



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
9903
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

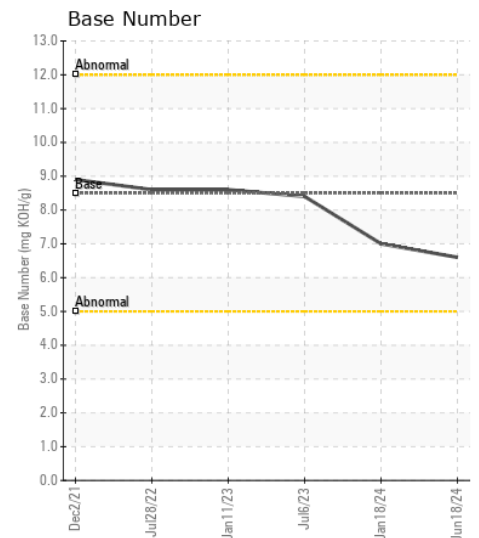
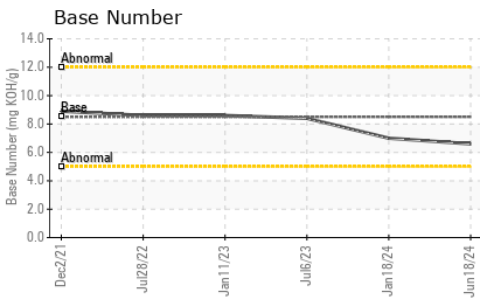
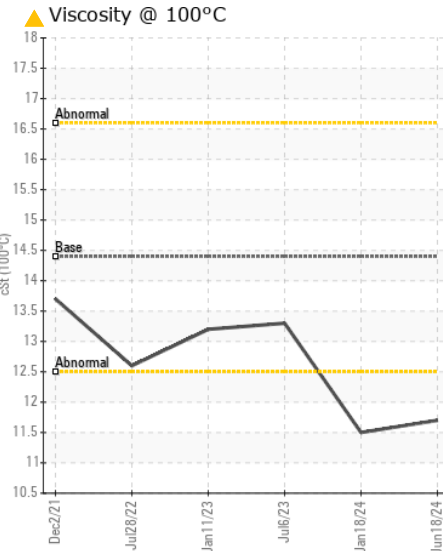
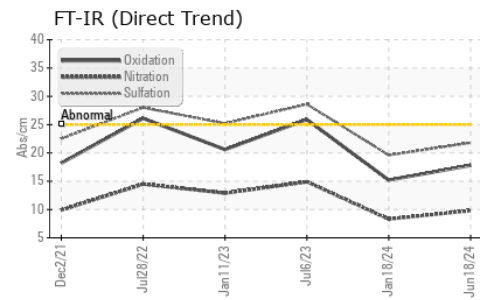
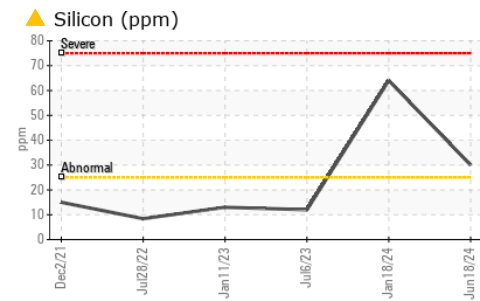
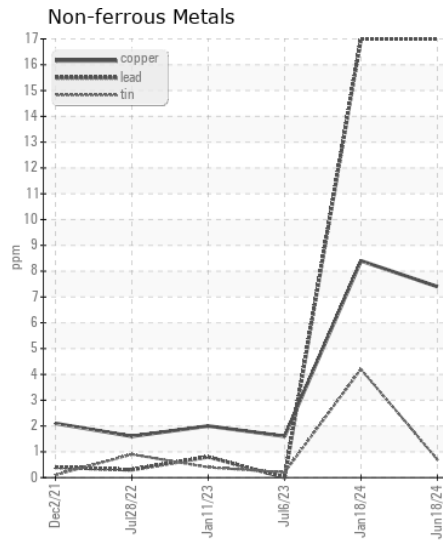
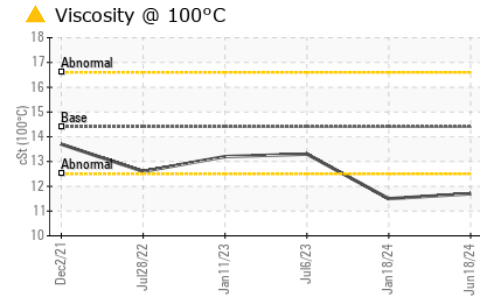
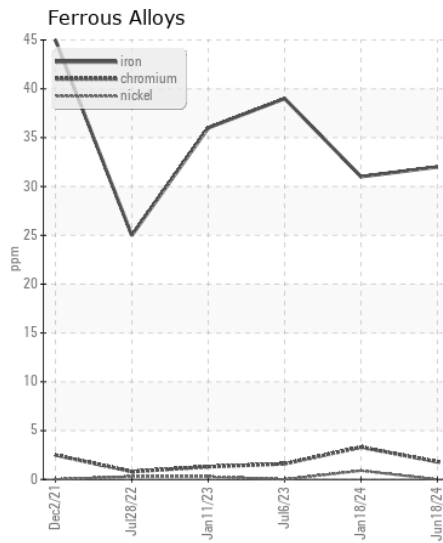
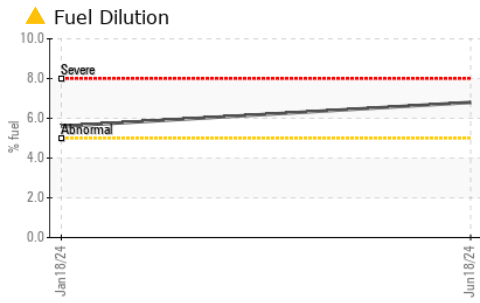
CONTAMINATION

Elemental level of silicon (Si) above normal. There is a moderate amount of fuel present in the oil.

FLUID CONDITION

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		HRE0000546	WC0827042	WC0827061
Sample Date		Client Info		18 Jun 2024	18 Jan 2024	06 Jul 2023
Machine Age	mls	Client Info		362009	356399	350893
Oil Age	mls	Client Info		6000	0	0
Filter Age	mls	Client Info		6000	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	NORMAL
Iron	ppm	ASTM D5185m	>100	32	31	39
Chromium	ppm	ASTM D5185m	>20	2	3	2
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		1	<1	<1
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	3	3	4
Lead	ppm	ASTM D5185m	>40	17	17	0
Copper	ppm	ASTM D5185m	>330	7	8	2
Tin	ppm	ASTM D5185m	>15	<1	4	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>25	▲ 30	▲ 64	12
Potassium	ppm	ASTM D5185m	>20	0	2	4
Fuel	%	ASTM D3524	>5	▲ 6.8	▲ 5.6	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1	0.5	2.2
Nitration	Abs/cm	*ASTM D7624	>20	9.8	8.3	14.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.8	19.6	28.6
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	>0.2	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m	>158	11	21	24
Boron	ppm	ASTM D5185m	250	70	87	15
Barium	ppm	ASTM D5185m	10	0	0	2
Molybdenum	ppm	ASTM D5185m	100	62	68	76
Manganese	ppm	ASTM D5185m		<1	3	<1
Magnesium	ppm	ASTM D5185m	450	367	295	523
Calcium	ppm	ASTM D5185m	3000	1545	1439	2068
Phosphorus	ppm	ASTM D5185m	1150	1009	916	1194
Zinc	ppm	ASTM D5185m	1350	1169	1109	1466
Sulfur	ppm	ASTM D5185m	4250	3546	3138	4242
Oxidation	Abs/.1mm	*ASTM D7414	>25	17.8	15.2	25.9
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	6.6	7.0	8.4
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 11.7	▲ 11.5	13.3



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HRE0000546 **Received** : 11 Jul 2024
Lab Number : 06232949 **Tested** : 12 Jul 2024
Unique Number : 11116442 **Diagnosed** : 13 Jul 2024 - Don Baldrige
Test Package : FLEET (Additional Tests: PercentFuel)

TOWN OF CHAPEL HILL
 6900 MILLHOUSE RD
 CHAPEL HILL, NC
 US 27516

Contact: Lisa DePasqua
 ldepasqua@townofchapelhill.org
 T: (919)696-4941

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)

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