

OIL ANALYSIS REPORT



Machine Id **10711** Component **Diesel Engine** Fluid **PETRO CANADA DURON SHP 15W40 (--- GAL)**

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.

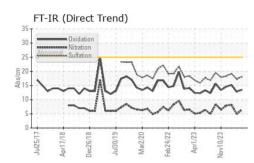
Fluid Condition

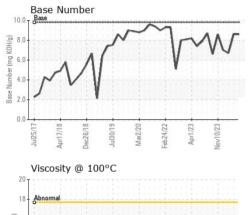
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

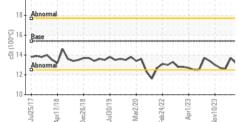
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0111451	GFL0068851	GFL0068844
Sample Date		Client Info		28 Jun 2024	05 Apr 2024	01 Mar 2024
Machine Age	hrs	Client Info		173	1392	1342
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	15	10	24
Chromium	ppm	ASTM D5185m	>20	1	<1	2
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m	- 1	0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	11	5	19
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	ء <1	<1	2
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	<1	0
	pp			0	< 1	0
ADDITIVES	pp	method	limit/base	current	history1	history2
			limit/base	current		-
ADDITIVES	ppm	method ASTM D5185m		-	history1	history2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m	0	current 5	history1 3	history2 1
ADDITIVES Boron	ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0	current 5 0	history1 3 0	history2 1 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 5 0 56	history1 3 0 60	history2 1 0 60
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 5 0 56 0	history1 3 0 60 <1	history2 1 0 60 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 5 0 56 0 916	history1 3 0 60 <1 1087	history2 1 0 60 <1 930
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 5 0 56 0 916 1011	history1 3 0 60 <1 1087 1140	history2 1 0 60 <1 930 1038
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 5 0 56 0 916 1011 1015	history1 3 0 60 <1 1087 1140 1128	history2 1 0 60 <1 930 1038 975
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 5 0 56 0 916 1011 1015 1230	history1 3 0 60 <1 1087 1140 1128 1390	history2 1 0 60 <1 930 1038 975 1129
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 5 0 56 0 916 1011 1015 1230 2872	history1 3 0 60 <1 1087 1140 1128 1390 4036	history2 1 0 60 <1 930 1038 975 1129 2768
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current 5 0 56 0 916 1011 1015 1230 2872 current	history1 3 0 60 <1 1087 1140 1128 1390 4036 history1	history2 1 0 60 <1 930 1038 975 1129 2768 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 5 0 56 0 916 1011 1015 1230 2872 current 6	history1 3 0 60 <1 1087 1140 1128 1390 4036 history1 5	history2 1 0 60 <1 930 1038 975 1129 2768 history2 6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 5 0 56 0 916 1011 1015 1230 2872 current 6 <1	history1 3 0 60 <1 1087 1140 1128 1390 4036 history1 5 0	history2 1 0 60 <1 930 1038 975 1129 2768 history2 6 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 5 0 56 0 916 1011 1015 1230 2872 current 6 <1 9	history1 3 0 60 <1 1087 1140 1128 1390 4036 history1 5 0 4	history2 1 0 60 <1 930 1038 975 1129 2768 history2 6 2 12
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	current 5 0 56 0 916 1011 1015 1230 2872 current 6 <1 9 current	history1 3 0 60 <1 1087 1140 1128 1390 4036 history1 5 0 4 history1	history2 1 0 60 <1 930 1038 975 1129 2768 history2 6 2 12 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	current 5 0 56 0 916 1011 1015 1230 2872 current 6 <1 9 current 0.2	history1 3 0 60 <1 1087 1140 1128 1390 4036 history1 5 0 4 history1 0.1	history2 1 0 60 <1 930 1038 975 1129 2768 history2 6 2 12 history2 0.4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	current 5 0 56 0 916 1011 1015 1230 2872 current 6 <1 9 current 0.2 6.5	history1 3 0 60 <1 1087 1140 1128 1390 4036 history1 5 0 4 history1 0.1 4.9	history2 1 0 60 <1 930 1038 975 1129 2768 history2 6 2 12 history2 0.4 8.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 320 33 20 20 20	current 5 0 56 0 916 1011 1015 1230 2872 current 6 <1 9 current 0.2 6.5 18.1	history1 3 0 60 <1 1087 1140 1128 1390 4036 history1 5 0 4 history1 0.1 4.9 17.3	history2 1 0 60 <1 930 1038 975 1129 2768 history2 6 2 12 history2 0.4 8.2 19.2



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	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.2	13.7	12.6
GRAPHS						

Ferrous Alloys

Non-ferrous Metals

[pr]

Apr17/18

mqq

200

150

He 100

50

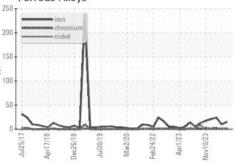
19

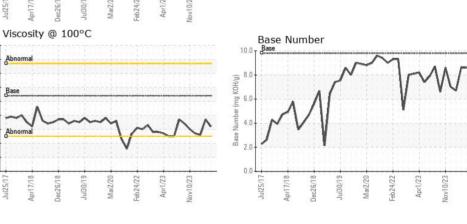
18 17

16 cSt (100°C)

> 12 11 10

> > Jul25/17





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 073 - Warner Robins - Transwaste Sample No. : GFL0111451 Received : 03 Jul 2024 155 Story Road Lab Number : 06227107 Tested : 05 Jul 2024 Warner Robins, GA Unique Number : 11110600 Diagnosed : 05 Jul 2024 - Wes Davis US 31093 Test Package : FLEET Contact: JOSH MALONEY Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jmaloney@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: GFL073 [WUSCAR] 06227107 (Generated: 07/09/2024 14:17:52) Rev: 1

Submitted By: JOSH MALONEY Page 2 of 2