

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

INTERNATIONAL 421057

Component Diesel Engine Fluid

PETRO CANADA DURON HP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

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

Fluid Condition

The condition of the oil is acceptable for the time in service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0122251		
Sample Date		Client Info		18 Jun 2024		
Machine Age	hrs	Client Info		9592		
Oil Age	hrs	Client Info		589		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>100	7		
Chromium	ppm	ASTM D5185(m)	>20	<1		
Nickel	ppm	ASTM D5185(m)	>4	<1		
Titanium	ppm	ASTM D5185(m)		0		
Silver	ppm	ASTM D5185(m)	>3	0		
Aluminum	ppm	ASTM D5185(m)	>20	2		
Lead	ppm	ASTM D5185(m)	>40	<1		
Copper	ppm	ASTM D5185(m)	>330	<1		
Tin	ppm	ASTM D5185(m)	>15	0		
Antimony	ppm	ASTM D5185(m)		0		
Vanadium	ppm	ASTM D5185(m)		0		
Beryllium	ppm	ASTM D5185(m)		0		
Cadmium	ppm	ASTM D5185(m)		0		
	pp	()				
ADDITIVES	66	method	limit/base	current	history1	history2
	ppm		limit/base	current 3	history1	history2
ADDITIVES		method	0			
ADDITIVES Boron	ppm	method ASTM D5185(m)	0	3		
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185(m) ASTM D5185(m)	0 0 60	3 0		
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60	3 0 60		
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010	3 0 60 <1		
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010	3 0 60 <1 957		
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070	3 0 60 <1 957 1060	 	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150	3 0 60 <1 957 1060 984	 	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270	3 0 60 <1 957 1060 984 1199	 	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270	3 0 60 <1 957 1060 984 1199 2512	 	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060	3 0 60 <1 957 1060 984 1199 2512 <1		
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060	3 0 60 <1 957 1060 984 1199 2512 <1 <1	 history1	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060	3 0 60 <1 957 1060 984 1199 2512 <1 2512 <1 2	 history1 	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060 iimit/base >25	3 0 60 <1 957 1060 984 1199 2512 <1 2512 <1 20 2512 <1	 history1	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 iimit/base >25	3 0 60 <1 957 1060 984 1199 2512 <1 current 2 2 8 8 18	 history1	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 iimit/base >25	3 0 60 <1 957 1060 984 1199 2512 <1 current 2 8 8 18 0.9	 history1 	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >20	3 0 60 <1 957 1060 984 1199 2512 <1 <i>current</i> 2 8 18 0.9 0.0 <i>current</i>	 history1 	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel Glycol INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D7593* ASTM D7922* method ASTM D7844*	0 0 0 1010 1070 1150 1270 2060 imit/base >25 	3 0 60 <1 957 1060 984 1199 2512 <1 <i>current</i> 2 8 18 0.9 0.0 <i>current</i> 0.2	 history1 -	 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D7593* ASTM D7922* method	0 0 0 1010 1070 1150 1270 2060 2060 225 225 >20 >20 >20	3 0 60 <1 957 1060 984 1199 2512 <1 <i>current</i> 2 8 18 0.9 0.0 <i>current</i>	 history1 history1	 history2 history2



6.0 Severe 5.0 4.0 19 19 19 10

150

140 130 () 120 (40°C) 120 (40°C) 120 Base

100-90 Ab 80 Jun18/24

150

140 130 () 120 (40°C) 120 (40°C) 120 Base

100 90 80

Abnormal 2.0 1.0 0.0 Jun18/24

OIL ANALYSIS REPORT

FLUID DEGRAD		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	15.7		
VISUAL		method	limit/base	current	history1	history2
	scalar					
				-		
				-		
Debris	scalar	Visual*	NONE	NONE		
Sand/Dirt	scalar	Visual*	NONE	NONE		
Appearance	scalar	Visual*	NORML	NORML		
Odor	scalar	Visual*	NORML	NORML		
Emulsified Water	scalar	Visual*	>0.2	NEG		
Free Water	scalar	Visual*		NEG		
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	118.2	91.0		
Visc @ 100°C	cSt	ASTM D7279(m)	15.6	12.6		
Viscosity Index (VI)	Scale	ASTM D2270*	139	134		
GRAPHS						
Iron (ppm)				Lead (ppm)		
300			100	Severe		
200 •			E co	T		
B 100 - Abnormal			đ 50	Abnormal		
0			0			
18/24			18/24	18/24		18/74
Jun			Jun	unc		1
Aluminum (ppm)			60		om)	
Smore				Saura		
			40 E.	- 0		
20 - Abnormal			20	_ Abnormal		
0			0			
18/2			18/2	18/2		18/24
2			Jur	Jur		1
denema				0		
통 200 -			<u></u> 40			
100			20	Abnormai		
0			- 0	4		4
n18/2			n18/2	n18/2		18/2
,			η			-
20 T			6.0			
Abnormal			-40			
0015 Abnormal			Soot %	Abnormal		
3			⁰⁷ 2.0			
10			0.0	24		24
Jun 18/24			Jun18/24	Jun18/24		/81 mJ
	Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 40°C Visc @ 100°C Visc @ 100°C Viscosity Index (VI) GRAPHS Iron (ppm) Aluminum (ppm) Copper (ppm) 400 100 100 100 100 100 100 100	Yellow Metal scalar Precipitate scalar Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Free Water scalar Free Water scalar Free Water scalar Visc @ 40°C cSt Visc @ 100°C cSt Visc @ 100°C cSt Viscosity Index (VI) Scale GRAPHS Iron (ppm) Iron (ppm) Iron (ppm) Image: Severe scalar Aluminum (ppm) Image: Severe scalar Image: Severe scalar Image: Severe scalar Image: Severe scalar Image: Severe scalar Image: Severe scalar Image: Severe scalar Image: Scalar Image: Severe scalar Image: Scalar Image: Severe scalar Image: Scalar Image: Scalar I	Yellow Metal scalar Visual* Precipitate scalar Visual* Silt scalar Visual* Debris scalar Visual* Sand/Dirt scalar Visual* Appearance scalar Visual* Odor scalar Visual* Emulsified Water scalar Visual* Free Water scalar Visual* Free Water scalar Visual* Visc @ 40°C cSt ASTM D7279(m) Viscosity Index (VI) Scale ASTM D2270* GRAPHS Iron (ppm)	Yellow Metal scalar Visual* NONE Precipitate scalar Visual* NONE Silt scalar Visual* NONE Sand/Dirt scalar Visual* NONE Sand/Dirt scalar Visual* NONE Sand/Dirt scalar Visual* NONE Appearance scalar Visual* NORML Odor scalar Visual* NORML Codor scalar Visual* NORML Emulsified Water scalar Visual* NORML Emulsified Water scalar Visual* >0.2 Free Water scalar Visual* NORML Visc @ 40°C cSt ASTM D7279(m) 118.2 Visc @ 100°C cSt ASTM D7279(m) 15.6 Viscosity Index (VI) Scale ASTM D7279(m) 16.0 Mammad for for for for Mammad for for for for Mammad for for for for	Yellow Metal scalar Visual* NONE NONE Precipitate scalar Visual* NONE NONE Silt scalar Visual* NONE NONE Debris scalar Visual* NONE NONE Sand/Dirt scalar Visual* NONE NONE Appearance scalar Visual* NORML NORML Odor scalar Visual* NORML NORML Odor scalar Visual* NORML NORML Odor scalar Visual* NORML NORML Cor scalar Visual* NORML NORML Visc<@ 40°C cSt ASTM D7279(m) 118.2 91.0 Visc @ 100°C cSt ASTM D7279(m) 139 134 GRAPHS Iron (pm) Chromium (ppm) Chromium (ppm) Chromium (ppm) 000000000000000000000000000000000000	Yeilow Metal scalar Visual* NONE Precipitate scalar Visual* NONE NONE Silt scalar Visual* NONE NONE Debris scalar Visual* NONE NONE Appearance scalar Visual* NORML NORML Odor scalar Visual* NORML NORML Emulsified Water scalar Visual* NORML NORML Free Water scalar Visual* NORML NORML Visc@ 40°C cSt ASTMD7279(m) 15.6 12.6 Visc@ 100°C cSt ASTMD7279(m) 15.6 12.6 Opport opport opport opport Uscosity Index (VI) Scale ASTMD7279(m) 15.6 12.6 Opport opport opport opport

Report Id: GFL987 [WCAMIS] 02644531 (Generated: 07/02/2024 10:10:33) Rev: 1

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