

Repair Manual



R 1100 RT

R 1100 RS

R 850/1100 GS

R 850/1100 R

**BMW Motorcycle
After Sales**

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After Sales
UX-VS-2

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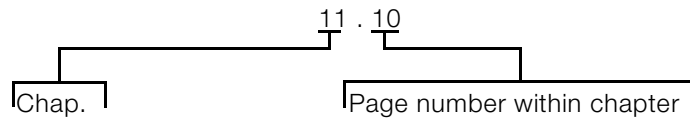
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Introduction

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 Motorcycle
After Sales

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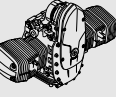
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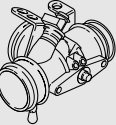
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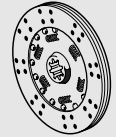
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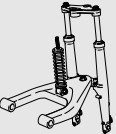
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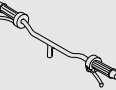
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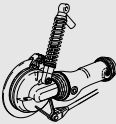
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BMW AG Motorcycle Division Maintenance Schedule



R 1100 RT/R 1100 RS/R 850 GS/R 1100 GS/R 850R/R 1100 R

| Customer _____ Registration No. _____ | | BMW Inspection 1 000 km/600 mls | BMW Service 10 000 km/6000 mls | BMW Inspection 20 000 km/12 000 mls | BMW Annual Service |
|---|--|------------------------------------|-----------------------------------|--|--------------------------|
| Order No. _____ Signature of mechanic _____ | | | | | |
| Change engine oil when engine is warm, renew oil filter cartridge ¹⁾ | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Change oil in manual transmission and rear wheel drive when at operating temperature | | <input type="checkbox"/> | | <input type="checkbox"/> | <input type="checkbox"/> |
| Retighten cylinder head nuts | | <input type="checkbox"/> | | | |
| Adjust valve clearance | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Check spark plugs | | | <input type="checkbox"/> | | |
| Renew spark plugs | | | | <input type="checkbox"/> | |
| Renew fuel filter ^{3) *} | | | | <input type="checkbox"/> | |
| Check battery acid level, if necessary top up with distilled water | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Clean and grease battery terminals | | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Renew intake air cleaner ²⁾ | | | | <input type="checkbox"/> | |
| Check throttle cables for free movement, abrasion and kinking, renewing if necessary [*] | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Check clutch clearance, adjust if necessary | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Adjust Poly-V-belt [► SI 12 020 95 (700)] ^{4) 5)} | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Retighten hose clips at intake pipe | | <input type="checkbox"/> | | | |
| Check brake pads and discs for wear, renew if necessary [*] | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| Check front/rear brake fluid level, top up if necessary [*] [► SI 00 027 95 (716)] | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Check brake system with regard to function, leaks; repair/renew as required [*] | | | | <input type="checkbox"/> | |
| Renew brake fluid at least once a year | | | | | <input type="checkbox"/> |
| Check wheel bearings, renew if necessary [*] | | | | <input type="checkbox"/> | |
| Check swinging arm bearing (no play), adjust if necessary [*] | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Check steering damper (R850/1100R) | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| Lubricate side stands, centre stand (R 1100 RS) and nipple for clutch cable assembly | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Check side stand switch for damage and correct operation [► SI 46 033 96 (722)] | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Check fit of rear wheel bolts | | <input type="checkbox"/> | | | |
| Check bolts of control arm to specified torque | | <input type="checkbox"/> | | | |
| Clean and grease shaft for windshield adjustment (R 1100 RS) | | | | <input type="checkbox"/> | |
| Grease lower eye of front spring strut (R 1100 RS slide bearing) | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| Check idle speed, throttle synchronisation and CO value, adjust if necessary | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Final inspection with safety/operating check: – condition of tyres and wheels, rims and spokes, tyre pressures – lights and signal systems – telltale and warning lights – clutch and gear shift – handbrake and footbrake, steering – instruments – test ride, if necessary | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

1) for short-distance driving or outside temperatures below 0°C every 3 months, every 3,000 km (1,800 miles) at the latest
2) in very dirty or dusty conditions, renew the intake air cleaner element every 10,000 km (6,000 miles), or even more frequently if necessary
3) normally every 40,000 km (24,000 miles), but if fuel is of poor quality every 20,000 km (12,000 miles)
4) Renew Poly-V-belt every 40,000 km (24,000 miles)
5) After 60,000 km (36,000 miles), change the maintenance free Poly-V-belt, do not adjust
*) invoiced as a separate item

BMW AG Motorcycle Division

Pre-delivery check



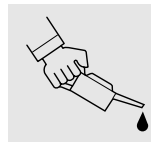
R 1100 RT/R 1100 RS/R 850 GS/R 1100 GS/R 850R/R 1100 R

| | | |
|--|-----------------------------|-----------------------------------|
| Customer _____ | Registration No. _____ | BMW Pre-delivery check |
| Order No. _____ | Signature of mechanic _____ | |
| Inspect crates on receipt for signs of damage | | <input type="checkbox"/> |
| Motorcycle: <ul style="list-style-type: none"> - unpack - check scope of delivery - install/complete - clean | | <input type="checkbox"/> |
| Battery: <ul style="list-style-type: none"> - remove - add battery acid - charge - grease the terminal posts - re-install (mark date) | | <input type="checkbox"/> |
| Check complete specification delivery: <ul style="list-style-type: none"> - tools - handbooks and documents - keys - optional extras | | <input type="checkbox"/> |
| Check headlight (basic setting), adjust if necessary | | <input type="checkbox"/> |
| Check front and rear wheel brake fluid levels | | <input type="checkbox"/> |
| Check torque setting of the rear wheel retaining studs | | <input type="checkbox"/> |
| Check tyre pressure | | <input type="checkbox"/> |
| Check engine oil level, top up if necessary | | <input type="checkbox"/> |
| Fuel the motorcycle | | <input type="checkbox"/> |
| Check basic clutch setting, adjust if necessary | | <input type="checkbox"/> |
| Safety/operating check as final inspection: <ul style="list-style-type: none"> - idle speed - clutch, gear shifting - steering - front and rear brakes - telltale and warning lights, instruments, lighting and signalling equipment - ABS - test ride, if necessary | | <input type="checkbox"/> |



| Designation | Data | Measuring unit or specification |
|--|-------------------------------------|--|
| Oilcapacities | | |
| Engine (incl. filter) | 3.75 | litre |
| Engine (without filter renewal) | 5.50 | litre |
| | | [SI 11 048 90] Brand-name HD oil for petrol engines of API classification SE, SF, SG; combination with CC or CD specification |
| Gearbox | fresh fill 1.0 change 0.8 | litre litre |
| Rear wheel drive | fresh fill 0.25 change 0.23 | litre litre |
| Valve clearance measured cold, i.e. at max. 35 °C | E 0.15 / A 0.30 | mm |
| Ignition Static ignition | disconnect at 6° b TDC | |
| Spark plugs Electrode gap limit of wear | Bosch FR5DTC 0.8 1.0 | mm mm |
| Engine idle speed | 1000 +150 | 1/min |
| CO value (without catalytic converter) | 1.5 ±0.5 | Vol % |
| Cable adjustment for increased cold starting speed (without cable junction) (with cable junction) | < 1 no backlash | mm play |
| throttle (without cable junction) gas cable (one piece) connecting cable | ca. 0.5 no backlash | mm play |
| throttle (with cable junction) gas cable (one piece) junction cable | ca. 0.5 no backlash | mm play |
| Clutch cable adjustment wire cable at handle bar lever at lever | 12.0 7.0 | mm thread mm play |
| Tyre pressure depending on load and speed | front: 2.2 – 2.5 rear: 2.5 – 2.9 | bar bar |
| Tightening torques: | | |
| Oilfilter | 11 | Nm |
| Engine oil drain plug | 32 | Nm |
| Gearbox oil drain plug | 23 | Nm |
| Rear wheel drive oil drain plug | 23 | Nm |
| Locknut valve adjustment | 8 | Nm |
| Cylinder head cover | 8 | Nm |
| Generator to bracket | 20 | Nm |
| Tension multiple ripped belt (Poly-V) | 8 | Nm |
| Spark plugs | 20 | Nm |
| Fuel tank to rear frame | 22 | Nm |
| Fuel pump to tank | 6 | Nm |
| Adjustable handle bars | 20 | Nm |
| Quick release axle thread (axial) | 30 | Nm |
| Quick release axle clamp | 22 | Nm |
| Brake caliper | front / rear 40 | Nm |
| Bearing bolt swingarm to gearbox/rear axle | 150 (Loctite 2701) | Nm (clean thread) |
| Idler bearing pin on swinging arm on gearbox/rear wheel drive | 7 (Loctite 2701) | Nm (clean thread) |
| Locknut | 105 (Loctite 2701) | Nm (clean thread) |
| Rear wheel retaining studs | 105 | Nm |
| Tube clips to air intake pipe | 2 | Nm |
| Screw connect. spring strut on control arm (RS with slide bearing) | 43 | Nm (8.8 screw) |
| Tighten cylinder head | Tighten 20 | Nm |
| | 180 | ° Torsion angle |
| | 40 | Nm |
| | | |
| – M 10 screw | | |

00 Maintenance and general instructions



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| | |
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Tightening torques R 1100 RS / R 1100 RT

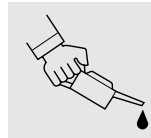
| Model | R 1100 RS | R 1100 RT |
|--|-----------|-----------|
| 11 Engine | | |
| Connection | Nm | Nm |
| Cylinder head | | |
| Tightening sequence: | | |
| 1. Tighten cylinder head nuts (oiled) crosswise | 20 | 20 |
| 1.1 Tighten all nuts to correct torque for joint | | |
| 1.2 Tighten all nuts to correct angle | 90° | |
| 1.3 Tighten all nuts to correct angle | 90° | |
| 2. M 10 screw | 40 | 40 |
| 3. M 6 screw | 9 | 9 |
| After 1000 km, tighten cylinder head nuts crosswise: | | |
| 1. Unfasten one nut | | |
| 2. Tighten one nut to initial value | 20 | 20 |
| 3. Tighten nut to wrench angle | 180° | |
| 4. Unfasten/retighten M10 screw | 40 | 40 |
| Bearing cap on rocker shaft | 15 | 15 |
| Locknut on valve clearance adjusting screw | 8 | 8 |
| Cylinder head cover to cylinder head | 8 | 8 |
| Camshaft end cover to cylinder head | 9 | 9 |
| Air intake connection to cylinder head | 9 | 9 |
| Camshaft | | |
| Chain sprocket to camshaft | 65 | 65 |
| Camshaft bearing cap | 15 | 15 |
| Rotary breather | | |
| Vent line to alternator mount cover | | |
| M 8 screw | 20 | 20 |
| Banjo screw | 25 | 25 |
| Alternator mount cover | | |
| M 6 screw | 9 | 9 |
| M 8 screw | 20 | 20 |
| Auxiliary shaft | | |
| Chain sprocket to crankshaft | 10 | 10 |
| Chainwheel to auxiliary shaft | 70 | 70 |
| Chain tensioner housing to engine block | 9 | 9 |





| Model | R 1100 RS | R 1100 RT |
|--|---|-----------|
| 11 Engine | | |
| Connection | Nm | Nm |
| Oil filter | | |
| Oil filter | 11 | 11 |
| Oil drain plug | 32 | 32 |
| Oil pump | | |
| Mesh filter basket to engine block | 9 | 9 |
| Oil pump cover | 9 | 9 |
| Pressure relief valve | 35 | 35 |
| Oil pressure switch | 30 | 30 |
| Oil cooler | | |
| Oil cooler pipe to engine block | 10 | 10 |
| Cooling oil line - banjo screw | 25 | 25 |
| Cooling oil line - banjo screw with oil vent valve | 25 | 25 |
| Oil lines to oil cooler | 25 | - |
| Oil cooler to holder | 9 | 9 |
| Oil cooler return line to engine block | 35 | 35 |
| Oil cooler feed line to frame | 20 | 20 |
| Oil cooler feed line to engine block | 25 | 25 |
| Screw-in union for oil cooler connection at engine block | 35 | 35 |
| | Clean threads and apply Loctite 603 to inner and outer threads and in the contact face area | |
| Oil cooler hose at oil thermostat | - | 40 |
| Cylinders | | |
| Tightening sequence | | |
| M 8 screw | 20 | 20 |
| M 6 screw | 9 | 9 |
| Chain guide rail pivot screw | 18 | 18 |
| Timing chain | | |
| Chain tensioner | 32 | 32 |
| Connecting rod | | |
| Big end cap | Joint torque Additional wrench angle 80° | 20 |
| | | 20 |
| Crankcase | | |
| Tightening sequence: | | |
| M 10 screw (oiled) | 45 | 45 |
| M 8 screw (oiled) | 20 | 20 |
| M 6 screw | 9 | 9 |

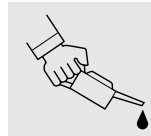
| Model | R 1100 RS | R 1100 RT |
|--|--------------------------------------|-----------|
| 12 Engine electrical system | | |
| Connection | Nm | Nm |
| Starter motor to engine | 20 | 20 |
| Starter cover to gearbox housing | 7 | – |
| Positive lead to starter motor | 10 | 10 |
| Alternator to alternator support cover | 20 | 20 |
| Tensioning and retaining strap at alternator | 20 | 20 |
| Spacer at alternator | 20 | 20 |
| Positive lead to alternator | 15 | 15 |
| Belt pulley at alternator | 50 | 50 |
| Belt pulley to crankshaft | 50 | 50 |
| Poly-V belt preload | 8 | 8 |
| Spark plug | 20 | 20 |
| 13 Fuel preparation and control | | |
| Temperature sensor on engine block | 25 | 25 |
| 16 Fuel tank and lines | | |
| Fuel tank to rear frame | 22 | 22 |
| Fuel pump assembly to tank | 6 | 6 |
| 18 Exhaust system | | |
| Muffler to footrest | 35 | 35 |
| Manifold to cylinder head (with strap) | 22 | 22 |
| (with jacket pipe) | 18 | 18 |
| Muffler to support plate for center stand | 20 | 20 |
| Clip on muffler | 50 | 50 |
| | Grease clamping face with Never Seez | |
| Oxygen sensor (lambda probe) to muffler | 55 | 55 |
| | Grease with Never Seez | |





| Model | | R 1100 RS | R 1100 RT |
|------------------------------------|-------------------------|---|-----------|
| 21 Clutch | | | |
| Connection | | Nm | Nm |
| Clutch housing | Joint torque | 40 | 40 |
| | | oil screw threads lightly | |
| | Additional wrench angle | 32° | |
| Housing cover | | 18 | 18 |
| Locknut on release lever | | 22 | 22 |
| 23 Gearbox | | | |
| Oil filler plug | | 23 | 23 |
| Oil drain plug | | 23 | 23 |
| Gearbox cover to gearbox housing | | 9 | 9 |
| Screw for neutral detent | | 13 | 13 |
| | | clean thread + Loctite 243 | |
| Oil guide plate at gearbox housing | | 9 | 9 |
| | | clean thread + Loctite 573, also apply Loctite 573 to sealing face between oil baffle plate and gearbox housing | |
| Gearbox to engine block | | 22 | 22 |
| Clutch lever to gearbox housing | | 18 | 18 |
| Selector lever to selector shaft | | 9 | 9 |
| Pedal to footrest plate | | 35 | 18 |

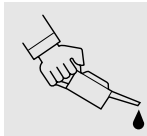
| Model | R 1100 RS | R 1100 RT |
|---|--|-------------------------------|
| 31 Front fork | | |
| Connection | Nm | Nm |
| Clamp between fixed tubes and fork bridge | 22 | – |
| Screw connection between fixed tube and fork bridge | – | 45 (free from oil and grease) |
| Control arm to ball joint | 130 | 130 |
| | clean thread + Loctite 2701 | |
| Fork bridge to ball joint | 130 | – |
| | clean threads + Loctite 2701 | – |
| Threaded journal to frame | – | 130 |
| | – | clean threads + Loctite 243 |
| Ball joint to fork slider tube bridge Frame | 230 | 230 |
| | 230 | – |
| Slider tube bridge to slider tube | 22 | – |
| | clean thread + Loctite 243 | – |
| Screw plug to fixed fork tube | 18 | pressed fit, do not release |
| Clamping screws, quick-release axle | 22 | 22 |
| Control arm to engine | right 73 | 73 |
| Screw cap | left 42 | 42 |
| | apply light coat of Never Seez to thread | |
| Spring strut to frame | 47 | 47 |
| Spring strut to control arm | 43 8.8 screw | 43 8.8 screw |
| | 50 10.9 screw | 50 10.9 screw |
| 32 Steering | | |
| Handlebar at rubber mount | 40 | – |
| Rubber mount at fork bridge | 40 | – |
| Handlebar to fork bridge | – | 21 |
| Twistgrip to handlebar | 7 | 7 |
| Handlebar weight to fixed handlebar | 20 | – |
| Handlebar weight to handlebar | – | 20 |
| Handlebar weight to adjustable handlebar | 7 | 7 |
| | clean threads + Loctite 2701 | – |





| Model | R 1100 RS | R 1100 RT |
|---|--|-----------------------|
| 33 Rear wheel drive | | |
| Connection | Nm | Nm |
| Oil drain plug | 23 | 23 |
| Oil filler plug | 23 | 23 |
| Threaded ring | 118 (Hylomar SQ 32 M) | 118 (Hylomar SQ 32 M) |
| Hexagon nut, input bevel gear | 200 | 200 |
| | clean thread + Loctite 273 | |
| Housing cover | 35 | 35 |
| Fixed bearing journal Swinging arm to gearbox/ Swinging arm at rear wheel drive | 150 | 150 |
| | clean thread + Loctite 2701 | |
| Free bearing journal Swinging arm to gearbox/ Swinging arm at rear wheel drive | 7 | 7 |
| | clean thread + Loctite 2701 | |
| Locknut on free bearing journal | 105 | 105 |
| | clean thread + Loctite 2701 | |
| Strut at rear wheel drive / gearbox | 43 | 43 |
| | load motorcycle with approx. 85 kg and tighten loose strut | |
| Spring strut to rear frame / rear swinging arm | 43 8.8 screw | 43 8.8 screw |
| | 50 10.9 screw | 50 10.9 screw |
| Hydraulic spring adjuster at footrest plate | - | 22 |

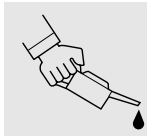
| Model | R 1100 RS | R 1100 RT | |
|--|--|---------------|-----|
| 34 Brakes | | | |
| Connection | Nm | Nm | |
| Brake caliper to slider tube | 40 | 40 | |
| Brake caliper to rear wheel drive | 40 | 40 | |
| Brake disc to front wheel | 21 | 21 | |
| Brake disc to rear wheel drive | 21 | 21 | |
| | clean thread + Loctite 273 | | |
| Brake hose to brake caliper, front/rear | 15 | 15 | |
| Brake hose to fitting | 15 | 15 | |
| Brake hose to flow distributor | 15 | 15 | |
| Flow distributor to frame | 9 | 9 | |
| Flow distributor to slider tube bridge | 9 | 9 | |
| Flow distributor to holder/slider tube | – | 9 | |
| Bleed screw on front brake caliper | 7 | 7 | |
| Bleed screw on rear brake caliper | 7 | 4 | |
| Master cylinder to footrest plate | 9 | 9 | |
| Brake pedal to footrest plate | 37 | 37 | |
| Handbrake lever pivot pinl | 8 | 8 | |
| | the Tuflok blue thread retaining agent can be slacked off and tightened several times if necessary | | |
| ABS sensor | 4 (handtight) | 4 (handtight) | |
| ABS unit to holder | | | |
| M6 screw | 9 | 9 | |
| M6 screw (Torx) | 5 | 5 | |
| Brake line to ABS unit | 15 | 15 | |
| Bleed screw to ABS unit | 9 | 9 | |
| 36 Wheels and tyres | | | |
| Clamping screws, quick-release axle | 22 | 22 | |
| Screw connection, quick-release axle | 30 | 30 | |
| Screw on wheel nuts handtight, then tighten crosswise: | | | |
| | Initial tightening | 50 | 50 |
| | Final tightening | 105 | 105 |





| Model | R 1100 RS | R 1100 RT |
|--|-----------------------------|------------------|
| 46 Frame | | |
| Connection | Nm | Nm |
| Rear frame to gearbox/engine Screw connection on right of gearbo at right of engine at left of engine at left of gearbox | 47 | 47 |
| Footrest plate to gearbox | 22 | 22 |
| Frame to engine | 82 | 82 |
| Struts to frame | 47 8.8 screw | 47 8.8 screw |
| | 58 10.9 screw | 58 10.9 screw |
| Struts to engine | 47 | 47 |
| Guard hoop to cylinder head | 20 | 20 |
| Side stand to pivot mount | 42 | 42 |
| | clean thread + Loctite 2701 | |
| Center stand to carrier plate | 21 | 21 |
| | clean thread + Loctite 2701 | |
| Carrier plate for center stand to engine block M12 screw M 8 screw (countersunk) | 72 | 72 |
| | clean thread + Loctite 2701 | |
| | 21 | 21 |
| | clean thread + Loctite 2701 | |
| Grab handle to rear frame | 9 | 9 |
| Lifting handle to rear frame | 10 | 10 |
| Footrest plate to rear frame M 6 screw M 8 screw M 10 screw | 9 | - |
| | 21 | 21 |
| | 42 | - |
| Footrest to footrest plate | 42 | - |
| Fairing support bracket to frame | 20 | 20 |

| Model | R 1100 RS | R 1100 RT |
|--|------------------|------------------|
| 51 Equipment | | |
| Connection | Nm | Nm |
| Ignition/steering lock to fork bridg | 15 | 15 |
| 61 General electrical system | | |
| Horn to horn bracket | 8 | 20 |
| Ground (earth) strap to engine block | 10 | 10 |
| Rubber bushing for battery holder at gearbox | 4 | 4 |



Tightening torques R 850/1100 GS und R 850/1100 R



| Model | R 850/1100 GS | R 850/1100 R |
|--|---------------|--------------|
| 11 Engine | | |
| Connection | Nm | Nm |
| Cylinder head | | |
| Tightening sequence: | | |
| 1. Tighten cylinder head nuts (oiled) crosswise | 20 | 20 |
| 1.1 Tighten all nuts to correct torque for joint | | |
| 1.2 Tighten all nuts to correct angle | 90° | |
| 1.3 Tighten all nuts to correct angle | 90° | |
| 2. M 10 screw | 40 | 40 |
| 3. M 6 screw | 9 | 9 |
| After 1000 km, tighten cylinder head nuts crosswise: | | |
| 1. Unfasten one nut | | |
| 2. Tighten one nut to initial value | 20 | 20 |
| 3. Tighten nut to wrench angle | 180° | |
| 4. Unfasten/retighten M10 screw | 40 | 40 |
| Bearing cap on rocker shaft | 15 | 15 |
| Locknut on valve clearance adjusting screw | 8 | 8 |
| Cylinder head cover to cylinder head | 8 | 8 |
| Camshaft end cover to cylinder head | 9 | 9 |
| Air intake connection to cylinder head | 9 | 9 |
| Camshaft | | |
| Chain sprocket to camshaft | 65 | 65 |
| Camshaft bearing cap | 15 | 15 |
| Rotary breather | | |
| Vent line to alternator mount cover | | |
| M 8 screw | 20 | 20 |
| Banjo screw | 25 | 25 |
| Alternator mount cover | | |
| M 6 screw | 9 | 9 |
| M 8 screw | 20 | 20 |
| Auxiliary shaft | | |
| Chain sprocket to crankshaft | 10 | 10 |
| Chainwheel to auxiliary shaft | 70 | 70 |
| Chain tensioner housing to engine block | 9 | 9 |