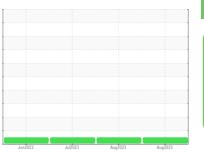


OIL ANALYSIS REPORT

Sample Rating Trend





NORMAL

VOLVO VNL 156 (S/N 4V4NC9EH4NN304348)

Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

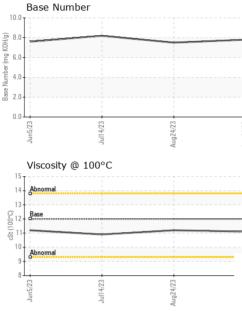
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0097558	PCA0097409	PCA0097650
Sample Date		Client Info		24 Aug 2023	24 Aug 2023	14 Jul 2023
Machine Age	mls	Client Info		269000	294000	242000
Oil Age	mls	Client Info		27000	27000	215000
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>100	15	16	19
Chromium	ppm ppm	ASTM D5185m	>20	<1	<1	<1
Nickel		ASTM D5185m	>2	0	0	<1
Titanium	ppm ppm	ASTM D5185m	<i>>L</i>	0	0	<1
Silver		ASTM D5185m	>2	0	0	0
Aluminum	ppm ppm	ASTM D5185m	>2	6	5	5
Lead		ASTM D5185m	>23	0 <1	5 <1	<1
Copper	ppm ppm	ASTM D5185m	>330	4	4	6
Tin		ASTM D5185m	>15	4 <1	4 <1	<1
Vanadium	ppm ppm	ASTM D5185m	>10	0	0	<1
Cadmium		ASTM D5185m		0	0	0
	ppm	ASTIVI DOTODIII		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	2	0	0	<1
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	2 0	0 0	0 0	<1 0
Boron Barium Molybdenum		ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	0 0 67	0 0 62	<1 0 62
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	0 0 67 <1	0 0 62 <1	<1 0 62 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	0 0 67 <1 1009	0 0 62 <1 954	<1 0 62 <1 1027
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	0 0 67 <1 1009 1098	0 0 62 <1 954 1003	<1 0 62 <1 1027 1140
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	0 0 67 <1 1009 1098 1097	0 0 62 <1 954 1003 1021	<1 0 62 <1 1027 1140 1068
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180	0 0 67 <1 1009 1098 1097 1332	0 0 62 <1 954 1003 1021 1231	<1 0 62 <1 1027 1140 1068 1259
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	0 0 67 <1 1009 1098 1097	0 0 62 <1 954 1003 1021	<1 0 62 <1 1027 1140 1068
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180	0 0 67 <1 1009 1098 1097 1332	0 0 62 <1 954 1003 1021 1231	<1 0 62 <1 1027 1140 1068 1259
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	0 0 67 <1 1009 1098 1097 1332 3625	0 0 62 <1 954 1003 1021 1231 3435	<1 0 62 <1 1027 1140 1068 1259 3651
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	2 0 50 950 1050 995 1180 2600	0 0 67 <1 1009 1098 1097 1332 3625 current	0 0 62 <1 954 1003 1021 1231 3435 history1	<1 0 62 <1 1027 1140 1068 1259 3651 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	2 0 50 950 1050 995 1180 2600 limit/base >25	0 0 67 <1 1009 1098 1097 1332 3625 current 5	0 0 62 <1 954 1003 1021 1231 3435 history1 4	<1 0 62 <1 1027 1140 1068 1259 3651 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	0 0 67 <1 1009 1098 1097 1332 3625 <u>current</u> 5 2	0 0 62 <1 954 1003 1021 1231 3435 history1 4 <1	<1 0 62 <1 1027 1140 1068 1259 3651 history2 5 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base	0 0 67 <1 1009 1098 1097 1332 3625 current 5 2 3	0 0 62 <1 954 1003 1021 1231 3435 history1 4 <1 3	<1 0 62 <1 1027 1140 1068 1259 3651 history2 5 2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >25 >20 Imit/base >3	0 0 67 <1 1009 1098 1097 1332 3625 current 5 2 3 3 2	0 0 62 <1 954 1003 1021 1231 3435 history1 4 <1 3 history1	<1 0 62 <1 1027 1140 1068 1259 3651 history2 5 2 4 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >25 >20 Imit/base >3	0 0 67 <1 1009 1098 1097 1332 3625 <u>current</u> 5 2 3 3 <u>current</u> 0.4	0 0 62 <1 954 1003 1021 1231 3435 history1 4 <1 3 history1 0.4	<1 0 62 <1 1027 1140 1068 1259 3651 history2 5 2 4 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	0 0 67 <1 1009 1098 1097 1332 3625 <i>current</i> 5 2 3 <i>current</i> 0.4 8.6	0 0 62 <1 954 1003 1021 1231 3435 history1 4 <1 3 history1 0.4 8.5	<1 0 62 <1 1027 1140 1068 1259 3651 history2 5 2 4 4 history2 0.4 7.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 0 50 0 950 1050 995 1180 2600 2600 25 20 220 20 20 20 20 20 20 20 20 20 20 20	0 0 67 <1 1009 1098 1097 1332 3625 <u>current</u> 5 2 3 3 <u>current</u> 0.4 8.6 18.5	0 0 62 <1 954 1003 1021 1231 3435 history1 4 <1 3 history1 0.4 8.5 18.7	<1 0 62 <1 1027 1140 1068 1259 3651 history2 5 2 4 history2 0.4 7.9 19.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	2 0 0 50 0 950 1050 995 1180 2600 2600 25 20 220 20 20 20 20 20 20 20 20 20 20 20	0 0 67 <1 1009 1098 1097 1332 3625 <i>current</i> 5 2 3 3 <i>current</i> 0.4 8.6 18.5 <i>current</i>	0 0 62 <1 954 1003 1021 1231 3435 history1 4 <1 3 history1 0.4 8.5 18.7 history1	<1 0 62 <1 1027 1140 1068 1259 3651 history2 5 2 4 history2 0.4 7.9 19.1



OIL ANALYSIS REPORT

VISUAL



o C	Aug24/23	White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water	scalar scalar scalar scalar scalar scalar scalar scalar r scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	NONE NONE NONE NONE NORE NORML NORML >0.2	NONE NONE NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NONE NONE NORML NORML NEG NEG
		FLUID PRO	PERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	12.00	11.1	11.2	10.9
		Non-ferrous M	etals	23 - Aug24/23	Aug24/23			
			Jull 4/23	Aug24/23	Aug24/23			
		Viscosity @ 10	- 00°C	Aug24/23	9 8 7 7 8 8 8 9 7 7 8 9 7 8 9 9 7 8 9 9 7 7 9 9 7 7 9 9 7 7 9 9 7 7 9 9 7 7 9 9 7 7 9 9 7 7 9 9 7 7 9 9 9 7 7 9		Juli 4/23	Aug <i>2</i> 4/23 Aug24/23
* - Denotes tes	t methods that a	: WearCheck US/ : PCA0097558 : <mark>05972008</mark> : 10683958	A - 501 Madis Received Diagnose Diagnose Service at 1-8	son Ave., Ca d : 06 (ed : 09 (ician : We 200-237-1368 pe of accrea	ry, NC 2751 Oct 2023 Oct 2023 s Davis 9. Jitation.	3	TV 1391 Contact: JOSI joshua@ T	A REPAIR LLC 5 W ROUTE 30 PLAINFIELD, IL US 60544 HUA HUBBARD tvarepairllc.com : (815)306-0330 F:

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