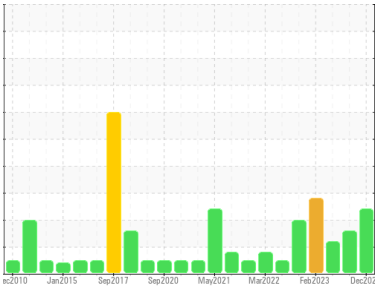
PROBLEM SUMMARY

Sample Rating Trend

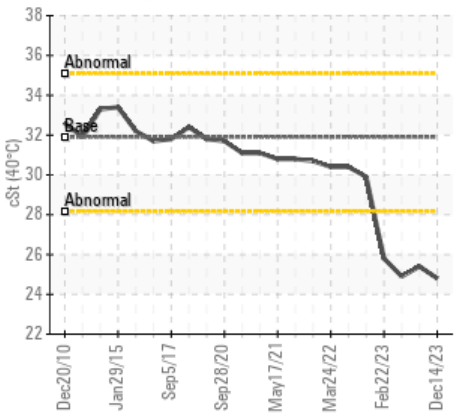


VISCOSITY

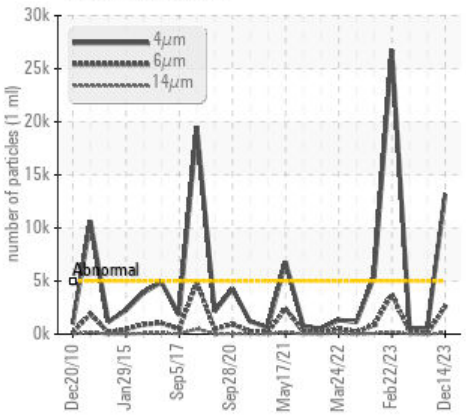
Area
System 71 - Main Power Generation
Machine Id
Z-7101B Hydraulic Start Oil Train B
Component
Hydraulic System
Fluid
IRVING HYDRAULIC OIL LP 32 (290 LTR)

COMPONENT CONDITION SUMMARY

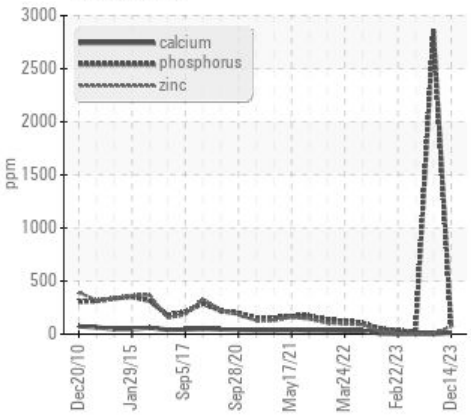
Viscosity @ 40°C



Particle Trend



Additives



RECOMMENDATION

We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL
Phosphorus	ppm	ASTM D5185(m)		▲ **75**	▲ 2862	▲ 26
Zinc	ppm	ASTM D5185(m)	400	▲ **73**	▲ 2	▲ 6
Particles >4µm		ASTM D7647	>5000	▲ **13163**	581	533
Particles >6µm		ASTM D7647	>1300	▲ **2600**	97	225
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **21/19/14**	16/14/10	16/15/12
Visc @ 40°C	cSt	ASTM D7279(m)	31.9	▲ **24.8**	▲ 25.4	▲ 24.9

Customer Id: HIBSTJ
Sample No.: PP
Lab Number: 02603496
Test Package: MAR 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

To change component or sample information:
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.

HISTORICAL DIAGNOSIS

31 Aug 2023 Diag: Kevin Marson

VISCOSITY

Due to this condition we recommend the following action... We advise an early resample to confirm this situation. NOTE: The current sample results do not match this units historical trend, indicating the sample may not be from this component/unit.All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. Viscosity of sample indicates oil is within ISO 22 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported.

view report

02 Jun 2023 Diag: Kevin Marson

VISCOSITY

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable. Viscosity of sample indicates oil is within ISO 22 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

22 Feb 2023 Diag: Kevin Marson

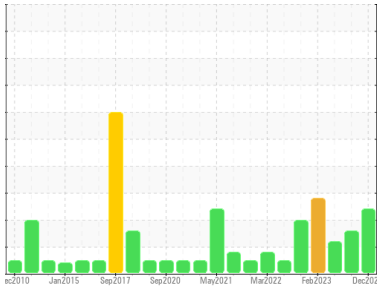
VISCOSITY

We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.All component wear rates are normal. Oil Cleanliness are abnormally high. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high. The water content is negligible. Viscosity of sample indicates oil is within ISO 22 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Area
System 71 - Main Power Generation
Machine Id
Z-7101B Hydraulic Start Oil Train B
Component
Hydraulic System
Fluid
IRVING HYDRAULIC OIL LP 32 (290 LTR)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible.

Fluid Condition

Viscosity of sample indicates oil is within ISO 22 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PP**	PP	PP
Sample Date		Client Info		**14 Dec 2023**	31 Aug 2023	02 Jun 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	**0**	0	<1
Chromium	ppm	ASTM D5185(m)	>10	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>10	**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>10	**0**	<1	<1
Lead	ppm	ASTM D5185(m)	>20	**4**	0	4
Copper	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Tin	ppm	ASTM D5185(m)	>10	**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

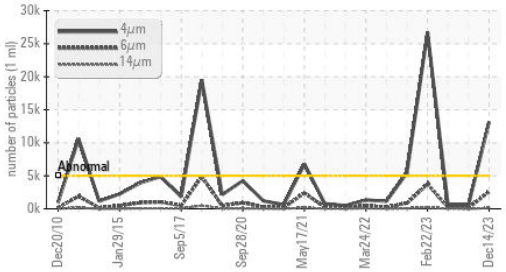
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**<1**	0	<1
Barium	ppm	ASTM D5185(m)		**<1**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**0**	0	0
Calcium	ppm	ASTM D5185(m)		**14**	<1	2
Phosphorus	ppm	ASTM D5185(m)		▲ **75**	▲ 2862	▲ 26
Zinc	ppm	ASTM D5185(m)	400	▲ **73**	▲ 2	▲ 6
Sulfur	ppm	ASTM D5185(m)		**1932**	▲ 2	2130
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**1**	0	<1
Sodium	ppm	ASTM D5185(m)		**<1**	<1	<1
Potassium	ppm	ASTM D5185(m)	>20	**0**	0	<1
Water	%	ASTM D6304*	>0.05	**0.003**	0.100	0.002
ppm Water	ppm	ASTM D6304*	>500	**35**	1003.1	23.7

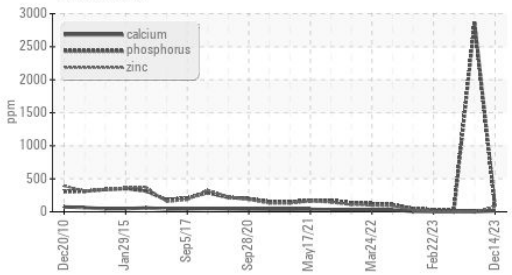
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **13163**	581	533
Particles >6µm		ASTM D7647	>1300	▲ **2600**	97	225
Particles >14µm		ASTM D7647	>160	**121**	7	31
Particles >21µm		ASTM D7647	>40	**32**	2	10
Particles >38µm		ASTM D7647	>10	**3**	0	1
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **21/19/14**	16/14/10	16/15/12

OIL ANALYSIS REPORT

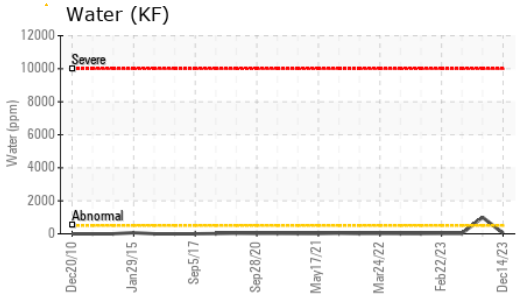
Particle Trend



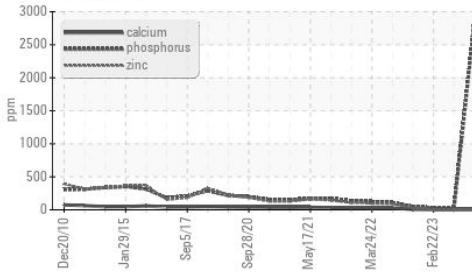
Additives



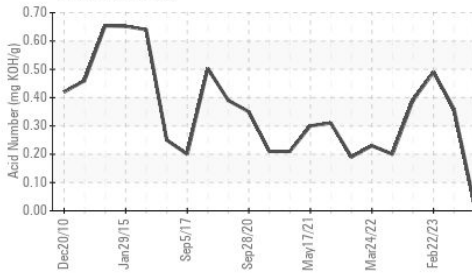
Water (KF)



Additives



Acid Number

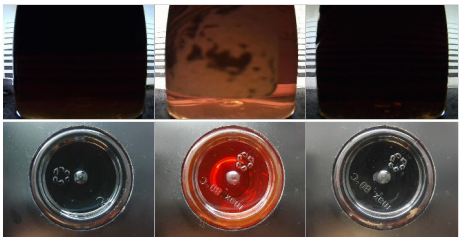


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**0.48**	0.02	0.36

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**VLITE**	NONE	LIGHT
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
Free Water	scalar	Visual*		**NEG**	NEG	NEG

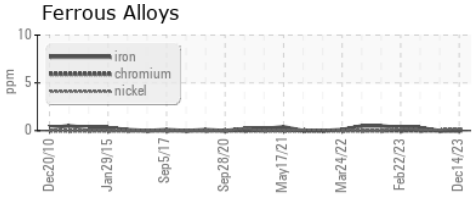
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	31.9	▲ **24.8**	▲ 25.4	▲ 24.9

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

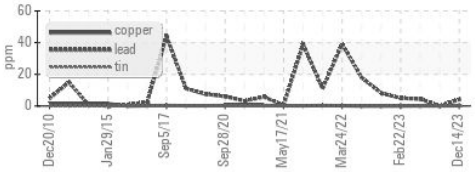


GRAPHS

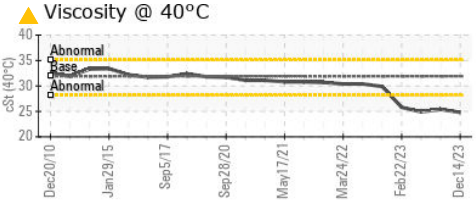
Ferrous Alloys



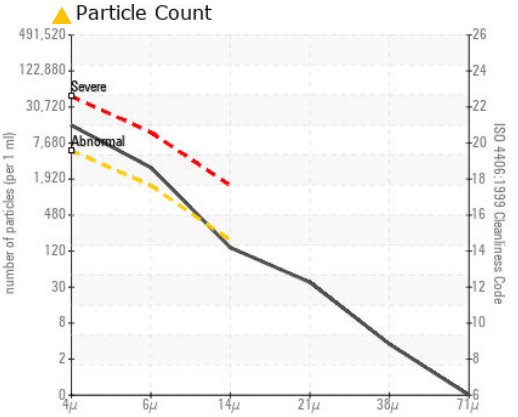
Non-ferrous Metals



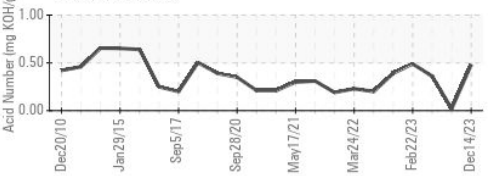
Viscosity @ 40°C



Particle Count



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PP
Lab Number : 02603496
Unique Number : 5696581
Test Package : MAR 2 (Additional Tests: KF)

Recieved : 15 Dec 2023
Diagnosed : 18 Dec 2023
Diagnostician : Kevin Marson

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

HIBERNIA MGMT & DEVELOPMENT CO. LTD
SUITE 1000,, 100 NEW GOWER STREET
ST.JOHNS, NL
CA A1C 6K3
Contact: Christopher Michelau
christopher.j.michelau@exxonmobil.com
T:
F: (709)722-3766