

### **OIL ANALYSIS REPORT**

Sample Rating Trend

NORMAL

# INTERNATIONAL 1156

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

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PC0081347		
Sample Date		Client Info		21 Aug 2023		
Machine Age	kms	Client Info		314507		
Oil Age	kms	Client Info		9670		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINATI	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>2.0	<1.0		
Glycol		WC Method		NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>100	21		
Chromium	ppm	ASTM D5185(m)	>20	<1		
Nickel	ppm	ASTM D5185(m)	>4	<1		
Titanium	ppm	ASTM D5185(m)		0		
Silver	ppm	ASTM D5185(m)	>3	<1		
Aluminum	ppm	ASTM D5185(m)	>20	5		
Lead	ppm	ASTM D5185(m)	>40	2		
Copper	ppm	ASTM D5185(m)	>330	1		
Tin	ppm	ASTM D5185(m)	>15	<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
ADDITIVES Boron	ppm	method ASTM D5185(m)	limit/base 250	current 4	history1	history2
	ppm ppm					
Boron		ASTM D5185(m)	250	4		
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	250 10	4 <1		
Boron Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10	4 <1 58		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100	4 <1 58 0		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450	4 <1 58 0 906		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000	4 <1 58 0 906 980	  	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250	4 <1 58 0 906 980 928 1101 2370	   	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250	4 <1 58 0 906 980 928 1101	    	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250	4 <1 58 0 906 980 928 1101 2370	    	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250	4 <1 58 0 906 980 928 1101 2370 <1		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b>	4 <1 58 0 906 980 928 1101 2370 <1 current	      history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 limit/base >25	4 <1 58 0 906 980 928 1101 2370 <1 current 3	       history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158	4 <1 58 0 906 980 928 1101 2370 <1 current 3 4	       history1	       history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 <b>binit/base</b> >25 >158 >20	4 <1 58 0 906 980 928 1101 2370 <1 2370 <1 2370 <1 2370 <1 2370 <1	      history1  	       history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20	4 <1 58 0 906 980 928 1101 2370 <1 current 3 4 <1 current	      history1   history1	      history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 <b>binit/base</b> >25 >158 >20 <b>binit/base</b> >3	4 <1 58 0 906 980 928 1101 2370 <1 <u>current</u> 3 4 <1 <u>current</u> 0.9	      history1   history1 	      history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Solicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 <b>limit/base</b> >3 >20	4 <1 58 0 906 980 928 1101 2370 <1 <i>current</i> 3 4 <1 <i>current</i> 0.9 8.8	       history1   history1  	      history2  history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 <b>binit/base</b> >25 >158 >20 <b>binit/base</b> >3 >20 >30	4 <1 58 0 906 980 928 1101 2370 <1 current 3 4 <1 current 0.9 8.8 21.4	       history1  history1	      history2  history2  history2



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