

OIL ANALYSIS REPORT



Machine Id

WL-3 Component Diesel Engine Fluid PETRO CANADA DURON HP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

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 INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		KFS0006086	KFS0004009	
Sample Date		Client Info		03 Jun 2024	22 Mar 2024	
Machine Age	hrs	Client Info		14003	13558	
Oil Age	hrs	Client Info		445	0	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINATION	٧	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 METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	14	19	
Chromium	ppm	ASTM D5185m	>20	0	1	
Nickel	ppm	ASTM D5185m	>4	0	<1	
Titanium	ppm	ASTM D5185m		0	<1	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>20	10	15	
Lead	ppm	ASTM D5185m	>40	0	0	
Copper	ppm	ASTM D5185m	>330	<1	2	
Tin	ppm	ASTM D5185m	>15	<1	<1	
Vanadium	ppm	ASTM D5185m		0	<1	
Cadmium	ppm	ASTM D5185m		0	<1	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1 <1	history2
	ppm ppm		limit/base			history2
Boron		ASTM D5185m	limit/base	2	<1	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	2 0	<1 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 58	<1 0 62	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 58 <1	<1 0 62 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 58 <1 980	<1 0 62 <1 986	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 58 <1 980 1164	<1 0 62 <1 986 1149	
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	limit/base	2 0 58 <1 980 1164 1144	<1 0 62 <1 986 1149 1120	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 58 <1 980 1164 1144 1351	<1 0 62 <1 986 1149 1120 1290	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		2 0 58 <1 980 1164 1144 1351 3861	<1 0 62 <1 986 1149 1120 1290 3665	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 58 <1 980 1164 1144 1351 3861 current	<1 0 62 <1 986 1149 1120 1290 3665 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 58 <1 980 1164 1144 1351 3861 current 4	<1 0 62 <1 986 1149 1120 1290 3665 history1 7	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	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	limit/base >25	2 0 58 <1 980 1164 1144 1351 3861 current 4 2	<1 0 62 <1 986 1149 1120 1290 3665 history1 7 2	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	2 0 58 <1 980 1164 1144 1351 3861 current 4 2 4	<1 0 62 <1 986 1149 1120 1290 3665 history1 7 2 2 2	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	2 0 58 <1 980 1164 1144 1351 3861 current 4 2 4 2 4	<1 0 62 <1 986 1149 1120 1290 3665 history1 7 2 2 2 history1	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	2 0 58 <1 980 1164 1144 1351 3861 <i>current</i> 4 2 4 2 4 <i>current</i> 0.4	<1 0 62 <1 986 1149 1120 1290 3665 history1 7 2 2 2 history1 0.3	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	2 0 58 <1 980 1164 1144 1351 3861 <i>current</i> 4 2 4 <i>current</i> 0.4 6.6	<1 0 62 <1 986 1149 1120 1290 3665 history1 7 2 2 2 history1 0.3 6.9	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	Imit/base >25 >20 Imit/base >3 >20 >3 >20 >30	2 0 58 <1 980 1164 1144 1351 3861 <u>current</u> 4 2 4 2 4 <u>current</u> 0.4 6.6 17.5	<1 0 62 <1 986 1149 1120 1290 3665 history1 7 2 2 2 <u>history1</u> 0.3 6.9 17.5	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	limit/base >25 >20 limit/base >3 >20 >30 >30 limit/base	2 0 58 <1 980 1164 1351 3861 current 4 2 4 2 4 current 0.4 6.6 17.5 current	<1 0 62 <1 986 1149 1120 1290 3665 history1 7 2 2 2 history1 0.3 6.9 17.5 history1	 history2 history2 history2 history2



35

30

12.0

Base Number (mg KOH/g) 6.0 7.0 7.0

0.0 Mar22/24

19 m Abnormal 18 17. () 16 () 15 15 14 Base

13-Abnormal 12 111 Mar22/24

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OIL ANALYSIS REPORT

	VISUAL		method		current		history2
Oxidation	White Metal	scalar	*Visual	NONE	NONE	NONE	
annonnan Nitration	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	
3/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	
Jun3/24	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
ase Number	Free Water	scalar	*Visual		NEG	NEG	
ase	FLUID PROPER	TIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.6	14.5	14.4	
	GRAPHS						
	Iron (ppm)				Lead (ppm)		
	250 Severe			10	Severe		
4 C. C	200 + 0			8	1		
-	E 150 Abnormal			E G	Abaramal		
iscosity @ 100°C	100 + 0						
lbnormal	50			2			
	24.			Jun3/24			
1858	Mar22/			Jun	Mar22/24		
	Aluminum (ppm))			Chromium ((mag	
	50 T			5	T:		
lbnormal	40 - Severe			4			
	and a second sec			g. ³	D		
	²⁰ 20 - Abnormal			rd 2	Abnormal		
-	10-				•		
	04			24 +	-		
	ar22/2			Jun3/24	Mar22/24		
	≅			7	-	`	
	Copper (ppm)				Silicon (ppm)	
	Approximat						
	300-			6			
	틆 200 -			튭 4	Abnormal		
	100-			2			
	0						
	Mar22/24			Jun3/24	22/24		
	Marí			Jur	Mar		
	Viscosity @ 100°	С			Base Numbe	er	
	20 Abnormal			12. ⊮_10	Base		
				(0,10. HOX 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,			
	00016 Base			E			
	Automa			4.	1.1		
	12-			se 2.			
	724			.0 +	with the second s		
	Mar22/24			Jun3/24	Mar22/2		
Laboratory Sample No. Lab Number Unique Number Test Package		Recei Teste	ived : 20 ed : 2	v, NC 27513) Jun 2024 1 Jun 2024 Jun 2024 - W		55 N JAMES CA (IARNESS LL MPBELL BLV COLUMBIA, T US 3840 BILL ENYAF

Submitted By: BILL ENYART

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