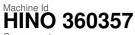


OIL ANALYSIS REPORT

Sample Rating Trend





Component **Diesel Engine**

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

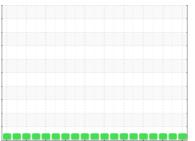
All component wear rates are normal.

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.





ug2016 Feb2017 Smc2017 Mac2018 Smc2018 Ant2020 Dmc2020 Feb2027 Smc2027 Lui202

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0098932	PCA0093109	PCA0070902
Sample Date		Client Info		27 Jul 2023	18 Mar 2023	17 Sep 2022
Machine Age	mls	Client Info		235621	231464	216253
Oil Age	mls	Client Info		0	0	9679
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	c	_	limit/bass		bioton/1	
		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	22	30	22
Chromium	ppm	ASTM D5185m	>20	<1	1	1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	0	<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	4	6
Lead	ppm	ASTM D5185m	>40	<1	1	2
Copper	ppm	ASTM D5185m		21	7	28
Tin	ppm		>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	ASTM D5185m	2	19	7	11
	ppm ppm		2	19 0	7 0	11 0
Boron		ASTM D5185m	2	19 0 66	7 0 63	11
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50 0	19 0 66 <1	7 0 63 2	11 0 72 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	19 0 66	7 0 63 2 887	11 0 72
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	19 0 66 <1 909 1187	7 0 63 2 887 1169	11 0 72 <1 878 1159
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	19 0 66 <1 909 1187 1036	7 0 63 2 887 1169 936	11 0 72 <1 878 1159 984
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	19 0 66 <1 909 1187 1036 1238	7 0 63 2 887 1169 936 1168	11 0 72 <1 878 1159 984 1177
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	2 0 50 0 950 1050 995	19 0 66 <1 909 1187 1036	7 0 63 2 887 1169 936	11 0 72 <1 878 1159 984
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	19 0 66 <1 909 1187 1036 1238	7 0 63 2 887 1169 936 1168	11 0 72 <1 878 1159 984 1177
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 ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base	19 0 66 <1 909 1187 1036 1238 3718	7 0 63 2 887 1169 936 1168 3101	11 0 72 <1 878 1159 984 1177 3615
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 0 950 1050 995 1180 2600 limit/base	19 0 66 <1 909 1187 1036 1238 3718 current	7 0 63 2 887 1169 936 1168 3101 history1	11 0 72 <1 878 1159 984 1177 3615 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 ASTM D5185m method ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25	19 0 66 <1 909 1187 1036 1238 3718 current 3	7 0 63 2 887 1169 936 1168 3101 history1 4	11 0 72 <1 878 1159 984 1177 3615 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25	19 0 66 <1 909 1187 1036 1238 3718 current 3 5	7 0 63 2 887 1169 936 1168 3101 history1 4 6	11 0 72 <1 878 1159 984 1177 3615 history2 2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25 >20 limit/base	19 0 66 <1 909 1187 1036 1238 3718 current 3 5 1	7 0 63 2 887 1169 936 1168 3101 history1 4 6 4	11 0 72 <1 878 1159 984 1177 3615 history2 2 5 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	19 0 66 <1 909 1187 1036 1238 3718 current 3 5 1 1	7 0 63 2 887 1169 936 1168 3101 history1 4 6 4 4 history1	11 0 72 <1 878 1159 984 1177 3615 history2 2 5 7 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3 >20	19 0 66 <1 909 1187 1036 1238 3718 current 3 5 1 1 current 0.6	7 0 63 2 887 1169 936 1168 3101 history1 4 6 4 4 history1 1.6	11 0 72 <1 878 1159 984 1177 3615 history2 2 5 7 7 history2 1.1
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 limit/base >25 >20 limit/base >3 >20	19 0 66 <1 909 1187 1036 1238 3718 <i>current</i> 3 5 1 <i>current</i> 0.6 8.3	7 0 63 2 887 1169 936 1168 3101 history1 4 6 4 4 history1 1.6 12.8	111 0 72 <1 878 1159 984 1177 3615 history2 2 5 7 history2 1.1 11.9
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 50 0 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20 >30	19 0 66 <1 909 1187 1036 1238 3718 current 3 5 1 1 current 0.6 8.3 19.4	7 0 63 2 887 1169 936 1168 3101 history1 4 6 4 4 6 4 history1 1.6 12.8 22.5	111 0 72 <1 878 1159 984 1177 3615 history2 2 5 7 history2 1.1 11.9 22.4
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	2 0 50 0 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20 >30	19 0 66 <1 909 1187 1036 1238 3718 <i>current</i> 3 5 1 <i>current</i> 0.6 8.3 19.4 <i>current</i>	7 0 63 2 887 1169 936 1168 3101 history1 4 6 4 4 6 4 4 history1 1.6 12.8 22.5 history1	11 0 72 <1 878 1159 984 1177 3615 history2 2 5 7 history2 1.1 11.9 22.4 history2



cSt (100°C) Ba

Abnorma

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Aug29/16

OIL ANALYSIS REPORT

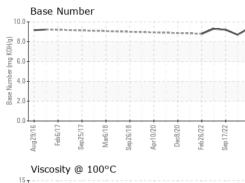
scalar

*Visual

NONE

VISUAL

White Metal



Feb26/22



NONE

NONE

NONE

* - 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)

Certificate L2367

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