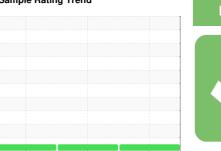


# **OIL ANALYSIS REPORT**

Sample Rating Trend



**NORMAL** 



# **ACECO RWSB-W 10061374 - TROLLEY EAST (S/N 3218)**

Component

Gearbox

SHELL OMALA S2 GX 220 (--- GAL)

DIA		

#### Recommendation

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

#### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

### **Fluid Condition**

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sample Number			000	2020	Oct2021 Oct20	72	
Sample Number   Client Info   WC0657482   WC0424938   WC0495714   Sample Date   Client Info   O3 Oct 2022   04 Oct 2021   27 Oct 2020   Machine Age   mths   Client Info   O3 Oct 2022   04 Oct 2021   27 Oct 2020   O1 Oct 2020   O2 Oct 2020   O2 Oct 2020   O3 Oct 2022   O4 Oct 2021   O4 Oct 2021	SAMPLE INFORM	MATION				history1	history2
Client Info	Sample Number		Client Info				
Machine Age							
Oil Changed   Sample Status	•	mthe					
Oil Changed   Client Info   Not Changd   NORMAL   NORMAL					-	-	_
NORMAL   NORMAL   NORMAL   NORMAL   WEAR METALS   method   limit/base   current   history1   history2   history2   lron   ppm   ASTM D5185m   >200   <1   <1   1   1	· ·	1111113					
	Sample Status		Ollerit IIIIO				
Chromium         ppm         ASTM D5185m         >15         0         0         0           Nickel         ppm         ASTM D5185m         >15         0         0         1           Tittanium         ppm         ASTM D5185m         0         0         0         0           Silver         ppm         ASTM D5185m         0         0         0         0           Aluminum         ppm         ASTM D5185m         >25         0         0         0           Lead         ppm         ASTM D5185m         >200         <1         0         0           Copper         ppm         ASTM D5185m         >200         <1         0         0           Tin         ppm         ASTM D5185m         >20         <1         0         0           Tin         ppm         ASTM D5185m         0         0         0         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         8         1           Barium         ppm         ASTM D5185m         0.0         2         0         0	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>200	<1	<1	1
Description	Chromium	ppm	ASTM D5185m	>15	0	0	0
Silver	Nickel	ppm	ASTM D5185m	>15	0	0	1
Alluminum	Titanium	ppm	ASTM D5185m		0	0	0
Lead	Silver	ppm	ASTM D5185m		0	<1	0
Copper	Aluminum	ppm	ASTM D5185m	>25	0	0	0
Copper         ppm         ASTM D5185m         >200         <1         0         0           Tin         ppm         ASTM D5185m         >25         0         0         0           Antimony         ppm         ASTM D5185m         —         0         0         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         <1	Lead		ASTM D5185m	>100	0	0	1
Tin	Copper		ASTM D5185m	>200	<1	0	0
Antimony	•				0	0	0
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         6.2         0         8         1           Barium         ppm         ASTM D5185m         0.0         2         0         0           Molybdenum         ppm         ASTM D5185m         0.0         2         0         0           Manganese         ppm         ASTM D5185m         0.1         <1         <1         <1         0           Magnesium         ppm         ASTM D5185m         0.0         9         4         8           Phosphorus         ppm         ASTM D5185m         0.0         9         4         8           Phosphorus         ppm         ASTM D5185m         290         276         266         257           Zinc         ppm         ASTM D5185m         290         276         28         7           Sulfur         ppm         ASTM D5185m         3.8         12	Antimony		ASTM D5185m			0	0
Cadmium         ppm         ASTM D5185m         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         6.2         0         8         1           Barium         ppm         ASTM D5185m         0.0         2         0         0           Molybdenum         ppm         ASTM D5185m         0         -1         <1	•		ASTM D5185m		0	0	0
Boron   ppm   ASTM D5185m   6.2   0   8   1	Cadmium		ASTM D5185m				<1
Barium	ADDITIVES		method	limit/base	current	history1	history2
Barium	Boron	ppm	ASTM D5185m	6.2	0	8	1
Molybdenum         ppm         ASTM D5185m         0         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1 <td>Barium</td> <td></td> <td>ASTM D5185m</td> <td>0.0</td> <th></th> <td>0</td> <td>0</td>	Barium		ASTM D5185m	0.0		0	0
Manganese         ppm         ASTM D5185m         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         0          Calcium         ppm         ASTM D5185m         0.0         9         4         8          Phosphorus         ppm         ASTM D5185m         0.0         9         4         8         Phosphorus         ppm         ASTM D5185m         290         276         266         257         257         250         2         266         257         250         2         28         7         3994         34         8         7         3994         34	Molvbdenum				<1	<1	<1
Magnesium         ppm         ASTM D5185m         0         1         <1         0           Calcium         ppm         ASTM D5185m         0.0         9         4         8           Phosphorus         ppm         ASTM D5185m         290         276         266         257           Zinc         ppm         ASTM D5185m         3.8         12         8         7           Sulfur         ppm         ASTM D5185m         8167         13117         9477         8994           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >50         2         2         3           Sodium         ppm         ASTM D5185m         >0         <1         1         1           Potassium         ppm         ASTM D5185m         >20         <1         0         <1           FLUID DEGRADATION         method         limit/base         current         history1         history2           Acid Number (AN)         mg KOHlg         ASTM D8045         0.42         0.413         0.371           VISUAL         method         limit/base         cu							
Calcium         ppm         ASTM D5185m         0.0         9         4         8           Phosphorus         ppm         ASTM D5185m         290         276         266         257           Zinc         ppm         ASTM D5185m         3.8         12         8         7           Sulfur         ppm         ASTM D5185m         8167         13117         9477         8994           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >50         2         2         3           Sodium         ppm         ASTM D5185m         >20         <1	-			0		<1	0
Phosphorus         ppm         ASTM D5185m         290         276         266         257           Zinc         ppm         ASTM D5185m         3.8         12         8         7           Sulfur         ppm         ASTM D5185m         8167         13117         9477         8994           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >50         2         2         3           Sodium         ppm         ASTM D5185m         >20         <1			ASTM D5185m	0.0	9	4	8
Zinc         ppm         ASTM D5185m         3.8         12         8         7           Sulfur         ppm         ASTM D5185m         8167         13117         9477         8994           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >50         2         2         3           Sodium         ppm         ASTM D5185m         >50         2         2         3           Sodium         ppm         ASTM D5185m         >20         <1         0         <1           FLUID DEGRADATION         method         limit/base         current         history1         history2           Acid Number (AN)         mg KOH/g         ASTM D8045         0.42         0.413         0.371           VISUAL         method         limit/base         current         history1         history2           Acid Number (AN)         mg KOH/g         ASTM D8045         0.42         0.413         0.371           VISUAL         method         limit/base         current         history1         history2           White Metal <th< td=""><td></td><td></td><td></td><td></td><th></th><td>266</td><td>257</td></th<>						266	257
Sulfur         ppm         ASTM D5185m         8167         13117         9477         8994           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >50         2         2         3           Sodium         ppm         ASTM D5185m         >50         2         2         3           Potassium         ppm         ASTM D5185m         >20         <1	•						
Silicon         ppm         ASTM D5185m         >50         2         2         3           Sodium         ppm         ASTM D5185m         0         <1         1           Potassium         ppm         ASTM D5185m         >20         <1         0         <1           FLUID DEGRADATION         method         limit/base         current         history1         history2           Acid Number (AN)         mg KOH/g         ASTM D8045         0.42         0.413         0.371           VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         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         NORML	Sulfur						
Sodium ppm ASTM D5185m 0 <1 1 Potassium ppm ASTM D5185m >20 <1 0 <1  FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.42 0.413 0.371  VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE VLITE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185m         0         <1         1           Potassium         ppm         ASTM D5185m         >20         <1	Silicon	ppm	ASTM D5185m	>50	2	2	3
PotassiumppmASTM D5185m>20<10<1FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2Acid Number (AN)mg KOH/gASTM D80450.420.4130.371VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONENONENONEPrecipitatescalar*VisualNONENONENONESiltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML	Sodium		ASTM D5185m		0	<1	1
Acid Number (AN) mg KOH/g ASTM D8045 0.42 0.413 0.371  VISUAL method limit/base current history1 history2  White Metal scalar *Visual NONE NONE VLITE NONE  Yellow Metal scalar *Visual NONE NONE NONE NONE NONE  Precipitate scalar *Visual NONE 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				>20	-		<1
VISUAL method limit/base current history1 history2  White Metal scalar *Visual NONE NONE VLITE 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  NORML NORML	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
White Metal scalar *Visual NONE NONE VLITE 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	Acid Number (AN)	mg KOH/g	ASTM D8045		0.42	0.413	0.371
Yellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML	VISUAL		method	limit/base	current	history1	history2
Precipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML	White Metal	scalar	*Visual	NONE	NONE	VLITE	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	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Debrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Odor scalar *Visual NORML NORML NORML NORML							
	Odor						
	Emulsified Water						

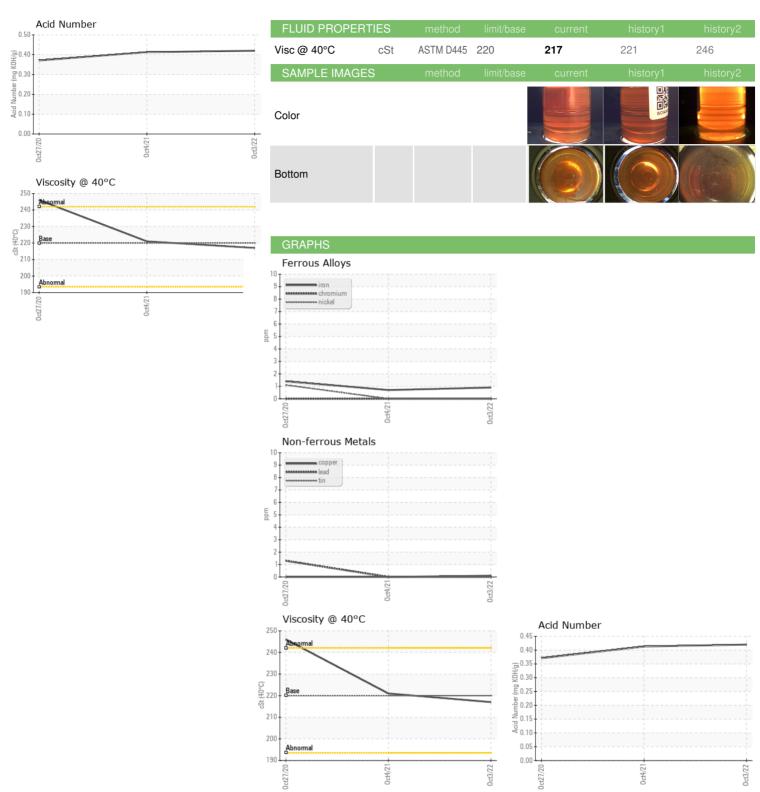
Serwice Manager - FLEISCHNY

NEG

scalar \*Visual



## **OIL ANALYSIS REPORT**







Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10188988 Test Package : IND 2

: WC0657482 : 05674417

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

: 25 Oct 2022 Diagnostician : Wes Davis

: 24 Oct 2022

**FLUOR MARINE PROPULSION LLC** 2401 RIVER RD

SCHENECTADY, NY US 12309

Contact: Service Manager

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)

T:

F: