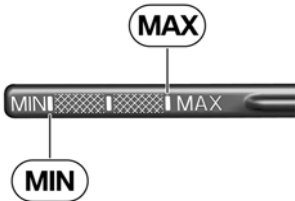



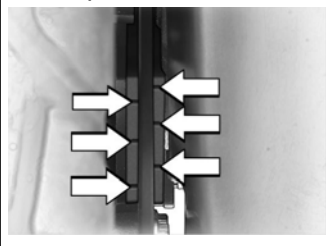
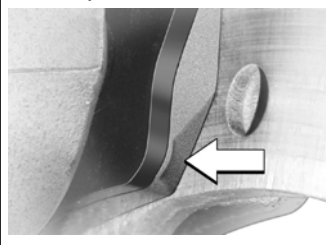


Service data 0218 - F 650 GS			
Equipment trim-level variant: 0499 - Lowered suspension 0603 - Anti-theft alarm Anti-theft alarm 0524 - BMW Motorrad ABS 0530 - Tyre pressure monitoring (RDC)			
Designation	Condition	Value	Valid
11 - Engine			
Engine oil, capacity	with filter change	2.9 l	
	without filter change	2.7 l	
	additional, if swing-arm shaft cover is removed	0.3 l	
	Fluids and lubricants		
		of products recommended by BMW Motorrad and generally admissible viscosity classes	
Engine oil, quantity for topping up	maximum top-up quantity between MIN and MAX marks	0.4 l	
	Fluids and lubricants		
	of products recommended by BMW Motorrad and generally admissible viscosity classes		
Engine oil level 		Between MIN and MAX marks	
1134 - Valves with springs			
Inlet valve clearance	Engine cold max 35 °C	0.18...0.26 mm	
Exhaust valve clearance	Engine cold max 35 °C	0.27...0.35 mm	
1212 - Ignition wiring, spark plugs			
Spark plugs, manufacturer and designation		NGK DCPR 8 E	
16 - Fuel supply			
Usable fuel capacity		approx. 16 l	
Reserve fuel		approx. 4 l	
17 - Cooling			

Coolant, specified level 		between MIN and MAX marks on the expansion tank	
	Fluids and lubricants		
	Antifreeze		
Coolant, frost protection		min -25 °C	
	Fluids and lubricants		
	Antifreeze		
2772 - Chain			
Chain deflection	Motorcycle with no weight applied, supported on its side stand	20...30 mm	
3273 - Bowden cables			
Setting, throttle-cable play	at outermost diameter of rubber grip, engine cold max 35 °C	1...2 mm	
Clutch play	Handlebars turned fully left, between handlebar fitting and clutch cable	1 mm	
34 - Brakes			
Brake fluid level, front (visual inspection) 		It is impermissible for the brake fluid level to drop below the MIN mark.	
	Fluids and lubricants		
	DOT4 brake fluid		
Brake fluid level, rear (visual inspection) 		Do not permit the brake fluid level to drop below the MIN mark.	
	Fluids and lubricants		
	DOT4 brake fluid		
3411 - Front brake			
Brake disc thickness, front	When new	5.0 mm	
	Wear limit	min 4.5 mm	

<p>Brake-pad wear limit, front</p> 	<p>Friction pad only, without backing plate. The wear indicators (grooves) must be clearly visible.</p>	<p>min 1.0 mm</p>	
<p>3421 - Rear brake</p>			
<p>Brake-pad wear limit, rear</p> 	<p>Friction pad only, without backing plate. The wear indicators must be clearly visible.</p>	<p>min 1.0 mm</p>	
<p>Brake disc thickness, rear</p>	<p>When new</p>	<p>5.0 mm</p>	
	<p>Wear limit</p>	<p>min 4.5 mm</p>	
<p>3630 - Motorcycle wheels</p>			
<p>Permissible front-wheel imbalance</p>		<p>max 5 g</p>	
<p>Permissible rear-wheel imbalance</p>		<p>max 45 g</p>	
<p>Balancing weight for front wheel Weight must be divided equally across both sides and weights attached to rim on left and right.</p>		<p>max 80 g</p>	
<p>Balancing weight for rear wheel Weight must be divided equally across both sides and weights attached to rim on left and right.</p>		<p>max 80 g</p>	
<p>3632 - Tyres</p>			
<p>Tyre pressure, front</p>	<p>one-up, at tyre temperature 20 °C</p>	<p>2.2 bar</p>	
	<p>two-up and/or with luggage, at tyre temperature 20 °C</p>	<p>2.2 bar</p>	
<p>Tyre pressure, rear</p>	<p>one-up, at tyre temperature 20 °C</p>	<p>2.5 bar</p>	
	<p>two-up and/or with luggage, at tyre temperature 20 °C</p>	<p>2.9 bar</p>	
<p>Tyre tread depth, front and rear</p>	<p>Wear limit, for Germany only</p>	<p>min 1.6 mm</p>	
	<p>Wear limit, outside</p>	<p>Country-specific legal</p>	

	Germany	requirements	
Wheel valve test pressure		4 bar	
6575 - Anti-theft alarm			
Battery type and rated voltage		CR123A lithium 3 V	
11 11 - Engine block			
Socket-head screw (hole for TDC locating pin)			
M8 x 16		25 Nm	
11 12 - Cylinder head with cover			
Cylinder head cover for cylinder head			
M6 x 20		tighten in diagonally opposite sequence	
		10 Nm	
Camshaft bearing cap to cylinder head			
M6		Tightening sequence: see Repair Manual	
		Initial torque, tightened uniformly until hand-tight	
		Final torque, 10 Nm	
11 13 - Oil sump			
Oil drain plug			
M24 x 2		40 Nm	
11 31 - Camshaft			
Chain tensioner to cylinder head			
M18 x 1.5		40 Nm	
11 42 - Oil filter and lines			
Oil filter		14 Nm	
12 12 - Ignition wiring, spark plugs			
Spark plugs			
M12 x 1.25		18 Nm	
13 71 - Intake air silencer			
Intake air silencer to frame			

M6 x 25	6 Nm	
23 00 - Gearbox mechanical		
Pinion to gearbox output shaft		
M10 x 1.5 x 35 Loctite 243	50 Nm	
27 72 - Chain		
Chain slide rail to rear wheel swinging arm		
M5 x 12	4 Nm	
31 42 - Telescopic forks		
Fixed fork tube to fork bridge, top		
M8 x 25	19 Nm	
Fixed fork tube to fork bridge, bottom		
M8 x 25	19 Nm	
Pinch bolt, steering head		
M8 x 40	19 Nm	
Adjusting screw to steering-head bearing		
M18 x 1	Initial torque, 25 Nm	
	Swing handlebars through 3 full arcs	
	Back off through angle of rotation, 60°	
	Final torque, 10 Nm	
Clamp of quick-release axle		
M8 x 25	19 Nm	
Fork stabiliser to slider tube		
M8 x 25 -10.9	19 Nm	
32 71 - Motorcycle handlebars		
Handlebars to clamping block		
M8 x 30 - 10.9	tighten the front screws (as viewed in the forward direction of travel) first, then the rear screws.	
	28 Nm	

33 11 - Final-drive unit housing with cover**Chain sprocket to chain-sprocket carrier**

Replace nuts Mechanical thread lock	Initial torque, 10 Nm	
	Final torque, 90°	

33 17 - Final-drive unit attachment**Locknut of the final-drive chain tensioning screw**

M8	19 Nm	
----	-------	--

Rear wheel swinging arm to frame

M14 x 1.5, Replace nut Mechanical thread lock	100 Nm	
--	--------	--

33 53 - Springs with mounts**Spring strut to swinging arm**

Fitted-head screw, M12 x 1.5-10.9, Replace the screw, lubricate the side flats of the screw head Optimoly TA , Micro-encapsulated	100 Nm	
--	--------	--

34 11 - Front brake**Brake disc to front wheel**

M6 x 20, Replace screw Micro-encapsulated	11 Nm	
--	-------	--

Brake caliper to fork leg

ASA screw with washer, M10 x 40	38 Nm	
---------------------------------	-------	--

Bleed screw, brake caliper, front

M10 x 1 - 4.9	14 Nm	
---------------	-------	--

Bleed screw on handbrake fitting

M5	2 Nm	
----	------	--

34 21 - Rear brake**Brake disc with sensor ring to rear-wheel hub**

M8 x 18,5, Replace screw Micro-encapsulated	tighten by stages in diagonally opposite sequence	
	19 Nm	

Rear brake caliper bleed screw

M10 x 1 - 4.9	14 Nm	
---------------	-------	--

34 52 - Electronic components**Wheel-speed sensor, front**

M6 x 16 8 Nm

Wheel-speed sensor, rear

M6 x 16 8 Nm

36 31 - Wheels with bearings**Quick-release axle, front, in axle holder**

M16 x 1.5 30 Nm

RDC sensor, front, to wheel rim

Loctite 243	Initial torque, 12 Nm	
	Slacken nut	
	Final torque, 12 Nm	

Rear quick-release axle in swinging arm

M16 x 1.5 100 Nm

46 53 - Side stand**Side stand to pivot mount**M10 - 10.9, Replace screw
Micro-encapsulated 38 Nm**Side-stand switch to side-stand screw**

M5 5 Nm

46 54 - Luggage system**Grab handle to rear frame at rear**

M8 x 35 19 Nm

Grab handle to rear frame at front

M8 x 16 19 Nm

46 61 - Front-wheel cover**Front-wheel cover to forks**

M6 x 22 4 Nm

M6 x 30 4 Nm

46 63 - Motorcycle fairing, windscreen

Windscreen to front panel carrier		
M5 x 18	2.5 Nm	
Chain guard to swinging arm		
M6 x 16	8 Nm	
51 16 - Mirrors, covers, ashtrays, stowage compartments		
Mirror to clamping element		
M14 x 1	20 Nm	
Clamping element to clamping block		
M10	30 Nm	
61 21 - Battery with holder		
Positive lead/earth lead, battery		
M6 x 11	3.5 Nm	