INS KIT

WEAR CHECK

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINANTS	SEVERE
OIL CONDITION	SEVERE

Machine Id
FORD 1FTSF4XV0FKA17622
Component
Diesel Engine
Fluid
{not provided} (--- GAL)

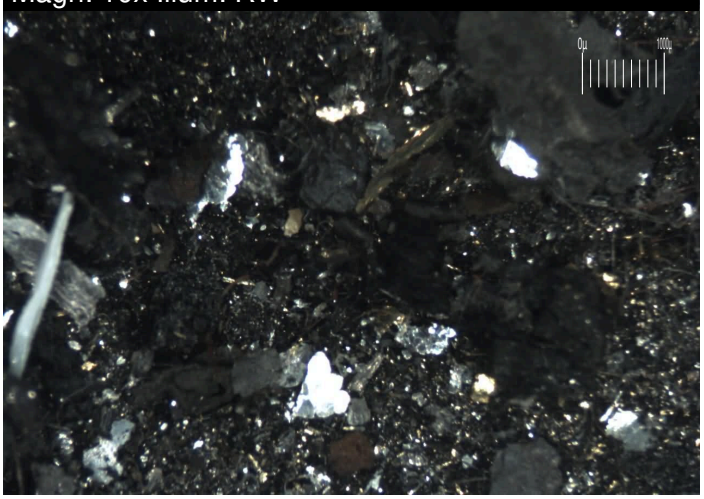
RECOMMENDATION

We understand that this sample is for warranty/insurance purposes. The oil contains an excessive level of fuel dilution, and a low amount of glycol contamination. The filter shows both ferrous and non-ferrous rolling fatigue particles indicating bearing wear (likely due to the excessive fuel dilution). The filter also contained what appeared to be RTV (liquid gasket material). The lack of elemental wear levels (iron, etc.) indicate that the failure progressed rapidly.

WEAR

Wear particle analysis indicates that the ferrous rolling, nonferrous rolling and patch weight particles are abnormal.

Magn: 10x Illum: RW



Magn: 10x Illum: RW

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PP0001076	---	---
Sample Date		Client Info		04 Jun 2024	---	---
Machine Age	kms	Client Info		214550	---	---
Oil Age	kms	Client Info		0	---	---
Filter Age	kms	Client Info		0	---	---
Oil Changed		Client Info		N/A	---	---
Filter Changed		Client Info		N/A	---	---
Sample Status				SEVERE	---	---
Iron	ppm	ASTM D5185(m)	>100	40	---	---
Chromium	ppm	ASTM D5185(m)	>20	1	---	---
Nickel	ppm	ASTM D5185(m)	>2	0	---	---
Titanium	ppm	ASTM D5185(m)	>2	0	---	---
Silver	ppm	ASTM D5185(m)	>2	0	---	---
Aluminum	ppm	ASTM D5185(m)	>25	5	---	---
Lead	ppm	ASTM D5185(m)	>40	0	---	---
Copper	ppm	ASTM D5185(m)	>330	8	---	---
Tin	ppm	ASTM D5185(m)	>15	0	---	---
Vanadium	ppm	ASTM D5185(m)		0	---	---
White Metal	scalar	Visual*	NONE	VLITE	---	---
Yellow Metal	scalar	Visual*	NONE	NONE	---	---
Ferrous Rubbing	Scale 0-10	ASTM D7684*		4		
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		▲ 3		
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*		3		
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*		▲ 3		
Nonferrous Other	Scale 0-10	ASTM D7684*				
Patch Weight	mg	ASTM D7684*		▲ 315	---	---

CONTAMINANTS

Test for glycol is positive. There is a high amount of fuel present in the oil. There is a light concentration of glycol present in the oil. There is a high concentration of water present in the oil. Tests confirm the presence of fuel in the oil.

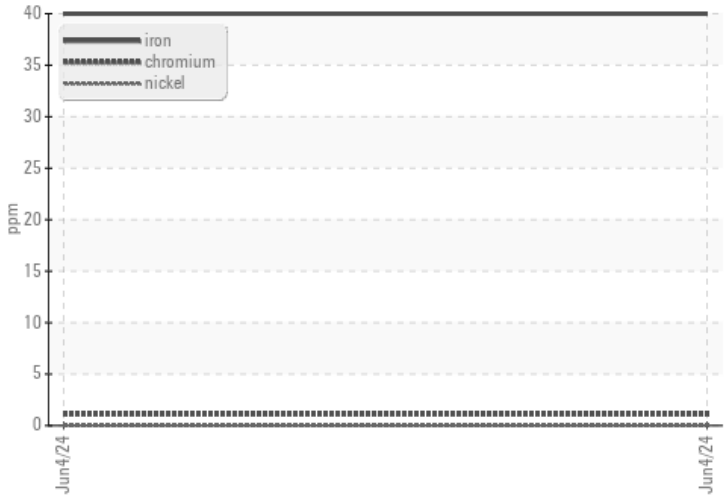
Silicon	ppm	ASTM D5185(m)	>25	17	---	---
Potassium	ppm	ASTM D5185(m)	>20	2	---	---
Fuel	%	ASTM D7593*	>5	▲ 20.8	---	---
Water	%	ASTM D6304*	>0.2	NEG	---	---
Glycol	%	ASTM D7922*		▲ 0.03	---	---
Soot %	%	ASTM D7844*	>3	0.7	---	---
Nitration	Abs/cm	ASTM D7624*	>20	12.4	---	---
Sulfation	Abs/.1mm	ASTM D7415*	>30	18.0	---	---
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	▲ 1%	---	---
Sand/Dirt	Scale 0-10	ASTM D7684*		3		
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		▲ 4		

OIL CONDITION

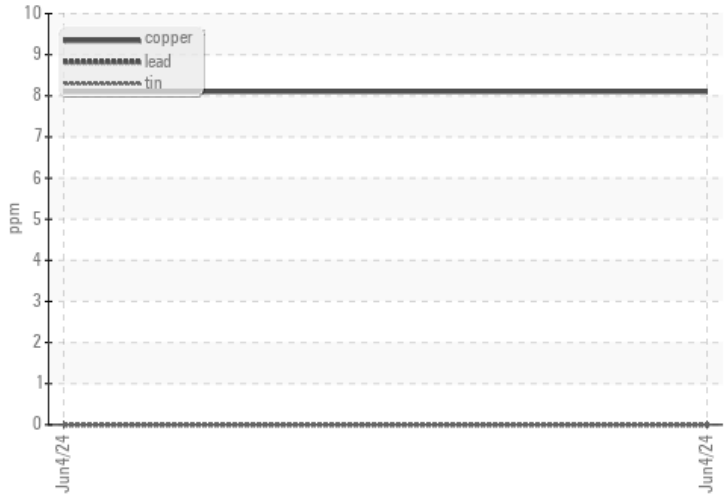
The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185(m)		4	---	---
Boron	ppm	ASTM D5185(m)		48	---	---
Barium	ppm	ASTM D5185(m)		0	---	---
Molybdenum	ppm	ASTM D5185(m)		48	---	---
Manganese	ppm	ASTM D5185(m)		<1	---	---
Magnesium	ppm	ASTM D5185(m)		408	---	---
Calcium	ppm	ASTM D5185(m)		1457	---	---
Phosphorus	ppm	ASTM D5185(m)		828	---	---
Zinc	ppm	ASTM D5185(m)		978	---	---
Sulfur	ppm	ASTM D5185(m)		2430	---	---
Oxidation	Abs/.1mm	ASTM D7414*	>25	17.3	---	---
Acid Number (AN)	mg KOH/g	ASTM D974*		2.79	---	---
Base Number (BN)	mg KOH/g	ASTM D2896*		7.62	---	---
Visc @ 40°C	cSt	ASTM D7279(m)		▲ 50.1	---	---
Visc @ 100°C	cSt	ASTM D7279(m)		▲ 9.0	---	---
Viscosity Index (VI)	Scale	ASTM D2270*		161	---	---

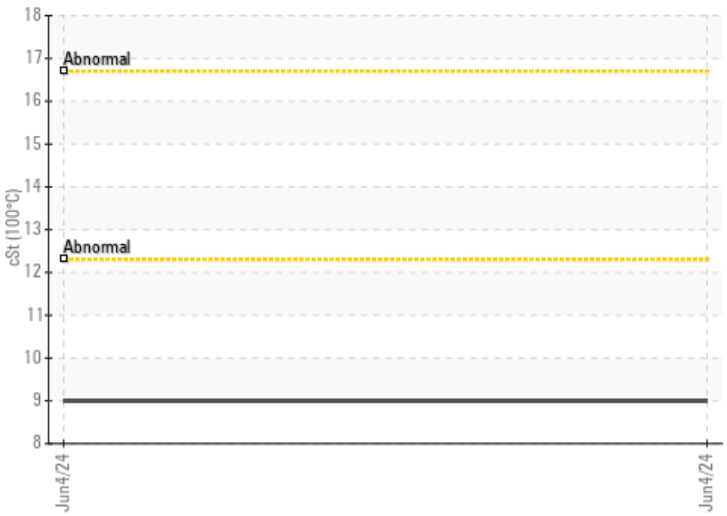
Ferrous Alloys



Non-ferrous Metals



▲ Viscosity @ 100°C



Acid Number

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PP0001076 **Received** : 07 Jun 2024
Lab Number : 02640458 **Tested** : 11 Jun 2024
Unique Number : 5789620 **Diagnosed** : 12 Jun 2024 - Bill Quesnel
Test Package : INS (Additional Tests: FT-IR, FuelDilution, Glycol, KF, PercentFuel, TAN Manual)

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

JENISH ENGINEERING LIMITED
1675 baseline Road West
Courtice, ON
CA L1E 2S6
Contact: Kristian Lardner
kl@jenish.ca
T:
F: (905)404-9843

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