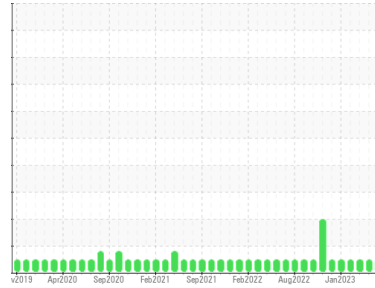




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
MARK STAAB (S/N 2657)

Component
Starboard Reduction Gear

Fluid
SCHAEFFER 209 MOLY UNIVERSAL GEARLUBE ISO 220 (150 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination 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		MW0047587	MW0047577	MW0047562
Sample Date	Client Info		06 Jul 2023	15 May 2023	16 Mar 2023
Machine Age	hrs	Client Info	75925	74706	73963
Oil Age	hrs	Client Info	15816	14597	13854
Oil Changed	Client Info		Not Changed	Not Changed	Not Changed
Sample Status			NORMAL	NORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >150	46	47	44
Chromium	ppm	ASTM D5185m >10	<1	<1	<1
Nickel	ppm	ASTM D5185m >10	0	0	<1
Titanium	ppm	ASTM D5185m	<1	<1	<1
Silver	ppm	ASTM D5185m	0	0	0
Aluminum	ppm	ASTM D5185m >25	1	0	2
Lead	ppm	ASTM D5185m >100	0	0	<1
Copper	ppm	ASTM D5185m >50	10	10	11
Tin	ppm	ASTM D5185m >10	0	0	0
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 65	56	81	73
Barium	ppm	ASTM D5185m	0	<1	0
Molybdenum	ppm	ASTM D5185m 325	474	468	464
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m	4	5	3
Calcium	ppm	ASTM D5185m	89	83	87
Phosphorus	ppm	ASTM D5185m 875	949	952	949
Zinc	ppm	ASTM D5185m	37	41	40
Sulfur	ppm	ASTM D5185m 16000	24581	25205	21280

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	10	13	12
Sodium	ppm	ASTM D5185m	6	6	4
Potassium	ppm	ASTM D5185m >20	1	2	2

FLUID DEGRADATION

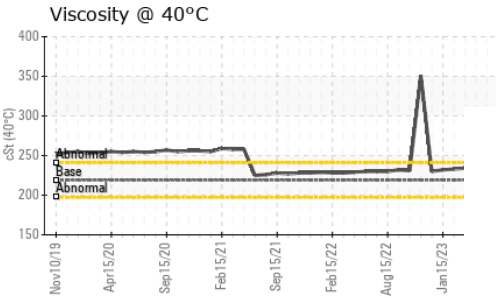
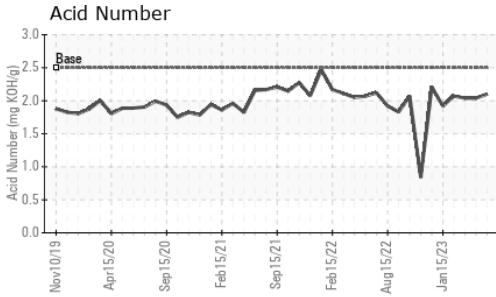
	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045 2.5	2.10	2.04	2.04

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	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 >0.1	NEG	NEG	NEG
Free Water	scalar	*Visual	NEG	NEG	NEG



OIL ANALYSIS REPORT



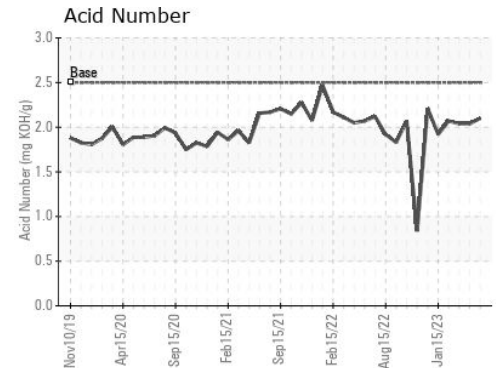
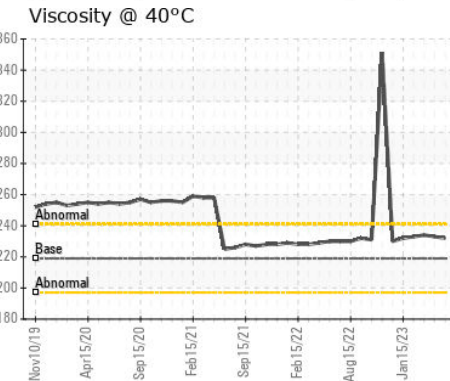
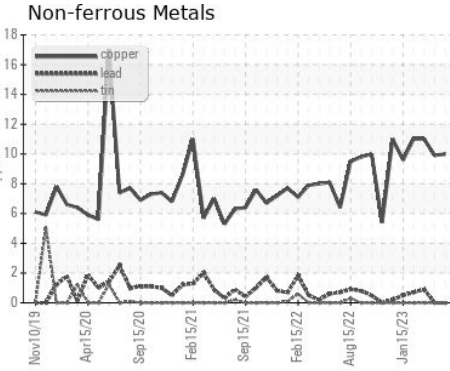
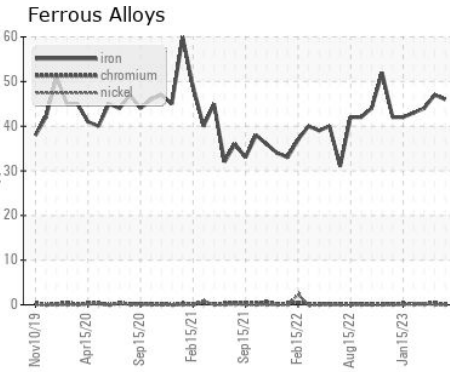
FLUID PROPERTIES

	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445 219	232	233	234

SAMPLE IMAGES

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

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0047587 **Received** : 14 Jul 2023
Lab Number : 05899390 **Diagnosed** : 18 Jul 2023
Unique Number : 10560746 **Diagnostician** : Don Baldrige
Test Package : MAR 2

AMERICAN COMMERCIAL LINES
 PO BOX 610, 1701 E. MARKET STREET
 JEFFERSONVILLE, IN
 US 47130
 Contact: RONALD SCHNEIDER
 ronald.schneider@bargeacbl.com
 T:
 F: (812)288-1644

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)