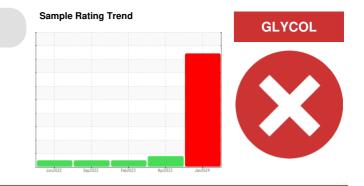
PROBLEM SUMMARY

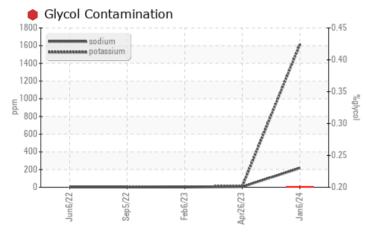


CHECK

Machine Id 820047

Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY



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	MARGINAL	NORMAL	
Sodium	ppm	ASTM D5185m		<u> </u>	6	0	
Potassium	ppm	ASTM D5185m	>20	🔺 1613	11	6	
Glycol	%	*ASTM D2982		0.20	NEG	NEG	

Customer Id: GFL652 Sample No.: GFL0098236 Lab Number: 06056552 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 <u>jhester@wearcheckusa.com</u>

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

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



26 Apr 2023 Diag: Angela Borella

06 Feb 2023 Diag: Wes Davis

No corrective action is recommended at this time. Resample at the next service interval to monitor. The iron level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.



view report

NORMAL



Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the component make and model with your next sample. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

05 Sep 2022 Diag: Wes Davis

NORMAL



Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the component make and model with your next sample.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report





OIL ANALYSIS REPORT

Sample Rating Trend

GLYCOL

X

Machine Id 820047

Component Diesel Engine

Eluid

PETRO CANADA DURON SHP 15W40 (--- 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. There is a high concentration of glycol present in the oil.

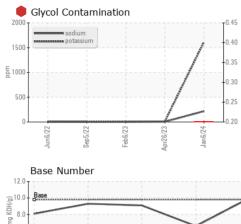
Fluid Condition

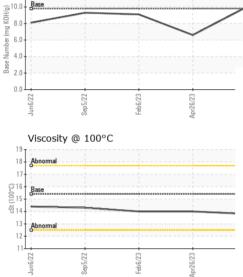
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

				Feb 2023 Apr2023		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0098236	GFL0061482	GFL0061525
Sample Date		Client Info		06 Jan 2024	26 Apr 2023	06 Feb 2023
Machine Age	hrs	Client Info		111465	0	0
Oil Age	hrs	Client Info		111465	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	MARGINAL	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
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	36	<u>∧</u> 71	15
Chromium	ppm	ASTM D5185m	>20	1	3	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	15	18	4
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m		14	1	<1
Tin	ppm		>15	<1	0	0
Vanadium	ppm	ASTM D5185m	210	<1	0	0
Vanadiam	ppili			N 1	0	0
Cadmium		ASTM D5185m		0	0	0
	ppm	ASTM D5185m method	limit/base	0 current	-	-
Cadmium ADDITIVES Boron			limit/base 0	-	0 history1 9	0 history2 7
ADDITIVES Boron	ppm	method		current	history1	history2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m	0	current 9	history1 9	history2 7
ADDITIVES	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 9 <1	history1 9 0	history2 7 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 9 <1 217	history1 9 0 67	history2 7 0 64
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	ourrent 9 <1 217 1	history1 9 0 67 2	history2 7 0 64 <1
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 9 <1 217 1 899	history1 9 0 67 2 997	history2 7 0 64 <1 895
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 9 <1 217 1 899 1038 1018	history1 9 0 67 2 997 1215 1088	history2 7 0 64 <1 895 1141 1028
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	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	current 9 <1 217 1 899 1038	history1 9 0 67 2 997 1215	history2 7 0 64 <1 895 1141
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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 9 <1 217 1 899 1038 1018 1223	history1 9 0 67 2 997 1215 1088 1366	history2 7 0 64 <1 895 1141 1028 1221
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	0 0 60 1010 1070 1150 1270 2060	Current 9 <1 217 1 899 1038 1018 1223 3030	history1 9 0 67 2 997 1215 1088 1366 3750	history2 7 0 64 <1 895 1141 1028 1221 3043
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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 9 <1 217 1 899 1038 1018 1223 3030 current	history1 9 0 67 2 997 1215 1088 1366 3750 history1	history2 7 0 64 <1 895 1141 1028 1221 3043 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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current 9 <1 217 1 899 1038 1018 1223 3030 current 12	history1 9 0 67 2 997 1215 1088 1366 3750 history1 7	history2 7 0 64 <1
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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	9 <1 217 1 899 1038 1018 1223 3030 current 12 212	history1 9 0 67 2 997 1215 1088 1366 3750 history1 7 6	history2 7 0 64 <1
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	9 <1 217 1 899 1038 1018 1223 3030 current 12 216 1613	history1 9 0 67 2 997 1215 1088 1366 3750 history1 7 6 11	history2 7 0 64 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 Imit/base >25 >20	9 <1 217 1 899 1038 1018 1223 3030 current 12 ▲ 216 ▲ 1613 ● 0.20	history1 9 0 67 2 997 1215 1088 1366 3750 history1 7 6 11 NEG	history2 7 0 64 <1
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25 >20 Imit/base >3	9 <1 217 1 899 1038 1018 1223 3030 current 12 ▲ 216 ▲ 1613 ● 0.20 current	history1 9 0 67 2 997 1215 1088 1366 3750 history1 7 6 11 NEG history1	history2 7 0 64 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm ppm %	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25 >20 Imit/base >3	Current 9 <1 217 1 899 1038 1018 1223 3030 current 12 12 0.20 current 0.5	history1 9 0 67 2 997 1215 1088 1366 3750 history1 7 6 11 NEG history1 0.8	history2 7 0 64 <1
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Iimit/base >25 >20 Iimit/base >3 >20	Current 9 <1 217 1 899 1038 1018 1223 3030 current 12 ▲ 1613 ● 0.20 current 0.5 8.9	history1 9 0 67 2 997 1215 1088 1366 3750 history1 7 6 11 NEG history1 0.8 9.3	history2 7 0 64 <1
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25 >20 Imit/base >20 S	Current 9 <1 217 1 899 1038 1018 1223 3030 current 12 ▲ 216 ▲ 1613 ● 0.20 current 0.5 8.9 21.1	history1 9 0 67 2 997 1215 1088 1366 3750 history1 7 6 11 NEG history1 0.8 9.3 20.0	history2 7 0 64 <1



OIL ANALYSIS REPORT





		VISUAL		method	limit/base	current	history1	history2
	0.40	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	1	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	0.35 gr	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	-0.30 8	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
/	-0.25	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
4	0.20	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Feb6/23 Apr26/23	Jan6/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Api Api	Dail Contraction of the second	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
		FLUID PROPI	ERTIES	method	limit/base	current	history1	history2
	\checkmark	Visc @ 100°C	cSt	ASTM D445	15.4	13.8	14.0	14.0
		GRAPHS						
		Ferrous Alloys						
Feb 6/23 -	Apr26/23 +	70 - iron chromium		\wedge				
Fel	Apró	60 nickel		$/ \setminus$				
		§ 40						
		30	/					
		20	\checkmark					
		Jun6/22 -	Feb6/23 -	Apr26/23 .	Jan 6/24 •			
				Apri	- P			
/23	23	Non-ferrous Meta	ils.		····			
Feb6/23	Apr26/23	12 - copper						
		10-						
		E 8		/				
		u 0-		/				
		4-		/				
		2-						
		5 5	23	53	24			
		C C	5					
		Jun6/22 Sep5/22	Feb6/23	Apr26,	Jan6/24			
		Viscosity @ 100°		Apr26/23	Jan6,	Base Number		
		Viscosity @ 100°		Apr26	12.0	Base Number		
		Viscosity @ 100°		Apr26	12.0			
		Viscosity @ 100°		Apr26	12.0			
		Viscosity @ 100°		Apri26	12.0			
		Viscosity @ 100°		Apr26	12.0			
		Viscosity @ 100°		Apr26	12.0 (0) (HOX BU) Ja Gunny See 4.0			
		Viscosity @ 100°		Apr26	12.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0			
		Viscosity @ 100° Abnomal Base Constant Base Abnomal Abnomal	C		12.0 10.0 (b)(HOX 8.0 (b)(HOX 80) 140 (b)(HOX	Base	23	
		Viscosity @ 100°			12.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0		Feb 6/23	Apr26/23
		Viscosity @ 100°	C	Apr26/23	12.0 (0)HOX 8.0 (0)HOX	ZZ/gunp		
	Laboratory Sample No.	Viscosity @ 100°	C	son Ave., Ca	12.0 (0)HOX 8.0 (0)HOX	ZZ/gunp	onmental - 652 - Fre	dericksburg Haulin
	Laboratory Sample No. Lab Number	Viscosity @ 100°	C	son Ave., Ca	12.0 (0)HOX BUL Particle 10.0 (0)HOX BUL PARTI	ZZ/gunp	onmental - 652 - Fre 1095	
	Sample No.	Viscosity @ 100° Abnormal Abnormal Abnormal Abnormal Control of the second Base Base Control of the second Control of the second	C 501 Madia Recieved Diagnos Diagnos	son Ave., Ca d : 10 v ed : 12 v tician : Jon	12.0 (0)HOX BUL 94007 BUL 94007 BUL 94007 A.0 2.0 0.0 4.0 4.0 2.0 0.0 4.0 9007 A.0 9007 A.0 90007 A.0 90007 A.0 90000 A.0 90000 1000000000000000000	ZZIgun GFL Envir	onmental - 652 - Fre 1095 Free	dericksburg Haulir 54 Houser Driv

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: TECHNICIAN ACCOUNT

F: