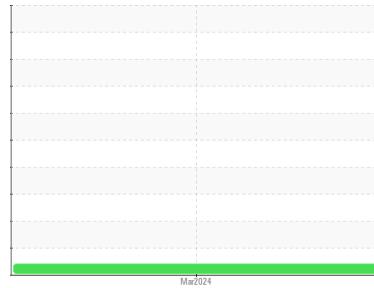




OIL ANALYSIS REPORT

Sample Rating Trend



VIS DEBRIS



Machine Id
141404 - TROPICAL SHIPPING
 Component
Hydraulic System
 Fluid
LIEBHERR HYDRAULIC 37 (--- GAL)

DIAGNOSIS

▲ Recommendation

The filter change at the time of sampling has been noted. Resample at the next service interval to monitor. We were unable to perform a particle count due to a high concentration of particles present in this sample.

Wear

All component wear rates are normal.

▲ Contamination

Moderate concentration of visible dirt/debris present in the oil.

Fluid Condition

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

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		LM0001427	---	---
Sample Date	Client Info		16 Mar 2024	---	---
Machine Age	hrs	Client Info	20172	---	---
Oil Age	hrs	Client Info	0	---	---
Oil Changed	Client Info		Not Changed	---	---
Sample Status			ABNORMAL	---	---

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.1	NEG	---	---

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >20	7	---	---
Chromium	ppm	ASTM D5185m >10	0	---	---
Nickel	ppm	ASTM D5185m >10	0	---	---
Titanium	ppm	ASTM D5185m	0	---	---
Silver	ppm	ASTM D5185m	0	---	---
Aluminum	ppm	ASTM D5185m >10	0	---	---
Lead	ppm	ASTM D5185m >10	0	---	---
Copper	ppm	ASTM D5185m >75	9	---	---
Tin	ppm	ASTM D5185m >10	<1	---	---
Vanadium	ppm	ASTM D5185m	<1	---	---
Cadmium	ppm	ASTM D5185m	0	---	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	---	---
Barium	ppm	ASTM D5185m	0	---	---
Molybdenum	ppm	ASTM D5185m	1	---	---
Manganese	ppm	ASTM D5185m	<1	---	---
Magnesium	ppm	ASTM D5185m	19	---	---
Calcium	ppm	ASTM D5185m	91	---	---
Phosphorus	ppm	ASTM D5185m	329	---	---
Zinc	ppm	ASTM D5185m	398	---	---
Sulfur	ppm	ASTM D5185m	2376	---	---

CONTAMINANTS

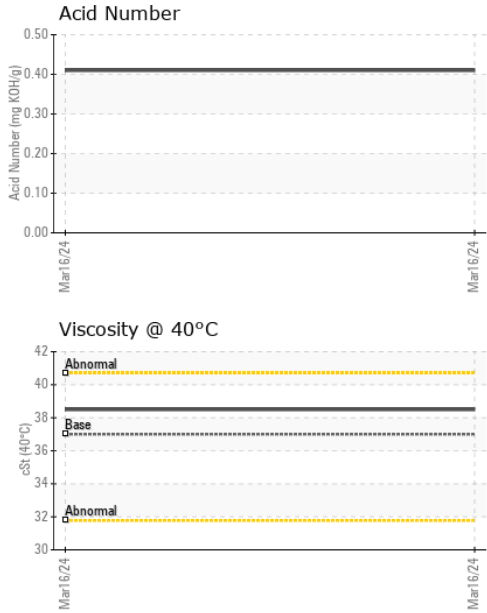
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >20	<1	---	---
Sodium	ppm	ASTM D5185m	2	---	---
Potassium	ppm	ASTM D5185m >20	0	---	---

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.41	---	---



OIL ANALYSIS REPORT



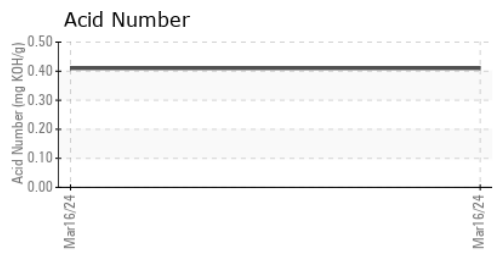
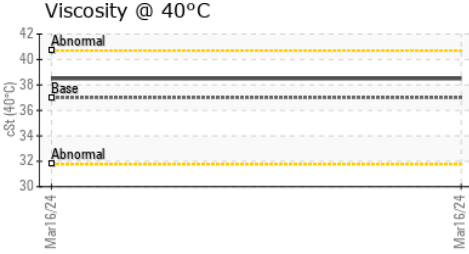
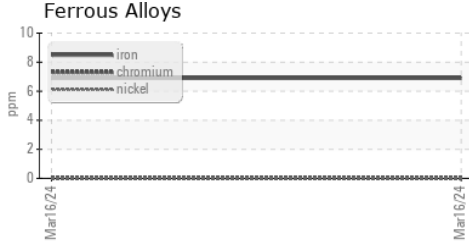
VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---
Precipitate	scalar	*Visual	NONE	NONE	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	▲ MODER	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.1	NEG	---	---
Free Water	scalar	*Visual		NEG	---	---

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 40°C	cSt	ASTM D445	37	38.5	---	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color		no image	no image
Bottom		no image	no image

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LM0001427 **Received** : 09 Apr 2024
Lab Number : **06142979** **Tested** : 11 Apr 2024
Unique Number : 10967787 **Diagnosed** : 11 Apr 2024 - Jonathan Hester
Test Package : CONST

LIEBHERR USA CO - Maritime Cranes
 15101 NW 112TH AVE
 HIALEAH GARDENS, FL
 US 33018
 Contact: RONNY FUNK
 ronny.funk@liebherr.com
 T: (305)817-7566
 F:

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)