

OIL ANALYSIS REPORT

......

VISCOSITY

Machine Id

727089-361674

Component Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

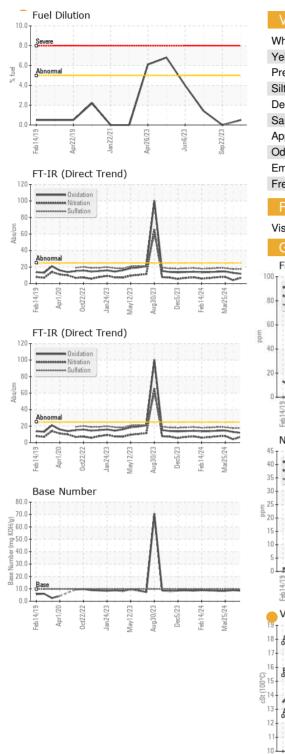
Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

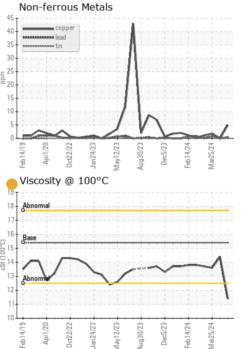
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0121558	GFL0105203	GFL0105114
Sample Date		Client Info		20 Jun 2024	11 Apr 2024	25 Mar 2024
Machine Age	hrs	Client Info		6996	6874	6750
Oil Age	hrs	Client Info		150	150	600
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				ATTENTION	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
-			11 11 11			
WEAR METAL		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m		6	0	20
Chromium	ppm	ASTM D5185m		<1	0	2
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	3	0	2
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m		5	0	2
Tin	ppm	ASTM D5185m	>15	<1	0	1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	<1
ADDITIVES						history2
ADDITIVES		method	IIIIII/Dase	current	history1	THSTOLAZ
Boron	ppm	ASTM D5185m	0	90	1	<1
	ppm ppm		0		1 0	
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	90 <1 11	1	<1
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	0 0 60 0	90 <1	1 0 51 0	<1 <1 60 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	90 <1 11 <1 647	1 0 51 0 842	<1 <1 60 <1 908
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	90 <1 11 <1 647 1262	1 0 51 0 842 952	<1 <1 60 <1
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	0 0 60 0 1010 1070 1150	90 <1 11 <1 647 1262 751	1 0 51 0 842 952 969	<1 <1 60 <1 908
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	0 0 60 1010 1070 1150 1270	90 <1 11 <1 647 1262 751 834	1 0 51 0 842 952 969 1106	<1 <1 60 <1 908 1083 1094 1193
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	0 0 60 0 1010 1070 1150	90 <1 11 <1 647 1262 751	1 0 51 0 842 952 969	<1 <1 60 <1 908 1083 1094
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	0 0 60 1010 1070 1150 1270	90 <1 11 <1 647 1262 751 834	1 0 51 0 842 952 969 1106	<1 <1 60 <1 908 1083 1094 1193
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	0 0 60 1010 1070 1150 1270 2060 limit/base	90 <1 11 <1 647 1262 751 834 2977	1 0 51 0 842 952 969 1106 3122	<1 <1 60 <1 908 1083 1094 1193 3095
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	0 0 60 1010 1070 1150 1270 2060 limit/base	90 <1 11 <1 647 1262 751 834 2977 current	1 0 51 0 842 952 969 1106 3122 history1	<1 <1 60 <1 908 1083 1094 1193 3095 history2 6 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25 >20	90 <1 11 <1 647 1262 751 834 2977 current 15 1 3	1 0 51 0 842 952 969 1106 3122 history1 4 0 0	<1 <1 60 <1 908 1083 1094 1193 3095 history2 6 <1 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	0 0 60 1010 1070 1150 1270 2060 limit/base >25 >20	90 <1 11 <1 647 1262 751 834 2977 current 15 1	1 0 51 0 842 952 969 1106 3122 history1 4 0	<1 <1 60 <1 908 1083 1094 1193 3095 history2 6 <1
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	0 0 60 1010 1070 1150 1270 2060 limit/base >25 >20	90 <1 11 <1 647 1262 751 834 2977 current 15 1 3	1 0 51 0 842 952 969 1106 3122 history1 4 0 0	<1 <1 60 <1 908 1083 1094 1193 3095 history2 6 <1 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5 limit/base	90 <1 11 <1 647 1262 751 834 2977 current 15 1 3 0.5	1 0 51 0 842 952 969 1106 3122 history1 4 0 0 0 <1.0	<1 <1 60 <1 908 1083 1094 1193 3095 history2 6 <1 2 <1.0
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	90 <1 11 <1 647 1262 751 834 2977 current 15 1 3 0.5 current	1 0 51 0 842 952 969 1106 3122 history1 4 0 0 0 <1.0 history1	<1 <1 60 <1 908 1083 1094 1193 3095 history2 6 <1 2 <1.0 history2
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 60 0 1010 1070 1150 1270 2060 imit/base >25 >20 >5 imit/base >3 >20	90 <1 11 <1 647 1262 751 834 2977 current 15 1 3 0.5 current 0.2	1 0 51 0 842 952 969 1106 3122 history1 4 0 0 0 <1.0 history1 0.1	<1 <1 60 <1 908 1083 1094 1193 3095 history2 6 <1 2 <1 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 60 0 1010 1070 1150 1270 2060 imit/base >25 >20 >5 imit/base >3 >20	90 <1 11 <1 647 1262 751 834 2977 current 15 1 3 0.5 current 0.2 6.9	1 0 51 0 842 952 969 1106 3122 history1 4 0 0 <1.0 kistory1 0.1 4.1	<1 <1 60 <1 908 1083 1094 1193 3095 history2 6 <1 2 <1.0 history2 0.5 8.1
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 1010 1070 1150 1270 2060 limit/base >25 limit/base >3 >20 >30 limit/base	90 <1 11 <1 647 1262 751 834 2977 current 15 1 3 0.5 current 0.2 6.9 17.5	1 0 51 0 842 952 969 1106 3122 history1 4 0 0 <1.0 kistory1 0.1 4.1 17.4	<1 <1 60 <1 908 1083 1094 1193 3095 history2 6 <1 2 <10 history2 0.5 8.1 18.7
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 60 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20 >30 imit/base >3	90 <1 11 <1 647 1262 751 834 2977 current 15 1 3 0.5 current 0.2 6.9 17.5 current	1 0 51 0 842 952 969 1106 3122 history1 4 0 0 <1.0 kistory1 0.1 4.1 17.4 history1	<1 <1 60 <1 908 1083 1094 1193 3095 history2 6 <1 2 <1.0 history2 0.5 8.1 18.7 history2

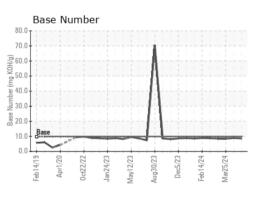


OIL ANALYSIS REPORT



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	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	— 11.4	14.4	13.6
GRAPHS						
Ferrous Alloys						
iron iron	1					
nickel	1					
60						
40	-11					
20	/1	1.0	1			
		VV	L			
Feb14/19 Apr1/20 - 0ct22/22 - Jan24/23 -	2/23 -	Dec5/23 -	5/24			
Feb14/19 Apr1/20 0ct22/22 Jan24/23	May12/23 Aug30/23	Dec5/23 Feb14/24	Mar25/24			





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 821 - Ozarks Hauling Sample No. : GFL0121558 Received : 25 Jun 2024 33924 Olath Drive Ĕ Lab Number : 06219273 Tested : 27 Jun 2024 Lebanon, MO US 65536 Unique Number : 11097470 Diagnosed : 27 Jun 2024 - Don Baldridge Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel) Contact: Landen Johnson Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. landen.johnson@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (417)664-0010 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

lec5/73

Mar25/24

Apr1/20 0ct22/22 an74/73 May12/23

Report Id: GFL821 [WUSCAR] 06219273 (Generated: 06/28/2024 00:41:35) Rev: 1

Submitted By: Gary Southard

Page 2 of 2