

## **OIL ANALYSIS REPORT**

Sample Rating Trend





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.

	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0107100	GFL0107043	GFL0091474
Sample Date		Client Info		20 Dec 2023	13 Dec 2023	08 Sep 2023
Machine Age	hrs	Client Info		14795	14756	14658
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Not Changd	Changed	N/A
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>120	10	6	18
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	3	1
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	<1	17	17
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
oddinidini	ppm	No I III Do Toolli		U	0	0
ADDITIVES	ppm	method	limit/base	current	history1	history2
	ppm		limit/base	-		
ADDITIVES		method ASTM D5185m		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 0	history1 4	history2 20
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 0 0	history1 4 0	history2 20 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 0 0 58	history1 4 0 69	history2 20 0 91
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	Current 0 0 58 0	history1 4 0 69 0	history2 20 0 91 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	Current 0 0 58 0 916	history1 4 0 69 0 1096	history2 20 0 91 <1 896
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 0 0 58 0 916 1061	history1 4 0 69 0 1096 1225	history2           20           0           91           <1           896           1017
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 0 0 58 0 916 1061 1010	history1 4 0 69 0 1096 1225 1268	history2           20           0           91           <1           896           1017           1027
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270	Current 0 0 58 0 916 1061 1010 1201	history1 4 0 69 0 1096 1225 1268 1442	history2           20           0           91           <1           896           1017           1027           1220
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	0 0 60 1010 1070 1150 1270 2060	Current 0 0 58 0 916 1061 1010 1201 3349	history1 4 0 69 0 1096 1225 1268 1442 4063	history2         20         0         91         <1         896         1017         1027         1220         3754
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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 0 58 0 916 1061 1010 1201 3349 Current	history1 4 0 69 0 1096 1225 1268 1442 4063 history1	history2         20         0         91         <1         896         1017         1027         1220         3754         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	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	Current 0 0 58 0 916 1061 1010 1201 3349 Current 3	history1         4         0         69         0         1096         1225         1268         1442         4063         history1         4	history2         20         0         91         <1         896         1017         1027         1220         3754         history2         16
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	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	Current 0 0 58 0 916 1061 1010 1201 3349 Current 3 0	history1           4           0           69           0           1096           1225           1268           1442           4063           history1           4           5	history2         20         0         91         <1         896         1017         1027         1220         3754         history2         16         ▲ 660
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	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	Current 0 0 58 0 916 1061 1010 1201 3349 Current 3 0 3	history1         4         0         69         0         1096         1225         1268         1442         4063         history1         4         5         2	history2         20         0         91         <1         896         1017         1027         1220         3754         history2         16         660         6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	current           0           0           58           0           916           1061           1010           1201           3349           current           3           0           3           0           3           0           3           current	history1         4         0         69         0         1096         1225         1268         1442         4063         history1         4         5         2         history1	history2         20         0         91         <1         896         1017         1027         1220         3754         history2         16         660         6         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	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	current           0           0           58           0           916           1061           1010           1201           3349           current           3           0           3           0           3           0.3	history1         4         0         69         0         1096         1225         1268         1442         4063         history1         4         5         2         history1         0.2	history2         20         0         91         <1         896         1017         1027         1220         3754         history2         16         660         6         history2         0.2
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	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	current           0           0           58           0           916           1061           1010           1201           3349           current           3           0           3           0           3           0.3           current           0.3           6.3	history1           4           0           69           0           1096           1225           1268           1442           4063           history1           4           5           2           history1           0.2           5.7	history2         20         0         91         <1         896         1017         1027         1220         3754         history2         16         660         6         history2         0.2         8.1
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           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <b>imit/base</b> >20 <b>imit/base</b> >20	Current           0           0           58           0           916           1061           1010           1201           3349           current           3           0           3           current           0.3           6.3           18.3	history1         4         0         69         0         1096         1225         1268         1442         4063         history1         4         5         2         history1         0.2         5.7         18.2	history2         20         0         91         <1         896         1017         1027         1220         3754         history2         16         660         6         history2         0.2         8.1         17.6

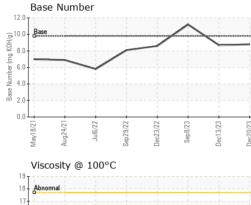


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> 13 Abnormal 12 11 IZ/81/AP

# **OIL ANALYSIS REPORT**

VISUAL



Sep 29/22

lec23/22

ul6/22

Aug24/21

Laboratory Sample No. Lab Number Unique Number	: 06045795	501 Madis Recieved Diagnose Diagnost	i : 27 [ ed : 28 [	ry, NC 27513 Dec 2023 Dec 2023 s Davis	GFL En	vironmental - 4	465 - Pontiac 888 Baldwin Pontiac, MI US 48340
	Non-ferrous Metal	Sep29/22 Dec23/22	Sep8/23 Sep8/23 Sep8/23 Dec13/23 Dec13/	12.0 10.0 (b)HCX Bull 10.0 (b)HCX Bull 10.0	Base Number	Sep23/22 Dec23/22 Sue173	Dec13/23
	FLUID PROPE Visc @ 100°C GRAPHS		method ASTM D445	limit/base 15.4	current 13.7	history1 13.9	history2 13.6
Sep.6/23 +	White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water	scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	NONE NONE NONE NONE NONE NORML NORML >0.2	NONE NONE NONE NONE NORML NORML NEG	NONE NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NONE NORML NORML NEG NEG
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 Certificate L2367
 Test Package
 : FLEET

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

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