

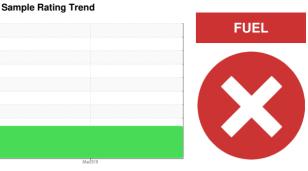




East Chicago Operations LIEBHERR A944 MH-34 (S/N WLH2077422K018204)

Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (5 GAL)



DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a high amount of fuel present in the oil.

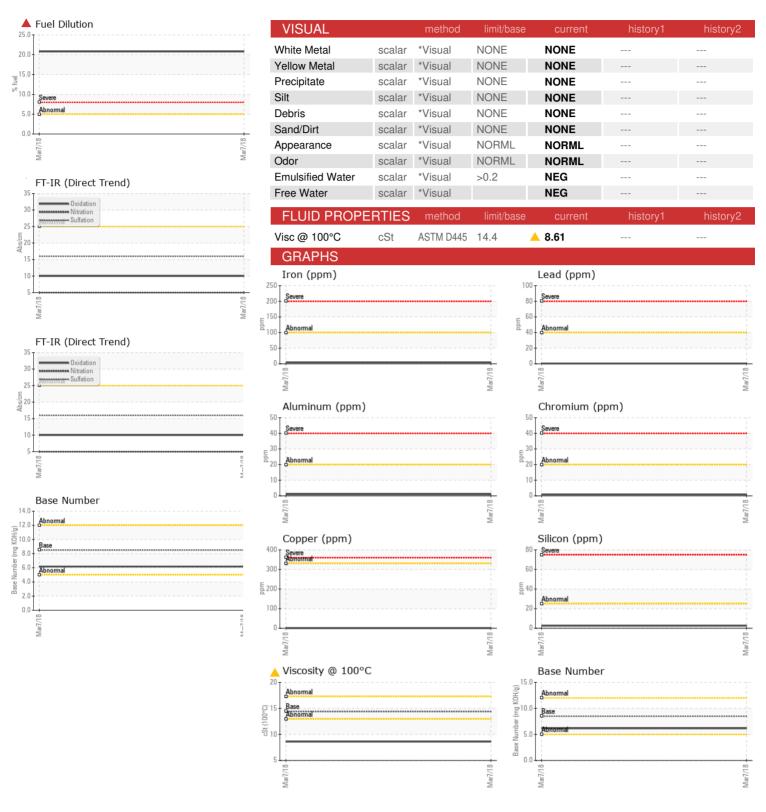
Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION	AE 15W40 (5 G/	,					
Sample Date Client Info 07 Mar 2018	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Cample Date Client Info O	Sample Number		Client Info		PCAM27136		
Machine Age hrs Client Info 0			Client Info		07 Mar 2018		
Dit Age	•	hrs	Client Info		0		
Dil Changed Client Info SEVERE		hrs	Client Info		0		
CONTAMINATION method fimit/base current history1 history2	-		Client Info		N/A		
Water WC Method So.2 NEG Society WC Method NEG Society WC Method NEG Society WC Method NEG Society Society					SEVERE		
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >100 4	Nater		WC Method	>0.2	NEG		
Chromium	Glycol		WC Method		NEG		
Description	WEAR METAL	S	method	limit/base	current	history1	history2
Description	ron	ppm	ASTM D5185m	>100	4		
ASTM D5185m S2 O STAND D5185m O O O STAND D5185m O O O O O O O O O	-				-		
ASTM D5185m Silver Popm Popm ASTM D5185m Silver Popm Popm Popm ASTM D5185m Silver Popm Popm Popm ASTM D5185m Silver Popm							
Silver					_		
Aluminum ppm ASTM D5185m >20 1					_		
December December	-						
Description							
Antimony ppm ASTM D5185m >15 0							
Antimony ppm ASTM D5185m							
Anadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 2 Barium ppm ASTM D5185m 10 0 Manganese ppm ASTM D5185m 100 37 Magnesium ppm ASTM D5185m 450 589 Calcium ppm ASTM D5185m 3000 642 Phosphorus ppm ASTM D5185m 1350 733 Picinc ppm ASTM D5185m 4250 2415 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >20 <1				>10	_		
ADDITIVES	•						
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 2 Barium ppm ASTM D5185m 10 0 Molybdenum ppm ASTM D5185m 100 37 Magnesium ppm ASTM D5185m 450 589 Calcium ppm ASTM D5185m 3000 642 Phosphorus ppm ASTM D5185m 1150 680 Phosphorus ppm ASTM D5185m 1350 733 Phosphorus ppm ASTM D5185m 4250 2415 Potasphorus ppm ASTM D5185m >25 3 Solitor ppm ASTM D5185m >25 3 Soliton ppm ASTM D5185m					_		
Soron ppm ASTM D5185m 250 2		рртт		11 11 11			
### Part	ADDITIVES		metnoa	ilmit/base	current	nistory i	nistory2
Molybdenum ppm ASTM D5185m 100 37 Manganese ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m	250			
Manganese ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m 450 589 Calcium ppm ASTM D5185m 3000 642 Phosphorus ppm ASTM D5185m 1150 680 Zinc ppm ASTM D5185m 1350 733 Sulfur ppm ASTM D5185m 4250 2415 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 Codassium ppm ASTM D5185m >20 <1 Fuel % ASTM D5185m >20 <1 Fuel % ASTM D5185m >20 <1 Fuel % ASTM D5185m >20	Barium	ppm	ASTM D5185m	10	0		
Magnesium ppm ASTM D5185m 450 589 Calcium ppm ASTM D5185m 3000 642 Phosphorus ppm ASTM D5185m 1150 680 Zinc ppm ASTM D5185m 1350 733 Sulfur ppm ASTM D5185m 4250 2415 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 3 Cotassium ppm ASTM D5185m >20 <1	Molybdenum	ppm	ASTM D5185m	100	37		
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Soulfur	Calcium	ppm	ASTM D5185m	3000	642		
Sulfur ppm ASTM D5185m 4250 2415 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 Sodium ppm ASTM D5185m <1	Phosphorus	ppm	ASTM D5185m	1150	680		
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INFRA-RED	Silicon	ppm	ASTM D5185m		current		
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Nitration Abs/cm *ASTM D7624 >25 5. Sulfation Abs/.1mm *ASTM D7415 >35 16. FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 10.	Silicon Sodium Potassium Fuel	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524	>25 >20 >5	current 3 <1 <1 <20.8		
Sulfation Abs/.1mm *ASTM D7415 >35 16. FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 10.	Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 method	>25 >20 >5 limit/base	current 3 <1 <1 <1	 history1	
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	Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 method *ASTM D7844 *ASTM D7624	>25 >20 >5 limit/base >3 >25	current 3 <1 <1 <20.8 current 0 5.	 history1	 history2
	Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm % % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 method *ASTM D7844 *ASTM D7624 *ASTM D7415	>25 >20 >5 limit/base >3 >25 >35	current 3 <1 <1 <20.8 current 0 5. 16.	 history1	 history2
	Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRA	ppm ppm ppm % % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	>25 >20 >5 limit/base >3 >25 >3 >25	current 3 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	history1	history2 history2



OIL ANALYSIS REPORT





Laboratory Sample No.

Lab Number : 04424391 Unique Number : 8123116

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCAM27136

Received **Tested** Diagnosed

: 09 Mar 2018 : 09 Mar 2018 - Jonathan Hester

Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

: 08 Mar 2018

Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. st - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Contact: DAN GERTLER dgertler@scrapmetalservices.com

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

US 46312

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