MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	NORMAL

Machine Id
SIGNET WARHORSE I - CPP UNIT
Component
Starboard Hydraulic System
Fluid
CHEVRON MEROPA 68 (96 GAL)

RECOMMENDATION

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. The filter change at the time of sampling has been noted. Resample in 30-45 days to monitor this situation.

WEAR

All component wear rates are normal.

CONTAMINATION

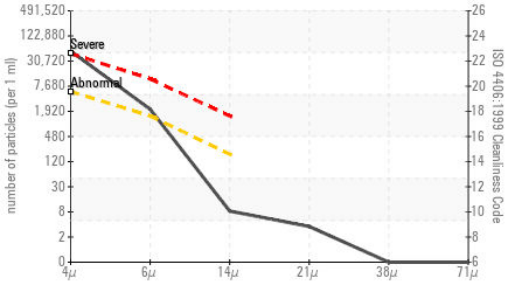
There is a high amount of silt (particulates < 14 microns in size) present in the oil.

FLUID CONDITION

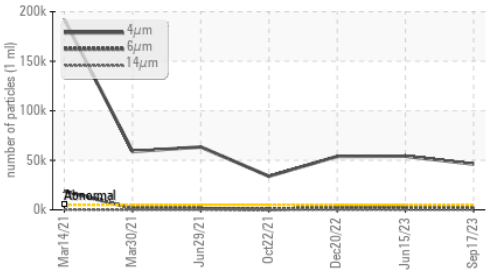
The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0052064	MW0052067	MW0045587
Sample Date		Client Info		17 Sep 2023	15 Jun 2023	20 Dec 2022
Machine Age	hrs	Client Info		0	7890	0
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	Not Changd	N/A
Filter Changed		Client Info		Changed	Changed	N/A
Sample Status				SEVERE	SEVERE	ABNORMAL
Iron	ppm	ASTM D5185m	>20	<1	2	1
Chromium	ppm	ASTM D5185m	>10	0	0	0
Nickel	ppm	ASTM D5185m	>10	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	0	1	<1
Lead	ppm	ASTM D5185m	>20	3	4	4
Copper	ppm	ASTM D5185m	>20	5	5	4
Tin	ppm	ASTM D5185m	>10	0	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
Silicon	ppm	ASTM D5185m	>15	<1	<1	<1
Potassium	ppm	ASTM D5185m	>20	<1	<1	0
Water		WC Method	>0.05	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>5000	▲ 46125	▲ 54129	▲ 53917
Particles >6µm		ASTM D7647	>1300	● 1887	▲ 3469	▲ 2938
Particles >14µm		ASTM D7647	>160	7	4	127
Particles >21µm		ASTM D7647	>40	3	0	24
Particles >38µm		ASTM D7647	>10	0	0	2
Particles >71µm		ASTM D7647	>3	0	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ 23/18/10	▲ 23/19/9	▲ 23/19/14
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	>0.05	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m		<1	1	<1
Boron	ppm	ASTM D5185m	0	6	7	5
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	0	0	<1	<1
Manganese	ppm	ASTM D5185m		0	<1	0
Magnesium	ppm	ASTM D5185m	0	2	2	<1
Calcium	ppm	ASTM D5185m	0	8	18	10
Phosphorus	ppm	ASTM D5185m	200	253	260	269
Zinc	ppm	ASTM D5185m	100	113	124	122
Sulfur	ppm	ASTM D5185m	3500	4244	5174	5159
Acid Number (AN)	mg KOH/g	ASTM D8045		0.31	0.45	0.451
Visc @ 40°C	cSt	ASTM D445	64.6	66.8	66.5	67.0

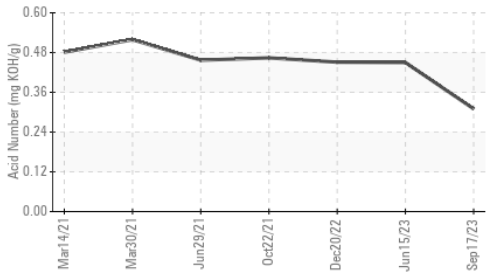
Particle Count



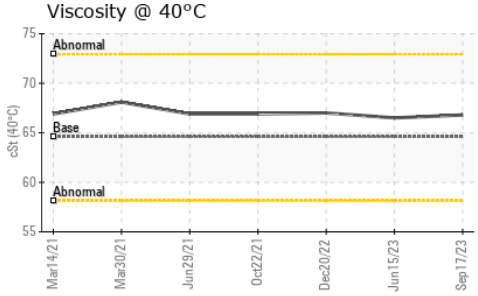
Particle Trend



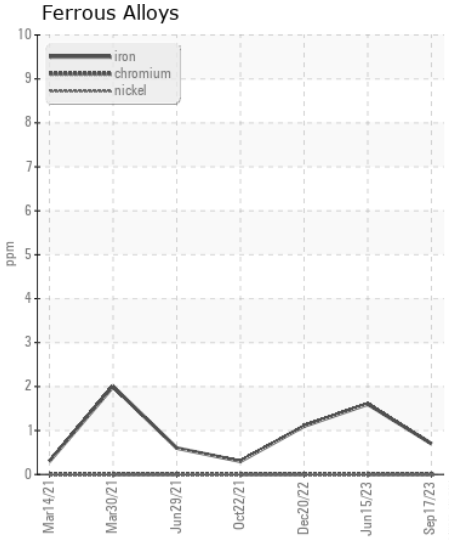
Acid Number



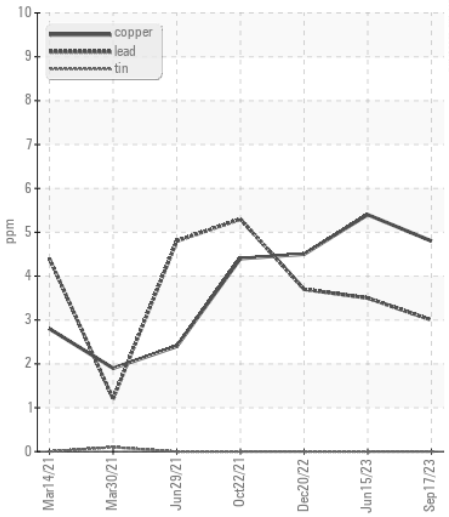
Viscosity @ 40°C



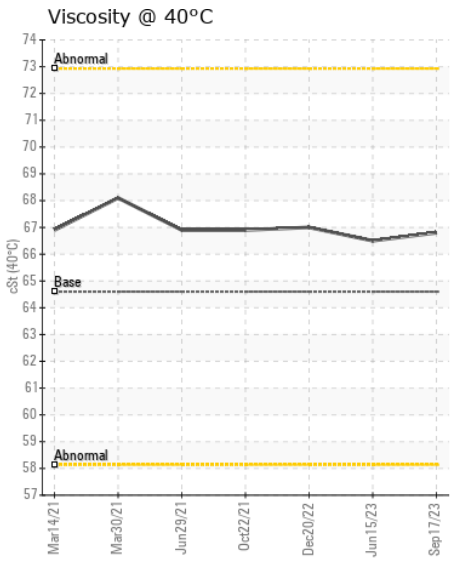
Ferrous Alloys



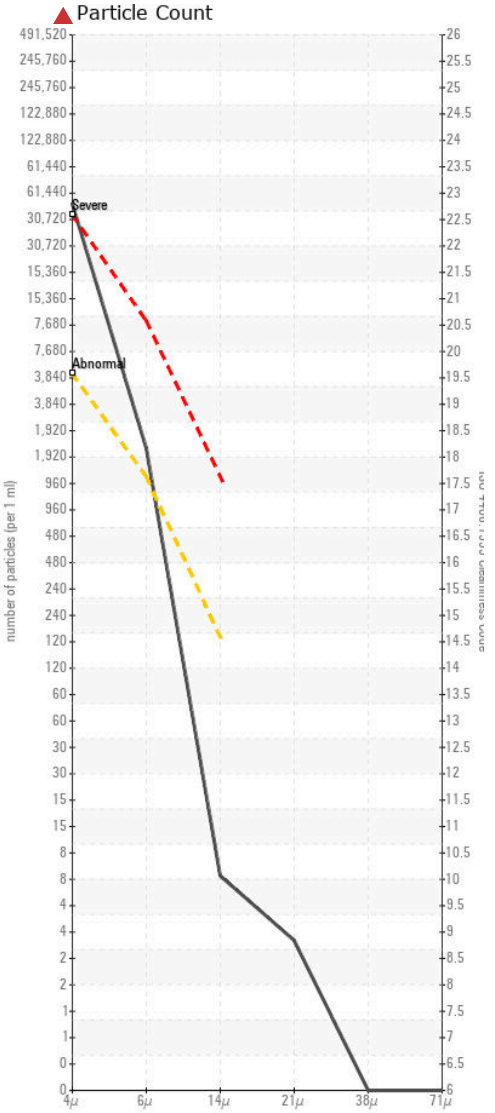
Non-ferrous Metals



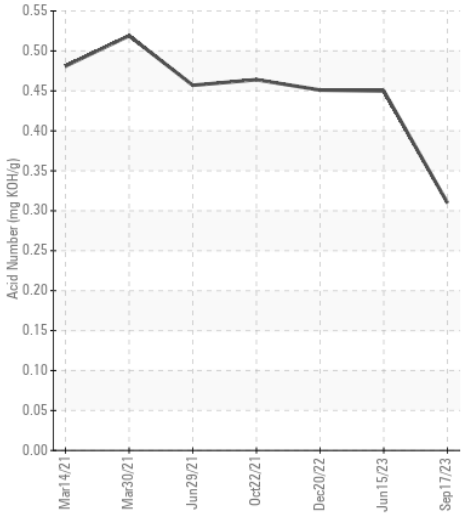
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory	: WearCheck USA - 501 Madison Ave., Cary, NC 27513		
Sample No.	: MW0052064	**Received**	: 12 Oct 2023
Lab Number	: 05977027	**Tested**	: 13 Oct 2023
Unique Number	: 10688977	**Diagnosed**	: 13 Oct 2023 - Wes Davis
Test Package	: MAR 2		

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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