

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 927123

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

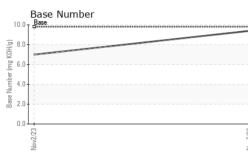
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

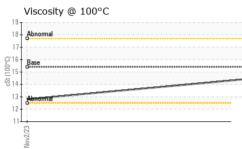
,			Nov2023	Nov2023		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0095267	GFL0095268	
Sample Date		Client Info		07 Nov 2023	02 Nov 2023	
Machine Age	hrs	Client Info		14115	14091	
Oil Age	hrs	Client Info		24	600	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	2	11	
Chromium	ppm	ASTM D5185m	>20	- <1	<1	
Nickel	ppm	ASTM D5185m	>4	<1	<1	
Titanium	ppm	ASTM D5185m		<1	<1	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>20	4	4	
Lead	ppm	ASTM D5185m	>40	<1	1	
Copper	ppm	ASTM D5185m	>330	<1	1	
Tin	ppm	ASTM D5185m	>15	0	<1	
Vanadium	ppm	ASTM D5185m		<1	<1	
Cadmium	ppm	ASTM D5185m		<1	<1	
ADDITIVES	ppm	ASTM D5185m method	limit/base	<1 current	<1 history1	 history2
			limit/base			
ADDITIVES	ppm ppm ppm	method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 1	history1 8	history2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 1 9	history1 8 9	history2
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 1 9 46	history1 8 9 48	history2
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 1 9 46 <1	history1 8 9 48 <1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 1 9 46 <1 682	history1 8 9 48 <1 262	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current 1 9 46 <1 682 998	history1 8 9 48 <1 262 1626	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 1 9 46 <1 682 998 571	history1 8 9 48 <1 262 1626 588	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 1 9 46 <1 682 998 571 1025	history1 8 9 48 <1 262 1626 588 1027	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 1 9 46 <1 682 998 571 1025 2595	history1 8 9 48 <1 262 1626 588 1027 3013	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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	current 1 9 46 <1 682 998 571 1025 2595 current	history1 8 9 48 <1 262 1626 588 1027 3013 history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 1 9 46 <1 682 998 571 1025 2595 current 3	history1 8 9 48 <1 262 1626 588 1027 3013 history1 6	history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 1 9 46 <1 682 998 571 1025 2595 current 3 5	history1 8 9 48 <1 262 1626 588 1027 3013 history1 6 13	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 1 9 46 <1 682 998 571 1025 2595 current 3 5 4	history1 8 9 48 <1 262 1626 588 1027 3013 history1 6 13 15	history2 history2 history2
ADDITIVES 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20	current 1 9 46 <1 682 998 571 1025 2595 current 3 5 4 current	history1 8 9 48 <1 262 1626 588 1027 3013 history1 6 13 15 history1	history2 history2 history2 history2
ADDITIVES 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current 1 9 46 <1 682 998 571 1025 2595 current 3 5 4 current 0.1	history1 8 9 48 <1 262 1626 588 1027 3013 history1 6 13 15 history1 0.6	history2 history2 history2 history2 history2
ADDITIVES 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	current 1 9 46 <1 682 998 571 1025 2595 current 3 5 4 current 0.1 4.8	history1 8 9 48 <1 262 1626 588 1027 3013 history1 6 13 15 history1 0.6 8.3	history2 history2
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	current 1 9 46 <1 682 998 571 1025 2595 current 3 5 4 current 0.1 4.8 17.6	history1 8 9 48 <1 262 1626 588 1027 3013 history1 6 13 15 history1 0.6 8.3 19.2	history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7185M ASTM D7624 *ASTM D7624 *ASTM D7415 method	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 33 220 20 33 220 23 30	current 1 9 46 <1 682 998 571 1025 2595 current 3 5 4 current 0.1 4.8 17.6 current	history1 8 9 48 <1 262 1626 588 1027 3013 history1 6 13 15 history1 0.6 8.3 19.2 history1	history2 history2 history2 history2 history2 history2 history2 history2 history2 history2 history2



OIL ANALYSIS REPORT

VISUAL





	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	
Nov7/23	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
°C	Free Water	scalar	*Visual	20.Z	NEG	NEG	
					NEG		
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.4	12.8	
	GRAPHS						
	Ferrous Alloys						
	¹²						
	10-						
	8-						
	Md 6						
	4-						
	2			/			

	23+10			/23			
	Nov2/23			Nov7/23			
	Non-ferrous Metal	5					
	10 _T						
	copper						
	8 - management tin						
	6						
	udd						
	4+						
	2						
	53			23			
	Nov2/23			Nov7/23			
	– Viscosity @ 100°C						
	¹⁹ T			10.0	Base Number		
	18 - Abnormal			10.0	0		
	17-						
	C16			0.0 6.0 4.0 888 Number (mg KOH(0)			
	2016 Base			E 6.0			
					1		
	13 Abnormal			ase			
	12-			° 2.0-			
	11			0.0			
	Nov2/23			Nov7/23	Nov2/23		Nov7/23
	No			No	No		No
Laboratory Sample No.	: WearCheck USA - 5 : GFL0095267	i01 Madis Received		ry, NC 27513 Nov 2023	GFL Environ	mental - 421 - Hunting 3204 Lower H	
Lab Number	: 06013649	Diagnose	ed : 24 M	Nov 2023			WAYNE, IN
Unique Number		Diagnost	ician : Jon	athan Hester		.	US 46809
Certificate L2367 Test Package	: FLEET	ion at t a	00 007 4000	1		Contact: MICH	
To discuss this sample report, * - Denotes test methods that a						MMUGG@GI	-LENV.COM T:
Statements of conformity to spec					CGM 106:2012)		F:
					· ···· · · · · · · · · · · · · · · · ·		••

Contact/Location: see also GFL421A - MICHAEL MUGG - GFL421