

Engine runs irregularly and it shakes - Indicator lamp lights up

Topic number	LI03.10-N-075843
Version	1
Function group	03.10 - Connecting rods, pistons
Date	2/13/23
Validity	Model 906, 907 with engine 642/651 and code ZU7/ZU8 (Canada, USA)
Reason for change	Only valid for Canada and USA

Complaint

Engine runs irregularly and it shakes. Indicator lamp lights up.

Information: Fault codes for injectors and/or combustion misfires may be stored in the CDI control unit:

- On engine 642 cylinder 6 is affected.
- On engine 651 cylinder 2 is affected.

Cause

Charge air from the exhaust gas recirculation is condensed after being introduced into the charge air section.

Information: Under certain operating conditions, condensation that has collected in the charge air cooler can enter the combustion chamber to a damaging degree and a damage profile is then generated (connecting rod bent).

Remedy

Perform following testing and diagnosis operations

1. Connect diagnostic system.
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2. Perform initial quick test and document result.

Information: For fault codes (current or stored) on injector and/or combustion misfires in the CDI control unit, continue with operation step 3.

Information: If there are no fault codes on the injector or combustion misfires in the CDI control unit, conduct further research on the exact reason for the customer complaint and initiate corresponding repair measures.

3. Detach the charge air hoses from the inlet and outlet fittings on the charge air cooler and check if there is any condensation there.

Information: If any condensation is detected, it must be removed.

XENTRY TIPS

4. Check air filter and air filter housing for any fluid entry.

Information: If any fluid is detected, it must be removed.

5. Perform compression test using XENTRY Diagnosis.

Information: If noticeable problems are found (speed deviations), continue with operation step 6.

Information: If no noticeable problems are found, conduct further research on the exact reason for the customer complaint and initiate corresponding repair measures.

6. Check compression pressure using compression pressure recorder.

Information: If, when checking the compression pressure using the compression pressure recorder (on engine 651 this affects cylinder 2 and on engine 642 cylinder 6) a pressure difference is detected to the other 3 or 5 cylinders that is greater than 3 bar, you can assume that the connecting rod is damaged or bent. If noticeable problems are found, continue with operation step 7.

Information: If no noticeable problems are found, conduct further research on the exact reason for the customer complaint and initiate corresponding repair measures.

7. Remove fuel injectors.

8. Manually position the cylinders - one after the other - at ignition TDC, and insert a vernier caliper through the fuel injector slot to measure the distance to the piston.

Information: When measuring/comparing the piston distances in TDC, the dimensional differences for the individual pistons must not deviate from each other.

Information: If there are any noticeable problems (deviation in piston position at TDC) continue with operation step 9.

9. Replace or repair engine.

Information:

- On vehicles covered by warranty: Replace engine.

- On vehicles not covered by warranty, Please inspect the crankcase and cylinder for damage:

Scenario 1: If damage is found: replace engine (offer replacement engine).

Scenario 2: If no damage is found to crankcase and/or cylinder: Please repair engine or offer replacement engine.

WIS-References		
Document number	Title	Note
SI01.10-S-0001A	Service Information bulletin: Standardized procedure for engine problems	

XENTRY TIPS

Symptoms
Power generation > Engine noise > Noise
Power generation > Engine management > Engine running > Surges
Power generation > Engine management > Engine running > RPM too high/low
Power generation > Engine management > Engine running > Runs rough/shakes
Power generation > Engine management > Engine running > RPM reduces with delay
Power generation > Engine management > Indicator lamp > Engine diagnosis > lit
Power generation > Engine management > Indicator lamp > Electronic diesel control > lit
Power generation > Engine management > Engine performance > No/poor output
Power generation > Engine management > Function > Malfunction
Power transmission > Function > Vibrates

Control unit/fault code	
Control unit	Fault text
N3/28 - Motor electronics 'CDI61NFZ' for combustion engine 'OM642' (CDI) (CR61NFZ)	P300A0D - Teach-in of the operating parameters for cylinder 6 has a malfunction. P3004DA - Combustion misfiring of cylinder 6 has been detected. P3004C6 - Combustion misfiring of cylinder 6 has been detected.
N3/28 - Motor electronics 'CDI61NFZ' for combustion engine 'OM642' (CDI) (CR61NFZ)	P3004DA - Combustion misfiring of cylinder 6 has been detected. P3004C6 - Combustion misfiring of cylinder 6 has been detected.
N3/33 - Motor electronics 'CR41' for combustion engine 'OM651' (CDI) (CR41)	P02CF00 - The learned value for the fuel injector (cylinder 4) has reached the upper limit value. (Reihenfolge Zündung!)
N3/33 - Motor electronics 'CR41' for combustion engine 'OM651' (CDI) (CR41)	P02CF00 - The learned value for the fuel injector (cylinder 4) has reached the upper limit value. (Reihenfolge Zündung!)
N3/28 - Motor electronics 'CDID3' for combustion engine 'OM651' (CDI) (Code: MA4 MP6 MP8 MA6 MB6) (CRD3NFZ)	P026685 - Teach-in of the operating parameters for cylinder 2 has a malfunction. There is a signal above the permissible limit value.
N3/31 - Motor electronics 'CDID3S2' for combustion engine 'OM651' (CDI) (CRD3S2NFZ)	P310179 - Teach-in of the operating parameters for cylinder 2 has a malfunction. Calibration is missing. P3100F9 - Teach-in of the operating parameters for cylinder 2 has a malfunction. There is a signal above the permissible limit value.
N3/31 - Motor electronics 'CDID3S2' for combustion engine 'OM651' (CDI) (CRD3S2NFZ)	P310179 - Teach-in of the operating parameters for cylinder 2 has a malfunction. Calibration is missing. P3100F9 - Teach-in of the operating parameters for cylinder 2 has a malfunction. There is a signal above the permissible limit value.

Operation numbers/damage codes

XENTRY TIPS

Op. no.	Operation text	Time	Damage code	Note
			03201A3	Connecting rod – warped The listed damage code is not to be considered as an acceptance of costs. The general guidelines in the Warranty Manual apply.