

Machine Id 10682

Fluid

Diesel Engine

PROBLEM SUMMARY

Sample Rating Trend GLYCOL

COMPONENT CONDITION SUMMARY Glycol Contamination 800 0.40 odium 700 otassium 0.30 600 500 0.20 % 표 400 300 200 0.10 100 Ċ 0.00 Jan 13/23 Apr2/24 Aug6/20 Vov30/23 Apr18/23 Aug23/23 1118/7· Dct2/

PETRO CANADA DURON SHP 15W40 (40 GAL)

RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS							
Sample Status				SEVERE	SEVERE	SEVERE	
Sodium	ppm	ASTM D5185m		<u> </u>	A 370	2 51	
Potassium	ppm	ASTM D5185m	>20	462	A 353	A 239	
Glycol	%	*ASTM D2982		A 0.10	▲ 0.10	0 .10	

Customer Id: GFL084 Sample No.: GFL0127788 Lab Number: 06234575 Test Package: FLEET



To discuss the diagnosis or test data: Sean Felton +1 919-379-4092 sfelton@wearcheckusa.com

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS							
Action	Status	Date	Done By	Description			
Change Fluid			?	We recommend that you drain the oil and perform a filter service on this component if not already done.			
Change Filter			?	We recommend that you drain the oil and perform a filter service on this component if not already done.			
Resample			?	We recommend an early resample to monitor this condition.			
Check Glycol Access			?	We advise that you check for the source of the coolant leak.			

HISTORICAL DIAGNOSIS

10 Jun 2024 Diag: Jonathan Hester

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.All component wear rates are normal. Sodium and/or potassium levels are high. Test for glycol is positive. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.





GLYCOL

13 May 2024 Diag: Jonathan Hester

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.All component wear rates are normal. Sodium and/or potassium levels are high. Test for glycol is positive. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.





19 Apr 2024 Diag: Jonathan Hester

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend an early resample to monitor this condition.All component wear rates are normal. Sodium and/or potassium levels remain high. The BN result indicates that there is suitable alkalinity remaining in the oil.





OIL ANALYSIS REPORT

Sample Rating Trend

GLYCOL

Machine Id **10682** Component **Diesel Engine**

Fluid PETRO CANADA DURON SHP 15W40 (40 GAL)

DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

Sodium and/or potassium levels are high. Test for glycol is positive.

Fluid Condition

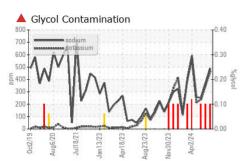
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

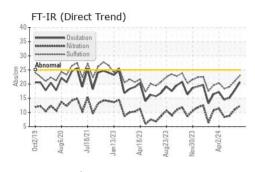
SAMPLE INFORM	/ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0127788	GFL0098991	GFL0098933
Sample Date		Client Info		08 Jul 2024	10 Jun 2024	13 May 2024
Machine Age	hrs	Client Info		34110	34110	33959
Oil Age	hrs	Client Info		18544	34110	33959
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	SEVERE	SEVERE
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	33	26	15
Chromium	ppm	ASTM D5185m	>5	1	1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>15	4	3	4
Lead	ppm	ASTM D5185m	>25	<1	1	<1
Copper	ppm	ASTM D5185m	>100	2	2	<1
Tin	ppm	ASTM D5185m	>4	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
	ppm	method ASTM D5185m	limit/base	current 0	history1 <1	history2 2
Boron	ppm ppm					
Boron Barium	ppm	ASTM D5185m	0	0	<1	2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0 0 60	0 0	<1 1	2 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 96	<1 1 87	2 0 69
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 96 0	<1 1 87 <1	2 0 69 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 96 0 895	<1 1 87 <1 936	2 0 69 <1 866
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	0 0 96 0 895 1108	<1 1 87 <1 936 1058	2 0 69 <1 866 951
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	0 96 0 895 1108 984	<1 1 87 <1 936 1058 1023	2 0 69 <1 866 951 942
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	0 96 0 895 1108 984 1229	<1 1 87 <1 936 1058 1023 1248	2 0 69 <1 866 951 942 1134
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	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	0 0 96 0 895 1108 984 1229 2611	<1 1 87 <1 936 1058 1023 1248 3009	2 0 69 <1 866 951 942 1134 3186
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	0 96 0 895 1108 984 1229 2611 current	<1 1 87 <1 936 1058 1023 1248 3009 history1	2 0 69 <1 866 951 942 1134 3186 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 0 96 0 895 1108 984 1229 2611 current 7	<1 1 87 <1 936 1058 1023 1248 3009 history1 8	2 0 69 <1 866 951 942 1134 3186 history2 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 0 96 0 895 1108 984 1229 2611 <u>current</u> 7 ▲ 489	<1 1 1 87 <1 936 1058 1023 1248 3009 history1 8	2 0 69 <1 866 951 942 1134 3186 history2 8 8 ▲ 251
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 96 0 895 1108 984 1229 2611 Current 7 ▲ 489 ▲ 462	<1 1 87 <1 936 1058 1023 1248 3009 history1 8 ▲ 370 ▲ 353	2 0 69 <1 866 951 942 1134 3186 bistory2 8 ▲ 251 ▲ 239
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 0 96 0 895 1108 984 1229 2611 Current 7 ▲ 489 ▲ 462 ▲ 0.10	<1 1 87 <1 936 1058 1023 1248 3009 history1 8 ▲ 370 ▲ 353 ▲ 0.10	2 0 69 <1 866 951 942 1134 3186 history2 8 ▲ 251 ▲ 239 ▲ 0.10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D2982	0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 0 96 0 895 1108 984 1229 2611 Current 7 ▲ 489 ▲ 489 ▲ 462 ▲ 0.10 Current	<1 1 87 <11 936 1058 1023 1248 3009 history1 8 370 353 ▲ 370	2 0 69 <1 866 951 942 1134 3186 history2 8 ▲ 251 ▲ 239 ▲ 0.10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm	ASTM D5185m ASTM D5185m *ASTM D2982 method	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20	0 0 96 0 895 1108 984 1229 2611 Current 7 ▲ 489 ▲ 462 ▲ 0.10 Current 0.4	<1 1 87 37 936 1058 1023 1248 3009 history1 8 ▲ 370 ▲ 353 ▲ 0.10 history1 0.3	2 0 69 <1 866 951 942 1134 3186 history2 8 ▲ 251 ▲ 239 ▲ 0.10 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D2982 method *ASTM D7844 *ASTM D7824	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20	0 0 96 0 895 1108 984 1229 2611 Current 7 ▲ 489 ▲ 462 ▲ 0.10 Current 0.4 12.3	<1 1 87 41 936 1058 1023 1248 3009 1248 3009 1248 3009 1353 ▲ 370 ▲ 353 ▲ 0.10 102 100 100 100 100 100 100 100 100 1	2 0 69 <1 866 951 942 1134 3186 ► 134 134 3186 ► 134 • 13
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D2982 method *ASTM D7844 *ASTM D7824	0 0 1010 1070 1150 1270 2060 limit/base >20 limit/base >6 >20 >30 limit/base	0 0 96 0 895 1108 984 1229 2611 Current 7 ▲ 489 ▲ 462 ▲ 0.10 Current 0.4 12.3 23.0	<1 1 87 41 936 1058 1023 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 3009 1248 1248 100 100 100 100 100 100 100 100 100 10	2 0 69 951 942 1134 3186 ► 251 ► 251 ▲ 251 ▲ 239 ▲ 0.10 ► 100 ► 1

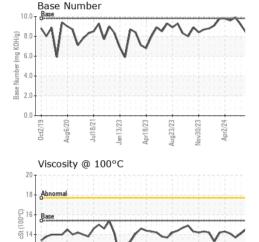
Submitted By: GFL084,GFL842,GFL844,GFL846 - ROBERT THIBAULT Page 3 of 4



OIL ANALYSIS REPORT







Apr18/23

an 13/23

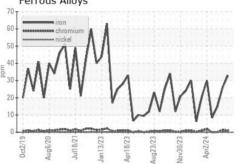
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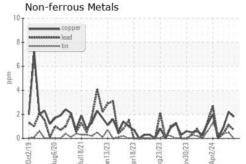
Abnorm

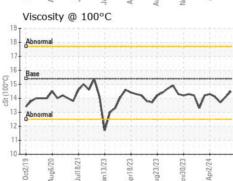
Aug6/20

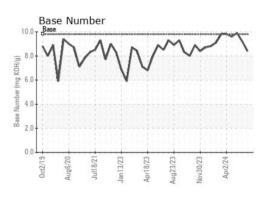
VISUAL White Metal NONE NONE NONE NONE *Visual scalar Yellow Metal *Visual NONE NONE NONE NONE scalar Precipitate NONE NONE scalar *Visual NONE NONE Silt scalar *Visual NONE NONE NONE NONE Debris *Visual NONE scalar NONE NONE NONE Sand/Dirt NONE NONE NONE NONE scalar *Visual Appearance NORML NORML NORML NORML scalar *Visual Odor *Visual NORML NORML NORML NORML scalar *Visual **Emulsified Water** scalar >0.2 NEG NEG NEG Free Water scalar *Visual NEG NEG NEG **FLUID PROPERTIES** limit/base history Visc @ 100°C cSt ASTM D445 15.4 14.5 14.1 13.7 GRAPHS











Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 084 - Clarksville Sample No. : GFL0127788 Received : 12 Jul 2024 699 Jack Miller Boulevard Lab Number : 06234575 Tested : 16 Jul 2024 Clarksville, TN Unique Number : 11123409 Diagnosed : 16 Jul 2024 - Sean Felton US 37042 Test Package : FLEET Contact: ROBERT THIBAULT Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. robert.thibault@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (931)552-7276 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (931)572-9674

Report Id: GFL084 [WUSCAR] 06234575 (Generated: 07/16/2024 13:30:04) Rev: 1

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Page 4 of 4