

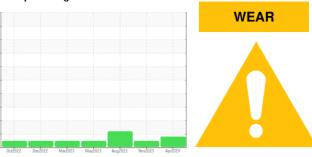
OIL ANALYSIS REPORT

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

SAMPLE INFORMATION method

Sample Rating Trend

limit/base



current

history1

history2

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Area (GAP708) Machine Id

413006 Component Diesel Engine

🔺 Wear

Exhaust valve wear is indicated.

Contamination

There is no indication of any contamination in the oil.

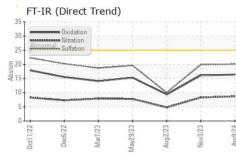
Fluid Condition

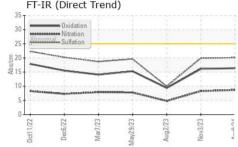
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

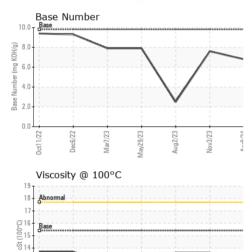
	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103404	GFL0072180	GFL0072198
Sample Date		Client Info		09 Apr 2024	03 Nov 2023	02 Aug 2023
Machine Age	hrs	Client Info		3649	3049	2431
Oil Age	hrs	Client Info		587	0	600
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				ABNORMAL	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	14	12	8
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	6	<1	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	2	3	4
Lead	ppm	ASTM D5185m	>40	2	<1	0
Copper	ppm	ASTM D5185m	>330	4	59	3
Tin	ppm	ASTM D5185m	>15	2	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 7	history1 <1	history2 5
	ppm ppm					
Boron		ASTM D5185m	0	7	<1	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	7 0	<1 0	5 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	7 0 62	<1 0 65	5 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	7 0 62 1	<1 0 65 0	5 0 61 <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	7 0 62 1 941	<1 0 65 0 965	5 0 61 <1 942
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	7 0 62 1 941 1147	<1 0 65 0 965 1100	5 0 61 <1 942 1106
Boron 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	7 0 62 1 941 1147 1047	<1 0 65 0 965 1100 987	5 0 61 <1 942 1106 993
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	7 0 62 1 941 1147 1047 1282	<1 0 65 0 965 1100 987 1255	5 0 61 <1 942 1106 993 1234
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	7 0 62 1 941 1147 1047 1282 3357	<1 0 65 0 965 1100 987 1255 2882	5 0 61 <1 942 1106 993 1234 3408
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	7 0 62 1 941 1147 1047 1282 3357 current	<1 0 65 0 965 1100 987 1255 2882 history1	5 0 61 <1 942 1106 993 1234 3408 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 Iimit/base >25	7 0 62 1 941 1147 1047 1282 3357 current 4	<1 0 65 0 965 1100 987 1255 2882 history1 6	5 0 61 <1 942 1106 993 1234 3408 history2 4
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 Iimit/base >25	7 0 62 1 941 1147 1047 1282 3357 current 4 3	<1 0 65 0 965 1100 987 1255 2882 history1 6 <1	5 0 61 <1 942 1106 993 1234 3408 history2 4 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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	7 0 62 1 941 1147 1047 1282 3357 current 4 3 3 <1	<1 0 65 0 965 1100 987 1255 2882 history1 6 <1 9	5 0 61 <1 942 1106 993 1234 3408 history2 4 3 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 20 limit/base >20	7 0 62 1 941 1147 1047 1282 3357 current 4 3 <1 2 current 0.5	<1 0 65 0 965 1100 987 1255 2882 history1 6 <1 9 history1	5 0 61 >41 942 1106 993 1234 3408 history2 4 3 9 9 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 20 limit/base >20	7 0 62 1 941 1147 1047 1282 3357 current 4 3 <1 current	<1 0 65 0 965 1100 987 1255 2882 history1 6 <1 9 history1 0.4	5 0 61 <1 942 1106 993 1234 3408 history2 4 3 9 history2 0.2
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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25 >20 Imit/base >4 >20	7 0 62 1 941 1147 1047 1282 3357 current 4 3 3 <1 current 0.5 8.7	<1 0 65 0 965 1100 987 1255 2882 history1 6 <1 9 history1 0.4 8.3	5 0 61 <1 942 1106 993 1234 3408 history2 4 3 9 history2 0.2 4.8
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 D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >4 >20 >30 imit/base	7 0 62 1 941 1147 1047 1282 3357 current 4 3 3 1 2 0.5 8.7 20.1 current	<1 0 65 0 965 1100 987 1255 2882 history1 6 <10 9 history1 0.4 8.3 19.9 history1	5 0 61 <1 942 1106 993 1234 3408 history2 4 3 9 history2 0.2 4.8 10.0 history2
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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Iimit/base >25 S S S S S S S S S S	7 0 62 1 941 1147 1047 1282 3357 current 4 3 <1 current 0.5 8.7 20.1	<1 0 65 0 965 1100 987 1255 2882 history1 6 <1 9 history1 0.4 8.3 19.9	5 0 61 <1 942 1106 993 1234 3408 history2 4 3 9 history2 0.2 4.8 10.0



OIL ANALYSIS REPORT







Mar7/23

lav29/23

Aug2/23

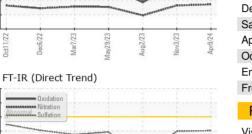
Nov3/23

13 Abnorma

12 11

0ct11/22

Dec6/22



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	13.6	13.6
GRAPHS						



Viscosity @ 100°C

19

18 17

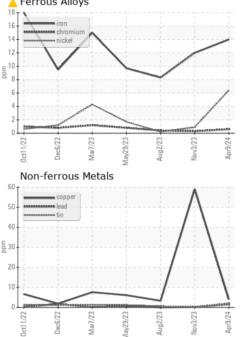
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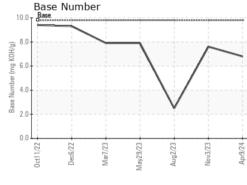
13 Abnorma 12 11

0ct11/22

Dec6/22

Mar7/23





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 094 - Cedartown Sample No. : GFL0103404 Received : 11 Apr 2024 2097 Buchanan Highway Lab Number : 06146495 Tested : 12 Apr 2024 Cedartown, GA Unique Number : 10976573 Diagnosed : 15 Apr 2024 - Sean Felton US 30125 Test Package : FLEET Contact: WILLIAM FOSTER Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. william.foster@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (800)207-6618 E:

Mav29/23

Nov3/23 -

Aug2/23

Apr9/24 -

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

Report Id: GFL094 [WUSCAR] 06146495 (Generated: 04/15/2024 15:43:14) Rev: 1

Submitted By: Darrell Welch

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