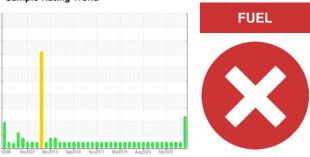


PROBLEM SUMMARY

Sample Rating Trend



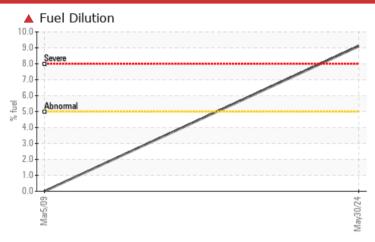


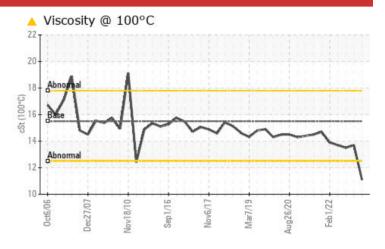
CATERPILLAR 336 F 8324 (S/N RKB00916)

Diesel Engine

PETRO CANADA DURON XL SYN BLEND 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS									
Sample Status				SEVERE	NORMAL	NORMAL			
Fuel	%	ASTM D3524	>5	▲ 9.1	<1.0	<1.0			
Visc @ 100°C	cSt	ASTM D445	15.5	11.1	13.7	13.5			

Customer Id: TRANEW Sample No.: WC0899141 Lab Number: 06202419 Test Package: CONST

To manage this report scan the QR code

To discuss the diagnosis or test data: Wes Davis +1 905-569-8600 x223 wesd@wearcheck.ca

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS								
Action	Status	Date	Done By	Description				
Resample		?	We recommend an early resample to monitor this condition.					
Check Fuel/injector System			?	We advise that you check the fuel injection system.				

HISTORICAL DIAGNOSIS

10 Nov 2023 Diag: Sean Felton

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



NORMAL



12 Jan 2023 Diag: Wes Davis
Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



NORMAL



14 Oct 2022 Diag: Wes Davis

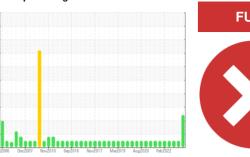
Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **CATERPILLAR 336 F 8324 (S/N RKB00916)**

Diesel Engine

PETRO CANADA DURON XL SYN BLEND 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

All component wear rates are normal.

Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

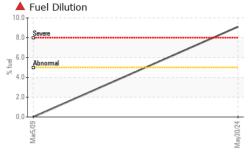
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

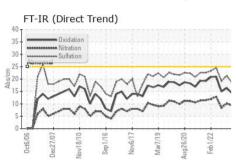
Sample Number Client Info WC0899141 WC0863022 WC0775869 Sample Date Client Info 30 May 2024 10 Nov 2023 12 Jan 2023 Machine Age hrs Client Info 13715 13396 12867 254 25	SYN BLEND 15W40	(GAL)	t2006 Dec20	07 Nov2010 Sep2016	Nov2017 Mar2019 Aug2020 1	Feb 2022	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 13715 13396 12867 Dil Age hrs Client Info 488 529 254 Dil Changed Client Info Changed Changed Changed Changed Changed NCRMAL NORMAL NOR	Sample Number		Client Info		WC0899141	WC0863022	WC0775869
Machine Age hrs Client Info 13715 13396 12867 Dil Age hrs Client Info 488 529 254 Dil Qeangel Client Info Changed Changed Changed Changed Changed NCRMAL CONTAMINATION method limit/base current history1 history2 Water WC Method NEG NEG NEG NEG Joycol WC Method WC Method NEG NEG NEG VEAR METALS method Imit/base current history1 history2 ron ppm ASTM D5185m >20 <1			Client Info		30 May 2024	10 Nov 2023	12 Jan 2023
Client Info	•	hrs	Client Info		-	13396	12867
CONTAMINATION method limit/base current history1 history2	Oil Age	hrs	Client Info		488	529	254
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Silycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 fron ppm ASTM D5185m >20 <1			Client Info		Changed	Changed	Changed
Water WC Method >0.2 NEG NET NET NET <	Sample Status				SEVERE	NORMAL	NORMAL
WEAR METALS	CONTAMINATIO	N	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 21 23 14 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Description	Glycol		WC Method		NEG	NEG	NEG
Description	WEAR METALS		method	limit/base	current	history1	history2
Astanto Asta	ron	ppm	ASTM D5185m	>100	21	23	14
Description	Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Silver	Nickel	ppm	ASTM D5185m	>2	0	2	0
Aluminum ppm ASTM D5185m >25 13 9 7 Lead ppm ASTM D5185m >40 0 <1 1 Copper ppm ASTM D5185m >330 <1 <1 <1 <1 Vanadium ppm ASTM D5185m >15 0 <1 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 1 0 0 0 0 Barium ppm ASTM D5185m 1 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 1 0 0 0 0 0 Molybdenum ppm ASTM D5185m 1 0 0 0 0 Manganese ppm ASTM D5185m 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	Γitanium	ppm	ASTM D5185m	>2	0	0	0
Lead ppm ASTM D5185m >40 0 <1 1 Copper ppm ASTM D5185m >330 <1 <1 <1 Tin ppm ASTM D5185m >15 0 <1 <1 Vanadium ppm ASTM D5185m >15 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 1 0 3 10 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 1 0 3 10 Barium ppm ASTM D5185m 1 0 0 0 0 Magnesium ppm ASTM D5185m 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Silver	ppm	ASTM D5185m	>2	0	<1	0
Copper	Aluminum	ppm	ASTM D5185m	>25	13	9	7
Property Content Co	_ead	ppm	ASTM D5185m	>40	0	<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 1 0 3 10 Barium ppm ASTM D5185m 1 0 0 0 Molybdenum ppm ASTM D5185m 1 0 0 0 Manganese ppm ASTM D5185m 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 <1 <1 <1	Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 1 0 3 10 Barium ppm ASTM D5185m 1 0 0 0 Molybdenum ppm ASTM D5185m 60 54 58 60 Magnesium ppm ASTM D5185m 1 <1	Γin	ppm	ASTM D5185m	>15	0	<1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 1 0 0 3 10 Molybdenum ppm ASTM D5185m 1 0 0 0 Molybdenum ppm ASTM D5185m 1 0 0 0 Manganese ppm ASTM D5185m 1 0 1 0 0 Manganese ppm ASTM D5185m 1 0 1 0 0 Manganesium ppm ASTM D5185m 1 0 1 0 0 Manganesium ppm ASTM D5185m 10 0 0 0 Manganese ppm ASTM D5185m 1 0 1 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 Manganese ppm ASTM D5185m 1 0 1 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 0 0 0 0 0 Manganese ppm ASTM D5185m 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	/anadium	ppm	ASTM D5185m		<1	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 54 58 60 Manganese ppm ASTM D5185m 1 <1	Boron	ppm	ASTM D5185m	1	0	3	10
Manganese ppm ASTM D5185m 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 <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 <1 <1 <1 <1 <1 <1 <1 <1 <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td>	Barium	ppm	ASTM D5185m	1	0	0	0
Magnesium ppm ASTM D5185m 1010 879 924 894 Calcium ppm ASTM D5185m 1070 1106 1055 1172 Phosphorus ppm ASTM D5185m 1150 1004 1080 992 Zinc ppm ASTM D5185m 1270 1200 1315 1213 Sulfur ppm ASTM D5185m 2060 3371 3254 3603 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Sodium ppm ASTM D5185m >20 <1	Molybdenum	ppm	ASTM D5185m	60	54	58	60
Calcium ppm ASTM D5185m 1070 1106 1055 1172 Phosphorus ppm ASTM D5185m 1150 1004 1080 992 Zinc ppm ASTM D5185m 1270 1200 1315 1213 Sulfur ppm ASTM D5185m 2060 3371 3254 3603 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Sodium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m	1	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1004 1080 992 Zinc ppm ASTM D5185m 1270 1200 1315 1213 Sulfur ppm ASTM D5185m 2060 3371 3254 3603 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Sodium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m	1010	879	924	894
Zinc ppm ASTM D5185m 1270 1200 1315 1213 Sulfur ppm ASTM D5185m 2060 3371 3254 3603 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Sodium ppm ASTM D5185m >20 <1 2 1 Potassium ppm ASTM D5185m >20 <1 2 <1 Fuel % ASTM D3524 >5 ▲9.1 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 1.2 0.5 Nitration Abs/cm *ASTM D7624 >20 9.4 10.2 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 21.3 19.2 FLUID DEGRADATION method limit/base	Calcium	ppm	ASTM D5185m	1070	1106	1055	1172
Sulfur ppm ASTM D5185m 2060 3371 3254 3603 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Sodium ppm ASTM D5185m 1 2 1 2 1 2 1 2 1 2 -1 -2 -2 -1	Phosphorus	ppm	ASTM D5185m	1150	1004	1080	992
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 4 Sodium ppm ASTM D5185m 1 2 1 Potassium ppm ASTM D5185m >20 <1	Zinc	ppm	ASTM D5185m	1270	1200	1315	1213
Silicon ppm ASTM D5185m >25 5 4 Sodium ppm ASTM D5185m 1 2 1 Potassium ppm ASTM D5185m >20 <1 2 <1 Fuel % ASTM D3524 >5 ▲ 9.1 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 1.2 0.5 Nitration Abs/cm *ASTM D7624 >20 9.4 10.2 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 21.3 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16.4 15.0	Sulfur	ppm	ASTM D5185m	2060	3371	3254	3603
Sodium	CONTAMINANTS	3	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1 2 <1 Fuel % ASTM D3524 >5 ▲ 9.1 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 1.2 0.5 Nitration Abs/cm *ASTM D7624 >20 9.4 10.2 8.4 Gulfation Abs/.1mm *ASTM D7415 >30 18.6 21.3 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16.4 15.0	Silicon	ppm	ASTM D5185m	>25	5	5	4
Fuel % ASTM D3524 >5	Sodium	ppm	ASTM D5185m		1	2	1
INFRA-RED	Potassium	ppm	ASTM D5185m	>20	<1	2	<1
Soot % % *ASTM D7844 >3 0.7 1.2 0.5 Nitration Abs/cm *ASTM D7624 >20 9.4 10.2 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 21.3 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16.4 15.0	-uel	%	ASTM D3524	>5	▲ 9.1	<1.0	<1.0
Nitration Abs/cm *ASTM D7624 >20 9.4 10.2 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 21.3 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16.4 15.0	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 9.4 10.2 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 21.3 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16.4 15.0	Soot %	%	*ASTM D7844	>3	0.7	1.2	0.5
Sulfation Abs/.1mm *ASTM D7415 >30 18.6 21.3 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16.4 15.0	Nitration		*ASTM D7624				
Oxidation							
	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.3	16.4	15.0

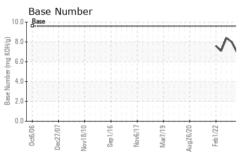


OIL ANALYSIS REPORT



30 25 25 15 10 5	
10 10 10 10 10 10 10 10 10 10 10 10 10 1	4
	7
5	
	1
0ct6/06 Dec27/07 Nov18/10 Sep1/16 Nov6/17 Mar7/19	Feb 1/22

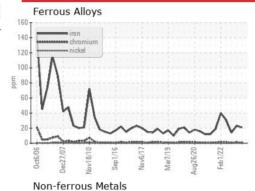


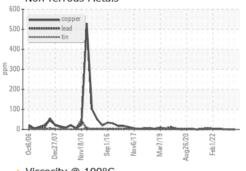


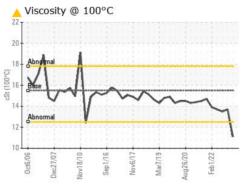
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

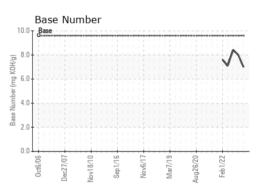
FLUID PROPER	HES	method	ilmit/base	current	nistory i	nistory∠
Visc @ 100°C	cSt	ASTM D445	15.5	<u> </u>	13.7	13.5

GRAPHS













Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Lab Number : 06202419

: WC0899141 Unique Number : 11069880

Received : 07 Jun 2024 **Tested**

: 12 Jun 2024 Diagnosed : 12 Jun 2024 - Wes Davis

Test Package : CONST (Additional Tests: FuelDilution, PercentFuel, TBN) 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)

TRADER CONSTRUCTION CO.

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