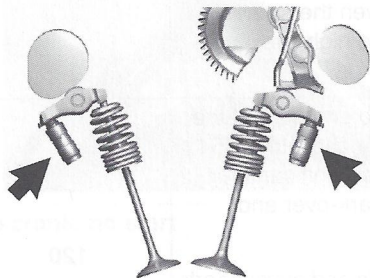


Intermittent lifter noise (N52 engine)



An occasional ticking or rattling noise from the hydraulic valve adjusters (HVA) elements may occur during cold engine starts or frequent short-distance driving. This condition can not cause any damage to the engine, and usually remedies itself with a longer driving distance or operating times at full operating temperature.

In this situation, the lifters can bleed down or have trapped air causing ticking/rattling noise and may require bleeding, as described below. The bleed time may take anywhere from two minutes to a maximum of 30 minutes.

Procedure preconditions:

- Engine running at operating temperature
- Vehicle stationary on a level surface in a properly ventilated area
- Engine oil level correct – not underfilled or overfilled

1. Bring engine up to an operating speed (no load) of 2000 - 3000 rpm and maintain this speed for three minutes.
2. Let engine idle for 15 - 30 seconds. Listen for whether the noise is still present:
 - If engine is quiet, procedure is finished.
 - If engine noise still present, repeat procedure; perform steps 1 and 2 up to a maximum of 5 times.

If the noise remains after performing the bleeding procedure 5 times: proceed by performing the procedure for a final time, also at an engine operating speed of 2000 - 3000 rpm, but for a total time duration of 15 minutes. If noise returns after multiple bleedings, the cylinder head may be faulty and require replacement.