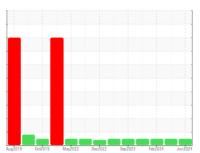


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id

429056-402461

Diesel Engine

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

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

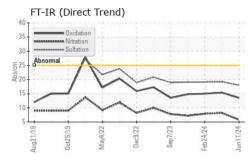
Fluid Condition

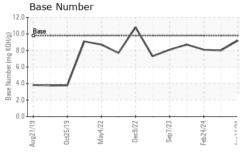
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

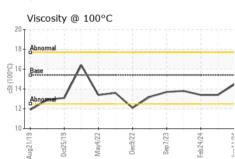
Client Info	GAL)		Aug2019	Oct2019 May2022	Dec2022 Sep2023 Feb2024	Jun2024	
Client Info	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Client Info	Sample Number		Client Info		GFL0125258	GFL0114416	GFL0114497
Oil Age hrs Client Info Changed Changed Changed Not Changed Not Changed Not Changed Not Changed NorMAL Not Changed NorMAL NorMAL	Sample Date		Client Info		11 Jun 2024	28 Feb 2024	24 Feb 2024
Contained Client Info Changed NoRMAL NORMAL NORMAL	Machine Age	hrs	Client Info		13410	271218	12632
NORMAL NORMAL NORMAL CONTAMINATION method minit/base current history1 history2	Oil Age	hrs	Client Info		0	0	12632
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
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 >110 8 13 12 Chromium ppm ASTM D5185m >4 0 <1 0 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >25 3 3 1 Lead ppm ASTM D5185m >45 0 <1 <1 <1 <1 Tin ppm ASTM D5185m >4 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	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
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>110	8	13	12
Description	Chromium	ppm	ASTM D5185m	>4	0	<1	0
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		0	0	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >85 <1 <1 <1 <1 <1 <1 <1 <1 O	Aluminum	ppm	ASTM D5185m	>25	3	3	1
Trin	Lead	ppm	ASTM D5185m	>45	0	<1	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 <1 <1 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1070 1087 1034 1219 Phosphorus ppm ASTM D5185m 1070 1087 1034 1219 Phosphorus ppm ASTM D5185m 1270 1308 1221 1536 Sulfur ppm ASTM D5185m 2060 3810 2966 3648 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>85	<1	<1	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 <1	Tin	ppm	ASTM D5185m	>4	<1	<1	0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 <1	Vanadium	ppm	ASTM D5185m		0	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 58 59 64 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 977 944 1122 Calcium ppm ASTM D5185m 1070 1087 1034 1219 Phosphorus ppm ASTM D5185m 1150 1108 972 1238 Zinc ppm ASTM D5185m 1270 1308 1221 1536 Sulfur ppm ASTM D5185m 2060 3810 2966 3648 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 4 Sodium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base </th <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 58 59 64 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 977 944 1122 Calcium ppm ASTM D5185m 1070 1087 1034 1219 Phosphorus ppm ASTM D5185m 1150 1108 972 1238 Zinc ppm ASTM D5185m 1270 1308 1221 1536 Sulfur ppm ASTM D5185m 2060 3810 2966 3648 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 4 Sodium ppm ASTM D5185m 3 4 4 4 Potassium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base	Boron	ppm	ASTM D5185m	0	5	<1	<1
Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 977 944 1122 Calcium ppm ASTM D5185m 1070 1087 1034 1219 Phosphorus ppm ASTM D5185m 1150 1108 972 1238 Zinc ppm ASTM D5185m 1270 1308 1221 1536 Sulfur ppm ASTM D5185m 2060 3810 2966 3648 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 4 Sodium ppm ASTM D5185m >3 4 4 4 Potassium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 977 944 1122 Calcium ppm ASTM D5185m 1070 1087 1034 1219 Phosphorus ppm ASTM D5185m 1150 1108 972 1238 Zinc ppm ASTM D5185m 1270 1308 1221 1536 Sulfur ppm ASTM D5185m 2060 3810 2966 3648 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 4 Sodium ppm ASTM D5185m 3 4 4 4 Potassium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/cm *ASTM D7415	Molybdenum	ppm	ASTM D5185m	60	58	59	64
Calcium ppm ASTM D5185m 1070 1087 1034 1219 Phosphorus ppm ASTM D5185m 1150 1108 972 1238 Zinc ppm ASTM D5185m 1270 1308 1221 1536 Sulfur ppm ASTM D5185m 2060 3810 2966 3648 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 4 Sodium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.4 0.3 Nitration Abs/.1mm *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION<	Manganese	ppm	ASTM D5185m	0	<1	0	0
Phosphorus ppm ASTM D5185m 1150 1108 972 1238 Zinc ppm ASTM D5185m 1270 1308 1221 1536 Sulfur ppm ASTM D5185m 2060 3810 2966 3648 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 4 Sodium ppm ASTM D5185m 3 4 4 4 Potassium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION method<	Magnesium	ppm	ASTM D5185m		977	944	1122
Zinc ppm ASTM D5185m 1270 1308 1221 1536 Sulfur ppm ASTM D5185m 2060 3810 2966 3648 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 4 Sodium ppm ASTM D5185m 3 4 4 Potassium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D74	Calcium	ppm	ASTM D5185m	1070	1087	1034	1219
Sulfur ppm ASTM D5185m 2060 3810 2966 3648 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 4 Sodium ppm ASTM D5185m 3 4 4 Potassium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 15.4 15.0	Phosphorus	ppm	ASTM D5185m	1150	1108	972	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 4 Sodium ppm ASTM D5185m 3 4 4 Potassium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 15.4 15.0	Zinc	ppm	ASTM D5185m	1270	1308	1221	1536
Silicon ppm ASTM D5185m >30 4 5 4 Sodium ppm ASTM D5185m 3 4 4 Potassium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 15.4 15.0	Sulfur	ppm	ASTM D5185m	2060	3810	2966	3648
Sodium ppm ASTM D5185m 3 4 4 Potassium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 15.4 15.0	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 5 4 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 15.4 15.0	Silicon	ppm	ASTM D5185m	>30	4	5	4
INFRA-RED	Sodium	ppm	ASTM D5185m		3	4	4
Soot % % *ASTM D7844 >3 0.3 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 15.4 15.0	Potassium	ppm	ASTM D5185m	>20	5	4	2
Nitration Abs/cm *ASTM D7624 >20 5.8 8.2 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 15.4 15.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 15.4 15.0	Soot %	%	*ASTM D7844	>3	0.3	0.4	0.3
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 15.4 15.0	Nitration	Abs/cm	*ASTM D7624	>20	5.8	8.2	7.9
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.0	19.2	19.1
	FLUID DEGRAI	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.5	15.4	15.0
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8		8.0	



OIL ANALYSIS REPORT



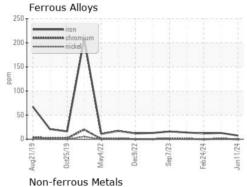


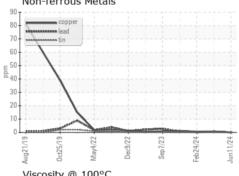


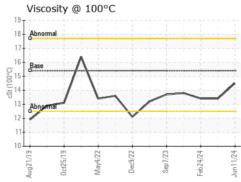
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

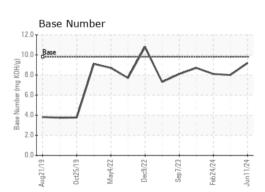
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.5	13.4	13.4

GRAPHS













Certificate 12367

Laboratory Sample No.

: GFL0125258 Lab Number : 06217576 Unique Number : 11090440 Test Package : FLEET

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

Received : 21 Jun 2024 **Tested** : 24 Jun 2024 Diagnosed : 24 Jun 2024 - Wes Davis

GFL Environmental - 865 - East Mount Hauling 7213 East Mount Houston Road

Houston, TX US 77050 Contact: Saul Castillo

saul.castillo@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: GFL865 [WUSCAR] 06217576 (Generated: 06/24/2024 22:05:14) Rev: 1

Submitted By: TECHNICIAN ACCOUNT

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