

### **OIL ANALYSIS REPORT**

#### Sample Rating Trend



# TAKEUCHI TL10V2 410007383

## Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (--- 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.

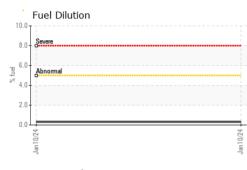
#### Fluid Condition

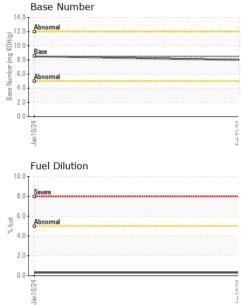
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

			Jan2024	Feb2024		
SAMPLE INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		ML0000830	ML0000502	
Sample Date		Client Info		21 Feb 2024	10 Jan 2024	
Machine Age	hrs	Client Info		148	30	
Oil Age	hrs	Client Info		118	0	
Oil Changed		Client Info		Not Changd	N/A	
Sample Status				ATTENTION	ATTENTION	
CONTAMINATION	N	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	8	6	
Chromium	ppm	ASTM D5185m	>20	<1	<1	
Nickel	ppm	ASTM D5185m	>4	0	<1	
Titanium	ppm	ASTM D5185m		<1	<1	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>20	2	2	
Lead	ppm	ASTM D5185m	>40	0	<1	
Copper	ppm	ASTM D5185m	>330	15	21	
Tin	ppm	ASTM D5185m	>15	0	1	
Vanadium	ppm	ASTM D5185m		0	<1	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method				history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 57	history1 15	history2
	ppm ppm					
Boron		ASTM D5185m	250	57	15	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	57 <1	15 2	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	57 <1 8	15 2 10	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	57 <1 8 2	15 2 10 2	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	57 <1 8 2 80	15 2 10 2 75	
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	57 <1 8 2 80 2323	15 2 10 2 75 2201	
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	57 <1 8 2 80 2323 912	15 2 10 2 75 2201 994	  
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	57 <1 8 2 80 2323 912 1116	15 2 10 2 75 2201 994 1069	   
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	57 <1 8 2 80 2323 912 1116 3616	15 2 10 2 75 2201 994 1069 3808	
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	250 10 100 450 3000 1150 1350 4250 <i>limit/base</i>	57 <1 8 2 80 2323 912 1116 3616 current	15 2 10 2 75 2201 994 1069 3808 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 <i>limit/base</i>	57 <1 8 2 80 2323 912 1116 3616 current 8	15 2 10 2 75 2201 994 1069 3808 history1 12	     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>limit/base</b> >25 >158 >20	57 <1 8 2 80 2323 912 1116 3616 current 8 9	15 2 10 2 75 2201 994 1069 3808 history1 12 11	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20	57 <1 8 2 80 2323 912 1116 3616 current 8 9 5	15 2 10 2 75 2201 994 1069 3808 history1 12 11 12 11 <1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 >5	57 <1 8 2 80 2323 912 1116 3616 current 8 9 5 5 <1.0	15 2 10 2 75 2201 994 1069 3808 history1 12 11 12 11 <1 0.3	     history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	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 >5	57 <1 8 2 80 2323 912 1116 3616 current 8 9 5 <1.0 current	15 2 10 2 75 2201 994 1069 3808 history1 12 11 12 11 2 11 0.3 history1	     history2    history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 <b>method</b> *ASTM D7844	250 10 100 450 3000 1150 1350 4250 <b>Iimit/base</b> >25 >158 >20 >5 <b>Iimit/base</b> >3	57 <1 8 2 80 2323 912 1116 3616 <i>current</i> 8 9 5 <1.0 <i>current</i> 0.1	15 2 10 2 75 2201 994 1069 3808 history1 12 11 12 11 <1 0.3 history1 0	     history2    history2   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 <b>method</b> *ASTM D7844	250 10 100 450 3000 1150 1350 4250 20 >25 >158 >20 >5 20 imit/base >3 >3 >20	57 <1 8 2 80 2323 912 1116 3616 Current 8 9 5 <1.0 Current 0.1 7.1	15 2 10 2 75 2201 994 1069 3808 history1 12 11 12 11 <1 0.3 history1 0 5.3	     history2    history2   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel 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>binit/base</b> >25 >158 >20 >5 <b>binit/base</b> >3 >20 >3 >20	57 <1 8 2 80 2323 912 1116 3616 Current 8 9 5 <1.0 Current 0.1 7.1 18.9	15 2 10 2 75 2201 994 1069 3808 history1 12 11 12 11 <1 0.3 history1 0 5.3 16.4	     history2    history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	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 >5 <b>imit/base</b> >3 >20 >3 30	57 <1 8 2 80 2323 912 1116 3616 <i>current</i> 8 9 5 <1.0 <i>current</i> 0.1 7.1 18.9 <i>current</i>	15 2 10 2 75 2201 994 1069 3808 history1 12 11 <1 0.3 history1 0 5.3 16.4 history1	     history2    history2  history2  history2



## **OIL ANALYSIS REPORT**





VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	
FLUID PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	<b>12.4</b>	<b>11.4</b>	
GRAPHS						
iron chromium nickel						
chromium			Feb21/24			
chromium nickel	ls		Feb21/24			
http://www.achomium nickel	ls		Feb21/24			
http://www.achomium nickel toopper Non-ferrous Meta	ls		Feb21/24			
Non-ferrous Meta	ls		Feb21/24			
Non-ferrous Meta	ls		Feb21/24			
Non-ferrous Meta	ls		Feb21/24 Feb21/24			

Base Number

14.0 12.0

(B/HOX Bu).

2.0

0.0

Jan 10/24

mber 6.0 Base | 4 (

Feb21/24 -

: 23 Feb 2024

: 26 Feb 2024

Bas



Lab Number : 06098927 Unique Number : 10897157 Diagnosed : 26 Feb 2024 - Don Baldridge US 23060 Test Package : CONST (Additional Tests: FuelDilution, TBN) Contact: KYLE RATLIFFE Certificate L2367 KRATLIFFE@MCCLUNG-LOGAN.COM 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. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (804)266-1611

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

Received

Tested

Viscosity @ 100°C

16

B

(100°C) (100°C) (100°C) (100°C) (100°C) (100°C) (15°C) (15°C) (15°C) (15°C) (15°C) (15°C) (15°C) (15°C) (16°C) (16

12

10

Laboratory Sample No. Jan 10/24

: ML0000830

MCCLUNG-LOGAN EQUIPMENT CO - RICHMOND

1345 MOUNTAIN ROAD

GLEN ALLEN, VA

Feb21/24