

Clattering/rattling engine noise on deceleration

Topic number	LI03.10-P-060916
Version	11
Function group	03.10 Connecting rods, pistons
Date	09-15-2016
Validity	Engine 274.920 (LS) Modified wrist pins are installed as of engines: 274 920 E0 043259 (as of about April 20, 2015) and 274 920 30 406602 (as of about March 27, 2015)
Reason for change	edit

Complaint:

Clattering/rattling or knocking noise from the crank assembly of the engine when cold at oil temperatures up to approx. 50°C mostly heard on engine deceleration.

The noise diminishes with the increased engine temperature and is unnoticeable with engine at operating temperature.

Attachments	
File	Description
M274 LS engine noise.MP3	noise example

Cause:

The knocking noise might be attributed to the unfavorable tolerance of the piston wrist pin resulting in enlarge end float of the connecting rod in the piston.

Remedy:

Note:

The following tests must be performed with the engine cold (engine oil temperature must be lower than 50°C):

- Compare engine sound with another vehicle and to attached sound file (the normal sound related to the injectors shutting off during engine deceleration or other general sounds of operation of an direct injected engine might be mistaken for an abnormal engine noise).
- Perform other checks; switch on and off electrical consumers (A/C, lights, radio, etc.) and assess engine sound
- Observe any changes in noise levels with oil pressure switch disconnected and drive belt removed
- Increase the idle speed (constant rpm) and engine load and assess whether the noise changes
- Assess engine noise at engine oil temperature >80°C

If it is determined that the complaint relates to that described under "Cause", the repair would require replacement of all connecting rods, pistons and rod bearings (some needed replacement parts are listed in parts table).

Note:

XENTRY TIPS

It is no longer required ordering individual pistons, connecting rods and bearings since kit containing these parts is now available (refer to parts information table).

The Lanchester balancer bolts must be replaced during repair.

Refer to the EPC for other parts needed in repairs outside of the piston kit.

Note:

Refer to the attachment for a WIS draft document with instructions for pistons r&r - or go to temporary postings on STI. Follow other WIS documents during repair (such as instructions for adjusting backlash play at Lanchester balancer).

Note:

Please ensure parts availability before scheduling an appointment for repairs. Follow parts return policy on replacement parts as the pistons and rods will be inspected at the QEC

Attachments	
File	Description
Remove_install piston.pdf	Remove/install piston

Parts						
Part number	ES1	ES2	Designation	Quantity	Note	EPC
A 002 990 24 03			Lanchester balancer bolt	2		X
A 003 990 04 03			Lanchester balancer bolt	2		X
A 274 016 00 20			Cylinder head gasket	1		X
A 000 016 05 69			Cylinder head bolts	10		X
A 274 037 03 00			Piston repair kit	1		X

Operation numbers/damage codes				
Op. no.	Operation text	Time	Damage code	Note
94-1013	LOCATE NOISE		03304 17	
54-7989	D/C GROUND LINE		03304 17	
83-1762	4MATIC ONLY - A/C DRAIN FILL		03304 17	4matic only. 205.048 A/C compressor stays connected, moved to side
01-2800	ENGINE REMOVE/INSTALL		03304 17	
01-4270	ENGINE STAND		03304 17	
01-5765	CYLINDER HEAR R&R		03304 17	
03-7061	PISTONS R&R		03304 17	
03-7311	PISTON RINGS		03304 17	
83-6623	4MATIC ONLY A/C DRYER		03304 17	4matic only. 205.048 A/C refrigerant lines not opened
54-0650	12V		03304 17	

XENTRY TIPS

54-1011	QUICK TEST		03304 17	
40-6500	4MATIC ONLY ALIGNMENT		03304 17	May claim necessary adjustments. See ASRA
27-2110	DEFLANGE TRANS		03304 17	
61-1069	FRONT BELLY PANS		03304 17	
61-1116	LEFT REAR UNDERPANEL		03304 17	
61-1117	RIGHT REAR UNDERPANEL		03304 17	
01-3032	4MATIC ONLY. ENGINE ON/OFF SUB-FRAME		03304 17	

WIS-References

Document number	Title	Note	Allocation
AR01.10-P-2401MRA	Remove/install engine with transmission		Remedy
AR01.30-P-5800MRB	Remove/install cylinder head		Remedy
AR03.20-P-1100MRA	Remove/install Lanchester balancer		Remedy