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C 1

**BMW AG Motorcycle Division
After Sales**

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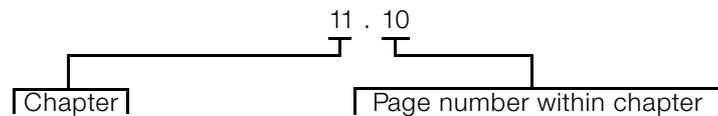
Introduction

This repair manual will help you to perform all the main maintenance and repair work correctly and efficiently. If it is consulted regularly by workshop personnel it will form a useful addition to the theoretical and practical knowledge acquired at the BMW Training Centre. It is a contribution towards achieving even higher Service quality.

A new issue of this repair manual will be published if amendments or additions (supplements) are needed.

All information in both text and illustrations refers to motorcycles in standard condition or with genuine BMW accessories installed, and not to motorcycles which have been modified in any way to depart from the manufacturer's specification.

- The repair manual is structured in the logical sequence of the work to be performed: Removal, Disassembly, Repair, Assembly, Installation.
- The entire contents are divided into individual chapters, corresponding to the Construction Groups.



An arrow symbol followed by the chapter and page numbers is a reference to another chapter, e.g. **➡**See Group 46

- Work to be performed during an Inspection is described in Group "00". The various inspection routines are numbered I, II, III and IV. This numbering is repeated in the work descriptions which follow, so that work can take place without interruption.
- Use of the BMW special tools needed for certain tasks is described in the work instructions.

If the need arises, repair instructions are also issued in the form of Service Information. This information is of course incorporated into the next issue of the repair manual. We also recommend, as an additional source of information, the Electronic Parts Catalogue (ETC), which contains clear and easy-to-follow illustrations.

If the work described here is restricted to a particular equipment specification, for instance if a specific optional extra (OE) is fitted, this is stated in square brackets at the start of the item concerned, e.g. **[With heated handlebar grips]**.

Please refer to the following pages as well for a description of other symbols used and how to work with it.

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Usage

Each chapter starts with the list of contents.

The list of contents is followed by the Technical Data table.

Chapter 00 "Maintenance and general instructions" details the handover checklist and lists all tightening torques and operating fluids.

Key to symbols

In this Workshop Manual for the C 1 model, the following symbols are used; their meanings are explained in the table.

Special instructions aimed at improving the work procedures.



Note:

Specific information on operating, inspecting and adjusting work for the motorcycle as well as maintenance procedures.



Caution:

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

Headlines for the work described in the chapter..... with the relevant page number

Activities

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

If the term "release" or "remove" is used:

the fastener (e.g. screw) must be slackened off and taken out

or

a component (e.g. fuel rail) must be removed to the extent that other components which it conceals (e.g. throttle-valve rail) are accessible

If the term "loosen" or "slacken" is used:

the fastener (e.g. screw) must only be slackened off but not taken out

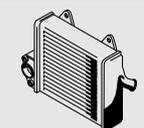
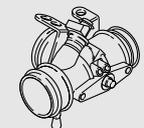
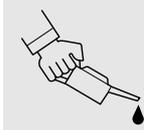


Tightening torques:

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

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BMW AG Motorcycle Division

Pre-delivery check

C 1



<p>_____</p> <p>Customer</p> <p>_____</p> <p>Order No.</p>	<p>_____</p> <p>Licence plate No.</p> <p>_____</p> <p>Mechanic's signature</p>	<p>BMW</p> <p>Pre-delivery check</p>
<p>Check the shipping pallet for damage</p>		
<p>C 1:</p> <ul style="list-style-type: none"> - Unpack - Inspect for damage - Install remaining items - Clean 		<input type="checkbox"/>
<p>Battery:</p> <ul style="list-style-type: none"> - Remove - Fill with acid - Charge - Grease terminal posts - Install (mark with installation date) 		<input type="checkbox"/>
<p>Check that the delivery is complete:</p> <ul style="list-style-type: none"> - Toolkit - Documentation - Motorcycle keys - Optional extras 		<input type="checkbox"/>
<p>Check tyre pressures</p>		<input type="checkbox"/>
<p>Fill fuel tank</p>		<input type="checkbox"/>
<p>Final inspection as functional check:</p> <ul style="list-style-type: none"> - Engine idle - Clutch, engagement at pull-away - Steering - Seat belts - Easy-lift - Front and rear brakes - Lights and signalling equipment, telltale and warning lights, instruments - Adjust headlight beam - If necessary, test ride 		<input type="checkbox"/>

BMW AG Motorcycle Division

Maintenance schedule

C 1



		BMW Inspection at 1,000 km (600 miles)	BMW Service 7,500 km (4,500 miles)	BMW Inspection every 15,000 km (9,000 miles)	BMW Annual Service
Customer	Licence plate No.				
Order No.	Mechanic's signature				
MoDiTeC, read fault code memory		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Renew the oil filter element		<input type="checkbox"/>			
Change the engine oil while at regular operating temperature; renew the oil filter element If the C1 is ridden only for short distances or at outside temperatures below 0°C, this task must be performed every 3 months, or at least every 3,000 km (1,800 miles)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clean oil strainer and the magnetic oil drain plug			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change gearbox oil every 30,000 km (18,000 miles)*)				30,000	3
Check the coolant level and restore to correct level if necessary, check hoses for damage and chaffing		<input type="checkbox"/>		<input type="checkbox"/>	
Change coolant (every two years)					2
Check valve clearances, adjust if necessary*)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Renew the spark plug				<input type="checkbox"/>	
In very dirty and dusty operating conditions, replace air-filter element at more frequent intervals			<input type="checkbox"/>	<input type="checkbox"/>	
Empty drain pipe from air manifold					<input type="checkbox"/>
Brake hoses and connections: check condition and routing			<input type="checkbox"/>	<input type="checkbox"/>	
Check operation of brake system and check for leaks; repair/replace as necessary*)			<input type="checkbox"/>	<input type="checkbox"/>	
Check brake fluid level at front and rear		<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"/>	
Change brake fluid at least once a year*)					<input type="checkbox"/>
Replace variator belt			<input type="checkbox"/>	<input type="checkbox"/>	
Check clutch liner, replace if necessary*)				<input type="checkbox"/>	
Clean strainer (filter) of variator			<input type="checkbox"/>	<input type="checkbox"/>	
Grease driving variator			<input type="checkbox"/>	<input type="checkbox"/>	
Replace driving variator assembly every 22,500 km (13,500 miles)			22,500		
Check wheel bearings for play, replace if necessary*)				<input type="checkbox"/>	
Check that leading link bearing has zero play		<input type="checkbox"/>			<input type="checkbox"/>
Battery: Check battery acid level, if necessary add distilled water					<input type="checkbox"/>
Clean and grease the battery terminals, if necessary					<input type="checkbox"/>
Check Bowden cables (for damage, chaffing and stiff action)				<input type="checkbox"/>	<input type="checkbox"/>
Easy-lift mechanism: check operation of mechanism and check freedom of movement			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check windscreen washer system; adjust nozzles if necessary and top up washer fluid in reservoir		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Check windscreen wiper; replace wiper blade if necessary*)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety elements: Check Bowden cable of release, belt buckles, belt webbing, inertia reels, belt stop		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check crash element for damage		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check shoulder bars for damage; replace deformation element if necessary*)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Replace fuel filter (every 37,500 km/22,500 miles)			37,500		
Replace rubber element of master brake cylinder ABS, initially complete fitting (every 30,000 km/18,000 miles)				30,000	
Check security of screws and nuts of engine mounts and quick-release axles		<input type="checkbox"/>			
Final inspection with road safety and functional check:					
– Clutch engagement at pull-away, steering, brakes front and rear, condition of tyres and wheel rims, tyre pressures			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– Lights and signalling equipment, telltale and warning lights, instruments					
– If necessary, test ride					

*) To be billed as separate items, associated work: see brochure on flat-rate units motorcycle 2000

BMW AG Motorcycle Division

Service data

C 1



Item	Desired value	Unit of measurement/ specification
Oil capacities		
Engine (with filter)	1.0 (1.76)	litres (Imp. pints) 15W40
Gearbox	0.090 (0.16)	litres (Imp. pints) API GL 4
Coolant		
Cooling system	1.2 (2.11)	litres (Imp. pints)
Expansion tank	0.2 (0.35)	litres (Imp. pints)
		Composition: Water: 50% Antifreeze: 50% Antifreeze protection to -25 °C
Windscreen-washer fluid	1.0 (1.76)	Water and cleaning agent; antifreeze as necessary
Brake fluid		DOT 4
Valve clearances		
Measured cold (max. 35 °C)	Inlet: 0.05-0.14 (0.002-0.006) Exhaust: 0.20-0.29 (0.008-0.011)	mm (in) mm (in)
Spark plug		NGK CR8 EB
Electrode gap	0.7...0.8 (0.027...0.031)	mm (in)
Idle speed	1,900	rpm
Tyre pressure (cold tyres)		
solo	front/rear 1.9/2.1 (27.6/30.5)	bar (psi)
fully loaded	1.9/2.4 (27.6/34.8)	bar (psi)
Tightening torques:		
Engine oil drain plug	20	Nm
Oil mesh filter on engine	30	Nm
Engine water drain plug	10	Nm
Oil filter cap	10	Nm
Camshaft sprockets to camshafts	30	Nm (Loctite 243)
Guide rail to camshaft mount	10	Nm (Loctite 243)
Screw plug for chain tensioner	35	Nm
Camshaft bearing cap	10	Nm
Valve cap	10	Nm
Machine screw for locating crankshaft at TDC	15	Nm
Spark plug	15	Nm
Variator, driving	60	Nm (Loctite 243)
Cover for driving variator	4	Nm
Variator, driven	60	Nm
Locknut, clutch to driven variator	50	Nm (Loctite 243)
Variator cover to drive swinging arm	10	Nm
Ventilation cover for variator	9	Nm
Front quick-release axle	83	Nm (Loctite 243)
Clamping screws for front quick-release axle	21	Nm
Brake calliper at fork slider tube	41	Nm
Bleed screw in brake calliper	14	Nm
Cover of handbrake fitting	Hand-tight	Nm
Rear quick-release axle Never re-use nut	130	Nm
Exhaust to cylinder head	15	Nm
Secondary swinging arm to drive swinging arm, M8	21	Nm
Secondary swinging arm to drive swinging arm, M10	60	Nm (Loctite 243)
Silencer to secondary swinging arm	21	Nm
Spring strut to drive swinging arm/brake calliper holder	21	Nm
Swinging-arm bearing to drive swinging arm	73	Nm
Tubular swinging arm to frame	73	Nm
Stand to frame	41	Nm
Rubber element to tubular swinging arm	42	Nm
Screws for trim panels	5	Nm

00 Maintenance and general instructions

Tightening torques and Table of operating fluids
Instructions for handover to customer
Maintenance

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Tightening torques

Model	C1
Connection	Nm
11 Engine	
Oil drain plug, magnetic	20
Threaded plug, oil strainer	30
Oil filter cover	10
Threaded plug for locking at TDC	15
Alternator	
Alternator cover	10
Ignition trigger, Tapite screw	6 Loctite 243
Holder for alternator cable, Tapite screw	6 Loctite 243
Magnetic rotor to crankshaft, thread-locking compound	30 Loctite 243
Fastener for freewheel, thread-locking compound	30 Loctite 243
Alternator to cover	10
Chain tensioning rail, thread-locking compound	10 Loctite 243
Variator	
Ventilation cover for variator	9
Variator cover	10
Driving variator, thread-locking compound	60 Loctite 243
Cover, driving variator	4
Driven variator (clutch drum)	60
Locknut of driven variator, thread-locking compound	50 Loctite 243
Gearbox	
Gearbox cover	11
Drain plug for gearbox oil	20
Filler plug for gearbox oil	5





Model	C1
Connection	Nm
Cylinder head	
Cylinder head cover	10
Collar nut	30 ±1
Securing screw	10
Spark plug	15
Camshaft gears, thread-locking compound	30 Loctite 243
Bearing cap	10
Chain guide, thread-locking compound	10 Loctite 243
Plug for chain tensioner	35
Vent screw	9
Dual temperature sensor, thread-locking compound	15 Loctite 243
Housing	
Starter motor	10
Oil-pressure switch, thread-locking compound	12 Loctite 243
Oil pressure valve	30
Stud (tie bolt)	10
Housing screws	10
Oil pump, Tapite screw	6 Loctite 243
Water-pump housing, Tapite screw	6 Loctite 243

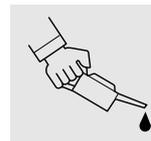
Model	C1
Connection	Nm
12 Engine electrics	
Spark plug	15
Ignition coil to frame	5





Model	C1
Connection	Nm
13 Fuel preparation and control	
Fastener, fuel filter clamp	5
Holder for injection nozzle (self-tapping)	4 Loctite 243
Pressure regulator clamp	9
BMS control unit	5
Intake manifold	9
Air filter housing (inner/outer)	9
Fastener for throttle cable	8

Model	C1
Connection	Nm
16 Fuel tank	
Holder, fuel tank to frame	9
Union nut (fuel-pump unit)	20





Model	C1
Connection	Nm
17 Cooling system	
Bracket for seat latch, right, to frame	42
Bracket for seat latch, left, to frame	5
Expansion tank to frame upright	3
Front frame to cross-tie	14
Air duct to fan shroud	9
Radiator to front frame	9
Air duct to fan shroud	9
Fan shroud to radiator	9
Air duct to front frame	9
Filler bowl to front frame	9
Clamp, hoses to frame	9
Screw clip on engine	Hand-tight

Model	C1
Connection	Nm
18 Silencer (muffler)	
Shield to holder	5
Exhaust pipe to cylinder head	15
Silencer to secondary swinging arm	21
Oxygen sensor to silencer	23





Model	C1
Connection	Nm
31 Telescopic fork	
Fork bridge to frame (threaded stud), thread-locking compound	83 LOCTITE 243
Leading link to slider-tube bridge, thread-locking compound	127 LOCTITE 243
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Fork stanchion to fork bridge	52
Handlebar to fork bridge	21
Fasteners for leading-link shafts	41
Clamp screws for leading-link shafts	9
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Model	C1
Connection	Nm
32 Steering	
Fastener for handlebar fitting	4
Clamp screw for brake lever fitting	9
Brake line to brake lever fitting	18
Handlebar to fork bridge	21
Locknut for handlebar lever pivot pin	3



Model	C1
Connection	Nm
33 Rear wheel drive	
Top fastener for spring strut	41
Bottom fastener for spring strut	21



Model	C1
Connection	Nm
34 Brakes	
Brake calliper to fork slider tube	41
Banjo bolt to brake calliper	18
Bleed screw in brake calliper	14
Hexagon nut on drive axle (rear wheel) use once only	130
Fastener, secondary swinging arm to brake-calliper carrier M10, thread-locking compound	60 LOCTITE 243
Fastener, secondary swinging arm to brake-calliper carrier M8	21
Fastener, secondary swinging arm to drive swinging arm	21
Lid of expansion tank	1
Fastener, swinging arm to brake-calliper carrier	21
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Baseplate to frame Holder for washing-fluid reservoir to frame	9
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Interface, brake hose/brake line	18
Holder, interface to frame	5
Brake line to brake lever fitting	18
All fasteners, brake line to frame	5





Model	C1
Connection	Nm
36 Wheels	
Quick-release axle, thread-locking compound	83 LOCTITE 243
Quick-release axle clamp screws	21
Brake calliper to fork slider tube	41
Hexagon nut on drive axle (rear wheel) Use once only	130
Fastener, secondary swinging arm to brake-calliper carrier M10, thread-locking compound	60 LOCTITE 243
Fastener, secondary swinging arm to brake-calliper carrier M8	21
Bottom fastener for spring strut	21

Model		C1
Connection		Nm
46 Frame		
Body panels to body panels		3
Trim panels to frame		5
Seat to frame		21
Lightweight foam element to frame		5
Lightweight foam element to transverse carrier		5
Seat to frame		21
Intake air silencer to rear mudguard		12
Mirror bracket to frame		5
Mirror to mirror bracket		4
Cover of mirror arm		3
Roof/windscreen to transverse member		5
Windscreen to holder		5
Holder of windscreen wiper motor to roof frame		5
Rear mudguard to drive swinging arm		21
Air filter housing to drive swinging arm		12
Head restraint to frame		21
Crash element shoulder bar to frame		9
Holder, crash element to frame		9
Rear frame to frame		21
Joint		
Nut to frame, front left, M28		105
Screw to frame, front left, M28		Stage 1 20
Screw to frame, front left, M28		Stage 2 Back off 1/2 turn
Screw to frame, front right		73
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Rubber element to joint		42
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Model	C1
Connection	Nm
Parking mechanism	
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Secondary swinging arm to drive swinging arm	21
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Shoulder bar, top, to frame M8	21
Shoulder bar, bottom, to frame (clamping screw)	9
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