



## DAVID KIRK CUMMINS 74047220 - PORT DIESEL ENGINE

Sample No: VPA059806

Oil Type: SHELL ROTELLA T 15W40

SAMPLE INFORMATION					
Sample Date   29 Oct 2023   22 Nov 2022       Machine Hours   0	SAMPLE INFORMAT	TION			
Sample Date   29 Oct 2023   22 Nov 2022       Machine Hours   0	Sample Number		VPA059806	VPA044805	 
Machine Hours         0         0             Oil Hours         0         0             Oil Changed         Changed             Sample Status         NORMAL         NORMAL             OIL CONDITION           Vise @ 100°C         CSt         # 14.4         # 14.7             CONTAMINATION           CONTAMINATION           Soot %         © 0.7         0.8             CONTAMINATION           Soot %         © 0.7         0.8 <tr< th=""><th></th><th></th><th></th><th></th><th></th></tr<>					
Oil Hours         0         0             Oil Changed         Changed         Changed             Sample Status         NORMAL         NORMAL             OIL CONDITION           Visc © 100°C         CSt         14.4         14.7             Base Number (BN)         mg KOH/g         7.8         9.4             Contamination (PA)         6         67         76             Contamination (PA)         6         65         73             Sulfation (PA)         6         65         73             Glycol         %         NEG         NEG         NEG             Glycol         %         NEG         NEG              Silicon         ppm         6         5              Soldium         ppm         2         2             Verbassium         ppm	•				
Oil Changed Sample Status         Changed NORMAL         Changed NORMAL             OIL CONDITION           Visc @ 100°C         cSt         \$\text{11.4.4}\$         \$\text{14.7}\$             Base Number (BN)         mg KOH/g         \$\text{7.8}\$         \$\text{9.4}\$             CONTAMINATION           Soot %         6         \$0.7         \$0.8             Nitration (PA)         6         65         73             Sulfation (PA)         5         59         66             Glycol         %         NEG         NEG             Fuel         %         <1.0         <1.0             Silicon         ppm         6         \$5             Sodium         ppm         2         2         2             VEAR METALS         Iron         ppm         67         72             Lead         ppm         0         2 <th></th> <th></th> <th></th> <th></th> <th> </th>					 
Sample Status					
OIL CONDITION           Visc @ 100°C         CSt         114.4         114.7				_	 
Visc @ 100°C         cSt         114.4         114.7					
Base Number (BN)   mg KOH/g   7.8   9.4	OIL CONDITION				
Contamination           Contamination         %         67         76             Soot %         %         0.7         0.8             Nitration (PA)         %         65         73             Sulfation (PA)         %         59         66             Glycol         %         NEG         NEG             Fuel         %         <1.0         <1.0             Silicon         ppm         66         55             Sodium         ppm         2         2         2             Potassium         ppm         6         8              WEAR METALS           Iron         ppm         67         72             Lead         ppm         0         2             Copper         ppm         0         <1             Lead         ppm         0         <1	Visc @ 100°C	cSt	<b>14.4</b>	<b>14.7</b>	 
CONTAMINATION	Base Number (BN)	mg KOH/g	<b>7.8</b>	9.4	 
Soot %	Oxidation (PA)	%	67	76	 
Soot %	CONTAMINATION				
Nitration (PA)		0/	=0.7		
Sulfation (PA)         %         59         66             Glycol         %         NEG         NEG             Fuel         %         <1.0			_		
Silycol   %   NEG					
Fuel         %         <1.0					
Silicon       ppm       6       5           Sodium       ppm       2       2           Potassium       ppm       6       8           WEAR METALS         Iron       ppm       21       19           Copper       ppm       67       72           Lead       ppm       0       2           Lead       ppm       0       <1	-				
Sodium         ppm         2         2             WEAR METALS           Iron         ppm         21         19             Copper         ppm         67         72             Lead         ppm         0         2             Tin         ppm         0         <1					
Potassium   ppm   6				_	
WEAR METALS           Iron         ppm         21         19             Copper         ppm         67         72             Lead         ppm         0         2             Tin         ppm         0         <1			_		
Iron         ppm         21         19             Copper         ppm         67         72             Lead         ppm         0         2             Tin         ppm         0         <1             Aluminum         ppm         <1         <1             Aluminum         ppm         <1         <1             Aluminum         ppm         0         1             Molybdenum         ppm         0         1             Nickel         ppm         1         2             Silver         ppm         0         <1             Silver         ppm         0         <1             Vanadium         ppm         0         <1             Vanadium         ppm         1938         2214             ADDITIVES           Zinc         ppm         1081         1216	Potassium	ppm	<b>6</b>	8	 
Copper         ppm         67         72             Lead         ppm         0         2             Tin         ppm         0         -1             Aluminum         ppm         <1	WEAR METALS				
Copper         ppm         67         72             Lead         ppm         0         2             Tin         ppm         0         1             Aluminum         ppm         <1	Iron	ppm	<b>21</b>	<b>1</b> 9	 
Lead       ppm       0       2           Tin       ppm       0       -1           Aluminum       ppm       <1           Chromium       ppm       <1           Molybdenum       ppm       0       1           Nickel       ppm       1       2           Titanium       ppm       0       <1           Silver       ppm       0       <1           Manganese       ppm       0       <1           Vanadium       ppm       0       <1           ADDITIVES     Calcium  ppm  ppm  1938  2214   Anguesium  ppm  77  25   Zinc  ppm  1081  1216   Phosphorus  ppm  992  996   Barium  ppm  3       9976	Copper		<b>67</b>	72	 
Tin         ppm         0         -1             Aluminum         ppm         <1             Chromium         ppm         <1             Molybdenum         ppm         0         1             Nickel         ppm         1         2             Titanium         ppm         0         <1             Silver         ppm         0         <1             Manganese         ppm         0         <1             Vanadium         ppm         1938         2214             ADDITIVES           Calcium         ppm         1938         2214             Magnesium         ppm         1081         1216             Zinc         ppm         1081         1216             Phosphorus         ppm         992         996             Barium         ppm         3         0	• •		_	_	 
Aluminum       ppm       <1	Tin		O	<1	 
Chromium         ppm         <1	Aluminum		<b>■</b> <1	<u></u> <1	 
Molybdenum         ppm         0         1             Nickel         ppm         1         2             Titanium         ppm         0         <1             Silver         ppm         0         <1             Manganese         ppm         0         <1             Vanadium         ppm         0         <1             ADDITIVES           Calcium         ppm         1938         2214             Magnesium         ppm         77         25             Zinc         ppm         1081         1216             Phosphorus         ppm         992         976             Barium         ppm         3         0	Chromium		<b>■&lt;1</b>	<b>-</b> <1	 
Nickel         ppm         1         2             Titanium         ppm         0         <1             Silver         ppm         0         <1             Manganese         ppm         <1             Vanadium         ppm         0         <1             ADDITIVES           Calcium         ppm         1938         2214             Magnesium         ppm         77         25             Zinc         ppm         1081         1216             Phosphorus         ppm         992         976             Barium         ppm         3         0	Molybdenum		■0	1	 
Titanium         ppm         0         <1	-		<b>1</b>		 
Silver         ppm         0         <1	Titanium		<b>0</b>	<b></b>	 
Manganese         ppm         <1	Silver		<b>0</b>		 
Vanadium         ppm         0         <1	Manganese			_	 
Calcium         ppm         1938         2214             Magnesium         ppm         77         25             Zinc         ppm         1081         1216             Phosphorus         ppm         992         976             Barium         ppm         3         0			0	<1	 
Calcium         ppm         1938         2214             Magnesium         ppm         77         25             Zinc         ppm         1081         1216             Phosphorus         ppm         992         976             Barium         ppm         3         0	ADDITIVES				
Magnesium         ppm         77         25             Zinc         ppm         1081         1216             Phosphorus         ppm         992         976             Barium         ppm         3         0		nnm	<b>■ 193</b> 2	<b>■</b> 2214	 
Zinc         ppm         1081         1216             Phosphorus         ppm         992         976             Barium         ppm         3         0					
Phosphorus         ppm         992         976             Barium         ppm         3         0	_				
Barium ppm <b>3</b> 0					
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## **BAY MARINE**

3 E MADISON ST WAUKEGAN, IL US 60085 Contact: BRENDAN COWHEY brendan@baymarine.net T: (847)336-2628 F:

## Diagnosis

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.

 Depot:
 VP1174336

 Unique No:
 10715308

 Signed:
 Don Baldridge

 Report Date:
 31 Oct 2023

## **OIL ANALYSIS REPORT**



