OIL REPORT

LAB NUMBER: [redacted] **UNIT ID:** 09 328XI
REPORT DATE: 10/16/2020 **CLIENT ID:** [redacted]
CODE: [redacted] **PAYMENT:** [redacted]

UNIT

MAKE/MODEL: BMW 3.0L (N51B30) I-6
FUEL TYPE: Gasoline (Unleaded)
ADDITIONAL INFO: E90
OIL TYPE & GRADE: Castrol Edge 5W/40
OIL USE INTERVAL: 2,661 Miles

CLIENT

[redacted]
PHONE: [redacted]
FAX:
ALT PHONE:
EMAIL: [redacted]

COMMENTS

[redacted] Thanks for the notes. Aluminum, iron, and copper tested high in this sample. Aluminum can show piston/bearing wear, iron comes from steel parts like cylinders and shafts, and copper is from brass/bronze parts. For reference, averages show wear for the N51 after ~6,500 miles. Metals could primarily be wear-in from the recent work you mentioned, but if the rattle continues and/or worsens then we wouldn't rule out excess wear. If you're able to check/watch oil pressure, do so. A loss in pressure can be a sign of a problem. Check back in about 2,000 miles.

ELEMENTS IN PARTS PER MILLION

		UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
MI/HR on Oil	2,661							
MI/HR on Unit	134,360							
Sample Date	10/3/2020							
Make Up Oil Added	1 qt							
ALUMINUM	**19**	19						8
CHROMIUM	1	1						0
IRON	**47**	47						14
COPPER	**123**	123						8
LEAD	0	0						1
TIN	1	1						1
MOLYBDENUM	5	5						67
NICKEL	3	3						0
MANGANESE	1	1						2
SILVER	0	0						0
TITANIUM	22	22						8
POTASSIUM	1	1						2
BORON	53	53						52
SILICON	7	7						5
SODIUM	7	7						8
CALCIUM	2686	2686						2336
MAGNESIUM	60	60						198
PHOSPHORUS	903	903						826
ZINC	1049	1049						966
BARIUM	0	0						0

PROPERTIES

		Values Should Be*					
SUS Viscosity @ 210°F	66.1	65-78					
cSt Viscosity @ 100°C	11.92	11.6-15.3					
Flashpoint in °F	415	>385					
Fuel %	<0.5	<2.0					
Antifreeze %	0.0	0.0					
Water %	0.0	0.0					
Insolubles %	0.2	<0.6					
TBN	5.8	>1.0					
TAN							
ISO Code							

*** THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE**

416 E. PETTIT AVE. FORT WAYNE, IN 46806 (260) 744-2380 www.blackstone-labs.com