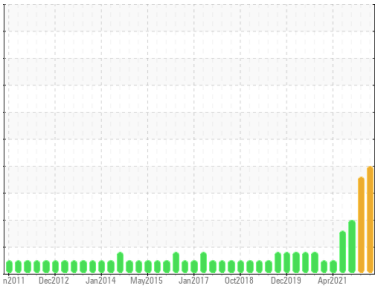
PROBLEM SUMMARY

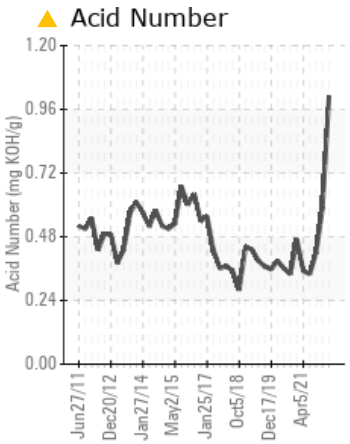
Sample Rating Trend

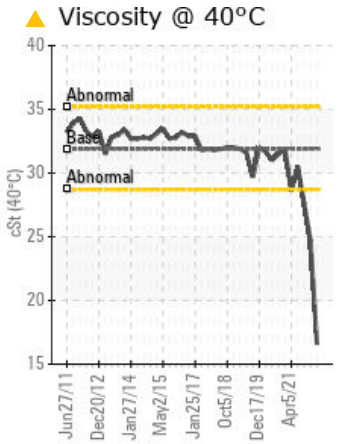


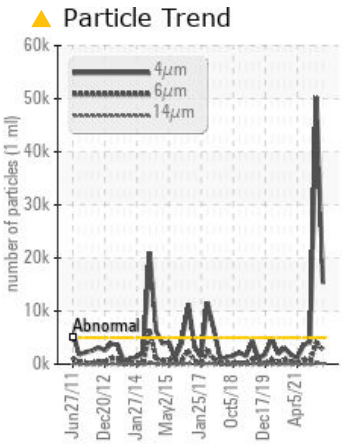
DEGRADATION

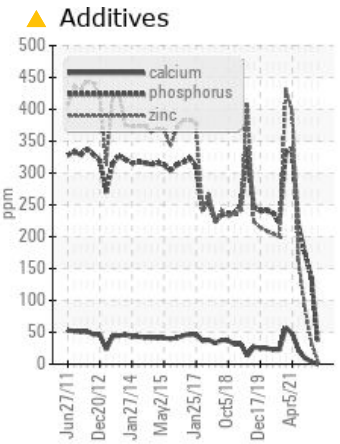
Area
System 37 - Crude Loading
Machine Id
G-3701A Pump / Motor Lubricating Oil
Component
Pump
Fluid
IRVING HYDRAULIC OIL LP 32 (1190 LTR)

COMPONENT CONDITION SUMMARY









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**	SEVERE	ABNORMAL
Calcium	ppm	ASTM D5185(m)		▲ **0**	▲ 3	▲ 9
Phosphorus	ppm	ASTM D5185(m)		▲ **33**	▲ 136	173
Zinc	ppm	ASTM D5185(m)	400	▲ **4**	▲ 33	▲ 87
Particles >4µm		ASTM D7647	>5000	▲ **15291**	⬢ 50289	4098
Particles >6µm		ASTM D7647	>1300	▲ **2680**	▲ 4096	559
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **21/19/14**	⬢ 23/19/15	19/16/12
Acid Number (AN)	mg KOH/g	ASTM D974*		▲ **1.01**	0.59	0.42
Visc @ 40°C	cSt	ASTM D7279(m)	31.9	▲ **16.6**	▲ 24.7	▲ 27.6

Customer Id: HIBSTJ
Sample No.: PP
Lab Number: 02531947
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	MISSED	Jan 31 2023	?	We recommend you service the filters on this component.
Resample	MISSED	Jan 31 2023	?	We recommend an early resample to monitor this condition.
Check Fluid Source	MISSED	Jan 31 2023	?	Confirm the source of the lubricant being utilized for top-up/fill.

HISTORICAL DIAGNOSIS

ISO

24 Apr 2022 Diag: Kevin Marson

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. We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation.All component wear rates are normal. Particles >4µm are severely 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 condition of the oil is suitable for further service.

view report

WEAR

29 Dec 2021 Diag: Kevin Marson

Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.Copper ppm levels are marginal. All other 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. The oil viscosity is lower than typical, possibly indicating the addition of lighter grade oil. 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. NOTE: The color of the oil is darker then previous samples.

view report

WEAR

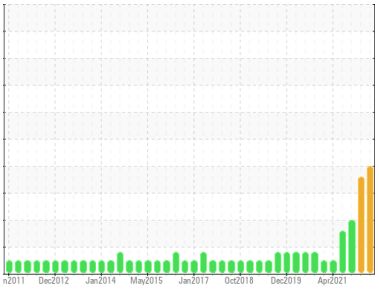
06 Oct 2021 Diag: Kevin Marson

We recommend an early resample to monitor this condition. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.Copper ppm levels are abnormal. Lead ppm levels are noted. A sharp increase in the copper level is noted. An increase in the lead level is noted. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Area
System 37 - Crude Loading
Machine Id
G-3701A Pump / Motor Lubricating Oil
Component
Pump
Fluid
IRVING HYDRAULIC OIL LP 32 (1190 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

Particles >4µm are abnormally high. Particles >6µm and oil cleanliness are abnormally high. The water content is negligible.

Fluid Condition

The AN level is above the recommended limit. Viscosity of sample indicates oil is within ISO 15 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The oil is no longer serviceable.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PP**	PP	PP
Sample Date		Client Info		**05 Dec 2022**	24 Apr 2022	29 Dec 2021
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**	SEVERE	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>75	**<1**	<1	0
Chromium	ppm	ASTM D5185(m)	>5	**0**	0	0
Nickel	ppm	ASTM D5185(m)		**0**	0	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	<1
Aluminum	ppm	ASTM D5185(m)	>5	**0**	0	0
Lead	ppm	ASTM D5185(m)	>10	**0**	<1	2
Copper	ppm	ASTM D5185(m)	>15	**<1**	25	▲ 44
Tin	ppm	ASTM D5185(m)		**0**	0	<1
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

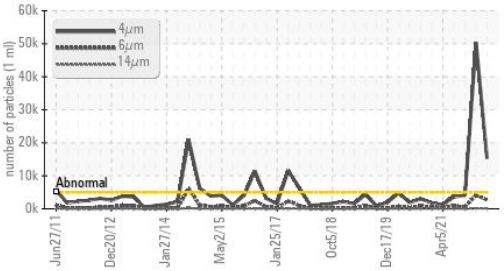
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**<1**	2	1
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**0**	0	<1
Calcium	ppm	ASTM D5185(m)		▲ **0**	▲ 3	▲ 9
Phosphorus	ppm	ASTM D5185(m)		▲ **33**	▲ 136	173
Zinc	ppm	ASTM D5185(m)	400	▲ **4**	▲ 33	▲ 87
Sulfur	ppm	ASTM D5185(m)		**2647**	▲ 2865	2718
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**0**	<1	<1
Sodium	ppm	ASTM D5185(m)		**0**	<1	2
Potassium	ppm	ASTM D5185(m)	>20	**0**	2	4
Water	%	ASTM D6304*		**0.009**	0.004	0.001
ppm Water	ppm	ASTM D6304*	>.1	**94.9**	42.4	13.9

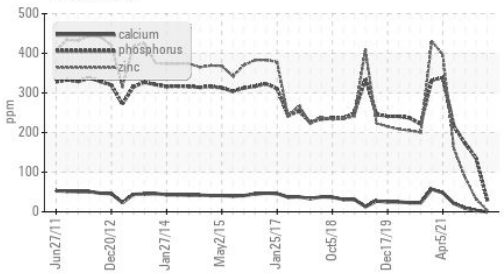
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **15291**	⬢ 50289	4098
Particles >6µm		ASTM D7647	>1300	▲ **2680**	▲ 4096	559
Particles >14µm		ASTM D7647	>160	**116**	▲ 168	27
Particles >21µm		ASTM D7647	>40	**27**	27	6
Particles >38µm		ASTM D7647	>10	**1**	1	0
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **21/19/14**	⬢ 23/19/15	19/16/12

OIL ANALYSIS REPORT

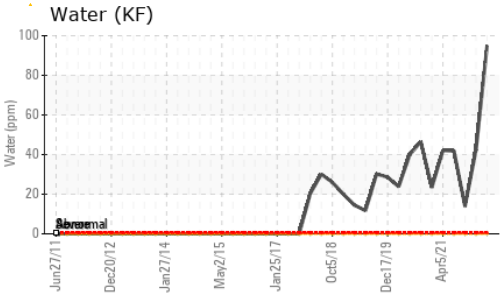
Particle Trend



Additives



Water (KF)

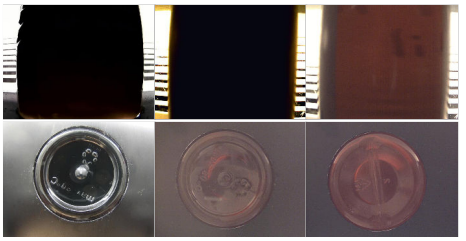


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		▲ **1.01**	0.59	0.42

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	**VLITE**	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*		**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

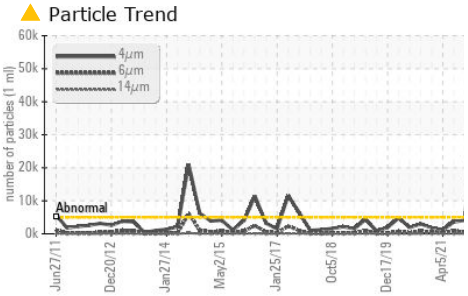
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	31.9	▲ **16.6**	▲ 24.7	▲ 27.6

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

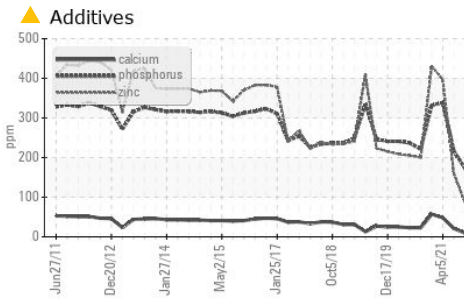


GRAPHS

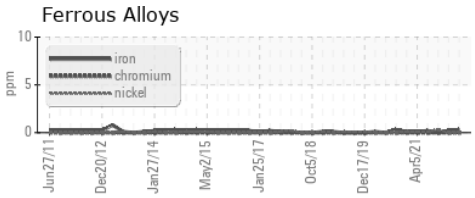
Particle Trend



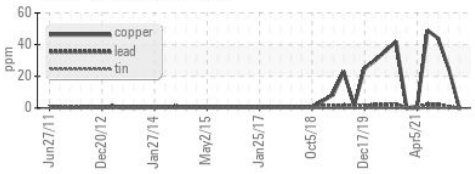
Additives



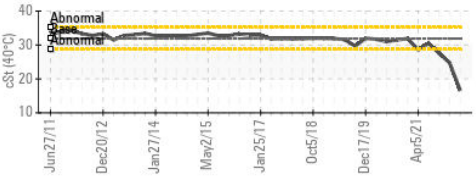
Ferrous Alloys



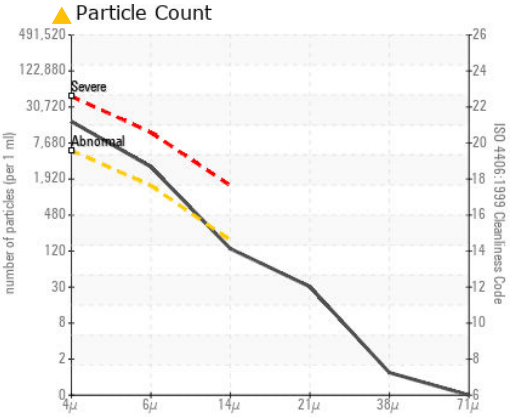
Non-ferrous Metals



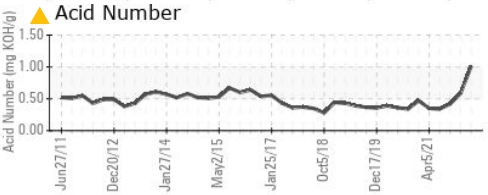
Viscosity @ 40°C



Particle Count



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PP
Lab Number : 02531947
Unique Number : 5512946
Test Package : MAR 2 (Additional Tests: KF, TAN Man)

Received : 09 Jan 2023
Diagnosed : 11 Jan 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.

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Report Id: HIBSTJ [WCAMIS] 02531947 (Generated: 12/14/2023 15:22:05) Rev: 1

Submitted By: ?