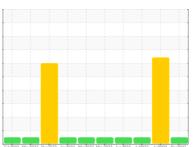


OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id
428072
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

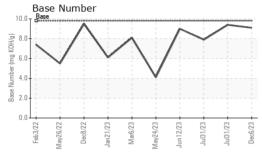
Fluid Condition

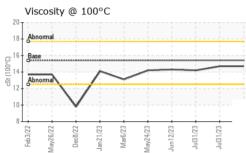
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info GFL0092564 GFL0081530 GFL0081526 Sample Date Client Info 06 Dec 2023 31 Jul 2023	N SHP 15W40 (- LTR)	Feb2022 May2	022 Dec2022 Jan2023 Mar2	023 May2023 Jun2023 Jul2023 Jul2	023 Dec2023	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 6887 15879 15868 Oil Age hrs Client Info 600 600 600 Oil Changed	Sample Number		Client Info		GFL0092564	GFL0081530	GFL0081525
Oil Age hrs Client Info 600 800 202 21 60 70 71 72 72 72 72 72 72 72 72 72 72 72 73 73 74 73 74 73 74 74	Sample Date		Client Info		06 Dec 2023	31 Jul 2023	31 Jul 2023
Coli Changed Changed Changed Changed Changed NORMAL SEVERE NORMAL	Machine Age	hrs	Client Info		16887	15879	15868
CONTAMINATION method limit/base current history1 history2	Oil Age	hrs	Client Info		600	600	600
Fuel	Oil Changed		Client Info		Changed	Changed	Changed
Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method NEG	Sample Status				NORMAL	SEVERE	NORMAL
Water WC Method >0.2 NEG Ned NEG NEG NEG NEG NEG NEG A	CONTAMINATI	ON	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
ASTM D5185m S20 S4 S45 S4	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 6 <1 Nickel ppm ASTM D5185m >5 0 <1	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >5 0 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Iron	ppm	ASTM D5185m	>120	26	▲ 307	6
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	6	<1
Silver	Nickel	ppm	ASTM D5185m	>5	0	<1	0
Aluminum	Titanium	ppm	ASTM D5185m	>2	<1	2	0
Lead ppm ASTM D5185m >40 2 1 <1 Copper ppm ASTM D5185m >330 1 1 2 Tin ppm ASTM D5185m >15 <1 <1 <1 Antimony ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m <1 <1 <1 Cadmium ppm ASTM D5185m <1 <1 <1 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 37 5 4 Barium ppm ASTM D5185m 0 0 0 0 Molydednum ppm ASTM D5185m 0 0 1 6 <1 Magnesium ppm ASTM D5185m 1010 722 92 900 Calciu	Silver	ppm	ASTM D5185m	>2	0	<1	0
Copper ppm ASTM D5185m >330 1 1 2 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	2	1 7	0
Tin ppm ASTM D5185m > 15 <1 <1 <1 <1 <1	Lead	ppm	ASTM D5185m	>40	2	1	<1
Tin ppm ASTM D5185m >15 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Copper	ppm	ASTM D5185m	>330	1	1	2
Vanadium ppm ASTM D5185m <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td></td> <td>ppm</td> <td>ASTM D5185m</td> <td>>15</td> <th><1</th> <td><1</td> <td><1</td>		ppm	ASTM D5185m	>15	<1	<1	<1
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 37 5 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1	Antimony	ppm	ASTM D5185m			0	
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	<1	<1
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 58 3 60 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 58 3 60 Manganese ppm ASTM D5185m 0 <1 6 <1 Magnesium ppm ASTM D5185m 1010 722 92 900 Calcium ppm ASTM D5185m 1070 1554 3295 1173 Phosphorus ppm ASTM D5185m 1150 953 942 1020 Zinc ppm ASTM D5185m 1270 1152 1112 1236 Sulfur ppm ASTM D5185m 2060 2692 3112 3600 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 100 3 Sodium ppm ASTM D5185m 12 7 3 Potassium ppm ASTM D5185m 12 7 3 Potassium ppm ASTM D7844 >4 0.	Boron	ppm	ASTM D5185m	0	37	5	4
Manganese ppm ASTM D5185m 0 <1 6 <1 Magnesium ppm ASTM D5185m 1010 722 92 900 Calcium ppm ASTM D5185m 1070 1554 3295 1173 Phosphorus ppm ASTM D5185m 1150 953 942 1020 Zinc ppm ASTM D5185m 1270 1152 1112 1236 Sulfur ppm ASTM D5185m 2060 2692 3112 3600 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 100 3 Sodium ppm ASTM D5185m >20 13 16 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 722 92 900 Calcium ppm ASTM D5185m 1070 1554 3295 1173 Phosphorus ppm ASTM D5185m 1150 953 942 1020 Zinc ppm ASTM D5185m 1270 1152 1112 1236 Sulfur ppm ASTM D5185m 2060 2692 3112 3600 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 100 3 Sodium ppm ASTM D5185m >20 13 16 <1	Molybdenum	ppm	ASTM D5185m	60	58	3	60
Calcium ppm ASTM D5185m 1070 1554 3295 1173 Phosphorus ppm ASTM D5185m 1150 953 942 1020 Zinc ppm ASTM D5185m 1270 1152 1112 1236 Sulfur ppm ASTM D5185m 2060 2692 3112 3600 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 100 3 Sodium ppm ASTM D5185m >20 13 16 <1	Manganese	ppm	ASTM D5185m	0	<1	6	<1
Phosphorus ppm ASTM D5185m 1150 953 942 1020 Zinc ppm ASTM D5185m 1270 1152 1112 1236 Sulfur ppm ASTM D5185m 2060 2692 3112 3600 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 100 3 Sodium ppm ASTM D5185m >25 8 100 3 Potassium ppm ASTM D5185m >20 13 16 <1	Magnesium	ppm	ASTM D5185m	1010	722	92	900
Zinc ppm ASTM D5185m 1270 1152 1112 1236 Sulfur ppm ASTM D5185m 2060 2692 3112 3600 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 100 3 Sodium ppm ASTM D5185m >20 13 16 <1	Calcium	ppm	ASTM D5185m	1070	1554	3295	1173
Sulfur ppm ASTM D5185m 2060 2692 3112 3600 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 100 3 Sodium ppm ASTM D5185m 12 7 3 Potassium ppm ASTM D5185m >20 13 16 <1	Phosphorus	ppm	ASTM D5185m	1150	953	942	1020
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 100 3 Sodium ppm ASTM D5185m 12 7 3 Potassium ppm ASTM D5185m >20 13 16 <1	Zinc	ppm	ASTM D5185m	1270	1152	1112	1236
Silicon ppm ASTM D5185m >25 8 100 3 Sodium ppm ASTM D5185m 12 7 3 Potassium ppm ASTM D5185m >20 13 16 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 8.5 4.7 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 21.3 17.4 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 13.1 14.4	Sulfur	ppm	ASTM D5185m	2060	2692	3112	3600
Sodium ppm ASTM D5185m 12 7 3 Potassium ppm ASTM D5185m >20 13 16 <1	CONTAMINAN [*]	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 13 16 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 8.5 4.7 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 21.3 17.4 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 13.1 14.4	Silicon	ppm	ASTM D5185m	>25	8	1 00	3
INFRA-RED	Sodium	ppm	ASTM D5185m		12	7	3
Soot % % *ASTM D7844 >4 0.3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 8.5 4.7 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 21.3 17.4 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 13.1 14.4	Potassium	ppm	ASTM D5185m	>20	13	16	<1
Nitration Abs/cm *ASTM D7624 >20 8.5 4.7 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 21.3 17.4 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 13.1 14.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 21.3 17.4 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 13.1 14.4	Soot %	%	*ASTM D7844	>4	0.3	0.1	0.2
Sulfation Abs/.1mm *ASTM D7415 >30 21.3 17.4 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 13.1 14.4	Nitration	Abs/cm	*ASTM D7624	>20	8.5	4.7	6.8
Oxidation	Sulfation		*ASTM D7415	>30	21.3	17.4	18.7
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 9.1 9.4 7.9	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.7	13.1	14.4
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.1	9.4	7.9



OIL ANALYSIS REPORT

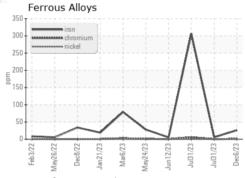


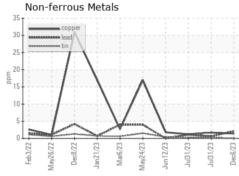


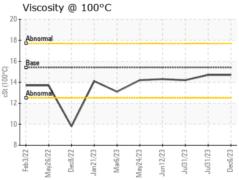
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	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

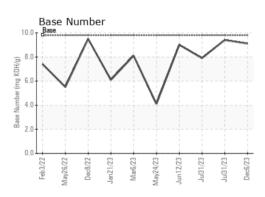
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.7	14.7	14.2

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10778289 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0092564 : 06028498

Received Diagnosed

: 07 Dec 2023 : 10 Dec 2023 Diagnostician : Don Baldridge GFL Environmental - 885 - Orlando 1263 W Landstreet Rd

Orlando, FL US 32824

Contact: DAWN WALLACE

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)

T:

F: