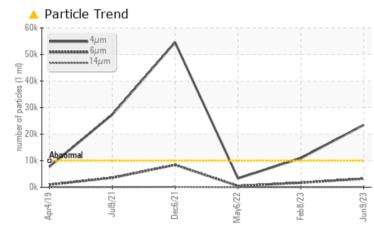


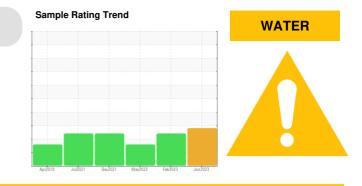
Area **PLANT** Machine Id **B-2 (S/N 2015148)** Component

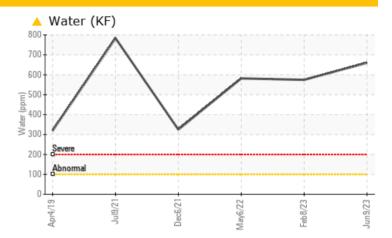
NEAD

Refrigeration Compressor Fluid FRICK COMPRESSOR OIL #13 (--- GAL)

COMPONENT CONDITION SUMMARY







RECOMMENDATION

Resample at the next service interval to monitor.

| PROBLEMATIC TEST RESULTS | | | | | | | | |
|--------------------------|-----|--------------|-----------|---------------|-------------------|---------------|--|--|
| Sample Status | | | | ABNORMAL | ATTENTION | ABNORMAL | | |
| Water | % | ASTM D6304 | >0.01 | 0.065 | ▲ 0.057 | ▲ 0.058 | | |
| ppm Water | ppm | ASTM D6304 | >100 | 659.8 | 5 74.6 | 5 81.8 | | |
| Particles >4µm | | ASTM D7647 | >10000 | <u> </u> | ▲ 10969 | 3322 | | |
| Particles >6µm | | ASTM D7647 | >2500 | A 3217 | 1709 | 493 | | |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/15 | <u> </u> | 1 21/18/12 | 19/16/12 | | |

Customer Id: RACGAR Sample No.: USP250813 Lab Number: 05879542 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Doug Bogart +1 (800)237-1369 x4016 dougb@wearcheckusa.com

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

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

08 Feb 2023 Diag: Doug Bogart



Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of silt (particulates < 6 microns in size) present in the oil. There is a light concentration of water present in the oil. Confirmed. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

06 May 2022 Diag: Doug Bogart



Resample at the next service interval to monitor.All component wear rates are normal. There is a light concentration of water present in the oil. The amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

06 Dec 2021 Diag: Doug Bogart

WATER



Resample at the next service interval to monitor.All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. There is a trace of moisture present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



view report







OIL ANALYSIS REPORT

Sample Rating Trend

WATER

PLANT B-2 (S/N 2015148) Componen

Refrigeration Compressor

Fluid FRICK COMPRESSOR OIL #13 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the oil. There is a light concentration of water present in the oil.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

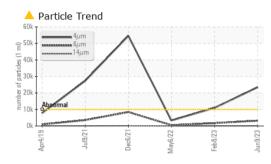
| Machine AgehOil AgehOil ChangedhOil Changedsample StatusSample StatuspIronpChromiumpNickelpTitaniumpAluminumpLeadpCopperpAntimonypCadmiumpBoronpBariumpManganesepMagnesiumpCONTAMINANTSpSiliconpSiliconpSodiumpCotassiumpPotassiu | ans ans opm opm opm opm opm opm opm opm opm opm | Client Info Client Info Client Info Client Info Client Info Client Info ASTM D5185m ASTM D5185m | >2 >3 >2 | USP250813 09 Jun 2023 143926 0 N/A ABNORMAL 6 Current 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | USP233733 08 Feb 2023 140685 0 Not Changd ATTENTION -<1 0 0 0 0 0 0 0 0 0 0 0 0 0 | USP236839 06 May 2022 135677 0 N/A ABNORMAL 4BNORMAL 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
|---|--|--|--|--|--|---|
| Oil AgehOil ChangedhOil ChangedSample StatusSample StatusPIronpChromiumpChromiumpNickelpTitaniumpSilverpAluminumpLeadpCopperpTinpAntimonypCadmiumpBoronpBariumpManganesepMagnesiumpCONTAMINANTSpSiliconpSodiumpPotassiumpPotassiump | opm opm opm opm opm opm opm opm opm opm | Client Info Client Info Client Info Client Info ASTM D5185m ASTM D5185m | >8 >2 >2 >3 >2 >8 >4 | 143926 0 N/A ABNORMAL Current 0 (1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 140685 0 Not Changd ATTENTION -1 0 | 135677 0 N/A ABNORMAL history2 <1 0 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| Oil AgeNOil ChangedNSample StatusNWEAR METALSPIronPChromiumPNickelPTitaniumPSilverPAluminumPLeadPCopperPTinPAntimonyPCadmiumPBoronPBariumPManganesePMagnesiumPCONTAMINANTSSiliconSiliconPSodiumPPotassiumP <td>opm opm opm opm opm opm opm opm opm opm</td> <td>Client Info Client Info Client Info ASTM D5185m ASTM D5185m</td> <td>>8 >2 >2 >3 >2 >8 >4</td> <td>0 N/A ABNORMAL current <1 0 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 Not Changd ATTENTION history1 <1 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 N/A ABNORMAL history2 <1 0 <1 0 0 0 0 0 0 0 0 0 0 0 0 0</td> | opm opm opm opm opm opm opm opm opm opm | Client Info Client Info Client Info ASTM D5185m ASTM D5185m | >8 >2 >2 >3 >2 >8 >4 | 0 N/A ABNORMAL current <1 0 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 Not Changd ATTENTION history1 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 N/A ABNORMAL history2 <1 0 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| Oil ChangedSample StatusISample StatusIWEAR METALSIIronIChromiumINickelITitaniumISilverIAluminumILeadICopperIAntimonyIVanadiumICadmiumIBoronIBariumIMolybdenumIMagnesiumIContrAMINANTSISiliconISiliconISodiumIPotassiumIPotassiumI | opm opm opm opm opm opm opm opm opm opm | Client Info method ASTM D5185m ASTM D5185m | >8 >2 >2 >3 >2 >8 >4 | N/A ABNORMAL current 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | Not Changd ATTENTION - <1 | N/A ABNORMAL history2 <1 0 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| Sample Status P WEAR METALS P Iron P Chromium P Nickel P Titanium P Silver P Aluminum P Lead P Copper P Antimony P Vanadium P Cadmium P Boron P Barium P Molybdenum P Maganese P Zinc P Sulfur P Sulfur P Sodium P Sodium P Phosphorus P Sulfur P Sodium P Potassium P | opm opm opm opm opm opm opm opm opm opm | method ASTM D5185m ASTM D5185m | >8 >2 >2 >3 >2 >8 >4 | ABNORMAL current <1 0 <1 0 1 0 0 | ATTENTION history1 -1 0 | ABNORMAL history2 <1 0 <1 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 |
| WEAR METALSIronpChromiumpNickelpTitaniumpSilverpAluminumpLeadpCopperpTinpAntimonypCadmiumpCadmiumpBoronpBariumpMolybdenumpMagnesiumpCalciumpZincpSulfurpSulfurpSiliconpSodiumpPotassiumpPotassiump | opm opm opm opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m | >8 >2 >2 >3 >2 >8 >4 | <1 | <1 | <1 |
| Iron p Chromium p Nickel p Titanium p Silver p Aluminum p Lead p Copper p Tin p Antimony p Cadmium p Cadmium p Cadmium p ADDITIVES p Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Zinc p Sulfur p Sulfur p Sulfur p Sulfur p Sulfur p Sodium p Potassium p | opm opm opm opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m | >8 >2 >2 >3 >2 >8 >4 | <1 0 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | <1 0 <1 0 0 0 0 0 <1 0 0 0 history2 <1 0 |
| ChromiumpNickelpTitaniumpSilverpAluminumpLeadpCopperpTinpAntimonypVanadiumpCadmiumpCadmiumpBoronpBariumpMalganesepMagnesiumpCalciumpZincpSulfurpSiliconpSiliconpPotassiumpPotassiumpPotassiumpPotassiump | opm opm opm opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m | >2 >2 >3 >2 >8 >4 | 0 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 <1 0 0 0 0 <1 0 0 0 0 history2 <1 0 |
| NickelpTitaniumpSilverpAluminumpLeadpCopperpTinpAntimonypCadmiumpCadmiumpBoronpBariumpManganesepMagnesiumpCalciumpZincpSulfurpSulfurpSiliconpPotassiump | opm opm opm opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m | >2 >3 >2 >8 >4 | <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | <1 0 0 0 0 0 <1 0 0 0 history2 <1 0 |
| Titanium p Silver p Aluminum p Lead p Copper p Tin p Antimony p Cadmium p Cadmium p Cadmium p Cadmium p ADDITIVES p Boron p Barium p Molybdenum p Magnesium p Calcium p Calcium p Calcium p Calcium p Calcium p Sulfur p Sulfur p Sulfur p CONTAMINANTS | opm opm opm opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m | >3 >2 >8 >4 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 <1 0 0 0 history2 <1 0 |
| Silver p Aluminum p Lead p Copper p Tin p Antimony p Cadmium p Antimony p Cadmium p ADDITIVES Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Zinc p Sulfur p Sulfur p Sulfur p Sodium p Potassium p | opm opm opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m | >3 >2 >8 >4 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 history1 0 0 | 0 0 0 <1 0 0 0 history2 <1 0 |
| Aluminum p Lead p Copper p Tin p Antimony p Antimony p Vanadium p Cadmium p ADDITIVES Boron p Barium p Malganese p Magnesium p Calcium p Zinc p Sulfur p Silicon p Sodium p Potassium p | opm opm opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | >3 >2 >8 >4 | 0 0 0 0 0 0 0 current 0 1 0 | 0 0 0 0 0 0 0 0 0 history1 0 0 | 0 0 0 0 0 history2 <1 0 |
| Aluminum p Lead p Copper p Tin p Antimony p Vanadium p Cadmium p Cadmium p ADDITIVES p Boron p Manganese p Magnesium p Calcium p Zinc p Sulfur p Silicon p Sodium p Potassium p | opm opm opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | >2 >8 >4 | 0 0 0 0 0 <u>current</u> 0 1 0 | 0 0 0 0 0 0 history1 0 0 | 0 0 <1 0 0 history2 <1 0 |
| LeadpCopperpTinpAntimonypVanadiumpCadmiumpADDITIVESBoronpBariumpMolybdenumpMagnesiumpCalciumpZincpSulfurpSulfurpSiliconpSodiumpPotassiump | opm opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | >2 >8 >4 | 0 0 0 0 0 <u>current</u> 0 1 0 | 0 0 0 0 0 <u>history1</u> 0 0 | 0 <1 0 0 0 history2 <1 0 |
| Copper p Tin p Antimony p Vanadium p Cadmium p Cadmium p ADDITIVES p Boron p Barium p Malybdenum p Manganese p Magnesium p Calcium p Zinc p Sulfur p CONTAMINANTS Silicon p Potassium p | opm opm opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | >8 >4 | 0 0 0 0 0 <u>current</u> 0 1 0 | 0 0 0 0 0 <u>history1</u> 0 0 | 0 <1 0 0 0 history2 <1 0 |
| Tin p Antimony p Vanadium p Cadmium p Cadmium p ADDITIVES p Boron p Barium p Manganese p Magnesium p Calcium p Phosphorus p Zinc p Sulfur p Silicon p Sodium p Potassium p | opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | >4 | 0 0 0 0 <u>current</u> 0 1 0 | 0 0 0 0 <u>history1</u> 0 0 | <1 0 0 history2 <1 0 |
| Antimony p Vanadium p Cadmium p ADDITIVES p Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Calcium p Zinc p Sulfur p Sulfur p Sulfur p Sodium p Potassium p | opm opm opm opm opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | 0 0 current 0 1 0 | 0 0 history1 0 0 | 0 0 history2 <1 0 |
| VanadiumpCadmiumpCadmiumpADDITIVESpBoronpBariumpMalybdenumpMagnesiumpCalciumpPhosphoruspZincpSulfurpSiliconpSodiumpPotassiump | opm opm opm opm opm opm | ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 0 0 current 0 1 0 | 0 0 history1 0 0 | 0 0 history2 <1 0 |
| Cadmium p ADDITIVES p Boron p Barium p Molybdenum p Manganese p Calcium p Phosphorus p Zinc p Sulfur p Sulfur p Silicon p Sodium p Potassium p | opm opm opm opm opm | ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 0 current 0 1 0 | 0 history1 0 0 | 0 history2 <1 0 |
| ADDITIVES Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p | opm opm opm opm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | current 0 1 0 | history1 0 0 | history2 <1 0 |
| Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p | opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 0 1 0 | 0 | <1 0 |
| Barium p Molybdenum p Manganese p Magnesium p Calcium p Calcium p Zinc p Zunc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p | opm opm opm | ASTM D5185m ASTM D5185m ASTM D5185m | | 1 0 | 0 | 0 |
| Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p | opm opm | ASTM D5185m ASTM D5185m | | 0 | | |
| ManganesepMagnesiumpCalciumpPhosphoruspZincpSulfurpCONTAMINANTSSiliconpSodiumpPotassiump | opm | ASTM D5185m | | | 0 | 0 |
| Magnesium p Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p | | | | 0 | | ~ |
| Calcium p Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p | opm | LOTH DELOF | | U | 0 | 0 |
| Phosphorus p Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p | | ASTM D5185m | | 0 | 0 | 0 |
| Zinc p Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p | opm | ASTM D5185m | | 0 | 0 | 0 |
| Sulfur p CONTAMINANTS Silicon p Sodium p Potassium p | opm | ASTM D5185m | | 1 | 0 | 0 |
| CONTAMINANTS Silicon p Sodium p Potassium p | opm | ASTM D5185m | | 0 | 0 | 0 |
| Silicon p Sodium p Potassium p | opm | ASTM D5185m | | 13 | 8 | 0 |
| Sodium p Potassium p | | method | limit/base | current | history1 | history2 |
| Potassium p | opm | ASTM D5185m | >15 | <1 | 1 | 1 |
| Potassium p | opm | ASTM D5185m | | 0 | 0 | 0 |
| | opm | ASTM D5185m | >20 | 0 | 1 | 0 |
| vvater % | % | ASTM D6304 | >0.01 | 0.065 | ▲ 0.057 | ▲ 0.058 |
| | opm | ASTM D6304 | >100 | ▲ 659.8 | ▲ 574.6 | ▲ 581.8 |
| FLUID CLEANLINES | SS | method | limit/base | current | history1 | history2 |
| Particles >4µm | | ASTM D7647 | >10000 | 23446 | 10969 | 3322 |
| Particles >6µm | | ASTM D7647 | >2500 | A 3217 | 1709 | 493 |
| Particles >14µm | | ASTM D7647 | >320 | 65 | 33 | 22 |
| Particles >21µm | | ASTM D7647 | | 12 | 5 | 7 |
| Particles >38µm | | ASTM D7647 | >20 | 1 | 0 | 1 |
| Particles >71µm | | ASTM D7647 | | 0 | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/15 | <u> </u> | ▲ 21/18/12 | 19/16/12 |
| FLUID DEGRADATI | | | | | | |
| Acid Number (AN) | ION | method | limit/base | current | history1 | history2 |

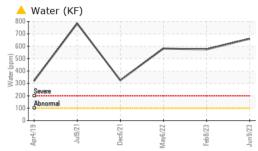
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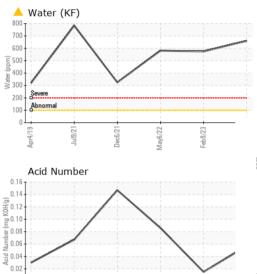
Contact/Location: TODD CARTER - RACGAR

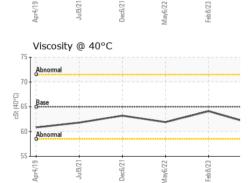


OIL ANALYSIS REPORT







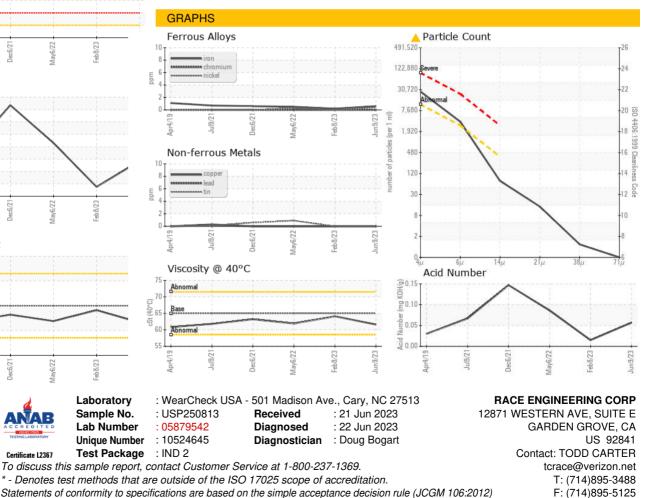


Certificate L2367

0.00

| 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 | LIGHT | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.01 | NEG | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG | NEG |
| FLUID PROPERT | IES | method | limit/base | current | history1 | history2 |
| Visc @ 40°C | cSt | ASTM D445 | 65.0 | 61.6 | 64.1 | 61.9 |
| SAMPLE IMAGES | 6 | method | limit/base | current | history1 | history2 |
| Color | | | | | | |

Bottom



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

Contact/Location: TODD CARTER - RACGAR