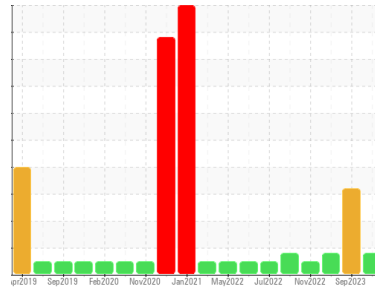


OIL ANALYSIS REPORT

Sample Rating Trend



WEAR PARTICLES



Machine Id
Timm Plunger 3
 Component
Gearbox
 Fluid
SHELL OMALA 68 (1 LTR)

DIAGNOSIS

Recommendation

We recommend an early resample to monitor this condition. No other corrective action is recommended at this time.

Wear

Wear particle analysis indicates that the ferrous rubbing particles are marginal. All other component wear rates are normal.

Contaminants

There is no indication of any contamination in the oil.

Oil Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		CB0031408	CB0031380	CB0030736
Sample Date	Client Info		29 Dec 2023	11 Sep 2023	16 Apr 2023
Machine Age	mths	Client Info	0	0	0
Oil Age	mths	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			MARGINAL	ABNORMAL	MARGINAL

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.2	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		5	0	0
Iron	ppm	ASTM D5185(m) >200	85	▲ 125	94
Chromium	ppm	ASTM D5185(m) >15	<1	2	<1
Nickel	ppm	ASTM D5185(m) >15	0	0	<1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	0	0
Aluminum	ppm	ASTM D5185(m) >25	<1	<1	<1
Lead	ppm	ASTM D5185(m) >100	0	<1	0
Copper	ppm	ASTM D5185(m) >200	<1	<1	<1
Tin	ppm	ASTM D5185(m) >25	0	0	0
Antimony	ppm	ASTM D5185(m) >5	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	0	0

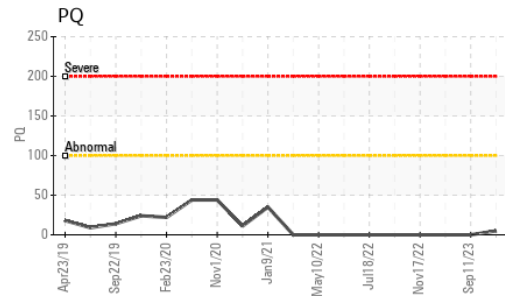
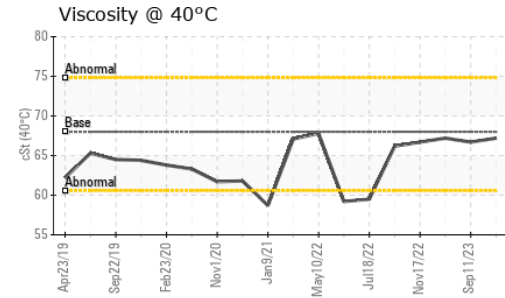
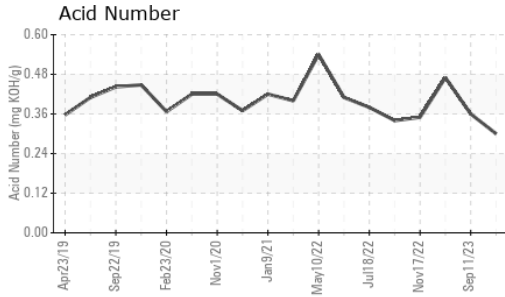
ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	<1	<1
Barium	ppm	ASTM D5185(m)	0	<1	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	<1	0	0
Calcium	ppm	ASTM D5185(m)	<1	<1	0
Phosphorus	ppm	ASTM D5185(m)	289	315	325
Zinc	ppm	ASTM D5185(m)	10	14	12
Sulfur	ppm	ASTM D5185(m)	7726	8009	8012
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >50	2	2	1
Sodium	ppm	ASTM D5185(m)	<1	<1	<1
Potassium	ppm	ASTM D5185(m) >20	1	<1	<1

OIL ANALYSIS REPORT



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	169700	---	---
Particles >6µm	ASTM D7647	>5000	55216	---	---
Particles >14µm	ASTM D7647	>640	601	---	---
Particles >21µm	ASTM D7647	>160	59	---	---
Particles >38µm	ASTM D7647	>40	1	---	---
Particles >71µm	ASTM D7647	>10	0	---	---
Oil Cleanliness	ISO 4406 (c)	>21/19/16	25/23/16	---	---

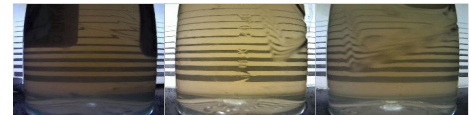
FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*		0.30	0.36	0.47

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	VLITE	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
Free Water	scalar Visual*		NEG	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt ASTM D7279(m)	68.0	67.2	66.7	67.2

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color



Bottom



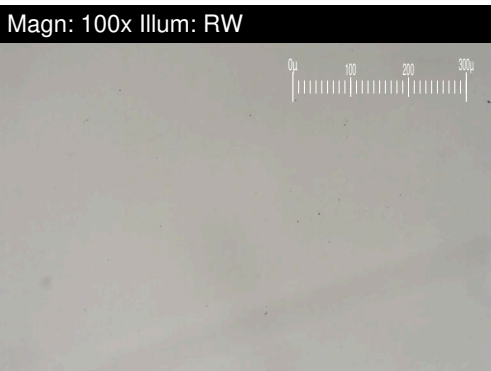
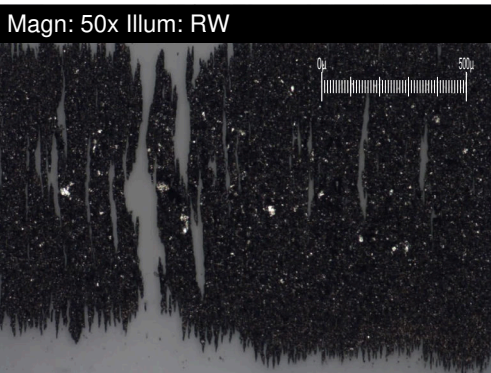
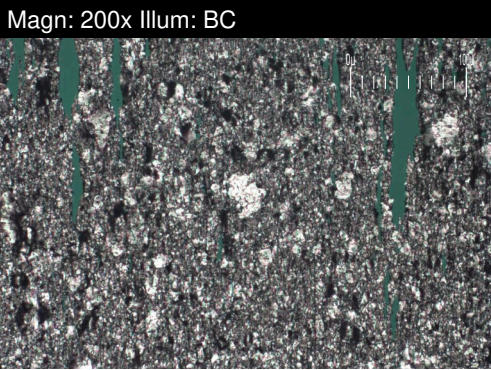
Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 TOYOTA MOTOR MANUFACTURING CANADA
Sample No. : CB0031408 **Received** : 10 Jan 2024 PLASTICS DEPARTMENT, 1717 DUNDAS ST
Lab Number : **02607850** **Diagnosed** : 16 Jan 2024 WOODSTOCK, ON
Unique Number : 5708936 **Diagnostician** : Kevin Marson CA N4S 0A4
Test Package : IND 3 (Additional Tests: PrtCount)
 Contact: Jeff Lafleur
 jeff.lafleur@toyota.com

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.

T: (519)653-1111
 F:

FERROGRAPHY REPORT

Machine Id
Timm Plunger 3
Component
Gearbox
Fluid
SHELL OMALA 68 (1 LTR)

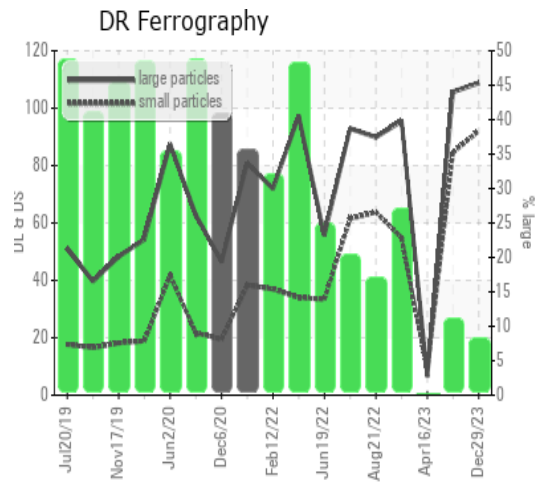


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		108.8	105.7	6.6
Small Particles		DR-Ferr*		92.1	84.6	8.7
Total Particles		DR-Ferr*	>---	200.9	190.3	15.3
Large Particles Percentage	%	DR-Ferr*		8.3	11.1	0
Severity Index		DR-Ferr*		1817	2230	14

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		▲ 8	▲ 8	▲ 7
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		■ 3	▲ 4	■ 4
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*				■ 2
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
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		■ 1	■ 1	■ 2

WEAR

Wear particle analysis indicates that the ferrous rubbing particles are marginal. All other component wear rates are normal.



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