

OIL ANALYSIS REPORT



Machine Id 712042

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

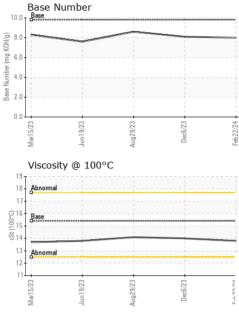
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0112989	GFL0098427	GFL0089483
Sample Date		Client Info		22 Feb 2024	06 Dec 2023	29 Aug 2023
Machine Age	hrs	Client Info		1526	5836	5254
Oil Age	hrs	Client Info		1526	5836	0
Oil Changed	1110	Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
			11 11 /1			
CONTAMINAT	ION	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 METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	6	9	6
Chromium	ppm	ASTM D5185m	>4	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	1	2	<1
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m	>85	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
				•		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	-		history2 0
				current	history1	
Boron	ppm	ASTM D5185m	0	current 0	history1 <1	0
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	0	current 0 0	history1 <1 12	0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 0 0 58	history1 <1 12 59	0 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 0 0 58 <1	history1 <1 12 59 <1	0 0 60 0
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 1150	current 0 0 58 <1 931	<1 12 59 <1 934 1004 970	0 0 60 0 1030 1149 1106
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	Current 0 0 58 <1 931 1019	history1 <1 12 59 <1 934 1004	0 0 60 0 1030 1149
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	Current 0 0 58 <1 931 1019 1008	<1 12 59 <1 934 1004 970	0 0 60 0 1030 1149 1106
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	Current 0 0 58 <1 931 1019 1008 1175	history1 <1 12 59 <1 934 1004 970 1208	0 0 60 0 1030 1149 1106 1371
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 0 1010 1070 1150 1270 2060	Current 0 0 58 <1 931 1019 1008 1175 2833	<1 12 59 <1 934 1004 970 1208 3202	0 0 60 0 1030 1149 1106 1371 4111
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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	Current 0 58 <1 931 1019 1008 1175 2833 Current	<1 12 59 <1 934 1004 970 1208 3202 history1	0 0 60 0 1030 1149 1106 1371 4111 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm 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	0 0 60 0 1010 1070 1150 1270 2060 limit/base	Current 0 0 58 <1 931 1019 1008 1175 2833 Current 2	<1 12 59 <1 934 1004 970 1208 3202 history1 3	0 0 60 0 1030 1149 1106 1371 4111 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm 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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 0 0 58 <1 931 1019 1008 1175 2833 current 2 6	<1 12 59 <1 934 1004 970 1208 3202 history1 3 2	0 0 60 0 1030 1149 1106 1371 4111 history2 2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30	Current 0 0 58 <1 931 1019 1008 1175 2833 Current 2 6 0 Current	<1 12 59 <1 934 1004 970 1208 3202 history1 3 2 5	0 0 60 0 1030 1149 1106 1371 4111 history2 2 6 6 6
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 limit/base >30 200 limit/base	current 0 0 58 <1 931 1019 1008 1175 2833 current 2 6 0 current 0.3	<1 12 59 <1 934 1004 970 1208 3202 history1 3 2 5 history1 0.3	0 0 60 0 1030 1149 1106 1371 4111 history2 2 6 6 6 6 8 history2 0.3
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 Imit/base >30 -20	Current 0 0 58 <1 931 1019 1008 1175 2833 Current 2 6 0 Current	<1 12 59 <1 934 1004 970 1208 3202 history1 3 2 5 history1	0 0 60 0 1030 1149 1106 1371 4111 history2 2 6 6 6 6 8
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 >30 imit/base >3 20	current 0 0 58 <1 931 1019 1008 1175 2833 current 2 6 0 current 0.3 9.0 19.3	<1 12 59 <1 934 1004 970 1208 3202 history1 3 2 5 history1 0.3 9.3 19.8	0 0 60 0 1030 1149 1106 1371 4111 history2 2 6 6 6 6 6 history2 0.3 7.9 19.3
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 D7415	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	Current 0 0 58 <1 931 1019 1008 1175 2833 current 2 6 0 current 0.3 9.0 19.3 current	<1 12 59 <1 934 1004 970 1208 3202 history1 3 2 5 history1 0.3 9.3 19.8 history1	0 0 60 0 1030 1149 1106 1371 4111 history2 2 6 6 6 6 history2 0.3 7.9 19.3 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	0 0 0 1010 1070 1150 1270 2060 imit/base >30 20 imit/base >3 >20 20 imit/base >3	Current 0 0 58 <1 931 1019 1008 1175 2833 current 2 6 0 current 0.3 9.0 19.3 current 17.0	<1 12 59 <1 934 1004 970 1208 3202 history1 3 2 5 history1 0.3 9.3 19.8 history1 18.1	0 0 60 0 1030 1149 1106 1371 4111 history2 2 6 6 6 6 history2 0.3 7.9 19.3 history2 16.1
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 D7415	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	Current 0 0 58 <1 931 1019 1008 1175 2833 current 2 6 0 current 0.3 9.0 19.3 current	<1 12 59 <1 934 1004 970 1208 3202 history1 3 2 5 history1 0.3 9.3 19.8 history1	0 0 60 0 1030 1149 1106 1371 4111 history2 2 6 6 6 6 history2 0.3 7.9 19.3



OIL ANALYSIS REPORT

VISUAL



				1 Madiso Recei Teste Diagr	ived : 2 d : 2	6 Feb 2024 7 Feb 2024	eb 2024			onmental - 918 - Hartland H0 630 E Industrial Drive Hartland, W US 53029 Contact: David McCa david.mccall@gflenv.con		
		Mar15/23	Jun19/23 -	Aug29/23 -	Dec6/23 -	Feb22/24 -	Mar15/23	Jun19/23 -	Aug29/23 -	Dec6/23 -		
		12-					2.0					
		10				Nampe	4.0					
		() 16 Base 00[15 to 16 15				Base Number (mg KOH/g)	6.0					
		18 - Abnormal				(B)H	8.0	~			-	
		¹⁹ T	ty @ 100°C		I I		Base 10.0 Base	e Number				
		Mar15/23	Jun19/23	Aug29/23	Dec6/23	Feb22/24						
				53	23	24						
		2										
		6-										
		8-	lead tin									
		Non-fe	rrous Metal	s								
		Mar15/23	Jun 19/23	Aug29/23	Dec6/23	Feb22/24						
		2		<u></u>								
		6										
		10- Ed. 8-			\wedge							
Aug29/23 -	Dec6/23		iron chromium nickel									
			s Alloys									
		Visc @ 1 GRAF		cSt	ASTM D445	15.4	13.	.8	14.0	14.1		
		FLUI) PROPE	RTIES	method	limit/bas	se c	current	history1		tory2	
	1 1	Free Wa		scalar scalar	*Visual *Visual	>0.2	NE		NEG NEG	NEG NEG		
Aug	De	Odor Emulsifie	d Mater	scalar	*Visual	NORML		RML	NORML	NOR		
Aug29/23 - Dec6/23 - Dec6/23 - Eta2/2/24 - Eta2/2/24 - Eta2/2/24 - Eta/22/24 -	Dec6/23 - Feb 22/24 +	Appeara		scalar	*Visual	NORML		ORML	NORML	NOR		
	Debris Sand/Dir	+	scalar scalar	*Visual *Visual	NONE NONE		NE NE	NONE NONE	NON			
	Silt		scalar	*Visual	NONE		NE	NONE	NON			
	Precipita		scalar	*Visual	NONE		NE NE	NONE	NON			
	Yellow M	lotal	scalar	*Visual	NONE	NC	NE	NONE	NON			

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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