

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

814018

Component Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

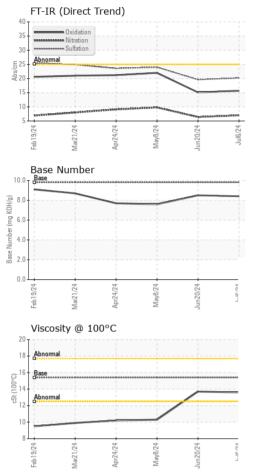
Fluid Condition

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

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0128557	GFL0122999	GFL0119376
Sample Date		Client Info		06 Jul 2024	20 Jun 2024	08 May 2024
Machine Age	hrs	Client Info		913	849	618
Oil Age	hrs	Client Info		64	231	80
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ATTENTION
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	8	7	34
Chromium	ppm	ASTM D5185m	>20	<1	0	1
Nickel	ppm	ASTM D5185m	>4	<1	<1	8
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	1	1	<1
Aluminum	ppm	ASTM D5185m	>20	<1	2	6
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	63	50	258
Tin	ppm	ASTM D5185m	>15	0	<1	4
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES						
ABBIII EC		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	current 13	history1 20	history2 204
	ppm ppm					
Boron		ASTM D5185m	0	13	20	204
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	13 0	20 0	204 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	13 0 63	20 0 64 1 967	204 <1 118
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	13 0 63 <1	20 0 64 1 967 1099	204 <1 118 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	13 0 63 <1 901	20 0 64 1 967 1099 999	204 <1 118 4 696 1368 733
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 0 1010 1070 1150 1270	13 0 63 <1 901 1139 979 1133	20 0 64 1 967 1099 999 1240	204 <1 118 4 696 1368 733 873
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	0 0 60 0 1010 1070 1150	13 0 63 <1 901 1139 979	20 0 64 1 967 1099 999	204 <1 118 4 696 1368 733
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 0 1010 1070 1150 1270	13 0 63 <1 901 1139 979 1133	20 0 64 1 967 1099 999 1240	204 <1 118 4 696 1368 733 873
Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINANT Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 0 1010 1070 1150 1270 2060	13 0 63 <1 901 1139 979 1133 3089 current 8	20 0 64 1 967 1099 999 1240 3434	204 <1 118 4 696 1368 733 873 2681
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT	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	13 0 63 <1 901 1139 979 1133 3089 current	20 0 64 1 967 1099 999 1240 3434 history1 9 3	204 <1 118 4 696 1368 733 873 2681 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 0 1010 1070 1150 1270 2060 kimit/base >25	13 0 63 <1 901 1139 979 1133 3089 current 8	20 0 64 1 967 1099 999 1240 3434 history1 9	204 <1 118 4 696 1368 733 873 2681 history2 60
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 kimit/base >25	13 0 63 <1 901 1139 979 1133 3089 <u>current</u> 8 4	20 0 64 1 967 1099 999 1240 3434 history1 9 3 4 kistory1	204 <1 118 4 696 1368 733 873 2681 history2 60 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	13 0 63 <1 901 1139 979 1133 3089 <u>current</u> 8 4 0 <u>current</u> 0.3	20 0 64 1 967 1099 999 1240 3434 history1 9 3 4 history1 0.2	204 <1 118 4 696 1368 733 873 2681 history2 60 <1 8 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	13 0 63 <1 901 1139 979 1133 3089 <u>current</u> 8 4 0 <u>current</u> 0.3 7.0	20 0 64 1 967 1099 999 1240 3434 history1 9 3 4 kistory1	204 <1 118 4 696 1368 733 873 2681 history2 60 <1 8 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	13 0 63 <1 901 1139 979 1133 3089 <u>current</u> 8 4 0 <u>current</u> 0.3	20 0 64 1 967 1099 999 1240 3434 history1 9 3 4 history1 0.2	204 <1 118 4 696 1368 733 873 2681 history2 60 <1 8 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Solicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm rS ppm ppm ppm ppm ppm spm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	13 0 63 <1 901 1139 979 1133 3089 <u>current</u> 8 4 0 <u>current</u> 0.3 7.0	20 0 64 1 967 1099 999 1240 3434 history1 9 3 4 4 history1 0.2 6.4	204 <1 118 4 696 1368 733 873 2681 history2 60 <1 8 history2 0.4 9.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm rS ppm ppm ppm ppm ppm spm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 320 33 20 20 20	13 0 63 <1 901 1139 979 1133 3089 <u>current</u> 8 4 0 <u>current</u> 0.3 7.0 20.2	20 0 64 1 967 1099 999 1240 3434 history1 9 3 4 4 history1 0.2 6.4 19.6	204 <1 118 4 696 1368 733 873 2681 history2 60 <1 8 history2 0.4 9.8 24.0



OIL ANALYSIS REPORT



end)			VISUAL		method	limit/base	current	history1	history2
			White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
1	1		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	~	The state of the s	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
		Silt Debris	scalar scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE NONE	NONE	
	And and a second s	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
24	24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Apr24/24	May8/24	Jun20/24 Jul6/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
			Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Innanananan -	Free Water	scalar	*Visual	20.2	NEG	NEG	NEG
	-		FLUID PROPE	RTIES	method	limit/base	current	history1	history2
			Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.7	0.3
			GRAPHS						
			Ferrous Alloys						
24	24 -	24	35 30 iron	_					
Apr24/24	May8/24	Jun20/24	25						
С									
C			²⁰ 15						
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			0						
- b	/		Feb 19/24 Mar21/24 Apr24/24	Mav8/24	Jun20/24	Jul6/24			
	_		—		ηn	7			
24	24	24-	Non-ferrous Metal	S					
Apr24/24	May8/24	Jun20/24	250 - copper						
		,	tin						
			200						
			톨 150		1				
			100-						
			50						
			0						
			Feb 19/24 Mar21/24	May8/24	Jun20/24	Jul6/24			
			H N A		Jun	٦٢			
			Viscosity @ 100°C				Base Number		
						10	.0 Base		
			18 - Abnormal			; <u></u> , 8	.0-		
			Base			KOH			
			् 0 0 14 Abnormal			er (mg	.0 -		
			- Abnormal 12			Base Number (mg KOH/g)	.0-		
			10			en al construction de la constru	.0		
			8				.0		
			Feb19/24	Mav8/24 -	0/24	Jul6/24		Apr24/24 - May8/24 -	un20/24 - Jul6/24 -
			Feb19/24 Mar21/24 Apr24/24	Mav	Jun20/24	Jul	Feb19/24 Mar21/24	Apr2 May	Jun20/24 Jul6/24
		l ab c t	. Wees Object 1994 - 50	4					Linds Deviced
		Laboratory Sample No. Lab Number Unique Number	: WearCheck USA - 50 ⁻ : GFL0128557	1 Madiso Recei		, NC 27513 Jul 2024	GFL Envir		- Little Rock Hauling 4005 Hwy 161 N.
			: 06234278		Little Rock, AR US 72117				
		Test Package	: FLEET , contact Customer Servi	ice at 1-9	300-237-1360	9			act: Brad Koenig enig@gflenv.com
			are outside of the ISO 1.					UNU	T:
			are outside of the ISO 1 pecifications are based o				n rule (JCGM 106:	2012)	F

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Submitted By: Nicole Walls Page 2 of 2