

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

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.

Jun2023 Nev2023 Mar2024										
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2				
Sample Number		Client Info		GFL0108970	GFL0101424	GFL0069833				
Sample Date		Client Info		01 Mar 2024	28 Nov 2023	08 Jun 2023				
Machine Age	hrs	Client Info		10300	16305	15156				
Oil Age	hrs	Client Info		0	0	600				
Oil Changed		Client Info		Not Changd	Not Changd	Changed				
Sample Status				NORMAL	NORMAL	NORMAL				
CONTAMINAT	ION	method	limit/base	current	history1	history2				
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0				
Water		WC Method	>0.2	NEG	NEG	NEG				
Glycol		WC Method		NEG	NEG	NEG				
WEAR METALS		method	limit/base	current	history1	history2				
Iron	ppm	ASTM D5185m	>90	18	13	47				
Chromium	ppm	ASTM D5185m	>20	<1	<1	2				
Nickel	ppm	ASTM D5185m	>2	0	0	0				
Titanium	ppm	ASTM D5185m	>2	0	0	0				
Silver	ppm	ASTM D5185m	>2	0	0	0				
Aluminum	ppm	ASTM D5185m	>20	3	1	3				
Lead	ppm	ASTM D5185m	>40	0	<1	6				
Copper	ppm	ASTM D5185m	>330	<1	<1	<1				
Tin	ppm	ASTM D5185m	>15	0	<1	<1				
Vanadium	ppm	ASTM D5185m	210	0	<1	0				
Cadmium	ppm	ASTM D5185m		0	0	0				
ADDITIVES		method	limit/base	current	history1	history2				
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1 1	history2 4				
	ppm ppm	ASTM D5185m	0							
Boron Barium	ppm		0	<1	1	4				
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0	<1 0	1 0	4				
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 66	1 0 59	4 0 62				
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 66 0	1 0 59 0	4 0 62 <1				
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 0 66 0 1007	1 0 59 0 1100	4 0 62 <1 970				
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 0 66 0 1007 1059 1031	1 0 59 0 1100 1223	4 0 62 <1 970 1089				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	<1 0 66 0 1007 1059	1 0 59 0 1100 1223 1182	4 0 62 <1 970 1089 1119				
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	<1 0 66 0 1007 1059 1031 1317 2975	1 0 59 0 1100 1223 1182 1424	4 0 62 <1 970 1089 1119 1326				
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	<1 0 66 0 1007 1059 1031 1317 2975	1 0 59 0 1100 1223 1182 1424 3370	4 0 62 <1 970 1089 1119 1326 2946				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	0 0 60 1010 1070 1150 1270 2060	<1 0 66 0 1007 1059 1031 1317 2975 current 4	1 0 59 0 1100 1223 1182 1424 3370 history1	4 0 62 <1 970 1089 1119 1326 2946 history2				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN 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 1010 1070 1150 1270 2060 limit/base	<1 0 66 0 1007 1059 1031 1317 2975 current	1 0 59 0 1100 1223 1182 1424 3370 history1 4	4 0 62 <1 970 1089 1119 1326 2946 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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	<1 0 66 0 1007 1059 1031 1317 2975 current 4 6 2	1 0 59 0 1100 1223 1182 1424 3370 history1 4 8	4 0 62 <1 970 1089 1119 1326 2946 history2 4 7				
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 limit/base >25	<1 0 66 0 1007 1059 1031 1317 2975 Current 4 6 2	1 0 59 0 1100 1223 1182 1424 3370 history1 4 8 <1	4 0 62 <1 970 1089 1119 1326 2946 history2 4 7 <1				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	<1 0 66 0 1007 1059 1031 1317 2975 <u>current</u> 4 6 2 2 <u>current</u>	1 0 59 0 1100 1223 1182 1424 3370 history1 4 8 <1 4 8 <1 history1 0.6	4 0 62 <1 970 1089 1119 1326 2946 history2 4 7 <1 history2				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	<1 0 66 0 1007 1059 1031 1317 2975 <u>current</u> 4 6 2 2 <u>current</u> 0.2	1 0 59 0 1100 1223 1182 1424 3370 history1 4 8 <1 kistory1	4 0 62 <1 970 1089 1119 1326 2946 history2 4 7 <1 +				
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 limit/base >25 >20 limit/base >20	<1 0 66 0 1007 1059 1031 1317 2975 current 4 6 2 2 current 0.2 7.9 19.5	1 0 59 0 1100 1223 1182 1424 3370 history1 4 8 <1 4 8 <1 history1 0.6 8.6	4 0 62 <1 970 1089 1119 1326 2946 history2 4 7 <1 ×1 history2 2.4 12.5				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 20 20 20 20 20 20 20 20 20 20 20	<1 0 66 0 1007 1059 1031 1317 2975 Current 4 6 2 Current 0.2 7.9 19.5 Current	1 0 59 0 1100 1223 1182 1424 3370 history1 4 8 <1 history1 0.6 8.6 19.4 history1	4 0 62 <1 970 1089 1119 1326 2946 history2 4 7 <1 history2 2.4 12.5 24.9 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 D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >20	<1 0 66 0 1007 1059 1031 1317 2975 current 4 6 2 2 current 0.2 7.9 19.5	1 0 59 0 1100 1223 1182 1424 3370 history1 4 8 <1 4 8 <1 history1 0.6 8.6 19.4	4 0 62 <1 970 1089 1119 1326 2946 history2 4 7 <1 kistory2 2.4 12.5 24.9				



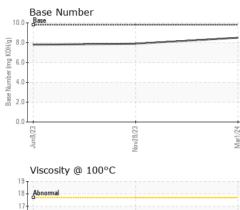
() 10.00 15 14 Base

> 13 Abnormal 12 11 Jun8/23

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OIL ANALYSIS REPORT

VISUAL



******	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			
Nov28/23 Mar1/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML			
Nov2 Ma	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	14.3	13.5	14.1			
	GRAPHS									
	Ferrous Alloys									
. 8/23 -	iron chromium									
Nov28/23	40 +									
	_ 30									
	ق 20-									
	20									
	10 -	1								
		1993-000-000								
	Jun8/23	8/23 -		Mar1/24 -						
	μηρ	Nov28/23		Mar						
	Non-ferrous Metals	s								
	10 copper									
	8 - Research lead									
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	2									
	0	A COLORADO	and the state of the last	Alester,						
	Jun8/23	Nov28/23		Mar1/24						
	'n	Novi		Ma						
	Viscosity @ 100°C				Base Number					
	18 - Abnormal			10.0	Base					
	17			(B ^{8.0}						
	ୁ ¹⁶ B ase			P 6.0						
	C 16 Base 0 15 3 14			0.0 Base Number (mg KOH/g)						
	°3 14			4.0-						
	13 - Abnormal			² 2.0						
	12-									
	11 4	23			53	23+				
	Jun8/23	Nov28/23		Mar1/24	Jun8/23	Nav28/23				
Laboratory	: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0108970 Received : 05 Mar 2024 6200 Elmrid									
Sample No.		Teste		Mar 2024		Sterl	ing Heights, I			
Sample No. Lab Number	: 06108437	: 10911934 Diagnosed : 06 Mar 2024 - Wes Davis								
Lab Number Unique Number	: 10911934		osed : 06		es Davis		US 483			
Lab Number	: 10911934 : FLEET	Diagn		Mar 2024 - Wo	es Davis					

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