

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **826023-1024**Component

Diesel Engine

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

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

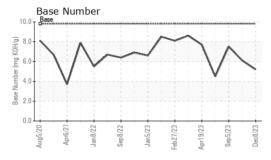
Fluid Condition

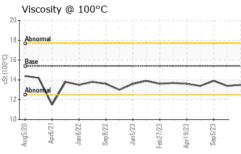
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Cample Number Client Info GFL0103824 GFL0097351 GFL008955 Gample Date Client Info 08 Dec 2023 28 Nov 2023 05 Sep 2023 05	N SHP 15W40 (LIK)	ug2020 Apr2	021 Jan2022 Sep2022	Jan 2023 Feb 2023 Apr 2023 Sep.	2023 Dec202:	
Client Info	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 219907 219907 16411 16411 1641 16	Sample Number		Client Info		GFL0103824	GFL0097351	GFL0089550
Dil Age	Sample Date		Client Info		08 Dec 2023	28 Nov 2023	05 Sep 2023
Contact Client Info Changed N/A NORMAL NORMAL	Machine Age	hrs	Client Info		219907	219907	16411
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2 water WC Method >3.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.	Oil Age	hrs	Client Info		592	73953	357
CONTAMINATION	Oil Changed		Client Info		Changed	N/A	Changed
Water	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method Solution NEG A ASTM DER 20 1 2 1 1 1 <	CONTAMINA	TION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAI	LS	method	limit/base	current	history1	history2
Strickel	ron	ppm	ASTM D5185m	>120	18	11	9
Description	Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Silver	Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Aluminum	Γitanium	ppm	ASTM D5185m	>2	<1	0	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper	Aluminum	ppm	ASTM D5185m	>20	1	2	<1
Tin	Lead	ppm	ASTM D5185m	>40	1	0	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 6 8 4 Barium ppm ASTM D5185m 0 11 0 0 Molybdenum ppm ASTM D5185m 60 63 58 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 965 939 968 Calcium ppm ASTM D5185m 1070 1124 1084 1070 Phosphorus ppm ASTM D5185m 1270 1263 1287 1252 Sulfur ppm ASTM D5185m 2060 2950 2841 3247 CONTAMINANTS method limit/base current <t< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>330</td><td><1</td><td>0</td><td>0</td></t<>	Copper	ppm	ASTM D5185m	>330	<1	0	0
ADDITIVES	Γin	ppm	ASTM D5185m	>15	1	0	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 6 8 4	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 63 58 60 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	6	8	4
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 965 939 968 Calcium ppm ASTM D5185m 1070 1124 1084 1070 Phosphorus ppm ASTM D5185m 1150 1000 1057 995 Zinc ppm ASTM D5185m 1270 1263 1287 1252 Sulfur ppm ASTM D5185m 2060 2950 2841 3247 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 4 Sodium ppm ASTM D5185m >20 2 1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/:mm *ASTM D	Barium	ppm	ASTM D5185m	0	11	0	0
Magnesium ppm ASTM D5185m 1010 965 939 968 Calcium ppm ASTM D5185m 1070 1124 1084 1070 Phosphorus ppm ASTM D5185m 1150 1000 1057 995 Zinc ppm ASTM D5185m 1270 1263 1287 1252 Sulfur ppm ASTM D5185m 2060 2950 2841 3247 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 4 Sodium ppm ASTM D5185m 5 6 6 Potassium ppm ASTM D5185m >20 2 1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7414 <	Molybdenum	ppm	ASTM D5185m	60	63	58	60
Calcium ppm ASTM D5185m 1070 1124 1084 1070 Phosphorus ppm ASTM D5185m 1150 1000 1057 995 Zinc ppm ASTM D5185m 1270 1263 1287 1252 Sulfur ppm ASTM D5185m 2060 2950 2841 3247 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 4 Sodium ppm ASTM D5185m 5 6 6 6 Potassium ppm ASTM D5185m >20 2 1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/:1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION *ASTM D7	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1000 1057 995 Zinc ppm ASTM D5185m 1270 1263 1287 1252 Sulfur ppm ASTM D5185m 2060 2950 2841 3247 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 4 Sodium ppm ASTM D5185m 5 6 6 6 Potassium ppm ASTM D5185m >20 2 1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method	Magnesium	ppm	ASTM D5185m	1010	965	939	968
Zinc ppm ASTM D5185m 1270 1263 1287 1252 Sulfur ppm ASTM D5185m 2060 2950 2841 3247 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 4 Sodium ppm ASTM D5185m 5 6 6 6 Potassium ppm ASTM D5185m >20 2 1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Calcium	ppm	ASTM D5185m	1070	1124	1084	1070
Sulfur ppm ASTM D5185m 2060 2950 2841 3247 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 4 Sodium ppm ASTM D5185m 5 6 6 6 Potassium ppm ASTM D5185m >20 2 1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	Phosphorus	ppm	ASTM D5185m	1150	1000	1057	995
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 4 Sodium ppm ASTM D5185m 5 6 6 6 Potassium ppm ASTM D5185m >20 2 1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	Zinc	ppm	ASTM D5185m	1270	1263	1287	1252
Silicon ppm ASTM D5185m >25 6 4 4 Sodium ppm ASTM D5185m 5 6 6 6 Potassium ppm ASTM D5185m >20 2 1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	Sulfur	ppm	ASTM D5185m	2060	2950	2841	3247
Sodium ppm ASTM D5185m 5 6 6 Potassium ppm ASTM D5185m >20 2 1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	CONTAMINA	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	Silicon	ppm	ASTM D5185m	>25	6	4	4
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	Sodium	ppm	ASTM D5185m		5	6	6
Soot % % *ASTM D7844 >4 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	Potassium	ppm	ASTM D5185m	>20	2	1	0
Nitration Abs/cm *ASTM D7624 >20 10.1 9.6 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 23.5 22.3 21.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	Soot %	%	*ASTM D7844	>4	0.4	0.4	0.4
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	Nitration	Abs/cm	*ASTM D7624	>20	10.1	9.6	9.4
Oxidation Abs/.1mm *ASTM D7414 >25 21.4 19.7 17.8	Sulfation	Abs/.1mm	*ASTM D7415	>30		22.3	21.1
	FLUID DEGRA	NOITAD	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	21.4	19.7	17.8
	Base Number (BN)				5.2	6.1	7.5



OIL ANALYSIS REPORT

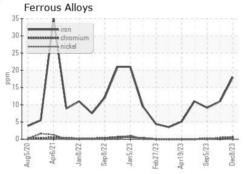


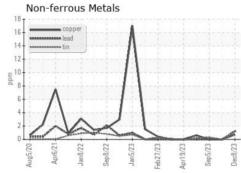


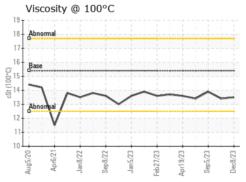
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

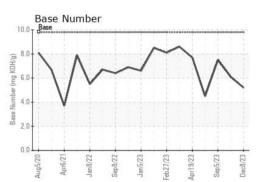
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.4	13.9

GRAPHS













Certificate L2367

Laboratory Sample No.

Lab Number **Unique Number**

: GFL0103824 : 06032697 : 10782488 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 : 12 Dec 2023 Diagnosed : 13 Dec 2023

Diagnostician : Wes Davis GFL Environmental - 654S - Midlothian

12230 Deergrove Road Midlothian, VA US 23112

Contact: Corbin Umphlet

cumphlet@gflenv.com T:

* - 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)

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