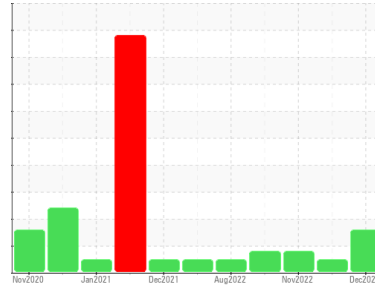


OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area

5

Machine Id

Timm Machine B Barrel

Component

Bearing

Fluid

SHELL OMALA 68 (4 LTR)

DIAGNOSIS

Recommendation

We recommend an early resample to monitor this condition.

Wear

Iron ppm levels are marginal. All other component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

Contaminants

There were numerous non-ferrous spheres, present on the slide. They do not appear to be associated with wear and look more like glass-type beads.

Oil Condition

The AN level is acceptable for this fluid.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		CB0031413	CB0030611	CB0031026
Sample Date	Client Info		29 Dec 2023	29 Mar 2023	17 Nov 2022
Machine Age	hrs	Client Info	0	0	0
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			ABNORMAL	NORMAL	MARGINAL

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>2	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m) >20	▲ 61	49	▲ 74
Chromium	ppm	ASTM D5185(m) >20	<1	<1	<1
Nickel	ppm	ASTM D5185(m) >20	0	<1	0
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	0	0
Aluminum	ppm	ASTM D5185(m) >20	<1	<1	<1
Lead	ppm	ASTM D5185(m) >20	<1	<1	0
Copper	ppm	ASTM D5185(m) >20	<1	0	0
Tin	ppm	ASTM D5185(m) >20	0	0	0
Antimony	ppm	ASTM D5185(m)	0	0	0
Vanadium	ppm	ASTM D5185(m)	0	0	0
Beryllium	ppm	ASTM D5185(m)	0	0	0
Cadmium	ppm	ASTM D5185(m)	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	<1	<1	1
Barium	ppm	ASTM D5185(m)	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	<1	0	<1
Calcium	ppm	ASTM D5185(m)	<1	0	1
Phosphorus	ppm	ASTM D5185(m)	301	326	308
Zinc	ppm	ASTM D5185(m)	8	21	30
Sulfur	ppm	ASTM D5185(m)	7272	8061	7881
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

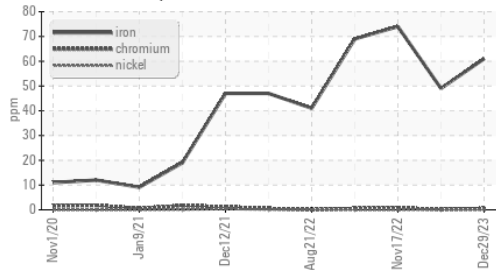
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >15	2	2	2
Sodium	ppm	ASTM D5185(m)	0	<1	<1
Potassium	ppm	ASTM D5185(m) >20	<1	<1	0

FLUID DEGRADATION

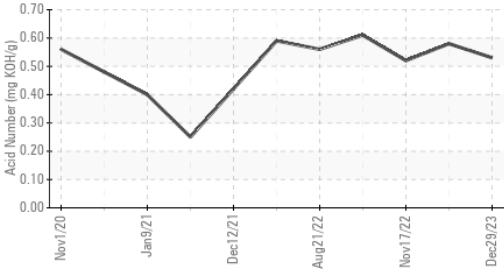
	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.53	0.58	0.52

OIL ANALYSIS REPORT

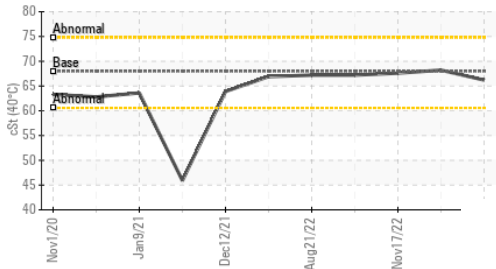
▲ Ferrous Alloys



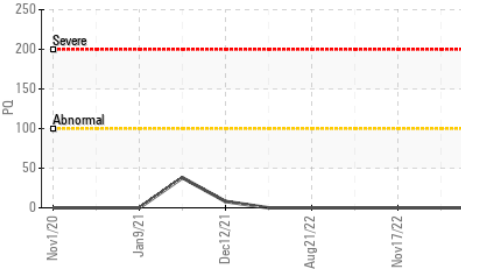
Acid Number



Viscosity @ 40°C



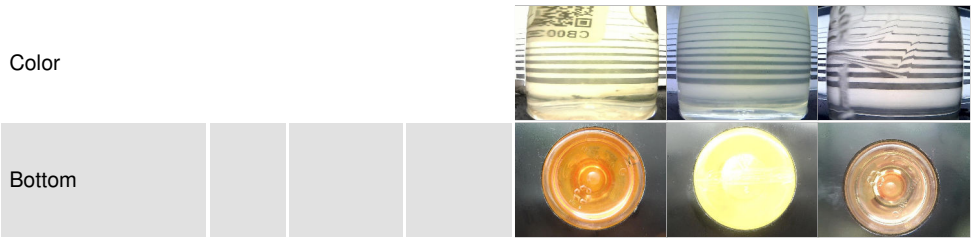
PQ



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>2	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG

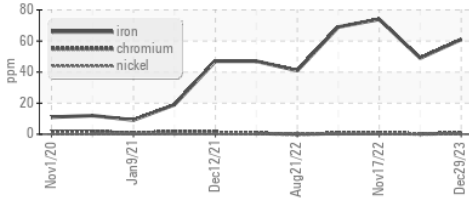
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	68.0	66.2	68.2 67.6

SAMPLE IMAGES

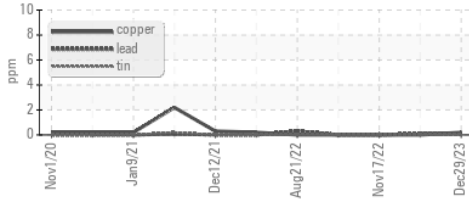


GRAPHS

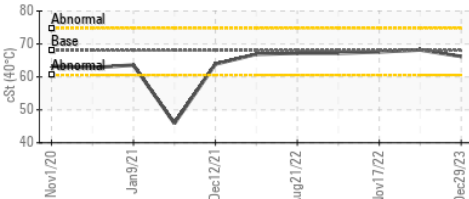
▲ Ferrous Alloys



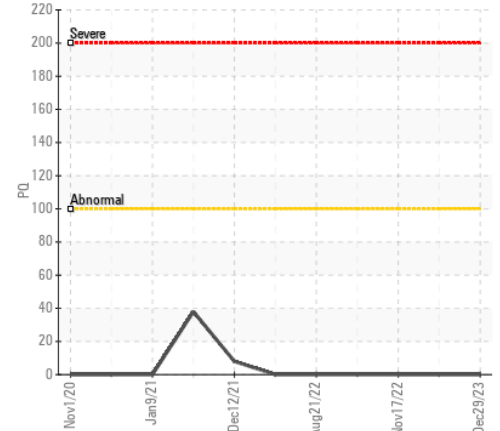
Non-ferrous Metals



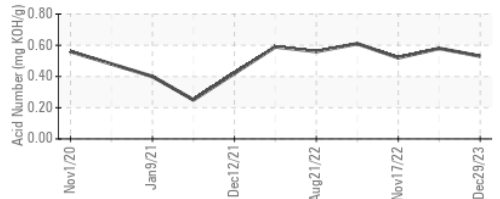
Viscosity @ 40°C



PQ



Acid Number

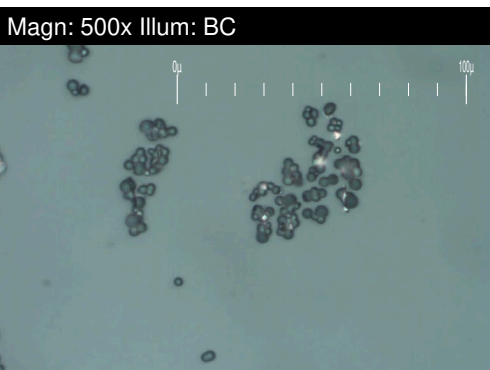
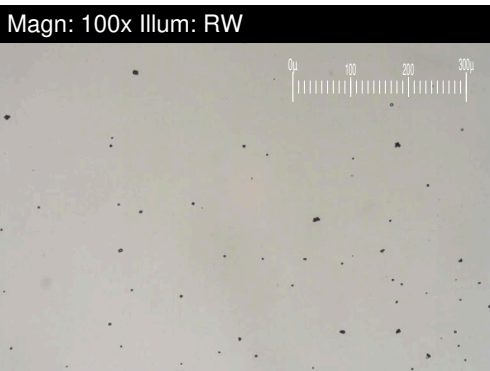
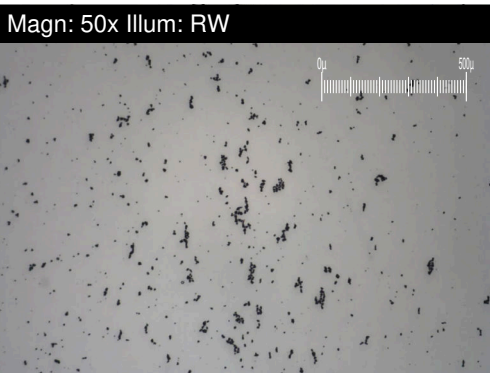
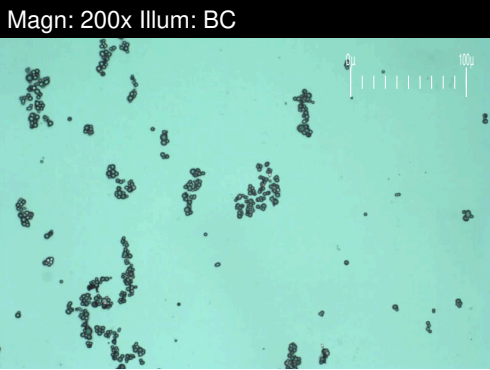


Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 TOYOTA MOTOR MANUFACTURING CANADA
Sample No. : CB0031413 **Received** : 10 Jan 2024 **PLASTICS DEPARTMENT, 1717 DUNDAS ST**
Lab Number : 02607842 **Diagnosed** : 17 Jan 2024 **WOODSTOCK, ON**
Unique Number : 5708928 **Diagnostician** : Kevin Marson **CA N4S 0A4**
Test Package : IND 3

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. **F:**

FERROGRAPHY REPORT

Area
5
Machine Id
Timm Machine B Barrel
Component
Bearing
Fluid
SHELL OMALA 68 (4 LTR)

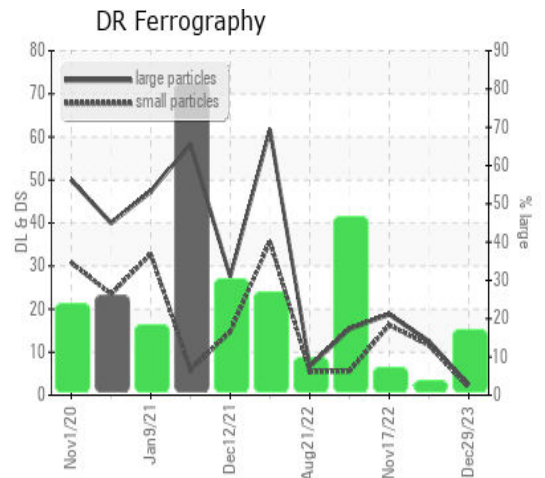


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		2.4	12.5	18.8
Small Particles		DR-Ferr*		1.7	11.6	16.3
Total Particles		DR-Ferr*	>---	4.1	24.1	35.1
Large Particles Percentage	%	DR-Ferr*		17.1	3.7	7.1
Severity Index		DR-Ferr*		2	11	47

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		1	2	3
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		1	1	1
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
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*		3		
Other	Scale 0-10	ASTM D7684*		1	2	2

WEAR

Iron ppm levels are marginal. All other component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.



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