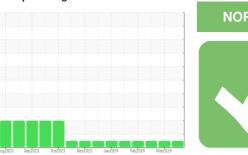


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id
414061
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

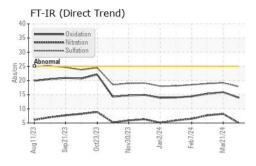
Fluid Condition

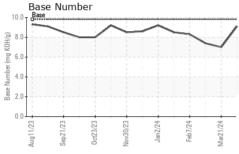
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

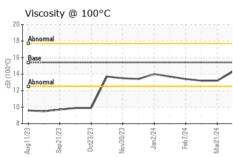
Sample Number Client Info GFL0110545 GFL0110579 GFL01106 Gample Date Client Info O2 Apr 2024 21 Mar 2024 08 Mar 2024 Machine Age hrs Client Info B416 0 1594 001 Age hrs Client Info B416 0 400 410	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date Client Info 18416 0 1594 08 Mar 2004 Machine Age hrs Client Info 18416 0 1594 400 400 00 1594 00 1694 00 00 00 00 00 00 00					GFI 0110545	•	GFL0110606
Machine Age hrs Client Info 18416 0 1594 Oil Age hrs Client Info 8414 400 400 Oil Changed Client Info Not Changd Not Changed Not Ghanged							08 Mar 2024
Oil Age hrs Client Info 8414 400 400 400 Oil Changed Client Info Not Changd Not Changed		hrs			•		
Oil Changed Sample Status Client Info Sample Status Not Change NORMAL NORMAL Not Change NORMAL Not Change NORMAL	-						
Sample Status	-				-		
Fuel						_	_
Water Glycol WC Method >0.2 NEG	CONTAMINATION	NC	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >120 5 15 14 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >5 <1	WEAR METALS	;	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	5	15	14
Titanium ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 3 4 3 Lead ppm ASTM D5185m >40 <1 1 0 Copper ppm ASTM D5185m >30 17 96 25 Tin ppm ASTM D5185m >15 <1 2 <1 0 Vanadium ppm ASTM D5185m >15 <1 <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 <1 <1 <1 Cadeium ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 3 4 3 Lead ppm ASTM D5185m >40 <1 1 0 Copper ppm ASTM D5185m >330 17 96 25 Tin ppm ASTM D5185m >15 <1 2 <1 Vanadium ppm ASTM D5185m <1 <1 0 0 Cadmium ppm ASTM D5185m <1 <1 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 <1 <1 <1 Barium ppm ASTM D5185m 0 <1 <1 <1 Barium ppm ASTM D5185m 0 <1 <1 <1 <1 Mangnesium ppm ASTM D5185m 1010 982	Nickel	ppm	ASTM D5185m	>5	<1	1	<1
Aluminum ppm ASTM D5185m >20 3 4 3 Lead ppm ASTM D5185m >40 <1	Titanium	ppm	ASTM D5185m	>2	<1	0	0
Lead ppm ASTM D5185m >40 <1 1 0 Copper ppm ASTM D5185m >330 17 96 25 Tin ppm ASTM D5185m >15 <1 2 <1 Vanadium ppm ASTM D5185m <1 <1 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 <1 <1 <1 Barium ppm ASTM D5185m 0 <1 <1 <1 <1 Barium ppm ASTM D5185m 0 <1 <1 <1 <1 <1 Barium ppm ASTM D5185m 0 <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	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper ppm ASTM D5185m >330 17 96 25 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	3	4	3
Tin	Lead	ppm	ASTM D5185m	>40	<1	1	0
Vanadium ppm ASTM D5185m <1 <1 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185m 0 <1 <1 <1 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 60 61 56 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 982 961 968 068 <th< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>330</td><th>17</th><td>96</td><td>25</td></th<>	Copper	ppm	ASTM D5185m	>330	17	96	25
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>15	<1	2	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	<1	0
Boron	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 61 56 60 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 61 56 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 982 961 968 Calcium ppm ASTM D5185m 1070 1053 1089 1089 Phosphorus ppm ASTM D5185m 1150 1003 896 1023 Zinc ppm ASTM D5185m 1270 1215 1198 1225 Sulfur ppm ASTM D5185m 2060 3120 3132 3057 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 5 5 6 Sodium ppm ASTM D5185m >20 4 4 2 Potassium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base	Boron	ppm	ASTM D5185m	0	<1	<1	<1
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 982 961 968 Calcium ppm ASTM D5185m 1070 1053 1089 1089 Phosphorus ppm ASTM D5185m 1150 1003 896 1023 Zinc ppm ASTM D5185m 1270 1215 1198 1225 Sulfur ppm ASTM D5185m 2060 3120 3132 3057 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 5 5 6 Sodium ppm ASTM D5185m >20 4 4 2 Potassium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7624 <td< td=""><td>Barium</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>0</th><td>0</td><td>0</td></td<>	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 982 961 968 Calcium ppm ASTM D5185m 1070 1053 1089 1089 Phosphorus ppm ASTM D5185m 1150 1003 896 1023 Zinc ppm ASTM D5185m 1270 1215 1198 1225 Sulfur ppm ASTM D5185m 2060 3120 3132 3057 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 5 5 6 Sodium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm <td< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td>60</td><th>61</th><td>56</td><td>60</td></td<>	Molybdenum	ppm	ASTM D5185m	60	61	56	60
Calcium ppm ASTM D5185m 1070 1053 1089 1089 Phosphorus ppm ASTM D5185m 1150 1003 896 1023 Zinc ppm ASTM D5185m 1270 1215 1198 1225 Sulfur ppm ASTM D5185m 2060 3120 3132 3057 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 5 5 6 Sodium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/.1mm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1003 896 1023 Zinc ppm ASTM D5185m 1270 1215 1198 1225 Sulfur ppm ASTM D5185m 2060 3120 3132 3057 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 5 5 6 Sodium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION *ASTM D7414 >25 13.9 15.9 15.3	Magnesium	ppm	ASTM D5185m	1010	982	961	968
Zinc ppm ASTM D5185m 1270 1215 1198 1225 Sulfur ppm ASTM D5185m 2060 3120 3132 3057 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 5 5 6 Sodium ppm ASTM D5185m >20 4 4 2 Potassium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm	Calcium	ppm	ASTM D5185m	1070	1053	1089	1089
Sulfur ppm ASTM D5185m 2060 3120 3132 3057 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 5 5 6 Sodium ppm ASTM D5185m 20 4 4 2 Potassium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3	Phosphorus	ppm	ASTM D5185m	1150	1003	896	1023
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 6 Sodium ppm ASTM D5185m 4 4 2 Potassium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3	Zinc	ppm	ASTM D5185m	1270	1215	1198	1225
Silicon ppm ASTM D5185m >25 5 5 6 Sodium ppm ASTM D5185m 4 4 2 Potassium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3	Sulfur	ppm	ASTM D5185m	2060	3120	3132	3057
Sodium ppm ASTM D5185m 4 4 2 Potassium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 9 9 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3	Silicon	ppm		>25			
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3	Sodium	ppm	ASTM D5185m		4	4	2
Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3	Potassium	ppm	ASTM D5185m	>20	4	9	9
Nitration Abs/cm *ASTM D7624 >20 5.0 8.2 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.8 19.2 18.9 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3		%	*ASTM D7844	>4	0.1	0.3	0.3
FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3	Nitration	Abs/cm	*ASTM D7624	>20	5.0	8.2	7.7
Oxidation Abs/.1mm *ASTM D7414 >25 13.9 15.9 15.3	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.8	19.2	18.9
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Dogo Musekov (DM) walfolka ACTM D0000 0.0	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.9	15.9	15.3
Base Number (BN) mg kohig ASTM D2896 9.8 9.1 7.0 7.4	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.1	7.0	7.4

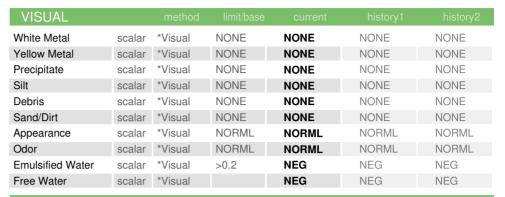


OIL ANALYSIS REPORT



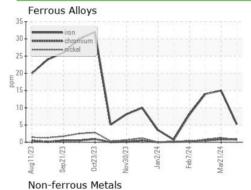


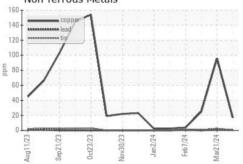


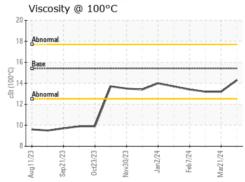


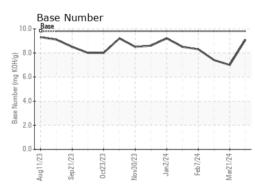
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.3	13.2	13.2

GRAPHS













Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0110545 Lab Number : 06140914 Unique Number : 10965722 Test Package : FLEET

Received **Tested** Diagnosed

: 08 Apr 2024 : 08 Apr 2024

: 08 Apr 2024 - Wes Davis

GFL Environmental - 166 - Phenix City 18 Old Brickyard Rd Phenix City, AL US 36869

Contact: DEAN PEACE JR dean.peace@gflenv.com T:

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

F: