

Repair Manual



K 1200RS

**BMW AG Motorcycle Division
After Sales**

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Table of operating fluids

| 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 |
| Never Seez | Lubricating paste | 83 23 9 407 830 | 100 g tube |
| Shell Retinax EP2 | (Taper) roller bearing grease | 83 23 9 407 845 | 100 g tube |
| Contact spray | Contact spray | 81 22 9 400 208 | 300 ml aerosol |
| Sealants | | | |
| Three-Bond 1209 | Surface sealant | 07 58 9 062 376 | 30 g tube |
| Adhesives and retaining agents | | | |
| Loctite 648 | Structural adhesive, ultra-high speed | 07 58 9 067 732 | 5 g 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 |
| Cleaner | | | |
| Brake cleaner | Brake cleaner | 81 22 9 407 704 | 600 ml aerosol |



Renewing coolant

(Inspection IV)



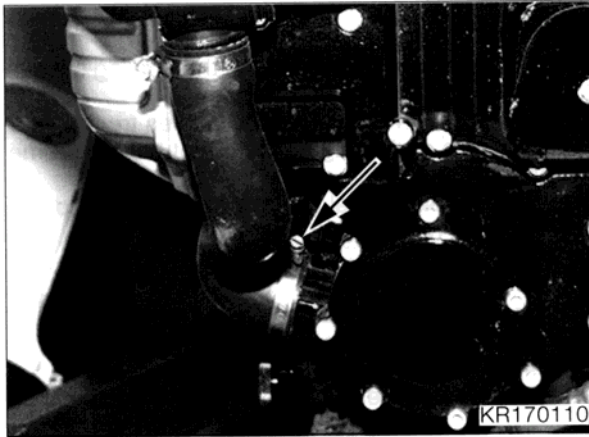
Note:

Renew the coolant at least every 2 years

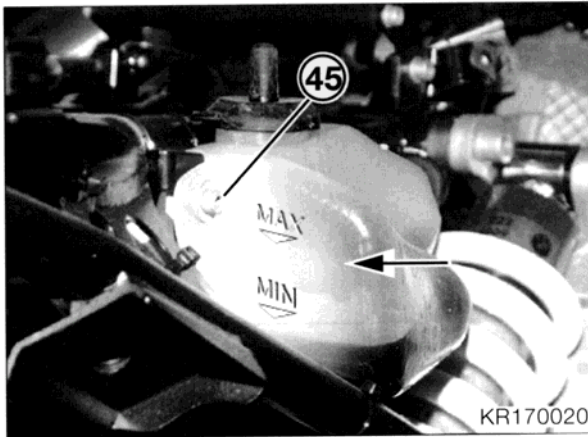


Draining coolant

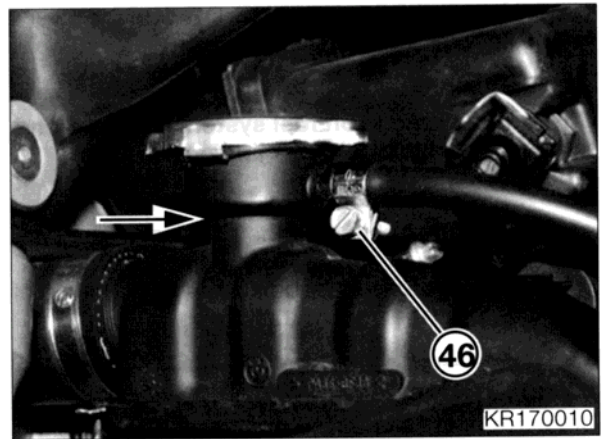
- Take off the left and right side and right rear side sections of fairing and also the engine spoiler. (→ 46.10)
- Open the filler cap on the left radiator.



- Detach the coolant hose (arrow) at the oil/water pump and drain the coolant.



- Release fastening (45) and detach and empty the level equalising tank.



- Loosen fastening (46) for vent hose.
- Pull off the vent hose, raise the level equalising tank and drain the vent hose completely.
- Attach the vent hose again.

Adding coolant

- Attach the level equalising tank and tighten screw (45).
- Attach coolant hose to oil/water pump. Position the clip screw (arrow) at the front and tighten it.
- Add coolant up to the lower edge of the filler pipe (arrow). Attach the cap.
- Fill the level equalising tank up to the MAX mark (arrow).

Filling capacity 2.5 l (4.4 Imp. pints)
In level equalising tank + 0.6 l (1.1 Imp. pints)

Antifreeze

Use only long-life antifreeze and corrosion inhibitor free from nitrides.

Concentration

Antifreeze 40 %
Water 60 %

- Turn the engine over with the starter and at the same time squeeze the hose between the water pump and the right-hand radiator.
- If necessary, add coolant up to the MAX mark.
- Attach the fairing sections and the engine spoiler.



! Tightening torque:

Level equalising tank to frame 6 Nm

Bleeding the brakes

Front brake

- Place the motorcycle on its main (centre) stand.
- Remove/install windshield.
(→ 46.15)



Caution:

When bleeding the brakes, always begin on the left side of the motorcycle.

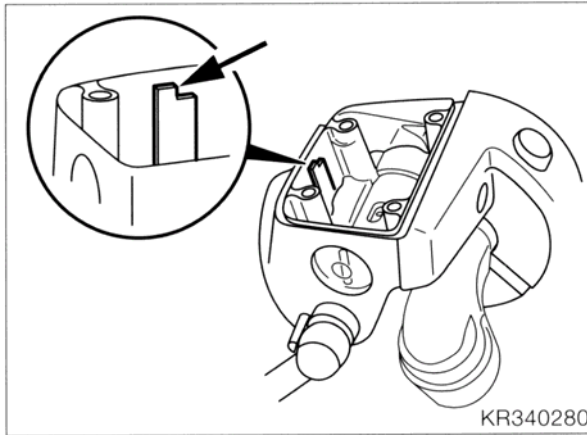
- Turn the steering to the left.



Caution:

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

- Take off the reservoir cover with rubber diaphragm.



Caution:

When adding brake fluid, do not allow it to enter the holes for the reservoir lid screws.

- Add brake fluid up to the MAX mark (arrow).
- Connect the brake bleeding device to the bleed screw on the **left** brake caliper.
- Open the bleed screw by half a turn.



Caution:

Make quite sure during bleeding that the fluid replenishing bore is always covered by the brake fluid, or else air will be drawn into the brake system. If this occurs, repeat the bleeding operation.

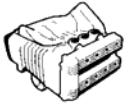
- Draw off brake fluid until it emerges clear and free from air bubbles.
- Close the bleed screw on the left brake caliper.
- Carry out the bleeding procedure at the **right** brake caliper in exactly the same way as on the left side of the motorcycle.
- If necessary, repeat the left/right bleeding procedure.

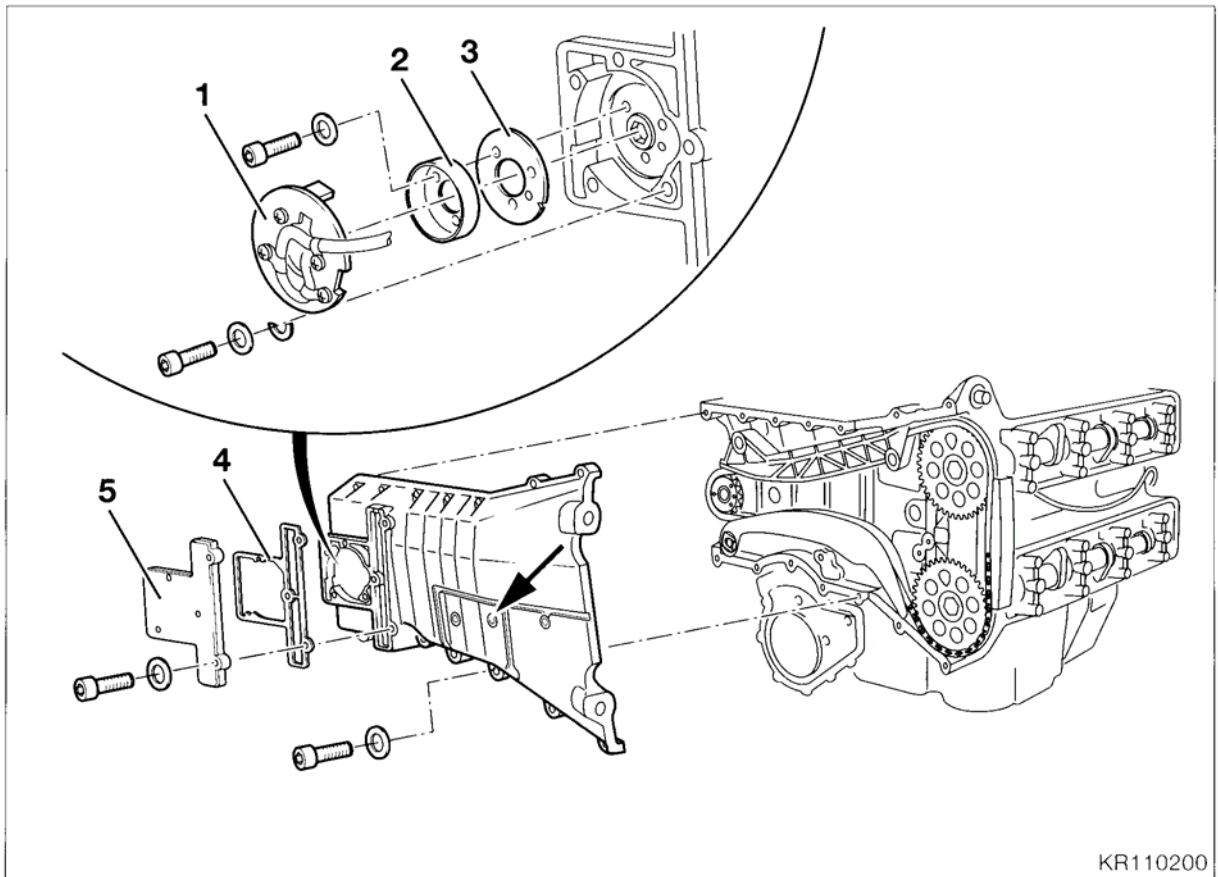
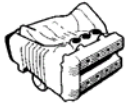
Brake fluid grade..... DOT 4



Tightening torque:

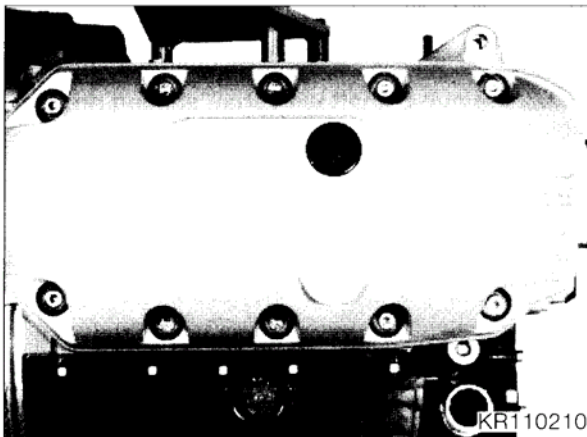
Bleed screw..... 12 Nm





Removing timing chain cover

Remove the crankcase cover.



Removing cylinder head cover

- Remove the screen plate.
- Remove the ignition leads.
(⇒ 12.7)
- Remove the spark plugs.
(⇒ 12.7)
- Remove the cylinder head cover.

Removing ignition transmitter

- Remove cover (5).
- Take off gasket (4).
- Remove magnetic gate (1), noting the presence of semi-circular shims.



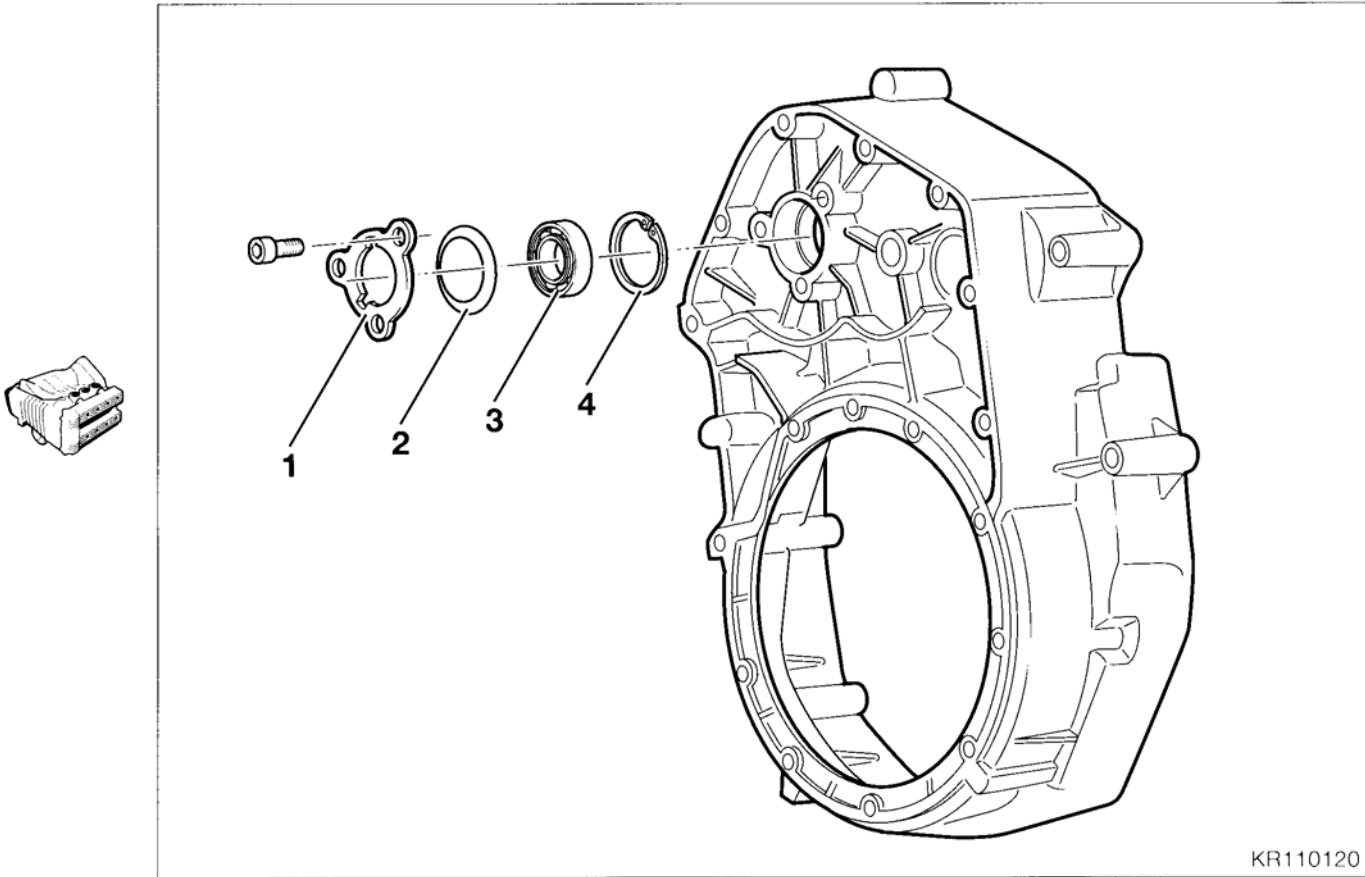
Note:

Mark the position of the magnetic gate in relation to the engine block, or remove it in the top dead centre (TDC) position.

- Remove rotor (2) and take off adjusting disc (3).

Removing the timing case cover

- Remove the screw plug (arrow) for the pin in the timing case cover.



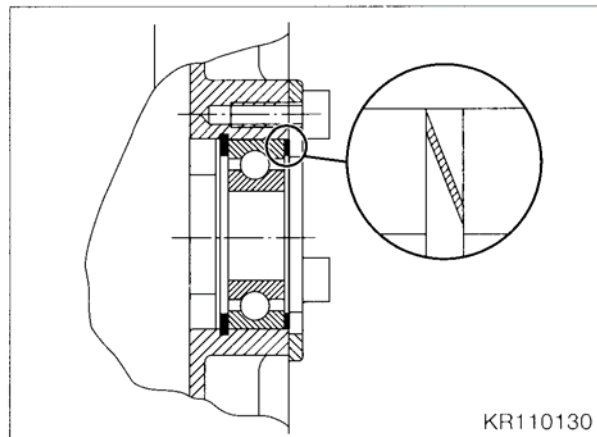
Stripping down and re-assembling intermediate flange

Removing the driver bearing

- Remove thrust plate (1).
- Take off cup spring (2).
- Remove ball bearing (3) with puller, **BMW No. 00 8 570**, and internal puller 21/3, **BMW No. 00 8 574**.
- Remove retaining ring (4).

Installing driver bearing

- Heat the intermediate flange at the bearing seat to app. 120 °C.
- Press the ball bearing on as far as the circlip.



- Insert the cup spring with the larger diameter facing the bearing.
- Install the thrust plate with the large cutout at the top.

! Caution:
Install screws with **Loctite 243**.

! Tightening torque:
Thrust plate.....9 Nm

Installing driver



Note:

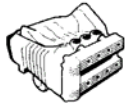
Only possible if crankshaft is installed.

- Push driver on to layshaft.



Tightening torque:

Driver 50 Nm



- Take off the holding device.
- Install the clutch.
(→ 21.8)

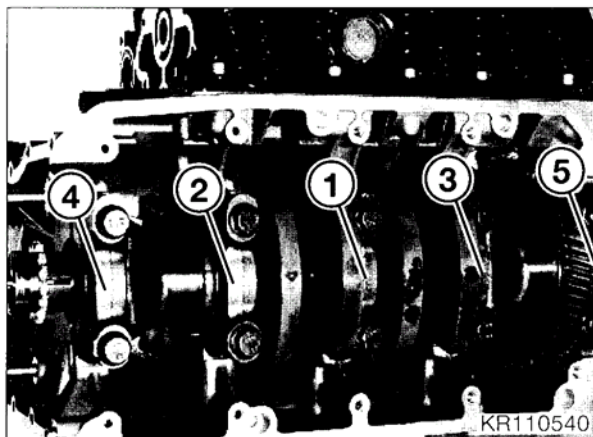
Installing crankshaft

- Crankshaft bearing points must be clean and lightly oiled.
- Place the crankshaft in the crankcase and install the bearing caps so that the joint lines are aligned.



Note:

Bearing caps 1 - 3 are marked for identification; bearing 4 (thrust bearing) and bearing 5 are not marked.



- Tighten the bearings in the order shown, starting from the centre and working outwards.



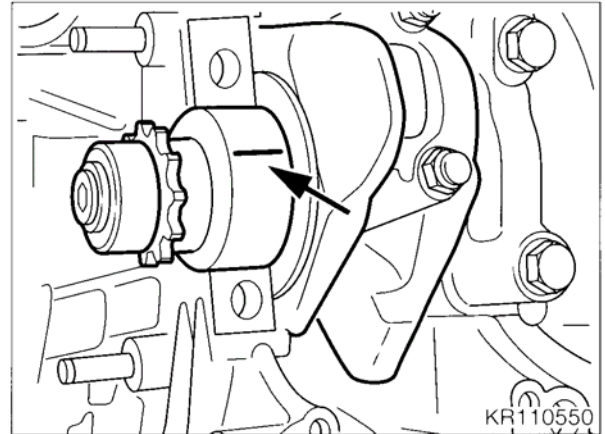
Tightening torque:

Main bearings 50 Nm

Measuring crankshaft bearing play

Measuring radial play

- Turn the crankshaft to top dead centre at the bearing to be measured.
- Take off the bearing cap.
- Wipe off oil at the bearing journal and bearing shell.
- Measure bearing play with Plastigage, **BMW No. 00 2 590**.



- Place the Plastigage strip (arrow) over the full width of the bearing, 6 to 8 mm away from the centre.
- Attach and tighten the bearing cap.



Tightening torque:

Main bearing 50 Nm



Note:

Do not turn the crankshaft any more.

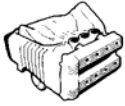
- Remove bearing cap.

Installing cylinder head cover

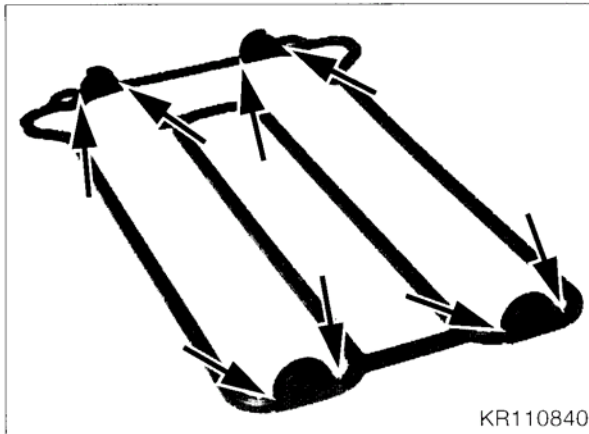
- Install the spark plugs.
(⇒ 12.7)
- Install the ignition coil.
(⇒ 12.9)

Tightening torque

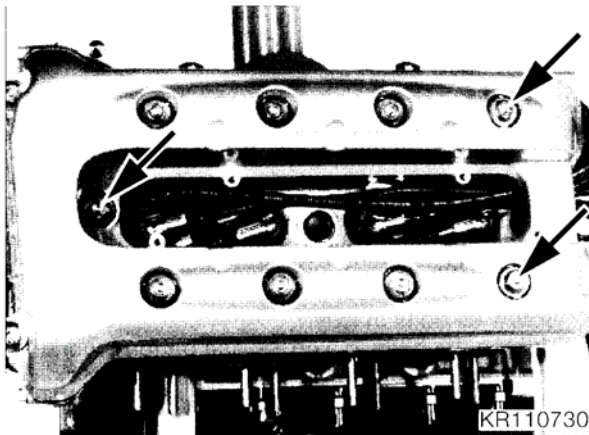
Spark plug..... 20 Nm
Ignition coil..... 9 Nm



- Install the ignition leads.
(⇒ 12.7)
- Install the cylinder head cover gasket with the half-moon cutouts first. The marks at the front and rear of the gasket and the cylinder head cover must coincide.



- Apply a thin coat of **Three Bond 1209** at the areas where the cylinder head, timing case cover and cylinder head cover meet and at the half-moon cutouts (arrows).



- Attach the cylinder head cover. Insert the front centre screw (timing end, arrow) and both rear screws (arrows) in order to locate the gasket.



Note:

Do not forget the contact spring.

- Tighten all screws until they make contact.
- Tighten the screws finally in a crosswise pattern, working from the inside outwards.
- Attach the screen plate to the cylinder head cover.



Tightening torque

Cylinder head cover..... 9 Nm

Installing engine

(⇒ 51.6)

- Place the engine on the hoist with lifting fixture, **BMW No. 00 1 510**.
- Install the gearbox.
- Install the starter motor and alternator.
- Install the fuel lines on the engine block.



Caution:

When lowering the frame, make sure that the necessary clearance is present at the right between frame and gearbox.

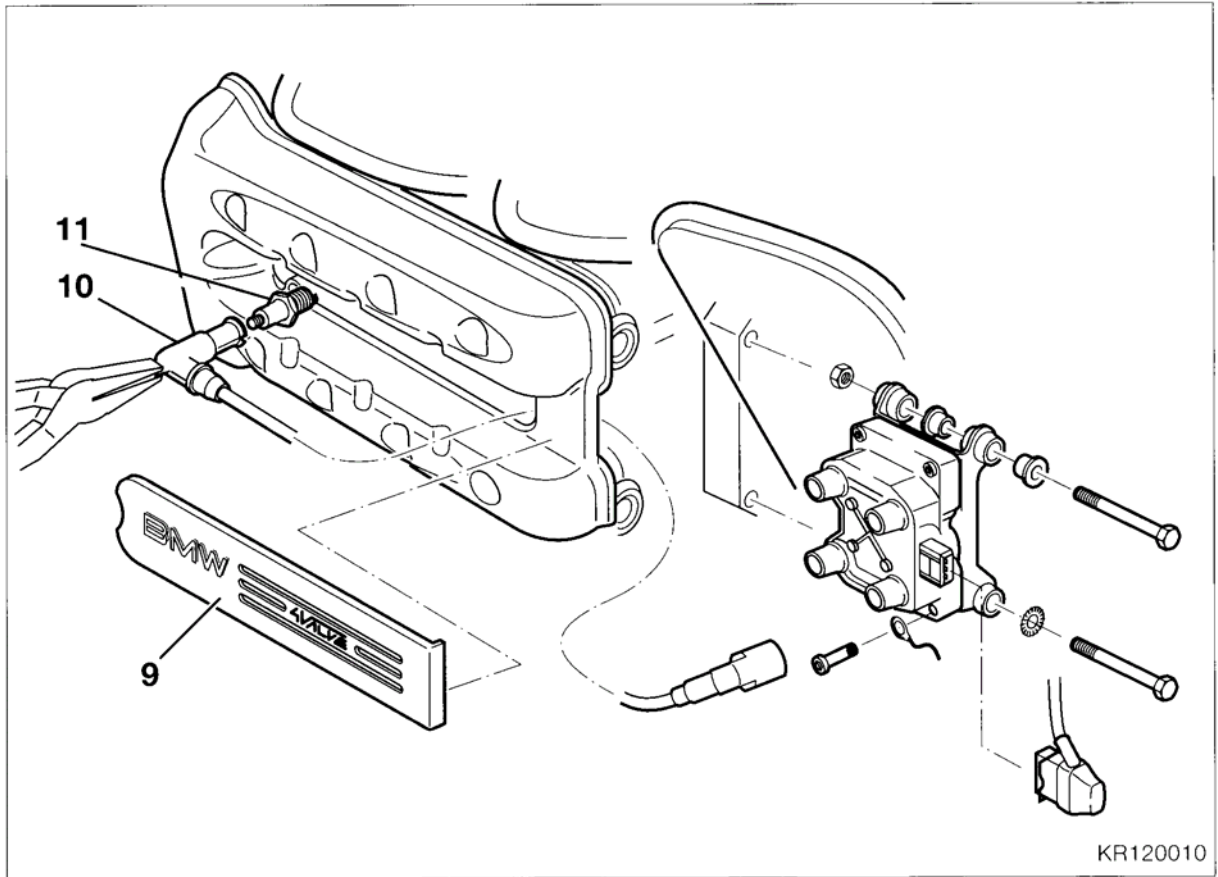
- Bolt engine and gearbox into frame.
- Connect wires and connectors for engine and gearbox, and secure them with cable straps.
- Install throttle butterfly rail complete with intake air silencer.
- Install fuel injection rail.
- Install lower cross-tube.
- Install rear swinging arm.
- Install exhaust system.
- Install radiator with fan at left and right.
- Fill engine with oil.
- Attach engine spoiler.
- Install fuel tank.
- Attach left and right side sections of fairing.



Caution:

Attach and tighten the positive battery terminal first, then the negative one.

- Install the battery.




KR120010

Renewing spark plugs/ignition leads

- Remove left side section of fairing.
(→ 46.10)
- Detach the screen plate (9).
- Pull off the spark plug caps (10) with flat pliers.

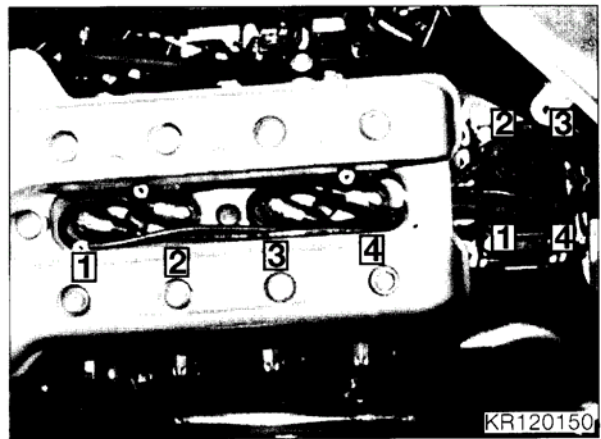
Removing/installing spark plugs

- Unscrew and remove spark plugs (11) with spark plug wrench, **BMW No. 12 3 500**.
- Install in the reverse order of work.

 **Tightening torque:**
Spark plugs..... 20 Nm

Removing/installing ignition leads

- Detach plugs at coil.
- Remove ignition leads.



KR120150



Note:

When installing, make sure that the ignition leads run correctly.

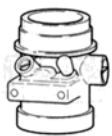
- Install in the reverse order of work.

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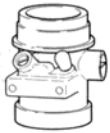
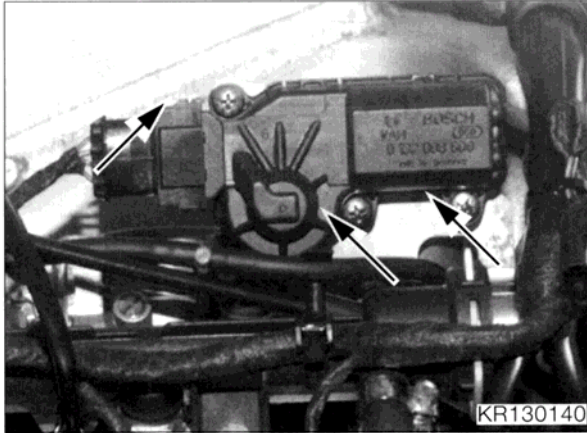
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Removing and installing throttle positioner

- Remove the intake air silencer.



Caution:

When releasing the retaining bracket for the throttle positioner, do not bend it.

- Release the fastenings (arrows).
- Remove the throttle positioner.

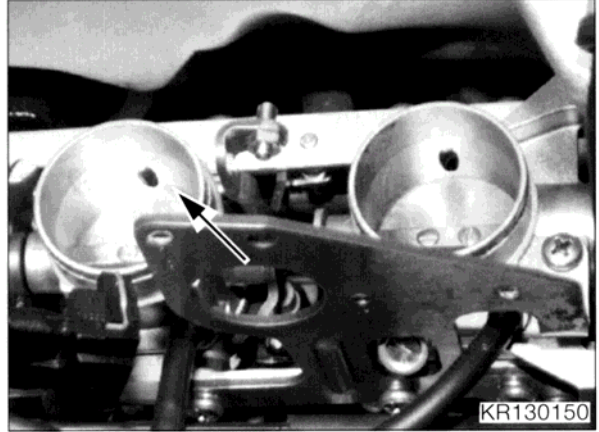
Caution:

The throttle positioner operates from the 5 Volt control-unit supply. It must not be run from the motorcycle's 12 Volt circuit.

Caution:

When a new throttle positioner is installed, the idle switching point is not correctly adjusted.

- Attach the throttle positioner. Insert the screws with **Loctite 2701** and tighten them.

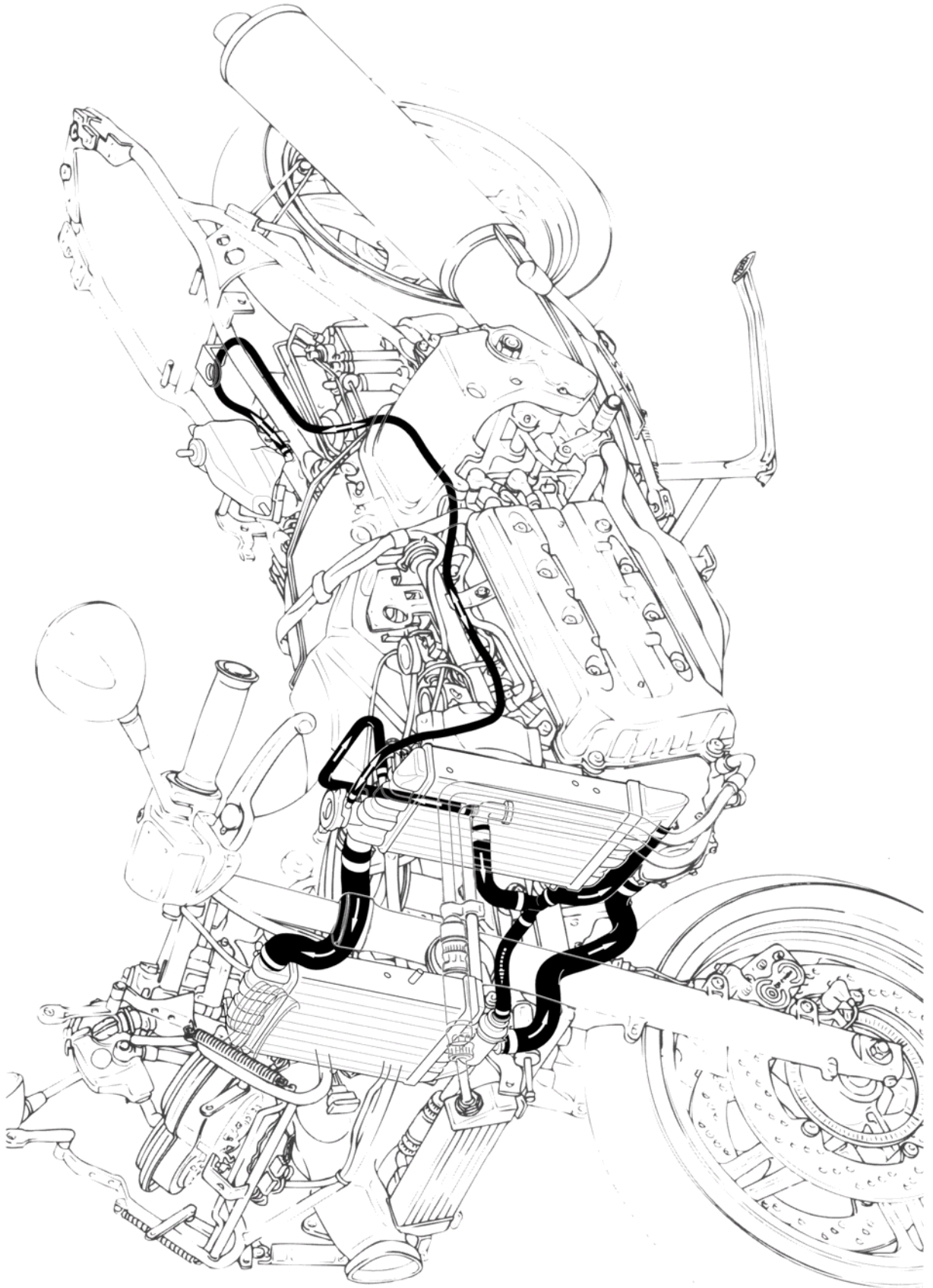


- To adjust the idle switching point, turn the screw (arrow) according to the display on the **BMW MoDiTeC**.
- Mark the screw with paint.

Tightening torque:

Throttle positioner screw 5 Nm

Coolant circuit

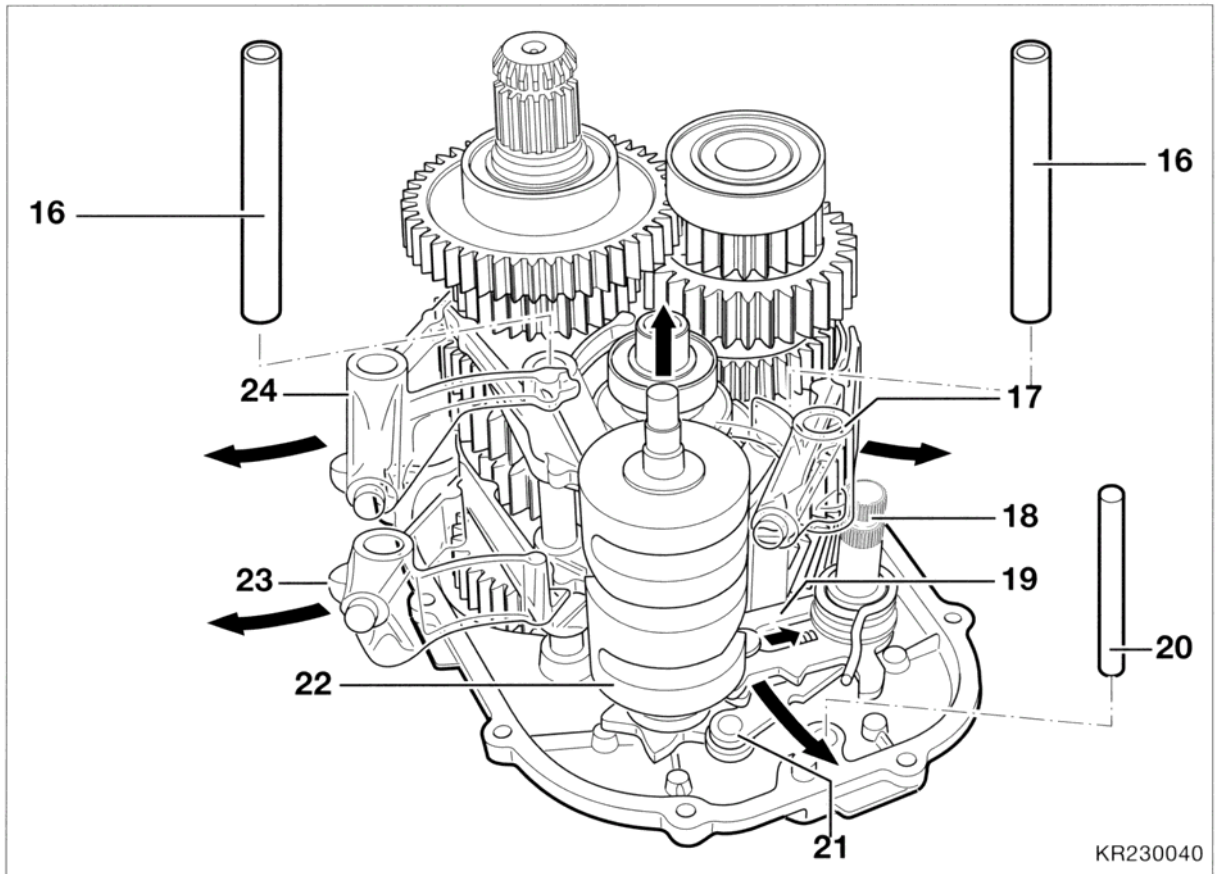


18 Exhaust system

| Technical data | K 1200 RS | |
|---|---|-----|
| Clutch | | |
| Type | Single dry plate clutch (asbestos-free) | |
| Operation | hydraulic | |
| | | |
| Clutch plate dia. | mm | 180 |
| | | |
| Wear limit: Minimum clutch plate thickness | mm | 4,5 |



23 Gearbox



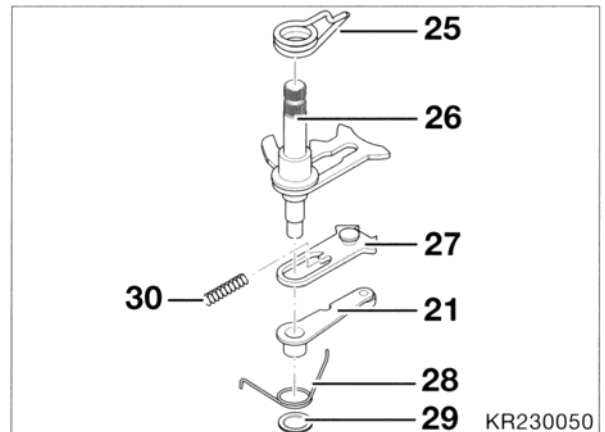
KR230040

Removing selector drum

- Pull selector rails (16) out of selector forks.
- Swing selector forks (17, 23, 24) out towards the edge of the cover.
- Remove locking pin (20).
- Press guide plate (19) in the opposite direction to the spring loading (arrow).
- Swing locking lever (21) out towards the edge of the cover, hold it there and pull out selector drum (22), turning it slightly at the same time.
- Remove the thrust washers and spacing washer.
- Release the locking lever (21).
- Remove selector shaft (18) with spacing washer (29).
- Remove selector forks (17, 23, 24).



Dismantling/assembling selector shaft



KR230050

- Remove torsion spring (29) with locking lever (21) from selector shaft (26).
- Remove torsion spring (25).
- Remove coil spring (30) with sliding plate (27).
- Assemble in the opposite order of work.

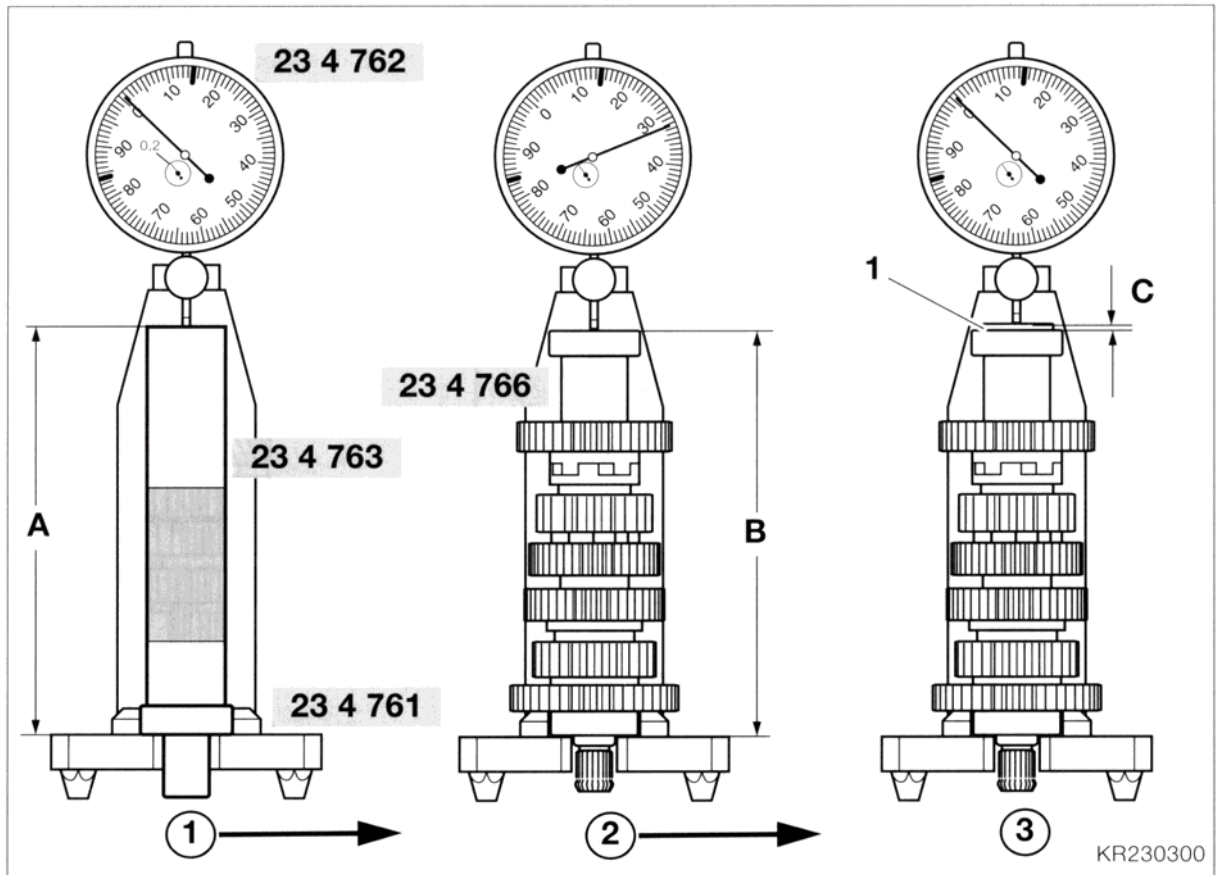
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Checking/adjusting fully-compressed length of output shaft

⚠ Caution:

When checking and adjusting the fully-compressed length, deviation from zero must be measured as described below, and compensated for with a shim washer.

Before each measurement, even if installation of the shaft is not carried out, make sure that the deep-groove ball bearing is fully compressed.

- Pull off output-side deep-groove ball bearing with universal puller, **BMW No. 00 7 500**.
- Take off the spacing washer.
- Mount dial gauge, **BMW No. 23 4 762**, in the rear mounting hole on the measuring fixture, **BMW No. 23 4 761**, and set it to 0.2 mm (0.008 in) preload.
- Set the dial gauge to zero on dimension "A" of the zeroing gauge, **BMW No. 23 4 763**.
- Place measuring disc, **BMW No. 23 4 766**, on the output shaft.
- Place the deep-groove ball bearing on the measuring disc.
- Insert the output shaft in the measuring fixture.



- Use the dial gauge to measure deviation from zero of dimension "B" at the inner bearing race. Deviation from zero represents thickness "C" of spacing washer (1).

- Place spacing washer (1) of the determined thickness on the inner bearing race and check deviation from zero.

$$A = B + C$$

⚠ Caution:

Maximum deviation from zero must not be exceeded.

- Take off spacing washer, deep-groove ball bearing and measuring disc.
- Place a spacing washer (1) of the determined thickness on the output shaft and press the deep-groove ball bearing on.

Adjusting dimensions for output shaft:

Maximum deviation from zero -0.05 ... 0.00 mm (-0.002 ... 0.00 in)
Fully-compressed length 192.95...193.00 mm (7.596...7.598 in)

KR230300

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Removing and installing slider tube bridge

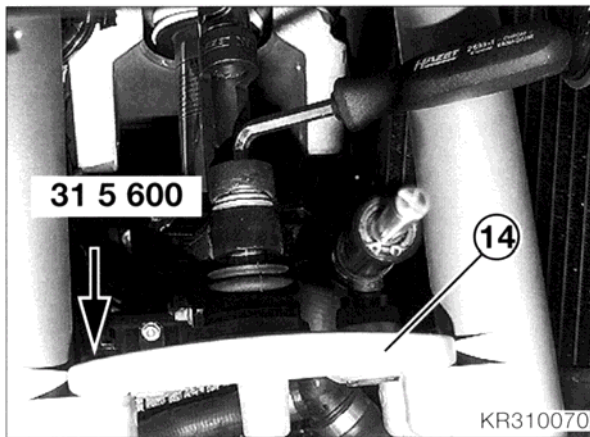
- Remove engine spoiler and holder.
(→ 46.12)
- Attach hoist, **BMW No. 00 1 510**, to sump.



Caution:

Do not operate the handbrake when the brake calipers have been removed.
Protect painted parts from scratching: apply adhesive masking tape if necessary.

- Remove front wheel.
(→ 36.5)
- Remove left/right side section of fairing.
(→ 46.10)
- Remove front mudguard.
(→ 46.7)
- Remove/install steering damper.
(→ 31.17)
- Remove protective cap from handlebar mounting.



Caution:

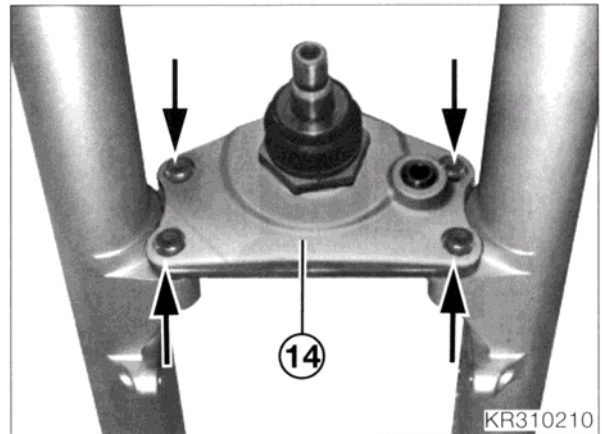
Fastening is secured with a thread retaining agent.



Note:

Support the slider tubes.

- Release the fastening for the leading link at slider tube bridge (14) with the socket wrench insert and internal hexagon, **BMW No. 31 5 600**.



Caution:

The fastening is secured with a thread retaining agent.

- Undo the fastenings (arrows) at slider tube bridge (14).



Caution:

When the telescopic fork is extended, note the brake line and front sensor wire.
Support the slider tubes.

- Extend the telescopic fork.
- Remove slider tube bridge (14).
- Install in the reverse order of work, noting the following operations in particular.



Caution:

When installing, use a new screw.

- Tighten the fastenings (arrows) for slider tube bridge (14).



Caution:

When installing, use a new nut.

- Secure leading link fastening to slider tube bridge (14) using socket wrench insert and internal hexagon, **BMW No. 31 5 600**, and tighten.
 - Check/adjust the front ABS sensor gap.
(→ 34.9)

ABS sensor gap, front..... 0.45...0.55 mm



Tightening torques:

Leading link to slider tube bridge 130 Nm
Steering damper to leading link 21 Nm
Slider tube bridge to telescopic fork 21 Nm
Distributor to holder 9 Nm



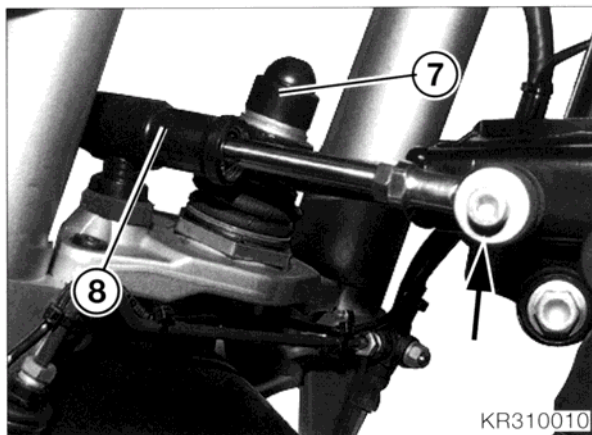
Measuring the leading link

- Remove the left/right side section of the fairing. (→ 46.10)



Warning:

The leading link must be measured after an accident which could have damaged or distorted it.



KR310010

- Undo the fastening (arrow) for the steering damper (8) at the leading link.
- Take off the protective cap (7) for the leading link pivot.



KR310070



Caution:

The fastening is secured with a thread retaining agent.

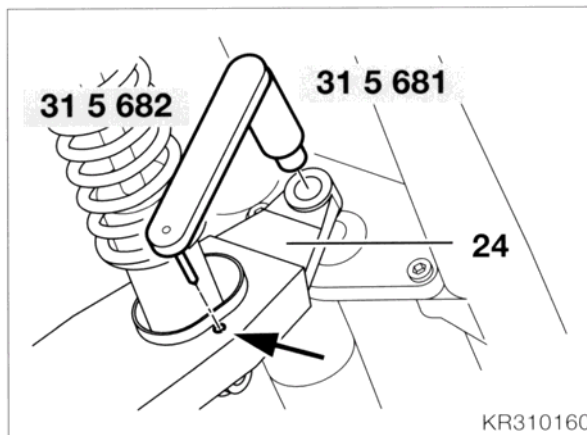
- Undo the leading link fastening at the slider tube bridge, using socket wrench insert and internal hexagon, **BMW No. 31 5 600**.



Caution:

When extending the telescopic fork, avoid damage to the brake line and front sensor wire.

- Extend the telescopic fork.



KR310160

- Insert test pin, **BMW No. 31 5 681**, with distance gauge, **BMW No. 31 5 682**, into leading link (24).
- The measuring point of distance gauge, **BMW No. 31 5 682**, must be located in the center punch mark (arrow) on the leading link at the right.
- Install in the reverse order of work, noting the following operations in particular.



Caution:

When installing, use a new nut.

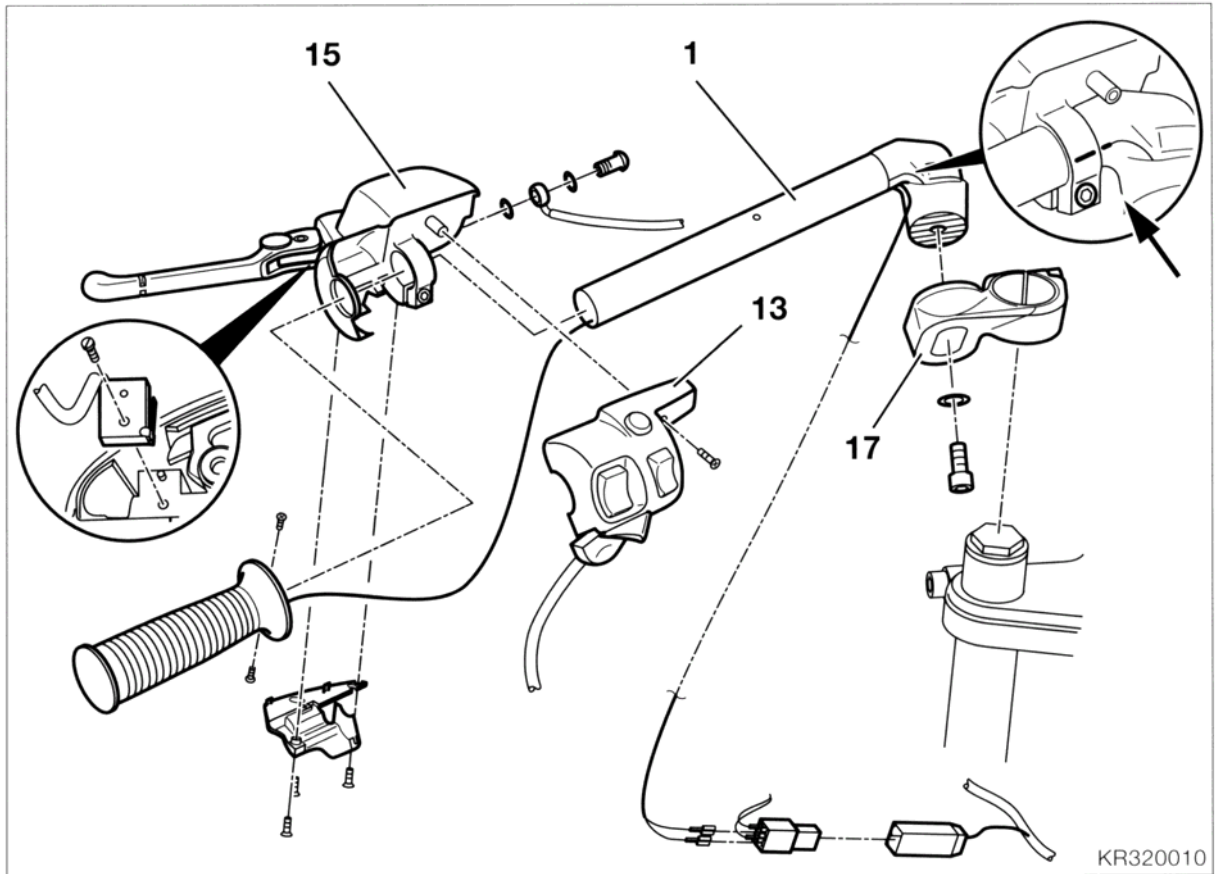
- Tighten leading link fastening at the slider tube bridge with socket wrench insert and internal hexagon, **BMW No. 31 5 600**.



Tightening torques:

Leading link to slider tube bridge 130 Nm
Steering damper to leading link 21 Nm
Slider tube bridge to telescopic fork 21 Nm





Removing/installing left handlebar tube

- Remove the grip tube.
(→ 32.5)
- Detach combined switch (13) from clutch lever fitting (15).
- Loosen the fastening (arrow) for clutch lever fitting (15) at handlebar tube (1).
- Pull clutch lever fitting (15) off the handlebar tube (1).



Caution:

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

- Set the clutch lever fitting (15) down, securing it if necessary.
- Detach handlebar tube (1) from handlebar holder (17).

- Install in the reverse order of work, noting the following operations in particular.



Caution:

Check brake fluid/if necessary, bleed the clutch system.
Make sure that lines and wires run correctly.

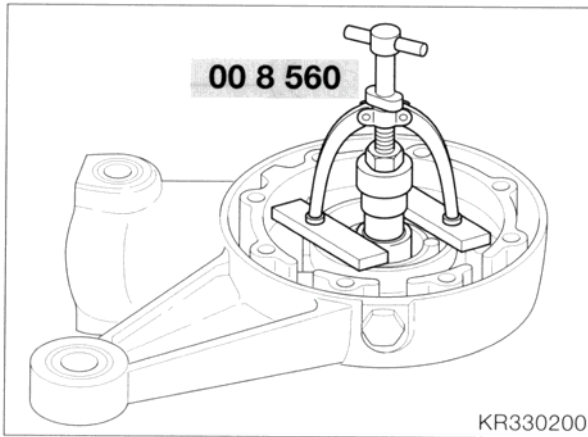
- The marks on clutch lever fitting (15) and handlebar tube (1) must be aligned (arrow).
- Tighten clutch lever fitting (15).



Tightening torque:

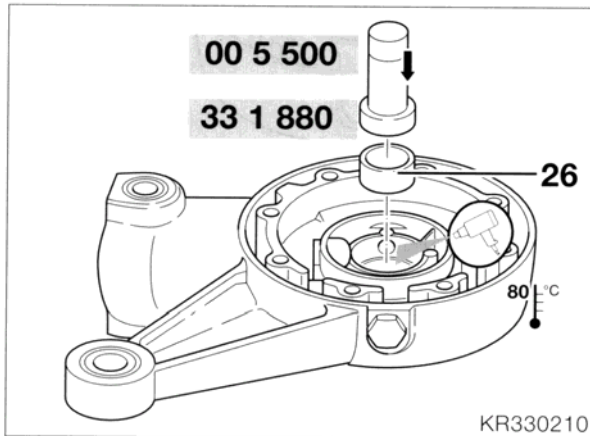
Clutch lever fitting 7 Nm





- Pull out the outer race (36) with internal puller, **BMW No. 00 8 560**.


Installing crown wheel

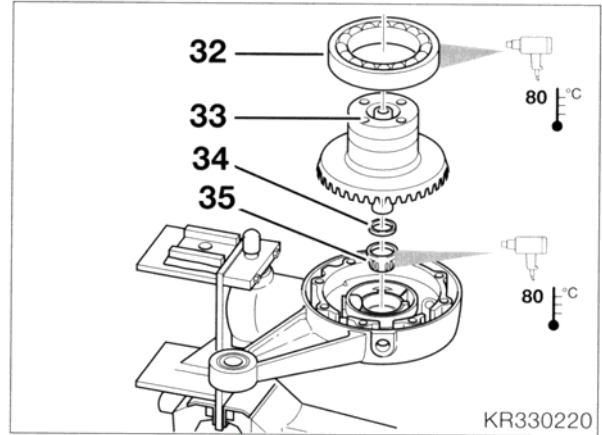


- Heat the housing to 80 °C.
- Insert outer race (36) into bearing seat with drift, **BMW No. 33 1 880**, and handle, **BMW No. 00 5 500**.
- Check that outer race is correctly fitted by striking it gently.



Note:

If new parts were installed (e.g. taper roller bearing), check tooth backlash and adjust again if necessary;  adjust tooth contact pattern.



- Attach the existing shim washer (34) to crown wheel (33) with grease.
- Heat taper roller bearing (35) to 80 °C and push it on.
- Install crown wheel (33).
- Heat deep-groove ball bearing (32) to 80 °C and place it in position.

34 Brakes

Removing and installing rear ABS sensor

- Remove rear wheel.
(⇒ 36.8)



Caution:

Detach and insulate earth (ground) lead at battery.

- Clean ABS sensor (14) and the hole before removing/installing.



Caution:

Install the ABS sensor wire most carefully and secure it with cable straps.

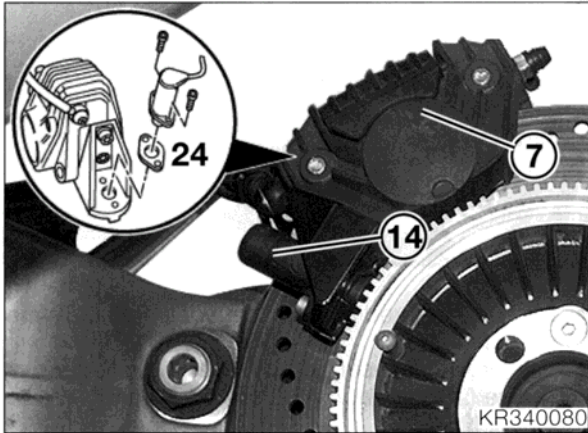
- Check/adjust ABS sensor gap.
(⇒ 34.11)

ABS sensor gap..... 0.45 ... 0.55 mm

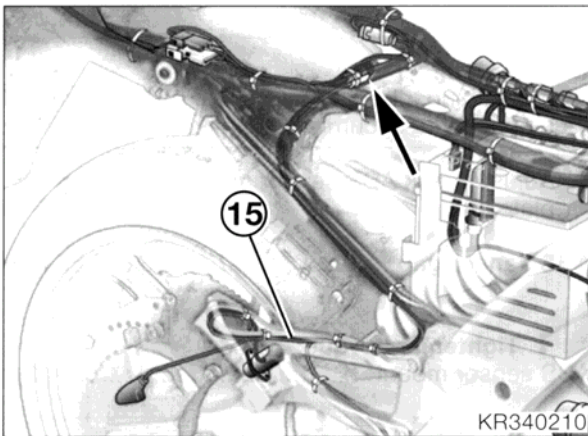


Tightening torque:

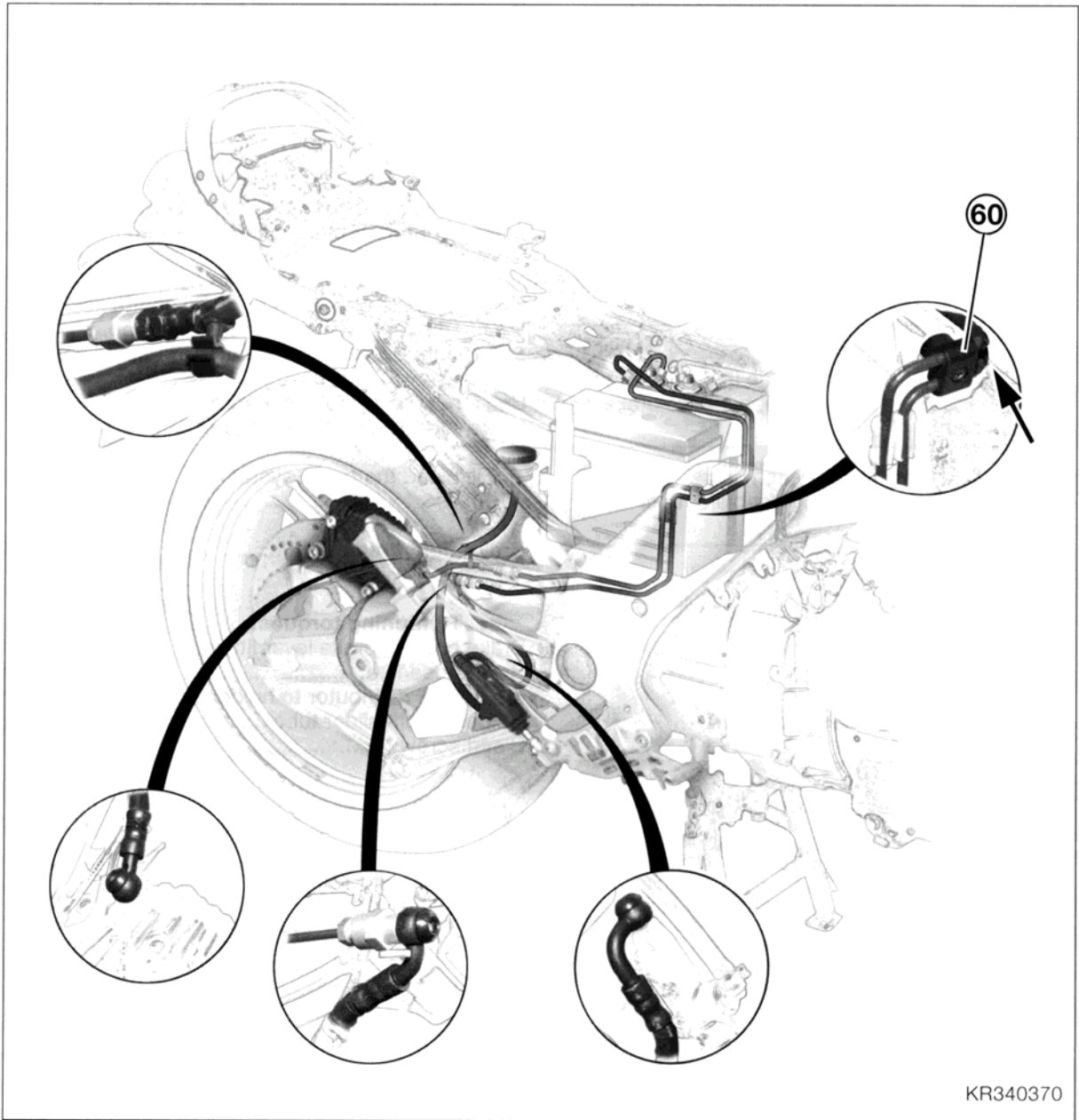
ABS sensor mount..... 4 Nm



- Unscrew ABS sensor (14) from brake caliper (7).
- Take off ABS sensor (14) with spacing plate (24).



- Remove all cable straps holding the ABS sensor wire (15).
- Detach plug connector (arrow) from ABS sensor wire (15).



Removing/installing rear brake lines/hoses

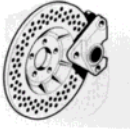
Rear brake

- Place the motorcycle on its main (centre) stand
- Remove/install the right rear side section.
(→ 46.13)

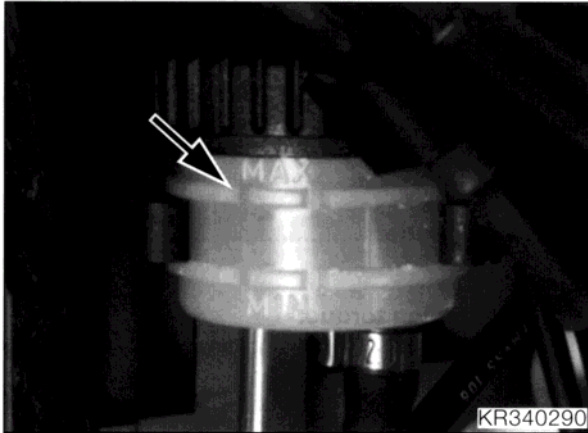


Caution:

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



- Take off the reservoir cover.



- Add brake fluid up to the MAX mark (arrow).
- Connect the brake bleeding device to the bleed screw on the brake caliper.
- Open the bleed screw by half a turn.



Caution:

Make quite sure during bleeding that the fluid replenishing bore is always covered by the brake fluid, or else air will be drawn into the brake system. If this occurs, repeat the bleeding operation.

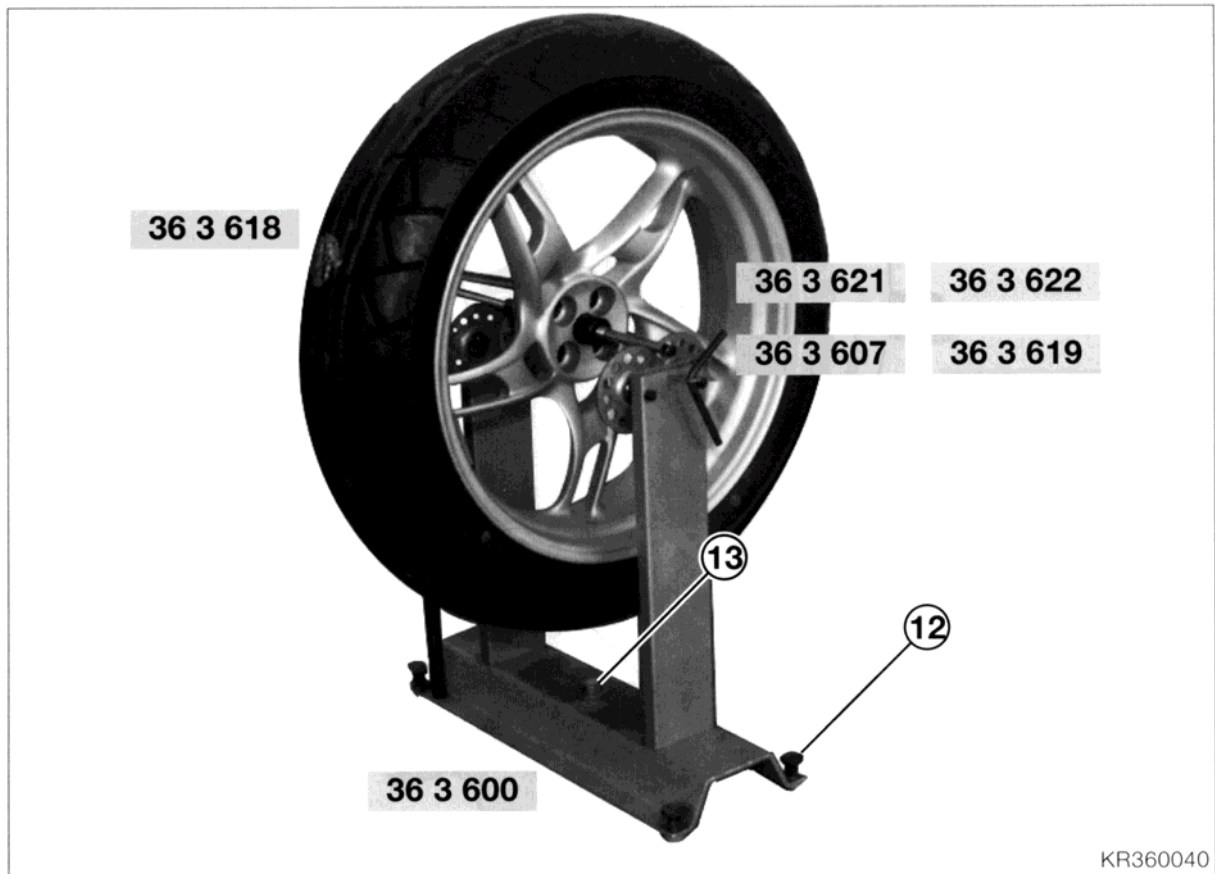
- Draw off brake fluid until it emerges clear and free from air bubbles.
- Close the bleed screw on the brake caliper.
- If necessary, repeat the bleeding procedure.

Brake fluid grade DOT 4



Tightening torque:

Bleed screw 12 Nm



Static balancing of front and rear wheels

Static balancing of front wheel

- Align the balancer, **BMW No. 36 3 600**, with knurled screws (12)/level gauge (13).
- Insert the balancing shaft, **BMW No. 36 3 621**, through the front wheel.
- Screw the balancing shaft up handtight with knurled nut, **BMW No. 36 3 622**.
- Place front wheel on balancer, **BMW No. 36 3 600**.
- Rotate the front wheel and allow it to come to a halt.
- Clean the attachment points for the adhesive weights.

Caution:

The maximum balancing weight is 60 g!

- Attach the adhesive balance weights, equally distributed between the left and right sides of the wheel rim, opposite the heaviest point on the wheel.
- Repeat the balancing procedure as a check.

Static balancing of rear wheel



Note:

The rear wheel can also be balanced dynamically.

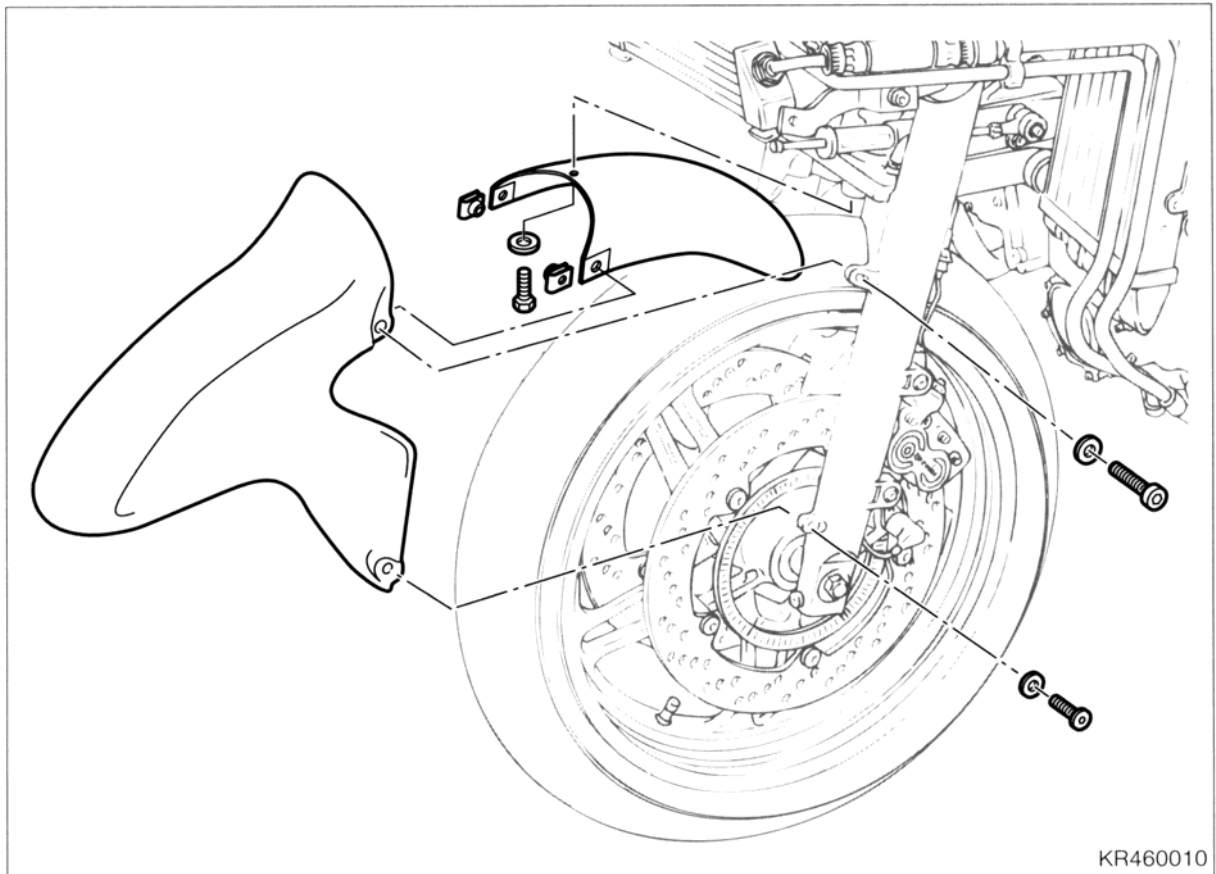
- Align the balancer, **BMW No. 36 3 600**, with knurled screws (12)/level gauge (13).
- Attach mounting fixture, **BMW No. 36 3 618**, to the centering-collar side of the rear wheel.
- Pass the balancing shaft, **BMW No. 36 3 607**, through the rear wheel.
- Screw the balancing shaft up handtight with knurled nut, **BMW No. 36 3 619**.
- Place the rear wheel on the balancer, **BMW No. 36 3 600**.
- Rotate the rear wheel and allow it to come to a halt.
- Clean the points at which the adhesive weights are to be attached.



Caution:

The maximum balancing weight is 60 g!

- Attach the adhesive balance weights, equally distributed between the left and right sides of the wheel rim, opposite the heaviest point on the wheel.
- Repeat the balancing procedure as a check.



Removing/installing front mudguard



Note:

To remove or install, the rear section of the front mudguard must first be removed.



Caution:

When installing the rear section of the front mudguard, align it centrally in relation to the wheel.



Tightening torques:

Rear section of front mudguard:
 to fork slider tube bridge 4 Nm
 Front section to rear section of front mudguard:
 at upper slider tube 9 Nm
 Front section of front mudguard:
 at lower slider tube..... 3 Nm



Removing and installing fairing holder

- Remove windshield.
(⇒ 46.15)

! Caution:

Comply with safety regulations; fuel lines are pressurised.

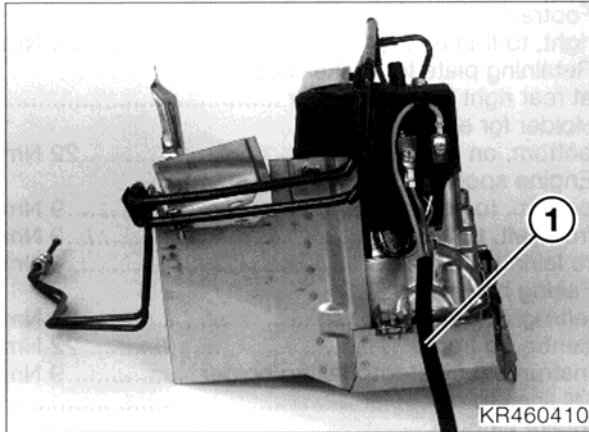
- Remove fuel tank.
(⇒ 16.5)
- Remove left/right inner cover.
(⇒ 46.14)
- Remove top section of fairing with headlight.
(⇒ 46.16)
- Remove air inlet guide to left radiator.
(⇒ 46.11)
- Remove right air intake pipe.
(⇒ 46.11)
- Detach lines from oil cooler and remove it.
- Separate plug connector for horn.
- Release the instrument cluster at the fairing holder.

- Release the cable straps, guide the instrument cluster with wiring harness through the fairing holder and set it down on the frame.
- Detach the radiators at left and right from their holders and press forwards.
- Release the fairing holder and pull off forwards.
- Remove windshield holder and horn.
- Remove add-on parts.
- Install in the reverse order of work.

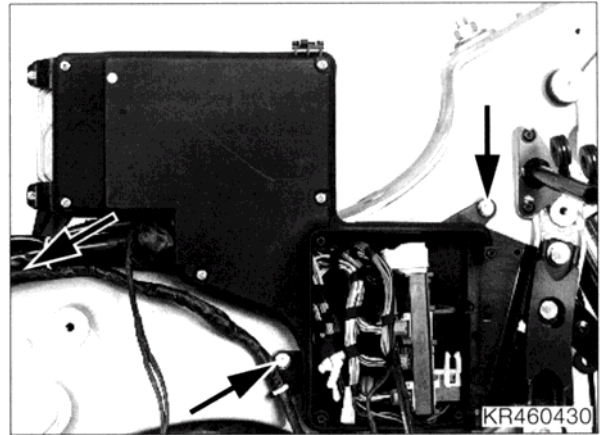
! Tightening torques:

| | |
|-------------------------------|-------|
| Fairing holder: | |
| at frame, left/right..... | 30 Nm |
| at centre of frame..... | 22 Nm |
| Instrument cluster | 9 Nm |
| Oil lines to oil cooler | 25 Nm |

- Remove the left rear footrest holder.
(⇒ 46.22)
- Remove the holder for the brake lines at the battery carrier and take off the brake lines and battery carrier together with the pressure modulator, ABS relay and ABS control unit.



- Remove the cover for the ABS relay.
- Detach wiring harness (1) from ABS relay.
- Separate the plug connectors for the gear indicator switch, temperature sensor at cylinder head, side (prop) stand switch and oxygen sensor (lambda probe), and guide the cables through downwards.
- Detach the earth (ground) lead at the upper cross-tube and the leads at the alternator and starter motor.
- Remove rear cross-tube.
(⇒ 46.25)
- Remove clutch slave cylinder.
(⇒ 21.9)
- Guide the clutch line through upwards.
- Separate the plug connectors for the left/right handlebars.
- Remove the left handlebar with combined switch, together with the holder for the left radiator, the clutch line and the clutch slave cylinder.
- Remove the right handlebar with combined switch.
- Separate the plug connector for the front wheel speed sensor.



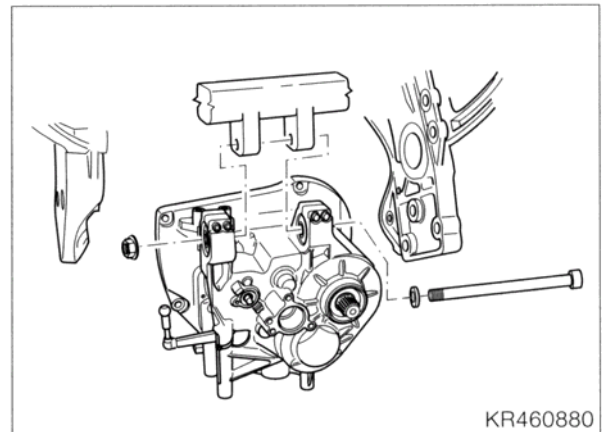
- Detach and remove the electronic equipment box and the wiring harness at the frame (arrows).
- Remove the telescopic fork with the front wheel.
(⇒ 31.5)



Note:

Make sure that oil cannot escape from the telescopic fork.

- Remove fork bridge.
(⇒ 31.9)
- Remove front suspension strut.
(⇒ 31.15)
- Tie the leading link up to the frame.
- Detach the cross-member at the frame at left and right.



- Release the gearbox fastenings at the frame, holding at the left to prevent from turning.



Caution:

Make sure that the correct clearance is present between gearbox and frame at the right.

Lowering the frame

[valid only for the following work]

Installing engine

Installing clutch/gearbox

Installing starter/alternator

[only when installing engine

Position assembly stand, **BMW No. 00 1 480**, with engine above the hoist platform.

- Raise the hoist platform carefully.
- Attach hoist fixture, **BMW No. 00 1 510**, to sump.
- Raise the hoist.
- Detach the engine mount, **BMW No. 11 0 610**, from the crankcase and run the assembly stand out to one side.

Install the clutch (⇒ 21.8)

- Note that the markings must be offset by 120° when installing.
- Using centering device, **BMW No. 21 2 670**, and centering pin, **BMW No. 21 2 680**, check clutch plate centering and correct if necessary.



Tightening torque:

Housing cover to clutch flange 19 Nm

Installing gearbox

- Coat the splines on the gearbox input shaft with **Staburags NBU 30 PTM**.
- Install the heat shield.
- Offer up the gearbox to the intermediate flange and tighten the fastenings.
- Insert the clutch release rod.

Tightening torques:

Gearbox to intermediate flange 22 Nm
Heat shield to coil 9 Nm

Install the alternator (⇒ 12.12)

Tightening torque:
Alternator to intermediate flange 20 Nm

Install the starter (⇒ 12.15)



Note:

Before lowering the frame, install the earth (ground) leads at the starter.

Tightening torque:
Starter to gearbox 20 Nm



Caution:

Make sure that the correct clearance is present between gearbox and frame at the right. Mask off the timing case cover in the engine spoiler holder area. Turn steering to right to avoid scratches. When lowering the frame, make sure that no lines or cables are damaged.

Lower the frame

- Lower the frame with hoisting crane, **BMW No. 46 5 640**.
- Insert the gearbox mounting into the frame and tighten it.
- Tighten the left/right engine mountings at the cross-member.

[in addition, when installing engine]

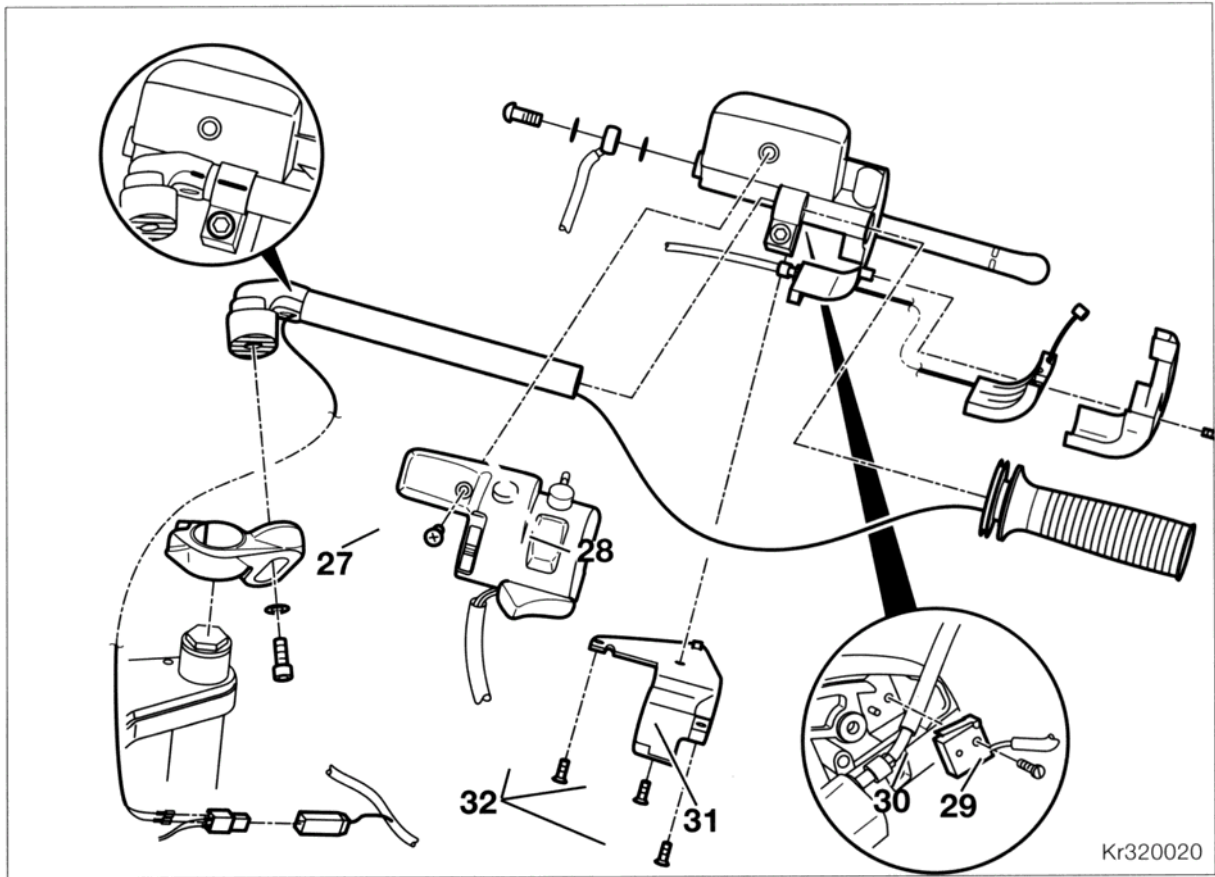
- Attach the fuel lines to the engine block.

Tightening torques:

Gearbox to frame 82 Nm
Engine to cross-member, front left 41 Nm
Engine to cross-member, front right 41 Nm

| Technical data | K 1200 RS |
|-----------------|-----------|
| Circuit voltage | V 12 |
| Battery | Amp/h 19 |



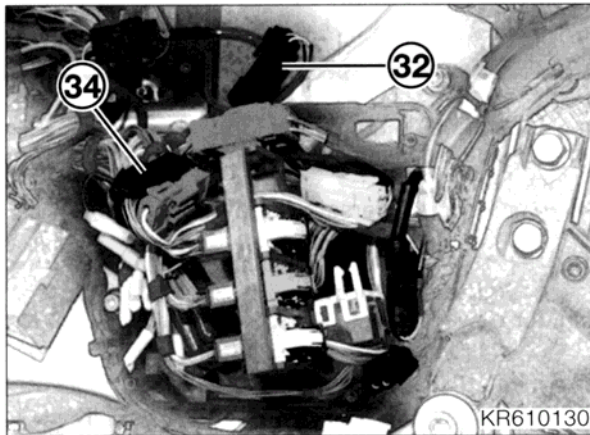


- Release fastenings (32) and take off lower cover (31).

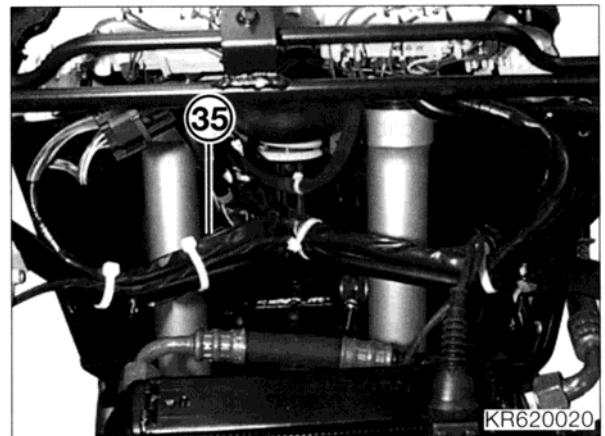
Removing/installing right combined switch

- Separate the plug connector (34) at the combined switch.

Removing brake light switch



- Separate the fastenings (32).
- Release fastening (29).
- Remove brake light switch (30) with cable.
- Install in the reverse order of work.



- Separate plug connector (35).
- Release fastening (27).
- Take off combined switch (28) with cable.
- Install in the reverse order of work.

Tightening torques:
 Combined switch (28) to handlebar fitting 1 Nm



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