

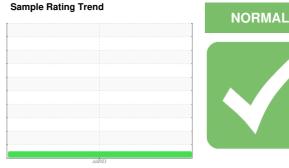
OIL ANALYSIS REPORT

KENWORTH 2048

Component

Diesel Engine

DIESEL ENGINE OIL SAE 10W30 (--- GAL)



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil

Fluid Condition

The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION method Imit/base current history1 history2					Jul2023		
Sample Number Client Info PC0046908	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 11 Jul 2023 Machine Age kms Client Info 122377 Client Info 122377 Client Info 122377 Client Info 122377 Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A Client Info N/A							
Machine Age kms	·						
Oil Age	•	kme					
Oil Changed Client Info N/A NORMAL NOR					-		
Sample Status	•	KIIIS					
CONTAMINATION			Oliciti IIIIo				
Fuel		ION	ام مالم مما	lineit/lenen		lai ata mud	histow.O
WEAR METALS		ION				nistory i	nistoryz
WEAR METALS				>5			
Iron	Glycol		WC Method		NEG		
Chromium	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185(m)	>100	33		
Titanium	Chromium	ppm	ASTM D5185(m)	>20	<1		
Silver	Nickel	ppm	ASTM D5185(m)	>4	<1		
Aluminum	Titanium	ppm	ASTM D5185(m)		<1		
Lead	Silver	ppm	ASTM D5185(m)	>3	<1		
Copper	Aluminum	ppm	ASTM D5185(m)	>20	11		
Tin	Lead	ppm	ASTM D5185(m)	>40	<1		
Antimony ppm ASTM D5185(m) 0 Vanadium ppm ASTM D5185(m) 0 Beryllium ppm ASTM D5185(m) 0 Cadmium ppm ASTM D5185(m) 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 10 1 Barium ppm ASTM D5185(m) 10 1 Manganese ppm ASTM D5185(m) 10 17 Magnesium ppm ASTM D5185(m) 450 820 Calcium ppm ASTM D5185(m) 3000 1358 Phosphorus ppm ASTM D5185(m) 1350 931 Sulfur ppm ASTM D5185(m) 4250 2642	Copper	ppm	ASTM D5185(m)	>330	14		
Vanadium ppm ASTM D5185(m) 0 Beryllium ppm ASTM D5185(m) 0 Cadmium ppm ASTM D5185(m) 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 250 39 Barium ppm ASTM D5185(m) 10 1 Molybdenum ppm ASTM D5185(m) 100 17 Manganese ppm ASTM D5185(m) 10 1 Magnesium ppm ASTM D5185(m) 450 820 Calcium ppm ASTM D5185(m) 3000 1358 Zinc ppm ASTM D5185(m) 150 861 Sulfur ppm ASTM D5185(m) 4250 2642 <th< th=""><th>Tin</th><th>ppm</th><th>ASTM D5185(m)</th><th>>15</th><th>1</th><th></th><th></th></th<>	Tin	ppm	ASTM D5185(m)	>15	1		
Beryllium	Antimony	ppm	ASTM D5185(m)		0		
Cadmium ppm ASTM D5185(m) 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 250 39 Barium ppm ASTM D5185(m) 10 1 Molybdenum ppm ASTM D5185(m) 100 17 Manganese ppm ASTM D5185(m) 100 17 Magnesium ppm ASTM D5185(m) 450 820 Calcium ppm ASTM D5185(m) 3000 1358 Phosphorus ppm ASTM D5185(m) 1150 861 Zinc ppm ASTM D5185(m) 1350 931 Sulfur ppm ASTM D5185(m) 4250 2642 Lithium ppm ASTM D5185(m)	Vanadium	ppm	ASTM D5185(m)		0		
ADDITIVES	Beryllium	ppm	ASTM D5185(m)		0		
Boron	Cadmium	ppm	ASTM D5185(m)		0		
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185(m) 100 17 Manganese ppm ASTM D5185(m) 450 820 Calcium ppm ASTM D5185(m) 3000 1358 Phosphorus ppm ASTM D5185(m) 1150 861 Zinc ppm ASTM D5185(m) 1350 931 Sulfur ppm ASTM D5185(m) 4250 2642 Lithium ppm ASTM D5185(m) <-1	Boron	ppm	ASTM D5185(m)	250	39		
Manganese ppm ASTM D5185(m) 1 Magnesium ppm ASTM D5185(m) 450 820 Calcium ppm ASTM D5185(m) 3000 1358 Phosphorus ppm ASTM D5185(m) 1150 861 Zinc ppm ASTM D5185(m) 1350 931 Sulfur ppm ASTM D5185(m) 4250 2642 Lithium ppm ASTM D5185(m) 4250 2642 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 13 Sodium ppm ASTM D5185(m) >20 34 Potassium ppm ASTM D5185(m) >20 34 INFRA-RED method limit/ba	Barium	ppm	ASTM D5185(m)	10	1		
Magnesium ppm ASTM D5185(m) 450 820 Calcium ppm ASTM D5185(m) 3000 1358 Phosphorus ppm ASTM D5185(m) 1150 861 Zinc ppm ASTM D5185(m) 1350 931 Sulfur ppm ASTM D5185(m) 4250 2642 Lithium ppm ASTM D5185(m) <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 13 Sodium ppm ASTM D5185(m) >20 34 Potassium ppm ASTM D5185(m) >20 34 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7624*	Molybdenum	ppm	ASTM D5185(m)	100	17		
Calcium ppm ASTM D5185(m) 3000 1358 Phosphorus ppm ASTM D5185(m) 1150 861 Zinc ppm ASTM D5185(m) 1350 931 Sulfur ppm ASTM D5185(m) 4250 2642 Lithium ppm ASTM D5185(m) <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 13 Sodium ppm ASTM D5185(m) >20 34 Potassium ppm ASTM D5185(m) >20 34 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7624* >20 9.1 Sulfation Abs/.1mm ASTM D7415*	Manganese	ppm	ASTM D5185(m)		1		
Phosphorus ppm ASTM D5185(m) 1150 861 Zinc ppm ASTM D5185(m) 1350 931 Sulfur ppm ASTM D5185(m) 4250 2642 Lithium ppm ASTM D5185(m) <1	-	ppm	ASTM D5185(m)		820		
Zinc ppm ASTM D5185(m) 1 350 931 Sulfur ppm ASTM D5185(m) 4250 2642 Lithium ppm ASTM D5185(m) <1	Calcium	ppm	ASTM D5185(m)	3000	1358		
Sulfur ppm ASTM D5185(m) 4250 2642 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 13 Sodium ppm ASTM D5185(m) 4 Potassium ppm ASTM D5185(m) >20 34 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 Nitration Abs/cm ASTM D7624* >20 9.1 Sulfation Abs/.1mm ASTM D7415* >30 21.1 FLUID DEGRADATION limit/base current history1 history2	Phosphorus	ppm	ASTM D5185(m)	1150	861		
Lithium ppm ASTM D5185(m) <1		ppm	\ /				
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 13 Sodium ppm ASTM D5185(m) 4 Potassium ppm ASTM D5185(m) >20 34 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 Nitration Abs/cm ASTM D7624* >20 9.1 Sulfation Abs/.1mm ASTM D7415* >30 21.1 FLUID DEGRADATION method limit/base current history1 history2		ppm	. ,	4250	2642		
Silicon ppm ASTM D5185(m) >25 13 Sodium ppm ASTM D5185(m) 4 Potassium ppm ASTM D5185(m) >20 34 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 Nitration Abs/cm ASTM D7624* >20 9.1 Sulfation Abs/.1mm ASTM D7415* >30 21.1 FLUID DEGRADATION method limit/base current history1 history2	Lithium	ppm	ASTM D5185(m)		<1		
Sodium ppm ASTM D5185(m) 4 Potassium ppm ASTM D5185(m) >20 34 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 Nitration Abs/cm ASTM D7624* >20 9.1 Sulfation Abs/.1mm ASTM D7415* >30 21.1 FLUID DEGRADATION method limit/base current history1 history2	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185(m) >20 34 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 Nitration Abs/cm ASTM D7624* >20 9.1 Sulfation Abs/.1mm ASTM D7415* >30 21.1 FLUID DEGRADATION method limit/base current history1 history2	Silicon	ppm	ASTM D5185(m)	>25	13		
INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0 Nitration Abs/cm ASTM D7624* >20 9.1 Sulfation Abs/.1mm ASTM D7415* >30 21.1 FLUID DEGRADATION method limit/base current history1 history2	Sodium	ppm	ASTM D5185(m)		4		
Soot % % ASTM D7844* >3 0 Nitration Abs/cm ASTM D7624* >20 9.1 Sulfation Abs/.1mm ASTM D7415* >30 21.1 FLUID DEGRADATION method limit/base current history1 history2	Potassium	ppm	ASTM D5185(m)	>20	34		
Nitration Abs/cm ASTM D7624* >20 9.1 Sulfation Abs/.1mm ASTM D7415* >30 21.1 FLUID DEGRADATION method limit/base current history1 history2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm ASTM D7415* >30 21.1 FLUID DEGRADATION method limit/base current history1 history2	Soot %	%	ASTM D7844*	>3	0		
FLUID DEGRADATION method limit/base current history1 history2	Nitration	Abs/cm	ASTM D7624*	>20	9.1		
	Sulfation	Abs/.1mm	ASTM D7415*	>30	21.1		
	FLUID DEGRAD	DAT <u>ION</u>	method_	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	ASTM D7414*	>25	15.9		



OIL ANALYSIS REPORT





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number

: PC0046908

: 5606692

: 02569646

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received

: 13 Jul 2023 Diagnosed

: 13 Jul 2023 Diagnostician : Wes Davis

Test Package : MOB 1 (Additional Tests: KV40, VI) 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.

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Contact: Steve M. stevem@bfregeau.com

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