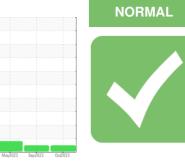


OIL ANALYSIS REPORT





Machine Id 720032

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

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.

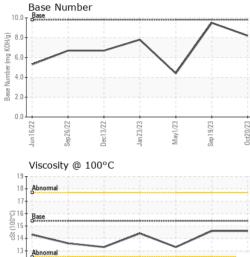
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0097512	GFL0092927	GFL0067570
Sample Date		Client Info		20 Oct 2023	19 Sep 2023	01 May 2023
Machine Age	hrs	Client Info		5422	0	4318
Oil Age	hrs	Client Info		41500	0	599
Oil Changed		Client Info		N/A	N/A	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
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	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	38	22	1 55
Chromium	ppm	ASTM D5185m	>20	<1	<1	2
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m	- T	<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	21	14	20
Lead	ppm	ASTM D5185m	>20	0	0	0
Copper	ppm	ASTM D5185m	>330	1	<1	4
Tin		ASTM D5185m	>15	، <1	<1	<1
Vanadium	ppm ppm	ASTM D5185m	>15	<1	<1	0
Cadmium		ASTM D5185m		<1	<1	0
	ppm	ASTIVI DOTODIII		<1	< 1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 28	history1 34	history2 42
	ppm ppm					
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0	28	34	42
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	28 <1	34 0 64 <1	42 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	28 <1 72	34 0 64	42 0 16 2 678
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	28 <1 72 <1	34 0 64 <1	42 0 16 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	28 <1 72 <1 1209	34 0 64 <1 1158	42 0 16 2 678
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	0 0 60 0 1010 1070	28 <1 72 <1 1209 892	34 0 64 <1 1158 878	42 0 16 2 678 1183
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	0 0 60 0 1010 1070 1150	28 <1 72 <1 1209 892 1070	34 0 64 <1 1158 878 1005	42 0 16 2 678 1183 941
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 0 1010 1070 1150 1270	28 <1 72 <1 1209 892 1070 1358	34 0 64 <1 1158 878 1005 1299	42 0 16 2 678 1183 941 1158
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	0 0 60 0 1010 1070 1150 1270 2060	28 <1 72 <1 1209 892 1070 1358 3810	34 0 64 <1 1158 878 1005 1299 3825	42 0 16 2 678 1183 941 1158 2889
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 0 1010 1070 1150 1270 2060	28 <1 72 <1 1209 892 1070 1358 3810 current	34 0 64 <1 1158 878 1005 1299 3825 history1	42 0 16 2 678 1183 941 1158 2889 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 0 1010 1070 1150 1270 2060 limit/base >25	28 <1 72 <1 1209 892 1070 1358 3810 current 5	34 0 64 <1 1158 878 1005 1299 3825 history1 6	42 0 16 2 678 1183 941 1158 2889 history2 7
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	28 <1 72 <1 1209 892 1070 1358 3810 current 5 6	34 0 64 <1 1158 878 1005 1299 3825 history1 6 3	42 0 16 2 678 1183 941 1158 2889 history2 7 2
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 0 1010 1070 1150 1270 2060 Imit/base >25	28 <1 72 <1 1209 892 1070 1358 3810 current 5 6 26	34 0 64 <1 1158 878 1005 1299 3825 history1 6 3 20	42 0 16 2 678 1183 941 1158 2889 history2 7 2 18
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	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	28 <1 72 <1 1209 892 1070 1358 3810 current 5 6 26 26 current	34 0 64 <1 1158 878 1005 1299 3825 history1 6 3 20 history1	42 0 16 2 678 1183 941 1158 2889 history2 7 2 18 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	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	28 <1 72 <1 1209 892 1070 1358 3810 current 5 6 26 26 current 0.7	34 0 64 <1 1158 878 1005 1299 3825 history1 6 3 20 history1 0	42 0 16 2 678 1183 941 1158 2889 history2 7 2 18 history2 1.4
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	28 <1 72 <1 1209 892 1070 1358 3810 <i>current</i> 5 6 26 26 <i>current</i> 0.7 13.3	34 0 64 <1 1158 878 1005 1299 3825 history1 6 3 20 history1 0 11.8	42 0 16 2 678 1183 941 1158 2889 history2 7 2 7 2 18 history2 1.4 1.4 15.0
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >3 20 20	28 <1 72 <1 1209 892 1070 1358 3810 <u>current</u> 5 6 26 <u>current</u> 0.7 13.3 24.9	34 0 64 <1 1158 878 1005 1299 3825 history1 6 3 20 history1 0 11.8 25.0	42 0 16 2 678 1183 941 1158 2889 history2 7 2 18 history2 1.4 1.4 15.0 28.0
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	28 <1 72 <1 1209 892 1070 1358 3810 current 5 6 26 26 current 0.7 13.3 24.9 current	34 0 64 <1 1158 878 1005 1299 3825 history1 6 3 20 history1 0 11.8 25.0 history1	42 0 16 2 678 1183 941 1158 2889 history2 7 2 889 history2 1.4 1.4 15.0 28.0 history2



12 11 Jun16/22

OIL ANALYSIS REPORT

VISUAL



Dec13/22

Jan 23/23

Sep26/22

May1/23

	VISUAL		methoa	iiiiii/base	current	Thistory I	TIIStoryz
\sim	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
723	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Sep 19/23 Oct20/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
0, 0	Emulsified Water	scalar	*Visual		NEG	NEG	NEG
				>0.2	NEG		
	Free Water	scalar	*Visual	11 1. 1		NEG	NEG
	FLUID PROPE Visc @ 100°C	cSt	Method ASTM D445	limit/base	current	history1 14.6	history2 13.3
	GRAPHS	COL	ASTIVI D445	15.4	14.0	14.0	13.3
	Ferrous Alloys						
/23 -	300 - iron						
Sep 19/23	250 nickel						
E	200						
Ē	150		\wedge				
	100	\backslash /	\sim				
	50 -	\sim					
	0		<u> </u>				
		3/23 -	1/23 -)/23 -			
	Jun 16/22 Sep 26/22 Dec 13/22	Jan 23/23	May1/23 Sep19/23	0ct20/23			
	Non-ferrous Meta						
		;					
	copper						
	8 - tin						
	6						
	udd						
			~				
	2 -	\bigvee					
		La La FATTORNA CALLER					
		3/23 -	9/23	0/23.			
	Jun 16/22 Sep 26/22 Dec 13/22	Jan 23/23	May1/23 Sep19/23	0ct20/23			
	Viscosity @ 100°				D		
	¹⁹			10	Base Number		
	18 - Abnormal						\sim
	17				8.0 -		
				Base Number (mg KOH/g)		\sim	/
	Base			Bu (6.0		/
	(2)-16 Base 115 30 14	\wedge		mber	4.0		/
				se Nu			
	13 Abnormal			Bax	2.0 -		
	12-						
		23	23		22 22 0.0	22	3 22
	Jun 16/22 Sep 26/22 Dec 13/22	Jan 23/23	May1/23 Sep19/23	0ct20/23	Jun 16/22 Sep 26/22	Dec13/22 Jan23/23 M172	Sep19/23.
	Jui Sel	Jai	Sel	00	Sel	Jai De	Sel
		FO1 14 "	C			Fundaria i i	C 4 4 4 1
oratory	: WearCheck USA -				IJ GFL	Environmental	
ple No.	: GFL0097512	Receive		Nov 2023		1241 KING SE	
Number	: 05995372	Diagnos		Nov 2023			ALPENA,
	· 10702700			Doldridgo			



Test Package : FLEET Certificate L2367 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)

Diagnostician : Don Baldridge

Unique Number : 10723732

Submitted By: GFL463 and GFL641 - DYLAN TOLAN

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F:

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