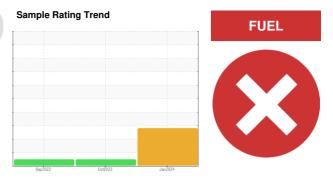


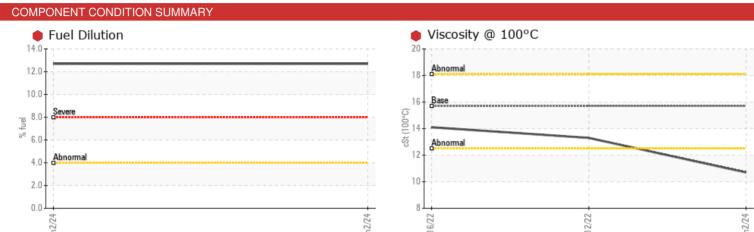
#### **PROBLEM SUMMARY**

#### CARESSA K [CARESSA K] CARESSA K CARESSA K

**Starboard Main Engine** 

SHELL ROTELLA T 15W40 (20 GAL)





#### **RECOMMENDATION**

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC <sup>1</sup>	ΓEST RI	ESULTS	ULTS						
Sample Status				SEVERE	NORMAL	NORMAL			
Fuel	%	ASTM D3524	>4.0	<b>12.7</b>	<1.0	<1.0			
Visc @ 100°C	cSt	ASTM D445	15.7	<b>10.7</b>	13.3	14.1			

Customer Id: INGPAD Sample No.: MW0060294 Lab Number: 06077811 Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Wes Davis +1 905-569-8600 x223 wesd@wearcheck.ca

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

## RECOMMENDED ACTIONS Action Status Date Done By Description Resample -- -- ? We recommend an early resample to monitor this condition. Check Fuel/injector System -- ? We advise that you check the fuel injection system.

#### HISTORICAL DIAGNOSIS

#### 12 Oct 2022 Diag: Don Baldridge

#### NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



#### 16 Sep 2022 Diag: Don Baldridge

#### NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





#### **OIL ANALYSIS REPORT**

### CARESSA K Machine Id [CARESSA K] CARESSA K CARESSA K

Starboard Main Engine

Fluid

SHELL ROTELLA T 15W40 (20 GAL)

# Sample Rating Trend



#### DIAGNOSIS

#### Recommendation

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

#### Wear

All component wear rates are normal.

#### Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

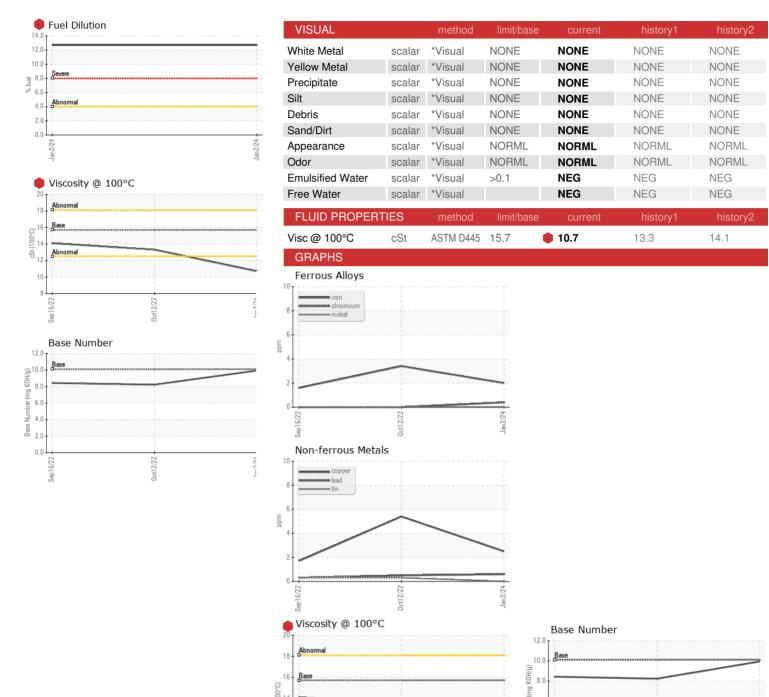
#### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sample Number         Client Info         MW0060294         MW0046610         MW0046578           Sample Date         Client Info         02 Jan 2024         12 Oct 2022         16 Sep 2022           Machine Age         hrs         Client Info         7101         45231         44671           Oil Age         hrs         Client Info         Changed				2022	Oct2022 Jan20		<u> </u>
Sample Date	SAMPLE INFORMA	ATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         7101         45231         44671           Oil Age         hrs         Client Info         476         554         1000           Oil Changed         Client Info         Changed         Changed         Changed           Sample Status         Imitity         SEVERE         NORMAL           CONTAMINATION         method         Imitity         Current         history1           Water         WC Method         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         Imitibase         current         history1         history2           Iron         ppm         ASTM D5185m         >10         <1	Sample Number		Client Info		MW0060294	MW0046610	MW0046578
Oil Age         hrs         Client Info         476         554         1000           Oil Changed         Changed <td>Sample Date</td> <td></td> <td>Client Info</td> <td></td> <td>02 Jan 2024</td> <td>12 Oct 2022</td> <td>16 Sep 2022</td>	Sample Date		Client Info		02 Jan 2024	12 Oct 2022	16 Sep 2022
Client Info	Machine Age	hrs	Client Info		7101	45231	44671
SEVERE   NORMAL   NORMAL	Oil Age	hrs	Client Info		476	554	1000
SEVERE   NORMAL   NORMAL	Oil Changed		Client Info		Changed	Changed	Changed
Water         WC Method         >0.1         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         2         3         2           Chromium         ppm         ASTM D5185m         >10         <1         0         0           Nickel         ppm         ASTM D5185m         >5         0         0         0           Silver         ppm         ASTM D5185m         >5         0         0         0           Silver         ppm         ASTM D5185m         >20         2         1         1           Silver         ppm         ASTM D5185m         >20         2         1         1           Lead         ppm         ASTM D5185m         >40         <1         <1         <1           Copper         ppm         ASTM D5185m         >40         <1         <1         <1           Copper         ppm         ASTM D5185m         >10         0         <1         <1         <1           Vanadium         ppm         ASTM D5185m         10         0	Sample Status						
WEAR METALS	CONTAMINATION		method	limit/base	current	history1	history2
WEAR METALS	Water		WC Method	>0.1	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >10         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	2	3	2
Titanium	Chromium	ppm	ASTM D5185m	>10	<1	0	0
Silver	Nickel	ppm	ASTM D5185m	>5	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		<1	0	0
Aluminum         ppm         ASTM D5185m         >20         2         1         1           Lead         ppm         ASTM D5185m         >40         <1         <1         <1           Copper         ppm         ASTM D5185m         >300         2         5         2           Tin         ppm         ASTM D5185m         >10         0         <1         <1           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0.0         0         0         0           Barium         ppm         ASTM D5185m         0.0         0         0         0           Molybdenum         ppm         ASTM D5185m         1.2         51         52         53           Manganese         ppm         ASTM D5185m         0.0         <1         <1         1           Magnesium         ppm         ASTM D5185m         2292         2190         1889	Silver	ppm	ASTM D5185m	>5	0	0	0
Lead         ppm         ASTM D5185m         >40         <1         <1         <1         <1         Copper         ppm         ASTM D5185m         >300         2         5         2         2           Tin         ppm         ASTM D5185m         >10         0         <1			ASTM D5185m	>20	2	1	1
Copper         ppm         ASTM D5185m         >300         2         5         2           Tin         ppm         ASTM D5185m         >10         0         <1			ASTM D5185m	>40	<1	<1	<1
Tin ppm ASTM D5185m >10 0 <1 <1 <1 <1			ASTM D5185m	>300	2	5	2
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         316         8         233         261           Barium         ppm         ASTM D5185m         0.0         0         0         0           Molybdenum         ppm         ASTM D5185m         1.2         51         52         53           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         24         10         279         290           Calcium         ppm         ASTM D5185m         2292         2190         1889         1818           Phosphorus         ppm         ASTM D5185m         1064         942         901         882           Zinc         ppm         ASTM D5185m         1160         1163         1023         1011           Sulfur         ppm         ASTM D5185m         >25         4         3				>10	0		<1
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         316         8         233         261           Barium         ppm         ASTM D5185m         0.0         0         0         0           Molybdenum         ppm         ASTM D5185m         1.2         51         52         53           Manganese         ppm         ASTM D5185m         0         <1			ASTM D5185m				
Boron ppm ASTM D5185m 316 8 233 261  Barium ppm ASTM D5185m 0.0 0 0 0  Molybdenum ppm ASTM D5185m 1.2 51 52 53  Manganese ppm ASTM D5185m 0 0 1 1  Magnesium ppm ASTM D5185m 24 10 279 290  Calcium ppm ASTM D5185m 2292 2190 1889 1818  Phosphorus ppm ASTM D5185m 1064 942 901 882  Zinc ppm ASTM D5185m 1160 1163 1023 1011  Sulfur ppm ASTM D5185m 4996 2691 3795 3753  CONTAMINANTS method limit/base current history1 history2  Silicon ppm ASTM D5185m >25 4 3 5  Sodium ppm ASTM D5185m >20 2 3 4  Fuel % ASTM D5185m >20 2 3 4  Fuel % ASTM D5185m >20 2 2 3 4  Fuel % ASTM D5185m >20 2 2 3 4  Fuel % ASTM D5185m >20 2 2 3 4  Fuel % ASTM D5185m >20 5 5  Sulfation Abs/:mm *ASTM D7415 >30 15.2 22.8 22.4  FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/:mm *ASTM D7414 >25 8.3 17.3 16.3					_		
Barium         ppm         ASTM D5185m         0.0         0         0         0           Molybdenum         ppm         ASTM D5185m         1.2         51         52         53           Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         24         10         279         290           Calcium         ppm         ASTM D5185m         2292         2190         1889         1818           Phosphorus         ppm         ASTM D5185m         1064         942         901         882           Zinc         ppm         ASTM D5185m         1160         1163         1023         1011           Sulfur         ppm         ASTM D5185m         4996         2691         3795         3753           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D5185m         >20         2 <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2
Barium         ppm         ASTM D5185m         0.0         0         0         0           Molybdenum         ppm         ASTM D5185m         1.2         51         52         53           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	316	8	233	261
Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         24         10         279         290           Calcium         ppm         ASTM D5185m         2292         2190         1889         1818           Phosphorus         ppm         ASTM D5185m         1064         942         901         882           Zinc         ppm         ASTM D5185m         1160         1163         1023         1011           Sulfur         ppm         ASTM D5185m         4996         2691         3795         3753           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D5185m         >20         2	Barium	ppm	ASTM D5185m	0.0	0	0	0
Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         24         10         279         290           Calcium         ppm         ASTM D5185m         2292         2190         1889         1818           Phosphorus         ppm         ASTM D5185m         1064         942         901         882           Zinc         ppm         ASTM D5185m         1160         1163         1023         1011           Sulfur         ppm         ASTM D5185m         4996         2691         3795         3753           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D5185m         >20         12.7         <	Molybdenum			1.0		F0	F0
Magnesium         ppm         ASTM D5185m         24         10         279         290           Calcium         ppm         ASTM D5185m         2292         2190         1889         1818           Phosphorus         ppm         ASTM D5185m         1064         942         901         882           Zinc         ppm         ASTM D5185m         1160         1163         1023         1011           Sulfur         ppm         ASTM D5185m         4996         2691         3795         3753           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         >20         2         3         4           Potassium         ppm         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D5185m         >20         12.7         <1.0	Monybuchum	ppm	ASTM D5185m	1.2	51	52	53
Calcium         ppm         ASTM D5185m         2292         2190         1889         1818           Phosphorus         ppm         ASTM D5185m         1064         942         901         882           Zinc         ppm         ASTM D5185m         1160         1163         1023         1011           Sulfur         ppm         ASTM D5185m         4996         2691         3795         3753           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         0         1         <1				1.2			
Phosphorus         ppm         ASTM D5185m         1064         942         901         882           Zinc         ppm         ASTM D5185m         1160         1163         1023         1011           Sulfur         ppm         ASTM D5185m         4996         2691         3795         3753           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         >20         2         3         4           Potassium         ppm         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D3524         >4.0         12.7         <1.0	Manganese	ppm	ASTM D5185m		0	<1	<1
Zinc         ppm         ASTM D5185m         1160         1163         1023         1011           Sulfur         ppm         ASTM D5185m         4996         2691         3795         3753           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         0         1         <1           Potassium         ppm         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D3524         >4.0         12.7         <1.0         <1.0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         6.5         7.1         5.5           Sulfation         Abs/.mm         *ASTM D7415         >30         15.2         22.8         22.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25	Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	24	0	<1 279	<1 290
Sulfur         ppm         ASTM D5185m         4996         2691         3795         3753           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         0         1         <1	Manganese Magnesium Calcium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	24 2292	0 10 2190	<1 279 1889	<1 290 1818
Silicon         ppm         ASTM D5185m         >25         4         3         5           Sodium         ppm         ASTM D5185m         0         1         <1           Potassium         ppm         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D3524         >4.0         12.7         <1.0         <1.0           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         6.5         7.1         5.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         15.2         22.8         22.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         8.3         17.3         16.3	Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	24 2292 1064	0 10 2190 942	<1 279 1889 901	<1 290 1818 882
Sodium         ppm         ASTM D5185m         0         1         <1           Potassium         ppm         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D3524         >4.0         12.7         <1.0	Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	24 2292 1064 1160	0 10 2190 942 1163	<1 279 1889 901 1023	<1 290 1818 882 1011
Potassium         ppm         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D3524         >4.0         12.7         <1.0         <1.0           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         6.5         7.1         5.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         15.2         22.8         22.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         8.3         17.3         16.3	Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	24 2292 1064 1160 4996	0 10 2190 942 1163 2691	<1 279 1889 901 1023 3795	<1 290 1818 882 1011 3753
Potassium         ppm         ASTM D5185m         >20         2         3         4           Fuel         %         ASTM D3524         >4.0         12.7         <1.0         <1.0           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         6.5         7.1         5.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         15.2         22.8         22.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         8.3         17.3         16.3	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	24 2292 1064 1160 4996	0 10 2190 942 1163 2691 current	<1 279 1889 901 1023 3795 history1	<1 290 1818 882 1011 3753 history2
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         6.5         7.1         5.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         15.2         22.8         22.4           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         8.3         17.3         16.3	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	24 2292 1064 1160 4996	0 10 2190 942 1163 2691 current	<1 279 1889 901 1023 3795 history1	<1 290 1818 882 1011 3753 history2 5
Soot %         %         *ASTM D7844         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         6.5         7.1         5.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         15.2         22.8         22.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         8.3         17.3         16.3	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m	24 2292 1064 1160 4996 limit/base >25	0 10 2190 942 1163 2691 current 4	<1 279 1889 901 1023 3795 history1 3	<1 290 1818 882 1011 3753 history2 5 <1
Nitration         Abs/cm         *ASTM D7624         >20         6.5         7.1         5.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         15.2         22.8         22.4           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         8.3         17.3         16.3	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	24 2292 1064 1160 4996 limit/base >25 >20	0 10 2190 942 1163 2691 current 4 0	<1 279 1889 901 1023 3795 history1 3 1 3	<1 290 1818 882 1011 3753 history2 5 <1 4
Nitration         Abs/cm         *ASTM D7624         >20         6.5         7.1         5.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         15.2         22.8         22.4           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         8.3         17.3         16.3	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	24 2292 1064 1160 4996 limit/base >25 >20 >4.0	0 10 2190 942 1163 2691 current 4 0 2	<1 279 1889 901 1023 3795 history1 3 1 3 <1.0	<1 290 1818 882 1011 3753 history2 5 <1 4
Sulfation         Abs/.1mm         *ASTM D7415         >30         15.2         22.8         22.4           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         8.3         17.3         16.3	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185m ASTM D3524	24 2292 1064 1160 4996 limit/base >25 >20 >4.0	0 10 2190 942 1163 2691 current 4 0 2 112.7 current	<1 279 1889 901 1023 3795 history1 3 -1.0 history1	<1 290 1818 882 1011 3753 history2 5 <1 4 <1.0
Oxidation Abs/.1mm *ASTM D7414 >25 <b>8.3</b> 17.3 16.3	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m ASTM D3524	24 2292 1064 1160 4996 limit/base >25 >20 >4.0	0 10 2190 942 1163 2691 current 4 0 2 12.7 current 0.1	<1 279 1889 901 1023 3795 history1 3 1 3 <1.0 history1 0.1	<pre>&lt;1     290     1818     882     1011     3753     history2     5     &lt;1     4     &lt;1.0     history2     0.1</pre>
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	24 2292 1064 1160 4996 limit/base >25 >20 >4.0	0 10 2190 942 1163 2691 current 4 0 2 12.7 current 0.1 6.5	<1 279 1889 901 1023 3795 history1 3	<pre>&lt;1 290 1818 882 1011 3753 history2 5 &lt;1 4 &lt;1.0 history2 0.1 5.5</pre>
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7614	24 2292 1064 1160 4996 limit/base >25 >20 >4.0 limit/base	0 10 2190 942 1163 2691 current 4 0 2 12.7 current 0.1 6.5 15.2	<1 279 1889 901 1023 3795 history1 3 -<1.0 history1 0.1 7.1 22.8	<pre>&lt;1 290 1818 882 1011 3753 history2 5 &lt;1 4 &lt;1.0 history2 0.1 5.5 22.4</pre>
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRADAT	ppm	ASTM D5185m ASTM D7624 *ASTM D7624 *ASTM D7415 method	24 2292 1064 1160 4996 limit/base >25 >20 >4.0 limit/base >20 >30	0 10 2190 942 1163 2691 current 4 0 2 12.7 current 0.1 6.5 15.2 current	<1 279 1889 901 1023 3795 history1 3 1 3 <1.0 history1 0.1 7.1 22.8 history1	<1 290 1818 882 1011 3753 history2 5 <1 4 <1.0 history2 0.1 5.5 22.4 history2



#### **OIL ANALYSIS REPORT**







Laboratory Sample No. Lab Number **Unique Number** 

: 06077811 : 10859902

100°C ŝ

> : WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 01 Feb 2024 : MW0060294 Recieved Diagnosed : 05 Feb 2024

Diagnostician : Wes Davis Test Package : MAR 2 ( Additional Tests: FuelDilution, PercentFuel )

0.0

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. **INGRAM BARGE** 900 S 3RD ST PADUCAH, KY

US 42003 Contact: ANTHONY VAN CURA anthony.vancura@ingrambarge.com

T: (270)415-4467 F: (615)695-3697

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)