

OIL ANALYSIS REPORT

(JB5349) 11328

Diesel Engine

PETRO CANADA DURON SHP 15W40 (3 GAL)

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

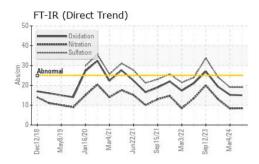
Fluid Condition

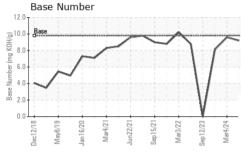
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

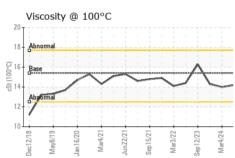
Sample Number Client Info GFL0109689 GFL0109760 GFL0109733 Sample Date Client Info 30 May 2024 04 Mar 2024 22 Jan 2024 04 Mar 2024 22 Jan 2024 07 Jan 2024 04 Mar 2024 22 Jan 2024 07 Jan 2024 07 Jan 2024 07 Jan 2024 08 Jan 2024 0	4L)		reczu i o i wiayzi	UI9 Janzuzu Marzuzi Ju	inzuzi sepzuzi marzuzz sepzuza	Marzuz4	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 0 7405	Sample Number		Client Info		GFL0109689	GFL0109760	GFL0109732
Oil Age hrs Client Info N/A N/A Changed Changed Oil Changed Sample Status Client Info N/A N/A N/A Changed Sample Status NORMAL	Sample Date		Client Info		30 May 2024	04 Mar 2024	22 Jan 2024
Colient linfo	Machine Age	hrs	Client Info		0	0	7405
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2 NEG N	Oil Age	hrs	Client Info		0	0	497
CONTAMINATION	Oil Changed		Client Info		N/A	N/A	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method Imitibase current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 6 10 21 Chromium ppm ASTM D5185m >20 <1	CONTAMINAT	TION	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
	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	6	10	21
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	0	<1	0
Aluminum	Titanium	ppm	ASTM D5185m		<1	<1	<1
Lead	Silver	ppm	ASTM D5185m	>3	0	<1	0
Copper	Aluminum	ppm	ASTM D5185m	>20	2	3	6
Tin	Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 3 3 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 810 956 956 Calcium ppm ASTM D5185m 1070 990 1141 1183 Phosphorus ppm ASTM D5185m 1270 1051 1259 1239 Sulfur ppm ASTM D5185m 2060 2997 3397 2987 CONTAMINANTS method limit/base current his	Copper	ppm	ASTM D5185m	>330	<1	2	3
Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 3 3 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>15	<1	<1	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 53 63 64 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 53 63 64 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 810 956 956 Calcium ppm ASTM D5185m 1070 990 1141 1183 Phosphorus ppm ASTM D5185m 1150 906 1071 1076 Zinc ppm ASTM D5185m 1270 1051 1259 1239 Sulfur ppm ASTM D5185m 2060 2997 3397 2987 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 22 2 3 6 Sodium ppm ASTM D5185m 20 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >3 <t< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>1</th><td>3</td><td>3</td></t<>	Boron	ppm	ASTM D5185m	0	1	3	3
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 810 956 956 Calcium ppm ASTM D5185m 1070 990 1141 1183 Phosphorus ppm ASTM D5185m 1150 906 1071 1076 Zinc ppm ASTM D5185m 1270 1051 1259 1239 Sulfur ppm ASTM D5185m 2060 2997 3397 2987 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 6 Sodium ppm ASTM D5185m >20 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/:1mm *ASTM D7815	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 810 956 956 Calcium ppm ASTM D5185m 1070 990 1141 1183 Phosphorus ppm ASTM D5185m 1150 906 1071 1076 Zinc ppm ASTM D5185m 1270 1051 1259 1239 Sulfur ppm ASTM D5185m 2060 2997 3397 2987 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 6 Sodium ppm ASTM D5185m 20 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION *ASTM D7414 <t< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td>60</td><th>53</th><td>63</td><td>64</td></t<>	Molybdenum	ppm	ASTM D5185m	60	53	63	64
Calcium ppm ASTM D5185m 1070 990 1141 1183 Phosphorus ppm ASTM D5185m 1150 906 1071 1076 Zinc ppm ASTM D5185m 1270 1051 1259 1239 Sulfur ppm ASTM D5185m 2060 2997 3397 2987 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 6 Sodium ppm ASTM D5185m 2 2 3 Potassium ppm ASTM D5185m >20 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION *ASTM D7414 >25 15.0	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 906 1071 1076 Zinc ppm ASTM D5185m 1270 1051 1259 1239 Sulfur ppm ASTM D5185m 2060 2997 3397 2987 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 6 Sodium ppm ASTM D5185m 2 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/cm *ASTM D7624 >20 8.4 8.3 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1m	Magnesium	ppm	ASTM D5185m	1010	810	956	956
Zinc ppm ASTM D5185m 1270 1051 1259 1239 Sulfur ppm ASTM D5185m 2060 2997 3397 2987 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 6 Sodium ppm ASTM D5185m 2 2 2 3 Potassium ppm ASTM D5185m >20 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/cm *ASTM D7624 >20 8.4 8.3 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Calcium	ppm	ASTM D5185m	1070	990	1141	1183
Sulfur ppm ASTM D5185m 2060 2997 3397 2987 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 6 Sodium ppm ASTM D5185m 2 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/cm *ASTM D7624 >20 8.4 8.3 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.2 19.4	Phosphorus	ppm	ASTM D5185m	1150	906	1071	1076
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 6 Sodium ppm ASTM D5185m 2 2 3 Potassium ppm ASTM D5185m >20 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/cm *ASTM D7624 >20 8.4 8.3 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.2 19.4	Zinc	ppm	ASTM D5185m	1270	1051	1259	1239
Silicon ppm ASTM D5185m >25 3 5 6 Sodium ppm ASTM D5185m 2 2 2 3 Potassium ppm ASTM D5185m >20 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/cm *ASTM D7624 >20 8.4 8.3 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.2 19.4	Sulfur	ppm	ASTM D5185m	2060	2997	3397	2987
Sodium ppm ASTM D5185m 2 2 3 Potassium ppm ASTM D5185m >20 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/cm *ASTM D7624 >20 8.4 8.3 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.2 19.4	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/cm *ASTM D7624 >20 8.4 8.3 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.2 19.4	Silicon	ppm	ASTM D5185m	>25	3	5	6
INFRA-RED	Sodium	ppm	ASTM D5185m		2	2	3
Soot % *ASTM D7844 >3 1 0.9 2.2 Nitration Abs/cm *ASTM D7624 >20 8.4 8.3 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.2 19.4	Potassium	ppm	ASTM D5185m	>20	2	3	0
Nitration Abs/cm *ASTM D7624 >20 8.4 8.3 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.2 19.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.0 19.0 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.2 19.4	Soot %	%	*ASTM D7844	>3	1	0.9	2.2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.2 19.4	Nitration	Abs/cm	*ASTM D7624	>20	8.4	8.3	13.1
Oxidation Abs/.1mm *ASTM D7414 >25 15.0 15.2 19.4	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.0	19.0	24.2
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.0	15.2	19.4
	Base Number (BN)				9.2		8.1



OIL ANALYSIS REPORT



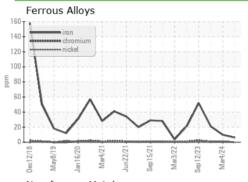


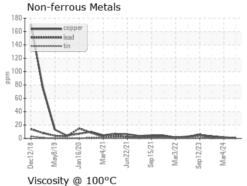


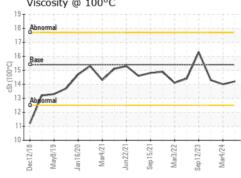
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

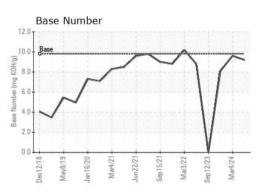
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.0	14.3	

GRAPHS













Certificate 12367

Laboratory Sample No.

: GFL0109689 Lab Number : 06196101 Unique Number : 11058224 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 : 30 May 2024 **Tested** : 31 May 2024

Diagnosed : 31 May 2024 - Wes Davis

2810 Contentnea Road S

Wilson, NC US 27893-8501 Contact: SPENCER LIGGON spencer.liggon@gflenv.com T: (800)207-6618

* - 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)

GFL Environmental - 005 - Wilson/Tri-East(CNG)