MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
HAL PANNELL (S/N 81-M1-1072)
Component
Port Main Engine
Fluid
CHEVRON DELO 710 LS (380 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

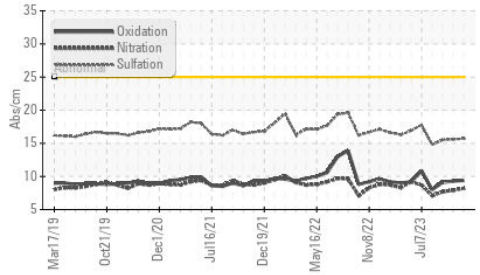
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

FLUID CONDITION

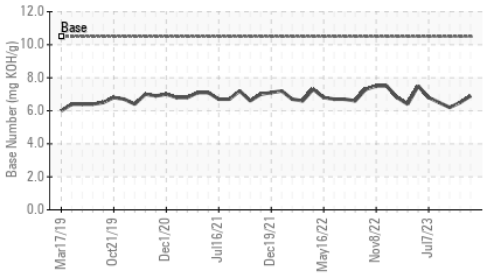
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0062361	MW0066506	MW0066518
Sample Date		Client Info		16 Mar 2024	14 Feb 2024	16 Jan 2024
Machine Age	hrs	Client Info		3155	2387	2002
Oil Age	hrs	Client Info		3155	2387	1112
Filter Age	hrs	Client Info		924	156	1112
Oil Changed		Client Info		N/A	Not Changd	N/A
Filter Changed		Client Info		N/A	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>75	14	16	19
Chromium	ppm	ASTM D5185m	>8	<1	<1	2
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>3	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	<1
Lead	ppm	ASTM D5185m	>18	4	5	6
Copper	ppm	ASTM D5185m	>80	19	20	24
Tin	ppm	ASTM D5185m	>14	10	11	12
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>20	3	3	6
Potassium	ppm	ASTM D5185m	>20	3	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	>3	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	8.2	7.9	7.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	15.7	15.6	15.5
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	<1	2	0
Boron	ppm	ASTM D5185m		39	42	44
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		47	47	49
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		25	15	22
Calcium	ppm	ASTM D5185m		3578	3448	3485
Phosphorus	ppm	ASTM D5185m		10	2	24
Zinc	ppm	ASTM D5185m		8	2	0
Sulfur	ppm	ASTM D5185m		2258	2191	2247
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.4	9.3	9.1
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	6.9	6.5	6.2
Visc @ 100°C	cSt	ASTM D445	15.5	14.4	14.1	14.2

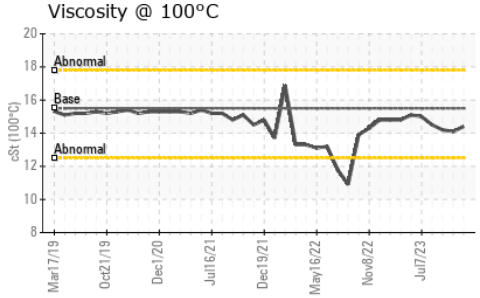
FT-IR (Direct Trend)



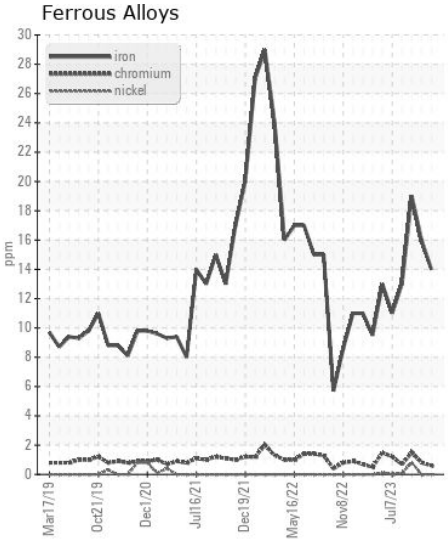
Base Number



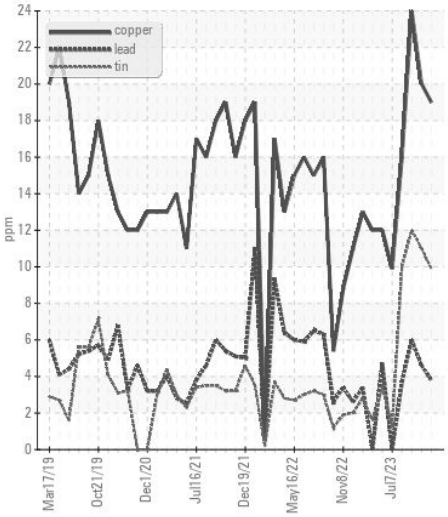
Viscosity @ 100°C



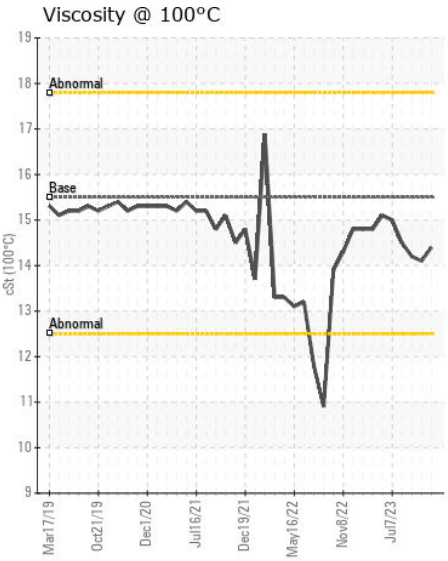
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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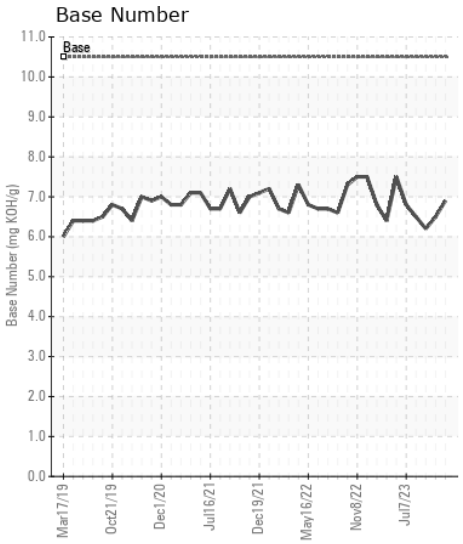

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0062361
Lab Number : 06151812
Unique Number : 10981890
Test Package : MAR 2

Received : 17 Apr 2024
Tested : 18 Apr 2024
Diagnosed : 18 Apr 2024 - Wes Davis

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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