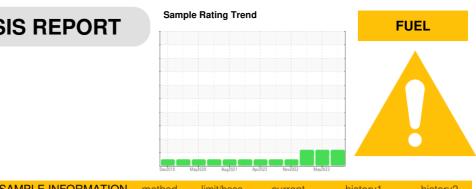


OIL ANALYSIS REPORT



Machine Id **9575** Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

Wear

All component wear rates are normal.

Contamination

Light fuel dilution occurring. No other contaminants were detected in the oil.

Fluid Condition

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

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0853220	WC0796570	WC0702896
Sample Date		Client Info		09 Nov 2023	21 May 2023	19 Feb 2023
Machine Age	kms	Client Info		228084	212734	198552
Oil Age	kms	Client Info		0	0	0
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
		and the second	11		In the test second	history O
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>130	15	24	76
Chromium	ppm	ASTM D5185(m)	>10	0	<1	1
Nickel	ppm	ASTM D5185(m)	>4	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	0	<1	<1
Silver	ppm	ASTM D5185(m)	>2	0	0	0
Aluminum	ppm	ASTM D5185(m)	>20	3	5	12
Lead	ppm	ASTM D5185(m)	>20	0	0	<1
Copper	ppm	ASTM D5185(m)	>125	<1	2	5
Tin	ppm	ASTM D5185(m)	>4	0	0	<1
Antimony	ppm	ASTM D5185(m)		0	<1	<1
Vanadium	ppm	ASTM D5185(m)		0	0	<1
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
Cadmium ADDITIVES	ppm	ASTM D5185(m) method	limit/base	0 current	0 history1	0 history2
	ppm ppm	()	limit/base 250	current 59	history1 59	history2 33
ADDITIVES		method	250 10	current	history1 59 0	history2 33 0
ADDITIVES Boron	ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250	current 59 0 <1	history1 59 0 3	history2 33 0 6
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100	current 59 0 <1 0	history1 59 0 3 <1	history2 33 0 6 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	Method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450	current 59 0 <1 0 718	history1 59 0 3 <1 715	history2 33 0 6 1 753
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	Method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000	current 59 0 <1 0 718 1320	history1 59 0 3 <1 715 1452	history2 33 0 6 1 753 1501
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	Method 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	current 59 0 <1 0 718 1320 682	history1 59 0 3 <1 715 1452 714	history2 33 0 6 1 753 1501 795
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	Method 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	current 59 0 <1 0 718 1320 682 758	history1 59 0 3 <1 715 1452 714 780	history2 33 0 6 1 753 1501 795 837
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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	current 59 0 <1 0 718 1320 682 758 2616	history1 59 0 3 <1 715 1452 714 780 2592	history2 33 0 6 1 753 1501 795 837 2639
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	Method 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	current 59 0 <1 0 718 1320 682 758	history1 59 0 3 <1 715 1452 714 780	history2 33 0 6 1 753 1501 795 837
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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	current 59 0 <1 0 718 1320 682 758 2616	history1 59 0 3 <1 715 1452 714 780 2592	history2 33 0 6 1 753 1501 795 837 2639
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250	current 59 0 <1 0 718 1320 682 758 2616 <1	history1 59 0 3 <1 715 1452 714 780 2592 <1	history2 33 0 6 1 753 1501 795 837 2639 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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 limit/base	current 59 0 <1 0 718 1320 682 758 2616 <1 current	history1 59 0 3 <1 715 1452 714 780 2592 <1 history1	history2 33 0 6 1 753 1501 795 837 2639 <1 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 limit/base >25	current 59 0 <1 0 718 1320 682 758 2616 <1 current	history1 59 0 3 <1 715 1452 714 780 2592 <1 history1 6 3 4	history2 33 0 6 1 753 1501 795 837 2639 <1 history2 12 5 6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	current 59 0 <1 0 718 1320 682 758 2616 <1 current 4 2	history1 59 0 3 <1 715 1452 714 780 2592 <1 history1 6 3	history2 33 0 6 1 753 1501 795 837 2639 <1 history2 12 5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	current 59 0 <1 0 718 1320 682 758 2616 <1 current 4 2 2 2 2 2 2 2	history1 59 0 3 <1 715 1452 714 780 2592 <1 history1 6 3 4	history2 33 0 6 1 753 1501 795 837 2639 <1 history2 12 5 6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 imit/base >25 >158 >20 >3.0	current 59 0 <1 0 718 1320 682 758 2616 <1 current 4 2 2 2 2.6	history1 59 0 3 <1 715 1452 714 780 2592 <1 history1 6 3 4	history2 33 0 6 1 753 1501 795 837 2639 <1 history2 12 5 6 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 >3.0	current 59 0 <1 0 718 1320 682 758 2616 <1 current 4 2 2 2 2 2 2 2.6	history1 59 0 3 <1 715 1452 714 780 2592 <1 history1 6 3 4 1.9 history1	history2 33 0 6 1 753 1501 795 837 2639 <1 12 5 6 ↓ 2 5 6 ↓ 2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4	method ASTM D5185(m) ASTM D7593*	250 10 100 450 3000 1150 1350 4250 imit/base >25 >158 >20 >3.0 imit/base >6	current 59 0 <1 0 718 1320 682 758 2616 <1 current 4 2 2 2 2 2 2 2 2 2 2 2 2.6 current 0.2	history1 59 0 3 <1 715 1452 714 780 2592 <1 history1 6 3 4 1.9 history1 0.2	history2 33 0 6 1 753 1501 795 837 2639 <1 history2 12 5 6 2 history2 0 0 0 0.5



OIL ANALYSIS REPORT

method

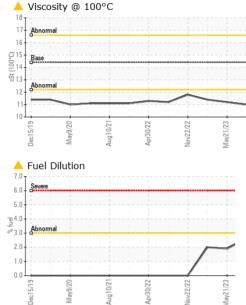
limit/base

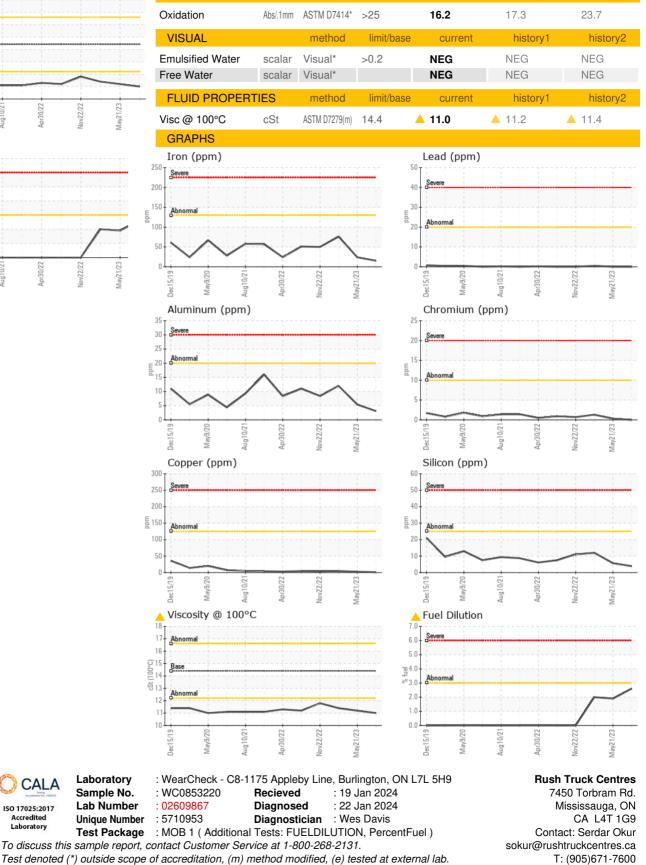
current

history1

history2

FLUID DEGRADATION





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.

CALA

ISO 17025:2017 Accredited

Laboratory

B

F: