MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
WILLARD HAMMOND
Machine Id
[WILLARD HAMMOND] 010 587215-10
Component
Steering
Fluid
NEPTUNE AW 46 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

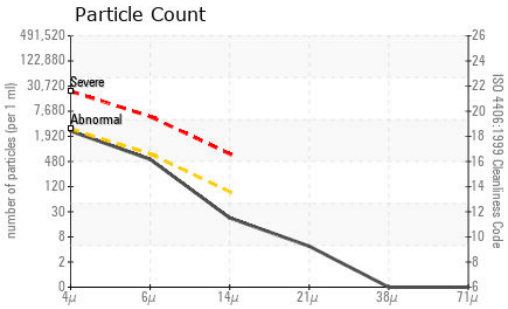
CONTAMINATION

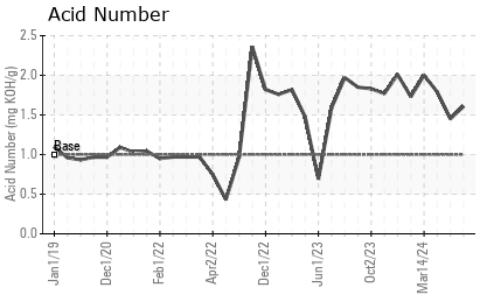
The amount and size of particulates present in the system are acceptable.

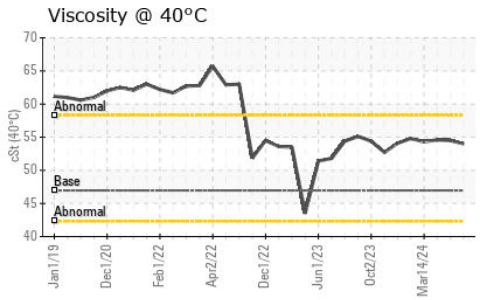
FLUID CONDITION

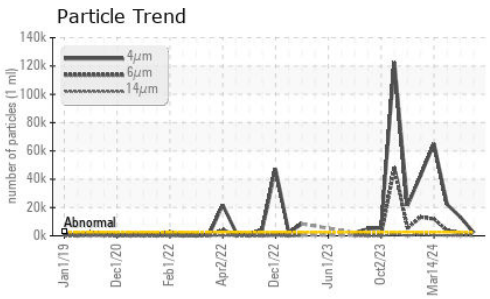
The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

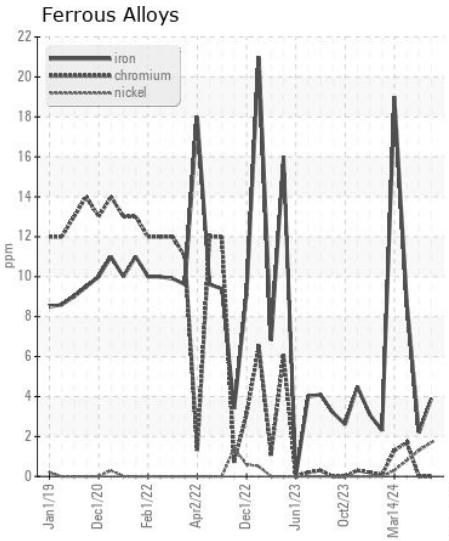
Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0072272	MW0070933	MW0068075
Sample Date		Client Info		01 Jun 2024	01 May 2024	31 Mar 2024
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	12822
Filter Age	hrs	Client Info		0	0	12822
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	ABNORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>50	4	2	9
Chromium	ppm	ASTM D5185m	>15	0	0	2
Nickel	ppm	ASTM D5185m	>5	2	1	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m		<1	<1	0
Aluminum	ppm	ASTM D5185m	>5	1	1	1
Lead	ppm	ASTM D5185m	>10	<1	1	6
Copper	ppm	ASTM D5185m	>50	7	5	7
Tin	ppm	ASTM D5185m	>5	0	<1	1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>15	1	1	<1
Potassium	ppm	ASTM D5185m	>20	5	5	3
Water		WC Method	>0.2	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>2500	2246	▲ 13263	▲ 22073
Particles >6µm		ASTM D7647	>640	475	▲ 2190	▲ 3750
Particles >14µm		ASTM D7647	>80	19	▲ 152	▲ 208
Particles >21µm		ASTM D7647	>20	4	▲ 51	▲ 54
Particles >38µm		ASTM D7647	>4	0	4	2
Particles >71µm		ASTM D7647	>3	0	0	0
Oil Cleanliness		ISO 4406 (c)	>18/16/13	18/16/11	▲ 21/18/14	▲ 22/19/15
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	>0.2	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m		4	3	16
Boron	ppm	ASTM D5185m		12	5	0
Barium	ppm	ASTM D5185m		0	0	<1
Molybdenum	ppm	ASTM D5185m		0	0	1
Manganese	ppm	ASTM D5185m		1	<1	1
Magnesium	ppm	ASTM D5185m		5	4	2
Calcium	ppm	ASTM D5185m		18	9	87
Phosphorus	ppm	ASTM D5185m		409	367	115
Zinc	ppm	ASTM D5185m		152	126	51
Sulfur	ppm	ASTM D5185m		674	487	1158
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	1.61	1.45	1.79
Visc @ 40°C	cSt	ASTM D445	46.96	54.0	54.5	54.6

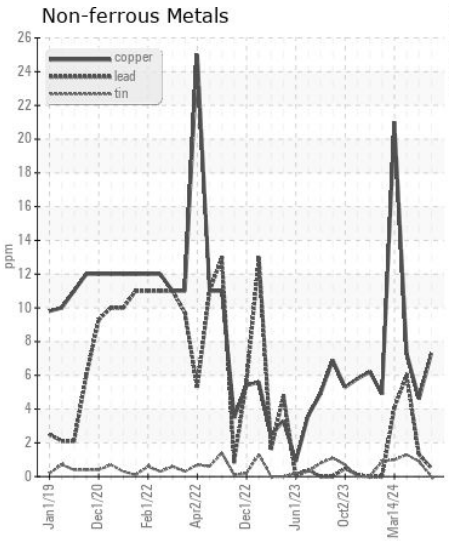


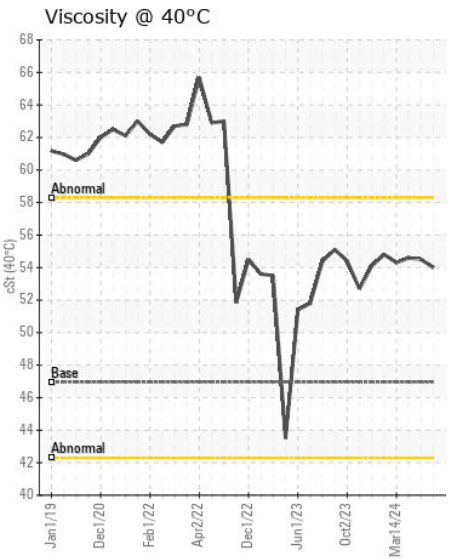


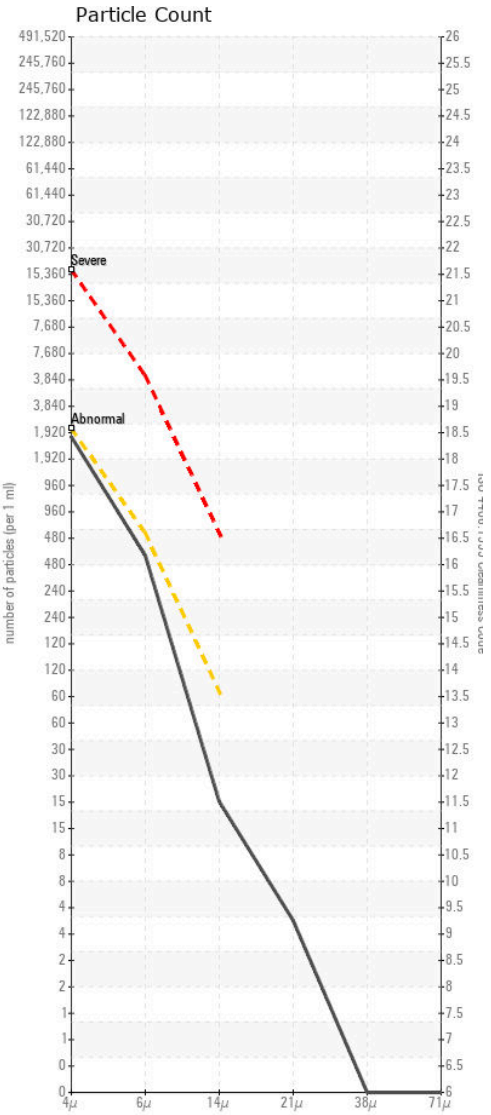


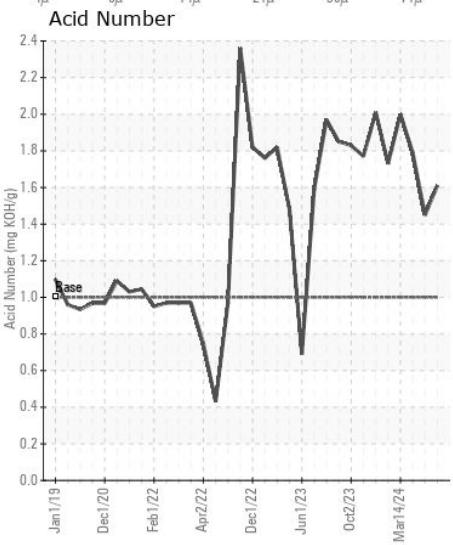












Certificate L2367

Laboratory	: WearCheck USA - 501 Madison Ave., Cary, NC 27513		
Sample No.	: MW0072272	**Received**	: 28 Jun 2024
Lab Number	: 06223988	**Tested**	: 01 Jul 2024
Unique Number	: 11102185	**Diagnosed**	: 01 Jul 2024 - Angela Borella
Test Package	: MAR 2 (Additional Tests: PrtCount)		

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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