

OIL ANALYSIS REPORT

(FAN292)
424076

Diesel Engine

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

Sample Rating Trend Oct. 222 Jul. 223 Sep. 2023 Nov. 2023 Mar. 2024 Jun. 2024



5W40 (--- QTS) Octo22 Judio23 Socia23 Nocia23 Madi024 Juni024

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

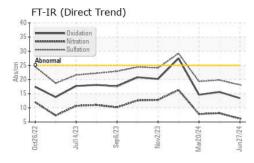
Fluid Condition

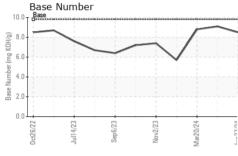
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

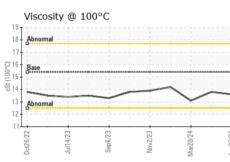
Oil Age Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES	ppm	method Client Info WC Method WC Method WC Method WC Method MSTM D5185m ASTM D5185m	limit/base >165 >5 >4 >2 >2 >20 >150	Current GFL0077467 27 Jun 2024 2855 2855 Not Changd NORMAL	history1 GFL0111500 26 Apr 2024 2305 2305 Not Changd NORMAL history1 <1.0 NEG NEG history1 14 <1 0 <1 0 3 <1 6 <1 0	history2 GFL0089562 20 Mar 2024 0 0 Not Changd ABNORMAL history2 <1.0 NEG NEG 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Sample Date Machine Age Oil 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	ppm ppm ppm ppm ppm ppm ppm ppm ppm	Client Info Client Info Client Info Client Info Client Info Client Info Method WC Method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >165 >5 >4 >2 >2 >2 >20 >150 >90	27 Jun 2024 2855 2855 Not Changd NORMAL	26 Apr 2024 2305 2305 Not Changd NORMAL history1 <1.0 NEG NEG history1 14 <1 0 <1 0 3 <1 6 <1 0	20 Mar 2024 0 0 Not Changd ABNORMAL history2 <1.0 NEG NEG history2 28 2 <1 <1 0 4 2 3 1 <1
Machine Age Oil 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	ppm ppm ppm ppm ppm ppm ppm ppm ppm	Client Info Client Info Client Info Client Info Method WC Method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >165 >5 >4 >2 >2 >2 >20 >150 >90	2855 2855 Not Changd NORMAL current <1.0 NEG NEG current 7 0 0 <1 0 4 0 2 <1	2305 2305 Not Changd NORMAL history1 <1.0 NEG NEG 14 <1 0 <1 0 3 <1 6 <1 0	0 0 Not Changd ABNORMAL history2 <1.0 NEG NEG history2 28 2 <1 <1 0 4 2 3 1 <1
Oil Age Oil Age Oil Changed Sample Status CONTAMINATION Fuel Water Glycol WEAR METALS Iron PATE CHROMINATION IRO	ppm ppm ppm ppm ppm ppm ppm ppm ppm	Client Info Client Info Client Info Method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >165 >5 >4 >2 >2 >2 >20 >150 >90	2855 Not Changd NORMAL current <1.0 NEG NEG current 7 0 0 <1 0 4 0 2 <1	2305 Not Changd NORMAL history1 <1.0 NEG NEG history1 14 <1 0 <1 0 3 <1 6 <1 0	0 Not Changd ABNORMAL history2 <1.0 NEG NEG history2 28 2 <1 <1 0 4 2 3 1 <1
Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES	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 >165 >5 >4 >2 >2 >2 >20 >150 >90	Not Changd NORMAL current <1.0 NEG NEG 0 4 0 2 <1	Not Changd NORMAL history1 <1.0 NEG NEG history1 14 <1 0 <1 6 <1 0	ABNORMAL history2 <1.0 NEG NEG history2 28 2 <1 <1 0 4 2 3 1 <1
Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES	ppm	method WC Method WC Method WC Method WC Method MSTM D5185m ASTM D5185m	>3.0 >0.2 limit/base >165 >5 >4 >2 >2 >2 >20 >150 >90	NORMAL current <1.0 NEG NEG Current 7 0 0 <1 0 4 0 2 <1 1	NORMAL history1 <1.0 NEG NEG history1 14 <1 0 <1 0 3 <1 6 <1 0	ABNORMAL history2 <1.0 NEG NEG history2 28 2 <1 <1 0 4 2 3 1 <1
Fuel Water Glycol WEAR METALS Iron properties of the properties of	ppm	WC Method WC Method WC Method MC Method ASTM D5185m	>3.0 >0.2 limit/base >165 >5 >4 >2 >2 >2 >20 >150 >90	<1.0 NEG NEG Current 7 0 0 <1 0 4 0 2 <1	<1.0 NEG NEG NEG history1 14 <1 0 <1 0 3 <1 6 <1 0	<1.0 NEG NEG NEG history2 28 2 <1 <1 0 4 2 3 1 <1
Water Glycol WEAR METALS Iron processor proc	pppm pppm pppm pppm pppm pppm pppm ppp	WC Method WC Method Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 limit/base >165 >5 >4 >2 >2 >20 >150 >90	NEG NEG current 7 0 0 <1 0 4 0 2 <1	NEG NEG history1 14 <1 0 <1 0 3 <1 6 <1	NEG NEG NES 28 2 <1 <1 0 4 2 3 1
Glycol WEAR METALS Iron processor	pppm pppm pppm pppm pppm pppm pppm ppp	WC Method method ASTM D5185m	limit/base >165 >5 >4 >2 >2 >2 >150 >90	NEG current 7 0 0 4 0 2 <1	NEG history1 14 <1 0 <1 0 3 <1 6 <1 0	NEG history2 28 2 <1 <1 0 4 2 3 1 <1
WEAR METALS Iron p Chromium p Nickel p Titanium p Silver p Aluminum p Lead p Copper p Tin p Vanadium p Cadmium p ADDITIVES	pppm pppm pppm pppm pppm pppm pppm ppp	method ASTM D5185m	>165 >5 >4 >2 >2 >2 >20 >150 >90	current 7 0 0 0 <1 0 4 0 2 <1	history1 14 <1 0 <1 0 3 <1 6 <1 0	history2 28 2 <1 <1 0 4 2 3 1 <1
Iron p Chromium p Nickel p Titanium p Silver p Aluminum p Lead p Copper p Tin p Vanadium p Cadmium p ADDITIVES	pppm pppm pppm pppm pppm pppm pppm ppp	ASTM D5185m ASTM D5185m	>165 >5 >4 >2 >2 >2 >20 >150 >90	7 0 0 <1 0 4 0 2 <1	14	28 2 <1 <1 0 4 2 3 1
Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>5 >4 >2 >2 >2 >20 >150 >90	0 0 <1 0 4 0 2 <1	<1 0 <1 0 3 <1 6 <1	2 <1 <1 0 4 2 3 1 <1
Nickel pritanium	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	>4 >2 >2 >2 >20 >150 >90	0 <1 0 4 0 2 <1	0 <1 0 3 <1 6 <1 0	<1 <1 0 4 2 3 1 <1
Titanium p Silver p Aluminum p Lead p Copper p Tin p Vanadium p Cadmium p ADDITIVES	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>2 >2 >20 >150 >90	<1 0 4 0 2 <1	<1 0 3 <1 6 <1	<1 0 4 2 3 1 <1
Silver p Aluminum p Lead p Copper p Tin p Vanadium p Cadmium p ADDITIVES	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>2 >20 >150 >90	0 4 0 2 <1	0 3 <1 6 <1	0 4 2 3 1 <1
Aluminum p Lead p Copper p Tin p Vanadium p Cadmium p ADDITIVES	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >150 >90	4 0 2 <1	3 <1 6 <1 0	4 2 3 1 <1
Lead p Copper p Tin p Vanadium p Cadmium p ADDITIVES	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>150 >90	0 2 <1	<1 6 <1 0	2 3 1 <1
Copper Tin p Vanadium p Cadmium p ADDITIVES	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	>90	2 <1	6 <1 0	3 1 <1
Tin p Vanadium p Cadmium p ADDITIVES	ppm ppm	ASTM D5185m ASTM D5185m		<1	<1	1 <1
Vanadium p Cadmium p ADDITIVES	ppm	ASTM D5185m	>5		0	<1
Cadmium p				0		
ADDITIVES	ppm	ASTM D5185m				
_				0	0	<1
Boron p		method	limit/base	current	history1	history2
	ppm	ASTM D5185m	0	9	4	16
Barium p	ppm	ASTM D5185m	0	0	0	<1
Molybdenum p	ppm	ASTM D5185m	60	55	57	69
Manganese p	ppm	ASTM D5185m	0	<1	<1	1
Magnesium p	ppm	ASTM D5185m	1010	948	911	877
Calcium	ppm	ASTM D5185m	1070	1033	1014	1049
Phosphorus p	ppm	ASTM D5185m	1150	1044	1029	1067
Zinc p	ppm	ASTM D5185m	1270	1288	1169	1126
Sulfur p	ppm	ASTM D5185m	2060	3594	3292	3062
CONTAMINANTS	S	method	limit/base	current	history1	history2
Silicon p	ppm	ASTM D5185m	>35	8	6	11
Sodium p	ppm	ASTM D5185m		1	3	<u>▲</u> 152
Potassium p	ppm	ASTM D5185m	>20	2	<1	2
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>7.5	0.4	0.6	0.6
Nitration A	Abs/cm	*ASTM D7624	>20	6.2	8.1	7.8
Sulfation A	Abs/.1mm	*ASTM D7415	>30	18.1	19.8	19.3
FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
Oxidation A	Abs/.1mm					
Base Number (BN)		*ASTM D7414	>25	13.4	15.6	14.6

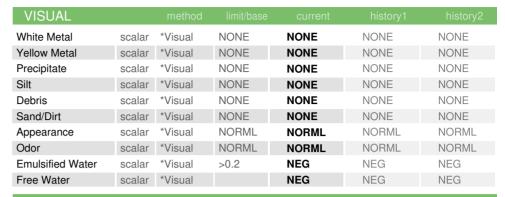


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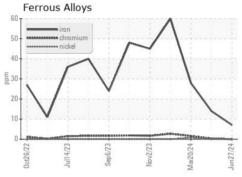


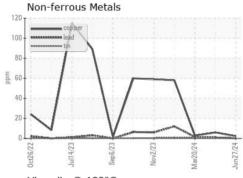


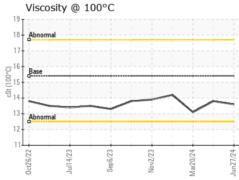


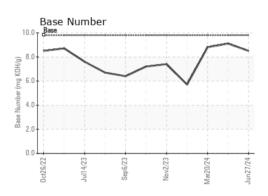
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.8	13.1

GRAPHS













Certificate 12367

Laboratory Sample No.

: GFL0077467 Lab Number : 06228279 Unique Number : 11111772 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

Tested : 05 Jul 2024 Diagnosed : 05 Jul 2024 - Wes Davis

: 05 Jul 2024

GFL Environmental - 072 - Americus - Transwaste

361 McMath Mill Road Americus, GA US 31719

Contact: RICHARD HEINZERLING richard.heinzerling@gflenv.com

 st - 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) T: (229)924-3669