

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 911019-1378

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- 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.

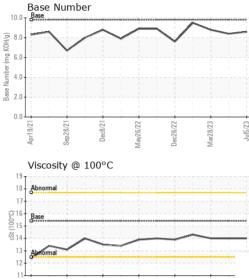
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0083980	GFL0083961	GFL0078719
Sample Date		Client Info		05 Jul 2023	27 Jun 2023	28 Mar 2023
Machine Age	hrs	Client Info		7226	7208	6643
Oil Age	hrs	Client Info		583	565	600
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>100	15	13	8
Chromium	ppm	ASTM D5185m		<1	<1	<1
Nickel	ppm	ASTM D5185m	>20	0	0	<1
Titanium	ppm	ASTM D5185m	77	0	0	0
Silver		ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m		2	0	<1
Lead	ppm	ASTM D5185m	>20	0	0	0
	ppm			0 <1	<1	<1
Copper Tin	ppm	ASTM D5185m ASTM D5185m	>330	<1 <1	<1	< 1
	ppm		>15			0
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	ASTM D5185m	limit/base 0	6	history1 6	<1
	ppm ppm					
Boron		ASTM D5185m	0	6	6	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	6 0	6 0	<1 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	6 0 64	6 0 60	<1 2 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	6 0 64 <1	6 0 60 <1	<1 2 60 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	6 0 64 <1 895	6 0 60 <1 882	<1 2 60 <1 893
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	6 0 64 <1 895 1149	6 0 60 <1 882 1092	<1 2 60 <1 893 1067
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150	6 0 64 <1 895 1149 993	6 0 60 <1 882 1092 951	<1 2 60 <1 893 1067 967
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	6 0 64 <1 895 1149 993 1192	6 0 60 <1 882 1092 951 1195	<1 2 60 <1 893 1067 967 1170
Boron 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	6 0 64 <1 895 1149 993 1192 2698	6 0 60 <1 882 1092 951 1195 2966	<1 2 60 <1 893 1067 967 1170 2824
Boron 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	6 0 64 <1 895 1149 993 1192 2698 current	6 0 60 <1 882 1092 951 1195 2966 history1	<1 2 60 <1 893 1067 967 1170 2824 history2
Boron 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	6 0 64 <1 895 1149 993 1192 2698 current 3	6 0 60 <1 882 1092 951 1195 2966 history1 3	<1 2 60 <1 893 1067 967 1170 2824 history2 3
Boron 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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	6 0 64 <1 895 1149 993 1192 2698 <u>current</u> 3 <1	6 0 60 <1 882 1092 951 1195 2966 history1 3 3	<1 2 60 <1 893 1067 967 1170 2824 history2 3 3 3
Boron 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	0 0 0 1010 1070 1150 1270 2060 limit/base >25	6 0 64 <1 895 1149 993 1192 2698 current 3 <1 4	6 0 60 <1 882 1092 951 1195 2966 history1 3 3 3 3	<1 2 60 <1 893 1067 967 1170 2824 history2 3 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	6 0 64 <1 895 1149 993 1192 2698 current 3 <1 4 current	6 0 60 <1 882 1092 951 1195 2966 history1 3 3 3 3 3	<1 2 60 <1 893 1067 967 1170 2824 history2 3 3 2 history2
Boron 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 >3	6 0 64 <1 895 1149 993 1192 2698 <u>current</u> 3 <1 4 <u>current</u>	6 0 60 <1 882 1092 951 1195 2966 history1 3 3 3 3 3 history1 0.4	<1 2 60 <1 893 1067 967 1170 2824 history2 3 3 2 history2 0.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	6 0 64 <1 895 1149 993 1192 2698 <i>current</i> 3 <1 4 <i>current</i> 0.8 8.4	6 0 60 <1 882 1092 951 1195 2966 history1 3 3 3 3 3 history1 0.4 7.2	<1 2 60 <1 893 1067 967 1170 2824 history2 3 3 2 history2 0.8 7.4
Boron 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	6 0 64 <1 895 1149 993 1192 2698 <u>current</u> 3 <1 4 <u>current</u> 0.8 8.4 20.6	6 0 60 <1 882 1092 951 1195 2966 history1 3 3 3 3 3 3 0.4 7.2 22.6	<1 2 60 <1 893 1067 967 1170 2824 history2 3 3 2 history2 0.8 7.4 19.7
Boron 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 D7844 *ASTM D7624	0 0 0 1010 1070 1150 2260 2060 225 220 220 1imit/base 23 20 20 23 30	6 0 64 <1 895 1149 993 1192 2698 <i>current</i> 3 <1 4 <i>current</i> 0.8 8.4 20.6 <i>current</i>	6 0 60 <1 882 1092 951 1195 2966 history1 3 3 3 3 history1 0.4 7.2 22.6 history1	<1 2 60 <1 893 1067 967 1170 2824 history2 3 3 2 history2 0.8 7.4 19.7



Apr19/21-

OIL ANALYSIS REPORT

VISUAL



Dec8/21.

Sep28/21

Laborate Sample	lo. : GFL008	auxn	Received : 11 Jul 2023 Diagnosed : 12 Jul 2023 Diagnostician : Wes Davis ice at 1-800-237-1369. 7025 scope of accreditation.				160 Hughes Traverse City, US 496 Contact: GARY BREWI			
		Sep 28/21 Deck USA				7513	63	onmental - 622	Dec26/22 Mar28/23	
	12-					0.0				
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	Apr19/21	Sep 28/21	:6/22	26/22	Jul5/23					
	50									
	톱 100									
		\mathbf{T}								
		copper lead tin								
	Non-fe	errous Meta								
	Apr19/21	Sep 28/21 Dec8/21	May26/22	Dec26/22 Mar28/23	Jul5/23					
	0 - 1		\sim							
	60 40									
	80- 6									
May26/22 Dec26/22 Mar28/23		chromium nickel								
	140 T	s Alloys								
	GRAF									
	Visc @ 1		cSt	ASTM D44	5 15.4	14.0		14.0	14.0	
		D PROPE			limit/ba		rrent	history		
	Free Wa	ed Water Iter	scalar scalar	*Visual *Visual	>0.2	NEG		NEG NEG	NEG NEG	
Ma _v Dec	Udor		scalar	*Visual	NORML			NORML	NOR	
May26/22 Dec26/22 Mar28/23	Appeara	nce	scalar	*Visual	NORML			NORML	NOR	
	Sand/Dir	rt	scalar	*Visual	NONE	NON	E	NONE	NON	E
	Debris		scalar	*Visual	NONE	NON		NONE	NON	
	Silt		scalar	*Visual	NONE	NON		NONE	NON	
	Yellow N Precipita		scalar scalar	*Visual *Visual	NONE NONE	NON		NONE NONE	NON	
\sim	White Me		scalar	*Visual	NONE	NON		NONE	NON	
	VISU/									

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

Submitted By: TECHNICIAN ACCOUNT