

Camshaft Kit B5 / B6
Part No.: 000-695-00 B5 / 000-696-00 B6

This BRABUS performance kit contains the following parts:

- BRABUS high-performance camshaft
- BRABUS special valve springs with corresponding valve heads
- BRABUS control unit for optimized air intake regulation
- Cable loom
- All miscellaneous parts required for installation
- BRABUS logo for attachment to engine and to vehicle tailgate

These fitting instructions are divided into two parts. Section one contains an explanation of the mechanical part of the fitting process, while section two deals with the required electrical connection tasks involved. Carry out all these tasks with great care, as incorrect fitting can lead to costly engine damage.

Part 1 - Mechanical fitting tasks

Fitting procedure

1. Disconnect battery
2. Drain radiator and cooling system
3. Removing the cylinder head cover

To do so, remove the transverse air filter tube. Now detach the ignition circuit conduit cover, unplug the control and ignition cables from the ignition coils and pull out the ignition coils. Dismantle the front cover and the circuit conduit at the air intake tube. The cylinder head cover can now be removed.

4. Setting the cylinder to ignition TDC

To do so, turn the crankshaft until the "TDC" marking on the pulley / oscillation damper aligns with the edge of the arrow on the timing case.

5. Removing the chain tensioner

To do so, loosen the end-piece by rotating it by approximately one turn (tighten later to a torque setting of 40 Nm). Dismantle the entire chain tensioner assembly.

IMPORTANT: If the complete chain tensioner has been loosened, it **MUST** be removed - otherwise the chain will be over-tensioned after refitting has been carried out.

6. Removing the front cover

To do so, remove the coolant connection hose from the front cover.

- Unscrew the **earth (US ground)** lead from its terminal
- Unclip the plug-in connection from the retainer
- Detach the coolant hose located beneath the retainer
- When dismantling the retainer and the connection terminal, loosen the two collar screws (when refitting, tighten to a torque of 21 Nm)

- When refitting, use a NEW conical nipple (supplied)

Remove upper slide rail

- Rotate outlet valve camshaft in turning direction of camshaft
- Remove slide rail from bearing pin

Detach the front cover

- Unscrew the hot water return hose from the pedestal and water pump
- Detach the camshaft position sensor and camshaft timing control magnet connections

- Remove vacuum conducts and coupling from reversing valve

- Unscrew the tensioning device shock absorber from the front cover and push downwards (when refitting, tighten to 21 Nm)

Remove screwed sealing plug (on bottom l.h. side of cover), along with the conical nipple

- Pull out the slide rail pins using a slide-hammer (part No. 115 589 123300) and threaded insert (part No. 116 589 013400)

- Loosen the cover by removing the remaining three screws (tighten to 21 Nm when refitting)

7. Removing the camshaft timing controller

To do so, loosen the small bolt on the anchor (while holding the anchor level). The anchor can now be detached. Unscrew the nut from the rear of the anchor and remove the washer located under the nut. Detach the outlet valve camshaft sprocket and pull off the camshaft sprocket and the inlet valve camshaft piston valves. The flanged shaft can now be removed by loosening the three bolts (M7).

8. Removing the inlet/outlet valve camshaft

This is done by loosening the camshaft bearing caps at the same time. When removing the camshaft, ensure that it is subject to as little strain as possible.

9. Removing the valve springs on the inlet side

Use a socket wrench to move the piston of the affected cylinder to TDC. Hold the timing chain up when doing so, to prevent it becoming jammed.

Guide number Piston at TDC

TDC 1 and 6

120 2 and 4

240 3 and 5

Now remove the bucket tappet of the affected cylinder. The pressure loss testing instrument connection tube should now be screwed into the sparkplug hole. **Ensure that the crankshaft is blocked to prevent it turning BEFORE placing the affected cylinder under pressure.** When doing so, remove the sealing cap from the oil sump. Then unscrew the two M 6X85 bolts from the sump. The retaining device (part No.601 589 024000) can now be inserted into the crown gear and pulled tight. The corresponding cylinder can now be placed under pressure.

You should now fit the support bridge (part No. 111 589 015900) to the cylinder head using the bolts from the camshaft bearing cover. Hang the lever pusher (part No. 111 589 186100) with thrust-piece (111 589 256300) onto the slide-in element of the support bridge. Now align the thrust-piece vertically with the valve washer and align the thrust-piece and slide-in element to one another (screwing the slide-in element into place).

The valve spring can now be compressed. **IMPORTANT: DO NOT allow the valves to touch the piston, as this will distort them.** Use a magnetised tool to compress the valve springs. Remove the valve keys. After removing the valve springs - along with the upper spring plates, the BRABUS (double) valve springs and corresponding spring plates can be pulled down over the inlet valve and pushed into place (two different types of valve washer are supplied with the kit - see component list). The valve keys are refitted using the magnetised tool. When releasing valve spring tension, ensure that the valve keys are correctly aligned.

DO NOT forget to remove the retaining device after replacement of all valve springs on the inlet side.

10. Fitting the BRABUS Sports Camshaft

Before fitting the BRABUS Sports Camshaft, carefully oil all bucket tappets and camshaft bearings. Place the Sports Camshaft in the bearing at TDC position. The camshaft bearing cap can now be fitted (note the position of the alignment sleeves). Tighten the camshaft bearing cap bolts gradually, moving each by one turn at a time (torque setting of 21 Nm).

When tightening the camshaft, ensure that it is subject to as little strain as possible. The outlet valve camshaft can then be fitted back into place.

IMPORTANT: The position of the camshaft bearing cap is marked by numbers.

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11. Setting the timing adjustment

The 4 mm holes in the camshaft flanges must lie at a tangent to the top edge of the cylinder head. Check by inserting a 4 mm drill bit in each hole.

12. Fitting the camshaft timing control element

Push the flanged shaft onto the camshaft (noting the position of the securing pin) tighten to a torque of 20 Nm and turning angle of 90. Push the piston valve into the specified position by twisting it anticlockwise. Place the spacer ring (supplied) in the camshaft sprocket and push the sprocket to the required position by twisting it clockwise. Hold the timing chain up while doing so.

Now fit the washer to the camshaft sprocket, attach the nut and tighten it to a torque of 60 Nm. Fit the anchor to the piston valve and secure with the collar screw (tightened to 7 Nm). The anchor adapter sleeve should lie flush with the flat face of the piston valve. Ensure that the camshaft timing mechanism is retarded (in a clockwise direction, up to the end stop).

IMPORTANT: The flanged shaft collar screws must be used only once. Ensure therefore that new collar screws (supplied) are used when refitting.

13. Fitting the chain tensioner

With the chain tensioner removed, pull out the end-piece and conical nipple. Now pull the retaining pin and compression spring out of the chain tensioner casing. Then remove the setbolt and stop spring from the housing by pushing them forwards. Now fit the setbolt and stop spring from the back, inserting them in such a way that the setbolt lies flush with the front of the housing. Screw the pre-assembled housing into the timing case cover and then tighten to 80 Nm.

Fit the end-piece, along with a new conical nipple, and tighten to 40 Nm.

IMPORTANT: Check for leaks immediately after starting up the engine for the first time.

14. Checking the timing adjustment

After turning the engine over manually, alignment must be such that the gauge rods can once more be inserted into the alignment holes.

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15. Fitting the front cover

Work following step 6 in reverse order. The preferred sealant is Omnifit FD 10, applied in blobs to the corners on the left and right-hand sides.

16. Fitting the cylinder head cover

Tighten fixing the fixing bolts to 9 Nm

IMPORTANT: Check the cylinder head gasket for correct alignment.

17. Refill the radiator

Part 2 - Electrical connection

Fitting procedure

1. Fitting the BRABUS add-on control unit

The BRABUS add-on control unit is fitted in the space next to the unit (with the plug facing downward) and held in place with two screws. (See circuit diagram at the end of part 2 of the fitting instructions)

2. Connecting the cable loom

Run the four-core cable with two compact plugs from the compact plug of the BRABUS control unit via the cable conduits and on to the reversing valve of the resonance intake tube. Now detach the compact plug of the original cable loom from the reversing valve and plug in the BRABUS cable loom.

Connecting the green-**coloured (US colored)** wire:

C Class (W 202): Unscrew the 36-pin diagnosis socket and disconnect the wire **coloured (US colored)** green and yellow from pin No. 17. Now solder the green wire from the BRABUS add-on control unit to the green and yellow wire.

E Class (W 124): Unscrew the 16-pin diagnosis socket and disconnect the wire **coloured (US colored)** green and yellow from pin No. 10. Now solder the green wire from the BRABUS add-on control unit to the green and yellow wire.

Connecting the brown wire:

Attach the brown wire from the BRABUS add-on control unit to the main unit **earth (US ground)** connection.

(See circuit diagram at the end of part 2 of the fitting instructions)

3. Reconnect the battery.

BRABUS Customer Service Hotline: +49 (0)2041/777/260 or 263

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Parts list for the BRABUS B5 / B6 performance kit

Item Nos. 000-695-00 (B5) and 000-696-00 (B6)

Quantity	Article No.	Description
1	000-622-53	B5/B6 camshaft
12	000-622-60	BRABUS valve springs outer intake
12	000-622-61	BRABUS valve springs inner intake
1	000-622-01	BRABUS control unit
1	000-622-11	Cable loom
6	120 990 0204	Camshaft sprocket bolt
1	017 997 2148	Cooling water centre (US center) tube conical nipple
1	017 997 2348	Conical nipple for fitting between cooling water thermostat and front cover
1	000-622-80	Camshaft timing control element spacer ring
12	104 053 0425	Valve spring plate (normal key)
12	111 053 0025	Valve spring plate (three-way key)
1	000-695-04	B5 identification sticker
1	000-695-05	B6 identification sticker
1	140-000-14	BRABUS tailgate logo
1	104 015 0120	Gasket
1	000-610-00	Pressure control
6	WE 219 151 600	Spark plug NGK BCP 6 ES
1		Tag: engine tune-up data

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Addition to the assembly instruction for the BRABUS performance kit B5 / B6**Installation of an adjustable gasoline pressure controller**

The original rear gasoline pressure controller has to be exchanged by the added adjustable gasoline pressure controller.

At first lower the gasoline pressure by opening the test connection, then disassemble the original pressure controller by loosening the jumping ring.

After the assembly of the adjustable gasoline controller a gasoline pressure of 3.8 bar is adjusted by running engine and joined vacuum line. Connect therefor a manometer to the test connection.

Installation of special spark plugs

The original spark plugs have to be exchanged by the added spark plugs (**NGK BCP 6 ES**).

Changed electric connection for the W 210 (E 280 / E 320)Connecting the diagnostic unit (in the fuse box)

PIN 13
cable green / yellow

Assembly position for additional control unit

fuse box behind diagnostic unit

Changed electric connection B6 for the G 463 (G 320) (until 07.96)Connecting the diagnostic unit (16 pole)

PIN 10
cable white / grey

Assembly position for additional control unit

sheet metal on the left of the battery

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Changed electric connection B6 for the G 463 (G 320) (from 07.96)

Connecting the diagnostic unit

PIN 13
cable white / grey

Assembly position for additional control unit

in module box on the right