



TT00025

Ticking Noise or Misfire on 2005-14 GM V8 Engines with AFM

Engine ticking or misfires seem to be affecting cylinders 1, 4, 6 and or 7 on some 2005-14 GM V-8 engines with AFM (Active Fuel Management).

Causing this ticking or misfire condition may be the result of an AFM lifter that unlocks as soon as the engine is started or one that is mechanically collapsed / stuck all of the time.

If an AFM lifter unlocks as soon as the engine is started, low compression will be found on that cylinder during an AFM compression test, along with the SES light, DTC PO300 and engine misfires on the related cylinders, but it is unlikely that any noise will be experienced.

If an AFM lifter is mechanically collapsed/stuck, low compression will be found on that cylinder during an AFM compression test, along with a consistent valve train tick noise, SES light, DTC PO300 and engine misfires on the related cylinders.

These lifter concerns may be the result of internal locking pin damage, which may occur if the response time of an AFM lifter unlocking event is:

- É Decreased due to low oil pressure
- É Oil aeration
- É Internal engine sludge
- É VLOM (Valve Lifter Oil Manifold) wear
- É Plastic lifter guide wear
- É Lifter bore wear
- É Cam lobe wear

GM offers the following diagnostic steps in determining if this is the problem:

1. Perform a Cylinder Deactivation (Active Fuel Management) System Compression Test. If the running compression of the misfiring cylinders stays below 25 PSI regardless of the AFM solenoid being commanded on or off, and AFM lifter is mechanically collapsed/stuck or unlocking as soon as the engine is started.
2. Perform a Cylinder Deactivation (Active Fuel Management) Valve Lifter Oil Manifold Diagnosis and Testing. If the test is procedure #1 isolated a possible AFM Lifter concern, it will lead to this test, which tests the VLOM for proper operation. GM states a limited amount of air will leak from the bleed holes and outlets ports even when the solenoids are off, compare the amount of leakage to verify all 4 solenoids are operating the same. If it isolates a concern with the VLOM, replace it and reevaluate the concern.

2. The AFM lifters can also be monitored for proper operation by carefully inspecting the cylinder numbers 1, 4, 6 & 7 rockers and valves while cranking or briefly and safely running the engine with the valve covers removed. If the valve(s) of an AFM cylinder stop moving while doing this test, the AFM lifter is causing the concern.

NOTICE:

ÉCarefully inspect the camshaft lobes to ensure that they are not worn as well as the lifter bores for any scoring/damage that could be a concern.

ÉWhen reassembling the engine, ensure that the lifters are properly aligned to the new plastic lifter guides before they are installed. If they are not properly aligned, it may damage the plastic lifter guide once it is torqued, which may allow the lifter to turn in the guide.

ÉLow oil pressure to the VL0M can also cause AFM lifter damage. Generally most known good vehicles will have around 25 PSI or greater oil pressure at hot idle with new engine oil. If oil pressure is 21 PSI or below with new engine oil, then damage could occur to the AFM lifters.

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