



OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area
NORTH PAINT
 Machine Id
P2 OVERHEAD DRIVE
 Component
Gear Drive
 Fluid
SHELL OMALA S2 GX 150 (--- GAL)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

Iron ppm levels are abnormal. Wear particle analysis indicates that the ferrous rubbing particles are abnormal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

Contaminants

There is no indication of any contamination in the oil.

Oil Condition

The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			CB0031592	---	---
Sample Date	Client Info			03 Dec 2023	---	---
Machine Age	hrs	Client Info		0	---	---
Oil Age	hrs	Client Info		576	---	---
Oil Changed	Client Info			Changed	---	---
Sample Status				ABNORMAL	---	---

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.1	NEG	---	---

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		136	---	---
Iron	ppm	ASTM D5185(m) >150	▲ 185	---	---
Chromium	ppm	ASTM D5185(m) >10	2	---	---
Nickel	ppm	ASTM D5185(m) >10	<1	---	---
Titanium	ppm	ASTM D5185(m)	0	---	---
Silver	ppm	ASTM D5185(m)	<1	---	---
Aluminum	ppm	ASTM D5185(m) >25	<1	---	---
Lead	ppm	ASTM D5185(m) >100	<1	---	---
Copper	ppm	ASTM D5185(m) >50	<1	---	---
Tin	ppm	ASTM D5185(m) >10	0	---	---
Antimony	ppm	ASTM D5185(m) >5	0	---	---
Vanadium	ppm	ASTM D5185(m)	0	---	---
Beryllium	ppm	ASTM D5185(m)	0	---	---
Cadmium	ppm	ASTM D5185(m)	0	---	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m) 6.2	1	---	---
Barium	ppm	ASTM D5185(m) 0.0	21	---	---
Molybdenum	ppm	ASTM D5185(m) 0	0	---	---
Manganese	ppm	ASTM D5185(m)	<1	---	---
Magnesium	ppm	ASTM D5185(m) 0	<1	---	---
Calcium	ppm	ASTM D5185(m) 0.0	54	---	---
Phosphorus	ppm	ASTM D5185(m) 290	285	---	---
Zinc	ppm	ASTM D5185(m) 3.8	3	---	---
Sulfur	ppm	ASTM D5185(m) 8167	8940	---	---
Lithium	ppm	ASTM D5185(m)	<1	---	---

CONTAMINANTS

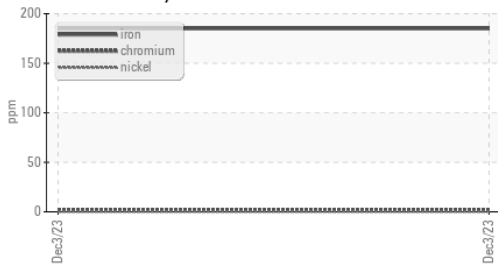
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >50	5	---	---
Sodium	ppm	ASTM D5185(m)	9	---	---
Potassium	ppm	ASTM D5185(m) >20	0	---	---

FLUID DEGRADATION

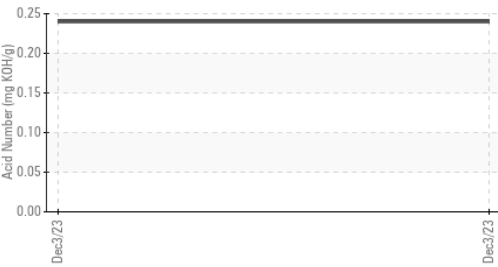
	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.24	---	---

OIL ANALYSIS REPORT

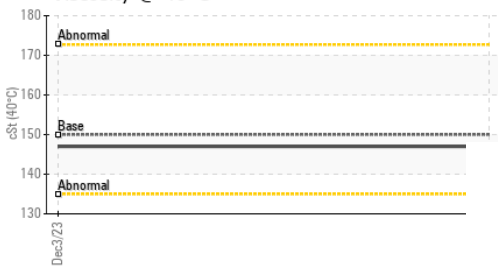
▲ Ferrous Alloys



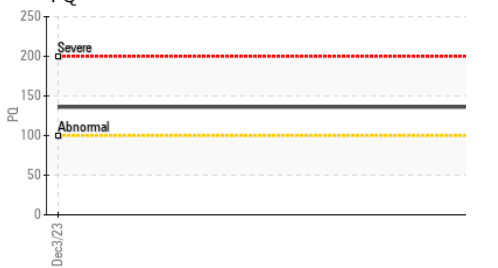
Acid Number



Viscosity @ 40°C



PQ



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	---
Emulsified Water	scalar	Visual*	>0.1	NEG	---
Free Water	scalar	Visual*		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	150	147	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color				no image	no image
Bottom				no image	no image

GRAPHS

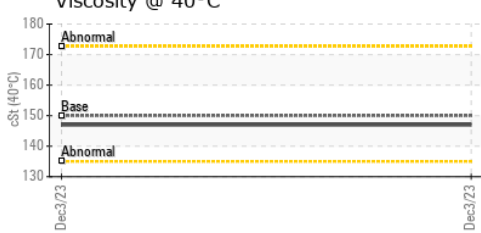
▲ Ferrous Alloys



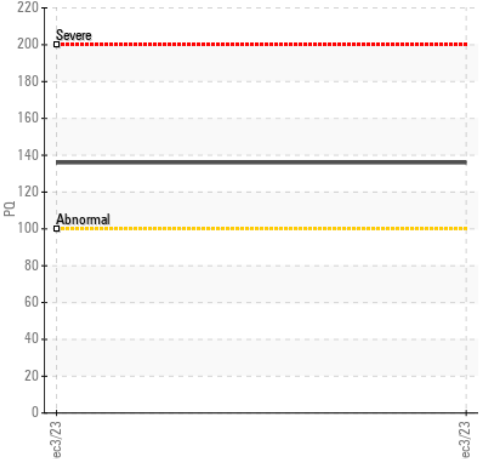
Non-ferrous Metals



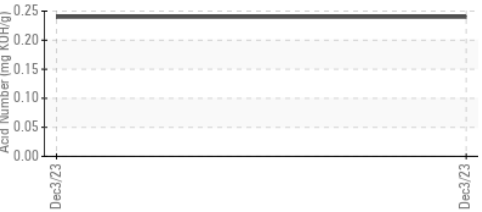
Viscosity @ 40°C



PQ



Acid Number



ISO 17025:2017
Accredited
Laboratory

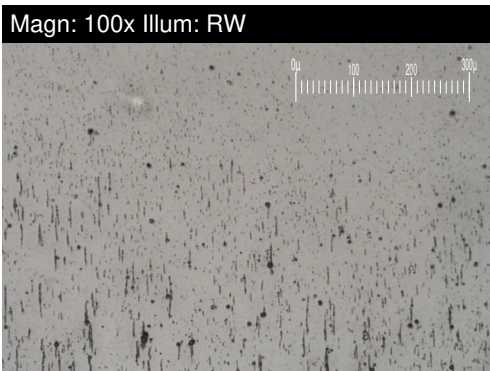
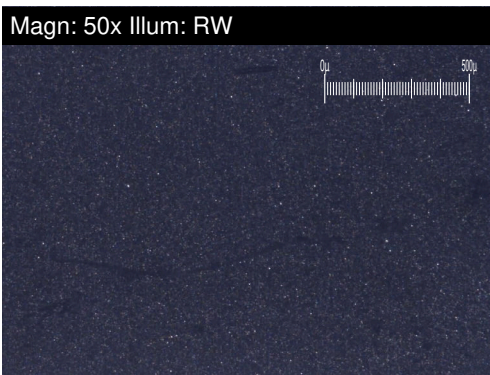
Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : CB0031592 **Received** : 19 Dec 2023
Lab Number : 02604217 **Diagnosed** : 22 Dec 2023
Unique Number : 5697302 **Diagnostician** : Kevin Marson
Test Package : IND 3 (Additional Tests: TAN Man)

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

Area
NORTH PAINT
Machine Id
P2 OVERHEAD DRIVE
Component
Gear Drive
Fluid
SHELL OMALA S2 GX 150 (--- GAL)



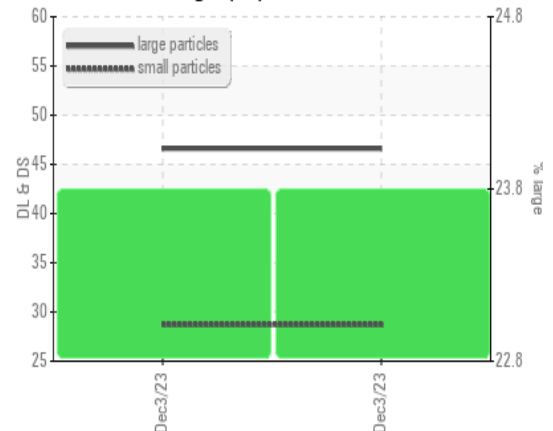
DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		46.6	---	---
Small Particles		DR-Ferr*		28.7	---	---
Total Particles		DR-Ferr*	>---	75.3	---	---
Large Particles Percentage	%	DR-Ferr*		23.8	---	---
Severity Index		DR-Ferr*		834	---	---

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

WEAR

Iron ppm levels are abnormal. Wear particle analysis indicates that the ferrous rubbing particles are abnormal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

DR Ferrography



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