SE Performance

1070ccm Kits

Assembly instructions

SE 1070ccm Torque Kit

SE 1070ccm Sport Kit

FAQ

Double ignition, yes or no? The SE 1070cc kits can be run with single ignition without any problems. However, converting to dual ignition offers the possibility of increasing compression and squish (the area between the piston crown and the combustion chamber at TDC). Both lead to an increase in mean pressure and thus to more torque and more power.
If the engine is to be operated with single ignition, we recommend limiting the ignition adjustment to the maximum range, as otherwise ignition knocking may occur in some cases. The necessary stops are included with the kit. More detailed information and a description of the installation are included at the back of these assembly instructions.

Does the combustion chamber need to be adjusted ? The SE 1070cc kit can be used without any problems with the original R80 or R100 combustion chamber. If you want to do it perfectly, we recommend adapting the combustion chambers to the larger bore. We offer this service for 95 € per combustion chamber.

We offer two different 1070cc kits. One with short pistons and the necessary long H-connecting rods, the other for use with the original connecting rods. Both pistons are identical in terms of design. Both are high-strength forged pistons in a 'double cross' design. The piston dome is identical, so the compression height and valve pocket size are the same for both kits.

What is the difference? The Power Kit with connecting rod is more suitable for sports enthusiasts. It revs more spontaneously and freely, but this also means that the throttle response and stoic good-naturedness of the 2-valve engine become somewhat more hectic. For riders who like this, the Sport Kit is the right choice. For power outputs above 85 hp in combination with increased revs, it is a must. The Torque Kit retains the good-natured character of the BMW 2V boxer, but makes it significantly more powerful and, of course, more efficient. The best choice for all power levels up to 85 hp.

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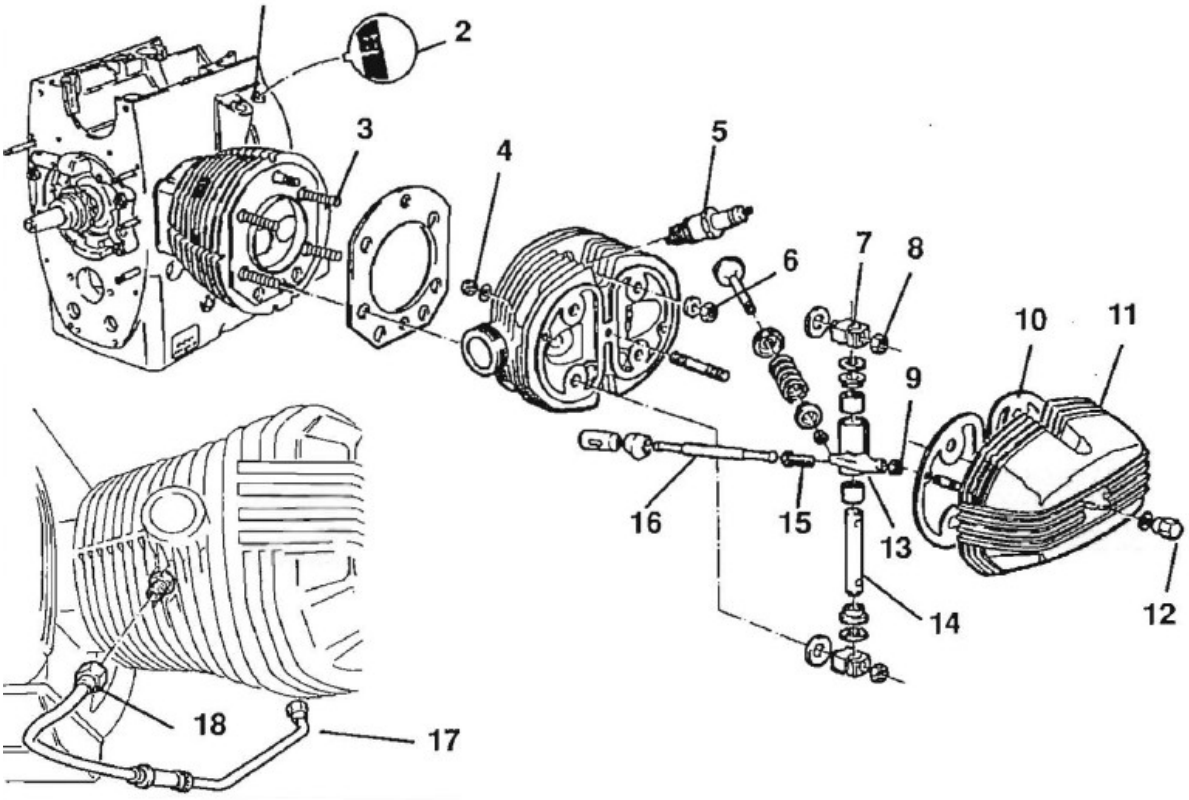


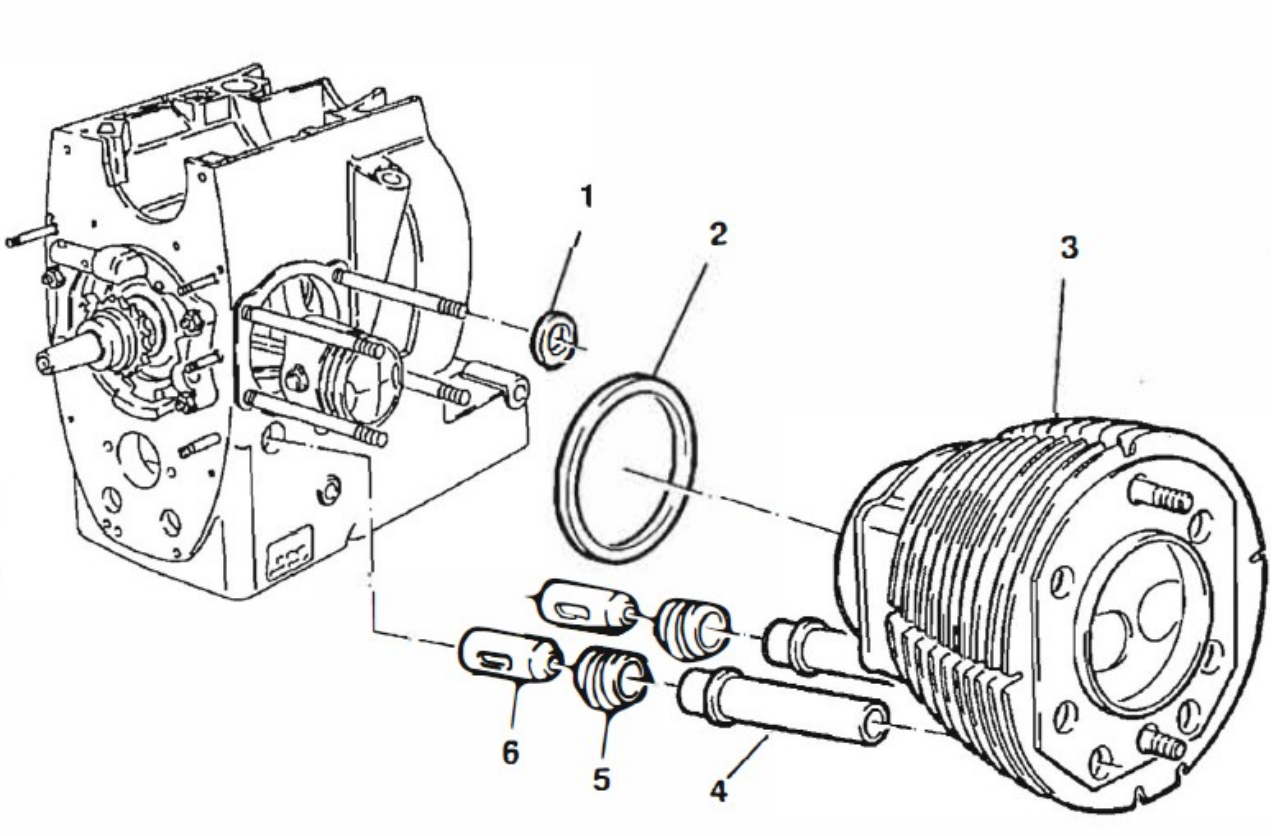
Removing the cylinder heads

- Remove the cylinder head cover (11) after loosening the cap nut (12) and the 2 fastening nuts (4).
- Remove the cylinder head cover gasket (10).
- Remove the spark plug (5).
- Set the piston to compression TDC by turning the clutch flange or, with the engine installed, engage 5th gear and set TDC by turning the rear wheel.
- Loosen the cap nut (18) of the SLS system and remove the connection line (17)

NOTE:
Compression TDC is reached when the TDC mark (2) appears in the inspection hole on the left side of the engine housing (1) and the intake and exhaust valves of the corresponding cylinder are closed (play noticeable on the rocker arm).

- Loosen the lock nuts (9) on the adjusting screws (15).
- After loosening the 4 collar nuts (8), remove the rocker arm (13) together with the clamping blocks (7) and rocker arm shafts (14).
- Remove the tappet rods (16).
- Loosen the cylinder head nuts (6).
- Detach the cylinder head from the cylinder by gently tapping it with a plastic hammer.
- Remove the cylinder head from the tension anchor bolts (3).

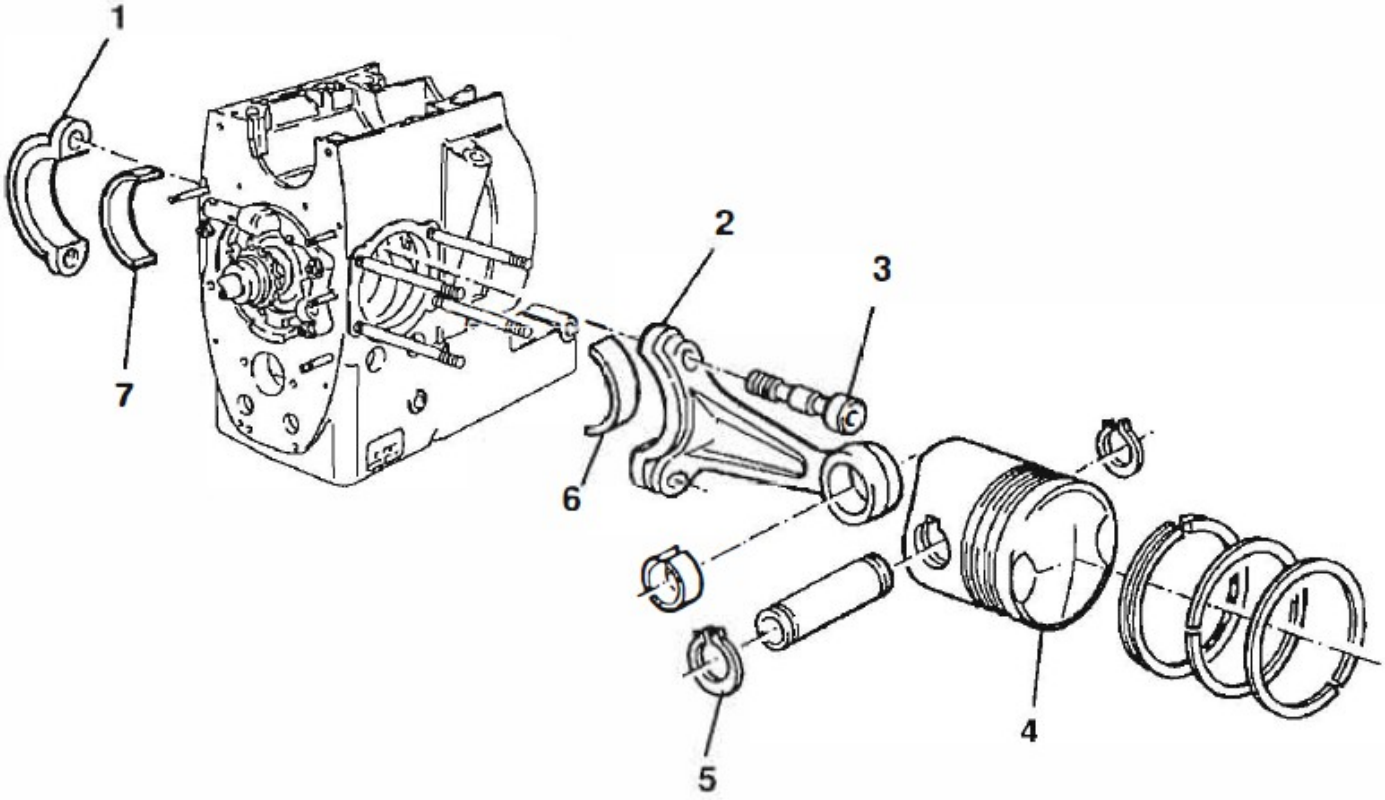
NOTE:
After dismantling the cylinder heads, we recommend taking them apart and checking the valve guides, valve seat rings and valves for wear. If you do not feel confident about inspecting the heads yourself, you are welcome to send them to us for inspection and, if necessary, overhaul.



REMOVING THE CYLINDER

- Loosen the cylinder (3) with a plastic hammer.
- Pull the cylinder off the housing.
- Pull the plunger (6) out of the guides and check it.
- Remove the rubber seals (5) from the plunger rod tubes (4).
- Remove the O-ring (2) from the cylinder base.
- Remove the O-rings (1) from the upper stud bolts.

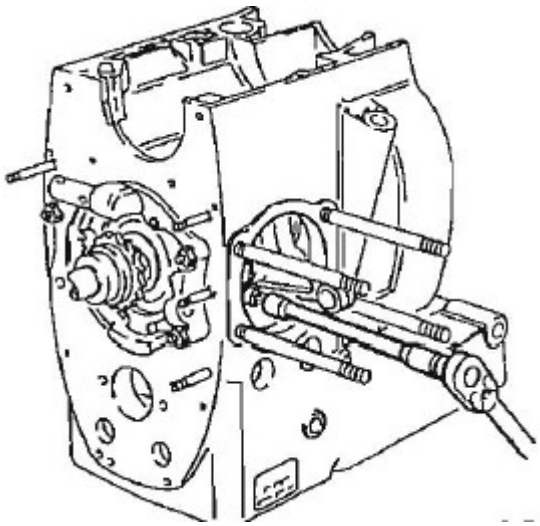
NOTE:
The O-rings described must be replaced after each removal. The large O-ring at the base of the cylinder has not been used on all models/model years.

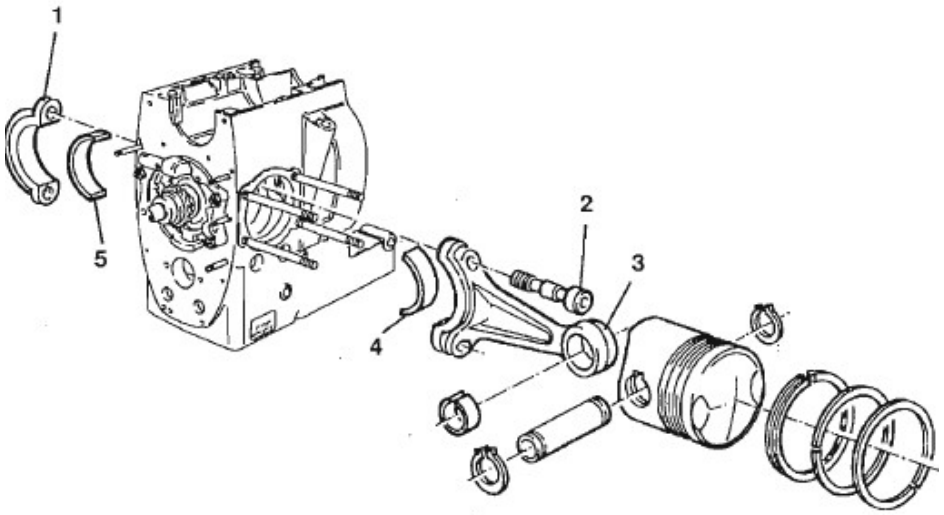


Remove connecting rod

- Remove the retaining ring (5) on the left/right side of the piston pin using circlip pliers.
- Push the piston pin out of the connecting rod and piston by hand.
- Remove the piston (4)
- Loosen the connecting rod bolts (3) using a 10 mm (XZN) internal 12-point socket.
- Remove connecting rod (2) and connecting rod bearing cap (1) together with bearing shells (6, 7).

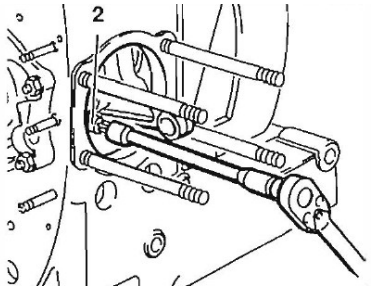
NOTE:
It is not necessary to remove the connecting rods when using the SE 1070ccm Torque Kit (piston kit for use with original connecting rods)





Installing the connecting rod and piston

- Installation is carried out with the crankshaft in the TDC position.
- Clean the connecting rod bearing bore.
- Press the bearing shells (4, 5) into the connecting rod bearing base bore.
- Carefully countersink the connecting rod bearings and the connecting rod journal of the crankshaft.
- Place the connecting rod (3) and connecting rod bearing cap (1) on the crankshaft.
- Install both connecting rods so that the fixing pins of the connecting rod bearings are located on the generator side (original connecting rod).
  Install the H-connecting rods (SE Sport Kit) so that the thick side of the connecting rod of the left cylinder faces forward and the thick side of the connecting rod of the right cylinder faces backward. The thicker side of the connecting rods must face the bolted-on counterweights of the crank webs..



- Using a 12-point socket, screw in the connecting rod bolts (2) and tighten them to the specified tightening torque and/or angle of rotation.
- Apply molybdenum grease to the bolt threads and the contact surface of the bolt head

Original connecting rod (Torque Kit)

Step 1 20Nm
Step 2 40°
Step 3 5°

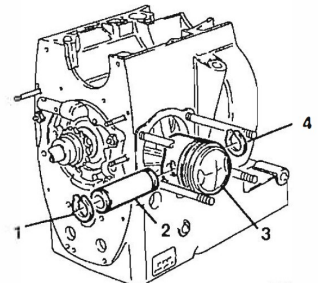
Internal 12-point socket 10mm (XZN)

SE H-connecting rod (SE 1070 Sport Kit)

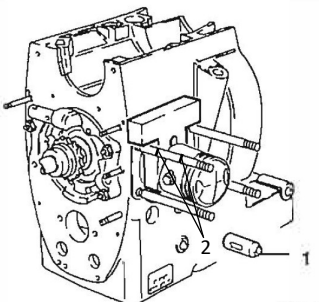
Step 1 20Nm
Step 2 36Nm
Step 3 Loosen the connecting rod bolts again

External 12-point socket "3/8

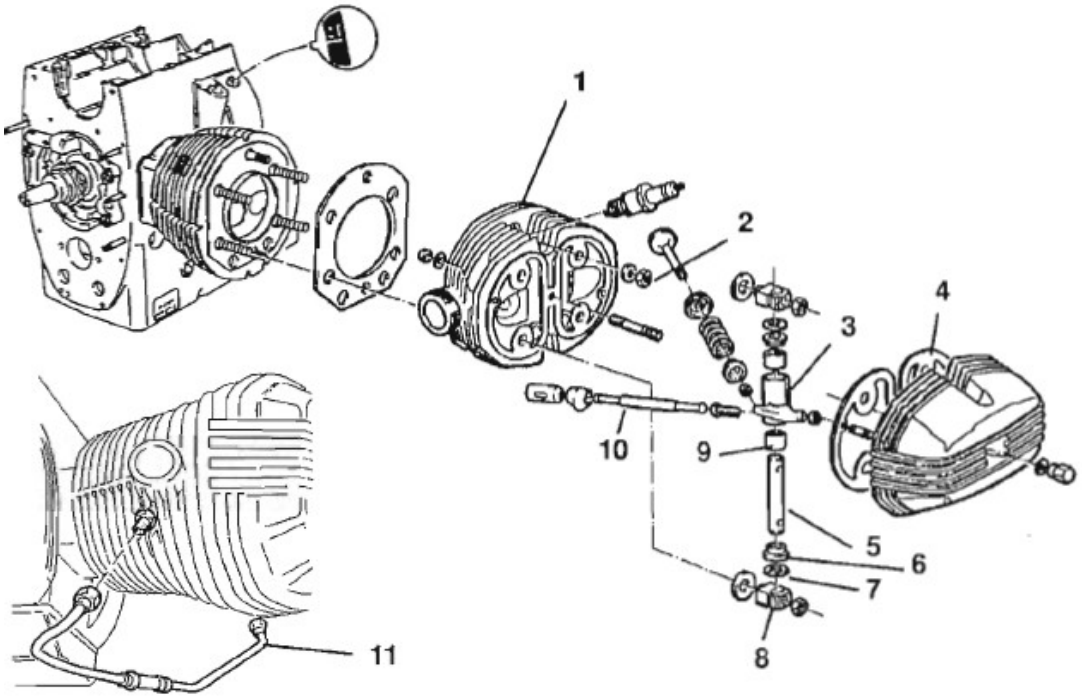
This process must be repeated 3 times (do not loosen the connecting rod again on the third repetition)

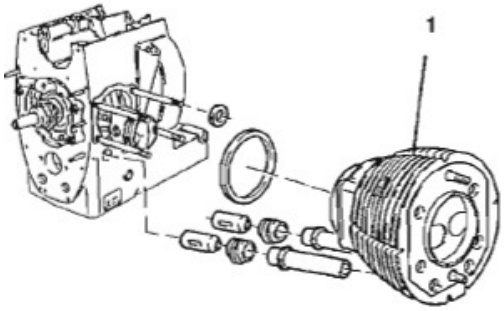


- Place the piston (3) on the connecting rod and insert the piston pin (2)
- Insert the retaining rings (1, 4) into the ring groove on the piston pin.
- The cylinder base and cylinder sealing surfaces on the engine housing must be free of grease.
- Insert the tappet (1) into the guides.
- When inserting the cylinder into the engine housing, ensure that the O-rings are not crushed.



- Ensure that the piston ring joints are rotated 120° relative to each other before fitting the cylinder. The N markings must always face upwards. The dark piston ring belongs in the middle, the silver one at the top. The oil scraper, consisting of the corrugated spring and the two support rings, is always at the bottom.
- Place two of the enclosed O-rings (2) on each of the two lower stud bolts at a distance of 40 mm from the engine housing. These O-rings (8.00 mm x 1.50 mm) serve only as a centring aid and have no sealing function.



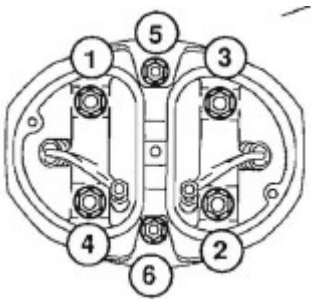


- Place the cylinder (1) onto the 4 tie rod bolts.
- Hold the piston rings together with the piston ring tensioner.
- Slide the cylinder over the piston and insert it into the engine housing

Tip:
It is easier to first insert the piston into the cylinder and then place the cylinder/piston unit onto the connecting rod.

Install cylinder head

- Fit cylinder head gasket (4).
- Place cylinder head (1) onto the 4 tie rod bolts.
- Secure cylinder head to cylinder with 2 nuts (2).
- Insert the push rods (10).
- Place the rocker arm (3) complete with rocker arm shaft (5), Pertinax (6), shims (7), bearings (9) and clamping blocks (8) onto the tie rod bolts and tighten.

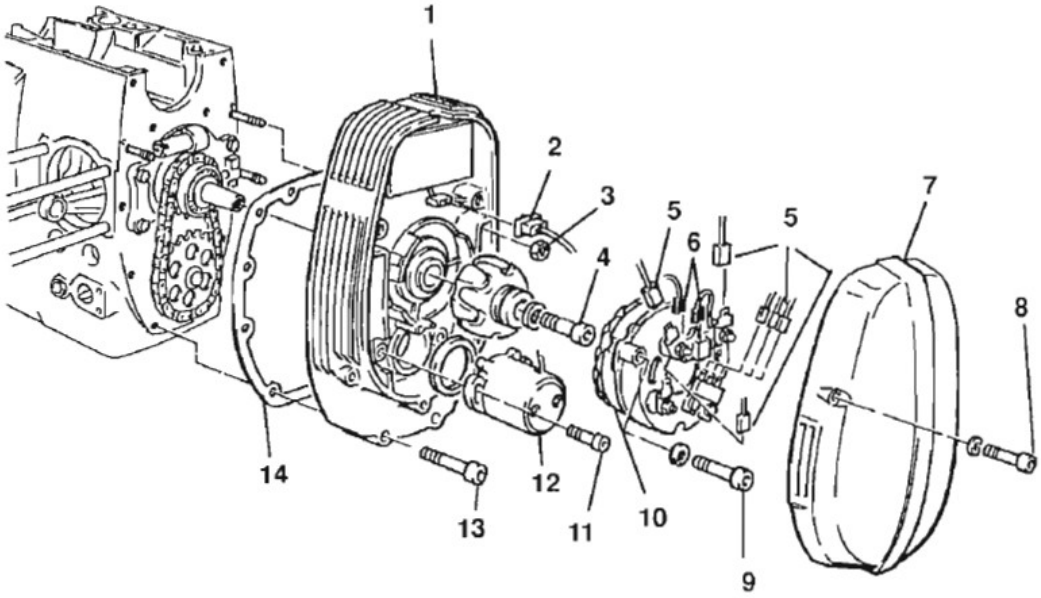


- Tighten the union nuts (6) and fastening nuts (2) step by step in accordance with the tightening diagram/sequence and with the specified tightening torque in 3 stages.

  1. Step 15 Nm - 2. Step 25 Nm - 3. Step 35 Nm
- Adjust valve clearance E=0.10 mm, A=0.20 mm

NOTE:
The cylinder head must be retightened to 35 Nm after 1,000 km.
The valve clearance should then be checked again

Ignition timing limit for contactless ignition systems on all 2-valve engines



In some cases, it may be necessary to limit the maximum advance. These small stops are inserted into the centrifugal regulator instead of the red bushings. This reduces the maximum advance by approx. 5-6°.

- necessary for high compression with original ignition system
- suitable for all 2V with contactless ignition system
- placed in the pulse generator box (12) on the original centrifugal governor
- replaces the original red bushings

Static ignition timing setting remains the same

NOTE: We recommend using this ignition timing limit when using a 1070cc kit without dual ignition..