



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		MW0058214	MW0058206	MW0058267
Sample Date		Client Info		16 Jan 2024	22 Dec 2023	05 Nov 2023
Machine Age	hrs	Client Info		41378	40000	40073
Oil Age	hrs	Client Info		476	146	650
Filter Age	hrs	Client Info		476	146	650
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Filter Changed		Client Info		Not Changd	Changed	Not Changd
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	<1
Copper	ppm	ASTM D5185m	>80	1	2	<1
Tin	ppm	ASTM D5185m	>14	<1	0	0
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

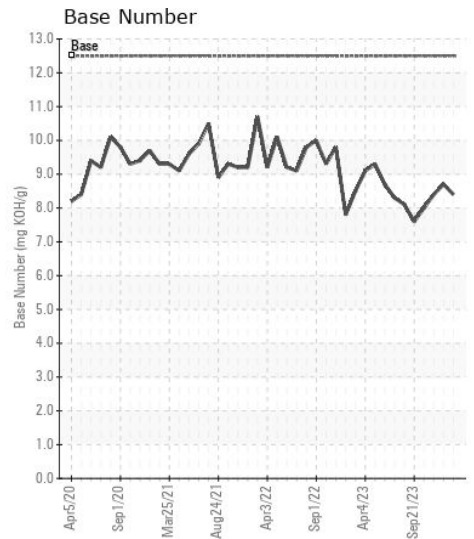
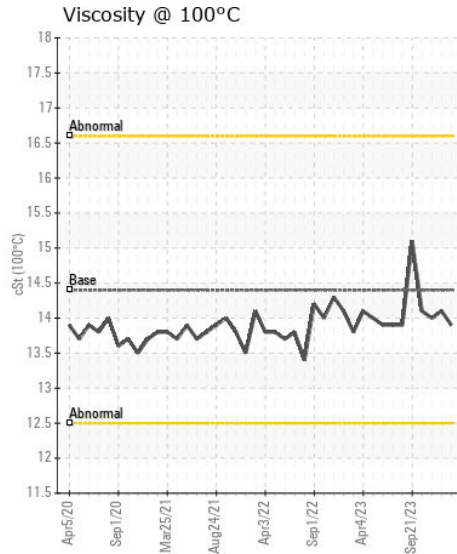
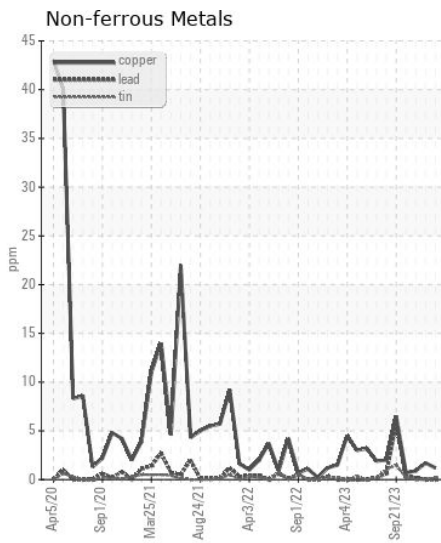
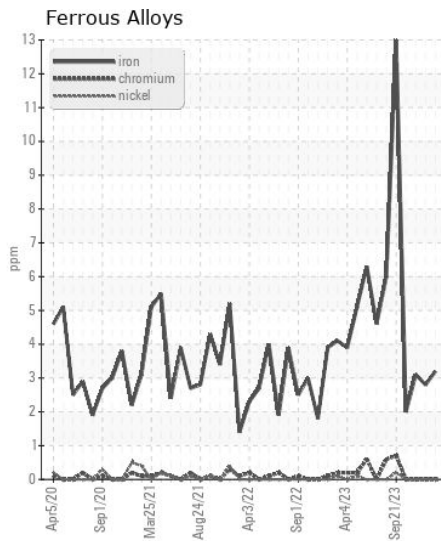
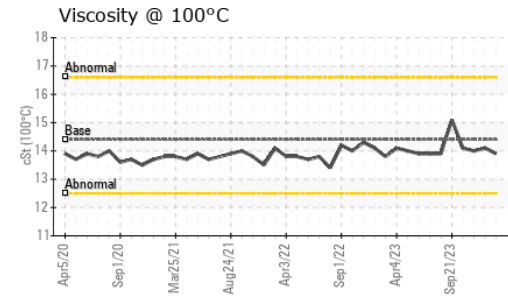
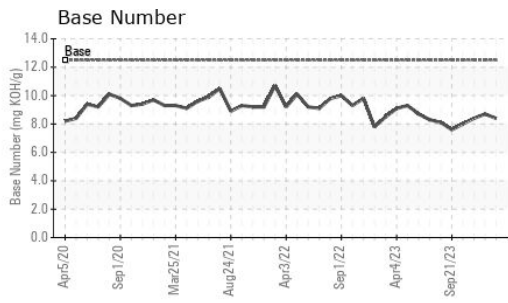
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	3	4	4
Potassium	ppm	ASTM D5185m	>20	1	3	2
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	0.1
Nitration	Abs/cm	*ASTM D7624	>20	7.3	6.6	8.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.1	17.8	18.2
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	1	2	1
Boron	ppm	ASTM D5185m	151	91	93	101
Barium	ppm	ASTM D5185m	0.4	0	0	0
Molybdenum	ppm	ASTM D5185m	250	26	29	31
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m	0	683	676	821
Calcium	ppm	ASTM D5185m	2046	1455	1537	1763
Phosphorus	ppm	ASTM D5185m	1043	655	697	827
Zinc	ppm	ASTM D5185m	943	800	784	1010
Sulfur	ppm	ASTM D5185m	5012	2998	3072	3711
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.6	12.1	13.2
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	8.4	8.7	8.4
Visc @ 100°C	cSt	ASTM D445	14.4	13.9	14.1	14.0



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0058214 **Received** : 30 Jan 2024
Lab Number : 06074496 **Diagnosed** : 31 Jan 2024
Unique Number : 10856587 **Diagnostician** : Sean Felton
Test Package : MAR 2

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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)