

# **OIL ANALYSIS REPORT**

## Sample Rating Trend







# Machine Id 551M 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

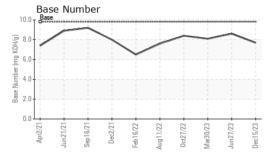
# **Fluid Condition**

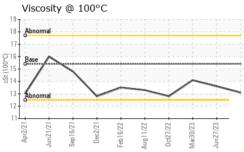
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MOLT A M	method	limit/base	current	history1	history2
	MATION		IIIIIIVDase			
Sample Number		Client Info		GFL0105613	GFL0086689	GFL0073934
Sample Date		Client Info		15 Dec 2023	27 Jun 2023	30 Mar 2023
Machine Age	hrs	Client Info		22841	21815	21205
Oil Age	hrs	Client Info		21815	21205	20010
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
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	>90	21	24	19
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	1	1
Lead	ppm	ASTM D5185m	>40	0	<1	<1
		ASTM D5185m	>330	1	1	2
Copper	ppm					<1
	ppm	ASTM D5185m	>15	0	<1	
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	<1	2	2
			0	0	0	2
Barium	ppm	ASTM D5185m	U	U	0	2
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	60	55	60	59
				-		_
Molybdenum	ppm	ASTM D5185m	60	55	60	59
Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	60	55 0	60 <1	59 <1
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010	55 0 863	60 <1 925	59 <1 934
Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	55 0 863 964	60 <1 925 1095	59 <1 934 1078
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150	55 0 863 964 976	60 <1 925 1095 996	59 <1 934 1078 1009
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270	55 0 863 964 976 1158	60 <1 925 1095 996 1274	59 <1 934 1078 1009 1227
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060	55 0 863 964 976 1158 3097	60 <1 925 1095 996 1274 2963	59 <1 934 1078 1009 1227 2589
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060	55 0 863 964 976 1158 3097 current	60 <1 925 1095 996 1274 2963 history1	59 <1 934 1078 1009 1227 2589 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base	55 0 863 964 976 1158 3097	60 <1 925 1095 996 1274 2963 history1	59 <1 934 1078 1009 1227 2589 history2 6
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base	55 0 863 964 976 1158 3097 current 5	60 <1 925 1095 996 1274 2963 history1 8	59 <1 934 1078 1009 1227 2589 history2 6 6
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	55 0 863 964 976 1158 3097 current 5 7 2	60 <1 925 1095 996 1274 2963 history1 8 5 2	59 <1 934 1078 1009 1227 2589 history2 6 6 <1 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  Method ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	55 0 863 964 976 1158 3097 current 5 7 2 current 0.5	60 <1 925 1095 996 1274 2963 history1 8 5 2 history1 0.4	59 <1 934 1078 1009 1227 2589 history2 6 6 <1 history2 0.2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur  CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  Method  ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	55 0 863 964 976 1158 3097 current 5 7 2 current 0.5 9.5	60 <1 925 1095 996 1274 2963 history1 8 5 2 history1 0.4 8.6	59 <1 934 1078 1009 1227 2589 history2 6 6 <1 history2 0.2 9.0
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  Method  ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D7844  *ASTM D7624  *ASTM D76145	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	55 0 863 964 976 1158 3097 current 5 7 2 current 0.5 9.5 20.1	60 <1 925 1095 996 1274 2963 history1 8 5 2 history1 0.4 8.6 20.7	59 <1 934 1078 1009 1227 2589 history2 6 6 <1 history2 0.2 9.0 21.2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm	ASTM D5185m  Method  ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  Method	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	55 0 863 964 976 1158 3097 current 5 7 2 current 0.5 9.5 20.1	60 <1 925 1095 996 1274 2963 history1 8 5 2 history1 0.4 8.6 20.7 history1	59 <1 934 1078 1009 1227 2589 history2 6 6 <1 history2 0.2 9.0 21.2 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  Method  ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D7844  *ASTM D7624  *ASTM D76145	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	55 0 863 964 976 1158 3097 current 5 7 2 current 0.5 9.5 20.1	60 <1 925 1095 996 1274 2963 history1 8 5 2 history1 0.4 8.6 20.7	59 <1 934 1078 1009 1227 2589 history2 6 6 <1 history2 0.2 9.0 21.2



# **OIL ANALYSIS REPORT**

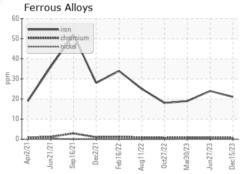


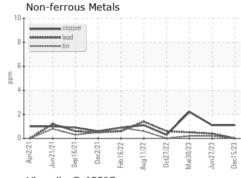


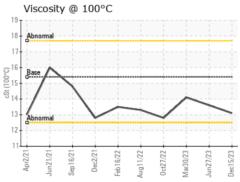
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

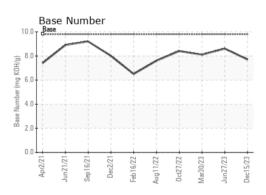
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	13.6	14.1

# **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10794317 Test Package : FLEET

: GFL0105613 : 06039088

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 19 Dec 2023 Diagnosed : 20 Dec 2023 Diagnostician : Wes Davis

GFL Environmental - 415 - Michigan East 6200 Elmridge

Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

\* - 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)

Report Id: GFL415 [WUSCAR] 06039088 (Generated: 12/20/2023 04:38:07) Rev: 1

Submitted By: Frank Wolak