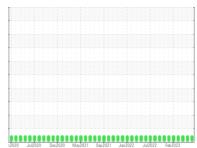


OIL ANALYSIS REPORT

Sample Rating Trend







CVA Component Starboard Genset

CHEVRON DELO 710 LS (7 GAL)

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

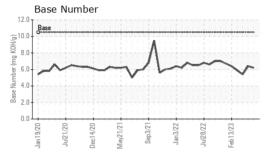
Fluid Condition

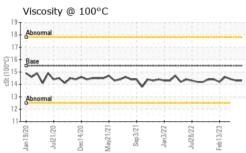
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date			12020 Jul20	0 Dec2020 May2021	Sep 2021 Jan 2022 Jul 2022	Feb 2023	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 13785 13188 12800 201 Age hrs Client Info 285 245 300 201 Age hrs Client Info Changed Changed Changed Changed Changed Changed NORMAL NOR	Sample Number		Client Info		MW0050914	MW0043873	MW0043867
Oil Age	Sample Date		Client Info		29 Jun 2023	07 May 2023	11 Apr 2023
Client Info	Machine Age	hrs	Client Info		13785	13188	12800
NORMAL NORMAL NORMAL NORMAL	Oil Age	hrs	Client Info		285	245	300
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >4.0 <1.0 <1.0 1.0 Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >5 <1 0 <1 Chromium ppm ASTM D5185m >5 <1 0 <1 Nickel ppm ASTM D5185m >5 0 0 <1 Silver ppm ASTM D5185m >5 0 0 0 Silver ppm ASTM D5185m >10 1 1 2 Lead ppm ASTM D5185m >10 <1 0 <1 Copper ppm ASTM D5185m >5 <1 0 <1 Vanadium ppm ASTM D5185m 0 0 <1 Vanadium p	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS	CONTAMINATION	١	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >25 4 3 8 Chromium ppm ASTM D5185m >5 <1 0 <1 Nickel ppm ASTM D5185m >5 0 0 0 Silver ppm ASTM D5185m >5 0 0 0 Aluminum ppm ASTM D5185m >10 1 1 2 Lead ppm ASTM D5185m >10 1 1 2 Lead ppm ASTM D5185m >10 1 1 2 Lead ppm ASTM D5185m >10 <1 0 <1 Copper ppm ASTM D5185m >5 <1 0 <1 Capadium ppm ASTM D5185m 0 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 <0 </th <th>Fuel</th> <th></th> <th>WC Method</th> <th>>4.0</th> <th><1.0</th> <th><1.0</th> <th>1.0</th>	Fuel		WC Method	>4.0	<1.0	<1.0	1.0
	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Chromium	Iron	ppm	ASTM D5185m	>25	4	3	8
Description	Chromium	ppm	ASTM D5185m	>5	<1	0	<1
Silver	Nickel	ppm	ASTM D5185m	>5	0	0	<1
Aluminum	Titanium	ppm	ASTM D5185m		0	0	0
Lead	Silver	ppm	ASTM D5185m	>5	0	0	0
Copper	Aluminum	ppm	ASTM D5185m	>10	1	1	2
Tin	Lead	ppm	ASTM D5185m	>10	<1	0	<1
Vanadium ppm ASTM D5185m 0 0 <1	Copper	ppm	ASTM D5185m	>20	<1	0	0
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 51 41 41 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 48 42 45 Manganese ppm ASTM D5185m <1 0 <1 Magnesium ppm ASTM D5185m 17 9 9 Calcium ppm ASTM D5185m 3770 3317 3456 Phosphorus ppm ASTM D5185m 9 2 0 Zinc ppm ASTM D5185m 7 0 0 Sulfur ppm ASTM D5185m 2682 2416 2775 CONTAMINANTS method limit/base current history1 history2 Solium ppm ASTM D5185m >20 2 1 <	Tin	ppm	ASTM D5185m	>5	<1	0	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 51 41 41 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 48 42 45 Manganese ppm ASTM D5185m -1 0 -1 Magnesium ppm ASTM D5185m 17 9 9 Calcium ppm ASTM D5185m 3770 3317 3456 Phosphorus ppm ASTM D5185m 9 2 0 Zinc ppm ASTM D5185m 7 0 0 Sulfur ppm ASTM D5185m 2682 2416 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 2 Sodium ppm ASTM D5185m >20 2	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron ppm ASTM D5185m D0 D0 D0 D0 D0 D0 D0 D	Cadmium	ppm	ASTM D5185m		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 48 42 45 Manganese ppm ASTM D5185m -1 0 <1 Magnesium ppm ASTM D5185m 17 9 9 Calcium ppm ASTM D5185m 3770 3317 3456 Phosphorus ppm ASTM D5185m 9 2 0 Zinc ppm ASTM D5185m 7 0 0 Sulfur ppm ASTM D5185m 2682 2416 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 2 Sodium ppm ASTM D5185m >20 2 1 1 Potassium ppm ASTM D5185m >20 2 1 1 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7414 >20	Boron	ppm	ASTM D5185m		51	41	41
Manganese ppm ASTM D5185m <1	Barium	ppm	ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 17 9 9 Calcium ppm ASTM D5185m 3770 3317 3456 Phosphorus ppm ASTM D5185m 9 2 0 Zinc ppm ASTM D5185m 7 0 0 Sulfur ppm ASTM D5185m 2682 2416 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 2 Sodium ppm ASTM D5185m 1 1 1 1 Potassium ppm ASTM D5185m >20 2 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/.mm *ASTM D7415 >30 14.5 15.5 17.8 FLUID DEGRADATION *AST	Molybdenum	ppm	ASTM D5185m		48	42	45
Calcium ppm ASTM D5185m 3770 3317 3456 Phosphorus ppm ASTM D5185m 9 2 0 Zinc ppm ASTM D5185m 7 0 0 Sulfur ppm ASTM D5185m 2682 2416 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 2 Sodium ppm ASTM D5185m >20 2 1 1 Potassium ppm ASTM D5185m >20 2 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/.1mm *ASTM D7624 >20 7.5 7.5 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 15.5 17.8 FLUID	Manganese	ppm	ASTM D5185m		<1	0	<1
Phosphorus ppm ASTM D5185m 9 2 0 Zinc ppm ASTM D5185m 7 0 0 Sulfur ppm ASTM D5185m 2682 2416 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 2 Sodium ppm ASTM D5185m 1 1 1 1 Potassium ppm ASTM D5185m >20 2 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/.mm *ASTM D7624 >20 7.5 7.5 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 15.5 17.8 FLUID DEGRADATION method limit/base current history1 histor	Magnesium	ppm	ASTM D5185m		17	9	9
Zinc ppm ASTM D5185m 7 0 0 Sulfur ppm ASTM D5185m 2682 2416 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 2 Sodium ppm ASTM D5185m 1 1 1 1 Potassium ppm ASTM D5185m >20 2 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.5 7.5 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 15.5 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.0 10.1	Calcium	ppm	ASTM D5185m		3770	3317	3456
Sulfur ppm ASTM D5185m 2682 2416 2775 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 2 Sodium ppm ASTM D5185m 1 1 1 1 Potassium ppm ASTM D5185m >20 2 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.5 7.5 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 15.5 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.0 10.1 15.3	Phosphorus	ppm	ASTM D5185m		9	2	0
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 2 Sodium ppm ASTM D5185m 1 1 1 1 Potassium ppm ASTM D5185m >20 2 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.5 7.5 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 15.5 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.0 10.1 15.3	Zinc	ppm	ASTM D5185m		7	0	0
Silicon ppm ASTM D5185m >25 3 2 2 Sodium ppm ASTM D5185m 1 1 1 1 Potassium ppm ASTM D5185m >20 2 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.5 7.5 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 15.5 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.0 10.1 15.3	Sulfur	ppm	ASTM D5185m		2682	2416	2775
Sodium ppm ASTM D5185m 1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.5 7.5 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 15.5 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.0 10.1 15.3	Silicon	ppm	ASTM D5185m	>25	3	2	2
INFRA-RED	Sodium	ppm	ASTM D5185m		1	1	1
Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.5 7.5 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.5 15.5 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.0 10.1 15.3	Potassium	ppm	ASTM D5185m	>20	2	1	1
Nitration Abs/cm *ASTM D7624 >20 7.5 7.5 9.6 Sulfation Abs/.1mm *ASTM D7615 >30 14.5 15.5 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.0 10.1 15.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 14.5 15.5 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.0 10.1 15.3	Soot %	%	*ASTM D7844		0.1	0.1	0.1
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.0 10.1 15.3	Nitration	Abs/cm	*ASTM D7624	>20	7.5	7.5	9.6
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	14.5	15.5	17.8
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	9.0	10.1	15.3
	Base Number (BN)						



OIL ANALYSIS REPORT

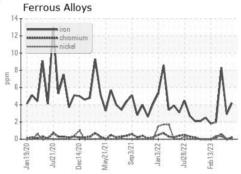


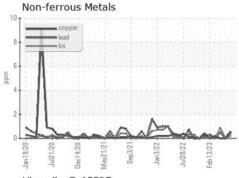


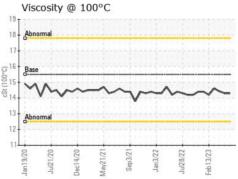
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

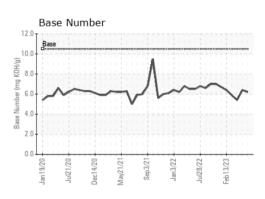
FLUID PROPER	TIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.5	14.3	14.3	14.43

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : MAR 2

: MW0050914 : 05902154 : 10563510

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 19 Jul 2023 Diagnosed : 19 Jul 2023 Diagnostician : Wes Davis

P.O. BOX 2889 ST. LOUIS, MO US 63111

AMERICAN RIVER TRANSPORTATION CO.

Contact/Location: BRIAN GRIEWING - AMESAI

Contact: BRIAN GRIEWING

brian.griewing@adm.com T:

* - 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)