding plate nut	6
Refrigerant lines to expansion valve bolts	12
Expansion valve combination bolts	5
Condenser bracket bolt	5 ± 0.5
Radiator bolts	5 ± 0.5

ELECTRICAL EQUIPMENT

Battery – Tightening Torques

Location/Fastener		Nm
Battery post terminals/nuts	M6	6
Battery post terminals/additional terminal nuts	M6	6
Battery hold-down bracket/bolt	M8 x 35	20

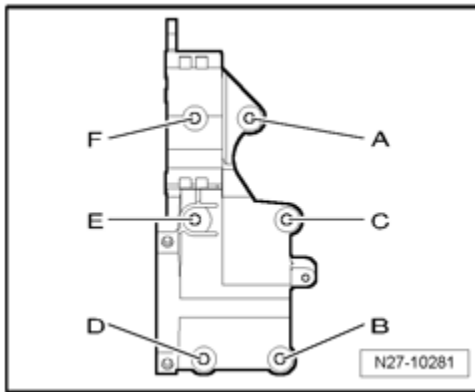
Generator – Tightening Torques

Location/Fastener		Nm
B+ wire to generator/nut	M8	15
Harness retainer to generator	M5	3.2
Voltage regulator to generator/screw	M4	2
Protective cap to generator	M5	4.5
Ribbed belt pulley with freewheel to generator/nut	M10	80
Ribbed belt pulley without freewheel to generator/nut	M10	65

Generator 2.0L TFSI – Tightening Torques

Location/fastener		Nm
Generator to mounting bracket/bolts	M8 x 90	23
Tensioner to mounting bracket/bolts	M8 x 90	23
Mounting bracket to engine block/bolts	M10 x 45	40
A/C compressor to mounting bracket	M8 x 100	23

2.0L TFSI Generator Mounting Bracket Bolts – Tightening Sequence



Component	Nm
A – B – C – D – E – F	40

Generator 2.5L – Tightening Torques

Location/Fastener		Nm
Generator to mounting bracket/bolt	M8 x 90	25
Tensioner to mounting bracket/bolt	M8 x 50	23
Mounting bracket to engine block/bolt	M10 x 45	52

Starter – Tightening Torques

Location/Fastener		Nm
Starter to automatic or manual transmission/bolt	M12	75
Starter to DSG transmission/bolt	M10	60
Ground (GND) wire to starter/bolt	M8	15
Harness retainer to starter bolt	M8	15
Starter terminal 30/nut	M8	15
Air filter housing to body		10
GND wire to automatic transmission housing	M8	15

Wiper and Washer Systems – Tightening Torques

Location/fastener		Nm
Wiper motor to wiper frame/bolts	M6	8
Motor crank to wiper motor shaft/nut	M8	18
Wiper assembly to body/bolts	M6	8
Front wiper arm to wiper motor shaft/nuts	M8	20
Washer fluid reservoir to body/bolts	M6	8
Rear wiper arm to rear wiper motor shaft/nut	M8	12
Rear wiper motor assembly to rear lid/bolts	M6	8
Headlamp washer telescoping cylinder to front bumper cover/bolts		4.5

Headlamp – Tightening Torques

Fastener/location	Nm
Top headlamp/screw	4
Left lower headlamp/screw	4
Right lower headlamp/screw	4

Fog Lamp – Tightening Torques

Location/Fastener	Nm
Fog lamp/screws	1.5

Rear Lights in Rear Fender – Tightening Torques

Fastener/location		Nm
Rear light housing/nuts		3.0
Adjustment adapter/screw		0.6 ± 0.2

Rear Lights in Rear Lid – Tightening Torques

Fastener/location		Nm
Rear light housing/nuts		3.5 ± 0.5

Vehicle Level Sensors – Tightening Torques

Fastener/location		Nm
Left front level control system sensor G78/bolts	M6	9
Left rear level control system sensor G76/bolts	M5	5

E-Box in Engine Compartment – Tightening Torques

Fastener/location		Nm
E-Box/nuts	M5 x 8	4
E-Box/nuts	M6 x 10	6
E-Box central screw on bracket		9

