

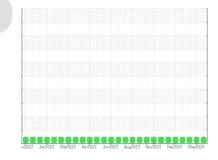
OIL ANALYSIS REPORT



(62A0YN3) ALEXANDER CITY 411000-411000

Diesel Engine

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



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

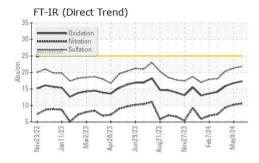
Fluid Condition

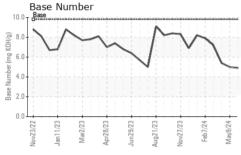
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

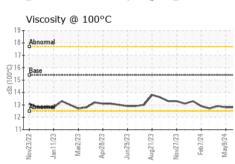
SAMPLE INFORM Sample Number Sample Date Machine Age Oil Age Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES	hrs hrs	method Client Info Method WC Method WC Method WC Method WC Method MC M	limit/base >120 >20 >15 >2 >3 >20 >40 >330	Current GFL0079734 23 May 2024 7304 1468 Not Changd NORMAL	history1 GFL0079727 09 May 2024 9230 3394 N/A NORMAL history1 <1.0 NEG NEG history1 15 <1 2 <1 <1 4 <1 8 <1	history2 GFL0091348 17 Apr 2024 9044 3208 N/A NORMAL history2 <1.0 NEG NEG 11 <1 <1 <1 <1 <1 <7 <1 <1 7 <1
Sample Date Machine Age Oil Age Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm	Client Info Client Info Client Info Client Info Client Info Client Info Mc Method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >15 >2 >3 >20 >40 >330	23 May 2024 7304 1468 Not Changd NORMAL	09 May 2024 9230 3394 N/A NORMAL history1 <1.0 NEG NEG + history1 15 <1 2 <1 4 <1 8	17 Apr 2024 9044 3208 N/A NORMAL history2 <1.0 NEG NEG 11 <1 <1 <1 <1 <1 7
Machine Age Oil Age Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm	Client Info Client Info Client Info Client Info Method WC Method WC Method WC Method MSTM D5185m ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >15 >2 >3 >20 >40 >330	7304 1468 Not Changd NORMAL current <1.0 NEG NEG current 19 2 2 <1 1 4 2 9	9230 3394 N/A N/A NORMAL history1 <1.0 NEG NEG 15 <1 2 <1 <1 4 <1 8	9044 3208 N/A NORMAL history2 <1.0 NEG NEG 11 <1 <1 <1 <1 <7 7
Oil Age Oil Changed Sample Status CONTAMINATION Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm	Client Info Client Info Client Info Method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >15 >2 >3 >20 >40 >330	1468 Not Changd NORMAL current <1.0 NEG NEG current 19 2 2 <1 1 4 2 9	3394 N/A NORMAL history1 <1.0 NEG NEG history1 15 <1 2 <1 4 <1 8	3208 N/A NORMAL history2 <1.0 NEG NEG 11 <1 <1 <1 <1 <1 <1 <1 <7 7
Oil Changed Sample Status CONTAMINATION Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method WC Method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >15 >2 >3 >20 >40 >330	Not Changd NORMAL current <1.0 NEG NEG 2 2 <1 1 4 2 9	N/A NORMAL history1 <1.0 NEG NEG 15 <1 2 <1 <1 <1 <1 <8	N/A NORMAL history2 <1.0 NEG NEG 11 <1 <1 <1 <1 <1 <1 <1 <7 7
Sample Status CONTAMINATION Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method WC Method WC Method WC Method MC Method METHOD METHOD ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >15 >2 >3 >20 >40 >330	verified to the control of the contr	NORMAL history1 <1.0 NEG NEG history1 15 <1 2 <1 <1 4 <1 8	NORMAL history2 <1.0 NEG NEG history2 11 <1 <1 <1 <1 <1 <1 7
CONTAMINATION Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	WC Method WC Method WC Method Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >15 >2 >3 >20 >40 >330	current <1.0 NEG NEG current 19 2 2 <1 1 4 2 9	<1.0 NEG NEG NES history1 15 <1 2 <1 <1 <1 <1 8	<1.0 NEG NEG history2 11 <1 <1 <1 <1 <1 <1 <7 7
Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	WC Method WC Method method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 limit/base >120 >20 >15 >2 >3 >20 >40 >330	NEG NEG current 19 2 2 <1 1 1 4 2 9	<1.0 NEG NEG NES history1 15 <1 2 <1 <1 <1 <1 8	<1.0 NEG NEG history2 11 <1 <1 <1 <1 <1 <1 7
Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	WC Method WC Method method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 limit/base >120 >20 >15 >2 >3 >20 >40 >330	NEG NEG current 19 2 2 <1 1 1 4 2 9	NEG history1 15 <1 2 <1 <1 <1 <1 <4 <1 <8	NEG NEG history2 11 <1 <1 <1 0 2 <1 7
Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	WC Method method ASTM D5185m	limit/base >120 >20 >15 >2 >3 >20 >40 >330	NEG current 19 2 2 <1 1 4 2 9	NEG history1 15 <1 2 <1 <1 <1 <1 <4 <1 <8	NEG history2 11 <1 <1 <1 0 2 <1 7
WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>120 >20 >15 >2 >3 >20 >40 >330	19 2 2 <1 1 4 2	15	11 <1 <1 <1 <1 0 2 <1 7
Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>120 >20 >15 >2 >3 >20 >40 >330	19 2 2 <1 1 4 2	15 <1 2 <1 <1 <1 <4 <1 <4 <1 8	11 <1 <1 <1 <1 0 2 <1 7
Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >15 >2 >3 >20 >40 >330	2 2 <1 1 4 2	<1 2 <1 <1 <1 <1 <1 <1 <1 8	<1 <1 <1 0 2 <1 7
Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>15 >2 >3 >20 >40 >330	2 <1 1 4 2	2 <1 <1 <1 <1 8	<1 <1 0 2 <1 7
Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>2 >3 >20 >40 >330	<1 1 4 2 9	<1 <1 4 <1 8	<1 0 2 <1 7
Silver Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>3 >20 >40 >330	1 4 2 9	<1 4 <1 8	0 2 <1 7
Aluminum Lead Copper Tin Vanadium Cadmium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >40 >330	4 2 9	4 <1 8	2 <1 7
Lead Copper Tin Vanadium Cadmium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	>40 >330	2	<1 8	<1 7
Copper Tin Vanadium Cadmium	ppm ppm	ASTM D5185m ASTM D5185m	>330	9	8	7
Tin Vanadium Cadmium	ppm	ASTM D5185m		-		
Vanadium Cadmium	ppm		>10		< I	
Cadmium		AO IIVI DO IOOIII		<1	<1	<1
	PPIII	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm		0	3	2	3
	ppm	ASTM D5185m		1	0	0
Molybdenum	ppm	ASTM D5185m	60	67	60	56
	ppm	ASTM D5185m		1	<1	<1
Magnesium	ppm	ASTM D5185m	1010	880	765	779
Calcium	ppm		1070	1093	995	976
Phosphorus	ppm	ASTM D5185m	1150	900	810	783
Zinc	ppm	ASTM D5185m	1270	1130	1041	974
Sulfur	ppm	ASTM D5185m	2060	2673	2503	2738
CONTAMINANT		method	limit/base	current	historv1	history2
Silicon	ppm		>25	8	7	6
Sodium	ppm	ASTM D5185m		4	4	5
Potassium	ppm	ASTM D5185m	>20	5	4	<1
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>4	0.6	0.5	0.4
Nitration	Abs/cm	*ASTM D7624	>20	10.6	10.2	9.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.8	21.3	20.4
FLUID DEGRAD	ATI <u>ON</u>	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	17.3	16.8	15.9
	mg KOH/g	ASTM D2896	9.8	4.9	5.0	5.4



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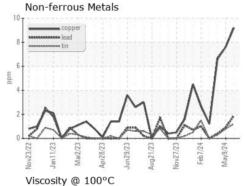


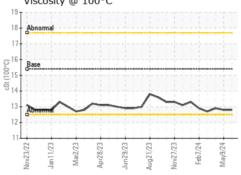
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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 PROPE	RHES	method	ilmit/base		nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	12.8	12.8	12.9

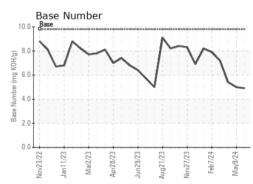
GRAPHS

Ferrous Alloys





Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)







Certificate 12367

Laboratory Sample No.

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0079734 Lab Number : 06192066 Unique Number : 11048818

Received **Tested** Diagnosed

: 28 May 2024 : 29 May 2024

: 29 May 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.

T:

F: