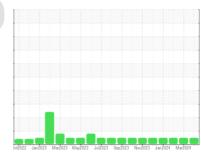


OIL ANALYSIS REPORT



ARIZONA **VOLVO 4886** Component **Diesel Engine**

NAPA Motor Oil 15W40 (--- QTS)



Sample Rating Trend



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

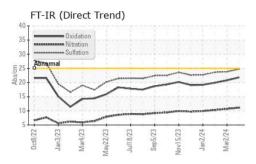
Fluid Condition

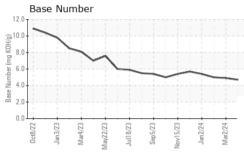
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

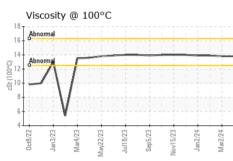
Sample Number Client Info WC0899588 WC0899579 WC08921 Sample Date Client Info 10 Apr 2024 02 Mar 2024 08 Jan 202 Machine Age hrs Client Info 2744 2475 2335 Client Info 2744 2475 2335 Client Info 2744 2475 2335 Client Info 2174 1905 1765 Mot Changd Not Changd Not Changd NorMAL NO) (Q1S))ct2022 Jan20	23 Mar2023 May2023 Ju	ul2023 Sep2023 Nov2023 Jan2024	Mar2024	
Sample Date Client Info 10 Apr 2024 02 Mar 2024 08 Jan 200	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 10 Apr 2024 02 Mar 2024 08 Jan 202	Sample Number		Client Info		WC0899588	WC0899579	WC0892132
Machine Age hrs Client Info 2744 2475 2335 Oil Age hrs Client Info 2174 1905 1765 Oil Changed Client Info Not Changd Not Ghangd	•		Client Info		10 Apr 2024	02 Mar 2024	08 Jan 2024
Oil Age hrs Client Info 2174 1905 1765 Not Changd Not Changd Not Changd Not Changd Not Changd North Nor		hrs			-		
Colimpage Client Info Not Change Not Change Normal Nor	<u> </u>	hrs	Client Info		2174	1905	1765
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1							Not Changd
Fuel	•					Ü	Ü
Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 73 60 56 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 <1 Silver ppm ASTM D5185m >2 <8 6 6 Silver ppm ASTM D5185m >2 <1 <1 <1 Aluminum ppm ASTM D5185m >25 5 4 4 Lead ppm ASTM D5185m >40 5 2 4 Copper ppm ASTM D5185m >330 97 101 99 Tin ppm ASTM D5185m 0 0 <1 Cadmium p	CONTAMINATION	N	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>6.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 73 60 56 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
ASTM D5185m >100 73 60 56	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 8 6 6 Titanium ppm ASTM D5185m >2 4 -1 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	73	60	56
Description	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>2	8	6	6
Aluminum	Titanium	ppm	ASTM D5185m		0	0	0
Lead	Silver	ppm	ASTM D5185m	>2	<1	<1	<1
Copper ppm ASTM D5185m >330 97 101 99 Tin ppm ASTM D5185m >15 4 3 3 Vanadium ppm ASTM D5185m 0 0 <1	Aluminum	ppm	ASTM D5185m	>25	5	4	4
ASTM D5185m D5185	_ead	ppm	ASTM D5185m	>40	5	2	4
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 18 15 19 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 22 22 22 22 Magnesium ppm ASTM D5185m 2 2 1 4 Magnesium ppm ASTM D5185m 1811 1735 1748 Phosphorus ppm ASTM D5185m 919 870 898 Zinc ppm ASTM D5185m 1144 1063 1132 Sulfur ppm ASTM D5185m 3238 2470 2734 CONTAMINANTS method limit/base current history1 history1 Solicon ppm ASTM D5185m	Copper	ppm	ASTM D5185m	>330	97	101	99
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 18 15 19 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 22 22 22 Manganese ppm ASTM D5185m 2 2 1 Magnesium ppm ASTM D5185m 438 412 397 Calcium ppm ASTM D5185m 1811 1735 1748 Phosphorus ppm ASTM D5185m 919 870 898 Zinc ppm ASTM D5185m 3238 2470 2734 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m >20 13 </td <td>Tin</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>15</td> <th>4</th> <td>3</td> <td>3</td>	Tin	ppm	ASTM D5185m	>15	4	3	3
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 22 22 22 Manganese ppm ASTM D5185m 2 2 1 Magnesium ppm ASTM D5185m 438 412 397 Calcium ppm ASTM D5185m 1811 1735 1748 Phosphorus ppm ASTM D5185m 919 870 898 Zinc ppm ASTM D5185m 1144 1063 1132 Sulfur ppm ASTM D5185m 3238 2470 2734 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 22 22 22 Manganese ppm ASTM D5185m 2 2 1 Magnesium ppm ASTM D5185m 438 412 397 Calcium ppm ASTM D5185m 1811 1735 1748 Phosphorus ppm ASTM D5185m 919 870 898 Zinc ppm ASTM D5185m 1144 1063 1132 Sulfur ppm ASTM D5185m 3238 2470 2734 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm	Boron	ppm	ASTM D5185m		18	15	19
Manganese ppm ASTM D5185m 2 2 1 Magnesium ppm ASTM D5185m 438 412 397 Calcium ppm ASTM D5185m 1811 1735 1748 Phosphorus ppm ASTM D5185m 919 870 898 Zinc ppm ASTM D5185m 1144 1063 1132 Sulfur ppm ASTM D5185m 3238 2470 2734 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation	Barium	ppm	ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 438 412 397 Calcium ppm ASTM D5185m 1811 1735 1748 Phosphorus ppm ASTM D5185m 919 870 898 Zinc ppm ASTM D5185m 1144 1063 1132 Sulfur ppm ASTM D5185m 3238 2470 2734 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6 <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>22</th> <td></td> <td></td>	Molybdenum	ppm	ASTM D5185m		22		
Calcium ppm ASTM D5185m 1811 1735 1748 Phosphorus ppm ASTM D5185m 919 870 898 Zinc ppm ASTM D5185m 1144 1063 1132 Sulfur ppm ASTM D5185m 3238 2470 2734 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m 4 0 3 Potassium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6	Manganese	ppm	ASTM D5185m		2		1
Phosphorus ppm ASTM D5185m 919 870 898 Zinc ppm ASTM D5185m 1144 1063 1132 Sulfur ppm ASTM D5185m 3238 2470 2734 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m 4 0 3 Potassium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6	Magnesium	ppm	ASTM D5185m		438	412	397
Zinc ppm ASTM D5185m 1144 1063 1132 Sulfur ppm ASTM D5185m 3238 2470 2734 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m 4 0 3 Potassium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6 FLUID DEGRADATION method limit/base current history1 history1	Calcium	ppm	ASTM D5185m		1811	1735	1748
Sulfur ppm ASTM D5185m 3238 2470 2734 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m 4 0 3 Potassium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6 FLUID DEGRADATION method limit/base current history1 history1	Phosphorus	ppm	ASTM D5185m		919	870	898
CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m 4 0 3 Potassium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6 FLUID DEGRADATION method limit/base current history1 history1	Zinc	ppm	ASTM D5185m		1144	1063	1132
Silicon ppm ASTM D5185m >25 8 7 8 Sodium ppm ASTM D5185m 4 0 3 Potassium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6 FLUID DEGRADATION method limit/base current history1 history	Sulfur	ppm	ASTM D5185m		3238	2470	2734
Sodium ppm ASTM D5185m 4 0 3 Potassium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6 FLUID DEGRADATION method limit/base current history1 history	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 13 8 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6 FLUID DEGRADATION method limit/base current history1 history	Silicon	ppm	ASTM D5185m	>25	8	7	8
INFRA-RED	Sodium	ppm	ASTM D5185m		4	0	3
Soot % *ASTM D7844 >3 0.7 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6 FLUID DEGRADATION method limit/base current history1 history	Potassium	ppm	ASTM D5185m	>20	13	8	10
Nitration Abs/cm *ASTM D7624 >20 11.1 10.7 10.3 Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6 FLUID DEGRADATION method limit/base current history1 history1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 24.7 23.8 23.6 FLUID DEGRADATION method limit/base current history1 history	Soot %	%	*ASTM D7844	>3	0.7	0.6	0.6
FLUID DEGRADATION method limit/base current history1 history	Nitration	Abs/cm	*ASTM D7624	>20	11.1	10.7	10.3
	Sulfation	Abs/.1mm	*ASTM D7415	>30	24.7	23.8	23.6
Oxidation Abs/.1mm *ASTM D7414 >25 21.8 20.8 19.9	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	21.8	20.8	19.9
Base Number (BN) mg KOH/g ASTM D2896 4.7 4.9 5.0	Base Number (BN)	mg KOH/g	ASTM D2896			4.9	5.0



OIL ANALYSIS REPORT



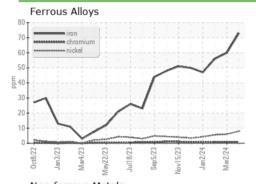


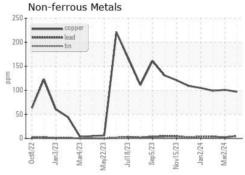


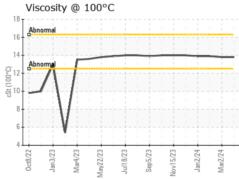
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

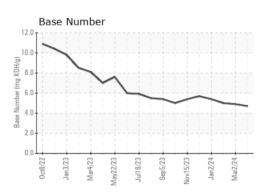
FLUID PROPER	HES	method		history1	history2
Visc @ 100°C	cSt	ASTM D445	13.8	13.8	13.9

GRAPHS













Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0899588 Lab Number : 06146393 Unique Number : 10976471

Received

Tested : 12 Apr 2024 Diagnosed

: 15 Apr 2024 - Don Baldridge

: 11 Apr 2024

Test Package : FLEET Certificate 12367 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. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

LIBERTY DISPOSAL

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F: Contact/Location: CATHY ROSA - SEAOKL