# **PROBLEM SUMMARY**



Machine Id **9B** Component **Gearbox** Fluid **TEXACO REGAL OIL R&O 220 (--- GAL)** 

### COMPONENT CONDITION SUMMARY



### RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS							
Sample Status			ATTENTION	ATTENTION	NORMAL		
Particles >6µm	ASTM D7647	>5000	<u> </u>	<b>A</b> 7851	120		
Oil Cleanliness	ISO 4406 (c)	>/19/16	<b>A</b> 23/20/14	🔺 24/20/13	16/14/11		

Customer Id: CRYIOW Sample No.: WC0820998 Lab Number: 06014008 Test Package: IND 2



To manage this report scan the QR code

*To discuss the diagnosis or test data:* Don Baldridge +1 <u>don.b505@comcast.net</u>

*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

#### 04 Apr 2023 Diag: Jonathan Hester



No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



#### 08 Feb 2023 Diag: Wes Davis

NORMAL



Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.





17 Apr 2022 Diag: Don Baldridge

No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.





# **OIL ANALYSIS REPORT**





Component Gearbox Fluid

## TEXACO REGAL OIL R&O 220 (--- GAL)

### DIAGNOSIS

Machine Id

### A Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

## Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

### Fluid Condition

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

	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0820998	WC0757289	WC0757205
Sample Date		Client Info		20 Nov 2023	04 Apr 2023	08 Feb 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ATTENTION	ATTENTION	NORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	33	34	14
Chromium	ppm	ASTM D5185m	>15	<1	<1	0
Nickel	ppm	ASTM D5185m	>15	<1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	0	0
Lead	ppm	ASTM D5185m	>100	<1	<1	0
Copper	ppm	ASTM D5185m	>200	2	1	5
Tin	ppm	ASTM D5185m	>25	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	2	2	2
Barium	ppm	ASTM D5185m	0	4	0	<1
		AOTH DELOF	0	•	0	0
Molybdenum	ppm	ASTM D5185m	0	2	2	2
Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m	0	2 <1	<1	<1
Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	2 <1 4	<1 3	<1 4
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0	2 <1 4 26	<1 3 27	2 <1 4 14
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	2 <1 4 26 192	2 <1 3 27 182	<pre>2 &lt;1 4 14 167</pre>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 0	2 <1 4 26 192 8	<pre>2 &lt;1 3 27 182 14</pre>	<1 4 14 167 22
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 0 0 4046	2 <1 4 26 192 8 6246	<pre>2 &lt;1 3 27 182 14 5761</pre>	<1 4 14 167 22 8592
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 0 4046 limit/base	2 <1 4 26 192 8 6246 current	2 <1 3 27 182 14 5761 history1	<pre>2 &lt;1 4 14 167 22 8592 history2</pre>
Molybdenum Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	0 0 0 0 4046 limit/base >50	2 <1 4 26 192 8 6246 current 9	<pre>2 &lt;1 3 27 182 14 5761 history1 6</pre>	<pre>2 &lt;1 4 14 167 22 8592 history2 6</pre>
Molybdenum Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m	0 0 0 0 4046 limit/base >50	2 <1 4 26 192 8 6246 current 9 0	2 <1 3 27 182 14 5761 history1 6 0	<pre>2 &lt;1 4 14 167 22 8592 history2 6 3</pre>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	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	0 0 0 0 4046 limit/base >50 >20	2 <1 4 26 192 8 6246 <u>current</u> 9 0 <1	2 <1 3 27 182 14 5761 history1 6 0 1	<ul> <li>&lt;1</li> <li>4</li> <li>14</li> <li>167</li> <li>22</li> <li>8592</li> <li>history2</li> <li>6</li> <li>3</li> <li>0</li> </ul>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN	ppm ppm 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	0 0 0 0 4046 limit/base >50 >20 limit/base	2 <1 4 26 192 8 6246 current 9 0 <1 current	2 <1 3 27 182 14 5761 history1 6 0 1 history1	<ul> <li>&lt;1</li> <li>4</li> <li>14</li> <li>167</li> <li>22</li> <li>8592</li> <li>history2</li> <li>6</li> <li>3</li> <li>0</li> <li>history2</li> </ul>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 0 4046 limit/base >50 >20 limit/base	2 <1 4 26 192 8 6246 current 9 0 <1 current 74766	2 <1 3 27 182 14 5761 history1 6 0 1 1 history1 86214	<ul> <li>&lt;1</li> <li>4</li> <li>14</li> <li>167</li> <li>22</li> <li>8592</li> <li>history2</li> <li>6</li> <li>3</li> <li>0</li> <li>history2</li> <li>556</li> </ul>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ESS	ASTM D5185m	0 0 0 0 4046 <i>limit/base</i> >50 >20 <i>limit/base</i>	2 <1 4 26 192 8 6246 current 9 0 <1 current 74766 ▶ 9659	2 <1 3 27 182 14 5761 history1 6 0 1 6 0 1 1 history1 86214 ▲ 7851	<ul> <li>&lt;1</li> <li>4</li> <li>14</li> <li>167</li> <li>22</li> <li>8592</li> <li>history2</li> <li>6</li> <li>3</li> <li>0</li> <li>history2</li> <li>5556</li> <li>120</li> </ul>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m           ASTM D7647           ASTM D7647           ASTM D7647	0 0 0 0 4046 limit/base >50 20 limit/base >20 20 20 20 20 20 20 20 20 20 20 20 20 2	2 <1 4 26 192 8 6246 <u>current</u> 9 0 <1 0 <1 <u>current</u> 74766 ▲ 9659 135	<ul> <li>∠</li> <li>&lt;1</li> <li>3</li> <li>27</li> <li>182</li> <li>14</li> <li>5761</li> <li>history1</li> <li>6</li> <li>0</li> <li>1</li> <li>history1</li> <li>86214</li> <li>7851</li> <li>71</li> </ul>	<ul> <li>&lt;1</li> <li>4</li> <li>14</li> <li>167</li> <li>22</li> <li>8592</li> <li>history2</li> <li>6</li> <li>3</li> <li>0</li> <li>history2</li> <li>556</li> <li>120</li> <li>11</li> </ul>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ESS	ASTM D5185m           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647	0 0 0 0 4046 limit/base >50 >20 limit/base >20 s5000 >640 >160	2 <1 4 26 192 8 6246 current 9 0 <1 current 74766 9659 135 20	<ul> <li>2</li> <li>&lt;1</li> <li>3</li> <li>27</li> <li>182</li> <li>14</li> <li>5761</li> <li>history1</li> <li>6</li> <li>0</li> <li>1</li> <li>history1</li> <li>86214</li> <li>7851</li> <li>71</li> <li>7</li> </ul>	<ul> <li>&lt;1</li> <li>4</li> <li>14</li> <li>167</li> <li>22</li> <li>8592</li> <li>history2</li> <li>6</li> <li>3</li> <li>0</li> <li>history2</li> <li>556</li> <li>120</li> <li>11</li> <li>2</li> </ul>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647	0 0 0 0 4046 limit/base >50 20 limit/base >5000 >640 >160 >40	2 <1 4 26 192 8 6246 current 9 0 <1 current 74766 9659 135 20 2	<ul> <li>2</li> <li>&lt;1</li> <li>3</li> <li>27</li> <li>182</li> <li>14</li> <li>5761</li> <li>history1</li> <li>6</li> <li>0</li> <li>1</li> <li>history1</li> <li>86214</li> <li>7851</li> <li>71</li> <li>7</li> <li>0</li> </ul>	<ul> <li>&lt;1</li> <li>4</li> <li>14</li> <li>167</li> <li>22</li> <li>8592</li> <li>history2</li> <li>6</li> <li>3</li> <li>0</li> <li>history2</li> <li>556</li> <li>120</li> <li>11</li> <li>2</li> <li>0</li> </ul>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >38µm Particles >71µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647	0 0 0 0 4046 imit/base >50 >20 imit/base >20 imit/base >5000 >640 >160 >40 >10	2 <1 4 26 192 8 6246 current 9 0 <1 current 74766 135 20 2 2 2	<ul> <li>2</li> <li>&lt;1</li> <li>3</li> <li>27</li> <li>182</li> <li>14</li> <li>5761</li> <li>history1</li> <li>6</li> <li>0</li> <li>1</li> <li>history1</li> <li>86214</li> <li>7851</li> <li>71</li> <li>7</li> <li>0</li> <li>0</li> <li>0</li> </ul>	<ul> <li>&lt;1</li> <li>4</li> <li>14</li> <li>167</li> <li>22</li> <li>8592</li> <li>history2</li> <li>6</li> <li>3</li> <li>0</li> <li>history2</li> <li>556</li> <li>120</li> <li>11</li> <li>2</li> <li>0</li> <li>0</li> <li>0</li> </ul>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >21µm Particles >38µm Particles >71µm Oil Cleanliness	ppm ppm ppm ppm ppm ppm ppm ppm ESS	ASTM D5185m         ASTM D7647	0 0 0 0 4046 bimit/base >50 20 bimit/base >50 >20 bimit/base >50 >20 bimit/base	2 <1 4 26 192 8 6246 current 9 0 <1 current 74766 × 9659 135 20 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<ul> <li>∠</li> <li>&lt;1</li> <li>3</li> <li>27</li> <li>182</li> <li>14</li> <li>5761</li> <li>history1</li> <li>6</li> <li>0</li> <li>1</li> <li>history1</li> <li>86214</li> <li>7851</li> <li>71</li> <li>7</li> <li>0</li> <li>0</li> <li>24/20/13</li> </ul>	<ul> <li>&lt;1</li> <li>4</li> <li>14</li> <li>167</li> <li>22</li> <li>8592</li> <li>history2</li> <li>6</li> <li>3</li> <li>0</li> <li>history2</li> <li>556</li> <li>120</li> <li>11</li> <li>2</li> <li>0</li> <li>0</li> <li>16/14/11</li> </ul>
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >4µm Particles >51µm Particles >38µm Particles >71µm Oil Cleanliness	ppm ppm ppm ppm ppm ppm ppm ppm ESS	ASTM D5185m         ASTM D7647	0 0 0 0 4046 imit/base >50 20 imit/base >20 imit/base >5000 >640 >160 >10 >-/19/16 imit/base	2 <1 4 26 192 8 6246 current 9 0 <1 current 74766 ▲ 9659 135 20 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<ul> <li>∠</li> <li>&lt;1</li> <li>3</li> <li>27</li> <li>182</li> <li>14</li> <li>5761</li> <li>history1</li> <li>6</li> <li>0</li> <li>1</li> <li>history1</li> <li>86214</li> <li>7851</li> <li>71</li> <li>7</li> <li>0</li> <li>0</li> <li>24/20/13</li> <li>history1</li> </ul>	<ul> <li>&lt;1</li> <li>4</li> <li>14</li> <li>167</li> <li>22</li> <li>8592</li> <li>history2</li> <li>6</li> <li>3</li> <li>0</li> <li>history2</li> <li>556</li> <li>120</li> <li>11</li> <li>2</li> <li>0</li> <li>0</li> <li>16/14/11</li> <li>history2</li> </ul>

Contact/Location: KEVIN KETCHERSID - CRYIOW



# **OIL ANALYSIS REPORT**







180

Jul21

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
Emulsified Water	scalar	*Visual	>0.2	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	220	182	182.1	209
SAMPLE IMAGES	;	method	limit/base	current	history1	history2
Color						
Bottom				<b>(</b> 03)		



Contact/Location: KEVIN KETCHERSID - CRYIOW