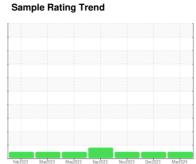


OIL ANALYSIS REPORT









Machine Id
811067
Component
Diesel Engine
Fluid

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

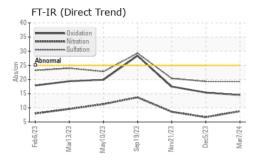
Fluid Condition

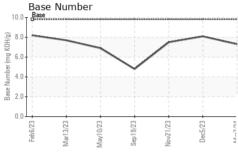
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

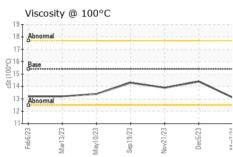
Sample Number Client Info GFL0098858 GFL0078285 GFL00800 Sample Date Client Info 07 Mar 2024 05 Dec 2023 21 Nov 20 Machine Age hrs Client Info 0 5948 5852 Oil Age hrs Client Info 0 226 Not Changd N	SAMPLE INFORM	/AT <u>ION</u>	method	limit/base	current	history1	history2
Sample Date Client Info 07 Mar 2024 05 Dec 2023 21 Nov 20.					GFL0098858	GFL0078285	GFL0080030
Machine Age hrs Client Info 0 5948 5852 Oli Age hrs Client Info 0 226 0 Oli Changed Client Info Not Changd Not Changd Not Changd NoRMAL NORMAL	·					05 Dec 2023	21 Nov 2023
Oil Age	•	hrs					
Not Changed Sample Status							
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history	-				-		Not Changd
Fuel	-					Ŭ	_
Water WC Method >0.2 NEG NEG <t< td=""><td>CONTAMINATI</td><td>ON</td><td>method</td><td>limit/base</td><td>current</td><td>history1</td><td>history2</td></t<>	CONTAMINATI	ON	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 history1 Iron ppm ASTM D5185m >120 27 10 13 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >5 2 0 0 Titanium ppm ASTM D5185m >2 <1	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	27	10	13
Titanium ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 1 5 9 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 2 1 <1 Tin ppm ASTM D5185m >330 2 1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 1 0 Barium ppm ASTM D5185m 0 0 1 0 Barium ppm ASTM D5185m 0 0 1 0	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Titanium	Nickel						0
Silver	Titanium	• •	ASTM D5185m	>2	<1	0	0
Aluminum	Silver					0	0
Lead	Aluminum		ASTM D5185m	>20	1	5	9
Copper ppm ASTM D5185m >330 2 1 <1 Tin ppm ASTM D5185m >15 0 0 0 Vanadium ppm ASTM D5185m <1	Lead				0	0	0
Trin	Copper	• •	ASTM D5185m	>330	2	1	<1
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 1 0 Barium ppm ASTM D5185m 0 0 0 3 Molybdenum ppm ASTM D5185m 0 0 0 3 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 932 885 905 Calcium ppm ASTM D5185m 1070 1361 977 1041 Phosphorus ppm ASTM D5185m 1270 1333 1167 1197 Sulfur ppm ASTM D5185m 2060 3734 3102 3012 CONTAMINANTS method limit/base current history	• •				0	0	
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 1 0 Barium ppm ASTM D5185m 0 0 0 3 Molybdenum ppm ASTM D5185m 60 57 54 63 Manganese ppm ASTM D5185m 0 <1	Vanadium		ASTM D5185m		<1	0	0
Boron	Cadmium						
Barium ppm ASTM D5185m 0 0 0 3 Molybdenum ppm ASTM D5185m 60 57 54 63 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 57 54 63 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 932 885 905 Calcium ppm ASTM D5185m 1070 1361 977 1041 Phosphorus ppm ASTM D5185m 1150 1099 977 996 Zinc ppm ASTM D5185m 1270 1333 1167 1197 Sulfur ppm ASTM D5185m 2060 3734 3102 3012 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 5 3 Sodium ppm ASTM D5185m >20 3 9 18 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844	Boron	ppm	ASTM D5185m	0	0	1	0
Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 932 885 905 Calcium ppm ASTM D5185m 1070 1361 977 1041 Phosphorus ppm ASTM D5185m 1150 1099 977 996 Zinc ppm ASTM D5185m 1270 1333 1167 1197 Sulfur ppm ASTM D5185m 2060 3734 3102 3012 CONTAMINANTS method limit/base current history1 history3 Silicon ppm ASTM D5185m >25 4 5 3 Sodium ppm ASTM D5185m 20 3 9 18 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7815 </td <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <td>0</td> <td>0</td> <td>3</td>	Barium	ppm	ASTM D5185m	0	0	0	3
Magnesium ppm ASTM D5185m 1010 932 885 905 Calcium ppm ASTM D5185m 1070 1361 977 1041 Phosphorus ppm ASTM D5185m 1150 1099 977 996 Zinc ppm ASTM D5185m 1270 1333 1167 1197 Sulfur ppm ASTM D5185m 2060 3734 3102 3012 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 5 3 Sodium ppm ASTM D5185m 22 2 2 2 Potassium ppm ASTM D5185m >20 3 9 18 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7815<	Molybdenum	ppm	ASTM D5185m	60	57	54	63
Calcium ppm ASTM D5185m 1070 1361 977 1041 Phosphorus ppm ASTM D5185m 1150 1099 977 996 Zinc ppm ASTM D5185m 1270 1333 1167 1197 Sulfur ppm ASTM D5185m 2060 3734 3102 3012 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 5 3 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 3 9 18 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7	Manganese	ppm	ASTM D5185m	0	<1	0	0
Phosphorus ppm ASTM D5185m 1150 1099 977 996 Zinc ppm ASTM D5185m 1270 1333 1167 1197 Sulfur ppm ASTM D5185m 2060 3734 3102 3012 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 5 3 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 3 9 18 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4	Magnesium	ppm	ASTM D5185m	1010	932	885	905
Zinc ppm ASTM D5185m 1270 1333 1167 1197 Sulfur ppm ASTM D5185m 2060 3734 3102 3012 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 5 3 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 3 9 18 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4 FLUID DEGRADATION method limit/base current history1 history1	Calcium		ASTM D5185m	1070	1361	977	1041
Zinc ppm ASTM D5185m 1270 1333 1167 1197 Sulfur ppm ASTM D5185m 2060 3734 3102 3012 CONTAMINANTS method limit/base current history history Silicon ppm ASTM D5185m >25 4 5 3 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 3 9 18 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4 FLUID DEGRADATION method limit/base current history1 history1	Phosphorus	ppm	ASTM D5185m	1150	1099	977	996
Sulfur ppm ASTM D5185m 2060 3734 3102 3012 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 4 5 3 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 3 9 18 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4 FLUID DEGRADATION method limit/base current history1 history1		• •	ASTM D5185m	1270	1333	1167	1197
Silicon ppm ASTM D5185m >25 4 5 3 Sodium ppm ASTM D5185m 2 2 2 2 Potassium ppm ASTM D5185m >20 3 9 18 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4 FLUID DEGRADATION method limit/base current history1 history	Sulfur		ASTM D5185m	2060	3734	3102	3012
Sodium ppm ASTM D5185m 2 2 2 2 2 Potassium ppm ASTM D5185m >20 3 9 18 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4 FLUID DEGRADATION method limit/base current history1 history1	CONTAMINAN [*]	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 9 18 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4 FLUID DEGRADATION method limit/base current history1 history	Silicon	ppm	ASTM D5185m	>25	4	5	3
INFRA-RED	Sodium	ppm	ASTM D5185m		2	2	2
Soot % % *ASTM D7844 >4 0.9 0.2 0.3 Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4 FLUID DEGRADATION method limit/base current history history	Potassium	ppm	ASTM D5185m	>20	3	9	18
Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4 FLUID DEGRADATION method limit/base current history1 history1	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 8.8 6.7 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4 FLUID DEGRADATION method limit/base current history1 history1 history1	Soot %	%	*ASTM D7844	>4	0.9	0.2	0.3
Sulfation Abs/.1mm *ASTM D7415 >30 19.3 19.3 20.4 FLUID DEGRADATION method limit/base current history1 history							
·							
Oxidation Abs/.1mm *ASTM D7414 >25 14.5 15.4 17.5				11 1. //		11.	h: - 1 O
	FLUID DEGRAD	<u>NOITA</u>	method	limit/base		history1	nistory2
Base Number (BN) mg KOH/g ASTM D2896 9.8 7.3 8.1 7.5							



OIL ANALYSIS REPORT



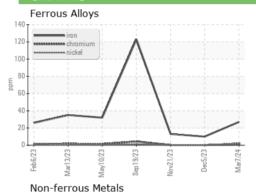


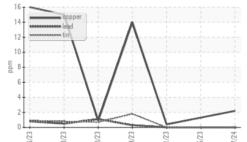


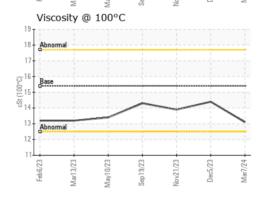
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

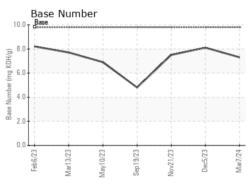
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	14.4	13.9

GRAPHS













Certificate 12367

Sample No.

Laboratory Lab Number : 06142027 Unique Number : 10966835

: GFL0098858

Test Package : FLEET

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 08 Apr 2024

Tested : 09 Apr 2024 Diagnosed

: 09 Apr 2024 - Wes Davis

10129 Highway 62 West Princeton, KY US 42445

GFL Environmental - 844 - Princeton Hauling

Contact: ROBERT THIBAULT robert.thibault@gflenv.com T: (931)237-6045

* - 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: GFL844 [WUSCAR] 06142027 (Generated: 04/09/2024 15:37:03) Rev: 1

Submitted By: ROBERT THIBAULT