

Area (DZ8297)

DIAGNOSIS

11106 Component Diesel Engine

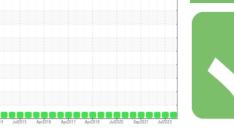
Fluid

OIL ANALYSIS REPORT

SAMPLE INFORMATION method

Sample Rating Trend

NORMAL



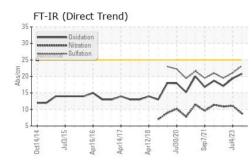
~ Recommendation ç Resample at the next service interval to monitor. Wear All component wear rates are normal. ((Contamination Ş There is no indication of any contamination in the oil. Fluid Condition The BN result indicates that there is suitable 1 alkalinity remaining in the oil. The condition of the oil is suitable for further service. ((

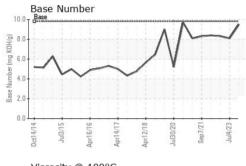
PETRO CANADA DURON SHP 15W40 (10 GAL)

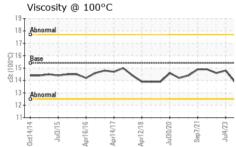
Sample Number		Client Info		GFL0123352	GFL0082409	GFL0050754
Sample Date		Client Info		16 Jul 2024	04 Jul 2023	06 Jan 2023
Machine Age	mls	Client Info		133290	133290	124154
Oil Age	mls	Client Info		133290	9136	8386
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	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	36	44	35
Chromium	ppm	ASTM D5185m	>20	2	2	2
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	4	4
Lead	ppm	ASTM D5185m	>40	2	5	4
Copper	ppm	ASTM D5185m	>330	6	4	3
Tin	ppm	ASTM D5185m	>15	<1	2	1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
//BBHHVE0		mothod	mmbase		motory	motoryz
Boron	ppm	ASTM D5185m	0	41	2	8
	ppm ppm		0		2 <1	
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	41	2 <1 62	8 0 61
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	0 0 60	41 0	2 <1 62 <1	8 0 61 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	41 0 44 0 647	2 <1 62 <1 991	8 0 61 <1 949
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	41 0 44 0 647 1564	2 <1 62 <1 991 1162	8 0 61 <1 949 1115
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 0 1010 1070 1150	41 0 44 0 647 1564 861	2 <1 62 <1 991 1162 1061	8 0 61 <1 949 1115 1049
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	41 0 44 0 647 1564 861 1058	2 <1 62 <1 991 1162 1061 1304	8 0 61 <1 949 1115 1049 1277
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 0 1010 1070 1150	41 0 44 0 647 1564 861	2 <1 62 <1 991 1162 1061	8 0 61 <1 949 1115 1049
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	41 0 44 0 647 1564 861 1058	2 <1 62 <1 991 1162 1061 1304	8 0 61 <1 949 1115 1049 1277
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 limit/base	41 0 44 0 647 1564 861 1058 3201	2 <1 62 <1 991 1162 1061 1304 3706	8 0 61 <1 949 1115 1049 1277 3641
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	41 0 44 0 647 1564 861 1058 3201 current	2 <1 62 <1 991 1162 1061 1304 3706 history1	8 0 61 <1 949 1115 1049 1277 3641 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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	41 0 44 0 647 1564 861 1058 3201 current 10	2 <1 62 <1 991 1162 1061 1304 3706 history1 8	8 0 61 <1 949 1115 1049 1277 3641 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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 0 1010 1070 1150 1270 2060 limit/base >25	41 0 44 0 647 1564 861 1058 3201 <u>current</u> 10 4	2 <1 62 <1 991 1162 1061 1304 3706 history1 8 10	8 0 61 <1 949 1115 1049 1277 3641 history2 6 6 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	41 0 44 0 647 1564 861 1058 3201 <u>current</u> 10 4 7	2 <1 62 <1 991 1162 1061 1304 3706 history1 8 10 15	8 0 61 <1 949 1115 1049 1277 3641 history2 6 6 6 5
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 >20 limit/base	41 0 44 0 647 1564 861 1058 3201 current 10 4 7 current	2 <1 62 <1 991 1162 1061 1304 3706 history1 8 10 15 history1	8 0 61 <1 949 1115 1049 1277 3641 history2 6 6 6 5 5 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >3 >20	41 0 44 0 647 1564 861 1058 3201 current 10 4 7 current 0.6	2 <1 62 <1 991 1162 1061 1304 3706 history1 8 10 15 history1 0.8	8 0 61 <1 949 1115 1049 1277 3641 history2 6 6 6 5 5 history2 0.7
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >3 >20	41 0 44 0 647 1564 861 1058 3201 current 10 4 7 current 0.6 8.8	2 <1 62 <1 991 1162 1061 1304 3706 history1 8 10 15 history1 0.8 11.1	8 0 61 <1 949 1115 1049 1277 3641 history2 6 6 6 6 5 history2 0.7 10.9
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 imit/base >20 imit/base >3 >20	41 0 44 0 647 1564 861 1058 3201 current 10 4 7 current 0.6 8.8 23.2	2 <1 62 <1 991 1162 1061 1304 3706 history1 8 10 15 history1 0.8 11.1 21.1	8 0 61 <1 949 1115 1049 1277 3641 history2 6 6 6 5 <u>history2</u> 0.7 10.9 19.5
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 1270 2060 imit/base >25 imit/base >30 >30 imit/base	41 0 44 0 647 1564 861 1058 3201 current 10 4 7 current 0.6 8.8 23.2 current	2 <1 62 <1 991 1162 1061 1304 3706 history1 8 10 15 history1 0.8 11.1 21.1 history1	8 0 61 <1 949 1115 1049 1277 3641 history2 6 6 6 6 5 history2 0.7 10.9 19.5 history2



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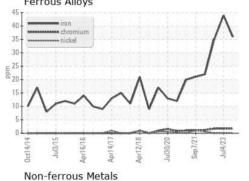


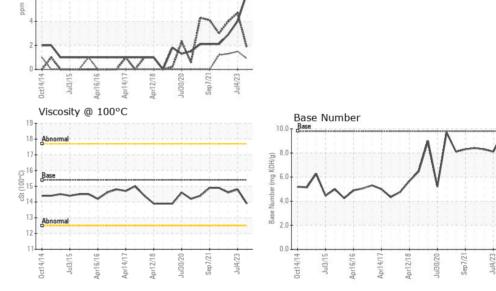
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	13.9	14.8	14.6
GRAPHS						

Ferrous Alloys

lead

10





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 007 - Brunswick Sample No. : GFL0123352 Received : 18 Jul 2024 2809 Galloway Road Lab Number : 06240037 Tested : 19 Jul 2024 Bolivia, NC US 28422 Unique Number : 11128871 Diagnosed : 19 Jul 2024 - Sean Felton Test Package : FLEET Contact: DONALD CRAVEN Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. dcraven@gflenv.com T: * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

 End of the simple acceptance decision rule (JCGM 106:2012)

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 Submitted

Submitted By: DONALD CRAVEN

Page 2 of 2

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