

**WEAR** CONTAMINATION **FLUID CONDITION** 

**NORMAL ATTENTION NORMAL** 

**Mobile Fleet** 

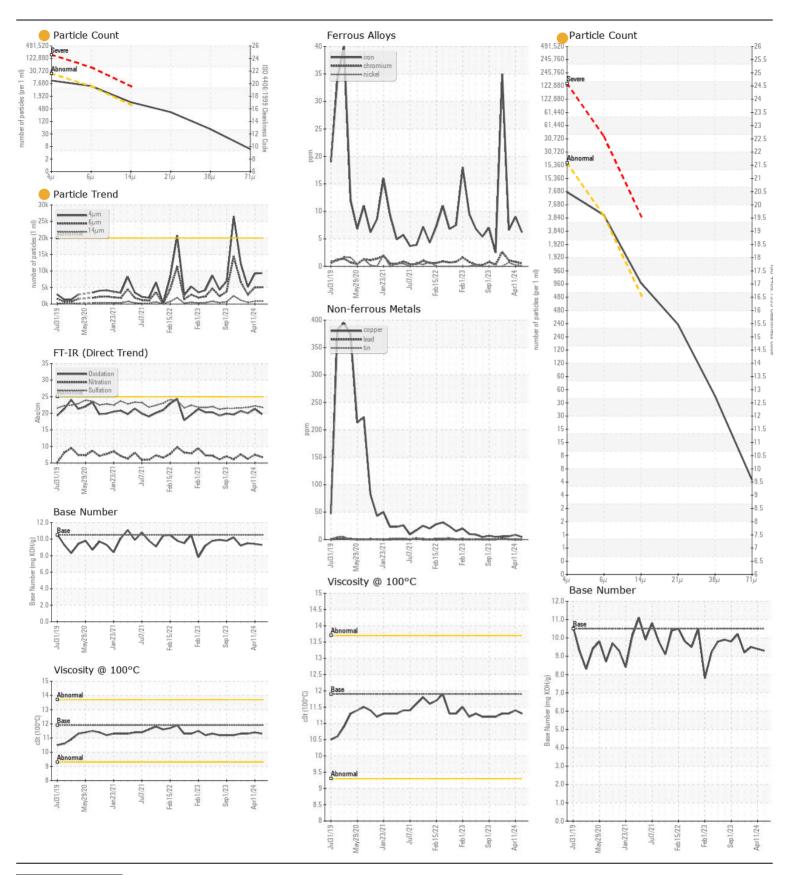
6438 6438

Diesel Engine

| DECOMMENDATION   | T                                  | 11014    | NA-Al-                     | 1 S 5 / A I | (2                       | 118-4- 4    | 111-4-                   |
|--|------------------------------------|----------|----------------------------|-------------|--------------------------|-------------|--------------------------|
| RECOMMENDATION   | Test                               | UOM      | Method                     | Limit/Abn   | Current                  | History1    | History2                 |
| Oil and filter change at the time of sampling has been noted. No           | Sample Number Sample Date          |          | Client Info                |             | WC0947766<br>11 Jun 2024 | 11 Apr 2024 | WC0902910<br>23 Feb 2024 |
| corrective action is recommended at this time. Resample at the next        | Machine Age                        | hrs      | Client Info                |             | 10615                    | 10226       | 9964                     |
| service interval to monitor.   | Oil Age                            | hrs      | Client Info                |             | 390                      | 262         | 338                      |
|  | Filter Age                         | hrs      | Client Info                |             | 390                      | 262         | 338                      |
|  | Oil Changed                        | 0        | Client Info                |             | Changed                  | Changed     | Not Changd               |
|  | Filter Changed                     |          | Client Info                |             | Changed                  | Changed     | Not Change               |
|  | Sample Status                      |          |                            |             | ATTENTION                | ATTENTION   | NORMAL                   |
| WEAD   | Iron                               | nnm      | ASTM D5185m                | . 65        | <u> </u>                 | 0           | 7                        |
| WEAR   | Iron<br>Chromium                   | ppm      | ASTM D5165III              |             | 6                        | 9           | 7                        |
| All component wear rates are normal.                                       | Nickel                             | ppm      | ASTM D5185m                | >3          | <1<br><1                 | <1<br><1    | <1                       |
|  | Titanium                           | ppm      | ASTM D5185m                |             | <1                       | 0           | <1                       |
|  | Silver                             | ppm      | ASTM D5185m                |             | 0                        | 0           | 0                        |
|  | Aluminum                           | ppm      | ASTM D5185m                |             | 5                        | 5           | 4                        |
|  | Lead                               | ppm      | ASTM D5185m                |             | 0                        | 0           | <1                       |
|  | Copper                             | ppm      | ASTM D5185m                |             | 5                        | 8           | 6                        |
|  | Tin                                | ppm      | ASTM D5185m                |             | <1                       | <1          | <1                       |
|  | Vanadium                           | ppm      | ASTM D5185m                |             | 0                        | 0           | <1                       |
|  | White Metal                        | scalar   | *Visual                    | NONE        | NONE                     | NONE        | NONE                     |
|  | Yellow Metal                       | scalar   | *Visual                    | NONE        | NONE                     | NONE        | NONE                     |
| CONTAMINATION  | Silicon                            | ppm      | ASTM D5185m                | >15         | 5                        | 6           | 7                        |
| CONTAININATION   | Potassium                          | ppm      | ASTM D5185m                |             | 7                        | 7           | 6                        |
| There is a moderate amount of particulates present in the oil.             | Fuel                               | рр       | WC Method                  | >3.0        | -<br><1.0                | <1.0        | <1.0                     |
|  | Water                              |          | WC Method                  |             | NEG                      | NEG         | NEG                      |
|  | Glycol                             |          | WC Method                  |             | NEG                      | NEG         | NEG                      |
|  | Soot %                             | %        | *ASTM D7844                | >3          | 0.2                      | 0.2         | 0.2                      |
|  | Nitration                          | Abs/cm   | *ASTM D7624                | >20         | 6.8                      | 7.5         | 6.2                      |
|  | Sulfation                          | Abs/.1mm | *ASTM D7415                | >30         | 21.8                     | 22.2        | 21.8                     |
|  | Particles >4µm                     |          | ASTM D7647                 | >20000      | 9343                     | 9213        | 5198                     |
|  | Particles >6µm                     |          | ASTM D7647                 |             | <b>5090</b>              | 5019        | 2832                     |
|  | Particles >14μm                    |          | ASTM D7647                 |             | <b>866</b>               | 854         | 482                      |
|  | Particles >21µm                    |          | ASTM D7647                 |             | 292                      | 288         | 162                      |
|  | Particles >38µm                    |          | ASTM D7647                 |             | <b>45</b>                | 44          | 25                       |
|  | Particles >71µm<br>Oil Cleanliness |          | ASTM D7647<br>ISO 4406 (c) | >21/19/16   | 5<br>20/20/17            | 5 20/20/17  | 20/19/16                 |
|  | 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                      |
| ELLID CONDITION  | Codium                             |          | ACTM DE10Em                |             | .4                       | 4           | <u> </u>                 |
| FLUID CONDITION  | Sodium<br>Boron                    | ppm      | ASTM D5185m<br>ASTM D5185m |             | <1<br>46                 | 1<br>49     | 2<br>49                  |
| The BN result indicates that there is suitable alkalinity remaining in the | Barium                             | ppm      | ASTM D5185m                |             | 0                        | 0           | 1                        |
| oil. The condition of the oil is suitable for further service.             | Molybdenum                         | ppm      | ASTM D5185m                |             | 48                       | 50          | 44                       |
|  | Manganese                          | ppm      | ASTM D5185m                |             | 0                        | <1          | <1                       |
|  | Magnesium                          | ppm      | ASTM D5185m                |             | 490                      | 510         | 447                      |
|  | Calcium                            | ppm      | ASTM D5185m                |             | 1615                     | 1750        | 1460                     |
|  | Phosphorus                         | ppm      | ASTM D5185m                |             | 668                      | 827         | 685                      |
|  | Zinc                               | ppm      | ASTM D5185m                |             | 901                      | 937         | 851                      |
|  | Sulfur                             | ppm      | ASTM D5185m                |             | 2578                     | 2622        | 2545                     |
|  | Oxidation                          |          | *ASTM D7414                |             | 19.7                     | 21.3        | 20.0                     |
|  | Base Number (BN)                   | mg KOH/g | ASTM D2896                 | 10.5        | 9.3                      | 9.4         | 9.5                      |
|  | Vion (2) 10000                     |          |                            | 110         |                          |             |                          |

Visc @ 100°C cSt

ASTM D445 11.9





Certificate L2367

Report Id: CARBUTNC [WUSCAR] 06209934 (Generated: 06/22/2024 21:27:32) Rev: 1

Laboratory Sample No. Lab Number

: 06209934

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0947766

Received **Tested** Unique Number: 11082798

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

: 19 Jun 2024 Diagnosed

: 19 Jun 2024 - Don Baldridge

: 14 Jun 2024

Test Package: CONST (Additional Tests: PrtCount, 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.

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