MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL

Area
JAMES L HAMILTON
Machine Id
[JAMES L HAMILTON] 001 572403-1
Component
Port Main Engine
Fluid
CHEVRON DELO 710 LS (220 GAL)

RECOMMENDATION

We advise that you check for possible coolant leak. We recommend an early resample to monitor this condition.

WEAR

All component wear rates are normal.

CONTAMINATION

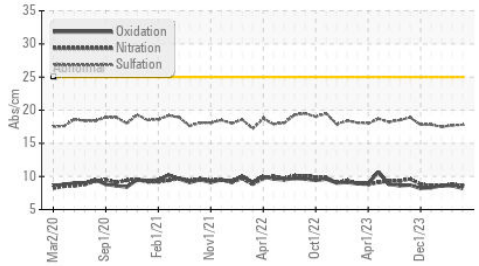
The high sodium (Na) level indicates the possible presence of salt water. Elemental level of sodium (Na) and/or boron (B) indicates a possible cooling water leak.

FLUID CONDITION

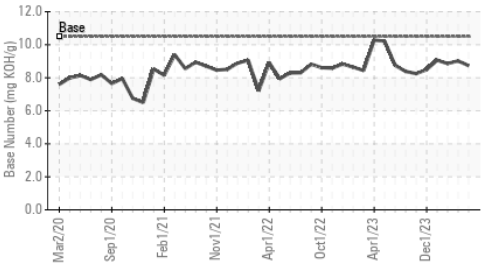
The BN result indicates that there is suitable alkalinity remaining in the oil.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW06146770	MW0064627	MW0064655
Sample Date		Client Info		01 Apr 2024	01 Mar 2024	04 Feb 2024
Machine Age	hrs	Client Info		61660	60950	60360
Oil Age	hrs	Client Info		61660	0	60360
Filter Age	hrs	Client Info		0	0	154
Oil Changed		Client Info		N/A	N/A	Not Changd
Filter Changed		Client Info		N/A	N/A	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>75	24	20	20
Chromium	ppm	ASTM D5185m	>8	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	<1	1	1
Lead	ppm	ASTM D5185m	>18	6	5	6
Copper	ppm	ASTM D5185m	>80	28	26	26
Tin	ppm	ASTM D5185m	>14	4	4	5
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	LIGHT	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>20	8	6	6
Potassium	ppm	ASTM D5185m	>20	4	2	2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1	1	0.9
Nitration	Abs/cm	*ASTM D7624	>20	8.6	8.8	8.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.8	17.7	17.5
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
Sodium	ppm	ASTM D5185m	>75	▲ 119	65	65
Boron	ppm	ASTM D5185m		53	37	44
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		49	39	43
Manganese	ppm	ASTM D5185m		<1	1	1
Magnesium	ppm	ASTM D5185m		16	11	23
Calcium	ppm	ASTM D5185m		3713	2686	2902
Phosphorus	ppm	ASTM D5185m		3	3	11
Zinc	ppm	ASTM D5185m		0	0	4
Sulfur	ppm	ASTM D5185m		3035	2159	2361
Oxidation	Abs/.1mm	*ASTM D7414	>25	8.2	8.6	8.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	8.73	9.02	8.86
Visc @ 100°C	cSt	ASTM D445	15.5	14.4	14.3	14.4

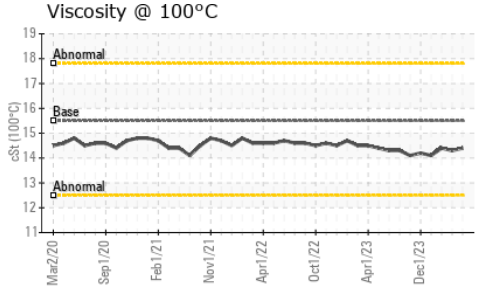
FT-IR (Direct Trend)



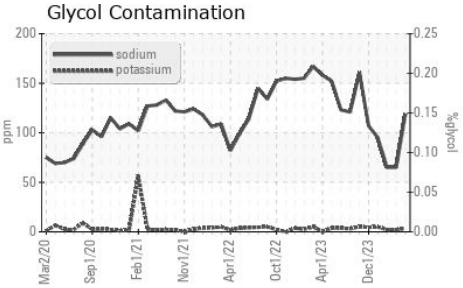
Base Number



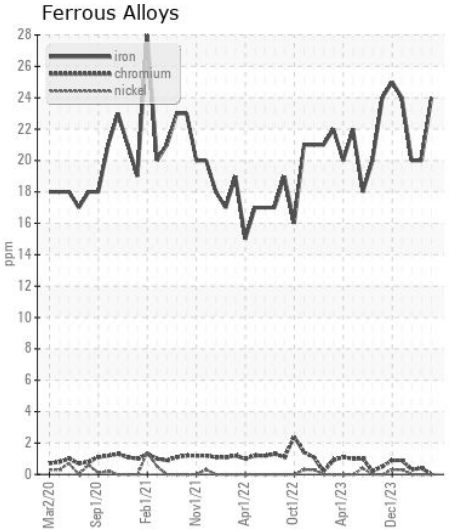
Viscosity @ 100°C



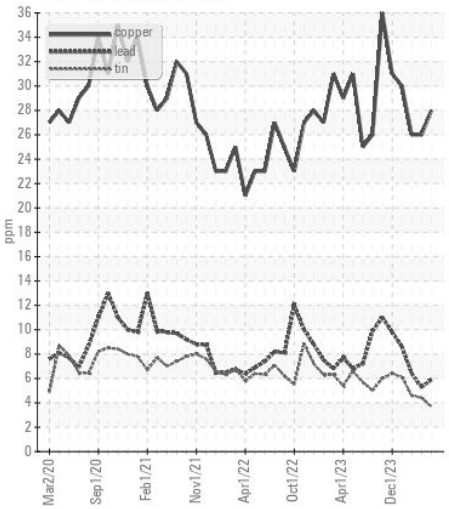
Glycol Contamination



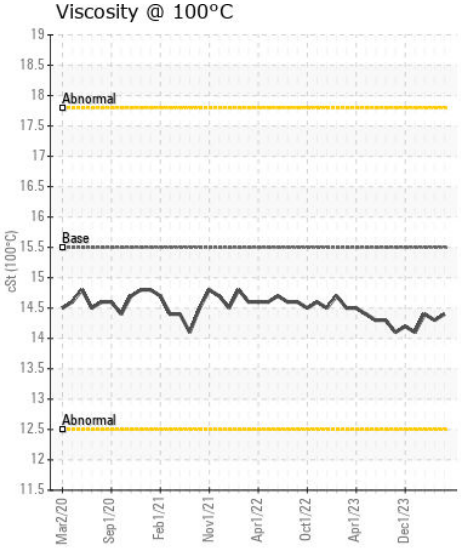
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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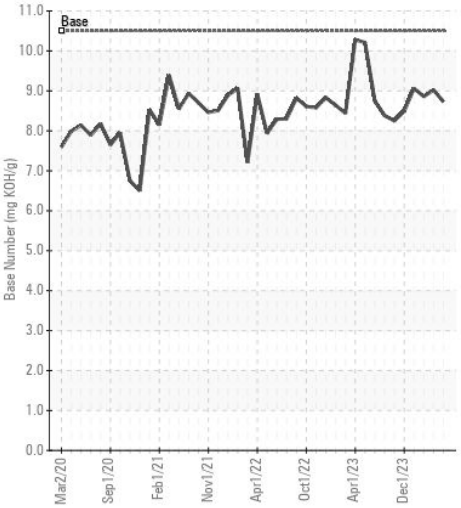

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW06146770 **Received** : 11 Apr 2024
Lab Number : 06146770 **Tested** : 16 Apr 2024
Unique Number : 10976848 **Diagnosed** : 16 Apr 2024 - Jonathan Hester
Test Package : MAR 2 (Additional Tests: Glycol)

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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