

**Group 00 - Boxer engines maintenance**

Part	Nm	kgm
Oil sump drain plug	28 ÷ 35	2.9 ÷ 3.5
Nuts fastening timing gear belt tensioner (8 valves)	37 ÷ 46	3.8 ÷ 4.7
Coolant fluid drain plugs (16 valves)	17 ÷ 21	1.7 ÷ 2.1
Union fastening compressor/condenser pipe on condenser	26 ÷ 32	2.6 ÷ 3.2
Union fastening condenser/evaporator pipe on evaporator	21 ÷ 26	2.2 ÷ 2.7
Nuts fastening timing gear belt tensioner (16 valves)	29 ÷ 36	3.0 ÷ 3.6
Fuel outlet union from filter	21 ÷ 26	2.2 ÷ 2.7
Fuel filter inlet union	30 ÷ 37	3.0 ÷ 3.8
Spark plugs	25 ÷ 30	2.5 ÷ 3.1

**Group 00 - 1929 Turbodiesel engine maintenance**

Part	Nm	kgm
Nut fastening timing gear belt tensioner	37 ÷ 46	3.8 ÷ 4.7
Screw fastening camshaft drive pulley	100 ÷ 124	10.2 ÷ 12.6

**Group 00 - T. Spark 16V engine maintenance**

Part	Nm	kgm
Oil sump drain plug (for aluminium sump)	20 ÷ 25	2.0 ÷ 2.5
Oil sump drain plug (for sheet metal sump)	42.5 ÷ 52.5	4.3 ÷ 5.4
Screws fastening auxiliary components drive belt pulley	24 ÷ 29	2.4 ÷ 3.0
Screw fastening exhaust side camshaft pulley	100 ÷ 124	10.2 ÷ 12.6
Nut fastening timing gear belt tensioner	21 ÷ 26	2.1 ÷ 2.6
Spark plugs	Central (large - M14)	25 ÷ 35
	Side (small - M10)	10 ÷ 12

**Group 00 - Mechanical unit maintenance**

Part	Nm	kgm
Gearbox oil filler plug (Boxer versions)	30 ÷ 48	3.0 ÷ 4.9
Gearbox oil drain cap for sheet metal sumps (Boxer versions)	22.5 ÷ 28	2.3 ÷ 2.8
Gearbox oil drain cap for aluminium sumps (Boxer versions)	38 ÷ 48	3.9 ÷ 4.9
Gearbox oil filler/drain cap (1929 Turbodiesel and T. Spark 16V versions)	30 ÷ 48	3.0 ÷ 4.9
Relief screws on brake calipers	6 ÷ 7	0.6 ÷ 0.8

**Group 10 - Boxer 8 Valve engines**

Part	Nm	kgm
Screw fastening rpm and T.D.C. sensor	8 ÷ 10	0.8 ÷ 1.0
Screws fastening pressure plate to flywheel	19 ÷ 23	1.9 ÷ 2.4
Screws fastening water pump inlet union on crankcase	20 ÷ 24	2.0 ÷ 2.5
Nuts fastening intake manifolds to heads	20 ÷ 24	2.0 ÷ 2.5
Screws fastening camshaft drive pulleys	67 ÷ 71	6.5 ÷ 7.2
Screws fastening water pump	20 ÷ 24	2.0 ÷ 2.5

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Part	Nm	kgm
Nut fastening crankshaft pulley	119 ÷ 147	12.1 ÷ 15.0
Screws fastening oil sump	8 ÷ 10	0.8 ÷ 1.0
Sump oil drain plug	28 ÷ 35	2.9 ÷ 3.5
Screws fastening oil pump to rear cover	20 ÷ 24	2.0 ÷ 2.5
Screws fastening front cover to crankcase	20 ÷ 24	2.0 ÷ 2.5
Screws fastening engine flywheel (in oil)	97 ÷ 107	9.9 ÷ 10.9
Screws fastening rear cover to crankcase	20 ÷ 24	2.0 ÷ 2.5
Screws fastening connecting rod caps	53 ÷ 58	5.4 ÷ 5.9
Upper screws fastening main bearing caps (in oil)	67 ÷ 74	6.8 ÷ 7.5
Side screws fastening main bearing caps (in oil)	41 ÷ 50	4.2 ÷ 5.1
Screws fastening cylinder heads to crankcase (in oil)	91 ÷ 101	9.3 ÷ 10.3
Screws fastening camshaft supports	20 ÷ 24	2.0 ÷ 2.5
Nuts fastening timing gear belt tensioner	37 ÷ 46	3.8 ÷ 4.7
Minimum engine oil pressure warning light sensor	34 ÷ 42	3.5 ÷ 4.3
Screws joining oil pump casing to support	8 ÷ 10	0.8 ÷ 1.0
Screws fastening front flexible mount to engine	38 ÷ 47	3.9 ÷ 4.8

**Group 10 - 16 Valve Boxer engine**

Part	Nm	kgm
Screws fastening pressure plate to engine flywheel	19 ÷ 23	1.9 ÷ 2.4
Screw fastening rpm sensor	9 ÷ 10	0.8 ÷ 1.0
Screws fastening water pump inlet union on crankcase	20 ÷ 24	2.0 ÷ 2.5
Nuts fastening drive shaft supports	6 ÷ 8	0.6 ÷ 0.8
Nuts fastening camshaft drive pulleys	76 ÷ 84	7.7 ÷ 8.6
Screws fastening water pump	20 ÷ 24	2.0 ÷ 2.5
Nut fastening crankshaft pulley	219 ÷ 242	22.3 ÷ 24.6
Screws fastening oil pump to rear cover	20 ÷ 24	2.0 ÷ 2.5
Nuts fastening intake bodies	20 ÷ 24	2.0 ÷ 2.5
Screws fastening front cover to crankcase	20 ÷ 24	2.0 ÷ 2.5
Screws fastening engine flywheel (in oil)	97 ÷ 107	9.9 ÷ 10.9
Screws fastening rear cover to crankcase	20 ÷ 24	2.0 ÷ 2.5
Screws fastening camshaft caps	20 ÷ 24	2.0 ÷ 2.5
Screws fastening connecting rod caps	53 ÷ 58	5.4 ÷ 5.9
Upper screws fastening main bearing caps (in oil)	67 ÷ 74	6.8 ÷ 7.5
Side screws fastening main bearing caps (in oil)	41 ÷ 50	4.2 ÷ 5.1
Screws fastening cylinder heads to crankcase (in oil)	91 ÷ 101	9.3 ÷ 10.3
Nuts fastening belt tensioner to head	29 ÷ 36	3.0 ÷ 3.6

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Part	Nm	kgm
Nuts fastening timing gear belt fixed guides to supports	47 ÷ 58	4.8 ÷ 5.9
Screws fastening timing gear belt fixed guide supports to cylinder heads	20 ÷ 24	2.0 ÷ 2.5
Engine oil minimum pressure warning light sensor	34 ÷ 42	3.5 ÷ 4.3
Screws joining oil pump casing to support	8 ÷ 10	0.8 ÷ 1.0
Oil sump drain plug	28 ÷ 35	2.9 ÷ 3.5
Screws fastening front engine flexible mount	38 ÷ 47	3.9 ÷ 4.8
Screws fastening cylinder head covers	8 ÷ 10	0.8 ÷ 1.0

**Group 10 - 1929 Turbodiesel engine**

Part	Nm	kgm	
Screws fastening main bearing caps to crankcase (in oil)	96 ÷ 119	9.8 ÷ 12	
Screws fastening flywheel to crankshaft (with fixer)	121 ÷ 149	12.3 ÷ 15.2	
Screws fastening connecting rod caps (in oil)	25 + 50°	2.6 + 50°	
Nut fastening timing gear belt tensioner to crankcase	37 ÷ 46	3.8 ÷ 4.7	
Screw fastening timing gear belt guide to crankcase	37 ÷ 46	3.8 ÷ 4.7	
Screw and nuts fastening injection pump to its support	21 ÷ 26	2.1 ÷ 2.6	
Nut fastening injection pump drive pulley	43 ÷ 53	4.3 ÷ 5.3	
Upper screw fastening oil filter support and injection pump to crankcase	83 ÷ 103	8.5 ÷ 10.5	
Lower screws fastening oil filter support and injection pump to crankcase	60 ÷ 75	6.2 ÷ 7.6	
Screw fastening camshaft drive pulley to crankshaft (lefthand thread)	181 ÷ 200	18.4 ÷ 20.3	
Engine oil minimum pressure sensor to oil filter support and injection pump	27 ÷ 34	2.8 ÷ 3.4	
Screw fastening water pump to crankcase	21 ÷ 26	2.2 ÷ 2.7	
Nuts fastening turbocharger to exhaust manifold	34 ÷ 42	3.5 ÷ 4.3	
Air boost maximum pressure warning light switch to intake box	26 ÷ 32	2.6 ÷ 3.2	
Fuel delivery unions from injection pump to injectors	26 ÷ 32	2.6 ÷ 3.2	
Screw fastening oil vapour separator to crankcase	17 ÷ 21	1.7 ÷ 2.1	
Nuts fastening alternator support bracket and layshaft to crankcase	M8	21 ÷ 26	2.2 ÷ 2.7
	M10	43 ÷ 53	4.3 ÷ 5.3
Screw fastening alternator support bracket and layshaft to crankcase	43 ÷ 53	4.3 ÷ 5.3	
Union fastening overpressure pipe for flow limiter to injection pump and to intake box	13 ÷ 16	1.3 ÷ 1.6	
Nuts fastening exhaust manifold and intake box to cylinder head	21 ÷ 26	2.2 ÷ 2.7	
Screw fastening camshaft drive pulley	100 ÷ 124	10.2 ÷ 12.6	

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Part	Nm	kgm
Bushes fastening precombustion chambers to cylinder head	100 ÷ 124	10.2 ÷ 12.6
Nuts fastening camshaft caps to cylinder head	16 ÷ 20	1.7 ÷ 2.0
Nuts fastening front and rear camshaft bearings and servobrake vacuum pump to cylinder head	16 ÷ 20	1.7 ÷ 2.0
KSB enable thermal switch to thermostatic cup	9 ÷ 11	0.9 ÷ 1.1
Thermostatic sensor for automatic fast idle device to thermostatic cup	26 ÷ 32	2.6 ÷ 3.2
Injector to cylinder head	47 ÷ 58	4.8 ÷ 5.9
Glow plugs to cylinder head	13 ÷ 16	1.3 ÷ 1.6
<b>Cylinder head tightening</b>		
<b>Inner screws</b>		100 Nm (10.2 kgm)
Tighten the screws to a torque of:		90°
Turn all screws by an angle of:		90°
Complete tightening with a further angle of:		26 ÷ 32 Nm (2.6 ÷ 3.2 kgm)
<b>Outer screws</b>		
Tighten the screws to a torque of (1):		

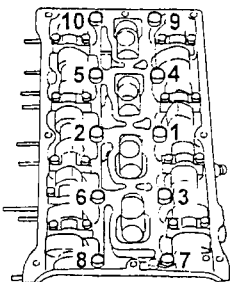
(1): No particular tightening sequence is necessary.

### Group 10 - T. Spark 16V engines

Part	Nm	kgm
Screws fastening main bearing caps (in oil)	96 ÷ 119	9.8 ÷ 12.1
Screws fastening engine flywheel	121 ÷ 149	12.3 ÷ 15.2
Screws fastening connecting rod caps (in oil) (1370 T. Spark 16V)	25 + 50°	2.5 + 50°
Screws fastening connecting rod caps (in oil) (1598 - 1747 - 1970 T. Spark 16V)	25 + 60°	2.5 + 60°
Screws fastening auxiliary components belt drive pulley	24 ÷ 29	2.4 ÷ 3.0
Screw fastening timing gear drive belt pulley (lefthand)	340 ÷ 378	34.7 ÷ 38.5
Screws fastening water pump	17 ÷ 21	1.7 ÷ 2.1
Engine oil minimum pressure warning light sensor	25 ÷ 31	2.5 ÷ 3.2
Screws fastening counter-rotating shaft front covers	6 ÷ 7	0.6 ÷ 0.7
Screws fastening oil sump	M6	7 ÷ 9
	M8	21 ÷ 26
Oil sump drain plug	17 ÷ 21	1.7 ÷ 2.1
Screws fastening oil pump	6 ÷ 8	0.6 ÷ 0.8
Screws fastening E.G.R. valve	17 ÷ 21	1.7 ÷ 2.1
Nuts fastening intake box to cylinder head	17 ÷ 21	1.7 ÷ 2.1
Screw fastening exhaust side camshaft pulley	100 ÷ 124	10.2 ÷ 12.6

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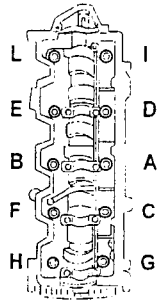
Part		Nm	kgm
Nut fastening timing gear belt tensioner		21 ÷ 26	2.1 ÷ 2.6
Nuts fastening exhaust manifolds to cylinder heads		17 ÷ 21	1.7 ÷ 2.1
Screws fastening thermostatic cup to cylinder head		17 ÷ 21	1.7 ÷ 2.1
Screws fastening camshaft caps (in oil)		13 ÷ 16	1.3 ÷ 1.6
Spark plugs	Central (large - M14)	25 ÷ 35	2.5 ÷ 3.6
	Side (small - M10)	10 ÷ 12	1.0 ÷ 1.2
Engine coolant fluid temperature gauge transmitter and maximum temperature warning light contact		25 ÷ 31	2.5 ÷ 3.2
<b>Cylinder head tightening</b>			
Approach all the screws to a torque of:		20	2.0
Tighten the screws to a preliminary torque of:		40	4.1
Turn all the screws by an angle of:		90° + 90° + 90°	

### Group 10 - 1910 JTD engine

Part	Nm	kgm
Fittings fastening pressure pump pipes to fuel manifold	26 ÷ 32	2.7 ÷ 3.3
Exhaust manifold fastening nuts	21 ÷ 26	2.1 ÷ 2.7
Tappet cover fastening screws	8 ÷ 10	0.8 ÷ 1.0
Front and rear crankcase sump fastening screws	7 ÷ 9	0.7 ÷ 0.9
Side crankcase sump fastening screws	21 ÷ 26	2.1 ÷ 2.7
Drive toothed pulley fastening screws (left-handed)	306 ÷ 378	31.2 ÷ 38.5
Engine flywheel fastening screws	136 ÷ 168	13.9 ÷ 17.1
Front crankcase cover fastening screws	8 ÷ 10	0.8 ÷ 1.0
Engine oil pressure minimum pressure warning light sensor	19 ÷ 23	1.9 ÷ 2.3
Rear crankcase sump fastening screws	8 ÷ 10	0.8 ÷ 1.0
Fittings fastening fuel manifold to injectors on injector side	19 ÷ 23	1.9 ÷ 2.3
Fittings fastening fuel manifold to injectors manifold side	26 ÷ 32	2.7 ÷ 3.3
Vacuum fastening screws	21 ÷ 26	2.1 ÷ 2.7
Thermostat fastening screws	21 ÷ 26	2.1 ÷ 2.7
Driven toothed pulley fastening screws	102 ÷ 126	10.4 ÷ 12.8
Coolant pump fastening screw	21 ÷ 26	2.1 ÷ 2.7
Injector fastening nuts	26 ÷ 32	2.7 ÷ 3.3
Glow plugs	13 ÷ 16	1.3 ÷ 1.6

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Part		Nm	kgm
Camshaft bearing fastening screws		13 ÷ 16	1.3 ÷ 1.6
Main bearing fastening screws		24 ÷ 26 + 100°	2.5 ÷ 2.7 + 100°
Connecting rod bearing fastening screws		24 ÷ 26 + 60°	2.5 ÷ 2.7 + 60°
Timing belt take-up fastening nut		45 ÷ 52	4.3 ÷ 5.3
<b>Cylinder head tightening</b>			
Tighten screws to the preliminary torque of:		65	6.6
Turn all screws by:		90° + 90° + 90°	

### Group 10 - Engine supply (Boxer engines)

Part	Nm	kgm
Fuel filter inlet union	30 ÷ 37	3.0 ÷ 3.8
Fuel filter outlet union	21 ÷ 26	2.2 ÷ 2.7
Union connecting fuel distributor manifold to pressure regulator	24 ÷ 29	2.4 ÷ 3.0
Nut fastening fuel pressure regulator	48 ÷ 60	4.9 ÷ 6.1
Nut fastening dash pot	9 ÷ 12	1.0 ÷ 1.2
Lambda sensor	43 ÷ 53	4.3 ÷ 5.4
Screw fastening rpm sensor	8 ÷ 10	0.8 ÷ 1.0
Screws/nuts fastening intake bodies (Specific for 16V)	20 ÷ 24	2.0 ÷ 2.5

### Group 10 - Engine supply (1929 Turbodiesel engine)

Part	Nm	kgm
Nut fastening timing gear belt tensioner guide	37 ÷ 46	3.8 ÷ 4.7
Nuts fastening intake box to cylinder head	21 ÷ 26	2.2 ÷ 2.7
Nuts fastening exhaust manifold to cylinder head	21 ÷ 26	2.2 ÷ 2.7
Nuts fastening turbocharger to exhaust manifold	34 ÷ 42	3.5 ÷ 4.3

### Group 10 - Engine supply (T. Spark 16V engines)

Part	Nm	kgm
Screws fastening auxiliary components belt drive pulley	24 ÷ 29	2.4 ÷ 3.0
Nut fastening timing gear belt tensioner	21 ÷ 26	2.1 ÷ 2.7
Screw fastening exhaust side camshaft pulley	100 ÷ 124	10.2 ÷ 12.6

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Part	Nm	kgm
Screws fastening E.G.R. valve	17 ÷ 21	1.7 ÷ 2.1
Engine coolant fluid temperature sensor (NTC)	12 ÷ 15	1.2 ÷ 1.5
Screws fastening intake box to cylinder head	17 ÷ 21	1.7 ÷ 2.1
Nuts fastening exhaust manifold to cylinder head	17 ÷ 21	1.7 ÷ 2.1

**Group 10 - Engine cooling (Boxer engines)**

Part	Nm	kgm
Fan control thermal contact	23 ÷ 37	2.3 ÷ 3.8
Screws fastening water pump to crankcase	20 ÷ 24	2.0 ÷ 2.5
Screws fastening water pump pulley	8 ÷ 10	0.8 ÷ 1.0
Screw fastening thermostating unit	20 ÷ 24	2.0 ÷ 2.5
Screws fastening water pump inlet union to crankcase	20 ÷ 24	2.0 ÷ 2.5

**Group 10 - Engine cooling (1929 Turbodiesel engine)**

Part	Nm	kgm
Automatic fast idle device thermostatic sensor	26 ÷ 32	2.6 ÷ 3.2
Cold injection advance automatic device thermal switch (KSB)	9 ÷ 11	0.9 ÷ 1.1

**Group 10 - Engine cooling (T. Spark 16V engines)**

Part	Nm	kgm
Screws fastening auxiliary components drive belt pulley	24 ÷ 29	2.4 ÷ 3.0
Nut fastening timing gear belt tensioner	21 ÷ 26	2.1 ÷ 2.7
Screw fastening exhaust side camshaft pulley	100 ÷ 124	10.2 ÷ 12.6

**Group 18 - Clutch (Boxer versions)**

Part	Nm	kgm
Screws fastening pressure plate to engine flywheel	19 ÷ 23	1.9 ÷ 2.4
Clutch circuit pipe unions on control cylinder and on pump	17 ÷ 19	1.7 ÷ 1.9
Nuts fastening clutch pump to pedal unit	13 ÷ 21	1.3 ÷ 2.1
Intermediate union for pipe connecting clutch pump-cylinder	17 ÷ 19	1.7 ÷ 1.9

**Group 18 - Clutch (1929 Turbodiesel version)**

Part	Nm	kgm
Screws fastening pressure plate to engine flywheel	20 ÷ 25	2.1 ÷ 2.6
Screws fastening clutch control cylinder to gearbox cover	13 ÷ 16	1.3 ÷ 1.6
Nuts fastening clutch pump to pedal unit	13 ÷ 21	1.3 ÷ 2.1
Clutch circuit pipe union on pump	17 ÷ 19	1.7 ÷ 1.9
Clutch circuit pipe union on control cylinder	17 ÷ 19	1.7 ÷ 1.9
Screws fastening thrust bearing sleeve	7 ÷ 9	0.7 ÷ 0.9

**Group 18 - Clutch (T. Spark 16V versions)**

Part	Nm	kgm
Screws fastening pressure plate to engine flywheel	20 ÷ 25	2.1 ÷ 2.6
Screws fastening thrust bearing sleeve	7 ÷ 9	0.7 ÷ 0.9
Screws fastening clutch control cylinder to gearbox cover	13 ÷ 16	1.3 ÷ 1.6
Clutch circuit pipe union on control cylinder	17 ÷ 19	1.7 ÷ 1.9

**Group 21 - Gearbox - Differential (Boxer versions)**

Part	Nm	kgm
Screws fastening gearbox - differential rear cover	20 ÷ 25	2.1 ÷ 2.6
Gearbox oil filler cap	30 ÷ 48	3.1 ÷ 4.9
Gearbox oil drain plug (sheet metal sump)	22.5 ÷ 28	2.3 ÷ 2.8
Gearbox oil drain plug (aluminium sump)	31 ÷ 38	3.1 ÷ 3.9
Screw fastening reversing shaft to gearbox	19 ÷ 23	1.9 ÷ 2.4
Nut locking gears pack on bevel pinion	224 ÷ 248	22.9 ÷ 25.3
Screw fastening oil cup on main shaft	81 ÷ 89	8.3 ÷ 9.1
Reversing light switch	40 ÷ 49	4.1 ÷ 5.0
Screw fastening 1st and 2nd gear engagement lever	25 ÷ 27	2.5 ÷ 2.8
Screw fastening 1st, 2nd, 3rd and 4th gear fork on gearshift control rods	21 ÷ 23	2.1 ÷ 2.4
Screws fastening differential supports to gearbox differential	38 ÷ 47	3.9 ÷ 4.8
Screws fastening crown wheel to differential carrier	100 ÷ 110	10.2 ÷ 11.2
Nut fastening gearshift control bar to upper U-bolt on gearbox cover	34 ÷ 42	3.5 ÷ 4.3
Nut fastening gearshift control bar to lower U-bolt on gearbox cover	19 ÷ 23	1.9 ÷ 2.4
Screw fastening rear support plug for gearshift control bar	19 ÷ 23	1.9 ÷ 2.4
Nut fastening gearshift control bar to gearshift lever	8 ÷ 10	0.8 ÷ 1.0
Nut fastening gearshift control lever to support	3.4 ÷ 4.2	0.34 ÷ 0.42
Nuts fastening gearbox - differential to rear engine cover	39 ÷ 48	4.0 ÷ 4.9
Screws fastening differential side axle shaft to flange	38 ÷ 42	3.9 ÷ 4.3

**Group 21 - Gearbox - Differential (1929 Turbodiesel version)**

Part	Nm	kgm
Nut fastening spring for clicking gearshift control rods into position	19.5 ÷ 31.5	1.98 ÷ 3.21
Screw fastening rear cover bearing retainer plate to gearbox	21 ÷ 26	2.2 ÷ 2.7
Screw fastening cover on gearbox support connection to engine	9 ÷ 11	0.9 ÷ 1.1
Screw fastening gearbox to connection to engine support	21 ÷ 26	2.2 ÷ 2.7
Screw fastening reversing shaft	29 ÷ 36	2.9 ÷ 3.6

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Part	Nm	kgm
Locknut for main and transmission shaft for fastening 5th gear	100 ÷ 124	10 ÷ 13
Screw fastening gearshift control forks	15 ÷ 19	1.6 ÷ 1.9
Screw fastening lever on gear engagement and shift control shaft	21 ÷ 26	2.2 ÷ 2.7
Screw fastening support for reverse control lever	9 ÷ 11	0.9 ÷ 1.1
Screw fastening bush for gear control shaft	9 ÷ 11	0.9 ÷ 1.1
Screw fastening differential crown wheel	75 ÷ 92	7.6 ÷ 9.4
Screw fastening flange retaining differential carrier to gearbox	21 ÷ 26	2.2 ÷ 2.7
Screw fastening tachometric support	8 ÷ 13	0.8 ÷ 1.3
Magnetic threaded taper plug for draining gearbox oil	30 ÷ 48	3.0 ÷ 4.9
Magnetic threaded taper plug for filling gearbox oil	30 ÷ 48	3.0 ÷ 4.9
Screw fastening right differential shaft support	7 ÷ 11	0.7 ÷ 1.1
Threaded taper plug for 1st and 2nd rod seat on gearbox	13 ÷ 21	1.3 ÷ 2.1
Screw fastening support for gearshift lever	10 ÷ 16	1 ÷ 1.6
Screw fastening differential side joint to flange	40 ÷ 52	4.1 ÷ 5
Screw fastening intermediate axle shaft	8 ÷ 10	0.8 ÷ 1.0
Reversing light switch screw	20 ÷ 32	2.0 ÷ 3.2
Nut for stud on gearbox support for connection to engine	68 ÷ 84	6.9 ÷ 8.6
Screw with spring washer for fastening flywheel cover to gearbox connection support	7 ÷ 8	0.7 ÷ 0.9
Screw fastening starter motor to gearbox support	19 ÷ 23	1.9 ÷ 2.4
Nut fastening supply cable to starter motor	9 ÷ 11	0.9 ÷ 1.1
Screw fastening upper gearbox to engine connection support	68 ÷ 84	6.9 ÷ 8.6
Screw fastening upper gearbox to engine connection support and power unit lifting hook	47 ÷ 58	4.8 ÷ 5.9
Screw fastening lower gearbox to engine connection support	47 ÷ 58	4.8 ÷ 5.9
Screw fastening gearshift control lever support to floor	5 ÷ 8	0.5 ÷ 0.8
Screw for fastening lower selection and engagement rod to gearshift control lever	19 ÷ 23	1.9 ÷ 2.4
Self-locking nut for pin fastening intermediate transmission	10 ÷ 16	1 ÷ 1.6
Self-locking nut fastening engagement tie-rod head to intermediate lever	10 ÷ 16	1 ÷ 1.6
Self-locking nut for screw fastening selection transmission on gearbox	13 ÷ 16	1.3 ÷ 1.6

**Group 21 - Gearbox - Differential (T. Spark 16V versions with gearbox C.510.5)**

Part	Nm	kgm
Screws and nuts fastening gearbox - engine	75 ÷ 92	7.6 ÷ 9.4
Gearbox-differential oil drain plug	30 ÷ 48	3.1 ÷ 4.9
Bolts fastening wishbones to wheel uprights	67 ÷ 74	6.8 ÷ 7.5
Screws fastening power steering to front crossmember	43 ÷ 47	4.4 ÷ 4.8
Front nuts fastening gearbox controls support	16 ÷ 25	1.6 ÷ 2.5

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Part	Nm	kgm
Rear centre screws fastening the suspension crossmember to the body	77 ÷ 95	7.8 ÷ 9.7
Rear side screws fastening the suspension crossmember to the body	92 ÷ 113	9.4 ÷ 11.5
Front screws fastening the suspension crossmember to the body	92 ÷ 113	9.4 ÷ 11.5
Bolts fastening transmission axle shaft to gearbox	40 ÷ 52	4.1 ÷ 5.3
Screws fastening starter motor	20 ÷ 25	2.0 ÷ 2.6
Bolts fastening transmission axle shaft to intermediate shaft	67 ÷ 76	6.8 ÷ 7.7
Bolts fastening uprights to wheel hubs	36 ÷ 44	3.7 ÷ 4.5
Screws fastening intermediate shaft to its support	8 ÷ 10	0.8 ÷ 1.0
Lockring for main and transmission shafts for fastening 5th gear	100 ÷ 124	10 ÷ 13
Screws fastening gearshift control forks	15 ÷ 19	1.6 ÷ 1.9
Bolt fastening rear bearing retainer plate to gearbox	21 ÷ 26	2.2 ÷ 2.7
Screw fastening reversing shaft	29 ÷ 36	2.9 ÷ 3.6
Screws fastening differential carrier retainer flange to gearbox	21 ÷ 26	2.2 ÷ 2.7
Screws fastening reverse gear fork support bracket	9 ÷ 11	0.9 ÷ 1.1
Screws fastening control lever to gearbox	21 ÷ 26	2.2 ÷ 2.7
Screws fastening gearbox rear cover	21 ÷ 26	2.2 ÷ 2.7
Screws fastening gear engagement device support bracket	10 ÷ 16	1.0 ÷ 1.6
Screws fastening crown wheel to differential carrier	75 ÷ 92	7.6 ÷ 9.4
Screws fastening gearbox side differential carrier seal cover	21 ÷ 26	2.2 ÷ 2.7

**Group 21 - Gearbox - Differential (T. Spark 16V version with gearbox C.513.5)**

Part	Nm	kgm
Screws fastening rear cover	24 ÷ 26	2.4 ÷ 2.6
Lockrings fastening main and transmission shafts	112 ÷ 124	11.4 ÷ 12.6
Screw fastening rear bearing retainer plate	24 ÷ 26	2.4 ÷ 2.6
Devices for positioning gearshift control rods	28.5 ÷ 31.5	2.9 ÷ 3.2
Screw fastening reversing shaft	32 ÷ 36	3.3 ÷ 3.6
Screws fastening differential carrier seal cover	46 ÷ 51	4.7 ÷ 5.2
Screws fastening gearbox cover	24 ÷ 26	2.4 ÷ 2.6
Screws fastening reverse intermediate gear control fork	10 ÷ 11	1.0 ÷ 1.1
Screws fastening gearshift control forks	24 ÷ 26	2.4 ÷ 2.6
Screws fastening crown wheel to differential carrier	65 ÷ 72	6.7 ÷ 7.4

**Group 27 - Axle shafts (Boxer versions)**

Part	Nm	kgm
Screws fastening axle shaft CV joint gearbox side	38 ÷ 42	3.9 ÷ 4.3
Nut fastening axle shaft to wheel hub	266 ÷ 294	27.1 ÷ 30.0

**Group 27 - Axle shafts  
(1929 Turbodiesel and T. Spark 16V versions)**

Part	Nm	kgm
Screws fastening axle shaft CV joint differential side to flange	36 ÷ 44	3.6 ÷ 4.5
Screws fastening intermediate axle shaft flange	8 ÷ 10	0.8 ÷ 1.0
Screws fastening damping mass halves to left axle shaft (Specific for T. Spark 16V version)	5 ÷ 8	0.5 ÷ 0.8

**Group 33 - Brakes**

Part	Nm	kgm
Stiff brake pipe unions on brake pump	13 ÷ 15	1.4 ÷ 1.5
Nuts fastening servobrake to pedal unit	10 ÷ 16	1 ÷ 1.6
Screws fastening brake caliper support plate	45 ÷ 46	4.6 ÷ 5.7
Screws fastening brake caliper support plate	with piece in "Drilloc" (*)	
	M6	57
	M8	10.5
Screws fastening brake calipers (*)	31 ÷ 38	3.1 ÷ 3.9
Screws with centering pins for brake disks	5 ÷ 13	0.6 ÷ 1.3
Unions between brake system stiff pipes and hoses	13 ÷ 15	1.4 ÷ 1.5
Hose unions to brake calipers	15 ÷ 19	1.6 ÷ 1.9
Relief screw on brake calipers	4 ÷ 6	0.4 ÷ 0.6
Screws with centering pins for rear brake drums	5 ÷ 13	0.6 ÷ 1.3
Screws fastening handbrake lever to support	24 ÷ 29	2.4 ÷ 3.0
Screws fastening support for running handbrake cable	8 ÷ 9	0.8 ÷ 1
Screws fastening braking load proportioning valve to bracket	6 ÷ 7	0.6 ÷ 0.8
Brake stiff pipe unions on braking load proportioning valve	13 ÷ 15	1.4 ÷ 1.5
Screw for braking load proportioning valve adjustment bracket	20 ÷ 25	2.1 ÷ 2.6
Brake stiff pipe unions on A.B.S.	13 ÷ 15	1.4 ÷ 1.5

(\*): To be replaced at each tightening.

**Group 41 - Steering system (Boxer versions)**

Part	Nm	kgm
Nut fastening steering wheel to steering column	43 ÷ 53	4.3 ÷ 5.3
Screws fastening power steering box to battery sidemember	21 ÷ 26	2.2 ÷ 2.7
Screws fastening track rods to power steering box	105 ÷ 116	10.6 ÷ 11.8
Screws fastening lower steering column to power steering box pinion	19 ÷ 23	1.9 ÷ 2.4
Union fastening oil inlet pipe to power steering box	38 ÷ 42	3.9 ÷ 4.3
Union fastening oil outlet pipe from power steering box	29 ÷ 32	2.9 ÷ 3.2
Nut fastening track rod ball pin to shock absorber coupling	34 ÷ 42	3.5 ÷ 4.3
Screws fastening track rod adjustment union	15 ÷ 19	1.6 ÷ 1.9
Union fastening oil outlet pipe from power steering pump	48 ÷ 53	4.8 ÷ 5.4

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Part	Nm	kgm
Adjustable guide locking device nut (to be tightened with lever in locked position)	30 ÷ 37	3 ÷ 3.8
Screws fastening upper steering column to body	21 ÷ 26	2.2 ÷ 2.7

**Group 41 - Steering system (1929 Turbodiesel and T. Spark 16V versions)**

Part	Nm	kgm
Nut fastening steering wheel to steering column	43 ÷ 53	4.3 ÷ 5.3
Screws fastening power steering box to sidemember	43 ÷ 47	4.4 ÷ 4.8
Screws fastening upper steering column to body	5 ÷ 8	0.5 ÷ 0.8
Screw fastening lower steering column to power steering box pinion	15 ÷ 19	1.6 ÷ 1.9
Union fastening oil inlet pipe to power steering box	38 ÷ 42	3.9 ÷ 4.3
Union fastening oil outlet pipe from power steering box	29 ÷ 32	2.9 ÷ 3.2
Nut fastening track rod ball pin to wheel upright	30 ÷ 37	3 ÷ 3.8
Nuts fastening track rods	30 ÷ 37	3 ÷ 3.8
Union fastening oil outlet pipe from power steering pump	48 ÷ 53	4.8 ÷ 5.4
Adjustable guide locking device nut (to be tightened with lever in locked position)	30 ÷ 37	3 ÷ 3.8

**Group 44 - Front suspension (Boxer versions)**

Part	Nm	kgm
Nut fastening track rod to coupling on shock absorber	34 ÷ 42	3.5 ÷ 4.3
Bolts fastening shock absorber to wheel upright	67 ÷ 74	6.8 ÷ 7.5
Centre nut retaining helical spring to shock absorber	95 ÷ 105	9.7 ÷ 10.7
Screws fastening shock absorber to body	34 ÷ 42	3.5 ÷ 4.3
Nut fastening axle shaft to wheel hub	before change (1 caulk)	266 ÷ 294
	after change (2 caulks)	67 ÷ 74 + 62°
Screws fastening brake calipers	45 ÷ 56	4.6 ÷ 5.7
Bolt fastening wishbone to wheel upright	67 ÷ 74	6.8 ÷ 7.5
Nut fastening stabiliser bar connecting rod to wishbone	26 ÷ 33	2.7 ÷ 3.3
Screws fastening wishbone to chassis	67 ÷ 74	6.8 ÷ 7.5
Screws fastening engine support frame crossmember	67 ÷ 74	6.8 ÷ 7.5
Lambda sensor	43 ÷ 53	4.3 ÷ 5.3
U-bolt nuts fastening stabiliser bar to chassis	26 ÷ 32	2.6 ÷ 3.2
Screws fastening power unit support frame to flexible mounts	26 ÷ 32	2.6 ÷ 3.2
Front screws fastening power unit support frame to body	68 ÷ 84	6.9 ÷ 8.6
Rear screws fastening power unit support frame to body	114 ÷ 126	11.6 ÷ 12.8

**Group 44 - Front suspension  
(1929 Turbodiesel and T. Spark 16V versions)**

Part		Nm	kgm
Bolts fastening shock absorber to wheel upright		67 ÷ 74	6.8 ÷ 7.5
Centre nut retaining helical spring to shock absorber		95 ÷ 105	9.7 ÷ 10.7
Screws fastening shock absorber to body		34 ÷ 42	3.5 ÷ 4.3
Nut fastening track rod to wheel upright		30 ÷ 37	3.0 ÷ 3.8
Bolt fastening wishbone to wheel upright		67 ÷ 74	6.8 ÷ 7.5
Nut fastening connecting rod to stabiliser bar		43 ÷ 53	4.3 ÷ 5.4
Nut fastening stabiliser bar connecting rod to wishbone		26 ÷ 33	2.7 ÷ 3.3
Screws fastening U-bolts joining wishbone to sidemember		68 ÷ 73	6.9 ÷ 7.4
Front screws fastening sidemember to body		92 ÷ 113	9.4 ÷ 11.6
Rear screws fastening sidemember to body	N° 4 central	77 ÷ 95	7.8 ÷ 9.6
	N° 2 side	102 ÷ 126	10.4 ÷ 12.9
Screws fastening steering box to sidemember		43 ÷ 47	4.4 ÷ 4.8
Nuts fastening U-bolts joining stabiliser bar to sidemember		34 ÷ 42	3.5 ÷ 4.3
Nut fastening axle shaft to wheel hub	before change (1 caulk)	266 ÷ 294	27.1 ÷ 30.0
	after change (2 caulks)	67 ÷ 74 + 62°	6.8 ÷ 7.5 + 62°

**Group 44 - Rear suspension**

Part		Nm	kgm
Nut fastening rear hub pin		266 ÷ 294	27.1 ÷ 30.0
Lower bolt fastening shock absorber		75 ÷ 92	7.6 ÷ 9.4
Upper bolt fastening shock absorber		48 ÷ 59	4.9 ÷ 6.0
Screw fastening stabiliser bar support U-bolts to longitudinal arm		24 ÷ 29	2.4 ÷ 3.0
Screw fastening stabiliser bar to longitudinal arm		48 ÷ 59	4.9 ÷ 6.0
Bolt fastening longitudinal arm to stiff axle		143 ÷ 158	14.5 ÷ 16.1
Screws fastening stiff axle support pads to body		92 ÷ 113	9.4 ÷ 11.6

**Group 44 - Wheel**

Part		Nm	kgm
Screws fastening wheels (with sheet metal rims)		83 ÷ 103	8.5 ÷ 10.5
Screws fastening wheel (with alloy rims)		83 ÷ 103	8.5 ÷ 10.5

**Group 50 - Climate control  
(Specific for Boxer and 1929 Turbodiesel versions)**

Part		Nm	kgm
Female connector fastening evaporator/drier filter pipe on evaporator		34 ÷ 42	3.5 ÷ 4.3

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Part	Nm	kgm
Male connector fastening evaporator/drier filter pipe on drier filter	34 ÷ 42	3.5 ÷ 4.3
Female connector fastening drier filter/compressor pipe on drier filter	34 ÷ 42	3.5 ÷ 4.3
Screws fastening inlet and outlet pipe flange on compressor	21 ÷ 26	2.2 ÷ 2.7
End nut fastening compressor/condenser pipe on coupling flange on compressor (only for Boxer engines)	21 ÷ 26	2.2 ÷ 2.7
Female connector fastening compressor/condenser pipe on condenser	26 ÷ 32	2.6 ÷ 3.2
Female connector fastening condenser/evaporator pipe on condenser	21 ÷ 26	2.2 ÷ 2.7
Female connector fastening condenser/evaporator pipe on evaporator	21 ÷ 26	2.2 ÷ 2.7
Intermediate connector on which expansion valve is inserted	21 ÷ 26	2.2 ÷ 2.7

**Group 50 - Climate control (Specific for T. Spark 16V versions)**

Part	Nm	kgm
Female connector fastening condenser/evaporator pipe on evaporator	17 ÷ 19	1.7 ÷ 1.9
Female connector fastening evaporator/drier filter pipe on evaporator	40 ÷ 44	4.1 ÷ 4.5
Male connector fastening evaporator/drier filter pipe on drier filter	40 ÷ 44	4.1 ÷ 4.5
Female connector fastening drier/filter compressor pipe on drier filter	40 ÷ 44	4.1 ÷ 4.5
Intermediate pipe connector on which expansion valve is inserted	17 ÷ 19	1.7 ÷ 1.9
Three-level pressure switch	7.5 ÷ 8.5	0.8 ÷ 0.9
Screw fastening compressor electromagnetic joint hub	11 ÷ 16	1.1 ÷ 1.6
Minimum pressure switch	7.5 ÷ 8.5	0.8 ÷ 0.9

**Group 50 - Climate control (Specific for '97 versions)**

Part	Nm	kgm
Screws fastening coolant fluid inlet and outlet pipes from drier filter, evaporator, compressor and condenser	5 ÷ 6	0.5 ÷ 0.6
Four-level pressure switch	7 ÷ 8	0.7 ÷ 0.8

**Group 55 - Electric system (Boxer versions)**

Part	Nm	kgm
Spark plugs	25 ÷ 30	2.5 ÷ 3.1
Bolts fastening starter motor	39 ÷ 48	4 ÷ 4.9

**Group 55 - Electric system (1929 Turbodiesel version)**

Part	Nm	kgm
Glow plugs	13 ÷ 16	1.3 ÷ 1.6
Screws fastening starter motor	19 ÷ 23	1.9 ÷ 2.4

**Group 55 - Electric system (T. Spark 16V versions)**

Part	Nm	kgm
Spark plugs	Central (large - M14)	25 ÷ 35
	Side (small - M10)	10 ÷ 12
Screws fastening starter motor	20 ÷ 25	2.0 ÷ 2.6

**Group 70 - Body**

Part	Nm	kgm
Screw fastening bonnet hinges to body	16 ÷ 20	1.7 ÷ 2.0
Screw fastening bonnet hinges to bonnet	6 ÷ 7	0.6 ÷ 0.8
Bonnet lock pin	20 ÷ 25	2.1 ÷ 2.6
Screw fastening bonnet lock safety device	7 ÷ 8	0.7 ÷ 0.9
Nut fastening bonnet pad to body	30 ÷ 37	3.0 ÷ 3.8
Screw fastening door hinges to body	38 ÷ 47	3.9 ÷ 4.8
Screw fastening door lock striker	15 ÷ 19	1.6 ÷ 1.9
Screw fastening door lock device	6 ÷ 8	0.7 ÷ 0.8
Nut fastening boot hinges to body	4 ÷ 5	0.4 ÷ 0.5
Screw fastening boot lid to body	6 ÷ 8	0.7 ÷ 0.8
Screw fastening hinges to boot lid	6 ÷ 7	0.6 ÷ 0.8
Screw fastening boot lid lock striker to body and lock to boot lid	4 ÷ 5	0.4 ÷ 0.5
Screw fastening dashboard crossrail	31 ÷ 38	3.1 ÷ 3.9
Screw fastening front wheel arch	6 ÷ 8	0.7 ÷ 0.8
Screw fastening lower front wheel arch	4 ÷ 5	0.4 ÷ 0.5
Screw fastening door check rods	3 ÷ 4	0.3 ÷ 0.4
Screw fastening headlamp holder crossrail	20 ÷ 25	2.1 ÷ 2.6
Screw fastening front/rear tow hook	20 ÷ 25	2.1 ÷ 2.6
Ski rack screw	6 ÷ 8	0.7 ÷ 0.8
Screw fastening headlamp container to sidemember	6 ÷ 7	0.6 ÷ 0.8
Nut fastening complete wheel arch to side panel	4 ÷ 5	0.4 ÷ 0.5
Screw fastening headlamp crossrail to lower wheel arch piece	20 ÷ 25	2.1 ÷ 2.6
Screw fastening mobile crossrail complete	26 ÷ 32	2.6 ÷ 3.2
Screw fastening power steering and battery crossrail connection bracket	20 ÷ 25	2.1 ÷ 2.6
Screw fastening power steering and battery crossrail	20 ÷ 25	2.1 ÷ 2.6

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Part	Nm	kgm
Screw fastening front seat belt runner	34 ÷ 42	3.5 ÷ 4.3
Screw fastening front seat belt reel	34 ÷ 42	3.5 ÷ 4.3
Screw fastening front seat belt connection	34 ÷ 42	3.5 ÷ 4.3
Screws fastening seat belt connection to front seats	34 ÷ 42	3.5 ÷ 4.3
Screw fastening front seat belt height adjustment device	17 ÷ 21	1.7 ÷ 2.1
Screw fastening rear seat belt reel	34 ÷ 42	3.5 ÷ 4.3
Screw fastening rear seat belt runner	34 ÷ 42	3.5 ÷ 4.3
Screw fastening rear seat belt lower connections	34 ÷ 42	3.5 ÷ 4.3
Screws fastening outer pretensioner arming bracket for front seat belt	3.5	0.35