

## **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id HITACHI 1174 Component

Front Diesel Engine Fluid DIESEL ENGINE OIL SAE 15W40 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

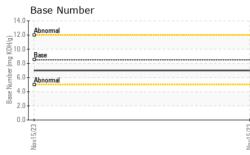
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

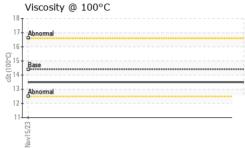
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0783522		
Sample Date		Client Info		15 Nov 2023		
Machine Age	hrs	Client Info		5562		
Oil Age	hrs	Client Info		300		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINATIO	٧	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	<1		
Chromium	ppm	ASTM D5185m	>20	<1		
Nickel	ppm	ASTM D5185m	>4	2		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>3	<1		
Aluminum	ppm	ASTM D5185m	>20	3		
Lead	ppm	ASTM D5185m	>40	2		
Copper	ppm	ASTM D5185m	>330	3		
Tin	ppm	ASTM D5185m	>15	0		
Vanadium	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 90	history1	history2
	ppm ppm					
Boron		ASTM D5185m	250	90		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	90 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	90 0 52		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	90 0 52 1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	90 0 52 1 33		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	90 0 52 1 33 1916	  	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	90 0 52 1 33 1916 955	  	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	90 0 52 1 33 1916 955 1218	    	    
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	90 0 52 1 33 1916 955 1218 3631		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	90 0 52 1 33 1916 955 1218 3631 current	     history1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b>	90 0 52 1 33 1916 955 1218 3631 current 8	     history1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158	90 0 52 1 33 1916 955 1218 3631 <u>current</u> 8 0	      history1 	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20	90 0 52 1 33 1916 955 1218 3631 current 8 0 2	     history1  	      history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >158 >20 <b>Imit/base</b> >3	90 0 52 1 33 1916 955 1218 3631 current 8 0 2 2	     history1   history1	     history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >158 >20 <b>Imit/base</b> >3	90 0 52 1 33 1916 955 1218 3631 <i>current</i> 8 0 2 2 <i>current</i>	     history1   history1 	     history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20 <b>imit/base</b> >3 >20	90 0 52 1 33 1916 955 1218 3631 <u>current</u> 8 0 2 2 <u>current</u> 0.1 6.5	      history1   history1  	      history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >158 >20 <b>Imit/base</b> >3 >20 >30	90 0 52 1 33 1916 955 1218 3631 <i>current</i> 8 0 2 2 <i>current</i> 0.1 6.5 16.1	      history1  history1  history1	     history2   history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20 <b>imit/base</b> >3 >20 >30	90 0 52 1 33 1916 955 1218 3631 current 8 0 2 2 current 0.1 6.5 16.1 current	     history1   history1  history1  history1	     history2  history2  history2  history2



# **OIL ANALYSIS REPORT**

VICLIAI





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		
0001	scalar	*Visual	NORML	NORML		
Emulsified Water	scalar	*Visual	>0.2	NEG		
Free Water	scalar	*Visual		NEG		
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.5		
GRAPHS						
Ferrous Alloys						
iron						
8 - nickel						
6						
Шdd						
4						
2						
33			53			
Nov15/23			Nov15/23			
≥ Non-ferrous Metal	c		z			
	5					
copper						
8 - management tin						
6-						
udd						
4						
2 -		****	******			
0						
		****************	2/23			
Nov15/23			Nov15/23			
Viscosity @ 100°C				Base Number		
18 			14.0			
17 Abnormal			12.0	Abnormal		
16			MH00	Base		
0015 8314			Ē 8.0	Base		
tg 14			e 6.0-	Abnormal		
13 Abnormal			(0) HOX back Jack MOX Back Mox Back Mox Back Mox Back Mox Back Mox Back Mox Back Mox Back Mox Back Mox Mox Mox Mox Mox Mox Mox Mox Mox Mox			
12			2.0-			
11			0.0-			
				5/23		
Nov15/23			Nov15/23	Nov15/23		
: 06059108	i01 Madii Recieved Diagnos Diagnosi	d :12. ed :12.	ry, NC 27513 Jan 2024 Jan 2024 s Davis	CONTRA	ACTORS SALES	COMPANY IN PO BOX 120 ALBANY, N US 122



Unique Numl Test Package : CONST (Additional Tests: TBN) Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. mstevens@contractorssales.com \* - 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)

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