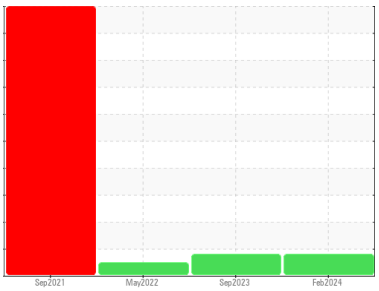
OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

Machine Id
FORD 93
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

DIAGNOSIS

Recommendation
The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

Wear
All component wear rates are normal.

Contamination
Light fuel dilution occurring. No other contaminants were detected in the oil.

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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**RW0005010**	RW0004172	RW0003084
Sample Date		Client Info		**28 Feb 2024**	09 Sep 2023	20 May 2022
Machine Age	mls	Client Info		**164636**	160044	140803
Oil Age	mls	Client Info		**4592**	13044	6669
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**MARGINAL**	ABNORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**36**	55	80
Chromium	ppm	ASTM D5185m	>20	**2**	3	12
Nickel	ppm	ASTM D5185m	>4	**<1**	1	0
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**13**	▲ 24	21
Lead	ppm	ASTM D5185m	>40	**<1**	0	<1
Copper	ppm	ASTM D5185m	>330	**3**	5	5
Tin	ppm	ASTM D5185m	>15	**0**	<1	<1
Antimony	ppm	ASTM D5185m		**---**	---	---
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	**5**	14	24
Barium	ppm	ASTM D5185m	10	**0**	0	0
Molybdenum	ppm	ASTM D5185m	100	**73**	73	89
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	450	**1041**	650	271
Calcium	ppm	ASTM D5185m	3000	**1429**	1531	1974
Phosphorus	ppm	ASTM D5185m	1150	**1242**	1084	1088
Zinc	ppm	ASTM D5185m	1350	**1528**	1318	1273
Sulfur	ppm	ASTM D5185m	4250	**4298**	3675	3511

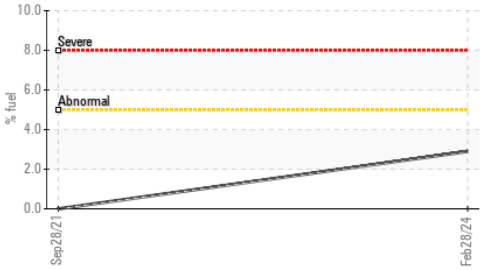
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**7**	10	9
Sodium	ppm	ASTM D5185m	>158	**<1**	2	43
Potassium	ppm	ASTM D5185m	>20	**0**	2	14
Fuel	%	ASTM D3524	>5	▲ **2.9**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.7**	1.3	0.8
Nitration	Abs/cm	*ASTM D7624	>20	**12.1**	14.3	12.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	**20.0**	23.8	22.6

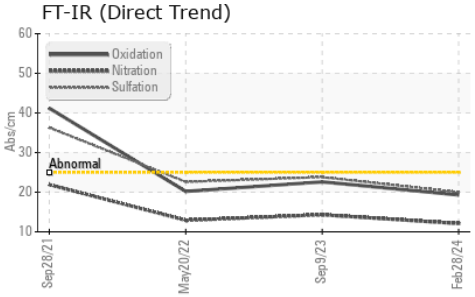
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**19.3**	22.6	20.2
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**13.75**	7.44	7.46

OIL ANALYSIS REPORT

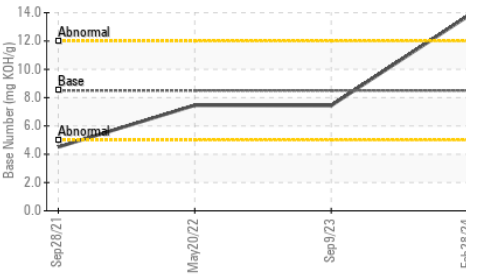
Fuel Dilution



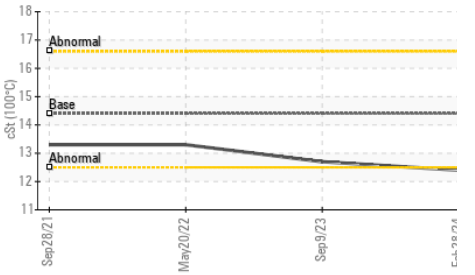
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

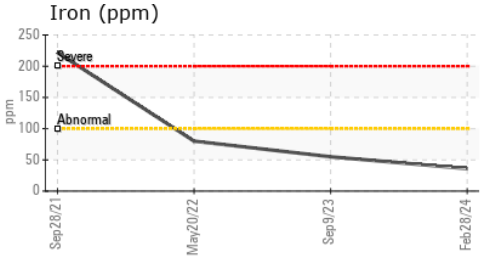


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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
Free Water	scalar	*Visual		**NEG**	NEG	NEG

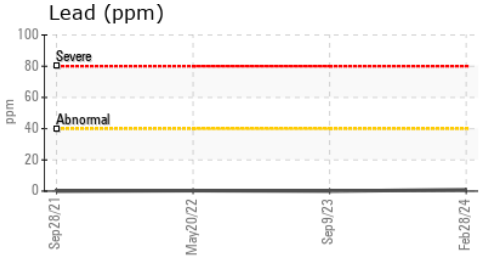
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**12.4**	12.7	13.3

GRAPHS

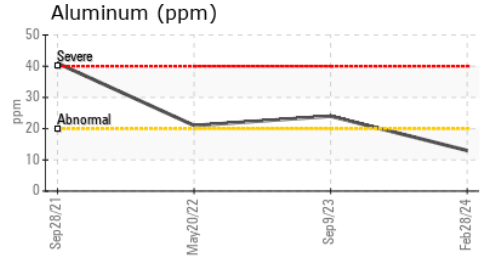
Iron (ppm)



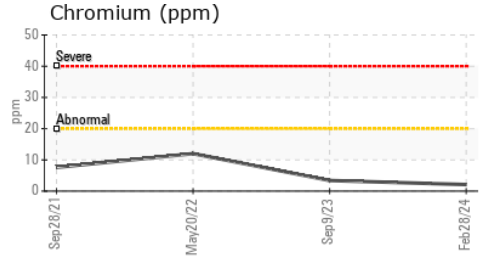
Lead (ppm)



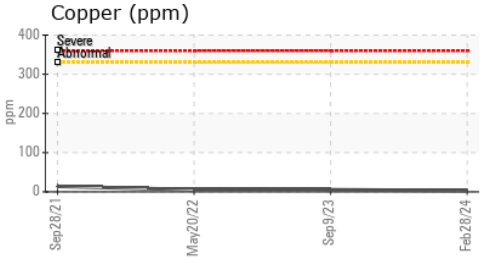
Aluminum (ppm)



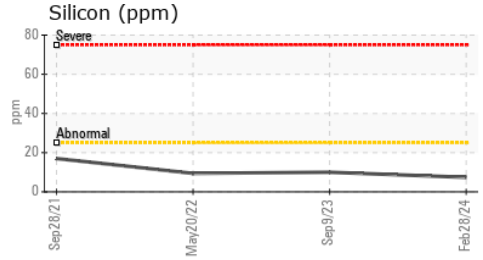
Chromium (ppm)



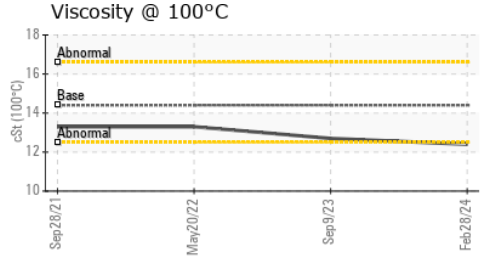
Copper (ppm)



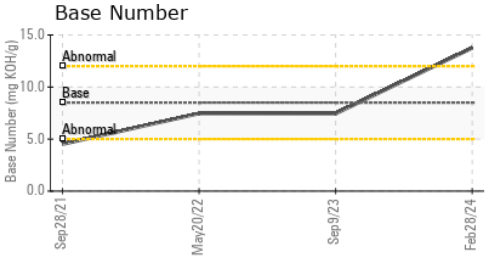
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : RW0005010
Lab Number : 06146735
Unique Number : 10976813
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

Received : 11 Apr 2024
Tested : 17 Apr 2024
Diagnosed : 17 Apr 2024 - Wes Davis

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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Report Id: HALHAR [WUSCAR] 06146735 (Generated: 04/17/2024 16:24:10) Rev: 1
Contact/Location: DAN HALLACK KARL BUTCHER - HALHAR