



# OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id  
**189 (S/N 1XPXP4EX6HD434367)**  
 Component  
**Diesel Engine**  
 Fluid  
**DIESEL ENGINE OIL SAE 40 (--- GAL)**

## RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0893916</b>	WC0893942	WC0851001
Sample Date		Client Info		<b>21 Jun 2024</b>	07 Feb 2024	10 Nov 2023
Machine Age	mls	Client Info		<b>0</b>	0	0
Oil Age	mls	Client Info		<b>0</b>	0	0
Filter Age	mls	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>N/A</b>	N/A	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>ABNORMAL</b>	NORMAL	ATTENTION

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>38</b>	26	44
Chromium	ppm	ASTM D5185m	>20	<b>5</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>4</b>	3	2
Lead	ppm	ASTM D5185m	>40	<b>7</b>	1	14
Copper	ppm	ASTM D5185m	>330	<b>4</b>	2	<1
Tin	ppm	ASTM D5185m	>15	<b>2</b>	1	1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

Elemental level of silicon (Si) above normal.

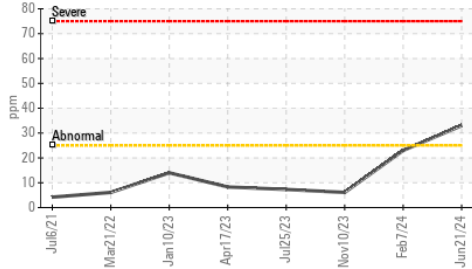
Silicon	ppm	ASTM D5185m	>25	<b>▲ 33</b>	23	6
Potassium	ppm	ASTM D5185m	>20	<b>31</b>	82	● 144
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.4</b>	0.4	0.7
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.4</b>	10.7	14.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.4</b>	22.7	30.5
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

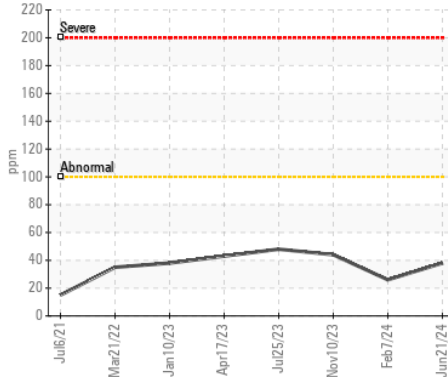
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>216	<b>17</b>	36	58
Boron	ppm	ASTM D5185m	250	<b>2</b>	13	10
Barium	ppm	ASTM D5185m	10	<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185m	100	<b>66</b>	80	79
Manganese	ppm	ASTM D5185m		<b>4</b>	<1	<1
Magnesium	ppm	ASTM D5185m	450	<b>1047</b>	988	982
Calcium	ppm	ASTM D5185m	3000	<b>1282</b>	1245	1213
Phosphorus	ppm	ASTM D5185m	1150	<b>1118</b>	1139	1073
Zinc	ppm	ASTM D5185m	1350	<b>1501</b>	1386	1396
Sulfur	ppm	ASTM D5185m	4250	<b>3825</b>	3360	3132
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.8</b>	18.4	27.6
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>7.8</b>	7.5	4.9
Visc @ 100°C	cSt	ASTM D445	14.4	<b>13.6</b>	13.9	14.6

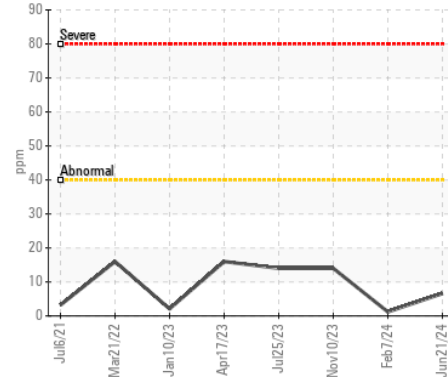
▲ Silicon (ppm)



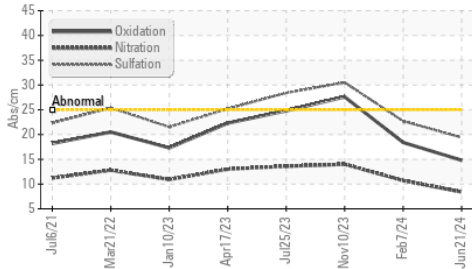
Iron (ppm)



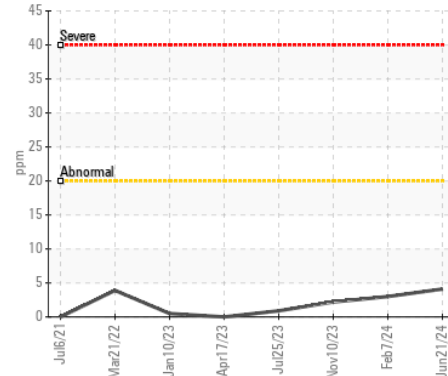
Lead (ppm)



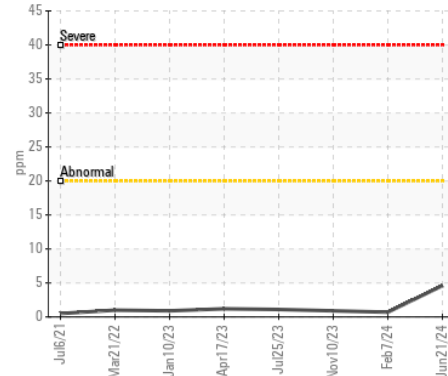
FT-IR (Direct Trend)



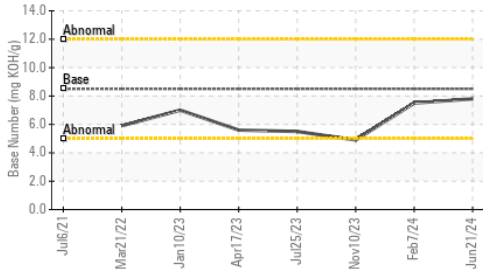
Aluminum (ppm)



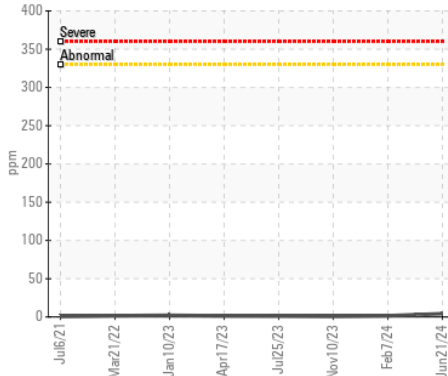
Chromium (ppm)



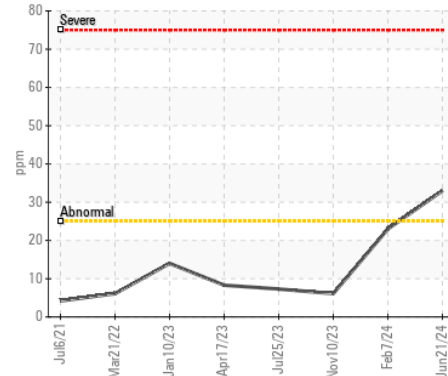
Base Number



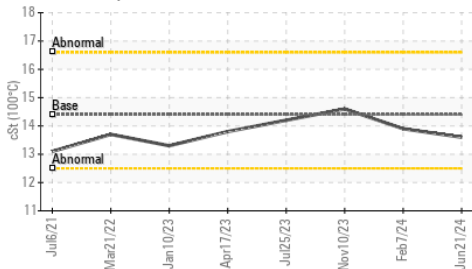
Copper (ppm)



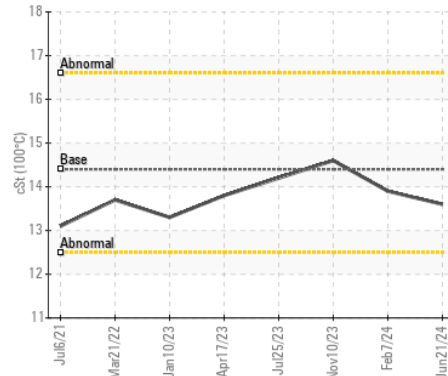
▲ Silicon (ppm)



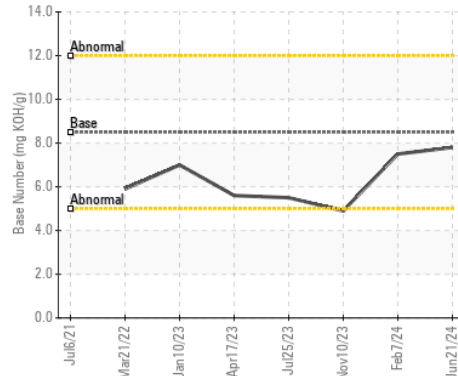
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0893916 **Received** : 24 Jun 2024  
**Lab Number** : 06219019 **Tested** : 25 Jun 2024  
**Unique Number** : 11097216 **Diagnosed** : 26 Jun 2024 - Don Baldrige  
**Test Package** : MOB 1 ( Additional Tests: TBN )

**MANGUMS INC**  
 P.O. BOX 7177  
 WILSON, NC  
 US 27895

Contact: ALAN BAGLEY  
 alanb@mangumsinc.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:  
 F: