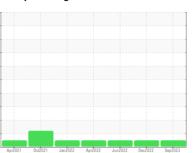


OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id 7837M Component Diesel Engine Fluid

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

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.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. No other contaminants were detected in the oil.

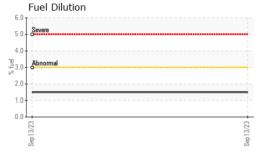
Fluid Condition

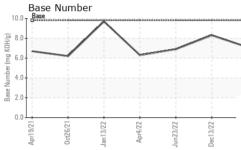
The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type. The condition of the oil is suitable for further service.

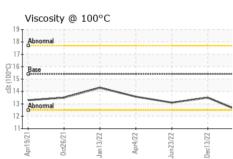
Sample Date Client Info 13 Sep 2023 13 Dec 2022 23 Jun 2022 Machine Age hrs Client Info 14089 12282 11133 113 113 113 113 114 113 11	N SHP 15W40 (- GAL)	Apr2021	Oct2021 Jan2022	Apr2022 Jun2022 Dec2022	Sep2023	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 14089 12282 11133 130	Sample Number		Client Info		GFL0091545	GFL0063286	GFL0053798
Oil Age	Sample Date		Client Info		13 Sep 2023	13 Dec 2022	23 Jun 2022
Contained Client Info Changed NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		14089	12282	11133
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2	Oil Age	hrs	Client Info		600	600	600
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Changed
NEG Neg	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 18 8 17 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1 0 0 <1 Silver ppm ASTM D5185m >2 0 0 <1 <1 Aluminum ppm ASTM D5185m >2 0 0 <1 <1 <1 <2 Copper ppm ASTM D5185m >40 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >5 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	18	8	17
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Aluminum	Titanium	ppm	ASTM D5185m	>2	<1	0	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	<1
Copper ppm ASTM D5185m >330 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Aluminum	ppm	ASTM D5185m	>20	4	3	1
Tin	Lead	ppm	ASTM D5185m	>40	<1	<1	2
Vanadium ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>330	1	<1	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 126 4 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 15 54 56 Manganese ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>15	<1	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 15 54 56 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 227 890 903 Calcium ppm ASTM D5185m 1070 2120 1046 1077 Phosphorus ppm ASTM D5185m 1150 990 935 971 Zinc ppm ASTM D5185m 1270 1273 1092 1235 Sulfur ppm ASTM D5185m 2060 4166 2772 2893 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 3 3 Sodium ppm ASTM D5185m >20 7 0 1 Fuel % ASTM D7844	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 15 54 56 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	126	4	5
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 227 890 903 Calcium ppm ASTM D5185m 1070 2120 1046 1077 Phosphorus ppm ASTM D5185m 1150 990 935 971 Zinc ppm ASTM D5185m 1270 1273 1092 1235 Sulfur ppm ASTM D5185m 2060 4166 2772 2893 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 3 3 Sodium ppm ASTM D5185m >20 7 0 1 Fuel % ASTM D5185m >20 7 0 1 Fuel % ASTM D5185m >20 7 0 1 Fuel % ASTM D5185m 20 <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>0</th> <td>0</td> <td>0</td>	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 227 890 903 Calcium ppm ASTM D5185m 1070 2120 1046 1077 Phosphorus ppm ASTM D5185m 1150 990 935 971 Zinc ppm ASTM D5185m 1270 1273 1092 1235 Sulfur ppm ASTM D5185m 2060 4166 2772 2893 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 3 3 Sodium ppm ASTM D5185m >20 7 0 1 Fuel % ASTM D584m >4	Molybdenum	ppm	ASTM D5185m	60	15	54	56
Calcium ppm ASTM D5185m 1070 2120 1046 1077 Phosphorus ppm ASTM D5185m 1150 990 935 971 Zinc ppm ASTM D5185m 1270 1273 1092 1235 Sulfur ppm ASTM D5185m 2060 4166 2772 2893 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 3 3 Sodium ppm ASTM D5185m >20 7 0 1 Fuel % ASTM D5185m >20 7 0 1 Fuel % ASTM D5185m >20 7 0 1 Fuel % ASTM D3524 >3.0 1.5 <1.0	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 990 935 971 Zinc ppm ASTM D5185m 1270 1273 1092 1235 Sulfur ppm ASTM D5185m 2060 4166 2772 2893 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 3 3 Sodium ppm ASTM D5185m >20 7 0 1 Fuel % ASTM D3524 >3.0 1.5 <1.0	Magnesium	ppm	ASTM D5185m	1010	227	890	903
Zinc ppm ASTM D5185m 1270 1273 1092 1235 Sulfur ppm ASTM D5185m 2060 4166 2772 2893 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 3 3 Sodium ppm ASTM D5185m >20 7 0 1 Foul % ASTM D5185m >20 7 0 1 Fuel % ASTM D5185m >20 7 0 1 Fuel % ASTM D5185m >20 7 0 1 Fuel % ASTM D3524 >3.0 1.5 <1.0	Calcium	ppm	ASTM D5185m	1070	2120	1046	1077
Sulfur ppm ASTM D5185m 2060 4166 2772 2893 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 3 3 Sodium ppm ASTM D5185m 6 4 4 Potassium ppm ASTM D5185m >20 7 0 1 Fuel % ASTM D524 >3.0 1.5 <1.0	Phosphorus	ppm	ASTM D5185m	1150	990	935	971
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 3 3 Sodium ppm ASTM D5185m 6 4 4 Potassium ppm ASTM D5185m >20 7 0 1 Fuel % ASTM D3524 >3.0 1.5 <1.0	Zinc	ppm	ASTM D5185m	1270	1273	1092	1235
Silicon ppm ASTM D5185m >25 9 3 3 Sodium ppm ASTM D5185m 6 4 4 Potassium ppm ASTM D5185m >20 7 0 1 Fuel % ASTM D3524 >3.0 1.5 <1.0	Sulfur	ppm	ASTM D5185m	2060	4166	2772	2893
Sodium ppm ASTM D5185m 6 4 4 Potassium ppm ASTM D5185m >20 7 0 1 Fuel % ASTM D3524 >3.0 1.5 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 7.3 8.8 9.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.1 16.7	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 7 0 1 Fuel % ASTM D3524 >3.0 1.5 <1.0	Silicon	ppm	ASTM D5185m	>25	9	3	3
Fuel % ASTM D3524 >3.0 1.5 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 7.3 8.8 9.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.1 16.7	Sodium	ppm	ASTM D5185m		6	4	4
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 7.3 8.8 9.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.1 16.7	Potassium	ppm	ASTM D5185m	>20	7	0	1
Soot % % *ASTM D7844 >4 0.3 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 7.3 8.8 9.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.1 16.7	Fuel	%	ASTM D3524	>3.0	1.5	<1.0	<1.0
Nitration Abs/cm *ASTM D7624 >20 7.3 8.8 9.1 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.1 16.7	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.1 16.7	Soot %	%	*ASTM D7844	>4	0.3	0.4	0.5
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.1 16.7	Nitration	Abs/cm	*ASTM D7624	>20	7.3	8.8	9.1
Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.1 16.7	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.9	20.1	20.7
Base Number (BN) mg KOH/g ASTM D2896 9.8 7.1 8.3 6.9	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
	FLUID DEGRAD						



OIL ANALYSIS REPORT



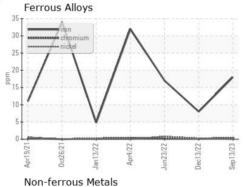


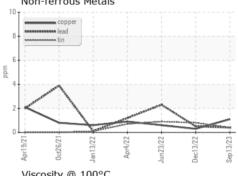


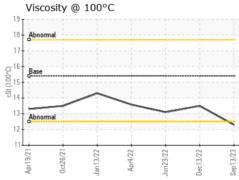
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

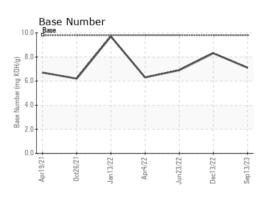
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	12.3	13.5	13.1	

GRAPHS













Laboratory Sample No. Lab Number

Unique Number

: GFL0091545 : 05953585 : 10649544

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 18 Sep 2023 Diagnosed : 20 Sep 2023 Diagnostician : Sean Felton

Test Package: FLEET (Additional Tests: FuelDilution, PercentFuel) 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.

GFL Environmental - 465 - Pontiac

888 Baldwin Pontiac, MI US 48340 Contact: Ricky Matthews rickymathews@gflenv.com T: (586)825-9514

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