

## **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Area [18460] Machine Id **40-220L** Component

### **Diesel Engine**

Fluid CONOCO PHILLIPS GUARDOL ECT 15W40 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

Metal levels are typical for a new component breaking in.

#### Contamination

There is no indication of any contamination in the oil.

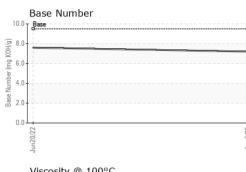
#### Fluid Condition

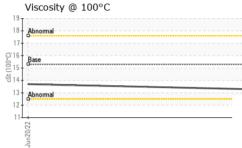
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION         method         limit/base         current         History1         History2           Sample Number         Client Info         08 Aug 2023         20 Jun 2022            Machine Age         hrs         Client Info         809         402            Oil Age         hrs         Client Info         407         402            Oil Changed         Client Info         407         402            Sample Status         Imit/base         current         history1            CONTAMINATION         method         Imit/base         current         history1            Glycol         WC Method         >5         <1.0         <1.0            Glycol         WC Method         >5         <1.0         <1.0            WEAR METALS         method         Imit/base         current         history1         history2           Fuel         WC Method         >5         <1.0         <1.0            Contratining pp         ASTM D5155m         >100         0            Nickel         ppm         ASTM D5155m         >33         1         1 <th></th> <th></th> <th>mathad</th> <th>limit/booo</th> <th>ourropt</th> <th>biotorud</th> <th>biotom/0</th>			mathad	limit/booo	ourropt	biotorud	biotom/0
Sample Date         Image         Client Info         809         402            Machine Age         hrs         Client Info         407         402            Oil Age         hrs         Client Info         407         402            Oil Changed         Client Info         Changed         Not Changed            Sample Status         Image         Client Info         Changed         Not Changed            CONTAMINATION         method         Imit/base         current         history1            Glycol         WC Method         >5         <1.0         <1.0            Glycol         WC Method         >5         <1.0         <1.0            Chromium         ppm         ASIM D5185m         >20         1         2            Nickel         ppm         ASIM D5185m         >20         3         4            Auminum         ppm         ASIM D5185m         >20         3         4            Auminum         ppm         ASIM D5185m         >20         3         4            Copper <t< th=""><th></th><th>ATION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>		ATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         809         402            Oil Ghanged         irrs         Client Info         407         402            Oil Changed         Client Info         Changed         Not Changd            Sample Status         Imit/base         current         NoRMAL            Glycol         WC Method         >5         <1.0            Glycol         WC Method         >5         <1.0            WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         21         46            Mickel         ppm         ASTM D5185m         >40         0             Nickel         ppm         ASTM D5185m         >40         0             Silver         ppm         ASTM D5185m         >40         -1             Copper         ppm         ASTM D5185m         >40         -1             Vanadium         ppm         ASTM D5185m         5 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Oil Age         hrs         Client Info         407         402            Oil Changed         Client Info         Changed         Not Changd            Sample Status         Imit/base         current         history1         History2           Fuel         WC Method         >5         <1.0            Glycol         WC Method         >5         <1.0            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         21         46            MEAR         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         1         2            Nickel         ppm         ASTM D5185m         >20         3         4            Itanium         ppm         ASTM D5185m         >20         3         4            Silver         ppm         ASTM D5185m         >20         3         4            Copper         ppm         ASTM D5185m         >30					•		
Oil Changed Sample Status         Client Info         Changed NORMAL         Not Change            CONTAMINATION         method         imit/base         current         history1         history2           Fuel         WC Method         >5         <1.0         <1.0            Glycol         WC Method         >5         <1.0         <1.0            WEAR METALS         method         imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         21         46            Othornium         ppm         ASTM D5185m         >20         1         2            Nickel         ppm         ASTM D5185m         >20         1         <1            Auminum         ppm         ASTM D5185m         >20         3         4            Auminum         ppm         ASTM D5185m         >40         <1         <1            Copper         ppm         ASTM D5185m         >41         0             Vanadium         ppm         ASTM D5185m         <10         63          -	0						
Sample Status         Include         NORMAL         NORMAL            CONTAMINATION         method         imit/base         current         history1         history2           Fuel         WC Method         >5         <1.0         <1.0            Glycol         WC Method         NEG         NEG            WEAR METALS         method         imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         21         46            Nickel         ppm         ASTM D5185m         >20         1         2            Silver         ppm         ASTM D5185m         >20         3         4            Lead         ppm         ASTM D5185m         >20         3         4            Copper         ppm         ASTM D5185m         >40         <1         1            Vanadium         ppm         ASTM D5185m         >15         <1         <1            Copper         ppm         ASTM D5185m         S5         100         60            Cadium         <	0	hrs			-		
CONTAMINATION         method         imit/base         current         history1         history2           Fuel         WC Method         >5         <1.0            Qiycol         WC Method         >5         <1.0            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         1         2            Nickel         ppm         ASTM D5185m         >20         1         2            Nickel         ppm         ASTM D5185m         >4         0         0            Aluminum         ppm         ASTM D5185m         >4         0         0            Qipper         ppm         ASTM D5185m         >20         3         4            Copper         ppm         ASTM D5185m         >30         19         107            Tin         ppm         ASTM D5185m         >15         <1         <1            Qandium         ppm         ASTM D5185m         0         0             Addium	•		Client Info		-	Ŭ	
Fuel         WC Method         >5         <1.0	Sample Status				NORMAL	NORMAL	
Glycol         WC Method         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         1         2            Nickel         ppm         ASTM D5185m         >20         1         2            Nickel         ppm         ASTM D5185m         >20         1             Silver         ppm         ASTM D5185m         >4         0         0            Lead         ppm         ASTM D5185m         >20         3         4            Copper         ppm         ASTM D5185m         >20         3         4            Cadmium         ppm         ASTM D5185m         >10         <1             ADDITIVES         method         imit/base         current         history1         history2           Boron         ppm         ASTM D5185m         100         60             Magnaese         ppm         ASTM D5185m         11         5	CONTAMINATION	N	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5165m         >100         21         46            Chromium         ppm         ASTM D5165m         >20         1         2            Nickel         ppm         ASTM D5165m         >20         1         2            Nickel         ppm         ASTM D5165m         >20         1         2            Silver         ppm         ASTM D5165m         >3         <1         <1            Copper         ppm         ASTM D5165m         >20         3         4            Copper         ppm         ASTM D5165m         >20         3         4            Copper         ppm         ASTM D5165m         >20         3         4            Copper         ppm         ASTM D5165m         >30         19         107            Cadmium         ppm         ASTM D5165m         15         <1         <1            Cadmium         ppm         ASTM D5165m         0         5	Fuel		WC Method	>5	<1.0	<1.0	
Iron         ppm         ASTM D5185m         >100         21         46            Chromium         ppm         ASTM D5185m         >20         1         2            Nickel         ppm         ASTM D5185m         >4         0         0            Titanium         ppm         ASTM D5185m         >3         <1         <1            Silver         ppm         ASTM D5185m         >30         19         107            Lead         ppm         ASTM D5185m         >30         19         107            Copper         ppm         ASTM D5185m         >30         19         107            Vanadium         ppm         ASTM D5185m         >30         19         107            Cadmium         ppm         ASTM D5185m         >10         0          10           Cadmium         ppm         ASTM D5185m         63         100          10            Manganese         ppm         ASTM D5185m         100         1929         1846            Manganesium         ppm         ASTM D	Glycol		WC Method		NEG	NEG	
Iron         ppm         ASTM D5185m         >100         21         46            Chromium         ppm         ASTM D5185m         >20         1         2            Nickel         ppm         ASTM D5185m         >4         0         0            Titanium         ppm         ASTM D5185m         >3         <1         <1            Silver         ppm         ASTM D5185m         >30         19         107            Lead         ppm         ASTM D5185m         >30         19         107            Copper         ppm         ASTM D5185m         >30         19         107            Vanadium         ppm         ASTM D5185m         >30         19         107            Cadmium         ppm         ASTM D5185m         >10         0          10           Cadmium         ppm         ASTM D5185m         63         100          10            Manganese         ppm         ASTM D5185m         100         1929         1846            Manganesium         ppm         ASTM D	-		method	limit/base	current	historv1	historv2
Chromium         ppm         ASTM D5185m         >20         1         2            Nickel         ppm         ASTM D5185m         >4         0         0            Titanium         ppm         ASTM D5185m         >3         <1         <1            Silver         ppm         ASTM D5185m         >3         <1         <1            Aluminum         ppm         ASTM D5185m         >20         3         4            Lead         ppm         ASTM D5185m         >40         <1         <1            Copper         ppm         ASTM D5185m         >40         <1         <1            Cadmium         ppm         ASTM D5185m         >30         19         107            Vanadium         ppm         ASTM D5185m         >10         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         63         63             Magnesium         ppm         ASTM D5185m         100		nom					
Nickel         ppm         ASTM D5185m         >4         0         0            Titanium         ppm         ASTM D5185m         <1	-						
Titanium         ppm         ASTM D5185m         <1         <1            Silver         ppm         ASTM D5185m         >3         <1							
Silver         ppm         ASTM D5185m         >3         <1         <1            Aluminum         ppm         ASTM D5185m         >20         3         4            Lead         ppm         ASTM D5185m         >40         <1				>4	-		
Atuminum         ppm         ASTM D5185m         >20         3         4            Lead         ppm         ASTM D5185m         >40         <1         <1            Copper         ppm         ASTM D5185m         >330         19         107            Tin         ppm         ASTM D5185m         >15         <1         <1            Vanadium         ppm         ASTM D5185m         >15         <1         0            Cadmium         ppm         ASTM D5185m         >15         <1         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         85         100         60            Maganese         ppm         ASTM D5185m         50         421         426            Magnesium         ppm         ASTM D5185m         1000         1080         1078            Calcium         ppm         ASTM D5185m         350         4035         3199            Sulfur         ppm         ASTM D5185m				. 2			
Lead         ppm         ASTM D5185m         >40         <1							
Copper         ppm         ASTM D5185m         >330         19         107            Tin         ppm         ASTM D5185m         >15         <1         <1            Vanadium         ppm         ASTM D5185m         >15         <1         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         85         100         60            Molybdenum         ppm         ASTM D5185m         85         100         5            Magnesium         ppm         ASTM D5185m         350         421         426            Calcium         ppm         ASTM D5185m         100         1080         1078            Calcium         ppm         ASTM D5185m         1000         1080         1078            Sulfur         ppm         ASTM D5185m         350         4035         3199            Sulfur         ppm         ASTM D5185m         >20 <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>							
Tin         ppm         ASTM D5185m         >15         <1							
Vanadium         ppm         ASTM D5185m         <1	••						
Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         85         100         60            Barium         ppm         ASTM D5185m         85         100         60            Malybdenum         ppm         ASTM D5185m         0         5            Magnesium         ppm         ASTM D5185m         63         63            Magnesium         ppm         ASTM D5185m         350         421         426            Calcium         ppm         ASTM D5185m         1000         1080         1078            Calcium         ppm         ASTM D5185m         1000         1323         1336            Sulfur         ppm         ASTM D5185m         55         10            Sulfur         ppm         ASTM D5185m         >20         2         3            Sodium         ppm         ASTM D5185m         >20         2         3				>15			
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         85         100         60            Barium         ppm         ASTM D5185m         0         5            Molybdenum         ppm         ASTM D5185m         63         63            Magnesium         ppm         ASTM D5185m         350         421         426            Calcium         ppm         ASTM D5185m         1800         1929         1846            Calcium         ppm         ASTM D5185m         1000         1080         1078            Zinc         ppm         ASTM D5185m         1100         1323         1336            Sulfur         ppm         ASTM D5185m         3500         4035         3199            Sodium         ppm         ASTM D5185m         >20         2         3            Sulfar         ppm         ASTM D5185m         >20         2         3            Sodium         ppm         ASTM D5185m         >20         2							
Boron         ppm         ASTM D5185m         85         100         60            Barium         ppm         ASTM D5185m         0         5            Molybdenum         ppm         ASTM D5185m         63         63            Manganese         ppm         ASTM D5185m         1         5            Magnesium         ppm         ASTM D5185m         350         421         426            Calcium         ppm         ASTM D5185m         1800         1929         1846            Calcium         ppm         ASTM D5185m         1000         1080         1078            Zinc         ppm         ASTM D5185m         1000         1323         1336            Sulfur         ppm         ASTM D5185m         3500         4035         3199            Solicon         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >20         2         3            Ntr D5185m         >20         2         3	Cadmium	ppm	ASTM D5185m		0	0	
Barium         ppm         ASTM D5185m         0         5            Molybdenum         ppm         ASTM D5185m         63         63            Manganese         ppm         ASTM D5185m         1         5            Magnesium         ppm         ASTM D5185m         350         421         426            Calcium         ppm         ASTM D5185m         350         421         426            Calcium         ppm         ASTM D5185m         1800         1929         1846            Phosphorus         ppm         ASTM D5185m         1000         1080         1078            Zinc         ppm         ASTM D5185m         1000         1323         1336            Sulfur         ppm         ASTM D5185m         3500         4035         3199            Solicon         ppm         ASTM D5185m         25         5         10            Sodium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current         history1 <t< th=""><th>ADDITIVES</th><th></th><th>method</th><th></th><th></th><th>history1</th><th>history2</th></t<>	ADDITIVES		method			history1	history2
Molybdenum         ppm         ASTM D5185m         63         63            Manganese         ppm         ASTM D5185m         1         5            Magnesium         ppm         ASTM D5185m         350         421         426            Calcium         ppm         ASTM D5185m         1800         1929         1846            Phosphorus         ppm         ASTM D5185m         1000         1080         1078            Zinc         ppm         ASTM D5185m         1000         1323         1336            Sulfur         ppm         ASTM D5185m         3500         4035         3199            Sulfur         ppm         ASTM D5185m         3500         4035         3199            Sulfur         ppm         ASTM D5185m         3500         4035         3199            Sulfur         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current			mounou	mmbase	ounone	matory	motory
Maganese         ppm         ASTM D5185m         1         5            Magnesium         ppm         ASTM D5185m         350         421         426            Calcium         ppm         ASTM D5185m         1800         1929         1846            Phosphorus         ppm         ASTM D5185m         1000         1080         1078            Zinc         ppm         ASTM D5185m         1000         1323         1336            Sulfur         ppm         ASTM D5185m         1100         1323         1336            Sulfur         ppm         ASTM D5185m         3500         4035         3199            Sulfur         ppm         ASTM D5185m         3500         4035         3199            Solicon         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >20         2         3            Notassium         ppm         ASTM D5185m         >20         2         0.3            INFRA-RED         method         limit/base		ppm					, in the second s
Magnesium         ppm         ASTM D5185m         350         421         426            Calcium         ppm         ASTM D5185m         1800         1929         1846            Phosphorus         ppm         ASTM D5185m         1000         1080         1078            Zinc         ppm         ASTM D5185m         1000         1323         1336            Sulfur         ppm         ASTM D5185m         1100         1323         1336            Sulfur         ppm         ASTM D5185m         3500         4035         3199            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >20         2         3            Notassium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844	Boron		ASTM D5185m		100	60	
Calcium         ppm         ASTM D5185m         1800         1929         1846            Phosphorus         ppm         ASTM D5185m         1000         1080         1078            Zinc         ppm         ASTM D5185m         1000         1323         1336            Zinc         ppm         ASTM D5185m         1100         1323         1336            Sulfur         ppm         ASTM D5185m         3500         4035         3199            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *	Boron Barium	ppm	ASTM D5185m ASTM D5185m		100 0	60 5	
Phosphorus         ppm         ASTM D5185m         1000         1080         1078            Zinc         ppm         ASTM D5185m         1100         1323         1336            Sulfur         ppm         ASTM D5185m         3500         4035         3199            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >20         2         3            NtFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >3         0.2         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9       FLUID DEGRADATION         method         li	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		100 0 63	60 5 63	
Zinc         ppm         ASTM D5185m         1100         1323         1336            Sulfur         ppm         ASTM D5185m         3500         4035         3199            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >20         2         3            Sodium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *A	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	85	100 0 63 1	60 5 63 5	
Sulfur         ppm         ASTM D5185m         3500         4035         3199            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >20         2         3            Potassium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >3         0.2         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *AS	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	85	100 0 63 1 421	60 5 63 5 426	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >20         2         3            Potassium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.7         21.1	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	85 350 1800	100 0 63 1 421 1929	60 5 63 5 426 1846	  
Silicon         ppm         ASTM D5185m         >25         5         10            Sodium         ppm         ASTM D5185m         >20         3         3            Potassium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >3         0.2         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7615         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7614         >25         16.7         21.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	85 350 1800 1000	100 0 63 1 421 1929 1080	60 5 63 5 426 1846 1078	
Sodium         ppm         ASTM D5185m         3         3            Potassium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.7         21.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	85 350 1800 1000 1100	100 0 63 1 421 1929 1080 1323	60 5 63 5 426 1846 1078 1336	
Sodium         ppm         ASTM D5185m         3            Potassium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.7         21.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	85 350 1800 1000 1100 3500	100 0 63 1 421 1929 1080 1323 4035	60 5 63 5 426 1846 1078 1336 3199	
Potassium         ppm         ASTM D5185m         >20         2         3            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.7         21.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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	85 350 1800 1000 1100 3500 limit/base	100 0 63 1 421 1929 1080 1323 4035 current	60 5 63 5 426 1846 1078 1336 3199 history1	
Soot %         %         *ASTM D7844         >3         0.2         0.3            Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.7         21.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	85 350 1800 1000 1100 3500 limit/base	100 0 63 1 421 1929 1080 1323 4035 current 5	60 5 63 5 426 1846 1078 1336 3199 history1 10	     history2
Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.7         21.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	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	85 350 1800 1000 1100 3500 limit/base >25	100 0 63 1 421 1929 1080 1323 4035 <u>current</u> 5 3	60 5 63 5 426 1846 1078 1336 3199 history1 10 3	     history2
Nitration         Abs/cm         *ASTM D7624         >20         7.9         11.4            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.7         21.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	85 350 1800 1000 1100 3500 limit/base >25 >20	100 0 63 1 421 1929 1080 1323 4035 current 5 3 2	60 5 63 5 426 1846 1078 1336 3199 history1 10 3 3	     history2  
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.5         24.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.7         21.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	85 350 1800 1000 1100 3500 <b>limit/base</b> >25 >20 <b>limit/base</b>	100 0 63 1 421 1929 1080 1323 4035 current 5 3 2 2	60 5 63 5 426 1846 1078 1336 3199 history1 10 3 3 3	     history2   history2
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.7     21.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	85 350 1800 1000 1100 3500 <b>limit/base</b> >25 >20 <b>limit/base</b> >3	100 0 63 1 421 1929 1080 1323 4035 <b>current</b> 5 3 2 2 <b>current</b> 0.2	60 5 63 5 426 1846 1078 1336 3199 history1 10 3 3 3 <i>history1</i> 0.3	     history2  history2
Oxidation Abs/.1mm *ASTM D7414 >25 16.7 21.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	85 350 1800 1000 1100 3500 limit/base >25 >20 limit/base >3 >20	100 0 63 1 421 1929 1080 1323 4035 <i>current</i> 5 3 2 2 <i>current</i> 0.2 7.9	60 5 63 5 426 1846 1078 1336 3199 history1 10 3 3 3 history1 0.3 11.4	history2 history2 history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	85 350 1800 1000 1100 3500 <b>imit/base</b> >25 20 <b>imit/base</b> >3 >20 >3	100 0 63 1 421 1929 1080 1323 4035 <b>current</b> 5 3 2 <b>current</b> 0.2 7.9 20.5	60 5 63 5 426 1846 1078 1336 3199 history1 10 3 3 3 history1 0.3 11.4 24.9	
Base Number (BN) mg KOH/g ASTM D2896 9.5 7.2 7.6	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	85 350 1800 1000 1100 3500 25 25 20 220 imit/base >3 20 30 30	100 0 63 1 421 1929 1080 1323 4035 <b>current</b> 5 3 2 <b>current</b> 0.2 7.9 20.5 <b>current</b>	60 5 63 5 426 1846 1078 1336 3199 history1 10 3 3 3 history1 0.3 11.4 24.9 history1	
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	85 350 1800 1000 1100 3500 25 >25 >20 imit/base >3 >20 >30 >30 imit/base	100 0 63 1 421 1929 1080 1323 4035 <b>current</b> 5 3 2 <b>current</b> 0.2 7.9 20.5 <b>current</b> 16.7	60 5 63 5 426 1846 1078 1336 3199 history1 10 3 3 3 history1 0.3 11.4 24.9 history1 21.1	history2 history2 history2 history2 history2 history2 history2 history2 history2

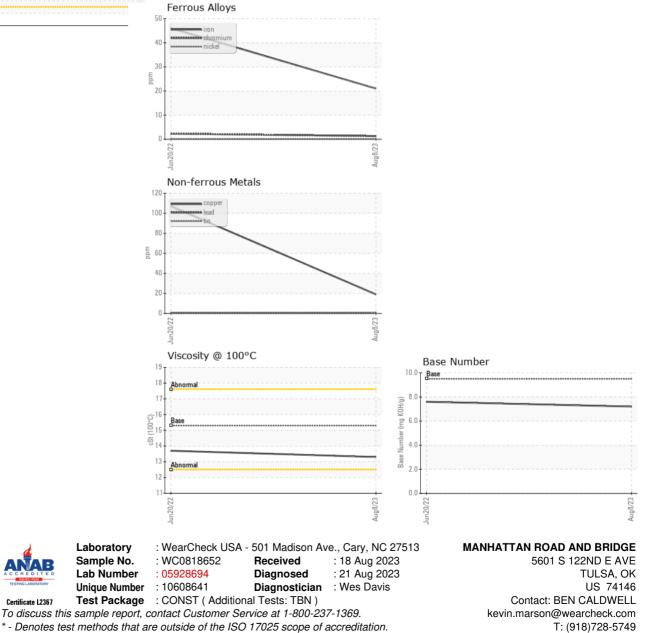


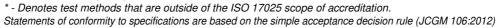
# **OIL ANALYSIS REPORT**





VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.3	13.3	13.7	
GRAPHS						





Certificate L2367

F: