WEAR CONTAMINATION FLUID CONDITION

NORMAL NORMAL

BILL COLGROVE [6680]

**CUMMINS 6B 2LB027559** 

Starboard Diesel Engine

{not provided} (--- GAL)

Sample Number   Client Info   278406954         23 May 2024         23 May 2024         23 May 2024           23 May 2024								
Sample Date   Client Info   23 May 2006   Machine Age   his   Client Info   O   O   O   O   O   O   O   O   O	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine Age   hrs   Client Info   2791		Sample Number		Client Info		VPA060954		
Oil Age   hrs   Cilent Info   0	Resample at the next service interval to monitor.	Sample Date		Client Info		23 May 2024		
Filter Age		Machine Age	hrs	Client Info		2791		
Oil Changed   Filter Changed   Cilent Info   Not Changed   Changed   Cilent Info   Not Changed   Cilent Info   C		Oil Age	hrs	Client Info		0		
Filter Changed   Sample Status   Sample Status   NoRMAL   NORMAL		Filter Age	hrs	Client Info		0		
NORMAL		Oil Changed		Client Info		Not Changd		
VEAR		Filter Changed		Client Info		Not Changd		
VEAR		Sample Status				NORMAL		
Chromium   ppm   ASTM 05185m   >20   <1           Titanium   ppm   ASTM 05185m   >20   <1         Titanium   ppm   ASTM 05185m   >2   <1         Titanium   ppm   ASTM 05185m   >2   <1         ASTM 05185m   >3   <1         ASTM 05185m   >2   <3         ASTM 05185m   >3         ASTM 05185								
Nickel   ppm   ASTM D5185n   >2   <1           Sliver   ppm   ASTM D5185n   >2   <1           Sliver   ppm   ASTM D5185n   >2   <1           ASTM D5185n   >3   <1           ASTM D5185n   >3   <1           ASTM D5185n   >3   <1           ASTM D5185n   >3   <1           ASTM D5185n   >4   <1           ASTM D5185n   >2   <1         ASTM D5185n   >2   <1         ASTM D5185n   >3   <1	WEAR	Iron	ppm			6		
Normal	All component wear rates are normal.	Chromium	ppm	ASTM D5185m	>20	<1		
Silver   ppm   ASTM D5185m   >20   <1         Aluminum   ppm   ASTM D5185m   >20   1         Lead   ppm   ASTM D5185m   >20   1         Copper   ppm   ASTM D5185m   >300   1         Vanadium   ppm   ASTM D5185m   >15   <1         Vallow Metal   scalar   "Visual   NONE   NONE         Vallow Metal   scalar   "Visual   NONE   NONE         Vallow Metal   scalar   "Visual   NONE   NONE         Fuel   WC Method   >0.2   NEG         Giycol   WC Method   >0.2   NEG         Nitration   Abs/tm   *ASTM D784   >0   0.1         Nitration   Abs/tm   *ASTM D784   >0   0.1         Silt   scalar   "Visual   NONE   NONE         Silt   scalar   "Visual   NONE   NONE         Debris   scalar   "Visual   NONE   NONE         Appearance   scalar   "Visual   NONE   NONE           Appearance   scalar   "Visual   NONE   NONE           Appearance   scalar   "Visual   NONE   NONE           Appearance   scalar   "Visual   NONE   NONE           Appearance   scalar   "Visual   NONE   NONE           Appearance   scalar   "Visual   NONE   NONE           Appearance   scalar   "Visual   NONE   NONE           Appearance   scalar   "Visual   NONE   NONE             Appearance   scalar   "Visual   NONE   NONE		Nickel	ppm	ASTM D5185m	>2	0		
Aluminum   ppm   ASTM D5185m   >20   1           Lead   ppm   ASTM D5185m   >30   1           Copper   ppm   ASTM D5185m   >300   1           Copper   ppm   ASTM D5185m   >300   1           MSTM D5185m   >15   <1           MSTM D5185m   >25   8         MONE           MONE           MSTM D5185m   >20   2         MSTM D5185m   >20         MSTM D5185m   >30         MSTM D518		Titanium	ppm	ASTM D5185m	>2	<1		
Lead   ppm   ASTM D5185m   >40   1         Copper   ppm   ASTM D5185m   >330   1         Tin   ppm   ASTM D5185m   >15   <1         Vanadium   ppm   ASTM D5185m   >15   <1         Vanadium   ppm   ASTM D5185m   >15   <1         Vanadium   ppm   ASTM D5185m   >20   NONE       Visual   NONE   NONE         Vanadium   ppm   ASTM D5185m   >20   2         Vallow Metal   Scalar   Visual   NONE   NONE         Vanadium   ppm   ASTM D5185m   >20   2         Vallow Metal   Pole		Silver	ppm	ASTM D5185m	>2	<1		
Copper		Aluminum	ppm	ASTM D5185m	>20	1		
Tin		Lead	ppm	ASTM D5185m	>40	1		
Vanadium   ppm   ASTM D5185m   value   value		Copper	ppm	ASTM D5185m	>330	1		
White Metal   Scalar   *Visual   NONE   NO		Tin	ppm	ASTM D5185m	>15	<1		
White Metal   Scalar   *Visual   NONE   NO		Vanadium	ppm	ASTM D5185m		<1		
Silicon   ppm   ASTM D5185m   >25   8		White Metal	scalar	*Visual	NONE	NONE		
Potassium   ppm   ASTM D5185m   20   2		Yellow Metal	scalar	*Visual	NONE	NONE		
Potassium   ppm   ASTM D5185m   20   2								
Fuel   WC Method   >3.0   <1.0   .	CONTAMINATION	Silicon	ppm	ASTM D5185m	>25	8		
Water   WC Method   So.0   NEG   So.2   NE	The same to the distriction of a consequence to all the distriction of	Potassium	ppm	ASTM D5185m	>20	2		
Glycol	i nere is no indication of any contamination in the oil.	Fuel		WC Method	>3.0	<1.0		
Soot %		Water		WC Method	>0.2	NEG		
Nitration		Glycol		WC Method		NEG		
Sulfation   Abs/.fmm   *ASTM D7415   >30   21.2         Silt   scalar   *Visual   NONE   NONE         Debris   scalar   *Visual   NONE   NONE   NONE         Sand/Dirt   scalar   *Visual   NORM		Soot %	%	*ASTM D7844	>6	0.1		
Silt   scalar   *Visual   NONE   NONE   Debris   scalar   *Visual   NONE   NONE   Sand/Dirt   scalar   *Visual   NONE   NONE   Sand/Dirt   scalar   *Visual   NONE   NONE   Sand/Dirt   scalar   *Visual   NORML   NORML   NORML   Sand/Dirt   Scalar   *Visual   NORML   NORML   Sand/Dirt   Scalar   *Visual   NORML   NORML   Scalar   *Visual   Scalar   *Visual   NORML   Scalar   *Visual   Scalar   *Visual   NORML   Scalar   *Visual   Scalar   *Visual   Scalar   *Visual   Scalar   *Visual   Scalar   *Visual   NORML   Scalar   *Visual   Scalar   *Visual   NORML   *Scalar   *Visual   NoRML   *Scalar   *Visual   NoRML   *Scalar   *Scalar   *Visual   NoRML   *Scalar		Nitration	Abs/cm	*ASTM D7624	>20	5.4		
Debris   Scalar   *Visual   NONE   NONE   Sand/Dirt   Scalar   *Visual   NONE   NONE   Sand/Dirt   Scalar   *Visual   NONE   NONE   Sand/Dirt   Scalar   *Visual   NORML   NORML   NORML		Sulfation	Abs/.1mm	*ASTM D7415	>30	21.2		
Sand/Dirt   Scalar   *Visual   NONE   NONE   Appearance   Scalar   *Visual   NORML		Silt	scalar	*Visual	NONE	NONE		
Appearance   Scalar   *Visual   NORML   NORML   NORML   Emulsified Water   Scalar   *Visual   NORML   NORML		Debris	scalar	*Visual	NONE	NONE		
Oddr   Scalar   *Visual   NORML   NO		Sand/Dirt	scalar	*Visual	NONE	NONE		
Oddr   Scalar   *Visual   NORML   NO		Appearance	scalar	*Visual	NORML	NORML		
Sodium   ppm   ASTM D5185m   74			scalar	*Visual		NORML		
Sodium   ppm   ASTM D5185m   74		<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG		
Boron   ppm   ASTM D5185m   74           Barium   ppm   ASTM D5185m   0           Molybdenum   ppm   ASTM D5185m   33           Magnesium   ppm   ASTM D5185m   527         Calcium   ppm   ASTM D5185m   527         Calcium   ppm   ASTM D5185m   1688           Calcium   ppm   ASTM D5185m   1688           Zinc   ppm   ASTM D5185m   887           Sulfur   ppm   ASTM D5185m   3072         Oxidation   Abs/.1mm								
Barium   ppm   ASTM D5185m   0         Molybdenum   ppm   ASTM D5185m   33         Magnesium   ppm   ASTM D5185m   527         Calcium   ppm   ASTM D5185m   527         Calcium   ppm   ASTM D5185m   1688         Phosphorus   ppm   ASTM D5185m   786         Zinc   ppm   ASTM D5185m   887         Sulfur   ppm   ASTM D5185m   3072         Oxidation   Abs/.1mm *ASTM D7414   >25   18.5         Base Number (BN)   mg KOH/g   ASTM D2896   10.3	FLUID CONDITION	Sodium	ppm	ASTM D5185m		2		
Molybdenum   ppm   ASTM D5185m   33	The PNI regult indicates that there is suitable all all into repairing to the	Boron	ppm	ASTM D5185m		74		
Molybdenum         ppm         ASTM D5185m         33             Manganese         ppm         ASTM D5185m         <1             Magnesium         ppm         ASTM D5185m         527             Calcium         ppm         ASTM D5185m         1688             Phosphorus         ppm         ASTM D5185m         786             Zinc         ppm         ASTM D5185m         887             Sulfur         ppm         ASTM D5185m         3072             Oxidation         Abs/.1mm         *ASTM D7414         >25         18.5             Base Number (BN)         mg KOH/g         ASTM D2896         10.3	oil. The condition of the oil is acceptable for the time in service.	Barium	ppm	ASTM D5185m				
Magnesium         ppm         ASTM D5185m         527             Calcium         ppm         ASTM D5185m         1688             Phosphorus         ppm         ASTM D5185m         786             Zinc         ppm         ASTM D5185m         887             Sulfur         ppm         ASTM D5185m         3072             Oxidation         Abs/.1mm         *ASTM D7414         >25         18.5             Base Number (BN)         mg KOH/g         ASTM D2896         10.3		Molybdenum	ppm	ASTM D5185m		33		
Calcium         ppm         ASTM D5185m         1688             Phosphorus         ppm         ASTM D5185m         786             Zinc         ppm         ASTM D5185m         887             Sulfur         ppm         ASTM D5185m         3072             Oxidation         Abs/.1mm         *ASTM D7414         >25         18.5             Base Number (BN)         mg KOH/g         ASTM D2896         10.3		Manganese	ppm	ASTM D5185m		<1		
Phosphorus         ppm         ASTM D5185m         786             Zinc         ppm         ASTM D5185m         887             Sulfur         ppm         ASTM D5185m         3072             Oxidation         Abs/.1mm         *ASTM D7414         >25         18.5             Base Number (BN)         mg KOH/g         ASTM D2896         10.3		Magnesium	ppm	ASTM D5185m		527		
Zinc         ppm         ASTM D5185m         887             Sulfur         ppm         ASTM D5185m         3072             Oxidation         Abs/.1mm         *ASTM D7414         >25         18.5             Base Number (BN)         mg KOH/g         ASTM D2896         10.3		Calcium	ppm	ASTM D5185m		1688		
Sulfur         ppm         ASTM D5185m         3072             Oxidation         Abs/.1mm         *ASTM D7414         >25         18.5             Base Number (BN)         mg KOH/g         ASTM D2896         10.3		Phosphorus	ppm	ASTM D5185m		786		
Sulfur         ppm         ASTM D5185m         3072             Oxidation         Abs/.1mm         *ASTM D7414         >25         18.5             Base Number (BN)         mg KOH/g         ASTM D2896         10.3		Zinc	ppm	ASTM D5185m		887		
Oxidation         Abs/.1mm         *ASTM D7414         >25         18.5             Base Number (BN)         mg KOH/g         ASTM D2896         10.3		Sulfur		ASTM D5185m		3072		
Base Number (BN)         mg KOH/g         ASTM D2896         10.3		Oxidation	Abs/.1mm		>25			
			mg KOH/g			10.3		
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Laboratory Sample No.

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

: VPA060954 Lab Number : 06194745 Unique Number : 11056868

Test Package : MOB 1 ( Additional Tests: TBN )

Received : 29 May 2024 **Tested** : 30 May 2024 Diagnosed

: 31 May 2024 - Sean Felton

1325 ROEDER AVE SUITE 103 BELLINGHAM, WA US 98225

**Northwest Diesel Power** 

Contact: BRANDON ROBERTSON parts@nwdieselpower.com 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)

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