

M139 Engine: Poor Performance Due to Broken Valve Spring(s)

Topic number	LI01.30-P-075439
Version	1
Function group	01.30 - Cylinder head
Date	10/17/22
Validity	All vehicles equipped with M139 engine
Reason for change	

Complaint

Customer may complain of a CEL on in the instrument cluster, rough running, trouble starting, issues with ECO stop/start or a combination thereof.

Cause

One or more broken valve springs in the cylinder head.

Remedy

Work through the guided tests for any relevant fault codes.

For misfire related fault codes this will include:

- Inspecting the injector performance data for abnormalities
- Using a smoke machine to inspect for air leaks
- Performing a compression and leakage test

Depending on the severity of the failure, a broken valve springs may be able to be found in a compression/leakage test. If not it may also show up on a PICO running compression test.

To verify the best method is to remove the cylinder head cover and inspect the valve springs directly

If a broken valve spring is found:

- Inspect the valve, rocker, retainer, and keepers on that assembly for damage.
- Inspect the camshaft and camshaft lobe that operates that valve
- Inspect the piston face via borescope for piston/valve contact

Also perform a leak test once the valve is able to be fully seated to ensure no damage to the valve or seat has occurred.

If no damage to the piston or valve seat has occurred, replaced the damaged components and release the vehicle.

If valve seat or piston damage has occurred please open a PTSS case, upload the results of all tests, and outline what work has been conducted thus far.

XENTRY TIPS

Symptoms

Power generation > Engine management > Indicator lamp > Engine diagnosis > lit

Control unit/fault code

Control unit	Fault text
N3/10 - Motor electronics 'MRG1AMGR4' for combustion engine 'M139' (ME) (MRG1AMGR4)	P030100 - Combustion misfiring of cylinder 1 has been detected. _
	P030200 - Combustion misfiring of cylinder 2 has been detected. _
	P030300 - Combustion misfiring of cylinder 3 has been detected. _
	P030400 - Combustion misfiring of cylinder 4 has been detected. _

Operation numbers/damage codes

Op. no.	Operation text	Time	Damage code	Note
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