



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	<b>ABNORMAL</b>
CONTAMINATION	<b>SEVERE</b>
FLUID CONDITION	<b>SEVERE</b>

Machine Id  
**DETROIT DETROIT 6V92**  
 Component  
**Starboard Diesel Engine**  
 Fluid  
**TRC PRO-SPEC DD 40W (6 GAL)**

**RECOMMENDATION**

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>TR06061400</b>	TR05686605	TR05149580
Sample Date		Client Info		<b>21 Dec 2023</b>	28 Oct 2022	18 Dec 2020
Machine Age	hrs	Client Info		<b>4500</b>	4800	3975
Oil Age	hrs	Client Info		<b>80</b>	130	68
Filter Age	hrs	Client Info		<b>80</b>	130	68
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>SEVERE</b>	SEVERE	ABNORMAL

**WEAR**

The iron level is abnormal. The tin level is abnormal.

Iron	ppm	ASTM D5185m	>200	<b>▲ 247</b>	▲ 251	▲ 242
Chromium	ppm	ASTM D5185m	>20	<b>5</b>	5	6
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>30	<b>2</b>	2	2
Lead	ppm	ASTM D5185m	>30	<b>2</b>	4	7
Copper	ppm	ASTM D5185m	>30	<b>13</b>	14	16
Tin	ppm	ASTM D5185m	>15	<b>▲ 21</b>	▲ 26	▲ 25
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

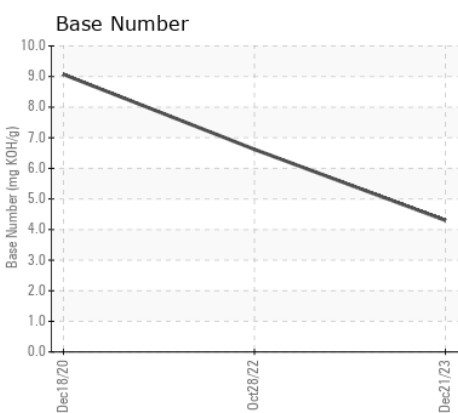
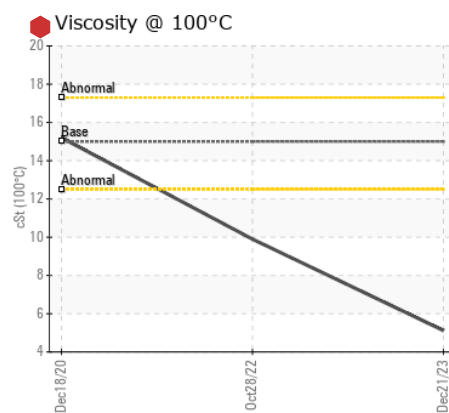
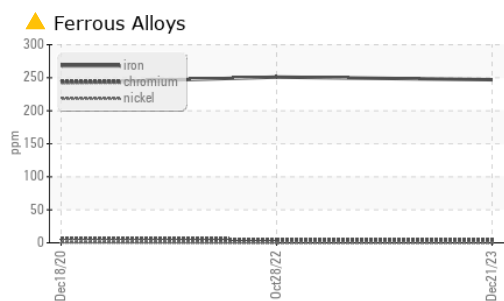
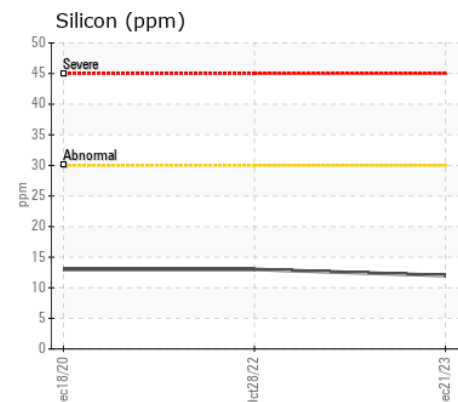
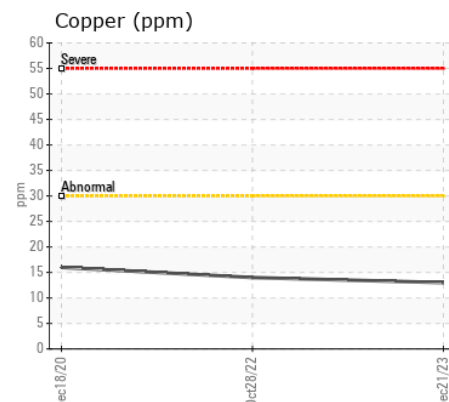
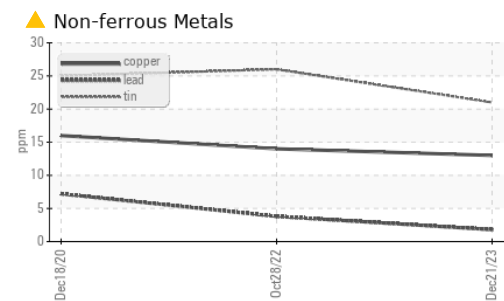
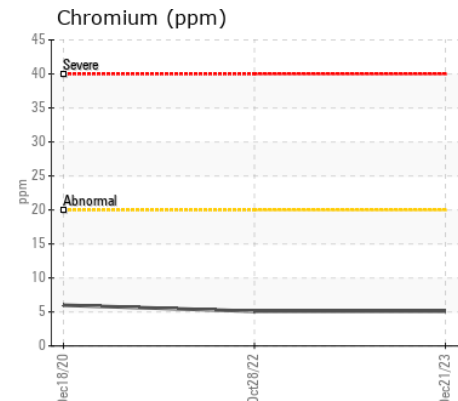
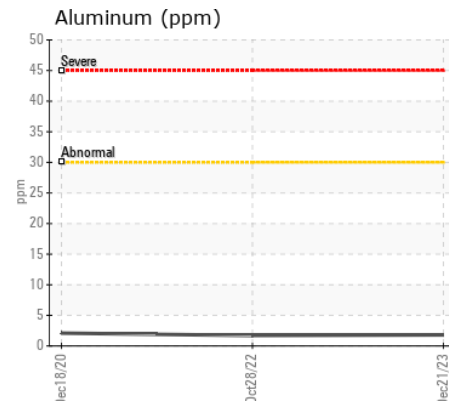
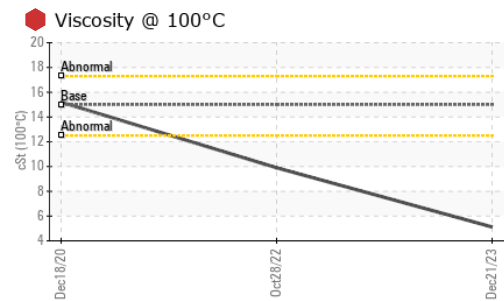
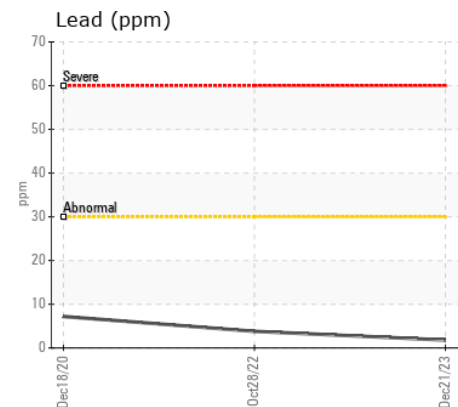
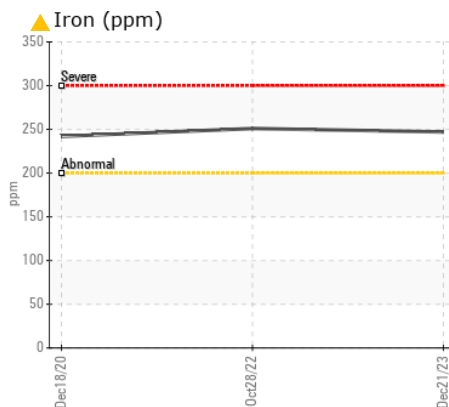
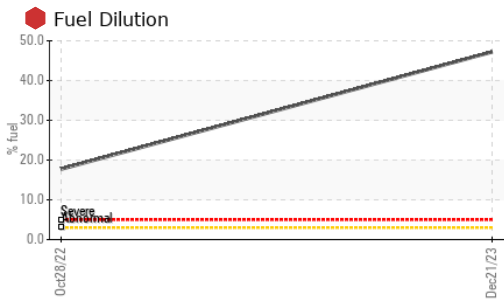
There is a high amount of fuel present in the oil.

Silicon	ppm	ASTM D5185m	>30	<b>12</b>	13	13
Potassium	ppm	ASTM D5185m	>20	<b>14</b>	19	1
Fuel	%	ASTM D3524	>3.0	<b>◆ 47.2</b>	◆ 17.7	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>1.9</b>	1.9	1.7
Nitration	Abs/cm	*ASTM D7624	>20	<b>7.3</b>	8.3	7.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>23.4</b>	22.9	20.2
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

**FLUID CONDITION**

Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		<b>10</b>	14	7
Boron	ppm	ASTM D5185m		<b>42</b>	83	36
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>30</b>	44	19
Manganese	ppm	ASTM D5185m		<b>2</b>	2	2
Magnesium	ppm	ASTM D5185m		<b>161</b>	199	91
Calcium	ppm	ASTM D5185m		<b>1083</b>	2115	2798
Phosphorus	ppm	ASTM D5185m		<b>351</b>	665	982
Zinc	ppm	ASTM D5185m		<b>428</b>	798	1117
Sulfur	ppm	ASTM D5185m		<b>2153</b>	4965	5672
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>22.6</b>	16.3	12.2
Base Number (BN)	mg KOH/g	ASTM D2896		<b>4.30</b>	6.62	9.07
Visc @ 100°C	cSt	ASTM D445	15.0	<b>◆ 5.12</b>	▲ 9.9	15.2



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TR06061400 **Received** : 16 Jan 2024  
**Lab Number** : 06061400 **Diagnosed** : 23 Jan 2024  
**Unique Number** : 10832782 **Diagnostician** : Doug Bogart  
**Test Package** : MOB 2 ( Additional Tests: PercentFuel )

**BRIAN LYDON**  
 PO BOX 563  
 PEMBROKE, MA  
 US 02359  
 Contact: BRIAN LYDON

To discuss this sample report, contact Customer Service at 1-800-827-0711.  
 \* - 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)

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F: