

# **PROBLEM SUMMARY**

Sample Rating Trend



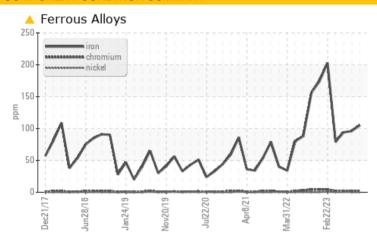


CATERPILLAR D10T 15105049 (S/N CATOD10TCRJG01495)

**Diesel Engine** 

**ROYAL PURPLE MOTOR OIL 15W40 (--- GAL)** 

## **COMPONENT CONDITION SUMMARY**



## RECOMMENDATION

No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

PROBLEMATIC T	EST RE	SULTS				
Sample Status				ABNORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>100	<u> </u>	96	94

Customer Id: NRGJEW Sample No.: RP0036188 Lab Number: 06000640 Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data: Sean Felton +1 919-379-4092 sfelton@wearcheckusa.com

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

## **RECOMMENDED ACTIONS**

There are no recommended actions for this sample.

## HISTORICAL DIAGNOSIS

## 13 Sep 2023 Diag: Sean Felton

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.



## 02 Aug 2023 Diag: Sean Felton

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.



## 20 Mar 2023 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**

## Sample Rating Trend

limit/base

# **WEAR**



history2

history1



CATERPILLAR D10T 15105049 (S/N CATOD10TCRJG01495)

**Diesel Engine** 

**ROYAL PURPLE MOTOR OIL 15W40 (--- GAL)** 

SAMPLE INFORMATION

## **DIAGNOSIS**

### Recommendation

No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

### Wear

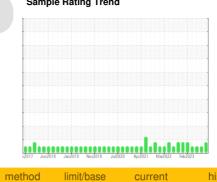
Cylinder, crank, or cam shaft wear is indicated.

### Contamination

There is no indication of any contamination in the

#### 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.

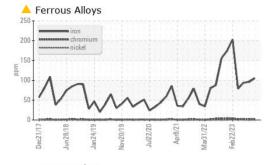


current

Sample Date         Client Info         31 Oct 2023         13 Sep 2023         02 Aug 2023           Machine Age         hrs         Client Info         25193         24938         24690           Oil Age         hrs         Client Info         991         736         488           Oil Changed         Client Info         Not Changd	Sample Number		Client Info		RP0036188	RP0033747	RP0033352
Oil Age Oil Changed         hrs Client Info         991         736         488           Oil Changed Sample Status         Client Info         Not Changd ABNORMAL         Not Changd Not Changd Not Changd NorMAL         Not Changd Not Changd NorMAL         Not Changd NorMAL         NorMAL         NorMAL         Not Changd NorMAL         NorMAL         NorMal	•						_
Oil Changed Sample Status         Client Info         Not Changd ABNORMAL         Not Changd NORMAL         Not Changd NORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0         <1.0         <1.0           Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         ▲ 105         96         94           Chromium         ppm         ASTM D5185m         >20         2         4         2         2         4         2         4         2         4         2         4         2         4         2         4         2         4         2         4         4         3         3         3         3         7         9         7         7 <th><u> </u></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	<u> </u>						
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0         <1.0         <1.0           Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         105         96         94           Chromium         ppm         ASTM D5185m         >20         2         4         2         2         4         2         2         4         2         2         4         2         2         4         2         2         4         2         4         2         4         2         4         2         2         4         3         3	-	hrs					
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0         <1.0         <1.0           Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         105         96         94           Chromium         ppm         ASTM D5185m         >20         2         2         2           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Lead         ppm         ASTM D5185m         >2         0         0         0           Copper         ppm         ASTM D5185m         >30         96         78         79           Tin         Vanadium         ppm         ASTM D5185m         0         0         0         0 <tr< th=""><th></th><th></th><th>Client Info</th><th></th><th></th><th>Ü</th><th>_</th></tr<>			Client Info			Ü	_
Fuel         WC Method         >5         <1.0	Sample Status				ABNORMAL	NORMAL	NORMAL
Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         105         96         94           Chromium         ppm         ASTM D5185m         >20         2         2         2           Chromium         ppm         ASTM D5185m         >20         0         0         <1	CONTAMINATION	٧	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         2         2         2           Chromium         ppm         ASTM D5185m         >20         2         2         2           Nickel         ppm         ASTM D5185m         >2         0         0         <1           Titanium         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Lead         ppm         ASTM D5185m         >20         2         4         2           Lead         ppm         ASTM D5185m         >20         0         0         0           Copper         ppm         ASTM D5185m         0         0         0         0         0           Caduium         ppm         ASTM D5185m         0         0         3         0         0           Barium         ppm         ASTM D5185m         0         0	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >20         2         2         2         2           Nickel         ppm         ASTM D5185m         >2         0         0         <1           Tittanium         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         2         4         2           Lead         ppm         ASTM D5185m         >40         4         3         3         3           Copper         ppm         ASTM D5185m         >330         96         78         79           Tin         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         3         0           Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         10         9	WEAR METALS		method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185m         >2         0         0         <1	Iron	ppm	ASTM D5185m	>100	<u> </u>	96	94
Titanium         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >25         2         4         2           Lead         ppm         ASTM D5185m         >40         4         3         3           Copper         ppm         ASTM D5185m         >15         <1	Chromium	ppm	ASTM D5185m	>20	2	2	2
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	<1
Aluminum         ppm         ASTM D5185m         >25         2         4         2           Lead         ppm         ASTM D5185m         >40         4         3         3           Copper         ppm         ASTM D5185m         >330         96         78         79           Tin         ppm         ASTM D5185m         0         0         0         0           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         3         0           Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         100         90         95         105           Magnesium         ppm         ASTM D5185m         10         90         95         105           Calcium         ppm         ASTM D5185m         1050         929         984	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead         ppm         ASTM D5185m         >40         4         3         3           Copper         ppm         ASTM D5185m         >330         96         78         79           Tin         ppm         ASTM D5185m         >15         <1		ppm					
Copper         ppm         ASTM D5185m         >330         96         78         79           Tin         ppm         ASTM D5185m         >15         <1         <1         <1           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         0         0         3         0           Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         100         90         95         105           Magnesium         ppm         ASTM D5185m         100         90         95         105           Magnesium         ppm         ASTM D5185m         3050         2882         3169         3396           Phosphorus         ppm         ASTM D5185m         1050         929         984         1078           Zinc         ppm         ASTM D5185m         1200         1147         1112 <td< th=""><th></th><th>ppm</th><th></th><th></th><th>_</th><th></th><th></th></td<>		ppm			_		
Tin         ppm         ASTM D5185m         >15         <1		ppm			-		
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         0         0         3         0           Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         100         90         95         105           Manganese         ppm         ASTM D5185m         100         90         95         105           Magnesium         ppm         ASTM D5185m         60         18         23         24           Calcium         ppm         ASTM D5185m         3050         2882         3169         3396           Phosphorus         ppm         ASTM D5185m         1200         1147         1112         1211           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6							
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         3         0           Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         100         90         95         105           Manganese         ppm         ASTM D5185m         1         2         1           Magnesium         ppm         ASTM D5185m         60         18         23         24           Calcium         ppm         ASTM D5185m         3050         2882         3169         3396           Phosphorus         ppm         ASTM D5185m         1200         1147         1112         1211           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         25         6         6         6           Sodium         ppm         ASTM D5185m         20         1         <1         2 </th <th></th> <th></th> <th></th> <th>&gt;15</th> <th></th> <th></th> <th></th>				>15			
Magnesium   ppm   ASTM D5185m   0   0   0   0   0   0   0   0   0					-		
Boron         ppm         ASTM D5185m         0         0         3         0           Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         100         90         95         105           Manganese         ppm         ASTM D5185m         1         2         1           Magnesium         ppm         ASTM D5185m         60         18         23         24           Calcium         ppm         ASTM D5185m         3050         2882         3169         3396           Phosphorus         ppm         ASTM D5185m         1050         929         984         1078           Zinc         ppm         ASTM D5185m         1200         1147         1112         1211           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         6         6           Sodium         ppm         ASTM D5185m         >20         1         <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         100         90         95         105           Manganese         ppm         ASTM D5185m         1         2         1           Magnesium         ppm         ASTM D5185m         60         18         23         24           Calcium         ppm         ASTM D5185m         3050         2882         3169         3396           Phosphorus         ppm         ASTM D5185m         1050         929         984         1078           Zinc         ppm         ASTM D5185m         1200         1147         1112         1211           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         6         6           Sodium         ppm         ASTM D5185m         >20         1         <1	A D D ITIVEC		44	12 24 /0			le le tre un co
Molybdenum         ppm         ASTM D5185m         100         90         95         105           Manganese         ppm         ASTM D5185m         1         2         1           Magnesium         ppm         ASTM D5185m         60         18         23         24           Calcium         ppm         ASTM D5185m         3050         2882         3169         3396           Phosphorus         ppm         ASTM D5185m         1050         929         984         1078           Zinc         ppm         ASTM D5185m         1200         1147         1112         1211           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         6         6           Sodium         ppm         ASTM D5185m         >25         6         6         6         6           Sodium         ppm         ASTM D5185m         >20         1         <1	ADDITIVES		method	limit/base			nistory2
Manganese         ppm         ASTM D5185m         1         2         1           Magnesium         ppm         ASTM D5185m         60         18         23         24           Calcium         ppm         ASTM D5185m         3050         2882         3169         3396           Phosphorus         ppm         ASTM D5185m         1050         929         984         1078           Zinc         ppm         ASTM D5185m         1200         1147         1112         1211           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         6           Sodium         ppm         ASTM D5185m         >25         6         6         6           Sodium         ppm         ASTM D5185m         >20         1         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         8.5         7.7         7.3           Sulfation         Abs/:mm         *ASTM D7415         >30	Boron	ppm	ASTM D5185m	0	0	3	0
Magnesium         ppm         ASTM D5185m         60         18         23         24           Calcium         ppm         ASTM D5185m         3050         2882         3169         3396           Phosphorus         ppm         ASTM D5185m         1050         929         984         1078           Zinc         ppm         ASTM D5185m         1200         1147         1112         1211           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         6           Sodium         ppm         ASTM D5185m         >25         6         6         6           Sodium         ppm         ASTM D5185m         >20         1         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         8.5         7.7         7.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.5         26.8         26.9           FLUID DEGRADATION         method         l	Boron Barium		ASTM D5185m ASTM D5185m	0	0 0	3	0 2
Calcium         ppm         ASTM D5185m         3050         2882         3169         3396           Phosphorus         ppm         ASTM D5185m         1050         929         984         1078           Zinc         ppm         ASTM D5185m         1200         1147         1112         1211           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         6           Sodium         ppm         ASTM D5185m         2         5         0           Potassium         ppm         ASTM D5185m         >20         1         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         0.9         0.8           Nitration         Abs/.1mm         *ASTM D7415         >30         28.5         7.7         7.3           Sulfation         Abs/.1mm         *ASTM D7414         >25         18.1         16.9         16.9	Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	0 0 90	3 0 95	0 2 105
Phosphorus         ppm         ASTM D5185m         1050         929         984         1078           Zinc         ppm         ASTM D5185m         1200         1147         1112         1211           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         6           Sodium         ppm         ASTM D5185m         2         5         0           Potassium         ppm         ASTM D5185m         >20         1         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         0.9         0.8           Nitration         Abs/.mm         *ASTM D7624         >20         8.5         7.7         7.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.5         26.8         26.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414	Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 100	0 0 90 1	3 0 95 2	0 2 105
Zinc         ppm         ASTM D5185m         1200         1147         1112         1211           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         6           Sodium         ppm         ASTM D5185m         2         5         0           Potassium         ppm         ASTM D5185m         >20         1         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         0.9         0.8           Nitration         Abs/cm         *ASTM D7624         >20         8.5         7.7         7.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.5         26.8         26.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1         16.9         16.9	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 100	0 0 90 1 18	3 0 95 2 23	0 2 105 1 24
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         6         6         6           Sodium         ppm         ASTM D5185m         2         5         0           Potassium         ppm         ASTM D5185m         >20         1         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         0.9         0.8           Nitration         Abs/cm         *ASTM D7624         >20         8.5         7.7         7.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.5         26.8         26.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1         16.9         16.9	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 100 60 3050	0 0 90 1 18 2882	3 0 95 2 23 3169	0 2 105 1 24 3396
Silicon         ppm         ASTM D5185m         >25         6         6         6           Sodium         ppm         ASTM D5185m         2         5         0           Potassium         ppm         ASTM D5185m         >20         1         <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 100 60 3050 1050	0 0 90 1 18 2882 929	3 0 95 2 23 3169 984	0 2 105 1 24 3396 1078
Sodium         ppm         ASTM D5185m         2         5         0           Potassium         ppm         ASTM D5185m         >20         1         <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	0 0 100 60 3050 1050 1200	0 0 90 1 18 2882 929	3 0 95 2 23 3169 984	0 2 105 1 24 3396 1078
Potassium         ppm         ASTM D5185m         >20         1         <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 100 60 3050 1050 1200	0 0 90 1 18 2882 929	3 0 95 2 23 3169 984 1112 history1	0 2 105 1 24 3396 1078 1211 history2
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         0.9         0.8           Nitration         Abs/cm         *ASTM D7624         >20         8.5         7.7         7.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.5         26.8         26.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1         16.9         16.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc CONTAMINANTS	ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 100 60 3050 1050 1200	0 0 90 1 18 2882 929 1147 current	3 0 95 2 23 3169 984 1112 history1	0 2 105 1 24 3396 1078 1211 history2
Soot %         %         *ASTM D7844 >3         1.1         0.9         0.8           Nitration         Abs/cm         *ASTM D7624 >20         8.5         7.7         7.3           Sulfation         Abs/.1mm         *ASTM D7415 >30         28.5         26.8         26.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         18.1         16.9         16.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m	0 0 100 60 3050 1050 1200	0 0 90 1 18 2882 929 1147 current 6	3 0 95 2 23 3169 984 1112 history1 6 5	0 2 105 1 24 3396 1078 1211 history2 6
Nitration         Abs/cm         *ASTM D7624         >20         8.5         7.7         7.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.5         26.8         26.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1         16.9         16.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 100 60 3050 1050 1200 limit/base >25	0 0 90 1 18 2882 929 1147 current 6	3 0 95 2 23 3169 984 1112 history1 6 5	0 2 105 1 24 3396 1078 1211 history2 6
Sulfation         Abs/.1mm         *ASTM D7415         >30         28.5         26.8         26.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         18.1         16.9         16.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 100 60 3050 1050 1200 limit/base >25 >20	0 0 90 1 18 2882 929 1147 current 6 2	3 0 95 2 23 3169 984 1112 history1 6 5 <1	0 2 105 1 24 3396 1078 1211 history2 6 0 2
FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2518.116.916.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 100 60 3050 1050 1200 limit/base >25 >20	0 0 90 1 18 2882 929 1147 current 6 2 1	3 0 95 2 23 3169 984 1112 history1 6 5 <1	0 2 105 1 24 3396 1078 1211 history2 6 0 2 history2
Oxidation Abs/.1mm *ASTM D7414 >25 <b>18.1</b> 16.9 16.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 100 60 3050 1050 1200 limit/base >25 >20 limit/base	0 0 90 1 18 2882 929 1147 current 6 2 1 current	3 0 95 2 23 3169 984 1112 history1 6 5 <1 history1 0.9	0 2 105 1 24 3396 1078 1211 history2 6 0 2 history2 0.8
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method ASTM D5185m	0 0 100 60 3050 1050 1200 limit/base >25 >20 limit/base >3 >20	0 0 90 1 18 2882 929 1147 current 6 2 1 current 1.1 8.5	3 0 95 2 23 3169 984 1112 history1 6 5 <1 history1 0.9 7.7	0 2 105 1 24 3396 1078 1211 history2 6 0 2 history2 0.8 7.3
<b>Base Number (BN)</b> mg KOH/g ASTM D2896 10.5 <b>9.26</b> 8.79 10.35	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 100 60 3050 1050 1200 limit/base >25 >20 limit/base >3 >20 >30	0 0 90 1 18 2882 929 1147 current 6 2 1 current 1.1 8.5 28.5	3 0 95 2 23 3169 984 1112 history1 6 5 <1 history1 0.9 7.7 26.8	0 2 105 1 24 3396 1078 1211 history2 6 0 2 history2 0.8 7.3 26.9
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  method  *ASTM D7844  *ASTM D7844  *ASTM D7844	0 0 100 60 3050 1050 1200 limit/base >25 >20 limit/base >3 >20 >30 limit/base	0 0 90 1 18 2882 929 1147 current 6 2 1 current 1.1 8.5 28.5 current	3 0 95 2 23 3169 984 1112 history1 6 5 <1 history1 0.9 7.7 26.8 history1	0 2 105 1 24 3396 1078 1211 history2 6 0 2 history2 0.8 7.3 26.9 history2



# **OIL ANALYSIS REPORT**



VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

limit/base

current

12.9

history1

13.1

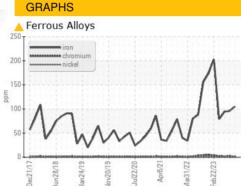
history2

13.0

method

ASTM D445 14.9

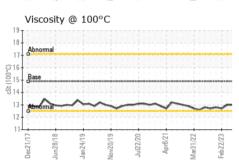
8.0 Base 6.0 4.0 2.0		M	N	1	N	1	
8.0		٧	V V	٧	Y	~	~
6.0+							
4.0-							
2.0-							
0.0							
Dec21/17	Jun28/18	Jan24/19	Nov20/19	Jul22/20	Apr8/21	Mar31/22	Feb22/23

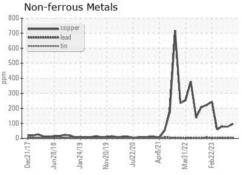


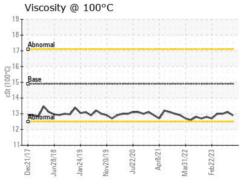
cSt

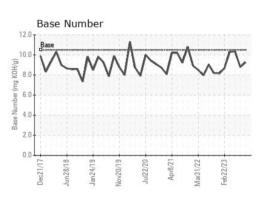
**FLUID PROPERTIES** 

Visc @ 100°C













Certificate L2367

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

: RP0036188 : 06000640

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

: 07 Nov 2023 : 08 Nov 2023 Diagnostician : Sean Felton

: 10729000 **Test Package**: IND 2 (Additional Tests: FT-IR, KV100, TBN) 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)

**NRG TEXAS LLC** 

3784 FM 39 SOUTH JEWETT, TX US 75846

Contact: JURGEN THOMPSON

JThompson@ecomaterial.com T: (903)626-9528

F: (903)626-9772