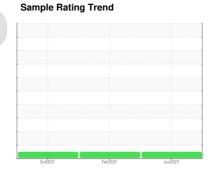


OIL ANALYSIS REPORT



(9896415) 713042 Diesel Engine

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







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

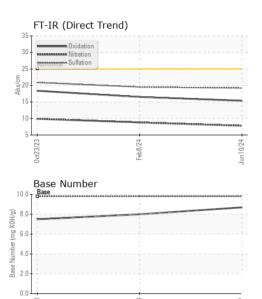
Fluid Condition

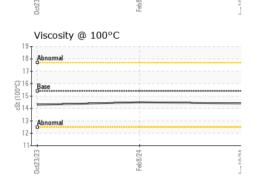
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 10 Jun 2024 08 Feb 2024 23 Oct 2023 Machine Age hrs Client Info 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 2956 0 0 2956 0 0 2956 0 0 2956 0 0 2956 0 0 0 0 0 0 0 0 0	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 2956 0 2956 Oil Age hrs Client Info 600 600 2956 Oil Changed Client Info Changed	Sample Number		Client Info		GFL0121974	GFL0109016	GFL0091704
Oil Age hrs Client Info 600 600 2956 Oil Changed Status Client Info Changed	Sample Date		Client Info		10 Jun 2024	08 Feb 2024	23 Oct 2023
Colient Info Changed Changed NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		2956	0	2956
NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 history2	Oil Age	hrs	Client Info		600	600	2956
NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 history2	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status						NORMAL
Water Glycol WC Method >0.2 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
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 0 <1 <1 Nickel ppm ASTM D5185m >2 <1	WEAR METALS	3	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>90	6	9	12
Nickel	Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Description	Nickel		ASTM D5185m	>2	<1	0	0
Silver	Titanium		ASTM D5185m	>2	0		
Aluminum ppm ASTM D5185m >20 2 1 1 Lead ppm ASTM D5185m >40 0 0 <1							
Lead							
Copper ppm ASTM D5185m >330 <1 <1 <1 <1 Tin ppm ASTM D5185m >15 0 0 <1					_		
Tin					-		
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 8 0 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 62 64 57 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1070 1065 1082 1014 Phosphorus ppm ASTM D5185m 1070 1085 989 991 Zinc ppm ASTM D5185m 1270 1279 1243 1204 Sulfur ppm ASTM D5185m 2060 3561 2959 2699 CONTAMINANTS method limit/base current history1 <							
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 8 0 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1		• •		>10			
ADDITIVES							
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0		ppm					
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 62 64 57 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current		history2
Molybdenum ppm ASTM D5185m 60 62 64 57 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 957 976 903 Calcium ppm ASTM D5185m 1070 1065 1082 1014 Phosphorus ppm ASTM D5185m 1150 1085 989 991 Zinc ppm ASTM D5185m 1270 1279 1243 1204 Sulfur ppm ASTM D5185m 2060 3561 2959 2699 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m 5 2 1 Potassium ppm ASTM D5185m 5 2 1 INFRA-RED method limit/base current history1<	Boron	ppm			8	0	4
Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 957 976 903 Calcium ppm ASTM D5185m 1070 1065 1082 1014 Phosphorus ppm ASTM D5185m 1150 1085 989 991 Zinc ppm ASTM D5185m 1270 1279 1243 1204 Sulfur ppm ASTM D5185m 2060 3561 2959 2699 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m >20 3 2 1 Potassium ppm ASTM D5185m >20 3 2 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 957 976 903 Calcium ppm ASTM D5185m 1070 1065 1082 1014 Phosphorus ppm ASTM D5185m 1150 1085 989 991 Zinc ppm ASTM D5185m 1270 1279 1243 1204 Sulfur ppm ASTM D5185m 2060 3561 2959 2699 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m >20 3 2 1 Potassium ppm ASTM D5185m >20 3 2 <1	Molybdenum	ppm	ASTM D5185m	60	62	64	57
Calcium ppm ASTM D5185m 1070 1065 1082 1014 Phosphorus ppm ASTM D5185m 1150 1085 989 991 Zinc ppm ASTM D5185m 1270 1279 1243 1204 Sulfur ppm ASTM D5185m 2060 3561 2959 2699 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m >20 3 2 1 Potassium ppm ASTM D5185m >20 3 2 <1	Manganese	ppm	ASTM D5185m	0	<1	0	<1
Phosphorus ppm ASTM D5185m 1150 1085 989 991 Zinc ppm ASTM D5185m 1270 1279 1243 1204 Sulfur ppm ASTM D5185m 2060 3561 2959 2699 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m 5 2 1 Potassium ppm ASTM D5185m >20 3 2 <1	Magnesium	ppm	ASTM D5185m	1010	957	976	903
Zinc ppm ASTM D5185m 1270 1279 1243 1204 Sulfur ppm ASTM D5185m 2060 3561 2959 2699 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m 5 2 1 Potassium ppm ASTM D5185m >20 3 2 <1	Calcium	ppm	ASTM D5185m	1070	1065	1082	1014
Sulfur ppm ASTM D5185m 2060 3561 2959 2699 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m 5 2 1 Potassium ppm ASTM D5185m >20 3 2 <1	Phosphorus	ppm	ASTM D5185m	1150	1085	989	991
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m 5 2 1 Potassium ppm ASTM D5185m >20 3 2 <1	Zinc	ppm	ASTM D5185m	1270	1279	1243	1204
Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m 5 2 1 Potassium ppm ASTM D5185m >20 3 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 7.8 8.8 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.4 16.5 18.4	Sulfur	ppm	ASTM D5185m	2060	3561	2959	2699
Sodium ppm ASTM D5185m 5 2 1 Potassium ppm ASTM D5185m >20 3 2 <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 2 <1	Silicon	ppm	ASTM D5185m	>25	3	2	3
INFRA-RED	Sodium	ppm	ASTM D5185m		5	2	1
Soot % % *ASTM D7844 > 6 0.3 0.4 0.5 Nitration Abs/cm *ASTM D7624 > 20 7.8 8.8 9.9 Sulfation Abs/.1mm *ASTM D7415 > 30 19.2 19.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 > 25 15.4 16.5 18.4	Potassium	ppm	ASTM D5185m	>20	3	2	<1
Nitration Abs/cm *ASTM D7624 >20 7.8 8.8 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.4 16.5 18.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.4 16.5 18.4	Soot %	%	*ASTM D7844	>6	0.3	0.4	0.5
Sulfation Abs/.1mm *ASTM D7415 >30 19.2 19.5 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.4 16.5 18.4	Nitration	Abs/cm	*ASTM D7624	>20	7.8	8.8	9.9
Oxidation Abs/.1mm *ASTM D7414 >25 15.4 16.5 18.4	Sulfation						
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.4	16.5	18.4



OIL ANALYSIS REPORT

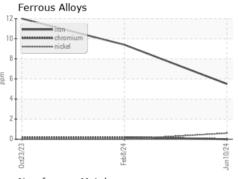


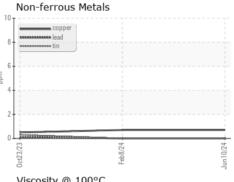


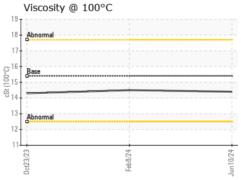
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

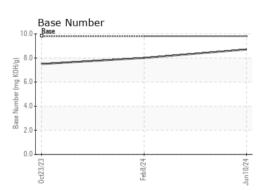
FLUID PROPI	ERITES	method	limit/base		nistory1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.5	14.3

GRAPHS













Certificate 12367

Laboratory Sample No.

: GFL0121974 Lab Number : 06211407 Unique Number : 11084271

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received Tested

: 17 Jun 2024 : 18 Jun 2024 Diagnosed : 18 Jun 2024 - Wes Davis

GFL Environmental - 401 - Fort Wayne Hauling 4429 ALLEN MARTIN DR FORT WAYNE, IN

US 46806 Contact: Zachory Roehm zroehm@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: GFL401 [WUSCAR] 06211407 (Generated: 06/21/2024 22:09:04) Rev: 1

Submitted By: See also GFL401 - ZACHORY ROEHM

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