



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		MW0058210	MW0058214	MW0058206
Sample Date		Client Info		06 Feb 2024	16 Jan 2024	22 Dec 2023
Machine Age	hrs	Client Info		41849	41378	40000
Oil Age	hrs	Client Info		1084	476	146
Filter Age	hrs	Client Info		373	476	146
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Filter Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

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

CONTAMINATION

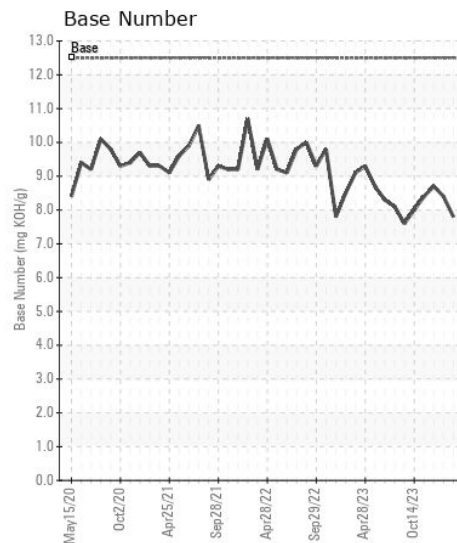
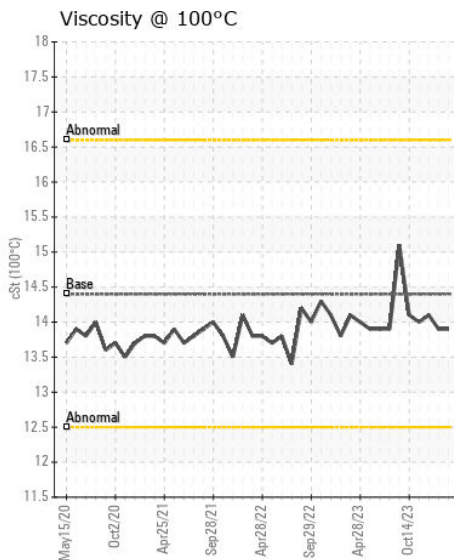
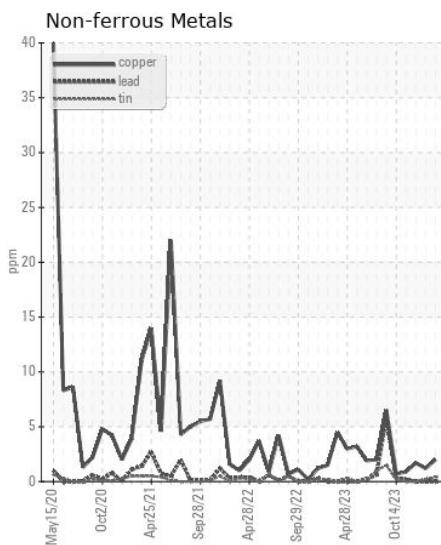
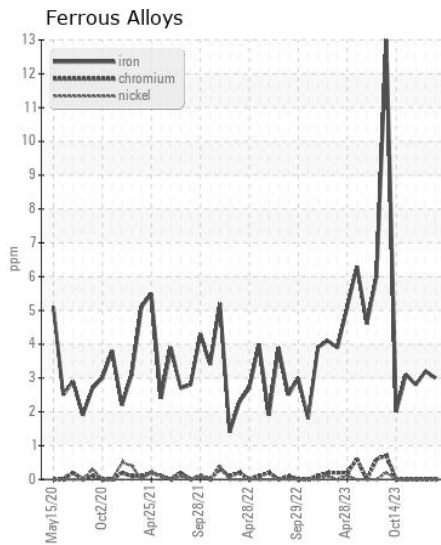
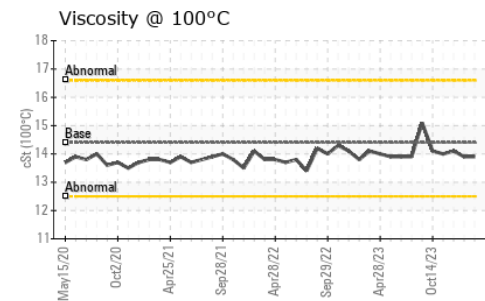
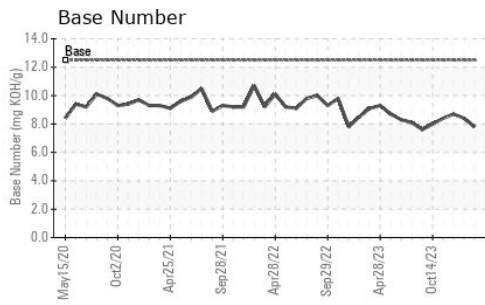
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	4	3	4
Potassium	ppm	ASTM D5185m	>20	2	1	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		0.1	0.1	0
Nitration	Abs/cm	*ASTM D7624	>20	7.9	7.3	6.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.2	18.1	17.8
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 suitable for further service.

Sodium	ppm	ASTM D5185m	>75	2	1	2
Boron	ppm	ASTM D5185m	151	86	91	93
Barium	ppm	ASTM D5185m	0.4	0	0	0
Molybdenum	ppm	ASTM D5185m	250	26	26	29
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	0	697	683	676
Calcium	ppm	ASTM D5185m	2046	1390	1455	1537
Phosphorus	ppm	ASTM D5185m	1043	697	655	697
Zinc	ppm	ASTM D5185m	943	775	800	784
Sulfur	ppm	ASTM D5185m	5012	3000	2998	3072
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.0	12.6	12.1
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	7.8	8.4	8.7
Visc @ 100°C	cSt	ASTM D445	14.4	13.9	13.9	14.1



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0058210
Lab Number : 06089355
Unique Number : 10876800
Test Package : MAR 2

Received : 14 Feb 2024
Tested : 15 Feb 2024
Diagnosed : 16 Feb 2024 - Don Baldrige

MAGNOLIA MARINE TRANSPORT
 697 HAINING ROAD
 VICKSBURG, MS
 US 39183
 Contact: MMT MAINTENANCE PLANNERS
 mmtmaintenanceplanners@ergon.com

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)

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