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Title: 2013-14 N13 Cylinder Pack - Update for Excessive Lubrication Oil Consumption

Applies To: 2013-14 N13 ESN: 4300000-4315712

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

05/24/2017 - Added rod bearing service information, removed oil filter kit from parts list - included in head kit.
 04/24/2017 - Added parts notes for turbo oil line and exh manifold bolts in head kit.
 04/10/2017 - Removed turbo oil supply line from parts list - included in kit.
 02/27/2017 - Tooling Part Number Correction
 02/20/2017 - Added additional caution information on torquing rods.
 02/13/2017 - Changed Noun to 192

DESCRIPTION

On certain N13A engines serial numbers ranging from **4300000 - 4315712**. Carbon can build up on the top lands of the pistons and cause the piston rings to stick leading to loss of oil control in the power cylinders and increased oil consumption.

An updated cylinder kit is now available to address this condition. The updated liner integrates a removable "anti-polish" carbon scraping ring which sits in a machined counterbore. This anti-polish ring (APR) has a smaller internal diameter than the rest of the liner that allows it to scrape carbon off of the top land of the piston during normal operation. This action of continuously removing carbon buildup from the top land of the piston prevents the rings from carbon packing and losing oil control in the power cylinders.

CAUTION:

Before beginning this procedure, please check warranty repair history in Service Portal. If APR cylinder kits have already been installed, do not proceed through this article without contacting Tech Services first.

NOTE:

APR liners cannot be mismatched with standard liners. If for any reason the APR liner needs to be installed in an engine equipped with standard liners, all 6 will need to be updated.

SYMPTOM(s)

Excessive Lubrication Oil Consumption (as defined by the Diagnostic Manual)

SPECIAL TOOL(s) / SOFTWARE

Tool Description	Tool Number
Tool, Piston Cope	12-146-01
Cylinder Sleeve Puller	ZTSE2536
Socket, Head Bolt (E24 Torx)	ZTSE4787
Socket, External Torx (E18)	ZTSE4835
Tap, M18x2 Bottoming (Head)	ZTSE4855
Bracket, Cylinder Head Lifting	12-342-03
Set MaxxForce 11&13 Cap & Plug	ZTSE4891

SERVICE PARTS INFORMATION

CAUTION:

The following component inspections and/or replacements are not covered under warranty for this repair:

- Oil Pump
- Main Bearing
- Turbo
- Fuel Injector
- Oil Cooler
- Engine Oil (Recommended to repair at time of maintenance interval)
- Engine Coolant
- Cylinder Head

Any additional parts that are replaced will be considered customer responsibility.

NOTE:

The parts listed in the table below are to be replaced under warranty during the warranty period. This is an update to correct the symptom of oil consumption on 2013 +N13 Engines and is not considered a mileage overhaul.

CAUTION:

The N13 Engine has two different cylinder liners available in the Parts Catalog. It is important to verify that the most up to date liner is being installed. Follow the parts listed below.

Kit Description	Part Number	Quantity Required	Notes
KIT, CYLINDER HEAD REMOVAL	3007651C99*	1	Includes new turbo oil supply line and thin flange exh manifold bolt kit.
KIT, GASKET 13L CYLINDER HEAD	62039010402*	1	
GASKET, OIL PAN	3003425C2*	1	
KIT, PSTN SLV & RING (718 13L)	2514508C91*	6	
BEARING KIT, CONNECTING ROD NORMAL	2513433C91*	6	*SEE CAUTION NOTES AND BEARING INFORMATION BELOW*
ROD BOLTS	62904900079*	12	
PICKUP TUBE O-RING 32 X 5	06569361612*	1	
KIT, EXHAUST MANIFOLD BOLTS	2512877C91	1	For use with thick flange exhaust manifold if equipped. See IK1201253 for manifold ID
KIT, TURBOCHARGER SUPPLY LINE FITTINGS	2512772C91	1	Only needed if the turbo line has NOT been updated previously.
GASKET	2601233C1	2	Only needed if aftertreatment is being serviced - DOC/DPF Gaskets
GASKET 4" EXH PIPE FLANGE	3846392C1	1	Only needed if aftertreatment is being serviced - DOC Outlet Pipe Gasket

NOTE: Items marked with an asterisk (*) are required

DIAGNOSTIC STEP(s)

Follow: [2013 N13 Engine Diagnostic Manual](#) for oil consumption diagnostics.

REPAIR STEP(s)

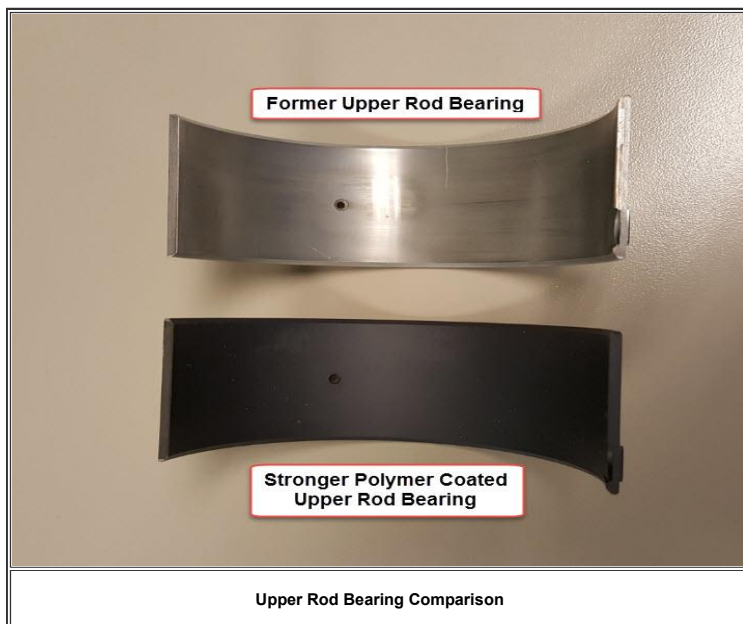
Follow: [2013 N13 Engine Service Manual](#) for base engine repairs.

CAUTION:

13L connecting rod bolt torque is CRITICAL. Lightly lubricate the underside of the new rod bolt head and threads with clean 30W engine oil. Follow the torquing procedure EXACTLY as written in the latest Service Manual using a calibrated torque wrench

CONNECTING ROD BEARING SERVICE INFORMATION

The 2513433C91 bearing set contains a stronger polymer coated upper bearing which is darker in color. This bearing replaces the former 3004714C91 and has been in service since 2015. The coating was added due to increased cylinder pressures found in the 2015 N13. There are no dimensional changes in the bearing, and it is backward compatible to all MaxxForce and N13 engines.



CONNECTING ROD TORQUE PROCEDURE BEST PRACTICES

- Always use new rod bolts
- Apply a LIGHT coating of engine oil to the threads and underside of the bolt head prior to installation. Do not dip the bolt in oil.
- Never set the rod or rod cap on the fractured mating faces.
- Clean the fracture faces, rod bearing saddles, bolt threads, and crank journal with cleaner such as Brake Clean, then blow dry with filtered air.
- NEVER use a rag or towel to wipe the fractured rod mating faces.
- Only use clean engine oil on the new bearings.
- Using a calibrated torque wrench, torque the bolts BY HAND in all three steps exactly as published in the Service Manual. Do not short cut by using unapproved methods.
- Do not use extensions on the torque wrench.
- It is critical to torque bolts on each cap evenly to the initial 22 ft.-lbs. before advancing to the next value. This will properly seat the cap to the rod. Do not fully torque one side then the other.
- Check the Service Manual regularly for procedural changes.
- Do not rotate crankshaft until connecting rod bolts are fully torqued as this may cause bearing to rotate in place
- Lubricate the oil pick up tube and O-ring prior to assembly.
- Ensure the oil pick up tube is fully seated in the engine block. If not, aeration and oil pressure loss can occur causing severe damage to the engine.

WARRANTY INFORMATION

Warranty Claim Coding:


Group:	12000 - ENGINES
Noun:	192 - Sleeve, Cylinder

Standard Repair Time(s):

Description	Chassis	Engine	SRT	Notes
12 - PISTON AND/OR SLEEVE (I-6), REPLACE	Models, ALL	N13	A12-1192US	ONE
			A12-1192US-11	EACH ADDITIONAL
12 - CYLINDER HEAD OR REPLACE GASKET (13L), R & R AND/OR REPLACE	Models, ALL	N13	A12-1342US	

OTHER RESOURCES

[Master Service Information Site](#)

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