

23 14 Electrical fittings

Tightening Torques

Transmission designation	Type	Thread	Tightening specifications	Torque
1AZ Reversing light switch	G / H / I / C / gearbox	M12		16 Nm
2AZ Neutral sensor / gear sensor to transmission	G / H / I / C / gearbox		Renew microencapsulated screws.	5 Nm
3AZ Transmission oil temperature sensor to transmission	G-transmission			14 Nm

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23 00 Transmission in general

Tightening Torques

	Type	Thread	Tightening specifications	Torque
Transmission designations, see 23...				
1AZ Transmission to engine (Aluminium screws/bolts are not magnetic).	N53 / N55	M12	Replace aluminium screws/bolts. Jointing torque and angle of rotation must be observed without fail Jointing torque Angle of rotation	25 Nm 130 ㄱ +20 ㄱ
		M10X85	Jointing torque Angle of rotation	20 Nm 180 ㄱ- 200 ㄱ
	N53 / N55	M8	Steel screw	19 Nm
	N53 / N55	M12	Steel screw	66 Nm
	K transmission	M8	Steel screw	19 Nm
	K transmission	M12	Steel screw	66 Nm
	I- transmissionN13	M10	Steel screw	38 Nm
	I- transmissionN20	M10	Steel screw	56 Nm
2AZ Oil drain plug / oil filler plug	H / G- transmission	M18x1.5 hexagon socket		35 Nm
	H / I transmission	M12x1.5		25 Nm
	I-transmission	M18x1.5	Steel screw without seal	45 Nm
	K transmission	Hexagon socket		40 Nm



23 00 Transmission in general

Tightening Torques

	Type	Thread	Tightening specifications	Torque
Transmission designations, see 23...				
1AZ Transmission to engine (Aluminium screws/bolts are not magnetic).	N55	M12	Replace aluminium screws. Jointing torque and angle of rotation must be observed without fail. Jointing torque Angle of rotation	25 Nm 130 °
	N55 / N47 / B47 / N20 / S55 / B58	M8	Steel screw	19 Nm
	N55 / N47 / B47 / S55 / B58	M12	Steel screw	66 Nm
	N55	M10	Steel screw	38 Nm
	N20 / S55	M10	Steel screw	56 Nm
Steel screws with Torx head	I-transmission	M8		19 Nm
	I-transmission	M10x40- 8.8		38 Nm
	I-transmission	M10x50-10.9		56 Nm
	I-transmission	M12		66 Nm
2AZ Oil drain plug / oil filler plug	K transmission (without S55)	Hexagon socket		40 Nm
	K transmission (only S55)	Hexagon socket		43±4 Nm
	I-transmission	Hexagon socket		43±4 Nm
	I-transmission	M12x1.5		25 Nm
	I-transmission	M18x1.5	Steel screw without seal	45 Nm
3AZ Cover plate to transmission	I-transmission			7,6 Nm



2300 Overview of tightening torques

Holder for underbody panelling	
	3Nm

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23 11 Housing with lid

Tightening Torques

Transmission designation	Type	Thread	Tightening specifications	Torque
1AZ Transmission housing, rear section/front section	B / C / D / E / F / G / H / I / 7-speed SMG			22 Nm
2AZ Cover with guide tube/transmission case	B / C / D / E / F / G / H / I / C / 7-speed SMG	M8 x 22		18 Nm
	B / C / D / E / F / G / H / I / C / 7-speed SMG	M8 x 30		25 Nm
	B / C / D / E / F / G / H / I / C / 7-speed SMG	M6		10 Nm
3AZ Bearing cap/sealing flange	B / C / D / E / F / G / H / I / 7-speed SMG			10,5 Nm
4AZ Reverse gear wheel axle to intermediate housing	B / C / D / E / F / G / H / I / 7-speed SMG			49 Nm
5AZ Retaining plate for reverse gear wheel axle to intermediate case	B / C / D / E / F / G / H / I / 7-speed SMG			25 Nm
6AZ Transmission closing plate	B / C / D / E / F / G / H / I / 7-speed SMG	M6		8 Nm
7AZ Transmission oil strainer in transmission	G-transmission	M18		25 Nm



23 11 Housing with lid

Tightening Torques

	Type	Thread	Tightening specifications	Torque
16AZ Retaining plate to intermediate housing	265 / Sport	M6		9 Nm
17AZ Retaining plates of bearings on housing	S5D 310Z / S5D 320Z / S5D 200G / S5D 250G	M6		10 Nm
18AZ Retaining plate to housing	S5D 320Z SMG	M6		5,5 Nm

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23 11 Housing with lid

Tightening Torques

	Type	Thread	Tightening specifications	Torque
1AZ Transmission housing, rear section/front section	H / I- transmission			22 Nm
2AZ Lid guide tube/transmission housing	H / I / K-gearbox	M8 x 22		18 Nm
	H / I / K-gearbox	M8 x 30		25 Nm
	H / I / K-gearbox	M6		10 Nm
3AZ Bearing cap/sealing flange	H / I- transmission			10.5 Nm
4AZ Reverse gear wheel axle to intermediate case	H / I- transmission			49 Nm
5AZ Holding plate for reverse gear wheel axle to intermediate case	H / I- transmission			25 Nm
6AZ Transmission closing plate	H / I- transmission	M6		8 Nm
7AZ Grounding cable to transmission		M8		19 Nm
8AZ Ground cable to body		M8		19 Nm



23 14 Electrical fittings

Tightening Torques

Transmission designation	Type	Thread	Tightening specifications	Torque
1AZ Reversing light switch	G / H / I / C / gearbox	M12		16 Nm
2AZ Neutral sensor / gear sensor to transmission	G / H / I / C / gearbox		Renew microencapsulated screws.	5 Nm
3AZ Transmission oil temperature sensor to transmission	G-transmission			14 Nm

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23 21 Transmission shafts

Tightening Torques

	Type	Thread	Tightening specifications	Torque
1AZ Output flange	S5D 200G / S5D 250G / S5D260Z / S5DÄ 310Z / S6S 420G		Collar nut installed with screw locking Pretension Release Tighten down	190 Nm 120 Nm
	S5D 280Z / S5D 320Z		Collar nut installed with screw locking Pretension Release Tighten down	170 Nm 130 Nm
	S5D 390Z		Collar nut installed with screw locking Pretension Release Tighten down	200 Nm 145 Nm
	GS6-17BG / GS6-37BZ		Collar nut installed with screw locking Pretension Release Tighten down	170 Nm 120 Nm
	GS6-45BZ		Collar nut installed with screw locking Pretension Release Tighten down	200 Nm 150 Nm
	GS6-53DZ/BZ		Collar nut installed with screw locking Pretension Release Tighten down	200 Nm 140 Nm
	GS7S47BG		Collar nut installed with screw locking	200 Nm
2AZ Gear to countershaft	265 / Sport	M10		60 Nm
3AZ Adapter shaft to the output	GS6X45BZ			68 Nm



23 31 Interior Shift Components

Tightening Torques

	Type	Thread	Tightening specification	Torque
1AZ Shift arms to transmission case	S5D 310Z			45 Nm
2AZ Sealing cap for locking sleeves of gearshift rods	S6S 420G	M6		10 Nm
3AZ Retaining screw, shift actuator / selector shaft	S5D 320Z / S6S37BZ / S6S53BZ SMG	M6		10 Nm

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23 operating fluid overview

Brake fluid and hydraulic fluid

Hydraulic fluid CHF 11 S	1 l, Can	83290429576
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Transmission oil

Manual gearbox oil MTF LT-5	1 l, Can	83222156969
	20 l, Barrel	83222167666

Transmission oil

Manual gearbox oil MTF 3	1 l, Bottle	83222455210
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Transmission oil

Manual gearbox oil MTF LT-2 * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	1 l, Can	83222339219
	5 l, Can	83220309031
	1000 ml, TU*	83220396705

Transmission oil

Manual gearbox oil MTF LT-3 * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	1 l, Can	83222339221
	5 l, Can	83227533818
	1000 ml, TU*	83220396706

Transmission oil

Manual gearbox oil MTF LT-4 * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	1 l, Can	83222339223
	5 l, Can	83220421925
	1000 ml, TU*	83220430275

Transmission oil

Manual gearbox oil MTF 2 * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	1 l, Can	83222344589
	20 l, Barrel	83220403247
	1000 ml, TU*	83220403673

Transmission oil

Manual gearbox oil MTF 1	1 l	81222320284
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Manual gearbox oil MTF 1 * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	1 l, Can 1000 ml, TU*	81222333384 81229401225
Transmission oil		
Technically suitable manual gearbox oil		
Main group 23		

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24 00 Transmission in general

Tightening Torques

	Type	Thread	Tightening specifications	Torque
1AZ Transmission to engine				
Torx bolts	GA6HP19Z / GA6HP26Z / GA8HP45Z / GA8HP50Z / GA8HP70Z / GA8HP75Z / GA8HP90Z	M6		9 Nm
Torx bolts	GA6HP19Z / GA6HP26Z / GA8HP45Z / GA8HP50Z / GA8HP70Z / GA8HP75Z / GA8HP90Z	M10x8.8		38 Nm
	GA8HP45Z / GA8HP50Z / GA8P75H	M10x10.9		56 Nm
Steel Torx screws	GA6HP19Z / GA6HP26Z / GA8HP45Z / GA8HP50Z / GA8HP70Z / GA8HP75Z / GA8HP90Z / GA8P70H	M8		19 Nm
	GA8HP70Z(N63)	M8		21 Nm
Steel Torx screws	GA6HP19Z / GA6HP26Z / GA8HP45Z / GA8HP50Z / GA8HP70Z / GA8HP75Z / GA8HP90Z / GA8P70H	M12		66 Nm
2AZ Transmission to engine N52/N53/N54/N55 Aluminium screws/bolts are not magnetic	GA6HP19Z / GA6HP26Z / GA8HP45Z		Replace screws Jointing torque and angle of rotation must be observed without fail	
	GA6HP19Z	M10x30	Jointing torque Angle of rotation	20 Nm 90-110 °
	GA6HP19Z	M10x85	Jointing torque Angle of rotation	20 Nm 180-200 °
	GA6HP19Z / GA8HP45Z	M12	Jointing torque Angle of rotation	25 Nm 130°
3AZ Cover plate for transmission	GA6HP19Z / GA8HP45Z / GA8HP50Z	M6		9 Nm
4AZ Heat shield on gearbox	GA8HP50Z	M6		19 Nm
5AZ Ground strap to transmission	GA8HP50Z	M8		19 Nm



2400 Overview of tightening torques

Transmission to engine	
Screw (3) M12x100	66Nm
Bolt (2) M12x75	66Nm
Bolt (1) M8x50	19Nm

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24 11 Transmission housing, transmission oil sump

Tightening Torques

	Type	Thread	Tightening specifications	Torque
1AZ Transmission oil sump	GA6HP19Z / GA6HP26Z / GA6HP32Z	M6		10 Nm
2AZ Oil drain plug	GA6HP19Z / GA6HP26Z / GA6HP32Z / GA8HP45Z / GA8HP50 / GA8HP70Z / GA8P70H / GA8P75H / GA8HP75Z	M16x1.5 M24x1 M18x1	Plastic oil sump	8 Nm
	S63 GA8HP75Z			12 Nm
3AZ Oil filler plug	GA6HP26Z / GA6HP32Z	M30x1.5		80 Nm
	GA6HP19Z / GA6HP26Z / GA6HP32Z / GA8HP45Z / GA8HP50 / GA8HP70Z / GA8P70H / GA8HP75Z / GA8HP90Z / GA8P75H / GA8P75HZ	M18x1.5	Setpoint torque : Calculation of adjusting torque: see: Repair instructions 00 11 500	35 Nm
4AZ Transmission oil sump	GA8HP45Z / GA8HP50 / GA8HP70Z / GA8P70H / GA8HP75Z / GA8HP90Z / GA8P75H / GA8P75HZ	M6	Replace aluminium screws; jointing torque and angle of rotation must be observed without fail.	
			1. Jointing torque 2. Angle of rotation	4 Nm 45 °
			Steel screws	10 Nm
5AZ Oil drain plug	GA8HP90Z	M10		12 Nm
6AZ Heat shield on gearbox	GA8HP45Z / GA8P70Z / GA8P75H	M8		19 Nm
	GA8HP45Z	M6		8 Nm
7AZ Ground strap to body and transmission	GA8HP45Z / GA8HP50 / GA8HP70Z / GA8P70H / GA8HP75Z / GA8P75H	M8		19 Nm
8AZ Holder for underbody protection	GA8HP45Z	M6		8 Nm



2411 Overview of tightening torques

Oil filler plug (GA6HP and GA8HP)

M18

The torque to be set deviates from the specified tightening torque due to the special tool. The torque to be set must be calculated depending on the used torque.

Tightening torque

35Nm

Torque to be set

Torque to be set = $(35 \text{ Nm} \cdot L1) : L2$

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24 13 Transmission Extension, Bearings, Sealing Ring

Tightening Torques

	Type	Thread	Tightening specifications	Torque
1AZ Double hexagon nut/output flange	GA6HP19Z / GA6HP26Z / GA8HP45Z / GA8HP50Z / GA8HP70Z / GA8HP90Z / GA8P70H / GA8P75H / GA8P75HZ		with sealing ring in output flange	60 Nm

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24 30 Hydraulic / electric control parts and controlling elements

Tightening Torques

	Type	Thread	Tightening specifications	Torque
1AZ Valve body to transmission	GA6HP19TU / GA6HP26TU	M6		8 Nm
2AZ Valve housing to valve body	GA6HP19Z / GA6HP26Z / GA6HP32Z	M6		5 Nm
3AZ Input- and output-speed sensors to mechatronics		M6		12 Nm
4AZ Mechatronics to transmission	GA8HP45Z / GA8HP50Z / GA8HP70Z / GA8HP75Z / GA8HP90Z / GA8P70H	M6x59, M6x20	Replace screws	8 Nm
5AZ Oil volume accumulator to transmission	GA8HP45Z / GA8HP50Z / GA8HP70Z / GA8HP75Z	M6x59, M6x20	Replace screws	8 Nm
6AZ Centring plate to transmission bell housing	GA8HP45Z / GA8HP50Z / GA8HP70Z / GA8HP75Z / GA8HP90Z	M8X74	Jointing torque Angle of rotation	10 Nm 90 °
7AZ Speed sensor to transmission	GA8HP50Z / GA8HP75Z	M6X20	Replace screws Jointing torque Angle of rotation	 4 Nm 12 °



24 40 Torque converter

Tightening Torques

	Type	Thread	Tightening specifications	Torque
1AZ Torque converter to flywheel	GA6HP19Z / GA6HP26Z / GA6HP32Z / GA8HP45Z / GA8HP50Z / GA8HP70Z GA8HP75Z	M10 10.9	Replace converter screws. (Remove adhesive residue from thread, if applicable)	56 Nm
	GA6HP26Z / GA8HP75Z / GA8HP90Z / (AWD)	M10 10.9	Observe tightening sequence. Refer to official repair instructions! Replace converter screws. (Remove adhesive residue from thread, if applicable)	60 Nm
	F30/ F31/ F32/ F33/ F35 N20 GA8HP45Z	M10 10.9	Replace converter screws. (Remove adhesive residue from thread, if applicable)	60 Nm
2AZ Electrical machine to flywheel	GA8P70H	M10	Replace hexagon nuts. (Remove adhesive residue from thread, if applicable)	56 Nm



24 51 External shift linkage

Tightening Torques

	Type	Thread	Tightening specifications	Torque
1AZ Selector lever to transmission	GA6HP19Z / GA6HP26Z / GA6 HP32Z	M8x1		10 Nm
2AZ Nut to pipe clamp	GA6HP19Z / GA6HP26Z / GA6HP32Z / GA8HP45Z / GA8HP70Z / GA8HP90Z			5 Nm
3AZ Release lever to transmission	GA8HP45Z / GA8HP70Z / GA8HP90Z	M6		6.5 Nm
4AZ Retaining bracket to transmission	GA8HP45Z / GA8HP70Z / GA8HP90Z	M6		6.5 Nm

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24 operating fluid overview

Transmission oil

Automatic transmission fluid ATF D II	1 l, Can	81229400272
	60 l, Barrel	81229400275

Transmission oil

Automatic transmission fluid ATF D VI	1 l, Can	83222167718
	5 l, Barrel	83222167720

Transmission oil

Automatic transmission fluid ATF 1	1 l, Can	83222305395
	5 l, Can	83222344588

Transmission oil

Automatic transmission fluid ATF 4	1 l, Bottle	83222344206
	20 l, Barrel	83229407807

Transmission oil

Automatic transmission fluid ATF 5	1 l, Bottle	83222344207
	20 l, Barrel	83220442817

Transmission oil

Automatic transmission fluid ATF 6	1 l, Bottle	83222355599
	20 l, Barrel	83222355601

Transmission oil

Automatic transmission fluid JWS 3309	1 l, Bottle	83227542290
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Transmission oil

Automatic transmission fluid ATF 3+	1 l, Bottle	83222289720
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Transmission oil

Automatic transmission fluid ATF 33 * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	20 l, Barrel	83220403580
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For invoicing purposes only.	1000 ml, TU*	83220406574
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Transmission oil

Automatic transmission fluid ATF D III * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	1 l, Can	83229407858
	1000 ml, TU*	83229407860

Transmission oil

Automatic transmission fluid ATF 2 * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	1 l, Can	83222305396
	20 l, Barrel	83220142516
	1000 ml, TU*	83220144137

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