

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 913058 Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

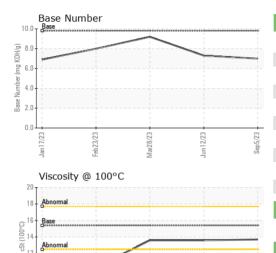
Fluid Condition

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

		Jan 2023	Feb 2023	Mar2023 Jun2023	Sep 2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0091455	GFL0071222	GFL0071191
Sample Date		Client Info		05 Sep 2023	12 Jun 2023	28 Mar 2023
Machine Age	hrs	Client Info		1970	1273	646
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	22	21	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>5	4	7	10
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	<1	<1	<1
Aluminum	ppm	ASTM D5185m	>20	0	<1	0
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	17	101	60
Tin	ppm	ASTM D5185m	>15	1	2	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base	current 2	history1	history2 26
	ppm ppm		0			
Boron	• • • • • • • • • • • • • • • • • • • •	ASTM D5185m	0	2	3	26
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2	3	26
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 61	3 0 63	26 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 61 <1	3 0 63	26 0 61
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 61 <1 1126	3 0 63 1 1001	26 0 61 1 999
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 0 61 <1 1126 1328	3 0 63 1 1001 1133	26 0 61 1 999 1156
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	0 0 60 0 1010 1070 1150	2 0 61 <1 1126 1328 1070	3 0 63 1 1001 1133 1005	26 0 61 1 999 1156 1056
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	2 0 61 <1 1126 1328 1070	3 0 63 1 1001 1133 1005 1277	26 0 61 1 999 1156 1056
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 61 <1 1126 1328 1070 1414 3379	3 0 63 1 1001 1133 1005 1277 3162	26 0 61 1 999 1156 1056 1334 3822
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 61 <1 1126 1328 1070 1414 3379	3 0 63 1 1001 1133 1005 1277 3162 history1	26 0 61 1 999 1156 1056 1334 3822 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 61 <1 1126 1328 1070 1414 3379 current	3 0 63 1 1001 1133 1005 1277 3162 history1	26 0 61 1 999 1156 1056 1334 3822 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	2 0 61 <1 1126 1328 1070 1414 3379 current 5	3 0 63 1 1001 1133 1005 1277 3162 history1 5	26 0 61 1 999 1156 1056 1334 3822 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	2 0 61 <1 1126 1328 1070 1414 3379 current 5 4	3 0 63 1 1001 1133 1005 1277 3162 history1 5 4	26 0 61 1 999 1156 1056 1334 3822 history2 9 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	2 0 61 <1 1126 1328 1070 1414 3379 current 5 4 2	3 0 63 1 1001 1133 1005 1277 3162 history1 5 4 0	26 0 61 1 999 1156 1056 1334 3822 history2 9 2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	2 0 61 <1 1126 1328 1070 1414 3379 current 5 4 2 current	3 0 63 1 1001 1133 1005 1277 3162 history1 5 4 0 history1 0.5	26 0 61 1 999 1156 1056 1334 3822 history2 9 2 3 history2 0.1
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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	2 0 61 <1 1126 1328 1070 1414 3379 current 5 4 2 current 0.6 8.4	3 0 63 1 1001 1133 1005 1277 3162 history1 5 4 0 history1 0.5 8.3	26 0 61 1 999 1156 1056 1334 3822 history2 9 2 3 history2 0.1 5.1
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 Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	2 0 61 <1 1126 1328 1070 1414 3379 current 5 4 2 current 0.6 8.4 20.4	3 0 63 1 1001 1133 1005 1277 3162 history1 5 4 0 history1 0.5 8.3 20.5	26 0 61 1 999 1156 1056 1334 3822 history2 9 2 3 history2 0.1 5.1 18.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D7415 Method	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	2 0 61 <1 1126 1328 1070 1414 3379 current 5 4 2 current 0.6 8.4 20.4	3 0 63 1 1001 1133 1005 1277 3162 history1 5 4 0 history1 0.5 8.3 20.5 history1	26 0 61 1 999 1156 1056 1334 3822 history2 9 2 3 history2 15.1 18.4 history2



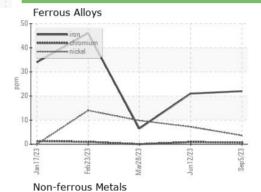
OIL ANALYSIS REPORT



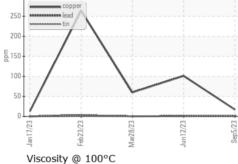
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

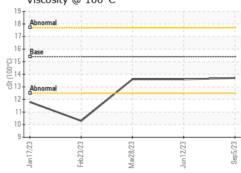
FLUID PROPE	RHES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.6	13.6

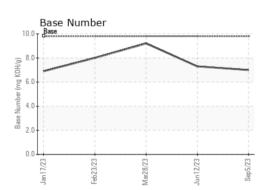
GRAPHS















Laboratory Sample No. Lab Number Test Package : FLEET

: GFL0091455 : 05946393 Unique Number : 10642352

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 08 Sep 2023 Diagnosed : 11 Sep 2023

Diagnostician : Wes Davis

GFL Environmental - 465 - Pontiac

888 Baldwin Pontiac, MI US 48340

Contact: Ricky Matthews rickymathews@gflenv.com T: (586)825-9514

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)