

## RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

PROBLEMATIC	C TEST	RESULT	S			
Sample Status				ATTENTION	ABNORMAL	ATTENTION
Visc @ 100°C	cSt	ASTM D445	15.4	<u> </u>	14.3	<b>1</b> 1.9

Customer Id: GFL836 Sample No.: GFL0102544 Lab Number: 06028402 Test Package: FLEET



To manage this report scan the QR code

*To discuss the diagnosis or test data:* Jonathan Hester +1 919-379-4092 x4092 jhester@wearcheckusa.com

*To change component or sample information:* Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u> VISCOSITY

There are no recommended actions for this sample.

### **HISTORICAL DIAGNOSIS**

### 13 Oct 2023 Diag: Don Baldridge

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. Note that there appears to be a discrepancy in the total time on this component, when compared to the historical data.Cylinder, crank, or cam shaft wear is indicated. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The BN level is low. The condition of the oil is acceptable for the time in service.

#### 26 Sep 2023 Diag: Don Baldridge

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The oil viscosity is lower

than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

04 Apr 2023 Diag: Jonathan Hester



Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.Valve wear is indicated. Fuel content negligible. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.







view report



# **OIL ANALYSIS REPORT**

Sample Rating Trend

VISCOSITY



Machine Id 913146 Component

**Diesel Engine** Fluid

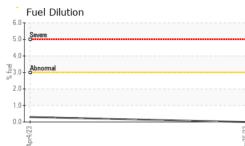
PETRO CANADA DURON SHP 15W40 (--- GAL)

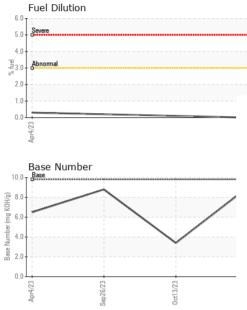
DIAGNOSIS	SAMPLE INFOR		method	limit/base	current	history1	history2
				minubase			
Recommendation	Sample Number		Client Info		GFL0102544	GFL0093696	GFL0087707
corrective action is recommended at this time. sample at the next service interval to monitor.	Sample Date		Client Info		25 Nov 2023	13 Oct 2023	26 Sep 2023
	Machine Age	hrs	Client Info		0	1015	2415
ear	Oil Age	hrs	Client Info		0	0	0
component wear rates are normal. ntamination	Oil Changed Sample Status		Client Info		N/A ATTENTION	Changed ABNORMAL	Changed ATTENTION
el content negligible. There is no indication of y contamination in the oil.	CONTAMINAT	ION	method	limit/base	current	history1	history2
Fluid Condition	Water		WC Method	>0.2	NEG	NEG	NEG
e oil viscosity is lower than normal. The BN result	Glycol		WC Method		NEG	NEG	NEG
icates that there is suitable alkalinity remaining in oil. Confirm oil type.	WEAR METAL	S	method	limit/base	current	history1	history2
	Iron	ppm	ASTM D5185m	>120	6	<b>1</b> 00	4
	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
	Nickel	ppm	ASTM D5185m	>5	<1	3	<1
	Titanium	ppm	ASTM D5185m	>2	<1	<1	0
	Silver	ppm	ASTM D5185m	>2	0	<1	0
	Aluminum	ppm	ASTM D5185m	>20	2	<u> </u>	<1
	Lead	ppm	ASTM D5185m	>40	0	2	0
	Copper	ppm	ASTM D5185m	>330	2	19	1
	Tin	ppm	ASTM D5185m	>15	0	2	<1
	Vanadium	ppm	ASTM D5185m		0	<1	0
	Cadmium	ppm	ASTM D5185m		0	<1	0
	ADDITIVES		method	limit/base	current	history1	history2
	Boron	ppm	ASTM D5185m	0	62	4	48
	Barium	ppm	ASTM D5185m	0	5	13	0
	Molybdenum	ppm	ASTM D5185m	60	41	71	59
	Manganese	ppm	ASTM D5185m	0	0	15	<1
	Magnesium	ppm	ASTM D5185m	1010	511	790	1080
	Calcium	ppm	ASTM D5185m	1070	1590	1234	833
	Phosphorus	ppm	ASTM D5185m		737	733	1061
	Phosphorus Zinc	ppm ppm		1150			
			ASTM D5185m	1150	737	733	1061
	Zinc	ppm ppm	ASTM D5185m ASTM D5185m	1150 1270	737 874 2801	733 921	1061 1267 3490
	Zinc Sulfur	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 limit/base	737 874 2801	733 921 2402	1061 1267 3490
	Zinc Sulfur CONTAMINAN	ppm ppm ITS	ASTM D5185m ASTM D5185m ASTM D5185m method	1150 1270 2060 limit/base	737 874 2801 current	733 921 2402 history1	1061 1267 3490 history2
	Zinc Sulfur CONTAMINAN Silicon	ppm ppm TS ppm	ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	1150 1270 2060 limit/base >25	737 874 2801 current 8	733 921 2402 history1 ▲ 32	1061 1267 3490 history2 5
	Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 limit/base >25 >20	737 874 2801 current 8 1	733 921 2402 history1 ▲ 32 4	1061 1267 3490 history2 5 8
	Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 limit/base >25 >20	737 874 2801 current 8 1 4 0.0	733 921 2402 history1 ▲ 32 4 11	1061 1267 3490 history2 5 8 1 <1.0
	Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 limit/base >25 >20 >3.0 limit/base	737 874 2801 current 8 1 4 0.0	733 921 2402 history1 ▲ 32 4 11 <1.0	1061 1267 3490 history2 5 8 1 <1.0
	Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm TS ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 >25 >20 >20 >3.0 limit/base >4	737 874 2801 current 8 1 4 0.0 current	733 921 2402 history1 ▲ 32 4 11 <1.0 history1	1061 1267 3490 5 5 8 1 <1.0 history2
	Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm TS ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844	1150 1270 2060 >25 >20 >3.0 limit/base >4 >20	737 874 2801 current 8 1 4 0.0 current 0.1	733 921 2402 history1 ▲ 32 4 11 <1.0 history1 0	1061 1267 3490 5 5 8 1 <1.0 history2 0.1
	Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm TS ppm ppm ppm % % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 *ASTM D7844 *ASTM D7844 *ASTM D7845	1150 1270 2060 >25 >20 >3.0 limit/base >4 >20	737 874 2801 current 8 1 4 0.0 current 0.1 5.6 21.7	733 921 2402 history1 ▲ 32 4 11 <1.0 history1 0 13.2	1061 1267 3490 5 5 8 1 <1.0 history2 0.1 6.4 18.5
	Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm TS ppm ppm ppm % % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 *ASTM D7844 *ASTM D7844 *ASTM D7845	1150 1270 2060 >25 >20 >20 >3.0 Iimit/base >20 >30 Iimit/base	737 874 2801 current 8 1 4 0.0 current 0.1 5.6 21.7	733 921 2402 history1 ▲ 32 4 11 <1.0 history1 0 13.2 25.9	1061 1267 3490 history2 5 8 1 <1.0 history2 0.1 6.4

Contact/Location: See also GFL823, 834, 837, 840 - Robert Hart - GFL836



# **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
/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Nov25/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual	20.L	NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	<b>11.4</b>	14.3	▲ 11.9
	GRAPHS						
	Ferrous Alloys						
	100 T		Λ				
	80 - iron						
	ou nickel	/					
	60-		· · · · ·				
	E						
	40-	/					
/	20	/					
	0			Illenent			
	/23		23	33			
	4 (O		0	2/2			
	Apr4/23 Sep 26/23		0ct13/23	Nov25/23			
	53	ls	0ct13,	Nov25/2			
	Non-ferrous Meta	lls	- 0ct13,				
	Non-ferrous Meta	IIs	0ct13	Nov25/2			
	Non-ferrous Meta	ıls	0ct13	Nov25/			
	Non-ferrous Meta	ıls	0ct13	Nov25/			
	Non-ferrous Meta	ıls	0ct13	Nov25/			
	Non-ferrous Meta	ıls	0ct13	Mov25/			
	Non-ferrous Meta	ıls	0ct13	Mov25/			
	Non-ferrous Meta 200 150	ıls	0ct13	Nov25/			
	Non-ferrous Meta	ıls		Nov25/			
 	Non-ferrous Meta	Ils					
 	Non-ferrous Meta	Ils	0ct13/23 - 0ct13/23 - 0ct13/	Nov25/23			
	Non-ferrous Meta				Page Number		
	Non-ferrous Meta 200 200 100 100 50 100 50 100 50 50 50 50 50 50 50 50 50			Nov25/23	Base Number	r	
	Non-ferrous Meta			Nov25/23	Base Number	r	
	Non-ferrous Meta			E2/32/09/	Base	r	
	Non-ferrous Meta 200 200 200 100 50 50 50 50 50 50 50 50 50			E2/32/09/	Base	-	
	Non-ferrous Meta 200 200 200 100 50 50 50 50 50 50 50 50 50			E2/32/09/	Base		
	Non-ferrous Meta Non-ferrous Meta Dead			E2/32/09/	Base		
	Non-ferrous Meta 200 200 200 100 50 50 50 50 50 50 50 50 50			E2/32/09/	Base		
	Non-ferrous Meta 250 200 200 150 100 50 0 (EX) 100 100 100 100 100 100 100 10			0.0 Pack (mg K0H(0) Pack (mg K	Base		
	Non-ferrous Meta 250 200 200 150 100 50 0 (E) (E) (E) (E) (E) (E) (E) (E)			10.0 (0,HOX bu) squmy 4.0 2.0	Base		
	Non-ferrous Meta Non-ferrous Meta Copper Load		Oct1323	EZ552/volv (D)HOX Duu Jaquung 4.0 2.0 0.0	Base		
	Non-ferrous Meta Non-ferrous Meta Copper Load		Oct1323	EZ552/volv (D)HOX Duu Jaquung 4.0 2.0 0.0	Base		13/23
	Non-ferrous Meta 250 200 200 150 100 50 0 (E) (E) (E) (E) (E) (E) (E) (E)			10.0 (0,HOX bu) squmy 4.0 2.0	Base	Sep26/23	0et13/23
	Non-ferrous Meta 250 200 200 100 50 100 50 100 50 100 50 100 50 100 50 100 50 100 10	c	0ct13/23	Nov25/23 Base Number (mg KOH(g) Base Standard (mg KOH(g) Base Standard (mg KOH(g) Base Standard (mg KOH(g) Base Standard (mg KOH(g)) Base Standard (	Base.	Sep 26/23	
ratory	Non-ferrous Meta Non-ferrous Meta Copper Loo Loo Loo Loo Loo Loo Loo Lo	C 501 Madii	EZEEIHO EZEEIHO Son Ave., Ca	EZ/SZ/VON (D/HQ) BUI Jagum 4.0 EZ/SZ/VON EZ/SZ/VON EX/SZ/VON	Base.	Elogades ironmental - 836 -	Kansas City Hauli
ratory ple No.	Non-ferrous Meta Non-ferrous Meta Comper- Log Copper- Log Copper-	501 Madia	EZEIII EZEIIII EZEIIII EXEIIIII EXEIIIII EXEIIIIII EXEIIIIII EXEIIIIIII EXEIIIIIIII	EZISZNON (D)HOX BUI JAQ (D)HOX BUI JAQ (D)H	Base.	ET 2020 ironmental - 836 - 7801 Ea	<b>Kansas City Hauli</b> ast Truman Roa
	Non-ferrous Meta Non-ferrous Meta Copper Loo Loo Loo Loo Loo Loo Loo Lo	C 501 Madii	son Ave., Ca d : 07 l ed : 15 l	EZ/SZ/VON (D/HQ) BUI Jagum 4.0 EZ/SZ/VON EZ/SZ/VON EX/SZ/VON	Base EZHOUT	ET 2020 ironmental - 836 - 7801 Ea	Kansas City Hauli

Test Package : FLEET ( Additional Tests: FuelDilution, PercentFuel ) Certificate L2367 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)

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Contact/Location: See also GFL823, 834, 837, 840 - Robert Hart - GFL836

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