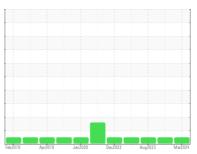


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id FSP135786

Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (--- QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

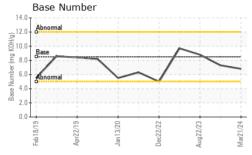
Fluid Condition

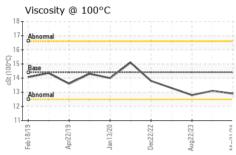
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1 history2			Feb 2019	Apr2019 Jan2020	Dec2022 Aug2023	Mar2024	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 264688 259723 243567 Oil Age mls Client Info 0 0 0 Oil Changed Client Info Changed Changed Changed Sample Status method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG Iron Ppm ASTM D5185m >100 6 6 6 Chromium ppm ASTM D5185m >20 <1 0 0 Nickel ppm ASTM D5185m >20 <1 0 0 Silver ppm ASTM D5185m >20 3 4 2 Lead ppm ASTM D5185m >20 3 4 2 Copper ppm ASTM D5185m >330 1 3 2 Tin ppm	Sample Number		Client Info		WC0903262	WC0875706	WC0787766
Oil Age mls Client Info Changed NCRMAL NORMAL	Sample Date		Client Info		21 Mar 2024	12 Jan 2024	22 Aug 2023
Oil Changed Sample Status Client Info MoRMAL Changed NORMAL Change NoRMAL Change NEG Change NEG	Machine Age	mls	Client Info		264688	259723	243567
Sample Status	Oil Age	mls	Client Info		0	0	0
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 6 6 6 Chromium ppm ASTM D5185m >20 <1 0 0 Nickel ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 0 Silver ppm ASTM D5185m >20 3 4 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imilibase current history1 history2 Iron ppm ASTM D5185m >100 6 6 6 6 Chromium ppm ASTM D5185m >20 <1 0 0 Nickel ppm ASTM D5185m >4 0 <1 0 Silver ppm ASTM D5185m >4 0 0 0 Aluminum ppm ASTM D5185m >40 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	CONTAMINATIO	N	method	limit/base	current	history1	history2
Silycol WC Method MEG NEG NEG	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 6 6 6 6 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	6	6	6
Titanium ppm ASTM D5185m 4 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 3 4 2 Lead ppm ASTM D5185m >40 <1 <1 <1 Copper ppm ASTM D5185m >330 1 3 2 Tin ppm ASTM D5185m >15 1 <1 <1 <1 <1 0 <th>Chromium</th> <th>ppm</th> <th>ASTM D5185m</th> <th>>20</th> <th><1</th> <th>0</th> <th>0</th>	Chromium	ppm	ASTM D5185m	>20	<1	0	0
Silver	Nickel	ppm	ASTM D5185m	>4	0	<1	0
Aluminum	Titanium	ppm	ASTM D5185m		4	0	0
Lead	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 1 3 2 Tin ppm ASTM D5185m >15 1 <1 <1 Vanadium ppm ASTM D5185m <1 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 0 0 0 Molybdenum ppm ASTM D5185m 100 56 86 65 Manganese ppm ASTM D5185m 100 56 86 65 Magnesium ppm ASTM D5185m 450 608 529 1005 Calcium ppm ASTM D5185m 450 608 529 1005 Calcium ppm ASTM D5185m 1150 924 1033 10	Aluminum	ppm	ASTM D5185m	>20	3	4	2
Tin ppm ASTM D5185m >15 1 <1	Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Vanadium ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>330	1	3	2
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 143 270 3 Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 56 86 65 Manganese ppm ASTM D5185m 100 56 86 65 Magnesium ppm ASTM D5185m 450 608 529 1005 Calcium ppm ASTM D5185m 3000 1524 1252 1202 Phosphorus ppm ASTM D5185m 1350 1119 1224 1310 Sulfur ppm ASTM D5185m 4250 3959 3170 4001 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >158	Tin	ppm	ASTM D5185m	>15	1	<1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 143 270 3 Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 56 86 65 Manganese ppm ASTM D5185m 450 608 529 1005 Calcium ppm ASTM D5185m 450 608 529 1005 Calcium ppm ASTM D5185m 3000 1524 1252 1202 Phosphorus ppm ASTM D5185m 1150 924 1033 1032 Zinc ppm ASTM D5185m 1350 1119 1224 1310 Sulfur ppm ASTM D5185m 4250 3959 3170 4001 CONTAMINANTS method limit/base current history1 history2 Silicon ppm	Vanadium	ppm	ASTM D5185m		<1	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 56 86 65 Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 450 608 529 1005 Calcium ppm ASTM D5185m 3000 1524 1252 1202 Phosphorus ppm ASTM D5185m 1150 924 1033 1032 Zinc ppm ASTM D5185m 1350 1119 1224 1310 Sulfur ppm ASTM D5185m 4250 3959 3170 4001 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 3 Sodium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 100 56 86 65 Manganese ppm ASTM D5185m < 1	Boron	ppm	ASTM D5185m	250	143	270	
Manganese ppm ASTM D5185m <1	Barium	ppm	ASTM D5185m	10	0	0	0
Magnesium ppm ASTM D5185m 450 608 529 1005 Calcium ppm ASTM D5185m 3000 1524 1252 1202 Phosphorus ppm ASTM D5185m 1150 924 1033 1032 Zinc ppm ASTM D5185m 1350 1119 1224 1310 Sulfur ppm ASTM D5185m 4250 3959 3170 4001 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 3 Sodium ppm ASTM D5185m >158 3 <1 2 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7624 >20 8.5 7.0 7.4 Sulfation Abs/.1mm "ASTM D7415	Molybdenum	ppm	ASTM D5185m	100	56	86	
Calcium ppm ASTM D5185m 3000 1524 1252 1202 Phosphorus ppm ASTM D5185m 1150 924 1033 1032 Zinc ppm ASTM D5185m 1350 1119 1224 1310 Sulfur ppm ASTM D5185m 4250 3959 3170 4001 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 3 Sodium ppm ASTM D5185m >158 3 <1 2 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.4 Nitration Abs/cm *ASTM D7415 >30 21.5 20.9 19.4 FLUID DEGRADATION method	•	ppm	ASTM D5185m		<1		
Phosphorus ppm ASTM D5185m 1150 924 1033 1032 Zinc ppm ASTM D5185m 1350 1119 1224 1310 Sulfur ppm ASTM D5185m 4250 3959 3170 4001 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 3 Sodium ppm ASTM D5185m >158 3 <1 2 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.4 Nitration Abs/.1mm *ASTM D7415 >30 21.5 20.9 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm <	Magnesium	ppm					
Zinc ppm ASTM D5185m 1350 1119 1224 1310 Sulfur ppm ASTM D5185m 4250 3959 3170 4001 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 3 Sodium ppm ASTM D5185m >158 3 <1 2 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.4 Nitration Abs/cm *ASTM D7624 >20 8.5 7.0 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 20.9 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm <th></th> <th>ppm</th> <th></th> <th></th> <th>_</th> <th></th> <th></th>		ppm			_		
Sulfur ppm ASTM D5185m 4250 3959 3170 4001 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 3 Sodium ppm ASTM D5185m >158 3 <1 2 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.4 Nitration Abs/cm *ASTM D7624 >20 8.5 7.0 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 20.9 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 14.9 15.1	•	ppm					
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 3 Sodium ppm ASTM D5185m >158 3 <1 2 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.4 Nitration Abs/cm *ASTM D7624 >20 8.5 7.0 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 20.9 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 14.9 15.1	-						
Silicon ppm ASTM D5185m >25 3 4 3 Sodium ppm ASTM D5185m >158 3 <1			ASTM D5185m	4250	3959	3170	4001
Sodium ppm ASTM D5185m >158 3 <1		5	method		current	· ·	
Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.4 Nitration Abs/cm *ASTM D7624 >20 8.5 7.0 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 20.9 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 14.9 15.1							
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.4 Nitration Abs/cm *ASTM D7624 >20 8.5 7.0 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 20.9 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 14.9 15.1		ppm					
Soot % % *ASTM D7844 >3 0.3 0.3 0.4 Nitration Abs/cm *ASTM D7624 >20 8.5 7.0 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 20.9 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 14.9 15.1	Potassium	ppm	ASTM D5185m	>20	2	3	5
Nitration Abs/cm *ASTM D7624 >20 8.5 7.0 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 20.9 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 14.9 15.1				limit/base			
Sulfation Abs/.1mm *ASTM D7415 >30 21.5 20.9 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 14.9 15.1	Soot %						
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.6 14.9 15.1	Nitration	Abs/cm	*ASTM D7624	>20			7.4
Oxidation Abs/.1mm *ASTM D7414 >25 17.6 14.9 15.1	Sulfation	Abs/.1mm	*ASTM D7415	>30	21.5	20.9	19.4
	FLUID DEGRADA	NOITA	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 8.5 6.8 7.3 8.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.6	14.9	15.1
	Base Number (BN)	mg KOH/g	ASTM D2896	8.5	6.8	7.3	8.8



OIL ANALYSIS REPORT

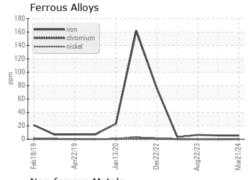


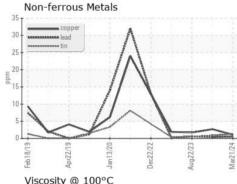


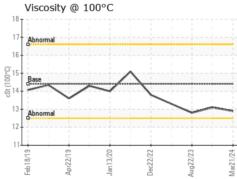
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

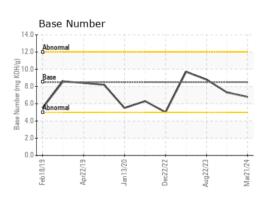
FLUID PROPER	TIES	method				history2
Visc @ 100°C	cSt	ASTM D445	14.4	12.9	13.1	12.8

GRAPHS













Certificate L2367

Laboratory Sample No.

Lab Number : 06136838 Unique Number : 10956303 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0903262 Received : 02 Apr 2024

Tested Diagnosed

: 03 Apr 2024 : 03 Apr 2024 - Wes Davis 8801 EXCHANGE DRVIE ORLANDO, FL US 32809

Contact: CRAIG EVANS evans_craig@sbcglobal.net T:

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)

F:

FRESHPOINT