

**WEAR CONTAMINATION FLUID CONDITION**  **NORMAL NORMAL NORMAL** 

## TIFFINE TOLLEN [SAM]

## **CUMMINS/ONAN TIFFINE TOLLEN (S/N N/A)**

Component Genset

DIESEL FNGINE OIL SAE 15W40 (2 GAL)

Resample at the next service interval to monitor.	DIESEL ENGINE OIL SAE 15W40 (2 GAL)							
Resample at the next service interval to monitor.   Sample Date   Client Info   Sample Date   Client Info   Carbon Sample Date   Client Info   Changed   Client Info   Changed   Changed   Client Info   Changed   Changed	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Date   Client Info   2	TESSIMIENDATION		00		2			,
Machine Age   hrs	Resample at the next service interval to monitor.	•						
CI   Age   hrs   Client Info   Changed   Filter Changed   Client Info   Changed   Ch			hrs					
Filter Age		•						
Collaboration   Collaboratio								
Filter Changed   Client Info   Changed   Cha			1110			-		
NORMAL   N								
Iron		_		Onorte inito		_		
All component wear rates are normal.    Chromium   ppm   ASTM 05185m   -2   -1         Titanium   ppm   ASTM 05185m   -2   -1         Titanium   ppm   ASTM 05185m   -2   -1         All uninum   ppm   ASTM 05185m   -12   3         All uninum   ppm   ASTM 05185m   -70   2         Tin   ppm   ASTM 05185m   -70   2       Tin   ppm   ASTM 05185m   -70   2       Tin   ppm   ASTM 0						·····		
Nicke	WEAR	Iron	ppm	ASTM D5185m	>50	15		
Titanium   ppm   ASTM D6185m   2   1   .	All component wear rates are normal.	Chromium	ppm	ASTM D5185m	>4	1		
Silver   ppm		Nickel	ppm	ASTM D5185m	>2	<1		
Aluminum   ppm   ASTM D5185m   >12   3		Titanium	ppm	ASTM D5185m		<1		
Aluminum   ppm   ASTM D6186m   3-12   3		Silver	ppm	ASTM D5185m	>5	0		
Lead		Aluminum		ASTM D5185m	>12	3		
Copper		Lead						
Tin		Copper		ASTM D5185m	>70	2		
Vanadium   Vanadium						1		
White Metal Yellow Metal   Scalar   Visual   NONE   NONE		Vanadium				<1		
Vallow Metal   Scalar   Visual   NONE   NO		White Metal			NONE	NONE		
Silicon   ppm   ASTM D5185m   >25   7		Yellow Metal		*Visual	NONE			
Potassium   ppm   ASTM D5185m   >20   2								
Fuel   WC Method   >4.0   <1.0	CONTAMINATION	Silicon	ppm	ASTM D5185m	>25	7		
Water   W.C. Method   W.C. Method   Soot %   W.C. Method   Soot %   W.C. Method   Soot %   W.C. Method   Soot %   W.C. Method   NEG   W.C. Method   W.C. Method   Neg   W.C. Method   W.C. Metho	There is no indication of any contamination in the oil.	Potassium	ppm	ASTM D5185m	>20	2		
Glycol		Fuel		WC Method	>4.0	<1.0		
Soot %		Water		WC Method	>0.1	NEG		
Nitration		Glycol		WC Method		NEG		
Sulfation   Abs/.1mm   *ASTM D7415   >30   19.6         Silt   scalar   *Visual   NONE   NONE         Debris   scalar   *Visual   NONE   NONE   NONE         Debris   scalar   *Visual   NONE   NONE   NONE         Appearance   scalar   *Visual   NORML		Soot %	%	*ASTM D7844		0.1		
Silt   scalar   *Visual   NONE   NONE   NONE   Sand/Dirt   scalar   *Visual   NONE		Nitration	Abs/cm	*ASTM D7624	>20	8.2		
Debris   Scalar   *Visual   NONE   NONE   NONE   Sand/Dirt   Scalar   *Visual   NONE   NORML   NORM		Sulfation	Abs/.1mm	*ASTM D7415	>30	19.6		
Sand/Dirt   Scalar *Visual   NONE   NONE   NORML   Appearance   Scalar *Visual   NORML   NOR		Silt	scalar	*Visual	NONE	NONE		
Appearance		Debris	scalar	*Visual	NONE	NONE		
Codor   Scalar   *Visual   NORML   N		Sand/Dirt	scalar	*Visual	NONE	NONE		
Emulsified Water   scalar   *Visual   >0.1   NEG		Appearance	scalar	*Visual	NORML	NORML		
Sodium   ppm   ASTM D5185m   >158   4		Odor	scalar	*Visual	NORML	NORML		
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.    Boron   ppm   ASTM D5185m   10   2		<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG		
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.    Boron   ppm   ASTM D5185m   10   2	ELLUD CONDITION							
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.    Barium   ppm   ASTM D5185m   100   61         Molybdenum   ppm   ASTM D5185m   100   61         Magnaese   ppm   ASTM D5185m   450   937         Calcium   ppm   ASTM D5185m   3000   1032         Phosphorus   ppm   ASTM D5185m   1150   966         Zinc   ppm   ASTM D5185m   1350   1222         Sulfur   ppm   ASTM D5185m   4250   3319         Oxidation   Abs/.1mm   *ASTM D7414   >25   16.4         Base Number (BN)   mg KOH/g   ASTM D2896   8.5   9.4	FLUID CONDITION					4		
oil. The condition of the oil is suitable for further service.    Molybdenum   ppm   ASTM D5185m   100   61         Manganese   ppm   ASTM D5185m   450   937         Calcium   ppm   ASTM D5185m   3000   1032         Phosphorus   ppm   ASTM D5185m   1150   966         Zinc   ppm   ASTM D5185m   1350   1222         Sulfur   ppm   ASTM D5185m   4250   3319         Oxidation   Abs/.1mm   *ASTM D7414   >25   16.4         Base Number (BN)   mg KOH/g   ASTM D2896   8.5   9.4	The BN result indicates that there is suitable alkalinity remaining in the							
Manganese       ppm       ASTM D5185m       1           Magnesium       ppm       ASTM D5185m       450       937           Calcium       ppm       ASTM D5185m       3000       1032           Phosphorus       ppm       ASTM D5185m       1150       966           Zinc       ppm       ASTM D5185m       1350       1222           Sulfur       ppm       ASTM D5185m       4250       3319           Oxidation       Abs/.1mm       *ASTM D7414       >25       16.4           Base Number (BN)       mg KOH/g       ASTM D2896       8.5       9.4								
Magnesium         ppm         ASTM D5185m         450         937             Calcium         ppm         ASTM D5185m         3000         1032             Phosphorus         ppm         ASTM D5185m         1150         966             Zinc         ppm         ASTM D5185m         1350         1222             Sulfur         ppm         ASTM D5185m         4250         3319             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.4             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         9.4					100			
Calcium         ppm         ASTM D5185m         3000         1032             Phosphorus         ppm         ASTM D5185m         1150         966             Zinc         ppm         ASTM D5185m         1350         1222             Sulfur         ppm         ASTM D5185m         4250         3319             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.4             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         9.4		_			450			
Phosphorus         ppm         ASTM D5185m         1150         966             Zinc         ppm         ASTM D5185m         1350         1222             Sulfur         ppm         ASTM D5185m         4250         3319             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.4             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         9.4								
Zinc         ppm         ASTM D5185m         1350         1222             Sulfur         ppm         ASTM D5185m         4250         3319             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.4             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         9.4								
Sulfur         ppm         ASTM D5185m         4250         3319             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.4             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         9.4								
Oxidation         Abs/.1mm         *ASTM D7414         >25         16.4             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         9.4								
Base Number (BN)         mg KOH/g         ASTM D2896         8.5         9.4								
VISC @ 100°C CSt ASIM D445 14.4 12.7								
		visc @ 100°C	cSt	ASTM D445	14.4	12.7		





Certificate L2367

Laboratory Sample No.

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

Lab Number : 06102670 Unique Number : 10900900

Received : VPA059161

**Tested** Diagnosed Test Package : MOB 1 ( Additional Tests: TBN )

: 29 Feb 2024 : 29 Feb 2024 - Don Baldridge

: 28 Feb 2024

Endor Marine LLC - Coastal Marine - 152124 4300 11th Ave. NW SEATTLE, WA

US 98107 Contact: WILLOW YANARELLA service@coastalmarineengine.com

T: (206)784-3703 F: (206)784-8823

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)