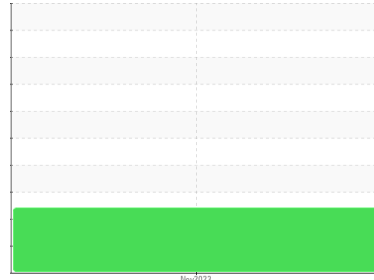




OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
HED-E13
 Machine Id
524 524
 Component
Diesel Engine
 Fluid
NOT GIVEN (--- GAL)

DIAGNOSIS

▲ Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. The fluid was not specified, however, a fluid match indicates that this fluid is SAE 40 Diesel Engine Oil. Please confirm the oil type and grade, and specify the brand of the oil on your next sample.

Wear

All component wear rates are normal.

▲ Contamination

There is a moderate amount of particulates (2 to 100 microns in size) present in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	KFS0004036	---	---
Sample Date	Client Info	10 Nov 2023	---	---
Machine Age	hrs	Client Info	0	---
Oil Age	hrs	Client Info	0	---
Oil Changed	Client Info	N/A	---	---
Sample Status		ABNORMAL	---	---

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method	>2.1	<1.0	---
Glycol	WC Method		NEG	---

WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>51	16	---
Chromium	ppm	ASTM D5185m	>11	0	---
Nickel	ppm	ASTM D5185m	>5	<1	---
Titanium	ppm	ASTM D5185m		0	---
Silver	ppm	ASTM D5185m	>3	0	---
Aluminum	ppm	ASTM D5185m	>31	2	---
Lead	ppm	ASTM D5185m	>26	0	---
Copper	ppm	ASTM D5185m	>26	1	---
Tin	ppm	ASTM D5185m	>4	0	---
Vanadium	ppm	ASTM D5185m		0	---
Cadmium	ppm	ASTM D5185m		0	---

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		<1	---
Barium	ppm	ASTM D5185m		0	---
Molybdenum	ppm	ASTM D5185m		66	---
Manganese	ppm	ASTM D5185m		0	---
Magnesium	ppm	ASTM D5185m		1079	---
Calcium	ppm	ASTM D5185m		1158	---
Phosphorus	ppm	ASTM D5185m		1134	---
Zinc	ppm	ASTM D5185m		1373	---
Sulfur	ppm	ASTM D5185m		3431	---

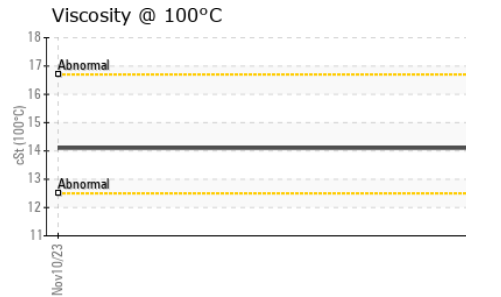
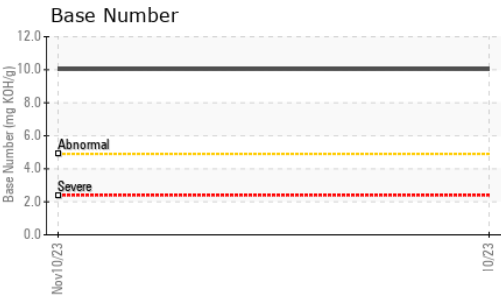
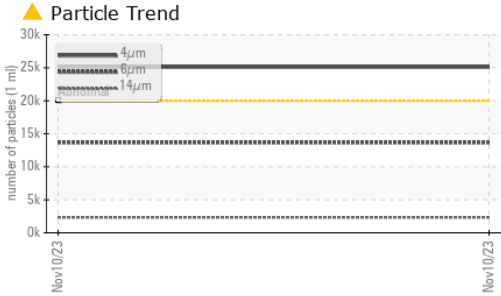
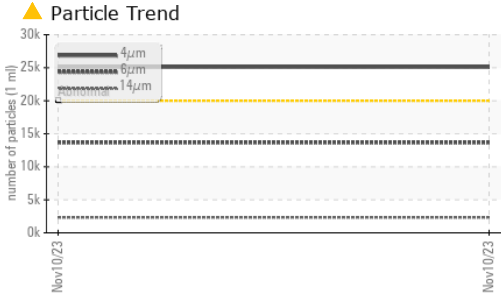
CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>22	4	---
Sodium	ppm	ASTM D5185m	>31	3	---
Potassium	ppm	ASTM D5185m	>20	<1	---

INFRA-RED

method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	>3	0.4	---
Nitration	Abs/cm	*ASTM D7624	>20	6.8	---
Sulfation	Abs./1mm	*ASTM D7415	>30	19.2	---

OIL ANALYSIS REPORT



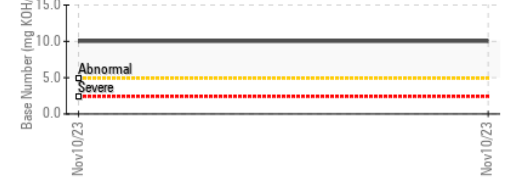
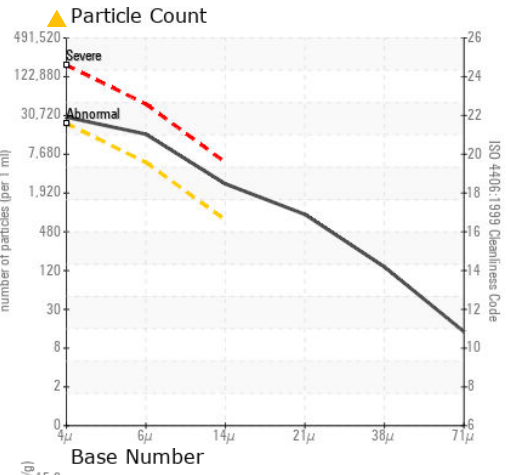
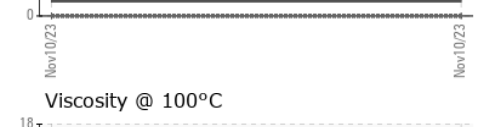
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	▲ 25098	---	---
Particles >6µm	ASTM D7647	>5000	▲ 13673	---	---
Particles >14µm	ASTM D7647	>640	▲ 2327	---	---
Particles >21µm	ASTM D7647	>160	▲ 784	---	---
Particles >38µm	ASTM D7647	>40	▲ 121	---	---
Particles >71µm	ASTM D7647	>10	▲ 12	---	---
Oil Cleanliness	ISO 4406 (c)	>21/19/16	▲ 22/21/18	---	---

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414	>25	14.8	---	---
Base Number (BN)	mg KOH/g ASTM D2896		10.03	---	---

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar *Visual	NONE	NONE	---	---
Yellow Metal	scalar *Visual	NONE	NONE	---	---
Precipitate	scalar *Visual	NONE	NONE	---	---
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	>0.21	NEG	---	---
Free Water	scalar *Visual		NEG	---	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D445		14.1	---	---

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KFS0004036 **Received** : 14 Nov 2023
Lab Number : 06007130 **Diagnosed** : 16 Nov 2023
Unique Number : 10740892 **Diagnostician** : Wes Davis
Test Package : MOB 2 (Additional Tests: PrtCount)

CONSTELLIUM
 4805 SECOND STREET
 MUSCLE SHOALS, AL
 US 35661
 Contact: Randy Nichols
 randall.nichols@constellium.com
 T: (256)386-6956
 F:

Certificate L2367
 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)