

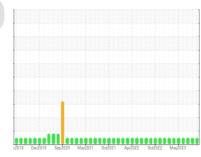
OIL ANALYSIS REPORT

(YA134196) [oil service]

2673

Diesel Engine

PETRO CANADA DURON SHP 15W40 (46 GAL)



Sample Rating Trend

NORMAL



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.

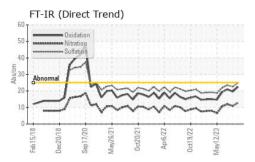
Fluid Condition

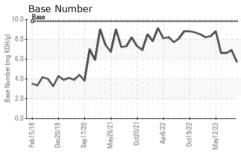
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

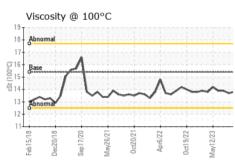
Sample Number Client Info GFL0124458 GFL0098516 GFL009853 Gample Date Client Info 05 Jun 2024 24 Jan 2024 21 Oct 2025 20 Oct 2025 24 Jan 2024 21 Oct 2025 25 Jan 2025 24 Jan 2024 21 Oct 2025 25 Jan 2025 24 Jan 2024 21 Oct 2025 25 Jan 2025 21	AAL)		32010 Dec20	110 Sepzuzu Mayzuzi	UCTZUZI APIZUZZ UCTZUZZ I	nayzuzs	
Sample Date	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 18468 17688 17054 17	Sample Number		Client Info		GFL0124458	GFL0098516	GFL0098535
Oil Age	Sample Date		Client Info		05 Jun 2024	24 Jan 2024	21 Oct 2023
Coli Changed Changed Changed NORMAL NEG	Machine Age	hrs	Client Info		18468	17688	17054
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2	Oil Age	hrs	Client Info		780	634	585
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imitibase Current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >165 26 9 10 Chromium ppm ASTM D5185m >5 <1 <1 <1 Nickel ppm ASTM D5185m >4 0 <1 0 Silver ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >20 4 2 <1 Capper ppm ASTM D5185m >20 4 2 <1 Copper ppm ASTM D5185m >5 <1 <1 0 Capper ppm ASTM D5185m 0 0 0 0	CONTAMINA	TION	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
	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR META	LS	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>165	26	9	10
Titanium	Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	0	<1	0
Aluminum	Titanium	ppm	ASTM D5185m	>2	<1	0	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >90 2 0 <1 Tin ppm ASTM D5185m >5 <1	Aluminum	ppm	ASTM D5185m	>20	4	3	2
Tin	Lead	ppm	ASTM D5185m	>150	4	2	<1
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 <1 1 0 Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 0 1 0 0 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 1040 957 981 Calcium ppm ASTM D5185m 1070 1271 1104 1133 Phosphorus ppm ASTM D5185m 1270 1406 1292 1365 Sulfur ppm ASTM D5185m 2060 3347 2861 3064 CONTAMINANTS method limit/base current history1 <	Copper	ppm	ASTM D5185m	>90	2	0	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>5	<1	<1	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 60 73 62 64 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 1040 957 981 Calcium ppm ASTM D5185m 1070 1271 1104 1133 Phosphorus ppm ASTM D5185m 1150 1074 1074 1139 Zinc ppm ASTM D5185m 1270 1406 1292 1365 Sulfur ppm ASTM D5185m 2060 3347 2861 3064 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m >20 6 1 5 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 73 62 64 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 1040 957 981 Calcium ppm ASTM D5185m 1070 1271 1104 1133 Phosphorus ppm ASTM D5185m 1150 1074 1074 1139 Zinc ppm ASTM D5185m 1270 1406 1292 1365 Sulfur ppm ASTM D5185m 2060 3347 2861 3064 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m >20 6 1 4 Potassium ppm ASTM D5185m >20 6 1 5 INFRA-RED method limit/base	Boron	ppm	ASTM D5185m	0	<1	1	0
Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 1040 957 981 Calcium ppm ASTM D5185m 1070 1271 1104 1133 Phosphorus ppm ASTM D5185m 1150 1074 1074 1139 Zinc ppm ASTM D5185m 1270 1406 1292 1365 Sulfur ppm ASTM D5185m 2060 3347 2861 3064 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m >20 6 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.7 0.5 0.5 Nitration Abs/am *ASTM D7415	Barium	ppm	ASTM D5185m	0	1	0	0
Magnesium ppm ASTM D5185m 1010 1040 957 981 Calcium ppm ASTM D5185m 1070 1271 1104 1133 Phosphorus ppm ASTM D5185m 1150 1074 1074 1139 Zinc ppm ASTM D5185m 1270 1406 1292 1365 Sulfur ppm ASTM D5185m 2060 3347 2861 3064 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m >20 6 1 4 Potassium ppm ASTM D5185m >20 6 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.7 0.5 0.5 Nitration Abs/:nm *AST	Molybdenum	ppm	ASTM D5185m	60	73	62	64
Calcium ppm ASTM D5185m 1070 1271 1104 1133 Phosphorus ppm ASTM D5185m 1150 1074 1074 1139 Zinc ppm ASTM D5185m 1270 1406 1292 1365 Sulfur ppm ASTM D5185m 2060 3347 2861 3064 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m >20 6 1 4 Potassium ppm ASTM D5185m >20 6 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 12.8 10.9 12.0 Sulfation Abs/.1mm *ASTM D7414<	Manganese	ppm	ASTM D5185m	0	0	<1	<1
Phosphorus ppm ASTM D5185m 1150 1074 1074 1139 Zinc ppm ASTM D5185m 1270 1406 1292 1365 Sulfur ppm ASTM D5185m 2060 3347 2861 3064 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m >20 6 1 4 Potassium ppm ASTM D5185m >20 6 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 12.8 10.9 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 24.9 22.6 23.5 FLUID DEGRADATION *ASTM D7414<	Magnesium	ppm	ASTM D5185m	1010	1040	957	981
Zinc ppm ASTM D5185m 1270 1406 1292 1365 Sulfur ppm ASTM D5185m 2060 3347 2861 3064 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m >20 6 1 4 Potassium ppm ASTM D5185m >20 6 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 12.8 10.9 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 24.9 22.6 23.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm<	Calcium	ppm	ASTM D5185m	1070	1271	1104	1133
Sulfur ppm ASTM D5185m 2060 3347 2861 3064 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m <1	Phosphorus	ppm	ASTM D5185m	1150	1074	1074	1139
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m <1	Zinc	ppm	ASTM D5185m	1270	1406	1292	1365
Silicon ppm ASTM D5185m >35 7 5 7 Sodium ppm ASTM D5185m <1 1 4 Potassium ppm ASTM D5185m >20 6 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 12.8 10.9 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 24.9 22.6 23.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.5 19.6 21.0	Sulfur	ppm	ASTM D5185m	2060	3347	2861	3064
Sodium ppm ASTM D5185m <1 1 4 Potassium ppm ASTM D5185m >20 6 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 12.8 10.9 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 24.9 22.6 23.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.5 19.6 21.0	CONTAMINA	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 6 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 12.8 10.9 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 24.9 22.6 23.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.5 19.6 21.0	Silicon	ppm	ASTM D5185m	>35	7	5	7
INFRA-RED	Sodium	ppm	ASTM D5185m		<1	1	4
Soot % % *ASTM D7844 > 7.5 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 > 20 12.8 10.9 12.0 Sulfation Abs/.1mm *ASTM D7415 > 30 24.9 22.6 23.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 > 25 22.5 19.6 21.0	Potassium	ppm	ASTM D5185m	>20	6	1	5
Nitration Abs/cm *ASTM D7624 >20 12.8 10.9 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 24.9 22.6 23.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.5 19.6 21.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 24.9 22.6 23.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.5 19.6 21.0	Soot %	%	*ASTM D7844	>7.5	0.7	0.5	0.5
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.5 19.6 21.0	Nitration	Abs/cm	*ASTM D7624	>20	12.8	10.9	12.0
Oxidation Abs/.1mm *ASTM D7414 >25 22.5 19.6 21.0	Sulfation	Abs/.1mm	*ASTM D7415	>30	24.9	22.6	23.5
	FLUID DEGRA	ADATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 5.7 6.9 6.6	Oxidation	Abs/.1mm	*ASTM D7414	>25	22.5	19.6	21.0
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	5.7	6.9	6.6



OIL ANALYSIS REPORT



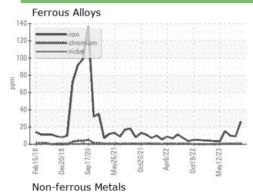


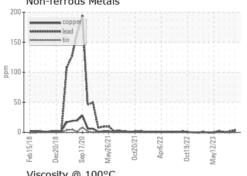


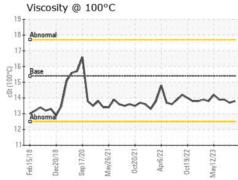
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

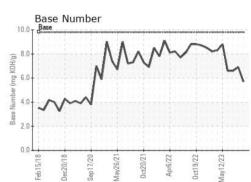
FLUID PROPE	RHES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.7	13.9

GRAPHS













Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0124458 Lab Number : 06201322 Unique Number : 11063445

Test Package : FLEET

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Received : 06 Jun 2024 **Tested** : 07 Jun 2024

Diagnosed : 07 Jun 2024 - Wes Davis

GFL Environmental - 006 - Wilmington

3618 US Highway 421 N Wilmington, NC

US 28401 Contact: Eric Wood

eric.wood@gflenv.com T: (717)723-1956

F: (910)762-6880

* - 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: GFL006 [WUSCAR] 06201322 (Generated: 06/07/2024 05:37:30) Rev: 1

Submitted By: NEIL GRIFFIN