

Repair Manual



F 650 CS

**BMW Motorrad
After Sales**

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 After Sales
 UX-VS-2

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Use

Each chapter starts with the list of contents.

The list of contents is followed by the technical data table.

Key to symbols

In this Repair Manual for the F 650 CS model, the following symbols are used; their meanings are explained in the table.

Special instructions aimed at improving the work procedures



Note:

Special information on operating and inspecting the motorcycle as well as maintenance and adjustment procedures.



Attention:

Instructions and precautions specifically intended to prevent damage to the motorcycle. Failure to comply with them could invalidate the warranty.



Warning:

This symbol stands for precautions and measures which are essential in order to protect the rider or other persons from possibly severe or fatal injury.

Contents

The titles of the tasks described in this chapter..... complete with page numbers

Activities

- Activities
- The bullet symbol indicates work steps that are described in greater detail under another headline
- Preceding activities
- A line indicates work steps that are described in greater detail under another headline or in another chapter

The term "remove" means that:

the fastener (e.g. screw) must be backed off completely and removed

or

a component (e.g. injection rail) has to be removed to the extent that components behind it (e.g. throttle valve rail) are rendered accessible

The term "loosen" or "slacken" means that:

the fastener (e.g. screw) must be backed off, but not removed



Tightening torque:

Values are stated if they differ from DIN EN 24 014 or DIN 912 ISO industrial standards.

BMW Motorrad Maintenance schedule F 650 CS



			BMW Inspection at 1,000 km/600 miles	BMW Maintenance Service every 10,000 km/6,000 miles	BMW Inspection every 20,000 km/ 12,000 miles	BMW Annual Service
Customer _____	Licence No. _____	Mileage _____				
Job Order No. _____	Date _____	Mechanic's signature _____				
Read the fault code memory with the BMW MoDiTeC			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change the engine oil [engine only] while at regular operating temperature and replace the oil filter element			<input type="checkbox"/>			
Change the engine oil [engine and oil tank] while at regular operating temperature and replace the oil filter element if motorcycle is used only for short journeys or at outside temperatures below 0°C (32°F): every 3 months or at the latest after 3,000 km (1,800 miles)				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clean oil strainer in frame once only at 10,000 km/6,000 miles				<input type="checkbox"/>		
Check the coolant and restore to correct level if necessary			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Grease rubber grommets for cover insert			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Replace the coolant *) every 2 years						<input type="checkbox"/>
Check valve clearances, adjust if necessary *)				<input type="checkbox"/>	<input type="checkbox"/>	
Replace the spark plug					<input type="checkbox"/>	
Drain the outlet hose from the air filter box			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Replace intake air filter If motorcycle is operated in very dirty or dusty conditions, clean or replace the intake air filter every 10,000 km (6,000 miles); check every 3,000 km (1,800 miles)					<input checked="" type="checkbox"/>	
Replace fuel filter every 40,000 km (24,000 miles)					<input checked="" type="checkbox"/>	
Check clutch play, adjust if necessary			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Examine brake pads and discs for wear, replace if necessary *)				<input type="checkbox"/>	<input type="checkbox"/>	
Check front/rear circuit brake fluid				<input type="checkbox"/>	<input type="checkbox"/>	
Check for operation of brake system and freedom from leaks; repair/replace if necessary *)					<input type="checkbox"/>	
Renew brake fluid at least once a year						<input type="checkbox"/>
[ABS] Replace the primary front/rear brake master cylinder cup *) every 40,000 km (24,000 miles)					<input checked="" type="checkbox"/>	
Replace toothed belt					<input type="checkbox"/>	
Check toothed belt and sprocket, replace if necessary *)					<input type="checkbox"/>	
Check belt tension, adjust if necessary *)			<input type="checkbox"/>	<input type="checkbox"/>		
Check battery acid level, add distilled water if necessary				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clean and grease the battery terminals, if necessary						<input type="checkbox"/>
Check steering head bearings and adjust *) or replace if necessary *)				<input type="checkbox"/>	<input type="checkbox"/>	
Grease the side stand				<input type="checkbox"/>	<input type="checkbox"/>	
Using a torque wrench, check that the screws and nuts of the engine mounts, manifold fastener, the frame threaded fasteners, the rear-frame threaded fasteners, and the eccentric clamp are tightened to specified torque			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Final inspection with road safety and functional check: – Clutch, gearshift – Steering – Front and rear brakes – Side stand contact switch – Condition of tyres and wheels, tyre pressures – Lights and signalling equipment, indicator and warning lights, instruments – Optional equipment – Test ride, if necessary			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*) Write up on separate invoice; Not part of standard service procedure

BMW Motorrad Pre-delivery check F 650 CS



<p>Customer _____</p> <p>Job Order No. _____</p>	<p>Licence No. _____</p> <p>Mechanic's signature _____</p>	<p>BMW Pre-delivery check</p>
<p>Check the shipping pallet for damage</p>		
<p>Unpack the motorcycle</p>		<input type="checkbox"/>
<p>Inspect motorcycle for damage</p>		<input type="checkbox"/>
<p>Check complete specification delivery:</p> <ul style="list-style-type: none"> - tools - handbooks and documents - keys - optional extras 		<input type="checkbox"/>
<p>Motorcycle complete</p>		<input type="checkbox"/>
<p>Battery:</p> <ul style="list-style-type: none"> - remove - add battery acid - charge - grease the terminal posts - re-install (mark date) 		<input type="checkbox"/>
<p>Check tyre pressure</p>		<input type="checkbox"/>
<p>Fuel the motorcycle</p>		<input type="checkbox"/>
<p>Safety/operating check as final inspection:</p> <ul style="list-style-type: none"> - Oil inspection - Clutch, gearshift - Steering - Hand brakes and foot brakes - Check lights and signalling equipment, warning and indicator lights, instruments, ABS - Test ride, if necessary 		<input type="checkbox"/>
<p>Confirm delivery inspection in "Maintenance Booklet"</p>		<input type="checkbox"/>
<p>Final cleaning</p>		<input type="checkbox"/>
<p>Vehicle delivered on:</p>		

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Service data

F 650 CS



Item	Desired value	Units / Specifications
Oil capacities		
Engine (incl. filter)	0.5 (0.88/0.53)	Litres (Imp. pints/US quarts) Specification: see latest Service Information
Engine (incl. filter) and oil tank	2.5 (4.4/2.64)	Litres (Imp. pints/US quarts) Specification: see latest Service Information
Coolant		
	50% 50%	Water Anti-freeze protection to -25 °C
Cooling system	1.3 (2.29/1.37)	Litres (Imp. pints/US quarts)
Reservoir	0.1 (0.18/0.11)	Litres (Imp. pints/US quarts)
Brake Fluid		
Valve clearance		
		DOT 4
		measured cold (max. 35 °C/95 °F)
Inlet	0.03-0.11 (0.0012-0.004)	mm (in)
Exhaust	0.25-0.33 (0.010-0.013)	mm (in)
Spark plugs		
	NGK DR8 EB	
Electrode gap	0.6...0.7 (0.02...0.03)	mm (in)
Engine idle speed		
	1,400	rpm
Clutch cable play		
Cable at grip	1.0 - 2.0 (0.004 - 0.008)	mm (in)
Tyre pressure		
		tyres cold
Solo front/rear	2.2/2.5 (31.91/36.26)	bar (psi)
fully loaded front/rear	2.2/2.5 (31.91/36.26)	bar (psi)
Tightening torques		
Engine oil drain plug	40	Nm
Oil filter cover	10	Nm
Drain plug, on-frame oil tank	21	Nm
Oil lines to frame	42	Nm
Oil strainer to frame	80	Nm
Water pump drain screw	10	Nm
Vent screw	12	Nm
Expansion tank to radiator	9	Nm
Cylinder head cover	10	Nm
Spark plugs	20	Nm
Camshaft bearing cap	10	Nm
Chain guide	10	Nm (Loctite 243)
Fuel filter to stowage-compartment frame	9	Nm
Intake air pipe to intake air silencer	9	Nm
Suspension strut to angled lever	41	Nm
Eccentric clamp	Initial tightening 10 21	Nm Nm
Brake caliper to swinging arm	21	Nm
Struts to swinging arm	41	Nm
Swinging-fork pivot axle	100	Nm
Adjusting screw steering head bearing	25 Back off through angle of rotation 60	Nm °
Clamp screw for fork bridge steering head	23	Nm
Engine to frame at rear	50	Nm
Cylinder head to frame	41	Nm
Cylinder head to frame, locknut	100	Nm
Engine shell to engine	55	Nm
Engine shell to engine, bottom, with bottom truss	55	Nm
Engine shell to bracing tube	24	Nm
Rear frame to main frame	24	Nm (Loctite 2701)
Exhaust manifold to cylinder head	20	Nm
Silencer to exhaust manifold	55	Nm

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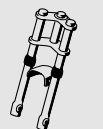
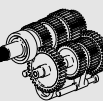
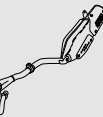
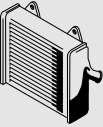
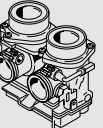
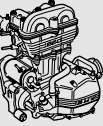
21 Clutch

23 Gearbox

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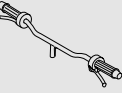
31 Front forks

>> Continuation

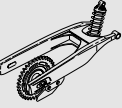


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33 Rear wheel drive



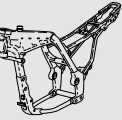
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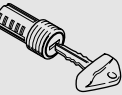
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