

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 425144 - SW4521

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Engine) $% \label{eq:commutative}$

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

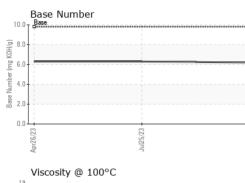
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

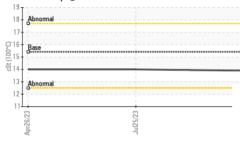
AL)	Ap/2023 Ju2023 Dec2023							
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2		
Sample Number		Client Info		GFL0094069	GFL0089417	GFL0075388		
Sample Date		Client Info		01 Dec 2023	25 Jul 2023	26 Apr 2023		
Machine Age	mls	Client Info		320393	328489	319634		
Oil Age	mls	Client Info		320393	328489	0		
Oil Changed		Client Info		Not Changd	Changed	Changed		
Sample Status				NORMAL	NORMAL	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		
Glycol		WC Method		NEG	NEG	NEG		
WEAR METAL	S	method	limit/base	current	history1	history2		
Iron	ppm	ASTM D5185m	>100	31	26	28		
Chromium	ppm	ASTM D5185m	>20	<1	<1	1		
Nickel	ppm	ASTM D5185m	>4	<1	0	0		
Titanium	ppm	ASTM D5185m		0	<1	0		
Silver	ppm	ASTM D5185m	>3	0	0	0		
Aluminum	ppm	ASTM D5185m	>20	2	1	6		
Lead	ppm	ASTM D5185m	>40	0	1	0		
Copper	ppm	ASTM D5185m	>330	1	1	5		
Tin	ppm	ASTM D5185m	>15	0	<1	0		
Vanadium	ppm	ASTM D5185m		0	<1	0		
Cadmium	ppm	ASTM D5185m		0	0	0		
ADDITIVES		method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185m	0	<1	0	10		
Barium	ppm	ASTM D5185m	0	0	0	0		
Molybdenum								
	ppm	ASTM D5185m	60	44	44	66		
Manganese	ppm ppm	ASTM D5185m ASTM D5185m		44 <1	44 <1	66 1		
•								
Magnesium	ppm	ASTM D5185m	0	<1	<1	1		
Magnesium Calcium	ppm ppm	ASTM D5185m ASTM D5185m	0 1010	<1 22	<1 101	1 985		
Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070	<1 22 2430	<1 101 2465	1 985 1225		
Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150	<1 22 2430 1079	<1 101 2465 1060	1 985 1225 1057		
Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270	<1 22 2430 1079 1286	<1 101 2465 1060 1286	1 985 1225 1057 1355		
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 1010 1070 1150 1270 2060	<1 22 2430 1079 1286 3210	<1 101 2465 1060 1286 3840	1 985 1225 1057 1355 4009 history2 6		
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 1010 1070 1150 1270 2060 limit/base	<1 22 2430 1079 1286 3210 current	<1 101 2465 1060 1286 3840 history1	1 985 1225 1057 1355 4009 history2		
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25	<1 22 2430 1079 1286 3210 current 8	<1 101 2465 1060 1286 3840 history1 6	1 985 1225 1057 1355 4009 history2 6		
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Sillicon Sodium	ppm ppm ppm ppm ppm ppm JTS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25	<1 22 2430 1079 1286 3210 current 8 4	<1 101 2465 1060 1286 3840 history1 6 1	1 985 1225 1057 1355 4009 history2 6 3		
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm JTS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20	<1 22 2430 1079 1286 3210 current 8 4 3	<1 101 2465 1060 1286 3840 history1 6 1 3	1 985 1225 1057 1355 4009 history2 6 3 2		
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ITS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 /////////////////////////////////	<1 22 2430 1079 1286 3210 current 8 4 3 3 current	<1 101 2465 1060 1286 3840 history1 6 1 3 history1	1 985 1225 1057 1355 4009 history2 6 3 2 kistory2		
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm tTS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	<1 22 2430 1079 1286 3210 current 8 4 3 2 current 0.5	<1 101 2465 1060 1286 3840 history1 6 1 3 history1 0.5	1 985 1225 1057 1355 4009 history2 6 3 2 history2 1.1		
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm pm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7824 *ASTM D7415	0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20	<1 22 2430 1079 1286 3210 current 8 4 3 current 0.5 10.9	<1 101 2465 1060 1286 3840 history1 6 1 3 history1 0.5 11.4	1 985 1225 1057 1355 4009 history2 6 3 2 history2 1.1 13.4		
Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm pm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7824 *ASTM D7415	0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20 >30	<1 22 2430 1079 1286 3210 current 8 4 3 current 0.5 10.9 22.2	<1 101 2465 1060 1286 3840 history1 6 1 3 history1 0.5 11.4 22.5	1 985 1225 1057 1355 4009 history2 6 3 2 history2 1.1 13.4 24.2		

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Jul25/23	White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Fluid PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual * Visual * Visual * ASTM D445	NONE NONE NONE NONE NORML >0.2 Imit/base	NONE NONE NONE NONE NORML NORML NEG NEG Current 13.9	NONE NONE NONE NONE NORML NORML NEG NEG history1 14.0	NONE NONE NONE NONE NORML NORML NEG NEG 14.0
Juit26/2/3	Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	NONE NONE NONE NONE NORML NORML >0.2 Iimit/base	NONE NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NONE NORML NORML NEG NEG history1	NONE NONE NONE NONE NORML NORML NEG NEG history2
Juit26/2/3	Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual method	NONE NONE NONE NORML NORML >0.2 Iimit/base	NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NORML NORML NEG NEG history1	NONE NONE NONE NORML NORML NEG NEG history2
Juit26/2/3	Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual method	NONE NORML NORML >0.2 limit/base	NONE NORML NORML NEG NEG	NONE NORML NORML NEG NEG history1	NONE NORML NORML NEG NEG history2
Juit26/2/3	Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual method	NONE NORML NORML >0.2 limit/base	NONE NORML NORML NEG NEG current	NONE NORML NORML NEG NEG history1	NONE NORML NORML NEG NEG history2
Juit26/2/3	Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar RTIES	*Visual *Visual *Visual *Visual method	NORML NORML >0.2	NORML NORML NEG NEG current	NORML NORML NEG NEG history1	NORML NORML NEG NEG history2
Juit26/2/3	Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar RTIES	*Visual *Visual *Visual method	NORML >0.2 limit/base	NORML NEG NEG current	NORML NEG NEG history1	NORML NEG NEG history2
Juit26/2/3	Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar RTIES	*Visual *Visual method	>0.2 limit/base	NEG NEG current	NEG NEG history1	NEG NEG history2
Jul25/23	Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys 15	scalar ERTIES	*Visual method	limit/base	NEG current	NEG history1	NEG history2
Jul25/23	FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	RTIES	method		current	history1	history2
Jul25/23	Visc @ 100°C GRAPHS Ferrous Alloys						
Jul25/23	GRAPHS Ferrous Alloys	cSt	ASTM D445	15.4	13.9	14.0	14.0
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ficate L2367 Test Package discuss this sample report, co		vice at 1-8	00-237-1369	9.			go@gflenv.co
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Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: TECHNICIAN ACCOUNT