

OIL ANALYSIS REPORT

Area **MUSKET TRANSPORT [69274] VOLVO 4716**

Diesel Engine Fluic PETRO CANADA DURON SAE 10W30 (--- GAL)

Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.

Wear

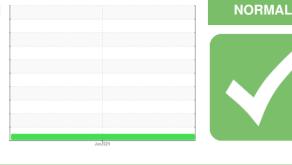
Metal levels are typical for a new component breaking in.

Contamination

The water content is negligible. There is no indication of any contamination in the oil.

Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The condition of the oil is acceptable for the time in service.



Sample Rating Trend



SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0948229		
Sample Date		Client Info		21 Jun 2024		
Machine Age	kms	Client Info		98702		
Oil Age	kms	Client Info		0		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<1.0		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>100	49		
Chromium	ppm	ASTM D5185(m)	>20	1		
Nickel	ppm	ASTM D5185(m)	>2	2		
Titanium	ppm	ASTM D5185(m)		<1		
Silver	ppm	ASTM D5185(m)	>2	3		
Aluminum	ppm	ASTM D5185(m)	>25	23		
Lead	ppm	ASTM D5185(m)	>40	0		
Copper	ppm	ASTM D5185(m)	>330	13		
Tin	ppm	ASTM D5185(m)	>15	3		
Antimony	ppm	ASTM D5185(m)		0		
Vanadium	ppm	ASTM D5185(m)		0		
Beryllium	ppm	ASTM D5185(m)		0		
Cadmium	ppm	ASTM D5185(m)		0		
ADDITIVES		method	limit/base	current	history1	history2
	ppm	method ASTM D5185(m)	limit/base	current 24	history1	history2
ADDITIVES						
ADDITIVES Boron	ppm	ASTM D5185(m)	1	24		
ADDITIVES Boron Barium	ppm ppm	ASTM D5185(m) ASTM D5185(m)	1	24 <1		
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	1 1 1	24 <1 101		
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	1 1 1 1	24 <1 101 4		
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	1 1 1 1 10	24 <1 101 4 637		
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	1 1 1 1 10 2942	24 <1 101 4 637 1619		
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	1 1 1 10 2942 1102	24 <1 101 4 637 1619 711	 	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	1 1 1 10 2942 1102 1351	24 <1 101 4 637 1619 711 881		
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	1 1 1 10 2942 1102 1351	24 <1 101 4 637 1619 711 881 1904		
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	1 1 1 10 2942 1102 1351 3903	24 <1 101 4 637 1619 711 881 1904 <1		
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	1 1 1 10 2942 1102 1351 3903	24 <1 101 4 637 1619 711 881 1904 <1 current	 history1	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	1 1 1 10 2942 1102 1351 3903	24 <1 101 4 637 1619 711 881 1904 <1 28	 history1 	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	1 1 1 1 1 2942 1102 1351 3903 Iimit/base >25	24 <1 101 4 637 1619 711 881 1904 <1 current 28 4	 history1	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	1 1 1 1 1 2942 1102 1351 3903 Iinit/base >25	24 <1 101 4 637 1619 711 881 1904 <1 current 28 4 56	 history1	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	1 1 1 1 1 2942 1102 1351 3903 Imit/base >25 >20 >0.2	24 <1 101 4 637 1619 711 881 1904 <1 881 1904<1284560.053	 history1	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5304*	1 1 1 1 1 2942 1102 1351 3903 Imit/base >25 >20 >0.2	24 <1 101 4 637 1619 711 881 1904 <1 current 28 4 56 0.053 539	 history1 	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water Glycol	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5304* ASTM D6304*	1 1 1 1 1 2942 1102 1351 3903 Imit/base >25 >20 >0.2 >2000	24 <1 101 4 637 1619 711 881 1904 <1 28 28 4 56 0.053 539 0.0 Current	 history1 	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	1 1 1 1 1 2942 1102 1351 3903 Imit/base >25 20 >0.2 >2000 Imit/base	24 <1 101 4 637 1619 711 881 1904 <1 current 28 4 56 0.053 539 0.0	 history1 -	 history2 -



OIL ANALYSIS REPORT

70 T	T ^{0.25}	FLUID DEGRAD	ATION	method	limit/base	current	history1	histo
60 - 50 -	sodium potassium -0.20	Oxidation	Abs/.1mm	ASTM D7414*	>25	28.7		
	0.15 2.4	VISUAL		method	limit/base	current	history1	histo
	0.15 0.10	White Metal	scalar	Visual*	NONE	VLITE		
	-0.05	Yellow Metal	scalar	Visual*	NONE	NONE		
_		Precipitate	scalar	Visual*	NONE	NONE		
	Jun21/24 Jun21/24	Silt		Visual*	NONE	NONE		
	Jur Jur	Debris Sand/Dirt	scalar	Visual*	NONE	NONE		
	FT-IR (Direct Trend)	Sand/Dirt Appearance	scalar scalar	Visual* Visual*	NORML	NORML		
	Oxidation	Odor	scalar	Visual*	NORML	NORML		
	seesesseese Nitration Sulfation	Emulsified Water	scalar	Visual*	>0.2	.2%		
A	binormal	Free Water	scalar	Visual*		NEG		
Ī		FLUID PROPER	TIES	method	limit/base	current	history1	histo
		Visc @ 40°C	cSt	ASTM D7279(m)	74.0	63.6		
- + -		Vier @ 100%C	cSt	ASTM D7279(m)	11.4	10.1		
Jun21/24	104 Autor 2018	Viscosity Index (VI)	Scale	ASTM D2270*	146	144		
		GRAPHS						
١	Nater (KF)	Iron (ppm)				Lead (ppm)		
-	levere	300			100			
		200 - Severe			톱 50	T		
		abnormal			14 50	Abnormal		
		0				4		
Ab	normal	Jun21/24			Jun21/24	Jun21/24		
24 -	24				٦٢	⊰ Chromium (pp	m)	
Jun21/24	0.12 A				60			
	40 Severe			4(Severe			
	scosity @ 40°C	Abnormal			E 20	Abnormal		
A	nomal	0			(<u></u>		
		Jun21/24			Jun21/24	Jun21/24		
E	Base	Junī			Jun2	Jun2		
-		Copper (ppm)				Silicon (ppm)		
A	bnomal	400 300			60	Severe		
724 +	46				<u>ل</u> 4			
Jun21/24	10.12.1.0.4	100-			20	Abnormal		
4		0 54 0			24			
F	Additives	Jun 21,			Jun21/2	Jun21/24		
1.1	calcium	Viscosity @ 100°	2		-	Soot %		
	zinc	16 I			6.0	Severe		
		Co ¹⁴ Abnormal			_{و2} 4.0			
		© 14 0 12 - Base 10 - Bhormal			_ک و 4.0 ق د 2.0)		
		8				J		
/24	24	Jun21/24			Jun21/24	Jun21/24		
Jun21	12 mil	μĻ			ηn	μĻ		

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Contact/Location: Service ? - PER415ETO Page 2 of 2