SB-10053485-6738

SI B12 15 13
Engine

July 2013
Technical Service

SUBJECT
N20 and N26 Engine: Various VANOS System Faults Stored in DME

MODEL
E84

E89

F10

F25

F30

F31

F34

SITUATION
The Service Engine Soon lamp is illuminated; Engine Malfunction warning is illuminated; and the vehicle has reduced power output. Various faults related to VANOS operation are stored in the DME. While performing the test plan, the results may appear to be inconclusive because the fault will not clear from DME Fault Memory.

The ISTA/D diagnostic test plan does incorporate a VANOS bleed function, but it does not advise the technician to bleed the VANOS system after a VANOS or engine oil supply component replacement.

CAUSE
This is due to an error in the current level of ISTA/D. The error will be corrected with ISTA/D 2.41.0.

PROCEDURE
The following procedures, in conjunction with completing the applicable test plan, will help diagnose and repair the vehicle.

Follow the applicable test plan for the faults stored in the DME.

Test plans “AT1214_TVD_VMA- VANOS solenoid valve, exhaust” and/or “AT1214_TVD_VME- VANOS solenoid valve, inlet” may request the camshaft timing be checked. Disregard this statement and continue troubleshooting.

If the test plan advises replacement of a component, and that component is not a VANOS or engine oil supply component, only replace that component and do not bleed the system (example: position sensor, electrical connector, electrical harness). No further action is necessary.

If the replaced component requires removal and/or replacement of a component in the oil supply circuit from the engine oil pump and/or VANOS oil supply system, bleeding may be needed before clearing the faults in the DME.

Bleed Procedure:

Drive the vehicle for approximately 15 minutes. After the engine oil has reached operating temperature, the vehicle can be brought back to the workshop for fault clearing. After clearing the faults, drive the vehicle again to ensure the repair is effective.

If the result of the test plan is inconclusive, submit diagnosis feedback and refer to the diagnostics hints listed below.

DME faults for VANOS intake or exhaust (not both)

1. If the VANOS system is only faulted on one camshaft control, swap the actuators between the camshafts (example: move intake to exhaust and exhaust to intake). If the problem continues, proceed to step 2. If the problem is rectified, replace the affected actuator.
2. If only one VANOS is faulted, intake or exhaust, the problem is most likely isolated to that specific camshaft control. Replace the VANOS central valve and VANOS adjustment unit for the camshaft that is faulted.

Bleed Procedure:

Drive the vehicle for approximately 15 minutes. After the engine oil has reached operating temperature, the vehicle can be brought back to the workshop for fault clearing. After clearing the faults, drive the vehicle again to ensure the repair is effective.

DME faults for VANOS intake and exhaust VANOS (both)

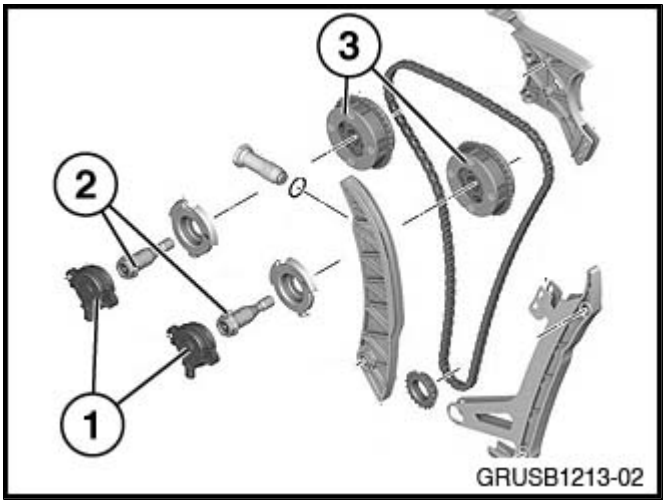
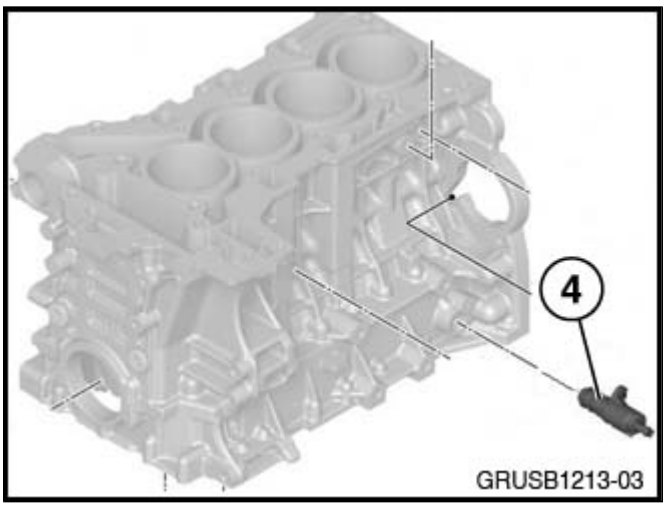
If both intake and exhaust VANOS systems are faulted, it is unlikely the actuators are faulty. The most likely cause will be a component related to the oil supply of the VANOS system. Replace the oil pump volume control valve. See component #4 in the system overview below.

Bleed Procedure:

Drive the vehicle for approximately 15 minutes. After the engine oil has reached operating temperature, the vehicle can be brought back to the workshop for fault clearing. After clearing the faults, drive the vehicle again to ensure the repair is effective.

Component Overview:

	1. Actuators 2. VANOS central valve 3. VANOS adjustment units, intake and exhaust

	
	4. Engine oil pump volume control valve (hydraulic valve)

WARRANTY INFORMATION

Not applicable.