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

BMW Motorcycle
After Sales

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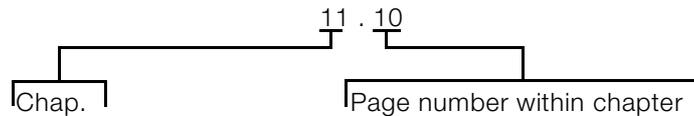
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Introduction

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 Motorcycle
After Sales

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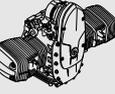
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BMW AG Motorcycle Division Maintenance Schedule



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



Customer _____	Registration No. _____	BMW Pre-delivery check
Order No. _____	Signature of mechanic _____	
Inspect crates on receipt for signs of damage		<input type="checkbox"/>
Motorcycle: – unpack – check scope of delivery – install/complete – clean		<input type="checkbox"/>
Battery: – remove – add battery acid – charge – grease the terminal posts – re-install (mark date)		<input type="checkbox"/>
Check complete specification delivery: – 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: – 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"/>

00 Maintenance and general instructions



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Checking/adjusting clutch operating clearance	36
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Checking tightness of rear wheel studs	37
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Tightening torques R 1100 RS / R 1100 RT

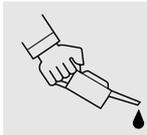
Model	R 1100 RS	R 1100 RT
11 Engine		
Connection	Nm	Nm
Cylinder head		
Tightening sequence:		
1. Tighten cylinder head nuts (oiled) crosswise	20	20
1.1 Tighten all nuts to correct torque for joint		
1.2 Tighten all nuts to correct angle	90°	
1.3 Tighten all nuts to correct angle	90°	
2. M 10 screw	40	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

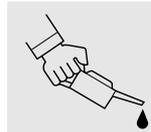
Model	R 1100 RS	R 1100 RT
12 Engine electrical system		
Connection	Nm	Nm
Starter motor to engine	20	20
Starter cover to gearbox housing	7	–
Positive lead to starter motor	10	10
Alternator to alternator support cover	20	20
Tensioning and retaining strap at alternator	20	20
Spacer at alternator	20	20
Positive 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

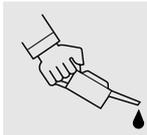
Model	R 1100 RS	R 1100 RT
31 Front fork		
Connection	Nm	Nm
Clamp between fixed tubes and fork bridge	22	–
Screw connection between fixed tube and fork bridge	–	45 (free from oil and grease)
Control arm to ball joint	130	130
	clean thread + Loctite 2701	
Fork bridge to ball joint	130	–
	clean threads + 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

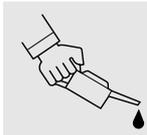
Model	R 1100 RS	R 1100 RT	
34 Brakes			
Connection	Nm	Nm	
Brake caliper to slider tube	40	40	
Brake caliper to rear wheel drive	40	40	
Brake disc to front wheel	21	21	
Brake disc to rear wheel drive	21	21	
	clean thread + Loctite 273		
Brake hose to brake caliper, front/rear	15	15	
Brake hose to fitting	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



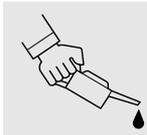
Model	R 850/1100 GS	R 850/1100 R
11 Engine		
Connection	Nm	Nm
Oil filter		
Oil filter	11	11
Oil drain plug	32	32
Oil pump		
Mesh filter basket to engine block	9	9
Oil pump cover	9	9
Pressure relief valve	35	35
Oil pressure switch	30	30
Oil cooler		
Oil cooler pipe to engine block	10	10
Cooling oil line - 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 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	
Cylinders		
Tightening sequence:		
1. M 8 screw	20	20
2. M 6 screw	9	9
3. Chain guide rail pivot screw	18	18
Timing chain		
Chain tensioner	32	32
Connecting rod		
Big end cap	Joint torque	20
	Additional wrench angle	80°
		20
Crankcase		
Tightening sequence:		
1. M 10 screw (oiled)	45	45
2. M 8 screw (oiled)	20	20
3. M 6 screw	9	9





Model	R 850/1100 GS	R 850/1100 R
12 Engine electrical system		
Connection	Nm	Nm
Starter motor to engine	20	20
Starter cover to gearbox housing	7	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 line		
Fuel tank to rear frame	22	22
Fuel pump assembly to tank	6	6
Strut to tank	–	15
18 Exhaust system		
Muffler to rear frame	24	24
Manifold to cylinder head	(with strap)	22
	(with jacket pipe)	18
Muffler to support plate for center stand	20	20
Clip on muffler		50
	Grease clamping face with Never Seez	
Oxygen sensor (lambda probe) to muffler		55
	Grease with Never Seez	

Model		R 850/1100 GS	R 850/1100 R
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	35





Model	R 850/1100 GS	R 850/1100 R
31 Front fork		
Connection	Nm	Nm
Screw connection between fixed tube and fork bridge	45 (free from oil and grease)	45 (free from oil and grease)
Control arm to ball joint	130	130
	clean thread + Loctite 2701	
Threaded journal to frame	130	130
	clean threads + Loctite 243	
Ball joint to fork slider tube bridge	230	230
Slider tube bridge to slider tube	22	22
	clean threads + Loctite 243	
Screw plug to fixed fork tube	press 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	50 10.9 screw	50 10.9 screw
Steering damper to fork slider bridge mount	–	20 clean thread + Loctite 2701
Steering damper mount to fork slider bridge	–	9 clean thread + Loctite 2701
Steering damper to leading link pivot mount	–	20 clean thread + Loctite 2701
Steering damper pivot mount at leading link	–	20
Joint head against locknut	–	20

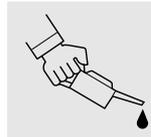
Model	R 850/1100 GS	R 850/1100 R
32 Steering		
Connection	Nm	Nm
Handlebar to fork bridge	21	21
Twistgrip to handlebar	7	7
Handlebar weight to fixed handlebar	20	20
33 Rear wheel drive		
Oil drain plug	23	23
Oil filler plug	23	23
Threaded ring	118 (Hylomar SQ 32 M)	118 (Hylomar SQ 32 M)
Hexagon nut, input bevel gear	200	200
	clean thread + Loctite 273	
Housing cover	35	35
Fixed bearing journal Swinging arm at gearbox Swinging arm at rear wheel drive	150	150
	clean thread + Loctite 2701	
Free bearing journal Swinging arm to gearbox/ Swinging arm to 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	50 10.9 screw	50 10.9 screw
Hydraulic spring adjuster at footrest plat	22	–





Model	R 850/1100 GS	R 850/1100 R
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		
Cast wheel	–	21
Spoked wheel	24	24
	clean thread + Loctite 243	
Brake disc to rear wheel drive	21	21
	clean thread + Loctite 273	
Brake disc to rear wheel	21	21
	clean thread + Loctite 243	
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	–
Flow distributor to holder/slider tube	–	9
Bleed screw on front brake caliper	7	7
Bleed screw on rear brake caliper	4	4
Master cylinder to footrest plate	9	9
Brake pedal to footrest plate	37	37
Handbrake lever pivot pin	8	8
	(the Tuflok blue thread retaining agent can be slackened 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

Model	R 850/1100 GS	R 850/1100 R
36 Wheels and tyres		
Connection	Nm	Nm
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
46 Frame		
Rear frame to gearbox/engine	47	47
1. Screw connection on right of gearbox		
2. at right of engine		
3. at left of engine		
4. at left of gearbox		
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	58	58
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	72
	clean thread + Loctite 2701	
	M 8 screw (countersunk)	21
		21
		clean thread + Loctite 2701
Footrest plate to rear frame		
	M 8 screw	21
Fairing support bracket to frame	20	-



Model	R 850/1100 GS	R 850/1100 R
51 Equipment		
Connection	Nm	Nm
Ignition/steering lock to fork bridge	15	15
61 General electrical system		
Horn to horn bracket	8	8
Ground (earth) strap to engine block	10	10
Rubber bushing for battery holder at gearbox	4	4



Operating materials

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 A	(Taper) roller bearing grease	81 22 9 407 710	100 g tube
Contact spray	Contact spray	81 22 9 400 208	300 ml aerosol
Sealants			
3-Bond 1209	Surface sealant	07 58 9 062 376	30 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	Structural adhesive, ultra-high speed	07 58 9 067 732	5 g bottle
Loctite 638	Joint connector	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	33 17 2 331 095	10 ml bottle
Loctite 454	Cyanacrylate adhesive	07 58 9 062 157	20 g tube
3-Bond 1110 B	Joint adhesive	07 58 9 056 998	5 g tube
Cleaner			
Brake cleaner	Brake cleaner	81 22 9 407 704	600 ml aerosol
Testing agent			
Penetrant MR 68	Crack testing agent for aluminum housings	81 22 9 407 494	500 ml spray
Entwickler MR 70	Developer for aluminum housing crack testing agent	81 22 9 407 495	500 ml spray

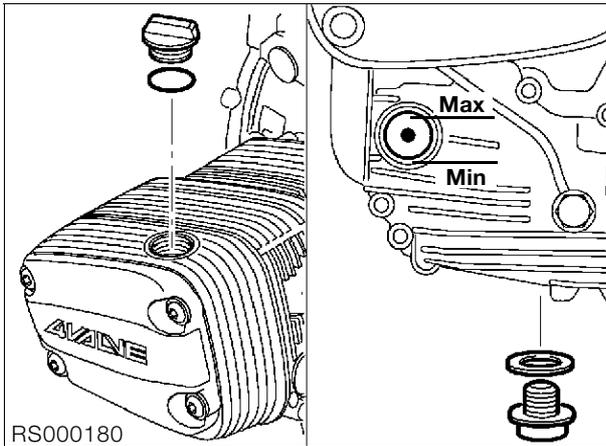


- motorcycle-service-repair-workshop-manual/
 inspection at 100 km (60 miles) I
 - BMW Service II
 - BMW Inspection III
 - Annual Service IV

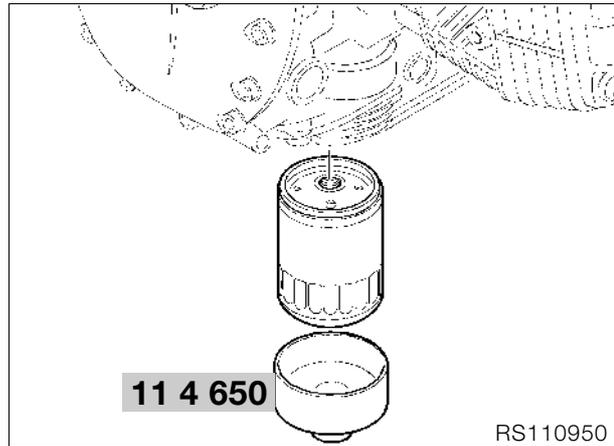


Change engine oil, renew oil filter element

(Inspection I, II, III, IV)



- Remove screw plug.
- Unscrew oil drain plug and drain off oil.
- Fit new seal and screw in drain plug.



- Using oil filter wrench, **BMW No. 11 4 650**, unscrew and remove the oil filter element.
- Coat sealing ring on new oil filter element with oil and screw in.
- Top up oil/seal off.
- Do not check oil level until at least 10 minutes after test run/test ride.



Caution:

Never add engine oil above the MAX mark.



Tightening torque:

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

Fill quantity for engine:

- with oil filter change3.75 l (6.6 Imp. pints)
 - without oil filter change3.50 l (6.2 Imp. pints)
 Oil volume between
 MIN and MAX marks0.50 l (0.88 Imp. pints)

Engine oil grade:

Brand-name HD oil for four-stroke spark-ignition engine, API classifications SE,SF,SG; combination with CC or CD specification.