WEAR CONTAMINATION FLUID CONDITION

NORMAL NORMAL ATTENTION

GREGORY BYRD [SAM/503107]

**VOLVO PENTA 7008446503** 

Starboard Diesel Engine

**VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (8 GAL)** 

Sample Number   Client Info   VPA688913	VOLVO GETTIA BILGEL ENGINE GIE 13W+0 VE							
Sample Date   Client Info   20 May 2024	RECOMMENDATION		UOM		Limit/Abn		History1	History2
## A service interval to monitor.    Sample Patts   Client Info   A86       Machine Age   hrs   Client Info   0       Filter Age   hrs   Client Info   0       Filter Age   hrs   Client Info   0       Oil Changed   Filter Changed   Client Info   0       Changed   Filter Changed   Client Info   0       Changed   Filter Changed   Client Info   0       Filter Age   hrs   Client Info   0       Changed   Client Info   0       Changed   Changed   Client Info   0       Changed   Changed   Client Info   0       Changed     Changed       Changed     Changed       Changed     Changed       Changed           Changed           Changed           Changed           Changed           Changed           Changed           Changed           Changed           Filter Age           Filter Age           Changed             Changed             Changed             Changed             Changed             Filter Age               Filter Age               Filter Age                 Filter Age                   Filter Age                     Filter Age                     Filter Age	Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.							
Machine Age   hrs   Cilent Info   46						20 May 2024		
Filter Age		•	hrs					
Oil Changed   Client Info   Changed   Chan			hrs					
Filter Changed   Sample Status			hrs	Client Info		0		
NEAR   Iron				Client Info		Changed		
Iron		Filter Changed		Client Info		Changed		
Chromium   Oph   ASTM D5185m   > 6		Sample Status				ATTENTION		
Chromium   Oph   ASTM D5185m   > 6	WFAR	Iron	mag	ASTM D5185m	>80	8		
Nickel   ppm   ASTM D5185m   >2   0	Metal levels are typical for a new component breaking in.							
Titanium   ppm   ASTM D5185m   >2   0								
Silver			• • • • • • • • • • • • • • • • • • • •					
Aluminum   ppm   ASTM D5185m   >20   4								
Lead								
Copper								
Tin								
Vanadium   Vanadium								
White Metal Yellow Metal   Scalar   "Visual   NONE   NON					70			
Vellow Metal   Scalar   Visual   NONE   NONE           Potassium   ppm   ASTM D5185m   >20   <1           Potassium   ppm   ASTM D5185m   >20   <1           Potassium   ppm   ASTM D5185m   >20   <1           Visual   NONE   NONE					NONE	-		
Silicon   ppm   ASTM D5185m   >25   22						_		
Potassium   ppm   ASTM D5185m   >20   <1				Visuai	NONE			
Potassium   ppm   ASTM D5185m   >20   <1	CONTAMINATION	Silicon	ppm	ASTM D5185m	>25	22		
Mater		Potassium	ppm	ASTM D5185m	>20	<1		
Water   WC Method   NEG	Fuel content negligible. There is no indication of any contamination in the oil.	Fuel	%	ASTM D3524	>4.0	0.2		
Soot %		Water		WC Method	>0.1	NEG		
Soot %		Glycol		WC Method		NEG		
Sulfation   Abs/.tmm   'ASTM D7415   >30   16.8		Soot %	%	*ASTM D7844		0.2		
Silt   Scalar   *Visual   NONE   NONE   NONE   Sand/Dirt   Scalar   *Visual   NONE   NONE   NONE   Sand/Dirt   Scalar   *Visual   NONE   NONE   Sand/Dirt   Scalar   *Visual   NONE   NORML   Scalar   *Visual   NORML		Nitration	Abs/cm	*ASTM D7624	>20	7.3		
Debris   Scalar   *Visual   NONE		Sulfation	Abs/.1mm	*ASTM D7415	>30	16.8		
Debris   Scalar   *Visual   NONE   NORML		Silt	scalar	*Visual	NONE	NONE		
Sand/Dirt   Scalar   *Visual   NONE   NONE       NONE   Appearance   Scalar   *Visual   NORML   NORM			scalar	*Visual	NONE	NONE		
Appearance   Scalar   *Visual   NORML   NORML   NORML   Emulsified Water   Scalar   *Visual   NORML   NORML   NORML   NORML   Emulsified Water   Scalar   *Visual   NORML		Sand/Dirt	scalar	*Visual		NONE		
Codor   Scalar   *Visual   NORML   NORML   NORML   Emulsified Water   Scalar   *Visual   NORML   NOR		Appearance		*Visual	NORML	NORML		
Sodium   ppm   ASTM D5185m   2.5   80		Odor	scalar	*Visual		NORML		
Boron   ppm   ASTM D5185m   2.5   80           Molybdenum   ppm   ASTM D5185m   0.0   0           Magnesium   ppm   ASTM D5185m   0.0   1           Magnesium   ppm   ASTM D5185m   0.0   1           Magnesium   ppm   ASTM D5185m   256   57           Calcium   ppm   ASTM D5185m   2057   2123           Phosphorus   ppm   ASTM D5185m   935   1015           Zinc   ppm   ASTM D5185m   1223   1172           Sulfur   ppm   ASTM D5185m   4079   4525           Oxidation   Abs/.1mm   *ASTM D7414   >25   12.9           Base Number (BN)   mg KOH/g   ASTM D2896   10   5.9		<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG		
Boron   ppm   ASTM D5185m   2.5   80           Molybdenum   ppm   ASTM D5185m   0.0   0           Magnesium   ppm   ASTM D5185m   0.0   1           Magnesium   ppm   ASTM D5185m   0.0   1           Magnesium   ppm   ASTM D5185m   256   57           Calcium   ppm   ASTM D5185m   2057   2123           Phosphorus   ppm   ASTM D5185m   935   1015           Zinc   ppm   ASTM D5185m   1223   1172           Sulfur   ppm   ASTM D5185m   4079   4525           Oxidation   Abs/.1mm   *ASTM D7414   >25   12.9           Base Number (BN)   mg KOH/g   ASTM D2896   10   5.9	THUR CONDITION	· · · · · · · · · · · · · · · · · · ·		AOTA DE LOS				
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.    Barium   ppm   ASTM D5185m   0.0   0         Molybdenum   ppm   ASTM D5185m   0.0   1         Magnesium   ppm   ASTM D5185m   256   57         Calcium   ppm   ASTM D5185m   2057   2123         Phosphorus   ppm   ASTM D5185m   935   1015         Zinc   ppm   ASTM D5185m   1223   1172         Sulfur   ppm   ASTM D5185m   4079   4525         Oxidation   Abs/.1mm   *ASTM D7414   >25   12.9         Base Number (BN)   mg KOH/g   ASTM D2896   10   5.9	-LOID CONDITION				2.5			
there is suitable alkalinity remaining in the oil. Confirm oil type.    Molybdenum   ppm   ASTM D5185m   0.0   0.0   0   0   0   0   0   0   0	The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.							
Manganese         ppm         ASTM D5185m         0.0         1             Magnesium         ppm         ASTM D5185m         256         57             Calcium         ppm         ASTM D5185m         2057         2123             Phosphorus         ppm         ASTM D5185m         935         1015             Zinc         ppm         ASTM D5185m         1223         1172             Sulfur         ppm         ASTM D5185m         4079         4525             Oxidation         Abs/.1mm         *ASTM D7414         >25         12.9             Base Number (BN)         mg KOH/g         ASTM D2896         10         5.9								
Magnesium         ppm         ASTM D5185m         256         57             Calcium         ppm         ASTM D5185m         2057         2123             Phosphorus         ppm         ASTM D5185m         935         1015             Zinc         ppm         ASTM D5185m         1223         1172             Sulfur         ppm         ASTM D5185m         4079         4525             Oxidation         Abs/.1mm         *ASTM D7414         >25         12.9             Base Number (BN)         mg KOH/g         ASTM D2896         10         5.9		•						
Calcium         ppm         ASTM D5185m         2057         2123             Phosphorus         ppm         ASTM D5185m         935         1015             Zinc         ppm         ASTM D5185m         1223         1172             Sulfur         ppm         ASTM D5185m         4079         4525             Oxidation         Abs/.1mm         *ASTM D7414         >25         12.9             Base Number (BN)         mg KOH/g         ASTM D2896         10         5.9		-						
Phosphorus         ppm         ASTM D5185m         935         1015             Zinc         ppm         ASTM D5185m         1223         1172             Sulfur         ppm         ASTM D5185m         4079         4525             Oxidation         Abs/.1mm         *ASTM D7414         >25         12.9             Base Number (BN)         mg KOH/g         ASTM D2896         10         5.9		•						
Zinc         ppm         ASTM D5185m         1223         1172             Sulfur         ppm         ASTM D5185m         4079         4525             Oxidation         Abs/.1mm         *ASTM D7414         >25         12.9             Base Number (BN)         mg KOH/g         ASTM D2896         10         5.9								
Sulfur         ppm         ASTM D5185m         4079         4525             Oxidation         Abs/.1mm         *ASTM D7414         >25         12.9             Base Number (BN)         mg KOH/g         ASTM D2896         10         5.9								
Oxidation         Abs/.1mm         *ASTM D7414         >25         12.9             Base Number (BN)         mg KOH/g         ASTM D2896         10         5.9								
Base Number (BN)   mg KOH/g   ASTM D2896   10   5.9								
Visc @ 100°C cSt ASTM D445 15.0 11.6		, ,						
		Visc @ 100°C	cSt	ASTM D445	15.0	11.6		





Certificate L2367

Report Id: VP794951 [WUSCAR] 06187232 (Generated: 05/28/2024 15:15:47) Rev: 1

Laboratory Sample No.

Lab Number : 06187232

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : VPA058913

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.

Unique Number: 11043984

Received **Tested** Diagnosed

Test Package: MOB 1 (Additional Tests: FuelDilution, PercentFuel, TBN)

: 22 May 2024 : 28 May 2024

: 28 May 2024 - Jonathan Hester

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

SEATTLE, WA US 98107

Contact: WILLOW YANARELLA service@coastalmarineengine.com

T: (206)784-3703 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (206)784-8823