

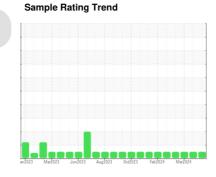
OIL ANALYSIS REPORT



(62A0X15) ALEXANDER CITY 725028-254503

Diesel Engine

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





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

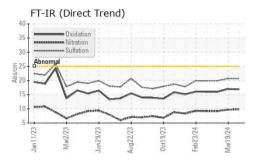
Fluid Condition

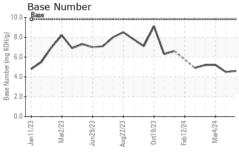
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

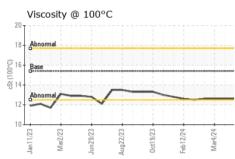
Sample Date	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 2018 20146 20031	Sample Number		Client Info		GFL0089927	GFL0089928	GFL0080720
Oil Age hrs Client Info 2476 2404 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limitibase current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 Water WC Method >0.0 NEG NEG NEG WEAR METALS method limitibase current history1 history2 Iron ppm ASTM D5185m >120 7 9 8 Chromium ppm ASTM D5185m >120 7 9 8 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Itanium ppm ASTM D5185m >20 0 0 0 Chale at	Sample Date		Client Info		02 Apr 2024	19 Mar 2024	04 Mar 2024
Cilichanged Cilient Info N/A N/A N/A N/A NORMAL NO	Machine Age	hrs	Client Info		20218	20146	20031
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2 water WC Method >3.0 <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 <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 <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 <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 <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 <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 <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 <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 <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 <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 <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 <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 <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 <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 <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 <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.	Oil Age	hrs	Client Info		2476	2404	0
NORMAL NORMAL NORMAL NORMAL	Oil Changed		Client Info		N/A	N/A	N/A
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG <t< td=""><td>CONTAMINAT</td><td>ION</td><td>method</td><td>limit/base</td><th>current</th><td>history1</td><td>history2</td></t<>	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 7 9 8 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >40 0 0 0 Cadadium ppm ASTM D5185m >15 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	7	9	8
Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 3 3 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 2 3 3 Tin ppm ASTM D5185m 0 0 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 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0	Chromium	ppm	ASTM D5185m	>20	0	0	0
Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 3 3 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 2 3 3 Tin ppm ASTM D5185m 15 <1 0 0 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 <1 ibistory2 Boron ppm ASTM D5185m 0 9 7 9 Barium ppm ASTM D5185m 0	Nickel	ppm	ASTM D5185m	>5	0	0	0
Silver	Titanium	ppm	ASTM D5185m	>2	0	0	0
Aluminum	Silver		ASTM D5185m	>2	0	0	0
Lead	Aluminum		ASTM D5185m	>20	2	3	3
Copper ppm ASTM D5185m >330 2 3 3 Tin ppm ASTM D5185m >15 <1					0		
Tin							
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 9 7 9 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 60 61 62 63 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1070 1018 1180 1069 Phosphorus ppm ASTM D5185m 1270 1072 1243 1068 Sulfur ppm ASTM D5185m 2060 2953 3768 2770 CONTAMINANTS method limit/base current history1 history2 Solium ppm ASTM D5185m >25					_		
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 9 7 9 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1				710			
ADDITIVES	Cadmium						
Barium	ADDITIVES		method	limit/base	current	history1	history2
Barium	Boron	ppm	ASTM D5185m	0	9	7	9
Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 824 951 851 Calcium ppm ASTM D5185m 1070 1018 1180 1069 Phosphorus ppm ASTM D5185m 1150 836 986 877 Zinc ppm ASTM D5185m 1270 1072 1243 1068 Sulfur ppm ASTM D5185m 2060 2953 3768 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 6 5 Sodium ppm ASTM D5185m >20 0 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7815	Barium	ppm	ASTM D5185m	0	0	0	0
Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 824 951 851 Calcium ppm ASTM D5185m 1070 1018 1180 1069 Phosphorus ppm ASTM D5185m 1150 836 986 877 Zinc ppm ASTM D5185m 1270 1072 1243 1068 Sulfur ppm ASTM D5185m 2060 2953 3768 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 6 5 Sodium ppm ASTM D5185m >20 0 <1	Molybdenum	ppm	ASTM D5185m	60	61	62	63
Magnesium ppm ASTM D5185m 1010 824 951 851 Calcium ppm ASTM D5185m 1070 1018 1180 1069 Phosphorus ppm ASTM D5185m 1150 836 986 877 Zinc ppm ASTM D5185m 1270 1072 1243 1068 Sulfur ppm ASTM D5185m 2060 2953 3768 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 6 5 Sodium ppm ASTM D5185m >20 0 <1	-		ASTM D5185m	0	<1	0	<1
Calcium ppm ASTM D5185m 1070 1018 1180 1069 Phosphorus ppm ASTM D5185m 1150 836 986 877 Zinc ppm ASTM D5185m 1270 1072 1243 1068 Sulfur ppm ASTM D5185m 2060 2953 3768 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 6 5 Sodium ppm ASTM D5185m >20 0 <1	•				824		851
Phosphorus ppm ASTM D5185m 1150 836 986 877 Zinc ppm ASTM D5185m 1270 1072 1243 1068 Sulfur ppm ASTM D5185m 2060 2953 3768 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 6 5 Sodium ppm ASTM D5185m 5 5 6 Potassium ppm ASTM D5185m >20 0 <1			ASTM D5185m	1070		1180	
Zinc ppm ASTM D5185m 1270 1072 1243 1068 Sulfur ppm ASTM D5185m 2060 2953 3768 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 6 5 Sodium ppm ASTM D5185m 5 5 6 Potassium ppm ASTM D5185m >20 0 <1							
Sulfur ppm ASTM D5185m 2060 2953 3768 2770 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 6 5 Sodium ppm ASTM D5185m 5 5 6 Potassium ppm ASTM D5185m >20 0 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 9.8 9.7 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.7 19.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.0 16.0							
Silicon ppm ASTM D5185m >25 6 6 5 Sodium ppm ASTM D5185m 5 5 6 Potassium ppm ASTM D5185m >20 0 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 9.8 9.7 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.7 19.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.0 16.0	Sulfur						
Sodium ppm ASTM D5185m 5 6 Potassium ppm ASTM D5185m >20 0 <1	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 5 6 Potassium ppm ASTM D5185m >20 0 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 9.8 9.7 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.7 19.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.0 16.0	Silicon	ppm	ASTM D5185m	>25	6	6	5
Potassium ppm ASTM D5185m >20 0 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 9.8 9.7 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.7 19.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.0 16.0	Sodium		ASTM D5185m		5	5	6
Soot % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 9.8 9.7 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.7 19.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.0 16.0	Potassium		ASTM D5185m	>20		<1	0
Nitration Abs/cm *ASTM D7624 >20 9.8 9.7 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.7 19.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.0 16.0	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 9.8 9.7 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.7 19.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.0 16.0	Soot %	%	*ASTM D7844	>4	0.2	0.2	0.1
Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.7 19.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.0 16.0							
Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.0 16.0	Sulfation						
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.9	17.0	16.0
	Base Number (BN)	mg KOH/g			4.6	4.5	5.2



OIL ANALYSIS REPORT



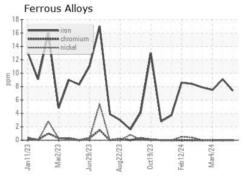


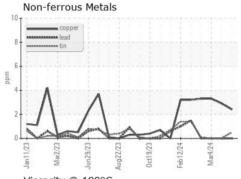


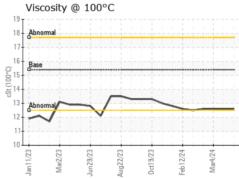
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

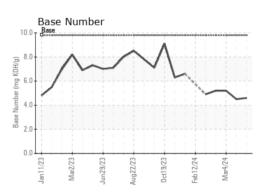
FLUID PROF	PERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.6	12.6	12.6

GRAPHS













Certificate 12367

Laboratory Sample No.

: GFL0089927 Lab Number : 06144926 Unique Number : 10969734

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received

: 10 Apr 2024 **Tested** : 11 Apr 2024 Diagnosed

: 11 Apr 2024 - Wes Davis

GFL Environmental - 172 - Montgomery-Alexander City-Tallahassee Multiple Sites Montgomery, AL US 36108

Contact: RICHARD HATFIELD rhatfield@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)

Report Id: GFL172 [WUSCAR] 06144926 (Generated: 04/11/2024 14:34:58) Rev: 1

Submitted By: Lisa Reeves

T:

F: