

OIL ANALYSIS REPORT

Sample Rating Trend





Component **Diesel Engine** Fluid

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

T

SAMPLE INFORMATION method

DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Machine Id 4544M

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

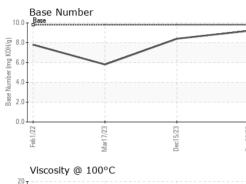
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

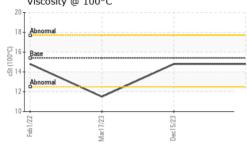
<u> </u>		0			0510405004	
Sample Number		Client Info		GFL0105865	GFL0105691	GFL0068706
Sample Date		Client Info		20 Dec 2023	15 Dec 2023	17 Mar 2023
Machine Age	hrs	Client Info		7728	7718	6069
Oil Age	hrs	Client Info		7718	6069	2938
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	2 .9
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	>90	0	39	37
Chromium	ppm	ASTM D5185m	>20	0	2	2
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	<1	4	6
Lead	ppm	ASTM D5185m	>40	0	2	2
Copper	ppm	ASTM D5185m	>330	<1	2	1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 4	history1 2	history2 2
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	4	2	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	4 0	2 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 59	2 0 58	2 0 39
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 59 <1	2 0 58 <1	2 0 39 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 59 <1 942	2 0 58 <1 919	2 0 39 <1 575
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	4 0 59 <1 942 1031	2 0 58 <1 919 1045	2 0 39 <1 575 723
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	0 0 60 1010 1070 1150	4 0 59 <1 942 1031 1102	2 0 58 <1 919 1045 1048	2 0 39 <1 575 723 728
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	4 0 59 <1 942 1031 1102 1290	2 0 58 <1 919 1045 1048 1256	2 0 39 <1 575 723 728 946
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	4 0 59 <1 942 1031 1102 1290 3220	2 0 58 <1 919 1045 1048 1256 2924	2 0 39 <1 575 723 728 946 2304
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	4 0 59 <1 942 1031 1102 1290 3220 current	2 0 58 <1 919 1045 1048 1256 2924 history1	2 0 39 <1 575 723 728 946 2304 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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	4 0 59 <1 942 1031 1102 1290 3220 current 5	2 0 58 <1 919 1045 1048 1256 2924 history1 7	2 0 39 <1 575 723 728 946 2304 history2 4
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 imit/base	4 0 59 <1 942 1031 1102 1290 3220 current 5 2	2 0 58 <1 919 1045 1048 1256 2924 history1 7 6	2 0 39 <1 575 723 728 946 2304 kistory2 4 4
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 0 1010 1070 1150 1270 2060 limit/base >25 >20	4 0 59 <1 942 1031 1102 1290 3220 current 5 2 2 <1	2 0 58 <1 919 1045 1048 1256 2924 history1 7 6 3	2 0 39 <1 575 723 728 946 2304 history2 4 4 4 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium 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 limit/base >25 >20 limit/base >20	4 0 59 <1 942 1031 1102 1290 3220 current 5 2 <1 2 <1 0	2 0 58 <1 919 1045 1048 1256 2924 history1 7 6 3 3 history1 2	2 0 39 <1 575 723 728 946 2304 history2 4 4 4 5 history2
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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25 >20	4 0 59 <1 942 1031 1102 1290 3220 current 5 2 <1 <1 current	2 0 58 <1 919 1045 1048 1256 2924 history1 7 6 3 3 history1	2 0 39 <1 575 723 728 946 2304 history2 4 4 4 5 history2 1.8
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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >20	4 0 59 <1 942 1031 1102 1290 3220 current 5 2 current 5 2 <1 current 0 4.2	2 0 58 <1 919 1045 1048 1256 2924 history1 7 6 3 3 history1 2 12.1	2 0 39 <1 575 723 728 946 2304 history2 4 4 4 5 <i>history2</i> 1.8 9.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >20 20 30 20 30 20 30	4 0 59 <1 942 1031 1102 1290 3220 current 5 2 <1 current 0 4.2 17.2 current	2 0 58 <1 919 1045 1048 1256 2924 history1 7 6 3 3 history1 2 12.1 24.1 24.1	2 0 39 <1 575 723 728 946 2304 history2 4 4 4 5 history2 1.8 9.9 24.1 history2
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 ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >20	4 0 59 <1 942 1031 1102 1290 3220 current 5 2 <1 2 <1 0 4.2 17.2	2 0 58 <1 919 1045 1048 1256 2924 history1 7 6 3 3 history1 2 12.1 24.1	2 0 39 <1 575 723 728 946 2304 history2 4 4 4 5 bistory2 1.8 9.9 24.1

Submitted By: Frank Wolak



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		
Dec20/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML		
Dec2	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	ERTIES	method	limit/base	current	history1	history2		
	Visc @ 100°C	cSt	ASTM D445	15.4	14.8	14.8	1 1.5		
	GRAPHS								
	Ferrous Alloys								
	iron								
	100 - https://www.nickel								
	80								
	60								
	40								
	20								
	Feb 1/22 Mar1 7/23		Dec15/23	Dec20/23					
	2		Dei	Dei					
	Non-ferrous Meta	als							
	14 copper								
	12 - Leader Iead								
	10								
	6								
	4								
	2		and the second sec						
	0			La restaura					
	Feb1/22 lar17/23		Dec15/23	ec20/23					
	Feb Mar1		Dec	Dec					
	Viscosity @ 100°	С	Base Number						
	19 - Base Number 18 - Abnormal								
	10 Abnormal			⇒ 8.0					
	16 - Proc			(B/HO					
	Base 0 15			0.0 8.0 0.0 8.0 0.0 8.0 0.0 8 8 9 0.0 8 8 9 0.0 8 0.0 8 0.0 10 0.0 10 0.					
	(3-001) 15-015 14-	/		mber (
	13 Abnormal	/		4.0 N					
	12			²⁰ 2.0)+				
	11								
			23-	0.0	22	/23+	- 53		
	Feb 1/22 Mar17/23		Dec15/23	Dec20/23	Feb1/22	Mar17/23	Dec15/23		
	×					2			
oratory	: WearCheck USA -	501 Madis	son Ave Ca	ry, NC 27513	GFL En	vironmental - 41	15 - Michigan Ea		
mple No.	: GFL0105865	Recieved	: 22	Dec 2023			6200 Elmridg		
o Number	: 06043837	Diagnos		Dec 2023		Ste	erling Heights, N		
que Number st Package	: 10804445	Diagnost	ician : We	s Davis			US 4831		
	: FLEET					Cont	act: Frank Wola		

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)

Certificate L2367

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