

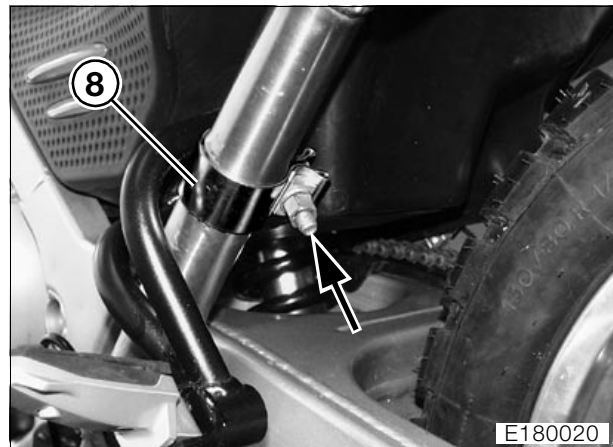
E180030

18 00 020 Removing and installing exhaust system

- Installation is the reverse of the removal procedure, pay particular attention to the following.

18 11 301 Removing and installing right-hand silencer

- Remove number plate.
- Remove the fastener (arrow) securing the silencer to the rear frame.
- Separate the right-hand silencer with balance pipe from the left-hand silencer and at the same time lift it clear of bracket (1).
- If necessary, remove fasteners (2) and remove silencer guard (3).
- Installation is the reverse of the removal procedure.



E180020

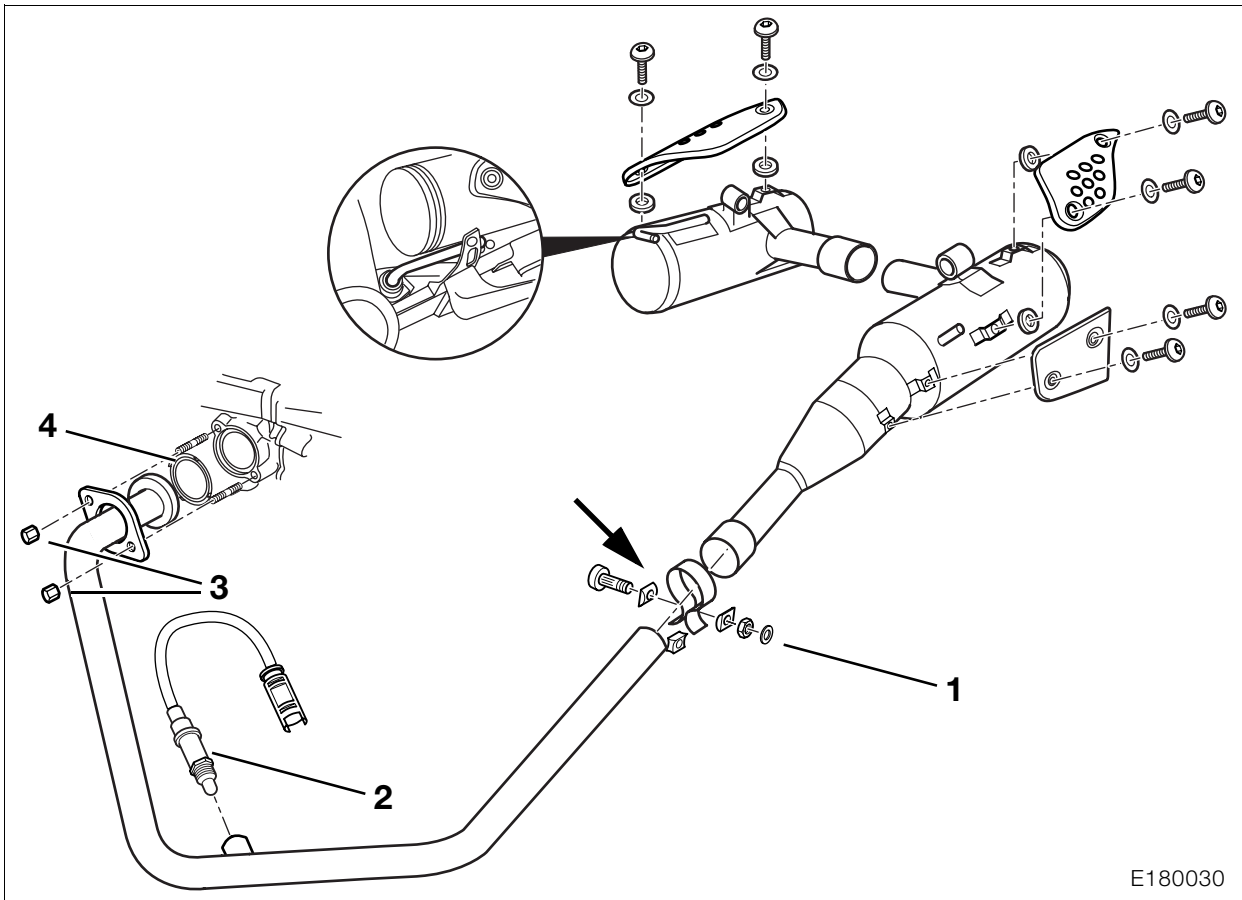
18 11 301 Removing and installing left-hand silencer

- Remove right-hand silencer.
- Remove the fastener securing the silencer to the rear frame.
- Loosen clamp (6) for silencer.
- Separate the left-hand silencer with connecting pipe from the exhaust manifold and at the same time lift it clear of bracket (7).
- If applicable, remove silencer guard (4) and guard (5) for catalytic converter.

- Make sure that the installed position (arrow) of the clamp for silencer (8) is correct.

⚠ Tightening torques:

Guard to silencer	9 Nm
Clamp for silencer	55 Nm
Silencer to rear frame.....	21 Nm



18 11 151 Removing and installing exhaust manifold and oxygen sensor

Removing exhaust manifold and oxygen sensor

- Remove engine guard
- Loosen clamp (1) for silencer.

- Remove the left footrest plate.
- Extend side stand.
- Remove fasteners (3) securing manifold to cylinder head.
- Remove the exhaust manifold and remove seal (4).
- Remove oxygen sensor (2).

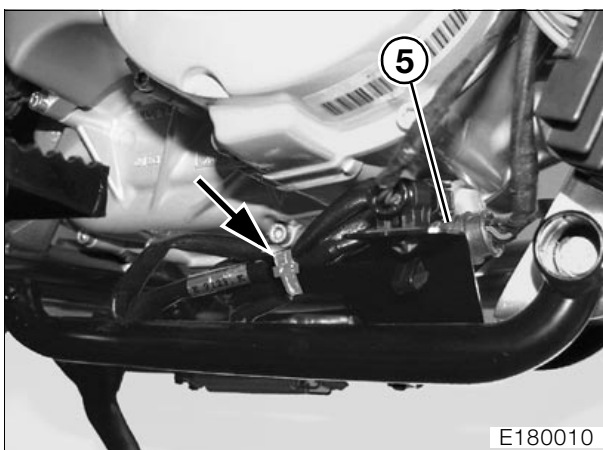
Installing exhaust manifold and oxygen sensor



Note:

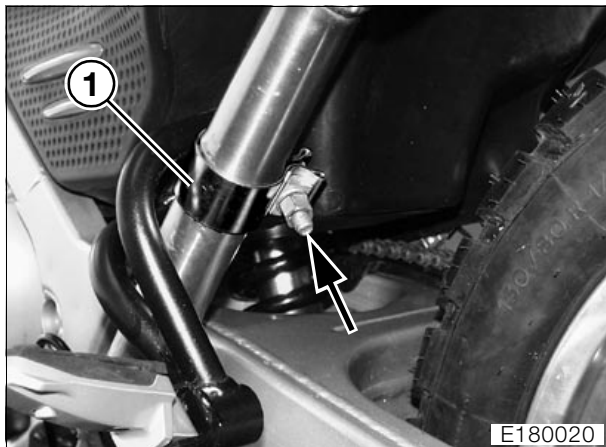
It is not necessary to grease the threads if you are installing a new oxygen sensor.

- Lightly coat the threads of the oxygen sensor with **Optimoly TA**.
- Tighten the oxygen sensor at the hexagon with socket wrench insert, **BMW No. 11 7 020**.
- Position a new gasket (4) on the manifold.
- Introduce the exhaust manifold into the left-hand silencer and into the cylinder head.

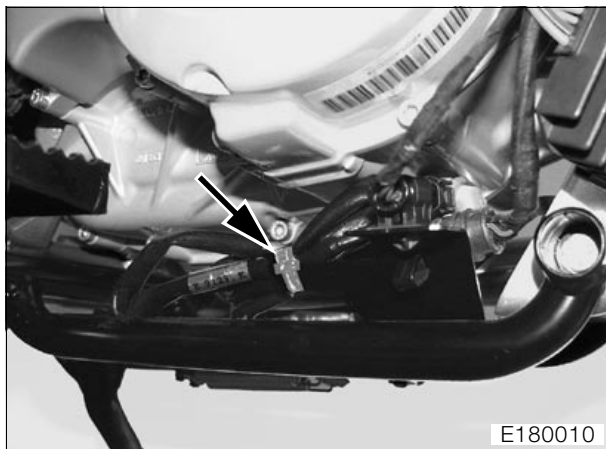


- Release cable tie (arrow) on right-hand frame trussing.
- Disconnect plug (5) for the oxygen sensor.

- Uniformly tighten the fasteners securing the manifold to the cylinder head.



- Tighten clamp (1) for the silencer, making sure that the clamp is correctly positioned (arrow).
- Connect the plug for the oxygen sensor.



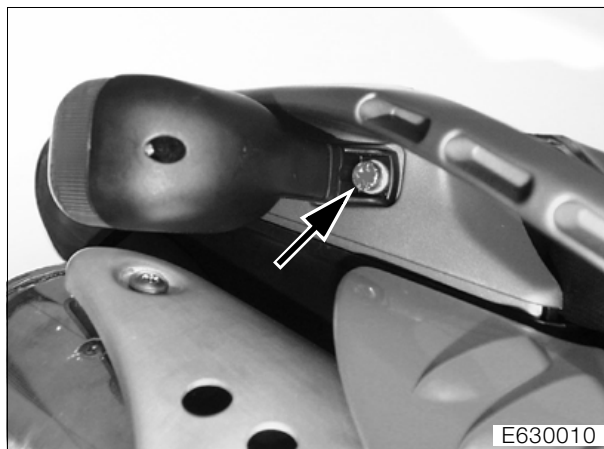
- Using a cable tie (arrow), secure the oxygen sensor cable and the cable for the side-stand switch to the frame trussing.
- Install the engine guard.

 **Tightening torques:**

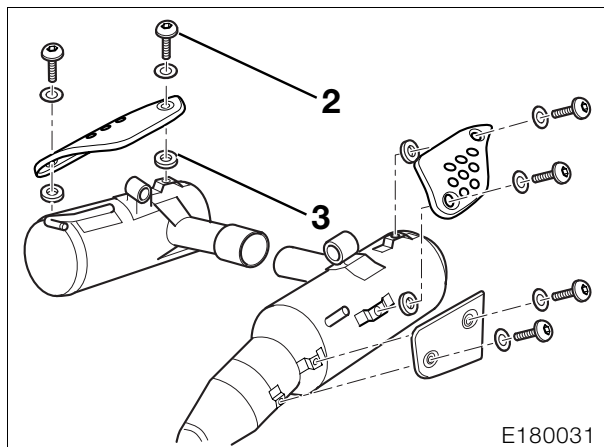
Oxygen sensor to exhaust.....	45 Nm
Exhaust manifold to cylinder head.....	20 Nm
Clamp for silencer	55 Nm
Engine guard to frame.....	9 Nm

18 12 212 Replacing guard for silencer

- Remove the lid of the glove compartment.



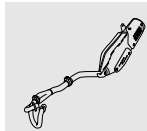
- Remove the fastener (arrow) securing the turn indicator at the handle and push the turn indicator aside.

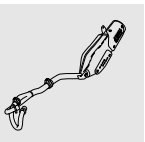


- Remove the fasteners securing the guard to silencer (2) and remove guard complete with damper washers (3).
- Installation is the reverse of the removal procedure.

 **Tightening torques:**

Guard to silencer	9 Nm
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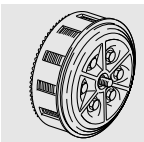


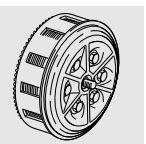
21 Clutch

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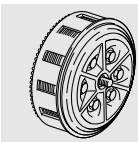
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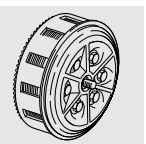
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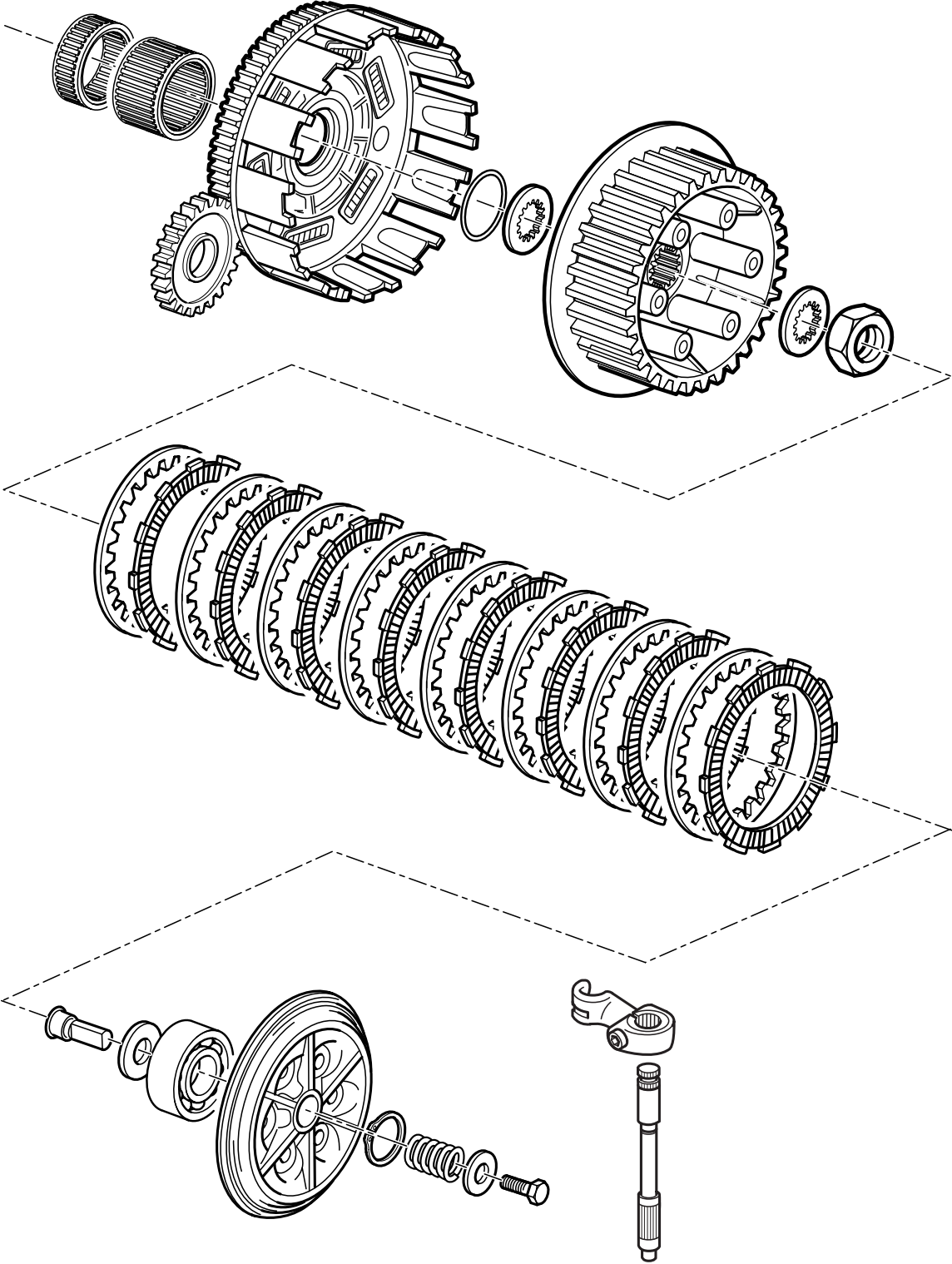


Technical Data		F 650 GS
Clutch		
Type		Pull-action multi-plate clutch in oilbath
Clutch plate diameter	mm (in)	144 (5.7)
Manual effort required	N	85 (at 40 mm/1.6 in from pivot point)
Operation		mechanical
Wear limits:		
Distortion of lined plates	mm (in)	0.25 (0.010)
Distortion of steel plates	mm (in)	0.15 (0.006)
Total height of lined plates	mm (in)	27.5 (1.08)
Total height of plate assembly	mm (in)	39.1 (1.54)





Clutch, components

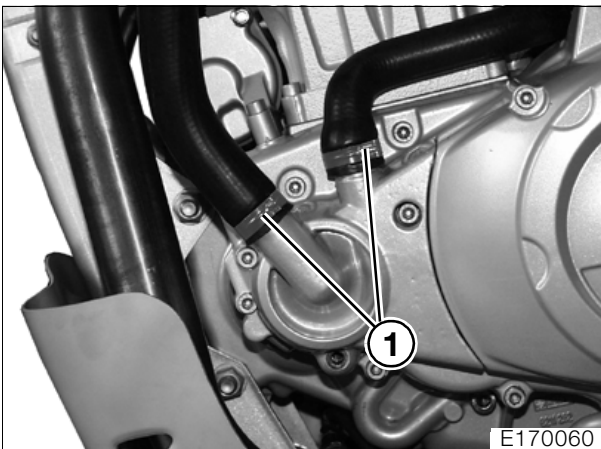


E210010

21 21 000 Removing and installing clutch

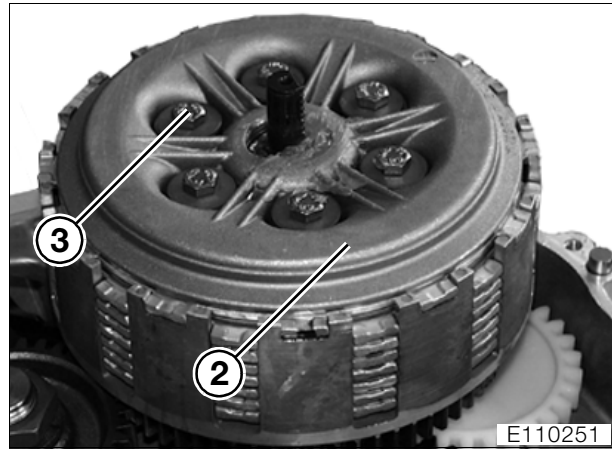
21 21 000 Removing clutch

- Remove seat.
- Remove left cover.
- ➔See Group 46
- Drain engine oil.
- ➔See Group 00
- Place motorcycle on side stand.
- Position a drip tray beneath the engine.
- Remove drain plug (1) from water pump.
- Hold a funnel below the drain and open the radiator cap.
- Drain off all the coolant.
- Place motorcycle on its centre stand.
- Remove the gear shift pedal.
- Remove the starter motor.
- ➔See Group 12
- Disconnect clutch cable at release shaft.
- Disconnect the oil return line from the engine and the oil tank.
- Disconnect the oil line from the cylinder head.



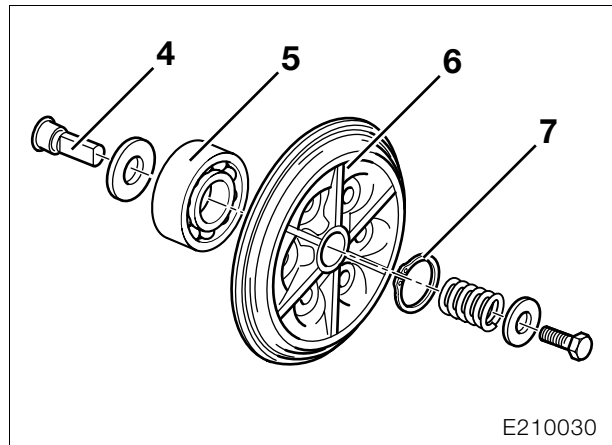
- Using hose clip pliers, **BMW No. 17 5 500**, remove hose clips (1).
- Remove left engine housing cover.

Removing pressure plate



- Remove hex screws (3) in diagonally opposite sequence.
- Lift off complete pressure plate (2).
- Check length of compression springs.

Disassembling and reassembling pressure plate



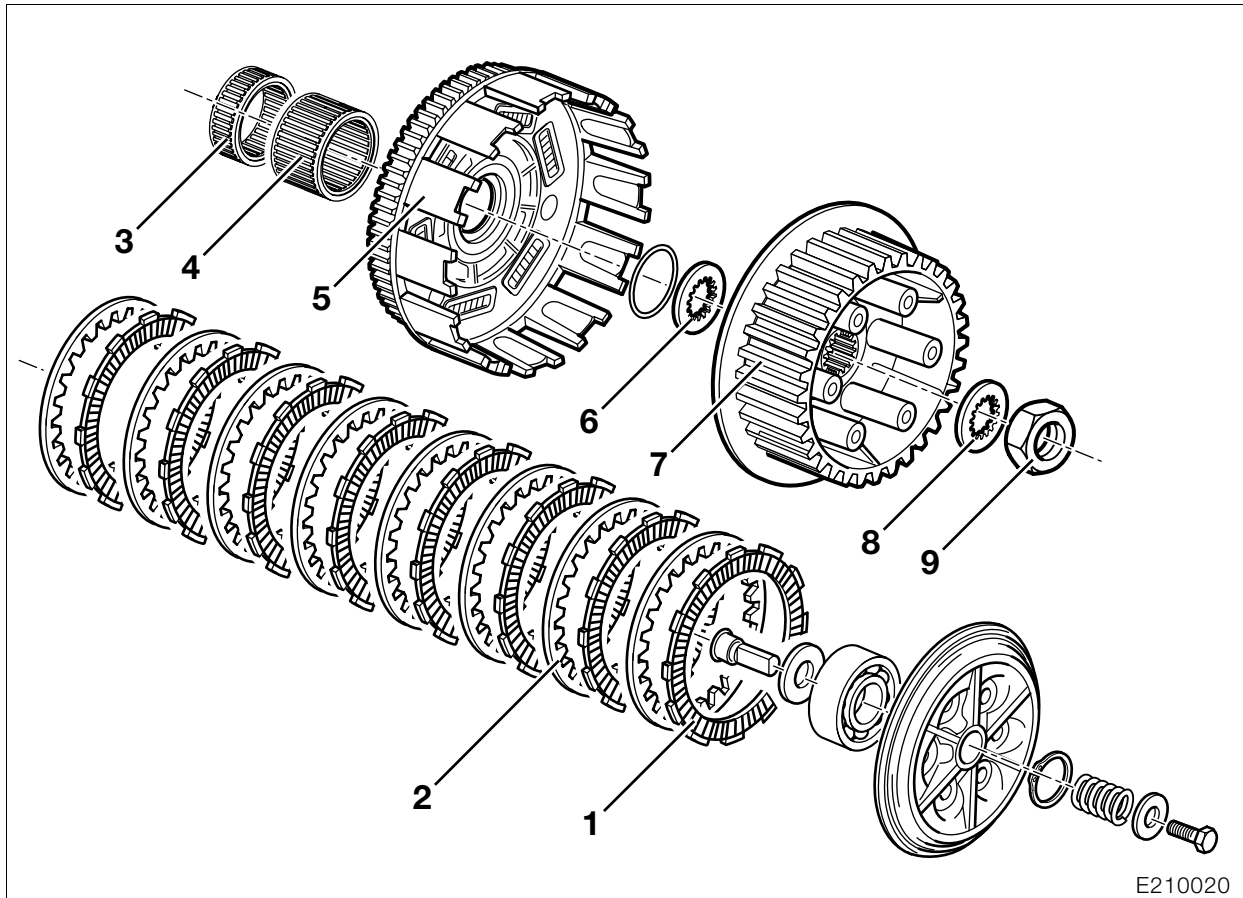
- Remove circlip (7) with circlip pliers.
- Check splines on release head (4).
- Heat pressure plate (6) to 80 °C (176 °F) and drive in grooved ball bearing (5), using a suitable drift (such as a socket, for example).



Note:

Use temperature measuring device, **BMW No. 00 1 900**, to check the temperature.

- Grooved ball bearing (5) must turn easily.
- Installation is the reverse of the removal procedure.



E210020

Removing clutch plates, driver and clutch cage



Note:

When dismantling the clutch plate cluster, mark the order in which the plates are installed.

- Take the plate cluster, lined plates (1) and inner plates (2) out of the clutch cage.



- Using locating ring, **BMW No. 21 4 600**, secure clutch cage (5) and driver (7) in position.

- Remove lock washer (8).



Note:

Hex nut (9) is secured with **Loctite 243** and should be heated if necessary before unscrewing.

- Unscrew hex nut (9).
- Remove driver (7).
- Remove clutch cage (5) incl. serrated washer (6).
- Remove needle cages (3, 4).

