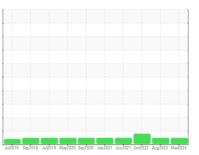


OIL ANALYSIS REPORT

Sample Rating Trend









CATERPILLAR 950K 140 (S/N R4A2622)

Component
Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (7 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

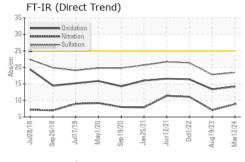
Fluid Condition

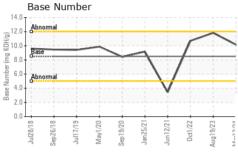
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

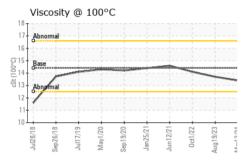
Sample Number Client Info RW0005164 and PW0004496 RW00004496 and PW0004496 RW0004496 and PW0004496 RW00044496 and PW000	SAE 15W40 (7 GAL) Judit Septit Judit Majdata Septita Judit Judit October Augitat Majdat Majd							
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2	
Machine Age hrs Client Info 8143 7739 7450 Dil Age hrs Client Info 404 289 433 Dil Changed Client Info Changed	Sample Number		Client Info		RW0005164	RW0004496	RW0004074	
Dil Age	Sample Date		Client Info		12 Mar 2024	19 Aug 2023	01 Oct 2022	
Clichanged Client Info Changed NORMAL ABNORM	Machine Age	hrs	Client Info		8143	7739	7450	
CONTAMINATION method limit/base current history1 history1 history1 history2 history2 history2 history2 history3 history2 history3 history4 hist	Oil Age	hrs	Client Info		404	289	433	
CONTAMINATION method limit/base current history1 hist	Oil Changed		Client Info		Changed	Changed	Changed	
Fuel	Sample Status				NORMAL	NORMAL	ABNORMA	
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 31 34 61 Chromium ppm ASTM D5185m >20 0 1 2 Vickel ppm ASTM D5185m >2 0 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 <td>CONTAMINATION</td> <td>J</td> <td>method</td> <td>limit/base</td> <td>current</td> <td>history1</td> <td>history2</td>	CONTAMINATION	J	method	limit/base	current	history1	history2	
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0	
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG	
A	Glycol		WC Method		NEG	NEG	NEG	
Chromium	WEAR METALS		method	limit/base	current	history1	history2	
Nickel	ron	ppm						
Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >25 18 22 37 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 4 1 5 Fin ppm ASTM D5185m >15 0 <1 0 Antimony ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 10 0 0 32 Barium ppm ASTM D5185m 10 0 0 32 <td>Chromium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>20</td> <td>0</td> <td>1</td> <td>2</td>	Chromium	ppm	ASTM D5185m	>20	0	1	2	
Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >25 18 22 ▲ 37 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 4 1 5 Tin ppm ASTM D5185m >15 0 <1 0 Antimony ppm ASTM D5185m Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 histo Boron ppm ASTM D5185m 250 0 6 32 Barium ppm ASTM D5185m 10 0 0 0 0 Molybdenum ppm ASTM D5185m 10 0	Nickel	ppm						
Aluminum ppm ASTM D5185m >25 18 22 △ 37 Lead ppm ASTM D5185m >40 0 0 0 0 Copper ppm ASTM D5185m >330 4 1 5 Fin ppm ASTM D5185m >15 0 <1 0 Antimony ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Manganese ppm ASTM D5185m 10 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 Manganese ppm ASTM D5185m 10 0 68 67 80 Manganese ppm ASTM D5185m 10 0 68 67 80 Manganese ppm ASTM D5185m 10 0 10 0 0 1 0 10 0 10 0 10 0 10 0 1		ppm	ASTM D5185m	>2	0	0	0	
Lead	Silver	ppm			0	0	0	
Copper	Aluminum	ppm	ASTM D5185m	>25	18	22	4 37	
Trin	Lead	ppm	ASTM D5185m	>40	0	0	0	
Antimony	Copper	ppm	ASTM D5185m	>330	4	1	5	
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 250 0 6 32 Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 68 67 80 Manganese ppm ASTM D5185m 100 68 67 80 Manganesium ppm ASTM D5185m 450 1044 989 412 Calcium ppm ASTM D5185m 3000 1320 1305 1876 Phosphorus ppm ASTM D5185m 3000 1417 1447 1253 Sulfur ppm ASTM D5185m 1350 1417 1447 1253 Sulfur ppm ASTM D5185m >25 4 4 <td>Γin</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>15</td> <td>0</td> <td><1</td> <td>0</td>	Γin	ppm	ASTM D5185m	>15	0	<1	0	
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 250 0 6 32 Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 68 67 80 Magnesium ppm ASTM D5185m 100 <1	Antimony	ppm	ASTM D5185m					
ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 250 0 6 32 Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 68 67 80 Manganese ppm ASTM D5185m 100 <1	Vanadium	ppm	ASTM D5185m		0	0	0	
Boron ppm ASTM D5185m 250 0 6 32	Cadmium	ppm	ASTM D5185m		0	0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum ppm ASTM D5185m 100 68 67 80 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	250	0	6	32	
Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 450 1044 989 412 Calcium ppm ASTM D5185m 3000 1320 1305 1876 Phosphorus ppm ASTM D5185m 1150 1179 1172 1100 Zinc ppm ASTM D5185m 1350 1417 1447 1253 Sulfur ppm ASTM D5185m 4250 4200 4338 4326 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >25 4 4 <1	Barium	ppm	ASTM D5185m	10	0	0	0	
Magnesium ppm ASTM D5185m 450 1044 989 412 Calcium ppm ASTM D5185m 3000 1320 1305 1876 Phosphorus ppm ASTM D5185m 1150 1179 1172 1100 Zinc ppm ASTM D5185m 1350 1417 1447 1253 Sulfur ppm ASTM D5185m 4250 4200 4338 4326 CONTAMINANTS method limit/base current history1 histo Silicon ppm ASTM D5185m >25 4 4 <1	Molybdenum	ppm	ASTM D5185m	100	68	67	80	
Calcium ppm ASTM D5185m 3000 1320 1305 1876 Phosphorus ppm ASTM D5185m 1150 1179 1172 1100 Zinc ppm ASTM D5185m 1350 1417 1447 1253 Sulfur ppm ASTM D5185m 4250 4200 4338 4326 CONTAMINANTS method limit/base current history1 histo Silicon ppm ASTM D5185m >25 4 4 <1	Manganese	ppm	ASTM D5185m		0	<1	<1	
Phosphorus ppm ASTM D5185m 1150 1179 1172 1100 Zinc ppm ASTM D5185m 1350 1417 1447 1253 Sulfur ppm ASTM D5185m 4250 4200 4338 4326 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >25 4 4 <1 Sodium ppm ASTM D5185m >158 8 10 19 Potassium ppm ASTM D5185m >20 <1 <1 0 INFRA-RED method limit/base current history1 histor Soot % % *ASTM D7844 >3 1 0.5 0.9 Nitration Abs/cm *ASTM D7624 >20 8.9 7.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.8 21.4 FLUID DEGRADATION method	Magnesium	ppm	ASTM D5185m	450	1044	989	412	
Zinc ppm ASTM D5185m 1350 1417 1447 1253 Sulfur ppm ASTM D5185m 4250 4200 4338 4326 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >25 4 4 <1	Calcium	ppm	ASTM D5185m	3000	1320	1305	1876	
Sulfur ppm ASTM D5185m 4250 4200 4338 4326 CONTAMINANTS method limit/base current history1 histor Silicon ppm ASTM D5185m >25 4 4 <1	Phosphorus	ppm	ASTM D5185m	1150	1179	1172	1100	
CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 4 <1	Zinc	ppm	ASTM D5185m	1350	1417	1447	1253	
Silicon ppm ASTM D5185m >25 4 4 <1 Sodium ppm ASTM D5185m >158 8 10 19 Potassium ppm ASTM D5185m >20 <1 <1 0 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 1 0.5 0.9 Nitration Abs/cm *ASTM D7624 >20 8.9 7.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.8 21.4 FLUID DEGRADATION method limit/base current history1 history1 Dxidation Abs/.1mm *ASTM D7414 >25 14.2 13.4 16.4	Sulfur	ppm	ASTM D5185m	4250	4200	4338	4326	
Sodium ppm ASTM D5185m >158 8 10 19 Potassium ppm ASTM D5185m >20 <1 <1 0 INFRA-RED method limit/base current history1 history1 history1 Soot % % *ASTM D7844 >3 1 0.5 0.9 Nitration Abs/cm *ASTM D7624 >20 8.9 7.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.8 21.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.4 16.4	CONTAMINANTS		method	limit/base	current	history1	history2	
Potassium ppm ASTM D5185m >20 <1 <1 0 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 1 0.5 0.9 Nitration Abs/cm *ASTM D7624 >20 8.9 7.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.8 21.4 FLUID DEGRADATION method limit/base current history1 history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.4 16.4	Silicon	ppm	ASTM D5185m	>25	4	4	<1	
INFRA-RED	Sodium	ppm	ASTM D5185m	>158	8	10	19	
Soot % % *ASTM D7844 >3 1 0.5 0.9 Nitration Abs/cm *ASTM D7624 >20 8.9 7.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.8 21.4 FLUID DEGRADATION method limit/base current history1 histor Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.4 16.4	Potassium	ppm	ASTM D5185m	>20	<1	<1	0	
Nitration Abs/cm *ASTM D7624 >20 8.9 7.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.8 21.4 FLUID DEGRADATION method limit/base current history1 history1 history1 16.4 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.4 16.4	INFRA-RED		method	limit/base	current	history1	history2	
Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.8 21.4 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.4 16.4	Soot %	%	*ASTM D7844	>3	1	0.5	0.9	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.4 16.4	Nitration	Abs/cm	*ASTM D7624	>20	8.9	7.1	11.1	
Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.4 16.4	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.5	17.8	21.4	
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2	
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.2	13.4	16.4	
	Base Number (BN)	mg KOH/g	ASTM D2896	8.5	10.15	11.81	10.7	



OIL ANALYSIS REPORT



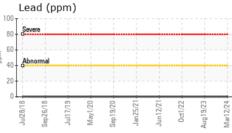


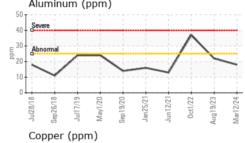


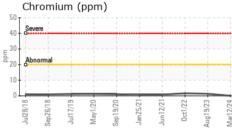
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

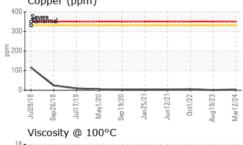
FLUID FROFER	TILO	memou			HISTOLAL	HISTOLA
Visc @ 100°C	cSt	ASTM D445	14.4	13.4	13.7	14.1

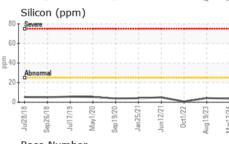
Iror	ı (pr	om)							
Sever	e								
Ī									
Abno	rmal								
- 0									
+	-		_				$\overline{}$	\ <u></u>	-
\Box		-		_			-	-	-
Jul28/18	6/18	1117/19	May1/20	9/20	2/5.	2/2	Oct1/22	9/23	2/24
Jul	Sep26/18	TIES .	May	Sep19/20	Jan25/21	Jun12/21	Oct	Aug19/23	Mar12/24
۸۱	mini	ım (ı	ppm)						

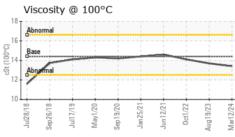


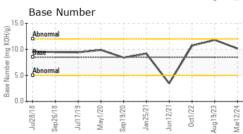
















Laboratory Sample No.

Lab Number : 06146744

: RW0005164 Unique Number : 10976822

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received **Tested**

: 11 Apr 2024 : 15 Apr 2024 Diagnosed : 15 Apr 2024 - Wes Davis

HALLACK CONTRACTING, INC. 4223 W POLK HART, MI US 49420

Test Package : MOB 2 Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

shop@hallackcontracting.com T: (231)873-5081

Contact: DAN HALLACK KARL BUTCHER

* - 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) F: (231)873-2889 Contact/Location: DAN HALLACK KARL BUTCHER - HALHAR