



Area
(KN5436) GFL035

Machine Id
711005

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 15W40 (40 QTS)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0102354	GFL0085164	GFL0053182
Sample Date		Client Info		01 Feb 2024	02 Nov 2023	14 Feb 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		600	600	600
Filter Age	hrs	Client Info		0	600	600
Oil Changed		Client Info		Not Changd	Changed	Changed
Filter Changed		Client Info		N/A	Changed	Changed
Sample Status				SEVERE	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	75	53	22
Chromium	ppm	ASTM D5185m	>20	2	1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		2	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	▲ 43	5	2
Lead	ppm	ASTM D5185m	>40	5	6	2
Copper	ppm	ASTM D5185m	>330	63	144	1
Tin	ppm	ASTM D5185m	>15	2	1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

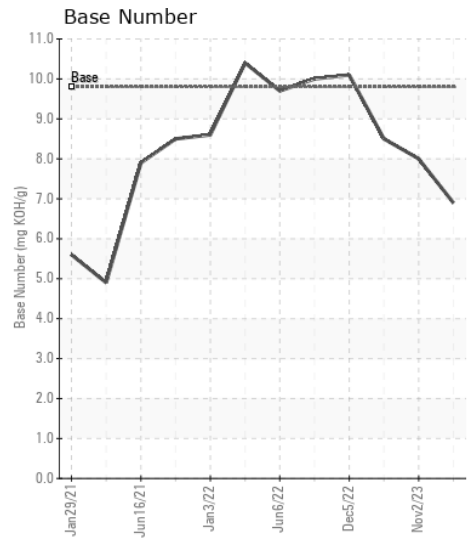
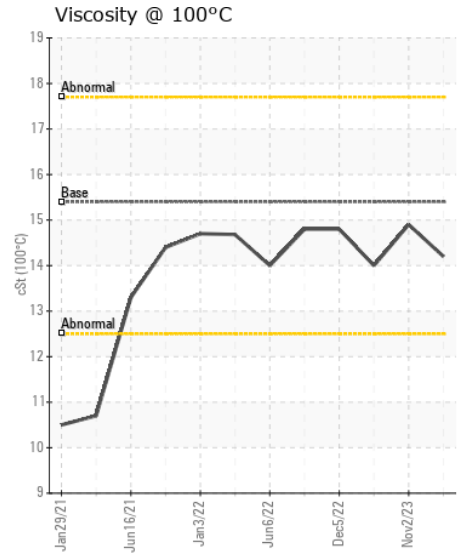
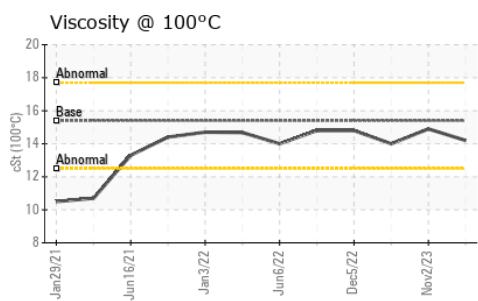
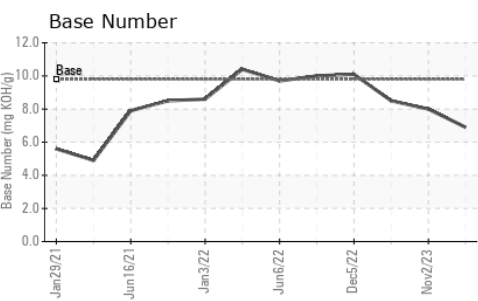
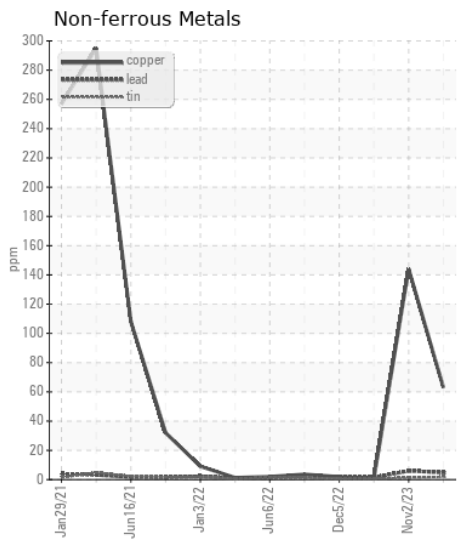
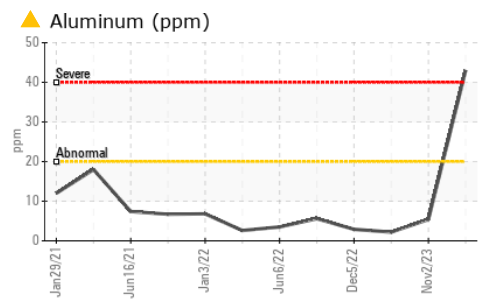
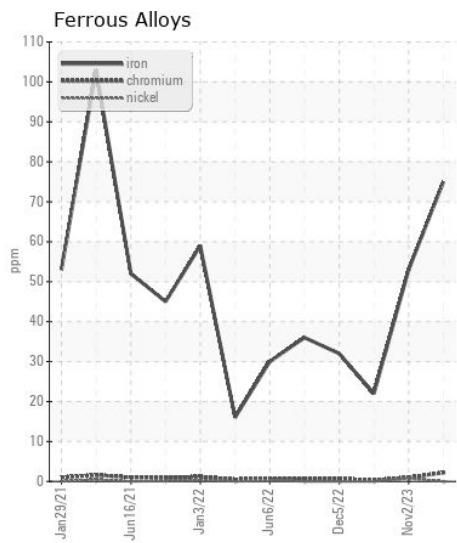
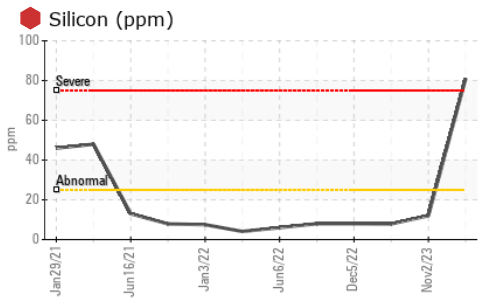
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Silicon	ppm	ASTM D5185m	>25	◆ 81	12	8
Potassium	ppm	ASTM D5185m	>20	29	13	1
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	2.4	2.8	1.5
Nitration	Abs/cm	*ASTM D7624	>20	14.4	14.4	11.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	25.2	27.8	23.6
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

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		56	17	2
Boron	ppm	ASTM D5185m	0	9	6	6
Barium	ppm	ASTM D5185m	0	<1	5	0
Molybdenum	ppm	ASTM D5185m	60	68	68	67
Manganese	ppm	ASTM D5185m	0	2	1	<1
Magnesium	ppm	ASTM D5185m	1010	880	907	938
Calcium	ppm	ASTM D5185m	1070	1138	1172	1225
Phosphorus	ppm	ASTM D5185m	1150	990	1080	1041
Zinc	ppm	ASTM D5185m	1270	1248	1244	1345
Sulfur	ppm	ASTM D5185m	2060	2690	3029	3582
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.3	20.6	22.2
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.9	8.0	8.5
Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.9	14.0



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0102354 **Received** : 08 Feb 2024
Lab Number : 06083449 **Tested** : 09 Feb 2024
Unique Number : 10870894 **Diagnosed** : 09 Feb 2024 - Don Baldrige
Test Package : FLEET

GFL Environmental - 035 - Greensboro
 1236 Elon Place
 High Point, NC
 US 27263
 Contact: JORGE COSTA
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 T: (336)668-3712
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Certificate L2367
 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)