

OIL ANALYSIS REPORT

Area **ARIZONA GROUPING** 2015 MACK 2696

Diesel Engine Fluid NAPA Motor Oil 15W40 (9 GAL)

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

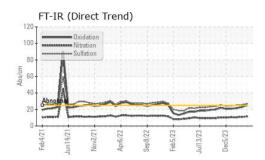
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

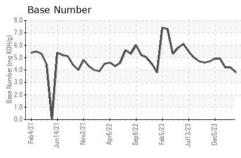
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0899590	WC0892133	WC0892126
Sample Date		Client Info		08 Apr 2024	02 Mar 2024	08 Feb 2024
Machine Age	hrs	Client Info		17540	17368	17232
Oil Age	hrs	Client Info		1849	1677	1541
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	27	20	19
Chromium	ppm	ASTM D5185m	>20	0	0	<1
Nickel	ppm	ASTM D5185m	>5	2	<1	1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	4	5
Lead	ppm	ASTM D5185m	>40	3	2	3
Copper	ppm	ASTM D5185m	>330	2	<1	0
Tin	ppm	ASTM D5185m	>15	2	1	2
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		25	28	21
	ppm ppm	ASTM D5185m ASTM D5185m		25 0	28 0	21 0
Boron						
Boron Barium	ppm	ASTM D5185m		0	0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m		0 16	0	0 18
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		0 16 <1	0 19 1	0 18 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 16 <1 689	0 19 1 649	0 18 <1 648
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 16 <1 689 1403	0 19 1 649 1360	0 18 <1 648 1341
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		0 16 <1 689 1403 825	0 19 1 649 1360 746	0 18 <1 648 1341 801
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	limit/base	0 16 <1 689 1403 825 943	0 19 1 649 1360 746 881	0 18 <1 648 1341 801 925
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		0 16 <1 689 1403 825 943 3493	0 19 1 649 1360 746 881 2617	0 18 <1 648 1341 801 925 2915
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		0 16 <1 689 1403 825 943 3493 current	0 19 1 649 1360 746 881 2617 history1	0 18 <1 648 1341 801 925 2915 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 method ASTM D5185m		0 16 <1 689 1403 825 943 3493 current 8	0 19 1 649 1360 746 881 2617 history1 6	0 18 <1 648 1341 801 925 2915 history2 8
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 method ASTM D5185m ASTM D5185m	>25	0 16 <1 689 1403 825 943 3493 current 8 21	0 19 1 649 1360 746 881 2617 history1 6 15	0 18 <1 648 1341 801 925 2915 history2 8 18
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	>25 >20	0 16 <1 689 1403 825 943 3493 <u>current</u> 8 21 5	0 19 1 649 1360 746 881 2617 history1 6 15 <1	0 18 <1 648 1341 801 925 2915 history2 8 18 4
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	>25 >20 limit/base	0 16 <1 689 1403 825 943 3493 Current 8 21 5 Current	0 19 1 649 1360 746 881 2617 history1 6 15 <1 history1	0 18 <1 648 1341 801 925 2915 history2 8 18 4 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>25 >20 limit/base >4	0 16 <1 689 1403 825 943 3493 Current 8 21 5 Current 0.6	0 19 1 649 1360 746 881 2617 history1 6 15 <1 history1 0.6	0 18 <1 648 1341 801 925 2915 history2 8 18 4 history2 0.5
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	>25 >20 limit/base >4 >20	0 16 <1 689 1403 825 943 3493 <u>current</u> 8 21 5 <u>current</u> 0.6 11.4	0 19 1 649 1360 746 881 2617 history1 6 15 <1 history1 0.6 11.0	0 18 <1 648 1341 801 925 2915 history2 8 18 4 history2 0.5 10.5
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 D7844 *ASTM D7624	>25 >20 limit/base >4 >20 >30 limit/base	0 16 <1 689 1403 825 943 3493 current 8 21 5 current 0.6 11.4 26.9 current	0 19 1 649 1360 746 881 2617 history1 6 15 <1 history1 0.6 11.0 25.6 history1	0 18 <1 648 1341 801 925 2915 history2 8 18 4 history2 0.5 10.5 25.1 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	>25 >20 limit/base >4 >20 >30	0 16 <1 689 1403 825 943 3493 Current 8 21 5 Current 0.6 11.4 26.9	0 19 1 649 1360 746 881 2617 history1 6 15 <1 history1 0.6 11.0 25.6	0 18 <1 648 1341 801 925 2915 history2 8 18 4 history2 0.5 10.5 25.1

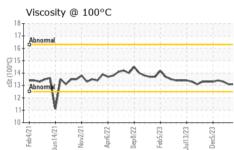




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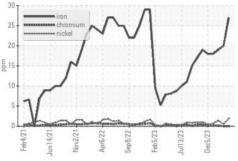


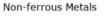


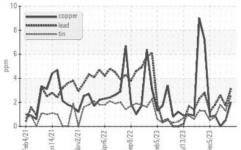


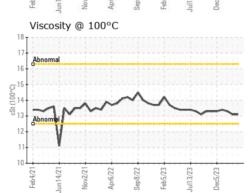
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		13.1	13.1	13.3
CRAPHS						











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

Received

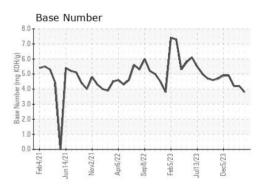
Diagnosed

Tested

: 11 Apr 2024

: 12 Apr 2024

: 15 Apr 2024 - Don Baldridge



LIBERTY DISPOSAL

6401 S EASTERN AVE OKLAHOMA CITY, OK US 73149 Contact: CATHY ROSA c.rosa@ldi89.com Т: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: SEAOKL [WUSCAR] 06146388 (Generated: 04/15/2024 15:29:14) Rev: 1

Certificate 12367

Laboratory

Sample No.

Lab Number : 06146388

Unique Number : 10976466

Test Package : FLEET

: WC0899590

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.

Submitted By: ? Page 2 of 2