



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
Caterpillar AMY FRANCES
Component
Starboard Main Engine
Fluid
CHEVRON DELO 400 MULTIGRADE 15W40 (220 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0067367	MW0067417	MW0067400
Sample Date		Client Info		20 Jun 2024	29 May 2024	12 May 2024
Machine Age	hrs	Client Info		44703	44254	43841
Oil Age	hrs	Client Info		1279	820	404
Filter Age	hrs	Client Info		594	135	404
Oil Changed		Client Info		Not Chngd	N/A	Changed
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	8	0	3
Chromium	ppm	ASTM D5185m	>8	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	1	<1	0
Titanium	ppm	ASTM D5185m	>3	13	14	13
Silver	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum	ppm	ASTM D5185m	>15	2	<1	2
Lead	ppm	ASTM D5185m	>18	0	0	<1
Copper	ppm	ASTM D5185m	>80	8	8	4
Tin	ppm	ASTM D5185m	>14	0	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

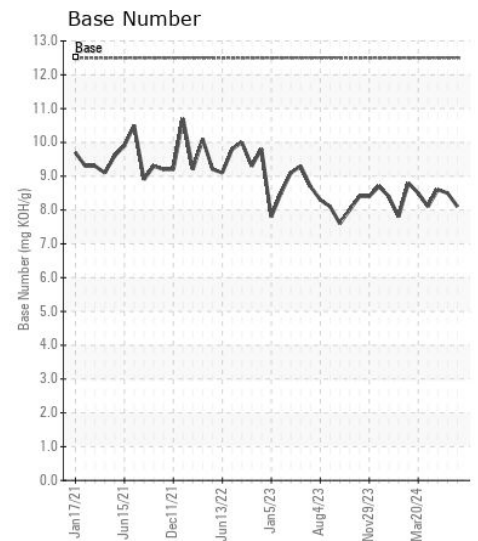
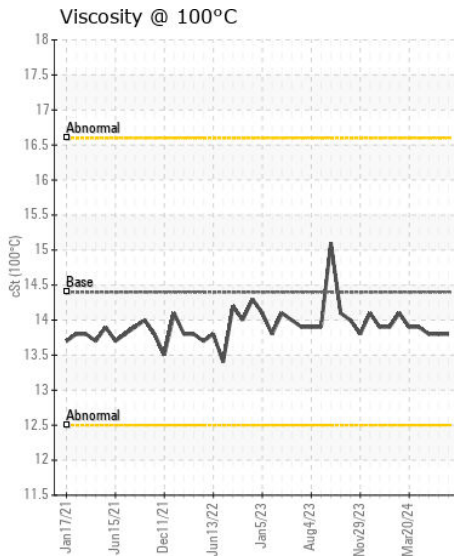
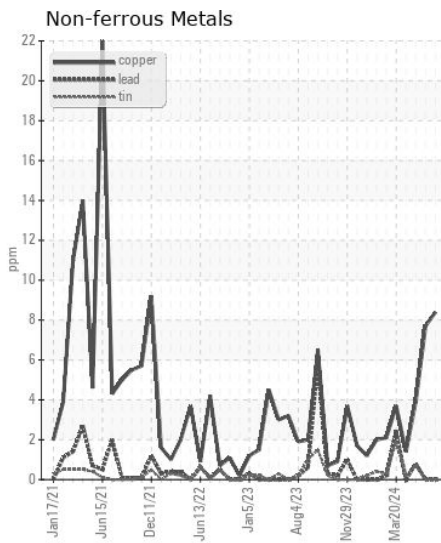
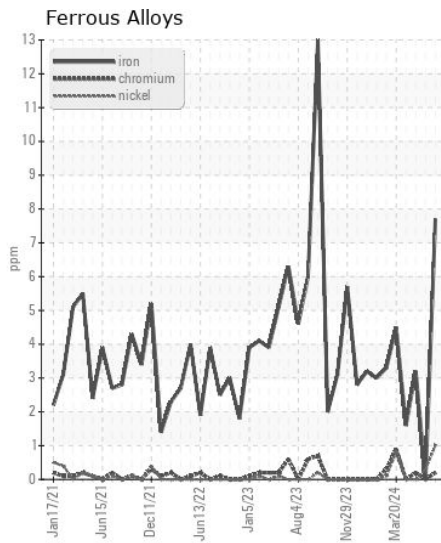
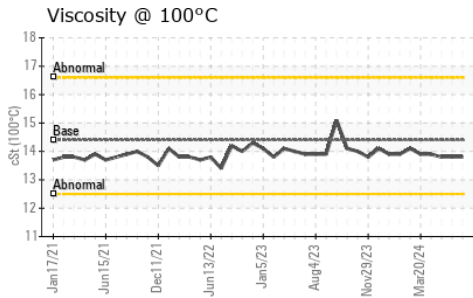
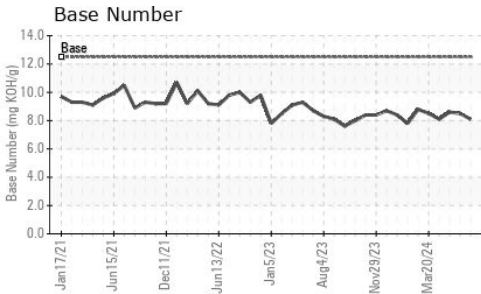
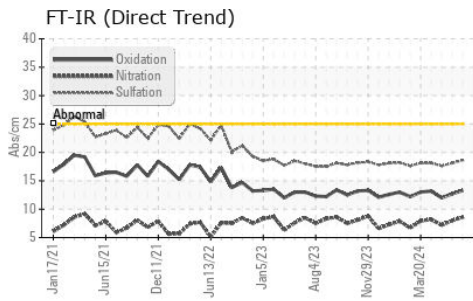
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	5	3	4
Potassium	ppm	ASTM D5185m	>20	6	5	3
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.2	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	8.6	8.0	7.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.6	18.1	17.6
Silt	scalar	*Visual	NONE	NONE	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	>0.1	NEG	NEG	NEG

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m	>75	3	4	2
Boron	ppm	ASTM D5185m	151	74	108	92
Barium	ppm	ASTM D5185m	0.4	0	0	0
Molybdenum	ppm	ASTM D5185m	250	29	25	26
Manganese	ppm	ASTM D5185m		1	1	<1
Magnesium	ppm	ASTM D5185m	0	792	710	730
Calcium	ppm	ASTM D5185m	2046	1582	1562	1614
Phosphorus	ppm	ASTM D5185m	1043	764	686	758
Zinc	ppm	ASTM D5185m	943	891	796	825
Sulfur	ppm	ASTM D5185m	5012	3799	3374	3705
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.3	12.7	12.0
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	8.1	8.5	8.6
Visc @ 100°C	cSt	ASTM D445	14.4	13.8	13.8	13.8



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : MW0067367

Lab Number : 06223059

Unique Number : 11101256

Test Package : MAR 2

Received : 27 Jun 2024

Tested : 28 Jun 2024

Diagnosed : 30 Jun 2024 - Don Baldrige

MAGNOLIA MARINE TRANSPORT

697 HAINING ROAD

VICKSBURG, MS

US 39183

Contact: MMT MAINTENANCE PLANNERS

mmtmaintenanceplanners@ergon.com

T: x:

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

F: (601)638-8028