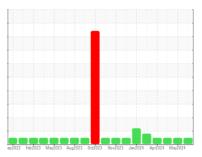


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id **727100-361676**

Component

Diesel Engine

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

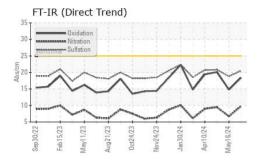
Fluid Condition

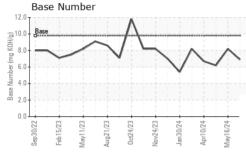
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

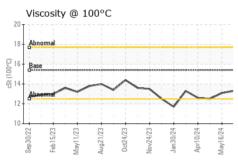
SAMPLE INFORMATION method limit/base current history1 history2	AAL)		epzuzz reuzu	zs mayzozs Augzozs oc	azuza Novzuza Janzuza Aprzuza	may2024	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 0 0 160546 Oil Age mls Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A Changed Sample Status Client Info N/A N/A N/A N/A N/A CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG NEG WEAR METALS method limit/base current history2 history2 Iron ppm ASTM D5185m >100 14 5 11 Chromium ppm ASTM D5185m >20 <1 0 <1 Chromium ppm ASTM D5185m >20 3 2 2 Silver ppm ASTM D5185m >30 0 <1	Sample Number		Client Info		GFL0104860	GFL0104831	GFL0104816
Oil Age mls Client Info N/A N/A N/A Changed Oil Changed Client Info N/A N/A N/A Changed Sample Status Client Info N/A N/A N/A Changed CONTAMINATION method Imitibase current inistory2 Fuel WC Method >5 <1.0	Sample Date		Client Info		08 Jul 2024	16 May 2024	19 Apr 2024
Oil Changed Sample Status Client Info N/A N/A N/A Changed NORMAL NORMAL NORMAL NO ADD ADD NO ADD ADD NO ADD ADD ADD ADD ADD ADD ADD ADD A	Machine Age	mls	Client Info		0		
Sample Status	Oil Age	mls	Client Info		0	0	0
Fuel	Oil Changed		Client Info		N/A	N/A	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 14 5 11 Chromium ppm ASTM D5185m >20 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
Second WC Method NEG NEG NEG	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 0 <1 Nickel ppm ASTM D5185m >4 0 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	14	5	11
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 3 2 2 Lead ppm ASTM D5185m >40 0 <1	Nickel	ppm	ASTM D5185m	>4	0	0	<1
Aluminum	Titanium	ppm	ASTM D5185m		<1	<1	0
Lead ppm ASTM D5185m >40 0 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 2 <1 4 Tin ppm ASTM D5185m >15 0 <1	Aluminum	ppm	ASTM D5185m	>20	3	2	2
Tin ppm ASTM D5185m >15 0 <1 <1 Vanadium ppm ASTM D5185m <1 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 2 1 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 1 Magnesium ppm ASTM D5185m 1010 886 865 885 Calcium ppm ASTM D5185m 1070 1075 959 1028 Phosphorus ppm ASTM D5185m 1270 1233 1135 1196 Sulfur ppm ASTM D5185m 2060 2716 <td>Lead</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>40</td> <th>0</th> <td><1</td> <td>0</td>	Lead	ppm	ASTM D5185m	>40	0	<1	0
Vanadium ppm ASTM D5185m <1 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 2 1 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 1 1 Magnesium ppm ASTM D5185m 1010 886 865 885 Calcium ppm ASTM D5185m 1070 1075 959 1028 Phosphorus ppm ASTM D5185m 1150 1012 946 1006 Zinc ppm ASTM D5185m 1270 1233 1135 1196 Sulfur ppm ASTM D5185m 2060 2716 3234 3229 CONTAMINANTS method limit/base	Copper	ppm	ASTM D5185m	>330	2	<1	4
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 2 1 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 -1 1 Magnesium ppm ASTM D5185m 0 0 -1 1 Magnesium ppm ASTM D5185m 1070 1075 959 1028 Phosphorus ppm ASTM D5185m 1150 1012 946 1006 Zinc ppm ASTM D5185m 1270 1233 1135 1196 Sulfur ppm ASTM D5185m 2060 2716 3234 3229 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2	Tin	ppm	ASTM D5185m	>15	0	<1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 2 1 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 56 52 53 Manganese ppm ASTM D5185m 0 0 <1	Vanadium	ppm	ASTM D5185m		<1	0	<1
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 56 52 53 Manganese ppm ASTM D5185m 0 0 <1 1 Magnesium ppm ASTM D5185m 1010 886 865 885 Calcium ppm ASTM D5185m 1070 1075 959 1028 Phosphorus ppm ASTM D5185m 1150 1012 946 1006 Zinc ppm ASTM D5185m 1270 1233 1135 1196 Sulfur ppm ASTM D5185m 2060 2716 3234 3229 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m 7 4 6 Potassium ppm ASTM D5185m 7	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 56 52 53 Manganese ppm ASTM D5185m 0 0 <1	Boron	ppm	ASTM D5185m	0	0	2	1
Manganese ppm ASTM D5185m 0 0 <1 1 Magnesium ppm ASTM D5185m 1010 886 865 885 Calcium ppm ASTM D5185m 1070 1075 959 1028 Phosphorus ppm ASTM D5185m 1150 1012 946 1006 Zinc ppm ASTM D5185m 1270 1233 1135 1196 Sulfur ppm ASTM D5185m 2060 2716 3234 3229 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m 7 4 6 Potassium ppm ASTM D5185m >20 2 1 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 886 865 885 Calcium ppm ASTM D5185m 1070 1075 959 1028 Phosphorus ppm ASTM D5185m 1150 1012 946 1006 Zinc ppm ASTM D5185m 1270 1233 1135 1196 Sulfur ppm ASTM D5185m 2060 2716 3234 3229 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m >20 2 1 <1	Molybdenum	ppm	ASTM D5185m	60	56	52	
Calcium ppm ASTM D5185m 1070 1075 959 1028 Phosphorus ppm ASTM D5185m 1150 1012 946 1006 Zinc ppm ASTM D5185m 1270 1233 1135 1196 Sulfur ppm ASTM D5185m 2060 2716 3234 3229 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m >20 2 1 <1	Manganese	ppm	ASTM D5185m	0	0	<1	1
Phosphorus ppm ASTM D5185m 1150 1012 946 1006 Zinc ppm ASTM D5185m 1270 1233 1135 1196 Sulfur ppm ASTM D5185m 2060 2716 3234 3229 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m >20 2 1 <1 Potassium ppm ASTM D5185m >20 2 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.2 0.4 Nitration Abs/.mm *ASTM D7415 >30 20.5 18.8 20.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *AS		ppm	ASTM D5185m	1010	886	865	885
Zinc ppm ASTM D5185m 1270 1233 1135 1196 Sulfur ppm ASTM D5185m 2060 2716 3234 3229 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m 7 4 6 Potassium ppm ASTM D5185m >20 2 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 6.7 9.5 Sulfation Abs/.1mm *ASTM D7415 >30 20.5 18.8 20.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7	Calcium	ppm	ASTM D5185m	1070	1075	959	1028
Sulfur ppm ASTM D5185m 2060 2716 3234 3229 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m 7 4 6 Potassium ppm ASTM D5185m >20 2 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 6.7 9.5 Sulfation Abs/.1mm *ASTM D7415 >30 20.5 18.8 20.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.4 14.8 20.1	Phosphorus	ppm		1150	1012	946	1006
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m 7 4 6 Potassium ppm ASTM D5185m >20 2 1 <1	Zinc	ppm	ASTM D5185m	1270	1233	1135	1196
Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m 7 4 6 Potassium ppm ASTM D5185m >20 2 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 6.7 9.5 Sulfation Abs/.1mm *ASTM D7415 >30 20.5 18.8 20.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.4 14.8 20.1	Sulfur	ppm	ASTM D5185m	2060	2716	3234	3229
Sodium ppm ASTM D5185m 7 4 6 Potassium ppm ASTM D5185m >20 2 1 <1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 1 <1	Silicon	ppm		>25	6	4	
INFRA-RED	Sodium	ppm	ASTM D5185m		7	4	6
Soot % % *ASTM D7844 >3 0.5 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 9.8 6.7 9.5 Sulfation Abs/.1mm *ASTM D7415 >30 20.5 18.8 20.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.4 14.8 20.1	Potassium	ppm	ASTM D5185m	>20	2	1	<1
Nitration Abs/cm *ASTM D7624 >20 9.8 6.7 9.5 Sulfation Abs/.1mm *ASTM D7415 >30 20.5 18.8 20.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.4 14.8 20.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.5 18.8 20.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.4 14.8 20.1	Soot %	%	*ASTM D7844	>3	0.5	0.2	0.4
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.4 14.8 20.1	Nitration	Abs/cm	*ASTM D7624	>20	9.8	6.7	9.5
Oxidation Abs/.1mm *ASTM D7414 >25 18.4 14.8 20.1	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.5	18.8	20.8
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	18.4	14.8	20.1
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.9	8.2	6.2



OIL ANALYSIS REPORT





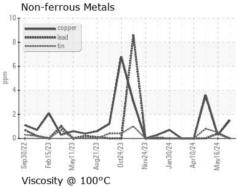


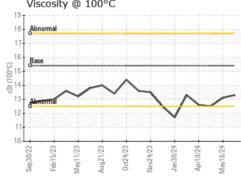
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

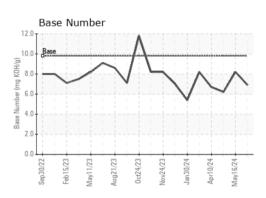
FLUID PROP	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.1	12.5

GRAPHS

Ferrous Alloys Aug21/23











Certificate 12367

Laboratory Sample No.

: GFL0104860 Lab Number : 06234543

Unique Number : 11123377 Test Package : FLEET

Tested

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 12 Jul 2024

: 12 Jul 2024 Diagnosed : 12 Jul 2024 - Wes Davis

GFL Environmental - 820 - Joplin Hauling 3700 West 7th Street Joplin, MO US 64801

Contact: James Jarrett jjarrett@gflenv.com T: (417)310-2802

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)