



# OIL REPORT

LAB NUMBER:  
 REPORT DATE: 6/27/2018  
 CODE: 44/980

UNIT ID:  
 CLIENT ID:  
 PAYMENT:

UNIT	EQUIP. MAKE/MODEL: Harley Davidson 1200cc V-Twin	OIL TYPE & GRADE: Red Line Motorcycle 20W/50
	FUEL TYPE: Gasoline (Unleaded)	OIL USE INTERVAL: 5,000 Miles
	ADDITIONAL INFO: 2013 Sportster Evolution	

CLIENT	PHONE:
	FAX:
	ALT PHONE:
	EMAIL:

**COMMENTS** Copper and silicon went up again, but not by much. We can't rule out poor brass/bronze wear, but there's typically more than just high copper when there's a serious issue going on. We're wondering if instead the excess copper has a different, harmless source like oxides from an oil cooler. In any event, it's hard to call copper a problem, as it's been relatively steady as of late and the other metals look quite good. We're not sure why it was lower in 2015 and 2016, but this oil typically uses silicon as additive so 28 ppm isn't too troublesome. The PC read 24/20/17.

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	5,000	UNIT / LOCATION AVERAGES	5,000	5,000	5,000	5,000	4,080	UNIVERSAL AVERAGES
	MI/HR on Unit	30,000		25,000	20,000	15,000	10,000	5,140	
	Sample Date	6/18/2018		8/9/2017	10/12/2016	2/20/2016	6/14/2015	7/29/2014	
	Make Up Oil Added	0 qts		0 qts	0 qts	0 qts	0 qts	0 qts	
ALUMINUM	2	6	8	1	3	5	13	5	
CHROMIUM	0	0	0	0	0	1	0	1	
IRON	4	9	6	5	8	12	11	11	
COPPER	84	156	72	75	132	263	278	16	
LEAD	2	5	1	1	4	6	12	2	
TIN	3	10	3	3	9	27	17	1	
MOLYBDENUM	430	307	461	403	456	375	21	60	
NICKEL	0	1	0	0	1	1	1	1	
MANGANESE	0	0	0	0	0	0	1	0	
SILVER	0	0	0	1	0	0	0	0	
TITANIUM	0	0	0	0	0	0	0	0	
POTASSIUM	3	8	1	4	7	11	11	2	
BORON	13	98	23	13	15	48	258	152	
SILICON	28	18	24	8	10	11	14	9	
SODIUM	7	8	7	10	7	11	9	29	
CALCIUM	2395	2111	2528	2214	2703	2242	1286	1878	
MAGNESIUM	10	249	12	16	45	156	726	428	
PHOSPHORUS	1648	1391	1703	1516	1676	1540	755	991	
ZINC	1980	1791	2177	1811	2315	2046	1107	1187	
BARIUM	2	3	3	3	3	3	3	1	

Values Should Be\*

PROPERTIES	SUS Viscosity @ 210°F	97.1	75-99	99.1	103.9	98.8	PARTICLE COUNT	ISO CODE (2)	20/17
	cSt Viscosity @ 100°C	19.67	14.3-20.4	20.14	21.26	20.08		NAS 1638 Class	12
	Flashpoint in °F	430	>385	410	420	430		ISO CODE (3)	24/20/17
	Fuel %	<0.5	<2.0	<0.5	<0.5	<0.5		SAE AS4059 cpc	12
	Antifreeze %	-	0.0	-	-	-		4 Micron	95886.4
	Water %	0.0	<0.1	0.0	0.0	0.0		6 Micron	7971.4
	Insolubles %	0.1	<0.6	0.2	TR	0.2		14 Micron	1139.4
	TBN							21 Micron	412.8
	TAN							38 Micron	42.4
	ISO Code	24/20/17		24/20/15	24/18/14	24/21/14		70 Micron	2.2

\* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

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