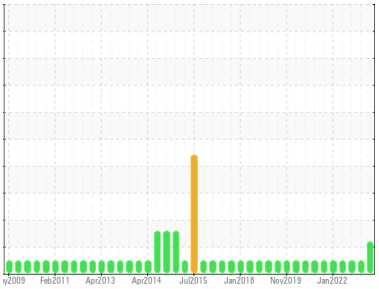
PROBLEM SUMMARY

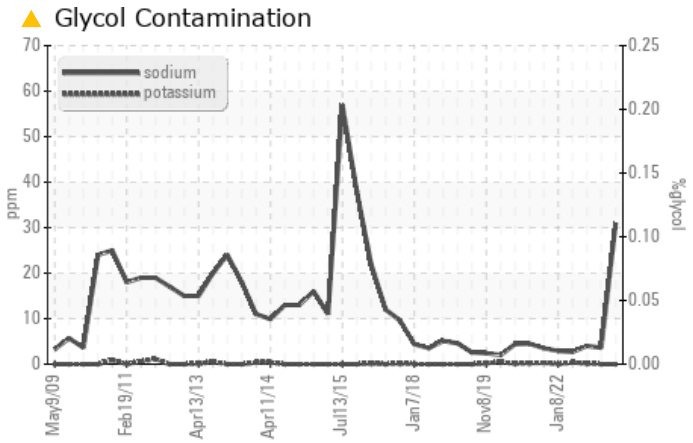
Sample Rating Trend



COOLANT

Area
Engine room
Machine Id
G5-2114 Main Engine #4 (S/N C483)
Component
4 Main Engine
Fluid
SHELL ROTELLA T 30 (810 LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				**ATTENTION**	NORMAL	NORMAL
Sodium	ppm	ASTM D5185(m)	>75	▲ **31**	4	4

Customer Id: GRIFFON
Sample No.: WC0855491
Lab Number: 02603060
Test Package: MAR 3

To manage this report scan the QR code

To discuss the diagnosis or test data:
Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

To change component or sample information:
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.

HISTORICAL DIAGNOSIS

27 Apr 2023 Diag: Kevin Marson

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. 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.

view report

27 Oct 2022 Diag: Kevin Marson

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. 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.

view report

18 Mar 2022 Diag: Kevin Marson

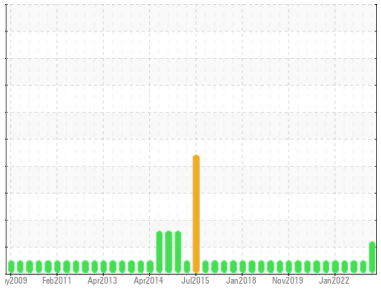
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. 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.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



COOLANT

Area
Engine room
Machine Id
G5-2114 Main Engine #4 (S/N C483)
Component
4 Main Engine
Fluid
SHELL ROTELLA T 30 (810 LTR)

DIAGNOSIS

Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Wear

An increase in the copper level is noted. All other component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

Contaminants

Water treatment chemicals present, indicating slow coolant leak.

Oil 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 INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0855491**	WC0700693	WC0603811
Sample Date		Client Info		**30 Nov 2023**	27 Apr 2023	27 Oct 2022
Machine Age	hrs	Client Info		**75121**	74585	73892
Oil Age	hrs	Client Info		**1501**	965	272
Oil Changed		Client Info		**Not Changd**	N/A	Not Changd
Sample Status				**ATTENTION**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	**<1.0**	<1.0	<1.0
Water		WC Method	>0.1	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	0	0
Iron	ppm	ASTM D5185(m)	>75	**7**	6	6
Chromium	ppm	ASTM D5185(m)	>8	**3**	3	4
Nickel	ppm	ASTM D5185(m)	>2	**0**	0	<1
Titanium	ppm	ASTM D5185(m)	>3	**0**	<1	<1
Silver	ppm	ASTM D5185(m)	>2	**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>15	**2**	2	2
Lead	ppm	ASTM D5185(m)	>18	**2**	3	2
Copper	ppm	ASTM D5185(m)	>80	**8**	5	5
Tin	ppm	ASTM D5185(m)	>14	**<1**	1	2
Antimony	ppm	ASTM D5185(m)		**0**	0	<1
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	<1	<1

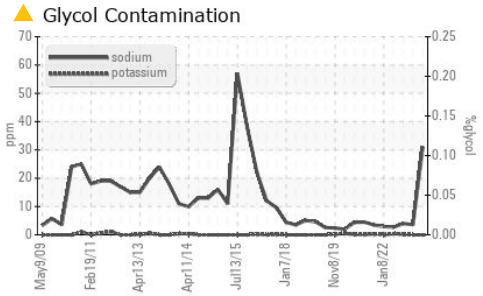
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**12**	4	4
Barium	ppm	ASTM D5185(m)		**<1**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**126**	118	118
Manganese	ppm	ASTM D5185(m)		**0**	<1	<1
Magnesium	ppm	ASTM D5185(m)		**21**	23	21
Calcium	ppm	ASTM D5185(m)	1890	**2778**	2924	2837
Phosphorus	ppm	ASTM D5185(m)	680	**1075**	1157	1146
Zinc	ppm	ASTM D5185(m)	750	**1243**	1209	1188
Sulfur	ppm	ASTM D5185(m)		**2751**	2774	2758
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**4**	4	5
Sodium	ppm	ASTM D5185(m)	>75	▲ **31**	4	4
Potassium	ppm	ASTM D5185(m)	>20	**0**	0	<1

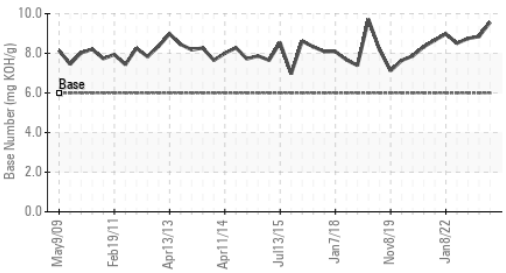
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0.1**	0	0
Nitration	Abs/cm	ASTM D7624*	>20	**4.4**	4.3	4.1
Sulfation	Abs/.1mm	ASTM D7415*	>30	**14.4**	14.5	14.8

OIL ANALYSIS REPORT

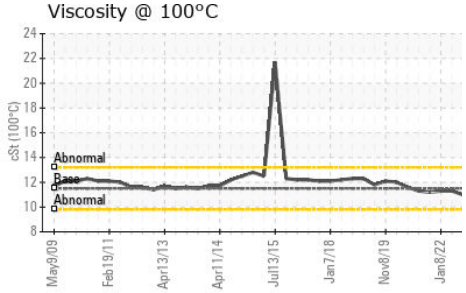
Glycol Contamination



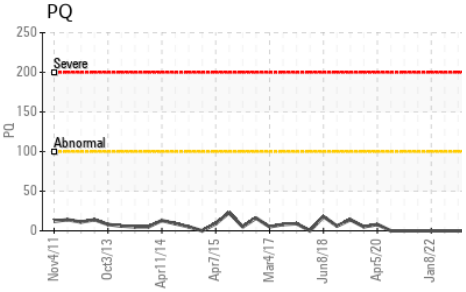
Base Number



Viscosity @ 100°C



PQ



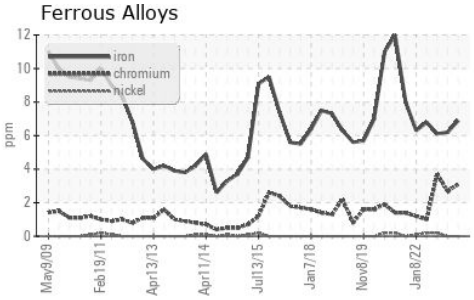
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**7.2**	7.7	7.6
Base Number (BN)	mg KOH/g	ASTM D2896*	6.0	**9.57**	8.85	8.75

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	---	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	---	---
Precipitate	scalar	Visual*	NONE	**NONE**	---	---
Silt	scalar	Visual*	NONE	**NONE**	---	---
Debris	scalar	Visual*	NONE	**NONE**	---	---
Sand/Dirt	scalar	Visual*	NONE	**NONE**	---	---
Appearance	scalar	Visual*	NORML	**NORML**	---	---
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	11.5	**11.3**	11.3	11.0

GRAPHS

Ferrous Alloys



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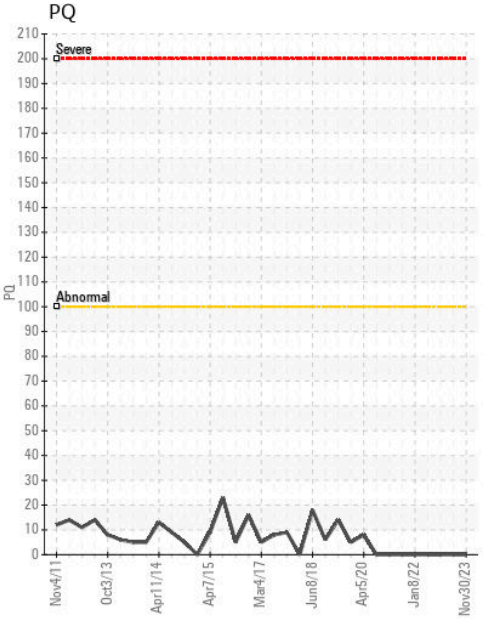
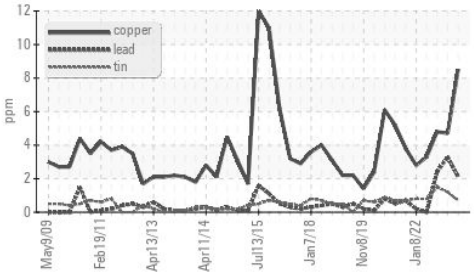
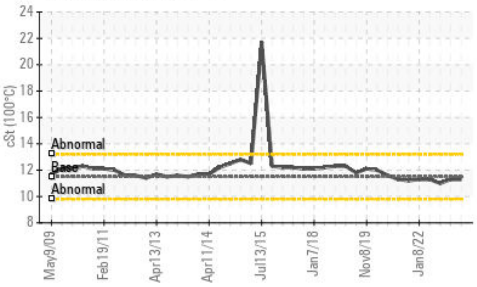


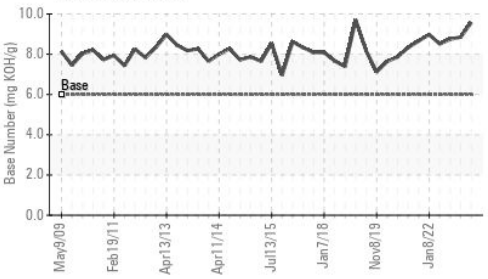
Non-ferrous Metals



Viscosity @ 100°C



Base Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0855491 **Recieved** : 14 Dec 2023
Lab Number : 02603060 **Diagnosed** : 19 Dec 2023
Unique Number : 5696145 **Diagnostician** : Kevin Marson
Test Package : MAR 3 (Additional Tests: Visual)

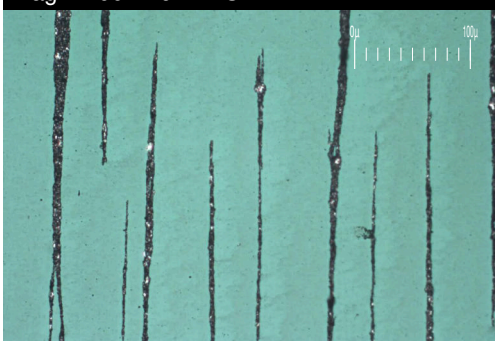
To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

CANADIAN COAST GUARD
CCGS GRIFFON, PO BOX 1000, 401 KING ST.W
Prescott, ON
CA K6V 5T3
Contact: Laurie Bosley
Laurie.Bosley@dfo-mpo.gc.ca
T:
F: (519)383-1994

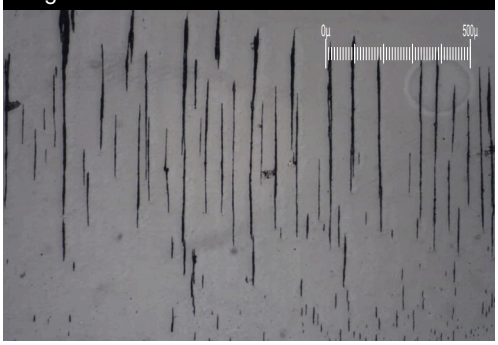
FERROGRAPHY REPORT

Area
Engine room
Machine Id
G5-2114 Main Engine #4 (S/N C483)
Component
4 Main Engine
Fluid
SHELL ROTELLA T 30 (810 LTR)

Magn: 200x Illum: BC



Magn: 50x Illum: RW



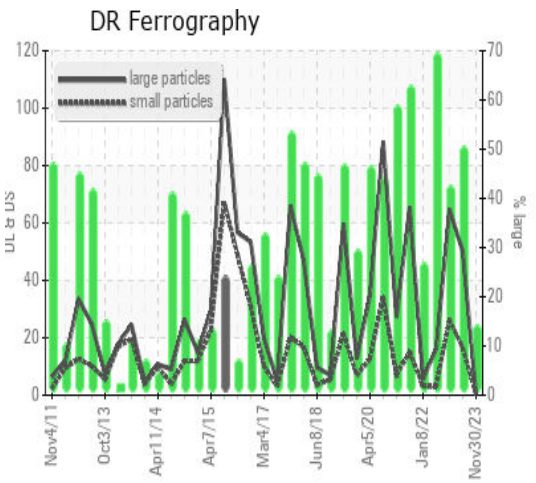
Magn: 100x Illum: RW

DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		**0.4**	50.1	64.7
Small Particles		DR-Ferr*		**0.3**	16.5	26.2
Total Particles		DR-Ferr*	>---	**0.7**	66.6	90.9
Large Particles Percentage	%	DR-Ferr*		**14.3**	50.5	42.4
Severity Index		DR-Ferr*		**0**	1683	2491

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		**4**	4	3
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		**2**	2	1
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*		**1**		
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*		**1**		
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		**1**	1	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		**2**	1	1

WEAR

An increase in the copper level is noted. All other component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.



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