



OIL REPORT

LAB NUMBER: F68768

UNIT ID: 07 E86 Z4 MC

REPORT DATE: 8/14/2013

CLIENT ID: 30388

CODE: 44/75

PAYMENT: CC: AmEx

UNIT

MAKE/MODEL: BMW 3.2L (S-54) Inline 6 Cylinder
FUEL TYPE: Gasoline (Unleaded)
ADDITIONAL INFO: 2007 - Runs this car at High-Performance Driving Schools At Times.

OIL TYPE & GRADE: Red Line 10W/60
OIL USE INTERVAL: 3,563 Miles

CLIENT

JAMES S. MILLET
1436 NW 202ND LN
SHORELINE, WA 98177

PHONE: (206) 542-5237
FAX:
ALT PHONE:
EMAIL: JSMILLET@gmail.com

COMMENTS

JAMES: Red Line likes to use a little sodium as an additive, but usually more like 20-30 ppm. You've got more than that here, though sodium did come down a little. Lead, on the other hand, went up a little, so we can't dismiss the possibility of a developing issue. This is a race engine so it will typically have a different wear pattern than a street S-54. You can see this engine's averages in the unit/location column, and lead is an outlier. The viscosity is okay for this grade. Suggest staying at 3,000-3,500 miles on the oil until we know more about potential coolant.

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	3,563	UNIT / LOCATION AVERAGES	4,055	4,902	3,790	4,006	4,533	UNIVERSAL AVERAGES
	MI/HR on Unit	46,428		42,865	38,810	33,908	30,118	26,112	
	Sample Date	08/06/13		09/25/12	03/24/12	07/26/11	10/27/10	04/11/10	
	Make Up Oil Added	0 qts		0 qts	0 qts	0 qts	0 qts	0 qts	
	ALUMINUM	3	5	5	5	5	5	4	4
	CHROMIUM	0	0	0	0	0	0	0	0
	IRON	8	10	9	8	8	9	8	10
	COPPER	6	5	4	4	5	5	4	8
	LEAD	21	4	10	7	6	0	3	5
	TIN	0	0	0	0	0	0	0	1
	MOLYBDENUM	602	3	2	1	4	3	1	25
	NICKEL	1	1	0	0	0	0	1	1
	MANGANESE	1	1	1	1	1	1	1	2
	SILVER	0	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	0	1
	POTASSIUM	7	2	4	6	3	2	2	2
	BORON	47	109	107	106	105	104	112	89
	SILICON	8	4	4	3	4	4	4	5
	SODIUM	73	26	83	28	26	27	19	7
CALCIUM	2154	1545	1680	1562	1532	1470	1705	1724	
MAGNESIUM	152	609	661	596	600	559	637	512	
PHOSPHORUS	1052	855	924	826	844	818	922	845	
ZINC	1290	1044	1124	1000	981	998	1247	1011	
BARIUM	0	0	0	0	0	0	0	0	

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	101.5	80-110	88.2	93.9	90.0	86.2	87.8
	cSt Viscosity @ 100°C	20.70	15.5-22.9	17.55	18.91	17.99	17.06	17.45
	Flashpoint in °F	400	>395	400	400	330	370	400
	Fuel %	<0.5	<2.0	<0.5	<0.5	2.3	TR	<0.5
	Antifreeze %	?	0.0	?	0.0	0.0	0.0	0.0
	Water %	0.0	<0.1	0.0	0.0	0.0	0.0	0.0
	Insolubles %	TR	<0.6	0.3	0.0	0.0	TR	TR
	TBN							
	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