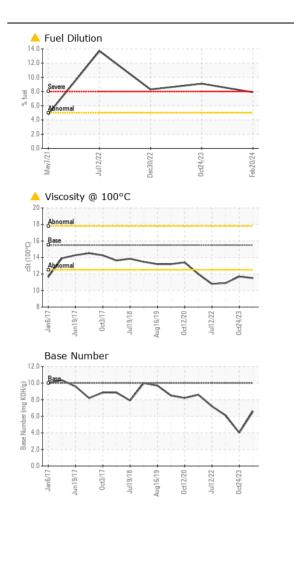
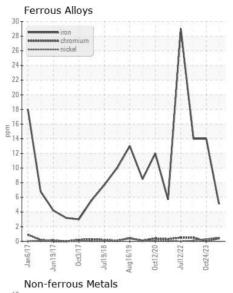
WEAR CONTAMINATION **FLUID CONDITION**

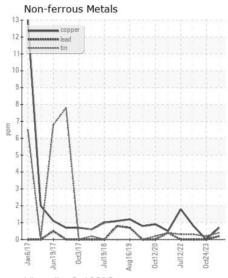
NORMAL ABNORMAL ABNORMAL

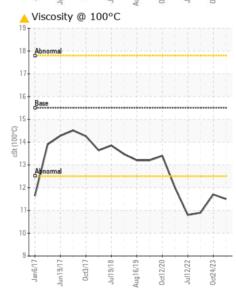
HAMM 001944

CASTROL VECTON 15W40 CK4 (3 GAL) RECOMMENDATION The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. Test UOM Method Limit/Abn Current WC0800438 WC0823954 WC0758039 Client Info Sample Date Client Info Date Client Info Dil Age hrs Client Info Dil Age hrs Client Info Dil Age Dil Changed Changed Changed Changed Changed Changed Changed Sample Status Client Info Date Changed Severe	Diesel Engine							
Machine Mach	CASTROL VECTON 15W40 CK4 (3 GAL)							
Machine Mach	RECOMMENDATION	Test	HOM	Method	I imit/∆hn	Current	History1	History2
The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. Machine Age hrs Client Info 286 812 612 613 614 614 615	The oil change at the time of sampling has been noted. We		OOW		LITTIOTOTT		,	
Machine Age hrs Client Info 7388 7322 6310 Client Info 266 812 642 Filter Age hrs Client Info 266 812 642 642 Filter Age hrs Client Info 266 812 642 642 Filter Changed Client Info 266 812 642		•						30 Dec 2022
Filter Age Pilter Age Pilter Changed Client Info Changed Change			hrs			7388		
Oil Changed Cilient Info Changed Chan		Oil Age	hrs	Client Info		266	812	642
Filter Changod Chango		Filter Age	hrs	Client Info		266	812	642
Name		Oil Changed		Client Info		Changed	Changed	Changed
Iron		Filter Changed		Client Info		Changed	Changed	Changed
All component wear rates are normal.		Sample Status				ABNORMAL	SEVERE	SEVERE
Nicke ppm	WEAR	Iron	ppm	ASTM D5185m	>100	5	14	14
Nicket Sprint ASTIM D01856 1	All constants and the same and t	Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Silver ppm ASTM D5185m >20 0 0 0 0 0 0 0 0 0	All component wear rates are normal.	Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Aluminum ppm ASTM D5185m >20 2 3 3 3		Titanium	ppm	ASTM D5185m		<1	0	0
Lead ppm ASTM DS185m 340 <1 0 0 0 1		Silver	ppm	ASTM D5185m	>3	0	0	
Copper		Aluminum	ppm	ASTM D5185m	>20	2	3	3
Tin		Lead	ppm			<1		0
Vanadium Vanadium		Copper	ppm			<1	0	<1
White Metal Scalar "Visual NONE N			ppm		>15			
Scalar Visual NONE NO								
Silicon ppm ASTM D5185m >25 6								
Potassium ppm ASTM D5185m >20 2 <1 0 0		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Potassium ppm ASTM D5185m >20 2 <1 0 0	CONTAMINATION	Silicon	ppm	ASTM D5185m	>25	6	4	4
Presence of fuel in the oil. Water Wc Method Soot % NEG N		Potassium	ppm	ASTM D5185m	>20	2	<1	0
Water WC Method So.2 NEG N	•	Fuel	%	ASTM D3524	>5	7 .9	4 9.1	▲ 8.3
Soot % % 'ASTM D7844 >3		Water		WC Method	>0.2	NEG	NEG	NEG
Nitration		Glycol		WC Method		NEG	NEG	NEG
Sulfation Abs/.1mm *ASTM D7415 >30 17.9 22.0 21.0		Soot %	%	*ASTM D7844	>3	0.1	0.2	0.2
Silt scalar *Visual NONE NO		Nitration	Abs/cm			9.2		
Debris Scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt Scalar *Visual NONE NORML N			Abs/.1mm	*ASTM D7415	>30		22.0	
Sand/Dirt Scalar *Visual NONE NONE NONE NONE Appearance Scalar *Visual NORML N			scalar			_		
Appearance							_	
Oddr scalar *Visual NORML NORML Emulsified Water scalar *Visual >0.2 NEG NEG NEG NEG								
Emulsified Water scalar *Visual >0.2 NEG NEG NEG							-	
Sodium ppm ASTM D5185m 1 2 3								
Boron ppm ASTM D5185m 53 40 43		Emulsified Water	scalar	^Visual	>0.2	NEG	NEG	NEG
Boron ppm ASTM D5185m 53 40 43	FLUID CONDITION	Sodium	ppm	ASTM D5185m		1	2	3
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants. Barium ppm ASTM D5185m 78 80 80								
Molybdenum ppm ASTM D5185m 78 80 80 80 Manganese ppm ASTM D5185m 78 80 80 80 Manganese ppm ASTM D5185m ASTM D5185m 51 51 51 51 51 51 51	oil. The oil is no longer serviceable due to the presence of							
Manganese ppm ASTM D5185m <1		Molybdenum	• •	ASTM D5185m				80
Magnesium ppm ASTM D5185m 61 67 101 Calcium ppm ASTM D5185m 1740 2039 1974 Phosphorus ppm ASTM D5185m 897 934 889 Zinc ppm ASTM D5185m 995 1162 1111 Sulfur ppm ASTM D5185m 3300 3153 3415 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 21.7 20.3 Base Number (BN) mg KOH/g ASTM D2896 10 6.6 4.0 6.1		Manganese					0	
Calcium ppm ASTM D5185m 1740 2039 1974 Phosphorus ppm ASTM D5185m 897 934 889 Zinc ppm ASTM D5185m 995 1162 1111 Sulfur ppm ASTM D5185m 3300 3153 3415 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 21.7 20.3 Base Number (BN) mg KOH/g ASTM D2896 10 6.6 4.0 6.1		_		ASTM D5185m		61	67	101
Zinc ppm ASTM D5185m 995 1162 1111 Sulfur ppm ASTM D5185m 3300 3153 3415 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 21.7 20.3 Base Number (BN) mg KOH/g ASTM D2896 10 6.6 4.0 6.1		Calcium	ppm			1740	2039	1974
Sulfur ppm ASTM D5185m 3300 3153 3415 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 21.7 20.3 Base Number (BN) mg KOH/g ASTM D2896 10 6.6 4.0 6.1		Phosphorus	ppm	ASTM D5185m		897	934	889
Oxidation Abs/.1mm *ASTM D7414 >25 14.8 21.7 20.3 Base Number (BN) mg KOH/g ASTM D2896 10 6.6 4.0 6.1		Zinc	ppm			995	1162	1111
Base Number (BN) mg KOH/g ASTM D2896 10 6.6 4.0 6.1			ppm					
Visc @ 100°C cSt ASTM D445 15.5 △ 11.5 △ 11.7 △ 10.9								
		Visc @ 100°C	cSt	ASTM D445	15.5	11.5	11.7	1 0.9



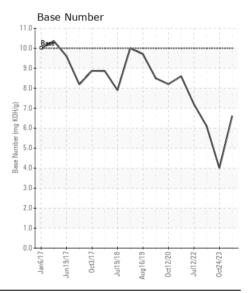






: 27 Feb 2024

: 29 Feb 2024





Laboratory Sample No. Lab Number : 06102278

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0800438

Unique Number : 10900508

Received **Tested** Diagnosed

: 29 Feb 2024 - Wes Davis Test Package : CONST (Additional Tests: 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) **CJ MILLER LLC** 2903 DEDE RD

FINKSBURG, MD US 21048 Contact: JOE ROSS

jross@cjmillerllc.com T: (410)239-8006

F: (410)239-1051