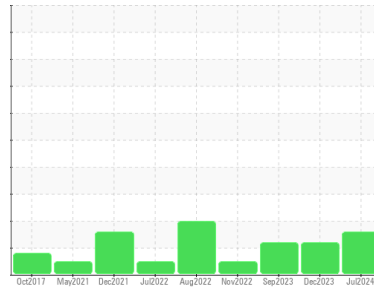




OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Machine Id
Timm Main Hydraulic Tank (S/N 07F0712)
 Component
Pump Hydraulic System
 Fluid
CHEVRON CLARITY HYDRAULIC AW 46 (400 LTR)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Wear

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

Contaminants

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

Oil Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		CB0031942	CB0031414	CB0031379
Sample Date	Client Info		11 Jul 2024	29 Dec 2023	11 Sep 2023
Machine Age	mths	Client Info	0	0	0
Oil Age	mths	Client Info	0	0	0
Oil Changed	Client Info		N/A	Not Chngd	N/A
Sample Status			ABNORMAL	ABNORMAL	ATTENTION

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.05	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m) >20	0	<1	<1
Chromium	ppm	ASTM D5185(m) >20	0	0	0
Nickel	ppm	ASTM D5185(m) >20	<1	0	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	0
Lead	ppm	ASTM D5185(m) >20	0	<1	0
Copper	ppm	ASTM D5185(m) >20	<1	<1	<1
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

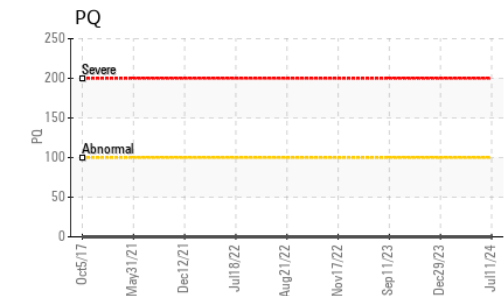
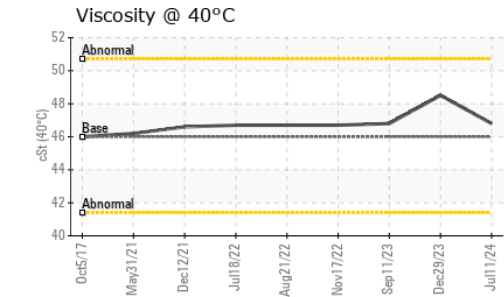
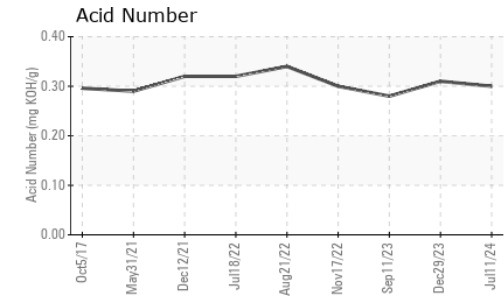
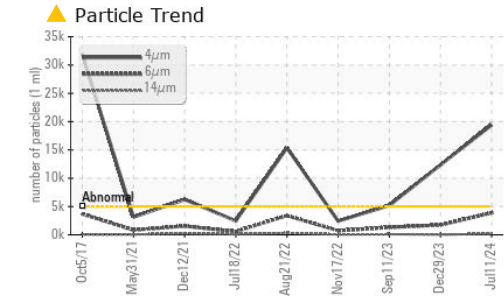
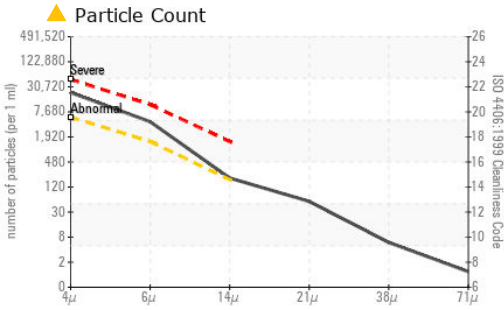
ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	<1	0	0
Barium	ppm	ASTM D5185(m)	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)	0	0	0
Magnesium	ppm	ASTM D5185(m)	<1	2	<1
Calcium	ppm	ASTM D5185(m)	3	1	1
Phosphorus	ppm	ASTM D5185(m)	328	298	302
Zinc	ppm	ASTM D5185(m)	8	5	10
Sulfur	ppm	ASTM D5185(m)	323	295	308
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >15	7	6	6
Sodium	ppm	ASTM D5185(m)	0	0	0
Potassium	ppm	ASTM D5185(m) >20	0	<1	0

OIL ANALYSIS REPORT



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	▲ 19405	▲ 12353	● 5192
Particles >6µm	ASTM D7647	>1300	▲ 3882	● 1737	● 1320
Particles >14µm	ASTM D7647	>160	● 174	30	105
Particles >21µm	ASTM D7647	>40	48	8	31
Particles >38µm	ASTM D7647	>10	5	1	2
Particles >71µm	ASTM D7647	>3	1	0	0
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 21/19/15	▲ 21/18/12	● 20/18/14

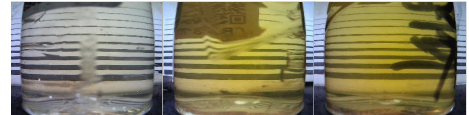
FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*		0.30	0.31	0.28

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	NONE	NONE	VLITE
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*	>0.05	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)	46.0	46.8	48.5	46.8

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color



Bottom



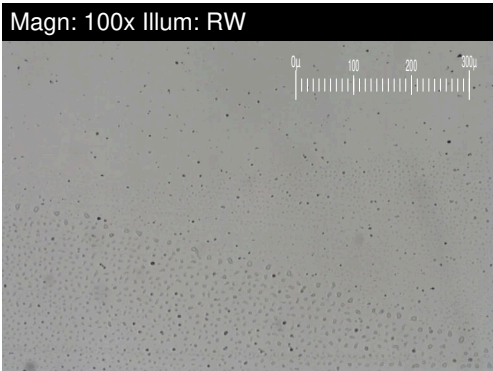
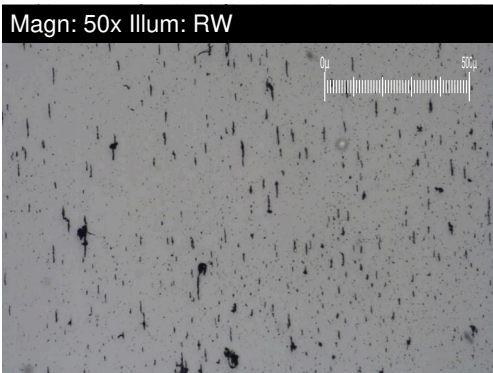
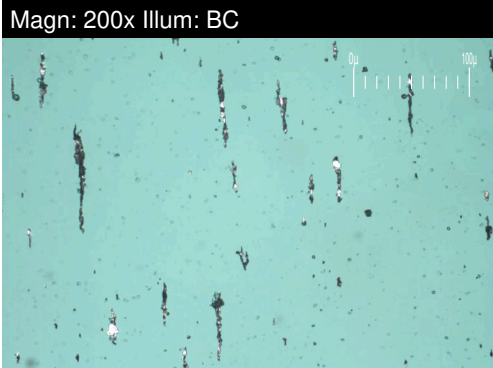
Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : CB0031942
Lab Number : 02647636
Unique Number : 5813188
Test Package : IND 3

TOYOTA MOTOR MANUFACTURING CANADA
 PLASTICS DEPARTMENT, 1717 DUNDAS ST
 WOODSTOCK, ON
 CA N4S 0A4
 Contact: Jeff Lafleur
 jeff.lafleur@toyota.com
 T: (519)653-1111
 F:

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
Timm Main Hydraulic Tank (S/N 07F0712)
Component
Pump Hydraulic System
Fluid
CHEVRON CLARITY HYDRAULIC AW 46 (400 LTR)

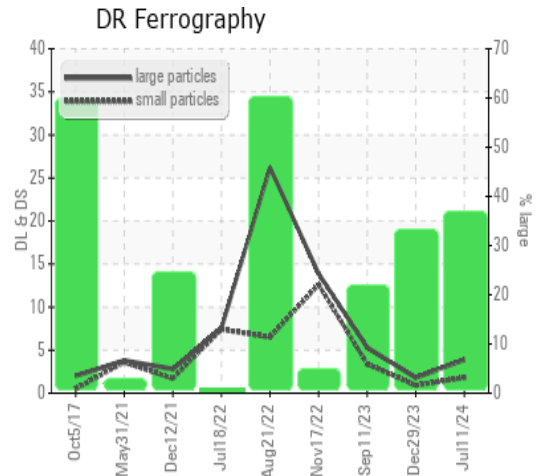


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		3.9	1.8	5.3
Small Particles		DR-Ferr*		1.8	0.9	3.4
Total Particles		DR-Ferr*	>---	5.7	2.7	8.7
Large Particles Percentage	%	DR-Ferr*		36.8	33.3	21.8
Severity Index		DR-Ferr*		8	2	10

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

WEAR

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



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