

OIL ANALYSIS REPORT

Area (FAN283) 420063

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- QTS)

Sample Rating Trend



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

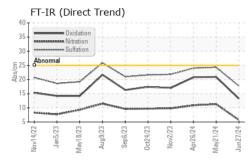
Fluid Condition

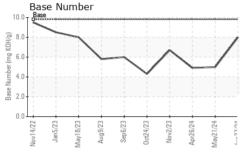
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

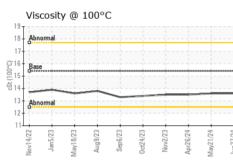
Sample Date Client Info 27 Jun 2024 21 May 2024 26 Apr 2024 Machine Age hrs Client Info 9968 0 9610 Oil Age hrs Client Info 3231 0 2873 Oil Changed Client Info Not Changd Not Changd ABNORMAL Sample Status More Method Securent history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >10 6 48 48 Chromium ppm ASTM D5185m >20 <1 3 4 Nickel ppm ASTM D5185m >3 0 <1 <1 <1 <1 <1 <1 <1 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Sample Date Client Info 27 Jun 2024 21 May 2024 26 Apr 2024 Machine Age 0 9610 0 9610 0 26 Apr 2024 20 Apr	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 9968 0 9610 Oil Age hrs Client Info 3231 0 2873 Oil Changed Client Info Not Changd	Sample Number		Client Info		GFL0077466	GFL0077442	GFL0111498
Oil Age hrs Client Info 3231 0 2873 Oil Changed Client Info Not Changd	Sample Date		Client Info		27 Jun 2024	21 May 2024	26 Apr 2024
Contact Client Info Not Changd Not Changd ABNORMAL AB	Machine Age	hrs	Client Info		9968		9610
CONTAMINATION	Oil Age	hrs	Client Info		3231	0	2873
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method 10.0 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >10.0 6 48 48 Chromium ppm ASTM D5185m >4 0 <1 0 Nickel ppm ASTM D5185m >4 0 <1 <1 <1 Silver ppm ASTM D5185m >3 0 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 <1 0 0 Copper ppm ASTM D5185m >33.0 2 7 6 6 3 2 2 7	Oil Changed		Client Info			Ŭ	Ü
Fuel	Sample Status				NORMAL	ABNORMAL	ABNORMAL
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >10.0 6 48 48 Chromium ppm ASTM D5185m >2.0 <1 3 4 Nickel ppm ASTM D5185m >4 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Pron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	6	48	48
Titanium ppm ASTM D5185m <1	Chromium	ppm	ASTM D5185m	>20	<1	3	4
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 5 ▲ 29 ▲ 29 Lead ppm ASTM D5185m >40 0 <1	Nickel	ppm	ASTM D5185m	>4	0	<1	0
Aluminum ppm ASTM D5185m >20 5 ▲ 29 ▲ 29 Lead ppm ASTM D5185m >40 0 <1 0 Copper ppm ASTM D5185m >330 2 7 6 Tin ppm ASTM D5185m >15 <1 <1 1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 6 3 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 4 1 <1 <1 Manganesium ppm ASTM D5185m 0 <1 1 <1 <1 Magnesium ppm ASTM D5185m 1070	Titanium	ppm	ASTM D5185m		<1	<1	<1
Lead	Silver	ppm		>3			
Copper ppm ASTM D5185m >330 2 7 6 Tin ppm ASTM D5185m >15 <1 <1 1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 6 3 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 <1 1 <1 <1 Magnesium ppm ASTM D5185m 1010 930 910 909 909 Calcium ppm ASTM D5185m 1070 986 1069 1068 Phosphorus ppm ASTM D5185	Aluminum	ppm	ASTM D5185m	>20	5		<u>^</u> 29
Tin	Lead	ppm	ASTM D5185m	>40	0		0
Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 6 3 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 <1	Copper	ppm	ASTM D5185m	>330	2	7	6
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 6 3 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 -1 1 <1 Magnese ppm ASTM D5185m 0 -1 1 <1 Magnesium ppm ASTM D5185m 1010 930 910 909 Calcium ppm ASTM D5185m 1070 986 1069 1068 Phosphorus ppm ASTM D5185m 1270 1235 1217 1206 Sulfur ppm ASTM D5185m 2060 3458 2732 2691 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3	Tin	ppm		>15			
ADDITIVES	Vanadium	ppm	ASTM D5185m			0	0
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 56 64 62 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 56 64 62 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m			3	
Manganese ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 930 910 909 Calcium ppm ASTM D5185m 1070 986 1069 1068 Phosphorus ppm ASTM D5185m 1150 1025 1004 987 Zinc ppm ASTM D5185m 1270 1235 1217 1206 Sulfur ppm ASTM D5185m 2060 3458 2732 2691 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 7 6 Sodium ppm ASTM D5185m >20 3 20 18 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.9 0.9 Nitration Abs/cm *ASTM D7624 >20 5.7 11.3 10.9 Sulfation Abs/.1mm	Molybdenum	ppm			56	64	
Calcium ppm ASTM D5185m 1070 986 1069 1068 Phosphorus ppm ASTM D5185m 1150 1025 1004 987 Zinc ppm ASTM D5185m 1270 1235 1217 1206 Sulfur ppm ASTM D5185m 2060 3458 2732 2691 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 7 6 Sodium ppm ASTM D5185m <1 6 5 Potassium ppm ASTM D5185m >20 3 20 18 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.9 0.9 Nitration Abs/cm *ASTM D7624 >20 5.7 11.3 10.9 Sulfation Abs/.1mm *ASTM D7415	-	ppm					
Phosphorus ppm ASTM D5185m 1150 1025 1004 987 Zinc ppm ASTM D5185m 1270 1235 1217 1206 Sulfur ppm ASTM D5185m 2060 3458 2732 2691 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 7 6 Sodium ppm ASTM D5185m >20 3 20 18 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.9 0.9 Nitration Abs/cm *ASTM D7624 >20 5.7 11.3 10.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 24.3 24.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm							
Zinc ppm ASTM D5185m 1270 1235 1217 1206 Sulfur ppm ASTM D5185m 2060 3458 2732 2691 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 7 6 Sodium ppm ASTM D5185m >20 3 20 18 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.9 0.9 Nitration Abs/cm *ASTM D7624 >20 5.7 11.3 10.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 24.3 24.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.9 20.8		ppm					
Sulfur ppm ASTM D5185m 2060 3458 2732 2691 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 7 6 Sodium ppm ASTM D5185m <1 6 5 Potassium ppm ASTM D5185m >20 3 20 18 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.9 0.9 Nitration Abs/cm *ASTM D7624 >20 5.7 11.3 10.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 24.3 24.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.9 20.8							
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 7 6 Sodium ppm ASTM D5185m <1 6 5 Potassium ppm ASTM D5185m >20 3 20 18 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.9 0.9 Nitration Abs/cm *ASTM D7624 >20 5.7 11.3 10.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 24.3 24.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.9 20.8							
Silicon ppm ASTM D5185m >25 4 7 6 Sodium ppm ASTM D5185m <1					3458		
Sodium ppm ASTM D5185m <1		TS					
Potassium ppm ASTM D5185m >20 3 20 18 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.9 0.9 Nitration Abs/cm *ASTM D7624 >20 5.7 11.3 10.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 24.3 24.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.9 20.8		• • •		>25			
INFRA-RED							
Soot % % *ASTM D7844 >3 0.2 0.9 0.9 Nitration Abs/cm *ASTM D7624 >20 5.7 11.3 10.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 24.3 24.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.9 20.8	Potassium	ppm	ASTM D5185m	>20	3	20	18
Nitration Abs/cm *ASTM D7624 >20 5.7 11.3 10.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 24.3 24.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.9 20.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.7 24.3 24.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.9 20.8		%					
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 20.9 20.8	Nitration	Abs/cm		>20	5.7		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.7	24.3	24.0
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.0 5.0 4.9	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.2	20.9	20.8
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.0	5.0	4.9



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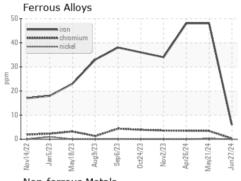


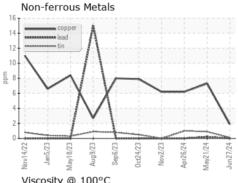


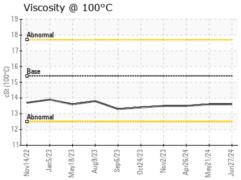
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

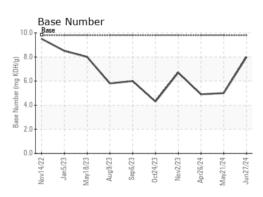
FLUID PROPI	ERIIES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.6	13.5

GRAPHS













Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0077466 Lab Number : 06228277 Unique Number : 11111770

Test Package : FLEET

Received : 05 Jul 2024 **Tested** : 05 Jul 2024

Diagnosed : 05 Jul 2024 - Wes Davis

GFL Environmental - 072 - Americus - Transwaste 361 McMath Mill Road Americus, GA

US 31719 Contact: RICHARD HEINZERLING richard.heinzerling@gflenv.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) T: (229)924-3669