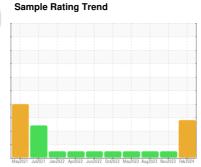


# **OIL ANALYSIS REPORT**



Machine Id 5593 Component **Diesel Engine** 

PETRO CANADA DURON SHP 10W30 (40 LTR)





## DIAGNOSIS

### Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

### Wear

All component wear rates are normal.

#### Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

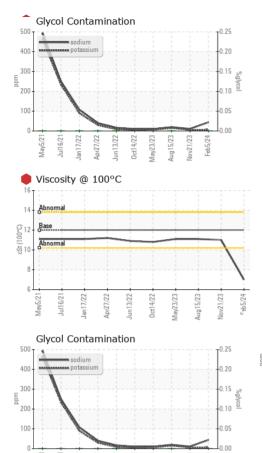
### Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2		
Sample Number		Client Info		GFL0102587	GFL0101716	GFL0085927		
Sample Date		Client Info		05 Feb 2024	21 Nov 2023	15 Aug 2023		
Machine Age	hrs	Client Info		0	28437	27892		
Oil Age	hrs	Client Info		0	0	0		
Oil Changed		Client Info		N/A	Changed	Changed		
Sample Status				SEVERE	NORMAL	NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2		
Water		WC Method	>0.2	NEG	NEG	NEG		
WEAR METAL	S	method	limit/base	current	history1	history2		
Iron	ppm	ASTM D5185(m)	>120	16	12	15		
Chromium	ppm	ASTM D5185(m)	>20	<1	<1	<1		
Nickel	ppm	ASTM D5185(m)	>5	<1	<1	<1		
Titanium	ppm	ASTM D5185(m)	>2	0	0	0		
Silver	ppm	ASTM D5185(m)	>2	0	<1	0		
Aluminum	ppm	ASTM D5185(m)	>20	8	2	2		
Lead	ppm	ASTM D5185(m)	>40	1	2	3		
Copper	ppm	ASTM D5185(m)	>330	5	3	3		
Tin	ppm	ASTM D5185(m)	>15	<1	0	<1		
Antimony	ppm	ASTM D5185(m)		0	0	0		
Vanadium	ppm	ASTM D5185(m)		0	0	0		
Beryllium	ppm	ASTM D5185(m)		0	0	0		
Cadmium	ppm	ASTM D5185(m)		0	0	0		
ADDITIVES		method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185(m)	2	2	4	2		
Barium	ppm	ASTM D5185(m)	0	0	<1	0		
Molybdenum	ppm	ASTM D5185(m)	50	46	59	61		
Manganese	ppm	ASTM D5185(m)	0	0	0	<1		
Magnesium	ppm	ASTM D5185(m)	950	690	913	980		
Calcium	ppm	ASTM D5185(m)	1050	794	1027	1044		
Phosphorus	ppm	ASTM D5185(m)	995	723	916	1015		
Zinc	ppm	ASTM D5185(m)	1180	840	1139	1175		
Sulfur	ppm	ASTM D5185(m)	2600	2005	2251	2341		
Lithium	ppm	ASTM D5185(m)			<1	<1		
				<1	<1	~ 1		
CONTAMINAN	TS	method	limit/base	<1 current	history1	history2		
Silicon	ppm	ASTM D5185(m)	limit/base	current 6	history1	history2		
Silicon Sodium		ASTM D5185(m) ASTM D5185(m)	>25	current 6 44	history1 6 11	history2 6 20		
Silicon Sodium Potassium	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>25 >20	current 6 44 6	history1  6 11 6	history2 6 20 15		
Silicon Sodium Potassium Fuel	ppm ppm ppm %	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7593*	>25	current  6 44 6  23.5	history1  6 11 6 <1.0	history2 6 20 15 <1.0		
Silicon Sodium Potassium Fuel Glycol	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>25 >20	current 6 44 6	history1  6 11 6 <1.0 0.0	history2 6 20 15 <1.0 0.0		
Silicon Sodium Potassium Fuel	ppm ppm ppm %	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7593*	>25 >20	current  6 44 6  23.5 0.0  current	history1  6 11 6 <1.0	history2  6 20 15 <1.0 0.0 history2		
Silicon Sodium Potassium Fuel Glycol	ppm ppm ppm %	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7593* ASTM D7922*	>25 >20 >3.0	current 6 44 6 23.5 0.0 current 0.1	history1  6 11 6 <1.0 0.0	history2  6 20 15 <1.0 0.0		
Silicon Sodium Potassium Fuel Glycol INFRA-RED	ppm ppm ppm %	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7593* ASTM D7922* method	>25 >20 >3.0 limit/base >4	current  6 44 6  23.5 0.0  current	history1  6 11 6 <1.0 0.0 history1	history2  6 20 15 <1.0 0.0 history2		



## **OIL ANALYSIS REPORT**



	FL	UID	D DEGRADATION method					limit/base current				history1				history2					
C	Oxidation Abs/.1m			s/.1mm	n ASTM D7414*			>25	15.4				17.5			17.7					
VISUAL						method			limit/l	current				history1			history2				
White Metal			so	calar				NONE		NONE											
Yellow Metal			SC	calar	Visual*		NONE		٧	LITE											
Р	Precipitate			SC	calar	Visual*			NONE		NONE										
	Silt				calar	Visual*			NONE	NONE											
	Debris				calar	Visual*			NONE	NONE											
	Sand/Dirt				calar	Visual*			NONE		NONE										
	Appearance				calar	Visual*			NORML		NORML				NO DAIL				NODM		
	Odor				calar				NORML		NORML				NORML				NORML		
	Emulsified Water Free Water				calar	Visual*			>0.2	NEG				NEG			NEG				
						calar				limit/base		NEG				NEG			NEG		
	FLUID PROPE									oase		curre	ent			tory1			story	'2	
Visc @ 100°C GRAPHS				CS	St	AST	M D7279	9(m)	12.00		7				11.0			11.	1		
		Iron (ppm)										Lea	ad (p	(ma							
300	Seve										100	T 1		,							
200-											80	Seve	20								
mdd	Abno	ormal									E 60	Abn	ormal								
100-											20										
0 -	12	11	2-	2	2	- 2	23		23	4.	0	12	-12				- 2	22	-	23	75
	May5/21	Jul16/21	Jan 17/22	Apr27/22	Jun13/22	Oct14/22	May23/23	Aug15/23	Nov21/23	Feb5/24		May5/21	Jul16/21	lan 17/22	Apr27/22	Jun13/22	Oct14/22	May23/23	Aug15/23	Nov21/23	Feb5/24
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10-											10										
0		÷	2	2 +	2	2	23		3	-	0	<u> </u>	-	2	2	2	2				4
	May5/2	Jul16/21	Jan 17/22	Apr27/22	Jun13/22	Oct14/22	May23/23	Aug15/23	Nov21/23	Feb5/24		May5/21	Jul16/21	Jan 17/22	Apr27/22	Jun13/22	Oct14/22	May23/23	Aug15/23	Nov21/23	Feb5/24
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300-	-										60	·									
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100-	i										20				_						
0 -	21	21+	22	22	22	22	23	- 53	23	24	0	21	21+	22	22	22	22	23	23	23 -	24
	May5/21	Jul16/21	Jan17/22	Apr27/22	Jun13/22	Oct14/22	May23/23	Aug15/23	Nov21/23	Feb5/24		May5/21	Jul16/21	Jan 17/22	Apr27/22	Jun13/22	Oct14/22	May23/23	Aug15/23	Nov21/23	Feb5/24
				100°			≥	A	2	☐ Fuel Dilution					7		≥	A	2		
16	Abnormal									25.0 20.0	[ ]									1	
0 12	Base		-				-														/
cSt (100°C)	Abno	ormal			-					-	⊒15.0 ≈10.0	<u> </u>									/
8-										1	5.0	Seve	ere orrnal					-		-/	-
6.1	-12/9	121+	/22	/22	/22	/22	/23	/23	/23	/24	0.0	12/9	12/	/22	/22	/22	727	/23	/23	/23	/24
	May5/21	Jul16/21	Jan17/22	Apr27/22	Jun13/22	Oct14/22	May23/23	Aug15/23	Nov21/23	Feb5/24		May5/2	Jul16/21	Jan17/22	Apr27/22	Jun13/22	Oct14/22	May23/23	Aug15/23	Nov21/23	Feb5/24
					-		_	-	_					-		-			-	_	



CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5722773

: GFL0102587

: 02613678

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 554 - Edmonton SW Recieved

: 06 Feb 2024 Diagnosed : 07 Feb 2024 Diagnostician : Wes Davis

8409 -15th Street NW Edmonton, AB Test Package : MOB 1 ( Additional Tests: FuelDilution, Glycol, PercentFuel, Visual )

CA T6P 0B8 Contact: Tim Greig tgreig@gflenv.com T: (780)231-0521

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

Validity of results and interpretation are based on the sample and information as supplied.