

OIL ANALYSIS REPORT





Machine Id 3567

Component Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (42 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.

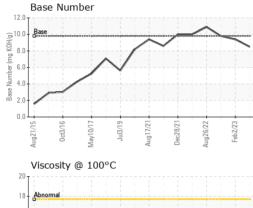
Fluid Condition

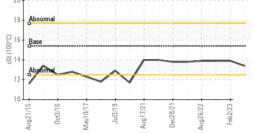
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0080595	GFL0066876	GFL0066799
Sample Date		Client Info		20 Jul 2023	02 Feb 2023	04 Jan 2023
Machine Age	hrs	Client Info		6943	6943	6943
Oil Age	hrs	Client Info		6943	6943	6943
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	MARGINAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
-	0		12 . 12 /1			
WEAR METAL	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m		82	10	5
Chromium	ppm	ASTM D5185m		<1	<1	0
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	6	2	1
Lead	ppm	ASTM D5185m	>40	0	2	0
Copper	ppm	ASTM D5185m	>330	12	8	7
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	18	16	24
Boron Barium	ppm ppm					
Barium		ASTM D5185m	0	18	16	24
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	18 0	16 0	24 0
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60	18 0 60	16 0 58	24 0 62
Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	18 0 60 <1	16 0 58 <1	24 0 62 <1
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	18 0 60 <1 925	16 0 58 <1 910	24 0 62 <1 950
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	18 0 60 <1 925 1114	16 0 58 <1 910 1146	24 0 62 <1 950 1157
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	18 0 60 <1 925 1114 1055	16 0 58 <1 910 1146 1017	24 0 62 <1 950 1157 1074
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	18 0 60 <1 925 1114 1055 1256	16 0 58 <1 910 1146 1017 1319 3816	24 0 62 <1 950 1157 1074 1289 3991
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	18 0 60 <1 925 1114 1055 1256 3834 current	16 0 58 <1 910 1146 1017 1319 3816 history1	24 0 62 <1 950 1157 1074 1289 3991 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	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 limit/base	18 0 60 <1 925 1114 1055 1256 3834 current 11	16 0 58 <1 910 1146 1017 1319 3816 history1 5	24 0 62 <1 950 1157 1074 1289 3991 history2 4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	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	18 0 60 <1 925 1114 1055 1256 3834 <u>current</u> 11 9	16 0 58 <1 910 1146 1017 1319 3816 history1 5 7	24 0 62 <1 950 1157 1074 1289 3991 history2 4 6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m 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 >25	18 0 60 <1 925 1114 1055 1256 3834 current 11 9 4	16 0 58 <1 910 1146 1017 1319 3816 history1 5 7 5	24 0 62 <1 950 1157 1074 1289 3991 history2 4 6 3
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	18 0 60 <1 925 1114 1055 1256 3834 current 11 9 4 current	16 0 58 <1 910 1146 1017 1319 3816 history1 5 7 5 5 <i>history</i> 1	24 0 62 <1 950 1157 1074 1289 3991 history2 4 6 3 3 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4	18 0 60 <1 925 1114 1055 1256 3834 <u>current</u> 11 9 4 <u>current</u>	16 0 58 <1 910 1146 1017 1319 3816 history1 5 7 5 7 5 <i>history1</i> 0.1	24 0 62 <1 950 1157 1074 1289 3991 history2 4 6 3 3 history2 0.1
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4	18 0 60 <1 925 1114 1055 1256 3834 current 11 9 4 current	16 0 58 <1 910 1146 1017 1319 3816 history1 5 7 5 5 <i>history</i> 1	24 0 62 <1 950 1157 1074 1289 3991 history2 4 6 3 3 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4	18 0 60 <1 925 1114 1055 1256 3834 <u>current</u> 11 9 4 <u>current</u>	16 0 58 <1 910 1146 1017 1319 3816 history1 5 7 5 7 5 <i>history1</i> 0.1	24 0 62 <1 950 1157 1074 1289 3991 history2 4 6 3 3 history2 0.1
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 .20 limit/base >4 >20	18 0 60 <1 925 1114 1055 1256 3834 <i>current</i> 11 9 4 <i>current</i> 0.1 5.8	16 0 58 <1 910 1146 1017 1319 3816 history1 5 7 5 7 5 history1 0.1 5.3	24 0 62 <1 950 1157 1074 1289 3991 history2 4 6 3 3 history2 0.1 5.4
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 	18 0 60 <1 925 1114 1055 1256 3834 <u>current</u> 11 9 4 <u>current</u> 0.1 5.8 17.4	16 0 58 <1 910 1146 1017 1319 3816 history1 5 7 5 5 history1 0.1 5.3 17.0	24 0 62 <1 950 1157 1074 1289 3991 history2 4 6 3 3 history2 0.1 5.4 16.8
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >25 	18 0 60 <1 925 1114 1055 1256 3834 <i>current</i> 11 9 4 <i>current</i> 0.1 5.8 17.4	16 0 58 <1 910 1146 1017 1319 3816 history1 5 7 5 history1 0.1 5.3 17.0 history1	24 0 62 <1 950 1157 1074 1289 3991 history2 4 6 3 3 history2 0.1 5.4 16.8 history2



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
22	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Aug26/22 Feb2/23							
A	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		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.9	13.9
	GRAPHS						
	Ferrous Alloys						
	Non-ferrous Meta Ulicity @ 100°C	V V ISING		Feb2/23	Base Number		
	19 						
	18 - Abnormal 17 -			10.0	Base		\sim
	10			(B/HO		\sim	
U-O-O				1.8 1.6 1.6 1.6 1.4		~/	
01/140	5 15 - 3 14 -			.0 aper		V	
1	13 Abromat			4.0			
	12	V		2.0			
	11						
		21	21	0.0		21 21	22
	Aug21/15 0ct3/16 May10/17	Aug17/21	Dec28/21 Aug26/22	Feb 2/2 3	Aug21/15 0ct3/16 May10/17	Jul3/19 Aug17/21 Dec28/21	Aug26/22 Feb2/23
Laboratory Sample No. Lab Number Unique Number Test Package	: WearCheck USA - : GFL0080595 : 05904228 : 10565584 : FLEET	501 Madis Received Diagnose Diagnost	son Ave., Ca I : 21 J ed : 24 J ician : Dou	lul 2023 lul 2023 Ig Bogart		/ironmental - 01 4621 M H Contact:	B - Fayetteville Marracco Drive Hope Mills, NC US 28348 Robert Carter
	contact Customer Serv						er@gflenv.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.

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

Certificate L2367

T: (910)596-1170

F:

^{* -} Denotes test methods that are outside of the ISO 17025 scope of accreditation.