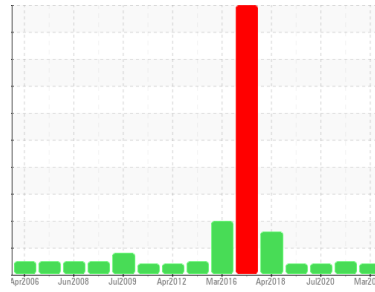




OIL ANALYSIS REPORT

Sample Rating Trend



ADDITIVES



Machine Id
PTL1 FORK (S/N E2000304)
 Component
Gearbox
 Fluid
SHELL OMALA 150 (--- GAL)

DIAGNOSIS

Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

Contaminants

There is no indication of any contamination in the oil.

Oil Condition

Additive levels indicate the addition of a different brand, or type of oil. Viscosity of sample indicates oil is within ISO 220 range, advise investigate. 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			WC943437	CB0029710	CB0029667
Sample Date	Client Info			23 Mar 2024	24 Mar 2021	15 Jul 2020
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				ATTENTION	NORMAL	ABNORMAL

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*		3	0	12
Iron	ppm	ASTM D5185(m)	>200	28	14	4
Chromium	ppm	ASTM D5185(m)	>15	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>15	0	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	0	<1
Aluminum	ppm	ASTM D5185(m)	>25	0	<1	0
Lead	ppm	ASTM D5185(m)	>100	0	0	<1
Copper	ppm	ASTM D5185(m)	>200	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>25	<1	<1	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)	6.2	4	2	2
Barium	ppm	ASTM D5185(m)	0.0	2	2	2
Molybdenum	ppm	ASTM D5185(m)	0	2	6	5
Manganese	ppm	ASTM D5185(m)		4	1	<1
Magnesium	ppm	ASTM D5185(m)	0	6	2	1
Calcium	ppm	ASTM D5185(m)	0.0	20	25	21
Phosphorus	ppm	ASTM D5185(m)	512	289	208	213
Zinc	ppm	ASTM D5185(m)	3.8	80	49	20
Sulfur	ppm	ASTM D5185(m)	8167	10131	10382	10429
Lithium	ppm	ASTM D5185(m)		3	4	4

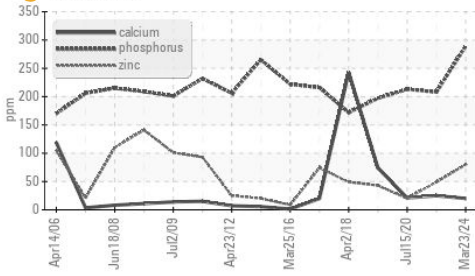
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>50	<1	2	<1
Sodium	ppm	ASTM D5185(m)		8	8	5
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	<1

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.41	0.44	0.43

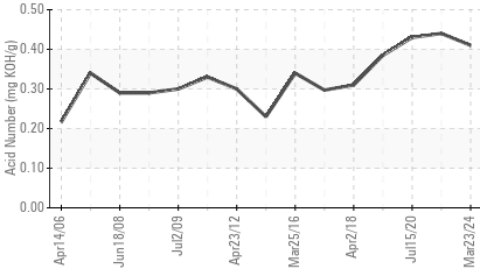


OIL ANALYSIS REPORT

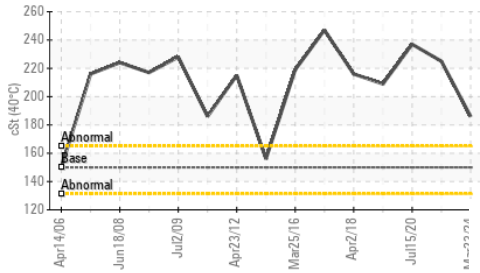
Additives



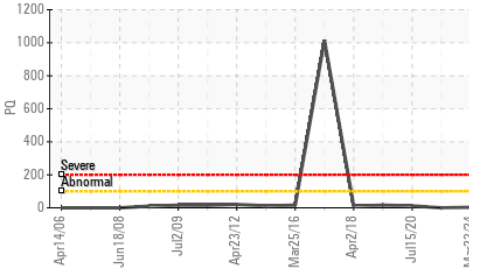
Acid Number



Viscosity @ 40°C



PQ

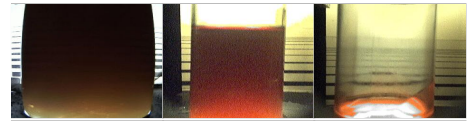


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	150	186	225 ▲ 237

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color

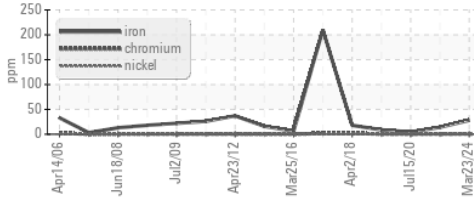


Bottom

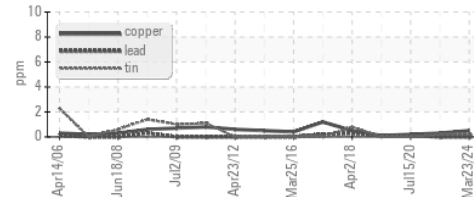


GRAPHS

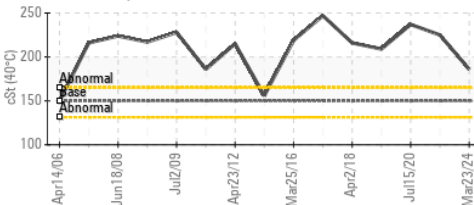
Ferrous Alloys



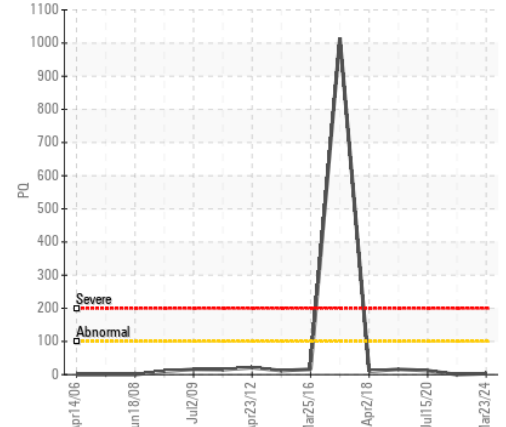
Non-ferrous Metals



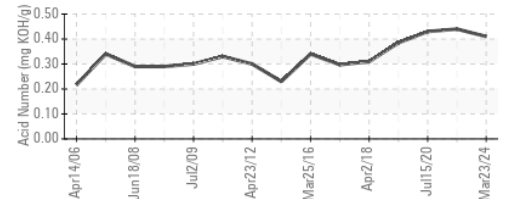
Viscosity @ 40°C



PQ



Acid Number



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC943437 **Received** : 05 Apr 2024
Lab Number : 02627123 **Tested** : 09 Apr 2024
Unique Number : 5760255 **Diagnosed** : 11 Apr 2024 - Kevin Marson
Test Package : IND 3 (Additional Tests: TAN Man)

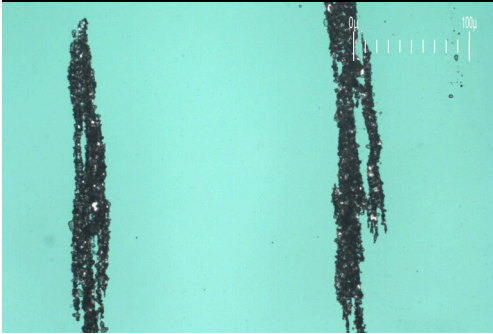
TOYOTA MOTOR MANUFACT.
 1055 FOUNTAIN STREET N.
 CAMBRIDGE, ON
 CA N3H 5K2
 Contact: mike clappison
 mike.clappison@toyota.com
 T: (519)212-5023
 F: (519)653-9638

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.

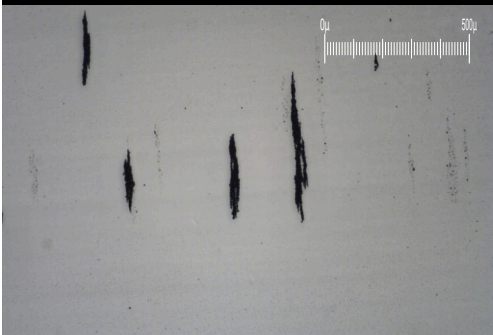
FERROGRAPHY REPORT

Machine Id
PTL1 FORK (S/N E2000304)
 Component
Gearbox
 Fluid
SHELL OMALA 150 (--- GAL)

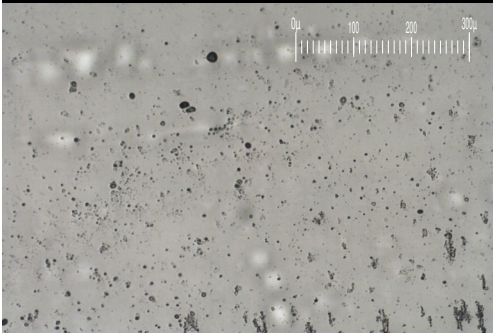
Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW

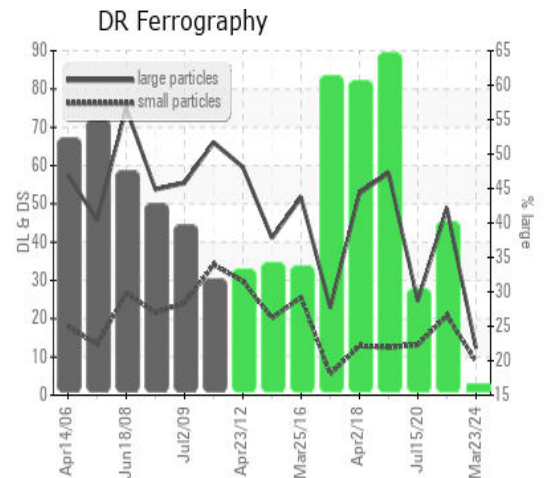


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		12.3	48.8	24.7
Small Particles		DR-Ferr*		8.8	20.8	13.2
Total Particles		DR-Ferr*	>---	21.1	69.6	37.9
Large Particles Percentage	%	DR-Ferr*		16.6	40.2	30.3
Severity Index		DR-Ferr*		43	1366	284

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		3	3	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*		1	2	
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	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		2		1

WEAR

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.



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