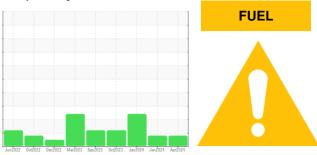


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

721072

Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition

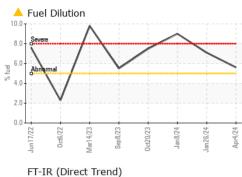
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

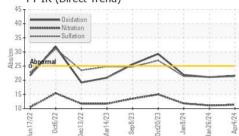
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0116026	GFL0092887	GFL0092882
Sample Date		Client Info		04 Apr 2024	26 Jan 2024	08 Jan 2024
Machine Age	hrs	Client Info		7989	7583	7442
Oil Age	hrs	Client Info		64346	0	64346
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	SEVERE
CONTAMINAT	ON	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	18	21	30
Chromium	ppm	ASTM D5185m	>20	0	2	1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>25	0	3	2
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	0	<1	<1
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 21	history1 24	history2 21
	ppm ppm	ASTM D5185m	0			
Boron		ASTM D5185m	0	21	24	21
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	21 0	24 0	21 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	21 0 60	24 0 60	21 0 54
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	21 0 60 0	24 0 60 <1	21 0 54 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	21 0 60 0 1170	24 0 60 <1 1007	21 0 54 0 1004
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	21 0 60 0 1170 889	24 0 60 <1 1007 744	21 0 54 0 1004 724
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm 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	21 0 60 0 1170 889 1120	24 0 60 <1 1007 744 962	21 0 54 0 1004 724 879
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	0 0 60 1010 1070 1150 1270	21 0 60 0 1170 889 1120 1317	24 0 60 <1 1007 744 962 1160	21 0 54 0 1004 724 879 1172
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	0 0 60 1010 1070 1150 1270 2060 limit/base	21 0 60 0 1170 889 1120 1317 4035	24 0 60 <1 1007 744 962 1160 3046	21 0 54 0 1004 724 879 1172 2908
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	0 0 60 1010 1070 1150 1270 2060 limit/base	21 0 60 0 1170 889 1120 1317 4035 current	24 0 60 <1 1007 744 962 1160 3046 history1	21 0 54 0 1004 724 879 1172 2908 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	0 0 60 1010 1070 1150 1270 2060 limit/base	21 0 60 0 1170 889 1120 1317 4035 current 4	24 0 60 <1 1007 744 962 1160 3046 history1 7	21 0 54 0 1004 724 879 1172 2908 history2 9
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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	21 0 60 1170 889 1120 1317 4035 <u>current</u> 4 5	24 0 60 <1 1007 744 962 1160 3046 history1 7 7	21 0 54 0 1004 724 879 1172 2908 history2 9 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	21 0 60 1170 889 1120 1317 4035 <u>current</u> 4 5 0	24 0 60 <1 1007 744 962 1160 3046 history1 7 7 7 2	21 0 54 0 1004 724 879 1172 2908 history2 9 6 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5	21 0 60 0 1170 889 1120 1317 4035 <u>current</u> 4 5 0 ► 5.6	24 0 60 <1 1007 744 962 1160 3046 history1 7 7 7 2 2 ▲ 7.1	21 0 54 0 1004 724 879 1172 2908 history2 9 6 1 1 ↓
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5 limit/base >3	21 0 60 1170 889 1120 1317 4035 current 4 5 0 0 5.6 current	24 0 60 <1 1007 744 962 1160 3046 history1 7 7 7 2 2 ▲ 7.1 history1	21 0 54 0 1004 724 879 1172 2908 history2 9 6 1 1 \$ 9.0 \$
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 D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 >5 imit/base >3 >20	21 0 60 1170 889 1120 1317 4035 current 4 5 0 ↓ 5.6 current 0.4	24 0 60 <1 1007 744 962 1160 3046 history1 7 7 7 2 2 ↓ 7.1 ↓ history1 0.4	21 0 54 0 1004 724 879 1172 2908 history2 9 6 1 1 9 6 1 1 9.0 1 bistory2 0.5
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 D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 >5 imit/base >3 >20	21 0 60 0 1170 889 1120 1317 4035 current 4 5 0 5.6 current 0.4 11.3	24 0 60 <1 1007 744 962 1160 3046 history1 7 7 2 7 2 2 ↓ 7.1 history1 0.4 11.1	21 0 54 0 1004 724 879 1172 2908 history2 9 6 1 9 6 1 9 9 0 5 1 9.0 1 1 9.0 1 1 8 9.0
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 D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5 limit/base >3 >20 >30	21 0 60 1170 889 1120 1317 4035 current 4 5 0 5 .6 current 0.4 11.3 21.3	24 0 60 <1 1007 744 962 1160 3046 history1 7 7 2 2 ▲ 7.1 history1 0.4 11.1 21.1	21 0 54 0 1004 724 879 1172 2908 history2 9 6 1 1 \$ 9.0 history2 0.5 11.8 0.5 11.8 21.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20 >30 imit/base >3	21 0 60 1170 889 1120 1317 4035 current 4 5 0 5.6 current 0.4 11.3 21.3 current	24 0 60 <1 1007 744 962 1160 3046 history1 7 7 2 ₹ 7.1 * 7.1 * 0.4 11.1 21.1 *	21 0 54 0 1004 724 879 1172 2908 history2 9 6 1 1 ● 9.0 history2 0.5 11.8 21.4

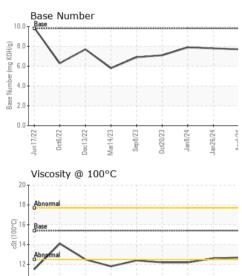


OIL ANALYSIS REPORT

Non-ferrous Metals





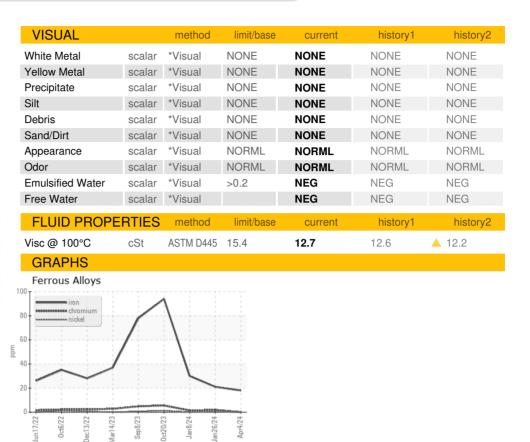


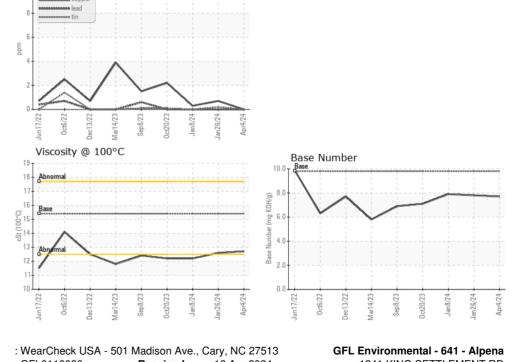
Vlar14/23

en8/23

Jan 8/24 an 26/24

0ct6/22 0cc13/22





Laboratory Sample No. : GFL0116026 Received : 12 Apr 2024 1241 KING SETTLEMENT RD Lab Number : 06146960 Tested : 17 Apr 2024 ALPENA, MI : 17 Apr 2024 - Wes Davis Unique Number : 10977038 Diagnosed US 49707 Test Package : FLEET (Additional Tests: PercentFuel) Contact: DYLAN TOLAN Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. dylan.tolan@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (989)854-7203 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) E:

Report Id: GFL641 [WUSCAR] 06146960 (Generated: 04/17/2024 16:17:31) Rev: 1

Submitted By: GFL463 and GFL641 - DYLAN TOLAN

Page 2 of 2