Rattling noise after engine start for several seconds

Topic number	LI05.10-P-056435
Version	14
Function group	05.10 Timing chain drive, toothed belt drive
Date	12-11-2019
Validity	Engine 157: Up to engine 1579xx 60 047752 Engine 2768: Up to engine 2768xx 30 001281 Engine 2769: Up to engine 2769xx 30 406603 Engine 278: Up to engine 2789xx 30 191843 It is no longer required to provide PTSS cases in related repairs.
Reason for change	Validity revised. Cause revised. Remedy revised.
Reason for block	

Complaint:

Engine rattling after engine start for several seconds.

Attachments	
File	Description
Rasselgeräusch nach Motorstart.mp3	Rattling noise after engine start

Cause:

The secondary chain tensioners produce a rattling noise until the engine oil pressure has built up. No consequential damage is to be expected.

Other causes not related to secondary chain tensioners are also possible and not described in this LI..

Remedy:

Replacement of secondary chain tensioners on left and right and installation of a check valve in the oil supply bore of each secondary chain tensioner in the cylinder head on left and right.

Order the chain tensioners from the parts service according to the engine number as per EPC.

Order the check valves from the parts service after checking the diameter of the oil supply bore in cylinder heads.

Engine 157:

Up to engine 1579xx 60 022333, install chain tensioners and check valves.

From engine 1579xx 60 022334 to engine 1579xx 60 047752, install chain tensioners only.

Engine 2768:

Up to engine 2768xx 30 000790, install chain tensioners and check valves.

From engine 2768xx 30 000791 to engine 2768xx 30 001281, install check valves only.

Engine 2769:

Up to engine 2769xx 30 365996, install chain tensioners and check valves.

From engine 2769xx 30 365997 to engine 2769xx 30 406603, install check valves only.

Engine 278:

Up to engine 2789xx 30 103675, install chain tensioners and check valves.

From engine 2789xx 30 103676 to engine 2789xx 30 191843, install chain tensioners only.

Note:

Other systems / components might also cause engine noises at start up, outside of the situation described by this LI. Workshops should correctly diagnose the noise origin. In case of any further escalation, obtain noise recordings in various conditions (cold, warm engine or two stages of oil pressure) and provide a current quick test and a control unit log.

Attachments	
File	Description
Rückschlagventil montieren.pdf	Installation instructions for check valve
assembling of check valve.pdf	Installation instructions for check valve

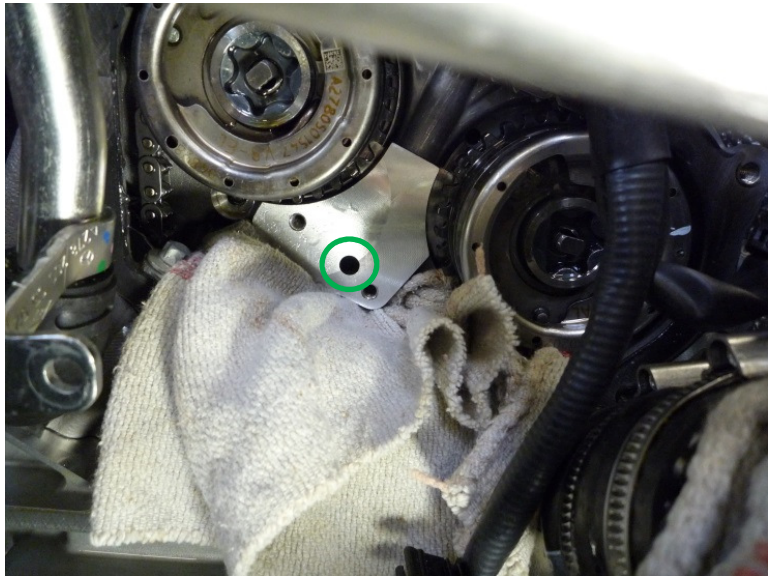
Symptoms
Power generation / Engine noise / Noise

Parts						
Part number	ES1	ES2	Designation	Quantity	Note	EPC
A 278 050 33 00			Check valve	2	This check valve may only be installed in cylinder heads with a stepped oil supply bore. Please check the bore in accordance with the instructions.	X
A 278 050 40 00			Check valve	2	This check valve may only be installed in cylinder heads with an oil supply bore that is not stepped. Please check the bore in accordance with the instructions.	X
W27658900330 0			Press-in tool	1	Special tool	

Operation numbers/damage codes				
Op. no.	Operation text	Time	Damage code	Note
01-5702	LEFT FRONT COVER		05131 36	
05-7806	RIGHT TENSIONER AND CHECK VALVE		05131 36	

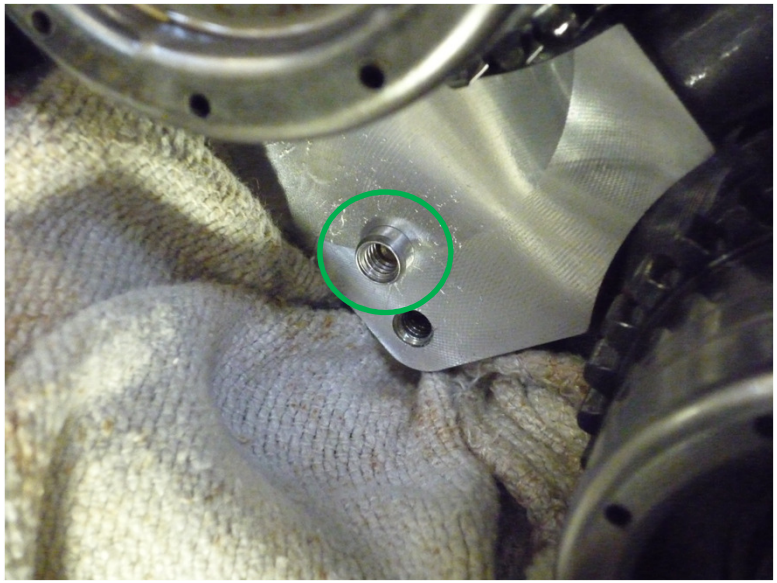
01-5703	RIGHT FRONT COVER		05131 36	
05-7807	LEFT TENSIONER AND CHECK VAL-VE		05131 36	
01-6853	FOR SOME 278 ONLY- ADDITIONAL OPCODE		05131 36	This is for oil cooler. Some M278 & M157 opcodes include this work in 015702

Validity		
Vehicle	Engine	Transmission
*	276.950	*
*	276.955	*
*	276.958	*
*	276.957	*
*	276.824	*
*	276.821	*
*	276.956	*
*	276.960	*
*	276.952	*
*	276.820	*
*	276.826	*
*	276.850	*
*	276.825	*
*	276.823	*
*	276.954	*
*	278	*
*	157	*



Kettenspanner demontieren.
Kettenschacht so abdecken dass keine Teile in den Motor fallen können.
Prüfung des Durchmessers der Ölversorgungsbohrung mit Bohrer-Schaft Ø8,0mm.
Lässt sich Schaft des Bohrers in die Ölversorgungsbohrung stecken, dann Rückschlagventil A278 050 33 00 verwenden, sonst Rückschlagventil A278 050 40 00 verwenden.

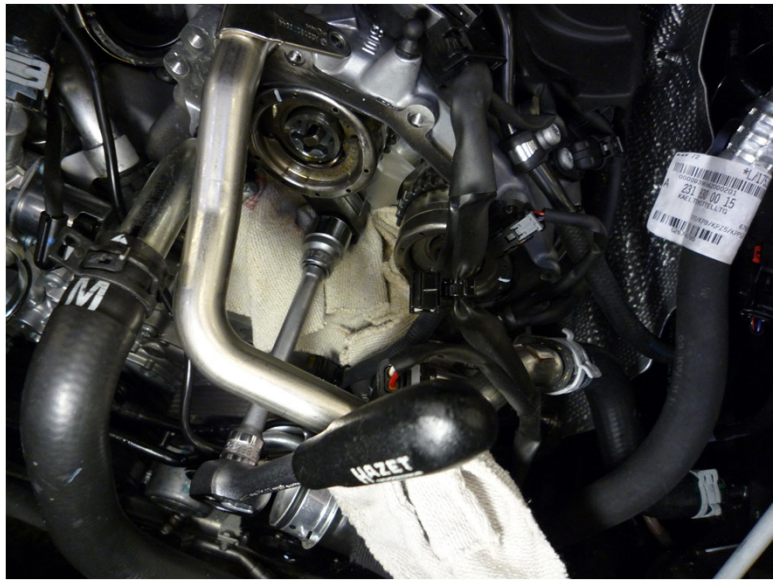
Dargestellt Zylinderkopf links



Rückschlagventil leicht beölen und bis zum Anschlag in die Ölbohrung einschieben (Geschlossene Seite mit Kugel zeigt nach hinten, die offene Seite mit Gewinde nach vorn).

Dargestellt Zylinderkopf ohne Stufenbohrung

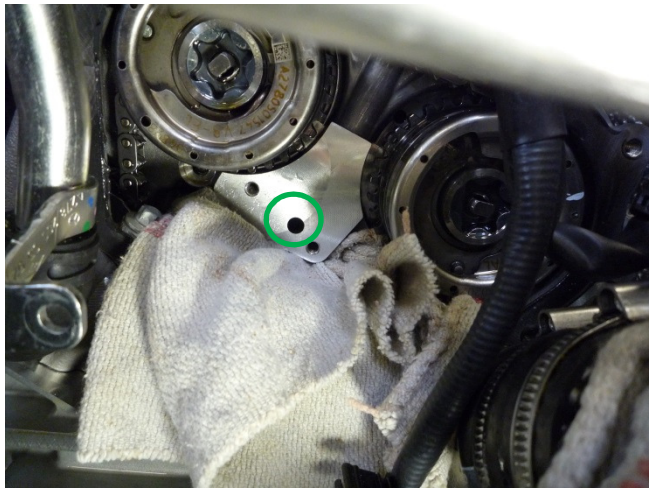
Einpresswerkzeug W276 589 00 33 00 in den Befestigungsbohrungen für den Kettenspanner verschrauben.
Drehmoment 5 Nm



Einpressen des Rückschlagventils durch drehen der Druckspindel des Einpresswerkzeugs bis Druckplatte bündig am Zylinderkopf anliegt (Rückschlagventil darf nicht überstehen).

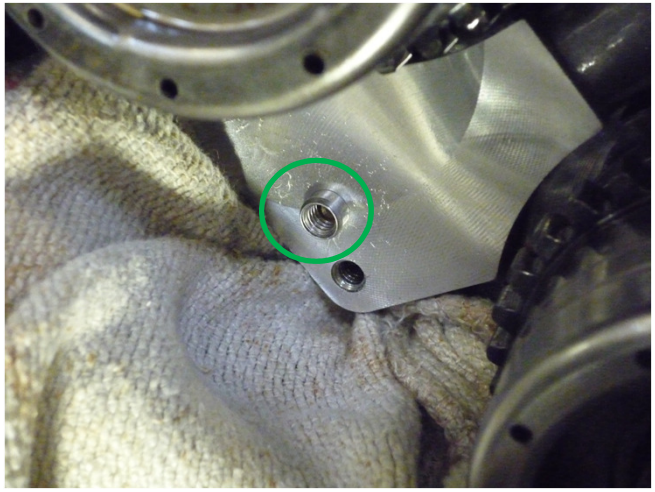
Nach Demontage des Einpresswerkzeugs prüfen ob das Rückschlagventil bündig mit der Zylinderkopffläche abschließt.

Kettenspanner montieren.



Remove the chain tensioner.
Cover the area to prevent objects falling into engine.
Check the diameter of the oil bore with a stem of a drill bit Ø8,0mm. If the stem of the drill can be inserted into the bore, use the check valve A278 050 33 00, otherwise use the check valve A278 050 40 00.

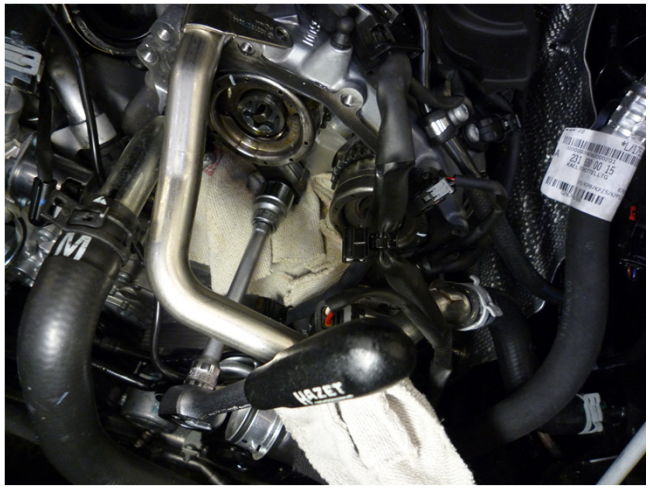
Cylinder head left side



Oil outside surface and insert the check valve into the oil bore, the ball side first. The thread side of the check valve will be facing out.

Cylinder head without counter sink bore

Fasten the special tool - Installer W276 589 00 33 00 to threaded holes of the chain tensioner.



Press in the check valve by turning the pressure screw on the special tool. The special tool pressure plate will push the check valve flash with the cylinder head surface.

Ensure that the check valve is flush with the cylinder head surface - after installation.

Install the chain tensioner.