



Area  
**NADINE URCIUOLI [DAVID MCCRORY]**  
Machine Id  
**ZF MARINE 20323722 - INBOARD**  
Component  
**Center Gearbox**  
Fluid  
**ZF MARINE SAE 30 (4 LTR)**

### RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

### WEAR

The copper level is abnormal. All other component wear rates are normal.

### CONTAMINATION

There is a trace of moisture present in the oil.

### FLUID CONDITION

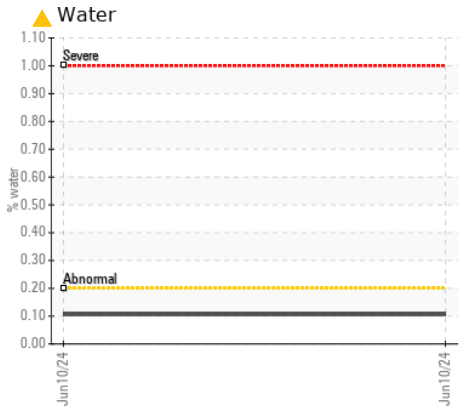
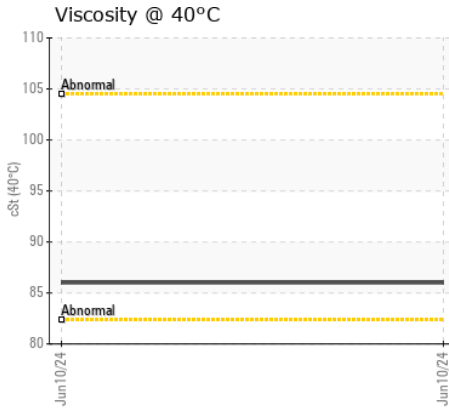
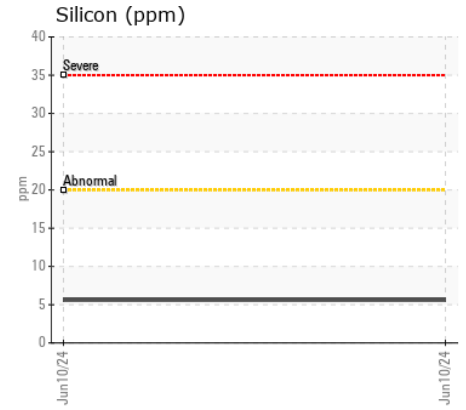
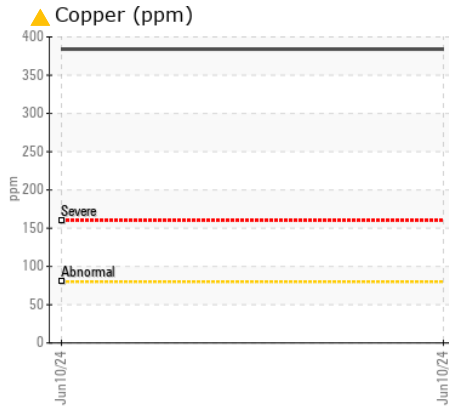
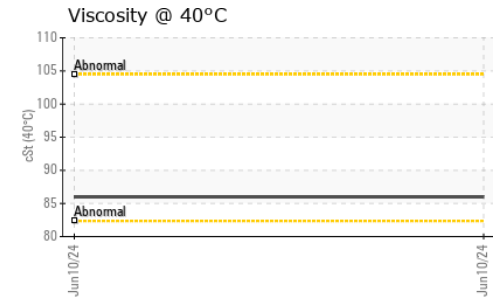
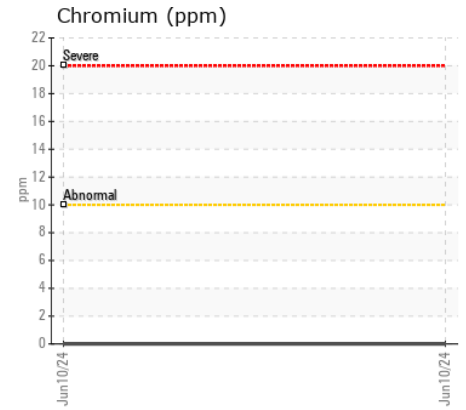
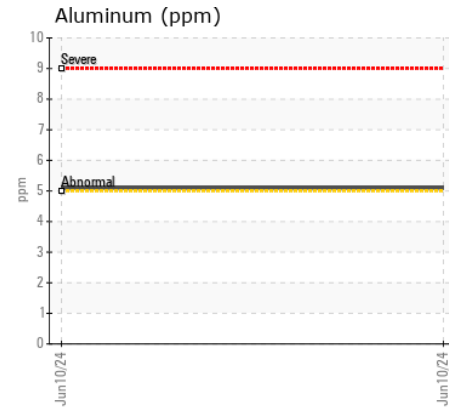
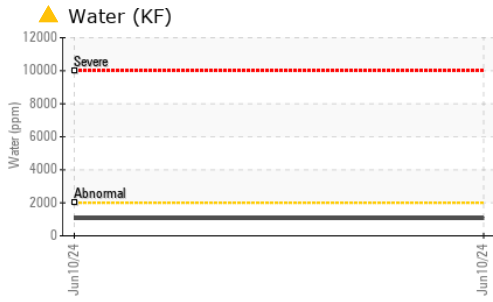
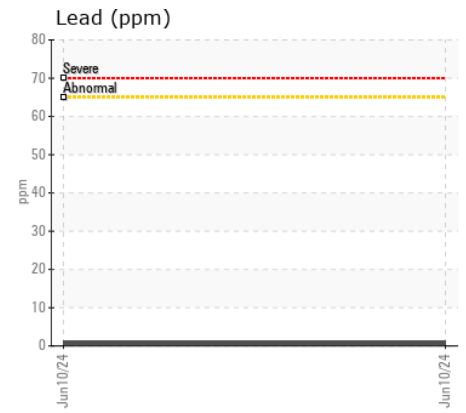
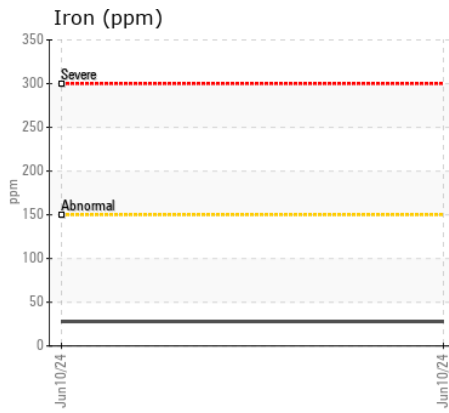
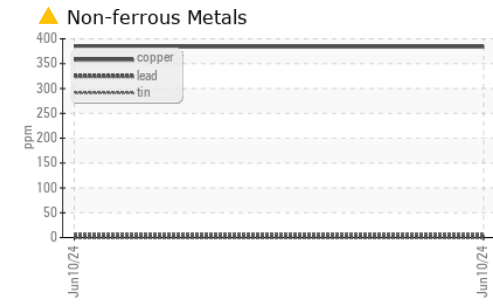
The condition of the oil is acceptable for the time in service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		VPA053031	---	---
Sample Date		Client Info		10 Jun 2024	---	---
Machine Age	hrs	Client Info		356	---	---
Oil Age	hrs	Client Info		356	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				ABNORMAL	---	---

PQ		ASTM D8184		23	---	---
Iron	ppm	ASTM D5185m	>150	28	---	---
Chromium	ppm	ASTM D5185m	>10	0	---	---
Nickel	ppm	ASTM D5185m	>10	0	---	---
Titanium	ppm	ASTM D5185m		<1	---	---
Silver	ppm	ASTM D5185m		<1	---	---
Aluminum	ppm	ASTM D5185m	>5	5	---	---
Lead	ppm	ASTM D5185m	>65	<1	---	---
Copper	ppm	ASTM D5185m	>80	▲ 384	---	---
Tin	ppm	ASTM D5185m	>8	8	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

Silicon	ppm	ASTM D5185m	>20	6	---	---
Potassium	ppm	ASTM D5185m	>20	3	---	---
Water	%	ASTM D6304	>0.2	▲ 0.106	---	---
ppm Water	ppm	ASTM D6304	>2000	▲ 1060	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.2	▲ 0.2%	---	---

Sodium	ppm	ASTM D5185m		5	---	---
Boron	ppm	ASTM D5185m		155	---	---
Barium	ppm	ASTM D5185m		<1	---	---
Molybdenum	ppm	ASTM D5185m		57	---	---
Manganese	ppm	ASTM D5185m		1	---	---
Magnesium	ppm	ASTM D5185m		381	---	---
Calcium	ppm	ASTM D5185m		1695	---	---
Phosphorus	ppm	ASTM D5185m		899	---	---
Zinc	ppm	ASTM D5185m		939	---	---
Sulfur	ppm	ASTM D5185m		3970	---	---
Visc @ 40°C	cSt	ASTM D445		86.0	---	---



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : VPA053031 **Received** : 18 Jun 2024  
**Lab Number** : 06214106 **Tested** : 21 Jun 2024  
**Unique Number** : 11086970 **Diagnosed** : 21 Jun 2024 - Jonathan Hester  
**Test Package** : MOB 1 ( Additional Tests: KF, PQ )

**Helmuts Marine Service**  
 619 Canal Street  
 SAN RAFAEL, CA  
 US 94901-3545

Contact: NADINE URCIUOLI  
 SERVICE@HELMUTSMARINE.COM

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)

T: x:  
 F: x: