

Pocket data booklet

Cars

P1, P2, P3

TP0328011

Foreword

Introduction

This book is particularly intended for mechanics.

Of course it can also be used by other individuals who require technical information.

Carry this book with you so that you always have the relevant data close at hand.

Size considerations mean that this book has been condensed. As a result, some illustrations and explanations are not included.

In certain areas the pocket data booklet is limited to only the latest information.

If in any doubt, check the service information using a VIDA station.

VIDA provides the same information in the relevant function groups with more extensive explanation.

Check that the no Service Bulletins have updated the information since the book was printed.

Late product modifications may also mean that information is no longer correct.

The contents of this issue of Pocket Data are collated for print in week 20, 2009.

Volvos are sold in versions adapted for different markets. These adaptations depend on many factors including legal, taxation and market requirements. This manual may therefore show illustrations and text which do not apply to cars in your country.

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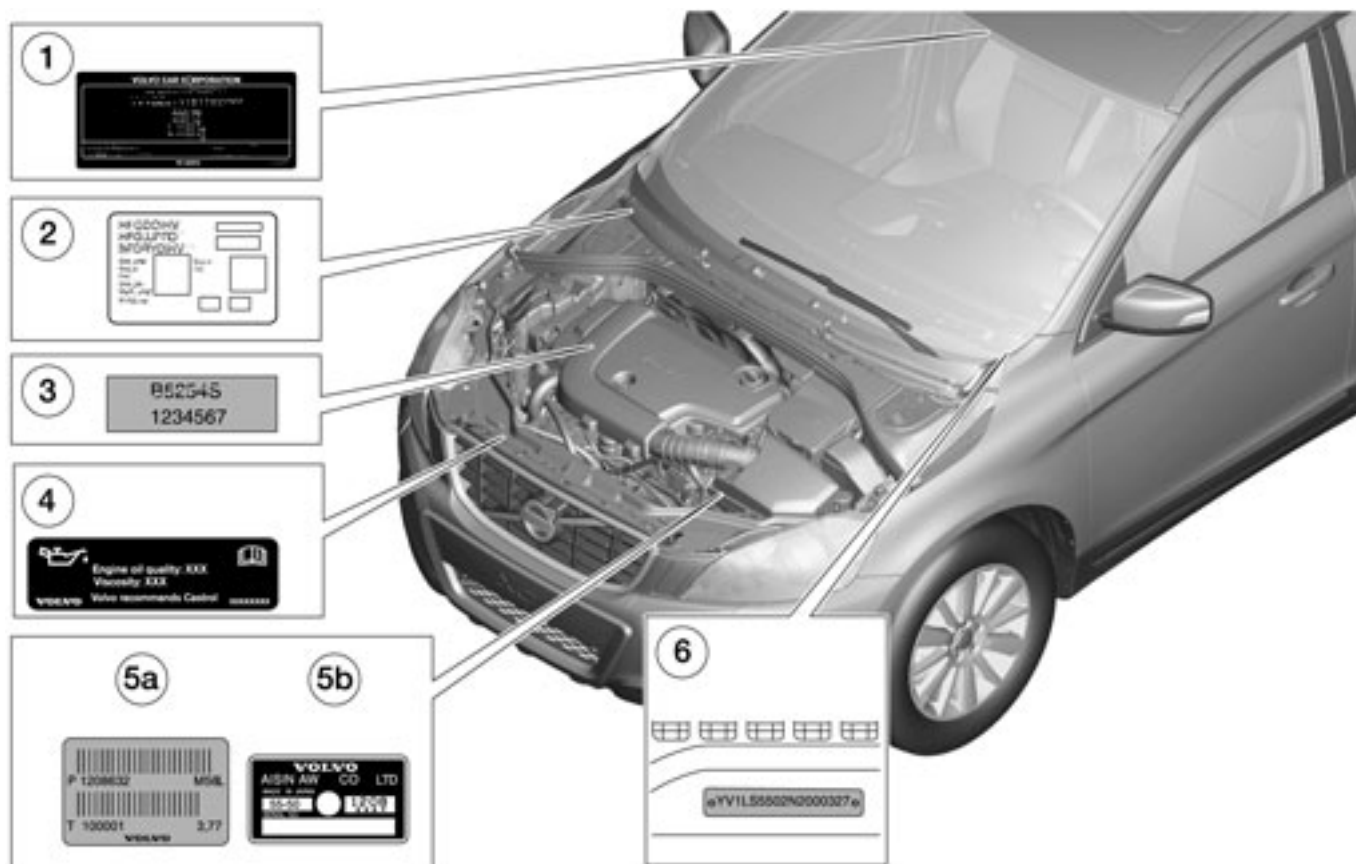
<p>Order No.: TP0328011 Supersedes TP0318011</p>

We reserve the right to make alterations without prior notification.

S80 (07-) / V70 (08-) / XC70 (08-) / XC60

Section 0 General

Plates



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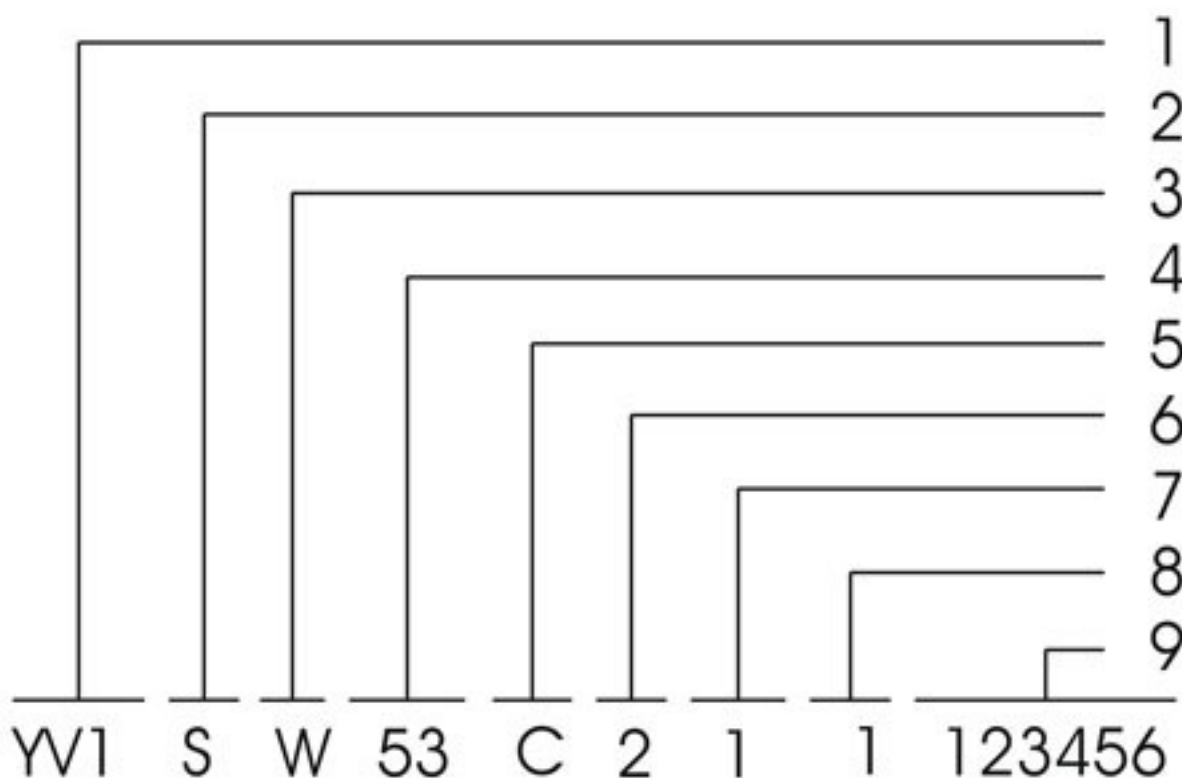
314783

- 1 **Product plate:** Positioned by the right-hand B-post
- 2 **Decal for parking heater.**
- 3 **Engine type designation, serial and part numbers:** Decal on the timing cover. Also stamped on the cylinder block, above the water pump housing, between the timing cover and the manifold.
Diesel engines: Stamped in the cylinder block slightly in front of the diesel pump
- 4 **Engine oil decal**
Decal indicates oil quality, viscosity and volume, placed on the radiator.
- 5 **Gearbox type designation, part and serial number:**
5a: Manual transaxle.
5b: Automatic transaxle.
- 6 **VIN marking:**Type and model year designation and chassis number.
VIN-plate, located on the upper side of the dashboard.

(Without image) **Tyre pressure label:** Located at left B-pillar.

VIN marking

VIN marking Europe and USA -2009



M0300255

1 Manufacturer's code

Control number (USA/CAN) Arabia

2 Vehicle type

7 Model year code

3 Variant

8 Factory code

4 Engine

9 Chassis number.

5 Emissions

6 Transmission

VIN code read out Europe and USA -2009

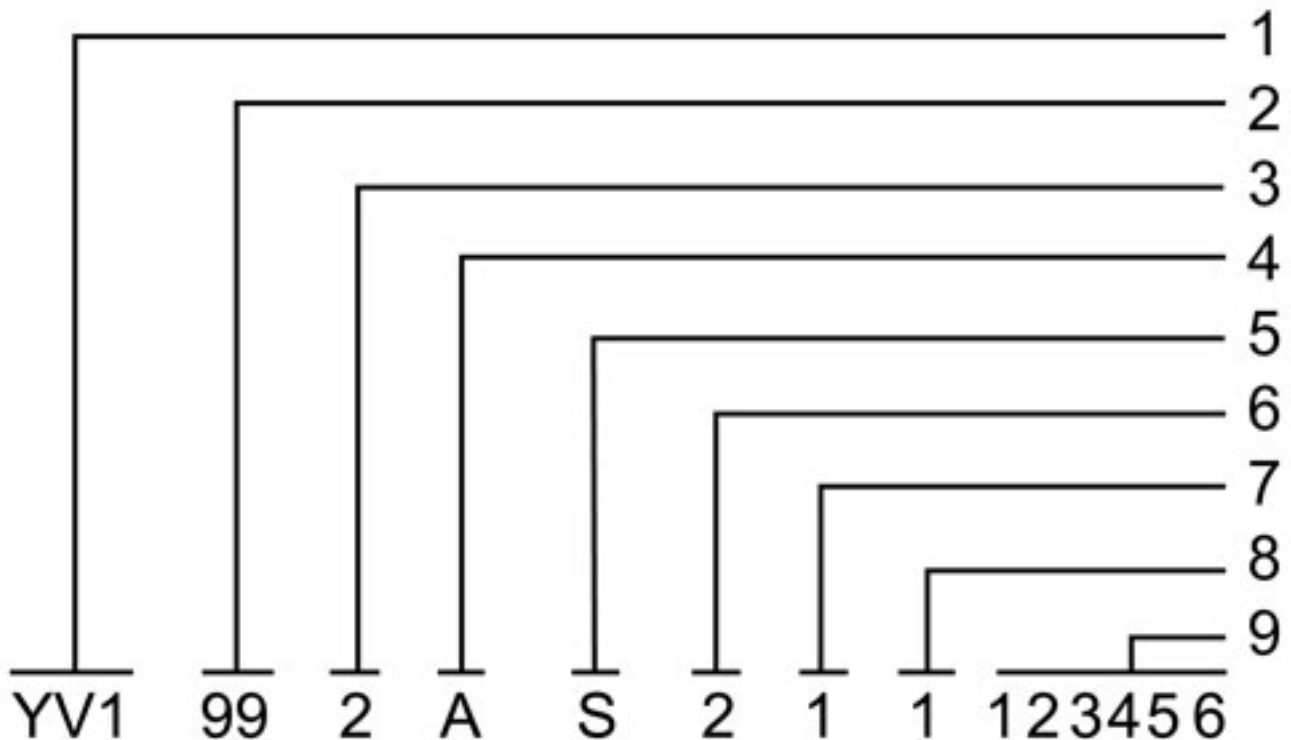
Position	Subject	Code	Notes
1 (3 character)	Manufacturer's code	YV1	Volvo Car Corporation
2 (1 character)	Vehicle type	A B D	S80 V70/XC70 XC60
3 (1 character)	Variant	S W Z	S80 (07-) V70 (07-) XC70, XC60

VIN marking

Position	Subject	Code	Notes
		(L)	XC70, XC60 Only AWD, USA/Canada
		(H)	S80 (07-) Only, AWD USA/Canada
		(J)	V70 (07-) Only, AWD USA/Canada
4 (2 characters)	Engine type	43	B4204S3
		04	B4204S4
		56	B5254T6
		02	B5254T8
		60	B5254T10
		05	B5254T11
		98	B6324S
		99	B6304T2
		85	B8444S
		75	D4204T
		71	D5244T4
		69	D5244T5
		70	D5244T10
		72	D5244T14
		80	D5244T16
		53	D5244T19
5 (1 character)	Emissions	VIN	Engine
	Euro 4	4	04/ 43/ 53/ 69/ 71/ 72/ 75
	Euro 5	5	02/ 05/ 56/ 60/ 70/ 72/ 85/ 98/ 99
6 (1 character)	Transmission	1	M66
		4	M66 AWD
		1	MMT6
		2	MTX75
		0	TF-80SC
		6	TF-80SC AWD
		B	MPS6-2
7 (1 character)	Model year	7	2007
		8	2008
		9	2009
		A	2010
8 (1 character)	Factory code	1	21 Volvo Torslanda (VTM)
		2	22 Volvo Europe Car (VCE) Belgium

Position	Subject	Code	Notes
9 (6 characters)	Chassis number.	6 figure serial number	2007 S80: 000250-047999
			2008 S80: 048000-087000 2008 XC70: 000001-047500 2008 V70: 000001-067500
			2009 S80: 087001-113000 2009 V70: 067501-118000 2009: XC70: 047501-74000 2009: XC60: 000001-49999
			2010 S80 113001- 2010 V70 118001- 2010 XC70 74001- 2010 XC60 50000-

VIN marking USA 2010-



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331606

1 Manufacturer's code

3 Emissions

2 Engine type

4 Vehicle type

VIN marking

5 Variant

8 Factory code

6 Gearbox (Europe)

9 Chassis number.

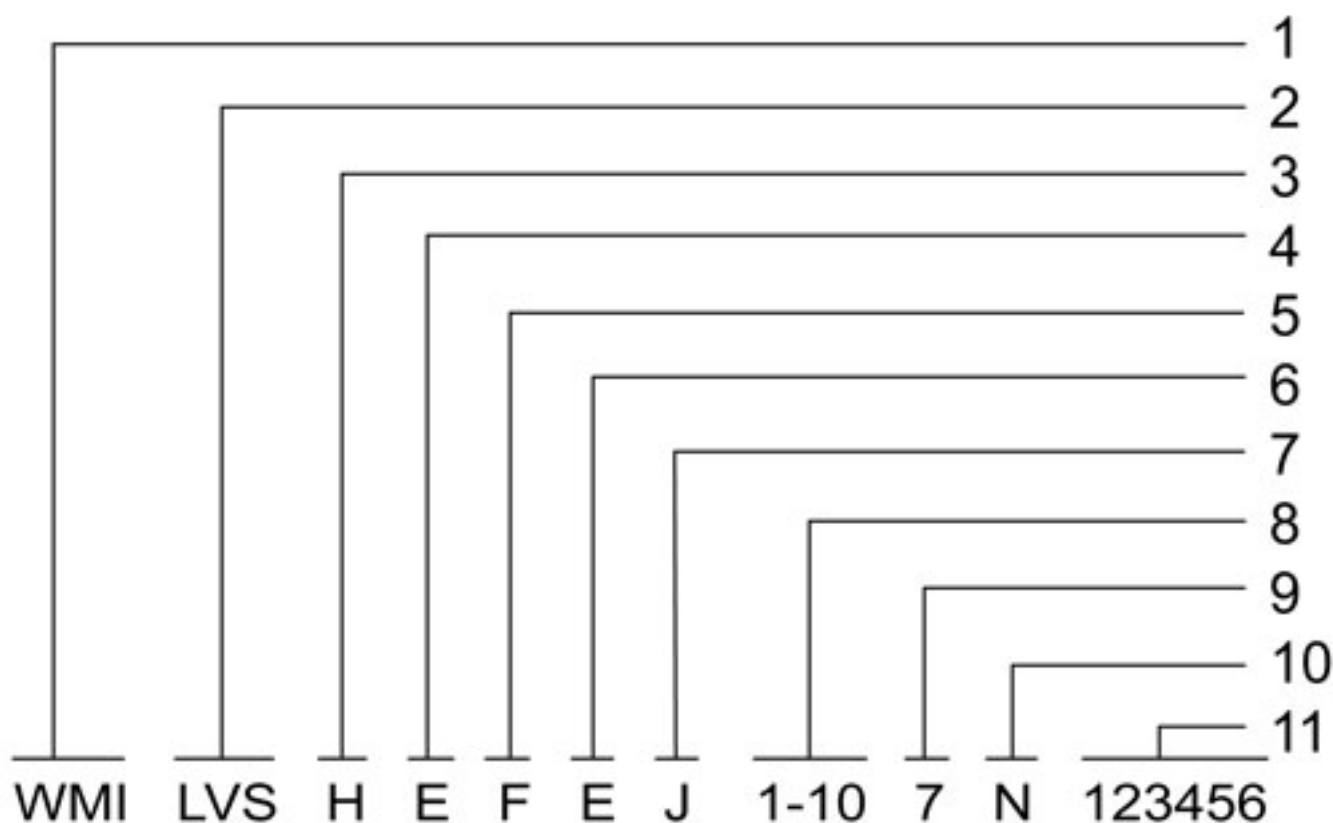
Control number (USA/CAN)

7 Model year

VIN code read out USA 2010-

Position	Subject	Code	Remarks
1 (3 character)	Manufacturer's code	YV1	S80, V70
		YV4	XC60/XC70
2 (2 characters)	Engine type	85	B8444S
		98	B6324S
		96	B6324S2 PZEV
		99	B6304T2
3 (1 character)	Emissions ULEV 2	VIN	Engine code
		2	85, 96, 98, 99
4 (1 character)	Vehicle type	A	S80
		B	V70/XC70
		D	XC60
5 (1 character)	Variant	S	S80 FWD
		H	S80 AWD
		J	V70/XC70 AWD
		W	V70
		L	XC60/XC70 FWD
		Z	XC60/XC70 AWD
6 (1 character)	US: Control number	1-9	
6 (1 character)	EU: Transmission	0	TF-80SC
		6	TF-80SC AWD
7 (1 character)	Model year	7	2007
		8	2008
		9	2009
		A	2010
8 (1 character)	Factory code	1	21 Volvo Torslanda (VTM)
		2	22 Volvo Europe Car (VEC) Belgium
9 (6 characters)	Chassis number. 6 figure serial number	2007	S80: 000250 - 047999
		2008	S80: 048000 - 087000
			V70: 000001 - 067500
		2009	XC70 000001 - 047500
S80: 087001 - 113000			

Position	Subject	Code	Remarks
		2010	V70: 067501 - 118000 XC70 047501 -074000 S80: 113001- V70: 118001- XC70: 074001- XC60: 018864-



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253643

1 Manufacturer's code

2 Vehicle type

3 Safety system

4 Variant

5 Model

6 Transmission

7 Engine

8 Control number

9 Model year

10 Factory code

11 Chassis number.

VIN code read out China

Position	Subject	Code	Notes
1 (3 character)	Manufacturer's code	WMI	Changan Ford

VIN marking

Position	Subject	Code	Notes
2 (3 characters)	Vehicle type	LVS	Car
3 (1 character)	Safety system	B	Seat belt tensioners all positions, Driver's Air Bag
		F	As code "B" plus passenger Air Bag
		H	As code "F" plus Air Bag all places side Air Bags
4 (1 character)	Variant	A	Fiesta
		B	Mondeo
		C	Focus
		D	Mazda
		E	S40
5 (1 character)	Model	A	5 doors
		B	3 doors
		F	4 doors
		T	Sport coupe
6 (1 character)	Transmission	A	Automatic gearbox
		M	Manual gear box
		C	CVT
		D	DCT
		E	AW50-51, Volvo
7 (1 character)	Engine	A	1.3L (I4)
		B	1.6L (I4)
		C	2.0L (I4)
		D	2.5L (V6)
		E	1.8L (I4)
		F	2.3L (I4)
		G	2.4L (I4)
		H	3.2L (I6)
		J	2.5L (I5) B5254T3
		K	2.4L (I5) B5244S3
8 (1 character)	Control number	1- 9	
9 (1 character)	Model year code	7	2007
		8	2008
		9	2009
10 (2 characters)	Factory code	F	ChanganFord Chongqing

Position	Subject	Code	Notes
		N	ChanganFord Nanjing
11 (6 characters)	Chassis number.	S40 2009	430000-

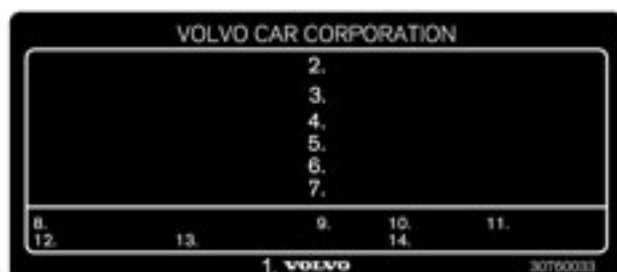
Engine - transmission, combinations

Engine:	Model	Engine code:	Gearbox:
B4204S3	S80/V70	43	MTX75
B4204S4	S80/V70	04	MTX75 MPS6-2
D4204T	S80/V70	75	MMT6
B5254T6	S80/V70	56	M66W TF-80SC
B5254T8	S80/V70	02	M66W AW TF-80SC
B5254T10	S80/V70	60	M66D AW TF-80SC
B5254T11	S80/V70	05	M66D AW TF-80SC
D5244T5	S80/V70	69	M66D TF-80SC
	XC60	69	M66E H6A TF-80SC AWD
D5244T10	S80/V70	70	TF-80SC TF-80SC AWD M66D
	XC70	70	M66E TF-80SC AWD
	XC60	70	M66E TF-80SC AWD
D5244T4	S80/V70	71	M66D TF-80SC TF-80SC AWD
	S80/V70	71	M66E
	XC70	71	TF-80SC AWD
	XC60	71	M66E H6A TF-80SC AWD
D5244T14	S80/V70	72	M66D

VIN marking

Engine:	Model	Engine code:	Gearbox:
	XC70	72	TF-80SC M66D
	XC60	72	TF-80SC M66D
D5244T16	XC70	80	TF-80SC AWD
	XC60	80	TF-80SC AWD
D5244T19	S80/V70	53	TF-80SC
B8444S	S80/V70	85	TF-80SC AWD
B6324S	S80/V70	98	TF-80SC
	XC70, XC60	98	TF-80SC AWD
B6304T2	XC60	98	TF-80SC
	S80/V70	99	TF-80SC AWD
	XC70	99	TF-80SC AWD
	XC60	99	TF-80SC AWD

Product plate



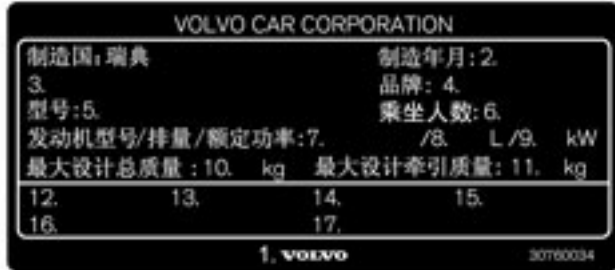
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Product plate

1. VOLVO
2. Type approval number.
Whole Vehicle Type Approval Number (WVTA)
3. VIN code
4. Max gross weight
5. Max train weight (car + trailer)
6. Max front axle load
7. Max rear axle load
8. Country of Manufacture
9. Market code (See Tables)
10. Interior code (See Tables)
11. Exterior colour (see Tables)
12. Chassis code (see page 10 and Tables)
13. Additional information for WVTA or service message
14. Trim information

Product plate



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Chinese product plate

- | | |
|---|--|
| 1. VOLVO | 10. Maximum gross vehicle weight |
| 2. Type approval number.
Whole Vehicle Type Approval Number (WVTA) | 11. Maximum towed weight |
| 3. VIN code | 12. Market code (See Tables) |
| 4. Car make | 13. Interior code (See Tables) |
| 5. Model | 14. - |
| 6. Number of passengers | 15. Exterior colour (see Tables) |
| 7. Engine | 16. Chassis code (see overleaf and Tables) |
| 8. Engine capacity | 17. - |
| 9. Engine output | |

Product plate codes**Market codes**

10 = Sweden	24 = Italy	45 = Taiwan
11 = Norway	25 = Spain	46 = Australia
12 = Denmark	27 = Portugal	47 = South Africa
13 = Finland	28 = Israel	49 = Turkey
14 = Ireland	29 = Greece	50 = Japan
15 = Great Britain	31 = USA	51 = China
	35 = Mexico	81 = Chonqing
	39 = Canada	84 = Thailand
18 = Germany	40 = Singapore	85 = Malaysia
20 = Belgium	41 = Korea	
21 = Holland	42 = Latin America	
22 = France	43 = Saudi Arabia	
23 = Eastern Europe	44 = Hong Kong	

Exterior colors, supplier and paint type codes:

Code	Supplier	Code	Paint type
1	BASF	1	Solid solvent-based
2	Herberts	1	Metallic solvent-based + 1C varnish
4	DuPont	2	Metallic / pearl water-based + 1C varnish
		3	Solid water-based + 1C varnish
		5	Pearl solvent-based
9	Local suppliers (Thailand, Malaysia, Indonesia, Philippines)	6	Water-based base coat + 2C varnish
		7	Water-based base coat + powder varnish

Product plate codes

Paint finishes, color codes

Colour code	Designation:	Remarks:	Model
019	Black Stone	Solid	S80 07-, V70 08-, XC70 08-, XC60
426	Silver	Metallic	S80 07-, V70 08-, XC70 08-, XC60
452	Black Sapphire	Metallic	S80 07-, V70 08-, XC70 08-, XC60
453	White	Pearl	S80 07-
454	Ruby Red	Pearl	S80 07-, V70 08-, XC70 08-
455	Titanium Gray	Pearl	S80 07-, V70 08-
466	Barents Blue	Pearl	S80 07-, V70 08-, XC70 08-, XC60
467	Magic Blue	Pearl	S80 07-, V70 08-
469	Lunar Gold	Pearl	S80 07-
471	Willow Green	Pearl	S80 07-, V70 08-, XC70 08-
472	Oyster grey	Pearl	S80 07-, V70 08-, XC70 08-
473	Shimmer gold	Pearl	S80 07-
477	Electric Silver	Metallic	S80 07-, V70 08-, XC70 08-, XC60
478	Maple Red	Metallic	XC60
479	Orinoco Blue	Metallic	XC60
481	Cosmic White	Metallic	XC60
482	Ebony Black	Metallic	S80L
483	Soft Sand	Metallic	S80L
484	Seashell	Metallic	V70 08-, XC70 08-
485	Glacier Blue	Metallic	V70 08-
487	Ember black	Pearl	S80
490	Chameleon blue	Pearl	XC60
492	Savile Grey	Pearl	S80, XC60
493	Caper Green	Pearl	S80
494	Terra Bronze	Pearl	XC60
495	Lime Grass Green	Pearl	XC60
498	Caspian Blue		S80L
612	Passion Red	Solid	V70 08-
613	Deep Blue	Solid	S80 07-
614	Ice White	Solid	S80 07-, V70 08-, XC70 08-, XC60
617	Nordic White	Solid	S80L

Interior S80 07-

Code	Upholstery colour	Interior colour	Upholstery material
2000	Off black	Off black	Textile
2014	Mocca beige	Mocca	Textile
2100	Off black	Off black	Leather
2102	Off black/beige	Off black	Leather
2108	Off black/quartz	Off black	Leather
2112	Soft Beige	Mocca	Leather
2200	Off black	Off black	Ventilated Leather
2201	Anthracite/Quartz	Anthracite	Ventilated Leather
2202	Off black/beige	Off black	Ventilated Leather
2208	Off black	Quartz	Ventilated Leather
2212	Soft Beige	Beige	Ventilated Leather
2400	Off black	Off black	Soft leather
2401	Anthracite/Quartz	Anthracite	Soft leather
2402	Beige/off black	Off black	Soft leather
2408	Off black	Quartz	Soft leather
2412	Beige	Beige	Soft leather
2714	Sand mocca	Beige	Tricottech
2500	Anthracite	Anthracite	Tricottech
2501	Anthracite/Quartz	Anthracite	Tricottech
2514	Soft Beige	Soft Beige	Leather
2F00	Off black	Off black	Leather
2F0D	Off black/chestnut	Off black	Leather
2F0L	Off black/linen	Off black	Leather
2F1L	Soft beige/linen	Soft Beige	Leather
2G00	Off black	Anthracite	Xsoftleather
2G0D	Off black/chestnut	Off black	Xsoftleather
2G02	Off black/soft beige	Anthracite/Soft beige	Xsoftleather
2G12	Off black/soft beige	Soft Beige	Xsoftleather
2L01	Anthracite/Quartz	Anthracite	Sport pack
2L02	Off black/quartz	Off black	Sport pack
2L12	Soft Beige	Soft Beige	Sport pack
4100	Anthracite	Anthracite	Leather
4112	Soft Beige	Soft Beige	Leather

Interior V70 08-

Code	Upholstery colour	Interior colour	Upholstery material
E100	Off black	Off black	Leather
E101	Anthracite/Quartz	Anthracite	Leather

Product plate codes

Code	Upholstery colour	Interior colour	Upholstery material
E102	Off black/beige	Off black	Leather
E105	Off black	Pepper red	Leather
E108	Off black	Quartz	Leather
E109	Anthracite/Pepper/Quartz	Anthracite	Leather
E112	Soft Beige	Mocca	Leather
E200	Off black	Off black	Ventilated Leather
E201	Anthracite/Quartz	Anthracite	Ventilated Leather
E202	Off black/beige	Off black	Ventilated Leather
E208	Off black	Quartz	Ventilated Leather
E212	Soft Beige	Beige	Ventilated Leather
E400	Off black	Off black	Soft leather
E401	Anthracite/Quartz	Anthracite	Soft leather
E402	Beige/off black	Off black	Soft leather
E408	Off black	Quartz	Soft leather
E412	Sandstone beige	Soft Beige	Soft leather
E500	Off black	Off black	Textile/tricottech
E501	Anthracite/Quartz	Anthracite	Textile/tricottech
E514	Sandstone beige	Mocca brown	Textile/tricottech
E800	Off black	Off black	Textile/Leather
E801	Anthracite/Quartz	Anthracite	Textile/Leather
E812	Sandstone beige	Soft Beige	Textile/Leather
EA00	Off black	Off black	Police/Leather
EA01	Anthracite/Quartz	Anthracite	Police/Leather
EL01	Anthracite/Quartz	Anthracite	Dynamic, leather
EL02	Off black/beige	Off black	Dynamic, leather
EL12	Soft Beige	Soft Beige	Dynamic, leather
EJ0E	Offblack/cerl	Off black	Sport leather
EK00	Off black	Anthracite	VOR Leather
EK12	Soft Beige	Soft Beige	VOR Leather

Interior XC70 08-

Code	Upholstery colour	Interior colour	Upholstery material
F100	Off black	Off black	Leather
F101	Anthracite/Quartz	Anthracite	Leather
F112	Soft Beige	Mocca	Leather
F116	Sandstone beige	Espresso brown	Leather
F200	Off black	Off black	Ventilated Leather
F201	Anthracite/Quartz	Anthracite	Ventilated Leather

Product plate codes

Code	Upholstery colour	Interior colour	Upholstery material
F212	Soft Beige	Beige	Ventilated Leather
F216	Sandstone beige	Mocca brown	Ventilated Leather
F500	Off black	Off black	Textile/tricottech
F501	Anthracite/Quartz	Anthracite	Textile/tricottech
F514	Sandstone beige	Mocca brown	Textile/tricottech
F600	Off black	Off black	Smooth vinyl/Textile
F601	Anthracite/Quartz	Anthracite	Smooth vinyl/Textile
F614	Sandstone beige	Mocca brown	Smooth vinyl/Textile
FA00	Off black	Off black	Police
FA01	Anthracite/Quartz	Anthracite	Police
FK00	Off black	Anthracite	VOR Leather
FK12	Soft Beige	Soft Beige	VOR Leather

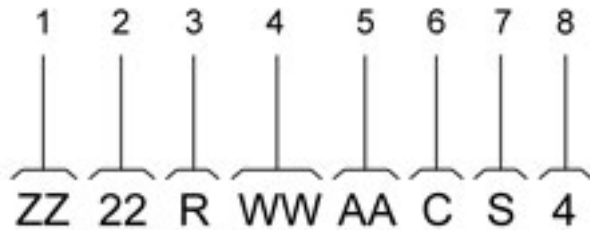
Interior XC60

Code	Upholstery colour	Interior colour	Upholstery material
G000	Off black	Antracite black	Textile
G012	Soft Beige	Sandstone beige	Textile
G100	Off black	Antracite black	Leather
G107	Off black/Lemon Green	Antracite black	Leather
G112	Soft Beige	Sandstone beige	Leather Textile Textile/T-Tec
G116	Soft beige/Espresso	Sandstone beige	Leather
G600	Off black	Antracite black	Textile/T-Tec
G612	Soft Beige	Sandstone beige	Textile/T-Tec

Chassis code

Chassis code

Chassis code is interpreted as follows



- 1 Spring, front
- 2 Shock absorber, front
- 3 Anti-roll bar, front
- 4 Spring, rear
- 5 Shock absorber, rear
- 6 Anti-roll bar, rear
- 7 Auxiliary spring, front
- 8 Auxiliary spring, rear

R8101938

1 Spring, front

Chassis code	Spring, front	Remarks
11	30748220	
12	30748221	
13	31277079	
14	30748152	
15	30748153	
16	30748154	
17	30748222	
18	30748841	
19	31277080	
20	31262876	
21	31255233	Police V70 (08-)
22	31255234	Police V70 (08-)
23	31255239	Police V70 (08-)
24	31255240	Police V70 (08-)
25	31255245	Police XC70 (08-)
26	31255246	Police XC70 (08-)
27	31212863	S80L, XC70 (08-)
28	31212864	S80L, XC70 (08-)
29	31212865	S80L, XC70 (08-)
30	31262306	S80L, XC70 (08-)
31	31262307	S80L, XC70 (08-)
32	31262308	S80L, XC70 (08-)
33	31255513	V70R Sportchassis

Chassis code	Spring, front	Remarks
34	31255514	V70R Sportchassis
35	31255515	V70R Sportchassis
36	31255516	V70R Sportchassis
37	31255517	V70R Sportchassis
38	31255518	V70R Sportchassis
39	31255519	V70R Sportchassis
40	31255520	V70R Sportchassis
41	31255521	V70R Sportchassis
42	31280487	XC60
43	31280486	XC60
44	31280485	XC60
45	31262215	S80L
46	31262216	S80L
47	30760305	XC60

2 Shock absorber, front

Chassis code	Shock absorber	Remarks
11	30736506	Light right
11	30736507	Light left
12	30736508	Heavy right
12	30736509	Heavy left
13	30736510	CCD left
13	30736511	CCD right
14	30760898	Light right
14	30760900	Light left
15	30760899	Heavy right
15	30760901	Heavy left
16	30760902	CCD left
16	30760903	CCD right
17	31200216	CCD left
17	31200217	CCD right
18	31200245	Light right
18	31200246	Light left
19	31200247	Heavy right
19	31200248	Heavy left
20	31277801	CCD left
20	31277800	CCD right
21	31212217	Light right, USA S80 (07-)

Chassis code

Chassis code	Shock absorber	Remarks
21	31212218	Light left, USA S80 (07-)
22	31212219	Heavy right, USA S80 (07-)
22	31212220	Heavy left, USA S80 (07-)
23	31201056	Light right, EU S80 (07-)
23	31201057	Light left, EU S80 (07-)
24	31201058	Heavy right, EU S80 (07-)
24	31201059	Heavy left, EU S80 (07-)
25	31212507	Heavy right V70 (08-)
25	31212508	Heavy left V70 (08-)
26	31212509	Light right V70 (08-)
26	31212510	Light left V70 (08-)
27	31255231	Police right V70 (08-)
27	31255232	Police left V70 (08-)
28	30781484	CCD left
28	30781485	CCD right
29	31255243	Police right XC70 (08-)
29	31255244	Police left XC70 (08-)
30	31212807	Right XC70 (08-)
30	31212804	Left XC70 (08-)
31	31262150	Right XC70 (08-)
31	31262149	Left XC70 (08-)
32	31262419	Right S80 (07-)
32	31262420	Left S80 (07-)
33	31262421	Right V70 (08-)
33	31262422	Left V70 (08-)
34	31262171	Light right S80 (07-)
34	31262172	Light left S80 (07-)
35	31262175	Heavy right S80 (07-)
35	31262176	Heavy left S80 (07-)
36	31255529	Right V70R sport chassis
36	31255528	Left V70R sport chassis
37	31255531	Right V70R sport chassis
37	31255530	Left V70R sport chassis
38	31255533	Right V70R sport chassis
38	31255532	Left V70R sport chassis
39	31277627	Right XC60
39	31277626	Left XC60
40	31277454	Right XC60

Chassis code

Chassis code	Shock absorber	Remarks
40	31277453	Left XC60
41	31262242	Right S80L
41	31262243	Left S80L
42	31262244	Right S80L AWD
42	31262245	Left S80L AWD
43	31277370	Right XC60
43	31277371	Left XC60
44	31258230	Right XC60
44	31258231	Left XC60

3 Anti-roll bar, front

Chassis code	Anti-roll bar	Remarks
1	31262887	22 mm
2	31262889	22mm 8-cyl
3	31262888	22 mm
4	31255249	23.5 mm Police
5	31262886	21 mm
6	31262327	23.5 mm XC60
7	31262982	S80L

4 Spring, rear

Chassis code	Spring	Remarks
11	31202529	Nivomat
12	31202530	Nivomat
13	31202522	Nivomat
14	31202527	Nivomat
15	31202531	2WD Nivomat
16	31202532	4WD Nivomat
17	31202533	Nivomat
18	31202528	Nivomat
19	31202524	
20	31202525	
21	31202526	
22	30681765	
23	30681766	
24	30681767	
25	30681768	
26	30681769	
27	30681770	

Chassis code

Chassis code	Spring	Remarks
28	30681771	
29	30681772	
30	30681773	
31	30681774	
32	30681775	
33	30681776	
34	31255236	Police V70 (08-)
35	31255242	Police V70 (08-)
36	31255248	Police XC70 (08-)
37	31255313	Police V70 (08-)
38	31255314	Police V70 (08-)
39	30714230	XC70 (08-)
40	30736911	XC70 (08-)
41	30681562	XC70 (08-)
42	30736344	XC70 (08-)
43	30748790	XC70 (08-)
44	30681561	XC70 (08-)
45	31202575	XC70 (08-)
46	31202576	XC70 (08-)
47	31202577	XC70 (08-)
48	31202578	XC70 (08-) Nivomat
49	31202579	XC70 (08-) Nivomat
50	31202580	XC70 (08-) Nivomat
51	31262730	Nivomat
52	31262729	Nivomat
53	31255522	V70R Sport chassis Nivomat
54	31255523	V70R Sport chassis Nivomat
55	31255524	V70R Sport chassis Nivomat
56	31255525	V70R Sport chassis Nivomat
57	31255526	V70R Sport chassis Nivomat
58	31255527	V70R Sport chassis Nivomat
59	31255883	XC70 Police
60	30760314	XC60 Nivomat
61	30760323	XC60 Nivomat
62	30760234	XC60 Nivomat
63	31280484	XC60
64	31280483	XC60
65	31280482	XC60

Chassis code	Spring	Remarks
66	31280026	V70 Nivomat
67	31280027	V70 Nivomat
68	31280028	V70 Nivomat
69	31280029	V70 Nivomat
70	31280030	V70 Nivomat
71	31262236	V70 Police
72	31262236	V70 Police AWD

5 Shock absorber, rear

Chassis code	Shock absorber	Remarks
11	30736943	Light
12	30736944	Nivomat
13	30736945	Nivomat
14	30736946	Heavy
15	30760971	Light
16	30760972	Nivomat
17	31200215	Heavy
18	31200262	Nivomat
19	31200384	Nivomat
20	31200386	Light
21	31200627	Nivomat, light S80 (07-)
22	31200754	Light, USA S80 (07-)
23	31200755	Heavy, USA S80 (07-)
24	31200756	Nivomat, heavy S80 (07-)
25	30781483	Nivomat S80 (07-)
26	31201060	Light, EU S80 (07-)
27	31201061	Heavy, EU S80 (07-)
28	31255235	Police, 2WD Nivomat V70 (08-)
29	31255241	Police, 4WD Nivomat V70 (08-)
30	30748760	Nivomat V70 (08-)
31	30714221	Light V70 (08-)
32	30748258	Heavy V70 (08-)
33	30714222	Nivomat, light V70 (08-)
34	31212485	Nivomat, heavy V70 (08-)
35	31255247	Police, Nivomat XC70 (08-)
36	31212805	XC70 (08-)
37	31262151	XC70 (08-)
38	31212866	Nivomat XC70 (08-)

Chassis code

Chassis code	Shock absorber	Remarks
39	30736342	Nivomat XC70 (08-)
40	31262315	Nivomat XC70 (08-)
41	31277051	Nivomat V70 (08-)
42	31277050	Nivomat S80 (07-)
43	31262390	V70 US
44	31262173	S80 EU
45	31262177	S80 EU
46	31262691	V70 Nivomat
47	31262692	V70 Nivomat
48	31262693	XC70 nivomat
49	31255534	S80R
50	31255535	S80R
51	31277530	XC60
52	51277664	XC60 Nivomat
53	31280031	V70 Nivomat
54	31262238	S80L
55	31262239	S80L AWD
56	31277372	XC60 AWD
57	31277455	XC60 Nivomat
58	31258232	XC60 Nivomat
59	31277782	XC60 AWD

6 Anti-roll bar, rear

Chassis code	Anti-roll bar	Remarks
0	-	Without the anti-roll bar
1	30736874	19 mm
2	30748920	20 mm
3	30748921	21 mm
4	31200475	20 mm XC70 (08-)
5	31255250	Police XC70 (08-)
6	30714587	21 mm XC60
7	31280263	S80L
8	31280264	S80L AWD

7 Auxiliary spring, front

Chassis code	Auxiliary spring	Remarks
1	30736505	
2	30794010	

Chassis code

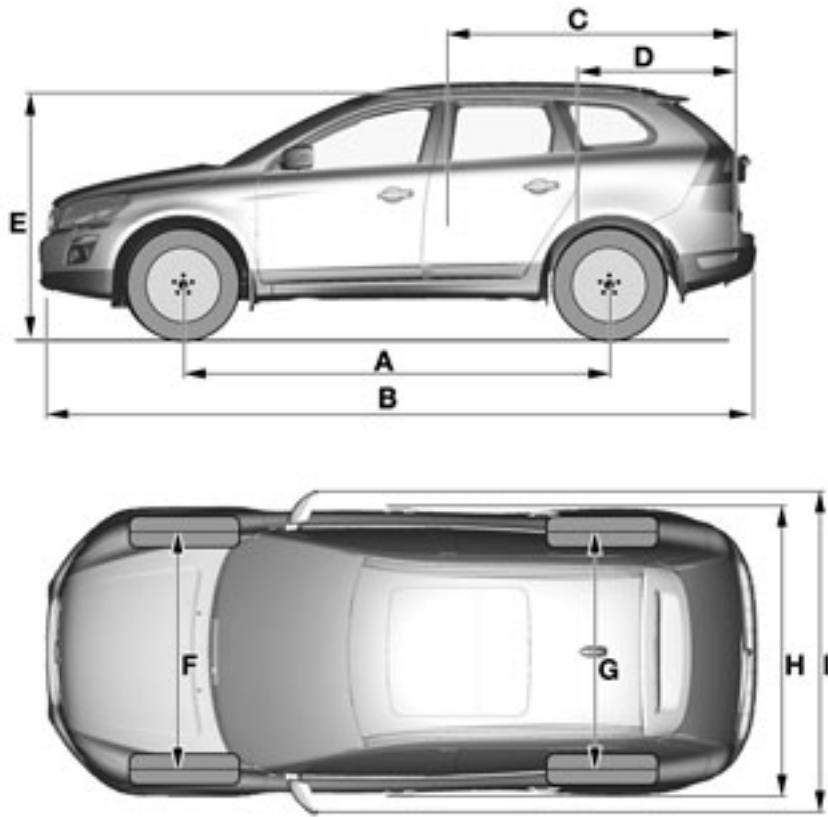
3	31255536	
4	31277535	XC60

8 Auxiliary spring, rear

Chassis code	Auxiliary spring	Remarks
1	30683170	
2	30748171	Nivomat
3	30760768	
4	31277310	
5	31277311	
6	31255537	
7	31262885	XC60

Dimensions

Dimensions



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Dimensions

S80/V70		mm
A	Wheelbase	2835
B	Length	4851
C	Cargo length, floor, rear seat folded down	S80 1927
C	S80L 2061
	V70 1878
D	Cargo length, floor	S80 1094
D	V70 1089
E	Height	11490
F	Track width 16 inch rims: For 17" rims the track width is 10 mm narrower (0.4")	
F	Front	1588
G	Rear	1585
H	Width	1831
I	Width incl. door mirrors	2106
	Ground clearance S80/V70	FWD/AWD 149/141

Dimensions

S80/V70		mm
..... XC70		210
Aerodynamic Cd	S80	0.29
..... V70		0.31
..... XC70		0.35

Dimensions

XC60		mm
A	Wheelbase	2774
B	Length	4628
C	Cargo length, floor, rear seat folded down	1789
D	Cargo length, floor	972
E	Height	1713
	Track width 17 inch rims: For 18" rims the track width is 10 mm narrower (0.4 inches)	
F	Track width front	1632
G	Track width rear	1586
H	Width	1891
I	Width incl. door mirrors	2142
Ground clearance	AWD	230
Aerodynamics	Cd	0.35

Weight information, refer to the product plate at the front left wheel well and the registration card.

Section 1 Service and maintenance**Group 17 Service****Engine oil**

Do not use oil additives. Additives may damage the engine.

Volvo fully synthetic engine oil is recommended for **extreme driving conditions** that result in increased oil consumption.

Volvo recommends Castrol® oil products.

Engine	Oil grade	Viscosity	Volume between MIN - MAX	Volume Including oil filter
B5254T8	ACEA A5/B5	SAE 0W-30	1.3 litres	5.5 litres
B5254T6	ACEA A5/B5	SAE 0W-30	1.3 litres	5.5 litres
B6324S 2007	ACEA A5/B5	SAE 0W-30	0.8 litres	7.3 litres
B6324S 2008-	ACEA A5/B5	SAE 0W-30	1.2 litres	7.4 litres
B8444S	ACEA A5/B5	SAE 0W-30	1.1 litres	7.0 litres
D5244Tx	ACEA A5/B5	SAE 0W-30	1.5 litres	6.0 litres
B6304T2	ACEA A5/B5	SAE 0W-30	1.2 litres	7.4 litres
B4204S3/S4	WSS- M2C913-B	SAE5W-30	0.8 litres	4.3 litres
D4204T	WSS- M2C913-B	SAE5W-30	1.8 litres	5.0 litres

Gearbox oil

Transmission	Oil grade	Oil change volume
TF-80SC	BOT 341	6.7 litres
M66	BOT 350 M3	1.9 litres
MMT6	BOT 350 M3	1.7 litres
MTX75	BOT 350 M3	1.9 litres
MPS6	BOT 341	5.5 litres

Power steering oil

	Oil grade	Quantity
Power steering fluid, power steering gear: The oil does not normally need to be changed.	WSS M2C204-A	1.2 litres

Brake and clutch fluid

	Grade	Quantity
Brake and clutch fluid Change oil every other year	DOT 4+	0.6 litres

Coolant (Closed overpressure)

	Volume
B4204S3/S4	7.5 litres
B6324S/ B6304T2	8.9 litres
B5254T2	9.0 litres
B8444S	10.2 litres
D4202T	9.1 litres
D5244X	12.6 litres

Washer fluid

Volume with headlamp washer	6.5 litres
Volume without headlamp washer	4.5 litres

Rear gear oil (center gear)

	Grade	Change volume
Rear gear oil (center gear)	API GL-5	0.7 litres

Section 2 Engine**Group 20 General****Performance and other data, gasoline and diesel engines:**

Engine type:	Weight complete, including oil	Fuel	Power:		Maximum torque:
	kg		Octane, Cetane	kW / rps	hp / rpm
B4204S3/S4	115	95 Octane	107/100	145/6000	190/4500
B5254T6/T8	163-176	95 Octane	147 / 80	200 / 4800	300 / 1500-4500
B5254T10/T11	163-176	95 Octane	170 / 80	231 / 4800	340 / 1700-4800
B6324S	183	95 Octane	175 / 103	238 / 6200	320 / 3200
B6304T2	192	95 Octane	210 / 93	285 / 5600	400 / 1500-4800
B8444S	191	95 Octane	232 / 99	315 / 5950	440 / 3960
D4204T	163	51 Cetane	100 / 67	136 / 4000	320 / 2000
D5244T4	185	51 Cetane	136 / 67	185 / 4000	400 / 2000-2750
D5244T5	185	51Cetane	120 / 67	163 / 4000	340 / 1750-3000
D5244T10	185	51 Cetane	151 / 67	205 / 4000	420 / 1750-3000
D5244T14	185	51 Cetane	129 / 50-67	175 / 3000-4000	420 / 1500-2750
D5244T16/19	185	51 Cetane	120 / 67	163 / 4000	420 / 1750-3000

Group 21 Cylinder block

Tightening torque for 5, 6 and 8 cyl. engines

Designation	Nm
D5244Tx Drain plug oil pan	38
B8444S/ B5254Tx Drain plug oil pan	50
Battery positive cable to starter motor solenoid	11
Fuel pressure regulator	Stage 1 60 Nm Stage 2 slacken off 90° Stage 3 80 Nm
B8444Sx Centre nut vibration damper (crankshaft)	Stage 1 120 Nm Stage 2 slacken off 360° Stage 3 50 Nm Stage 4 90 Nm
D5244Tx Centre nut vibration damper (crankshaft)	300
B5254Tx Centre nut vibration damper (crankshaft)	180
Centre screw, exhaust camshaft	Step 1 75 Nm Stage 2 90°
Centre screw, intake camshaft	110
Centre screw idler pulley	35
B6324S/ B6304T2 Cylinder head	Stage 1 45 Nm Stage 2 45 Nm Step 3 90° Step 4 180°
B8444Sx Cylinder head (NOTE! Tighten the screws in sequence from the centre outwards)	Step 1 40 Nm Stage 2 90 Nm
B5254Tx Cylinder head (NOTE! Tighten the screws in sequence from the centre outwards)	Stage 1 20 Nm Stage 2 60 Nm Step 3 130°

Group 21 Cylinder block

Designation	Nm
D5244Tx Cylinder head (NOTE! Tighten the screws in sequence from the centre outwards)	Stage 1 20 Nm Stage 2 slacken off Step 3 20 Nm Step 4 50 Nm Step 5 90° Step 6 90°
Mounting screw control valve high pressure pump	Stage 1 4 Nm Step 2 7 Nm
Sub-frame to chassis	Step 1 150 Nm Stage 2 90°
Sub-frame to chassis (Rear screws)	150
Sub-frame to chassis (Front screws)	Step 1 150 Nm Stage 2 90 Nm
XC70 (08-) Sub frame upper to collision member	100
XC70 (08-) Sub frame lower to collision member	100
Sub-frame bracket to bodywork	60
Pipe screw (oil pressure pipes/turbocharger (TC))	38
B6324S/ B6304T2 Adjustment screw inner timing cover	3
Camshaft bearing cap	10
B5254Tx/D5244Tx Piston cooling valve	45
B6324S/ B6304T2 Piston cooling valve	32
Bracket engine suspension to cylinderhead	48
Timing gear pulley, camshaft	30
D5244Tx Carrier plate	Stage 1 . . . 45 Nm Step 2 50°
B8444Sx/ B6324S/ B6304T2 Carrier plate	80
B6324Sx/B6304T2 Intermediate shaft generator side	40

Group 21 Cylinder block

Designation	Nm
B6324Sx/B6304T2 Intermediate section to cylinder block	see VIDA method: Renovation/ Crank mechanism/ Crank mechanism, assembling
B8444Sx Oil pressure sensor	14
D5244Tx B5254Tx Oil pressure pipe to engine (banjo screw) M14x1.5	38
B6304Tx Oil pressure pipe to engine (banjo screw) M16x1.5	48
D5244Tx Oil pressure pipes to turbocharger (banjo screw) M12x1.5	38
B5254Tx, B6304T Oil pressure pipes to turbocharger (banjo screw) M12x1.5	26
B6324S Plug (oil delivery line, cylinder block)	38
Plug (gauge hole/crankshaft adjustment)	38
Pulley auxiliaries belt	60
Belt tensioner auxiliaries belt M8	24
B8444S Belt tensioner auxiliaries belt	90
SIPS member to sub frame bracket	60
Flywheel	Stage 1 ... 45 Nm Stage 2 65°
D5244Tx Vibration damper	300
B5254Tx Vibration damper	180
D5244Tx Vibration damper (flange screw M8x25)	Stage 1 ... 35 Nm Step 2 50°
B5254Tx Vibration damper (flange screw M8x25)	Stage 1 25 Nm Stage 2 60°
Crankcase connection-turbocharger (TC)	25

Group 21 Cylinder block

Designation	Nm
B5254Tx	120
VVT unit (centre screw)	
Cap connecting rod	Step 1 12 Nm Stage 2 ... 20 Nm Step 3 90°

Tightening torques for diesel engine: D4204T

Tightening torques for lubricated screws and nuts:	Nm
Belt tensioner (for toothed belt, camshaft)	21 Nm
Engine mounting in cylinder head, right hand side	56 Nm
Centre screw/vibration damper (crankshaft front edge)	Stage 1 70 Nm Stage 2 60°
Cylinder head NOTE! Tighten the screws in sequence from the centre outwards	Stage 1 60 Nm Stage 2 220°
Mounting screws, generator mounting (3XM8)	24 Nm
Mounting screw, auxiliary equipment, tensioner (M8)	24 Nm
Mounting screw, camshaft position sensor	2 Nm
Mounting screw, transmission (M10)	50 Nm
Pipe screw (oil pressure pipes/cylinder block)	40 Nm
Camshaft position (CMP) sensor	2 Nm
Piston cooling nozzle	10 Nm
Oil pan (M7)	17 Nm
Flywheel	48 Nm
Pressure plate	24 Nm
Sub-frame screw (front screws)	Stage 1 ... 120 Nm
(rear screws)	Step 2 280 Nm

Tightening torques for gasoline engines: B4204S3/S4

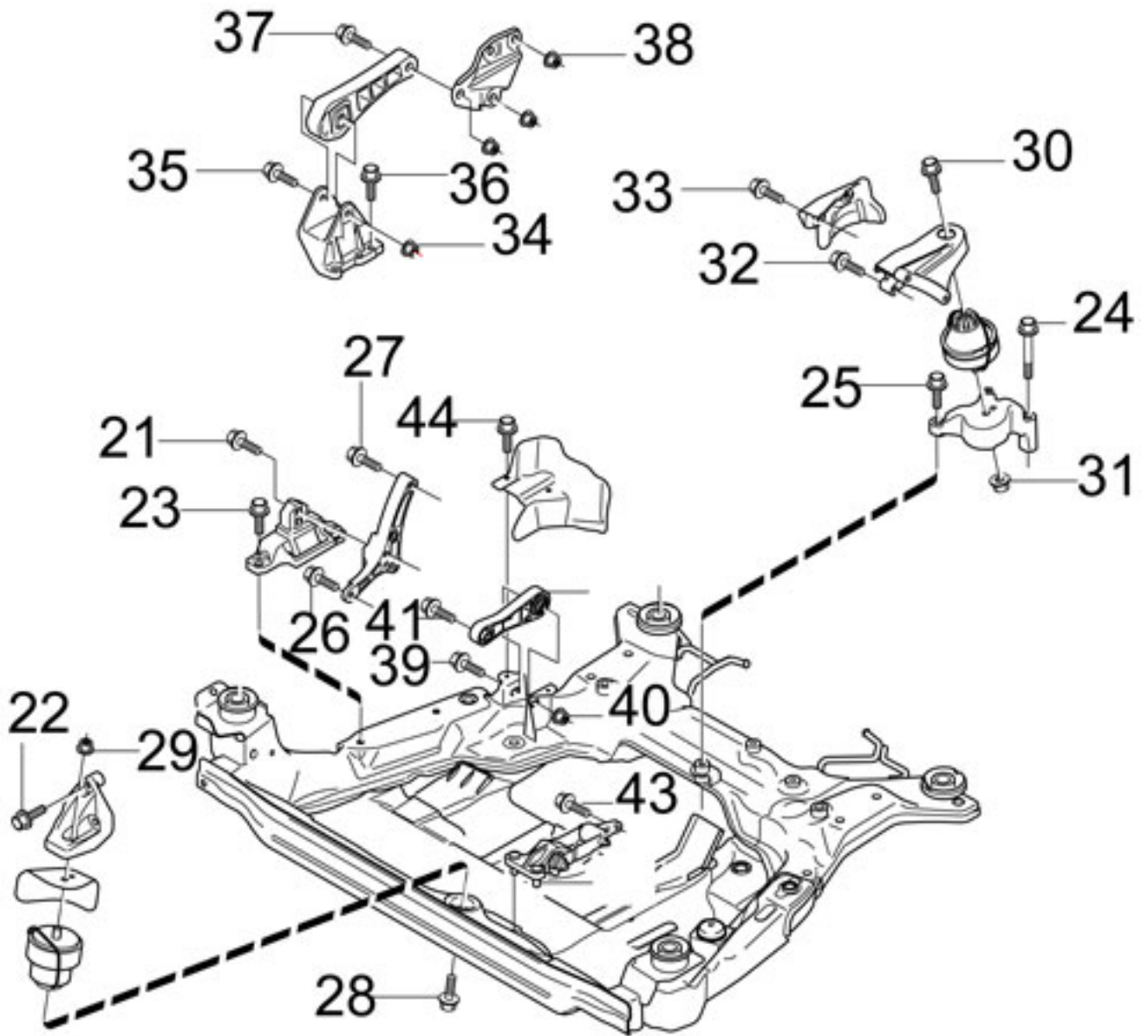
Tightening torques for lubricated screws and nuts:	Nm.
Cylinder head	Stage 1 5 Nm Step 2 15 Nm Step 3 45 Nm Step 4 90° Step 5 90°
Chain control	10 Nm
Chain tensioner	10 Nm
Camshaft bearing cap	Step 1 7 Nm Step 2 16 Nm

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Camshaft pulley	72 Nm
Camshaft position sensor	7 Nm
Timing cover	M6 10 Nm M10 50 Nm
Crankshaft pulley	Step 1 ... 100 Nm Stage 2 90°
Valve cover	M6 10 Nm
Sump plug	28 Nm
Plug engine block	20 Nm
Oil drain plug	28 Nm
Flywheel	Stage 1 30 Nm Stage 2 90°
Auxiliary equipment, belt tensioner	M8 24 Nm
Sub-frame bracket to bodywork)	60 Nm

Group 21 Engine mounting

Engine mounting B8444S

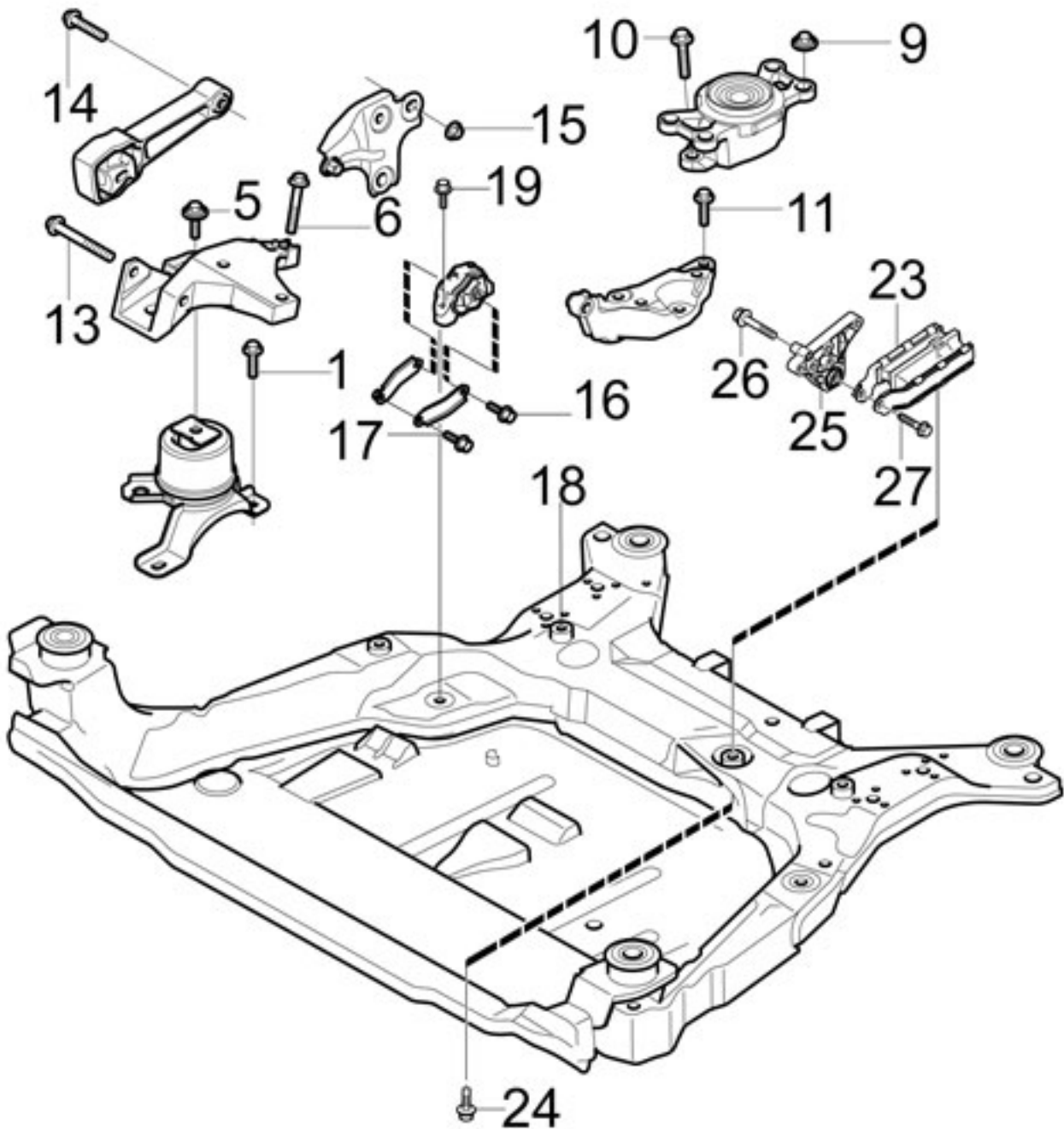


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Engine mountings B8444S

Position	Designation	Nm lubricated
21	Engine mountings, right 2xM10x50	Stage 1 ... 35 Nm Stage 2 90°
23	Right engine mounting - frame 2xM12x30	Stage 1 ... 65 Nm Stage 2 30°
26	Right engine mounting - engine sump 2xM10x30	50
27	Right engine mounting - cylinder block 2xM10x80	50
22	Engine mounting, front - engine 3xM10x55	50
28	Engine mounting, front - frame 1xM10x30	50
29	Engine mounting, nut front - mounting 1xM10x11.4	50
24	Engine mounting, rear - frame 1xM10x90	50
25	Engine mounting, rear - frame 2xM10x40	50
30	Engine mounting, rear - mounting 1xM10x30	50
31	Engine mounting, nut rear - mounting M10x11.4	50
32	Engine mounting, rear - transmission 3xM10x50	50
33	Heat shield - engine mounting rear 2xM6x16	5
34	Upper torque rod mounting, nut - upper torque rod 1xM12x13.8	80
35	Upper torque rod mounting - upper torque rod 1xM12x90	80
36	Upper torque rod mounting - cylinder block 3XM10x35	50
37	Upper torque rod mounting - upper torque rod 1xM12x80	80
38	Upper torque rod mounting - spring unit 3xM12x13.8	80
39	Lower torque rod - frame 1xM12x70	100
40	Lower torque rod - frame	100
41	Lower torque rod - bearing housing mounting 1xM12x70	80
44	Heat shield - frame 2xM6x12	9
42	Deflection limiter - frame 2xM12x14.2	Stage 1 ... 65 Nm Stage 2 60°
43	Deflection limiter - transmission 2xM10x35	Stage 1 ... 35 Nm Stage 2 40°

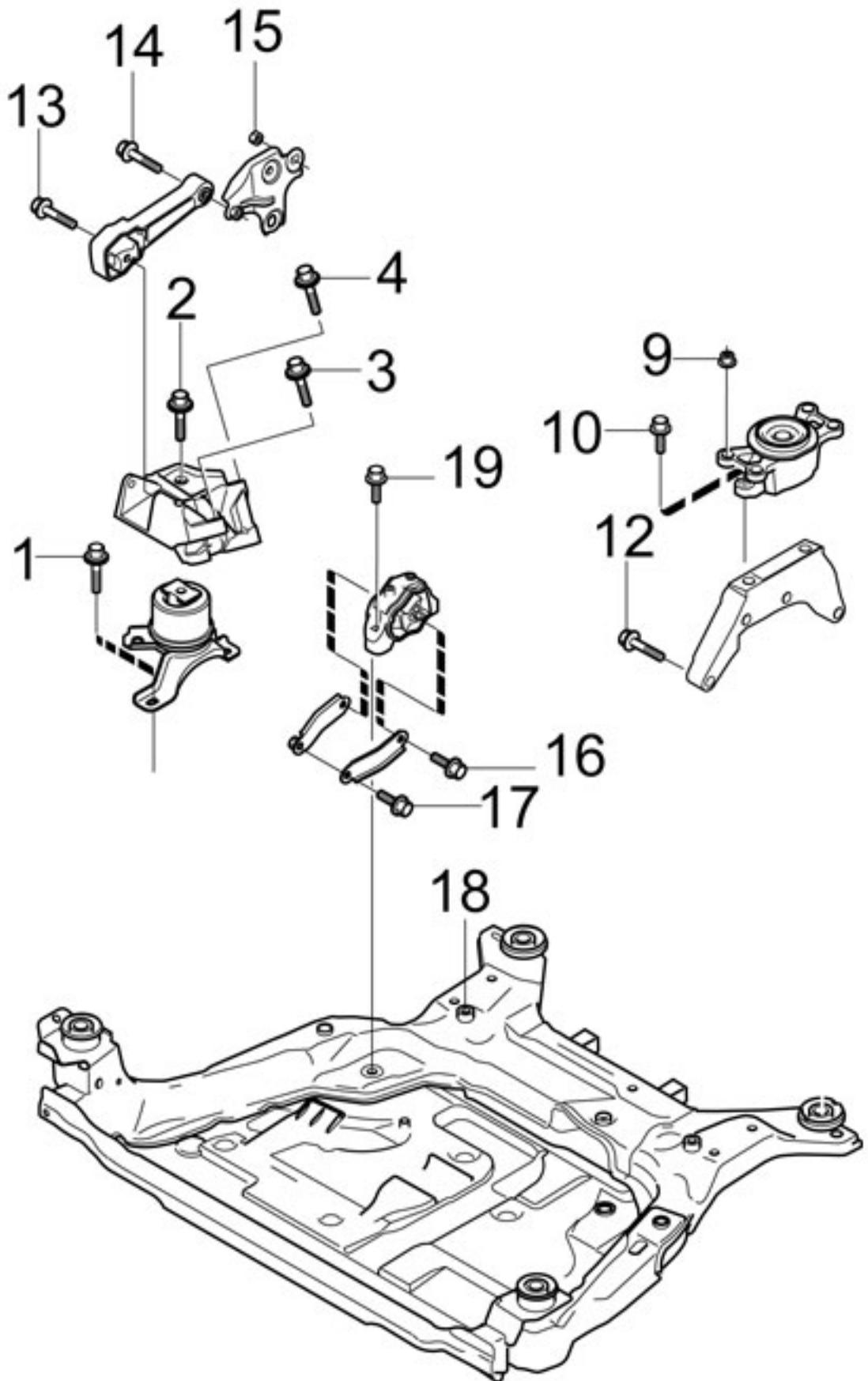
Engine mounting B6324S and B6304T2



Engine mountings B6324S and B6304T2

Position	Designation	Nm (lubricated)
1	Right engine mounting - chassis 3xM12x35x41.8	80
5	Right engine mounting - engine mounting 1xM12x45	80
6	Right engine mounting - engine 3xM12x80	80
9	Left engine mounting nut - chassis 4xM12x15.3	80
10	Left engine mounting - bracket 2xM14x55	175
11	Transmission mounting left- transmission 4xM12x45 TF80-SC	80
13	Upper torque rod - right engine mounting 1xM12x110x117.9	110
14	Upper torque rod - chassis mounting 1xM12x65	110
15	Upper torque rod nut chassis - chassis 3xM12x13.8	80
16	Right-hand rear lower torque rod -large socket 1xM12x85x92.8	110
17	Lower torque rod - small socket 1xM12x60x67.8	110
18	Lower torque rod large socket - frame 2xM12x75x82.6	110
19	Heat shield - lower torque rod socket 2xM6x12	10
20	XC70, XC60 (not pictured) Cross member	100
21	Impact member for subframe	100
22	Impact member for subframe	100
23	New rod w0920 Left-hand rear lower torque rod	
24	M12x63 Left-hand rear lower torque rod - chassis	80
25	Torque rod console	
26	from w0920 S80, V70, XC60 FWD	50
	M10x45 Transmission mounting	
27	M12x70 Flange bolt	110

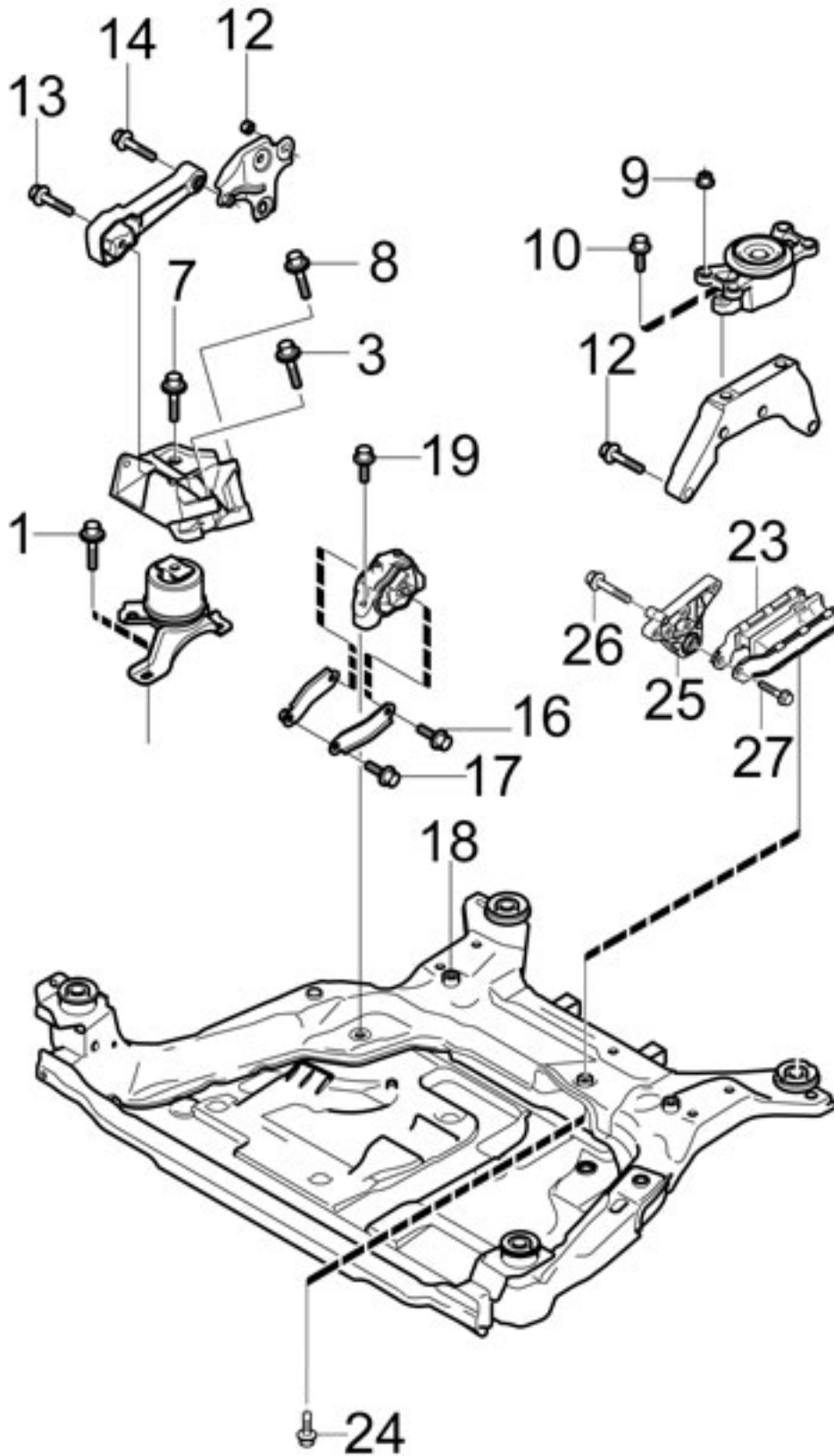
Engine mounting B5254T6 and B5254T8



Engine mountings B5254T6 and B5254T8

Position	Designation	Nm (lubricated)
1	Right engine mounting - chassis 3xM12x35x41.8	80
2	Right engine mounting - engine mounting 1xM12x45	80
3	Right engine mounting - engine 2xM12x140x146.8	80
4	Right engine mounting - engine 1xM12x55x62.8	80
9	Left engine mounting nut - chassis 4xM12x15.3	80
10	Left engine mounting - bracket 2xM14x55	175
12	Transmission mounting left - transmission 4xM12x60 M66	80
13	Upper torque rod - right engine mounting 1xM12x110x117.9	110
14	Upper torque rod - chassis mounting 1xM12x65	110
15	Upper torque rod nut chassis - chassis 3xM12x13.8	80
16	Lower torque rod - large socket 1xM12x85x92.8	110
17	Lower torque rod - small socket 1xM12x60x67.8	110
18a	Lower torque rod large socket - frame 2xM12x75x82.6	Front: Stage 1 90 Nm Step 2 80°
18b		Rear: 110 Nm
19	Heat shield - lower torque rod socket 2xM6x12	10

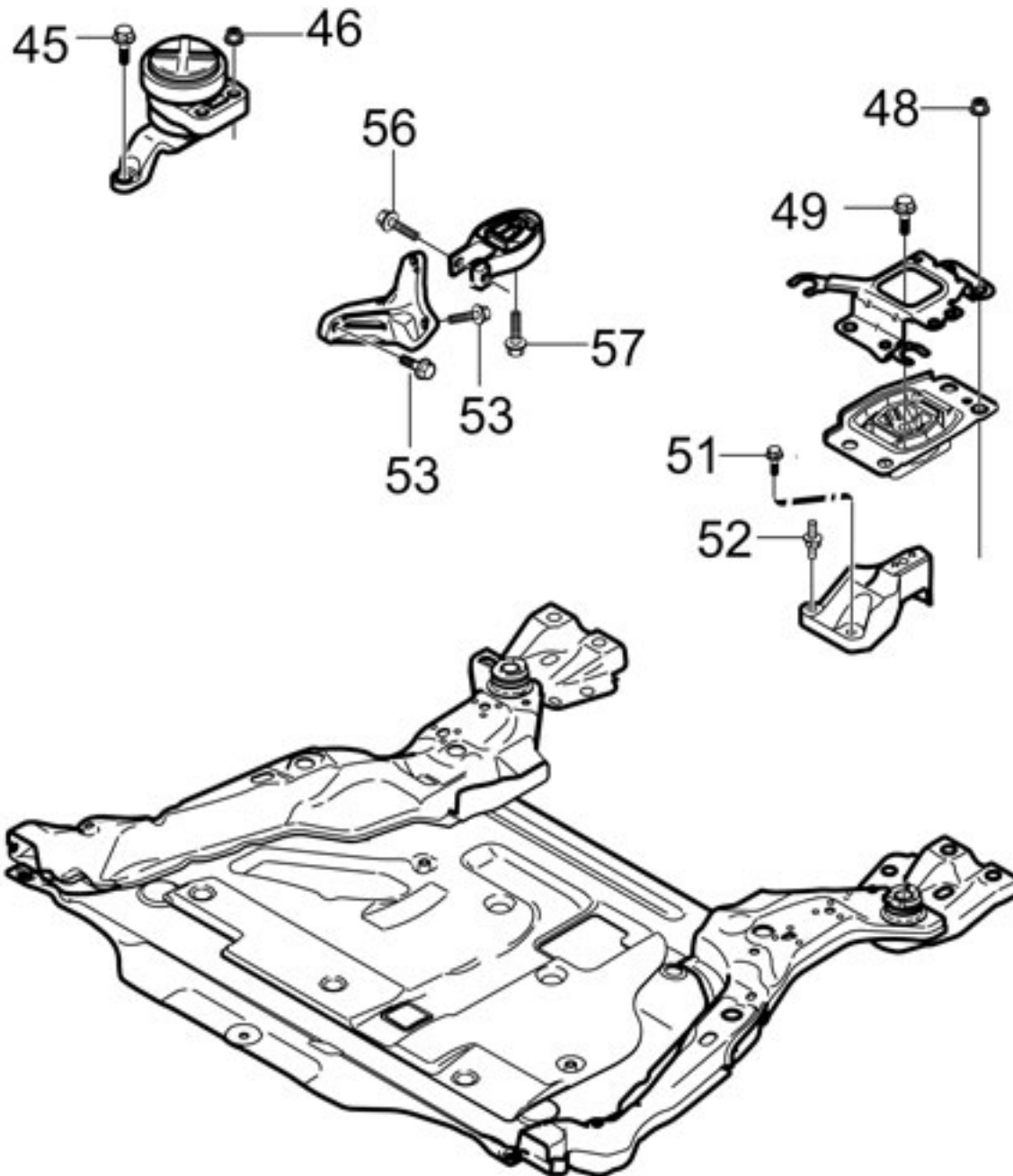
Engine mounting D5244TX



Engine mounting D5244TX

Position	Designation	Nm (lubricated)
1	Right engine mounting - chassis 3xM12x35x41.8	80
3	Right engine mounting - engine 2xM12x140x146.8	80
7	Right engine mounting - mounting 1xM12x45	80
8	Right engine mounting - engine 1xM10x50x56.7	48
9	Left engine mounting nut - chassis 4xM12x15.3	80
10	Left engine mounting - bracket 2xM14x55	175
11 (not in illustration)	Transmission mounting left- transmission 4xM12x45	80
	TF80-SC	
12	Transmission mounting left- transmission 4xM12x60	80
	M66	
13	Upper torque rod - right engine mounting 1xM12x110x117.9	110
14	Upper torque rod - chassis mounting 1xM12x65	110
15	Upper torque rod nut chassis - chassis 3xM12x13.8	80
16	Right-hand rear lower torque rod -large socket 1xM12x85x92.8	110
17	Lower torque rod - small socket 1xM12x60x67.8	110
18	Lower torque rod large socket - frame 2xM12x75x82.2	110
19	Heat shield - lower torque rod socket 2xM6x12	10
20	XC70, XC60 (not pictured) Cross member	100
21	Impact member for subframe	100
22	Impact member for subframe	100
23	New rod w0846 S80, V70, w0920 XC60, XC70 Left-hand rear lower torque rod	
24	M12x63 Right-hand rear lower torque rod - chassis	80
25	Torque rod console	
26	M10x45 Transmission mounting	50
27	M12x70 Flange bolt	110

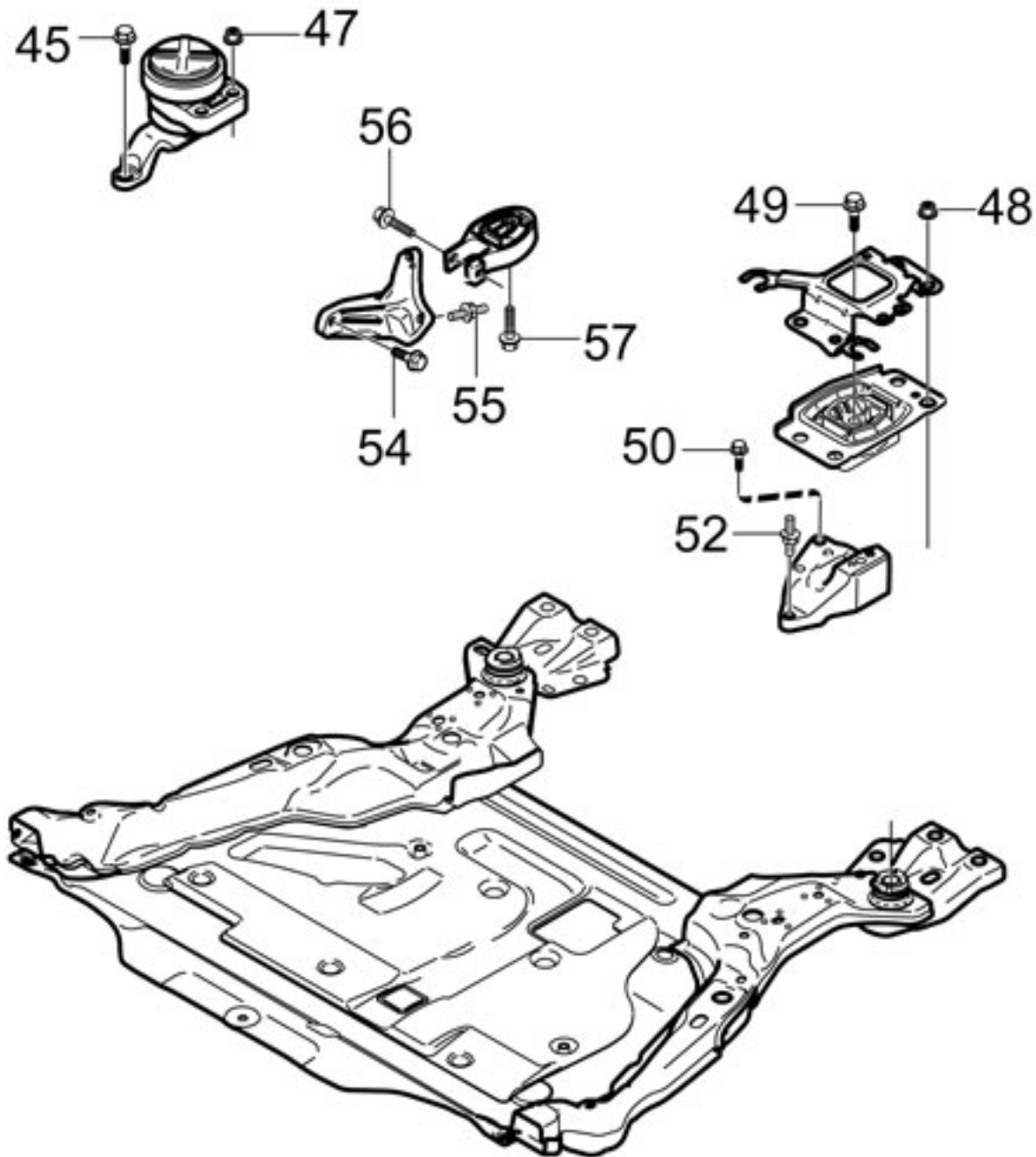
Engines mounting B4204S3/S4



Engines mounts B4204S3/S4

Position	Designation	Nm (lubricated)
45	Right-hand engine pad - body sems screw 2xM12x40x48.4	80 Nm
46	Right-hand engine pad - engine flange lock nut 2xM12x13.8	80 Nm
48	Left-hand engine pad - body sems screw 4xM12x15.3	80 Nm
-	Left-hand engine pad - body M8	24 Nm
49	Left-hand engine pad - transmission mounting flange screw M14x55x63	130 Nm
51	Transmission mounting - transmission flange screw 2xM12x45	80 Nm
52	Transmission mounting - transmission stud bolt M8x12	80 Nm
53	Transmission mounting - transmission flange screw 3xM10x45	50 Nm
56	Torque rod lower - transmission mounting flange screw M12x70	80 Nm
57	Torque rod lower - subframe flange screw M12x63	80 Nm

Engine mounting D4204T



Engine mounts D4204T

Position	Designation	Nm (lubricated)
45	Right-hand engine pad - body sems screw 2xM12x40x48.4	80 Nm
47	Right-hand engine pad - engine stud 2xM14x100, 77x28/ flange lock nut M14x15.9	Stud to engine 12 Nm/Nut to pin screw 20 Nm
48	Left-hand engine pad - body sems screw 4xM12x15.3	80 Nm
49	Left-hand engine pad - transmission mounting flange screw M14x55x63	80 Nm
50	Transmission mounting - transmission flange screw 3xM12x45	80 Nm
52	Transmission mounting - transmission stud bolt M8x12	80 Nm
54	Transmission mounting - transmission flange screw M10x45	50 Nm
55	Transmission mounting - transmission stud bolt 2xM10x10	50 Nm
56	Torque rod lower - transmission mounting flange screw M12x70	80 Nm
57	Torque rod lower - subframe flange screw M12x63	80 Nm

Group 22 Lubrication system**Tightening torque for 5, 6 and 8 cyl. engines**

Designation	Nm
D5244Tx Piston cooling valve	45
B5244Tx/ B6324S/ B6304Tx Piston cooling valve	32
Cap oil filter	25
Oil filter	25
Oil cooler	17

Tightening torques for Diesel engine: D 4204X

Tightening torques for lubricated screws and nuts:	Nm
Oil filter (environmental filter)	26 Nm
Oil plug in oil pan	38 Nm
Oil pump (M7)	17 Nm
Oil drainage pipe (turbo)	10 Nm
Oil pressure switch	15 Nm

Tightening torques for gasoline engines: B4204S3/S4

Tightening torques for lubricated screws and nuts:	Nm.
Oil pressure switch	35 Nm
Oil pump	Step 1 10 Nm Step 2 23 Nm
Oil pump, chain tensioner	10 Nm

Oil pressure

Oil pressure: Engine at operating temperature with thermostat open and new oil filter	B5244XX	D5244TX	B6324S B6304T	B8444S
Idle speed MPa 67.7 rps (4000 rpm), minimum MPa 33.3 rps (2000 rpm) MPa	0.1 0.35 -		0.12 0.35 0.25	0.6 0.4 -
The relief valve opens at a pressure of Mpa	0.48	0.55	0.45	0.5
Maximum oil pressure: . . . MPa	0.7	0.7	0.7	0.7
Oil pressure sensor: Breakpoint, indicator lamp goes out . . . MPa	0.04 - 0.06	0.06	n/a	0.02 - 0.04

Group 22 Lubrication system

Oil pressure: Engine at operating temperature with thermostat open and new oil filter	D4204T	B4204S3/S4
Idle speed MPa		0.1-0.2
67.7 rps (4000 rpm), minimum MPa	0.4	
33.3 rps (2000 rpm) MPa	0.2	0.23-0.37
The relief valve opens at a pressure of Mpa	0.8	0.5
Maximum oil pressure: MPa		
Oil pressure sensor: Breakpoint, indicator lamp goes out MPa	0.05	0.05

Oil volumes and oil grades, see: Section 1: Service and maintenance, Group 17: Service

Group 23 Fuel system

Group 23 Fuel system

Tightening torque

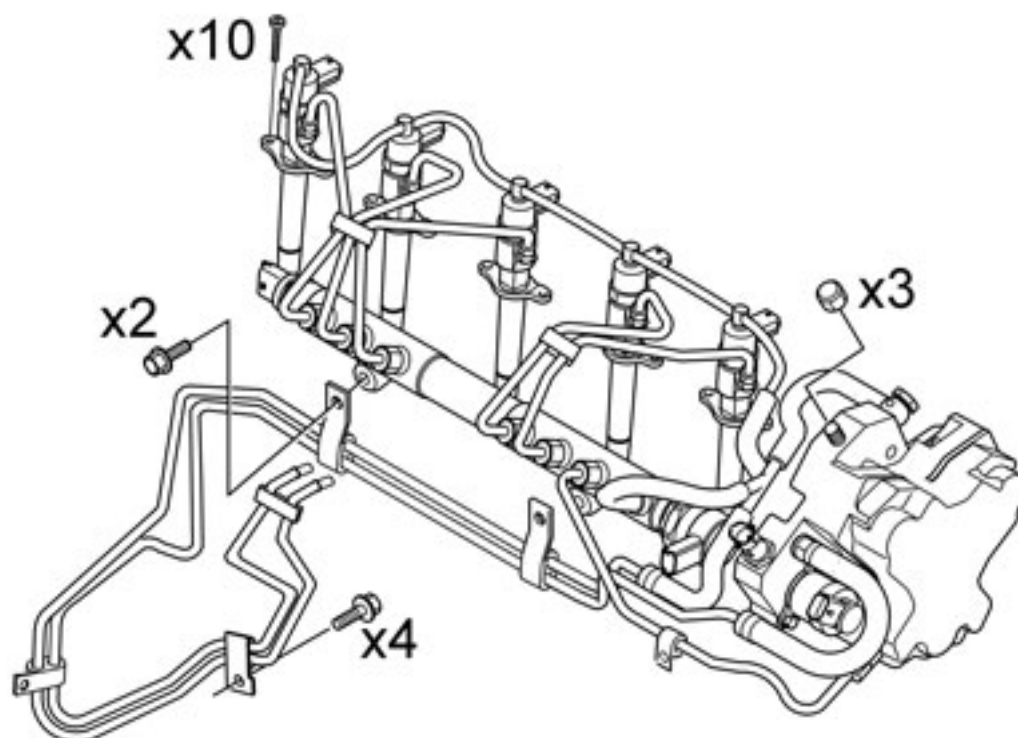
Designation	Nm
Fuel filter	25
Drain screw to fuel filter	2
Fuel pump (plastic nut)	85
Fuel pump to tank	85
Fuel pressure regulator	Stage 1 60 Nm Stage 2 slacken off 90° Stage 3 80 Nm
Mounting screw control valve high pressure pump	Stage 1 4 Nm Step 2 7 Nm

Fuel system, diesel engine D5244TX

	Type	Make
High-pressure pump:	Piston pump	Bosch

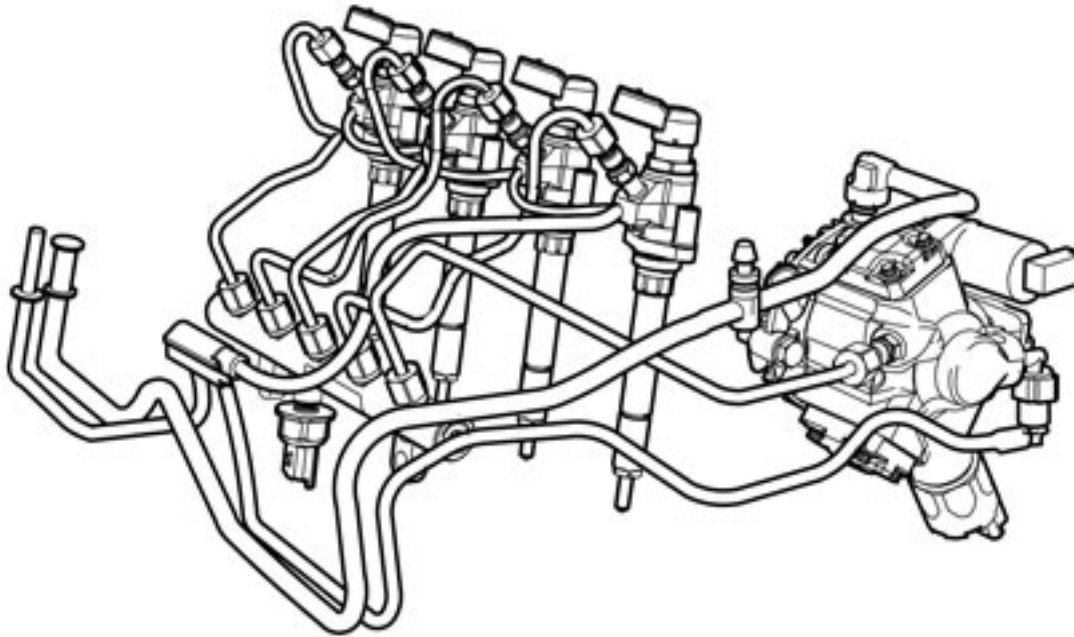
Fuel system

D5244TX	210 kPa
Turbocharger (TC) boost pressure, absolute pressure:	



Tightening torque

D5244TX	Nm
X10 Injectors: 1 - 5, two screws per injector, M6	13±1
X2, Rail secured with 2x M8x50 screws	25±6
X4, Fuel line secured with 4x M7 screws	14 ± 3
X3, High-pressure pump 3x M7 screws	18 ± 2
Fuel pressure pipe 12x nuts	28±3
Clamp on pipe number 6 fastened with M6	10±1
Fuel pressure sensor/fuel rail	70
Fuel control valve/rail:	Stage 1 60
	Step 2 80
Fuel temperature sensor/high pressure pump	21
Hollow screw/fuel delivery, high pressure pump	21
Hollow screw/fuel return, high pressure pump	25
Mounting screw control valve high pressure pump	Step 1 4
	Step 2 7
Fuel injection pump	18
Fuel injector	13



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Tightening torques for Diesel engine: D 4204X

Function group 23	
Fuel pump, plastic nut	85 Nm
High pressure delivery line	Step 1 6 Nm Step 2 23 Nm
Mounting nuts for injector mounting	Stage 1 4 Nm Step 2 45°
Fuel injection pump	20 Nm
Plastic nuts, fuel tank unit	85 Nm

Group 25 Intake and exhaust system**Tightening torque for 5, 6 and 8 cyl engines unless variants are specified**

Designation	Nm
B5254Tx B6304Tx	Stage 1 5
Exhaust manifold - turbocharger (TC), nuts	Stage 2 25
Exhaust manifold - turbocharger (TC), studs	20
Catalytic converter to exhaust system	24
B5254Tx B6304Tx	25
Exhaust system, flange front - rear pipe	
Exhaust system, pipe to exhaust manifold	25
B8444S, B6324S	19
Intake manifold, cylinder head side	
D5244TX	20
Intake manifold, cylinder head side	
Exhaust system, pipe to turbocharger (TC) (Use copper paste)	40
Three-way catalytic converter (TWC) stay - block	25

Tightening torques for Diesel engine: D 4204X

Tightening torques for lubricated screws and nuts:	Nm
Mounting nuts, exhaust manifold	30
Manifold (cylinder head side)	30
Pipe screw (oil pressure pipes/turbocharger (TC))	38
Pipe screw (coolant pipes/turbocharger (TC))	26
Intake manifold	Stage 1 5 Step 2 9
Temperature sensor catalytic converter (front and rear)	30
Turbocharger (TC) unit (to manifold) (M8)	24
Catalytic converter (M8)	24
Throttle body	10

Tightening torques for gasoline engines: B4204S3/S4

Tightening torques for lubricated screws and nuts:	Nm.
Heated oxygen sensor (HO2S)	45
Exhaust manifold to cylinder head	55
EGR valve (M8)	24
Intake manifold	18

Group 26 Cooling system**Tightening torque for 5, 6 and 8 cyl engines unless variants are specified**

Designation	Nm
Radiator to condenser	5
D5244Tx/ B8444S Coolant pipes to turbocharger (banjo screw) M14x1.5	26
B5245Tx/ B6324S/ B6304Tx Coolant pipes to turbocharger (banjo screw) M14x1.5	38

Tightening torques for Diesel engine: D 4204X

Tightening torques for lubricated screws and nuts:	Nm
Mounting nuts, thermostat housing (M7)	17
Water pump (M7)	17

Tightening torques for gasoline engines: B4204S3/S4

Tightening torques for lubricated screws and nuts:	Nm.
Radiator -condenser	5
Coolant pump, pulley (M8)	24
Coolant, outlet connection	10
Thermostat housing (M6)	10

General

Use Volvo Genuine parts **green coolant** (see table below) diluted 50/50 with **clean water**.

This mixture prevents corrosion and frost damage.

Never top up with water only.

The coolant does not usually need replacing.

In the case of larger repairs when coolant needs to be drained, new coolant must be used because the old coolant has been exposed to oxidation and dirt.

Cooling system: Capacity, pressure and thermostat

Engine type:	Volume litres	Expansion tank		Thermostat		
		pressure valve opens at		Marking	°C	
		Over pressure kPa	Negative pressure kPa		Starts to open	Fully open
B4204SX	7.8	150	10	90°	90°	105°
B5254Tx	8	150	10	90°	90°	105°
D4204T	9.4	150	10	90°	90°	105°
D5244Tx	9.0	150	10	90°	90°	105°
B6324S	8.9	150	10	90°	90°	105°

Group 26 Cooling system

Engine type:	Volume litres	Expansion tank pressure valve opens at		Thermostat °C		
		Over pressure kPa	Negative pressure kPa	Marking	Starts to open	Fully open
B6304T	8.9	150	10	90°	90°	105°
B8444S	10.7	150	10	90°	90°	105°

Group 28 Ignition system**Tightening torque for all engines unless variants are specified**

Designation	Nm
Knock sensor (KS)	20
Heated oxygen sensor (HO2S)	45
Temperature sensor fuel system	21
Temperature sensor high pressure pump	21
Temperature sensor catalytic converter (front and rear)	45
B84444S Temperature sensor, engine coolant	22
Pressure sensor fuel rail	70
Spark plugs	28
B4204T Spark plugs	12
B4204T Ignition coil	10

General

Engine type	Ignition system
B5254T6/T8	Bosch ME
D5244TX	EDC 16 C31
B6324S	Denso
B6304T	Denso
B8444S	Denso
B4204S3/S4	Denso
D4204T	Siemens

Technical data, ignition coil, spark plug, sensor, engine cooling fan etc:

Components related to the ignition system	
Electrode distance B5254T6:	0.7 mm
Electrode distance B5254T8	0.8 mm
Electrode distance B8444S:	1,1 mm
Electrode distance B6324S:	0.8 mm
Electrode distance B6304T2:	0.7 mm
Resistance in coil, at 20C°/ 68F° degrees	125 ± 17 Ω
Inductance in coil, at 20C°/ 68F° degrees	85 ± 10 mH(1 kHz)
Camshaft position sensor	See VIDA

Components related to the ignition system		
Engine cooling fan (FC), control module		40 A
Resistance in coil		80 Ω

B4204S3/S4

Components related to the ignition system		
Spark plugs:	Spark gap	1.3+/-0.05
Spark gap	Piezo-electric crystal.	4,87 Ω
Crankshaft position (CKP) sensor	Inductive sensor with permanent magnet:	400-550 Ω
Camshaft position (CMP) sensor	Inductive sensor with permanent magnet:	400-550 Ω
Fuel injector		12+/-0,6 Ω
T-MAPS	Piezo resistive linear pressure sensor	Measurement range 20 - 250 kPa
	NTC resistor	4.65 V (250 kPa)
Heated oxygen sensor (HO2S) front	Binary sensor.	9
Heated oxygen sensor (HO2S) rear	Binary sensor.	9

Components Bosch ME-9, EDC 16 C31 :

Components related to the ignition/fuel system		
Type ME:		
Control module	Built-in atmospheric pressure sensor	
Throttle unit	Integrated motor and position sensor	
Accelerator pedal (AP) position sensor	Pulse width modulated and linear signal (digital / analogue)	
Pressure regulator		Line pressure 380 kPa
Mass air flow (MAF) sensor	Mass air flow (MAF) sensor resistive film	Measurement range 12 - 640 kg/h
Fuel pump		Pump capacity > 125 l/min (380 kPa and 13 V) 7.5 A
Fuel injector		Resistance, coil: 12 Ω

Group 28 Ignition system

Components related to the ignition/fuel system Type ME:		
T-MAPS: Charge air pressure sensor, Intake air temperature sensor	Piezo resistive linear pressure sensor NTC resistor	Measurement range 20 - 250 kPa D5244Tx: Measurement range 20 - 250 kPa.
Turbocharger regulator	PWM controlled valve	Resistance 29.7 Ω
Camshaft reset valve VVT	PWM controlled valve	Resistance 3.7 Ω
Knock sensor B5254T6	Piezo-electric crystal	Resistance 4.87 M Ω
Knock sensor B8444S, B6324S and B6304T2	Piezo-electric crystal	Resistance 200 K Ω
Camshaft position (CMP) sensor	Magneto-resistive sensor with a permanent magnet	
Engine speed (RPM) sensor.	Inductive sensor with permanent magnet	Resistance 125.5 \pm 17 Ω (20°C)
Heated oxygen sensor (HO2S), front Preheating	Linear sensor	Resistance 3 Ω , (20°C)
Heated oxygen sensor (HO2S), rear Preheating	Binary sensor	Resistance 9 Ω , (20°C)
D5244Tx: Heated oxygen sensor (HO2S)	Linear sensor	Resistance 3.2 Ω , (20°C)
Ignition coil	Individually mounted ignition coil	
Spark plug type	J-type	
Outside temperature sensor	NTC resistor	
Air conditioning (A/C) pressure switch (Pressostat)	Pressure switch	
A/C pressure sensor	Linear pressure sensor	Measurement range 0 - 3100 kPa
EVAP valve (not for D5244Tx)	Pulse width modulated	Resistance 20 \pm 1.5 Ω
Tank pressure sensor	Piezo electric linear pressure sensor	
Fuel pump (FP) relay	Frequency controlled mechanical relay	

Components related to the ignition/fuel system Type ME:		
Engine cooling fan (FC) control module	PWM controlled discharge module with variable output voltage and diagnosis	
System relay	Mechanical relay	Resistance 80 Ω
Clutch pedal position sensor	Self-adjusting	
Brake pedal position sensor	Self-adjusting	
Brake lamp switch	Two. One switch and one sensor	
Engine coolant level switch	Level indicator	
Oil pressure switch (not D5244Tx)	Pressure switch	

Mass air flow (MAF) sensor

	Mass flow Q kg/h	12 kg/h	15 kg/h	30 kg/h	60 kg/h
Bosch ME9	Voltage V	1.3V	1.4V	1.7V	2.1V

Boost pressure sensor

	Pressure kPa	90	101	150	200
Bosch ME9	Boost pressure sensor V	1.7	1.9	2.8	3.7
EDC 16 C31	Boost pressure sensor V	1.46	1.63	-	3.13

Engine coolant temperature (ECT) sensor

	Temperature °C)	10°	20°	80°	100°
Bosch ME9	Resistance Ω	3700	2450	318	184
EDC 16 C31	Resistance Ω	3700	2450	-	184
EDC 16 C31	Voltage V	3.7	3.2		0.6

Temperature sensor, intake air:

	Temperature °C)	0°	20°	30°	40°
Bosch ME9	Resistance Ω	5886 \pm 5%	2510 \pm 5%	1715 \pm 5%	1199 \pm 5%

Outside temperature sensor

	Temperature °C)	0°)	20°	25°	30°
Bosch ME9	Resistance Ω	6318	2424	1941	1513
Bosch ME9	Voltage V	4.3	3.5	3.3	3

Group 28 Ignition system

EDC 16 C31	Resistance Ω	6318	2424	-	1564
EDC 16 C31	Voltage V				

A/C compressor:

Bosch ME9	Sensor switching temperature $^{\circ}\text{C}$	6.5		5.5	
Bosch ME9	Status On/Off	On		Off	

Clutch pedal position sensor

Bosch ME9	Position mm	0	25	50	100
	Resistance Ω	1500 - 2500	1000 - 2000	750 - 1750	500 - 1000

Brake pedal position sensor

Bosch ME9	Position mm	0	20	30	50
	Resistance Ω	1300 - 2100	1000 - 1800	900 - 1700	600 - 1400

Technical data

Relevant ignition/fuel system EDC 16 C31:

Engine coolant temperature sensor

Temperature . . $^{\circ}\text{C}$	Resistance Ω	Accuracy
-50	80340	± 1.9
-20	15040	± 1.7
0	5740	± 1.6
20	2450	± 1.4
50	811	± 1.2
100	183.6	± 0.7
150	56.9	± 1.4

D4204 T Siemens:

Components related to the Siemens ignition/fuel system:

Throttle unit	Vacuum controlled
Mass air flow (MAF) sensor	Wire mass air flow (MAF) sensor Measurement range 10 - 600 kg/h
Manifold absolute pressure (MAP) sensor	Piezo resistive linear pressure sensor Measurement range 13 - 250 kPa
Temperature sensor inlet	Integrated into the mass air flow (MAF) sensor NTC resistor
Engine coolant temperature (ECT) sensor	NTC resistor
Outside temperature sensor	NTC resistor

Components related to the Siemens ignition/fuel system:	
Fuel pump	High-pressure side, pressure up to 1600 bar
Engine cooling fan (FC) control module	Two-coil relay Resistance 80 Ω , -2002

Section 3 Electrical system

Section 3 Electrical system

Group 31 Battery

System voltage, with ignition off:	12.5 - 12.7 V
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A newly charged battery may have a higher voltage.

Battery, capacity

For the battery capacity, see the table in the manual and the information on the battery.

Battery, disconnecting

Warning! For disconnection of the battery, see VIDA!

Group 32 Generator / Charge regulator**Tightening torques:**

	Nm
Generator B+ terminal	15
Generator gear (freewheel)	80
Nut for pulley	80

Alternators, electrical and mechanical data:

Generator (GEN)		Max speed rps (rpm)	Nominal output: W
Bosch LI-X H7P			
Bosch LI-X H8P	180A	113 (6800)	2500

Alternators, Test values:

	Resistance,
Rotor winding	2,6 Ω
Stator winding	0.06 Ω / phase
E140/8	0.04 Ω / phase
NOTE: Measured with a low ohm voltmeter	

Direction of rotation:

Engine type	Generator (GEN)	Direction of rotation
B4204S3/S4	Bosch LI-X H7P	Clockwise
D4204T	Bosch LI-X H7P	Clockwise
	Bosch LI-X H8P	
B5X	Bosch LI-X H7P	Clockwise
	Bosch LI-X H8P	
B6X	Bosch LI-X H7P	Anticlockwise
	Bosch LI-X H8P	
B8X	Bosch LI-X H8P	Clockwise

Alternators, Readings at stabilised output voltage

Readings at 13.5 V Temperature 25°C (77°F)	Engine speed: 11.3 rps/680 rpm	Engine speed: 38.3 rps/2300 rpm
Bosch LI-X H7P A	90 A	150 A
Bosch LI-X H8P A	105 A	180

Group 33 Starter motor

Group 33 Starter motor

Tightening torque

Designation	Nm
Starter motor	40
D4204TX Starter motor	50
Starter motor B+ terminal	12
Start impulse cable	8.5
D4204TX Glow plug	8
D4204TX Mounting nuts Glow plug	2

Starter motor

Model	Type	kW
B4204S3/S4		1.1
D4204T		2.0
5 cylinder petrol	Visteon/Comstar	1.4
B6324S/T	BOSCH	1.4
B8444S	Denso	2.0
5-cyl diesel	BOSCH	2.2

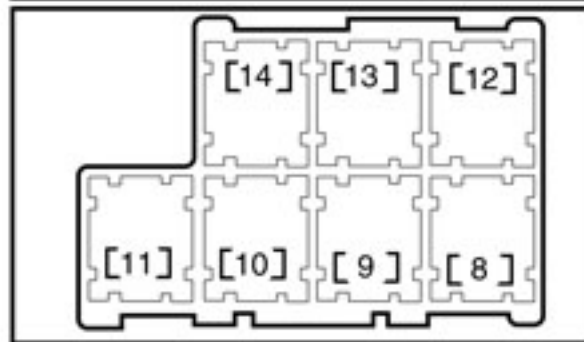
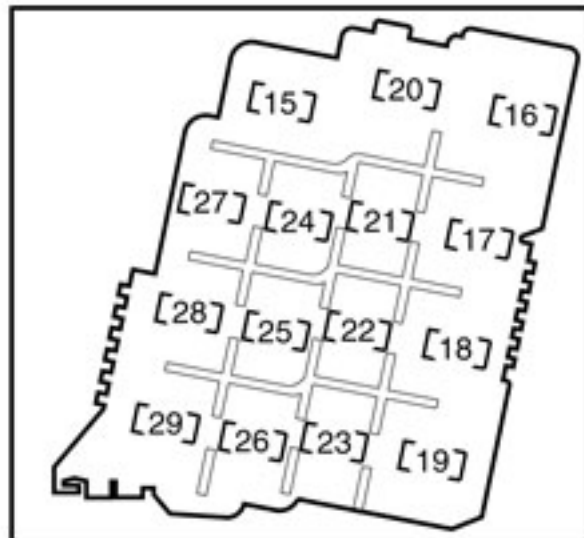
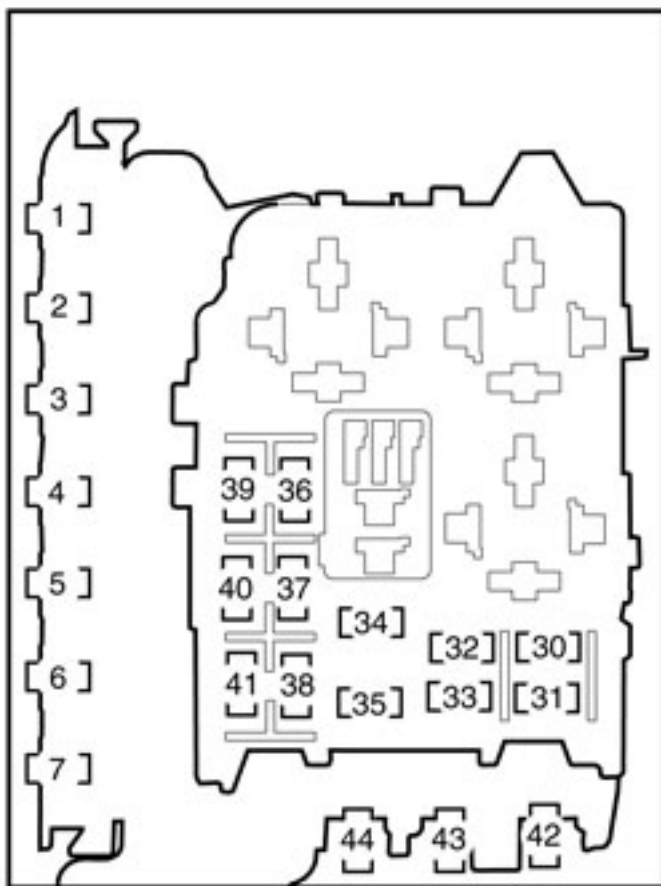
Starter motor

Control solenoid:	
Lowest connection voltage	8 V
Holding voltage	4 V

Test data:

Starter motor, type	BOSCH / Visteon/Comstar	Denso	BOSCH
	12 V 1.4 kW	12 V 2.0 kW	12 V 2.2 kW
Direction of rotation	Clockwise	Anticlockwise	Clockwise
Test value, starter motor unloaded: 11.3 V and max. 70 A, min. 11.3 V and max. 140 A, min. 11.4 V and max. 125 A, min.	2900 (48.3)	4900 (81.6)	4535 (75.6)

Group 37 Fuses



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Fuses in the engine compartment		
Fuse number:	Function	A
1	-2007 Main fuse for fuses in the Central electronic module (CEM)	60
1	2008- Main fuse for fuses in the Central electronic module (CEM)	50
2	-2007 Main fuse for fuses in the Central electronic module (CEM)	60
2	2008- Main fuse for fuses in the Central electronic module (CEM)	50
3	11D/A1-11D/A11 Fuses in the cargo compartment	60

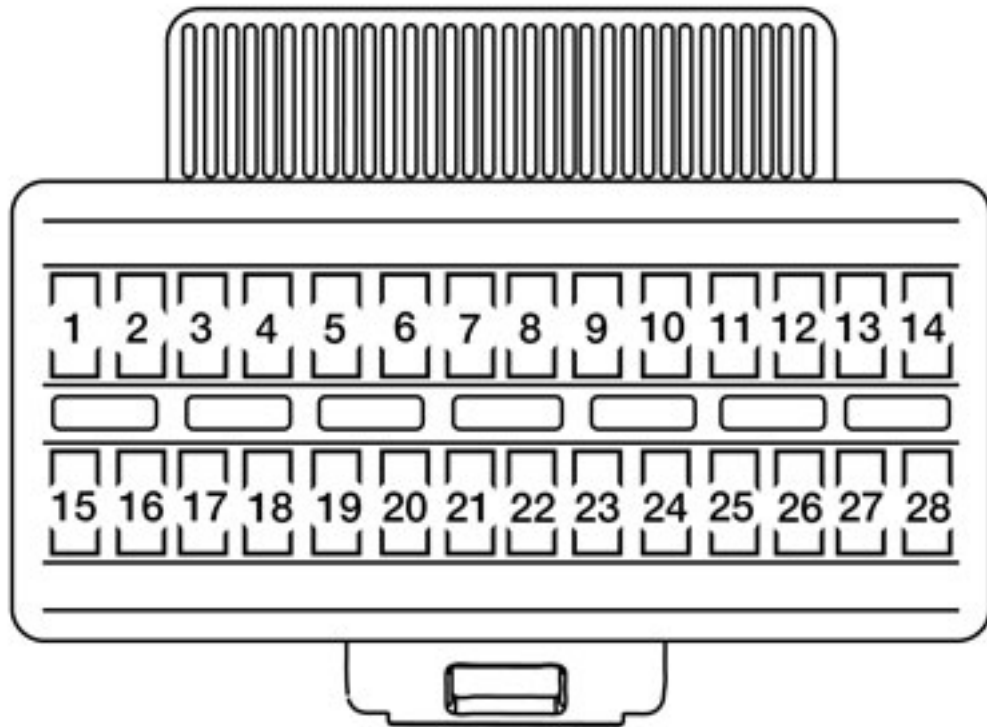
Group 37 Fuses

Fuses in the engine compartment		
Fuse number:	Function	A
4	11D/B1-11D/B8 Fuses in the cargo compartment 11D/C1-11D/C7 Fuses in the cargo compartment	60
5	11D/D1-11D/D7 Fuses in the cargo compartment	50
6	-	-
7	PTC element	100
8	-	-
9	Wiper motor module (WMM)	30
10	Combustion preheater module (CPM)	25
11	Blower fan control module Motor blower fan	40
12	-	-
13	-2007 Brake control module (BCM), pump	30
13	2008- Brake control module (BCM), pump	40
14	Brake control module (BCM), valves	20
15	-	-
16	Headlamp Control Module (HCM) Bulb housing front	10
17	Fuses in the Central electronic module (CEM)	20
18	Forward Sensing Module (FSM) Forward facing radar (FLR)	5
19	Electronic Power Steering Module	5
20	Transmission control module (TCM) Engine control module (ECM) Supplemental restraint system module (SRS)	10
21	Electrically heated washer nozzle windscreen	10
22	Vacuum pump, 5-cyl. T.	20
23	Light switch module (LSM)	5
24	Washer motor headlamp high pressure	15
25	Socket 12 V	15
26	Operating unit roof lamp Sun roof module Damper motor module (DMM) Air quality sensor (AQS)	5

Fuses in the engine compartment		
Fuse number:	Function	A
27	Washer motor headlamp high pressure	15
27	Relay 15 supply, relay comfort functions	5
28	Auxiliary lamps, front	20
29	Horn relay	15
	Horn	
30	Main relay for the engine management system	10
	Engine control module (ECM), not 2.4l Diesel	
31	Transmission control module (TCM)	15
32	Magnetic clutch climate control unit	15
33	Relay, climate control system	5
	Relay coolant pump, 8-cyl	
34	Starter motor	30
35	Spark plugs with ignition coil, Petrol	20
35	Glow plug, Diesel	10
36	Engine control module, Throttle gasoline	10
36	Engine control module, Throttle diesel	15
37	Fuel injectors	15
	Mass air flow (MAF) sensor	
	Engine control module (ECM), 5 and 6-cyl, 2.4l diesel	
37	Mass air flow sensor (MAF) 4-Cyl diesel	10
38	Engine valves	10
39	EVAP	15
	Heated oxygen sensor (HO2S)	
	Injection gasoline	
39	Heated oxygen sensor (HO2S) (4-Cyl. petrol, 5-Cyl. diesel)	10
40	PTC resistor crankcase ventilation, 5 cyl. 2.5l Turbo	20
	Vacuum pump, 5 cyl. 2.5l Turbo	
	PTC resistor crankcase ventilation, 5 cyl. 2.4l diesel	
	Electrically heated fuel filter, 5 cyl. 2.4l diesel	
40	Diesel filter heater, crankcase ventilation heater (4-Cyl. diesel)	15
40	Coolant pump, 8 cyl	10
	Crankcase ventilation heater (5-Cyl. petrol)	
41	Pump fuel leak check, not 2.4l Diesel (-2007)	5

Group 37 Fuses

Fuses in the engine compartment		
Fuse number:	Function	A
42	Glow plug (5-Cyl. diesel)	70
42	Glow plug (4-Cyl. diesel)	60
43	Engine cooling fan (FC) control module, not 2.5l Turbo (-2007)	50
44	Engine cooling fan (4-5-Cyl. petrol, 4-Cyl. diesel)	60
44	Engine cooling fan V8, (6-Cyl. petrol, 5-Cyl. diesel)	80



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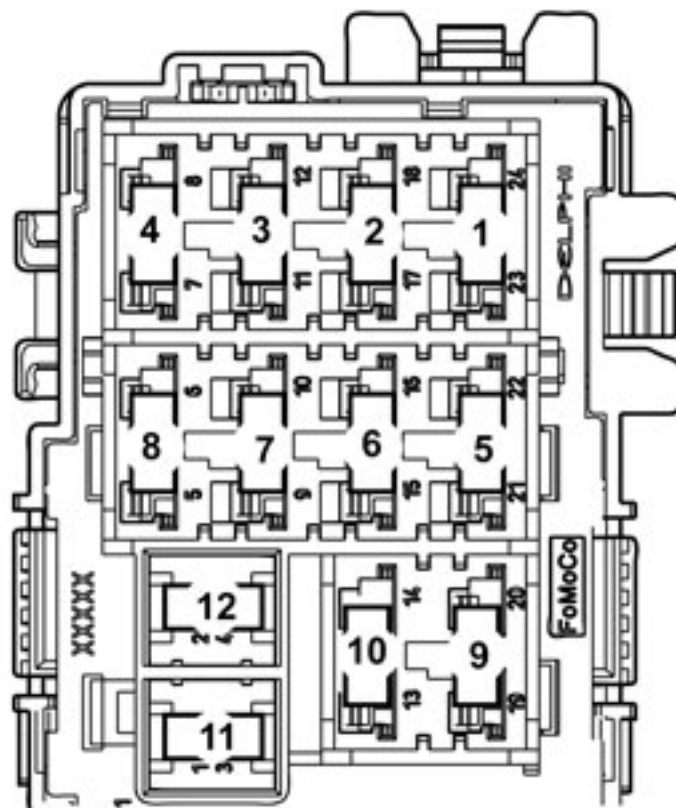
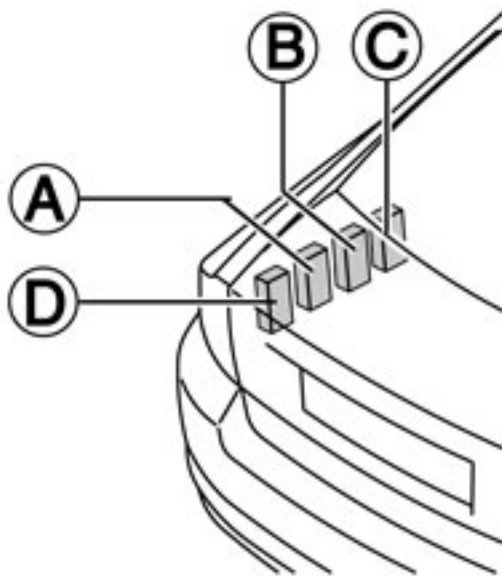
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Central electronic module (CEM)		
Passenger compartment fuses		
Fuse number:	Function	A
1	Rain sensor module (RSM)	5
2	Supplemental restraint system module (SRS) Occupant weight sensor (OWS)	10
3	Park Brake Module (PBM) Brake control module (BCM)	5
4	Switch electrically heated rear seat Holder handsfree mobile telephone Sensor accelerator pedal Automatic anti-dazzle rear-view mirror PTC element	7.5
6	Infotainment control module (ICM) Integrated Audio Module (IAM) Accessory USB unit (AUU)	15
7	Steering wheel module Switch RTI	7.5
8	Spare place	-

Group 37 Fuses

Central electronic module (CEM)		
Passenger compartment fuses		
Fuse number:	Function	A
9	Bulb housing front	15
10	Sun roof module (SRM)	20
11	Tail lamps	7.5
12	Spare place	-
13	Front fog lights	15
14	Washer motor	15
15	Forward Sensing Module (FSM) (-2008)	10
15	2008: Adaptive cruise control, ACC	10
16	Spare place	-
17	Switch window lifts driver's door	7.5
	Control unit, power passenger seat	
	Roof lighting	
	Switch closing boot	
18	Driver information module (DIM)	5
19	Power seat module (PSM)	5
20	Solenoid, rear head restraint	15
	Motor rear wiper, V70, XC60	
21	Heartbeat sensor	5
	Remote key receiver	
	Alarm sensors	
22	Fuel pump	20
23	Steering column lock module (SCL)	20
24	Spare place	-
25	Lock motor central locking trunk lid	10
	Lock motor fuel filler flap	
26	Siren control module (SCM)	5
	Data link connector	
	Climate control module (CCM)	
27	Start control module (SCU)	5
	Start/stop button	
28	Keyless vehicle module (KVM)	5
	Brake lights	

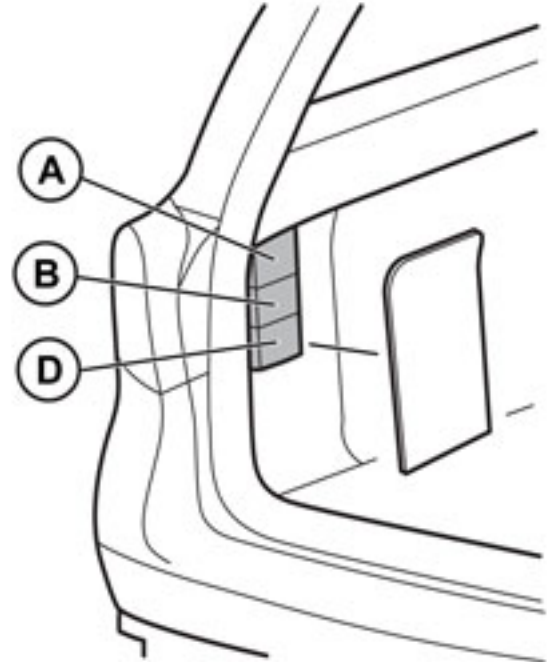
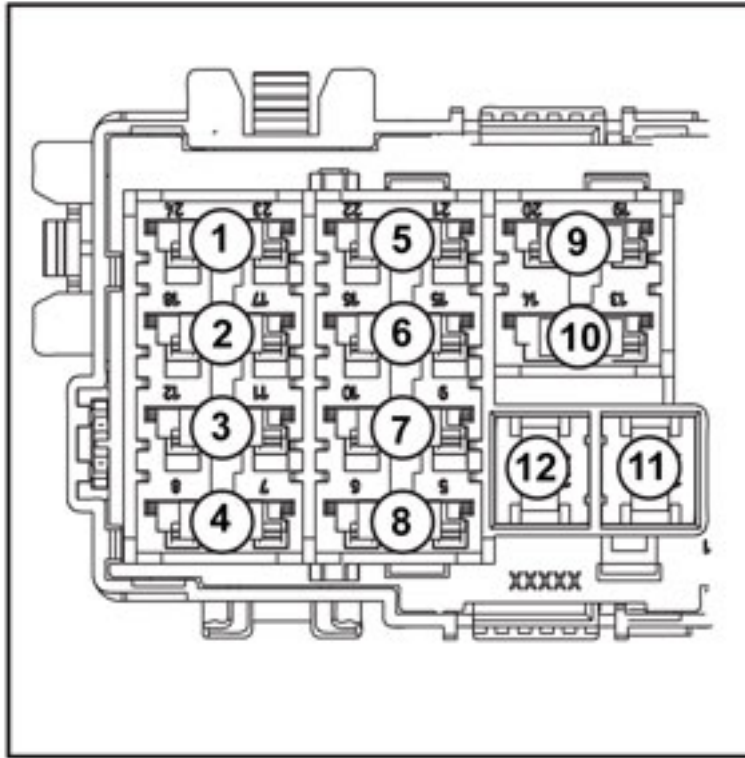
S80 (07-)



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V70 (08-), XC70 (08-), XC60



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Central electrical unit in cargo compartment		
Fuses central A (Black)		
Fuse number:	Function	A
1	Driver door module (DDM)	25
2	Passenger door module (PDM)	25
3	Left rear door module (LDM)	25
4	Right rear door module (RDM)	25
5	Spare place	-
6	Socket 12V cargo compartment	15
7	Relay rear demist Heated rear window, (2008-)	30
8	Fold-down head restraint, Accessory	15
9	Accessories, cable harness tow bar	15
10	Power seat module (PSM) (2007-)	25

Central electrical unit in cargo compartment		
Fuses central A (Black)		
Fuse number:	Function	A
11	Trailer module (TRM), Accessory	40
12	Power Operated Tailgate Module (POT)	30

Central electrical unit in cargo compartment		
Fuses central B (White)		
Fuse number:	Function	A
1	Parking Assistance Camera (PAC) (2007-) Parking assistance module (PAM) (-2007) Trailer module (TRM) (-2007)	5
2	Suspension module (SUM)	15
3	Seat heating module (SHM), left	15
4	Seat heating module (SHM), right	15
5	Seat heating module rear right	15
6	Differential electronic module (DEM)	10
7	Seat heating module rear left	15
8	Spare place	-
9	Control unit, power passenger seat	25
10	Keyless vehicle module (KVM)	20
11	Lock motor brake disc rear left	30
12	Lock motor brake disc rear right	30

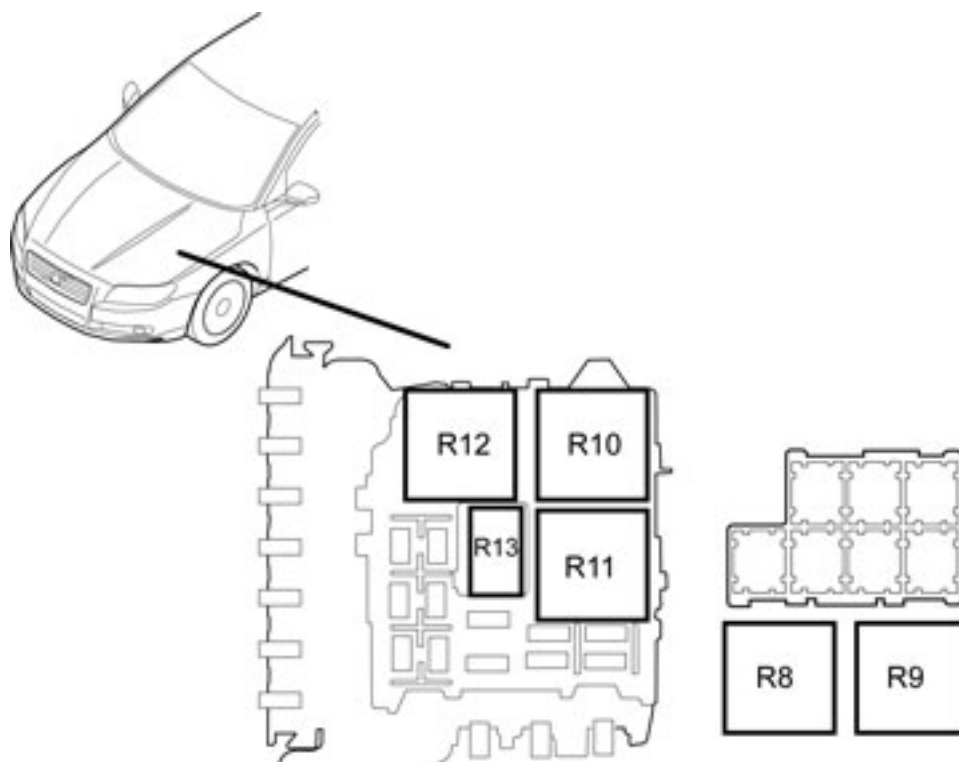
Central electrical unit in cargo compartment - W0640		
Fuses central C		
Fuse number:	Function	A
C2	Lock motor brake disc rear left	30
C3	Lock motor brake disc rear right	30
C4	Keyless vehicle module (KVM)	20
C6	Control unit, power passenger seat	25
C7	Power seat module (PSM)	25

Group 37 Fuses

Central electrical unit in cargo compartment		
Fuses central D (Blue)		
Fuse number:	Function	A
1	High Level Display Front (HLDF) Multimedia module (MMM)	10
2	Spare place	-
3	Subwoofer Module (SUB), V70 (2008-) Spare place, S80 (2008-)	25
4	Remote Digital Audio Receiver (RDAR)	5
5	Audio module (AUD)	25
6	Infotainment control module (ICM) Integrated Audio Module (IAM) Accessory USB unit (AUU)	15
7	Phone module (PHM) Bluetooth phone module (BPM)	5
8-12	Spare place	-

Main fuses at battery		
Fuse number:	Function	A
1	Main fuses for fuses engine compartment	150
2	Starter motor Alternator control module (ACM)	150

Cold zone in engine compartment Relays	
Position	Function
R2	Horn relay

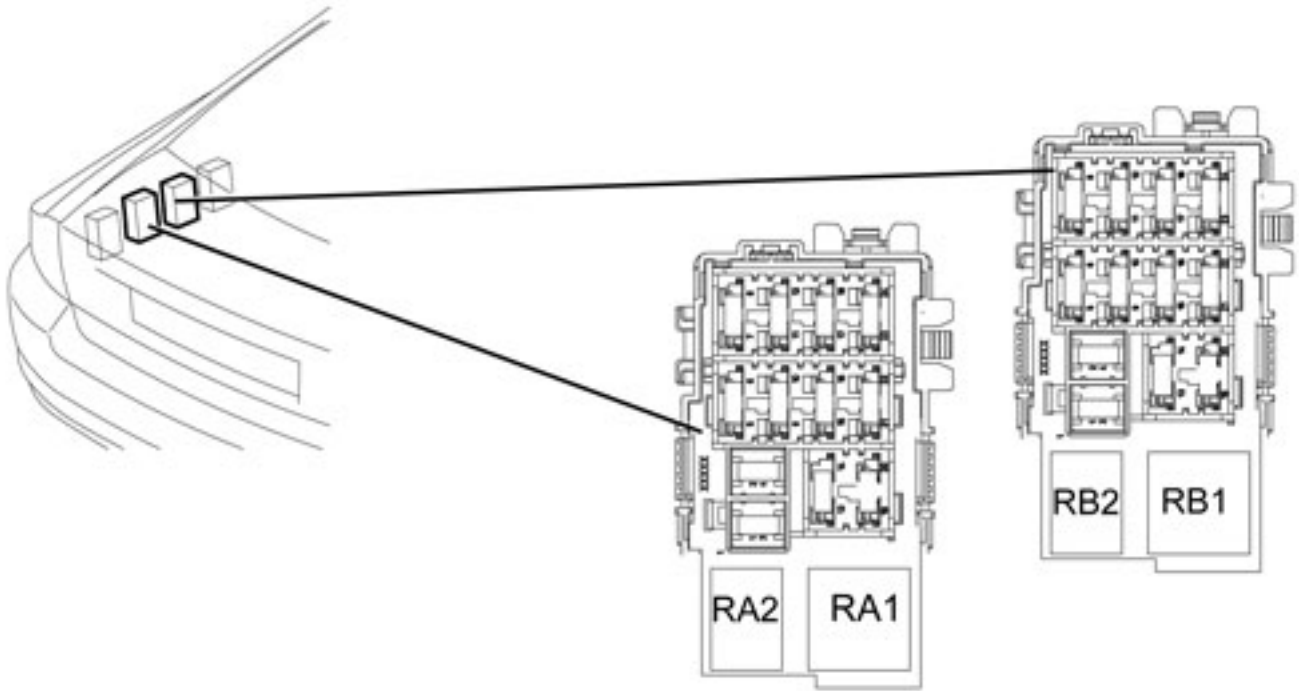


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Central electrical unit in engine compartment Relays	
Position	Function
R8	Relay 15 supply
R9	Relay comfort functions
R10	Main relay for the engine management system
R11	2007- Relay coolant pump, 8-cyl
R12	Relay for the starter motor
R13	Relay, climate control system

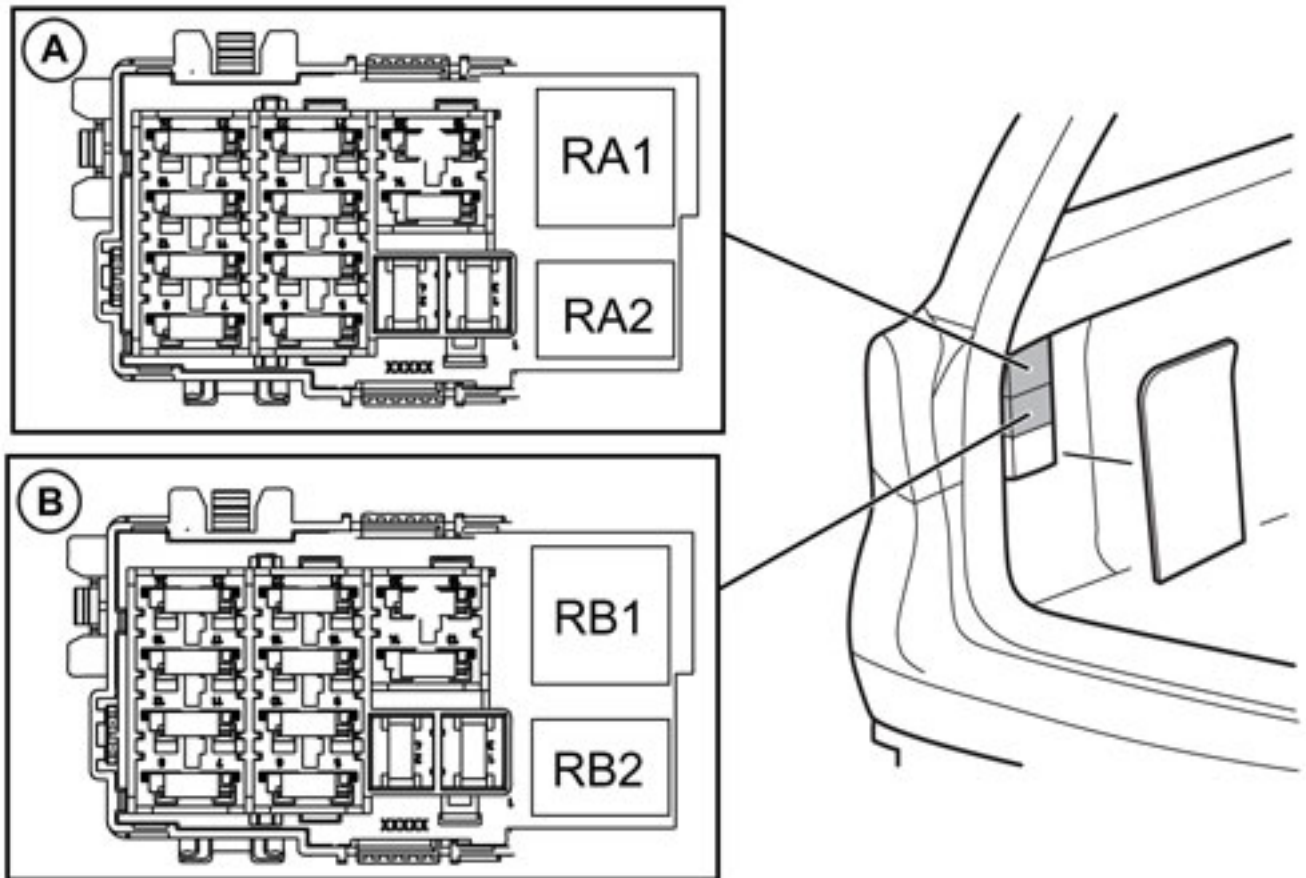
S80 (07-)



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V70 (08-), XC70 (08-), XC60



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Central electrical unit in cargo compartment Relays	
Position	Function
RA1	Relay rear demist
RA2	-2007
RA2	Fold-down head restraints relay rear 2008-
RB1	Relay tailgate wiper Relay 15 supply
RB2	2008- Fold-down head restraints relay rear

Group 38 Instruments, sensors

Group 38 Instruments, sensors

Engine coolant temperature (ECT) sensor:						
Temperature: °C	0°	10°	20°	40°	80°	100°
Resistance Ω	5740	3700	2450	1150	318	184
Voltage Volt	2.65	2.10	1.62	0.92	0.29	0.17

Speedometer

Speedometer, resistance in sensor	Cannot be measured. Check using a VIDA station.
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Section 4 Power gearbox

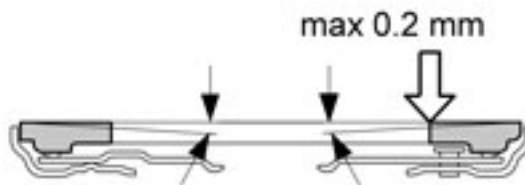
Group 41 Clutch

Tightening torque

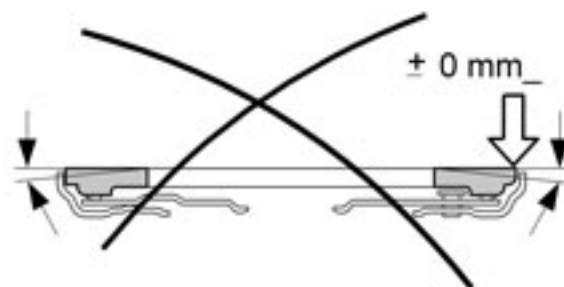
Component:	Nm
Pressure plate, fly wheel	25
Mounting screws, master cylinder	25
Clutch slave cylinder	10

Technical data

Pressure plate, maximum distortion (see illustration below)	0.2 mm
Clutch pedal, travel	130 mm



A4300553



A4300554

Group 43 Gearbox**Tightening torque, M66, TF-80SC**

Designation	Nm
Drain plug	35
Reversing light switch	24
Drive shaft to wheel hub (rear)	35
Drive shaft to wheel hub (front)	Stage 1 45 Nm Stage 2 80°
AWD	30
Propeller shaft (centre bearing)	
Active on Demand Coupling (Pinion nut)	150
Cover control system (Tighten alternately)	14
AWD	180-200
Carrier for bevel gear (pinion nut)	
Carrier plate (screw)	80
Torque converter to carrier plate (screw)	60
Torque rod lower to gearbox	Stage 1 . 35 Nm Stage 2 40°
Level/filler plug	35
Level plug (integrated in drain plug)	8
Oil drain plugs	35
Oil pump (AOC)	5
Control module (AOC)	5
Gear selector shaft (nut)	16

Tightening torque, MTX75, MMT6

Designation	Nm
Starter motor-transmission	40
Bell housing-cylinder block:	50
Flanged screw CSC (clutch release bearing) M6 x 25	10
Lock-up mechanism installed in control housing M18	28
Lock-up mechanism installed in gearcase M20 (M66)	28
Screw for control housing M8 x 30	25
Bracket, gear selector	25
Inductive sensor (ABS sensor)	10
Gear selector assembly M8 x 70	25
Switch for reversing light	25
Cable grommet, bulkhead M6 nut	6

Group 43 Gearbox

Designation	Nm
Sems screw, mechanical cable bracket M8 x 30	25
Engine mounting M10	50
Engine mounting M8	25
Plug for draining / checking oil level	35
Screw drive shaft- hub:	Stage 1 35
	Stage 2 90°

Tightening torque, MPS6

Designation	Nm
Engine transmission M10	50
Engine transmission bracket M12	80
Starter motor-transmission	35
Collision bracket M8	24
Torque rod M10	50
Oil level plug	35
Oil filler plug	35
Oil drain plug	35
Gear selector shaft M8	24
Gear selector console M6	10
Cover control system (oil pan)	10
Flywheel	48

Automatic transmission, gear ratios

Type of transmission	TF-80SC	TF-80SC AWD	MPS6-2
1st gear	4.148:1	4.148:1	3.583:1
2nd gear	2.370:1	2.370:1	2.048:1
3rd gear	1.556:1	1.556:1	1.370:1
4rd gear	1.155:1	1.155:1	1.029:1
5rd gear	0.859:1	0.859:1	1.161:1
6rd gear	0.686:1	0.686:1	0.971:1
Reverse gear	3.394:1	3.394:1	4.843:1
Final drive See section: VIN marking			Gears 1-4: 4.533:1, 5-6+R: 3.238:1

Automatic gearbox, torque amplification in the event of stall

Engine	TF-80SC S80/V70	TF-80SC XC70
B8444S	1.9	-
B6324S	1.9	2.0

Group 43 Gearbox

Engine	TF-80SC	TF-80SC
B6304T2	2.1	-
B5254T6	2.1	2.1
D5244T4	2.15	2.15
D5244T5	2.15	2.15

Manual gearbox, gear ratios

Type of transmission	M66W B5254T6	M66D D5244Tx	M66E (AWD) D5244T4	MTX75 B4204SX	MMT6 D4204T
1st gear	3.385:1	3.385:1	3.750:1	3.800:1	3.583
2nd gear	1.905:1	1.905:1	1.905:1	2.136:1	1.952
3rd gear	1.267:1	1.194:1	1.194:1	1.448:1	1.241:1
4rd gear	0.949:1	0.838:1	0.838:1	1.114:1	0.868:1
5rd gear	0.775:1	0.652:1	0.652:1	0.902:1	0.943:1
6rd gear	0.652:1	0.540:1	0.540:1	-	0.789:1
Reverse gear	3.197:1	3.231:1	3.231:1	3.727:1	5.099:1
Reverse (XC60)			3.206:1		
Reverse gear final drive	4.786:1	4.786:1			
Final drive (S80, V70)	4.000:1	4.000:1	4.000:1	4.067:1	1-4: 3.813:1
					5-6+R: 2.773:1
Final drive (XC70)			4.530:1		
Final drive (XC60)			4.786:1		

Section 5 Brakes**Group 51 Wheel brakes****Tightening torque for all, unless variants are specified.**

Designation	Nm
Brake calliper to wheel hub	110
Brake disc rear to wheel hub	35
Brake disc forward to wheel hub	35
Brake hose to brake calliper rear	18
B8444S Brake hose to brake calliper rear (pipe screw)	35
Brake hose to brake calliper front	18
Mounting brake calliper rear	110
Mounting brake calliper front	200
S80, M66 TF-80CS, LHD Slide rail brake calliper rear	35
S80 M66 AWD/TF-80CS AWD, RHD V70, XC70 Slide rail brake calliper rear	28
Slide rail brake calliper front	28
Nipple bleeding brake system	10
Ø6 mm brake line	14
Ø8 mm brake line	18

Brakes front, technical data

Front wheel brake	16"	16.5"	17.5"
	mm	mm	mm
Brake disc (ventilated):Outer diameter	300	316	336
XC60: Brake disc (ventilated):Outer diameter	328		
Thickness, new	28	28	28
XC60 Thickness, new	30	30	30
Replace when at minimum	26	26	26
XC60 Replace when at minimum	28	28	28
Min. thickness for brake pad replacement	26.5	26.5	26.5

Group 51 Wheel brakes

Front wheel brake	16"	16.5"	17.5"
	mm	mm	mm
XC60	28.8	28.8	28.8
Min. thickness for brake pad replacement			
Max. lateral runout, floating disc	0.020	0.020	0.020
Max. lateral runout, on hub	0.040	0.040	0.040
Max. thickness variation	0.008	0.008	0.008
Yoke type, (ATE)	FN3	FNRG	FNRG
Piston diameter	60	60	60
Brake pad: STD Jurid 220 NAO - Ferodo 4240*			
Thickness, new (thickness of backing plate not included)	13	13	13
Thickness, minimum (thickness of backing plate not included)	2.0	2	2

NAO - Ferodo 4240* For markets: USA, Canada, Japan, Hong Kong, Korea, Singapore, Taiwan, Malaysia, Thailand

Brakes rear, technical data

Rear wheel brake	16" DiH	17Solid EPB	Ventilated EPB
	mm	mm	mm
Brake disc: 22 mm are ventilated, 11 mm and 12 mm are solid.			
Outer diameter	302	302	302
Thickness, new	12	11	22
Must be replaced at min.	10	9	20
Min. thickness for brake pad replacement	10.7	9.7	20.7
Max. lateral runout, floating disc	0.0250	0.0250	0.0250
Max. lateral runout, on hub	0.050		
Max. thickness variation	0.008	0.008	0.008
Yoke type, (TRW):	CII38DiH	CII38HE	CII41HE
Piston diameter	38	38	41
Brake pads: STD - Galfer 4601 NAO - Ferodo 4240*			
Thickness, new (thickness of backing plate not included)	10	11.1	11.1
Thickness, minimum (thickness of backing plate not included)	2.0	2	2

Group 51 Wheel brakes

NAO - Ferodo 4240* For markets: USA,
Canada, Japan, Hong Kong, Korea,
Singapore, Taiwan, Malaysia, Thailand

Group 55 Handbrake**Electrical Parking brake, tightening torque**

Designation:	Nm
EPB actuator (electric motor)	10
EPB control module	10
EPB console	4

Electrical parking brake

Note! VIDA Diagnostics must be connected when changing pads.

Note! The battery must not be discharged when replacing pads.

Technical data and default values:	Value
EPB Current consumption	
Key in	250 mA
Key out	200 μ A

Section 6 Suspension and steering

Group 60 Wheel alignment

For information on wheel angle specifications, see Service Bulletin 605500.

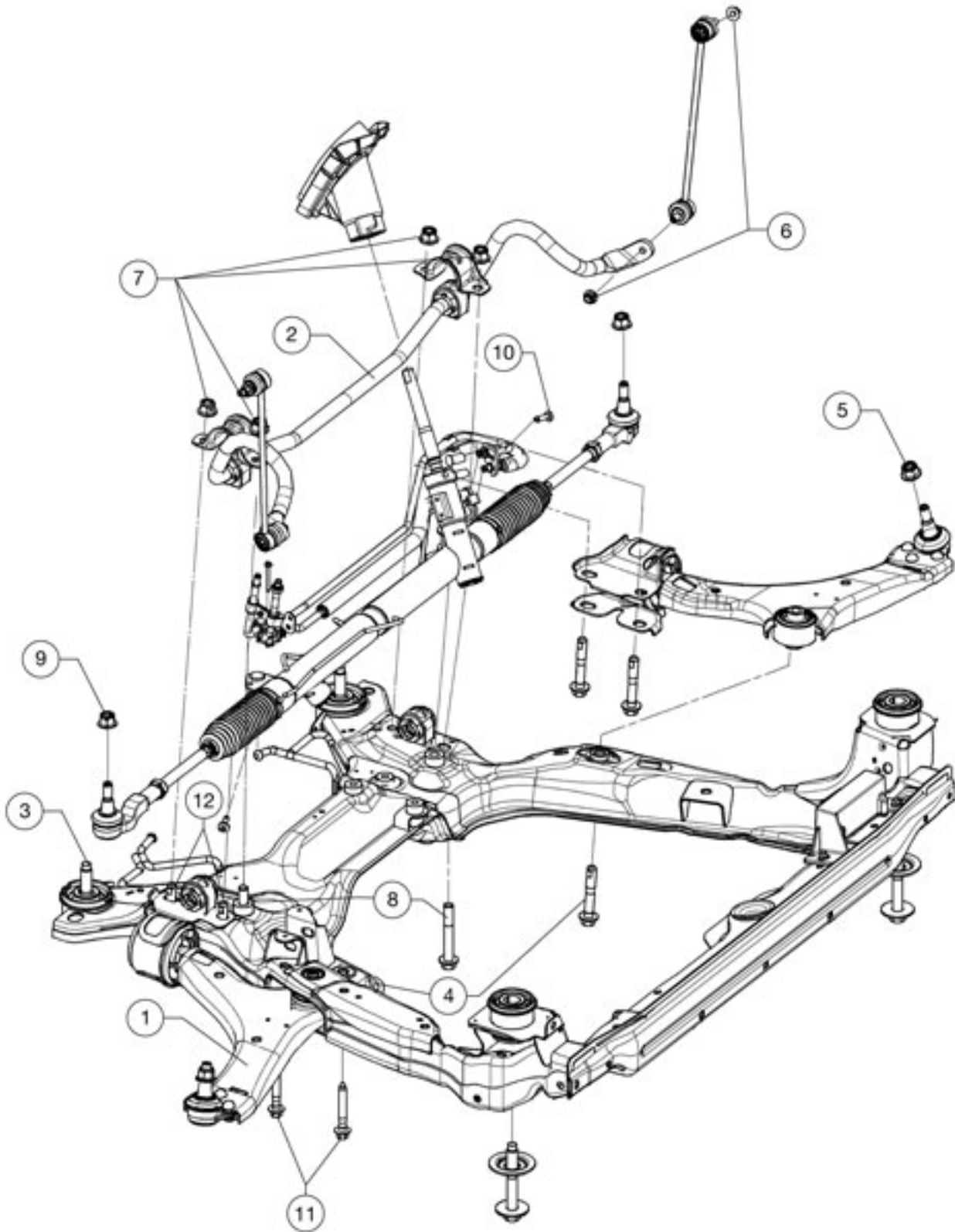
Group 61 Front suspension**Tightening torque**

Designation	Nm
Drive shaft to wheel hub (rear)	35
Drive shaft to wheel hub (front)	Stage 1 ... 35 Nm Stage 2 90°
Wheel spindle rear to bodywork	180
Wheel spindle to spring strut	110
Sub-frame rear to bodywork	110
S80, V70	100
Ball joint to wheel spindle	
XC70, XC60	110
Ball joint to wheel spindle	
Control arm lower rear to the wheel spindle	110
Control arm lower rear to sub-frame	90
XC70, XC60	175
Control arm lower rear to sub-frame (rear mounting)	
XC70, XC60	Stage 1 ... 140 Nm Stage 2 45°
Control arm lower rear to sub-frame (front mounting)	
Control arm upper rear to the wheel spindle	110
Control arm upper rear to the sub-frame	110
Tie rod to sub-frame	110
Tie rod to lateral link	110
Cross stay to wheel spindle	110
Cross stay to sub-frame	110
Drive shaft to wheel hub (rear)	35
Drive shaft to wheel hub (front)	45
Spring strut to spring strut turret	30
Wheel bearing rear to wheel spindle	110
Wheel spindle to spring strut	110
Anti-roll bar link rear to anti-roll bar	15
Anti-roll bar link rear to lower link arm	60
Anti-roll bar link front to spring strut	60
Anti-roll bar link front to anti-roll bar	70
Shock absorber bearing rear to bodywork	30
Shock absorber bearing front to shock absorber	50
Shock absorber rear to wheel spindle	175

Group 61 Front suspension

Designation	Nm
Shock absorber rear to wheel spindle (Nivomat)	280
Track rod end to wheel spindle	80

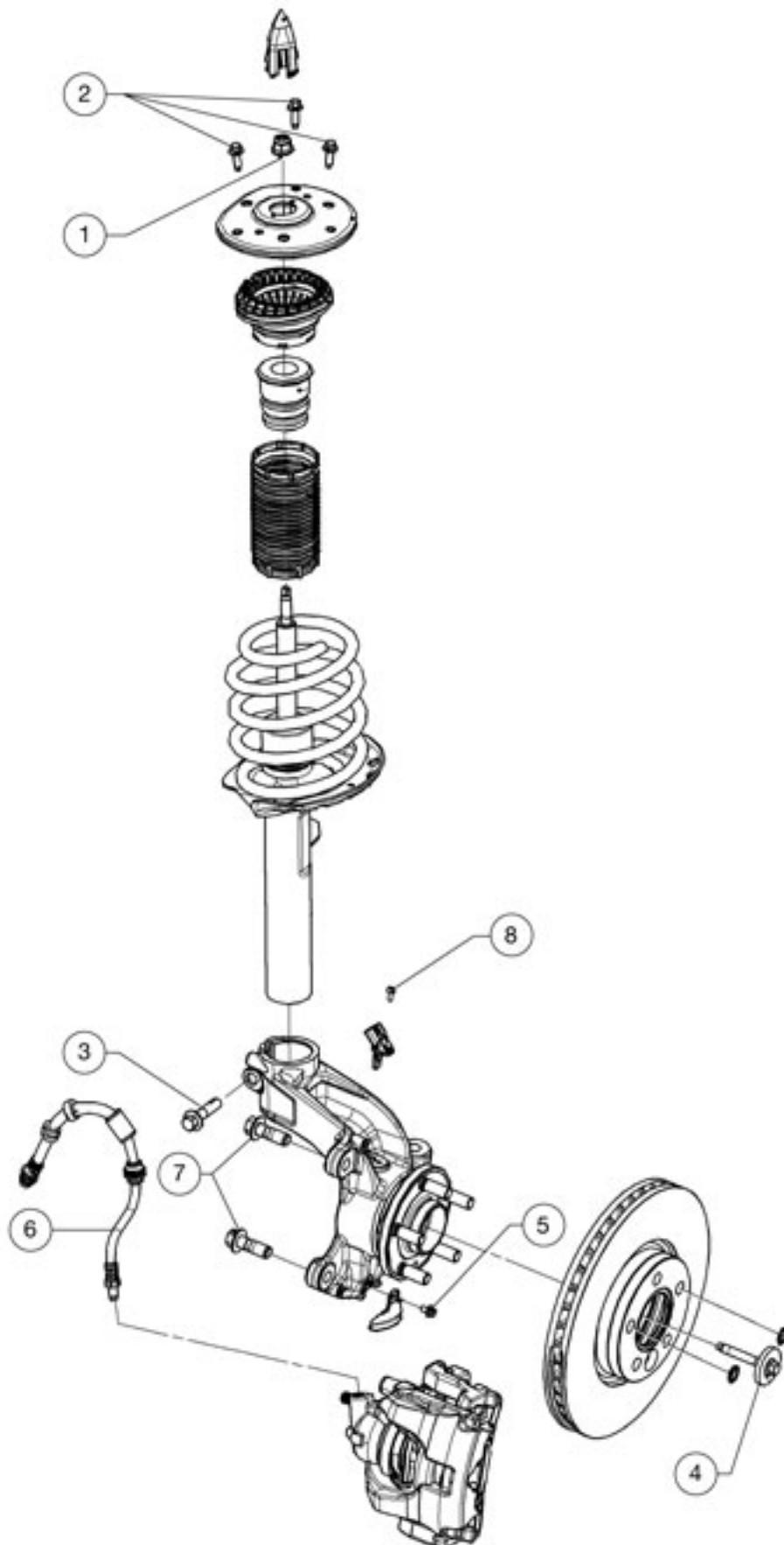
Group 61 Front suspension



Front wheel suspension

Position	Designation Dimensions	Nm
1	Link arm	
2	Anti-roll bar	
3	Flanged screw, 4xM16x105	Stage 1 .. 140 Nm Stage 2 240°
4	Flanged screw, 2xM14x85	Stage 1 .. 140 Nm Stage 2 45°
5	Flange locknut 2xM14	100
6	Flange lock nut 4xM10x1,5	60
7	Flange lock nut 2xM14x2,0	100
8	Flanged screw 2xM14x95	120
9	Flange lock nut 2xM14x2,0	80
10	Flanged screw 1xM8x20	20
11	Flanged screw 2xM12x75	110
12	Flanged screw 4xM14x85	175

Group 61 Front suspension



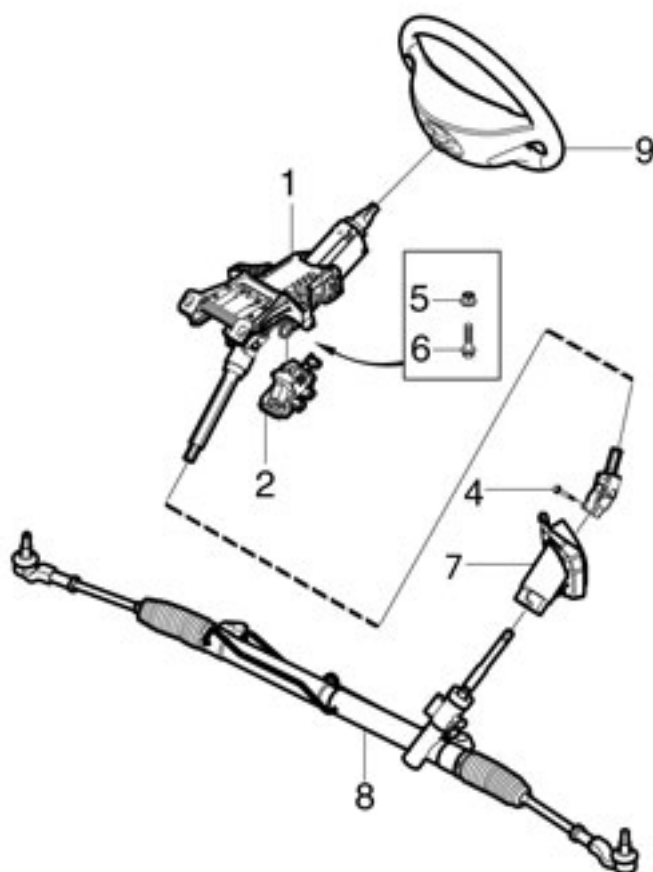
Suspension

Position	Designation Dimensions	Nm
1	Flange lock nut 2xM12x1,25	60
2	Flanged screw 6xM8x24	30
3	Flanged screw 2xM12x50	110
4	2 x screw	Stage 1 ... 45 Nm Stage 2 80°
5	Flanged screw, 2xM6x10	10
6	2xHoses for brakes, front	18
7	Flanged screw 4xM12x40	133
8	Flanged screw 2xM5x12	5

Group 64 Steering**Tightening torque**

Designation	Nm
Steering wheel to steering column (centre screw)	48
Steering wheel module to steering column	0.9
Steering column to steering gear (steering shaft universal joint)	25
Track rod end to track rod (lock nut)	90
Track rod end to wheel spindle	80
Steering column to dashboard	24
Steering gear to sub-frame	175
B6324S	30
Pressure line to power steering pump	
Pressure line to steering gear	20

Steering gear:		Variant
Make	ZF	
Turns of the steering wheel lock to lock:		
Depending on deflection limiter ... 225/55 R16	2.8	
Depending on deflection limiter ... 245/40 R18	2.6	S80, V70
Depending on deflection limiter ... 235/65 R17	2.9	XC60
Gear ratios	16.4:1	
Turning radius (edge - edge) . 225/55 R16	11.2 m	S80, V70
Turning radius (edge - edge) . 225/55 R16	11.5 m	XC70
Turning radius (edge - edge) . 245/40 R18	12.2 m	S80, V70
Turning radius (edge - edge) . 245/40 R18	12.0 m	XC70
Turning radius (edge - edge) . 235/65 R17	11.7 m	XC60
Friction torque, measured at input shaft, max.	4.5 Nm	
Power steering pump:		
Maximum pressure	12 MPa	



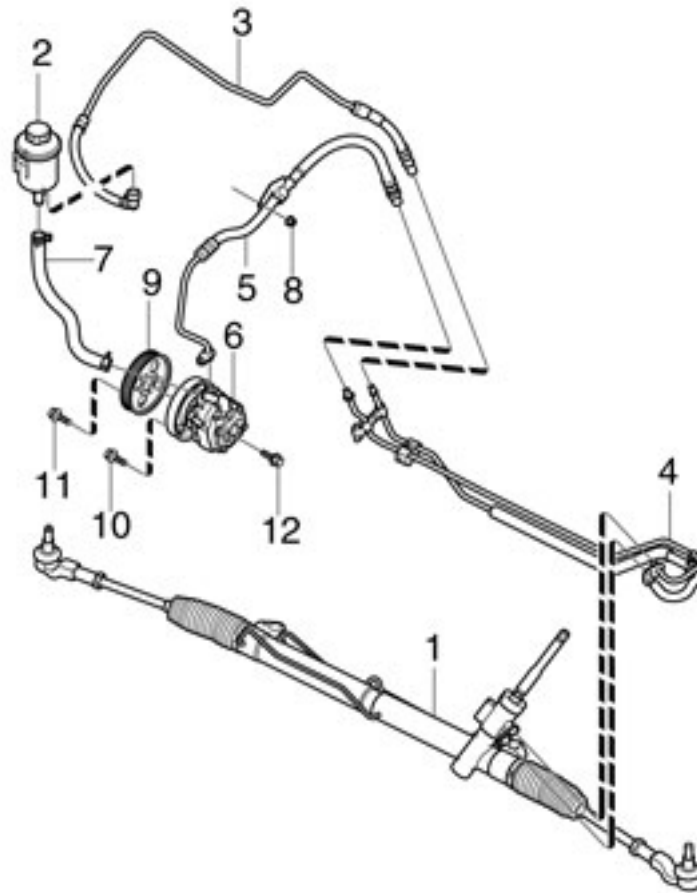
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Steering

Position	Designation
1	Steering column
2	Steering column lock
3	4xFlanged screw M8x45
4	1xFlanged screw M8x30
5	1xPlastic nut
6	1xSecurity screw M6x14
7	Seal
8	Steering gear
9	Steering wheel

Group 64 Steering



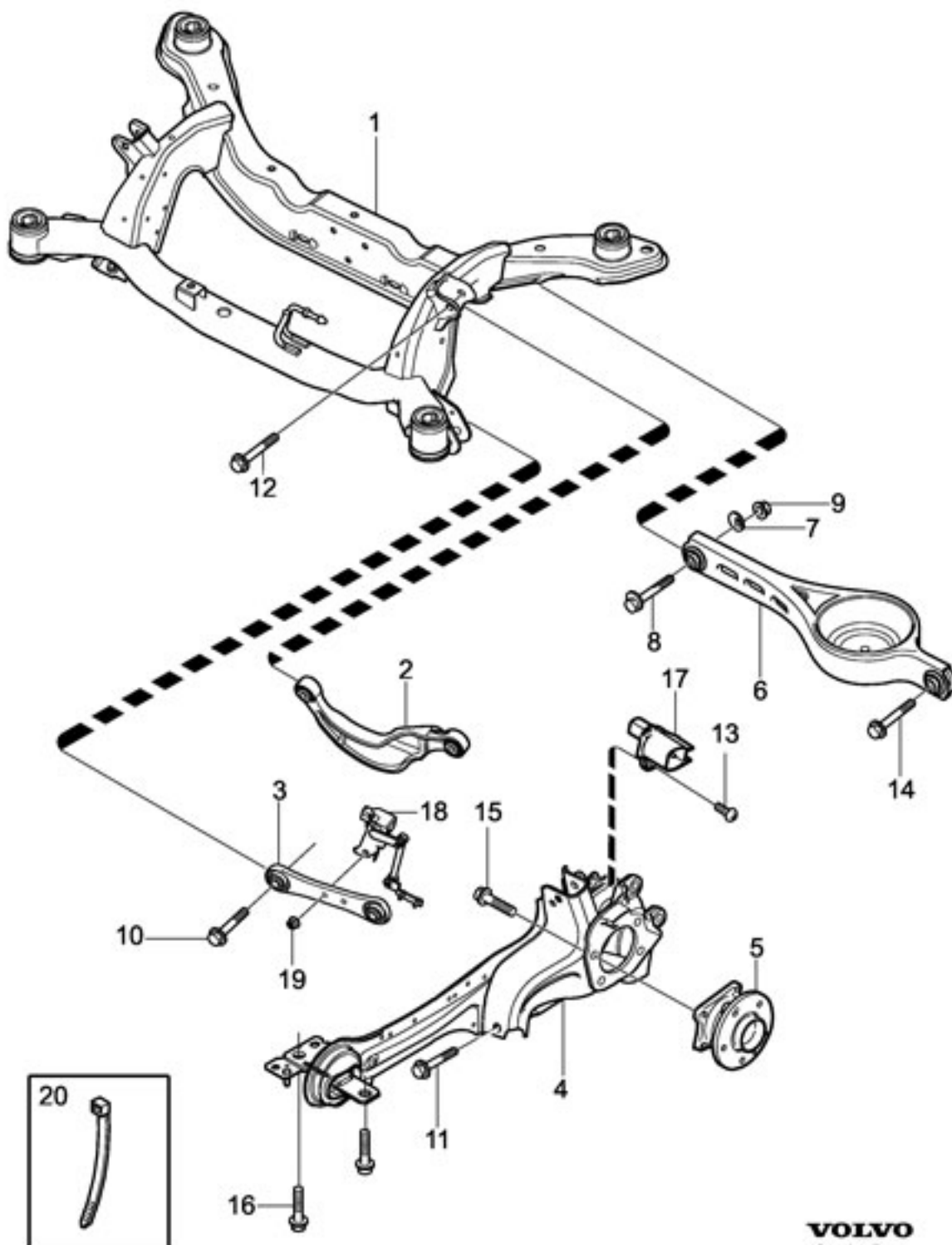
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Servo equipment

Position	Designation
1	Steering gear
2	Reservoir
3	Return hose
4	Pressure hose
5	Pressure hose
6	Power steering pump
7	Suction hose
8	Flange locknut
9	Pulley
10	3xFlanged screw M8x14
11	4xFlanged screw M8x14
12	1xFlanged screw M8x40

Group 65 Rear suspension



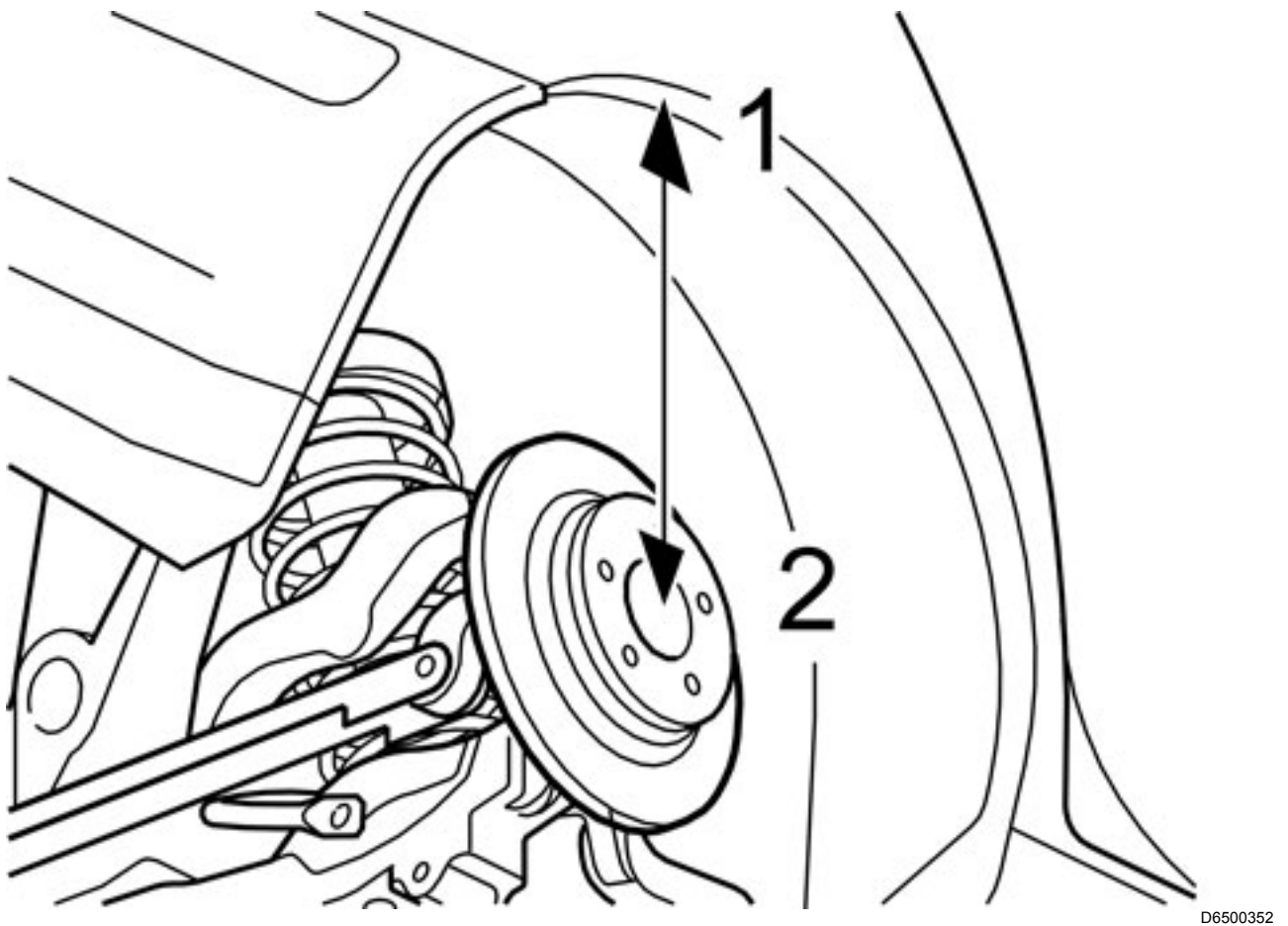
VOLVO
Genuine Parts
GR-237016

Group 65 Rear suspension

Rear axle

Position	Designation:	Nm
1	Rear sub frame	
2	2xBushing holder	
3, 4	Strut	
5	2xWheel hub	
6	2xControl arm lower	
7	2xEccentric washer	
8	2xEccentric washer M12x85	
9	2xFlanged nut, M12x16.1	Stage 1 ... 15 Nm Stage 2 ... 90 Nm
10	2xFlanged screw M12x65	110
11	2xFlanged screw M12x65	110
12	2xFlanged screw M12x65	110
13	2xFlanged screw M12x65	110
14	2 flange screws	
15	8xAllen screws, M12x1, 75x30	110
16	4xFlanged screw M14x42	180
17	Sensor	
18	Position sensor	
19	3xFlanged nut, M6x6	
20	2xCable ties	

Note!For more tightening torques for rear wheel suspension see: **Chapter 61**



D6500352

Tightening the screwed joint in the control arms

Tighten when the rear suspension is in the normal position:

The normal position for the rear suspension is when the distance from the wing edge **1** to wheel centre **2** is:

Normal position	381 ± 5 mm
-----------------------	------------

Section 7 Suspension, damping, wheels**Group 77 Wheels, tyres, hubs****Tightening torque**

Designation	Nm
Wheel to wheel hub	140
Pressure sensor tyre	10

Wheel

	Wheel with aluminium rim	Wheel with steel rim
Dimensions	7x16x50	–
	8x17x55	–
	7x17x50	7x16x50
	8x18x55	–
Lateral runout, max.	0.4 mm	0.8 mm
Radial runout, maximum	0.4 mm	0.7 mm

Tire size designations and speeds

The tyre has a size designation, such as 225/70R16 91 W

225 Section width (mm)

70 Ratio between section height and width (%)

R Radial tire

16 Rim diameter in inches (")

91 Code for max. permissible tire load (in this case 615 kg/1356 lbs)

W Code for max. permissible speed (in this case, 270 km/h / 168 mph)

The tyre has a week and year of manufacture, which is the tyre's DOT marking (Department Of Transportation). This code consists of four digits. For example, 1504 indicates that the tyre was manufactured week 15 of 2004.

For speeds below 160 km/h the general tyre pressure is recommended for full load front and rear, that is 260 kPa. This is for the best fuel economy.

For Air pressures, see tyre pressure decal for positioning, see **Chapter 0**

Section 8 Body and interior**Group 84 Glass and mirrors**

Component	Power W	Resistance Ω
Heated rear window	240	0.6 ± 0.09
Door mirrors, heated	20	9 ± 1

Group 87 Climate control

Tightening torque

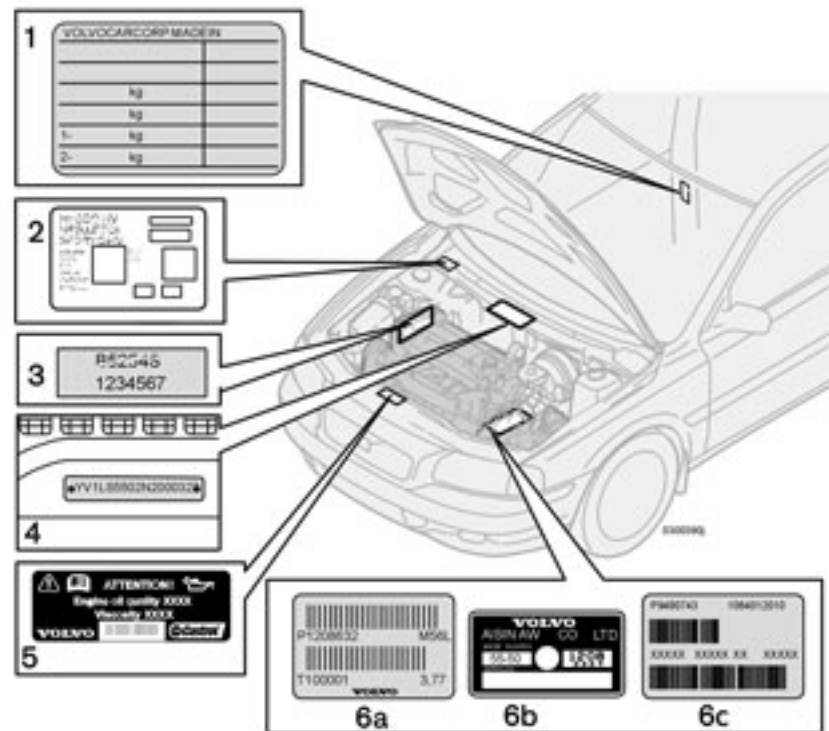
Designation	Nm
A/C high pressure pressostat (panel)	8
A/C coupling, clutch plate	24
A/C pipe to compressor (block fitting)	20
A/C pipe to condenser	16
Coolant pipe to expansion valve	4.5
Cover to drier filter	11
Service valve	12

If the battery is disconnected or the power is cut when the vehicle is equipped with remote start of the parking heater, the personal code is reset to the factory code (1234).

C30, S40 (04-), V50, C70 (06-)

Section 0 General

Plates

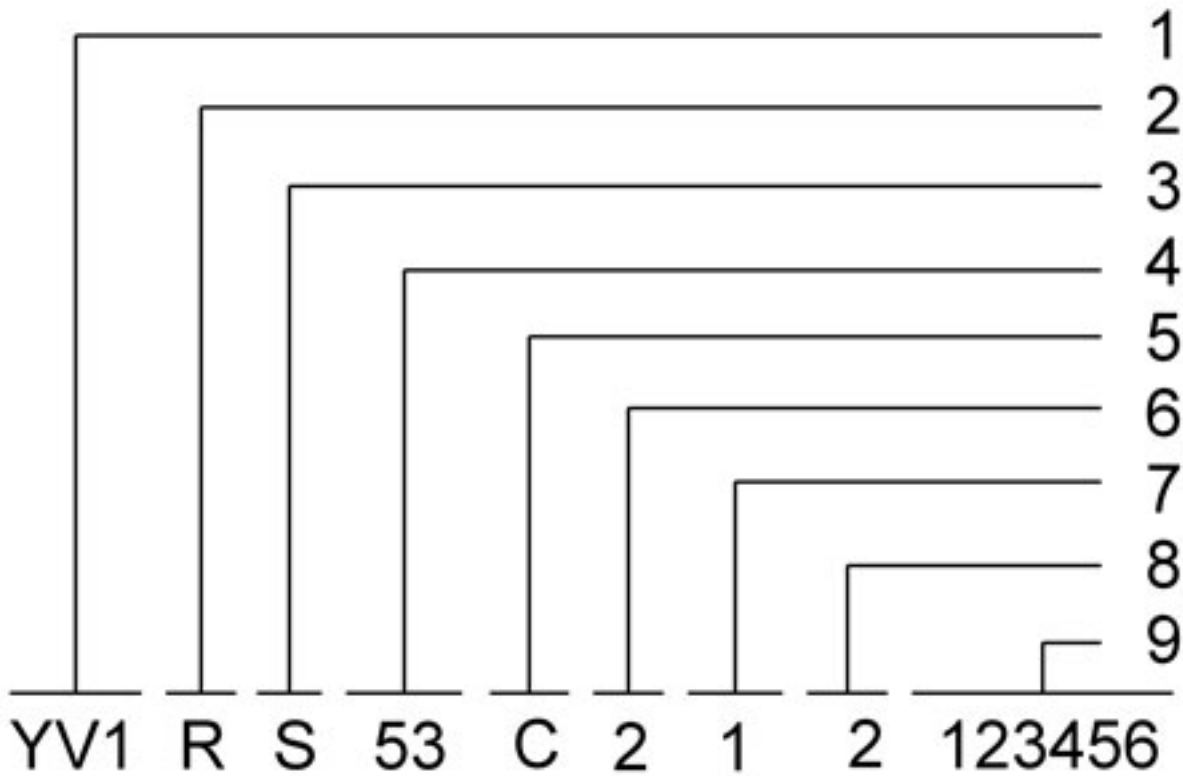


J0300390

- 1 Product plate:** Positioned by the right-hand B-post
The decal is black from 2006-.
- 2 Decal for parking heater.**
- 3 Engine type designation, serial and part numbers:** Decal on the right-hand side of the engine
- 4 VIN marking:** Type and model year designation as well as chassis number. Stamped in the engine compartment below the windshield.
- (Without image) **Tyre pressure label:**
-2006 placed on the inside of the fuel filler flap.
2006- located at right B-post.
- 2006- located on top of the dashboard.
- 5 Decal for engine oil:** Located by radiator.
- 6 Transaxle type designation, part and manufacture number:** 6a) Manual transaxle: Label on front.
6b, 6c) Automatic gearbox: Plate on the top.

VIN marking

VIN marking Europe and USA -2009



M0300273

- 1 Manufacturer's code
- 2 Vehicle type
- 3 Variant
- 4 Engine
- 5 Emissions
- 6 Gearbox (Europe)
Control number (USA/CAN)
- 7 Model year code
- 8 Factory code
- 9 Chassis number.

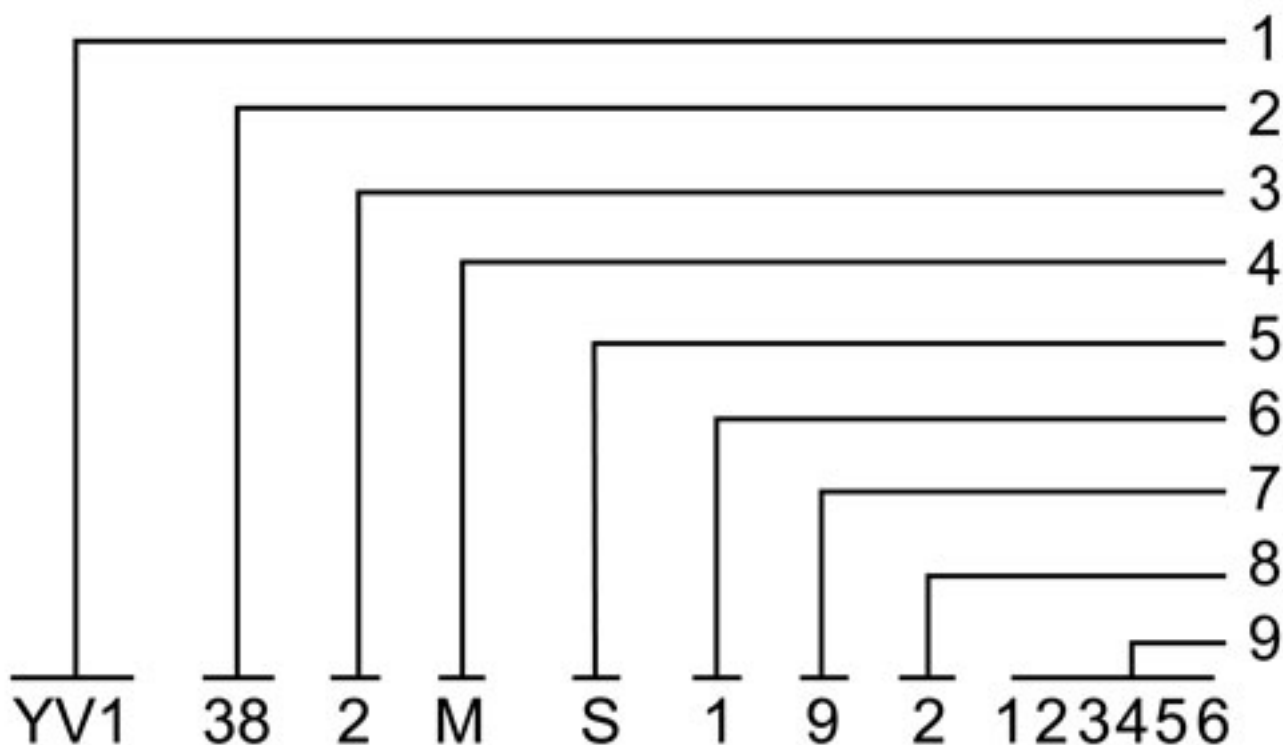
Position	Subject	Code	Notes
1 (3 characters)	Manufacturer's code	YV1	Volvo Car Corporation
2 (1 characters)	Vehicle type	M	S40, V50, C70, C30
3 (1 character)	Variant	S W C K H J	S40 V50 C70 C30 S40 AWD USA/Canada V50 AWD USA/CAN

Position	Subject	Code	Notes
		T	C30 AWD USA/Canada
4 (2 characters)	Engine	08	B4184S8
		20	B4164S3
		21	B4184S11
		38	B5244S4
		39	B5244S7
		43	B4204S3
		66	B5244S5
		67	B5254T7
		68	B 5254T3
		72	D4204T2
		75	D4204T
		76	D4164T
		77	D5244T8
		78	D5244T9
86	D5244T13		
5 (1 character)	Emission code	VIN	
		3	EURO3 engine: 72, 75, 76 Diesel engines without particle filter Outside EU
		4	EURO4 engine: 72, 75 Diesel engines without particle filter Within EU
		4	EURO4 engine: 38, 66
		4	EURO4 engine: 08, 20, 21, 43
		4	EURO4 engine: 77, 78, 86 Diesel engines with particle filter
		5	EURO4 engine: 72, 75, 76 Diesel engines with particle filter
		5	EURO4 engine: 68, 38, 66
5	EURO5 engine: 67		
6 (1 character)	Transmission	1	M66
		1	MMT6
		2	M56
		2	MTX75
		2	IB5
		4	M66AWD

VIN marking

Position	Subject	Code	Notes
		B	MPS6
		7	AW51AWD
		9	AW55-51
7 (1 character)	Model year code	4	2004
		5	2005
		6	2006
		7	2007
		8	2008
		9	2009
		A	2010
8 (1 character)	Factory code	2	22 Volvo Europe Car (VCE)
			Belgium
		J	Uddevalla C70
9 (6 characters)	Chassis number.	S40 2004	000001-044999
	S40	2005	045000-149999
	V50		040000-149999
	S40	2006	150000-249999
	V50		150000-269999
	C70		000001-009999
	S40	2007	250000-349999
	V50		270000-366999
	C70		010000-39999
	C30		000001-38999
	S40	2008	350000-429999
	V50		367000-446999
	C70		40000-69999
	C30		39000-119999
	S40	2009	430000-484999
	V50		447000-519999
	C70		70000-89999
	C30		120000-169999
	S40	2010	485000-
	V50		520000-
	C70		90000-
	C30		170000-

VIN marking USA 2010-



IMG-

331604

- 1 Manufacturer's code
- 2 Engine
- 3 Emission code
- 4 Vehicle type
- 5 Variant
- 6 Control number (USA/CAN)
- 7 Model year
- 8 Factory code
- 9 Chassis number.

Position	Subject	Code	Remarks
1 (3 characters)	Manufacturer's code	YV1	Volvo Car Corporation
2 (2 characters)	Engine	38	B5244S4
		39	B5244S7
		67	B5254T7
		68	B 5254T3
3 (1 character)	Emission code	2	ULEV2 engine:67, 68, 38
		0	SULEV+ engine: 39
4 (1 character)	Vehicle type	M	S40, V50, C70, C30

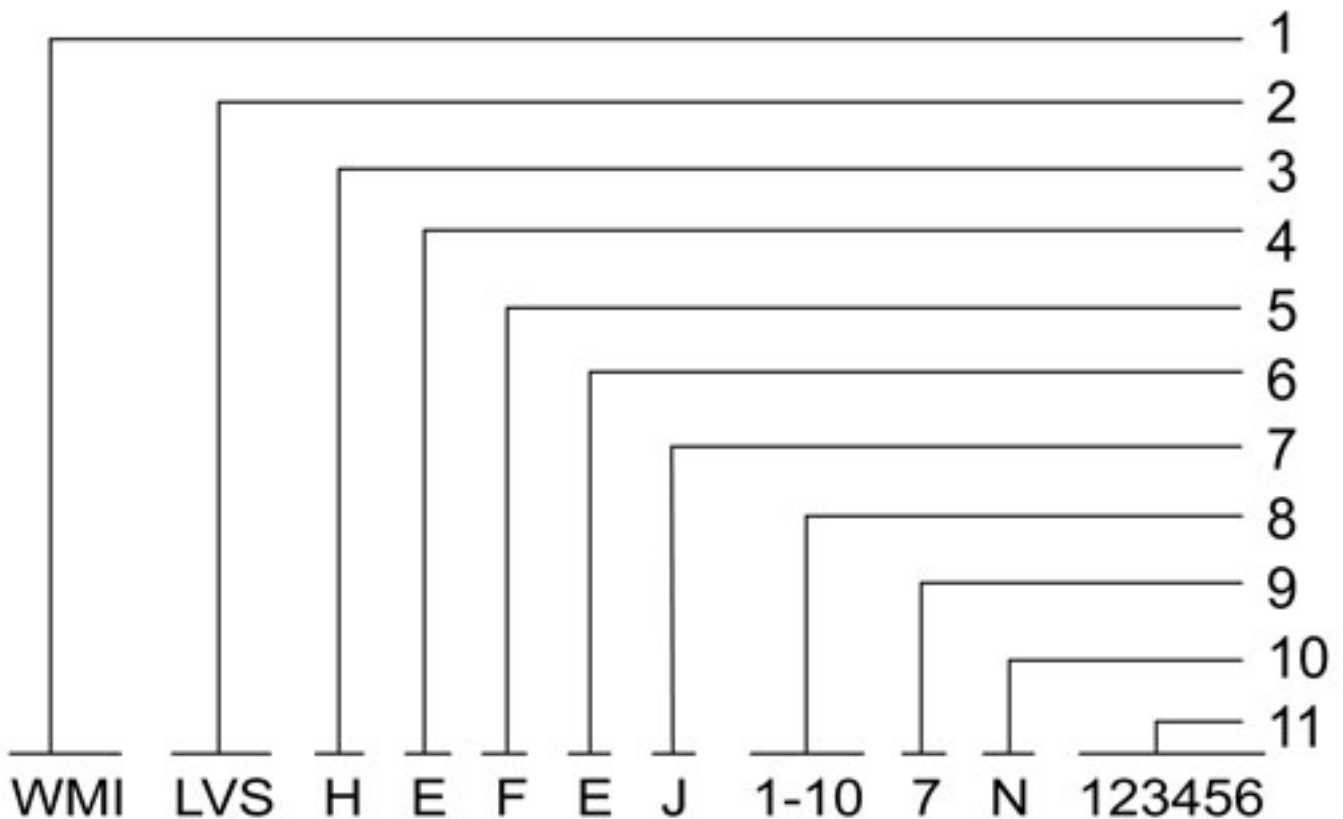
VIN marking

Position	Subject	Code	Remarks	
5 (1 character)	Variant	S	S40	
		W	V50	
		C	C70	
		K	C30	
		H	S40 AWD	
		J	V50 AWD	
		T	C30 AWD	
6 (1 character)	USA: Control number EU: Transmission	1-9		
		1	M66	
		2	M56	
		4	M66AWD	
		7	AW51AWD	
7 (1 character)	Model year	9	AW55-51	
		4	2004	
		5	2005	
		6	2006	
		7	2007	
		8	2008	
		9	2009	
8 (1 character)	Factory code	A	2010	
		2	22 Volvo Europe Car (VCE) Belgium	
9 (6 characters)	Chassis number.	J	C70, Uddevalla Sweden	
		S40	2004	000001-044999
		S40	2005	045000-149999
		V50		040000-149999
		S40	2006	150000-249999
		V50		150.000-269999
		C70		000001-009999
		S40	2007	250000-349999
		V50		270000-366999
		C70		010000-039999
		C30		000001-038999
		S40	2008	350000-429999
V50		367000-446999		

Position	Subject	Code	Remarks
	C70		040000-69999
	C30		039000-119999
	S40	2009	430000-484999
	V50		447000-519999
	C70		70000-89999
	C30		120000-169999
	S40	2010	48500-
	V50		520000-
	C70		90000-
	C30		170000-

VIN marking

VIN marking Chinese made cars, only China



IMG-

253643

- | | |
|-----------------------|--------------------|
| 1 Manufacturer's code | 7 Engine |
| 2 Vehicle type | 8 Control number |
| 3 Safety system | 9 Model year |
| 4 Variant | 10 Factory code |
| 5 Model | 11 Chassis number. |
| 6 Transmission | |

Position	Subject	Code	Notes
1 (3 characters)	Manufacturer's code	WMI	Changan Ford
2 (3 characters)	Vehicle type	LVS	Car
3 (1 character)	Safety system	B	Seat belt tensioners all positions, Driver's Air Bag
		F	As code "B" plus passenger Air Bag
		H	As code "F" plus Air Bag all places side Air Bags

VIN marking

Position	Subject	Code	Notes
4 (1 character)	Variant	A B C D E	Fiesta Mondeo Focus Mazda S40
5 (1 character)	Model	A B F T	5 doors 3 doors 4 doors Sport coupe
6 (1 character)	Transmission	A M C D E	Automatic gearbox Manual gear box CVT DCT AW50-51, Volvo
7 (1 character)	Engine	A B C D E F G H J K	1.3L (I4) 1.6L (I4) 2.0L (I4) 2.5L (V6) 1.8L (I4) 2.3L (I4) 2.4L (I4) 3.2L (I6) 2.5L (I5) B5254T3 2.4L (I5) B5244S3
8 (1 character)	Control number	1- 9	
9 (1 character)	Model year code	7 8 9	2007 2008 2009
10 (2 characters)	Factory code	F N	ChanganFord Chongqing ChanganFord Nanjing
11 (6 characters)	Chassis number.	S40 2009	430000-

VIN marking

Combination Engine — Gearbox

Engine:	Engine code:	Gearbox:
B4184S8	08	MTX75 B4
B4164S3	20	IB5
B4184S11	21	MTX75 B4
B5244S4	38	M56H AW55-51
B4204S3	43	MTX75 Q1
B4204S3	43	MPS6-2
B5244S5	66	M56L AW55-51
B5254T7	67	M66W M66W AWD AW55-51
B5254T3	68	M66W M66W AWD AW55-51
D4204T2	72	MMT6
D4204T	75	M56L2 MMT6 MPS6-4
D4164T	76	MTX75 P3 MTX75 D1 (DRIVE)
D5244T8	77	AW55-51
D5244T9	78	AW55-51
D5244T13	86	AW55-51

Product plate

VOLVO CARCORP		I
A		D
B		E
C1	kg	F
C2	kg	G
1- C3	kg	H
2- C4	kg	J

M0300272

A. Type approval number.
Whole Vehicle Type Approval Number (WVTA)

Chassis no. simplification (USA/CAN).
 Construction date (Australia)

B. Identification number

Type designation

C1. Max. gross vehicle weight

C2. Max. train weight (car + trailer)

C3. Max. front axle load

C4. Max. rear axle load

I. Country of manufacture

D. Market code (See Tables)

E. Interior code (See Tables)

F. Paint finish Code/supplier/paint type
 (see Tables)

G. Service bulletin (Options)

H. Chassis code See next page

J. Additional information for the WVTA.

Market codes

10 = Sweden	24 = Italy	45 = Taiwan
11 = Norway	25 = Spain	46 = Australia
12 = Denmark	27 = Portugal	47 = South Africa
13 = Finland	28 = Israel	49 = Turkey
14 = Ireland	29 = Greece	50 = Japan
15 = Great Britain	31 = USA	51 = China
18 = Germany	35 = Mexico	81 = Chongqing
20 = Belgium	39 = Canada	84 = Thailand
21 = Holland	40 = Singapore	85 = Malaysia

Product plate

22 = France	41 = Korea	89 = Pretoria
23 = Eastern Europe	42 = Latin America	
	43 = Saudi Arabia	
	44 = Hong Kong	

Exterior colors, supplier and paint type codes:

Code	Supplier	Code	Paint type
1	BASF	1	Solid solvent-based
2	Herberts	1	Metallic solvent-based + 1C varnish
4	DuPont	2	Metallic / pearl water-based + 1C varnish
5	PPG	3	Solid water-based + 1C varnish
9	Local suppliers (Thailand, Malaysia, Indonesia, Philippines)	5	Pearl solvent-based
		6	Water-based base coat + 2C varnish
		7	Water-based base coat + powder varnish

Paint finishes, color codes:

Colour code		
No:	Designation:	Remarks:
019	Black Stone	Solid
426	Silver	Metallic
449	Mistral Green	Metallic
450	Bright Blue	Metallic
452	Black Sapphire	Metallic
453	White	Pearl
454	Ruby Red	Pearl
455	Titanium Gray	Pearl
459	Dawn Blue	Pearl
463	Blackcurrant	Pearl
465	Cedar Green	Metallic
466	Barents Blue	Metallic
467	Magic Blue	Pearl
469	Lunar Gold	Pearl
471	Willow Green	Pearl
474	Celestial Blue	Pearl
476	Brilliant Blue	Pearl
477	Electric Silver	Metallic
478	Maple Red	Metallic
479	Orinoco Blue	Pearl

Colour code		
481	Cosmic White	Metallic, (China)
482	Ebony Black	Metallic, (China)
483	Soft Sand	Metallic, (China)
487	Ember black	Metallic
488	Gekko green	Metallic
489	Matt Gold	Metallic
490	Chameleon blue	Metallic
491	Vanilla Cream	Pearl
492	Savile Grey	Pearl
496	Azure Blue	Metallic
612	Passion Red	Solid
613	Deep Blue	Solid
614	Ice White	Solid
615	Maroon Red	Solid
616	Lilac	Solid
617	Nordic White	Solid, (China)

Interior code make-up**Position 1** Car model

5: S40 (04-) / V50 / C70 (06-) /C30

Position 2 Upholstery name (material)

- 1: Boden (Textile) S40 (04-)
- 2: Eden (Textile/Plush)
- 3: Dala (Textile/Tricottech) S40 (04-) /V50
- 4: Bodal (Boden 2) (Textile) V50
- 5: Freedom / Borgholm (Textile) C70 (06-)
- 6: Harmony / Haverdal (Textile/Tricottech) C70 (06-)
- 7: Falsterbo (Textile laminate) C30
- 8: Passion (Leather) C70 (06-)
- 9: Leather S40 (04-) / V50 / C30
- A: Kalix (Textile) C30
- B: Boda
- C: Dalarö
- D: Leather
- E: Sovereign C70 (06-)
- F: Sport

Position 3 Panel colour

- 0: Dark grey

Product plate

1: Light beige
 2: Dark beige
 7: Off black
 8: Umbra C70 (06-)
 B: Off black C30
 C: Off black C30
 E: Umbra C30
 F: Off black/quartz C30
 J: Quartz S40 (04-) / V50

Position 4 Upholstery colour

0: Lava
 1: Quartz
 2: Umbra
 3: Adamite
 4: Calcite
 5: Lava/Quartz
 6: Umbra/Quartz
 7: Off black
 8: Grand Cru / Umbra
 9: Off black/Grand Cru
 G: Quartz C70 (06-)
 K: Cream

Interior code

Code	Upholstery name	Colour name	Upholstery material
5977	Leather -2007	Off black	Leather
5900		Dark grey	
5901		Dark grey/quartz	
5921		Dark beige/quartz	
5923		Dark beige/adamite	
5924		Dark beige/calcite	
5971		Off black/quartz	
59E1		Dark beige/quartz	
59E4		Dark beige/calcite	
59B7		Off black/red/Off black	
59C4		Off black/quartz/calcite	

Product plate

Code	Upholstery name	Colour name	Upholstery material
5177	Boden	Off black	Textile
5121		Dark beige/quartz	
51E1		Dark umbra	
5277	Eden	Off black	(Textile/Plush)
5200		Dark grey	
5221		Dark beige/quartz	
5300	Dala (Textile/Tricoplast)	Dark grey	Textile/tricottech
5305		Dark grey/lava/quartz	
5322		Dark beige	
5326		Dark beige	
5321		Dark beige/umbra/quartz	
5377		Off black	
53E1		Beige/quartz	
53E2		Dark beige umbra	
53E6		Dark beige/umbra/quartz	
53J1		Off black/quartz	
5421	Bodal	Dark beige	Textile/tricottech
5477		Off black	
54E1		Dark beige/quartz	
5571	Freedom	Off black/quartz	Textile
5577	Borgholm	Off black	
5581		Umbra/quartz/beige	
5587		Umbra/Off black	
5671	Harmony	Off black/beige	Textile/tricottech
5677	Haverdal	Off black	
5681		Umbra/quartz/beige	
5687		Beige/off black	
5777	Falsterbo	Off black	Textile laminate
5779		Off black/red	
577A		Off black/blue	

Product plate

Code	Upholstery name	Colour name	Upholstery material
5871	Passion -2007	Off black/quartz	Leather
5877		Off black	
5879		Off black/grand cru	
5881		Umbra/quartz/beige	
5884		Umbra/Calcite cream	
5887		Umbra/Off black	
5889		Umbra/Grand Cru	
5AB7	Kalix	Off black, red carpet	Textile
5AC7		Off black/quartz	
5A77		Off black	
5AE2		Dark beige/umbra	
5AFC		Off black/off black/quartz, quartz carpet	
5A7C		Off black/off black/quartz, off black carpet	
5B77	Boda	Off black/Off black	Textile
5B73		Off black/Green	
5BE1		Dark Umbra/Quartz	
5C00	Dalarö	Dark Grey/Lava	Textile/tricottech
5C01		Dark grey/quartz	
5C71		Off black/quartz	
5C77		Off black/Off black	
5CE1		Dark Umbra/Quartz	
5CE2		Dark umbra	
5CE9		Dark Umbra/cacao	
Code	Upholstery name	Colour name	Upholstery material
5D00	Leather 2008-	Dark Grey/Lava	Leather
5D71		Off black/quartz	
5D74		Off black/calcite	
5D77		Off black/Off black	
5D79		Off black/grand cru	
5D7G		Off black/quartz	
5D7H		Off black/Off black C70	
5D81		Umbra/Quartz	

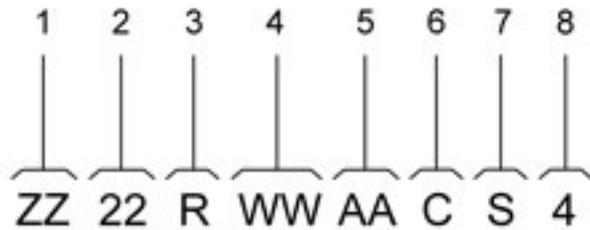
Product plate

5D87		Umbra/Off black	
5D84		Umbra/Calcite	
5D89		Umbra/Grand cru	
5DB7		Off black with red matt	
5DC4		Off black - Quartz/Calcite	
5DE1		Dark Umbra/Quartz	
5DE4		Dark Umbra/Calcite	
5DE9		Dark Umbra/Grand cru	
5E71	Sovereign	Off black/quartz	Soft leather
5E74		Off black/Calcite	
5E77		Off black/Off black	
5E79		Off black/grand cru	
5E81		Umbra/Quartz	
5E84		Umbra/Calcite	
5E87		Umbra/Off black	
5E89		Umbra/Grand cru	
5F7K	Sport	Off black/cream	Leather

Chassis code

Chassis code

The chassis code is interpreted as follows:



- 1 Spring, front
- 2 Shock absorber, front
- 3 Anti-roll bar, front
- 4 Spring, rear
- 5 Shock absorber, rear
- 6 Anti-roll bar, rear
- 7 Auxiliary spring, front
- 8 Auxiliary spring, rear

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See part number in the Tables at the back of the book.

1 Spring, front

Chassis code	Spring, front	Remarks
11	30666202	18 N/mm
12	30666203	19 N/mm
13	30666204	20 N/mm
14	30666205	21 N/mm
15	30666206	22 N/mm
16	30666207	23 N/mm
17	30666208	22 N/mm T5
18	30666209	23 N/mm T5
19	30666210	24 N/mm T5
20	30666211	25 N/mm T5
41	30714366	17 N/mm
46	30714866	AWD 21 N/mm
47	30714867	AWD 22 N/mm
48	30714868	AWD 23 N/mm
49	30714869	AWD 24 N/mm
51	30714367	T5 21 N/mm
61	30683560	low sport chassis 18 N/mm
62	30683557	low sport chassis 19 N/mm
63	30683558	low sport chassis 20 N/mm
64	30683559	low sport chassis 21 N/mm
65	30714368	low sport chassis 22 N/mm

Chassis code

Chassis code	Spring, front	Remarks
66	30683561	low sport chassis 23 N/mm
67	30683562	low sport chassis 24 N/mm
71	30760580	23 N/mm
72	30760581	dynamic 25 N/mm
73	30760582	low sport chassis 24 N/mm

2 Shock absorber, front

Chassis code	Shock absorber	Remarks
21	31277591	
21	31277592	
22	31277587	
22	31277588	
23	31277593	
23	31277594	
25	31277597	
25	31277598	
26	31277599	
26	31277600	
28	31277595	
28	31277596	
29	31277603	
29	31277604	
31	31277601	
31	31277602	
32	31277589	
32	31277590	
33	31277605	F95ECO
33	31277606	F95ECO

3 Anti-roll bar, front

Chassis code	Anti-roll bar	Remarks
4	30647427	24 mm AWD
5	30683804	23 mm
6	30683805	23.5 mm T5
7	30683803	22.5 mm I4/DV6
8	31201187	22 mm comfort chassis
9	30760995	22.5 mm
A	30748523	23 mm
B	31201186	21.5 mm B4164S3 comfort chassis

Chassis code

4 Spring, rear

Chassis code	Spring	Remarks
11	30666218	27 N/mm
12	30666219	28.5 N/mm
13	30666220	30 N/mm
14	30666221	31 N/mm
15	30666222	32 N/mm
16	30666223	33 N/mm
23	30666224	31 N/mm AWD
24	30666225	32 N/mm AWD
25	30714739	33 N/mm AWD
31	30714369	33 N/mm AWD
32	30714370	33 N/mm AWD
41	30683566	27 N/mm low sport
42	30683567	28.5 N/mm low sport
43	30683568	30 N/mm low sport
44	30683569	31 N/mm low sport
45	30683570	32 N/mm low sport
46	30683571	33 N/mm low sport
47	30736534	Nivomat
48	30736535	Nivomat
49	30736536	Nivomat
50	30736537	Nivomat
51	30736538	Nivomat
52	30736539	Nivomat
53	30736520	26 N/mm
54	30736521	26 N/mm low sport
55	30632823	C70 31 N/mm
56	30632824	C70 32 N/mm
57/58	30760683	26 N/mm
57/58	30760683	26 N/mm low sport
59	30787083	Turbo Diesel, C70

5 Shock absorber, rear

Chassis code	Shock absorber	Remarks
23	30714354	Nivomat V50
24	30714355	V50 T5 Nivomat
25	31201172	AWD
33	31201174	
35	31201173	C70

Chassis code

Chassis code	Shock absorber	Remarks
37	31201047	comfort chassis
38	31201049	sport chassis
39	31201054	
40	31201055	RS45 lowsport
41	30776956	RS45 highbump
42	31212942	
43	31212940	
44	31255198	RDT62 highbump
45	31262677	
46	31255916	R9ECO
47	31277102	R32ECO
48	31277104	R31ECO

6 Anti-roll bar, rear

Chassis code	Anti-roll bar	Remarks
A	31212078	19 mm pogo
B	30714779	20 mm Nivomat Double balljoint
C	31212079	20.5 mm pogo
D	31212080	21.5 mm pogo
E	30736526	18.5 mm pogo
G	30633863	22 mm Double balljoint
1	30683230	20 mm FWD/AWD Double balljoint
2	30683229	21 mm Double balljoint
3	30683231	21.5 mm V50 T5 Double balljoint
5	30683259	20.5 mm ,V50 Double balljoint
6	31212077	20 mm pogo
7	30723099	21 mm Nivomat Double balljoint
8	30723100	21.5 mm Nivomat Double balljoint
9	30714777	19 mm Double balljoint

7 Auxiliary spring, front

Chassis code	Auxiliary spring	Remarks
6	30760405	FWD/AWD
7	30760406	low sport
8	31201743	C70

8 Auxiliary spring, rear

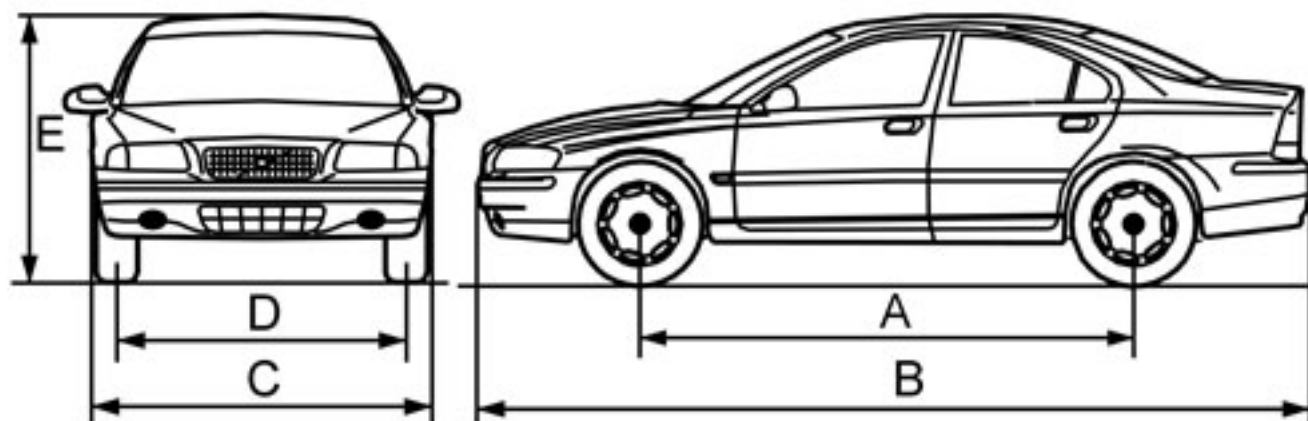
Chassis code	Auxiliary spring	Remarks
1	30666243	FWD/AWD

C30, S40 (04-), V50, C70 (06-)

Chassis code

Chassis code	Auxiliary spring	Remarks
2	30683575	low sport
5	30635520	18"

Length and weight



M8000317

Dimensions		S40(04-)	V50	C70	C30
		mm	mm	mm	mm
A	Wheelbase	2640	2640	2640	2640
B	Length	4468	4514	4582	4252
C	Width	1770	1770	1836	1782
D	Track width 15 inch rims:				
	Front	1548	1548	-	1548
	Rear	1544	1544	-	1544
	Track width 16 / 17 inch rims:				
	Front	1535	1535	1550	1535
	Rear	1531	1531	1560	1531
E	Height	1452	1452	1400	1447
Ground clearance:					
Car + two people		119	119	134	119
Aerodynamics Cd		0.31	0.31	0.31	0.31
		0.29 (DRIVE)	0.29 (DRIVE)		0.28 (DRIVE)
Front area m ²		2.2	2.2	2.13-2.15	2.18

Section 1 Service and maintenance**Group 17 Service****Engine oil**

Do not use oil additives. Additives may damage the engine.

Volvo fully synthetic engine oil is recommended for **extreme driving conditions** that result in increased oil consumption.

Volvo recommends Castrol® oil products.

If driving under extreme conditions, use ACEA A5/B5 SAE 0W-30

Engine oil

Engine	Oil grade	Viscosity	Filling volume between MIN-MAX (litres)	Volume (litres) Including oil filter
B5244S5	ACEA A3/B3/B4	SAE 0W-30	1.3	5.8
B5254T3	ACEA A3/B3/B4	SAE 0W-30	1.3	5.8
B5244S4	ACEA A3/B3/B4	SAE 0W-30	1.3	5.8
D4164T -2010	ACEA A3/B3/B4	SAE 0W-30	1.0	3.7
D4164T 2010-	ACEA A3/B3/B4	SAE 0W-30	1.0	3.9
B4164S3	WSS-M2C913-B	SAE 5W-30	0.75	4.0
B4184S8	WSS-M2C913-B	SAE 5W-30	0.75	4.3
B4184S11	WSS-M2C913-B	SAE 5W-30	0.75	4.3
B4204S3	WSS-M2C913-B	SAE 5W-30	0.75	4.3
D4204 T	WSS-M2C913-B	SAE 5W-30	2.0	5.5
D4204T2	WSS-M2C913-B	SAE 5W-30	2.0	5.5
D5244T8	ACEA A5/B5	SAE 0W-30	1.5	6
D5244T9	ACEA A5/B5	SAE 0W-30	1.5	6
D5244T13	ACEA A5/B5	SAE 0W-30	1.5	6

If the oil level is at MIN fill according to the volume differences above.

Transmission oil

Transmission	Oil grade	Oil change volume
M56	BOT 350 M3	2.1 litres
M66	BOT 350 M3	2.0 litres
MTX75, B4184S8	BOT 130	1.9 litres
MTX75, other	BOT 350 M3	1.9 litres
MMT6	BOT 130	1.7 litres
IB5	BOT 130	2.1 litres
AW 55-XX	JWS 3309	3.0 litres
MPS6	BOT 341	5.5 litres

Only Volvo recommended special oils may be used.

Power steering oil

Power steering fluid, servo gear grade	WSS M2C204-A
Volume in reservoir	0.2 litres
Total volume in system	1.2 litres

The oil does not normally need to be changed.

Brake and clutch fluid

Grade	DOT 4+
Volume, litres	0.6

Change oil every other year.

Coolant

Engine	Closed overpressure, volume
5-cyl petrol manual gearbox approx	9.5 litres
5-cyl petrol automatic gearbox approx	10.0 litre
B4184S11 approx	7.5 litres
B4184S3 approx	6.2 litres
D4204T/T2 approx	9.5 litres
D4164T approx	7.2 litres
D5244x approx	11.0 litre

Washer fluid

Engine type	Volume (litres)
5 cylinder petrol	6.5
4-cyl petrol/diesel	4.0

C30, S40 (04-), V50, C70 (06-)

Group 17 Service

Rear gear oil (center gear)

Grade	API GL-5
Change volume	0.7 litres

Section 2 Engine**Group 20 General****Performance and other data, gasoline and diesel engines:**

Engine type:	Weight complete including oil kg	Fuel:	Power:		Maximum torque:
		Octane/Cetane	kW / rps	hp / rpm	Nm / rpm
B5254T7	170	95 Octane	169 / 83	230 / 5000	320 / 1500 - 4980
B 5254T3	170	95 Octane	162 / 83	220 / 5000	320 / 1500-4800
B5244S4	150	95 Octane	125 / 100	170 / 6000	320 / 1500-4800
B5244S5	150	95 Octane	103 / 83	140 / 5000	220 / 4000
B4204S3	115	95 Octane	107 / 100	145 / 6000	185 / 4500
B4184S11	115	95 Octane	92 / 100	125 / 6000	165 / 4000
B4184S8	115	95 Octane/ E85	92 / 100	125 / 6000	165 / 4000
B4164S3	150	95 Octane	74 / 100	100 / 6000	150 / 4000
D5244T8	185	51Cetane	132 / 67	180 / 4000	350 / 1750-3250
D5244T9	185	51Cetane	120 / 67	163 / 4000	340 / 1750-3000
D5244T13	185	51Cetane	132 / 67	180 / 4000	400 / 2000-2750
D4204T	163	51Cetane	100 / 67	136 / 4000	340 / 2000
D4204T2	163	51Cetane	98 / 67	133 / 4000	320 / 1980
D4164T	160	51Cetane	81 / 67	110 / 4000	240 / 1750

Group 21 Cylinder block

Tightening torques for petrol engines: B52XX XX, Cylinder block

Tightening torques for lubricated screws and nuts:	Nm
Exhaust system (to turbo/manifold)	24 Nm
Centre nut/Vibration damper (crankshaft front edge)	180 Nm
Cylinder head Note! Tighten the screws in sequence from the centre and outwards.	Stage 1 20 Nm Stage 2 60 Nm Stage 3 angle tightening 130°
Fuel pump, plastic nut	70 Nm
Stay (Manifold/Cylinder block)	M8x16 20 Nm M10x16 40 Nm
Sub-frame screw (front screws) (rear screws)	120 Nm 280 Nm
Pipe screw M14x1.5 (coolant pipe/turbo)	38 Nm
Pipe screw M12x1.5 (water heated crankcase ventilation)	26 Nm
Pipe screw M12x1.5 (oil pressure pipe/turbo)	26 Nm
Pipe screw M14x1.5 (oil pressure pipe/engine block)	38 Nm
Intake manifold, (lower section, cylinder head side) (upper section)	19 Nm 10 Nm
Camshaft bearing housing /Valve cover	14 Nm
Piston cooling valve (oil duct piston cooling, in block)	32 Nm
Piston ring nozzles	17 Nm
Timing gear pulley (camshafts without VVT)	20 Nm
Timing gear pulley (camshafts with VVT)	10 Nm
Heated oxygen sensor (HO2S)	45 Nm
Temperature and/or pressure sensor/ for inlet air	2 Nm
Carrier plate	Stage 1 45 Nm Stage 2 angle tightening 50°

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm
Intermediate section Note! Tighten the screws in sequence from the centre and outwards.	M10 Stage 1 20Nm M10 Stage 2 45 Nm M8 Stage 3 24 Nm M7 Stage 4 17 Nm M10 Stage 5 angle tightening 90°
Pendulum bracket, engine mounting (M10 for cylinder head)	Stage 1 35 Nm Stage 2 angle tightening 75°
Engine pad for pendulum bracket right side (M12)	Stage 1 70 Nm Stage 2 angle tightening 90°
Engine pad, right hand side (2 screws in frame member M12)	90 Nm
Engine pad, right hand side (2 screws in cylinder block M12)	Stage 1 65 Nm Stage 2 angle tightening 90°
Torque rod, lower (screw M12)	Stage 1 30 Nm Stage 2 80 Nm
Torque rod, lower (screw M12)	80 Nm
Oil filter (environmental filter)	35 Nm
Oil trap	16 Nm
Sump plug	38 Nm
Oil pump (recessed Allen screw, M6x20 holds pump housing together)	6 Nm
Oil return line (turbocharger)	12 Nm
Studs (at exhaust port, manifold, turbocharger)	20 Nm
Plug (gauge hole/crankshaft adjustment)	38 Nm
Plug (Oil pressure line, cylinder block)	38 Nm
Belt tensioner (mechanical)	20 Nm
Throttle body	Tighten the screws diagonally 8 Nm
Flywheel	Stage 1 45 Nm Stage 2 angle tightening 65°
Vibration damper (flange screw M8x25)	Stage 1 25 Stage 2 angle tightening 60°
Timing cover (rear)	M7x20 2 x 12 Nm M8x30 25 Nm
Timing cover (upper)	10 Nm
Timing cover (front)	8 Nm

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm
Connecting rod cap	Stage 1 15 Nm
	Stage 2 25 Nm
	Stage 3 angle tightening 100°
VVT unit (centre screw)	120 Nm
VVT unit (centre plug)	35 Nm

Tightening torques apply to Petrol engines: B4184S8/S11, B4204S3

Tightening torques for lubricated screws and nuts:	Nm.
Cylinder head	Stage 1 5 Nm
	Stage 2 15 Nm
	Stage 3 45 Nm
	Stage 4 90°
	Stage 5 90°
Chain control	10 Nm
Chain tensioner	10 Nm
Camshaft bearing cap	Stage 1 7 Nm
	Stage 2 16 Nm
Camshaft pulley	72 Nm
Camshaft position sensor	6 Nm
Timing cover	M6 10 Nm
	M8 48 Nm
Timing cover, upper cover plug	10 Nm
Timing cover, lower cover plug	12 Nm
Plug crankshaft adjustment tool	20 Nm
Crankshaft pulley	Stage 1 100 Nm
	Stage 2 90°
Seal holder for crankshaft, rear	10 Nm
Crankshaft position sensor	7 Nm
Core plug for cylinder block	43 Nm
Core plugs (4) for cylinder head	75 Nm
Valve cover	10 Nm
Sump plug	28 Nm
Sump	25 Nm
Oil drain plug	28 Nm
Flywheel	Stage 1 30 Nm
	Stage 2 90°

Tightening torques for lubricated screws and nuts:	Nm.
Auxiliary equipment, belt tensioner	18 Nm
Transmission	44 Nm
Drive shaft, pilot bearing retainer	48 Nm
A/C compressor	24 Nm
Engine pad, right hand side (2 studs M12)	12 Nm
Torque rod, lower (screw M12)	Stage 1 30 Nm Stage 2 80 Nm
Torque rod, lower (screw M12)	80 Nm
Studs for timing cover , front engine mounting	10 Nm
Engine pad, right hand side screws in frame member	90 Nm
Engine lifting eye	45 Nm
Spring strut mounting, upper	25 Nm
Sub-frame screw (Front screws)	120 Nm
Sub-frame screws (Rear screws)	280 Nm

Tightening torques for Petrol engine: B4164S3

Tightening torques for lubricated screws and nuts:	Nm
Cylinder head	Stage 1 15 Nm Stage 2 30 Nm Stage 3 90°
Camshaft bearing cap	Stage 1 1/2 turn Stage 2 7 Nm Stage 3 45°
Camshaft pulley	30 Nm
Plug crankshaft adjustment tool	20 Nm
Belt tensioner	20 Nm
Vibration damper	Stage 1 40 Nm Stage 2 90°
Valve cover	Stage 1 screw 1: 2-3 turns Stage 2 3 Nm Stage 3 9 Nm
Sump plug	28 Nm
Sump	Stage 1 10 Nm Stage 2 20 Nm

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm
Flywheel	Stage 1 30 Nm
	Stage 2 80°
Stud for generator mounting	10 Nm
Studs for bracket right engine mounting	8 Nm
A/C compressor	24 Nm
Engine pad, right hand side (2 studs M12)	12 Nm
Torque rod, lower (screw M12)	Stage 1 30 Nm
	Stage 2 80 Nm
Torque rod, lower (screw M12)	80 Nm
Rear engine lifting eye	20 Nm
Sub-frame screw (Front screws)	120 Nm
Sub-frame screws (Rear screws)	280 Nm

Tightening torques for diesel engines: D5244TX, cylinder block

Tightening torques for lubricated screws and nuts:	Nm
Exhaust manifold to cylinder head	30
Drain plug oil pan	38
Battery positive cable to starter motor solenoid	11
Fuel filter	25
Fuel pump (plastic nut)	85
Fuel pump to tank	85
Fuel pressure regulator	Stage 1 60 Nm
	Stage 2 90°
	Stage 3 80 Nm
Centre nut vibration damper (crankshaft)	300
Cylinder head	Stage 1 90+/-2 Nm
	Stage 2 slacken at least 360°
	Stage 3 20 Nm
	Stage 4 50+/-4 Nm
	Stage 5 90+/-10°
	Stage 6 90+/-10°
Mounting screw control valve high pressure pump	Stage 1 4 Nm
	Stage 2 7 Nm
Glow plug	8

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm
Sub-frame to chassis	Stage 1 150 Nm Stage 2 90°
Sub-frame to chassis (rear screws)	Stage 1 150 Nm Stage 2 90°
Sub-frame to chassis (front screws)	Stage 1 150 Nm Stage 2 90°
Sub-frame bracket to bodywork	60
Pipe screw (coolant pipes/turbocharger (TC))	26
Pipe screw (oil pressure pipes/turbocharger (TC))	38
High pressure fuel rail (fuel pump/fuel rail, fuel rail/injectors)	Stage 1 8 Nm Stage 2 26 Nm
Fuel injection pump	18
Fuel injector	13
Intake manifold to cylinder head	19
Camshaft bearing cap	10
Catalytic converter to turbocharger, nut and clamp	24
Piston cooling valve	45
Timing gear pulley, camshaft	30
Radiator to condenser	5
Coolant pipes to turbocharger (banjo screw) M14x1.5	26
Heated oxygen sensor (HO2S)	25
Engine pad right to engine	Stage 1 35 Nm Stage 2 90°
Engine pad right to sub-frame	Stage 1 65 Nm Stage 2 30°
Engine pad, left	175
Engine pad left hand side to bracket	175
Lower torque rod	110
Lower torque rod front to sub-frame	Stage 1 65 Nm Stage 2 60°
Lower torque rod front to gearbox	Stage 1 35 Nm Stage 2 40°
Oil filter	25

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm
Oil cooler	17
Oil pressure sensor	14
Oil pressure pipe to engine (banjo screw) M14x1.5	38
Oil pressure pipes to turbocharger (banjo screw) M12x1.5	26

Tightening torques for Diesel engine: D 4204X

Tightening torques for lubricated screws and nuts:	Nm
Belt tensioner (for toothed belt, camshaft)	21 Nm
Engine mounting in cylinder head, right hand side	56 Nm
Engine pad, right hand side (2 screws in frame member M12)	90 Nm
Engine pad, right hand side (2 nuts in engine mounting M12)	90 Nm
Engine pad, right hand side (2 studs M12)	12 Nm
Engine pad, left hand side (screw M14)	150 Nm
Engine pad, left hand side (4 nuts M10)	Stage 1 35 Nm Stage 2 60°
Torque rod, lower (screw M12)	Stage 1 30 Nm Stage 2 80 Nm
Torque rod, lower (screw M12)	80 Nm
Centre screw/vibration damper (crankshaft front edge)	Stage 1 70 Nm Stage 2 60°
Cylinder head NOTE! Tighten the screws in sequence from the centre outwards	Stage 1 60 Nm Stage 2 220°
Cylinder head	Stage 1 60 Nm Stage 2 220°
Mounting for auxiliaries	48 Nm
Mounting screws, generator mounting	12 Nm
Mounting screw, rear generator mounting	48 Nm
Mounting screws, front generator mounting	25 Nm
Mounting screws, front crankshaft seal	14 Nm
Mounting screw, auxiliary equipment, tensioner	48 Nm
Mounting screw, camshaft position sensor	2 Nm

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm
Mounting screw, transmission	48 Nm
Pipe screw (oil pressure pipes/cylinder block)	40 Nm
Inner dipstick pipe	12 Nm
Camshaft cover, tightened in sequence in two stages	Stage 1 5 Nm Stage 2 10 Nm
Camshaft position (CMP) sensor	2 Nm
Chain tensioner	6 Nm
Piston cooling nozzle	10 Nm
Toothed pulley (toothed pulley for camshaft)	Stage 1 20 Nm Stage 2 60°
Sump	16 Nm
Main bearing cap	Stage 1 25 Nm Stage 2 60°
Flywheel	48 Nm
Timing cover, rear	7 Nm
Pressure plate	29 Nm
Big end bearing cap	Stage 1 20 Nm Stage 2 70°
Sub-frame screw (front screws) (rear screws)	Stage 1 120 Nm Stage 2 280 Nm

Tightening torques for Diesel engine: D 4164 T

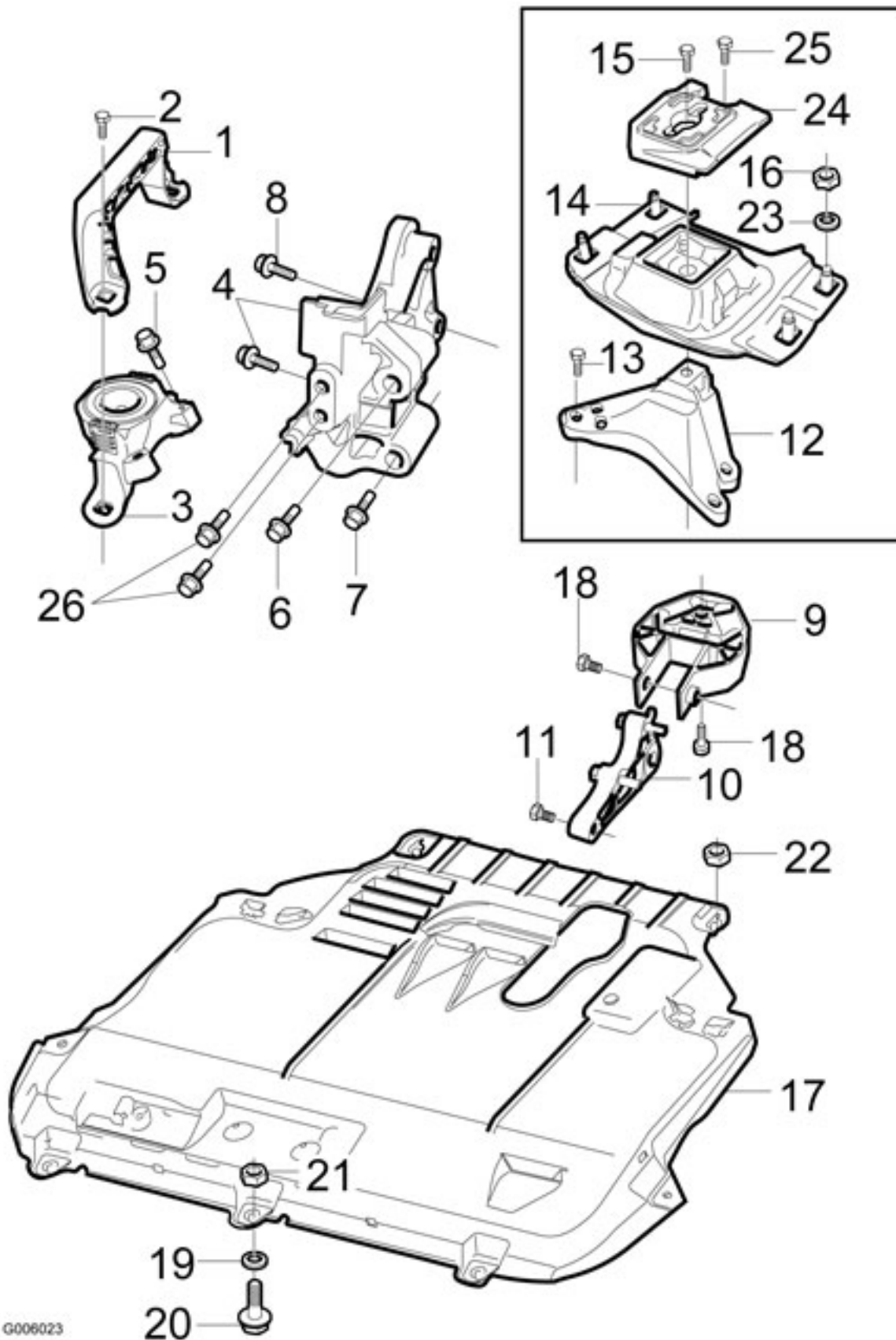
Tightening torques for lubricated screws and nuts:	Nm
Sub-frame screw (front screws)	120 Nm
Sub-frame screws (rear screws)	280 Nm
Flywheel	Stage 1 30 Nm Stage 2 90°
Crankshaft pulley	Stage 1 30 Nm Stage 2 180°
Camshaft housing	Stage 1 5 Nm Stage 2 10 Nm
Camshaft position sensor	17 Nm
Timing belt idler wheel	7 Nm
Timing belt idler wheel, nut	45 Nm
Timing belt tensioner	30 Nm

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm
Camshaft pulley	43 Nm
Cylinder head	Stage 1 20 Nm Stage 2 40 Nm Stage 3 220°
Oil pan, drain plug	25 Nm
Oil pan, studs	7 Nm
Sump	10 Nm
Timing cover, upper	4 Nm
Toothed belt cover, lower	5 Nm
Crankshaft speed sensor	8 Nm
Engine pad, right hand side (2 screws in frame member M12)	90 Nm
Engine pad, right hand side (2 nuts in engine block M12)	90 Nm
Engine pad, right hand side (2 studs M12)	12 Nm
Engine pad, left hand side (screw M14)	Stage 1 60 Nm Stage 2 50°
Engine pad, left hand side (4 nuts M10)	Stage 1 35 Nm Stage 2 60°
Torque rod, lower (screw M12)	Stage 1 30 Nm Stage 2 80 Nm
Torque rod, lower (screw M12)	80 Nm
Water pump	10 Nm

Group 21 Engine mounting

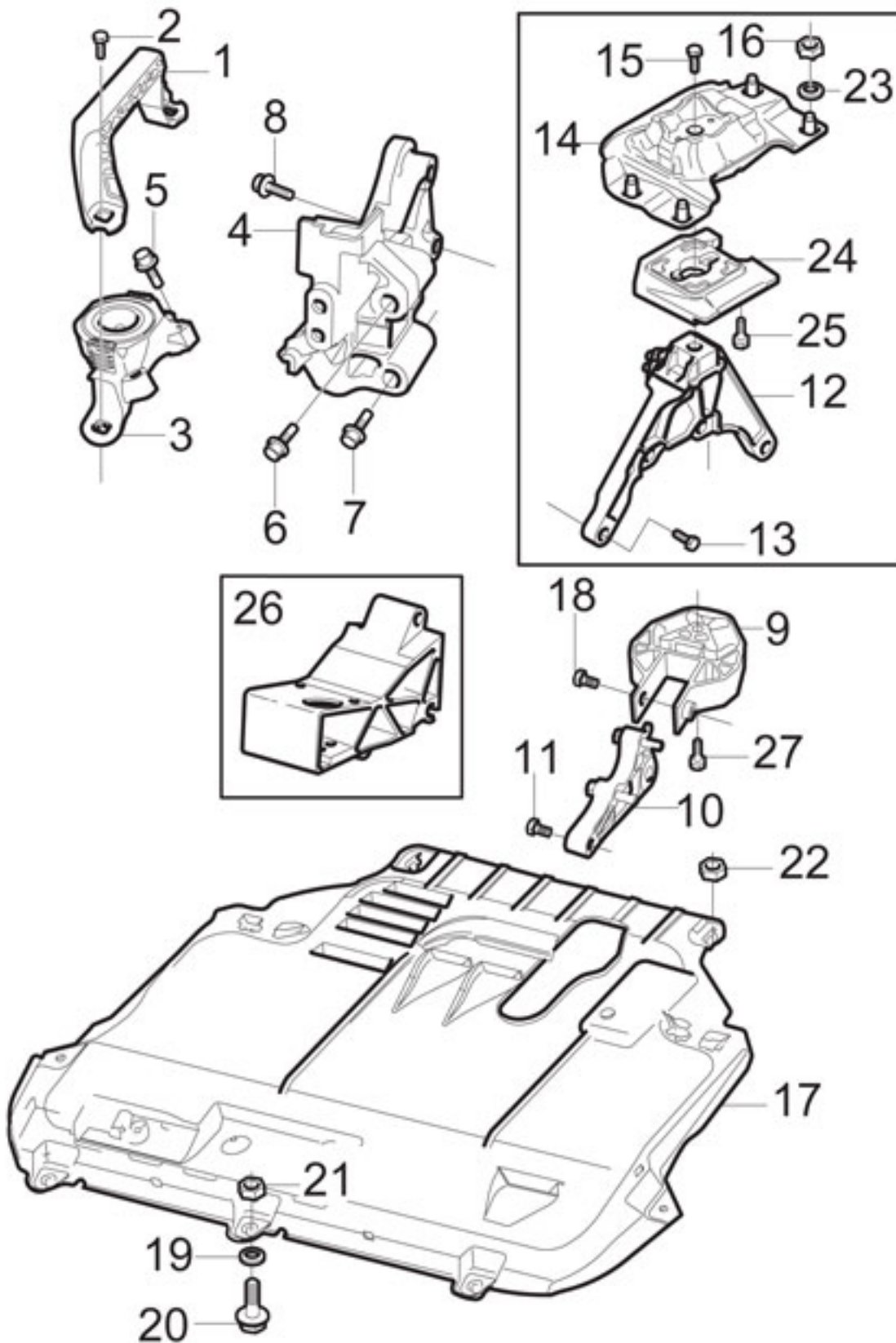
Engine mountings B52XX automatic transmission



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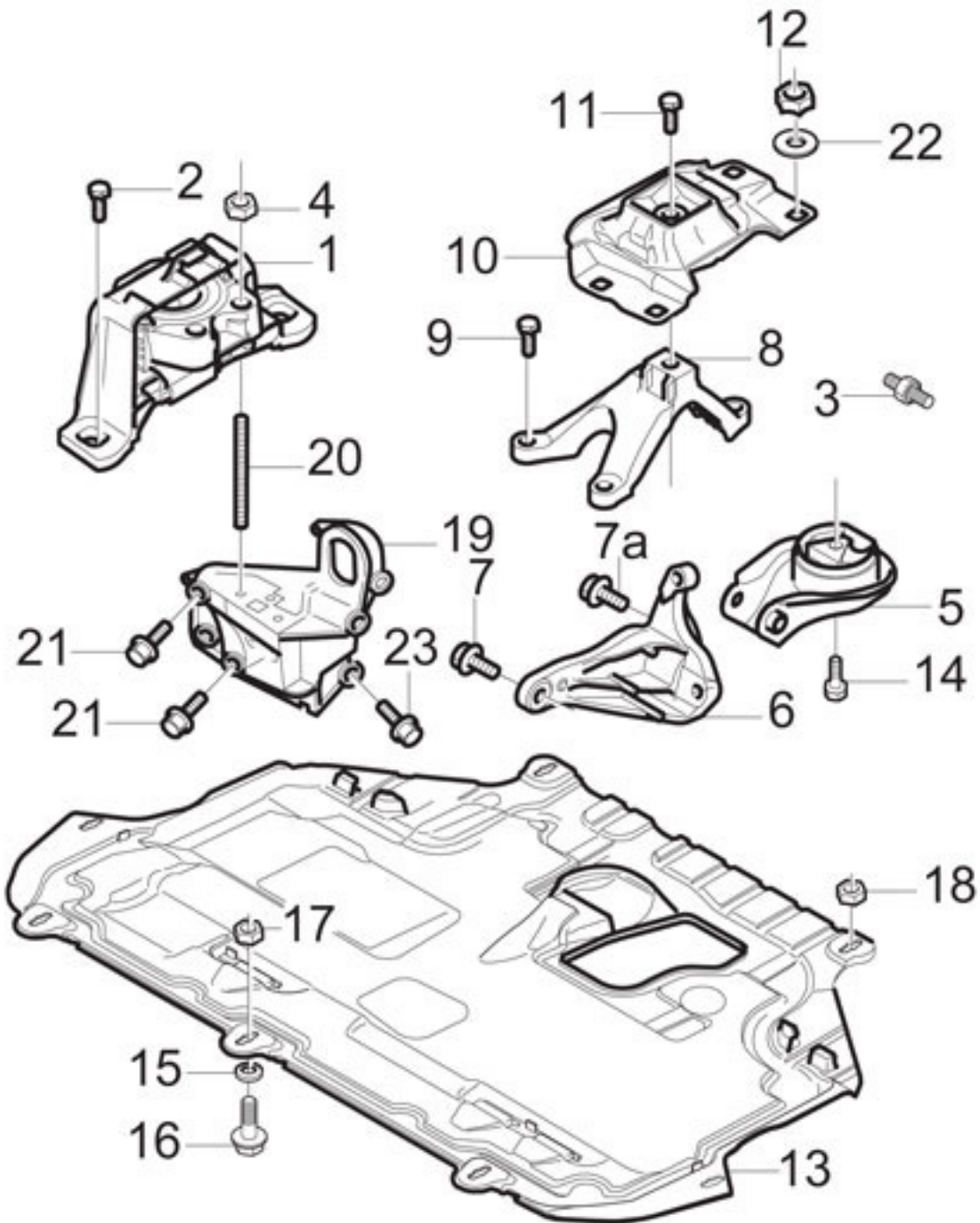
Engine mountings B52XX manual gearbox



Group 21 Engine mounting

Engine mountings B52XX		
Number (as illustrated):	Designation	Tightening torque /angle tightening oiled joint Nm
1	Limiter	—
2	2xSems screw, M12x55	90
3	Engine mounting, right	—
5	2xFlanged screw, M12x40x46.8	90
4	Engine mounting, front	—
4	2x Flanged screw, M12	80
6	Flanged screw, M8x70	25
7	Flanged screw, M10x75	35 Angle tightening: 75°
8	3xFlanged screw, M10x50	35 Angle tightening: 75°
9	Torque control arm, lower	—
10	Torque control arm, lower	—
11	3xFlanged screw, M10x50	35 Angle tightening: 60°
18	Vertical, Flanged screw, M12x63	90
18	Horizontal Flanged screw, M12x70	80
26	Rear engine mounting, M66AWD	
12	Gearbox mount	—
13	3xFlanged screw, M10x35	50
14	Engine pad, left	—
15	Flanged screw, M14x55	150
15	Flanged screw, M12	80
16	4 x Flanged nut, M10x10	35 Angle tightening: 60°
23	4xWashers	
24	Engine pad S40 CH 13687-, V50 CH 3834-	
25	2 x Flange screws, S40 CH 13687-, V50 CH 3834-	
17	The engine cover	—
19	5xWashers	—
20	Six point socket screw, PF5x20 (FWDx5) (AWDx7)	2.5
21	3xNuts	2.5
22	2xPlastic nuts	2.5

Engine mountings for B4XXX cyl



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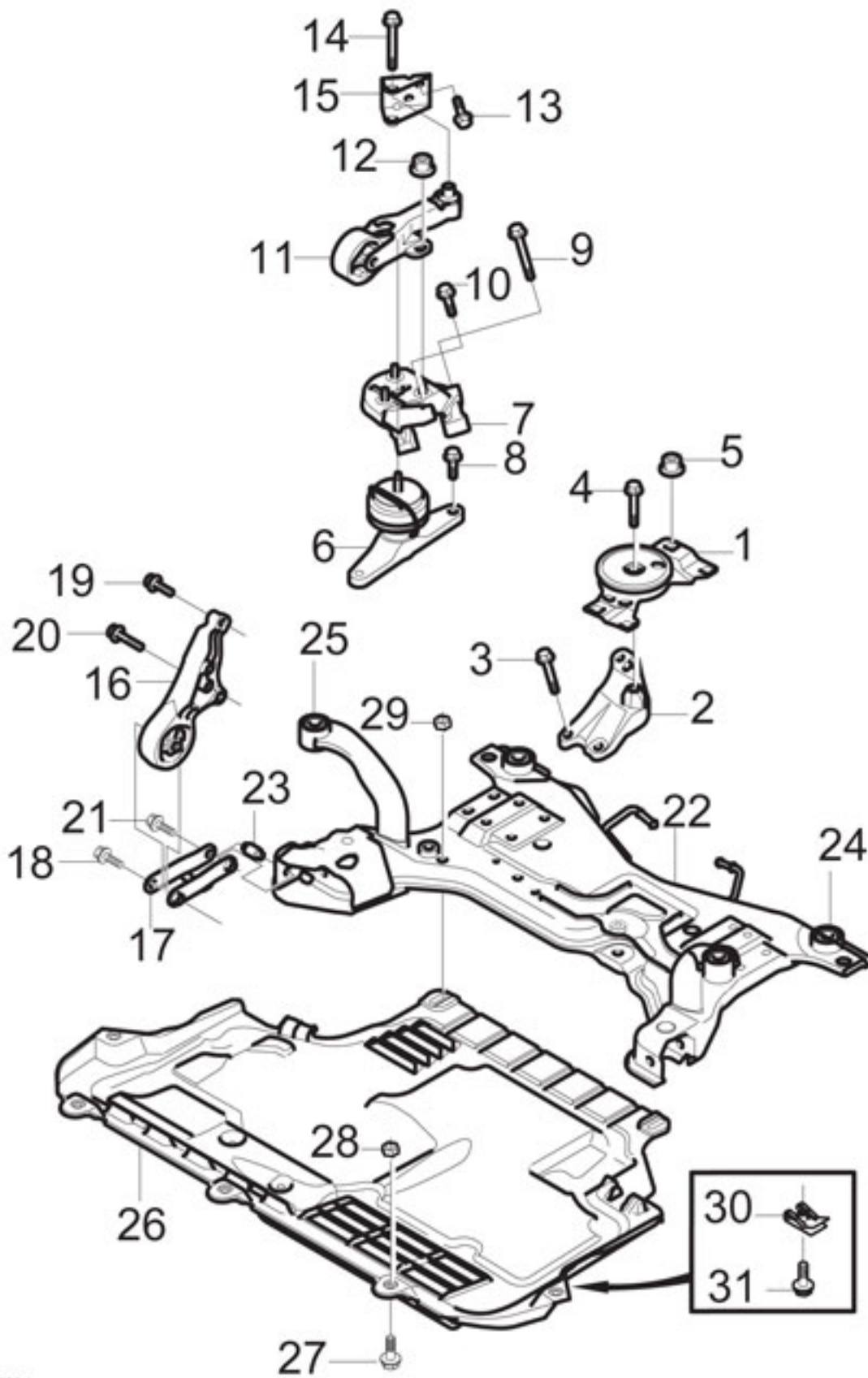
Group 21 Engine mounting

Engine mountings B4164S3 / B4184S11 / S8 / B4204S3		
Number (as illustrated):	Designation	Tightening torque /angle tightening oiled joint Nm
1	Engine pad, right	
2	2xSems screw, M12x40	80
4	Flanged nut, M12x14	90
3	Stud bolt M12XM8, S40 CH -110890, V50 CH -110891	
3	Flanged screw M12 X80, S40 CH 110891-, V50 CH 110892-	
5	Torque control arm, lower	
6	Torque control arm, lower	
7	3xFlanged screw, M10x35 1.8L	35 Angle tightening: 60°
7a	3xFlanged screw, M10x100 1.6L	35 Angle tightening: 60°
14	1xVertical, Flanged screw, M12x63	80
8	Gearbox mount	
9	MMT6 3xFlanged screw, M12x45 1.8L	80
9	MMT6 1xStud bolt M12x50 + M8x15 1.8L	80
9	MTX 2xFlanged screw, M12x45 1.8/2.0L	80
9	MTX 1xStud bolt M12x50 + M8x15 1.8 / 2.0L	80
9	3xFlanged screw, M12x45 1.6L	80
10	Engine pad, left	
11	1xFlanged screw, M14x55	150
12	4 x Flanged nuts, M12x10	35 Angle tightening: 60°
13	Splashguard	
15	5xWashers	
16	5 x six point socket screw, PF5x20	2.5
17	3xNuts	2.5
18	2xPlastic nuts	
19	Engine mounting, front	
20	2xStud M12xM12x74	12

Group 21 Engine mounting

Engine mountings B4164S3 / B4184S11 / S8 / B4204S3		
Number (as illustrated):	Designation	Tightening torque /angle tightening oiled joint Nm
21	2xFlanged screw, M10x60	50
23	B4164X 1xFlange screw M10x45	60

Engine mountings D52XX



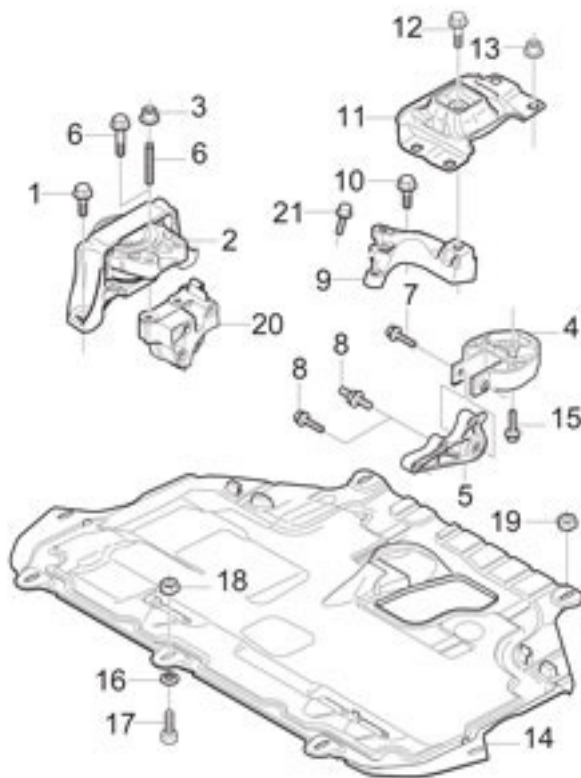
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Group 21 Engine mounting

Engine mountings D52XX		
Number (as illustrated):	Designation	Tightening torque /angle tightening oiled joint Nm
1	Engine pad, left	
2	Gearbox mount	
3	1xFlanged screw, M10x35 aut	25 Angle tightening: 90°
4	1xFlanged screw, M10x55x62.8	80
5	4xNut M10x14.3	35 Angle tightening: 60°
6	Engine pad, right	
	1xFlange lock nut bracket engine pad M10x11.4	50
7	Engine mounting, right	
8	2xFlanged screw, M12x40x46.8	90
9	2xFlanged screw, M12x110	70 Angle tightening: 90°
10	1xFlanged screw M10x50	50
11	Torque arm, upper	
12	3xFlanged locking nut M10x11.4	50
13	3xFlanged screw, M10x16	50
14	2xFlanged screw, M12x75x82.6	130
15	Bracket, upper	
16	Torque control arm, lower	
17	Torque control arm, lower	
18	1xFlanged screw, M12x70	80
19	2xFlanged screw, M10x55	40 Angle tightening: 90°
20	2xFlanged screw, M12x75	90
21	1xFlanged screw, M12x70	90
22	Frame	
23	Bushing	
24	2 x Bushing, rear	
25	2 x Bushing, front	
26	Splashguard	
27	5 x six point socket screw, PF5x20	2.5
28	3xNuts	2.5
29	2xPlastic nuts	
30	2xSpring nuts	
31	2xSix point socket screw, PF5x20	2.5



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Engine mountings D4204T / D4164T		
Number (as illustrated):	Designation	Tightening torque /angle tightening oiled joint Nm
20	Right-hand front engine mounting	
1	2xSems screw, M12x40	90
2	1x Engine pad, right hand side	
3	-2006 2xFlange lock nuts M12	90
6	-2006 2 x Stud pendulum suspension, M12x74	12
6	2006 -Flanged screw, M14x60	130
4	Torque control arm, lower	
5	1xTorque arm, lower. MMT6	
7	MPS6 Flanged screw M10x40	35 Angle tightening: 60°
7	MMT6 Flanged screw M10x35	35 Angle tightening: 60°
7	M56 Flanged screw M12x63	80

Group 21 Engine mounting

Engine mountings D4204T / D4164T		
Number (as illustrated):	Designation	Tightening torque /angle tightening oiled joint Nm
8	MMT6 2xStud torque rod bracket, M10xM8X35x60	35 Angle tightening: 60°
8	MPS6 2xStud torque rod bracket, M12xM8	80
8	MTX75 2xStud torque rod bracket M12x63	80
8	M56 3xFlanged screw M10x50	35 Angle tightening: 60°
15	Flanged screw, M12x70	90
9	Gearbox mount	
10	MMT6, MTX75 3xFlanged screw, M12x40	80
10	M56 3xFlanged screw M12x45	80
10	MPS6 4xFlanged screw, M12x40	80
11	Engine pad, left	
12	MMT6, MTX75, M56 1xFlanged screw, M14x55x63	150
12	MPS6 1xFlanged screw, M12x55x63	80
13	4 x Flanged nut, M10x10	35 Angle tightening: 60°
21	1xFlanged screw, M10x45	60
14	Protective cover	
16	7xWashers	—
17	7 x Six point socket screw, PF5x20	2.5
18	3xNuts	2.5
19	2xPlastic nuts	

Group 22 Lubrication system**Tightening torque B4184S8/S11, B4204S3**

Tightening torque	Nm
Oil pressure switch	15
Oil filter adapter	25
Dipstick pipe	10
Oil pump	Stage 1 10 Nm Step 2 23 Nm
Oil pump, chain sprocket	25
Oil pump strainer and oil supply pipe	10
Oil pump, chain guide	10
Oil pump, chain tensioner	10

Tightening torque D4204X

Tightening torque	Nm
Oil filter (environmental filter)	26
Oil plug in oil pan	34
Oil pump	16
Oil drainage pipe (turbo)	10
Oil pressure switch	35

Tightening torque D4164T

Tightening torque	Nm
Oil cooler	10
Oil pump	10
Oil pressure switch	30

Oil pressure: Engine at operating temperature, thermostat open and new oil filter.	Gasoline 5-cyl MPa	D4204T MPa
14 r/s (810 r/min), minimum	0.1	
67.7 r/s (4000 r/min), minimum	0.35	0.4
33.3 r/s (2000 r/min), minimum		0.2
The relief valve opens at a pressure of:	0.48	0.8
Maximum oil pressure: 5 cylinder petrol	0.7	
Oil pressure sensor: Breakpoint, indicator lamp goes out at a pressure MPa	0.04 - 0.06	0.05

Group 22 Lubrication system

Oil pressure: Engine at operating temperature, thermostat open and new oil filter.	Gasoline 4-cyl MPa	D4164T MPa
Idle speed, minimum 67.7 r/s (4000 r/min), minimum	0.1-0.2	0.1-0.2
33.3 r/s (2000 r/min), minimum	0.23-0.37	0.23-0.37

Oil volumes and oil grades, see: Section
1: Service and maintenance, Group 17:
Service.

Group 23 Fuel system**Tightening torque B4164S3**

Designation	Nm
Fuel rail	15

Tightening torque B4184S8/S11, B4204S3

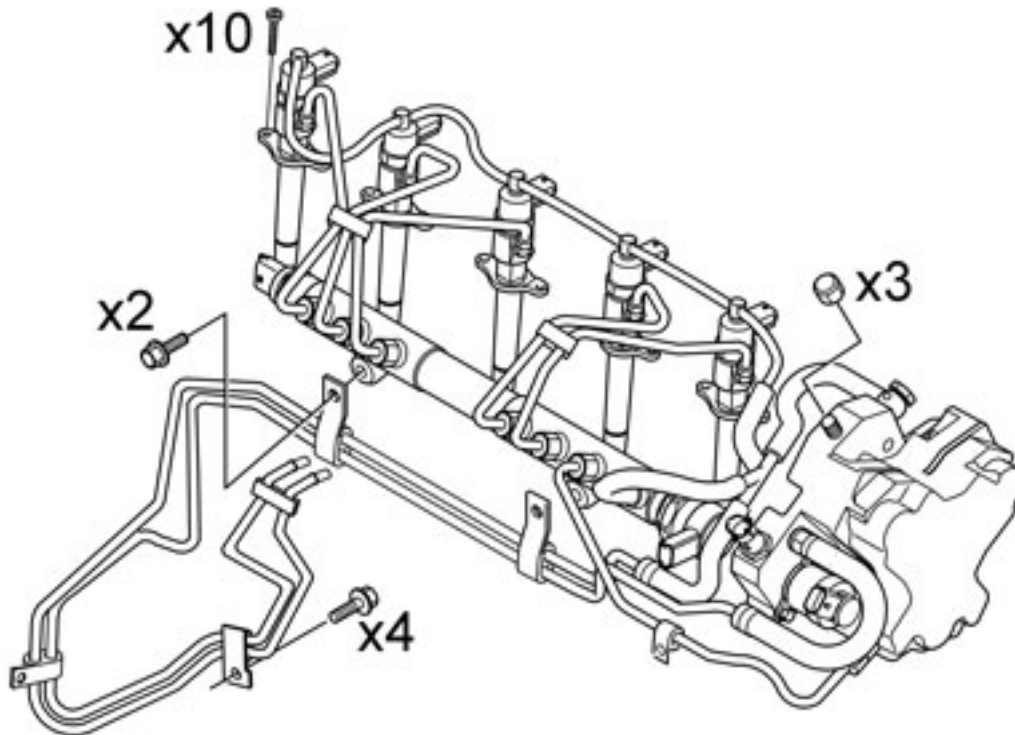
Designation	Nm
Fuel pump, plastic nut	70

Tightening torque D4204X

Designation	Nm
Fuel pump, plastic nut	70
Fuel pressure pipe (pump/fuel rail, fuel rail/injectors)	30
Mounting nuts for injector mounting	Stage 1 4 Nm Stage 2 45°
Mounting screws, injectors	10
Injectors (tensioned mounting yokes)	Stage 1 4 Nm Stage 2 45°
Fuel injection pump	20
Plastic nuts, fuel tank unit	70

Tightening torque D4164T

Designation	Nm
Fuel pump	22
Fuel pump, mounting	20
Fuel pump, rear mounting	10
Fuel pump, plastic nut	70
Fuel pump, pulley	50
Fuel rail	22
Fuel injector	Stage 1 4 Nm Stage 2 65°
High pressure line to injectors, nuts	Stage 1 20 Nm Stage 2 25 Nm
High pressure line to fuel rail, nuts	Stage 1 20 Nm Stage 2 25 Nm



Tightening torque D5244T8/T9/T13

Designation	Nm
Injectors: 1-5, two screws per injector, M6	13+/-1
X2, Rail secured with 2x M8x50 screws	25+/-6
X4, Fuel line secured with 4x M7 screws	14+/-3
X3, High-pressure pump 3x M7 screws	18+/-2
Fuel pressure pipe 12x nuts	28+/-3
Clamp on pipe number 6 fastened with M6	10+/-1
Fuel pressure sensor/fuel rail	70
Fuel control valve/rail	Stage 1 60 Step 2 80
Fuel temperature sensor/high pressure pump	21
Hollow screw/fuel delivery, high pressure pump	21
Hollow screw/fuel return, high pressure pump	25

Fuel injection system, Diesel engine D 4204T

	Type	Make	Designation
High-pressure pump	Piston pump	Siemens	VDO
Injectors	Assembly		

Fuel injection system, Diesel engine D 4164T

	Type	Make	Designation
High-pressure pump	Twin Chamber Rotary	Bosch	-2006: CP3.2 2007-: CP1H
Injectors	Euro 3		

Fuel system, diesel engine D5244T8/T9/T13

	Type	Make	Designation
High-pressure pump	Piston pump	Bosch	
Injectors	Complete with washer and clip	EDC 16 C31	

Turbocharger (TC) boost pressure, absolute pressure

Engine	kPa
D5244T8/T9/T13	210
D4204T	170
D4164T	125

Group 25 Intake and exhaust system

Group 25 Intake and exhaust system

Tightening torques for the intake and exhaust system components

Component	Tightening torque Nm
5 cylinder petrol engine	
Exhaust manifold, cylinder head side	24
Exhaust manifold - heat shield	20
Exhaust manifold - turbocharger (TC), nuts	25
Exhaust manifold - turbocharger (TC), studs	20
Exhaust system, pipe to turbocharger (TC)	30
Exhaust system, flange front - rear pipe	25
Exhaust system, pipe to exhaust manifold	25
Intake manifold, cylinder head side	20
Catalytic converter to turbocharger (TC)	30
Catalytic converter to exhaust system	24
Throttle body (TB). Tighten the screws crosswise	8
Rear mounting in side member sems screw x4	25
Flanged joint between hot and cold sections flange nuts x2 ..	50
Diesel engine D5244Tx	
Exhaust manifold, cylinder head	30
Catalytic converter, turbocharger (TC)	24
Catalytic converter, exhaust system	24
Three-way catalytic converter (TWC) stay - block	25
Intake manifold, cylinder head side	20
Oil pressure pipe / turbocharger (TC) (banjo screw) M12x1.5 ..	26
Diesel engine D4204 T	
Exhaust manifold - heat shield	20
Exhaust pipe to turbocharger (TC)	25
Exhaust system, pipe to exhaust manifold	25
Exhaust manifold, cylinder head side	30
Rear mounting in side member sems screw x2	25
Flanged joint between hot and cold sections flange nuts x2 ..	50/37
Intake manifold	Stage 1 5 Nm Stage 2 10 Nm
Catalytic converter clamp	47
Oil delivery line turbocharger, pipe screw	28
Studs, exhaust manifold	8
Temperature sensor catalytic converter front and rear	30

Group 25 Intake and exhaust system

Component	Tightening torque Nm
Turbocharger (TC) unit to manifold	25
Throttle body	10
Diesel engine 4164T	
Exhaust manifold	25
Turbocharger (TC)	25
Turbocharger (TC) to exhaust manifold, studs	10
Exhaust manifold, heat shield	10
Exhaust manifold - turbocharger (TC), studs	10
Intake manifold	10
Oil return line turbocharger (TC)	10
Oil delivery line and turbocharger (TC), pipe screw	27
Turbocharger (TC) heat shield	12
Exhaust system flexi pipe to tailpipe and silencer, nuts	47
Catalytic converter/Turbocharger (TC), nut and clamp	47
Rear mounting in side member sems screw x2	25
Flanged joint between hot and cold sections flange nuts x2 .	50
B4164S3	
Heated oxygen sensor (HO2S)	47
Exhaust manifold, mounting	25
Exhaust manifold, heat shield	10
Exhaust manifold to cylinder head	51
Catalytic converter to front silencer and end pipe	51
Studs for exhaust manifold to cylinder head	10
Studs, exhaust manifold	8
EGR pipe to cylinder head	55
Intake manifold	18
Rear mounting in side member sems screw x2	25
Flanged joint between hot and cold sections flange nuts x2 .	50
B4184S8/S11	
Heated oxygen sensor (HO2S)	20
Exhaust manifold, mounting	15
Exhaust manifold, heat shield	10
Exhaust manifold to cylinder head	48
Studs for exhaust manifold to cylinder head	17
Studs, exhaust manifold	17
EGR pipe to cylinder head	55
Intake manifold	18

Group 25 Intake and exhaust system

Component	Tightening torque Nm
Rear mounting in side member sems screw x2	25
Flanged joint between hot and cold sections flange nuts x2 .	50
B4204S3	
Heated oxygen sensor (HO2S)	20
Exhaust manifold, mounting	15
Exhaust manifold, heat shield	10
Exhaust manifold to cylinder head	48
Studs for exhaust manifold to cylinder head	17
EGR pipe to cylinder head	55
Intake manifold	18

Group 26 Cooling system**Tightening torque B4164S3**

Designation	Nm
Coolant Pump	10
Coolant pump, pulley	24
Coolant, outlet connection	20
Thermostat housing	10

Tightening torque B4184S8/S11, B4204S3

Designation	Nm
Coolant Pump	10
Coolant pump, pulley	25
Coolant, outlet connection	10
Thermostat housing	10

Tightening torque D4204X

Designation	Nm
Mounting nuts, thermostat housing	18
Water pump	16

Tightening torque D4164T

Designation	Nm
Thermostat housing	7

General

Use Volvo Genuine parts **green coolant** diluted 50/50 with **clean water**.

This mixture prevents corrosion and frost damage.

The coolant does not usually need replacing.

In the case of larger repairs when coolant needs to be drained, new coolant must be used because the old coolant has been exposed to oxidation and dirt.

Cooling system: Capacity, pressure and thermostat

Engine type:	Volume litres	Expansion tank pressure valve opens at		Thermostat °C	
		Over pressure kPa (psi)	Negative pressure kPa (psi)	Starts to open	Fully open
5 cylinders manual	9.5	145 (21)	10 (1.4)	90°C	105°C

Group 26 Cooling system

Engine type:	Volume litres	Expansion tank pressure valve opens at		Thermostat °C	
		Over pressure kPa (psi)	Negative pressure kPa (psi)	Starts to open	Fully open
5 cylinders automatic	10.0	145 (21)	10 (1.4)	90°C	105°C
B4184S11/S8	7.5	145 (21)	10 (1.4)	90°C	105°C
B4164S3	6.2	145 (21)	10 (1.4)	82°C	97°C
D4204T/T2	9.5	145 (21)	10 (1.4)	82°C	95°C
D4164T	7.2	145 (21)	10 (1.4)	82°C	95°C
D5244T8/T9/T13	11.0	150 (22)	10 (1.4)	87°C	102°C

Group 28 Engine management system - Components

Group 28 Engine management system - Components

Tightening torque B52XXX

Designation	Nm
Spark plugs	28+/-3
Knock sensor (KS)	20

Tightening torque B4164S3

Designation	Nm
Knock sensor (KS)	20
Temperature sensor, engine coolant	18
Spark plugs	15
Ignition coil	6

Tightening torque B4184S8/S11, B4204S3

Designation	Nm
Knock sensor (KS)	20
Spark plugs	12+/-2
Ignition coil	6

Components related to the ignition system B52XXX

Components related to the ignition system		
Spark plugs	Electrode distance Turbo	0.7 mm
	Electrode distance Naturally aspirated engines	0.6+/-0.1 mm
Knock sensor (KS)	Denso Resistance in coil, at 20C/68F degrees	125+/-25 Ω
Relay, engine cooling fan Relay, AC	Resistance in coil	80 Ω

Components related to the ignition system B4184S11/S8/B4204S3

Components related to the ignition system		
Spark plugs	Spark gap	1.3+/-0.05 mm
Knock sensor (KS)	Piezo-electric crystal	Resistance 4.87 Ω
Crankshaft position (CKP) sensor	Inductive sensor with permanent magnet	Resistance 400-550 Ω
Camshaft position (CMP) sensor	Inductive sensor with permanent magnet	Resistance 400-550 Ω
Fuel injector		Resistance 12+/-0.6 Ω

Group 28 Engine management system - Components

Components related to the ignition system		
T-MAPS	Piezo resistive linear pressure sensor Measurement range NTC resistor Voltage Pressure	20 - 250 kPa linear 4.65 V 250 kPa
Heated oxygen sensor (HO2S) front	Binary sensor	Resistance 9 Ω
Heated oxygen sensor (HO2S) rear	Binary sensor	Resistance 9 Ω

Components related to the ignition system B4163S3

Components related to the ignition system B4163S3		
Spark plugs:	Spark gap	1.2 mm

Components related to the ignition/fuel system Bosch ME-9, EDC 16 C31:

Components related to the ignition/fuel system Bosch ME-9, EDC 16 C31:		
Control module	Built-in atmospheric pressure sensor	
Throttle unit	Integrated motor and position sensor	
Accelerator pedal (AP) position sensor	Pulse width modulated and linear signal (digital / analogue)	
Pressure regulator		Line pressure 380 kPa
Mass air flow (MAF) sensor	Mass air flow (MAF) sensor resistive film	Measurement range 12 - 640 kg/h
Fuel pump	Pump capacity at line pressure of 380 kPa and 13 V Power consumption at line pressure	> 125 l/h 7.5 A
Fuel injector		Resistance, coil 12 Ω
Fuel injector		Resistance, coil 22 Ω
T-MAPS: Charge air sensor/Intake air temperature sensor	-2007 Piezo resistive linear pressure sensor NTC resistor	Measurement range 20 - 250 kPa D5244Tx: Measurement range 20 - 3000 kPa.

Group 28 Engine management system - Components

Components related to the ignition/fuel system Bosch ME-9, EDC 16 C31:		
T-MAPS: Charge air sensor/Intake air temperature sensor	NTC resistor	D5244Tx: Measurement range 20 - 3000 kPa.
T-MAPS: Charge air sensor/Intake air temperature sensor	2008- Piezo resistive linear pressure sensor	Measurement range 20 - 300 kPa
Turbocharger regulator	PWM controlled valve	Resistance 29.7 Ω
Camshaft reset valve VVT	PWM controlled valve	Resistance 3.7 Ω
Knock sensor (KS)	Piezo-electric crystal	Resistance 200 \pm 80 Ω
Camshaft position (CMP) sensor	Magneto-resistive sensor with a permanent magnet	
Crankshaft position (CKP) sensor. Applies at 20°C/68°F	Inductive sensor with permanent magnet	Resistance 125.5+/-25 Ω
Heated oxygen sensor (HO2S), front Preheating	Linear sensor	Resistance 3.2 Ω , applies at 20°C/68°F
Heated oxygen sensor (HO2S), rear Preheating	Binary sensor	Resistance 9 Ω , applies at 20°C/68°F
D5: Heated oxygen sensor (HO2S)	Linear sensor	Resistance 3.2 Ω , applies at 20°C/68°F
Ignition coil	Individually mounted ignition coil	
	Integrated ignition discharge module (IDM) and diagnostics	
A/C pressure sensor	Linear pressure sensor	Measurement range 0 - 3100 kPa
A/C coupling	Relay checked	
EVAP valve not for D5	PWM controlled	Resistance 29.7 +/-1.4 Ω
Fuel pump (FP) relay	Frequency controlled mechanical relay	
Engine cooling fan (FC) control module	PWM controlled discharge module with variable output voltage and diagnostics	
System relay	Mechanical relay	Resistance 80 Ω
Clutch pedal position sensor	Self-adjusting	
Brake pedal position sensor	Self-adjusting	
Brake lamp switch	Two. One switch and one sensor	

Group 28 Engine management system - Components

Components related to the ignition/fuel system Bosch ME-9, EDC 16 C31:		
Engine coolant level switch	Level indicator	
Oil pressure switch not for D5	Pressure switch	

Technical data regarding ignition/fuel system ME-9:

Technical data regarding ignition/fuel system ME-9:				
Mass air flow (MAF) sensor:				
Q	12 kg/h	15 kg/h	30 kg/h	60 kg/h
Voltage	1.3 V	1.4 V	1.7 V	2.1 V
Boost pressure sensor:				
P	90 kPa	101 kPa	150 kPa	200 kPa
Voltage	1.7 V	1.9 V	2.8 V	3.7 V
Engine coolant temperature (ECT) sensor:				
Temperature	10 °C	20 °C	80 °C	100 °C
Resistance	3700 Ω	2450 Ω	318 Ω	184 Ω
Voltage	2.1 V	1.6 V	0.3 V	0.2 V
Temperature sensor, intake air: 2003-				
Temperature	0 °C	20 °C	30 °C	40 °C
Resistance	5886+/-5% Ω	2510+/-5% Ω	1715+/-5% Ω	1199+/-5% Ω
Outside temperature sensor:				
Temperature	0 °C	20 °C	25 °C	30 °C
Resistance	6318 Ω	2424 Ω	1941 Ω	1513 Ω
Voltage	4.3 V	3.5 V	3.3 V	3 V
Air conditioning (A/C) compressor:				
Start temperature sensor	6.5 °C		5.5 °C	
Status To/From	On		Off	
Clutch pedal position sensor:				
Position	0 mm	25 mm	50 mm	100 mm
Resistance	1500 - 2500 Ω	1000 - 2000 Ω	750 - 1750 Ω	500 - 1000 Ω
Brake pedal position sensor:				
Position	0 mm	20 mm	30 mm	50 mm
Resistance	1300 - 2100 Ω	1000 - 1800 Ω	900 - 1700 Ω	600 - 1400 Ω

Technical data regarding ignition/fuel system EDC 16 C31: D5244Tx

Technical data regarding ignition/fuel system EDC 16 C31:				
Boost pressure sensor				

Group 28 Engine management system - Components

Technical data regarding ignition/fuel system EDC 16 C31:			
Pressure	90 kPa	101 kPa	200 kPa
Voltage	1.46 V	1.63 V	3.13 V
Outside temperature sensor:			
Temperature	0° °C	20° °C	30° °C
Resistance	6318 Ω	2424 Ω	1564 Ω
Voltage	2.16 V	1.1 V	0.8 V
Engine coolant temperature (ECT) sensor:			
Temperature	10°C	20°C	100°C
Resistance	3700 Ω	2450 Ω	184 Ω
Voltage	3.7 V	3.2 V	0.6 V
Engine coolant temperature sensor			
Temperature .. °C	Resistance Ω	Accuracy	
-50	80340	+/-1.9	
-20	15040	+/-1.7	
0	5740	+/-1.6	
20	2450	+/-1.4	
50	811	+/-1.2	
100	183.6	+/-0.7	
150	56.9	+/-1.4	

Components DENSO

Components DENSO		
Control module	Built-in atmospheric pressure sensor	
Throttle unit	Damper motor integrated with electronic module	
Accelerator pedal (AP) position sensor	Pulse width modulated and linear signal (digital / analogue)	
Pressure regulator		
Mass air flow (MAF) sensor	Wire mass air flow (MAF) sensor	Measurement range 1.4-180 g/s
Fuel pump	Pump capacity at line pressure of 380 kPa and 12.5 V	> 125 l/h
	Power consumption at line pressure	7.5 A
Fuel injector	12 hole	Resistance, coil: 13.8 Ω
Manifold absolute pressure (MAP) sensor	Semi-capacitive linear pressure sensor	Measurement range 13.3 - 120 kPa

Group 28 Engine management system - Components

Components DENSO		
Temperature sensor inlet	Integrated into the mass air flow (MAF) sensor	
	NTC resistor	
Engine coolant temperature (ECT) sensor	NTC resistor	
Knock sensor (KS)	Piezo-electric crystal	Resistance 200+/-80Ω
Camshaft position (CMP) sensor	Magneto-resistive sensor with a permanent magnet	
Crankshaft position (CKP) sensor	Inductive sensor with permanent magnet	Resistance 125+/-25Ω at 20°C
Heated oxygen sensor (HO2S), front	Linear sensor	Resistance 2.4 Ω, at 20°
Preheating		
Heated oxygen sensor (HO2S), rear	Binary sensor	Resistance 13 Ω at 20°C
Preheating		
Ignition coil	Individually mounted ignition coil. 6.6 W	
	Integrated ignition discharge module (IDM) and diagnostics	
Spark plug type	Multi-electrode	
Outside temperature sensor:	NTC resistor	
A/C pressure sensor	Linear pressure sensor	Measurement range 0 - 3100 kPa
Canister purge (CP) valve	Pulse width modulated valve	Resistance 29.7 +/-1.4Ω
Fuel pump (FP) relay	Frequency controlled mechanical relay	
Air conditioning (A/C) relay	Mechanical relay	Resistance in coil 85 Ω
Engine cooling fan (FC) control module	Two-coil relay	Resistance 80 Ω, -2002
System relay	Mechanical relay	Resistance 80 Ω
Clutch pedal sensor	Self-adjusting	
Brake pedal sensor	Self-adjusting	
Brake lamp switch	Two separate switches	
Engine coolant level switch	Level indicator	

Group 28 Engine management system - Components

Technical data for the DENSO system:

Technical data for the DENSO system:				
Mass air flow (MAF) sensor:				
Q	3.1 g/s	5.7 g/s	7.3 g/s	9.3 g/s
Engine speed	750 rpm	1500 rpm	2000 rpm	2500 rpm
Voltage	1.3 V	1.6 V	1.7 V	1.8 V
Manifold absolute pressure (MAP) sensor:				
P		90 kPa	70 kPa	50 kPa
Voltage		3.3 V	2.7 V	2.1 V
Engine coolant temperature (ECT) sensor:				
Temperature		40 °C	80 °C	100 °C
Resistance		1150 Ω	318 Ω	184 Ω
Voltage		2.2 V	0.9 V	0.6 V
Temperature sensor, intake:				
Temperature		20 °C	25 °C	30 °C
Resistance		2450 Ω	2000 Ω	1800 Ω
Voltage		2.4 V	2.1 V	1.9 V
Outside temperature sensor:				
Temperature		20 °C	25 °C	30 °C
Resistance		2424 Ω	1941 Ω	1513 Ω
Voltage		3.5 V	3.3 V	3 V
Air conditioning (A/C) pressure sensor:				
Pressure		1206 kPa	1894 kPa	3100 kPa
Voltage V		2 V	3 V	4.75 V
Air conditioning (A/C) compressor:				
Start temperature sensor			5.5 °C	
Status To/From			Off	
Clutch pedal sensor				
Position		25 mm	50 mm	100 mm
Resistance		1000 - 2000 Ω	750 - 1750 Ω	500 - 1000 Ω
Brake pedal sensor:				
Position mm		20	30	50
Resistance Ω		850 - 1550	700 - 1400	400 - 1000

Group 28 Engine management system - Components

D4204 T Siemens:

Components related to the Siemens ignition/fuel system:		
Throttle unit	Vacuum controlled	
Mass air flow (MAF) sensor	Wire mass air flow (MAF) sensor	Measurement range 10 - 600 kg/h
Manifold absolute pressure (MAP) sensor	Piezo resistive linear pressure sensor	Measurement range 13 - 250 kPa
Temperature sensor inlet	Integrated into the mass air flow (MAF) sensor	
	NTC resistor	
Engine coolant temperature (ECT) sensor	NTC resistor	
Outside temperature sensor:	NTC resistor	
Fuel pump	High-pressure pump	pressure up to 1600 bar
Engine cooling fan (FC) control module	Two-coil relay	Resistance 80 Ω , -2002

Section 3 Electrical system

Group 31 Battery

System voltage, with ignition off:	12.5 - 12.7 V
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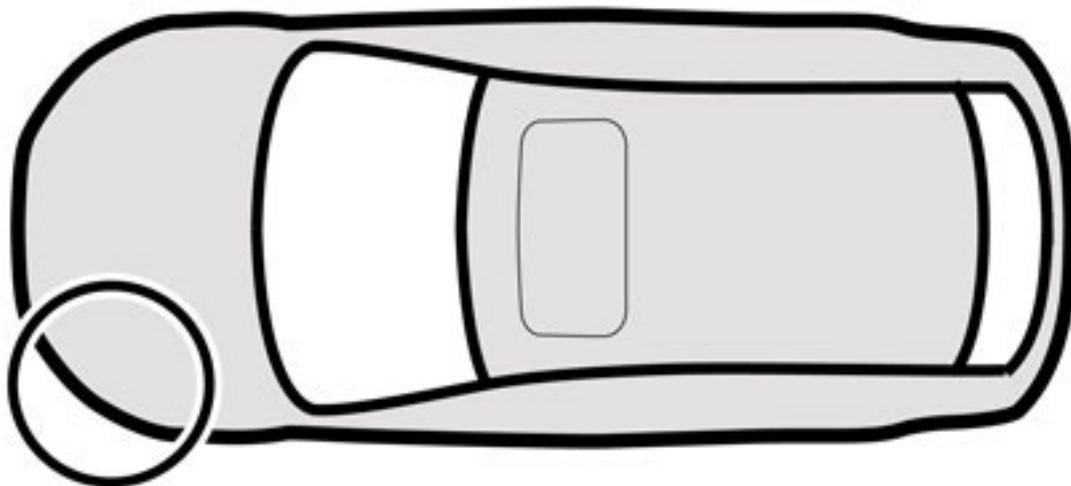
A newly charged battery may have a higher voltage.

For the battery capacity, see the table in the manual and the information on the battery.

Warning! For disconnection of the battery, see VIDA.

Vehicles with auxiliary battery

The extra battery is located behind the radiator on the left-hand side. Applies to cars with Start / Stop function.



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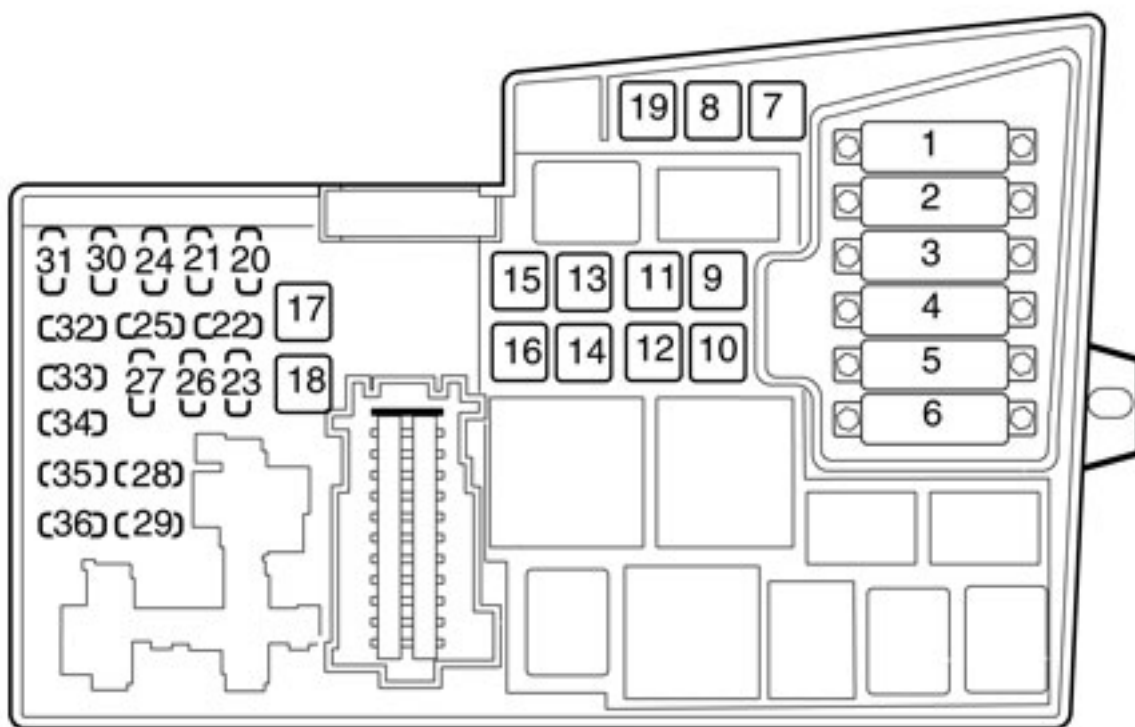
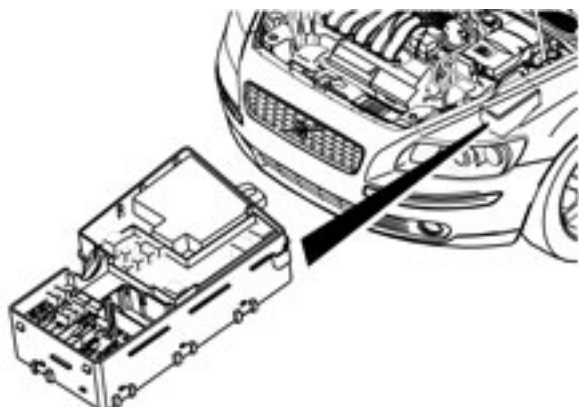
Group 32 Generator / Charge regulator

Generators, electrical and mechanical data:

Engine	Type:
D4204T, D4164T	Denso DE120 120A
D4204T, D4164T	Denso SC2 150A
B52xx (-2004)	Denso SC2 MFR 150A
B52xx (2005-2006)	Denso SC2 LIN 150A
B52xx (2007-)	Bosch LI-X 150A
D5244T8/T9 -MY2007	Denso SC2 150A *
D5244T8/T9/T13 MY2007-	Bosch LI-X 150A
B4164S3	Denso DE120 120A
B4184S11/S8, B4204S3/S4	Denso DE120 120A
B4184S11/S8	Denso SC2 150A
Direction of rotation all	Clockwise

* When replacing the generator for Denso SC2 to Bosch LIX new software is required, see VIDA

Group 37 Fuses



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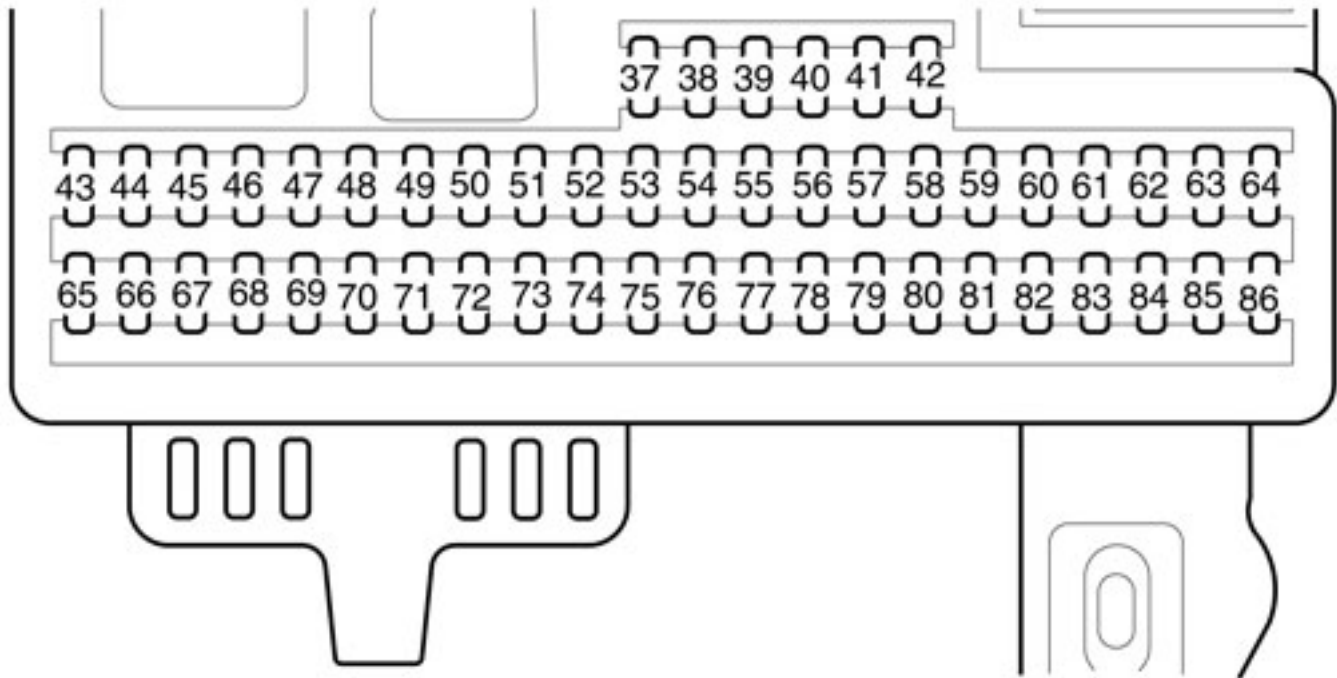
Fuses Central electrical unit in the engine compartment		
Fuse no:	Function	A
1	Engine cooling fan	50
2	Power steering servo (not 1.6L)	80
3	Supply to fusebox in cabin	60
4	Supply to fusebox in cabin	60
5	Element climate control unit (4-cyl), additional heater (PTC)	80
6	Glow plug (Diesel 4-cyl)	60
6	Glow plugs (Diesel 5-cyl) I5D	70
7	Brake control module (BCM), pump	30

Group 37 Fuses

Fuses Central electrical unit in the engine compartment		
Fuse no:	Function	A
8	Brake control module (BCM), valves	20
9	Engine control module (ECM)	30
10	Blower fan	40
11	Headlamp washer	20
11	C70 (06-) Headlight washers, electrically operated roof, lockable storage locker and ski hatch	
12	Heated rear window	30
13	Starter motor	30
14	Tow hitch wiring	40
15	C70 (06-) Electrically operated roof	30
16	S40 (04-) /V50 Supply to infotainment	30
16	C70 (06-) Supply to infotainment	40
17	Windscreen wipers	30
18	Supply to fusebox in cabin	40
19	Spare place	–
20	Horn	15
21	Fuel powered additional heater, cabin heater	20
22	Subwoofer	25
23	Engine control module (ECM) 5-cyl gasoline/ Transmission control module (TCM)	10
24	Electrically heated fuel filter, Diesel 5-cyl, PTC-element oil trap (5 cyl. diesel)	20
25	Spare place	–
26	Ignition switch	15
27	Air conditioning (A/C) compressor	10
28	Climate control module (CCM -2005). Multimedia module (MMM -2005)	10
28	(2006-) Spare place	
29	Front fog lights	15
30	Engine control module (ECM), Diesel 4-cyl, 2.0 l / 1.6 l gasoline	3
31	Voltage regulator Generator, 4 cyl	10

Fuses Central electrical unit in the engine compartment		
Fuse no:	Function	A
32	(-2005) Injector 5-cyl gasoline, Heated oxygen sensor (HO2S) 4-cyl gasoline, Relay pre-heater fuel filter Diesel 4-cyl., Vacuum pump (4-cyl),	10
32	(2006-) Injectors 5-cyl petrol, heated oxygen sensor 4-cyl petrol, charge air cooler (CAC) Diesel 4-cyl, mass air flow (MAF) sensor 5-cyl diesel, turbocharger control motor 5-cyl Diesel	10
33	Heated oxygen sensor, Vacuum pump 5-cyl petrol, Pre heater fuel filter diesel 4-cyl, PTC element oil trap (2.0 l diesel)	20
34	Ignition coils, fuel pump Diesel 4-cyl, injector (1.6 l gasoline), pressure switch climate unit (5-cyl. 2006-), Glow plug, EGR exhaust cleaning 5-cyl Diesel	10
35	Engine sensor for valves, relay coil air conditioning (A/C) PTC element flame trap (5 cyl. gasoline), engine control module ECM (5.cyl. Diesel), canister (petrol), injectors (1.8/2.0 l petrol), Solenoids variable valve timing, solenoid variable turbo geometry, Mass air flow (MAF) sensor (5 cyl. petrol, 4 cyl. Diesel), turbo control valve (2.5 l Turbo), pressure switch power steering(1.6 l petrol), EGR emission cleaning (4 cyl. Diesel, 1.8/2.0 l petrol)	15
36	Engine control module (ECM) not 5 cyl Diesel, Sensor accelerator pedal (AP), heated oxygen sensor 5 cyl Diesel	10

Group 37 Fuses



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Passenger compartment fuses Central electronic module (CEM)		
Fuse no:	Function	A
37	Spare place	-
38	Spare place	-
39	Spare place	-
40	Spare place	-
41	Spare place	-
42	Spare place	-
43	Phone module (PHM), Media player module (MP) (-2005), RTI (option)	15
44	Supplemental restraint system module (SRS)	10
44	(2008-) ECM (engine control module, 5-cyl gasoline)	
45	Electrical socket rear and front	15
46	Control unit lighting, glove box and courtesy, Driver information module (DIM)	5
47	Lighting in ceiling, lighting make-up mirror left and right	5
48	Windscreen washer, wiper rear windscreen	15
49	Supplemental restraint system module (SRS) , Occupant weight sensor(OWS)	10

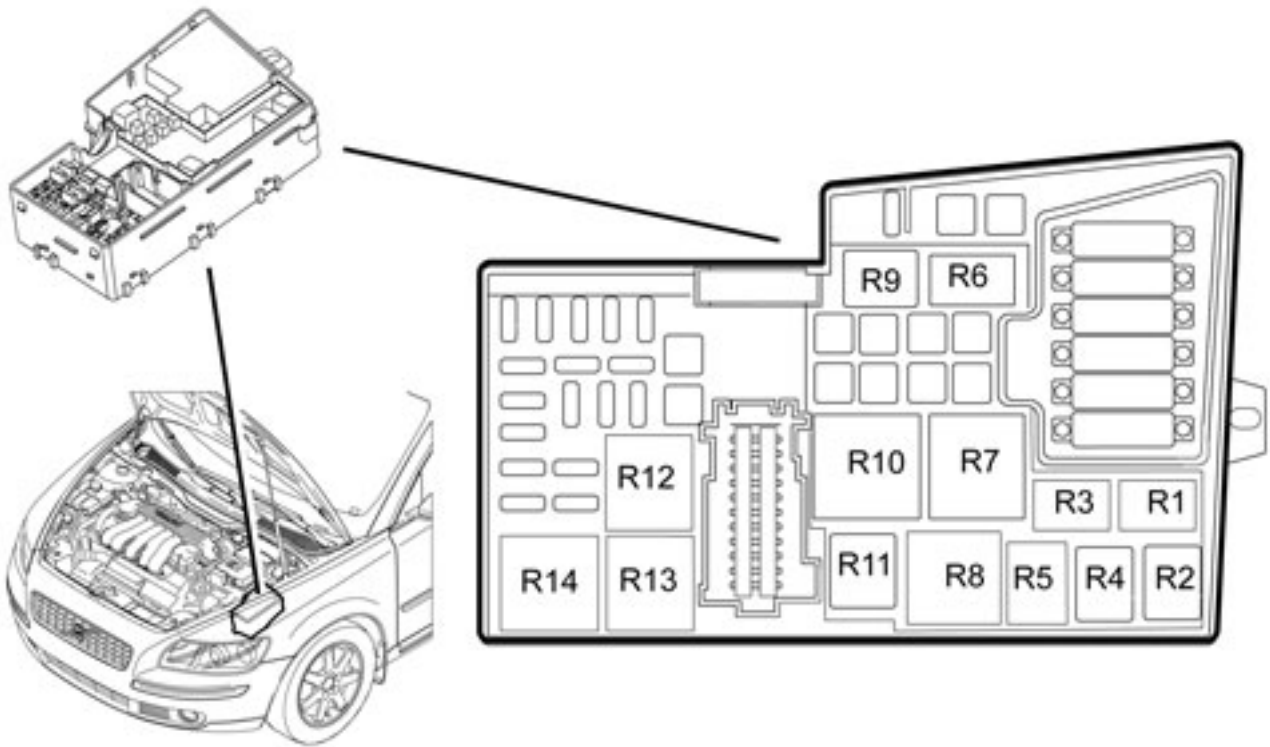
Passenger compartment fuses		
Central electronic module (CEM)		
Fuse no:	Function	A
50	Spare place	–
51	(-2005)	
	Lamp housing - headlight range adjustment, Gas discharge lamp module (GDL). Additional heater (PTC) Diesel, Parking assistance (-2007)	10
51	(2006-)	
	Additional heater (PTC) (Diesel), AWD, Relay pre heater fuel filter (Diesel)	
52	(2006-)	
	Brake control module (BCM) (2004-), Transmission control module (TCM), immobilizer (4-cyl. Diesel)	5
53	Brake control module (BCM) , power steering, Bi-Xenon lamps (option) Electrical power steering module (EPS)	10
54	(-2005)	
	Transmission control module (TCM)	10
54	(2006-)	
	ECM (engine control module, 5-cyl petrol)	
54	(2008-)	
	Parking assistance, Bi Xenon (option)	
55	Remote control receiver, Key-less module	20
56	Siren control module (SCM).	
	Battery charging (-2005)	10
56	(2008-)	
	Remote control control module	10
57	Diagnostic socket. Stop lamp switch	15
58	Main beam right, Auxiliary lamps	7.5
59	Left high beam	7.5
60	Seat heater driver's side	15
61	Seat heater passenger side	15
62	Roof hatch	20
63	Right rear door module (RDM)	20
64	Radio, Global positioning system (GPS), Audio, RTI (option), LED for door lock	5
65	IR-sensor remote control RTI, Display RTI, Hands free module mobile phone, Audio module(AUD), Media player module (MPM), Multimedia module (MMM)	5

Group 37 Fuses

Passenger compartment fuses Central electronic module (CEM)		
Fuse no:	Function	A
66	Infotainment control module (ICM), integrated audio, climate control unit	10
67	Spare place	15
68	Cruise control, Steering wheel module (SWM)	5
69	Climate control unit, Rain sensor (RSM)	5
69	(2008-) BLIS	
70	Spare place	–
71	Spare place	–
72	Spare place	–
73	Sunroof, Seat belt reminders rear, overhead console (OHC), Automatic anti-dazzle rearview mirror	5
74	Fuel pump module, gasoline	15
75	Spare place	–
76	Spare place	–
77	Electrical socket cargo compartment, Accessory module (AEM) ...	15
78	Spare place	–
79	Back-up (Reversing) lamp , Automatic anti-dazzle rearview mirror .	5
80	Spare place	–
81	Left rear door module (LDM)	20
82	Passenger door module (PDM)	25
83	Driver door module (DDM)	25
84	Control unit, power passenger seat	25
85	Control unit power drivers seat, power seat module (PSM)	25
86	Control unit power driver's seat, Control unit power passenger seat, Power seat module (PSM), Lighting cargo compartment, Fuel level sensor, Interior lighting	5
87	Spare fuse	–
88	Spare fuse	–
89	Spare fuse	–
90	Spare fuse	–
91	Spare fuse	–
92	Spare fuse	–
Fuses battery		
Fuse number:	Function	A

Group 37 Fuses

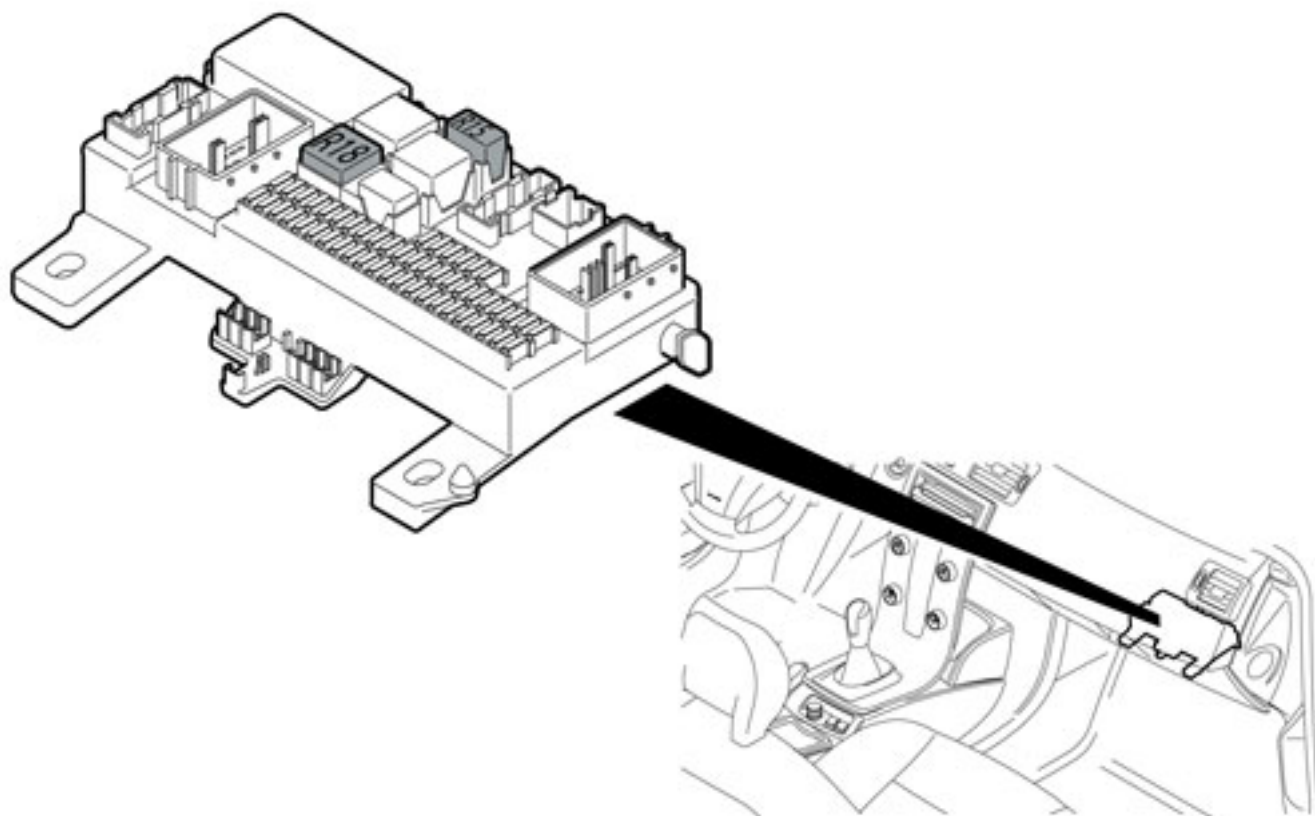
PF1	Starter motor, Generator	150
PF2	Fuses engine compartment	150



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253572

Central electrical unit, engine compartment Relays	
Position	Function
R2	Horn relay 2/17
R4	Fog lamp relay, front 2/34
R5	Relay fuel filter preheater 2/142
R9	Relay, headlight washer motor 2/182
R10	Relay rear demist 2/82
R11	Relay, climate control system 2/22
R12	Relay, automatic glow plug unit. 2/14
R13	Relay for the starter motor 2/35
R14	Main relay engine system 2/32



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253753

Central electronic module (CEM) Relays		
Position	Function	Remarks
R1	Relay interior lighting 2/89	Soldered relays
R2	Reversing lamp relay 2/80	Soldered relays
R7A	Relay windshield washer motor 2/92	Soldered relays
R7B	Relay washer motor rear windscreen 2/92	Soldered relays
R8	High beam relay 2/63	Soldered relays
R11A	Tailgate wiper relay 2/16	Soldered relays
R11B	Relay infotainment 2/159	Soldered relays
R15	Relay fuel pump, gasoline 2/23	
R18	Relay comfort function 2/193	
Relay, accessories		
Position	Function	
Dash-board	Relay, auxiliary lights 2/64	
Cargo compartment	Relays subwoofer 2/157	

Group 37 Fuses

Relay, accessories	
Position	Function
Front member	Relay, electric engine block heater 2/192
Dashboard	-2007
	Relay, audio disengagement 2/238

Group 38 Instruments, sensors

Fuel level sensor FWD:	Voltage V
Empty fuel tank	3.6 V
10 litres	3.1 V
30 litres	2.0 V
Full fuel tank	0.6 V
Full tank, flexi fuel	0.7 V
Fuel level sensor AWD:	Voltage
Sensor 1:	
Empty fuel tank	3.6 V
10 litres	2.3 V
27 litres	0.6 V
Sensor 2:	
Empty fuel tank	3.6 V
10 litres	2.5 V
30 litres	0.6 V

Engine coolant temperature (ECT) sensor:						
Temperature:	0°C	10°C	20°C	40°C	80°C	100°C
Resistance	5740 Ω	3700 Ω	2450 Ω	1150 Ω	318 Ω	184 Ω
Voltage	2.65 V	2.10 V	1.62 V	0.92 V	0.29 V	0.17 V
Supply voltage	5V					
NTC- Resistor						

Intake air temperature (IAT) sensor inlet

Temperature: °C	0°C	10°C	20°C	30°C
Resistance	5886 Ω	3791 Ω	2510 Ω	1715 Ω
Supply voltage	5V			
NTC- Resistor				

Fuel temperature sensor

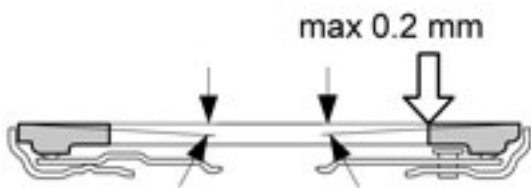
Temperature: °C	0°C	10°C	20°C	30°C	40°C
Resistance	5896 Ω	3792 Ω	2500 Ω	1707 Ω	1175 Ω
Supply voltage	5V				
NTC- Resistor					

Section 4 Power transmission

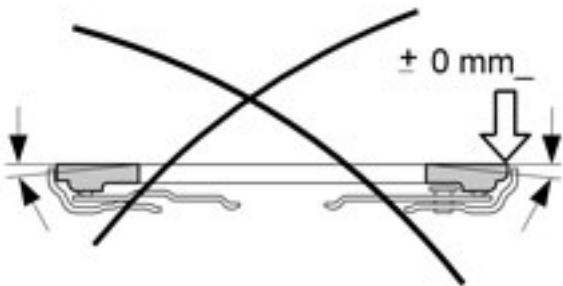
Group 41 Clutch

Technical data

Pressure plate, maximum distortion (see illustration below) . . .	0.2mm
Clutch pedal, travel	130mm



A4300553



A4300554

Tightening torque

Component:	Nm
Pressure plate, fly wheel	25
Mounting screws, master cylinder	25
Clutch slave cylinder	10

Group 43 Gearbox**Tightening torques, manual gearboxes**

Designation	Nm
Starter motor-transmission	40
Bell housing-cylinder block:	50
Flanged screw CSC (clutch release bearing) M6 x 25	10
Lock-up mechanism installed in control housing M18	28
Lock-up mechanism installed in gearcase M20 (M66)	28
Screw for control housing M8 x 30	25
Bracket, gear selector	25
Inductive sensor (ABS sensor)	10
Gear selector assembly M8 x 70	25
Switch for reversing light	25
Cable grommet, bulkhead M6 nut	6
Sems screw, mechanical cable bracket M8 x 30	25
Engine mounting M10	50
Engine mounting M8	25
Plug for draining / checking oil level	35
Screw drive shaft- hub:	Step 1 ... 35
	Stage 2 .. 90°
Screw for IB5 plastic protector	4.8

Tightening torque, AWD

Designation	Nm
Constant velocity joint:	Alternately
	Stage 1 .. 10
	Stage 2 .. 25
Level/filler plug bevel gear/differential housing	35
Pinion nut, AOC coupling (active on demand coupling)	100
Screw oil pump AOC (active on demand coupling)	5.5
Screw AOC (active on demand coupling) control module	5.5
Adjuster nut bevel gear	50
Screw bevel gear - gearbox	75

Tightening torque, AW55-51

Designation	Nm
Drive plate - torque converter	35
Transmission - engine	50
Oil filler pipe, bracket	25

Group 43 Gearbox

Bracket for shift cable	25
Output screw for coolant pipe	10
TMC located on gearbox, 3 bolts	25
Oil plug for gearbox	40
Nut for lever and gear control shaft	16
Screw oil pipe oil dipstick pipe gearbox	15
Transmission fluid pipe screw	6
Engine speed sensor/speed sensor	5.5

Tightening torque, MPS6

Designation	Nm
Engine transmission M10	50
Engine transmission bracket M12	80
Starter motor transmission	35
Collision bracket M8	24
Torque rod M10	50
Oil plug for gearbox	35

Manual gearboxes, gear ratios M56, IB5

Type of gearbox/Gear	M56L2 D4204T	IB5 B4164S3	M56H B5244S4	M56L B5244S5
1st gear	3.385:1	3.583:1	3.071:1	3.385:1
2nd gear	1.905:1	2.038:1	1.773:1	1.905:1
3rd gear	1.194:1	1.414:1	1.194:1	1.194:1
4rd gear	0.868:1	1.108:1	0.868:1	0.868:1
5rd gear	0.652:1	0.878:1	0.700:1	0.700:1
Reverse gear	3.298:1	3.615:1	2.993:1	3.298:1
Final drive	3.77:1	4.07:1	4.25:1	4.00:1

Manual gearboxes, gear ratios M66, MMT6

Type of transmission	M66W / M66W AWD	M66D	MMT6 -2007	MMT6 2008-
Gear:	B5254T3/T7	D5244T13	D4204T (Final drive)	D4204T (Final drive)
1st gear	3.385:1	3.385:1	3.231:1 (4.071:1)	3.583:1 (3.813:1)
2nd gear	1.905:1	1.905:1	1.864:1 (4.071:1)	1.952:1 (3.813:1)
3rd gear	1.267:1	1.194:1	1.241:1 (4.071:1)	1.241:1 (3.813:1)

Group 43 Gearbox

Type of transmission	M66W / M66W AWD	M66D	MMT6 -2007	MMT6 2008-
4rd gear	0.949:1:1	0.838:1	0.842:1 (4.071:1)	0.868:1 (3.813:1)
5rd gear	0.775:1	0.652:1	0.886:1 (2.850:1)	0.943:1 (2.773:1)
6rd gear	0.652:1	0.540:1	0.711:1 (2.850:1)	0.789:1 (2.773:1)
Reverse	FWD	3.197:1	3.231:1	4.185:1 (2.850:1)
.....	AWD	3.232:1		5.099:1 (2.773:1)
Final drive	FWD	3.77:1	4.00:1	See brackets above
.....	AWD	4.00:1		See brackets above

Manual gearboxes, gear ratios MTX75

Type of transmission	MTX75 Q1	MTX75 B4	MTX75 P3	MTX75 D1
Gear:	B4204S3	B4184S11/S8	D4164T (1.6D)	D4164T (DRIVE)
1st gear	3.417:1	3.667:1	3.800:1	3.800:1
2nd gear	2.136:1	2.136:1	2.048:1	2.048:1
3rd gear	1.448:1	1.483:1	1.345:1	1.258:1
4rd gear	1.028:1	1.114:1	0.921:1	0.865:1
5rd gear	0.805:1	0.854:1	0.705:1	0.674:1
6rd gear	—	—	—	—
Reverse gear	3.727:1	3.727:1	3.727:1	3.727:1
Final drive	4.07:1	4.07:1	3.41:1	3.41:1

Automatic gearbox, gear ratios MPS6

Type of transmission	MPS6-2	MPS-4
Gear:	B4204S3	D4204T
1st gear	3.583:1	3.583:1
2nd gear	2.048:1	1.952:1
3rd gear	1.370:1	1.194:1
4rd gear	1.029:1	0.842:1
5rd gear	1.161:1	0.943:1
6rd gear	0.971:1	0.789:1
Reverse gear	4.843:1	4.843:1
Final drive	Gear 1-4	4.533:1
Final drive	Gear 5-6	3.238:1
		4.067:1
		2.905:1

Group 43 Gearbox

Type of transmission	MPS6-2	MPS-4
Weight	91	91
MPS6 has two wet clutches. Clutch 1 manages odd gears and clutch 2 manages even gears.		

Automatic gearbox, gear ratios AW55-51

Type of transmission	AW55-51
Gear:	
1st gear	4.657:1
2nd gear	3.032:1
3rd gear	1.982:1
4rd gear	1.341:1
5rd gear	1.018:1
Reverse gear	5.114:1
Final drive Normally aspirated engines	2.44:1
Final drive Turbo / AWD	2.27:1
Converter/Torque amplification at stall Naturally aspirated engines	217K
Converter/Torque amplification at stall Turbo / AWD	206K
Weight	89

Section 5 Brakes**Group 51 Wheel brakes****Tightening torque**

Designation	Nm	Dimensions
Brake caliper - Steering arm	120	M12
Bleed nipple brake caliper front, rear	14	M10
Brake calliper, front/rear- Sliding pin	30	M9
Front backing plate - Steering arm	9	M6
Brake caliper rear - Wheel bearing housing	70	M10
Brake caliper rear - Sliding pin	30	M9
Splash guard rear - Wheel bearing housing	12	M6
Master cylinder - Booster	25	M8
Booster - Firewall	22	M8
Bracket, ABS - Side member	9	M6
Bracket, ABS - Modulator	9	M6
ABS sensor - Wheel bearing housing	5	M5
Key range 11		
Brake pipe - Modulator	14	M10
Key range 11		
Brake pipe - Modulator	14	M12
Key range 11		
Brake pipe - Master cylinder	14	M12
Key range 13		
Brake pipe - Master cylinder	18	M12
Key range 11		
Brake pipe - Brake hose	14	M10
Key range 11		
Brake pipe - Brake pipe	14	M10
Key range 13		
Brake pipe - Brake pipe	18	M10
Brake lamp	23	M10
Bracket vacuum pump - Front side member	10	M6
Parking brake bracket - Sips box	24	M8
Brake fluid reservoir - Master cylinder	3.5	M5
ABS sensor - Steering arm	5	M5
Brake pad rear, locating pins	35	

Group 51 Wheel brakes

Designation	Nm	Dimensions
Brake calliper bracket in the stub axle	135	
Brake disc screw	70	

Brakes front, technical data

Brake fluid	15"	16"	16.5"
Grade: DOT 4+			
Front wheel brake	mm	mm	mm
Brake disc (ventilated):			
Outer diameter, front	278	300	320
Thickness new, front	25	25	25
Replace when at minimum	23	23	23
Min. thickness for brake pad replacement	23.8	23.8	23.8
Max lateral runout, floating disc	0.075	0.075	0.075
Max. lateral runout, on hub	0.02	0.02	0.02
Max. thickness variation	0.008	0.008	0.008
Wheel cylinder:			
Piston diameter	57	57	57
Thickness, new (thickness of backing plate not included)	12	12	12.5
Thickness, minimum (thickness of backing plate not included)	3	3	3

Brakes rear, technical data

Brake fluid	15"	16"	16.5"
Grade: DOT 4+			
Rear wheel brake	mm	mm	mm
Brake disc (solid):			
Outer diameter	280	280	280
Thickness, new	11	11	11
Must be replaced at min.	9.0	9.0	9.0
Min. thickness for brake pad replacement	9.8	9.8	9.8
Max lateral runout, floating disc	0.075	0.075	0.075
Max. lateral runout, on hub	0.02	0.02	0.02
Max. thickness variation	0.008	0.008	0.008
Wheel cylinder:			
Piston diameter	38	38	38

Group 51 Wheel brakes

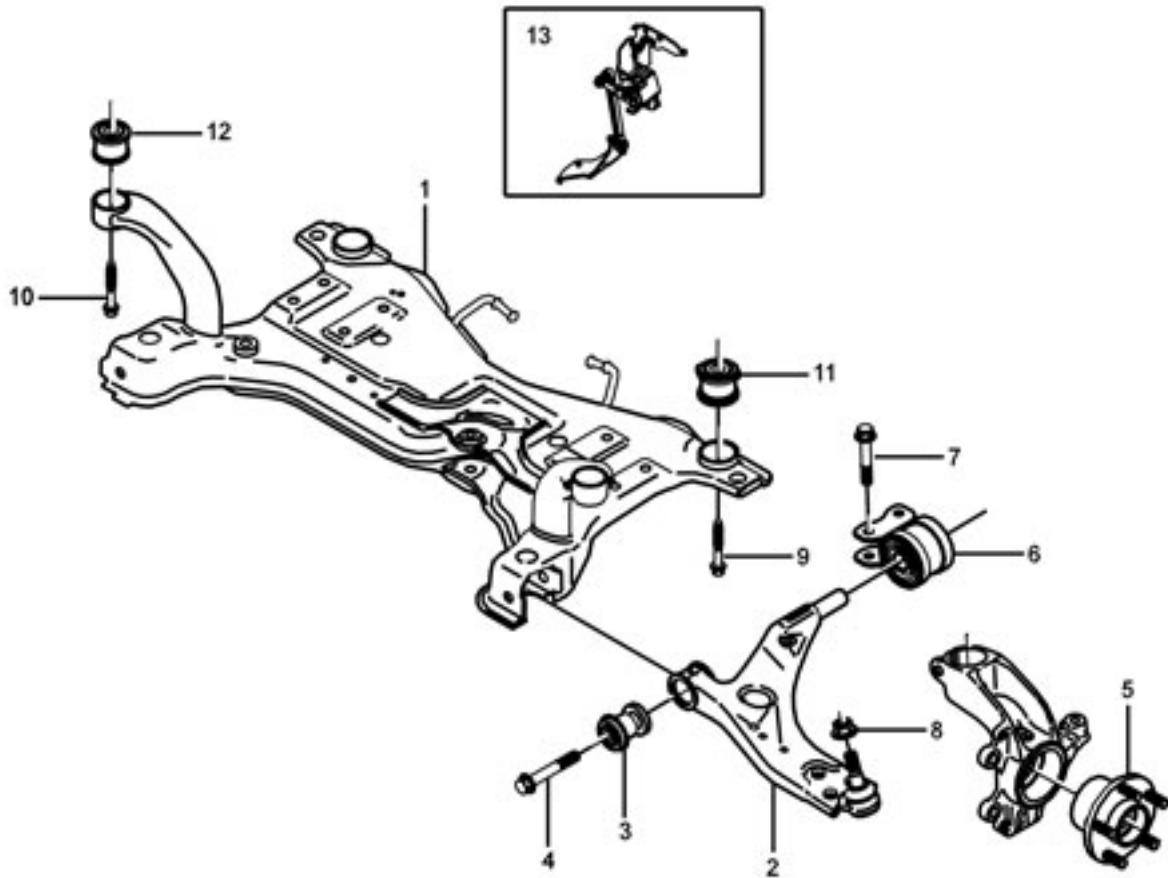
Thickness, new (thickness of backing plate not included)	10	10	10
Thickness, minimum (thickness of backing plate not included)	3	3	3

Section 6 Suspension and steering

Group 60 Wheel alignment

For information on wheel angle specifications, see Service Bulletin 605500.

Group 61 Front suspension



J6100401

Front wheel suspension	
Number (as illustrated)	Designation, size
1	Frame FWD
2	Control arm left, lower
2	Control arm right, lower
3	Bushing
4	Flanged screw, M14x95
5	Hub
6	Bushing
7	Flanged screw, M12x65
8	Flanged lock nut, M14x1.5x18.2
9 FWD	Flanged screw, M16x80
9 AWD	Flanged screw, M16x100
10 FWD	Allen screw, M12x75x88
10 AWD	Sems screw, M12x95x108.8
11	Bushing

Group 61 Front suspension

Front wheel suspension	
Number (as illustrated)	Designation, size
12	Bushing
13	Position sensor

Tightening torque

Designation		
Mechanical component:	Nm	Dimensions
Control arm - Sub-frame, front	175	M14
Control arm - Sub-frame, rear	stage 1 60	M12
	stage 2 90°	
Lower control arm in subframe	90	
Lower control arm in lateral link	115	
Anti-roll bar bracket - Sub-frame	50	M10
Anti-roll bar link - Anti-roll bar	50	M10
Anti-roll bar link - Spring strut	50	M10
Spring strut - Steering arm	90	M12
Ball joint control arm - Steering arm	70	M14
Steering arm outer in stub axle	50	
Upper bearing - Body	30	M8
Upper bearing - Washer	AWD 30	M8
Body - Stay	Low sport 30	M8
Washer - Body, screw	AWD 30	M8
Protective panel ball joint - Steering arm ...	9	M6
Sub-frame, front 2WD- Car body	120	M12
Sub-frame, front AWD- Car body	120	M12
Sub-frame, rear 2WD- Car body	stage 1 140	M16
Note! New screw Volvo P/N. 31262234	stage 2 180°	
Sub-frame, rear AWD- Car body	stage 1 140	M16
Note! New screw Volvo P/N. 31262235	stage 2 180°	
Drive shaft - Front wheel hub:	stage 1 35	M10
	stage 2 90°	
Shock absorber - Upper bearing	50	M12
Locknut steering arm inner against steering arm inner	63	
Sub-frame - Crashbox, screw	40	M10

Group 61 Front suspension

Designation		
Mechanical component:	Nm	Dimensions
Torque rod - Sub-frame, screw excl D5244Tx	90	M12
Torque rod - Sub-frame, screw .. D5244Tx	80	M12

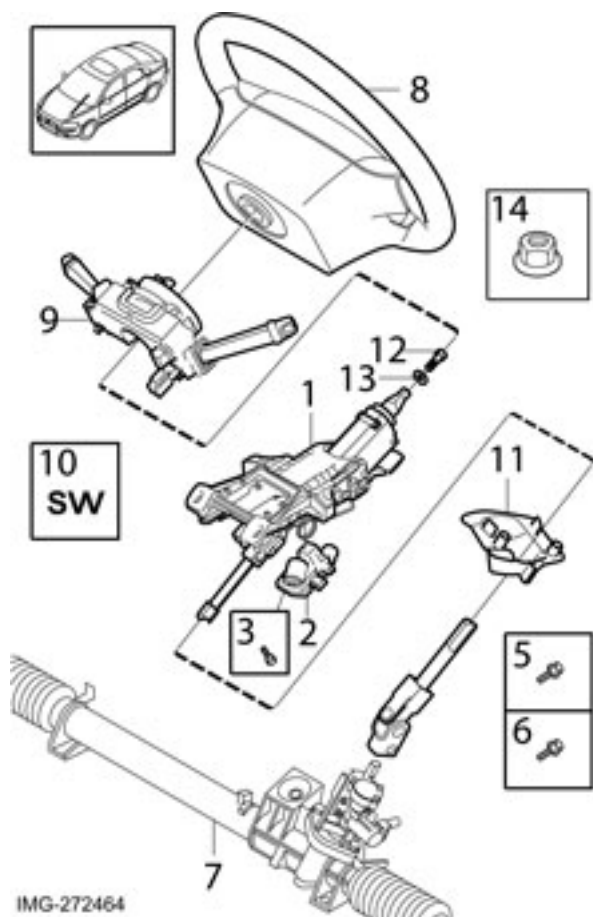
Group 64 Steering

Tightening torque

Mechanical component: Designation:	Nm	Dimen- sions	Illus- tra- tion no.
Steering gear - Sub-frame:	Stage 1 . 40 Stage 2 60°	M12	
Track rod - Ball joint, outer	40	M16x1.5	10
Ball joint, outer - Steering arm	47	M10	10
Steering gear - Mounting servo hoses	17	M8	11
Pressure hose - Pump	30	M16x1.5	12
Heat deflector plate - Steering gear	10	M6	13
Bracket, servo hoses - Steering gear	4	M5	14
Bracket, servo hoses - Engine	48	M10	14
Bracket, servo hoses - Bracket, Air conditioning (A/C) compressor	10	M6	14
Bracket, servo hoses - Steering hoses	6	M5	14
Bracket, servo hoses - Side member	2.5	PF5	14
Bracket, servo hose pump - Servo hose pump	25	M8	14
Bracket, servo hose pump - Endplate, side member	25	M8	14
Bracket, servo hose pump - Side member	25	M8	14
Steering column - Steering gear	25	M8	4
Steering column - dashboard	25	M8	1
Steering wheel lock - Steering column	12	M6	2
Steering wheel - Steering column	47	M10	8

Steering gear:

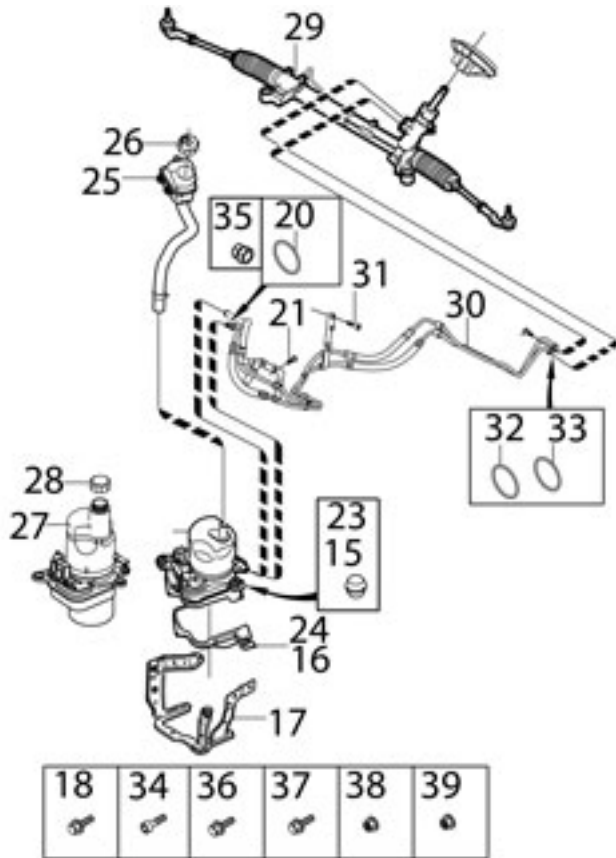
Turns of the steering wheel lock to lock	2.86
Gear ratios S40, C70	15.3:1
Gear ratios V50, C30	15.4:1
Turning radius (edge - edge) 205/55 R16	10.6 m
Turning radius (edge - edge) 215/45 R18	12.7 m



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Group 64 Steering



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272465

Steering	
Illustration no.	Designation
1	Steering column
2	Steering column lock
3	Security screw
5	Flanged screw
6	Flanged screw
7	Steering gear
8	Steering wheel
9	Switch
10	Steering column lock module (SCL) SW: 30667236
11	Gaiter
12	Flanged screw
13	Washer
14	Plastic nut
15	Steering gear
16	Pressure hose
17	Allen screw

Group 64 Steering

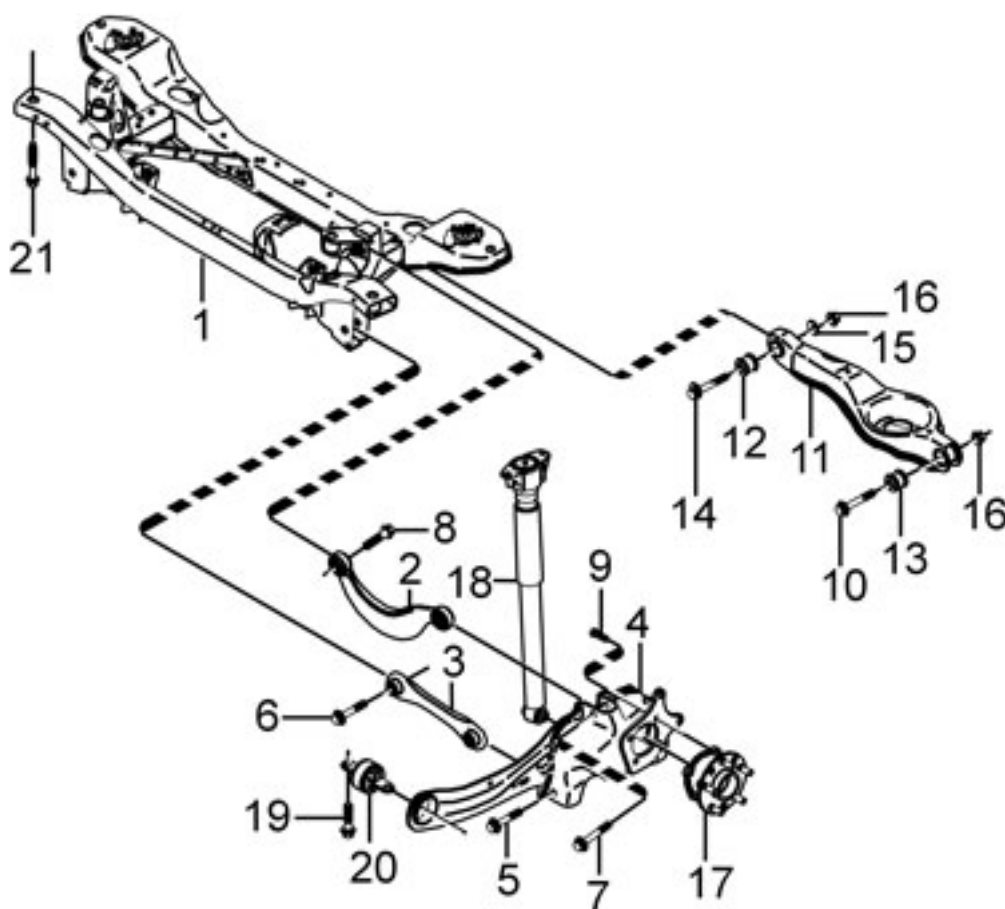
18	Flanged screw
19	Flanged screw
20	Allen screw
21	Flanged screw
22	Power steering pump
23	Rubber bushing
24	Bracket
25	Filler housing
26	Cover
27	Power steering pump
28	Cover
29	Rubber bushing
30	Bracket
31	Bracket
32	O-ring
33	O-ring
34	O-ring
35	Quick-release connector
36	Flanged screw
37	Flanged screw
38	Spring nut
39	Flanged nut

Group 65 Rear suspension

Group 65 Rear suspension

Tightening torque

Mechanical component	Nm	Dimensions
Designation:		
Sub-frame, rear - Car body	120	M12
Control arm upper, - Sub-frame	115	M12
Control arm upper, - Lateral link	115	M12
Sub-frame - Track rod FWD	115	M12
Sub-frame - Track rod AWD	125	M12
Lateral link - Track rod	115	M12
Bracket, anti-roll bar - Sub-frame	50	M10
Anti-roll bar link - Lower control arm, rear	50	M10
Lower control arm, rear - Sub-frame	90	M12
Lower control arm, rear - Lateral link	115	M12
Shock absorber - Car body	25	M8
Wheel spindle in spring strut	90	
Rear wheel hub - Lateral link	55	M12
Lateral link - Car body	120	M12
Shock absorber - Lateral link:		
2WD	115	M12
Nivomat 2WD	225	M16
AWD	115	M12
Anti-roll bar link rear to anti-roll bar	70	
Shock absorber - Upper bearing	17	M8
Shock absorber bearing rear in shock absorber	25	
Shock absorber bearing rear in shock absorber, nivomat	60	
Shock absorber bearing front in body	30	
Shock absorber bearing front in shock absorber	50	
Drive shaft - Rear wheel hub AWD	50	M10
Anti-roll bar - Lower control arm -	50	M8



J6500545

Number (as illustrated)	Designation
1	Sub frame - rear
2	Control arm, upper
3	Strut
4	Strut
5	Screw, left
6	Flanged screw
7	Flanged screw
8	Flanged screw
9	Allen screw
10	Flanged screw
11	Control arm, lower
12	Bushing
13	Bushing
14	Eccentric screw
15	Washer
16	Flanged locknut

Group 65 Rear suspension

Number (as illustrated)	Designation
17	Hub
18	Shock absorber
19	Sems screw
20	Bushing
21	Sems screw

Section 7 Suspension, damping, wheels**Group 77 Wheels, tyres, hubs****Tightening torque**

Wheel bolts	Tighten alternately
Stage 1	20 Nm
Stage 2	110 Nm

Wheel

	Wheel with aluminium rim	Wheel with steel rim
Lateral runout, max.	0.4 mm	0.6 mm
Radial runout, maximum	0.4 mm	0.5 mm
Maximum lateral runout of the hub front		0.020 mm
Maximum lateral runout of the hub, rear		0.050 mm

Tire size designations and speeds

The tyre has a size designation, such as "205/55R16 91 W"

205 Section width (mm)

55 Ratio between section height and width (%)

R Radial tire

16 Rim diameter in inches (")

91 Code for max. permissible tire load (in this case 615 kg/1356 lbs)

W Code for max. permissible speed (in this case, 270 km/h / 168 mph)

The tyre has a week and year of manufacture, which is the tire's DOT marking (Department Of Transportation). This code consists of four digits. For example, 1504 indicates that the tyre was manufactured week 15 of 2004.

Section 8 Body and interior

Section 8 Body and interior

Group 84 Glass and mirrors

Component	Power W	Resistance Ω
Heated rear window	240	0.6 ± 0.09
Door mirrors, heated	20	9 ± 1

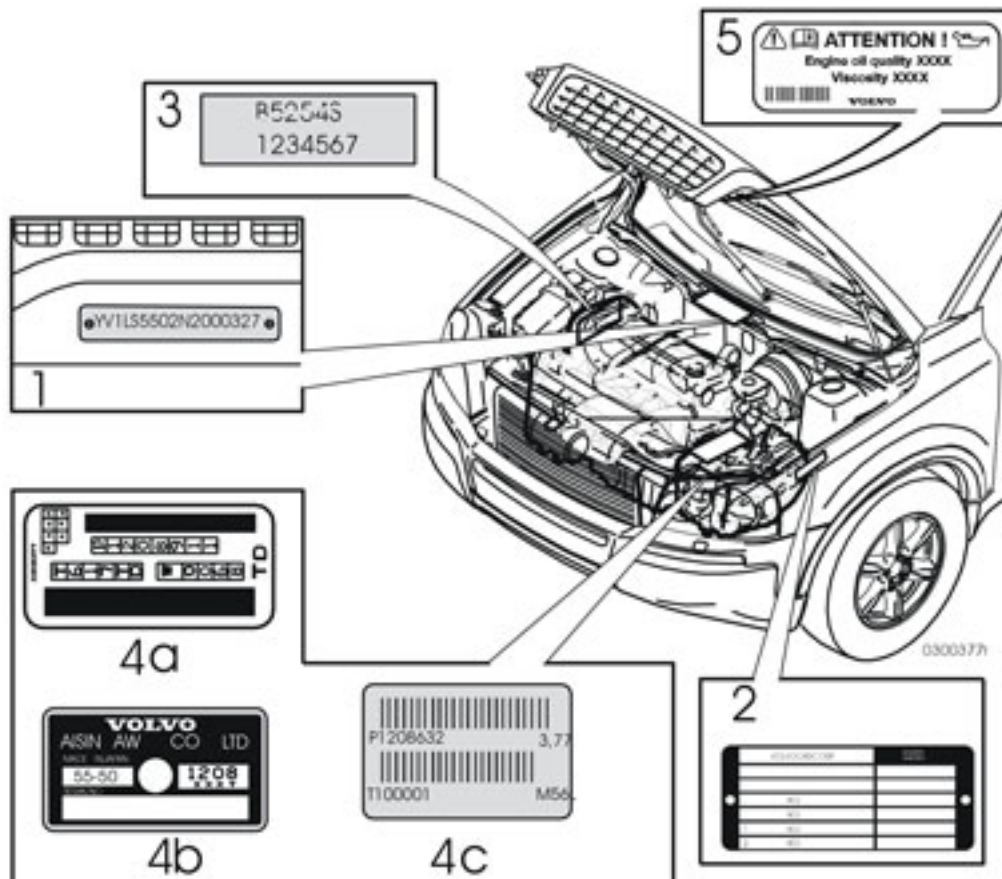
Group 87 Climate control**Tightening torque**

Designation	Nm
AC Break contact HT	8
A/C coupling, clutch plate	24
A/C Low pressure pressostat	4
A/C pipe to condenser	16
Connection block evaporator	5
Connection block A/C pipe at firewall	8
Mounting screw clutch plate (x52x4xx / B4xx4Sx)	13
Mounting nut clutch plate (D4xx4Tx)	22
Mounting plate compressor (D4164T)	20
Mounting screw pipe-/hose connection compressor	20
Mounting screw pipe-/hose connection compressor	20
Coolant pipe to expansion valve	4.5
Linear HT pressure sensor (steel)	8
Needle valve/service valve	6
Orifice-connection (cap nut)	20
Service valve	12
Drier filter	11
Valve housing HT (service valve)	12

XC90

Section 0 General

Plates



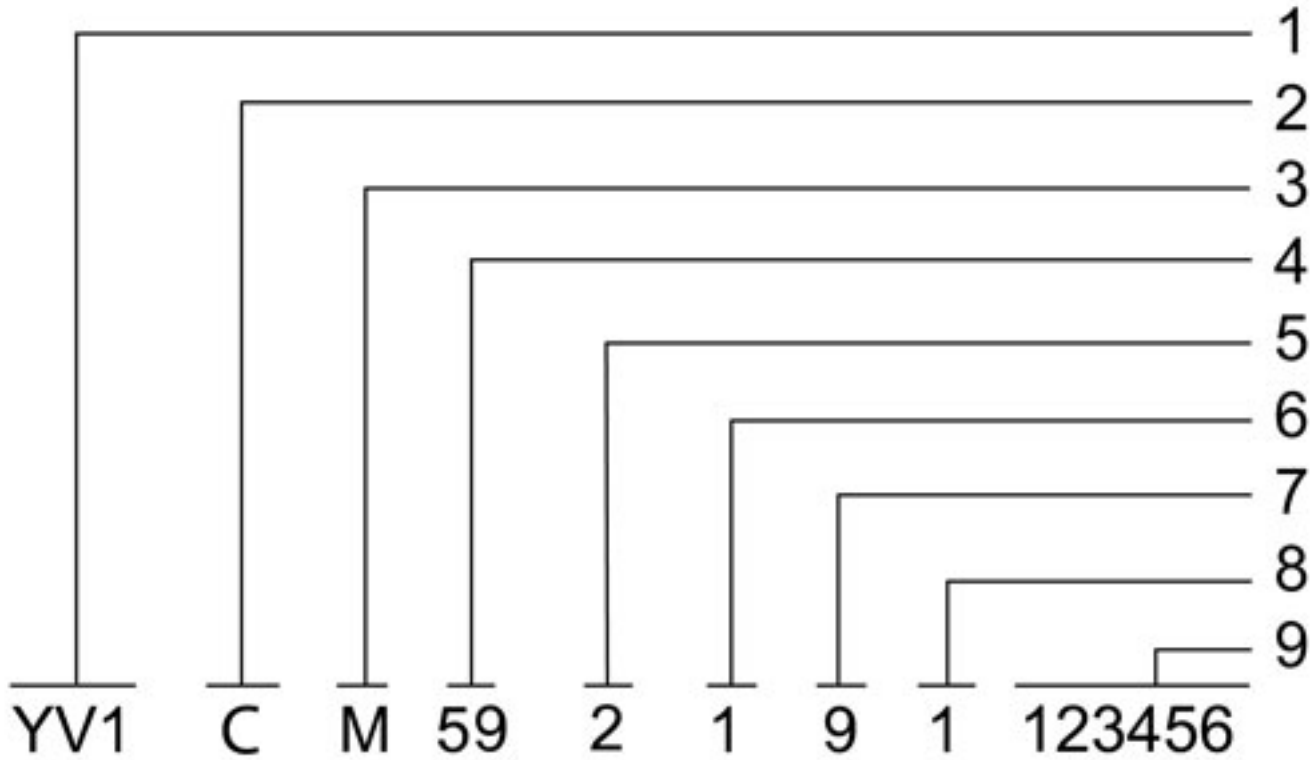
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- 1 **VIN marking:**Type and model year designation and chassis number.
 - 1a: Stamped in the engine compartment on the upper side of the bulkhead.
 - 1b: VIN plate, located on the upper side of the dashboard
- 2 **Product plate:** Located in the engine compartment on the right wheel well in front of the spring strut turret
 - 2007- located at right B-post
- 3 **Engine type designation, serial and part numbers:** Decal on the timing cover. Also stamped on the cylinder block, above the water pump housing, between the timing cover and the manifold.
- 4 **Gearbox type designation, part and serial number:**
 - 4a) Manual transmission: Decal on front side.
 - 4b + 4c) Automatic transmission AWD: Plate on the top.
- 5 **Engine oil decal**

The decal indicates oil grade, viscosity and volume; -2006 located on inside lower edge of hood, 2006- located at radiator.

VIN-marking

VIN marking Europe and USA -2009



IMG-

332243

1 Manufacturer's code

Control number (USA/CAN)

2 Vehicle type

7 Model year code

3 Variant

8 Factory code

4 Engine

9 Chassis number.

5 Emissions

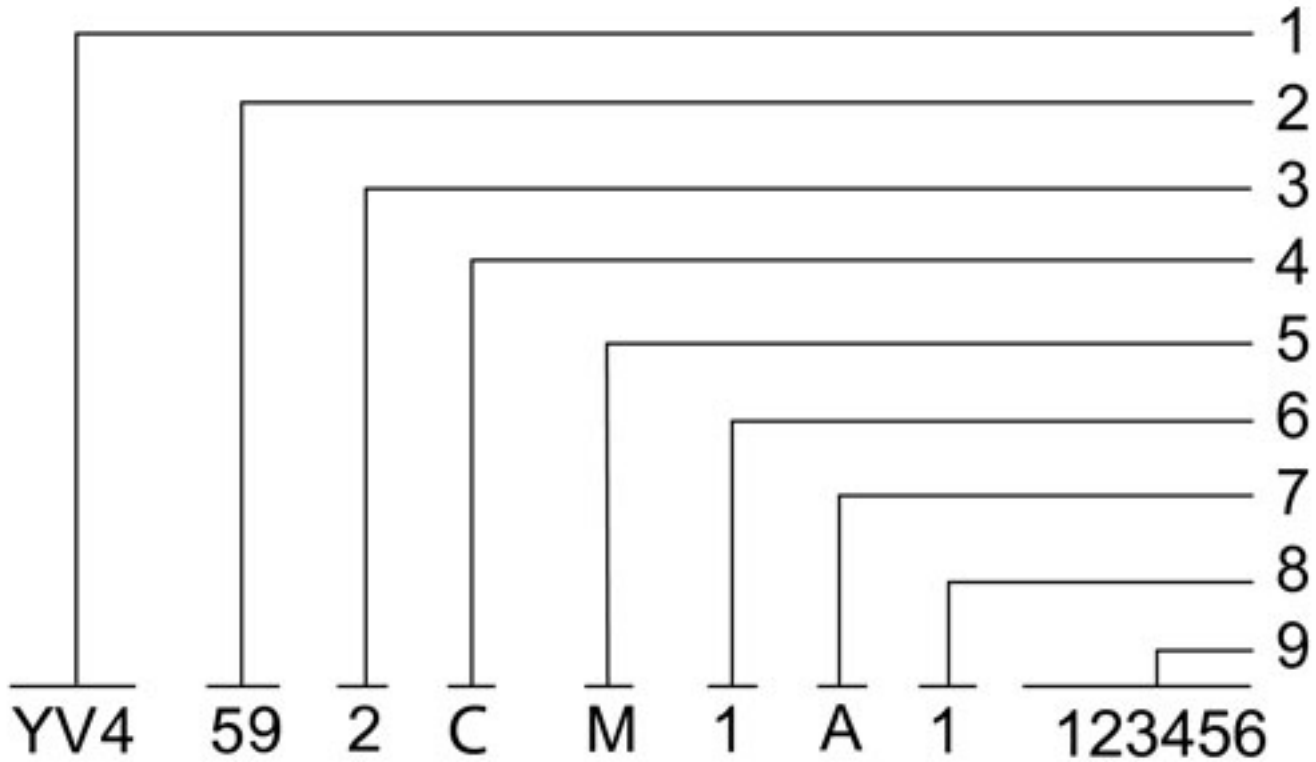
6 Gearbox (Europe)

Position	Subject	Code	Notes
1 (3 character)	Manufacturer's code	YV1	Volvo Car Corporation
2 (1 character)	Vehicle type	C	XC90
3 (1 character)	Variant	N	XC90 FWD 7 seat
		Y	XC90 FWD 5 seat
		Z	XC90 AWD 7 seat
		M	XC90 AWD 5 seat

VIN-marking

4 (2 character)	Engine type	59	B5254T2
		71	D5244T4
		79	D5244T
		85	B8444S
		91	B6294T
		98	B6324S
5 (1 character)	Emissions	VIN	Engine
		6	Diesel, automatic
		4	Diesel, manual
		4	91
		5	59 / 85
	Euro 5	5	(EM: F2) 79
6 (1 character)	Transmission	4	M66 AWD
		6	TF-80SC AWD
		7	AW55-50/51 AWD
		8	4T65 AWD
7 (1 character)	Model year	3	2003
		4	2004
		5	2005
		6	2006
		7	2007
		8	2008
8 (1 character)	Factory code	1	21 Volvo Torslanda (VTM)
9 (6 character)	Chassis number.		6 figure serial number 2003: 000001-031999 2004: 032000-130999 2005: 131000-223999 2006: 224000-327999 2007: 328000-417999 2008: 418000-

VIN marking USA 2010-



IMG-

332244

- 1 Manufacturer's code
- 2 Engine type
- 3 Emissions
- 4 Vehicle type
- 5 Variant
- 6 Gearbox (Europe)
Control number (USA/CAN)
- 7 Model year
- 8 Factory code
- 9 Chassis number.

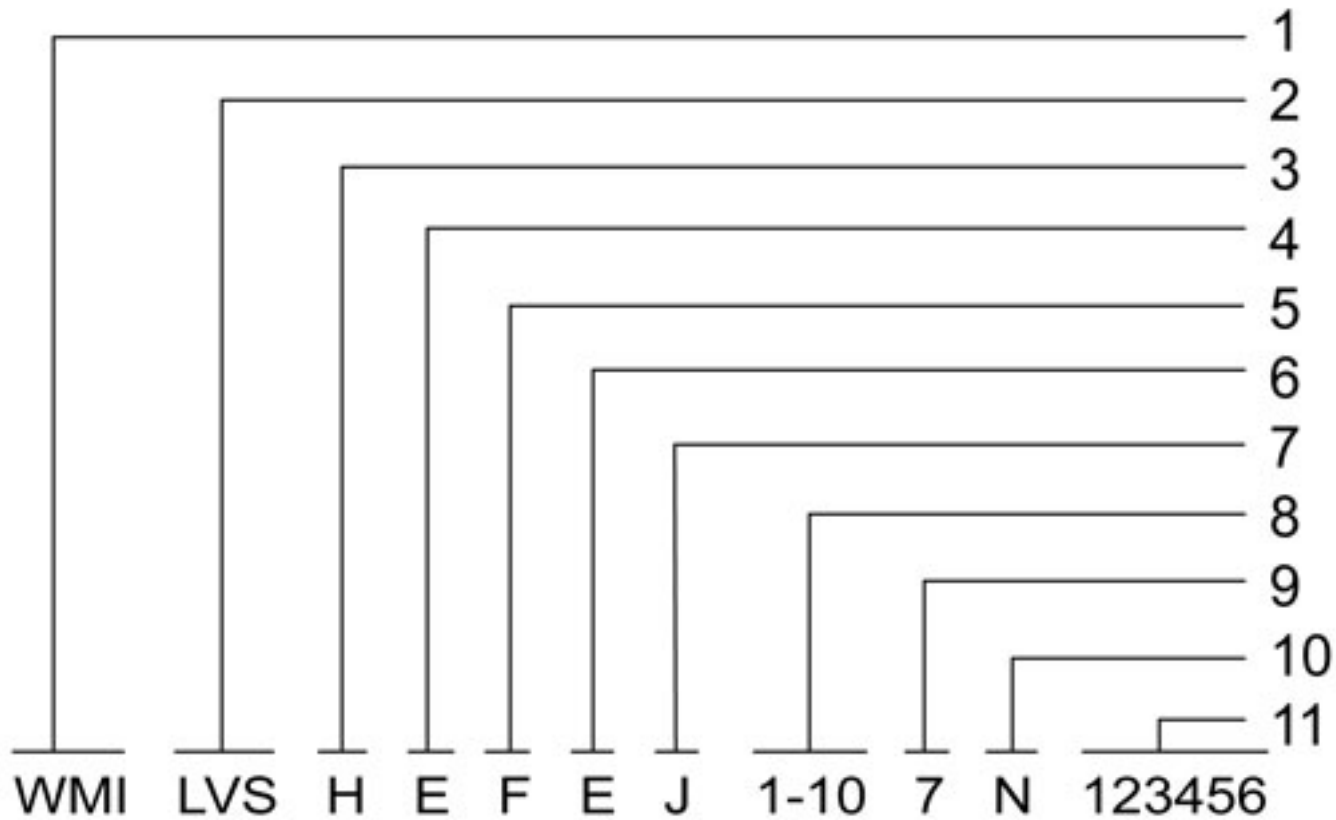
Explanation of VIN code

Position	Subject	Code	Remarks
1 (3 character)	Manufacturer's code Volvo Car Corporation	YV1	Up to and including model year -2004
		YV4	From and including model year 2005-
2 (2 characters)	Engine type	59	B5254T2
		85	B8444S
		91	B6294T
		98	B6324S
3 (1 character)	Emissions	VIN	Engine number

VIN-marking

Position	Subject	Code	Remarks
	ULEV 1	1	91
	ULEV 2	2	59, 85, 98
4 (1 character)	Vehicle type	C	XC90
5 (1 character)	Variant	Y	-2009 5-seats FWD (Front Wheel Drive)
			2010- 7-seats FWD
		N	-2009 7-seats FWD
			2010- 5-seats FWD
		M	5-seats AWD (All Wheel Drive)
		Z	7-seats AWD
		R	5-seats AWD SPORT/ R-design
		T	7-seats AWD SPORT/ R-design
		E	5-seats FWD R-design
		F	7-seats FWD R-design
6 (1 character)	US: Control number	1-9	
6 (1 character)	EU: Transmission	6	TF-80SC AWD
		8	4T65 AWD
		7	AW55-51 AWD
7 (1 character)	Model year	3	2003
		4	2004
		5	2005
		6	2006
		7	2007
		8	2008
		9	2009
		A	2010
8 (1 character)	Factory code	1	21 Volvo Torslanda (VTM)
9 (6 character)	Chassis number.		6 figure serial number 2003: 000001-031999 2004: 032000-130999 2005: 131000-223999 2006: 224000-327999 2007: 328000-417999 2008: 418000-495000 2009: 495001-532000 2010:532001-

VIN marking Chinese made cars, only China



IMG-

253643

- 1 Manufacturer's code
- 2 Vehicle type
- 3 Safety system
- 4 Variant
- 5 Model
- 6 Transmission
- 7 Engine
- 8 Control number
- 9 Model year
- 10 Factory code
- 11 Chassis number.

Position	Subject	Code	Notes
1 (3 character)	Manufacturer's code	WMI	Changan Ford
2 (3 characters)	Vehicle type	LVS	Car
3 (1 character)	Safety system	B	Seat belt tensioners all positions, Driver's Air Bag
		F	As code "B" plus passenger Air Bag
		H	As code "F" plus Air Bag all places side Air Bags

VIN-marking

4 (1 character)	Variant	A B C D E	Fiesta Mondeo Focus Mazda S40
5 (1 character)	Model	A B F T	5 doors 3 doors 4 doors Sport coupe
6 (1 character)	Transmission	A M C D E	Automatic gearbox Manual gear box CVT DCT AW50-51, Volvo
7 (1 character)	Engine	A B C D E F G H J K	1.3L (I4) 1.6L (I4) 2.0L (I4) 2.5L (V6) 1.8L (I4) 2.3L (I4) 2.4L (I4) 3.2L (I6) 2.5L (I5) B5254T3 2.4L (I5) B5244S3
8 (1 character)	Control number	1- 9	
9 (1 character)	Model year code	7 8 9	2007 2008 2009
10 (2 characters)	Factory code	F N	ChanganFord Chongqing ChanganFord Nanjing
11 (6 characters)	Chassis number.	S40 2009	430000-

Combination Engine — Gearbox

Engine:	Engine code:	Gearbox:	Final drive:
B5254T2	59	AW55-50 AWD	2.86:1
	59	M66L AWD	4,79:1
D5244T4	71	M66E AWD	4,79:1
		TF-80SC AWD	3,75:1

VIN-marking

Engine:	Engine code:	Gearbox:	Final drive:
D5244T	79	AW55-50 AWD	2.86:1
	79	M66 AWD	4,79:1
B8444S	85	TF-80SC AWD	3,33:1
B6294T	91	4T65 AWD	3.69:1
B6324S	98	TF-80SC AWD	4,06:1

Product plate



M03802Z22

A. Type approval number.**Whole Vehicle Type Approval Number (WVTA)**

Chassis no. simplification (USA/CAN).
Construction date (Australia)

B. Identification number

Type designation

C1. Max. gross vehicle weight**C2. Max. train weight (car + trailer)****C3. Max. front axle load****C4. Max. rear axle load****I. Country of manufacture****D. Market code (See Tables)****E. Interior code****F. Paint finish Code/supplier/paint type (see Tables)****G. S-message****H. Chassis code See next page****J. Additional information for the WVTA.****Market codes**

10 = Sweden	24 = Italy	45 = Taiwan
11 = Norway	25 = Spain	46 = Australia
12 = Denmark	27 = Portugal	47 = South Africa
13 = Finland	28 = Israel	49 = Turkey
14 = Ireland	29 = Greece	50 = Japan
15 = Great Britain	30 –	51 = China
16 = Switzerland	31 = USA	52 = India
17 = Austria	39 = Canada	62 = Brazil
18 = Germany	40 = Singapore	84 = Thailand
20 = Belgium	41 = Korea	85 = Malaysia
21 = Holland	42 = Latin America	87 = Indonesia
22 = France	43 = Saudi Arabia	88 = Philippines
23 = Eastern Europe	44 = Hong Kong	89 = Botswana

Exterior colors, supplier and paint type codes:

Code	Supplier	Code	Paint type
1	BASF	1	Solid solvent-based

Code	Supplier	Code	Paint type
2	Herberts	1	Metallic solvent-based + 1C varnish
4	DuPont	2	Metallic / pearl water-based + 1C varnish
		3	Solid water-based + 1C varnish
		5	Pearl solvent-based
9	Local suppliers (Thailand, Malaysia, Indonesia, Philippines)	6	Water-based base coat + 2C varnish
		7	Water-based base coat + powder varnish

Paint finishes, color codes: V70, XC90

Colour code			
No:	Designation:	Remarks:	Model
019	Black Stone	Solid	V70, XC90
112	Ivory White	Solid	V70
189	White	Solid	V70, XC90
417	Nautic Blue	Pearl	V70, XC90
421	Dark Olive	Pearl	V70
426	Silver	Metallic	V70, XC90
427	Dark Gray	Pearl	V70
442	Jawa	Pearl	V70
443	Moon dust	Metallic	V70
444	Polarctic	Metallic	V70
445	Venetian Red	Pearl	V70
446	Ash Gold	Metallic	V70, XC90
447	Scarab Green	Pearl	V70, XC90
449	Mistral Green	Metallic	V70
450	Cosmos Blue	Metallic	V70
451	Maya Yellow	Metallic	V70
452	Black Sapphire	Metallic	V70, XC90
453	White Pearl	Pearl	XC90
454	Ruby Red	Pearl	V70, XC90
455	Titanium Gray	Pearl	V70
456	Crystal Green	Pearl	XC90
457	Flash Green	Metallic	V70 - R
458	Ocean Blue	Pearl	V70, XC90
459	Dawn Blue	Pearl	V70
463	Blackcurrant	Pearl	V70, XC90
465	Cedar Green	Pearl	V70, XC90
466	Barents Blue	Pearl	V70

Product plate

Colour code			
467	Magic Blue	Pearl	V70, XC90
468	Lava sand Brown	Pearl	V70, XC90
469	Lunar Gold	Pearl	V70, XC90
470	Sonic Blue	Pearl	V70 - R
471	Willow Green	Pearl	V70, XC90
472	Oyster grey	Pearl	XC90
473	Shimmer gold	Pearl	XC90
477	Electric Silver	Metallic	V70, XC90
480	Shadow Blue	Pearl	XC90
487	Ember black	Metallic	XC90
601	Classic Red	Solid	V70
604	Midnight Blue	Solid	V70
612	Passion Red	Solid	V70, XC90
613	Deep Blue	Solid	V70
614	Ice White	Solid	V70, XC90

Colour fenders/bumpers -2004

Exterior colour	Colour code	Colour bumper EU/RoW	Colour bumper USA
Black Stone	19	Brown	Gray
Ash Gold	446	Brown	Brown
Scarab Green	447	Brown	
Black Sapphire	452	Brown	Gray
Ruby Red	454	Brown	Brown
Crystal Green	456	Brown	Brown
Cedar Green	465	Brown	Brown
Lava sand Brown	468	Brown	Brown
Ice White	614	Brown	Gray
Nautic Blue	417	Blue	Gray
Silver	426	Blue	Gray
Mistral Green	449	Blue	Gray

Colour fenders/bumpers 2005- (ch 173149-)

Exterior colour	Colour code	Colour bumper EU/RoW	Colour bumper USA
Black Stone	19	Brown	Gray
Nautic Blue	417	Gray	Gray
Silver	426	Gray	Gray
Ash Gold	446	Brown	Brown

Product plate

Exterior colour	Colour code	Colour bumper EU/RoW	Colour bumper USA
Mistral Green	449	Gray	Gray
Black Sapphire	452	Gray	Gray
Ruby Red	454	Brown	Brown
Titanium Gray	455	Gray	Gray
Crystal Green	456	Brown	Gray
Ocean Blue	458	Gray	Gray
Blackcurrant	463	Brown	
Cedar Green	465	Brown	Brown
Barents Blue	466	Gray	Gray
Lava sand Brown	468	Brown	Brown
Lunar Gold	469	Brown	
Willow Green	471	Brown	
Electric Silver	477	Gray	Gray
Ice White	614	Brown	Gray

Interior codes XC90:

Code	Name	Color	Material
C000	Silja	Off black	Textile/Vinyl
C078		Dark Gray	
C088		Oak	
C010		Soft Beige	
C070		Dark Gray	
C080		Oak	
C970		Prestige	
C981	Oak/arena		
C910	Soft Beige		
C950	Quartz		
C95T	Calcite		
C900	Off black		
C90T	Calcite		
CBQX	Sport	Off black	Leather
CBQJ		Quartz	
CBSB		Off black/quartz	Soft Leather

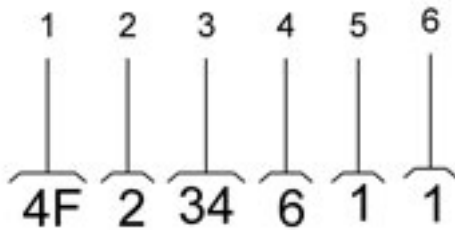
Product plate

CE7C	Executive	Gray	Soft Leather
CE70		Gray	
CE90		Arena	
CUSU		Offblack/softbeige	Perforated leather
CU00		Offblack	
CU10		Soft Beige	
CF3L	Linen	Oak/Linen	Soft Leather
CF7L		Gray/Linen	
CF7C		Gray	
CF70	Executive	Dark Gray	Soft Leather
CF90		Arena	
C700	Top level	Off black	Soft Leather
C70R		Chestnut	
C70T		Calcite	
C71R		Chestnut	
C710		Soft Beige	
C75T		Calcite	
CH2L	Inscription	Linen/Mocca/Soft Beige	Soft Leather
CH2V		Espresso/Mocca/Soft Beige	
CH7D		Serene Off-black/Off-black	
CH7F		Marquis Off-black/Off-black	
CH7G		Off black/Off black	
CH7H		Blue Off-black/Off-black	
CH7J		Toscana Tan/Off-black	
CH7L		Linen White/Off-black	
VOR2	Ocean Race	Dark Gray	Tricotech
VOR3		Arena	
CK00		Offblack	VOR Leather
CK10		Soft Beige	

Chassis code

Chassis code –2003 is interpreted as follows

- 1 Spring strut, front
Shock absorber, front
- 2 Anti-roll bar, front
- 3 Spring, rear
Shock absorber, rear
- 4 Anti-roll bar, Rear
- 5 Auxiliary spring, front
- 6 Auxiliary spring, rear



M8101620

Chassis code	Spring strut Assembly	Combined spring / shock absorber	
		Spring, front	Shock absorber, front
1			
4L	—	9465464	8667248
4F	8646459	9465464	8646419
4F	8646455	9465464	8646419
4D	8646456	9492226	8646419
4G	8646457	9461950	8646419
4E	8646458	9492227	8646419
2L	86 23 803	94 92 464	94 92 564
2M	86 24 623	94 92 226	86 24 604
2M	86 24 624	94 92 226	86 24 604
2N	86 24 625	94 92 227	86 24 604
2N	86 24 626	94 92 227	86 24 604
2P	86 24 627	94 65 464	86 24 604
2P	86 24 628	94 65 464	86 24 604
2R	86 34 003	86 24 883	86 24 604
2R	86 34 004	86 24 883	86 24 604
2S	86 34 005	94 65 472	86 24 604
2U	86 34 006	86 24 883	94 92 564
2U	86 34 145	86 24 883	94 92 564
2V	94 92 487	94 92 226	94 92 564
2X	94 92 488	94 92 226	94 92 568
2Y	94 92 493	94 92 227	94 92 568
2Z	86 23 806	94 65 464	94 92 568

Chassis code

Chassis code 1	Spring strut Assembly	Combined spring / shock absorber	
		Spring, front	Shock absorber, front
3A	86 34 036	94 65 472	94 92 568
3B	86 34 034	86 24 883	94 92 568
2X	94 92 505	94 92 226	94 92 568
3B	86 34 035	86 24 883	94 92 568
2Y	94 92 506	94 92 227	94 92 568
2Z	86 23 807	94 65 464	94 92 568
3C	86 34 397	86 34 328	94 92564
3C	86 34 330	86 34 328	94 92564
3D	86 34 331	86 34 329	94 92 564
3D	86 34 332	86 34 329	94 92 564
3E	86 34 044	94 65 472	94 92 564
3E	86 34 045	94 65 472	94 92 564
1W	86 34 461	94 92 227	94 92 564
1W	86 34 466	94 92 227	94 92 564
2L	86 34 468	94 92 464	94 92 564
2M	86 34 486	94 92 226	86 24 604
2M	86 34 487	94 92 226	86 24 604
2N	86 34 488	94 92 227	86 24 604
2N	86 34 491	94 92 227	86 24 604
2P	86 34 492	94 65 464	86 24 604
2P	86 34 494	94 65 464	86 24 604
2R	86 34 498	86 24 883	86 24 604
2R	86 34 499	86 24 883	86 24 604
2S	86 34 500	94 65 472	86 24 604
2U	86 34 502	86 24 883	94 92 564
3C	86 34 503	86 34 328	94 92 564
3C	86 34 504	86 34 328	94 92 564
3D	86 34 505	86 34 329	94 92 564
3D	86 34 506	86 34 329	94 92 564
2U	86 34 507	86 24 883	94 92 564
3E	86 34 508	94 65 472	94 92 564
3E	86 34 509	94 65 472	94 92 564
2V	86 34 511	94 92 226	94 92 564
2Y	86 34 513	94 92 227	94 92 568
2X	86 34 512	94 92 226	94 92 568
2Z	86 34 514	94 65 464	94 92 568

Chassis code 1	Spring strut Assembly	Combined spring / shock absorber	
		Spring, front	Shock absorber, front
3A	86 34 515	94 65 472	94 92 568
3B	86 34 516	86 24 883	94 92 568
2X	86 34 517	94 92 226	94 92 568
3B	86 34 518	86 24 883	94 92 568
2Y	86 34 519	94 92 227	94 92 568
2Z	86 34 520	94 65 464	94 92 568
2A	86 34 462	94 92 224	94 92 564
2B	86 34 463	94 92 228	94 92564
1T	86 34 464	94 92 179	94 92 564
1F	86 34 465	94 92 178	94 92 564
1W	86 34 466	94 92 227	94 92 564
2A	86 34 467	94 92 224	94 92 564
2B	86 34 469	94 92 228	94 92 564
1F	86 34 470	94 92 178	94 92 564
1S	86 34 471	94 92 223	94 92 567
1X	86 34 472	94 92 226	94 92 564
1T	86 34 473	94 92 179	94 92 564
2D	86 34 474	94 92 227	94 92 566
2E	86 34 475	94 92 224	94 92 566
2F	86 34 476	94 92 228	94 92 566
1P	86 34 477	94 92 221	94 92 564
2G	86 34 478	94 92 179	94 92 566
2H	86 34 479	94 92 178	94 92 566
2J	86 34 480	94 92 227	94 92 566
1B	86 34 481	94 92 220	94 92 567
2E	86 34 482	94 92 224	94 92 566
2F	86 34 483	94 92 228	94 92 566
2H	86 34 484	94 92 178	94 92 566
1Z	86 34 485	94 92 222	94 92 567
1U	86 34 489	94 92 221	94 92 564
2K	86 34 490	94 92 226	94 92 566
2G	86 34 493	94 92 179	94 92 566
1V	86 34 495	94 92 220	94 92 567
1Z	86 34 496	94 92 222	94 92 567
1H	86 34 497	94 92 180	94 92 567
1H	86 34 510	94 92 180	94 92 567

Chassis code

Chassis code 1	Spring strut Assembly	Combined spring / shock absorber	
		Spring, front	Shock absorber, front
8C	94 87 955	86 34 329	86 24 604
4C	86 34 922	94 61 950	94 92 568
4A	86 34 809	94 65 464	94 92 564
4B	86 34 804	94 61 950	94 92 564
2T	86 34 803	94 61 950	86 24 604
4B	94 87 907	94 61 950	94 92 564
3E	94 87 908	94 65 472	94 92 564
2S	94 87 911	94 65 472	86 24 604
8C	94 87 955	86 24 604	86 24 604

Chassis code 2	Anti-roll bar, front	Marker ink
1	92 00 443	Orange
2	94 61 889	Yellow
3	94 92 040	White
4	94 61 483	Blue
X	9492039	23.5 mm

Chassis code 3	Rear axle			
		Spring, rear	Color	Shock absorber, rear
34	86 34 018	94 92 148	2 Green	94 61 729
33	86 34 026	86 24 884	Green	94 61 729
35	92 00316	94 61 493	Blue	94 85 026
27	86 34 025	86 24 884	Green	86 24 605
27	86 34 027	86 24 884	Green	86 24 605
28	86 34 028	86 24 884	Green	94 61 278
28	86 34 029	86 24 884	Green	94 61 278
29	86 34 032	94 92 148	2 Green	94 61 278
30	86 23801	94 61 493	Blue	94 92 965
29	94 92 529	94 92 148	Green	94 61 278
30	86 23 802	94 61 493	Blue	94 92 965
31	86 34 022	94 92 148	2 Green	86 24 605
27	86 34 023	86 24 884	Green	86 24 605
31	86 34 024	94 92 148	Green	86 24 605
32	86 24 655	94 61 493	Blue	86 24 606
32	86 24 656	94 61 493	Blue	86 24 606

Chassis code

Chassis code	Rear axle			
		Spring, rear	Color	Shock absorber, rear
3				
32	86 24 657	94 61 493	Blue	86 24 606
70	—	9173810	Brown	8646803

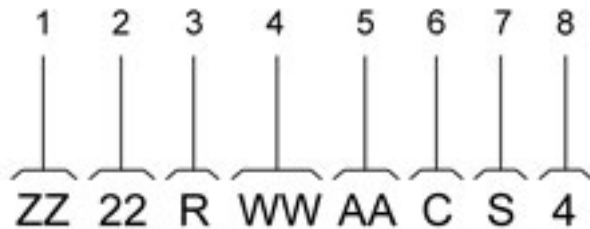
Chassis code	Anti-roll bar, rear
4	
6	91 73 811
2	91 73 810

Chassis code	Auxiliary spring, front
5	
1	91 91 383
3	86 72 087

Chassis code	Auxiliary spring, rear
6	
1	91 57 115

Chassis code

Chassis code 2003- is interpreted as follows:



- 1 Spring, front
- 2 Shock absorber, front
- 3 Anti-roll bar, front
- 4 Spring, rear
- 5 Shock absorber, rear
- 6 Anti-roll bar, Rear
- 7 Auxiliary spring, front
- 8 Auxiliary spring, rear

R8101938

1 Spring, front

Chassis code	Spring, front	Remarks
11	8624883	
12	8634328	
13	8634329	XC70
14	8634376	XC70
15	8634377	XC70
16	8634378	
17	8672212	
18	9465464	
19	9465472	
20	9461950	
21	9492178	V70 AWD, Four-C ¹
22	9492179	
25	9492226	
26	9492227	
27	9492228	S60 AWD, Four-C
28	30639016	
29	30639173	
30	30639212	
31	30648138	XC90 light
32	30648139	XC90 medium
33	30648140	XC90 heavy
34	8644953	Special vehicle
35	8644957	Special vehicle

Chassis code	Spring, front	Remarks
36	8644964	Special vehicle
37	8644965	Special vehicle
41	9492222	
42	9492225	
43	30681588	
44	30748431	

¹ Four-C Active chassis

2 Shock absorber, front

Chassis code	Shock absorber	Remarks
11	30683344	S60, chassis 2
11	8667248	S60, chassis 2
12	8667250	chassis 1
12	30683343	chassis 1
13	30683345	chassis 4
13	8667252	chassis 4
14	8667253	chassis 2
14	30683342	chassis 2
15	30645640	XC70 chassis 1
16	30639939	Active chassis (CCD) S60R/V70R
17	30645515	XC90
18	30683703	Active chassis (CCD), S60R/V70R
19	30635211	Special vehicle, XC70 Police Chassis: 4
AA	30683705	Active chassis (CCD)
AB	30683104	XC90
AC	30714478	Active chassis (CCD), XC70
AD	30748646	
AD	30760286	

3 Anti-roll bar, front

Chassis code	Anti-roll bar	Remarks
1	9200443	23 mm XC90
2	9461839	23.5 mm
3	9492040	24.5 mm
4	9461483	24 mm
6	8672471	23 mm XC90
X	9492039	23.5 mm

Chassis code

4 Spring, rear

Chassis code	Spring	Remarks
11	8624884	
11	30748377	
12	8666289	V70 AWD nivomat
13	8666290	V70 AWD nivomat
14	8666292	
15	8634341	Right-hand side, V70 AWD
15	8646867	Left-hand side, V70 AWD
16	8646865	Left-hand side, XC70
16	9473371	Right-hand side, XC70
17	8634340	Right-hand side, V70 AWD
17	8646868	Left-hand side, V70 AWD
18	8667019	S60 sport
18	30748395	S60 sport
22	9191413	chassis 2, nivomat
22	30748378	chassis 2, nivomat
23	9200609	
23	30748380	
24	9200610	
24	30748381	
25	9461493	
25	30748379	
26	9473385	
27	9492148	
27	30748382	
28	30748383	
28	9492186	
29	9492187	
29	30748384	
30	9492188	
30	30748385	
31	9492714	
31	30748396	
32	30639053	S60 AWD nivomat
33	30639052	S60 AWD
34	30645928	XC90 light
35	30645929	XC90 medium
36	30645930	XC90 heavy

37	30645931	XC90 light nivomat
38	30645932	XC90 medium nivomat
39	30647735	S60R AWD Active chassis
40	30645725	V70R AWD Active chassis
41	30645933	XC90 heavy nivomat
42	30635070	
43	30635071	Limousine
44	30635072	Ambulance FWD
45	30635073	
47	8644988	Ambulance AWD
48	8644833	
49	8644844	
50	8644845	
51	30635210	XC70 police chassis 4
52	30654072	Right XC70
52	30654073	Left XC70
53	30666640	XC90 medium, nivomat
54	30666641	XC90 heavy, nivomat
55	30645680	V70 AWD Active chassis, CCD
56	30645321	V70 AWD Active chassis, CCD
57	30645327	S60 AWD Active chassis, CCD
58	30645324	XC70 Active chassis, CCD
59	30748432	
60	30748434	

5 Shock absorber, rear

Chassis code	Shock absorber	Remarks
02	30714236	S80 chassis 2
11	30736621	S80 chassis 1
12	30714236	S80
13	30683625	V70 AWD nivomat
14	8671722	S60 AWD chassis 2
15	30736624	S60 chassis 2
16	30639384	
17	30736622	V70 chassis 1
18	30760055	V70 chassis 2
19	30760056	XC70 Diesel chassis 1
20	30639386	
21	30639383	

Chassis code

22	30736626	S60 chassis 4
23	30639385	nivomat
24	30736625	V70 chassis 2
25	30639513	XC90
26	30683451	XC90 nivomat
27	30639389	chassis 2 nivomat
28	30639391	
29	30683626	XC70 nivomat
30	30683627	S60 AWD
31	30639387	
32	30639388	
33	30683704	S60R/V70R Active chassis, CCD
34	30645462	
35	30639390	nivomat
36	30666999	Active chassis, CCD
37	30714008	S80 AWD nivomat
38	30683706	S60 Active chassis, CCD
39	30714007	XC70 Police chassis 4, nivomat
40	30714009	Nivomat Ambulance
41	30635186	Special vehicle
42	30680225	Active chassis, CCD
43	30666402	Active chassis, CCD AWD
44	30714773	S80 AWD nivomat
45	30748531	
46	30748532	
47	30760057	S60 chassis 2, AWD

6 Anti-roll bar, rear

Chassis code	Anti-roll bar	Remarks
0	—	without the anti-roll bar
1	6816152	20 mm
2	9173810	19 mm
3	8630548	16 mm, AWD
4	8672167	20 mm, Active chassis, CCD
5	8671723	17 mm S60 AWD
6	9173811	21 mm
7	8630548	16 mm AWD
8	8630547	14 mm AWD
9	9465759	23.5 mm XC90

Chassis code

A	9490629	XC90
B	8672168	22 mm R line
C	30748638	21 mm R line

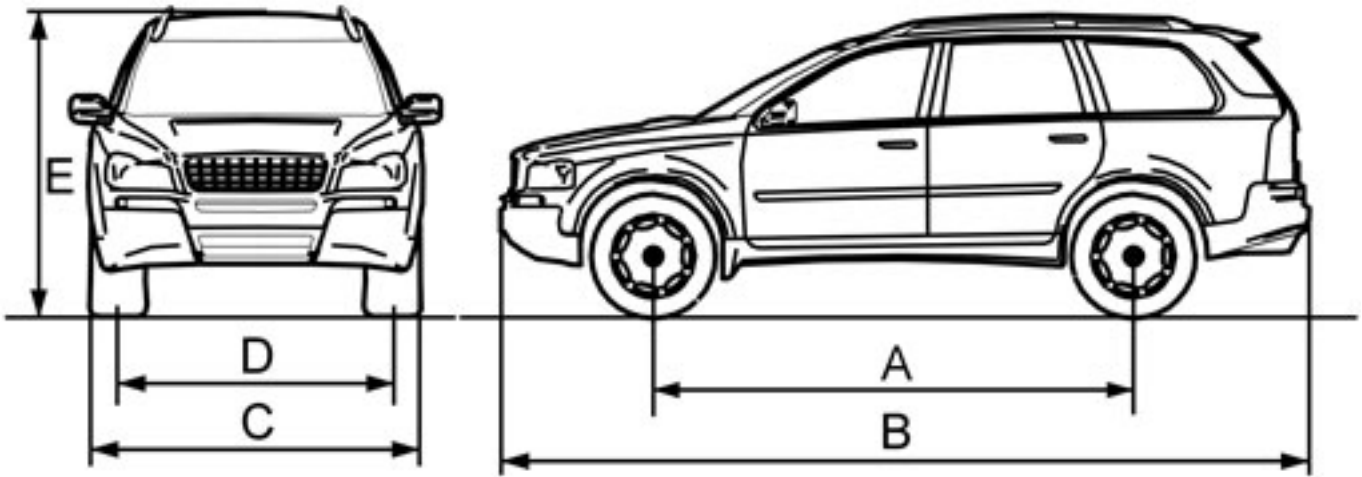
7 Auxiliary spring, front

Chassis code	Auxiliary spring	Remarks
1	9191383	S80
2	9489136	S80 special
3	8666444	
4	8646911	
5	30647076	XC90
6	30666851	S60R V70R
6	30683312	S60R V70R
7	30683023	Active chassis, CCD
7	30683313	Active chassis, CCD

8 Auxiliary spring, rear

Chassis code	Auxiliary spring	Remarks
1	9157115	S80
2	8672488	XC90
3	8646295	S60R V70R

Dimension and weight



R8000349

Length and weight:

Dimensions:		XC90
		mm
A	Wheelbase	2857
B	Length	4807
C	Width	1898
D	Track width 16 inch rims: For 17", 18" rims the track width is 12 mm (0.5 in) narrower	
	Front	1634
	Rear	1624
E	Height	1743
Ground clearance:		218
Aerodynamics Cd		0.36

Weight information, refer to the product plate at the front left wheel well and the registration card.

Section 1 Service and maintenance

Group 17 Service

Engine oil

Do not use oil additives. Additives may damage the engine.

Volvo fully synthetic engine oil is recommended for **extreme driving conditions** that result in increased oil consumption.

Volvo recommends Castrol® oil products.

Engine	Oil grade	Viscosity	Volume between MIN - MAX (litres)	Volume (litres) Including oil filter
B6294T	ACEA A1/B1	SAE 5W-30	1.5	6.6
D5244T	ACEA A3/B3/B4	SAE 0W-30	2.0	6.5
B5254T2 (-04)	ACEA A5/B5	SAE 0W-30	1.2	5.8
B5254T2 (05-)	ACEA A5/B5	SAE 0W-30	1.2	5.5
B8444S	ACEA A5/B5	SAE 0W-30	1.2	6.7
D5244T4	ACEA A5/B5	SAE 0W-30	2.0	6.2

Gearbox oil

Transmission	Oil grade	Oil capacity:	Oil change volume (only draining), approximately
AW 55-XX	JWS 3309	7.2 litres	
TF-80SC	JWS 3309	7.0	3.0 litres
4T65 AWD	Dexron III G	12.7 litres	
M66	MTF 97309		2.0 litres

The oil does not normally need to be changed.

Brake and clutch fluid

	Oil grade	Quantity:
Brake and clutch fluid. Change the oil every other year	DOT 4+	0.6 litres

Coolant (Closed overpressure)

	Volume (litres)
Volume B6294 T	10.6
Volume B5254T2	8.8

Group 17 Service

		Volume (litres)
Volume	B8444S	10.2
Volume	Diesel	12.5

Washer fluid

Quantity	6.5 litres
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Rear gear oil (center gear)

	Grade	Change volume
Rear gear oil (center gear)	API GL-5	0.7

Section 2 Engine

Group 20 General

Performance and other data, gasoline and diesel engines:

Engine type: (Geometric compression ratio)	Weight complete, including oil	Fuel:	Power:		Maximum torque:
	kg		kW / rps	hp / rpm	Nm / rpm
B5254T2 (9.0:1)	163-176	95 Octane	154 / 83	210 / 5000	320 / 1500- 4500
B6294T (8.5:1)	166-170	95 Octane	200 / 85	272 / 5100	380 / 1800- 5000
B6324S (10,8:1)		95 Octane	175 / 103	238 / 6200	320 / 3200
B8444S (10,4:1)	191	95 Octane	232 / 100	315 / 6000	440 / 3900
D5244T (18.0:1)	185	51 Cetane	120 / 67	163 / 4000	340 / 1750- 3000
D5244T4 (17,3:1)	184	51 Cetane	136 / 67	185 / 4000	400 / 2000- 2750

Group 21 Cylinder block

Tightening torques for gasoline engines: B8444S, cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Vibration damper center screw (front edge of crankshaft)	Stage 1 120 Stage 2 loose the screw at least 1 turn Stage 3 50 Step 4 angle-tighten 90°
Manifold (cylinder head side)	25
Intake manifold, joint upper / lower section	19
Knock sensor (KS)	20
Carrier plate	80
Engine mounting (right side) - engine block (M10x35)	Stage 1 36 Step 2 angle-tighten 60°
Engine mounting (right side) - engine block (M8x23)	Stage 1 20 Step 2 angle-tighten 60°
Valve cover	10
Oil filter, environmental filter	25
Sump plug	50
Sump	11
Oil pressure switch	14
Heated oxygen sensor	45
Studs (at exhaust port, manifold, turbocharger)	10
Auxiliaries/belt tensioner, center screw	90
Coolant temperature sensor	20
Spark plugs	25

Tightening torques for gasoline engines: B 6294 T, cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Cylinder head: Tighten the screws in sequence from the centre and outwards.	Stage 1 20 Stage 2 60 Step 3 ... angle-tighten 130°
Intermediate section: Tighten the screws in sequence from the centre and outwards.	Stage 1, M10 20 Stage 2, M10 45 Stage 3, M8 25 Stage 4, M7 17 Step 5, M10 .. angle-tighten 90°

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Connecting rod cap	Stage 1 30 ± 3 Step 2 angle-tighten 90°
Crankshaft center nut	300
Flange screw, vibration damper	Stage 1 35 Step 2 angle-tighten 50°
Carrier plate	Stage 1 45 Step 2 angle-tighten 50°
Transmission - engine	48
Torque converter	50
Camshaft pulley	20
Timing gear pulley, camshaft without VVT	20
Timing gear pulley, camshaft with VVT	10
Camshaft pulley with VVT, center screw	120
Camshaft pulley with VVT, center plug	35
Tension pulley, timing belt	30
Belt tensioner	25
Vibration damper, timing belt	24
Idler pulley, timing belt	25
Timing cover, front	12
Timing cover, upper	8
Water pump	17
Exhaust bend to the turbocharger (TC)	24
Manifold (cylinder head side)	25
Turbocharger (TC) unit to manifold	25
Studs at exhaust port, manifold, turbocharger (TC)	20
Intake manifold, joint upper / lower section	19
Intake manifold, cylinder head side	20
Fuel rail	Stage 1 10 Step 2 angle-tighten 75°
Sump	17
Sump plug	38
Oil intake line	17
Oil trap	15
Oil filter, environmental filter	35
Oil pressure switch	50
Dip stick	10
Pressure control valve, oil duct piston cooling	35

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Drain hose, turbocharger (TC)	12
Pipe screw, crankcase ventilation	26
Pipescrews, coolant pipes, turbocharger (TC)	26
Pipe screw, oil pressure pipes, turbocharger (TC)	18
Pipe screw, oil pressure pipes, cylinder block	38
Plug, gauge hole, crankshaft adjustment	38
Engine speed (RPM) sensor, flywheel	10
Knock sensor (KS)	20
Camshaft position (CMP) sensor	10
Temperature sensor, engine coolant	22
Spark plugs	30
Flywheel:	Stage 1 45 Step 2 angle-tighten 65°
Piston cooling valve	35
Plug for gauging valve clearance	20
Plug gauge hole / crankshaft seal	38

Tightening torques for gasoline engine: B52 XX XX, cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Cylinder head (tighten the screws in sequence from the center outwards)	Stage 1 20
	Stage 2 60
	Step 3 ... angle-tighten 130°
Intermediate section: Tighten the screws in sequence from the centre and outwards.	Stage 1, M10 20
	Stage 2, M10 45
	Stage 3, M8 24
	Stage 4, M7 17
	Step 5, M10 .. angle-tighten 90°
Connecting rod cap	Stage 1 30 ± 3
	Step 2 angle-tighten 90°
Crankshaft center nut	180
Flange screw, vibration damper	Stage 1 25
	Step 2 angle-tighten 60°
Carrier plate	Stage 1 45
	Step 2 angle-tighten 50°
Transmission - engine	48
Torque converter	50

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Engine mounting (right side), engine block - M10x35	Stage 1 35 Step 2 angle-tighten 60°
Engine mounting (right side), engine block - M8x23	Stage 1 20 Step 2 angle-tighten 60°
Timing cover, front	12
Timing cover, upper	8
Camshaft pulley	25
Timing gear pulley, camshaft without VVT	20
Timing gear pulley, camshaft with VVT	10
Camshaft pulley with VVT, center screw	120
Camshaft pulley with VVT, center plug	35
Tension pulley, timing belt	30
Vibration damper, timing belt	24
Belt tensioner, mechanical	20
Idler pulley, timing belt	24
Water pump	17
Exhaust manifold	25
Studs (at exhaust port, manifold, turbocharger (TC))	20
Intake manifold	20
Fuel rail	Stage 1 10 Step 2 angle-tighten 75°
Sump	17
Oil pump	6
Plug, sump	38
Plug gauge hole / crankshaft seal	38
Plug, gauge hole for gauging valve clearance	20
Oil intake line	17
Drain hose, turbocharger (TC)	12
Pipe screw, crankcase ventilation	26
Pipe screw, oil pressure pipes, turbocharger (TC)	26
Pipe screw, coolant pipes, turbocharger (TC)	26
Pipe screw, oil pressure pipes, cylinder block	38
Cover, front edge	17
Oil trap	15
Nipple, oil filter	40
Oil filter, environmental filter	25
Oil pressure switch	50

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Dip stick	10
Engine speed (RPM) sensor	10
Knock sensor (KS)	20
Temperature sensor, engine coolant	22
Piston cooling valve, oil duct	35
Spark plugs	30
Flywheel	Stage 1 45 Step 2 angle-tighten 65°
Transmission screw (lower torque rod)	Stage 1 35 Step 2 angle-tighten 40°

Tightening torques for diesel engine: D5244T/T2, T4-T7 cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Cylinder head (tighten the screws in sequence from the center outwards)	Stage 1 20 Stage 2 slacken off Stage 3 20 Stage 4 50 Step 5 angle-tighten 90° Step 6 angle-tighten 90°
Intermediate section/Cylinder block	Step 1 M10 20 Step 2 M10 40 Step 3 M8 24 Step 4 M7 17 Step 5 M10 ... angle-tighten 110°
Engine mounting (right side) - M10	Stage 1 35 Step 2 angle-tighten 60°
Engine mounting (right side) - M8	Stage 1 20 Step 2 angle-tighten 60°
Connecting rod cap	Stage 1 20 Step 2 angle-tighten 90°
Crankshaft center nut	300
Plug, gauge hole, crankshaft adjustment	38
Flange screw, vibration damper (4 flange screws)	Stage 1 35 Step 2 angle-tighten 50°
Carrier plate	Stage 1 45 Step 2 angle-tighten 50°

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Transmission - engine	48
Torque converter	50
Timing cover, front	12
Timing cover, rear	8
Timing gear pulley, camshaft	30
Timing gear pulley, camshaft with VVT	10
Camshaft pulley with VVT, center screw	120
Camshaft pulley with VVT, center plug	35
Camshaft position (CMP) sensor	10
Camshaft cover	10
Timing belt, center screw	25
Belt tensioner, mechanical	35
Toothed belt tensioner	27
Timing belt tensioner	27
Idler pulley, timing belt	24
Water pump	17
Exhaust manifold	30
Manifold, exhaust port, stud screw, turbocharger	20
EGR cooler, cylinder head side	50
Intake manifold	19
Fuel rail:	Stage 1 10 Step 2 angle-tighten 75°
Sump	17
Oil pump	6
Plug, sump	38
Oil intake line	17
Fuel injection pump	20
Drain hose, turbocharger (TC)	12
Pipe screw, crankcase ventilation	26
Pipe screw, oil pressure pipes, turbocharger (TC)	18
Pipescrews, coolant pipes, turbocharger (TC)	26
Pipe screw, oil pressure pipes, cylinder block	38
Oil trap	15
Oil filter, environmental filter	25
Oil pressure switch diesel	27
Dip stick	10
Engine speed (RPM) sensor	10
Knock sensor (KS)	20

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Temperature sensor, engine coolant	22
Glow plug	10.5
Flywheel:	Stage 1 45 Step 2 angle-tighten 65°

Tightening torques for gasoline engine: B6324S cylinder block

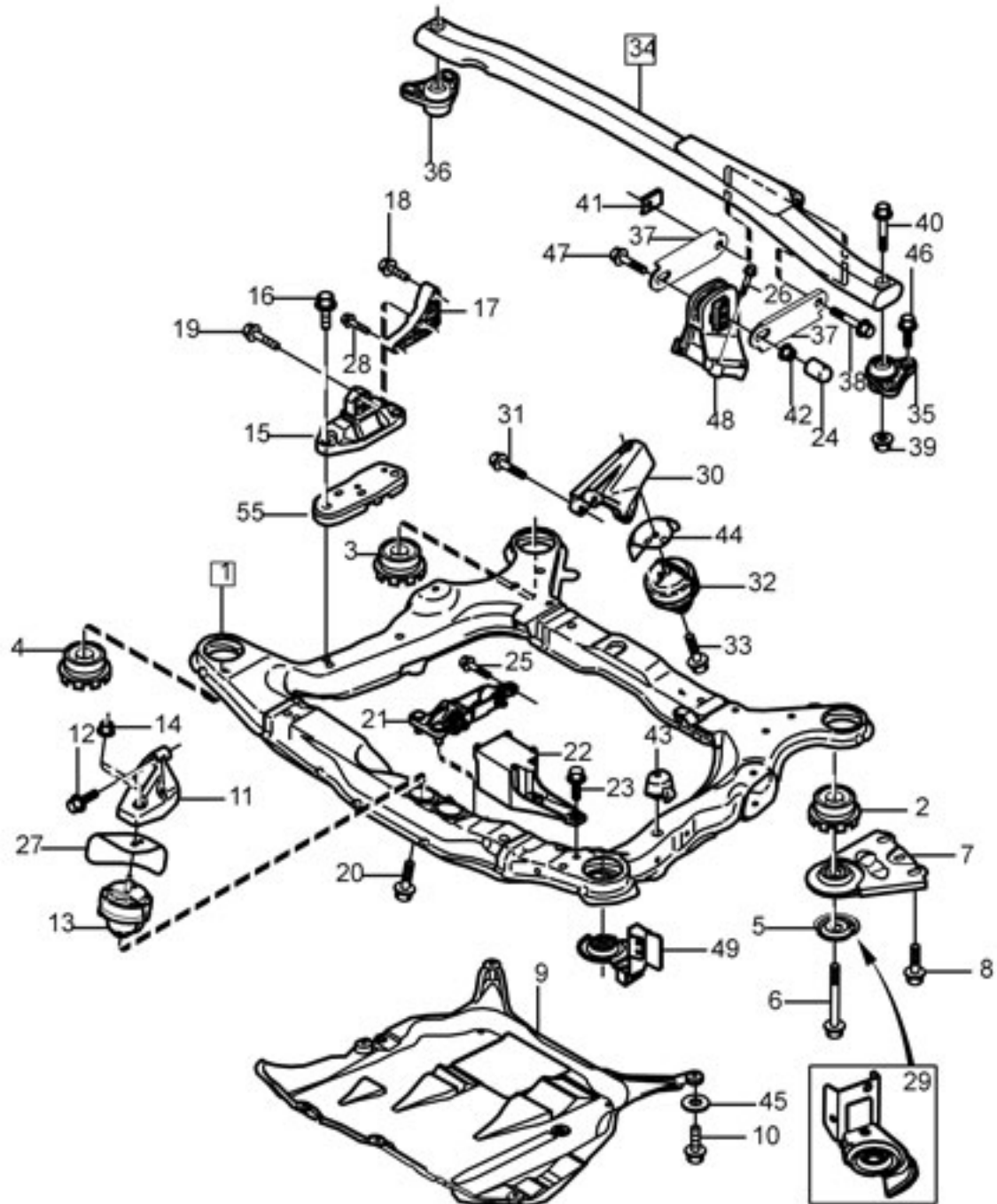
Tightening torques for lubricated screws and nuts:	Nm.
Cylinder head - Tighten the screws in sequence following prescribed method.	Stage 1 45 Stage 2 45 Step 3 angle-tighten 90° Step 4 ... angle-tighten 180°
Sleeves under cylinder head screws	10 (left threaded)
Valve cover/cam carrier cover	Standard torque, but must be tightened in sequence (see method)
Connecting rod cap	Stage 1 12 Stage 2 20 Step 3 angle-tighten 90°
Piston cooling valve	32
Cover plug (under piston cooling valve)	38
Knock sensor (KS)	20
Drain nipple (on coolant pipe)	7
Center screw, exhaust camshaft	Stage 1 75 Step 2 angle-tighten 90°
Center screw, intake camshaft	110
Spark plugs	28
Outer timing cover	Standard torque, but must be tightened in sequence (see method)
Adjuster sleeve, inner timing cover	3
Intermediate shaft drive gear, alternator side	44
Intermediate shaft drive gear, auxiliaries side	60
Alternator drive gear	75
Heated oxygen sensors	45
Throttle body	8
Carrier plate	Stage 1 45 Step 2 angle-tighten 50°

Group 21 Cylinder block

Tightening torques for lubricated screws and nuts:	Nm.
Flywheel	Stage 1 45
	Step 2 angle-tighten 65°
Clutch	24
Sump plug	38
Oil filter casing	25
Subframe nut (lower torque rod)	Stage 1 65
	Step 2 angle-tighten 60°
Sub-frame screw	Stage 1 105
	Step 2 ... angle-tighten 120°
Torque converter	50
Lower torque rod, transmission screw	Stage 1 35
	Step 2 angle-tighten 40°
Lower torque rod, subframe nut	Stage 1 65
	Step 2 angle-tighten 60°

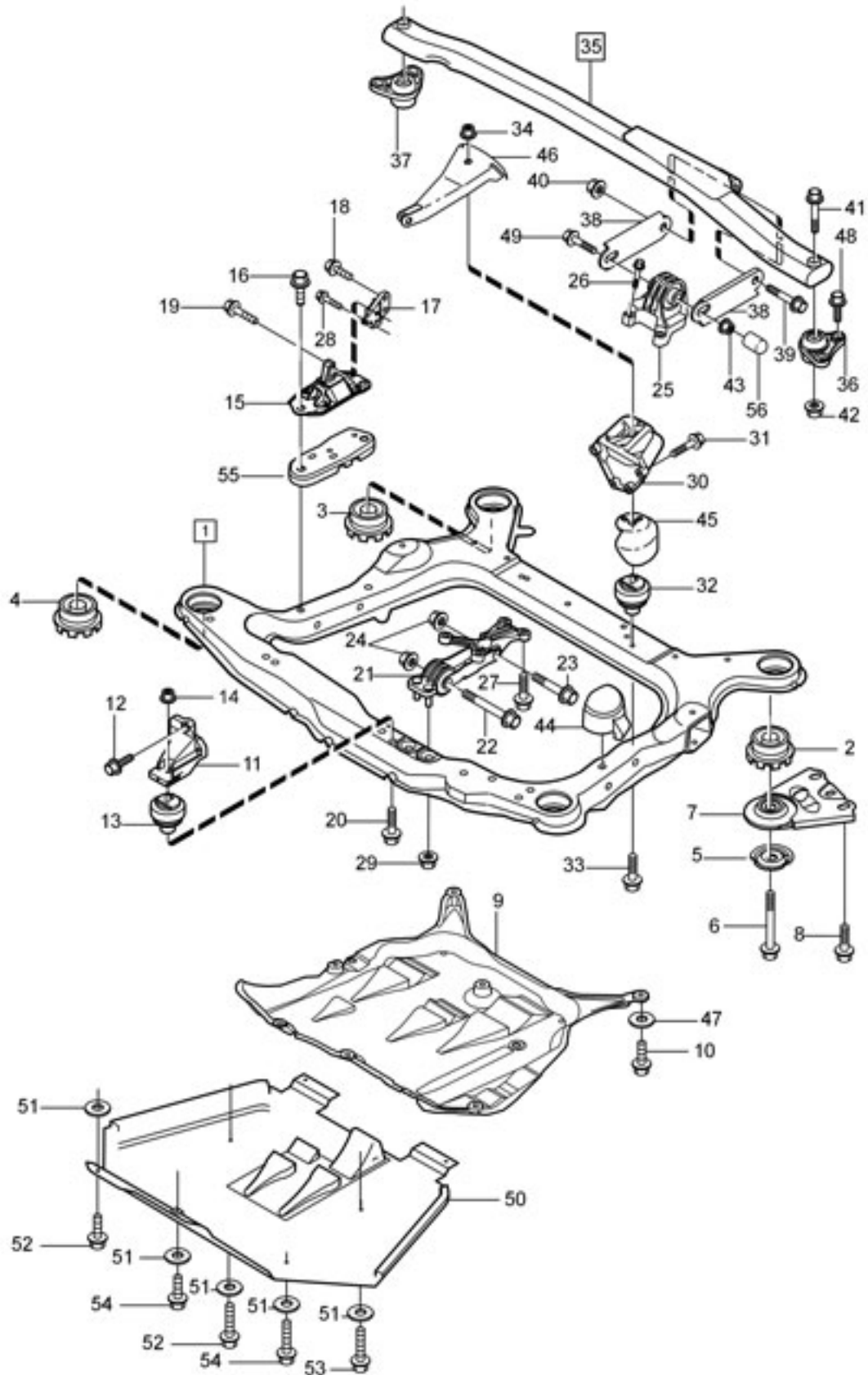
Group 21 Engine mounts

Engine mountings for 8 cylinder engines



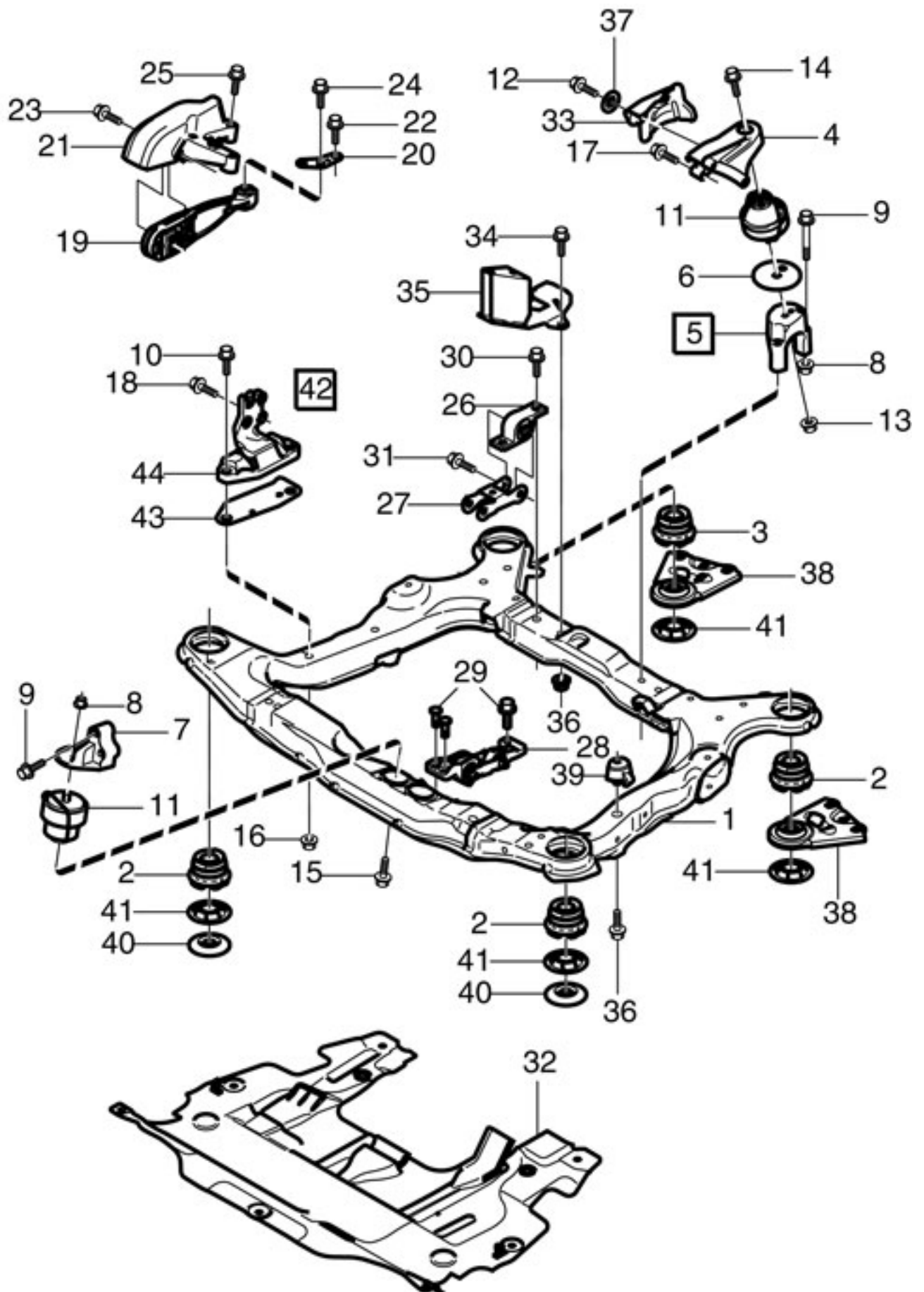
Engine mountings for 8 cylinder gasoline engines:		
Number (as illustrated):	Tightening torques for lubricated screws and nuts: Nm /lbf ft And angle tightening if necessary.	Designation
1		Frame
6	105/78 Angle tighten 120°	4 sems screws
8	M10x35 50/37	4 flange screws
9		Protective cover
10	M8x16 20/15	6 flange screws
11		Engine mounting
12	M10x55 50/37	3 flange screws
14	50/37	Flanged locknut
16	M12x40 35/26 angle tighten 60°	2 flange screws
17		Engine mounting, right
18	M10x80 50/37	2 flange screws
28	M10x45 50/37	4 flange screws
19	M10x50 35/26 angle tighten 40°	2 flange screws
20	M10x30 50/37	Flanged screw
23	M10x25 50/37	2 flange screws
25	M10x35 35 angle tighten 40	2 flange screws
26	M10x45 50/37	4 flange screws
27	M10 50/37	Flanged screw
29	M8 65/48 angle tighten 60°	Flanged screw
31	M10x45 50/37	3 flange screws
32		Engine pad
33	M10x30 50/37	4 flange screws
35		Engine stabiliser brace
38	M12x70 80/59	Flanged screw
39	M12x70 80/59	3 flange nuts
40	M12x100 80/59	2 flange screws
41		Nut plate
42		Flanged nut
46	M10x30 50/37	4 flange screws
47	M12x80 80/59	Flanged screw
	Collision brace, rear engine mounting: Nut = 50/37 Screw = 50/37	

Engine mounts for gasoline engine:
B6294T



Engine mounts for gasoline engine: B6294T:		
Number (as illustrated):	Tightening torques for lubricated screws and nuts: Nm /lbf ft And angle tightening if necessary.	Designation
1		Frame
6	105/78 Angle tighten 120°	Sub-frame screw
8	M10 50/37	Flanged screw
10	M8 20/15	Flanged screw
11		Engine mounting
12	M10 50/37	Flanged screw
14	50/37	Flanged locknut
16	M12 35/26 angle tighten 60°	Flanged screw
17		Engine mounting
18	M10 50/37 angle tighten 60°	Flanged screw
28	M8 20/15 angle tighten 60°	Flanged screw
19	M10 35/26 angle tighten 60°	Flanged screw
20	M10 50/37	Flanged screw
22.24	M12 35/26 angle tighten 90°	Flanged screw
23.24	M12 35/26 angle tighten 40°	Flanged screw
26	M10 50/37	Flanged screw
27	M10 50/37	Flanged screw
29	M8 65/48 angle tighten 60°	Flanged screw
31	M10 50/37	Flanged screw
32		Engine pad
33	M10 50/37	Flanged screw
34	50/37	Flanged locknut
35		Engine stabiliser brace
39.40	M12 80/59	Flanged screw
41	M12	Flanged screw
48	M10 50/37	Flanged screw
43.49	M12 80/59	Flanged screw
41.42	M12 80/59	Flanged screw
50		Protective plate
52.53	M8	Flanged screw
54	M8	Flanged screw
	Collision brace, rear engine mounting: Nut = 50/37 Screw = 50/37	

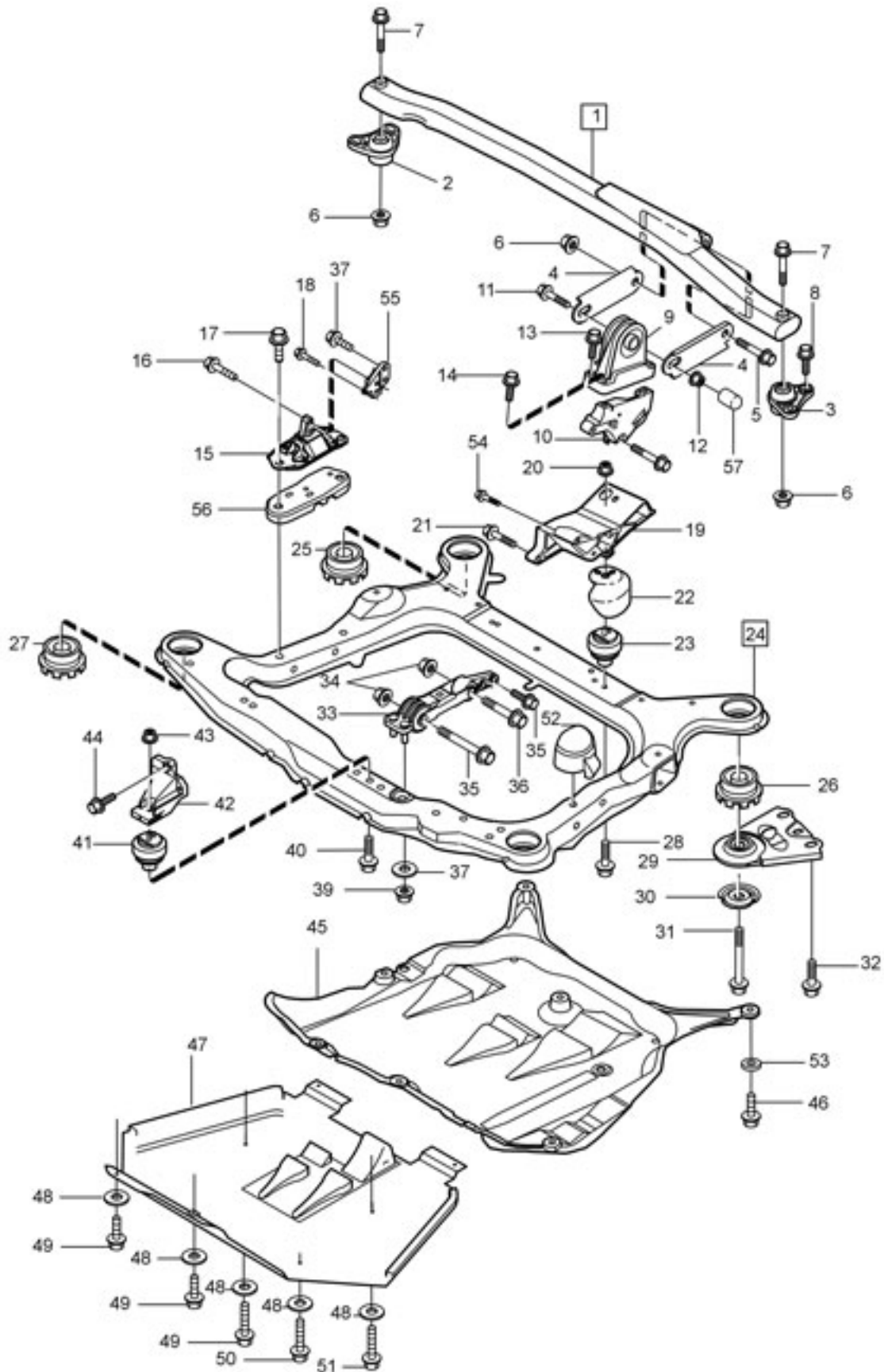
Engine mounts for gasoline engine:
B6324S



Group 21 Engine mounts

Engine mounts for gasoline engine: B6324S:		
Number (as illustrated):	Tightening torques for lubricated screws and nuts: Nm And angle tightening if necessary.	Designation
1		Frame
4		Engine mounting
8		Flanged locknut
9	M10 50	Flanged screw
10	120 angle tighten 40°	Flanged screw
12	M12 80	Flanged screw
13		Flanged locknut
14	M10 50	Flanged screw
15	M10 50 CH -371137	Flanged screw
15	CH 371138-	Flanged screw
16		Flanged locknut
17		Flanged screw
18	130 angle tighten 75°	Flanged screw
19		Engine stabiliser brace
22	M10 50	Flanged screw
23	M12 80	Flanged screw
24	M12 80	Flanged screw
25	M12 80	Flanged screw
26		Engine stabiliser brace
28		Engine stabiliser brace
29	110	Flanged screw
30	M12 80	Flanged screw
31	M12 80	Flanged screw
32		Protective cover
33		Protective plate
34	M6 10	Flanged screw
36		Flanged locknut
44		Engine pad

Engine mountings for gasoline engines:
B52XX

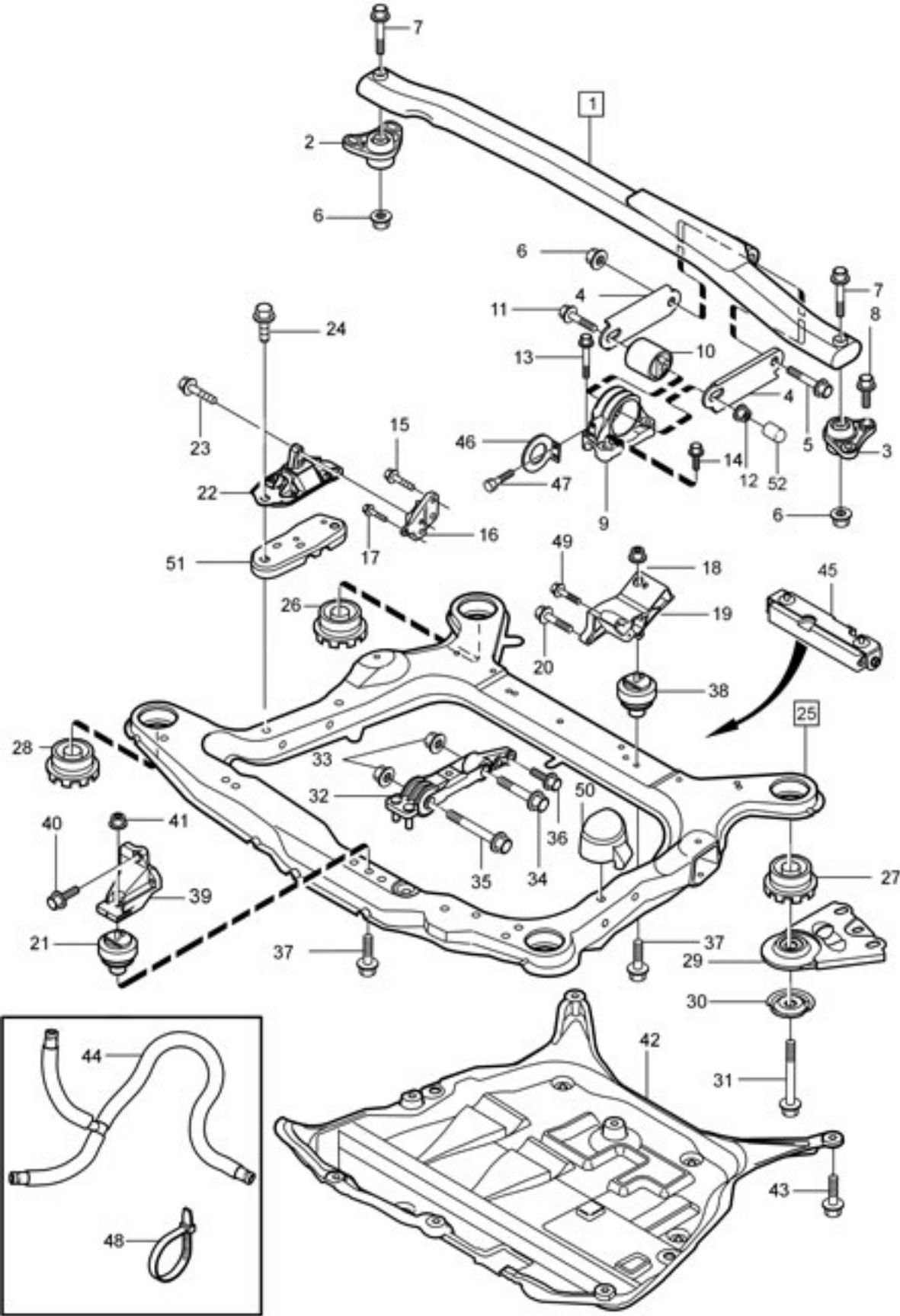


Engine mountings for 5-cylinder gasoline engines		
Number (as illustrated):	Tightening torques for lubricated screws and nuts: Nm /lbf ft	Designation
	And angle tightening if necessary: Degrees	
1	Engine stabiliser brace	
5.6	M12 80/59	Flange screw, nut
6.7	M12 80/59	Flanged screw
8	50/37	
9		Engine mounting, upper
10	50/37	
11	M12 80/59	Flanged screw
13.14	M10 50/37	Flanged screw
16	M10 35/26 angle tighten 90°	Flanged screw
17	M12 65/48 angle tighten 60°	Flanged screw
18	M8 20/15 angle tighten 60°	Flanged screw
19		Engine mounting, rear
20	50/37	Flanged locknut
21	M10 50/37	Flanged screw
23		Engine pad
24		Frame
28	M10 50/37	Flanged screw
29		Bracket
31	105/78 angle tighten 120°	
32	M10 50/37	Flanged screw
33		Engine stabiliser brace
34.35	M10 35/26 angle tighten 90°	Flanged screw
34.36	M10 35/26 angle tighten 90°	Flanged screw
35	35/26 angle tighten 40°	
37	M10 35/26 angle tighten 60°	Flanged screw
38	M10	Flanged screw
39	65/48 angle tighten 60°	
40	M10 50/37	Flanged screw
41		Engine pad
43	50/37	
44	M10 50/37	Flanged screw
46	M8 20/15	Flanged screw
47		Protective plate
49	M8	Flanged screw
50	M8	Flanged screw

Group 21 Engine mounts

Engine mountings for 5-cylinder gasoline engines		
Number (as illustrated):	Tightening torques for lubricated screws and nuts: Nm /lbf ft And angle tightening if necessary: Degrees	Designation
51	M8	Flanged screw
54	M10	Flanged screw
55		Engine mounting, right

Engine mountings for diesel engines:
D5244 T



Group 21 Engine mounts

Engine mounts for diesel engine: D5244 T		
Number (as illustrated):	Tightening torques for lubricated screws and nuts: Nm /lbf ft And angle tightening if necessary: Degrees	Remarks
1		Engine stabiliser brace
5.6	M12 80/59	Flanged screw
6.7	M12 80/59	Flanged screw
8	M10 50/37	Flanged screw
11.12	M12 80/59	Flanged screw
13.14	M10 50/37	Flanged screw
15	M10 35/26 angle tighten 60°	Flanged screw
16		Engine mounting, right
17	M8 20/15 angle tighten 60°	Flanged screw
18	50/37	
19		Engine mounting
20	M10 50/37	Flanged screw
21		Engine pad, front
22		Engine pad, right
23	M10 35/26 angle tighten 90°	Flanged screw
24	M12 65/48 angle tighten 60°	Flanged screw
25		Frame
31	105/78 angle tighten 120°	Sems screw
32	65/48 angle tighten 60°	
33.34	M10 35/26 angle tighten 90°	Flanged nut
33.35	M10 35/26 angle tighten 90°	Flanged screw
36	M10 35/26 angle tighten 40°	Flanged screw
37	M10 50/37	Flanged screw
38		Engine pad, rear
39		Engine mounting, front
40	M10 50/37	Flanged screw
41	50/37	
43	M8 20/15	Flanged screw
45		Vibration damper
46		Lifting eyelet
47	M7	Flanged screw
49	M10 50/37	Flanged screw

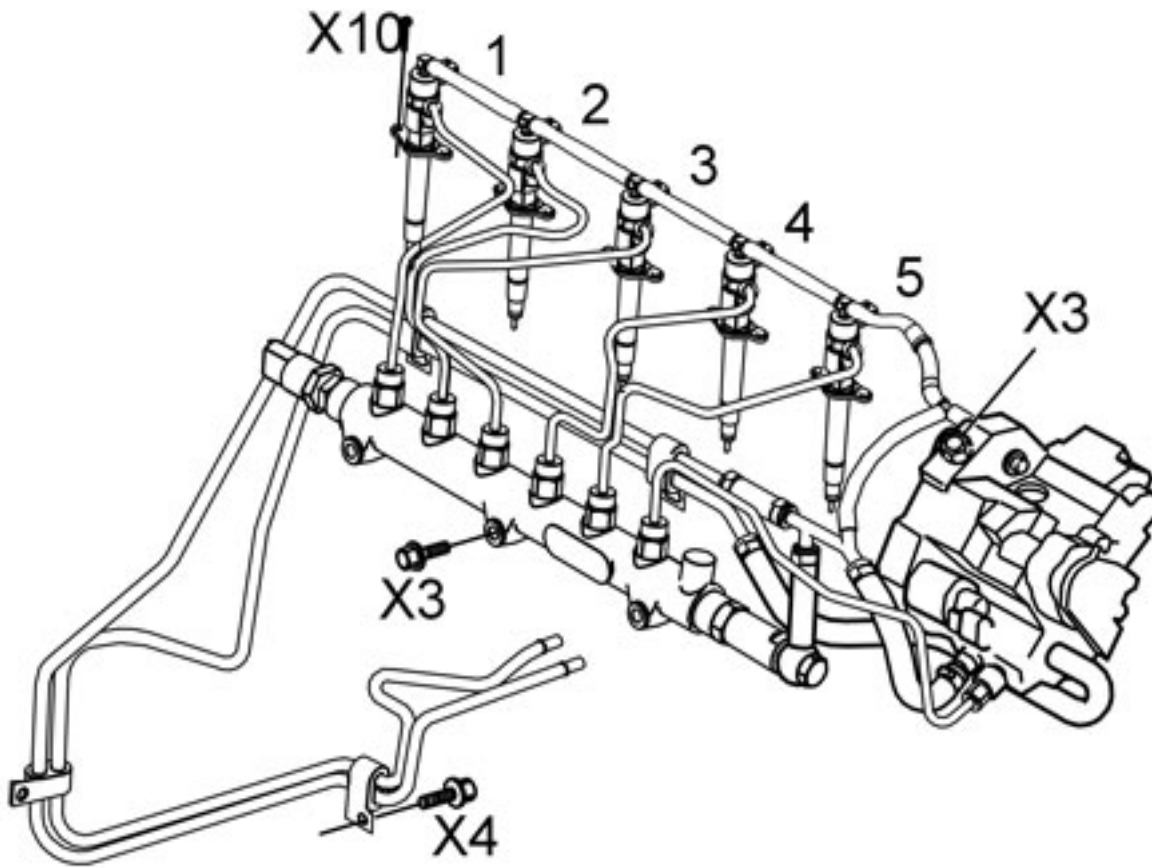
Group 22 Lubrication system

General

Oil volumes and grades, see: Section 1: Service and maintenance, Group 17: Service

	B5244XX	D5252T (S80, V70)	D5244TX	B6294T	B6324S	B8444S
Oil pressure: Engine at operating temperature with thermostat open and new oil filter. Speed rps (rpm)						
Idle speed MPa 67.7 (4000), minimum MPa 33.3 (2000) MPa	0.1 0.35 -	0.015 - 0.2			0.12 0.35 0.25	0.6 0.4
The relief valve opens at a pressure of: MPa	0.48	0.53 - 0.63	0.55	0.65	0.45	0.5
Maximum oil pressure: MPa	0.7	0.7	0.7	0.9	0.7	0.7
Oil pressure sensor: Breakpoint, indicator lamp goes out at a pressure MPa	0.04 - 0.06	0.015 - 0.035	0.06		n/a	0.02- 0.04

Group 23 Fuel system

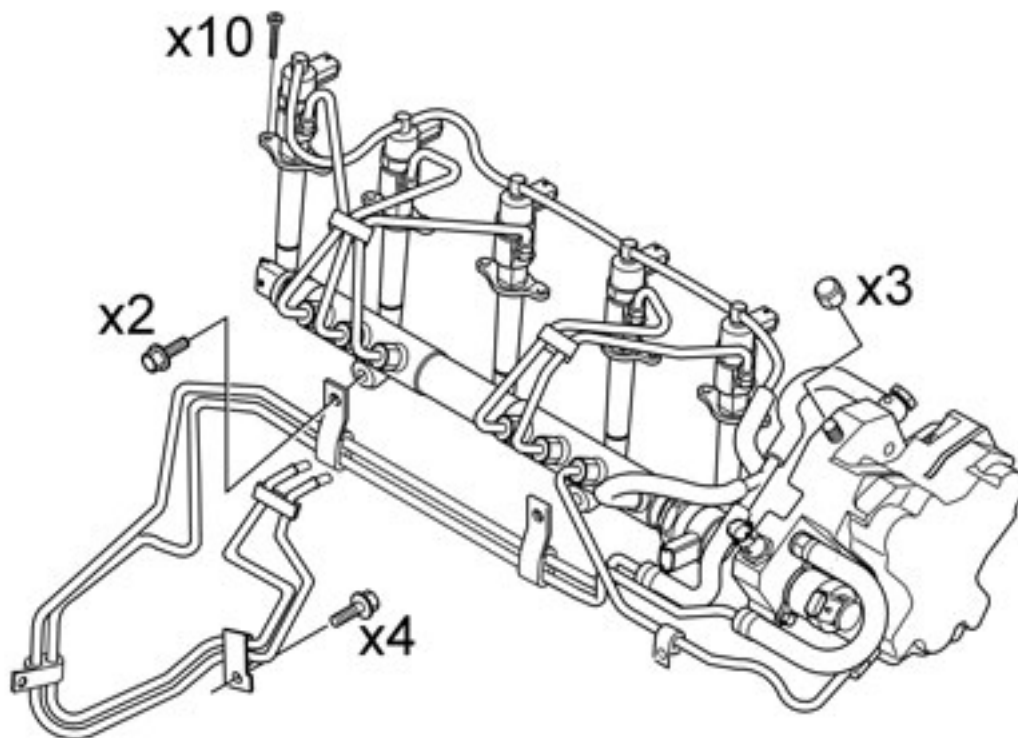


Tightening torque

D5244T/T2	Tightening torque Nm
Injectors: 1-5, two screws per injector. M6	13±1
X3, Rail secured with 3x M7 screws	16±4
X4, Fuel line secured with 4x M7 screws	14±3
X3, High-pressure pump 3x M7 screws	18±2
Fuel pressure pipe 12x nuts	28±3

Fuel injection system, Diesel engine D5244T4-T7

	Type	Make
High-pressure pump	Piston pump	Bosch
Injectors:	Complete with washer and clip	EDC 16 C31
Turbocharger (TC) boost pressure, absolute pressure:		210 kPa

**Tightening torque**

D5244T4-T7	Tightening torque Nm
Injectors: 1-5, two screws per injector. M6	13±1
X2, Rail secured with 2x M8x50 screws	25±6

Group 23 Fuel system

X4, Fuel line secured with 4x M7 screws	14±3
X3, High-pressure pump 3x M7 screws	18±2
Fuel pressure pipe 12x nuts	28±3
Clamp on pipe number 6 fastened with M6	10±1
Fuel pressure sensor/fuel rail	70
Fuel control valve/rail:	
Stage 1	60
Stage 2	80
Fuel temperature sensor/high pressure pump	21
Hollow screw/fuel delivery, high pressure pump	21
Hollow screw/fuel return, high pressure pump	25

Fuel injection system, Diesel engine D 5244 T/T2

	Type	Designation	Make
High-pressure pump	Piston pump	CP3.3	Bosch
Turbocharger (TC) boost pressure, absolute pressure:			210 kPa

Group 25 Intake and exhaust system**Tightening torques for the intake and exhaust system components**

Gasoline engines:	Tightening torque
Specific component:	Nm
Exhaust manifold, cylinder head side	25
Exhaust manifold - heat shield	15
Exhaust manifold - turbocharger (TC), nuts	25
Exhaust manifold - turbocharger (TC), studs	20
Exhaust system, pipe to turbocharger (TC)	30
Catalytic converter:	
towards the turbocharger (TC)	25
towards the exhaust system	24
Exhaust system, flange front - rear pipe	25
Exhaust system, pipe to exhaust manifold	25
Intake manifold, cylinder head side	20
Diesel engine D5244 T:	
Exhaust manifold, cylinder head side	30
Exhaust manifold - heat shield	15
Exhaust manifold - turbocharger (TC), nuts	30
Exhaust manifold - turbocharger (TC), studs	20
Exhaust system, pipe to turbocharger (TC)	40
Use copper paste:	
Volvo P/N: 11 61 408-8	
Intake manifold, cylinder head side	20
Three-way catalytic converter (TWC) stay - block	25
Diesel engine D5252 T (S80, V70):	
Exhaust manifold, cylinder head side	25
Exhaust manifold - heat shield	8
Exhaust manifold - turbocharger, nuts/bi-hex screw	60
Exhaust manifold - turbocharger (TC), studs	40
Catalytic converter:	
towards the turbocharger (TC)	45
towards the exhaust system	25
Intake manifold, cylinder head side	22

Group 26 Cooling system

General

Never top up with water only.

Use Volvo Genuine parts **green coolant** diluted 50/50 with **clean water**.

This mixture prevents corrosion and frost damage.

The coolant does not usually need replacing.

In the case of larger repairs when coolant needs to be drained, new coolant must be used because the old coolant has been exposed to oxidation and dirt.

Cooling system: Capacity, pressure and thermostat

Engine type:	Volume liters	Expansion tank pressure valve opens at		Thermostat °C		
		Over pressure kPa	Negative pressure kPa	Marking	Starts to open	Fully open
B5254 T2	8	150	10	90°	90°	105°
D 5244 T	9.0	150	10	90°	90°	105°
B6294T	9.6	150	10	90°	90°	105°
B8444S	10.7	150	10	90°	90°	105°
B6324S	8.9	150	10	90°	90°	105°

Group 28 Ignition system**Tightening torque**

	Tightening torques Nm
Spark plugs	30
Knock sensor (KS)	20

General

Engine type	Ignition system
B6294 T	Bosch ME 7
B5254 T2	Bosch ME 7
D5244 T	EDC 15 C11
B8444S	Denso
B6324S	Denso

Technical data, ignition coil, spark plugs, sensors, engine cooling fan (FC), and tightening torques etc:

Components related to the ignition system	
Electrode distance B5254T2:	0.7 mm
Electrode distance B6294T:	0.7 mm
Electrode distance B8444S:	1.1 mm
Engine speed (RPM) sensor, flywheel	
Resistance in coil, at 20C° degrees	125 ± 17 Ω
Inductance in coil, at 20C° degrees	85 ± 10 mH
Engine cooling fan (FC), control module	40 A
Resistance in coil	80 Ω

Components Bosch ME-7, EDC 16 C31 :

Components related to the ignition and fuel system		
Type ME-7:		
Control module	Built-in atmospheric pressure sensor.	
Throttle unit	Damper motor integrated with electronic module.	
Accelerator pedal (AP) position sensor	Pulse width modulated and linear signal (digital / analogue).	
Pressure regulator		Line pressure 380 kPa.
Mass air flow (MAF) sensor	Mass air flow (MAF) sensor resistive film.	Measurement range 12 - 640 kg/h.

Group 28 Ignition system

Components related to the ignition and fuel system Type ME-7:		
B6294T		Measurement range 12 -850 kg/h.
Fuel pump	Pump capacity: At line pressure of 380 kPa and 13 V is > 125 l/min	Power consumption at line pressure: 7.5 A.
Fuel injector		Resistance, coil: 12 Ω .
Injector D5		Resistance, coil: 22 Ω .
T-MAPS: Boost pressure, Intake air temperature sensor	Piezo resistive linear pressure sensor. NTC resistor.	Measurement range 20 - 250 kPa. Measurement range 20 - 300 kPa.(D5)
Turbocharger (TC) control valve	PWM controlled valve.	Resistance 29.7 Ω .
Camshaft reset valve VVT	PWM controlled valve.	Resistance 3.7 Ω .
Knock sensor (KS)	Piezo-electric crystal.	Resistance 4.81 M Ω .
Camshaft position (CMP) sensor	Magneto-resistive sensor with a permanent magnet.	
Engine speed (RPM) sensor. Applies at 20°C/68°F	Inductive sensor with permanent magnet.	Resistance 125.5 \pm 17 Ω .
Heated oxygen sensor, front Preheating	Linear sensor.	Resistance 3 Ω , at 20°C
Heated oxygen sensor, rear Preheating	Binary sensor.	Resistance 9 Ω , at 20°C
Heated oxygen sensor D5	Linear sensor.	Resistance 3.2 Ω , at 20°C
Ignition coil	Individually mounted ignition coil.	
Spark plug type	Multi-electrode.	
Outside temperature sensor	NTC resistor.	
Air conditioning (A/C) pressure switch (Pressostat)	Pressure switch.	
A/C pressure sensor	Linear pressure sensor.	Measurement range 0 -3100 kPa.
EVAP valve not for D5	Pulse width modulated.	Resistance 20 \pm 1.5 Ω .

Components related to the ignition and fuel system Type ME-7:		
Fuel tank pressure sensor	Piezo electric linear pressure sensor.	
Fuel pump (FP) relay	Frequency controlled mechanical relay.	
Engine cooling fan (FC) control module	PWM controlled discharge module with variable output voltage and diagnostics.	
System relay	Mechanical relay.	Resistance 80 Ω.
Clutch pedal position sensor	Self-adjusting.	
Brake pedal position sensor	Self-adjusting.	
Brake light switch	Two. One switch and one sensor.	
Engine coolant level switch	Level indicator.	
Oil pressure switch	Pressure switch.	

Components Bosch ME-7, EDC 16 C31 :

Technical data				
Applies to ME-7 ignition and fuel system:				
Mass air flow (MAF) sensor:				
Measurement range 10-612 kg/h	12	15	30	60
Q kg/h				
Voltage V	1.3	1.4	1.7	2.1
Boost pressure sensor:				
Pressure kPa	90	101	150	200
Voltage V	1.7	1.9	2.8	3.7
Engine coolant temperature (ECT) sensor:				
Temperature °C	10°	20°	80°	100°
Resistance Ω	3700	2450	318	184
Temperature sensor, intake air:				
Temperature °C	0°	20°	30°	40°
Resistance Ω	5886±5%	2510±5%	1715±5%	1199±5%

Group 28 Ignition system

Technical data				
Applies to ME-7 ignition and fuel system:				
Outside temperature sensor:				
Temperature °C	0°	20°	25°	30°
Resistance Ω	6318	2424	1941	1513
Voltage V	4.3	3.5	3.3	3
A/C compressor:				
Start temperature sensor °C	6.5		5.5	
Status To/From	On		Off	
Clutch pedal position sensor:				
Position mm	0	25	50	100
Resistance Ω	1500 - 2500	1000 - 2000	750 - 1750	500 - 1000
Brake pedal position sensor:				
Position mm	0	20	30	50
Resistance Ω	1300 - 2100	1000 - 1800	900 - 1700	600 - 1400

Technical data			
Relevant ignition/fuel system EDC 15 C11:			
Boost pressure sensor			
Pressure kPa	90	101	200
Voltage V	1.46	1.63	3.13
Outside temperature sensor:			
Temperature °C	0°	20°	30°
Resistance Ω	6318	2424	1564
Voltage V	2.16	1.1	0.8
Engine coolant temperature (ECT) sensor:			
Temperature °C	10°	20°	100°
Resistance Ω	3700	2450	184
Voltage V	3.7	3.2	0.6
Engine coolant temperature sensor			
Temperature °C	Resistance Ω	accuracy	
-50	80340	± 1.9	
-20	15040	± 1.7	
0	5740	± 1.6	
20	2450	±1.4	
50	811	± 1.2	
100	183.6	± 0.7	
150	56.9	±1.4	

Section 3 Electrical system

Group 31 Battery

System voltage, with ignition off:	12.5 - 12.7 V
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A newly charged battery may have a higher voltage.

Battery capacity

For the battery capacity, see the table in the manual and the information on the battery.

Battery, disconnecting

Warning! For disconnection of the battery, see VIDA.

Group 32 Generator/Charge regulator**Tightening torques:**

Tightening torques:	Nm
Mounting screw for rear cover, use B+ terminal	30
Mounting screw for rear cover, do not use B+ terminal	12
Mounting screw for rear cover, securing screw	4
E140/8	2.6
Mounting screw for regulator, ground screws	1.7
E140/8	2.4
Mounting screw for regulator, phase connection	0.8
E140/8	1.4
Left threaded nut to fixed pulley	65
Left threaded nut to freewheeling pulley	80
Right threaded nut to pulley for B8444S	80

Alternators, electrical and mechanical data:

Generator (GEN) BOSCH E140/8 14 V/140 A	BOSCH P10 14 V/160 A
-2005 Alternator 140 A Alternator, 6 cylinders 140 A Alternator 160 A Alternator Diesel 160 A	Anticlockwise
2005- 5-cyl petrol, Diesel 140 A 6 cyl 160 A 5-cyl petrol, Diesel, Freewheel 160 A Direction of rotation	
Alternator, B8444S, B6324S 180 A Direction of rotation	Clockwise
Nominal output: E140/8 P10 (160A) M2.5 (180A) Max speed	1960 W 2240 W 2500 113 (6800) rps (rpm)
Carbon brushes, minimum length	5.0 mm
Test values:	

Group 32 Generator/Charge regulator

Generator (GEN)	
Resistance, rotor winding	2.6 Ω
Resistance, stator winding	0.06 Ω /phase
E140/8	0.04 Ω /phase
NOTE: Measured with a low ohm voltmeter	

Charge regulators, electrical and mechanical data:

Charge regulator	BOSCH
Regulator -2005: LIN regulators are used from 2005-:	

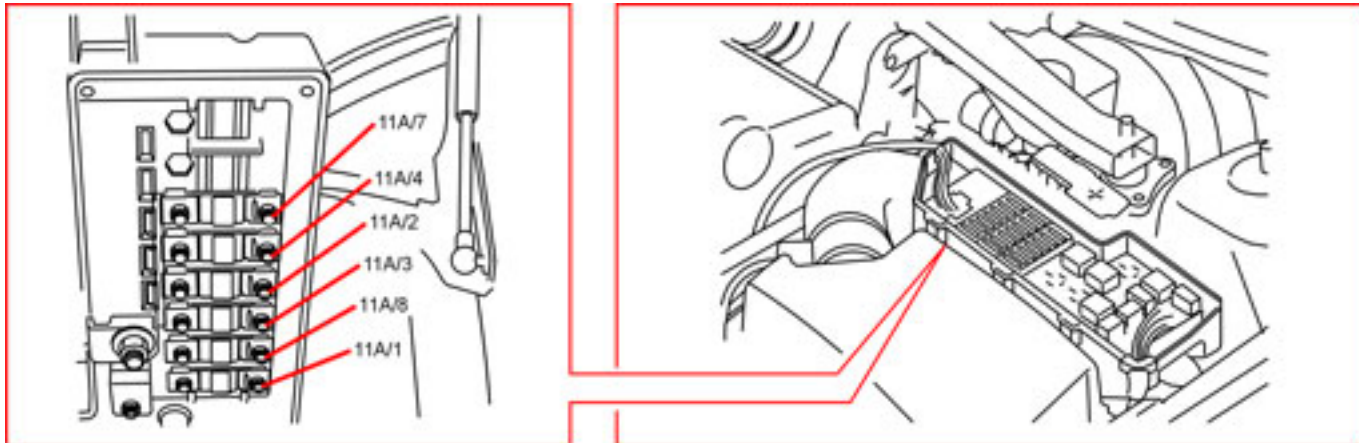
Group 33 Starter motor**Starter motor**

Control solenoid:	
Lowest connection voltage	7,4 V

Test data:

Starter motor, type	BOSCH 12 V 1.4 kW	BOSCH 12 V 2.0 kW	BOSCH 12 V 2.2 kW
Direction of rotation	Clockwise	Clockwise	Clockwise
Test value, starter motor unloaded: 11.3 V and max. 70 A, min. 11.3 V and max. 140 A, min. 11.4 V and max. 125 A, min.	2900 (48.3) rpm (rps)	4900 (81.6) rpm (rps)	4535 (75.6) rpm (rps)

Group 37 Fuses



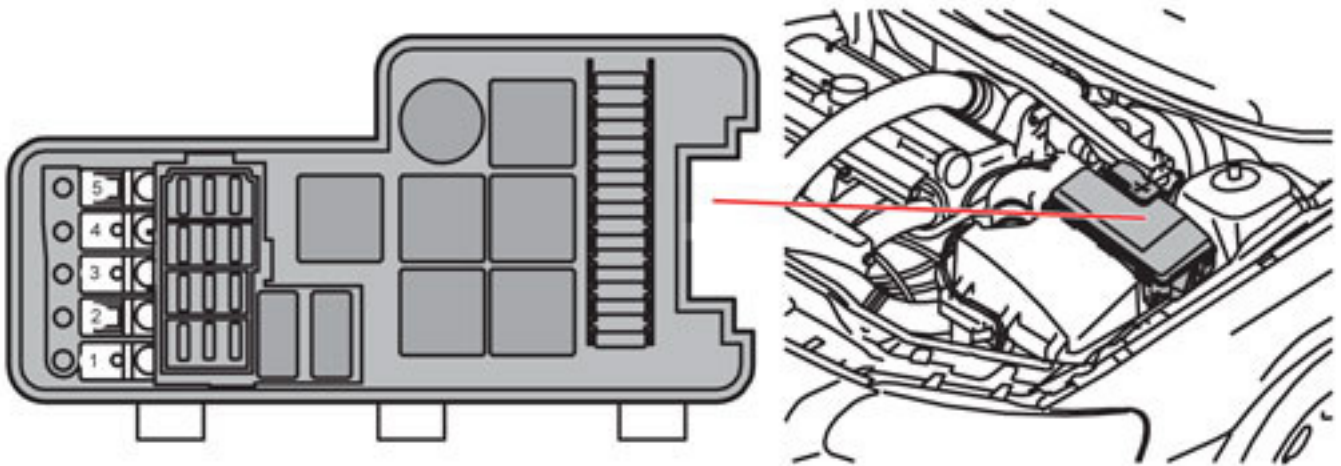
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11A -2004		
Main fuses in the engine compartment		
Fuse no:	Function	A
1	Glow plugs via 2/14	60
2	Fusing for 11C: 5-7, 25-27, 32-33 via 2/61	60
3	Fusing for 11C: 2-4, 8-11 via 2/30, 16-19 via 2/31 34-38	60
4	Fusing 11C: 1, 12-15, 20-24	60
5	-	
6	-	
7	-	60
8	Engine cooling fan (FC)	80

11A 2005-2007		
Main fuses in the engine compartment, relay/ fuse box		
Fuse number:	Function	A
1	Glow plugs via 2/4	60
2	Fuses, engine compartment 11B/ 20, 21	40
3	Fuses, engine compartment 11B/ 17, 18	40

Group 37 Fuses

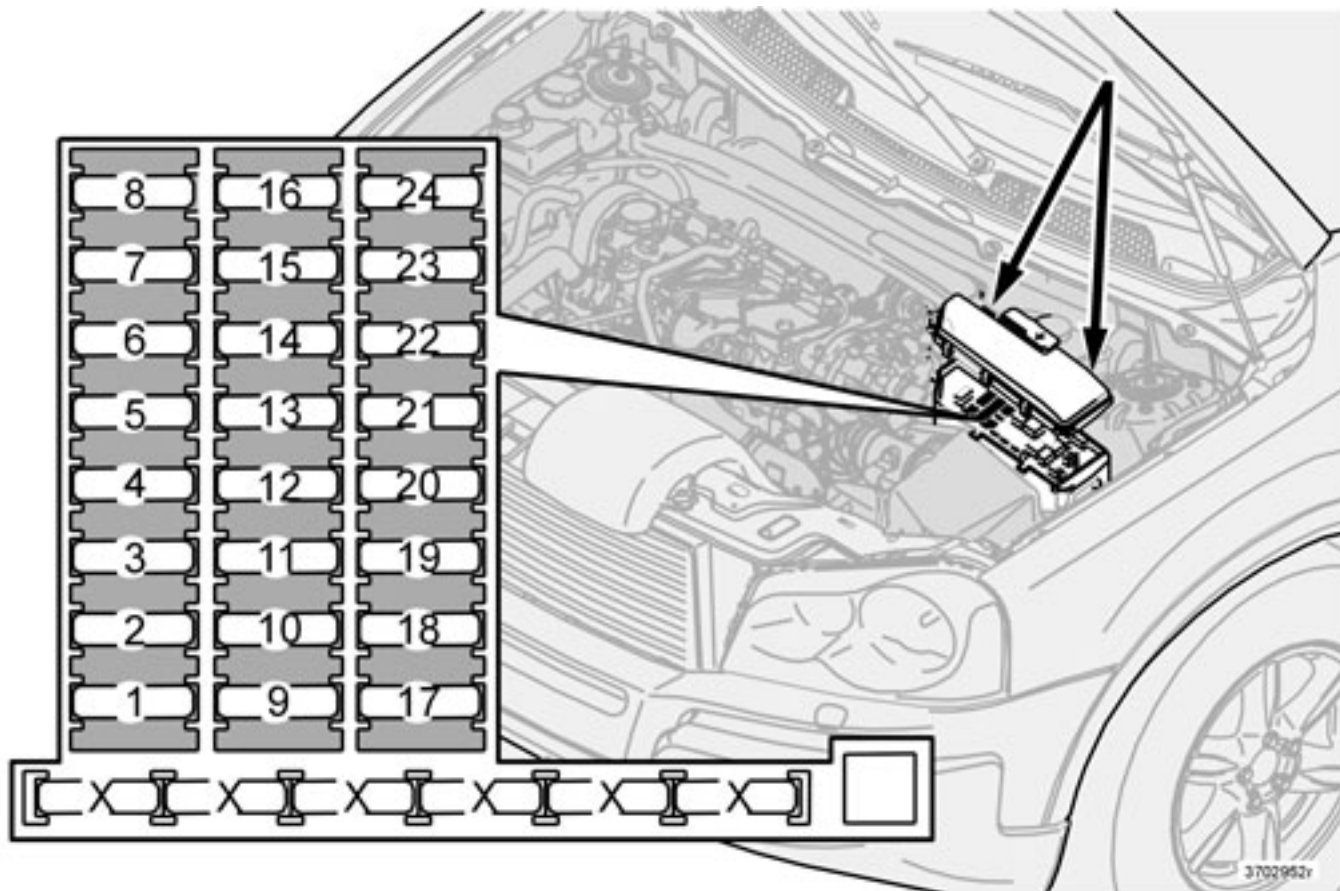
11A 2005-2007		
Main fuses in the engine compartment, relay/ fuse box		
Fuse number:	Function	A
7	Accessories	60
8	Engine cooling fan via 4/71	60



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11A 2008-		
Main fuses in the engine compartment		
Fuse number:	Function	A
1	Glow plug 4/109	60
2	Engine electric cooling fan 4/71	60
3	-	-
4	-	-
5	-	-



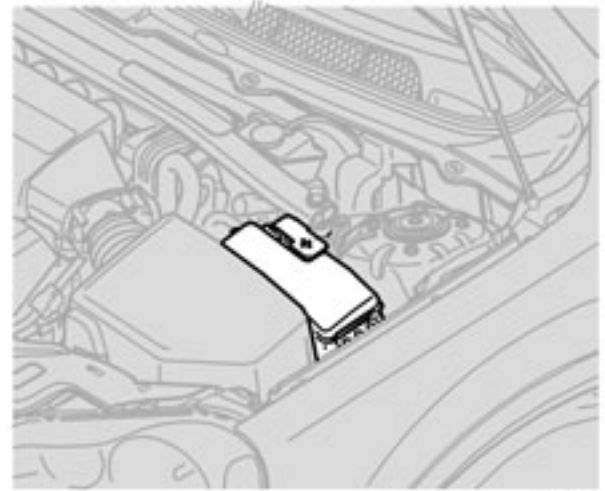
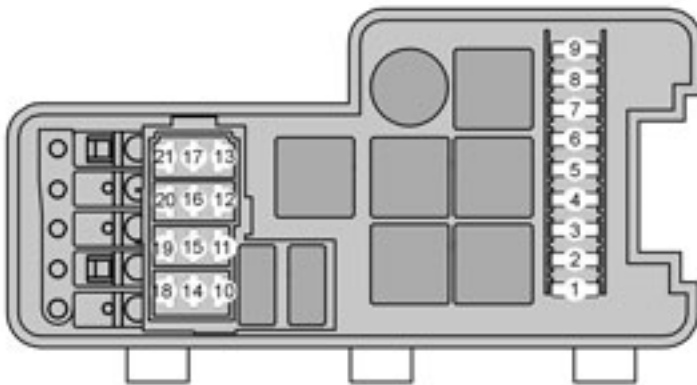
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11B -2004		
Fuses in the engine compartment		
Vehicle manufactured before W446		
Fuse number:	Function	A
1	Control module, additional heater,	25
2	Accessories, auxiliary lamps	20
3	-	
4	Engine management system (ECM), Diesel, Heated oxygen sensors, solenoid valve, Diesel	20
5	Fuel leakage control, pump	10
	Solenoid valves	
	Solenoid, variable valve timing, exhaust 8/81	
	Solenoid, variable turbo geometry, Diesel 8/82	
	PTC resistor, air preheating 9/32	
6	Engine control module (ECM), mass air flow (MAF) sensor, injectors	15
6	Mass air flow (MAF) sensor Diesel	10
7	-	-

Group 37 Fuses

11B -2004		
Fuses in the engine compartment		
Vehicle manufactured before W446		
Fuse number:	Function	A
8	Fan electronic box engine compartment. Sensor accelerator pedal (AP). Magnetic clutch climate control	10
9	– 2004: Horn	15
	2005– Relay, fuel system	10
10	–2004: Rear window washer motor	10
11	-2004	20
	Automatic glow plug, Spark plugs with ignition coils, Climate control system, Solenoid valve engine pad, Air preheating (Diesel), Variable turbo geometry	
11	2005–	20
	Relay, automatic glow plug unit. 2/14	
	Relay, climate control system 2/22	
	Spark plugs/ignition coil 20/3-8	
12	–2004: Brake light switch	5
13	Windshield wipers	25
14	Brake control module (BCM)	30
15	High-pressure cleaning headlights	25
16	Windshield washer motor, headlight wipers	15
17	-2004	10
	Low beam right. Bi-Xenon right	
17	2005–	20
	Low beam left	
18	-2004	10
	Low beam left. Bi-Xenon left	
18	2005–	15
	Position lamps, front	
19	Brake control module (BCM)	30
20	-2004	15
	Left high beam	
20	2005–	20
	Low beam right	
21	-2004	15
	Right high beam	

11B -2004		
Fuses in the engine compartment		
Vehicle manufactured before W446		
Fuse number:	Function	A
21	2005– Fuel pump	15
22	–2004 Starter motor 6/25 via 2/3	25
	2005– Starter motor 6/25 via 2/3	35
23	–2004 Engine control module (ECM)	5
	2005- Engine control module (ECM)	10



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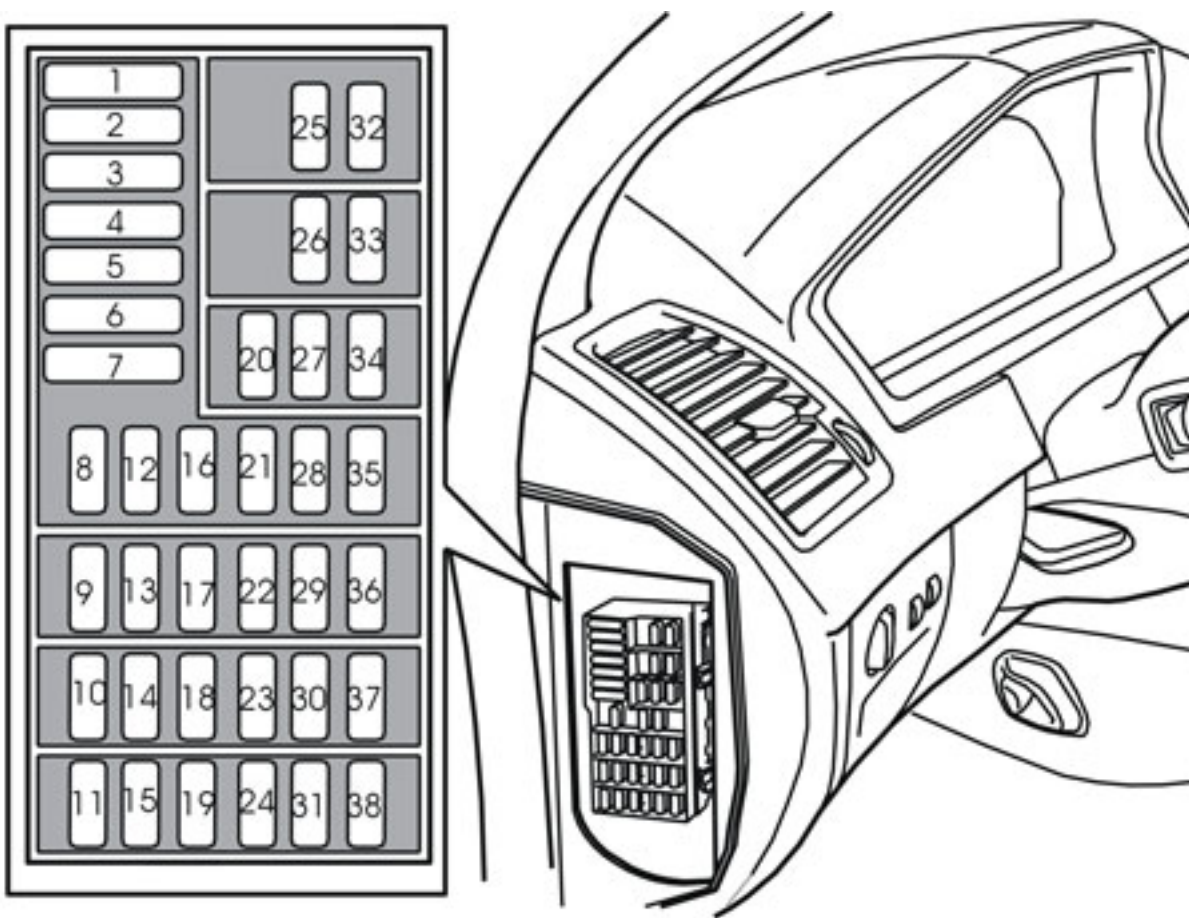
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11B 2005-		
Fuses in the engine compartment		
Vehicle manufactured after W446		
Fuse number:	Function	A
1	Brake control module (BCM)	30
2	Brake control module (BCM)	30
3	High-pressure cleaning headlights	35
4	Parking heater (option)	25

Group 37 Fuses

11B 2005-		
Fuses in the engine compartment		
Vehicle manufactured after W446		
Fuse number:	Function	A
5	Auxiliary lights (option)	20
6	Starter motor relay	35
7	Windshield wipers	25
8	Fuel pump	15
9	Transmission control module (TCM) (V8, diesel)	15
10	Ignition coils (gasoline)	20
	Engine control module (ECM) (diesel)	
	Injectors (2005)	
	High-pressure valve (diesel) (-2007)	
11	Accelerator pedal sensor (APM)	10
	Air conditioning compressor	
	Fan, electronics box	
12	Engine control module (ECM) (gasoline - not 8-cyl)	15
	Injectors (gasoline) (2006-)	
	Mass airflow sensor (MAF) (gasoline - not 8-cyl)	
12	Mass air flow sensor (MAF) (diesel)	5
13	Throttle body (gasoline - 5-cyl without turbo, 8-cyl)	10
	Throttle body (ETM) (bi-fuel)	
	Solenoid valve, SWIRL (air mixture valve) (-2007)	
	Fuel pressure regulator (diesel) (-2007)	
	Engine control module (ECM) (gasoline - 5-cyl without turbo, 8-cyl)	
13	2008-	15
	Electronic throttle module (diesel)	
	Air mix valve (diesel)	
	Fuel pressure regulator (diesel)	
	Solenoid valve (diesel)	
	Engine control module (ECM) (diesel)	
14	Heated oxygen sensor (gasoline)	20
14	Engine control module (ECM) (bi-fuel) (2008-)	20
14	Heated oxygen sensor (diesel)	10

11B 2005-		
Fuses in the engine compartment		
Vehicle manufactured after W446		
Fuse number:	Function	A
15	Crankcase ventilation heater (gasoline)	10
	Solenoid valves (gasoline)	
	Pump fuel leakage check	
	Fuel rail gas (bi-fuel)	
15	Valve tappets (6-cyl)	15
15	Engine control module (ECM) (8-cyl)	15
	Mass air flow sensor (MAF) (8 cyl)	
	Solenoid valves (8-cyl)	
	Pump fuel leakage check (8-cyl)	
	Magnetic clutch climate control system (8-cyl)	
15	Solenoid valves (diesel)	15
	Glow plug (diesel)	
	Control motor turbo (diesel)	
16	Low beam left	20
17	Low beam right	20
18	-	-
19	Engine control module (ECM) feed, engine relay	5
20	Position light	15
21	-	-



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11C		
Passenger compartment fuses		
Fuse no:	Function	A
1	Motor blower fan	30
2	Audio module (AUD)	30
3	Power driver's seat	25
4	Power passenger seat	25
5	Front left door module	25
	Left power door mirror	
	Left heated door mirror	
	Motor, front left power window	
	Left door mirror lighting	
6	Front right door module	25
	Right power door mirror	
	Right heated door mirror	
	Motor, front right power window	
	Right door mirror lighting	

11C		
Passenger compartment fuses		
Fuse no:	Function	A
7	-2004 Deadlocking, left. Power window rear door	30
8	2005-2007 Radio, CD player, rear seat entertainment (RSE)	15
8	2008- Integrated Audio Module (IAM) DVD-player	15
9	-2004 Motor headlight alignment	15
9	2005- Multimedia display Multimedia module (MMM) Global positioning system module (GPS) Remote Digital Audio Receiver (RDAR) Connector cable harness infotainment, 30-feed	10
10	-2004 Power passenger seat	5
10	2005- Light switch module (LSM) Steering wheel module (SWM) Steering wheel angle sensor module (SAS) Data link connector	5
11	-2004 Power socket 12 V front, rear	15
11	2005- Passenger Airbag Cut Off Switch (PACOS) Supplemental restraint system module (SRS) Engine control module (ECM) Central electronic module (CEM) Rear electronic module (REM) Antenna ring/ignition switch lighting Transmission control module (TCM) (V8, diesel)	7.5

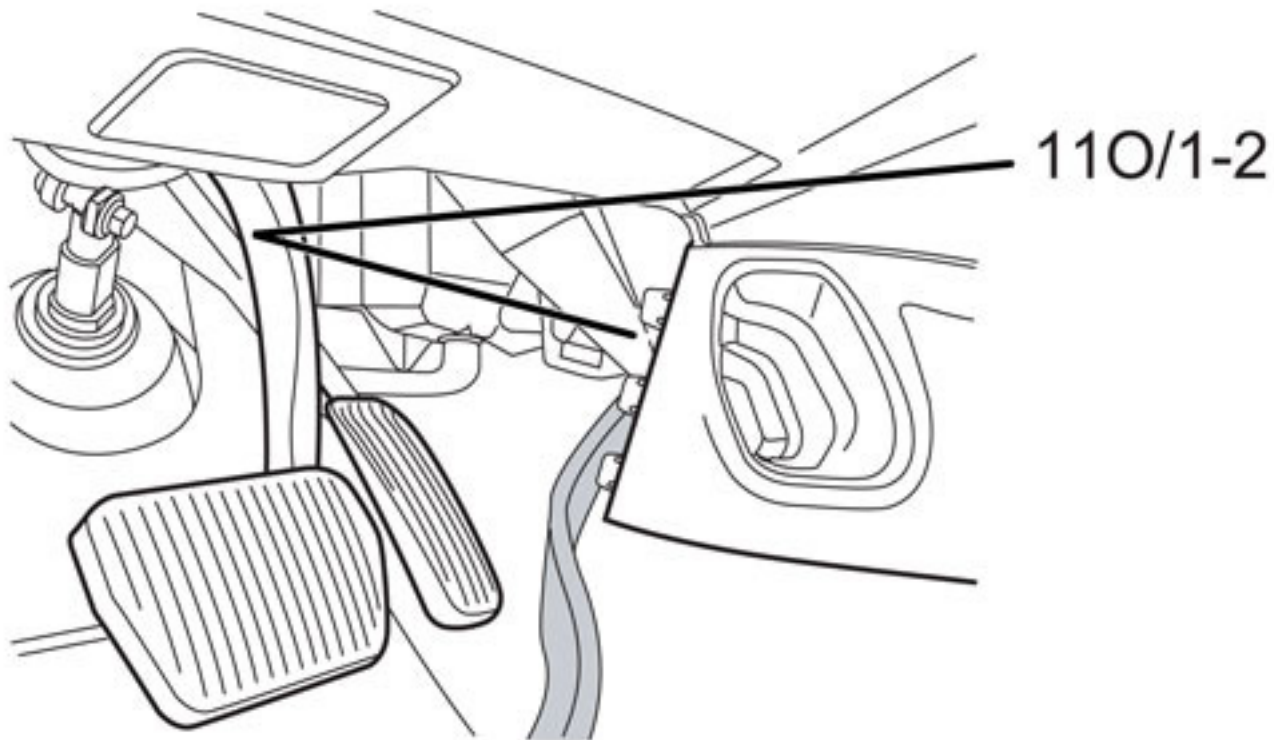
Group 37 Fuses

11C		
Passenger compartment fuses		
Fuse no:	Function	A
12	-2004 Starter motor Engine management system (ECM) Central electronic module (CEM) Supplementary restraint system (SRS) Antenna ring/ignition switch lighting Accessory connector	10
12	2005– Roof lamp control module (RCM) Upper electronic module (UEM) Sun roof module (SRM) Remote control module garage opening Rain sensor module (RSM) Lighting make-up mirror Reading lamp rear	10
13	2005– Sun roof motor Upper electronic module (UEM)	15
14	-2004 Upper electronic module (UEM) Roof lamp control module (RCM) Reading lamps Vanity mirror lighting	10
14	2005– Phone module (PHM)	5
15	-2004 Phone module (PHM)	10
16	-2004 Power steering, Vacuum pump	5
17	-2004 Brake control module (BCM). Steering angle sensor (SAS)	30

11C		
Passenger compartment fuses		
Fuse no:	Function	A
18	-2004 Seat heater left	15
19	-2004 Seat heater right	15
20	-2004 Audio module (AUD) Multimedia display MD player module (MP1) CD player module (MP2) Multimedia module (MMM) Infotainment control module (ICM)	10
21	-2004 Driver information module (DIM) Power seat module (PSM) driver's seat Control unit, climate control module (CCM) Combustion preheater module (CPM)	10
22	-2004 Data link connector, light control unit Control unit, climate control module (CCM) Control unit, control stalks (SWM)	5
23	-2004 Indicator lamps	20
24	-2004 Gear selector module (GSM) Geartronic Transmission control module (TCM) Shiftlock	10
25	-2004 Fuel pump	15
26	-2004 Sun roof motor	15
27	-2004 Central electronic module (CEM)	10

Group 37 Fuses

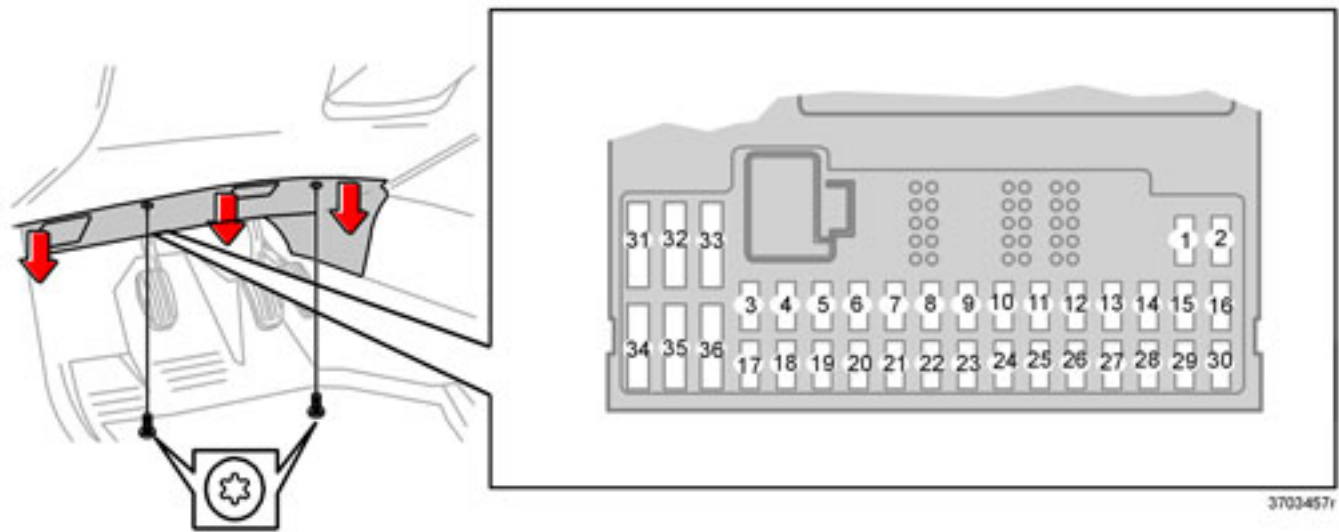
11C		
Passenger compartment fuses		
Fuse no:	Function	A
28	-2004 Siren control module (SCM)	10
29	-	-
30	-2004 Lamp housing front left. Daytime running lights	10
31	-2004 Lamp housing front right. Daytime running lamps	10
32	-2004 Position/parking lights, front left Left tail light	7.5
33	-2004 Parking light, front right Right tail light License plate lighting	10
34	-2004 Front fog lights	15
35	-	-
36	-2004 Fuses in fusebox engine compartment	20
37	-2004 Multimedia display MD player module (MP1) CD player module (MP2) Accessory wiring, infotainment	10
38	-2004 Fuses in fusebox passenger compartment	15



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110 2008-		
Fuses in extra fuse holder passenger compartment		
Fuse number:	Function	A
1	Alco-lock 2/241	5
2	Alcohol Analysing Start Inhibitor	5



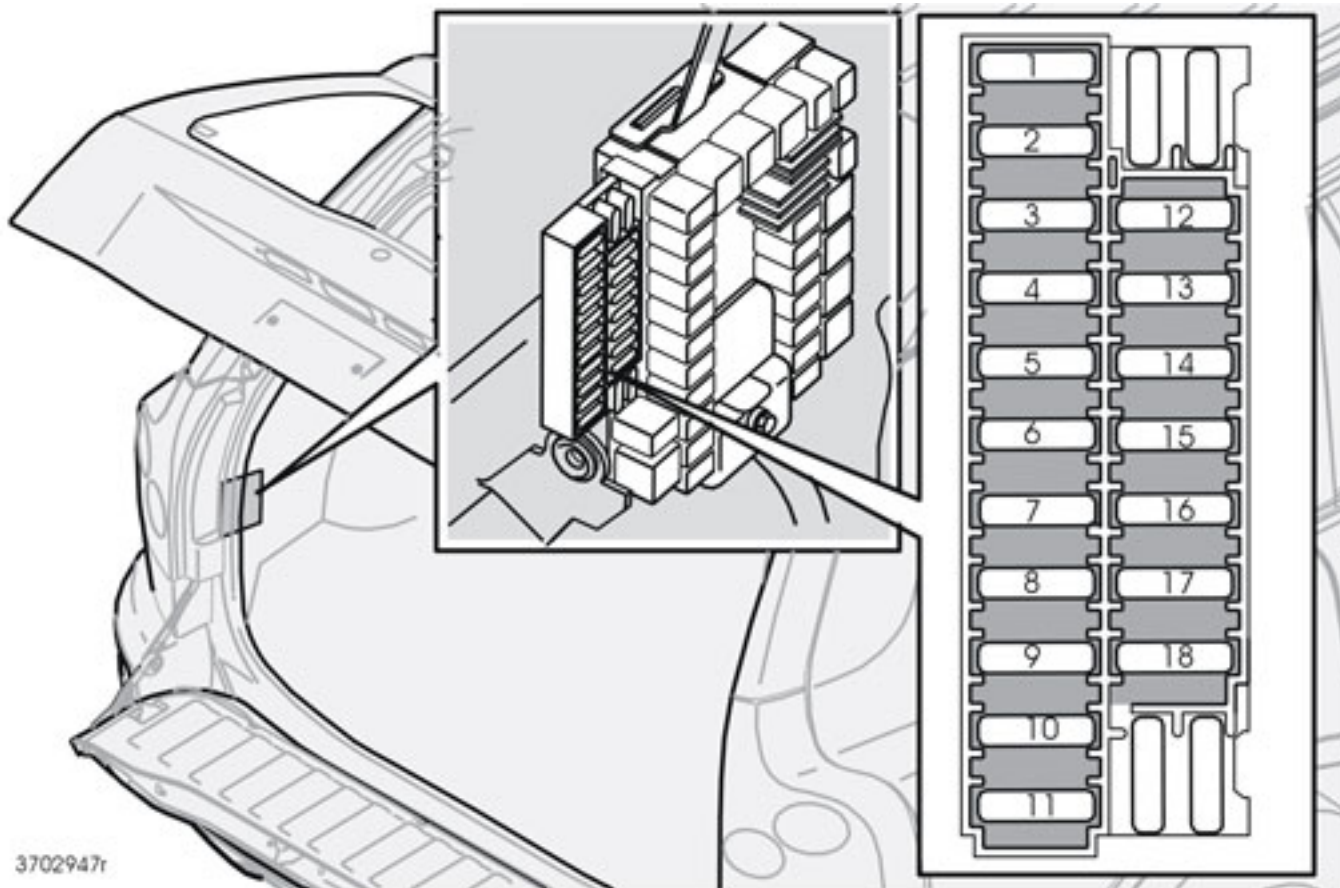
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11F Central electronic module (CEM) 2005- Passenger compartment fuses		
Fuse number:	Function	A
1	Seat heater right	15
2	Seat heater left	15
3	Horn	15
5	Multimedia display	10
	Infotainment control module (ICM)	
	Audio module (AUD)	
	Multimedia module (MMM)	
	Connector cable harness infotainment, increased D-feed	
8	Siren control module (SCM)	5
9	Switch, brake light	5

11F Central electronic module (CEM) 2005- Passenger compartment fuses		
Fuse number:	Function	A
10	Climax control module (CCM) Combustion preheater module (CPM) Power seat module (PSM) Driver information module (DIM) Occupant weight sensor (OWS) Damper motor module (DMM) Air quality sensor (AQS)	10
11	Power socket 12 V front, rear Navigation system portable	15
15	Brake control module (BCM) STC/DSTC (-2007)	5
16	Electronic power steering control module (ECPS) Motor headlight alignment Headlamp Control Module (HCM) Bi-Xenon	10
17	Fog light, front left	7.5
18	Fog light, front right	7.5
20	Coolant pump (8-cyl)	5
21	Gear selector module (GSM) Transmission control module (TCM) Solenoid shift lock Solenoid reverse lockout	10
22	Left high beam	10
23	Right high beam	10
28	Control unit, power passenger seat DVD-player	5
29	Feed pump ejectors Solenoid fuel tank (bi-fuel)	7.5
30	BLIS, Left camera module (LCM) BLIS, Right camera module (RCM)	5

Group 37 Fuses

11F Central electronic module (CEM) 2005- Passenger compartment fuses		
Fuse number:	Function	A
33	Vacuum pump	20
34	Motor, right headlight wiper (2005)	15
	Motor, left headlight wiper (2005)	
	Washer motor	

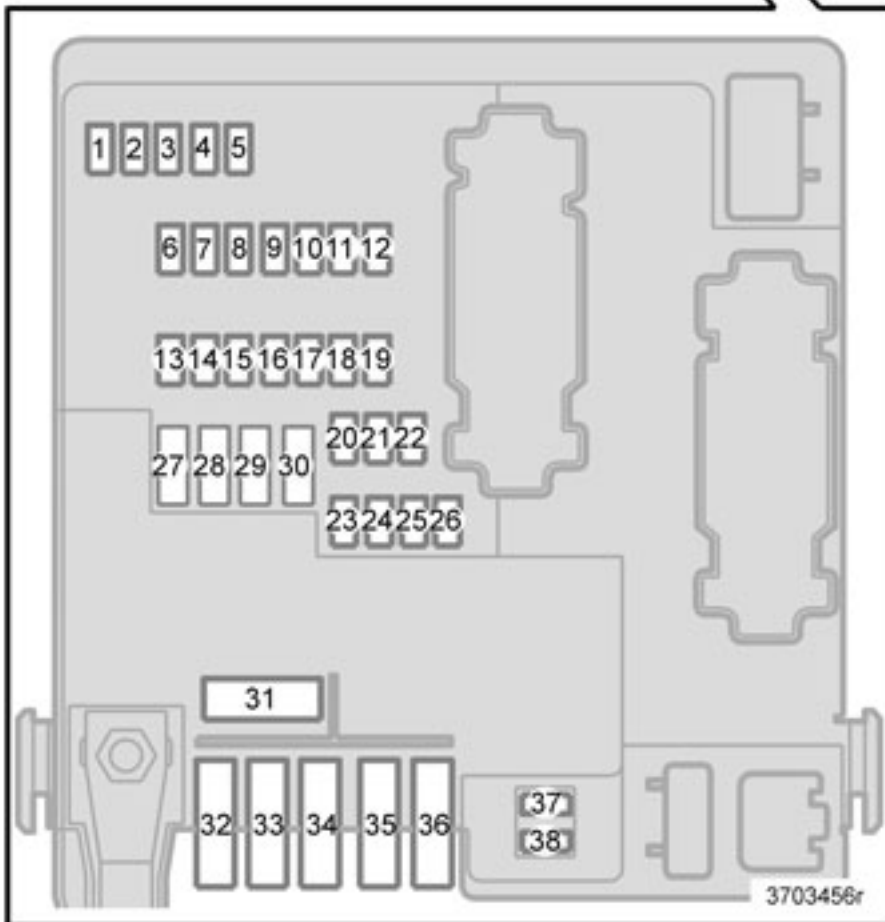
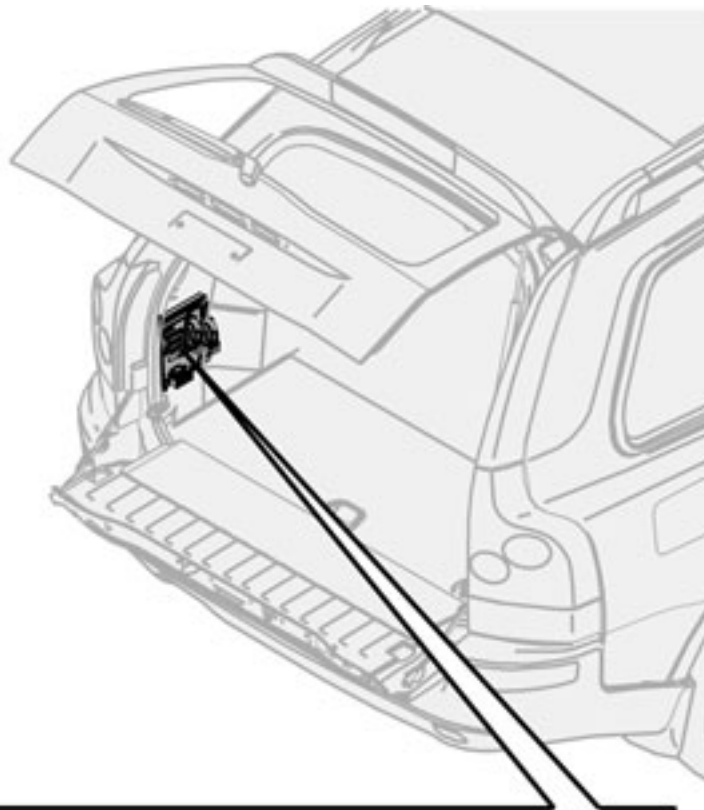


R3702947

11D -2004		
Fuses, cargo compartment		
Fuse number:	Function	A
1	Cargo compartment lighting tailgate	10
2	Rear fog lamps	10
3	Brake lights	15
4	Reversing lights	10
5	Rear demist, relay 15l supply, Fuel filter	5
6	Lock tailgate	10
7	Electrical outlet, cargo compartment	15
8	Central locking rear doors, fuel tank filler flap	20
9	Tow hitch wiring 30+	15
10	Antenna module (ATM)	5
11	Accessory electronic module (AEM)	15
12	Motor rear window wiper	15
13	Bass speakers cargo compartment. Climate control system rear	15
14	Brake lights	7.5
15	Parking assistance module (PAM). Tow hitch for trailer, 15 +	20

Group 37 Fuses

11D -2004		
Fuses, cargo compartment		
Fuse number:	Function	A
16	-	-
17	Fuel filter preheater. Differential electronic module (DEM)	7.5
18	Electronically heated fuel filter, Temperature switch fuel filter	15

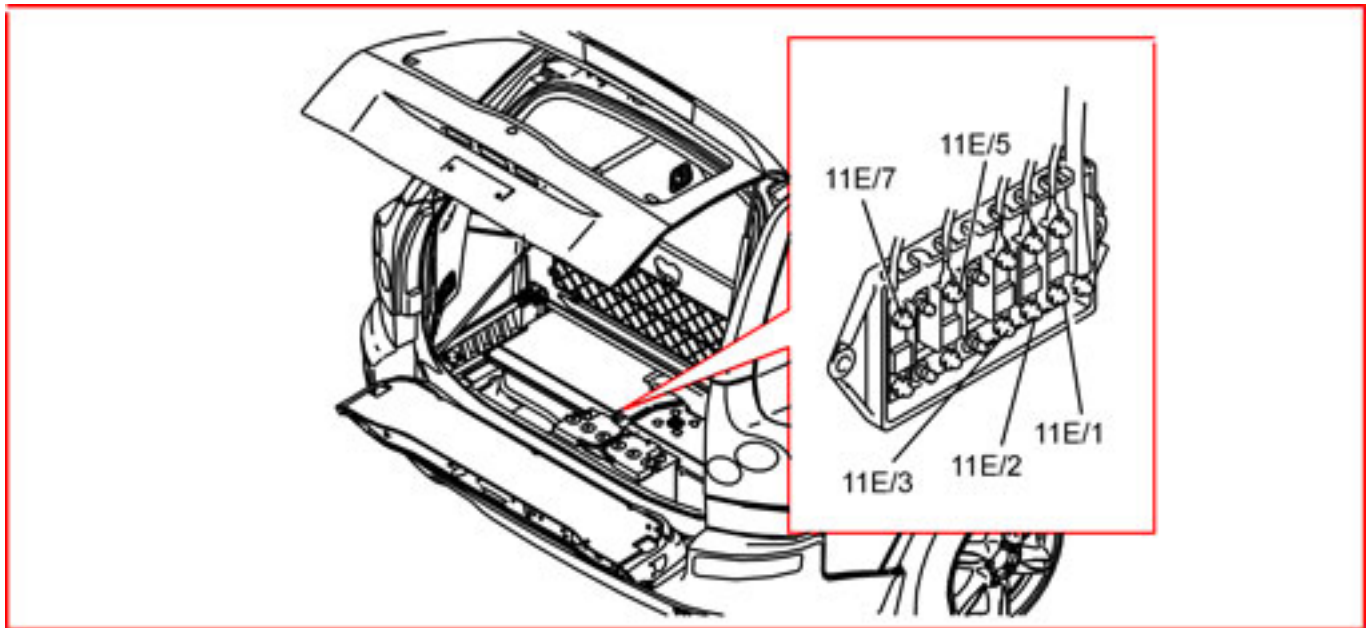


R3703456

Group 37 Fuses

11F (REM) 2005– Fuses, cargo compartment		
Fuse number:	Function	A
1	Reversing lights Connector cable harness rear seat entertainment, reverse gear signal	10
2	Rear fog lamps Position/parking lights Brake light diodes Cargo compartment lighting License plate lighting	20
3	Accessory electronic module (AEM) Parking heater module remote start	15
5	Rear electronic module (REM)	10
6	-2007 Aerial module (ATM) RSE Road traffic information module (RTI)	7.5
6	Rear seat entertainment (RSE), accessory	
7	Trailer wiring, (30 supply)	15
8	Electrical outlet, cargo compartment	15
9	Motor, right rear door power window, deadlocking	20
10	Motor, left rear door power window, deadlocking	20
13	Heater, Diesel filter	15
14	Climate control system, rear Subwoofer module (SUB)	15
17	Accessories, infotainment (-2007)	5
19	Motor rear window wiper	15
20	Tow hitch wiring, (15 supply)	20
21	Spare	10
23	Differential Electronic Module (DEM) 4/82	7.5
24	-	-
26	Parking Assistance Module (PAM)	5
27	Main fuse for fuse 20, 21, 23, 24, 26	30
28	Central locking system (PCL)	15
29	Trailer control module (TRM), brake lamp, fog lamp, left direction indicator	25

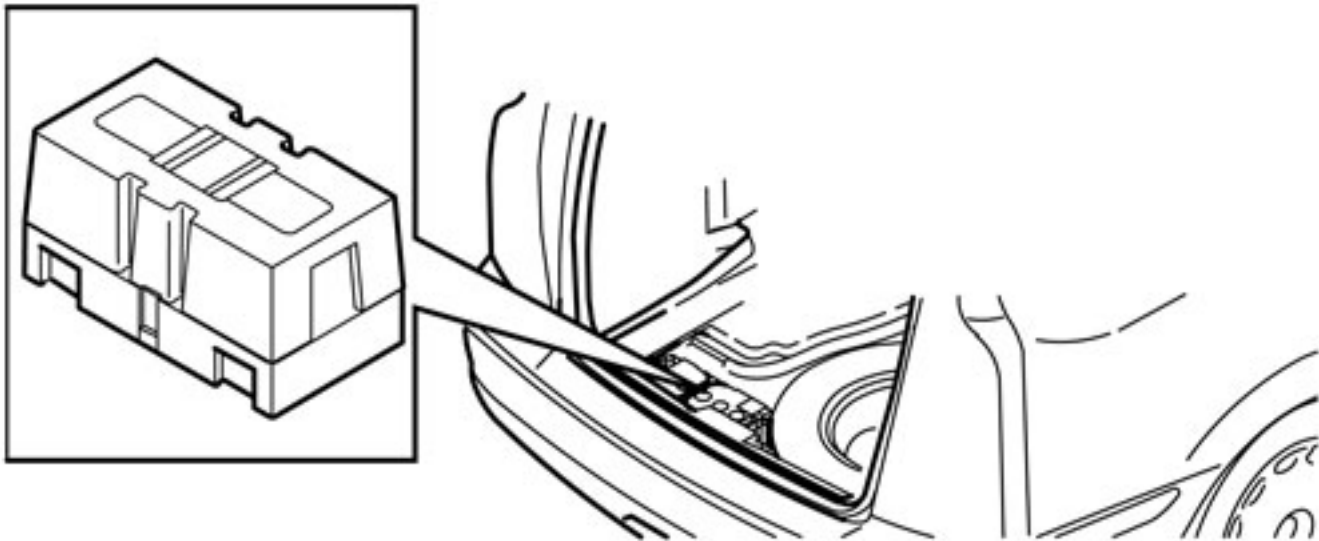
11F (REM) 2005– Fuses, cargo compartment		
Fuse number:	Function	A
30	Trailer control module (TRM), brake lamp, fog lamp, right direction indicator	25
31	Main fuse for fuse: 37, 38	40
37	Heated rear window	20
38	Heated rear window	20



R3703076

11E -2004		
Main fuses at battery		
Fuse number:	Function	A
1	Fusing for 11D: 15-18 via 2/52	40
2	Fusing for 11D: 12-14	40
3	Heated rear window	40
4	-	-
5	Fusing for 11D: 6-11	40
6	-	-
7	Fusing for 11D: 1-5	40
11E 2005-		
Main fuses at battery		
Fuse number:	Function	A
1	Main fuse for 11F (REM) 1-38	60
2	Fuse in extra fuse holder luggage compartment	40
4	Central electronic module (CEM)	50
5	Main fuse for: 1, 2, 11, 13-16, 26-30, 33	50
	Central electronic module (CEM)	50
	Main fuse for: 3, 5-10, 17-23, 31-32, 34	50

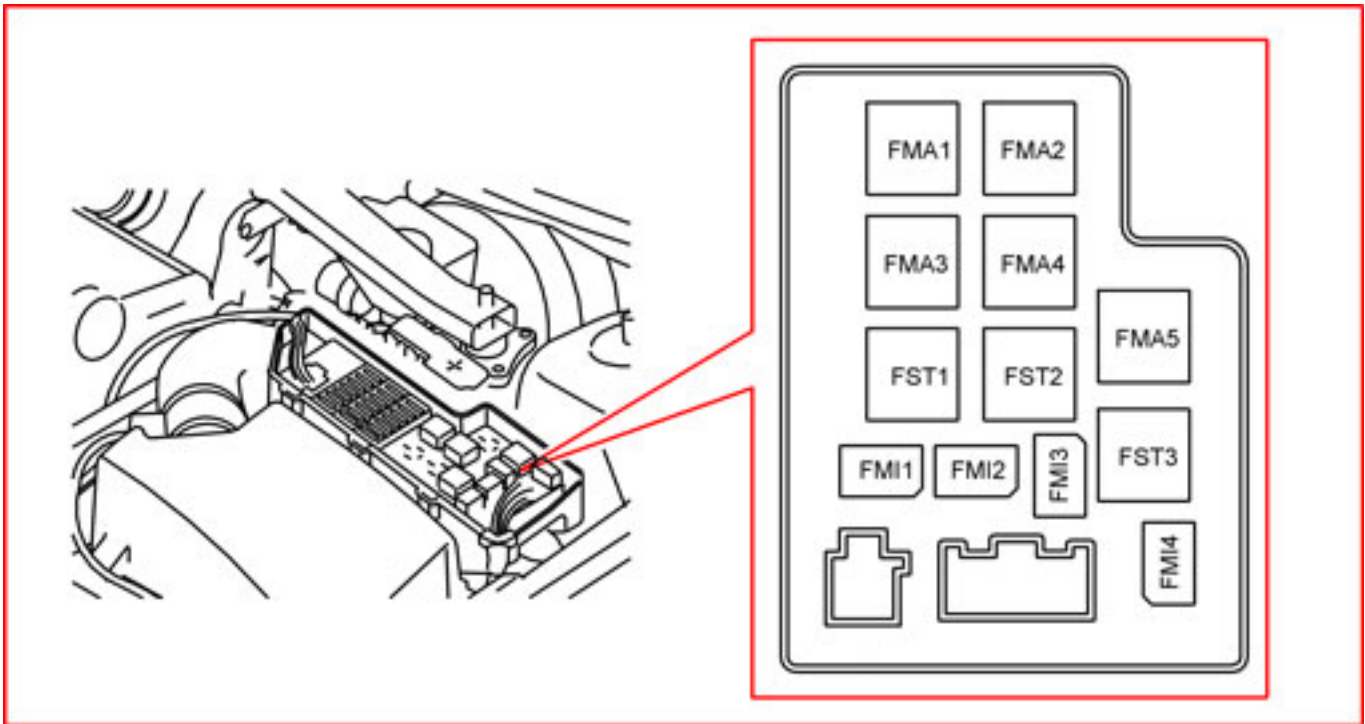
11E 2005- Main fuses at battery		
Fuse number:	Function	A
6	Fuses in passenger compartment fuse box (11C 1, 3-6)	50
7	Fuses in passenger compartment fuse box (11C 2, 9-14)	50



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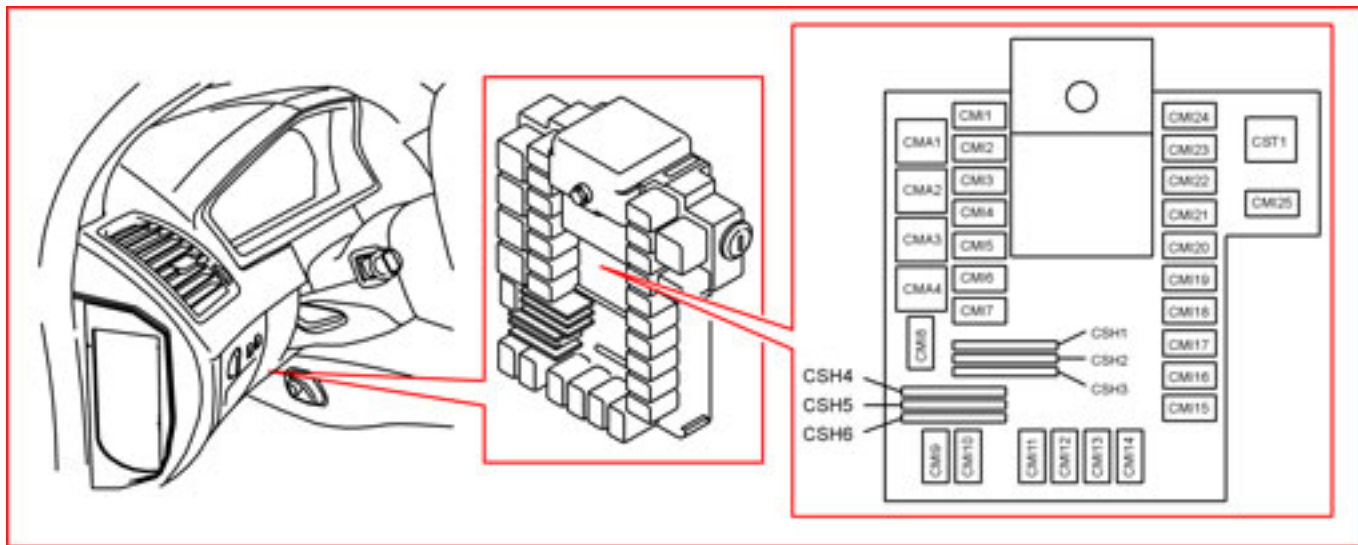
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11L 2008- Fuse diesel		
Fuse number:	Function	A
1	Fusebox engine compartment 2/32	50



R3703081

Relays / Shunts -2006	
Located in engine compartment	
Position	Function
FMA2	Main relay for the engine management system 2/32
FMA3	Glow plug relay (diesels) 2/14
FMA4	Relay for the starter motor 2/35
FMI1	Relay, climate control system 2/22
FMI2	-2004: Horn relay 2/17
FMI3	-2004: Windshield washer motor relay 2/92
FMI4	-2004: Relay, rear window washer pump 2/93
FST1	Intermittent windshield wiper relay 2/91
FST2	Relay high-pressure cleaning
FST3	Relay windshield wiper low / high speed 2/90



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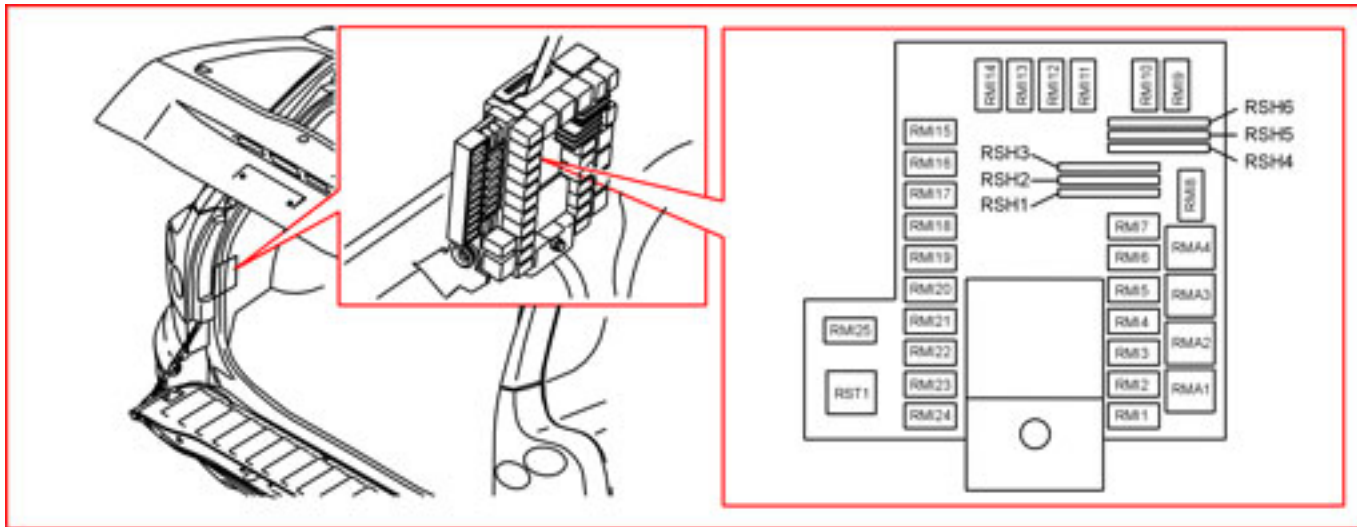
Relays / Shunts -2004

Located in the passenger compartment

Position	Function
CMA2	X-supply overload relay 2/30
CMA3	15-supply overload relay (2/31)
CMI1	Left rear power window up relay 2/116
CMI2	Left rear power window down relay 2/118
CMI3	Power window child safety block relay rear doors 2/120
CMI4	High beam relay 2/63
CMI5	Parking lamp relay 2/61
CMI6	Relay daytime running lights 2/152
CMI7	Low beam relay 2/62
CMI11	Fog lamp relay, front 2/34
CMI12	Fuel pump (FP) relay 2/23
CMI14	Relay fuel leakage check 2/143
CMI16	Relay infotainment 2/159
CMI21	Real extended D2 supply automatic transmission 2/101
CMI22	Relay extended D1-supply 2/29
CMI23	Right rear power window down relay 2/119
CMI24	Power window up relay right rear 2/117
CSH1	Left direction indicator shunt CEM 20/32

Group 37 Fuses

Relays / Shunts -2004	
Located in the passenger compartment	
Position	Function
CSH2	Right direction indicator shunt CEM 20/34
CSH4	Low beam shunt in CEM 20/27

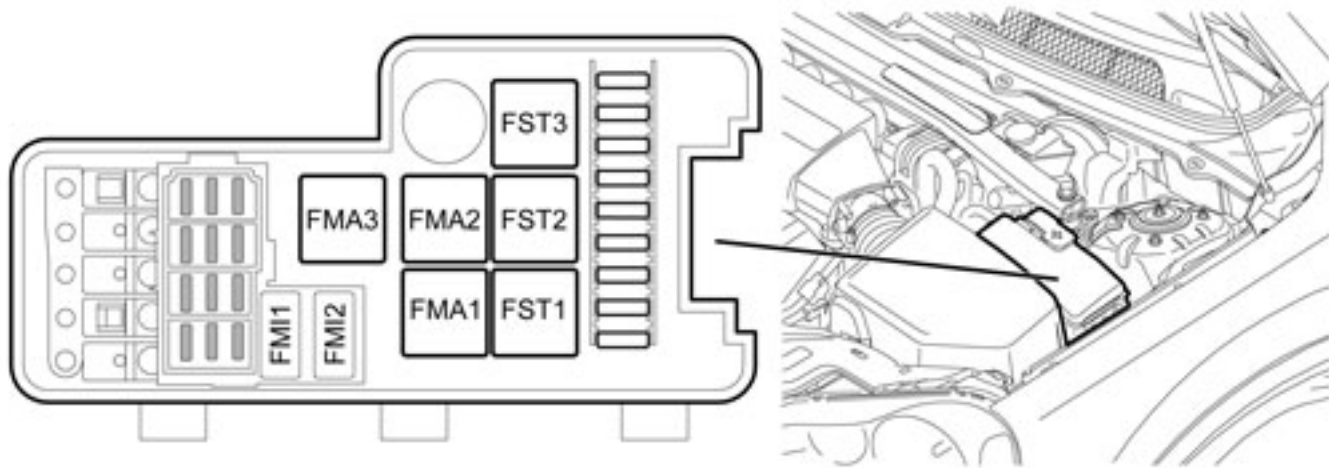


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Relays/Shunts -2004 Located in cargo compartment	
Position	Function
RMA1	Relay 15l-supply rear 2/52
RMA2	Relay subwoofer module 2/157
RMA3	Relay rear demist 2/82
RMI1	Relay locking rear doors, fuel tank filler cover 2/158
RMI2	Left rear central unlocking relay 2/112
RMI3	Relay rear door deadlocking 2/115
RMI4	Reversing light relay 2/80
RMI5	Brake light relay 2/79
RMI6	Fog tail lamp relay 2/49
RMI7	Trailer fog light relay 2/83
RMI8	Relay fuel filter preheater 2/142
RMI13	Tailgate wiper relay 2/72
RMI16	Relay on/off intermittent tailgate wiper 2/16
RMI18	Relay, rear climate control system
RMI19	Relay unlocking tailgate 2/87
RMI21	Relay unlocking fuel tank filler cover 2/59
RMI23	Relay unlocking right rear door 2/114
RSH2	Rear fog light shunt 20/29

Group 37 Fuses

Relays/Shunts -2004 Located in cargo compartment	
Position	Function
RSH3	Shunt power socket cargo compartment 20/39
RSH6	Shunt brake light 20/31



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Relays 2006- Located in engine compartment	
Position	Function
FMA1	Relay for the starter motor 2/35
FMA2	Relay automatic glow plug 2/14 (-2007)
FMA3	Main relay for the engine management system 2/32
FMI2	Relay, climate control system 2/22
FST1	Relay windshield wiper low / high speed 2/90
FST2	Intermittent windshield wiper relay 2/91
FST3	Relay, high-pressure headlight washer motor 2/182
Other relays	
Position	Function
Left rear door	Relay deadlocking left rear 2/138
Right rear door	Relay deadlocking right rear 2/139
At front seat	Relay, deactivation of rear speaker 2/237 (-2007)
Relay, accessories	
Position	Function
Engine compartment	Relay, auxiliary lights 2/64
Cargo compartment	Relay, parking heater remote start, radio signal 2/191

Group 37 Fuses

Relay, accessories	
Position	Function
Front member	Relay, electric engine block heater 2/192
Dashboard	Relay, audio disengagement 2/238 (-2007)
Climate units	Relay alco lock 2/240, 2/241

Group 38 Instruments, sensors

Fuel level sensor:	Fuel tank unit, left-hand side: Measured across the terminal pin 5 and 6. Resistance Ω	Fuel tank unit, right-hand side: Measured across the terminal pin 6 and 7. Resistance Ω
Empty fuel tank	374	393
Half tank	133 - 136	129 - 133
Full fuel tank	12	12
Note! During installation the left level sensor must have a resistance in excess of 125 Ω		

Engine coolant temperature (ECT) sensor:						
Temperature: °C (°F)	0° (32°)	10° (50°)	20° (68°)	40° (104°)	80° (176°)	100° (212°)
Resistance Ω	5740	3700	2450	1150	318	184
Voltage Volt	2.65	2.10	1.62	0.92	0.29	0.17

Section 4 Power gearbox

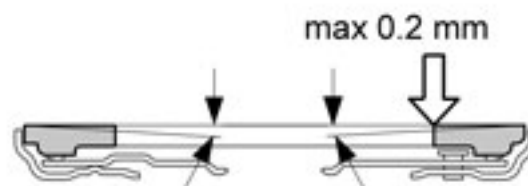
Group 41 Clutch

Tightening torques

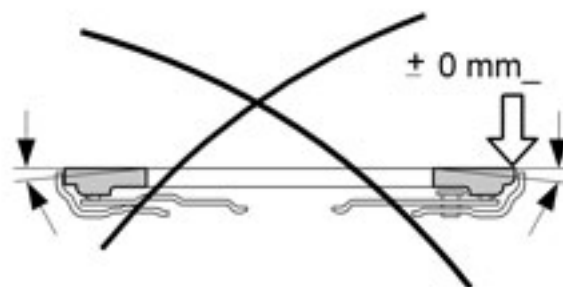
Component:	Torque:
Pressure plate, fly wheel	25
Mounting screws, master cylinder	25
Clutch slave cylinder	10

Technical data

Pressure plate, maximum distortion (see illustration below)	0.2mm
Clutch pedal, travel	130mm



A4300553



A4300554

Group 43 Gearbox

Tightening torques, manual gearboxes

Screwed joint:	Nm
Starter motor-transmission	40±10
Bell housing-cylinder block:	
Gasoline engine M10 x 40 and M10 x 70	50±12
Diesel engine M12 x 50	80±20
Diesel engine M8 x 40	25±6
Flanged screw CSC (clutch release bearing) M6 x 25	7±1.5
Lock-up mechanism installed in control housing M18	32.5±2.5
Lock-up mechanism installed in gearcase M20 (M66)	32.5±2.5
Screw for control housing M8 x 30	25±6
Bracket, gear selector	25±6
Inductive sensor (ABS sensor)	10±2.5
Gear selector assembly M8 x 70	25±6
Switch for reversing light	25±6
Cable grommet, bulkhead M6 nut	6±1.5
Flanged screw, mechanical cable bracket M8 x 30	25±6
Engine mountings	50±12
Plug for draining / checking oil level	35±8
Stud, side impact bracket M8 x 50 x 34	14±2
Flanged nut, side impact bracket M8 x 8	25±6
Flanged screw, side impact bracket M8 x 35	25±6

Tightening torque: AWD

Screwed joint	Nm
Universal joint (shaft joint), 4 screws:	
Stage 1 crosswise	16
Stage 2 angle tighten	120°
CV joint (constant velocity joint), 6 screws:	
Stage 1 crosswise	10
Step 2 crosswise	25
Pinion nut, AOC coupling (active on demand coupling)	100
Pinion nut, AOC angle gear (active on demand coupling)	180
Note! Never exceed 200 Nm	
Screws for propeller shaft's bearing mounting in intermediate member	30

Group 43 Gearbox

Tightening torques, automatic transmission AW55-XX:

Screwed joint	Nm
Drive plate - torque converter:	
Stage 1	20±5
Stage 2 angle tighten	40°
Gearbox:	
Engine	50±12
Oil filler pipe, bracket	24±6
Bracket for shift cable	25±6
Nipple for coolant pipe	30±6

Tightening torques, automatic transmission GM 4T65:

Screwed joint	Nm
Drive plate - torque converter, x6:	35
Gearbox:	
Engine	50±12
Control system cover crosswise	14
Nut for lever and control shaft	16
Side cover, transmission:	
Stage 1 crosswise	10
Step 2 crosswise	25
Transmission dipstick tube	24±6
Transmission fluid pipe screw	6
Connection, oil cooler pipe to transmission	30±6

Tightening torques, automatic transmission: TF-80SC

Screwed joint	Nm
Drive plate - torque converter:	60±5
Gearbox:	
Engine	50±12
Bracket for shift cable	25±6
Nipple for coolant pipe	10 ± 2

Manual gearbox, gear ratios

Gear:	M66EA61	M66LA
1st gear	3.750:1	3.750:1
2nd gear	1.905:1	1.905:1
3rd gear	1.194:1	1.267:1
4rd gear	0.838:1	0.949:1
5rd gear	0.652:1	0.775:1

Group 43 Gearbox

6rd gear	0.540:1	0.652:1
Reverse gear	3.208:1	3.208:1
Reverse gear final drive	5.583:1	5,583
Final drive.	4.786:1	4.786:1

Automatic gearbox, gear ratios AW55-5X, GM4T65, TF-80SC

Type of transmission	AW55-50 (2.86:1) AWD	GM4T65 (3.69:1) AWD	AW55-51AWD	TF-80SC
Gear:				
1st gear	4,657:1	3,275:1	4,657:1	4,148:1
2nd gear	3,032:1	1,758:1	3,032:1	2,370:1
3rd gear	1,982:1	1,121:1	1,982:1	1,556:1
4rd gear	1,141:1	0,790:1	1,341:1	1,155:1
5rd gear	1,018:1	X	1,018:1	0,859:1
6rd gear	X	X	X	0,686:1
Reverse gear	5,114:1	2,674:1	5,114:1	3,394:1
Final drive See section: VIN marking.				

Automatic transmissions, converting:

Engine	Transmission	Conversion
85	TF-80SC	2.0

Section 5 Brakes

Group 51 Wheel brake

Tightening torques

Designation	Nm	Dimensions
Brake caliper - Steering arm		
stage 1	105	M14
stage 2 angle tighten	60°	M14
Bleed nipple brake caliper front, rear	9 ± 2	M10
Front backing plate - Steering arm	20 ± 5	M8
Guide pin	10 ± 2.5	M6
Brake caliper rear - Wheel bearing housing		
stage 1	35	M10
stage 2	60°	M10
Brake caliper rear - Sliding pin	27.5±2.5	M9
Guard plate rear - Wheel bearing housing	12 ± 3	M6
Brake pipe - Hydraulic unit, ABS	14 ± 3	M10/M12
Brake pipe - Master cylinder	14 ± 3	M12
Brake pipe - Brake hose	14 ± 3	M10
Brake light	18 ± 2	M10
Bracket vacuum pump - Front side member	8 ± 2	M6
Brake pipe - Joint fitting	14 ± 3	M10
Brake hose bracket - Bottom flange	25 ± 6	M8
Brake hose bracket - Side member	10 ± 2.5	M6
Mounting brake pedal, left-hand drive Automatic	30 ± 5	M10
Mounting brake pedal, left-hand drive Manual	40 ± 10	M10
Mounting brake pedal, right-hand drive Manual	35 ± 5	M10
Mounting clutch pedal	35 ± 5	M10
Pedal box right-hand drive - Plenum	25 ± 6	M8
ABS sensor - Steering arm	10 ± 2.5	M6
Parking brake cable bracket - Sub-frame	20 ± 6	M8
Bracket ABS cable - Shock absorber front 4WD	6 ± 1.5	M5
Brake pads, locating pin	30 ± 5	
Servo unit, nut (mounting)	24 ± 5	
Brake disc locating pin	8 ± 2	
Master cylinder on cars with DSTC (Dynamic stability and traction control), nut (mounting)	24 ± 5	

Brakes, Technical data

Brake fluid, type: DOT 4 +	16" and larger rims	17" and larger rims
Front wheel brake	mm	mm
Brake disc (ventilated):		
Outer diameter	316	336
Thickness, new	28	30
Replace when at minimum	25	27
Min. thickness for brake pad replacement	25.8	27.8
Max. lateral runout, floating disc	0.040	0.040
Max. lateral runout, on hub	0.020	0.020
Max. thickness variation	0.008	
Wheel cylinder:		
Piston diameter	60	
Brake pads (Jurid 950):		
Thickness, new (thickness of backing plate not included)	12.5	
Thickness, minimum (thickness of backing plate not included)	3.0	
Rear wheel brake	16"	17"
Brake disc (solid):		
Outer diameter	308	308
Thickness, new	20	20
Must be replaced at min.	17	
Min. thickness for brake pad replacement	17.7	
Max. lateral runout, floating disc	0.050	
Max. lateral runout, on hub	0.02	
Max. thickness variation	0.008	
Wheel cylinder:		
Piston diameter	42	
Brake pads (Galfer):		
Thickness, new (thickness of backing plate not included)	11.5	
Thickness, minimum (thickness of backing plate not included)	6.0	

Group 55 Handbrake**Technical data**

Technical data and default values:	mm
Brake drum:	
Diameter	178
Radial runout, maximum	0.15
Out of round, maximum	0.15
Default values. Full power must be maintained:	
After adjustment	2-5 notches
When checking, maximum	8 notches
Always check that the wheels run freely after adjusting.	

Group 59 Anti-lock brakes

Tightening torque

Designation	Nm
Sensors	10

Technical data

Power consumption:	
Intake valves	< 3 A
Return valves	< 3 A

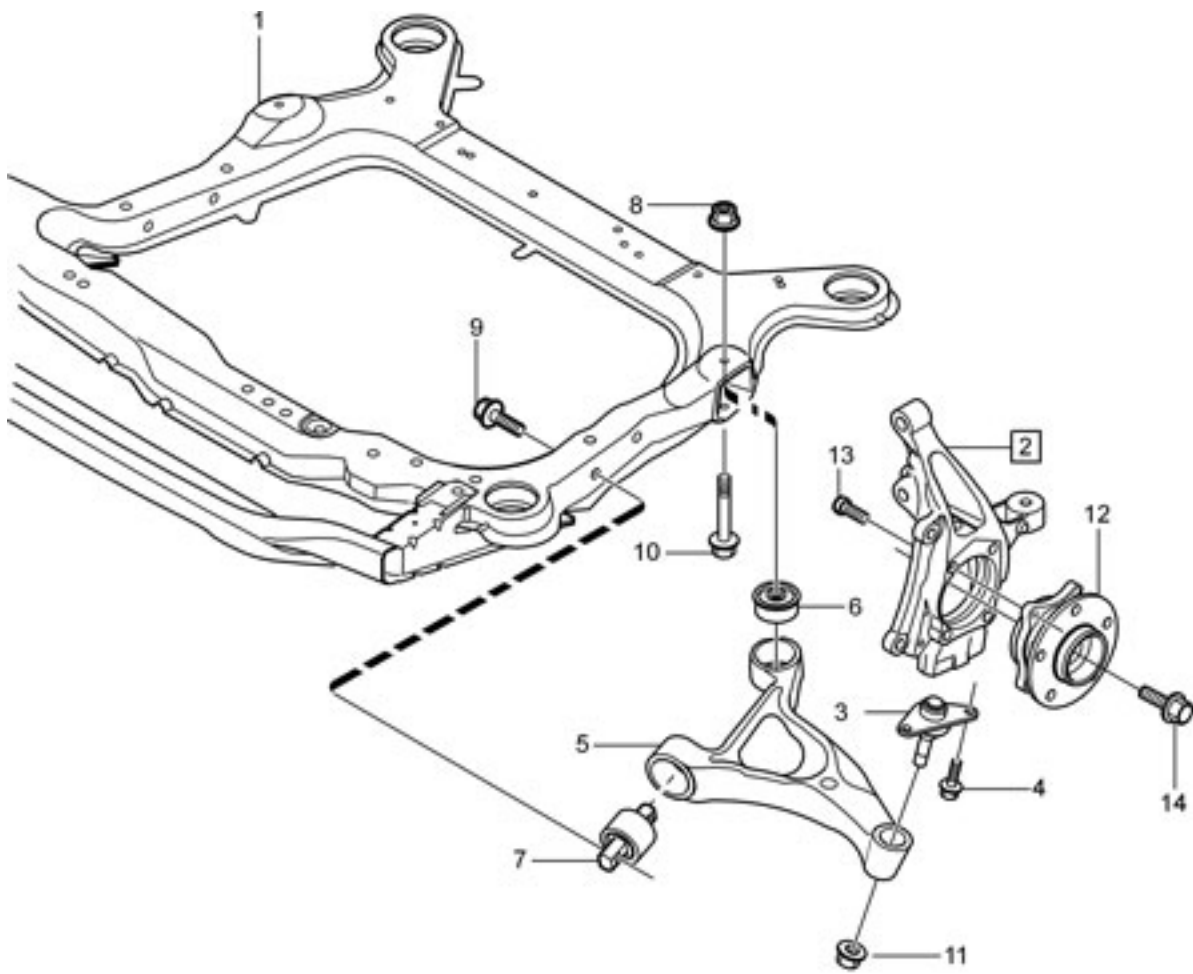
Section 6 Suspension and steering

Group 60 Wheel alignment

For information on wheel angle specifications, see Service Bulletin 605500.

Group 61 Front wheel suspension

Designation	Tightening torques	
	Nm	Dimensions
Mechanical component:		
Ball joint - Spring strut steel	50 ± 12	M10
Ball joint - Link arm	100	M14
Control arm - Sub-frame, Left:		
Stage 1	65	M12
Stage 2 angle tighten	105°	
Control arm - Sub-frame, Right:		
Stage 1	65	M12
Stage 2 angle tighten	105°	
Control arm - Sub-frame:		
Stage 1	105	M14
Stage 2 angle tighten	150°	
Anti-roll bar - Sub-frame	50 ± 12	M10
Anti-roll bar - Link	50	M10
Link - Spring strut	80 ± 20	M12
Shock absorber - Steering arm:		
Stage 1	105	M14
Stage 2 angle tighten	75°	
Front wheel hub - Steering arm:		
Stage 1	20	M12
Stage 2	45	
Step 3 angle tighten	60°	
Front wheel hub - Drive shaft:		
Stage 1	35	M10
Stage 2 angle tighten	120°	
Shock absorber - Upper bearing	70 ± 15	M14



VOLVO
GenuineParts

R6100372

Group 61 Front wheel suspension

Front wheel suspension	
Number (as illustrated)	Designation
1	Sub-frame
2 ch-53453	Steering arm, Left-hand drive car
2 ch 53453-	Steering arm, Left-hand drive car
2 ch-53453	Steering arm, Right-hand drive car
2 ch 53453-	Steering arm, Right-hand drive car
3	Ball joint
4	Flanged screw
5	Control arm right
5	Control arm left
6	Bushing left
6	Bushing right
7	Bushing left
7	Bushing right
8	Flanged locknut
9	Sems screw
10	Flanged screw
11	Flanged locknut
12	Front wheel hub
13	Flanged screw
14	Spacer sleeve incl. screw

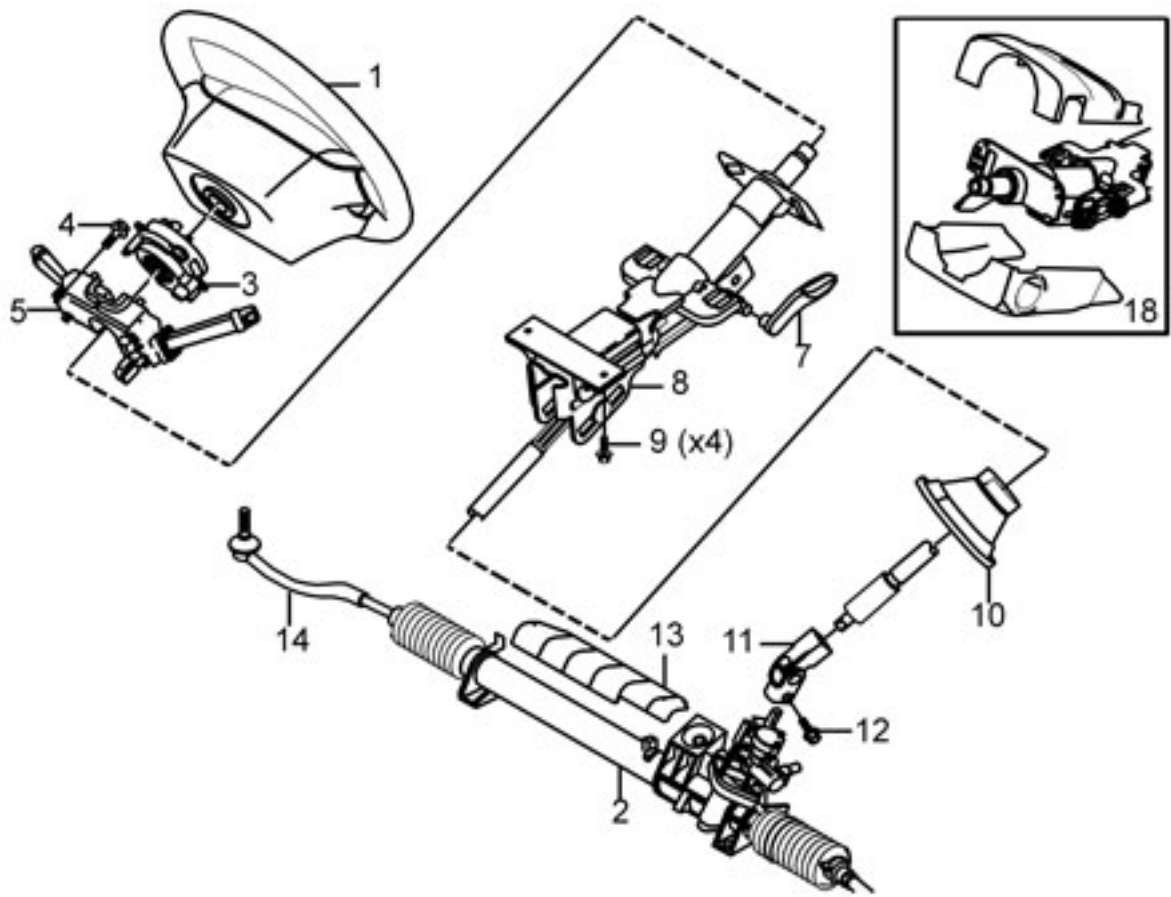
Group 64 Steering

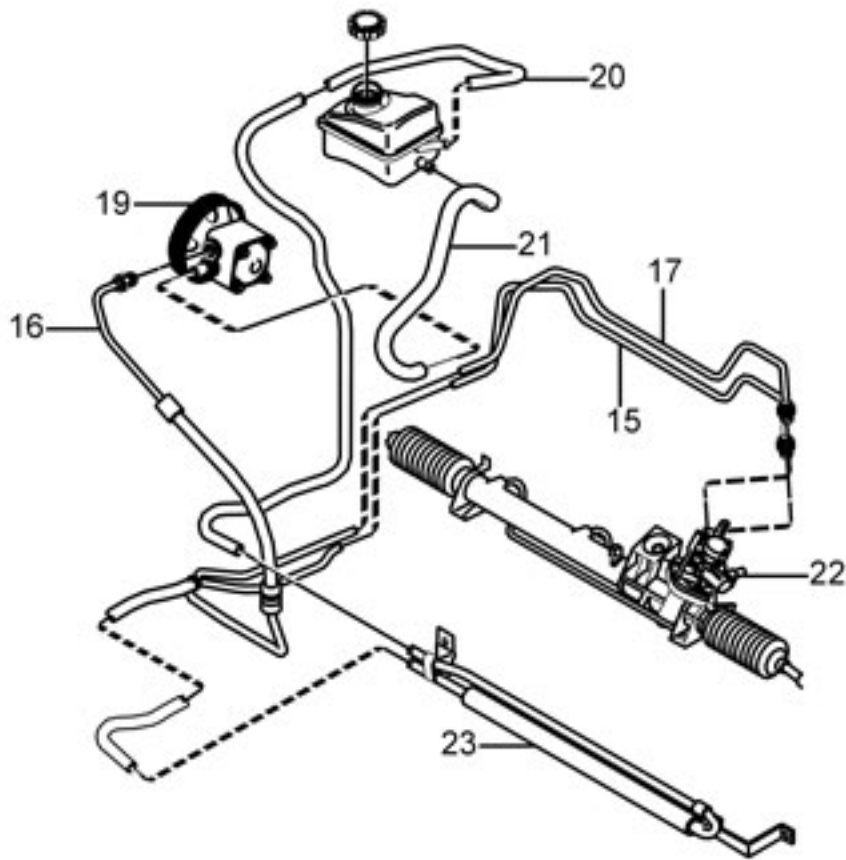
Tightening torques

Mechanical component: Designation:	Tightening torques Nm	Dimensions	Number in illustration
Steering gear - Sub-frame, side	50 ± 12	M10	
Track rod ball joint - Steering arm	100	M12	14
Pressure pipe - Steering gear	25 ± 6	M16	15
Pressure hose - Pump –2004	32 ± 5	M16	16
Pressure hose - Pump 2005-	10 ± 2	M6	16
Return pipe - Steering gear	25 ± 6	M18	17
Heat deflector plate - Steering gear	6 ± 1.5	M5	13
Mounting, center - Sub-frame	50 ± 12	M10	
Steering column - X member	25 ± 6	M8	8
Steering wheel - Steering column	40 ± 10	M14	1
Cover - Steering wheel lock	>18	M8	
Lower cover - Steering wheel lock	3 ± 0.7	M5	18
Ball joint, screw	50+35°		14
Power steering pump, screw	25 ± 4		19

Steering gear:

Make	ZF
Turns of the steering wheel lock to lock:	
Depending on limiter	2.8
Depending on limiter	2.6
Gear ratios	16.4:1
Friction torque, measured at input shaft, max.	4.5 Nm (3.3 lbf ft)
Power steering pump:	
Maximum pressure	12 MPa



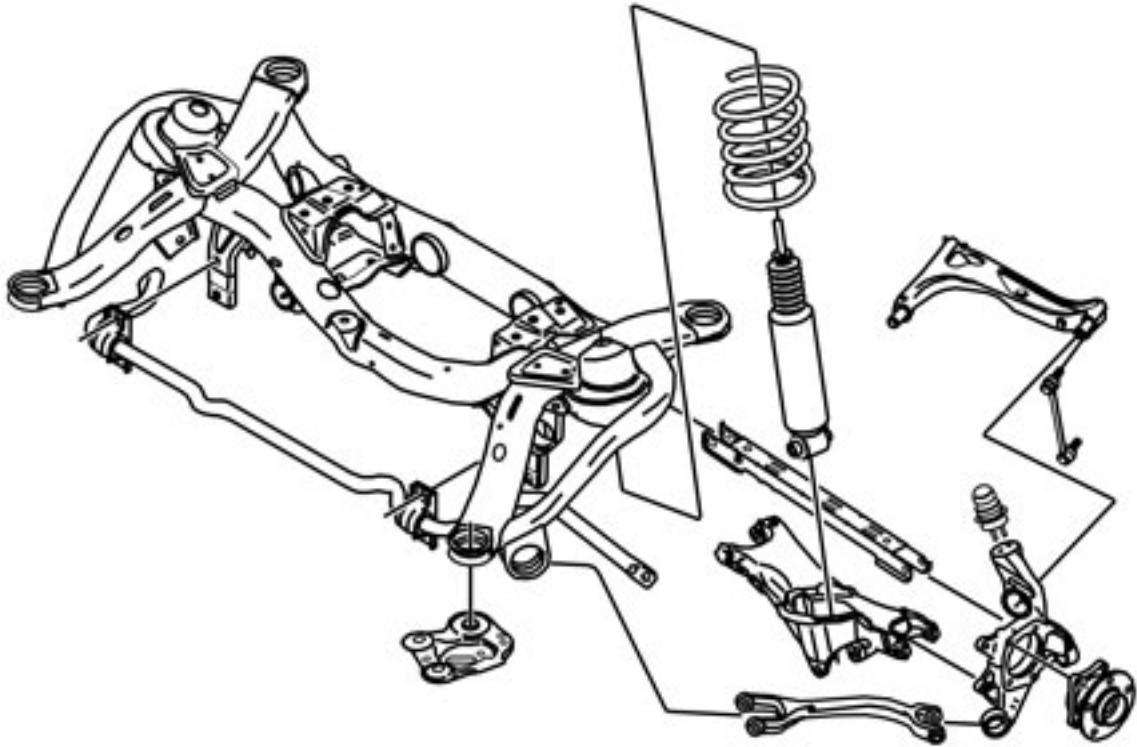


Steering	
Number (as illustrated)	Designation
1	Steering wheel
2	Steering gear
3	Switching ring
4	Hexagonal socket head screw
5	Housing
7	Handle
8	Steering column
9	Hexagonal socket head screw
10	Gaiter
11	Steering shaft, lower
12	Flanged screw
13	Heat shield
14	Steering arm
15	Delivery pipe
16	Delivery pipe
17	Return pipe
18	Steering column cover
19	Power steering pump

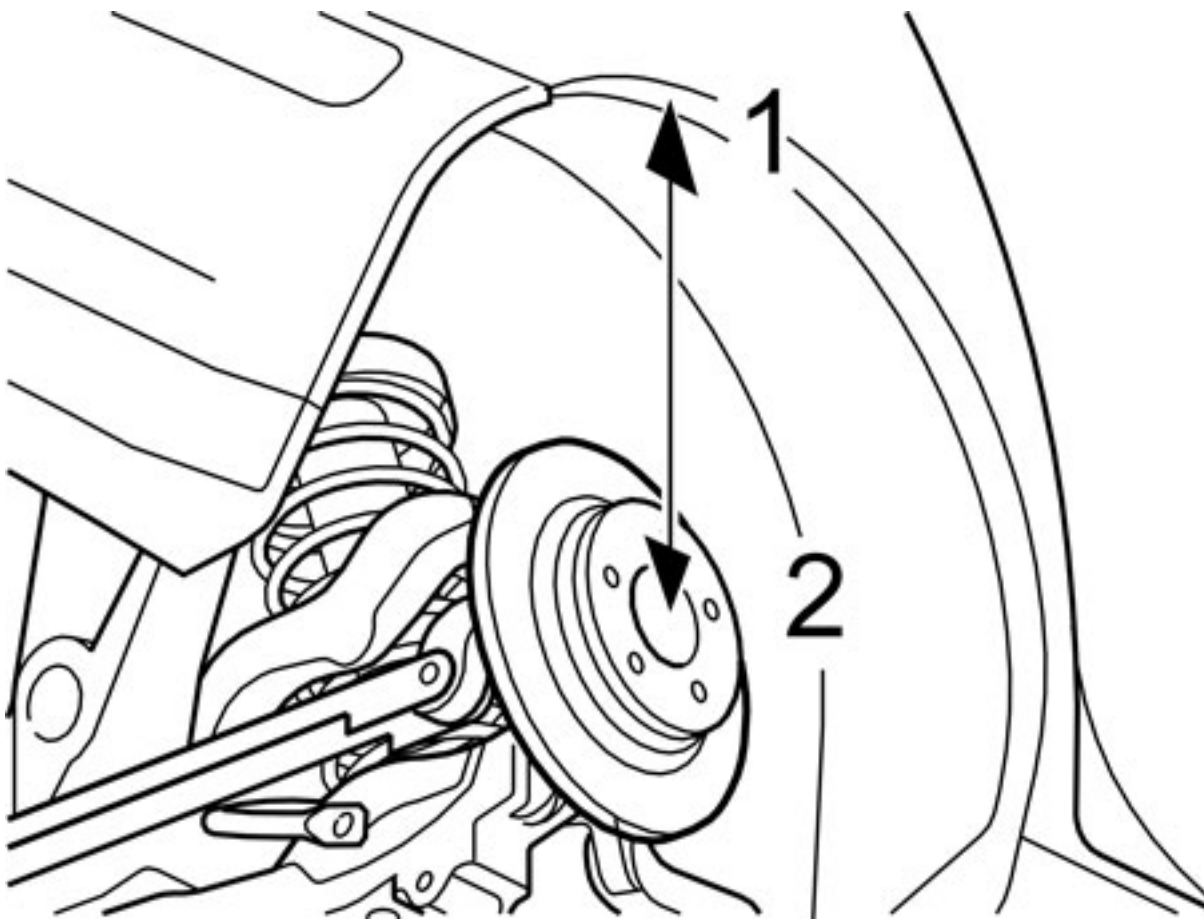
Group 65 Rear wheel suspension**Tightening torques**

Mechanical component Designation:	Tightening torques:	Dimension:
	Nm	
Sub-frame - Lower control arm	80±20	M12
Control arm upper, rear - Sub-frame	80±20	M12
Control arm upper, front - Sub-frame	80±20	M12
Track rod	80±20	M12
Sub-frame - Track rod	80±20	M12
Anti-roll bar - Sub-frame	50±12	M10
Lateral link - Sub-frame	80±20	M12
Lateral link - Wheel unit	80±20	M12
Sub-frame, front - Car body	100±25	M12
Sub-frame, rear - Car body	100±20	M12
Shock absorber - Upper bearing	60±15	M12
Control arm lower - Wheel unit	80±20	M12
Bottom flange - Body	80±20	M12
Track rod - Wheel unit	80±20	M12
Control arm lower - Shock absorber	80±20	M12
Link - Anti-roll bar	80±20	M12
Upper control arm - Link	80±20	M12
Rear wheel hub - Wheel bearing housing		
Stage 1	20Nm+45Nm	M12
Stage 2	Tighten 60°	
EVAP canister - Sub-frame	25±6	M8
Control arm upper - Wheel unit	80±20	M12
Exhaust mounting - Sub-frame	25±6	M8
Bump rubber bracket - Body	25±6	M8
EVAP canister bracket - EVAP canister	10±2.5	M6
Cover sub-frame	80±20	M12
Link lower control arm - Sub-frame	80±20	M12
Final drive front bushing	80±20	M12
Final drive rear bushing	80±20	M12
Drive shaft - Rear wheel hub AWD	50±12	M10
Rubber bump stop wheel bearing housing	25±6	M8
Mudguard - Control arm	8±2	ST6.3

Rear axle XC90



R6500503



D6500352

Tightening the screwed joint in the control arms

Tighten when the rear suspension is in the normal position:

The normal position of the rear suspension is when the distance from the fender edge **1**

to center of wheel **2**

is the following:

XC90	453 ± 1 mm
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Section 7 Suspension, damping, wheels

Group 77 Wheels, tyres, hubs

Tightening torques

Wheel bolts	140 Nm (103 lbf ft)
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Wheel

	Wheel with aluminium rim	Wheel with steel rim
Lateral runout, max.	0.4 mm (0.016")	0.8 mm (0.031")
Radial runout, maximum	0.4 mm (0.016")	0.7 mm (0.028")

Tire size designations and speeds

The tire contains a size designation, such as 205/55R16 91 W

205 Section width (mm)

55 Ratio between section height and width (%)

R Radial tire

16 Rim diameter in inches (")

91 Code for max. permissible tire load (in this case 615 kg/1356 lbs)

W Code for max. permissible speed (in this case, 270 km/h / 168 mph)

Q: 160 km/h (99 mph)

T: 190 km/h (118 mph)

H: 210 km/h (130 mph)

V: 240 km/h (149 mph)

W: 270 km/h (168 mph)

Y: 300 km/h (186 mph)

The tire has a week and year of manufacture, which is the tire's DOT marking (Department Of Transportation). This code consists of four digits. For example, 1504 indicates that the tire was manufactured week 15 of 2004.

Section 8 Body and interior**Group 84 Glass and mirrors**

Component	Power W	Resistance Ω
Heated rear window	240	0.6 ± 0.09
Door mirrors, heated	20	9 ± 1

Group 87 Climate control system**Tightening torques**

Designation	Nm
A/C compressor	
Magnetic clutch compressor - magnetic coil	5
Magnetic clutch compressor - flex plate (5-cyl. and 6-cyl. engines)	13
Magnetic clutch compressor - flex plate (8-cyl. engine)	24
AC-condenser with integrated drier.	
Drier, lower mounting	13
Drier, upper mounting	6
Pressure sensor	13
Rear AC	
Upper mounting points (climate control unit complete)	6
Lower mounting point (climate control unit complete)	6
Fan motor	1.7
Pipe connection to expansion valve	4.5
Casings around evaporator	1.5

Refrigerant R 134 a

Model	Quantity
XC90 7-seater with rear AC up until model year 2006	1300 g
Others up until model year 2006	1000 g
XC90 7-seater with rear AC from and incl. model year 2006	1050 g
Others from and incl. model year 2006	700 g

Compressor ZEXEL

High-pressure cut-out for compressor	30 bar
Safety valve triggered at	38 ± 3 bar

Lubricating oil

Volume	180 ml
Model with rear AC	200 ml

Performance testing

Conditions:	
Hood Alignment	Closed
Doors and windows	Closed
Engine speed (RPM)	1200 - 1600 rpm
Control setting:	
Blower fan speed	50%

Group 87 Climate control system

Temperature control	Maximum cold
Function selector switch	Ventilation
Air conditioning (A/C) switch	Switched on/ON
Recirculation switch	Switched on/ON

Read-off driving conditions °C

For an A/C performance test, the system should always be allowed to stabilize for at least 8 minutes before reading off

Outside temperature measured in front of the vehicle:	20°	30°	40°
Temperature of the expelled air measured at the centre panel vents:	6 - 9°	10 - 13°	14 - 16°

Table

Table

Acronyms

Acronym	Explanation
ABS	Anti-lock Brake System module
A/C	Air Condition
ACEA	Association des Constructeurs Européens d'Automobiles
AEM	Accessory Electronic Module
API	American Petroleum Institute
ATE	Automatic Test Equipment
ATM	Antenna Module
AUD	Audio Module
AWD	All Wheel Drive
BCM	Brake Control Module
CCA	Cold Cranking Amperes
CCD	Continuously Controlled Damping
CCM	Climate Control Module
CEM	Central Electronic Module
CMI	Car Material Inventory System
CNG	Compressed Natural Gas
CPM	Combustion Preheater Module
CST	Certification Short Test
DEM	Differential Electronic Module
DFCO	Demand Fuel Control Valve
DIM	Driver Information Module
DSTC	Dynamic Stability and Traction Control
ECM	Engine Control Module
EDC	Electronic Diesel Control
EGR	Exhaust Gas Recirculation
ETM	Electronic Throttle Module
EVAP	Evaporative Emission Control System
FWD	Front Wheel Drive
GSM	Gear Selector Module
ICM	Infotainment Control Module
LED	Light Emitting Diode
LPG	Liquefied Petroleum Gas

Table

Acronyms

LSM	Light Switch Module
MAF	Mass Air Flow
MMM	Multimedia Module
MP1	MD Player Module
MP2	CD Player Module
NED	New Engine Diesel
NTC	Negative Temperature Coefficient
PAM	Parking Assistance Module
PDM	Passenger Door Module
PHM	Phone Module
PSM	Power Seat Module
PTC	Positive Temperature Coefficient
RC	Reserve Capacity
REM	Rear Electronic Module
RTI	Road and Traffic Information Module
SCM	Siren Control Module
SMI	Service Market Information
SRS	Supplemental Restraint System Module
STC	Stability and Traction Control
SWM	Steering Wheel Module
TCM	Gearbox Control Module
TDI	Turbo Diesel Injection
T-MAPS	Turbo Mass Airflow Pressure Sensor
TRACS	Traction control system
TXV	Thermostatic eXpansion Valve
UEM	Upper Electrical Module
VIN	Vehicle Identification Number
VVT	Variable Valve Timing
WVTA	Whole Vehicle Type Approval number
2WD	Two Wheel Drive
4WD	Four Wheel Drive

Conversion tables

Conversion table: millimetres to inches										
mm	0	1	2	3	4	5	6	7	8	9
	inches (")									
0		0.0394	0.0787	0.1181	0.1575	0.1969	0.2362	0.2756	0.3150	0.3543
10	0.3937	0.4331	0.4724	0.5118	0.5512	0.5906	0.6299	0.6693	0.7087	0.7480
20	0.7874	0.8268	0.8661	0.9055	0.9449	0.9843	1.0236	1.0630	1.1024	1.1417
30	1.1811	1.2205	1.2598	1.2992	1.3386	1.3780	1.4173	1.4567	1.4961	1.5354
40	1.5748	1.6142	1.6535	1.6929	1.7323	1.7717	1.8110	1.8504	1.8898	1.9291
50	1.9685	2.0079	2.0472	2.0866	2.1260	2.1654	2.2047	2.2441	2.2835	2.3228
60	2.3622	2.4016	2.4409	2.4803	2.5197	2.5591	2.5984	2.6378	2.6772	2.7165
70	2.7559	2.7953	2.8346	2.8740	2.9134	2.9528	2.9921	3.0315	2.0709	3.1102
80	3.1496	3.1890	3.2283	3.2677	3.3071	3.3465	3.3858	3.4252	3.4646	3.5039
90	3.5433	3.5827	3.6220	3.6614	3.7008	3.7402	3.7795	3.8189	3.8583	3.8976

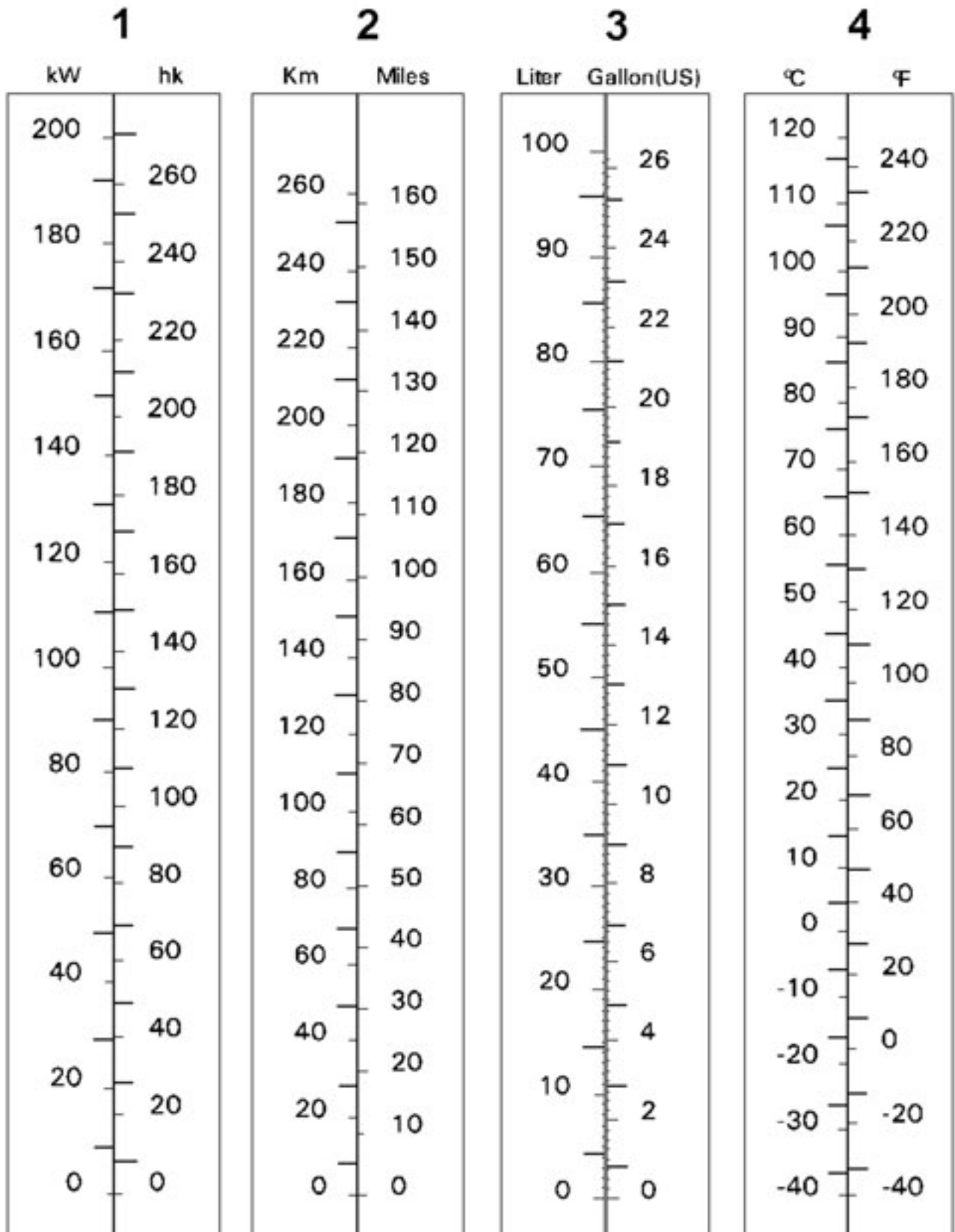
Conversion table: inches to millimetres								
"	"	mm	"	"	mm	"	"	mm
1/64	0.01562	0.397	17/64	0.265625	6.747	33/64	0.515625	13.097
1/32	0.03125	0.794	9/32	0.28125	7.144	17/32	0.53125	13.494
3/64	0.04687	1.191	19/64	0.296875	7.541	35/64	0.546875	13.891
1/16	0.0625	1.588	5/16	0.3125	7.938	9/16	0.5625	14.288
5/64	0.07812	1.984	21/64	0.328125	8.334	37/64	0.578125	14.684
3/32	0.09375	2.381	11/32	0.34375	8.731	19/32	0.59375	15.081
7/64	0.10937	2.778	23/64	0.359375	9.128	39/64	0.609375	15.478
1/8	0.125	3.175	3/8	0.375	9.525	5/8	0.625	15.875
9/64	0.14062	3.572	25/64	0.390625	9.922	41/64	0.640625	16.272
5/32	0.15625	3.969	13/32	0.40625	10.319	21/32	0.65625	16.669
11/64	0.17187	4.366	27/64	0.421875	10.716	43/64	0.671875	17.066
3/16	0.1875	4.762	7/16	0.4375	11.112	11/16	0.6875	17.462
13/64	0.203125	5.159	29/64	0.453125	11.509	45/64	0.703125	17.859
7/32	0.21875	5.556	15/32	0.46875	11.906	23/32	0.71875	18.256
15/64	0.234375	5.953	31/64	0.484375	12.303	47/64	0.734375	18.653
1/4	0.25	6.350	1/2	0.5	12.700	3/4	0.75	19.050

Table

Conversion tables

Conversion table: revolutions per second to revolutions per minute										
rps	0	1	2	3	4	5	6	7	8	9
	(rpm)									
0		60	120	180	240	300	360	420	480	540
10	600	660	720	780	840	900	960	1040	1100	1140
20	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740
30	1800	1860	1920	1980	2040	2100	2160	2220	2280	2340
40	2400	2460	2520	2580	2640	2700	2760	2820	2880	2940
50	3000	3060	3120	3180	3240	3300	3360	3420	3480	3540
60	3600	3660	3720	3780	3840	3900	3960	4020	4080	4140
70	4200	4260	4320	4380	4440	4500	4560	4620	4680	4740
80	4800	4860	4920	4980	5040	5100	5160	5220	5280	5340
90	5400	5460	5520	5580	5640	5700	5760	5820	5880	5940

Conversions



Conversions

1		2		3		4	
Nm	ft.lbf	kg	lb	MPa	PSI	kPa	PSI
200	140	20	44	5	700	500	70
180	130	18	40	4.5	650	450	65
160	120	16	36	4	600	400	60
140	110	14	32	3.5	550	350	55
120	100	12	28	3	500	300	50
100	90	10	24	2.5	450	250	45
80	80	8	20	2	400	200	40
60	70	6	16	1.5	350	150	35
40	60	4	12	1	300	100	30
20	50	2	8	0.5	250	50	25
0	40	0	4	0	200	0	20
	30		0		150		15
	20		0		100		10
	10		0		50		5
	0		0		0		0

Vehicle groups

TYPE DESIGNATION	MODEL DESIGNATION
124	S80 (07-)
135	V70 (08-)
136	XC70 (08-)
144	S80L (09-)
156	XC60
184	S80 (-06)
285	V70 (00-08)
295	V70 XC (01-) / XC 70 (-07)
384	S60
275	XC90
544	S40 (04-)
545	V50
542	C70 (06-)
533	C30
644	S40 (-04)
645	V40
854	850 4-door
855	850 5-door
874	S70
875	V70 (-00)
876	V70, XC (-00)
872	C70 Coupé (-02)
873	C70 Cabriolet (-05)
944	940 4-door
945	940 5-door
964	960 4 door, S90
965	960 5 door, V90
744	740 4-door
745	740 5-door
764	760 4-door
765	760 5-door
782	780 Coupé Bertone
242	240 2-door
244	240 4-door

Table

Vehicle groups

245	240 5-door
262	260 2-door
264	260 4-door
265	260 5-door
262	262C Coupé Bertone

