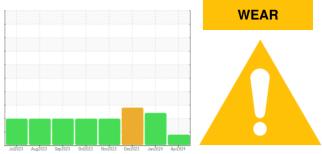


ARIZONA

OIL ANALYSIS REPORT

Sample Rating Trend



Diesel Engine Fluid DIESEL ENGINE OIL SAE 10W30 (--- QTS)

DIAGNOSIS

A Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

A Wear

Area

2323

Exhaust valve wear is indicated.

Contamination

There is no indication of any contamination in the oil.

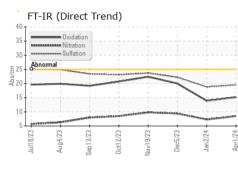
Fluid Condition

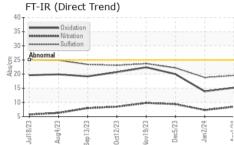
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

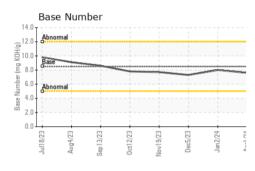
SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0857185	WC0892135	WC0881845
Sample Date		Client Info		01 Apr 2024	02 Jan 2024	05 Dec 2023
Machine Age	hrs	Client Info		1409	1019	870
Oil Age	hrs	Client Info		0	149	870
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method		NEG	NEG	NEG
Glycol		WC Method	20.L	NEG	NEG	NEG
WEAR METALS		method	limit/base			
				current	history1	history2
Iron	ppm	ASTM D5185m	>100	17	9	25
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<mark>/</mark> 6	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	1	<1	1
Aluminum	ppm	ASTM D5185m	>20	4	2	5
Lead	ppm	ASTM D5185m	>40	0	2	0
Copper	ppm	ASTM D5185m	>330	230	<u> </u>	<mark>▲</mark> 360
Tin	ppm	ASTM D5185m	>15	2	1	3
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 80	history1 99	history2 138
	ppm ppm					
Boron		ASTM D5185m	250	80	99	138 0 97
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	80 <1	99 0	138 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	80 <1 37	99 0 29	138 0 97 2 498
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	80 <1 37 1	99 0 29 <1	138 0 97 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	80 <1 37 1 628	99 0 29 <1 640	138 0 97 2 498 1557 755
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	80 <1 37 1 628 1434	99 0 29 <1 640 1351	138 0 97 2 498 1557
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	80 <1 37 1 628 1434 775	99 0 29 <1 640 1351 722	138 0 97 2 498 1557 755
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	80 <1 37 1 628 1434 775 968	99 0 29 <1 640 1351 722 799	138 0 97 2 498 1557 755 914
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	80 <1 37 1 628 1434 775 968 3016	99 0 29 <1 640 1351 722 799 2850	138 0 97 2 498 1557 755 914 2522
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	80 <1 37 1 628 1434 775 968 3016 current	99 0 29 <1 640 1351 722 799 2850 history1	138 0 97 2 498 1557 755 914 2522 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 method	250 10 100 450 3000 1150 1350 4250	80 <1 37 1 628 1434 775 968 3016 current 20	99 0 29 <1 640 1351 722 799 2850 history1 ▲ 27	138 0 97 2 498 1557 755 914 2522 history2 ▲ 65
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 limit/base >25	80 <1 37 1 628 1434 775 968 3016 current 20 3	99 0 29 <1 640 1351 722 799 2850 history1 ▲ 27 2	138 0 97 2 498 1557 755 914 2522 history2 65 <1
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 limit/base >25 >20	80 <1 37 1 628 1434 775 968 3016 <u>current</u> 20 3 11	99 0 29 <1 640 1351 722 799 2850 history1 ▲ 27 2 2 4	138 0 97 2 498 1557 755 914 2522 history2 ▲ 65 <1 6
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 limit/base >25	80 <1 37 1 628 1434 775 968 3016 current 20 3 11 current	99 0 29 <1 640 1351 722 799 2850 history1 27 2 2 4 4	138 0 97 2 498 1557 755 914 2522 history2 65 <1 6 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >20 limit/base >3	80 <1 37 1 628 1434 775 968 3016 current 20 3 11 20 3 11 current	99 0 29 <1 640 1351 722 799 2850 history1 27 2 2 4 27 2 4 0.1	138 0 97 2 498 1557 755 914 2522 history2 65 <1 6 6 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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 bimit/base >25 bimit/base >20	80 <1 37 1 628 1434 775 968 3016 current 20 3 11 20 3 11 current 0.2 8.5	99 0 29 <1 640 1351 722 799 2850 history1 ▲ 27 2 2 4 2 4 0.1 0.1 7.3	138 0 97 2 498 1557 755 914 2522 history2 65 <1 6 6 ×1 6 0.3 9.4
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 Iimit/base >25 20 iimit/base >3 >20 >30	80 <1 37 1 628 1434 775 968 3016 current 20 3 11 current 0.2 8.5 19.5 current	99 0 29 <1 640 1351 722 799 2850 history1 ▲ 27 2 2 4 2 0.1 7.3 18.8	138 0 97 2 498 1557 755 914 2522 history2 ▲ 65 <1 6 6 history2 0.3 9.4 22.2 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 Iimit/base >25 20 Iimit/base >3 >20 >30 Iimit/base	80 <1 37 1 628 1434 775 968 3016 current 20 3 11 current 0.2 8.5 19.5	99 0 29 <1 640 1351 722 799 2850 history1 ▲ 27 2 2 4 history1 0.1 7.3 18.8	138 0 97 2 498 1557 755 914 2522 history2 65 <1 6 6 history2 0.3 9.4 22.2

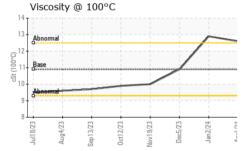


OIL ANALYSIS REPORT

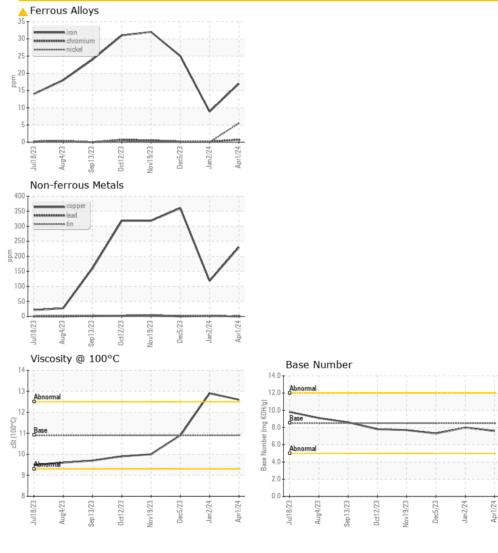








VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPER	FIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	10.9	12.6	12.9	0.9
GRAPHS						



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 LIBERTY DISPOSAL : WC0857185 Sample No. Received : 22 Apr 2024 6401 S EASTERN AVE Lab Number : 06156622 Tested : 23 Apr 2024 OKLAHOMA CITY, OK Unique Number : 10992045 Diagnosed : 24 Apr 2024 - Sean Felton US 73149 Test Package : FLEET Contact: CARRIE MARSHALL Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. c.marshall@ldi89.com * - 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:

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Contact/Location: CARRIE MARSHALL - SEAOKL

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