# 00 00 119 BMW Running-in Check (see Maintenance Schedule)

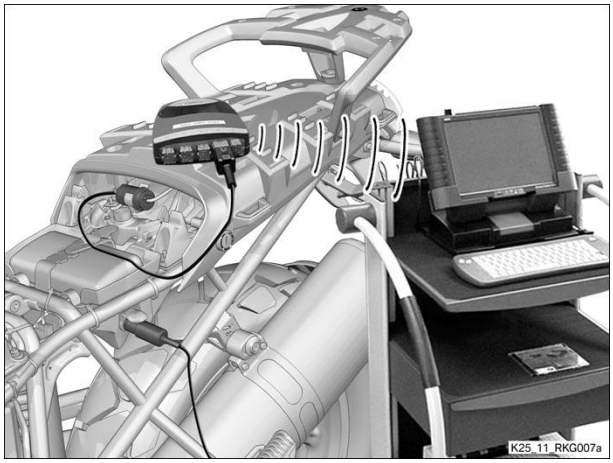
**Equipment trim-level variant:**
0630 - **BMW Motorrad Integral ABS II**
0530 - Tyre pressure monitoring (RDC)
0771 - Cross-spoked wheels
0603 - Anti-theft alarm (DWA)
0650 - Automatic Stability Control (ASC)
0416 - Electronic Suspension Adjustment (ESA)
0519 - Heated handlebar grips

## (-) Setting service-due date and countdown distance

**▶ Connecting BMW Motorrad diagnostic system to motorcycle**

**Note**

You can find further details about the **BMW Motorrad** diagnostic system in the respective operating manual.




- Connect the **BMW Motorrad** battery charger.

**Workshop equipment**

BMW Motorrad battery charger (version for Europe without GB)
BMW Motorrad battery charger (GB/AUS/NZL version)
BMW Motorrad battery charger (Japan version)
BMW Motorrad battery charger (USA/CAN version)

- Start vehicle identification.
- Select 'Toolbox Maintenance'.
- From this point on, follow the instructions issued by the **BMW Motorrad** diagnostic system.

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- Set the countdown distance.
- Set the service-due date.

## (-) Reading fault memory with BMW Motorrad diagnostic system

*Read out fault-code memory with BMW diagnostic system (Description in item: 12 00 015)*

- Read all fault memories.

**Note**

When working with the **BMW Motorrad** diagnostic system, always follow the instructions it issues.

- Perform all requisite repair work.

## (-) Engine-oil change, with filter

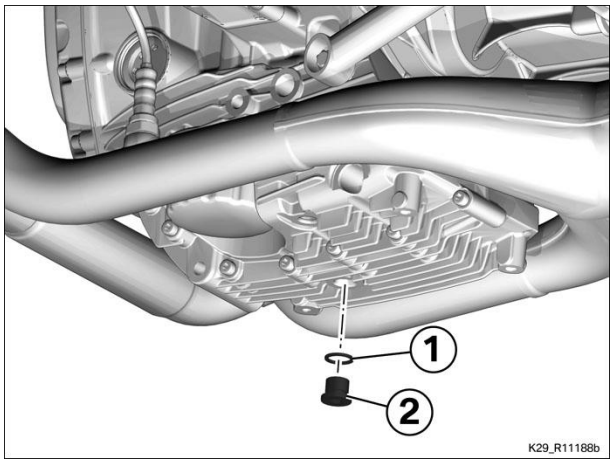
*Oil change, engine, with filter (Description in item: 11 00 209)*

**Note**

Change oil, warmed to normal operating temperature.

**▶ Draining engine oil**

**Warning**




Parts of the exhaust system can be hot.
Do not touch hot parts of the exhaust system.

- Place a suitable tray underneath the engine.
- Remove oil drain plug (2) and drain the oil.
- Dispose of used oil in an environmentally friendly manner.
- Remove old sealing ring (1) from the drain plug.

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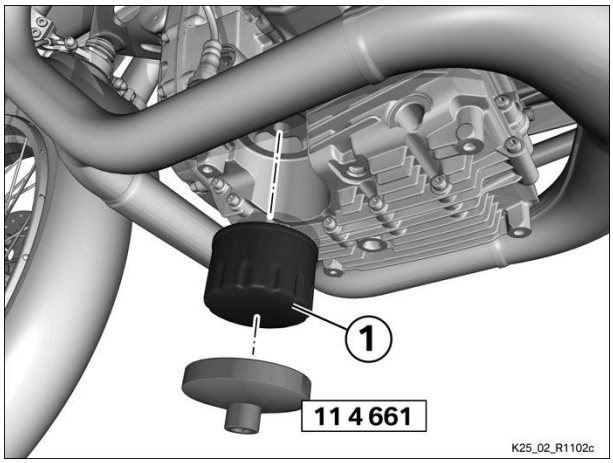
**▶ Changing oil filter**




- Remove oil filter (1) with wrench (No. 11 4 661) and dispose of the used filter in an environmentally friendly manner.
- Lubricate the sealing ring for new oil filter (1) with engine oil.
- Install oil filter (1), using wrench (No. 11 4 661).

| Tightening torques | | |
|---|---|---|
| **Oil filter to crankcase** | | |
| Sealing ring wetted with engine oil | 11 Nm | |

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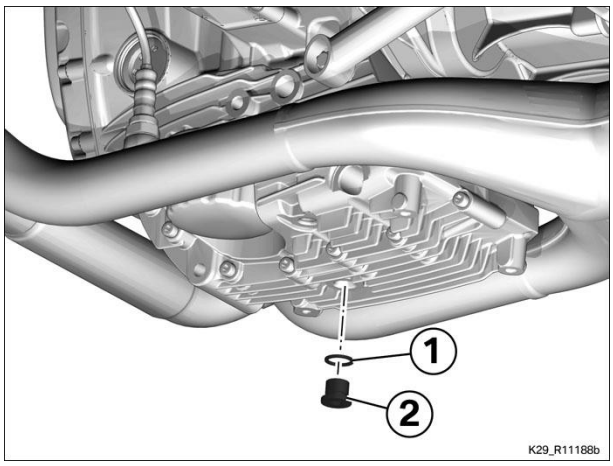
**▶ Pouring engine oil into engine**

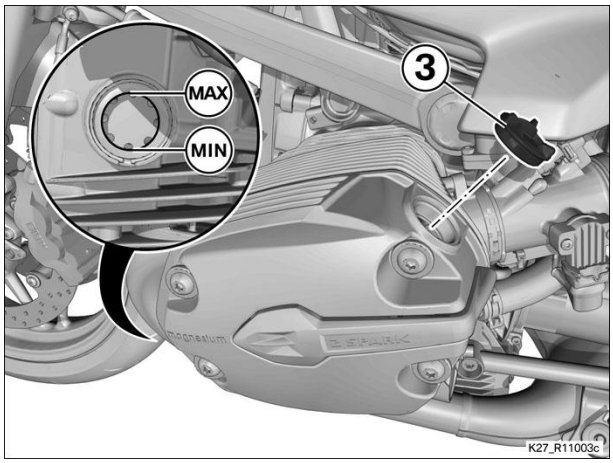



- Install a new sealing ring (1).
- Install oil drain plug (2).

| Tightening torques | | |
|---|---|---|
| **Oil drain plug to crankcase** | | |
| M16 x 1.5 | 32 Nm | |

- Remove oil filler plug (3) using the tool from the toolkit.
- Pour engine oil into the engine until the level reaches the (Max) mark.

| Technical data | | | |
|---|---|---|---|
| Engine oil, capacity | with filter change | max 4.0 l | |
| | Fluids and lubricants | | |
| | of products recommended by **BMW Motorrad** and generally admissible viscosity classes | | |




- Install oil filler plug (3) using the tool from the toolkit.

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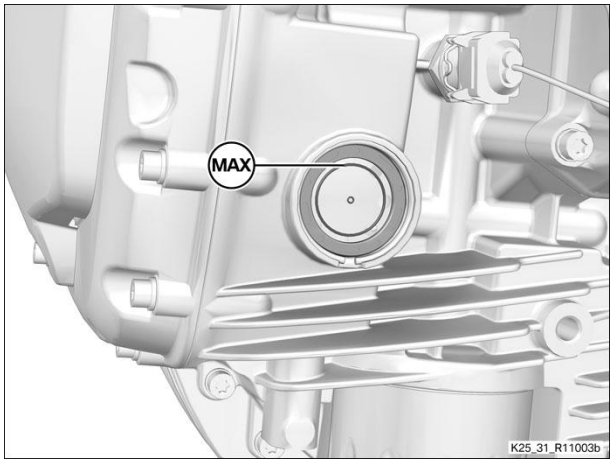
**▶ Check the engine oil level**

**Attention**

The oil level varies with the temperature of the oil. The higher the temperature, the higher the level of oil in the sump. Checking the oil level with the engine cold or after no more than a short ride will lead to misinterpretation; this in turn, means that the engine will be operated with the incorrect quantity of oil.

In order to ensure that the engine oil level is read correctly, check the oil level only after a lengthy trip.




- After completing all work, wait at least 5 minutes after heating the engine to operating temperature in the trial run/road test before checking the engine oil level.
- Top up the engine oil to the (MAX) mark.

of products recommended by **BMW Motorrad** and generally admissible viscosity classes

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## (-) Changing oil in rear-wheel drive

*Oil change, rear wheel drive (Description in item: 33 00 001)*

**Note**

Change gearbox oil, warmed to normal operating temperature.

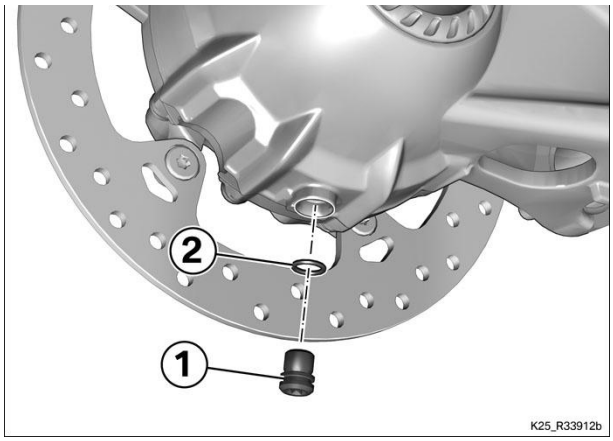
**▶ Draining oil from rear wheel drive**

- Remove oil drain plug (1) with O-ring (2).
- Drain the oil.

**Note**

Move the motorcycle so that the oil drain bore is at the very bottom.

- Check O-ring (2) for damage; replace if necessary.




Install oil drain plug (1) with O-ring (2).

| Tightening torques | | |
|---|---|---|
| **Oil drain plug in final drive housing** | | |
| M12 x 1<br>with O-ring 11.2 x 1.8 | 20 Nm | |

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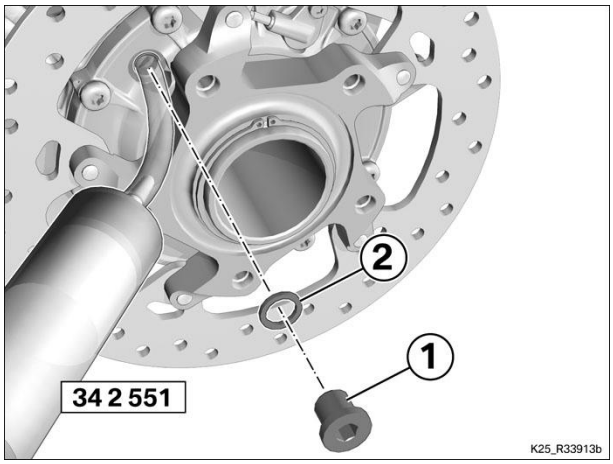
▶ **Filling rear-wheel drive with oil (oil change)**

- Remove oil filler plug (1) with sealing ring (2).




**Attention**

Any mixture of oil, brake fluid and clutch fluid, even if the quantities involved are minute, can attack and damage seals.

Always use separate sets of syringes and hoses for the individual fluids, in order to avoid the risk of one fluid contaminating another.

- Use syringe (No. 34 2 551) to inject the gear oil into the housing.

| Technical data | | | |
|---|---|---|---|
| Rear-wheel drive, oil capacity | Oil change | 180 ml | |
| | Fluids and lubricants | | |
| | Castrol SAF-XO | | |

- Install oil filler plug (1) with new sealing ring (2).

| Tightening torques | | |
|---|---|---|
| **Oil filler plug in final drive housing** | | |
| M12 x 1.5<br>with sealing ring 12 x 16 | 20 Nm | |

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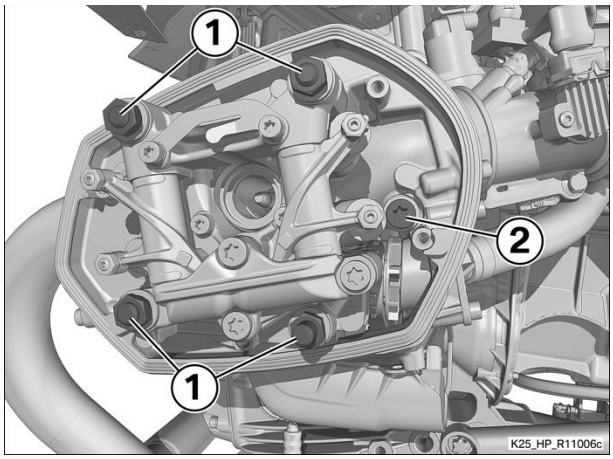
## (-) Tightening cylinder head fasteners

*Tighten cylinder-head fasteners (Description in item: 11 12 009)*

- Check the security of each individual cylinder-head nut (1) of the tie-bolts and screw (2).

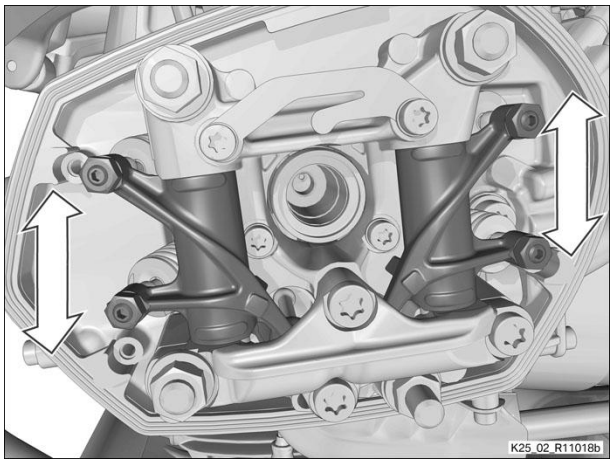
| Tightening torques | | |
|---|---|---|
| **Cylinder head to cylinder (check torque)** | | |
| Nut, tie bolt, M10 | **In diagonally opposite** | |




| | | |
|---|---|---|
| | **sequence, slacken and then retighten each nut** | |
| | Closing torque, 20 Nm | |
| | Final torque, 180° | |
| M10 x 90 | **Slacken and then retighten screw** | |
| | 40 Nm | |

## (-) Adjusting valve clearance

*Adjusting valce clearances (rocker cover removed) (Description in item: 11 34 004)*



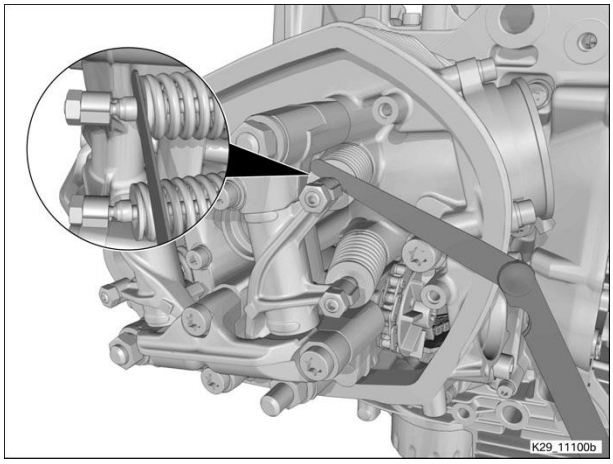

***Test***

- Check endplay by moving the rocker arms up and down (arrows).

***Result:*** Excessive play is clearly perceptible.

***Measure:***

=> 11 33 630, Adjusting rocker-arm endplay (cylinder-head cover removed) (Billed as a separate item)




***Test***

- Measure valve clearance with feeler gauge.

» You should feel slight resistance as the feeler gauge slides between the valve stem and the rocker arm.

**Technical data**

| | | | |
|---|---|---|---|
| Inlet valve clearance | Engine cold max 35 °C | 0.15 mm | |
| Exhaust valve clearance | Engine cold max 35 °C | 0.3 mm | |

***Result:*** Valve clearance is out of tolerance.

***Measure:***

- Correct valve clearance with adjusting screw and tighten locknut.

| Tightening torques | | |
|---|---|---|
| **Locknut, valve adjusting screw** | | |
| M6 x 0.5 | 8 Nm | |

- Recheck valve clearances.
- Set the valves actuated by a common rocker arm to exactly the same setting.

## (-) Checking brake-fluid level, front brakes

### *Test*

- Check the brake fluid level in the reservoir.

| Technical data | | | |
|---|---|---|---|
| Brake fluid level, front   | Brake-fluid reservoir horizontal, motorcycle upright | Do not permit the brake fluid level to drop below the MIN mark. | |
| | Fluids and lubricants | | |
| | DOT4 brake fluid | | |

***Result:*** Level not as specified

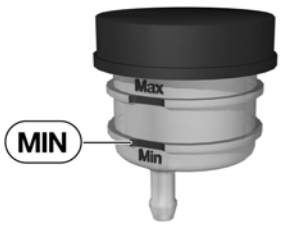
***Measure:***

- Check the brake pads.
- Check for leak or source of fault.

## (-) Checking brake-fluid level, rear brakes

### *Test*

- Check the brake fluid level in the reservoir.

| Technical data | | | |
|---|---|---|---|
| Brake fluid level, rear   | Brake-fluid reservoir horizontal, motorcycle upright | Do not permit the brake fluid level to drop below the MIN mark. | |
| | Fluids and lubricants | | |
| | DOT4 brake fluid | | |

***Result:*** Level not as specified

***Measure:***

- Check the brake pads.
- Check for leak or source of fault.

## (-) Checking freedom of movement of Bowden cables and checking for kinks and chafing

**Note**

The throttle cable must be correctly adjusted in order for the electronic engine management system to function correctly.

***Test***

- Check the Bowden cables for kinks and chafing.

» No signs of kinks or chafing.

- Fully open the throttle twistgrip at different handlebar positions and then release.

» The throttle twistgrip returns to the closed position by itself.

- Turn the handlebars to the full-lock positions and check the play at the throttle twistgrip.

» Slight play perceptible.

***Result:*** Not all tests completed successfully.

***Measure:***

=> 32 73 509, Replacing throttle cable to handlebar (Billed as a separate item)

=> 32 73 506, Replacing left throttle cable (throttle- valve assembly/throttle-cable divider) (Billed as a separate item)

=> 32 73 507, Replacing right throttle cable (throttle-valve assembly/throttle-cable divider) (Billed as a separate item)

## (-) Checking tyre tread depth and tyre pressure

**▶ Checking tyre tread depth**

***Test***

**Warning**

Impaired handling and risk of dropping the motorcycle.

Comply with local legal requirements concerning minimum tread depth. Worn tyres can impair handling to a considerable extent.

- Check the tyre tread depth

**Technical data**

| | | | |
|---|---|---|---|
| Tyre tread depth, front and rear | For Germany only | min 1.6 mm | |
| | Outside Germany | Country-specific legal requirements | |

***Result:*** Tread depth not to specification.

***Measure:***

=> 36 30 628, Removing and installing front wheel (Billed as a separate item)

=> 36 32 501, Renewing front tyre (wheel removed) (Billed as a separate item)

=> 36 30 629, Removing and installing rear wheel (Billed as a separate item)

=> 36 32 511, Removing rear tyre (wheel removed) (Billed as a separate item)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▶ **Checking tyre pressure**

***Test***

- Switch on the ignition.
- Using the Info button, select the display for **RDC** in the multifunction display.
- Activate **RDC** sensors with **BMW Motorrad RDC Test Tool** (No. 61 1 671).
- Check the tyre pressure (value in the multifunction display) using the following data.

**Technical data**

| | | | |
|---|---|---|---|
| Tyre pressure, front | one-up, tyre cold | 2.2 bar | |
| | two-up and/or with luggage, tyre cold | 2.5 bar | |
| Tyre pressure, rear | one-up, tyre cold | 2.5 bar | |
| | two-up and/or with luggage, tyre cold | 2.9 bar | |

***Result:*** If tyre pressure is too low:

***Measure:***

- Correct the tyre pressure.

**Note**

Only the motorcycle pressure display is temperature-compensated; it is based on 20°C/68°F.

Differences between the displays (vehicle/pressure display) are normal.

- Check the tyre pressure by activating the **RDC** sensors again.
- **Example:** The setpoint value for the tyre pressure is 2.5 bar. 2.3 bar is indicated in the multifunction display. The shortfall is therefore 0.2 bar. The tyre-pressure tester shows 2.4 bar. You must now increase tyre pressure by the 0.2 bar difference between the value in the table and the RDC reading; when the air-line gauge shows 2.6 bar, the tyre is inflated to the correct pressure.

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## (-) Checking spoke tension, adjusting if necessary

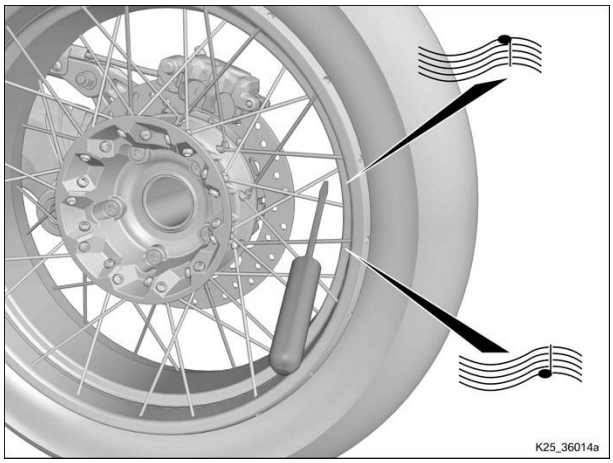
### Precondition

- Motorcycle is on the centre stand or an auxiliary stand, both wheels are free to turn.

▶

- Spin the front wheel and the rear wheel and check for runout, deformation and damage.

***Test***




- Tap the spokes with a screwdriver and listen for the correct ringing sound.

***Result:*** Spokes are loose.

***Measure:***

- Use spoke key (No. 36 3 801) to tighten loose spokes.

| **Tightening torques** | | |
|---|---|---|
| **Nipple on spoke** | | |
| M4 | Initial torque, 1 Nm | |
| | Final torque, 4 Nm | |
| **Counter-hold spokes** | | |
| Grubscrew, M4 | 1 Nm | |

***Result:*** Spokes are broken.

***Measure:***

=> 36 31 510, Replacing spokes for front wheel (tyre removed) (Billed as a separate item)

=> 36 31 511, Replacing spokes for rear wheel (tyre removed) (Billed as a separate item)

## (-) Checking lights and signalling equipment

- Check the following functions:
- Side light, front, and rear light,
- Instrument lighting,
- Low-beam and high-beam headlights, headlight flasher,
- Brake light (operate front and rear brakes),
- Turn signals left/right,
- Hazard warning flashers,
- Horn,
- Telltale and warning lights.
- Start the engine and check that the low-beam headlight is functioning correctly.

**Note**

The ZFE (central vehicle electronics control unit) does not enable certain electrical functions such as the low-beam headlight, for instance, unless the engine is running.

### (-) Function test, engine start suppression

**Note**

Engine start is not enabled if you pull the clutch with a gear engaged before switching on the ignition.

- Deactivate the anti-theft alarm.

***Test***

- Move the kill switch to the centre position.
- Select neutral.
- Switch on the ignition.

» Neutral telltale light "N" lights up.

- Select a gear.

» Neutral telltale light "N" goes out.

- Press the starter button.

» Starter does **not** operate.

- Extend the side stand.
- Pull the clutch lever.
- Press the starter button.

» Starter does **not** operate.

- Retract the side stand.
- Press the starter button without releasing the clutch lever.

» Starter operates.

***Result:*** Not all test steps completed successfully.

***Measure:***

- Function-test engine start suppression and function-test emergency and safety shutdown of the engine with the **BMW Motorrad** diagnostic system.

### (-) Check the synchronisation

*Adjust engine synchronisation (Description in item: 13 60 110)*

## Precondition

- Action of throttle cables is smooth, throttle cables not chafing or kinked and correctly routed.

**Note**

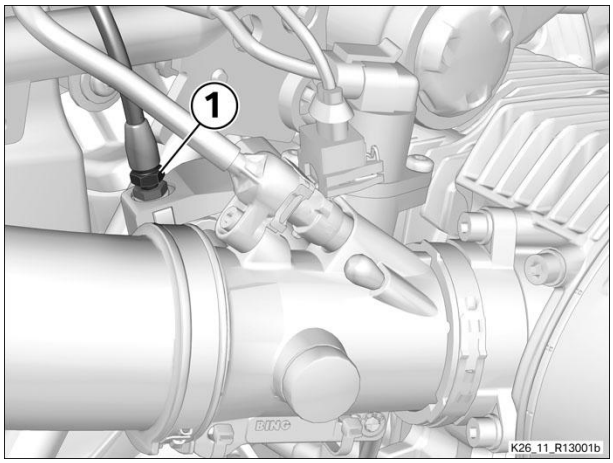
In order to ensure that they do not affect synchronisation, the idle actuators are held in position by the **BMW Motorrad** diagnostic system.

***Test***

- Check that when the throttle twistgrip is released, both throttle valves are fully closed irrespective of the position of the handlebars.

» Both throttle valves reach the idle stops.

» Slight play perceptible at the throttle-valve cables.



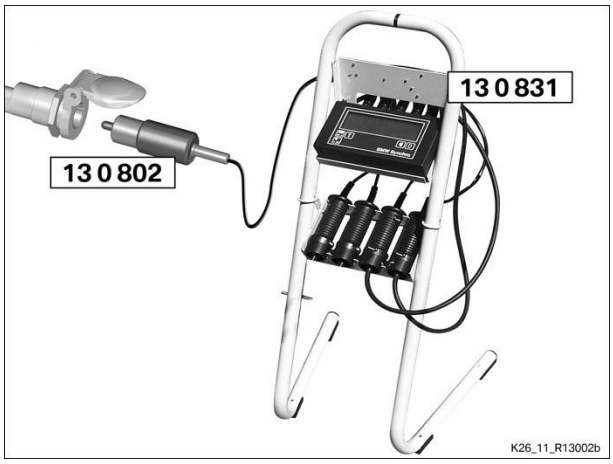

***Result:*** One or both throttle valves do not reach the idle stops and / or no play is perceptible at the Bowden cable.

***Measure:***

- Turn adjusting screw (1) of the appropriate throttle-valve cable clockwise to adjust play.
- Be sure to match the play of the throttle-valve cables, so as to synchronise lift of the throttle valves.

**▶ Connecting BMW Synchro tester to motorcycle**

- Connect **BMW Synchro** (No. 13 0 831) with power cable (No. 13 0 803).

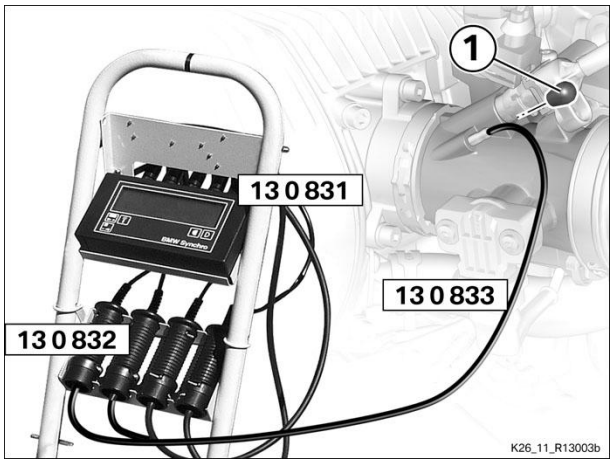



**Note**

Do not connect the hoses of the pressure sensors to the motorcycle until after the sensors have been calibrated. The **BMW Synchro** tester cannot calibrate the sensors if vacuum is applied to the pressure sensors.

» The pressure sensors are calibrated.

- Remove caps (1) from the throttle-valve stubs.
- Connect hose (No. 13 0 833) of the first sensor (No. 13 0 832) on the left and a second sensor on the right.

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**Attention**

If ambient temperatures are high, there is a risk of the engine overheating in the absence of a cooling slipstream.

Do not allow the engine to idle unnecessarily for a prolonged period of time.


- Start the engine and follow the instructions issued by the **BMW Motorrad** diagnostic system for warm-up.
- Use the **BMW Motorrad** diagnostic system to set the engine management system's idle actuators to synchronisation mode. To do so, follow the instructions issued by the **BMW Motorrad** diagnostic system.

**▶ 1. Check the idle**

***Test***

**Attention**

Any change to the ex-works basic setting of the throttle-valve stops will render the system impossible to adjust.

Do not tamper with the basic setting of the throttle-valve stops.

The sealing lacquer of the throttle-valve stop screws must remain untouched.

If the throttle-valve stub settings are changed the assembly has to be returned to the manufacturer for readjustment.

- Determine the difference between the average values (**AVG**) **when the throttle valves are closed**.

**Technical data**

| | | | |
|---|---|---|---|
| Pressure differential between intakes | With throttle valves closed, engine idling | max 25 mbar | |
| | With throttle valves slightly open 1400...1800 $min^{-1}$ | max 15 mbar | |

***Result:*** Difference in pressure between the air intakes with throttle valves closed is excessive.

***Measure:***

- Check mechanical components of the engine:
  - Air intake ducts
  - Valve clearances
  - Engine compression
- Recheck engine idle when the defects have been rectified.

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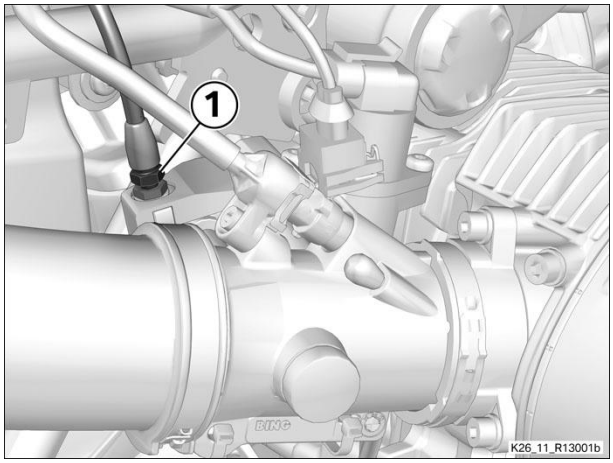
**▶ 2. Synchronising throttle-valve lift**

## Precondition

- Throttle-cable play has been tested and is OK.

***Test***

- Start the engine and allow it to idle.
- Use the **BMW Synchro** to check whether the left-hand bar indicator changes at the same time or immediately **before** the right-hand bar indicator when the throttle twistgrip is opened slowly.




***Result:*** The right bar changes before the left bar.

***Measure:***

- Turn adjusting screw (1) of the throttle cable of the **right** throttle valve until the left bar changes at the same time as or immediately **before** the right bar.
- Check that after adjustment has been completed, when the throttle twistgrip is released, both throttle valves are fully closed irrespective of the position of the handlebars.

» Both throttle valves reach the idle stops.

» Slight play is perceptible at the throttle cables of the throttle valves.

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**▶ 3. Check the synchronisation of throttle-valve cables**

## Precondition

- Engine idle has been tested and is OK.
- The throttle valves lift clear of the idle stops in synchronisation.


***Test***

- Determine the difference between the average values (**AVG**) **when the throttle valves are slightly open**.

| **Technical data** | | | |
|---|---|---|---|
| Pressure differential between intakes | With throttle valves closed, engine idling | max 25 mbar | |
| | With throttle valves slightly open 1400...1800 $min^{-1}$ | max 15 mbar | |

***Result:*** Difference in pressure between the air intakes with throttle valves slightly open is excessive.

***Measure:***

- Repeat the procedure for synchronising the action of the throttle valves.

» Check that there is no change in the relationship between the pressure readings when the throttle valves open. The bar that is shorter with the engine idling must also be the shorter when the engine is in part-load operation.

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**▶ Disconnecting BMW Synchro**

- Disconnect the **BMW Synchro** from the on-board socket.
- Disconnect the hoses of the pressure sensors.

**Attention**

A sealing cap that does not form a tight seal can allow unmetered air to be inducted into the system; this can cause the engine management system to malfunction.

Do not fit leaky or porous sealing caps.

- Fit the caps on the vacuum ports.

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## (-) Final inspection and check of roadworthiness

- A pre-ride check is performed after you switch on the ignition. The operability of all warning lights and warning symbols are checked. If one of the indicator or warning lights fails, connect the motorcycle to the **BMW Motorrad** diagnostic system and follow the instructions issued by the system.

**Note**

The Pre-Ride Check aborts as soon as the engine is started.

- The multifunction display shows 2 phases in succession:
- Phase 1:
- General warning light shows **red**.
- **CHECK !** appears on the display.
- Phase 2:
- General warning light shows **yellow**.
- **CHECK !** appears on the display.

### *Test*

***Result:*** The display shows "DWALO !" if the charge level of the battery in the anti-theft alarm (DWA) control unit is low.

***Measure:***

=> 65 75 520, Replace batteries for control unit of anti-theft alarm system (Billed as a separate item)

***Result:*** The display shows "DWA !" if the battery in the DWA control unit is completely flat. The 'General' warning light shows yellow.

***Measure:***

=> 65 75 520, Replace batteries for control unit of anti-theft alarm system (Billed as a separate item)

- Check operation of the anti-theft alarm (**DWA**).
- Perform the **BMW Motorrad** Integral **ABS** pull-away test at min. 5 km/h.

**Note**

The ABS warning light and the 'General' warning light must both be OFF after successful self-diagnosis and the pull-away test.

- Check operation of all instruments.
- Check that the engine is in full working order.
- Check operation of the running gear.
- Check operation of brake system.

- Switch on the ignition to initiate the self-diagnosis routine of the **BMW Motorrad** Automatic Stability Control (ASC). In order to enable self-diagnosis to complete correctly, proceed as follows:
- Start the engine and allow it to run. The ASC warning light slow-flashes.
- Perform the Integral pull-away test at min. 5 km/h. The ASC warning light goes out.
- Start the engine.
- Sit on the motorcycle and change the spring preload setting from one-up (one helmet) to severe off-roading (symbol representing mountain).

» The servomotors only start up now at the rear, producing a clearly perceptible change in ride height. This process can take up to one minute to complete.

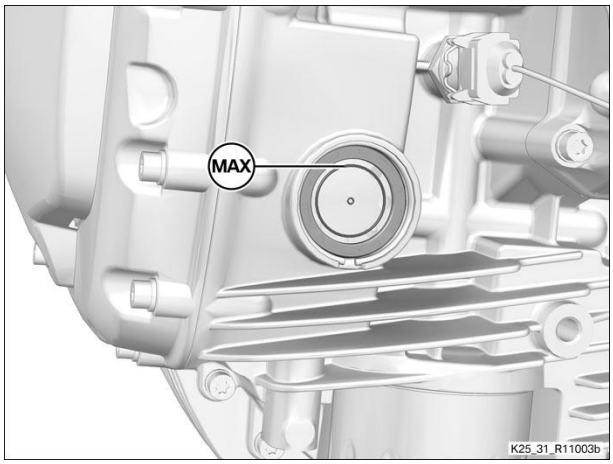
- Start the engine.
- Check operation of heated handlebar grips.
- Check operation of kill switch.

**▶ Check the engine oil level**

**Attention**

The oil level varies with the temperature of the oil. The higher the temperature, the higher the level of oil in the sump. Checking the oil level with the engine cold or after no more than a short ride will lead to misinterpretation; this in turn, means that the engine will be operated with the incorrect quantity of oil.

In order to ensure that the engine oil level is read correctly, check the oil level only after a lengthy trip.




- After completing all work, wait at least 5 minutes after heating the engine to operating temperature in the trial run/road test before checking the engine oil level.
- Top up the engine oil to the (MAX) mark.

of products recommended by **BMW Motorrad** and generally admissible viscosity classes

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## (-) Reading fault memory with BMW Motorrad diagnostic system

*Read out fault-code memory with BMW diagnostic system (Description in item: 12 00 015)*

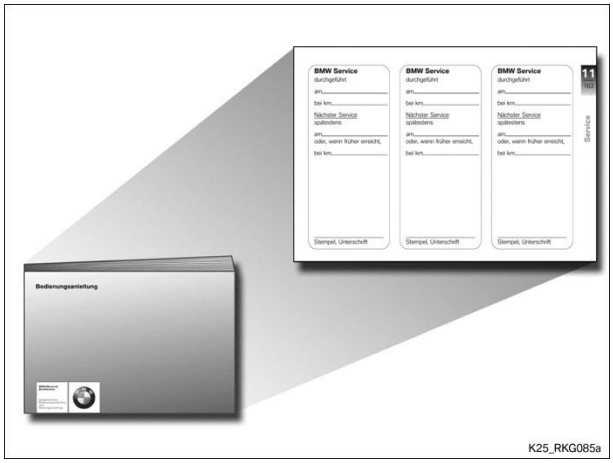
- Read all fault memories.

**Note**

When working with the **BMW Motorrad** diagnostic system, always follow the instructions it issues.

- Perform all requisite repair work.

## (-) Confirming BMW Service in on-board documentation




- Confirm completion of the **BMW** Service in the on-board documentation.