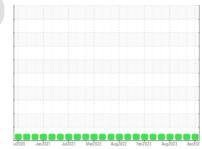


OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id
829014-1088
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

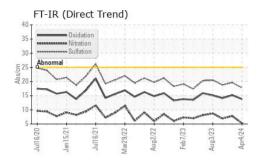
Fluid Condition

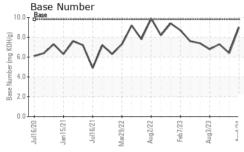
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

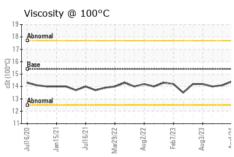
Sample Date Client Info 04 Apr 2024 03 Jan 2024 27 Sep 2023 Machine Age hrs Client Info 12130 11564 10997 101 Age hrs Client Info 78 567 303 303 303 305 303 303 303 303 303 303 303 303 303 303 304 304 304 304 304 304 304 304 305 304 304 304 305	N SHP 15W4U (-	,	ul2020 Jan	2021 Jul2021 Mar20;		123 Apr202	
Sample Date Client Info 04 Apr 2024 03 Jan 2024 27 Sep 2023 Machine Age hrs Client Info 12130 11564 10997 101 Age hrs Client Info 78 567 303 303 303 305 303 303 303 303 303 303 303 303 303 303 304 304 304 304 304 304 304 304 305 304 304 304 305	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 12130 11564 10997	Sample Number		Client Info		GFL0070945	GFL0100159	GFL0058074
Dil Age	Sample Date		Client Info		04 Apr 2024	03 Jan 2024	27 Sep 2023
Changed Changed Changed NORMAL NORMAL	Machine Age	hrs	Client Info		12130	11564	10997
CONTAMINATION method limit/base current history1 history2	Oil Age	hrs	Client Info		78	567	303
CONTAMINATION method limit/base current history1 history2	Oil Changed		Client Info		Not Changd	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 4 9 8 Chromium ppm ASTM D5185m >20 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
NEG Neg	-uel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium Dpm ASTM D5185m >20	WEAR METAL	_S	method	limit/base	current	history1	history2
Strickel	ron	ppm	ASTM D5185m	>120	4	9	8
Silver	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel		ASTM D5185m	>5	<1	0	0
Aluminum	Γitanium	ppm	ASTM D5185m	>2	<1	<1	0
Lead	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper	Aluminum	ppm	ASTM D5185m	>20	2	2	1
Tin	_ead	ppm	ASTM D5185m	>40	<1	<1	<1
Vanadium ppm ASTM D5185m <1 <1 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 3 3 Barium ppm ASTM D5185m 0 0 0 2 Molybdenum ppm ASTM D5185m 60 62 63 64 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 975 997 939 Calcium ppm ASTM D5185m 1070 1062 1105 1069 Phosphorus ppm ASTM D5185m 1270 1207 1281 1244 Sulfur ppm ASTM D5185m 2060 3038 2868 3052 CONTAMINANTS method limit/base current <	Copper	ppm	ASTM D5185m	>330	1	<1	1
ADDITIVES	Γin	ppm	ASTM D5185m	>15	<1	1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	<1	0
Soron ppm ASTM D5185m 0 2 3 3 3 3 3 3 3 3 3	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 62 63 64 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 975 997 939 Calcium ppm ASTM D5185m 1070 1062 1105 1069 Phosphorus ppm ASTM D5185m 1150 1008 1016 1015 Zinc ppm ASTM D5185m 1270 1207 1281 1244 Sulfur ppm ASTM D5185m 2060 3038 2868 3052 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m >20 2 0 8 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7824 >20	Boron	ppm	ASTM D5185m	0	2	3	3
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 975 997 939 Calcium ppm ASTM D5185m 1070 1062 1105 1069 Phosphorus ppm ASTM D5185m 1150 1008 1016 1015 Zinc ppm ASTM D5185m 1270 1207 1281 1244 Sulfur ppm ASTM D5185m 2060 3038 2868 3052 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m 2 5 6 Potassium ppm ASTM D5185m 2 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4	Barium	ppm	ASTM D5185m	0	0	0	2
Magnesium ppm ASTM D5185m 1010 975 997 939 Calcium ppm ASTM D5185m 1070 1062 1105 1069 Phosphorus ppm ASTM D5185m 1150 1008 1016 1015 Zinc ppm ASTM D5185m 1270 1207 1281 1244 Sulfur ppm ASTM D5185m 2060 3038 2868 3052 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m 20 2 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.6 0.5 Nitration Abs/.1mm *ASTM D7624 >20 5.3 7.8 6.9 Sulfation Abs/.1mm	Molybdenum	ppm	ASTM D5185m	60	62	63	64
Calcium ppm ASTM D5185m 1070 1062 1105 1069 Phosphorus ppm ASTM D5185m 1150 1008 1016 1015 Zinc ppm ASTM D5185m 1270 1207 1281 1244 Sulfur ppm ASTM D5185m 2060 3038 2868 3052 CONTAMINANTS method limit/base current history1 history2 Goldium ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m 2 5 6 Potassium ppm ASTM D5185m >20 2 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.6 0.5 Nitration Abs/cm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1008 1016 1015 Zinc ppm ASTM D5185m 1270 1207 1281 1244 Sulfur ppm ASTM D5185m 2060 3038 2868 3052 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m 2 5 6 Potassium ppm ASTM D5185m >20 2 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.6 0.5 Nitration Abs/cm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D74	Magnesium	ppm	ASTM D5185m	1010	975	997	939
Zinc ppm ASTM D5185m 1270 1207 1281 1244 Sulfur ppm ASTM D5185m 2060 3038 2868 3052 CONTAMINANTS method limit/base current history1 history2 Gilicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m 2 5 6 Potassium ppm ASTM D5185m >20 2 0 8 INFRA-RED method limit/base current history1 history2 Goot % % *ASTM D7844 >4 0.2 0.6 0.5 Nitration Abs/cm *ASTM D7624 >20 5.3 7.8 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D741	Calcium	ppm	ASTM D5185m	1070	1062	1105	1069
Sulfur ppm ASTM D5185m 2060 3038 2868 3052 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m 2 5 6 Potassium ppm ASTM D5185m >20 2 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.6 0.5 Nitration Abs/cm *ASTM D7624 >20 5.3 7.8 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 15.2 14.1	Phosphorus	ppm	ASTM D5185m	1150	1008	1016	1015
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m 2 5 6 Potassium ppm ASTM D5185m >20 2 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.6 0.5 Nitration Abs/cm *ASTM D7624 >20 5.3 7.8 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 15.2 14.1	Zinc	ppm	ASTM D5185m	1270	1207	1281	1244
Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m 2 5 6 Potassium ppm ASTM D5185m >20 2 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.6 0.5 Nitration Abs/cm *ASTM D7624 >20 5.3 7.8 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 15.2 14.1	Sulfur	ppm	ASTM D5185m	2060	3038	2868	3052
Sodium ppm ASTM D5185m 2 5 6 Potassium ppm ASTM D5185m >20 2 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.6 0.5 Nitration Abs/cm *ASTM D7624 >20 5.3 7.8 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 15.2 14.1	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.6 0.5 Nitration Abs/cm *ASTM D7624 >20 5.3 7.8 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 15.2 14.1	Silicon	ppm	ASTM D5185m	>25	4	5	5
INFRA-RED	Sodium	ppm	ASTM D5185m		2	5	6
Soot % % *ASTM D7844 >4 0.2 0.6 0.5 Nitration Abs/cm *ASTM D7624 >20 5.3 7.8 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 15.2 14.1	Potassium	ppm	ASTM D5185m	>20	2	0	8
Nitration Abs/cm *ASTM D7624 >20 5.3 7.8 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 15.2 14.1	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 5.3 7.8 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 15.2 14.1	Soot %	%	*ASTM D7844	>4	0.2	0.6	0.5
Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 15.2 14.1	Nitration			>20			
Oxidation							
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.8	15.2	14.1
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.0	6.4	7.3



OIL ANALYSIS REPORT



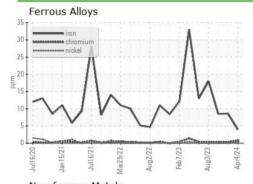


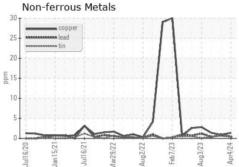


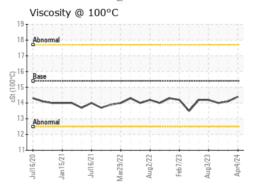
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

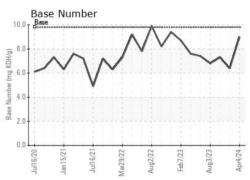
FLUID PROPI	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.1	14.0

GRAPHS













Certificate 12367

Laboratory Sample No.

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0070945 Lab Number : 06140879 Unique Number : 10965687

Received : 08 Apr 2024 **Tested** : 08 Apr 2024

Diagnosed : 08 Apr 2024 - Wes Davis

GFL Environmental - 657 - Charlottesville Hauling

5498 Richmond Road Troy, VA US 22974

Contact: Brian Ulickas bulickas@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.

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

Report Id: GFL657 [WUSCAR] 06140879 (Generated: 04/08/2024 17:53:21) Rev: 1

Submitted By: TECHNICIAN ACCOUNT

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