

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **223024-603196**

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- 0

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

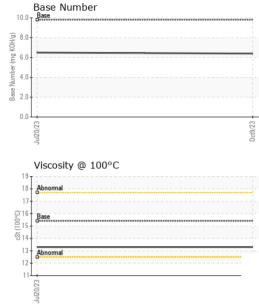
Fluid Condition

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

Oil Age Oil Changed Sample Status CONTAMINATIO Fuel Glycol WEAR METALS Iron Chromium Nickel Pittanium Silver Aluminum Lead Copper Tin Vanadium Cadmium Phosphorus Phosphorus Zinc Sulfur Phosphorus Silicon Sodium Pistatus Pistanium Pist	opm Asopm Asoppm Aso	method Elient Info Elient Info Elient Info Elient Info Elient Info Elient Info MC Method MC Method MC Method METHO	limit/base >5 limit/base >100 >20 >4	current GFL0088066 09 Oct 2023 4217 0 N/A NORMAL current <1.0 NEG current 61	history1 GFL0088164 20 Jul 2023 0 0 N/A NORMAL history1 <1.0 NEG history1 51	history2 history2 history2
Sample Date Machine Age Oil Age Oil Age Oil Changed Sample Status CONTAMINATIO Fuel Glycol WEAR METALS Iron Chromium Nickel pittanium Silver Aluminum Lead Copper Tin Vanadium Cadmium Phosphorus Phosphorus Zinc Sulfur Phosphorus Silicon Sodium Poil Age Sodium Pittonium Pi	opm Asopm Asoppm Aso	Elient Info Elient Info Elient Info Elient Info Elient Info MC Method MC Met	>5 limit/base >100 >20	09 Oct 2023 4217 0 N/A NORMAL current <1.0 NEG current	20 Jul 2023 0 0 N/A NORMAL history1 <1.0 NEG	history2 history2
Machine Age himolic Age Oil Age Oil Age Oil Changed Sample Status CONTAMINATIO Fuel Glycol WEAR METALS Iron pictorial Chromium pickel picke	opm Asopm Asoppm Asop	Elient Info Elient Info Elient Info Elient Info Method Met	>5 limit/base >100 >20	4217 0 N/A NORMAL current <1.0 NEG current	0 0 N/A NORMAL history1 <1.0 NEG	history2
Machine Age him Dil Age Dil Age Dil Age Dil Changed Sample Status CONTAMINATIO Fuel Glycol WEAR METALS Fron pictorium pictor	DN Opm Asopm Asoppm Asopp	method /C Method /C Method /C Method /C Method STM D5185m STM D5185m STM D5185m	>5 limit/base >100 >20	0 N/A NORMAL current <1.0 NEG current	0 N/A NORMAL history1 <1.0 NEG history1	history2
Dil Age Dil Age Dil Age Dil Age Dil Changed Sample Status CONTAMINATIO Fuel Glycol WEAR METALS ron p Chromium p Nickel p Titanium p Silver p Aluminum p Lead p Copper p Tin p Vanadium p Cadmium p Molybdenum p Molybdenum p Manganese p Magnesium p Phosphorus p Sulfur p Sulfur p CONTAMINANTS Silicon p Sodium p	DN W Dpm As Dpm As Dpm As Dpm As Dpm As	method /C Method /C Method method STM D5185m STM D5185m STM D5185m	>5 limit/base >100 >20	N/A NORMAL current <1.0 NEG current	N/A NORMAL history1 <1.0 NEG history1	history2 history2
CONTAMINATIO Fuel Glycol WEAR METALS ron p Chromium p Nickel p Fitanium p Aluminum p Lead p Copper p Fin p Vanadium p Cadmium p Cadmium p Molybdenum p Manganese p Magnesium p Phosphorus p Sulfur p Sulfur p CONTAMINANTS Silicon p Sodium p Sodium p	DN W DDM ASDDM ASDDM	method /C Method /C Method method STM D5185m STM D5185m STM D5185m	>5 limit/base >100 >20	current <1.0 NEG current	NORMAL history1 <1.0 NEG history1	history2 history2
CONTAMINATIO Fuel Glycol WEAR METALS Fron processor pro	ppm Asppm As	VC Method VC Method method STM D5185m STM D5185m STM D5185m STM D5185m	>5 limit/base >100 >20	current <1.0 NEG current	history1 <1.0 NEG history1	history2 history2
Fuel Glycol WEAR METALS Iron p Chromium p Nickel p Titanium p Silver p Aluminum p Lead p Copper p Tin p Vanadium p Cadmium p Molybdenum p Manganese p Magnesium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Sodium p	ppm Asppm As	VC Method VC Method method STM D5185m STM D5185m STM D5185m STM D5185m	>5 limit/base >100 >20	<1.0 NEG current	<1.0 NEG history1	history2
Glycol WEAR METALS Iron p Chromium p Nickel p Titanium p Aluminum p Lead p Copper p Tin p Vanadium p Cadmium p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Sodium p	opm Asopm Asopm Asopm Asopm Asopm Asopm Asopm Asoppm Asopp	method STM D5185m STM D5185m STM D5185m STM D5185m	limit/base >100 >20	NEG current	NEG history1	history2
WEAR METALS Iron pi Chromium pi Nickel pi Titanium pi Silver pi Aluminum pi Lead pi Copper pi Tin pi Vanadium pi ADDITIVES Boron pi Barium pi Manganese pi Magnesium pi Calcium pi Phosphorus pi Sulfur pi CONTAMINANTS Silicon pi Sodium pi	opm A&opm A&oppm A&op	method STM D5185m STM D5185m STM D5185m STM D5185m	>100 >20	current	history1	history2
Iron p Chromium p Nickel p Nickel p Titanium p Silver p Aluminum p Lead p Copper p Tin p Vanadium p Cadmium p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Sodium p	opm AS opm AS opm AS opm AS opm AS	STM D5185m STM D5185m STM D5185m STM D5185m	>100 >20			
Chromium Nickel Pitanium Silver Aluminum Lead Copper Tin Vanadium Cadmium Parium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Phosphorus Zinc Sulfur Posodium	opm AS	STM D5185m STM D5185m STM D5185m	>20	61	51	
Nickel pi Titanium p Silver pi Aluminum p Lead p Copper p Tin pi Vanadium p Cadmium p Molybdenum p Manganese p Magnesium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Sodium p	opm AS	STM D5185m STM D5185m				
Fitanium pi Silver pr Aluminum pi Lead pr Copper pr Fin pr Vanadium pr ADDITIVES Boron pr Barium pr Molybdenum pr Manganese pr Magnesium pr Calcium pr Phosphorus pr Sulfur pr CONTAMINANTS Silicon pr Sodium pr	opm AS	STM D5185m	>4	<1	<1	
Silver properties of the second properties of	opm AS			<1	<1	
Aluminum p Lead p Copper p Fin p Vanadium p Cadmium p ADDITIVES Boron p Barium p Molybdenum p Manganese p Magnesium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Sodium p	- 1-	OT1 1 D F :		<1	0	
Lead por proper propers proper propers	opm AS	STM D5185m	>3	0	0	
Copper pp Fin pp Vanadium pp Cadmium pp ADDITIVES Boron pp Barium pp Molybdenum pp Manganese pp Magnesium pp Calcium pp Phosphorus pp Sulfur pp CONTAMINANTS Silicon pp Sodium pp		STM D5185m	>20	8	6	
Fin p /anadium p /anadium p Cadmium p ADDITIVES Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Sodium p	opm AS	STM D5185m	>40	0	0	
Vanadium p Cadmium p ADDITIVES Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Bodium p	opm AS	STM D5185m	>330	2	<1	
Cadmium pi ADDITIVES Boron pi Barium pi Molybdenum pi Manganese pi Magnesium pi Calcium pi Phosphorus pi Sulfur pi CONTAMINANTS Silicon pi Bodium pi	opm AS	STM D5185m	>15	<1	<1	
ADDITIVES Boron properties of the properties of	opm AS	STM D5185m		0	0	
Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Bodium p	opm AS	STM D5185m		<1	0	
Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Sodium p		method	limit/base	current	history1	history2
Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Sodium p	opm AS	STM D5185m	0	7	9	
Manganese p Magnesium p Calcium p Phosphorus p Sulfur p CONTAMINANTS Silicon p Sodium p	opm AS	STM D5185m	0	10	0	
Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p	opm AS	STM D5185m	60	59	59	
Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p	opm AS	STM D5185m	0	<1	<1	
Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p	opm AS	STM D5185m	1010	820	841	
Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p	opm AS	STM D5185m	1070	1043	1145	
Sulfur p CONTAMINANTS Silicon p Sodium p	opm AS	STM D5185m	1150	980	1019	
CONTAMINANTS Silicon p	opm AS	STM D5185m	1270	1167	1208	
Silicon p	opm AS	STM D5185m	2060	2767	2805	
Sodium p	S	method	limit/base	current	history1	history2
	opm AS	STM D5185m	>25	5	6	
Potassium n	opm AS	STM D5185m		0	<1	
p ₁	opm AS	STM D5185m	>20	8	6	
INFRA-RED		method	limit/base	current	history1	history2
Soot %		ASTM D7844	>3	0.5	0.4	
Nitration A	% *A	ASTM D7624	>20	10.3	10.5	
Sulfation Ab		ASTM D7415	>30	21.6	20.6	
FLUID DEGRADA	Abs/cm *A		limit/base	current	history1	history2
Oxidation Ab	Abs/cm *A	method	>25	18.0	17.6	
Base Number (BN)	Abs/cm *A Abs/.1mm *A	method ASTM D7414				



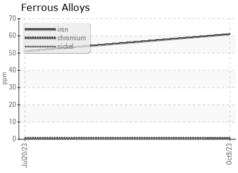
OIL ANALYSIS REPORT

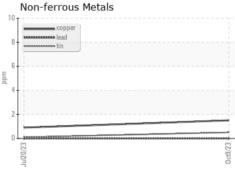


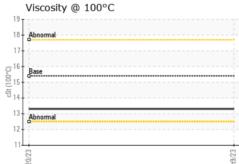
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	
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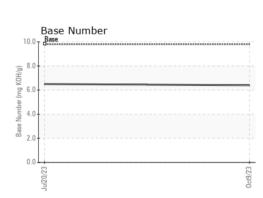
	ERITES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.3	

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10699009

: GFL0088066 : 05981714 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 17 Oct 2023 Diagnosed

Diagnostician : Wes Davis

: 18 Oct 2023

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)