

# **OIL ANALYSIS REPORT**

## MONTGOMERY Machine Id KENWORTH 121037

Component Diesel Engine

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

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. 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.





NORMAL

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0091305	GFL0089901	GFL0092401
Sample Date		Client Info		31 Oct 2023	21 Sep 2023	31 Aug 2023
Machine Age	hrs	Client Info		7639	7331	7164
Oil Age	hrs	Client Info		7639	7331	7164
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
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 METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	29	20	15
Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	15	17	11
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 4	history1 <1	history2 0
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0	current 4 0	history1 <1 0	history2 0 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60	current 4 0 63	history1 <1 0 62	history2 0 0 63
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0	current 4 0 63 <1	history1 <1 0 62 <1	history2 0 0 63 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010	current 4 0 63 <1 994	history1 <1 0 62 <1 1002	history2 0 63 <1 1030
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070	current           4           0           63           <1           994           1073	history1 <1 0 62 <1 1002 1077	history2 0 63 <1 1030 1176
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150	Current 4 0 63 <1 994 1073 1008	history1 <1 0 62 <1 1002 1077 1026	history2 0 63 <1 1030 1176 1047
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270	current           4           0           63           <1           994           1073           1008           1351	history1 <1 0 62 <1 1002 1077 1026 1297	history2 0 63 <1 1030 1176 1047 1294
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060	current           4           0           63           <1           994           1073           1008           1351           2886	history1 <1 0 62 <1 1002 1077 1026 1297 2910	history2 0 63 <1 1030 1176 1047 1294 3452
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base	current         4         0         63         <1         994         1073         1008         1351         2886         current	history1         <1         0         62         <1         1002         1077         1026         1297         2910         history1	history2         0         0         63         <1         1030         1176         1047         1294         3452         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current           4           0           63           <1           994           1073           1008           1351           2886           current           13	history1         <1         0         62         <1         1002         1077         1026         1297         2910         history1         11	history2         0         0         63         <1         1030         1176         1047         1294         3452         history2         8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25	current           4           0           63           <1           994           1073           1008           1351           2886           current           13           <1	history1         <1         0         62         <1         1002         1077         1026         1297         2910         history1         11         2	history2 0 0 63 <1 1030 1176 1047 1294 3452 history2 8 2
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	limit/base 0 0 1010 1010 1070 1150 1270 2060 limit/base >25 >20	current           4           0           63           <1           994           1073           1008           1351           2886           current           13           <1           40	history1         <1         0         62         <1         1002         1077         1026         1297         2910         history1         11         2         34	history2         0         0         63         <1         1030         1176         1047         1294         3452         history2         8         2         27
ADDITIVES Boron 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	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 	current         4         0         63         <1         994         1073         1008         1351         2886         current         13         <1         40         current	history1         <1         0         62         <1         1002         1077         1026         1297         2910         history1         11         2         34         history1	history2         0         0         63         <1         1030         1176         1047         1294         3452         history2         8         2         27         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 	current           4           0           63           <1           994           1073           1008           1351           2886           current           13           <1           40           current           0.6	history1         <1         0         62         <1         1002         1077         1026         1297         2910         history1         11         2         34         history1         0.4	history2         0         0         63         <1         1030         1176         1047         1294         3452         history2         8         2         27         history2         0.3
ADDITIVES Boron 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	method           ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 limit/base >20	current         4         0         63         <1         994         1073         108         1351         2886         current         13         <1         40         current         0.6         12.0	history1         <1         0         62         <1         1002         1077         1026         1297         2910         history1         11         2         34         history1         0.4         10.5	history2         0         0         63         <1         1030         1176         1047         1294         3452         history2         8         2         27         history2         0.3         9.6
ADDITIVES 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	method           ASTM D5185m	limit/base   0   0   60   0   1010   1070   1150   1270   2060   limit/base   >25   limit/base   >20   limit/base   >3   >20   s   >3   >20	current         4         0         63         <1         994         1073         1008         1351         2886         current         13         <1         40         current         0.6         12.0         23.6	history1         <1         0         62         <1         1002         1297         2910         history1         11         2         34         history1         0.4         10.5         21.0	history2         0         0         63         <1         1030         1176         1047         1294         3452         history2         8         2         27         history2         0.3         9.6         19.5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm % Abs/cm Abs/cm	method           ASTM D5185m           ASTM D7844           *ASTM D7624           *ASTM D7415           Method	limit/base   0   0   60   0   1010   1070   1150   1270   2060   limit/base   >25   limit/base   >20   s20   limit/base   >3   >20   >30	current           4           0           63           <1           994           1073           1008           1351           2886           current           13           <1           40           current           0.6           12.0           23.6           current	kistory1         <1         0         62         <1         1002         1077         1026         1297         2910         history1         11         2         34         history1         0.4         10.5         21.0         history1	history2         0         0         63         <1         1030         1176         1047         1294         3452         history2         8         2         27         history2         0.3         9.6         19.5         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7624           *ASTM D7415           method           *ASTM D7414	limit/base   0   0   60   0   1010   1070   1150   1270   2060   limit/base   >20   limit/base   >3   >20   s30   >25	current         4         0         63         <1         994         1073         1008         1351         2886         current         13         <1         40         current         0.6         12.0         23.6         current         23.9	history1         <1         0         62         <1         1002         1077         1026         1297         2910         history1         11         2         34         history1         0.4         10.5         21.0         history1         19.8	history2         0         0         63         <1         1030         1176         1047         1294         3452         history2         8         2         7         history2         0.3         9.6         19.5         history2         17.5



# **OIL ANALYSIS REPORT**

Ferrous Alloys





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
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
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	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.4	13.6
GRAPHS						



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

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Certificate L2367

Submitted By: Lisa Reeves Page 2 of 2