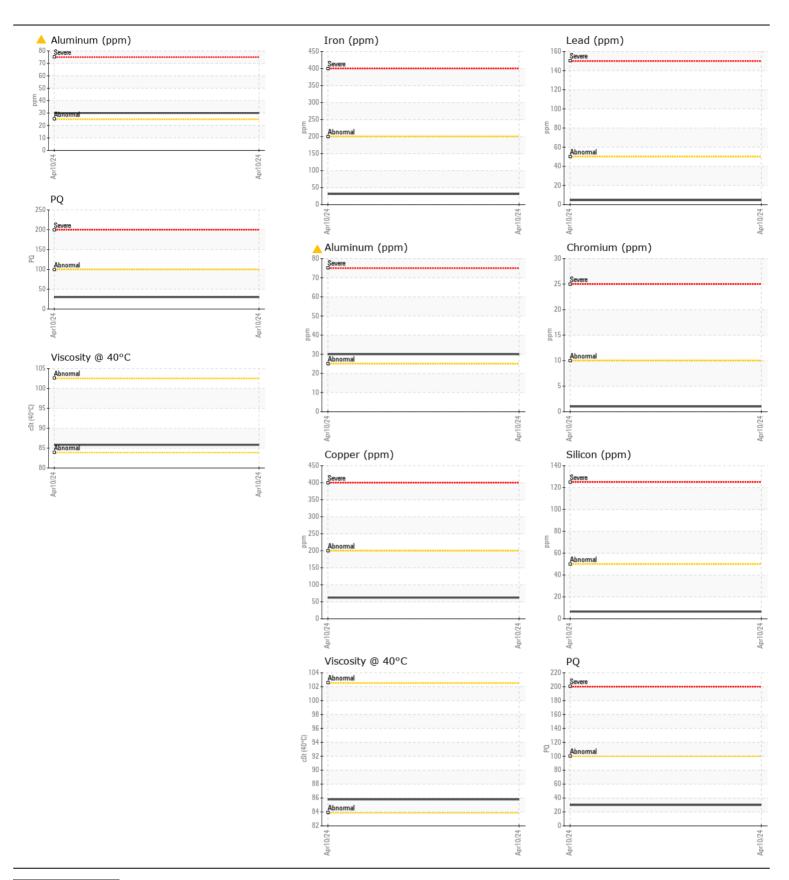
WEAR CONTAMINATION **FLUID CONDITION** **ABNORMAL NORMAL NORMAL**

HOWIE

ZF 20058818 - INBOARD

Port Gearbox

RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
No corrective action is recommended at this time. Resample at the next service interval to monitor.	Sample Number	OOW	Client Info	LIIIII/ADII	VPA058546		
	Sample Date		Client Info		10 Apr 2024		
	Machine Age	hrs	Client Info		1214		
	Oil Age	hrs	Client Info		0		
	Filter Age	hrs	Client Info		0		
	Oil Changed	0	Client Info		N/A		
	Filter Changed		Client Info		N/A		
	Sample Status				ABNORMAL		
WEAR The aluminum level is abnormal. All other component wear rates are normal.	PQ		ASTM D8184		30		
	Iron	ppm	ASTM D5185m		31		
	Chromium	ppm	ASTM D5185m		1		
	Nickel	ppm	ASTM D5185m	>10	2		
	Titanium	ppm	ASTM D5185m		<1		
	Silver	ppm	ASTM D5185m		<1		
	Aluminum	ppm	ASTM D5185m		<u>^</u> 30		
	Lead	ppm	ASTM D5185m		5		
	Copper	ppm	ASTM D5185m		62		
	Tin	ppm	ASTM D5185m	>10	2		
	Vanadium	ppm	ASTM D5185m	NONE	<1 NONE		
	White Metal	scalar	*Visual	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NONE		
CONTAMINATION There is no indication of any contamination in the oil.	Silicon	ppm	ASTM D5185m	>50	6		
	Potassium	ppm	ASTM D5185m	>20	4		
	Water		WC Method	>0.2	NEG		
	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	NEG		
FLUID CONDITION	Sodium	ppm	ASTM D5185m		2		
The condition of the oil is acceptable for the time in service.	Boron	ppm	ASTM D5185m		22		
	Barium	ppm	ASTM D5185m		 <1		
	Molybdenum	ppm	ASTM D5185m		64		
	Manganese	ppm	ASTM D5185m		1		
	Magnesium	ppm	ASTM D5185m		202		
	Calcium	ppm	ASTM D5185m		2301		
	Phosphorus	ppm	ASTM D5185m		1095		
	Zinc	ppm	ASTM D5185m		1127		
	Sulfur	ppm	ASTM D5185m		5398		





Laboratory Sample No.

: VPA058546 Lab Number : 06152318

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received **Tested** Unique Number : 10982396 Diagnosed : 17 Apr 2024

: 19 Apr 2024

: 19 Apr 2024 - Doug Bogart

Test Package : MOB 1 (Additional Tests: PQ) 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)

Outstanding Marine PO Box 274

GALENA, MD US 21635

Contact: Ronda Bolinger rlwb@verizon.net

T:

F: