

Product: BMW R1100S Motorcycle Service Repair Workshop Manual

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R 1100 S

**BMW AG Motorcycle Division
After Sales**

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After Sales
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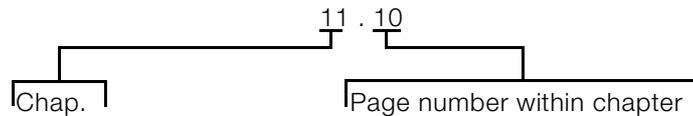
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Introduction

This repair manual will help you to perform all the main maintenance and repair work correctly and efficiently. It should be consulted regularly by workshop personnel as an addition to the practical and theoretical knowledge obtained in Training School courses. It is a contribution towards achieving even higher Service quality.

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.



- 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 you to consult the detailed illustrations on the Parts microfiches as an additional source of information.

BMW AG Motorcycle Division
After Sales

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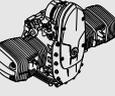
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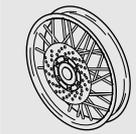


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Maintenance schedule

R 1100 S



| Customer _____ Licence plate No. _____ | BMW Inspection at 1,000 km (600 miles) | BMW Service every 10,000 km (6,000 miles) | BMW Inspection every 20,000 km (12,000 miles) | BMW Annual Service |
|---|--|---|---|--|
| Order No. _____ Mechanic's signature _____ | | | | |
| Read out the fault memory with the BMW MoDiTeC unit | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Change the oil while at regular operating temperature and renew the oil filter element if motorcycle is used only for short journeys or at outside temperatures under 0°C, every 3 months, but at least every 3,000 km (1,800 miles) *) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Change the oil in the gearbox while at regular operating temperature at least every 2 years | | | <input type="checkbox"/> | <input type="checkbox"/> every 2 years |
| Change the oil in the rear wheel drive while at regular operating temperature Clean the inductive sensor at the rear wheel every 40,000 km (24,000 miles) or at least every 2 years *) | <input type="checkbox"/> | | <input type="checkbox"/> 40,000 (24,000) | <input type="checkbox"/> every 2 years |
| Renew fuel filter *) normally every 40,000 km (24,000 miles), if fuel quality is poor every 20,000 km (12,000 miles) | | | <input type="checkbox"/> 40,000 (24,000) | |
| Check battery acid level, if necessary add distilled water Clean/grease battery poles if necessary | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Renewing intake air cleaner element in very dusty or dirty operating conditions, renew the intake air cleaner element every 10,000 km (6,000 miles) or even more often if necessary *) | | | <input type="checkbox"/> | |
| Renew Poly-V belt *) Renew Poly-V belt every 60,000 km (36,000 miles); do not adjust | | | <input type="checkbox"/> 60,000 (36,000) | |
| Check brake fluid level at front/rear and top up if necessary *) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Check operation of brake system and freedom from leaks; repair/renew items if necessary *) | | | <input type="checkbox"/> | |
| Examine brake pads and discs for wear, renew if necessary *) Renew the brake fluid annually | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Check clutch operating fluid level | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Change clutch fluid every 40,000 km (24,000 miles) or at least every 2 years *) | | | <input type="checkbox"/> 40,000 (24,000) | <input type="checkbox"/> every 2 years |
| Check tightness of rear wheel studs | <input type="checkbox"/> | | | |
| Check rear wheel bearing play by tilting wheel | | | <input type="checkbox"/> | |
| Check swinging arm bearings (zero play); adjust if necessary *) | <input type="checkbox"/> | | <input type="checkbox"/> | |
| Grease the side (prop) stand pivot | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Check function of side (prop) stand contact switch | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Check condition of spark plugs | | <input type="checkbox"/> | | |
| Renew spark plugs *) | | | <input type="checkbox"/> | |
| Take up slack at cylinder head nuts | <input type="checkbox"/> | | | |
| Check/adjust valve operating clearances | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Check throttle cable for free movement, abrasion and kinking; renew if necessary *) Check free travel in throttle cable Check synchronisation and eliminate any leaks *) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Final inspection with road safety and functional check: – condition of tyres and wheels, tyre pressures – lights and signalling equipment – telltale and warning lights – clutch, gear shift – handbrake and foot brake, steering – instruments – trial run if necessary | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| *) Charged as an additional item | | | | |

BMW AG Motorcycle Division

Pre-delivery check

R 1100 S



| | | |
|---|--|---|
| <p>_____</p> <p>Customer</p> | <p>_____</p> <p>Licence plate No.</p> | <p>BMW Pre-delivery check</p> |
| <p>_____</p> <p>Order No.</p> | <p>_____</p> <p>Mechanic's signature</p> | |
| <p>Checking the shipping crate for damage</p> | | <input type="checkbox"/> |
| <p>Motorcycle:</p> <ul style="list-style-type: none"> - unpack - attach items supplied loose - inspect for damage - check that delivery is complete: <ul style="list-style-type: none"> tools documentation keys correct optional extras | | <input type="checkbox"/> |
| <p>Fill and charge the battery (mark with charging date)</p> | | <input type="checkbox"/> |
| <p>Check engine oil level when cold; add oil if necessary</p> | | <input type="checkbox"/> |
| <p>Check clutch operating fluid level and brake fluid levels at front and rear</p> | | <input type="checkbox"/> |
| <p>Check headlight beam angle and adjust if necessary</p> | | <input type="checkbox"/> |
| <p>Checking tightness of rear wheel studs (comply with correct tightening torque)</p> | | <input type="checkbox"/> |
| <p>Check tyre pressures</p> | | <input type="checkbox"/> |
| <p>Add fuel</p> | | <input type="checkbox"/> |
| <p>Final inspection and functional check:</p> <ul style="list-style-type: none"> - clutch, gear shift - handbrake, foot brake - lighting and signalling equipment, telltale lights, instruments - check operation of optional extras, ABS - trial run if necessary | | <input type="checkbox"/> |
| <p>Confirm pre-delivery check in Service and Technical Booklet</p> | | <input type="checkbox"/> |
| <p>Final cleaning</p> | | <input type="checkbox"/> |
| <p>Motorcycle handed over on:</p> | | |

00 Maintenance and general instructions

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| Every 40 000 km (24 000 miles) or every 2 years at the latest | |
| Replacing fuel filter | 23 |
| (Inspection III) | |
| In normal operating conditions every 40 000 km (24 000 miles); if fuel quality is poor every 20 000 km (12 000 miles) | |
| Checking battery fluid level and topping up if necessary; cleaning and greasing the battery posts | 25 |
| (Inspections III and IV) | |
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Tightening torques

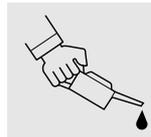
| Model | R 1100 S |
|--|----------|
| Connection | Nm |
| 11 Engine | |
| Cylinder head | |
| Tightening sequence: | |
| 1. Tighten cylinder head nuts (oiled) in diagonally opposite sequence | |
| 1.1 Tighten all nuts to closing torque | 20 |
| 1.2 Tighten all nuts to wrench angle | 90° |
| 1.3 Tighten all nuts to wrench angle | 90° |
| 2. M 10 screw | 40 |
| 3. M 6 screw | 9 |
| After 1000 km (600 miles), tighten cylinder head nuts in diagonally opposite sequence: | |
| 1. Slacken one nut | |
| 2. Tighten one nut to initial torque | 20 |
| 3. Tighten nut to wrench angle | 180° |
| 4. Slacken and retighten M 10 screw | 40 |
| Timing gear carrier to cylinder head | 9 |
| Bearing cap on rocker shaft | 15 |
| Locknut, valve adjusting screw | 8 |
| Cylinder head cover to cylinder head | 9 |
| Camshaft end cover to cylinder head | 9 |
| Air intake connection to cylinder head | 9 |
| Camshaft | |
| Chain sprocket to camshaft | 65 |
| Camshaft bearing cap | 15 |
| Alternator mount cover | |
| M 6 screw | 9 |
| M 8 screw | 20 |
| Auxiliary shaft | |
| Chain sprocket to crankshaft | 10 |
| Chainwheel to auxiliary shaft | 70 |
| Chain tensioner housing to engine block | 9 |
| Oil filter | |
| Oil filter | 11 |
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| Model | | R 1100 S |
|--|----------------|----------|
| Connection | | Nm |
| 11 Engine | | |
| Oil pump | | |
| Mesh filter basket to engine block | | 9 |
| Oil pump cover | | 9 |
| Pressure relief valve | | 42 |
| Oil pressure switch | | 30 |
| Oil cooler | | |
| Oil cooler pipe to engine block | | 10 |
| Cooling oil line – banjo screw with oil vent valve | | 25 |
| Oil cooler to fairing bracket | | 9 |
| Oil cooler return line to engine block | | 35 |
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| Cylinders | | |
| Tightening sequence: | | |
| 1. M 8 screw | | 20 |
| 2. M 6 screw | | 9 |
| 3. Chain guide rail pivot screw | | 18 |
| Timing chain | | |
| Chain tensioner | | 32 |
| Connecting rod | | |
| Big end cap | Closing torque | 20 |
| | Wrench angle | 80° |
| Crankcase | | |
| Tightening sequence: | | |
| 1. M 10 screw (oiled) | Initial torque | 25 |
| | Wrench angle | 90° |
| 2. M 8 screw (oiled) | | 22 |
| 3. M 6 screw | | 9 |

| Model | R 1100 S | |
|---|--------------------------------------|--------------------------------|
| Connection | Nm | |
| 12 Engine electrics | | |
| Starter motor to engine | 20 | |
| Starter cover to gearbox housing | 7 | |
| Alternator to cover mount | 20 | |
| Tensioning and retaining link to alternator | 20 | |
| Spacer to alternator | 20 | |
| Belt pulley to alternator Series generator 560 W Option 700 W | Do not release 50 | |
| Belt pulley to crankshaft | 50 | |
| Poly-V belt preload | 8 | |
| Spark plug | 20 | |
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| 16 Fuel tank and lines | | |
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| 18 Exhaust system | | |
| Manifold to cylinder head | 21 | |
| Clamp for manifold | 45 (apply Never Seeze to clamp seat) | |
| Manifold to front silencer | 12 | |
| Silencer to front-silencer outlet | 55 (apply Never Seeze to clamp seat) | |
| Oxygen sensor to silencer | 45 (apply Never Seeze to thread) | |
| 21 Clutch | | |
| Clutch housing | Closing torque | 40 (oil screw threads lightly) |
| | Wrench angle | 32° |
| Housing cover | 12 | |
| Slave cylinder to gearbox | 9 | |
| Clutch line to handlebar fitting | 18 | |





| Model | R 1100 S |
|--|---|
| Connection | Nm |
| 23 Transmission | |
| Oil drain plug | 55 |
| Oil filler plug | 23 |
| Gearbox to engine block | 22 |
| Foot shift lever to footrest plate | 21 |
| Selector lever to selector shaft | 9 |
| Gearbox cover to gearbox housing | 9 |
| 31 Front fork | |
| Quick-release axle clamp screws | 22 |
| Clamp, fork fixed tube to fork bridge | 22 |
| Slider tube bridge to slider tube | 25 (clean thread + Loctite 243) |
| Ball joint to fork bridge | 230 (apply light coat of Never Seeze to thread) |
| Ball joint to tube slider bridge | 230 (apply light coat of Never Seeze to thread) |
| Leading link tube to ball joint | 130 (clean thread + Loctite 2701) |
| Frame to ball joint | 130 (clean thread + Loctite 2701) |
| Leading link tube to engine | right 73 |
| Screw cap to leading link | left 42 (apply light coat of Never Seeze to thread) |
| Suspension strut to front frame | 43 |
| Suspension strut to leading link | 50 |
| 32 Steering | |
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| Handlebar to fork bridge | 9 (clean thread + Loctite 243) |
| 33 Rear wheel drive | |
| Oil filler plug | 23 |
| Oil drain plug | 23 |
| Threaded ring | 118 (Hylomar SQ 32 M) |
| Hexagon nut, input bevel gear | 200 (clean thread + Loctite 2701) |
| Cover to rear-wheel drive housing | 35 |
| Swinging-arm fixed bearing stud bolt to rear frame | 9 |
| Swinging-arm floating bearing stud bolt to rear frame | 7 (clean thread + Loctite 2701) |
| Swinging-arm floating bearing stud bolt to rear axle housing | 160 (clean thread + Loctite 2701) |
| Swinging-arm floating bearing stud bolt to rear-axle housing | 7 (clean thread + Loctite 2701) |
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| Model | R 1100 S |
|--|--|
| Connection | Nm |
| 33 Rear wheel drive | |
| Reaction link to rear wheel drive/main frame | 43 Load approx. 85 kg (187 lbs) onto motorcycle and tighten loose reaction link |
| Spring strut to main frame | 50 |
| Spring strut to rear swinging arm | 50 |
| 34 Brakes | |
| Brake caliper to fork slider tube | 40 |
| Brake caliper to rear wheel drive | 40 |
| Brake disc to front wheel | 21 (clean thread + Loctite 2701) |
| Brake disc to rear wheel drive | 21 (clean thread + Loctite 2701) |
| Master cylinder to footrest assembly | 8 |
| Brake pedal to footrest assembly | 21 (clean thread + Loctite 2701) |
| Brake lines/brake hose to brake components | 18 |
| Brake hose to brake lever fitting | 18 |
| ABS sensor | 4 (handtight) |
| Front brake caliper bleed screw | 14 |
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| Pressure modulator bleed screw | 9 |
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| 36 Wheels and tyres | |
| Quick-release axle clamp screws | 22 |
| Quick-release axle threaded connection | 30 |
| Rear wheel to rear wheel drive Hand-tighten wheel studs, then tighten in diagonally opposite sequence | |
| Initial tightening | 50 |
| Final tightening | 105 |
| 46 Frame | |
| Front frame to engine, M12 bolts | 82 |
| Struts to front frame | 58 |





| Model | R 1100 S | |
|--|--------------------|---------------------------------|
| Connection | Nm | |
| 46 Frame | | |
| Main frame to engine | | |
| M 10 screw, top right | Initial tightening | 13 |
| | Final tightening | 42 |
| M 10 screw, top left | | 42 |
| M 10 bolts at top (struts to engine) | | 50 |
| M 10 screw, long, frame/gearbox | | 55 |
| M 12 screw, bottom | | 80 |
| M 8 screw, long, bottom | | 24 |
| Rear frame to main frame | | 31 |
| Side stand pivot mount to engine | | |
| M 8 screw | | 21 |
| M 12 screw | | 80 |
| Side stand to pivot mount | | 42 (clean thread + Loctite 243) |
| Centre stand to main frame | | 42 |
| Footrest assembly to main frame | | 21 |
| Pillion footrest holder to rear frame | | 21 |
| Front fairing bracket to front frame | | 21 |
| 51 Equipment | | |
| Mirrors | | 10 (clean thread + Loctite 243) |
| Ignition/steering lock to fork bridge | | 15 (microencapsulated) |
| 61 General electrical equipment | | |
| Horn to holder | | 21 |
| Ground (earth) strap to engine block | | 7 |

Table of consumables

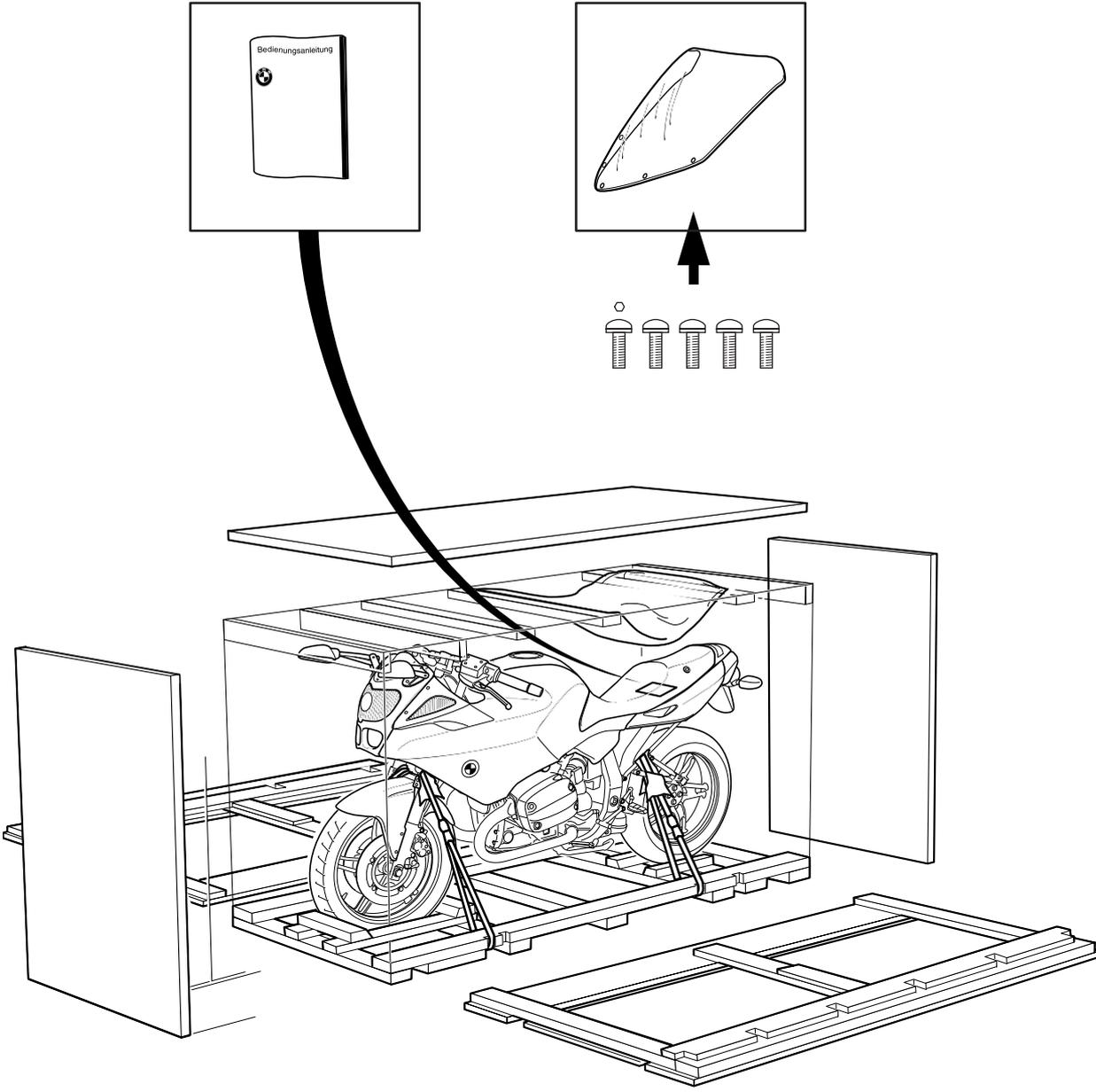
| Item | Use | Order number | Quantity |
|---------------------------------------|--|------------------------------------|-----------------------------|
| Lubricant | | | |
| Optimoly MP 3 | High-performance lubricating paste | 07 55 9 062 476 | 100 g tube |
| Optimoly TA | High-temperature assembly paste | 18 21 9 062 599 | 100 g tube |
| Silicone grease 300, heavy | Damping grease | 07 58 9 058 193 | 10 g tube |
| Retinax EP2 | Wheel, steering head and taper roller bearing grease | 83 22 9 407 845 | 100 g tube |
| Contact spray | Contact spray | 81 22 9 400 208 | 300 ml spray |
| Chain spray | Drive chain | 72 60 2 316 676 72 60 2 316 667 | 50 ml spray 300 ml spray |
| Sealants | | | |
| Staburags NBU 30 PTM | High-performance lubricating paste | 07 55 9 056 992 | 75 g tube |
| 3-Bond 1110 B | Surface sealant | 07 58 9 056 998 | 5 g tube |
| 3-Bond 1209 | Surface sealant | 07 58 9 062 376 | 30 g tube |
| omni VISC 1002 | Surface sealant | 07 58 1 465 170 | 90 g tube |
| Loctite 574 | Surface sealant | 81 22 9 407 301 | 50 ml tube |
| Curil K 2 | Heat-conductive sealant | 81 22 9 400 243 | 250 g can |
| Hylomar SQ 32 M | Permanently elastic sealant | 81 22 9 400 339 | 100 g tube |
| Adhesives and retaining agents | | | |
| Loctite 648 | Joint adhesive (low clearance) | 07 58 9 067 732 | 5 g bottle |
| Loctite 638 | Joint adhesive (greater clearance) | 07 58 9 056 030 | 10 ml bottle |
| Loctite 243 | Thread retainer, medium-strength | 07 58 9 056 031 | 10 ml bottle |
| Loctite 270 | Thread retainer, strong | 81 22 9 400 086 | 10 ml bottle |
| Loctite 2701 | Thread retainer, strong | 33 17 2 331 095 | 10 ml bottle |
| Loctite 454 | Cyanacrylate adhesive (gel) | 07 58 9 062 157 | 20 g tube |
| Cleaners | | | |
| Brake cleaner | Brake cleaner | 83 11 9 407 848 | 600 ml spray |
| Metal polish | Polish for chrome-plated parts | 82 14 9 400 890 | 100 g tube |
| Testing agents | | | |
| Penetrant MR 68 | Crack testing agent for aluminium housings | 83 19 9 407 855 | 500 ml spray |
| Developer MR 70 | Crack testing agent for aluminium housings | 81 22 9 407 495 | 500 ml spray |
| Installation aid | | | |
| BMW cooling spray | Cooling spray | 83 19 9 407 762 | 300 ml spray |





Pre-delivery check

General view of crated motorcycle



Checking the crate for damage

- When the motorcycle arrives, check the crate immediately for damage and if necessary examine the contents for consequential damage.



In case of damage in Germany

- Note the damage on the delivery slip.
- Read the information sheet on damage in transit.
- Immediately notify the freight carrier (e.g. freight forwarder or DB) and
Bavaria Wirtschaftsagentur GmbH
Abteilung ZW - 12
80788 München
Phone 089/14327-632
Fax. 089/14327-709

In case of damage in importer markets

- Note the damage on the delivery slip.
- Comply with specific national market procedures.
In case of doubt, please submit enquiries to:
Bavaria Wirtschaftsagentur GmbH
Abteilung ZW - 12
D-80788 München
Tel. +49 89 14327 632
Fax. +49 89 14327 709
- Immediately notify the freight carrier (e.g. freight forwarder).

Unpacking the motorcycle

- Lever off the cover.
- Take out the separate pack of items:
 - Spare keys
 - Owner's Manual
 - Windscreen and securing screws
- Pry off the cross struts with a suitable lever.



Caution:

Do not hammer out the cross struts or the motorcycle may be damaged.

- Remove the end panels.
- Remove the side panels.



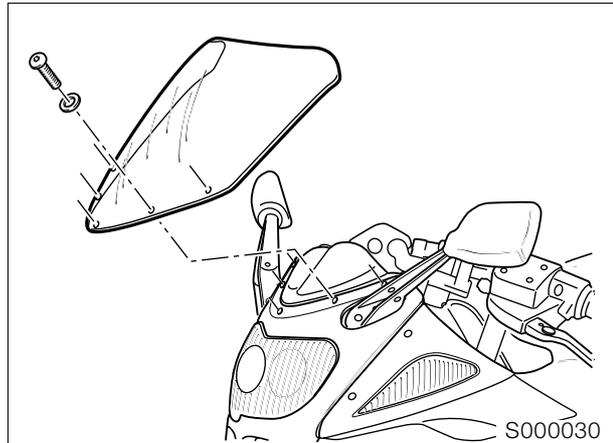
Caution:

Remove all nails projecting from the base of the crate or lying on the floor.

- Dispose of the packing materials in an environmentally responsible manner as described in Service Information 23/91 - Sales.

Installing remaining items on motorcycle

- Wheel the motorcycle clear of the wooden pallet.



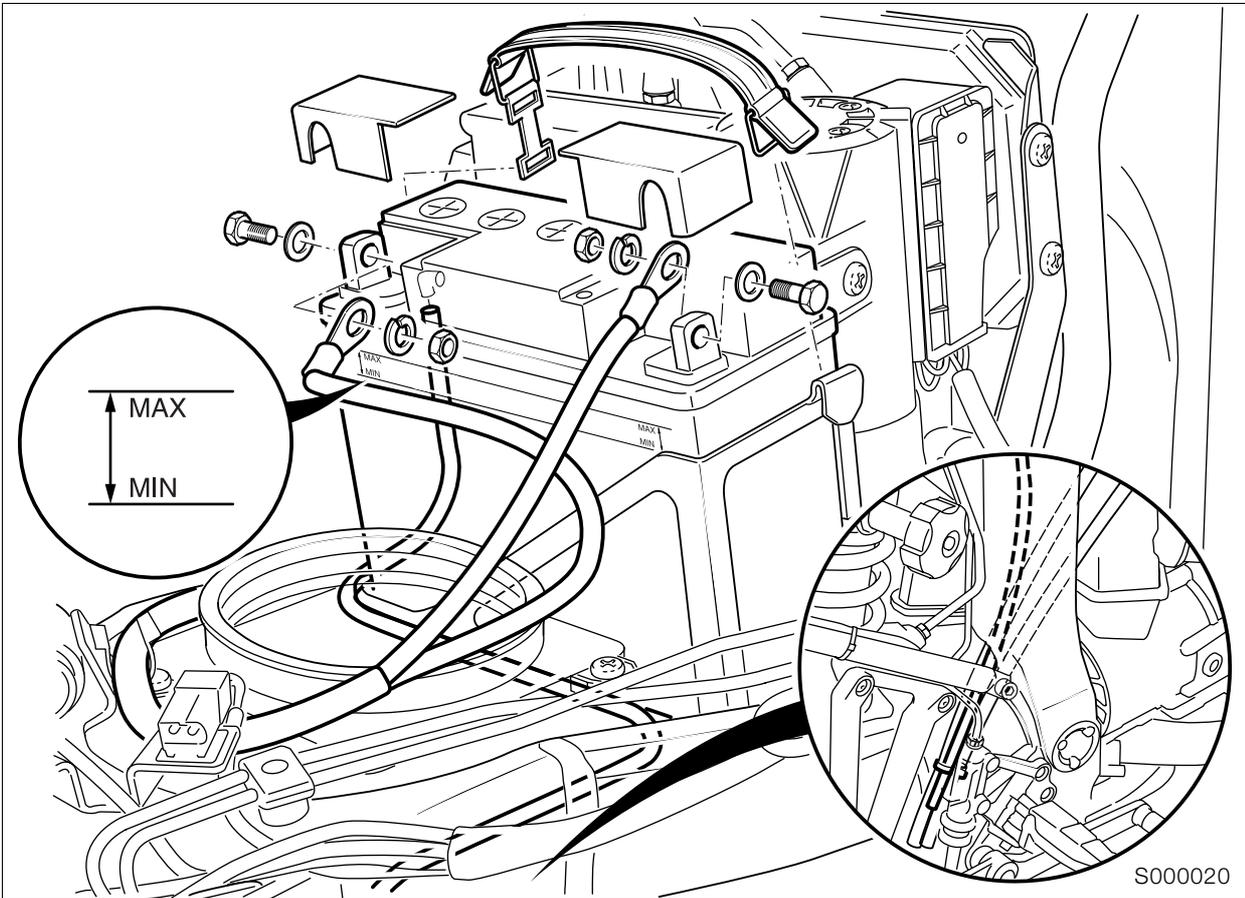
- Carefully tighten the securing screws by hand.

Inspecting motorcycle for damage

- Check for defects.
- Send an "Urgent notification" to
BMW AG, Sparte Motorrad, UX-VS-1
Fax No. +49 89 382 33220
- Rectify the defect.
- Use the electronic parts list to order parts, if needed.
- Costs are to be processed by the warranty claim system (stage 4). Defect codes:
 - Parts missing 10 01 00 00 00
 - Parts damaged 10 02 00 00 00
 - Incorrect parts delivered 10 03 00 00 00
- If the parts that are needed do not appear in the electronic parts list (e.g. parts for official-user motorcycles), send an order form to:
Fax No. +49 30-3396-2262

Checking that delivery is complete

- All optional extras
- Toolkit
- Documentation



Filling and charging the battery

Disengaging and raising the fuel tank

- Remove seat.
- Remove right and left side trim panels.



Caution:

Fuel is flammable and a hazard to health. Observe relevant safety regulations.

- Remove the fuel tank.
- Raise the rear of the fuel tank and prop it in this position on a wooden block or similar.

Filling and charging the battery



Warning:

Battery acid is severely caustic. Protect your eyes, face, hands and clothing and the paintwork.

- Disengage the rubber strap holding the battery.
- Disconnect the battery breather hose.
- Remove the battery.
- Add battery acid up to the MAX mark.
- Allow the battery to stand for at least an hour.
- Shake the battery slightly to allow the remaining air bubbles to escape.
- If necessary, top up again to the MAX mark with battery acid.
- Charge the battery and allow to stand for 24 hours.

Charge current (amps)

..... 10 % of rated battery capacity (Ah)

- If necessary, top up the acid level to the MAX mark with distilled water.
- Make a note of the charging date on the battery.



Caution:

Connect the positive battery terminal first, then the negative terminal.

- Apply acid-proof grease to the battery terminal posts.
- Install the battery.
- Secure the fuel tank in position.
- Install right and left side trim panels.
- Install dualseat.
- Switch on the ignition.
- Without starting the engine, fully open the throttle once or twice so that the Motronic control unit can register the throttle-valve positions.



Note:

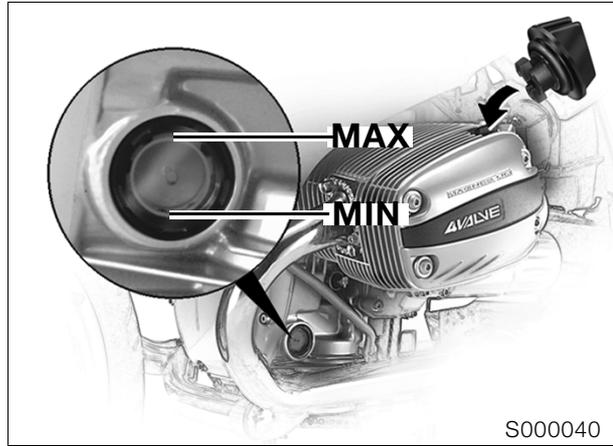
Disconnecting the battery deletes all entries (e.g. faults, settings) stored in the Motronic control unit's memory. Loss of settings can temporarily impair the operating characteristics when the engine is restarted.



Tightening torque:

Fuel tank to rear frame 10 Nm

Checking engine oil level when cold, adding oil if necessary



- Check the oil level with the motorcycle upright: if necessary, use stand, **BMW No. 00 1 560**, to keep the motorcycle in the upright position.



Caution:

Never top up the engine-oil level past the MAX mark.

Required level:..... MAX

Checking clutch fluid level

⚠ Caution:

Keep the brake fluid in the clutch operating system away from painted surfaces on the motorcycle because brake fluid attacks paint.

- Motorcycle upright; if necessary, use stand, **BMW No. 00 1 560**, to hold the motorcycle upright.
- Turn the handlebar fully to the right.



- Check clutch fluid level.

Required level with a new clutch liner:
Half way up sight glass

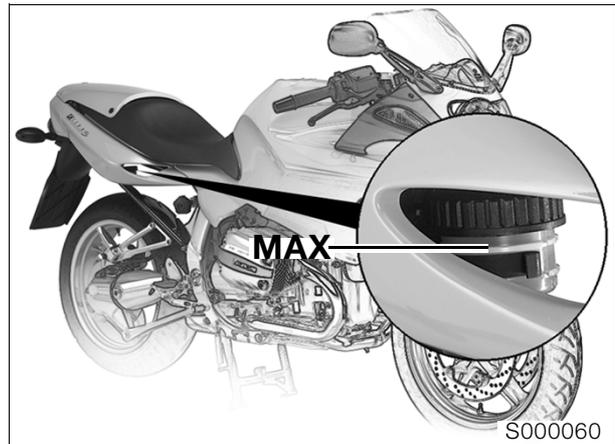
Checking brake fluid level

⚠ Caution:

Do not allow brake fluid to come into contact with painted parts of the motorcycle, because brake fluid attacks paint.

Rear brake

- Motorcycle upright; if necessary, use stand, **BMW No. 00 1 560**, to hold the motorcycle upright.

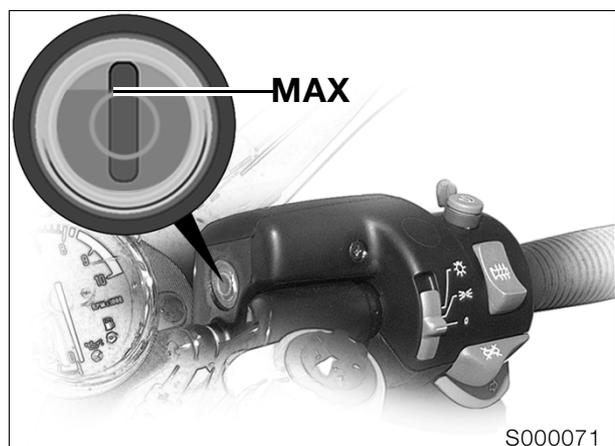


- Check the brake fluid level by looking through the opening in the right-hand side panel.

Required level:..... MAX

Front brake

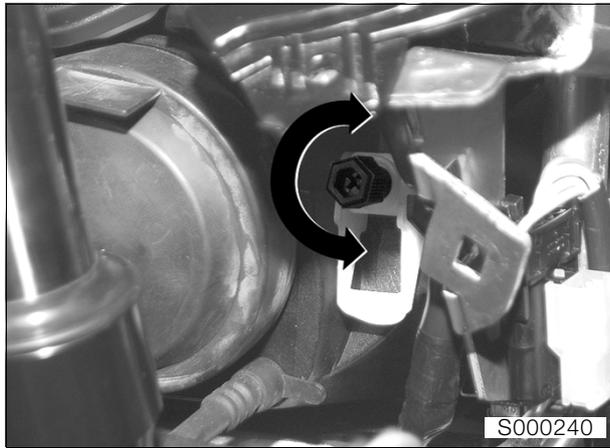
- Motorcycle upright; if necessary, use stand, **BMW No. 00 1 560**, to hold the motorcycle upright.
- Handlebar centred.



Required level:..... MAX



Checking headlight beam angle, adjusting if necessary



- Motorcycle on level surface.
- Rider's weight on motorcycle (approx. 80 kg/ 176 lbs).
- Move swivel lever to horizontal position (basic setting).
- Turn the adjusting screw to correct the headlight beam throw.

Lateral adjustment:

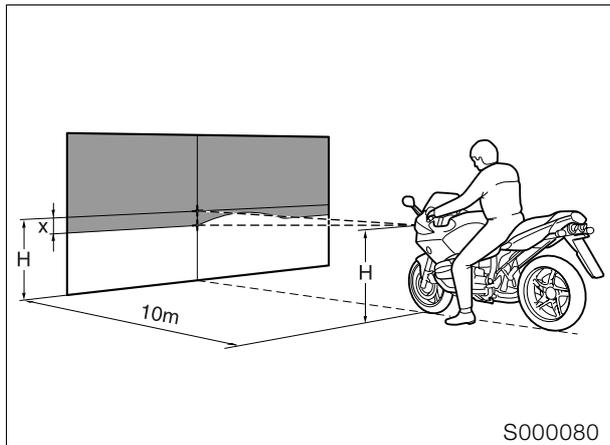
..... Adjusting screw on left of headlight

Vertical adjustment:

..... Adjusting screw on right of headlight

Turn screw anti-clockwise:..... longer throw

Turn screw clockwise:..... shorter throw



Setting for headlight beam angle adjuster

.... -12 cm (4.7 in) over a distance of 10 m (32.8 ft)

Checking tightness of rear wheel studs

 **Tightening torque:**

Rear wheel studs 105 Nm

Checking tyre pressures

- Check/correct tyre pressures.

Tyre pressures:

Solo front 2.2 bar (31.3 psi)
 rear 2.5 bar (35.6 psi)

Two-up front 2.5 bar (35.6 psi)
 rear 2.7 bar (38.4 psi)

Two-up + luggage front 2.5 bar (35.6 psi)
 rear 2.9 bar (41.2 psi)

Final inspection and function check

- Clutch
- Check gear shift action.
- Handbrake and foot brake
- Check lights and signalling equipment:
 - Front and rear parking lights
 - Instrument lighting
 - Low and high headlight beams, headlight flasher
 - Brake light (operate front and rear brakes)
 - Turn signals left/right
 - Hazard warning flashers
 - Horn
 - Telltale and warning lights
 - Instruments
- Check function of optional extras:
 - ABS: perform starting test. When a speed of 5 km/h (app. 3 mile/h) is reached, both ABS warning lights must go out.
- If necessary, take the motorcycle for a test ride.
- Confirm pre-delivery check in Service and Technical booklet.
- See “Inspecting motorcycle for damage” if defects are detected.

Final cleaning

- Clean the motorcycle.



Note:

Do not use a steam or high-pressure water jet. The high steam or water pressure could damage seals, the hydraulic system or electrical components.

Handing over the motorcycle

This is the ideal opportunity to familiarise the customer with the motorcycle in order to ensure the customer's satisfaction and safety.

- The following points must be demonstrated and explained to the customer:
 - documentation and stowage space
 - toolkit and stowage space
 - suspension preload adjustment to suit total weight
 - checking brake fluid/clutch operating fluid
 - provision for adjusting handlebar lever positions
 - how to adjust the mirrors
 - controls
 - instruments and telltale lights
 - optional equipment and accessories fitted.
 - noise during the regular ABS self-diagnosis procedure
- The user must be given the following information:
 - running-in recommendations and inspection intervals
 - safety check
 - the clutch fluid level rises gradually as the motorcycle is ridden (clutch lining wear)
 - before checking the engine oil level, the engine must be switched off for at least 10 minutes and the motorcycle must be standing on a flat, level surface



Maintenance

Key to maintenance intervals

- BMW Inspection 1000 km/600 miles **I**
- BMW Service **II**
- BMW Inspection **III**
- BMW Annual Service **IV**



Reading out MoDiTeC fault memory

(Inspections I, II, III and IV)

- Remove seat.
- Connect the **BMW** MoDiTeC to the diagnosis connector.
- Read out the fault memory.
- Perform all requisite repair work.

Changing engine oil, replacing oil filter element

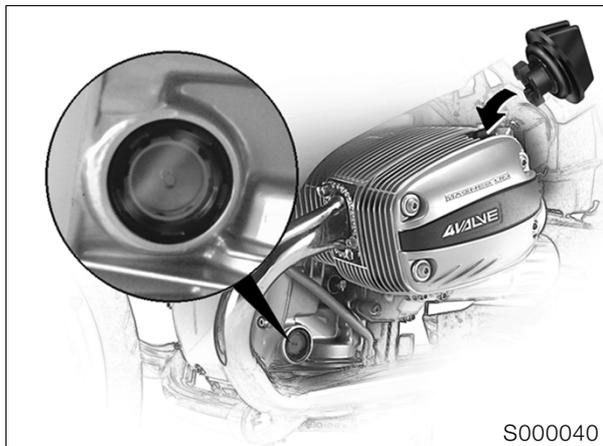
(Inspections I, II, III and IV)



Note:

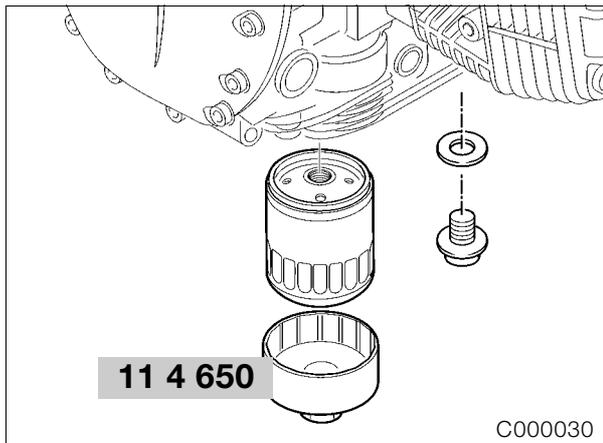
If the motorcycle is ridden only for short distances or outside temperatures are below 0°C (32°F): change the oil and replace the oil filter element every 3 months or no later than every 3 000 km (1 800 miles).

- Use the auxiliary stand, **BMW No. 00 1 560**, if necessary.
- Change the oil at operating temperature.



S000040

- Remove screw plug.



C000030

- Remove oil drain plug and drain off oil.
- Fit new seal and screw in drain plug.
- Use oil filter wrench, **BMW No. 11 4 650**, to remove the oil filter.
- Coat sealing ring on new oil filter element with oil and install filter.
- Refill with oil to correct level.
- Insert and tighten the screw plug.



Caution:

Never top up the engine oil level past the MAX mark.



Tightening torque:

Oil filter..... 11 Nm
 Oil drain plug..... 32 Nm

Engine oil quantities:

With oil filter

change 3.75 l (6.6 Imp. pints/3.96 US quarts)

Without oil filter

change 3.50 l (6.2 Imp. pints/3.69 US quarts)

Difference between MIN and MAX

marks 0.50 l (0.88 Imp. pint/0.52 US quart)

Engine oil grade:

Brand-name HD oil for spark-ignition engines, API classifications SF, SG, SH; combination with CD or CE specification.

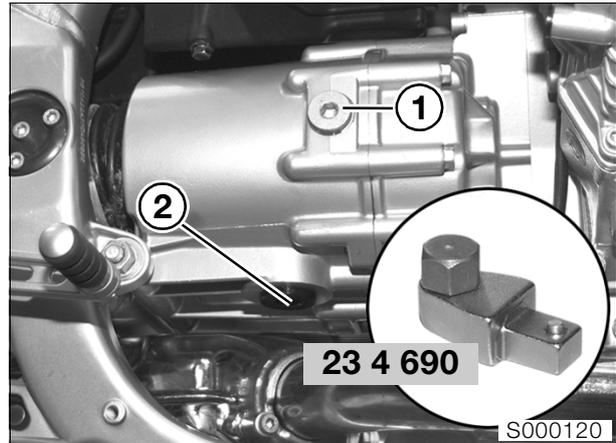
Brand-name HD oil of CCMC classification G4, G5; amendment PD2 is permissible.

Changing oil in gearbox

(Inspections III and IV)

or every 2 years at the latest

- Change the gearbox oil at operating temperature.



- Remove oil filler plug (1).
- Use socket-head key, **BMW No. 23 4 690 and torque wrench**, to remove oil drain plug (2) and drain the oil into a suitable container.
- Clean the magnet in the oil drain plug.
- Fit new seal and reinstall drain plug.
- Refill with gearbox oil to correct level.
- Insert oil filler plug with new seal.



Tightening torque:

| | |
|-----------------------|-------|
| Oil drain plug | 55 Nm |
| Oil filler plug | 23 Nm |

Quantity:

Initial filling/oil changes

..... approx. 0.8 l (1.40 Imp. pint, 0.84 US quart)

Oil grade for gearbox:

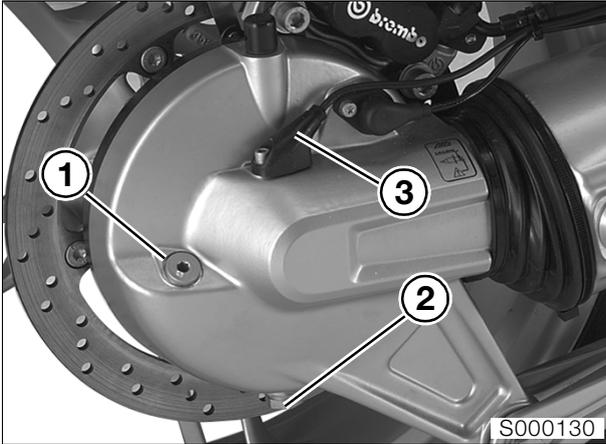
Brand-name hypoid gear oil, SAE 90, API class GL 5



(Inspections I, III and IV)

**Every 40 000 km (24 000 miles) or every 2 years
at the latest**

- Change the oil with the rear wheel drive at operating temperature.



- Remove oil filler plug (1).
- Remove oil drain plug (2) and allow the oil to drain out.
- Fit new seal and reinstall drain plug.
- Refill with gearbox oil to correct level.
- Insert oil filler plug with new seal.
- Remove securing screw, pull out inductive signal transmitter (3) and clean it.

⚠ Tightening torque:

Oil drain plug 23 Nm
Oil filler plug 23 Nm

Quantity:

To bottom edge of the filler opening
.....approx. 0.25 l (0.44 Imp. pint/0.26 US quart)

Oil grade for rear wheel drive:

Brand-name hypoid gear oil, SAE 90, API class GL 5