

OIL ANALYSIS REPORT

Sample Rating Trend





CATERPILLAR 980M L56

Component

Diesel Engine

PETRO CANADA DURON HP 15W40 (10 GAL)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

Wear

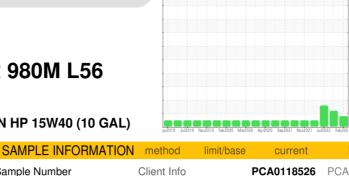
All component wear rates are normal.

Contamination

Light fuel dilution occurring. No other contaminants were detected in the oil.

Fluid Condition

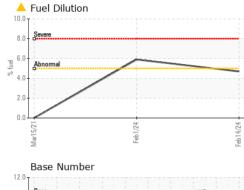
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

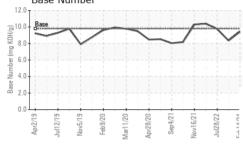


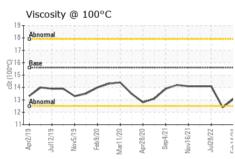
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0118526	PCA0118533	PCA0016745
Sample Date		Client Info		14 Feb 2024	01 Feb 2024	28 Jul 2022
Machine Age	hrs	Client Info		15973	15764	11436
Oil Age	hrs	Client Info		205	250	300
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				MARGINAL	ABNORMAL	ABNORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method	7 0.2	NEG	NEG	NEG
-			1''-			
WEAR METALS	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6	14	17
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	1	2	<1
Lead	ppm	ASTM D5185m	>40	0	<1	2
Copper	ppm	ASTM D5185m	>330	2	5	4
Tin	ppm	ASTM D5185m	>15	<1	<1	1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current <1	history1 <1	history2 2
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	<1	<1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	<1 3	<1 <1	2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 3 57	<1 <1 63	2 0 57
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 3 57 0	<1 <1 63 <1	2 0 57 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 3 57 0 861	<1 <1 63 <1 945	2 0 57 <1 907
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 3 57 0 861 976	<1 <1 63 <1 945 1048	2 0 57 <1 907
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 3 57 0 861 976 932	<1 <1 63 <1 945 1048 866	2 0 57 <1 907 997 968
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 3 57 0 861 976 932 1110	<1 <1 63 <1 945 1048 866 1211	2 0 57 <1 907 997 968 1181
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 3 57 0 861 976 932 1110 3069	<1 <1 63 <1 945 1048 866 1211 2918	2 0 57 <1 907 997 968 1181 2967
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	<1 3 57 0 861 976 932 1110 3069 current	<1 <1 63 <1 945 1048 866 1211 2918 history1	2 0 57 <1 907 997 968 1181 2967 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	<1 3 57 0 861 976 932 1110 3069 current	<1 <1 63 <1 945 1048 866 1211 2918 history1 5	2 0 57 <1 907 997 968 1181 2967 history2 ▲ 55
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25	<1 3 57 0 861 976 932 1110 3069 current 3	<1 <1 63 <1 945 1048 866 1211 2918 history1 5 0	2 0 57 <1 907 997 968 1181 2967 history2 ▲ 55 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >20	<1 3 57 0 861 976 932 1110 3069 current 3 0 2	<1 <1 63 <1 945 1048 866 1211 2918 history1 5 0 2	2 0 57 <1 907 997 968 1181 2967 history2 ▲ 55 2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >20 >5	<1 3 57 0 861 976 932 1110 3069 current 3 0 2	<1 <1 63 <1 945 1048 866 1211 2918 history1 5 0 2 5.9	2 0 57 <1 907 997 968 1181 2967 history2 55 2 1 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844	limit/base >25 >20 >5 limit/base >3	<1 3 57 0 861 976 932 1110 3069 current 3 0 2 ▲ 4.7 current 0.1	<1 <1 63 <1 945 1048 866 1211 2918 history1 5 0 2 ▲ 5.9 history1 0.2	2 0 57 <1 907 997 968 1181 2967 history2 ▲ 55 2 1 <1.0 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >20 >5 limit/base	<1 3 57 0 861 976 932 1110 3069	<1 <1 63 <1 945 1048 866 1211 2918 history1 5 0 2 ▲ 5.9 history1	2 0 57 <1 907 997 968 1181 2967 history2 ▲ 55 2 1 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	limit/base >25 >20 >5 limit/base >3 >20	<1 3 57 0 861 976 932 1110 3069	<1 <1 <1 63 <1 945 1048 866 1211 2918 history1 5 0 2 ▲ 5.9 history1 0.2 7.9	2 0 57 <1 907 997 968 1181 2967 history2 ▲ 55 2 1 <1.0 history2 0.4 9.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	limit/base >25 >20 >5 limit/base >3 >20 >3	<1 3 57 0 861 976 932 1110 3069	<1 <1 63 <1 945 1048 866 1211 2918 history1 5 0 2 ▲ 5.9 history1 0.2 7.9 18.2 history1	2 0 57 <1 907 997 968 1181 2967 history2 55 2 1 <1.0 history2 0.4 9.3 21.8 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAC	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7624 *ASTM D7624 *ASTM D7415 method	limit/base >25 >20 >5 limit/base >3 >20 >30 limit/base	<1 3 57 0 861 976 932 1110 3069 current 3 0 2 ▲ 4.7 current 0.1 6.6 18.2	<1 <1 63 <1 945 1048 866 1211 2918 history1 5 0 2 ▲ 5.9 history1 0.2 7.9 18.2	2 0 57 <1 907 997 968 1181 2967 history2 ▲ 55 2 1 <1.0 history2 0.4 9.3 21.8



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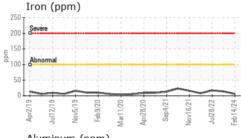


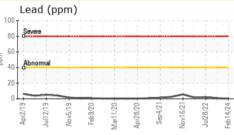


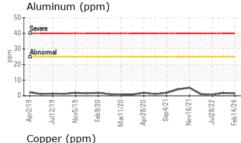
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

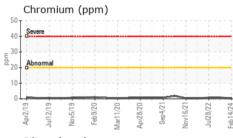
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Visc @ 100°C	cSt	ASTM D445	15.6	13.1	12.4	14.1	

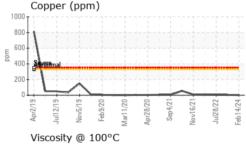
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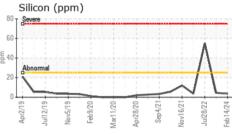


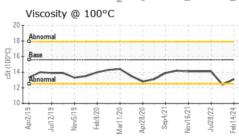


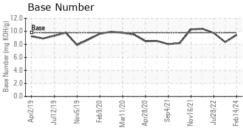














Laboratory Sample No. Lab Number : 06094386 Unique Number : 10887239

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0118526

Received **Tested** : 22 Feb 2024 - Wes Davis Diagnosed

: 20 Feb 2024

: 22 Feb 2024

SCRAP METAL SERVICES (SMS Mill Services LLC) 1500 COMMERCIAL AVE

MINGO JUNCTION, OH US 43938 Contact: FRANK NALLY

fnally@scrapmetalservices.com

Test Package: MOB 2 (Additional Tests: PercentFuel)

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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