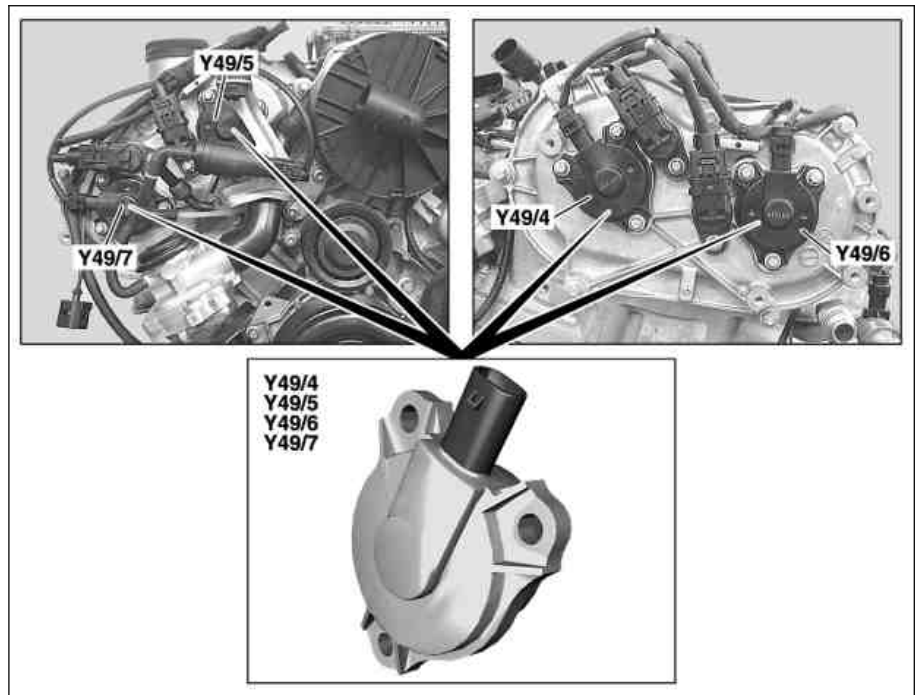


ENGINE 272.920 in MODEL 203 up to Model Year 8
ENGINE 272.922 in MODEL 211
ENGINE 272.940 in MODEL 203 up to Model Year 8
ENGINE 272.941 in MODEL 203 up to Model Year 8
ENGINE 272.942 in MODEL 171 up to Model Year 8
ENGINE 272.943 in MODEL 211, 219
ENGINE 272.944 in MODEL 211
ENGINE 272.945 in MODEL 251 up to Model Year 8
ENGINE 272.946 in MODEL 221 up to Model Year 8
ENGINE 272.960 in MODEL 203 up to Model Year 8
ENGINE 272.963 in MODEL 171 up to Model Year 8
ENGINE 272.964 in MODEL 211, 219
ENGINE 272.965 in MODEL 221 up to Model Year 8
ENGINE 272.966 in MODEL 230 up to Model Year 8
ENGINE 272.967 in MODEL 164, 251 up to Model Year 8
ENGINE 272.970 in MODEL 203 up to Model Year 8
ENGINE 272.972 in MODEL 211
ENGINE 272.975 in MODEL 221 up to Model Year 8
ENGINE 272.985 in MODEL 211, 219
ENGINE 273.922 in MODEL 221 up to Model Year 8
ENGINE 273.923 in MODEL 164 up to Model Year 8
ENGINE 273.924 in MODEL 221 up to Model Year 8
ENGINE 273.960 in MODEL 211, 219
ENGINE 273.961 in MODEL 216, 221 up to Model Year 8
ENGINE 273.962 in MODEL 211
ENGINE 273.963 in MODEL 164, 251 up to Model Year 8
ENGINE 273.965 in MODEL 230 up to Model Year 8
ENGINE 273.967 in MODEL 209
ENGINE 273.968 in MODEL 221 up to Model Year 8
ENGINE 272.940 in MODEL 209
ENGINE 272.960 in MODEL 209

Y49/4 *Left camshaft intake solenoid*
 Y49/5 *Right camshaft intake solenoid*
 Y49/6 *Left camshaft exhaust solenoid*
 Y49/7 *Right camshaft exhaust solenoid*

Location

The solenoids are located in front of the respective camshaft.



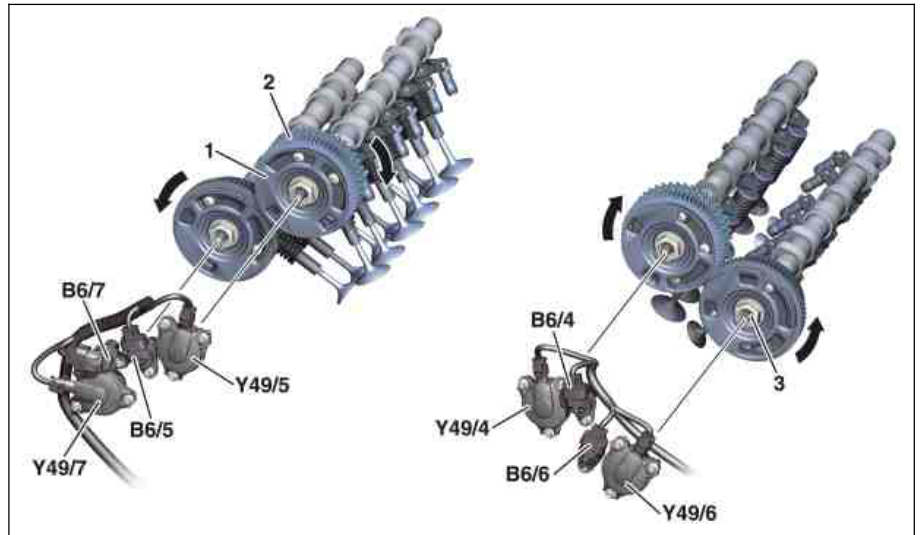
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Task

The solenoids actuate the control plunger on the vane-cell adjuster according to the performance map related duty cycle. Depending on their position, more or less pressure oil flows from the hollow camshaft into the oil galleries of the vane-type adjuster.

Design

The solenoids for camshaft adjustment are designed as proportional magnets, i.e. the direction of the armature and thus the position of the control plunger in the vane-type adjuster are dependent on the intensity of the current in the coil.



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Shown on engine 272

- 1 *Right Intake camshaft pulse wheel*
- 2 *Right intake camshaft vane-type adjuster*
- 3 *Left intake camshaft control plunger*

- B6/4 *Left intake camshaft Hall sensor*
- B6/5 *Right intake camshaft Hall sensor*

- B6/6 *Left exhaust camshaft Hall sensor*
- B6/7 *Right exhaust camshaft Hall sensor*
- Y49/4 *Left camshaft intake solenoid*
- Y49/5 *Right camshaft intake solenoid*
- Y49/6 *Left camshaft exhaust solenoid*
- Y49/7 *Right camshaft exhaust solenoid*

Function

The solenoids before the camshafts are actuated by the ME control unit at the ground end by means of a PWM signal (150 Hz). The voltage supply for the solenoid takes place from circuit 87. The vane-cell adjuster are actuated according to the performance map related duty cycle.

The maximum current (duty cycle 100 %) is emitted for a short time (about 0.5 seconds) for rapid adjusting of the anchor. A hold-in winding voltage with a small duty cycle is then set afterwards. The coil resistance at room temperature is approx. 7.5 Ω.

Depending on their position, the oil volume in the vane-type adjusters is controlled. This takes place through differently arranged holes in the control plunger as well as through oil ducts in the vane-cell adjusters. The adjusting range of the camshaft is limited by the forming of the vane-cell adjuster mechanically. If the solenoids are no longer actuated then resetting takes place against the direction of rotation.

The following positions are possible:

- **Filling the oil gallery**
Pressure oil flows out of the hollow camshafts into the vane-cell adjuster. The camshafts adjust themselves to the respective direction of rotation. The inlet camshafts adjust to "advanced". The exhaust camshafts adjust themselves due to their reversed direction of rotation to "retarded".

- **Oil gallery closed**
Each camshaft position is detected by a camshaft Hall sensor. Once the requested adjustment has been achieved then the respective solenoid will be actuated in such a way that oil galleries in the vane-cell adjusters are closed.
- **Emptying the oil gallery**
The camshafts adjust themselves against their direction of rotation.