

2.41 FASTENING ELEMENTS

Check, and where necessary, tighten after the first 1000 km (625 mi) and then every 7500 km (4687 mi) or 8 months.

⚠ CAUTION

The fastening elements featured in the table must be torqued to specification using a torque spanner and LOCTITE® applied, where indicated.

The elements marked (■) are particularly important for safety.

ENGINE					
Fastening of engine to frame					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Front connection	2+2	M10	40	4.0	
Left-side upper and lower rear connection	2	M10	50	5.0	
Adjusting bush right-side upper and lower rear connection	2	M20x1.5	12	1.2	
Lock ring right-side upper and lower rear connection	2	M20x1.5	50	5.0	
Screw right-side upper and lower rear connection	2	M10	50	5.0	

Elements fastened to the engine					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Engine oil inlet flange	2	M6	12	1.2	
Engine oil drain plug	2	M6	12	1.2	
Rear brake lever mount fastening	1	M6	10	1.0	
	1	M8	17	1.7	
Rear brake pump mount fastening	2	M8	17	1.7	
Pinion fastening	1	M10	50	5.0	L243
Clutch control cylinder fastening	3	M6	12	1.2	
Pinion case fastening	3	M6	6	0.6	
Fastening of fuel delivery pipe to throttle body	1	M12x1.5	22	2.2	
Coolant drain screw	1	M6	10	1.0	
Coolant thermistors	2	M14	30	3.0	

Carter					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Grooved ball bearings for selector roller / MS casing	1	Screw T.P. M6 x 13	11	1.1	L243
Grooved ball bearings for selector roller / KS casing	1	Screw T.P. M6 x 13	11	1.1	L243
Grooved ball bearings for propeller shaft / KS casing	2	Screw T.P. M6 x 13	11	1.1	L243
Coolant pump idler gear / KS casing	1	Pin 10	—	—	L648
MS casing / KS casing	13	Screw T.C.E.I. M6 x 65	11	1.1	
MS casing / KS casing	1	Screw T.C.E.I. M6 x 80	11	1.1	
MS casing / KS casing	5	Screw T.C.E.I. M6 x 45	11	1.1	
MS casing / KS casing	1	Screw T.C.E.I. M6 x 25	11	1.1	
Casing	1	Magnetic screw M12 x 1.5	20	2.0	
Casing	1	Contact screw M10	4	0.4	L574
Oil filter cover	2	Screw T.C.E.I. M6 x 20	11	1.1	
Casing / injector 75	1	Screw T.C.E.I. M6 x 10	6	0.6	
Bearing flange KS / MS	2	Screw T.E. M8 x 45	25	2.5	
Bearing flange KS	2	Screw T.E. M8 x 25	25	2.5	
Bearing flange MS	1	Screw T.C.E.I. M8 x 20	25	2.5	
Bearing flange MS	1	Screw T.C.E.I. M6 x 20	11	1.1	L243

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Driving shaft, countershaft, gearshift					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Positioning lever / positioner disc	2	Screw T.C.E.I. M6 x 20	11	1.1	L243
Differential shaft under KS	1	Nut M22 x 1.5	150	15.0	
KS driving shaft	1	Nut M33 x 1.5	230	23.0	L243
Countershaft under MS	1	Screw T.C.E.I. M10 x 20	50	5.0	L648

Oil pump					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Oil pump	1	Without head screw with double diameter M12 x 1.5	-	-	L648 Calking
Oil pump casing	1	-	-	-	Upper and lower surfaces: L574
Oil pump lid	4	Screw T.C.E.I. M6 x 45	11	1.1	

Clutch					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Secondary KS shaft	1	Nut M24 x 1.5	170	17.0	L648
Clutch spring	6	Screw T.E. M6 x 25	11	1.1	
Disengagement rod	1	Locking nut M12	30	3.0	
Complete diaphragm ring	8	Screw T.C.E.I. M5 x 20	5	0.5	
Clutch gear / clutch housing	3	Screw T.E. M8 x 16	30	3.0	L648

Head, cylinders					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Camshaft support / head "1" (front)	8	Screw T.C.E.I. M6 x 30	11	1.1	
Head "1" (front)	2	Exhaust pipe M18 x 1.5	Manual tightening		L243
Head "2" (rear)	1	Exhaust pipe M18 x 1.5	Manual tightening		L243
Camshaft support / head "2" (rear)	4	Screw T.C.E.I. M6 x 30	11	1.1	
Camshaft support / head "2" (rear)	2	Screw T.C.E.I. M6 x 45	11	1.1	
Camshaft support / head "2" (rear)	2	Screw T.C.E.I. M6 x 55	11	1.1	
Head "2" (rear)	1	Plug screw M18 x 1.5	Manual tightening		L243
Head / exhaust	6	Stud bolt M8 x 16/20	10	1.0	L648
Head "2" (rear)	1	Angular union	-	-	L574
Head / case	8	Stud bolt M10 x 171	10	1.0	L243
Cylinder / head	8	T.E. screws with shoulder M8 x 45	Not varnished cylinder version 28-30 Nm (2.9-3.0 Kgm) Varnished cylinder version 25-28 Nm (2.5-2.8 Kgm)		
Head / stud bolt	8	Nut M10	Not varnished head version 58 Nm (5.8 Kgm) Varnished head version 50-55 Nm (5.0-5.5 Kgm) Varnished head version (with nut on outer side) 58 Nm (5.8 Kgm)		
Head / chain compartment	4	Screw T.C.E.I. M6 x 100	12	1.2	
Head "2" (rear) / bearing flange	2	Screw T.E. M6 x 35	11	1.1	
Head "2" (rear) / bearing flange	2	Screw T.E. M6 x 20	11	1.1	

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Description	Q.ty	Screw / nut	Nm	kgm	Note
Head "2" (rear) / differential transmission - exhaust camshaft	3	Screw T.E. M6 x 14	11	1.1	L243
Drive gear / induction camshaft	6	Screw T.C.E.I. M6 x 11.5	11	1.1	L243
Head "1" (front) / gear - exhaust camshaft	3	Screw T.C.E.I. M6 x 11.5	11	1.1	L243
Head "2" (rear) / differential transmission upper side	1	Nut M14 x 1	50	5.0	L243
Valve cover	10	Spacer screw M6 x 23	9	0.9	
Head "1" (front) / chain guide shoe	2	Spacer screw M6 x 16	11	1.1	
Head	4	Spark plug	18	1.8	
Induction flange	4	Screw T.C.E.I. M8 x 25	19	1.9	
Cylinder / chain tightener	2	Plug screw M16 x 1.5	30	3.0	
Head "1" (front)	1	Coolant temperature thermistor	20	2.0	
Head "2" (rear)	1	Coolant temperature thermistor	20	2.0	
Cylinder bracket support shoe	2	Screw T.C.E.I. M10 x 40	40	4.0	
Cylinder bracket support shoe	2	Nut M10	40	4.0	L243

Ignition system, starter motor

Description	Q.ty	Screw / nut	Nm	kgm	Note
Driving shaft position sensor / flywheel cover	2	Taptite screw M6 x 16	11	1.1	
Flywheel cover / generator	3	Screw T.C.E.I. M6 x 40	11	1.1	L243
Magnetic gear - unidirectional case	—	—	—	—	L648
Free wheel flange	3	Screw T.C.E.I. M8 x 16	30	3.0	L648
Magnetic gear cone	—	—	—	—	L648
Ignition / driving shaft	1	Screw T.C.E.I. M16 x 30	130	13.0	L648
Ignition device cover / MS casing	12	Screw T.C.E.I. M6 x 35	11	1.1	
Ignition device cover	1	Plug screw M24 x 1.5	3	0.3	
Camshaft position sensor / head "1" (front)	2	Taptite screw M5 x 12	4	0.4	L243
Starter motor	2	Screw T.C.E.I. M6 x 30	11	1.1	

Clutch cover, coolant pump

Description	Q.ty	Screw / nut	Nm	kgm	Note
Coolant pump	1	Impeller	Manual tightening		
Clutch cover	1	Oil pressure switch M10 x 1	15	1.5	L243
Coolant pump casing	1	Screw T.C.E.I. M6 x 25	11	1.1	
Coolant pump casing	3	Screw T.C.E.I. M6 x 55	11	1.1	L243 only for left central screw
Clutch cover	11	Screw T.C.E.I. M6 x 35	11	1.1	
Clutch cover	3	Screw T.C.E.I. M8 x 40	19	1.9	
Clutch cover	1	Screw T.C.E.I. M8 x 65	19	1.9	

REAR FORK

Description	Q.ty	Screw / nut	Nm	kgm	Note
Fork pin metal ring	1	M30x1.5	12	1.2	
Fork pin lock ring	1	M30x1.5	60	6.0	
Fork pin nut	1	M20x1.5	90	9.0	
Caliper mount locking pin	1	M12	50	5.0	L243
Chain tightener screw and nut	1+1	M8	man.		
Brake pipe grommet fastening	2	M5	4	0.4	
Chain case fastening	2	M5	4	0.4	
Chain tightener shoe fastening	2	M5	2	0.2	
Rear mudguard fastening	2+2	M5	3	0.3	

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SIDE STAND					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of stand plate to frame	2	M10	40	4.0	
Stand fastening pin	1	M10x1.25	10	1.0	
Switch fastening screw	1	M6	10	1.0	
Lock nut	1	M10x1.25	25	2.5	

FRONT SUSPENSION					
Front fork					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of upper plate on fork tubes	1+1	M8	25	2.5	
Fastening of upper plate on fork tubes	2+2	M8	25	2.5	
Steering head metal ring	1	M35x1	40	4.0	
Steering head lock ring	1	M35x1	man. +90°		
Upper plate fastening bush	1	M29x1	80	8.0	
Lower plate travel-end bush fastening screw	1+1	M8	22	2.2	
Closing of fork / wheel pin clamps	2-2	M8	22	2.2	

Steering shock absorbers					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of shock absorber collar on dashboard/front fairing mount	1	M6	12	1.2	
Tube end lock nut	1	M8	12	1.2	
Screw fastening collar on shock absorber	1	M5	5	0.5	
Fastening of shock absorber tube on lower plate	1	M6	12	1.2	

REAR SUSPENSION					
Shock absorber					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of shock absorber to frame	1	M10	50	5.0	

Linkage					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of single connecting rod to frame	1	M10	50	5.0	
Fastening of single/double connecting rod to frame	1	M10	50	5.0	
Fastening of double connecting rod fork	1	M10	50	5.0	
Fastening of double connecting rod / shock absorber	1	M10	50	5.0	

ELECTRICAL SYSTEM					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of battery clamping bracket	1	M6	12	1.2	
Fastening of horn mount	1	M8x1.25	25	2.5	
Fastening of speed sensor on rear brake caliper mount	1	M6	12	1.2	
Fastening of rear indicators	2	M6	2-3	0.2-0.3	
Fastening of electronic unit protection case	3	SWP3.9	1	0.1	
Fastening of voltage regulator	2	M6	12	1.2	
Fastening of front indicators	2	M6	2-3	0.2-0.3	
Fastening of coil to mount	8	M5	5	0.5	
Fastening of rear light to rear fairing end	2	SWP3.9	1.5	0.15	
Fastening of headlight to front fairing	3	SWP3.9	1.5	0.15	
	1	M6	4	0.4	
Fastening of relay box to dashboard/front fairing mount	2	M6	4	0.4	
Fastening of fuse box to dashboard/front fairing mount	2	M6	3	0.3	
Fastening of earth to frame	1	M6	12	1.2	

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AIR FILTER CASING					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of air filter casing cover	7	M5	4	0.4	
Fastening of air filter casing to throttle body	6	M6	8	0.8	
Fastening of intake conveyors	4	SWP3.9	1	0.1	
Fastening of air sensor support plate	1	SWP3.9	1.5	0.15	

FRONT WHEEL					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Wheel pin nut	1	M25x1.5	80	8.0	

REAR WHEEL					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of sprocket on sprocket holder	5	M10	50	5.0	
Wheel pin nut	1	M25x1.5	120	12.0	

COOLING SYSTEM					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Thermal switch on 3-way manifold	1	M14x1.5	30	3.0	L572
Fastening of electrofan mount	2+2	M6	6	0.6	
Fastening of electrofan motor to mount	3+3	M4	2	0.2	L243
Radiator coolant drain screws	1+1	M6	10	1.0	L572
Fastening of expansion tank to coils mount	2	M6	10	1.0	
Fastening of expansion tank cap	1	M28x3	man.		
Fastening of coolant filler neck	1	M6	10	1.0	

BRAKING SYSTEMS					
Front system					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of right and left brake caliper	2+2	M10x1.25	50	5.0	
Fastening of brake fluid tank	1	M6	5	0.5	
Fastening of brake fluid tank bracket	1	M6	12	1.2	
Fastening of brake discs	6+6	M8	30	3.0	L243
Fastening of front brake pipe	1	M10x1	20	2.0	
Brake fluid bleeder	3	M10x1	10	1.0	

Rear system					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Brake caliper fastening	2	M8	25	2.5	
Brake lever pin	1	M8	15	1.5	L243
Fastening of brake fluid tank	1	M5	1	0.1	
Brake pump fastening	2	M6	12	1.2	
Brake rod lock nut	1	M6	man.		
Brake disc fastening	5	M8	30	3.0	L243
Brake pipe fastening	1	M10x1	20	2.0	

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CLUTCH CONTROL					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of clutch fluid pipe	1	M10x1	20	2.0	
Fastening of fluid tank bracket	1	M6	12	1.2	
Fastening of clutch fluid tank on mount	1	M5	3	0.3	
Clutch fluid bleeder	1	M10x1	10	1.0	

EXHAUST SYSTEM					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of exhaust pipes to engine	3+3	M8	25	2.5	
Exhaust silencer fastening	1	M8	25	2.5	

FUEL TANK					
Fuel pump flange					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fuel return fitting	1	M6	6	0.6	L243
Fastening of pump mount to flange	3	M5	4	0.4	
Fastening of electric terminals on flange	2	M5	5	0.5	
Closing of fuel return	1	M6	10	1.0	L243
Fastening of fuel delivery pipe on flange	1	M12x1.5	22	2.2	
Petrol level sensor on pump mount	2	SWP 2.9x12	1.5	0.15	
Fastening of fuel pump cables on flange	2	M6	10	1.0	

Tank					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of cap on tank	3	M5	5	0.5	
Fastening of fuel pump flange on tank	8	M5	7	0.7	
Fastening of tank front on frame	2	M6	12	1.2	
Fastening of tank rear on mount	1	M6	12	1.2	

ENGINE OIL TANK AND RADIATOR					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Tank upper fastening screw	1	M6	10	1.0	
Tank fastening nuts	2	M6	10	1.0	
Oil filter	1	M20x1.5	30	3.0	
Oil drain plug	1	M8	15	1.5	
Oil level pipe fittings	2	M10x1	20	2.0	
Radiator fastening screws	3	M6	12	1.2	

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FRAME / FAIRINGS					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Radiator spoiler fastening	3	M6	5	0.5	
Fastening of number plate holder to rear mudguard extension	2	M5	2	0.2	
Fastening of reflector holder to number plate holder	2	M5	6	0.6	
Front mudguard fastening	4	M5	5	0.5	
Rearview mirror fastening screws	1+1	M6	8	0.8	
Fastening of rearview mirror mounts and front fairing to mount	4	M6	5	0.5	
Lower fastening of front fairing to conveyors	2	M5	4	0.4	
Lower fastening of front fairing (on upper part)	2	M5	4	0.4	
Fastening of conveyor covers	14	SWP 3.9	2	0.2	
Fastening of conveyors to frame and mount	6	M6	5	0.5	
Fastening of side fairing upper panel	2+2	M5	front 1 rear 2	0.1 0.2	
Fastening of dashboards upper protection moulding	4	M5	2	0.2	
Fastening of lower fairing to frame	4	M6	5	0.5	
Fastening of silencer protection to lower fairing	2	M6	5	0.5	
Fastening of sides	4	M6	5	0.5	
Fastening of saddle support bush and lower moulded cover	2	M6	5	0.5	
Fastening of saddle support lower moulded cover	4	M6	4	0.4	
Fastening of rear fairing to saddle support lower moulded cover	6	M5	2	0.2	
Fastening of rear fairing end to rear fairing	2+2	M5	upper 5 lower 3	0.5 0.3	
Fastening of rear fairing / passenger grab strap	2	M6	12	1.2	
Fastening of internal fairing and side fairing	8	SWP 2.9	1	0.1	
Fastening of dashboard to mount	3	M6	5	0.5	
Fastening of riders's saddle	2	M6	12	1.2	
Fastening of riders's saddle front mount	4	M6	12	1.2	
Fastening of passenger seat lock	2	M6	10	1.0	
Fastening of passenger seat lock key-operated control	2	M6	12	1.2	
Fastening of passenger footrest supports	4	M8	25	2.5	
Fastening of riders's footrest supports	4	M8	25	2.5	
Fastening of riders's footrest protection	4	M5	6	0.6	
Fastening of rear mudguard	4	M5	6	0.6	
Fastening of saddle support	4	M10	50	5.0	
Fastening of coil mounts	4	M6	12	1.2	

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RIGHT/LEFT HANDLEBARS AND CONTROLS					
Description	Q.ty	Screw / nut	Nm	kgm	Note
Fastening of anti-vibration weights	2	M6	12	1.2	
Anti-vibration weights metal ring	2	M18x1	35	3.5	
Fastening of right/left handlebars to the fork	2	M8	25	2.5	
Handlebars lock screw	2	M6	12	1.2	
Fastening of left dimmer switch	1	M5	1.5	0.15	
Fastening of right dimmer switch	1	M4	1	0.1	
Fastening of front brake lever	2	M5	8	0.8	
Fastening of clutch lever	2	M5	8	0.8	

Notes:

L243 = fasten with LOCTITE® 243

L572 = fasten with LOCTITE® 572

L574 = fasten with LOCTITE® 574

L648 = fasten with LOCTITE® 648

man. = fasten by hand

**Steel/aluminium fastening screws with similar coefficient of elasticity**

SCREW	Nm	kgm
M4	3	0.3
M5	6	0.6
M6	12	1.2
M8	25	2.5
M10	50	5.0
M12	80	8.0