

# **Repair Manual**



**K 1100 LT/RS**

**BMW AG Motorcycle Division  
After Sales**

Published by BMW AG Motorcycle Division  
After Sales  
UX-VS-2

All rights reserved. Not to be reprinted, translated or duplicated either wholly or in part without prior written permission.  
Errors and omissions excepted; subject to technical amendment.

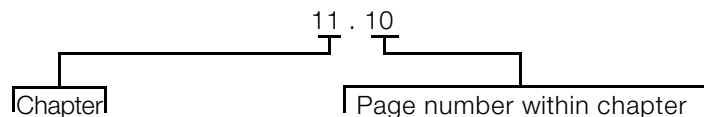
Produced in Germany 5/99

# 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.

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, 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. **[LT]**.

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

BMW AG Motorcycle Division  
After Sales

Published by:                      BMW AG Motorcycle Division  
   After Sales  
   UX-VS-2

D - 80788 München

All rights reserved. Not to be reprinted, translated or duplicated either wholly or in part without prior written permission.

Errors and omissions excepted; subject to technical amendment.

Produced in Germany

# 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 K 1200 LT 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.

---



**Caution:**

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



**Tightening torques:**

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

# BMW AG Motorcycle Division Maintenance Schedule

## K 75 RT/K 1100 RS/LT (from 1993 only)



Customer	Registration No.	BMW Inspection 1000 km/600 mls	BMW Service 10000 km/ 6000 miles	BMW Inspection 20 000 km/ 12 000 miles	BMW Annual Service
Order No.	Signature of mechanic				
Change oil when engine at regular operating temperature, renew oil filter element <sup>1)</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change oil in gearbox, final drive and telescopic fork <sup>2)</sup>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Clean inductive sensor at rear wheel <sup>2)</sup>				<input type="checkbox"/>	
Grease upper/lower clutch cable nipples and side/centre stand pivots			<input type="checkbox"/>	<input type="checkbox"/>	
Renew intake air cleaner element <sup>3)</sup>				<input type="checkbox"/>	
Renew fuel filter element <sup>4)</sup>				<input type="checkbox"/>	
Check hose clips on fuel and cooling system for leaks and take up slack if necessary		<input type="checkbox"/>		<input type="checkbox"/>	
Check coolant level and concentration, and top up if necessary				<input type="checkbox"/>	
<b>Renew coolant after at least every 2 years *</b>					<input type="checkbox"/>
Check brake pads and discs for wear, renew if necessary <sup>*</sup>			<input type="checkbox"/>	<input type="checkbox"/>	
Check front/rear brake fluid level, top up if necessary <sup>*</sup> [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 <sup>*</sup>				<input type="checkbox"/>	
<b>Renew brake fluid at least once a year</b>					<input type="checkbox"/>
Check sensor gap for ABS at front and rear, adjust if necessary <sup>6)</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Check sensor/pulse wheel for ABS at front and rear for contamination, clean if necessary <sup>6) 5)</sup>			<input type="checkbox"/>	<input type="checkbox"/>	
Check operation of electric side stand switch (angle)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Check clutch operating clearance, adjust if necessary		<input type="checkbox"/>		<input type="checkbox"/>	
Check free travel at throttle and cold-start (choke) cables, adjust if necessary		<input type="checkbox"/>		<input type="checkbox"/>	
Renew spark plugs				<input type="checkbox"/>	
Read out MOTRONIC fault memory <sup>7)</sup>			<input type="checkbox"/>	<input type="checkbox"/>	
Check valve clearances, adjust if necessary <sup>8)</sup>		<input <sup="" type="checkbox"/> 5)		<input type="checkbox"/>	
Check steering head bearing play, adjust if necessary <sup>*</sup>				<input type="checkbox"/>	
Check battery acid level, top up with distilled water if necessary				<input type="checkbox"/>	<input type="checkbox"/>
Clean and grease the battery posts, if necessary				<input type="checkbox"/>	<input type="checkbox"/>
Take up slack at bolts and nuts:					
– power unit to frame					
– suspension strut mounts		<input type="checkbox"/>		<input type="checkbox"/>	
– side/center stand pivot					
– rear wheel studs					
Apply silicone spray to guide rods of adjustable windshield (only K 1100 LT, K 75 RT)				<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, tyre pressures					
– lights and signal systems					
– telltale and warning lights					
– clutch and gear shift		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
– handbrake and footbrake, ABS					
– steering					
– instruments					
– test ride, if necessary					

**Recommendation:** In severe operating conditions, grease the throttle twistgrip and steering head bearings at least every 30,000 km (18,000 miles) <sup>\*</sup>

<sup>1)</sup> at least every 6 months; if motorcycle is used only for short journeys or at outside temperatures below 0°C, every 3 months, and at least every 3,000 km (1,800 miles)

<sup>2)</sup> at least once a year

<sup>3)</sup> 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

<sup>4)</sup> normally every 40,000 km (24,000 miles), but if fuel is of poor quality every 20,000 km (12,000 miles)

<sup>5)</sup> K 75 models only

<sup>6)</sup> only motorcycles with ABS

<sup>7)</sup> only motorcycles with catalytic converter

<sup>8)</sup> on all K models, renew the lining on the chain tensioner rail every 60,000 km (36,000 miles)

<sup>\*</sup> invoiced as a separate item

# BMW AG Motorcycle Division

## Pre-delivery Check

## K 75 RT/K 1100 RS/LT (from 1993 only)

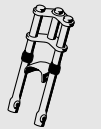
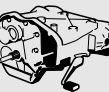
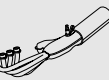
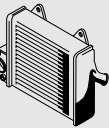
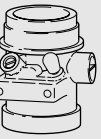
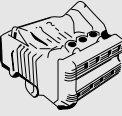


<p>_____</p> <p>Customer</p> <p>_____</p> <p>Order No.</p>	<p>_____</p> <p>Registration No.</p> <p>_____</p> <p>Signature of mechanic</p>	<p><b>BMW</b> <b>Pre-delivery check</b></p>
<p>Inspect crates on receipt for signs of damage</p>		
<p>Motorcycle:</p> <ul style="list-style-type: none"> <li>- unpack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

# Contents

## Group / Chapter

<b>00 Maintenance and general instructions .....</b>	<b>00.1</b>
<b>11 Motor .....</b>	<b>11.1</b>
<b>12 Engine electrics .....</b>	<b>12.1</b>
<b>13 Fuel preparation and control .....</b>	<b>13.1</b>
<b>16 Fuel tank and lines .....</b>	<b>16.1</b>
<b>17 Radiator .....</b>	<b>17.1</b>
<b>18 Exhaust system .....</b>	<b>18.1</b>
<b>21 Clutch .....</b>	<b>21.1</b>
<b>23 Gearbox .....</b>	<b>23.1</b>
<b>31 Front fork .....</b>	<b>31.1</b>
<b>32 Steering .....</b>	<b>32.1</b>



**Group / Chapter**

**33 Rear wheel drive ..... 33.1**

**34 Brakes ..... 34.1**

**36 Wheels and tyres..... 36.1**

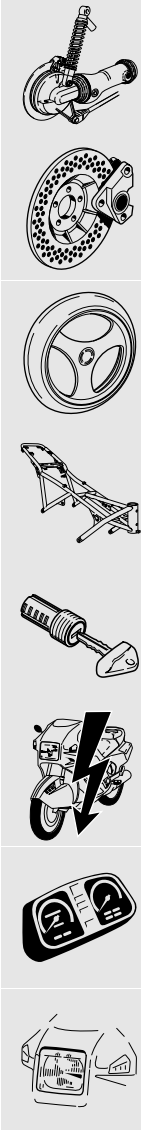
**46 Frame ..... 46.1**

**51 Equipment..... 51.1**

**61 General electrical equipment ..... 61.1**

**62 Instruments..... 62.1**

**63 Lights..... 63.1**





# 00 Maintenance and general instructions



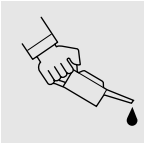
<b>Contents</b>	<b>Page</b>
<b>Tightening torque</b> .....	3
<b>Table of operating fluids</b> .....	10
<b>Key to maintenance intervals</b> .....	11
<b>Changing engine oil</b> .....	11
Inspections I, II, III, IV	
<b>Changing oil in transmission (gearbox)</b> .....	11
Inspections I, III, IV	
<b>Changing oil in rear wheel drive</b> .....	12
Inspections I, III, IV	
<b>Changing oil in telescopic fork</b> .....	12
Inspection I, III, IV	
<b>Renewing intake air cleaner</b> .....	12
Inspection III	
<b>Renewing fuel filter</b> .....	13
Inspection III	
<b>Cleaning inductive pulse generator at rear wheel drive</b> .....	13
Inspections I, III, IV	
<b>Checking brake pads, brake discs for wear and renewing if necessary</b> ....	14
Inspection II, III	
Front wheel brake	
Rear wheel brake	
<b>Checking brake fluid level and correcting if necessary</b> .....	15
Inspections I, II, III	
Checking brake fluid level	
Adding brake fluid	
<b>Checking brake system</b> .....	15
Inspection III	
<b>Checking ABS sensor spacing and adjusting if necessary</b> .....	15
Inspections I, II, III	
Front sensor	
Rear sensor	
<b>Renewing brake fluid</b> .....	16
Renewing front brake fluid	
Renewing rear brake fluid	



<b>Checking function of electric switch on side stand and adjusting if necessary</b> .....	17
Inspections I, II, III	
<b>Checking clutch clearance and adjusting if necessary</b> .....	18
Inspections I, III	
<b>Reading out Motronic defect code memory</b> .....	18
Inspections II, III	
<b>Checking increased starting speed (choke) and adjusting if necessary</b> ....	19
Inspections I, III	
Checking increased starting speed	
<b>Checking valve clearance and adjusting if necessary</b> .....	20
Inspections I, III	
<b>Adjusting valve clearance</b> .....	20
Removing sprockets	
Removing camshafts	
Installing camshafts	
Installing sprockets	
Installing cylinder head cover	
<b>Checking steering bearing play and adjusting if necessary</b> .....	23
Inspection III	
<b>Lubricating guide pins, adjustable screen</b> .....	24
Inspections III, IV	
<b>Checking idle speed, synchronising and CO value and adjusting if necessary</b> .....	25
Inspections I, II, III, IV	
Adjusting idle speed	
Adjusting CO value without catalytic converter	

## Tightening torque

Model	K 1100 LT	K 1100 RS
Connection	Nm	
<b>11 Engine</b>		
<b>Freewheel</b>		
Cover plate/freewheel cage at countershaft gear	10	
<b>Oil - water pump</b>		
Oil pressure switch	40	
Temperature sensor/screw plug	9	
Pressure relief valve	40	
Impeller	33	
Pump housing to crankcase	10	
Cover to pump housing	10 (3-Bond 1209)	
<b>Intermediate flange</b>		
Thrust plate at intermediate flange	9 (Loctite 243)	
Intermediate flange at crankcase	9	
<b>Crankshaft</b>		
Pinion/rotor flange at crankshaft	50	
Main bearing cap to crankcase	50	
<b>Connecting rod</b>		
Big end cap Wrench angle	80 °	30
<b>Input shaft</b>		
Front bearing	18	
Rear bearing	40	
<b>Engine block</b>		
Crankshaft cover	9	
Lower part, outer	10	
Oil sump	10	
Oil filter cover	10	
Oil drain plug	30	
<b>Cylinder head</b>		
Cylinder head bolts (SI 11 062 95 (697) Short thread (from 6/93 to 11/94): Wrench angle, 1st stage Wrench angle, 2nd stage	64° 42°	22
Long thread (since 12/94): Wrench angle, 1st stage Wrench angle, 2nd stage	75° 75°	20
Cylinder head cover	9	
<b>Camshaft</b>		
Bearing cap	9 (Apply a thin coat of 3-Bond 1209 only at corners and butt edges)	
Chain sprockets	54	





Model	K 1100 LT	K 1100 RS
<b>Connection</b>	<b>Nm</b>	
<b>Timing chain</b>		
Chain tensioner	9	
Slide rail at camshaft bearing cap	9	
<b>Timing case cover</b>		
Timing case cover	10 (3-Bond 1209)	
Cover for Hall-effect signal transmitter	9	
Screw plug	40	
<b>Clutch</b>		
Clutch housing to output shaft Tighten to Release and re-tighten to Wrench angle	50°	140 50
Housing cover	19	
<b>Alternator</b>		
Alternator to intermediate flange	22	
Driver	33	
<b>Starter motor</b>		
Starter motor to gearbox	9	
<b>Mixture preparation</b>		
Intake stub pipe	9	
Fuel injection rail	9	
<b>Cooling system</b>		
Coolant stub pipe at cylinder head	9	
Temperature sensor at coolant stub pipe	30	
<b>Air cleaner</b>		
Lower part of air cleaner housing	21	
<b>12 Engine electrical system</b>		
Starter to transmission	9	
Positive lead to starter	5	
Alternator to intermediate flange	22	
Clutch housing	50	
Base plate	3,5	
Setting ring	2,5	
Hall generator cover	9	
Ignition coils to intermediate flange	5	
Spark plug	20	

Model	K 1100 LT	K 1100 RS
Connection	Nm	
<b>13 Fuel preparation and control</b>		
Injection rail	9	
Intake stub pipe	9	
Lower section of air cleaner housing	21	
Intake air line	9	
Motronic control unit	5	
<b>17 Radiator</b>		
Connecting screw, temperature sensor	9	
Fastening, thermostat cover	3	
Radiator to frame	9	
Coolant stub pipe to cylinder head	9 (with Loctite 243)	
Temperature sensor to coolant stub pipe	30	
<b>18 Exhaust System</b>		
Exhaust system to cylinder head	21	
Front silencer (muffler)	12	
Exhaust system holder to footrest plate	33	
Exhaust system to holder/footrest plate	9	
Retaining bracket to gearbox	41	
Oxygen sensor	Hand-tight	
<b>21 Clutch</b>		
Clutch housing to output shaft tighten to loosen and retighten to tightening angle	50°	140 50
Housing cover	19	



Model	K 1100 LT	K 1100 RS
Connection	Nm	
<b>23 Transmission</b>		
Transmission cover to transmission	9	
Machine screw for neutral stop	13	
Stud bolt, selector shaft	17 (Loctite 243)	
Transmission to intermediate flange	16	
Frame mounting to transmission	45	
Bearing mount to transmission	41 (Loctite 243)	
Starter motor to transmission	9	
Positive lead to starter motor	5	
Fixed bearing of swinging arm to transmission	9	
Swinging arm bearing journal (loose bearing)	7,5	
Locknut of bearing journal	41	
Fixed bearing rear wheel drive in swinging arm	150 (clean thread + Loctite 2701)	
Bearing pin, loose bearing rear wheel drive in swinging arm	7 (clean thread + Loctite 2701)	
Locknut, loose bearing rear wheel drive in swinging arm	105 (clean thread + Loctite 2701)	
Suspension strut to frame/rear wheel drive	51	
Brake caliper	32	
Hinterradschrauben	105	
Exhaust to cylinder head	21	
Silencer to holder/footrest plate	9	
Front silencer to transmission	12	
Footrest plate to transmission	15	
<b>31 Front fork</b>		
Oil filler plug	10	
Oil drain plug	3,5	
Spring support bearing	20	
Locking tube	65	
Hexagon nut	65	
Clamping screws of fork bridges	15	
Bottom screw fitting	47	
Handlebar clamp block	22	
Fork stabilisor	22	



Model	K 1100 LT	K 1100 RS
Connection	Nm	
<b>32 Steering</b>		
Clamping screws for handlebar fitting	5	
Clamping screws	22	
Clamping block to fork bridge	16	
<b>33 Rear wheel drive</b>		
Threaded ring	118 (clean thread + Hylomar SQ 32M)	
Hexagon nut, drive bevel gear	200 (clean thread + Loctite 273)	
Housing cover	35	
Swinging arm fixed bearing to transmission	9	
Swinging arm bearing journal, loose bearing	7 (clean thread + Loctite 2701)	
Locknut, loose bearing	41	
Fixed bearing rear wheel drive in swinging arm	150 (clean thread + Loctite 2701)	
Bearing pin, loose bearing rear wheel drive in swinging arm	7 (clean thread + Loctite 2701)	
Locknut, loose bearing rear wheel drive in swinging arm	105 (clean thread + Loctite 2701)	
Strut to rear wheel drive	43	
Spring strut to frame/rear wheel drive	51	
Brake disc to rear wheel drive	21	
Brake caliper to rear wheel drive	32	
Wheel bolts:	1st stage	50
	2nd stage	105
Oil drain plug	23	
Oil filler plug	23	
Inductive sensor to rear wheel drive	2,5	

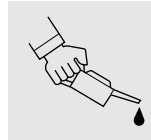





Model	K 1100 LT	K 1100 RS
Connection	Nm	
<b>34 Brakes</b>		
ABS pulse wheel	4	
ABS sensor front/rear	4	
Brake caliper to sliding tube/rear wheel drive	40	
Brake line to brake caliper	18	
Bleed screws at brake caliper front	14	
Bleed screws at brake caliper rear	11	
Brake hose to distributor	18	
Brake hose to master brake cylinder	18	
Brake disc to front wheel	24	
Brake disc to rear wheel drive	21	
Foot brake cylinder to foot rest plate	25	
Locknut, adjusting screw foot brake cylinder	9	
Distributor to fork bridge	6	
Brake caliper to sliding tube/rear wheel drive	9	
ABS unit to mounting	9	
Bleed screw at ABS unit	9	
Master brake cylinder to foot rest plate	9	
Mounting pin to handbrake lever	8	
<b>36 Wheels and tyres</b>		
Quick-release axle threaded connection	33	
Quick-release axle clamp screws	14	
Brake caliper to fork slider tube/rear wheel drive	32	
Wheel studs (tighten in the order stated):	50	
1. All studs handtight	105	
2. Preload the outer wheel studs in a crosswise pattern	105	
3. Tighten the central stud		
4. Tighten the outer studs		



Model	K 1100 LT	K 1100 RS
Connection	Nm	
<b>46 Frame</b>		
Frame to engine	45	
Fairing support bracket to frame	9	
Suspension strut to frame/rear wheel drive	51	
Handlebar to clamping block	22	
Clamping screws of fork bridge	15	
Locking tube	65	
Hexagon nut	65	
Centre stand to bearing block	41	
Side stand to bearing block	41	
Footrest plate	15	
Brake line to handbrake cylinder	11	
Brake line to distributor	11	
<b>51 Equipment</b>		
Handlebar clamping blocks	22	
Shear bolts	to shear point (~ 20 )	
<b>61 General electrical equipment</b>		
Central earth (ground)	9	
Motronic control unit	5	



## Table of operating fluids



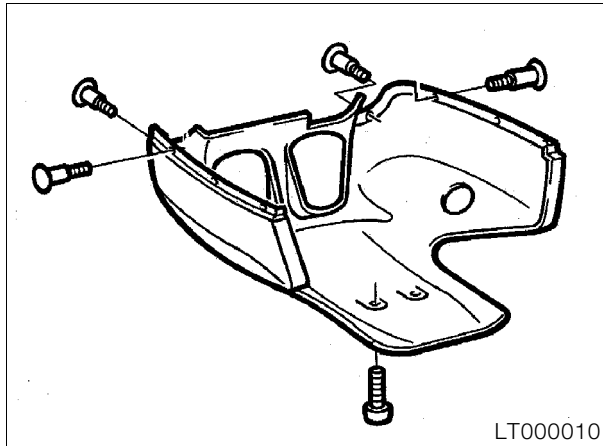
Item	Use	Order number	Quantity
<b>Lubricant</b>			
Optimoly MP 3	High-performance lubricating paste	07 55 9 062 476	100 g tube
Optimoly TA	High-temperature assembly paste	18 21 9 062 599	100 g tube
Silicone grease 300, heavy	Damping grease	07 58 9 058 193	10 g tube
Retinax A	Wheel, steering head and taper roller bearing grease	81 22 9 407 710	100 g tube
Contact spray	Contact spray	81 22 9 400 208	300 ml spray
<b>Sealants</b>			
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
<b>Adhesives and retaining agents</b>			
Loctite 648	Surface sealant (narrow gap)	07 58 9 067 732	5 g bottle
Loctite 638	Surface sealant (wide gap)	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
3-Bond 1110 B	Surface sealant	07 58 9 056 998	5 g tube
<b>Cleaners</b>			
Brake cleaner	Brake cleaner	83 11 9 407 848	600 ml spray
<b>Testing agents</b>			
Penetrant MR 68	Crack testing agent for aluminium housings	81 22 9 407 494	500 ml Spray
Developer MR 70	Crack testing agent for aluminium housings	81 22 9 407 495	500 ml spray

## Key to maintenance intervals

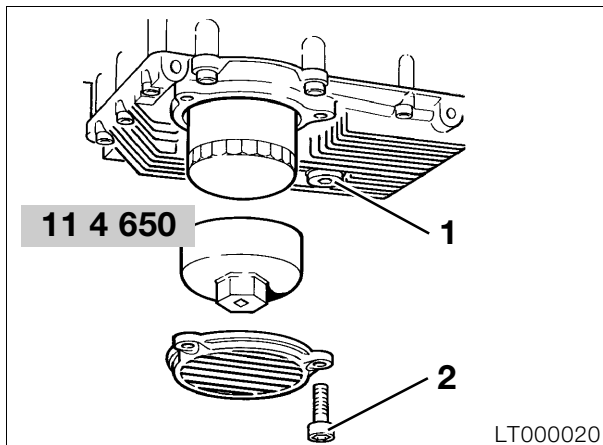
- Inspection at 1000 km (600 miles)I
- BMW Service at 10,000 km (6000 miles)II
- BMW Inspection at 20,000 km (12,000 miles)III
- BMW Annual Service IV

## Changing engine oil

Inspections I, II, III, IV



- [RS] Remove lower section of fairing.



- Change oil at operating temperature.
- Oil drain plug (1).
- Remove oil filter cover retainer (2).
- Unscrew oil filter with special wrench **BMW No. 11 4 650**.



### Note:

Coat sealing ring on new oil filter element with oil. Screw in oil filter handtight, take note of hint at filter.

- Replace O-ring in cover, if necessary.



### Tightening torques:

Oil drain plug ..... 18 Nm  
Cover to oil sump ..... 6 Nm

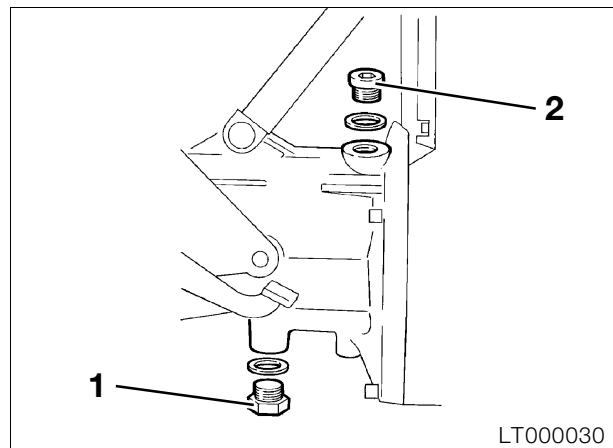
### Quantities:

Oil content ..... 3.50 l (6.16 Imp.pt)  
Oil content with filter change ..... 3.75 l (6.6 Imp.pt)  
See service data for oil grades ..... Seite 00.3



## Changing oil in transmission (gearbox)

Inspections I, III, IV



- Drain off oil with engine at operating temperature.
- Oil drain plug (1)
- Oil filler plug (2)



### Note:

Renew sealing rings.



### Tightening torques:

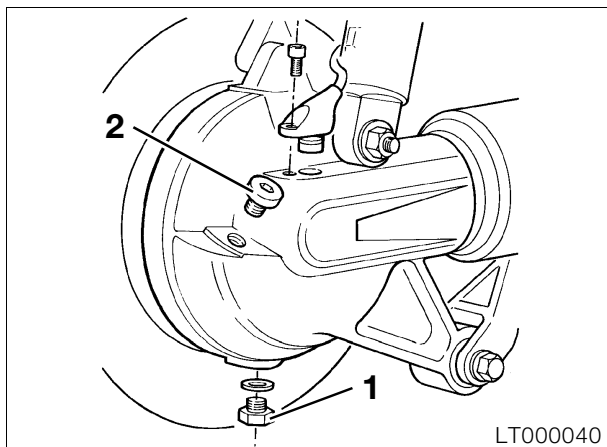
Oil drain plug ..... 20 Nm  
Oil filler plug ..... 20 Nm

### Quantities:

Oil filling capacity ..... 0.85 l (1.496 Imp.pt)  
See service data for oil grades ..... Page 00.3

## Changing oil in rear wheel drive

Inspections I, III, IV



- Drain off oil with drive at operating temperature.
- Oil drain plug (1)
- Oil filler plug (2)



**Note:**

Fill oil only up to the bottom-most thread turn of the filler hole.

**Oil content:**

Initial filling ..... 0.25 l (0.44 Imp.pt)  
 Oil changes ..... 0.35 l (0.616 Imp.pt)  
 See service data for oil grades ..... Page 00.3



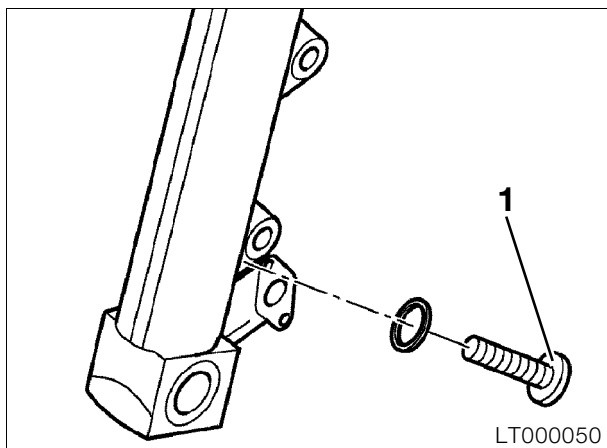
**Tightening torques:**

Oil filler plug ..... 23 Nm  
 Oil drain plug ..... 23 Nm

## Changing oil in telescopic fork

Inspection I, III, IV

- Support motorcycle on stand.
- Unscrew oil filler plugs.



- Release left and right oil drain plug (1).

- Pump out oil by compressing forks several times.
- Screw in oil filler plugs.
- Lift vehicle with lifting gear, **BMW No. 00 1 510**, until the front wheel can move freely.



**Note:**

The load on the front wheel must be relieved to ensure as much air as possible flows in before the fixed tubes are closed off with the filler plugs so as to provide additional damping.

- Fill with specified quantity of oil.
- Close off fixed tubes.

**Quantities:**

Oil capacity, left ..... 0.35 - 0.01 l  
 ..... (0.616 - 0.0176 Imp.pt)  
 Oil capacity, right ..... 0.40 - 0.01 l  
 ..... (0.704 - 0.0176 Imp.pt)  
 See service data for oil grades ..... Page 00.3



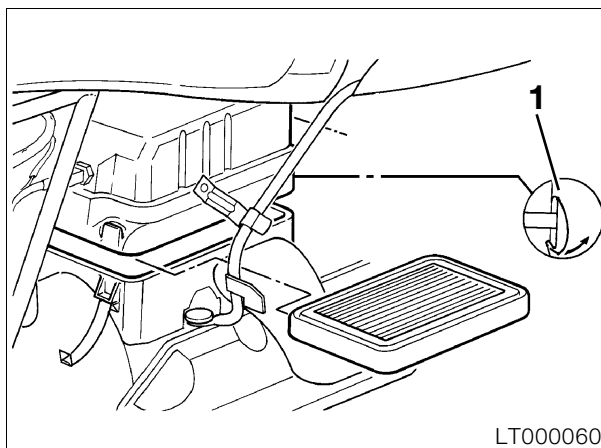
**Tightening torque:**

Oil filler plugs ..... 20 Nm

## Renewing intake air cleaner

Inspection III

- Detach battery panel on right.
- Remove right knee pad.
- Detach right side section of fairing.
- **[LT]** Take off intake air pipe.



- Release clips (1) at front and rear.
- Slightly raise casing cover, lift out air cleaner.
- Install in the reverse order of removal.



**Note:**

Note installation position of air cleaner. Lettering at rear, arrow marking "TOP-OBEN".