

PROBLEM SUMMARY

Sample Rating Trend

DIRT

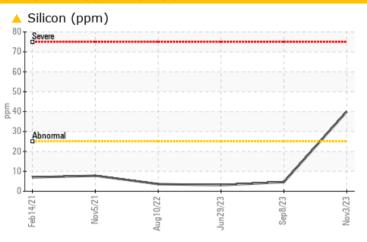
Machine Id **1293**

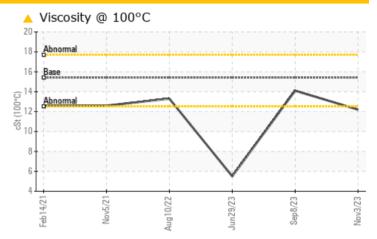
Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (11 GAL)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Resample at the next service interval to monitor.

PROBLEMAT	IC TES	T RESULT	S				
Sample Status				ABNORMAL	NORMAL	SEVERE	
Silicon	ppm	ASTM D5185m	>25	40	5	3	
Visc @ 100°C	cSt	ASTM D445	15.4	12.2	14.1	5.5	

Customer Id: GFL095 Sample No.: GFL0092483 Lab Number: 06000370 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:

Don Baldridge +1 don.b505@comcast.net

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Check Dirt Access			?	We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.

HISTORICAL DIAGNOSIS

08 Sep 2023 Diag: Wes Davis





The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time. Please specify the component make and model with your next sample. All component wear rates are normal. Light fuel dilution occurring. No other contaminants were detected in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



29 Jun 2023 Diag: Wes Davis

FUEL



We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample. All component wear rates are normal. There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.



10 Aug 2022 Diag: Jonathan Hester

NORMAL



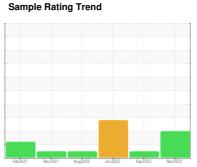
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





OIL ANALYSIS REPORT

DT ³



DIRT



Machine Id 1293 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (11 GAL)

DIAGNOSIS

Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. Elemental level of silicon (Si) above normal.

Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sample Number Client Info GFL0092483 GFL0087941 GFL008365 Sample Date Client Info 03 Nov 2023 08 Sep 2023 29 Jun 202 Machine Age hrs Client Info 25 0 376 Oil Changed Client Info Description Not Changed No	SAMPLE INFORI							
Sample Date Client Info 03 Nov 2023 08 Sep 2023 29 Jun 202 Machine Age hrs Client Info 21031 21204 21011 Oil Age hrs Client Info 25 0 376 Oil Changed Client Info Not Changed Act Changed Act Changed Act Changed A		MATION	method	limit/base	current	history1	history2	
Machine Age hrs Client Info 21031 21204 21011 Oil Age hrs Client Info 25 0 376 Oil Changed Client Info Not Changed Changed Chorpel Sample Status Ned Ned Ned Ned CONTAMINATION method limit/base current history1 history1 Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 12 2 25 Chromium ppm ASTM D5185m >10 0 <1	Sample Number		Client Info		GFL0092483	GFL0087941	GFL0083637	
Oil Age hrs Client Info 25 0 376 Oil Changed Client Info Not Changed Changed Not Changed	Sample Date		Client Info		03 Nov 2023	08 Sep 2023	29 Jun 2023	
Oil Changed Sample Status Client Info Not Change ABNORMAL Not Changed ABNORMAL Not Changed ABNORMAL Not Changed ABNORMAL Not Changed SEVERE CONTAMINATION method limit/base current listory1 history1 history2 25 A 1 0 0 1 0 <th col<="" td=""><td>Machine Age</td><td>hrs</td><td>Client Info</td><td></td><td>21031</td><td>21204</td><td>21011</td></th>	<td>Machine Age</td> <td>hrs</td> <td>Client Info</td> <td></td> <td>21031</td> <td>21204</td> <td>21011</td>	Machine Age	hrs	Client Info		21031	21204	21011
CONTAMINATION method limit/base current history1 history2 Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 12 2 25 Chromium ppm ASTM D5185m >20 <1 <1 0 Nickel ppm ASTM D5185m >20 <1 <1 0 <1 Silver ppm ASTM D5185m >4 <1 0 0 <1 Silver ppm ASTM D5185m >20 3 2 3 2 3 Lead ppm ASTM D5185m >20 3 2 3 2 3 Copper ppm ASTM D5185m >330 12 <1 0 1 Vanadium ppm ASTM D5185m >15 <1 0 0 0 <th< td=""><td>Oil Age</td><td>hrs</td><td>Client Info</td><td></td><td>25</td><td>0</td><td>376</td></th<>	Oil Age	hrs	Client Info		25	0	376	
CONTAMINATION method limit/base current history1 history	Oil Changed		Client Info		Not Changd	Changed	Not Changd	
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 12 2 25 Chromium ppm ASTM D5185m >20 <1 <1 0 Nickel ppm ASTM D5185m >20 <1 0 <1 Titanium ppm ASTM D5185m >20 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 3 2 3 Lead ppm ASTM D5185m >40 3 <1 8 Copper ppm ASTM D5185m >40 3 <1 8 Copper ppm ASTM D5185m >4 1 0 1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 15 5	Sample Status				ABNORMAL	NORMAL	SEVERE	
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 12 2 25 Chromium ppm ASTM D5185m >20 <1 <1 0 Nickel ppm ASTM D5185m >4 <1 0 <1 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >40 3 <1 8 Copper ppm ASTM D5185m >40 3 <1 8 Copper ppm ASTM D5185m >330 12 <1 3 Tin ppm ASTM D5185m >15 <1 0 1 Vanadium ppm ASTM D5185m 0 151 5 2 Cadmium ppm ASTM D5185m 0 151 5	CONTAMINAT	ION	method	limit/base	current	history1	history2	
Iron	Glycol		WC Method		NEG	NEG	NEG	
Chromium ppm ASTM D5185m >20 <1	WEAR METAL	S	method	limit/base	current	history1	history2	
Chromium ppm ASTM D5185m >20 <1 <1 0 Nickel ppm ASTM D5185m >4 <1 0 <1 Tittanium ppm ASTM D5185m >4 <1 0 0 Silver ppm ASTM D5185m >20 3 2 3 Aluminum ppm ASTM D5185m >20 3 2 3 Lead ppm ASTM D5185m >40 3 <1 8 Copper ppm ASTM D5185m >40 3 <1 8 Copper ppm ASTM D5185m >15 <1 0 1 Vanadium ppm ASTM D5185m >15 <1 0 0 0 Cadmium ppm ASTM D5185m 0 151 5 2 2 Barium ppm ASTM D5185m 0 7 0 2 2 Barium ppm ASTM D5185m <	Iron	ppm	ASTM D5185m	>100	12	2	25	
Nickel ppm ASTM D5185m >4 <1 0 <1 Titanium ppm ASTM D5185m <1	Chromium		ASTM D5185m	>20	<1	<1	0	
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 3 2 3 Lead ppm ASTM D5185m >40 3 <1 8 Copper ppm ASTM D5185m >330 12 <1 3 Tin ppm ASTM D5185m >15 <1 0 1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 7 0 2 Barium ppm ASTM D5185m 0 7 0 2 Barium ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 679 969 4	Nickel		ASTM D5185m	>4	<1	0	<1	
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 3 2 3 Lead ppm ASTM D5185m >40 3 <1 8 Copper ppm ASTM D5185m >330 12 <1 3 Tin ppm ASTM D5185m >15 <1 0 1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 151 5 2 Boron ppm ASTM D5185m 0 151 5 2 Barium ppm ASTM D5185m 0 7 0 2 Barium ppm ASTM D5185m 0 7 0 2 Molybdenum ppm ASTM D5185m 0 2 <1 4 Mangnesium ppm ASTM D5185m 1010 679 969 <th< td=""><td>Titanium</td><td>• • •</td><td>ASTM D5185m</td><td></td><td><1</td><td>0</td><td>0</td></th<>	Titanium	• • •	ASTM D5185m		<1	0	0	
Aluminum ppm ASTM D5185m >20 3 2 3 Lead ppm ASTM D5185m >40 3 <1	Silver		ASTM D5185m	>3	0	0	0	
Lead ppm ASTM D5185m >40 3 <1 8 Copper ppm ASTM D5185m >330 12 <1 3 Tin ppm ASTM D5185m >15 <1 0 1 Vanadium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 151 5 2 Barium ppm ASTM D5185m 0 7 0 2 Barium ppm ASTM D5185m 0 7 0 2 Barium ppm ASTM D5185m 0 7 0 2 Barium ppm ASTM D5185m 0 2 -1 -1 Magnesium ppm ASTM D5185m 0 2 -1 -1 Magnesium ppm ASTM D5185m 1070 1450 1126 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>								
Copper ppm ASTM D5185m >330 12 <1 3 Tin ppm ASTM D5185m >15 <1						<1		
Tin ppm ASTM D5185m >15 <1 0 1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 151 5 2 Barium ppm ASTM D5185m 0 7 0 2 Molybdenum ppm ASTM D5185m 0 2 <1 <1 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 679 969 482 Calcium ppm ASTM D5185m 1070 1450 1126 674 Phosphorus ppm ASTM D5185m 1270 946 1268 703 Sulfur ppm ASTM D5185m 2060 3374 <td></td> <td>• • •</td> <td></td> <td></td> <td></td> <td></td> <td></td>		• • •						
Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185m 0 151 5 2 Barium ppm ASTM D5185m 0 7 0 2 Molybdenum ppm ASTM D5185m 0 7 0 2 Magnesium ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1070 1450 1126 674 Phosphorus ppm ASTM D5185m 1070 1450 1126 674 Phosphorus ppm ASTM D5185m 1270 946 1268 703 Sulfur ppm ASTM D5185m 2060 3374 3795 1868 CONTAMINANTS method limit/base current								
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185m 0 151 5 2 Barium ppm ASTM D5185m 0 7 0 2 Molybdenum ppm ASTM D5185m 60 110 61 44 Manganese ppm ASTM D5185m 0 2 <1		PPIII	ALO TIVI DO LOCITI	710	~·	0		
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 151 5 2 Barium ppm ASTM D5185m 0 7 0 2 Molybdenum ppm ASTM D5185m 60 110 61 44 Manganese ppm ASTM D5185m 0 2 -1 -1 Magnesium ppm ASTM D5185m 1010 679 969 482 Calcium ppm ASTM D5185m 1070 1450 1126 674 Phosphorus ppm ASTM D5185m 1270 946 1268 703 Sulfur ppm ASTM D5185m 2060 3374 3795 1868 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >20 </td <td>Vanadium</td> <td>nnm</td> <td>ASTM D5185m</td> <td></td> <td>0</td> <td>0</td> <td>0</td>	Vanadium	nnm	ASTM D5185m		0	0	0	
Boron ppm ASTM D5185m 0 151 5 2 Barium ppm ASTM D5185m 0 7 0 2 Molybdenum ppm ASTM D5185m 60 110 61 44 Manganese ppm ASTM D5185m 0 2 <1					-			
Barium ppm ASTM D5185m 0 7 0 2 Molybdenum ppm ASTM D5185m 60 110 61 44 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 679 969 482 Calcium ppm ASTM D5185m 1070 1450 1126 674 Phosphorus ppm ASTM D5185m 1150 834 1052 590 Zinc ppm ASTM D5185m 1270 946 1268 703 Sulfur ppm ASTM D5185m 2060 3374 3795 1868 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >20 35 <1 2 Fuel % ASTM D5185m	Cadmium		ASTM D5185m	limit/booo	<1	0	0	
Molybdenum ppm ASTM D5185m 60 110 61 44 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 679 969 482 Calcium ppm ASTM D5185m 1070 1450 1126 674 Phosphorus ppm ASTM D5185m 1150 834 1052 590 Zinc ppm ASTM D5185m 1270 946 1268 703 Sulfur ppm ASTM D5185m 2060 3374 3795 1868 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >20 35 <1 2 Fuel % ASTM D5185m >20 35 <1 2 Fuel % ASTM D5185m	Cadmium ADDITIVES	ppm	ASTM D5185m method		<1 current	0 history1	0 history2	
Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 679 969 482 Calcium ppm ASTM D5185m 1070 1450 1126 674 Phosphorus ppm ASTM D5185m 1150 834 1052 590 Zinc ppm ASTM D5185m 1270 946 1268 703 Sulfur ppm ASTM D5185m 2060 3374 3795 1868 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >20 35 <1 2 Fuel % ASTM D5185m >20 35 <1 2 Fuel % ASTM D5185m >20	Cadmium ADDITIVES Boron	ppm	ASTM D5185m method ASTM D5185m	0	<1 current	0 history1	0 history2	
Magnesium ppm ASTM D5185m 1010 679 969 482 Calcium ppm ASTM D5185m 1070 1450 1126 674 Phosphorus ppm ASTM D5185m 1150 834 1052 590 Zinc ppm ASTM D5185m 1270 946 1268 703 Sulfur ppm ASTM D5185m 2060 3374 3795 1868 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >25 40 5 3 Potassium ppm ASTM D5185m >20 35 <1 2 Fuel % ASTM D3524 >5 1.9 1.0 34.3 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7624 >2	Cadmium ADDITIVES Boron Barium	ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	0	<1 current 151 7	0 history1 5	history2 2 2	
Calcium ppm ASTM D5185m 1070 1450 1126 674 Phosphorus ppm ASTM D5185m 1150 834 1052 590 Zinc ppm ASTM D5185m 1270 946 1268 703 Sulfur ppm ASTM D5185m 2060 3374 3795 1868 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >20 35 <1	Cadmium ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 current 151 7 110	0 history1 5 0 61	0 history2 2 2 2 44	
Phosphorus ppm ASTM D5185m 1150 834 1052 590 Zinc ppm ASTM D5185m 1270 946 1268 703 Sulfur ppm ASTM D5185m 2060 3374 3795 1868 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >20 35 <1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 current 151 7 110 2	0 history1 5 0 61 <1	0 history2 2 2 44 < <1	
Zinc ppm ASTM D5185m 1270 946 1268 703 Sulfur ppm ASTM D5185m 2060 3374 3795 1868 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m >20 35 <1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 current 151 7 110 2 679	0 history1 5 0 61 <1 969	0 history2 2 2 44 <1 482	
Sulfur ppm ASTM D5185m 2060 3374 3795 1868 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 ▲ 40 5 3 Sodium ppm ASTM D5185m >20 35 <1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070	<1 current 151 7 110 2 679 1450	0 history1 5 0 61 <1 969 1126	0 history2 2 2 44 <1 482 674	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 ▲ 40 5 3 Sodium ppm ASTM D5185m 8 3 37 Potassium ppm ASTM D5185m >20 35 <1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150	<1 current 151 7 110 2 679 1450 834	0 history1 5 0 61 <1 969 1126 1052	0 history2 2 2 44 <1 482 674 590	
Silicon ppm ASTM D5185m >25 40 5 3 Sodium ppm ASTM D5185m 8 3 37 Potassium ppm ASTM D5185m >20 35 <1 2 Fuel % ASTM D3524 >5 1.9 1.0 34.3 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >3 0.1 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 5.8 5.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.3 22.6 FLUID DEGRADATION method limit/base current history1 history1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	<1 current 151 7 110 2 679 1450 834 946	0 history1 5 0 61 <1 969 1126 1052 1268	0 history2 2 2 44 <1 482 674 590 703	
Sodium ppm ASTM D5185m 8 3 37 Potassium ppm ASTM D5185m >20 35 <1 2 Fuel % ASTM D3524 >5 1.9 1.0 ● 34.3 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.1 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 5.8 5.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.3 22.6 FLUID DEGRADATION method limit/base current history1 history1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm	MSTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 current 151 7 110 2 679 1450 834 946	0 history1 5 0 61 <1 969 1126 1052 1268	0 history2 2 2 44 <1 482 674 590 703	
Potassium ppm ASTM D5185m >20 35 <1 2 Fuel % ASTM D3524 >5 1.9 1.0 ♠ 34.3 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.1 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 5.8 5.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.3 22.6 FLUID DEGRADATION method limit/base current history1 history	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm	Method ASTM D5185m Method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 current 151 7 110 2 679 1450 834 946 3374	0 history1 5 0 61 <1 969 1126 1052 1268 3795	0 history2 2 2 44 <1 482 674 590 703	
Fuel % ASTM D3524 >5 1.9 1.0 ■ 34.3 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.1 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 5.8 5.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.3 22.6 FLUID DEGRADATION method limit/base current history1 history1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm	Method ASTM D5185m Method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 current 151 7 110 2 679 1450 834 946 3374 current	0 history1 5 0 61 <1 969 1126 1052 1268 3795 history1	0 history2 2 2 44 <1 482 674 590 703 1868 history2	
INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.1 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 5.8 5.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.3 22.6 FLUID DEGRADATION method limit/base current history1 history1 history1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m method ASTM D5185m METHOD ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 current 151 7 110 2 679 1450 834 946 3374 current 40	0 history1 5 0 61 <1 969 1126 1052 1268 3795 history1 5	0 history2 2 2 44 <1 482 674 590 703 1868 history2 3	
Soot % % *ASTM D7844 >3 0.1 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 5.8 5.4 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.3 22.6 FLUID DEGRADATION method limit/base current history1 history1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	<1 current 151 7 110 2 679 1450 834 946 3374 current 40 8	0 history1 5 0 61 <1 969 1126 1052 1268 3795 history1 5 3 <1	0 history2 2 2 44 <1 482 674 590 703 1868 history2 3 37 2	
Nitration Abs/cm *ASTM D7624 >20 5.8 5.4 9.6 Sulfation Abs/.1mm *ASTM D7615 >30 18.6 17.3 22.6 FLUID DEGRADATION method limit/base current history1 history1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	<1 current 151 7 110 2 679 1450 834 946 3374 current 40 8 35	0 history1 5 0 61 <1 969 1126 1052 1268 3795 history1 5 3 <1	0 history2 2 2 44 <1 482 674 590 703 1868 history2 3 37 2	
Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.3 22.6 FLUID DEGRADATION method limit/base current history1 history1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm	ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5	<1 current 151 7 110 2 679 1450 834 946 3374 current 40 8 35 1.9	0 history1 5 0 61 <1 969 1126 1052 1268 3795 history1 5 3 <1 1.0	0 history2 2 2 44 <1 482 674 590 703 1868 history2 3 37 2	
Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.3 22.6 FLUID DEGRADATION method limit/base current history1 history1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5	<1 current 151 7 110 2 679 1450 834 946 3374 current 40 8 35 1.9 current	0 history1 5 0 61 <1 969 1126 1052 1268 3795 history1 5 3 <1 1.0 history1	0 history2 2 2 44 <1 482 674 590 703 1868 history2 3 37 2	
	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m method ASTM D5185m ASTM D7844	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5	<1 current 151 7 110 2 679 1450 834 946 3374 current 40 8 35 1.9 current 0.1	0 history1 5 0 61 <1 969 1126 1052 1268 3795 history1 5 3 <1 1.0 history1 0.2	0 history2 2 2 44 <1 482 674 590 703 1868 history2 3 37 2	
O THE STATE OF STATE	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185m method ASTM D5185m Method ASTM D5185m ASTM D7844 *ASTM D7844	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5	<1 current 151 7 110 2 679 1450 834 946 3374 current ▲ 40 8 35 1.9 current 0.1 5.8	0 history1 5 0 61 <1 969 1126 1052 1268 3795 history1 5 3 <1 1.0 history1 0.2 5.4	0 history2 2 2 44 <1 482 674 590 703 1868 history2 3 37 2 ■ 34.3 history2 0.7 9.6	
Oxidation ADS/.1mm ^ASTM D/414 >25 14.5 13.3 21.1	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5 limit/base >3 >20 >30	<1 current 151 7 110 2 679 1450 834 946 3374 current ▲ 40 8 35 1.9 current 0.1 5.8 18.6	0 history1 5 0 61 <1 969 1126 1052 1268 3795 history1 5 3 <1 1.0 history1 0.2 5.4 17.3	0 history2 2 2 44 <1 482 674 590 703 1868 history2 3 37 2 ■ 34.3 history2 0.7 9.6	
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.5 9.0 6.6	Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5 limit/base >3 >20 >30	<1 current 151 7 110 2 679 1450 834 946 3374 current ▲ 40 8 35 1.9 current 0.1 5.8 18.6	0 history1 5 0 61 <1 969 1126 1052 1268 3795 history1 5 3 <1 1.0 history1 0.2 5.4 17.3	0 history2 2 2 44 <1 482 674 590 703 1868 history2 3 37 2	



OIL ANALYSIS REPORT





Laboratory Sample No. Lab Number **Unique Number**

: GFL0092483 : 06000370 : 10728730

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 07 Nov 2023 Diagnosed : 08 Nov 2023

Diagnostician : Don Baldridge 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.

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

GFL Environmental - 095 - Atlanta West

2699 Cochran Industrial Blvd Douglasville, GA US 30127-1332 Contact: Darrell Welch darrell.welch@gflenv.com

T: (800)207-6618

Submitted By: Darrell Welch