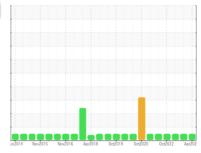


# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL



# Machine Id UB-C01B Component Gearbox

**ROYAL PURPLE SYNERGY 90/220 (--- GAL)** 

### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the component.

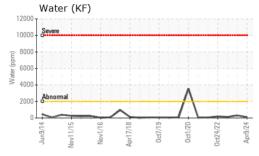
### **Fluid Condition**

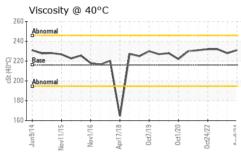
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

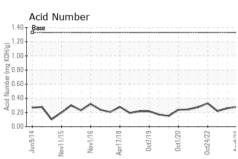
SAMPLE INFORMATION	m2014 Nov2015 Nov2016 Apr2018 Oct2019 Oct2020 Oct2022 Apr202							
Sample Date	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2	
Machine Age         hrs         Client Info         0         0         0           Oil Age         hrs         Client Info         0         0         0           Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status         Client Info         N/A         N/A         N/A         N/A         N/A           Wastm Status         Client Info         N/A         N/A         N/A         N/A         N/A           Wastm Status         Client Info         N/A         N/A         N/A         N/A         N/A           Wastm Status         Colored         Normal         Normal         Normal         Normal           Iron         ppm         ASTM DS185m         >20         2         52         2           Chromium         ppm         ASTM DS185m         >55         0         0         0           Aluminum         ppm         ASTM DS185m         >20         0         0         0           Lead         ppm         ASTM DS185m         >20         0         0         0           Copper         ppm         ASTM DS185m         >20         0         0	Sample Number		Client Info		RP0033061	RP0037630	RP0033042	
Oil Age         hrs         Client Info         N/A         N/A         N/A         N/A           Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status         Client Info         N/A         N/A         N/A         N/A         N/A           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         20         2         52         2           Chromium         ppm         ASTM D5185m         >15         0         0         0           Nickel         ppm         ASTM D5185m         >10         0         0         0           Silver         ppm         ASTM D5185m         >25         0         0         0           Aluminum         ppm         ASTM D5185m         >20         0         0         0           Aluminum         ppm         ASTM D5185m         >20         0         0         0           Capper         ppm         ASTM D5185m         >20         0         0         0           Capper         ppm         ASTM D5185m         0         0         0	Sample Date		Client Info		09 Apr 2024	03 Oct 2023	05 Apr 2023	
Oil Changed   Client Info   N/A   N/A	Machine Age	hrs	Client Info		0	0	0	
NORMAL   NORMAL   NORMAL   WEAR METALS   method   limit/base   current   history1   history2	Oil Age	hrs	Client Info		0	0	0	
WEAR METALS	Oil Changed		Client Info		N/A	N/A	N/A	
Iron	Sample Status				NORMAL	NORMAL	NORMAL	
Chromium         ppm         ASTM D5185m         >15         0         0         0           Nickel         ppm         ASTM D5185m         >15         0         0         0           Titanium         ppm         ASTM D5185m         0         0         0         0           Silver         ppm         ASTM D5185m         >25         0         0         <1           Lead         ppm         ASTM D5185m         >200         <1         3         <1           Tin         ppm         ASTM D5185m         >200         <1         3         <1           Tin         ppm         ASTM D5185m         >20         0         0         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         0         0         0         0           Magnesium         ppm         ASTM D5185m         0         0         0         0     <	WEAR METALS		method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>200	2	52	2	
Titanium	Chromium	ppm	ASTM D5185m	>15	0	0	0	
Silver	Nickel	ppm	ASTM D5185m	>15	0	0	0	
Aluminum	Titanium	ppm	ASTM D5185m		0	0	0	
Lead	Silver	ppm	ASTM D5185m		0	0	0	
Copper         ppm         ASTM D5185m         >200         <1	Aluminum	ppm	ASTM D5185m	>25	0	0	<1	
Tin	Lead	ppm	ASTM D5185m	>100	0	0	0	
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         0         0           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0         0           Magnesium         ppm         ASTM D5185m         1         0         5         C           Calcium         ppm         ASTM D5185m         1         0         5         C           Calcium         ppm         ASTM D5185m         370         97         84         105           Phosphorus         ppm         ASTM D5185m         370         97         84         105           Zinc         ppm         ASTM D5185m         50         0         2         1           Solicon         ppm         ASTM D5185m         >50         0         2         1 <t< th=""><th>Copper</th><th>ppm</th><th>ASTM D5185m</th><th>&gt;200</th><th>&lt;1</th><th>3</th><th>&lt;1</th></t<>	Copper	ppm	ASTM D5185m	>200	<1	3	<1	
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         0         -1         -1           Magnesium         ppm         ASTM D5185m         1         0         5           Calcium         ppm         ASTM D5185m         1         0         5           Calcium         ppm         ASTM D5185m         6         4         9           Phosphorus         ppm         ASTM D5185m         1         0         0           Zinc         ppm         ASTM D5185m         1         0         0           Zinc         ppm         ASTM D5185m         1         0         0           Zinc         ppm         ASTM D5185m         0         0         2         1           Sodium         ppm         ASTM D5185m         0         0         2         1           S	Tin	ppm	ASTM D5185m	>25	0	0	0	
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0	
Boron   ppm   ASTM D5185m   0   0   0   0   0	Cadmium	ppm	ASTM D5185m		0	0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum         ppm         ASTM D5185m         0         0         0           Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         1         0         5           Calcium         ppm         ASTM D5185m         6         4         9           Phosphorus         ppm         ASTM D5185m         370         97         84         105           Zinc         ppm         ASTM D5185m         370         97         84         105           Zinc         ppm         ASTM D5185m         1         0         0           Zinc         ppm         ASTM D5185m         >50         0         2         1           Solium         ppm         ASTM D5185m         >50         0         2         1           Sodium         ppm         ASTM D5185m         >0         0         0         0           Solium         ppm         ASTM D5185m         >0         0         2         1           Sodium         ppm         ASTM D5185m         >0         0         0         0           Water         ppm         ASTM D5185m <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>0</th> <td>0</td> <td>0</td>	Boron	ppm	ASTM D5185m		0	0	0	
Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         1         0         5           Calcium         ppm         ASTM D5185m         6         4         9           Phosphorus         ppm         ASTM D5185m         370         97         84         105           Zinc         ppm         ASTM D5185m         1         0         0           Zinc         ppm         ASTM D5185m         1         0         0           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >50         0         2         1           Sodium         ppm         ASTM D5185m         >20         0         0         0           Potassium         ppm         ASTM D6304         >0.2         0.009         0.030         0.012           Water         %         ASTM D6304         >0.2         0.009         0.030         0.012           Ppm Water         ppm         ASTM D6304         >2000         93         300.6         127.5           FLUID DEGRADATION<	Barium	ppm	ASTM D5185m		0	0	0	
Magnesium         ppm         ASTM D5185m         1         0         5           Calcium         ppm         ASTM D5185m         6         4         9           Phosphorus         ppm         ASTM D5185m         370         97         84         105           Zinc         ppm         ASTM D5185m         370         97         84         105           Zinc         ppm         ASTM D5185m         1         0         0           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         50         0         2         1           Sodium         ppm         ASTM D5185m         50         0         0         0           Sodium         ppm         ASTM D5185m         >50         0         0         0           Sodium         ppm         ASTM D5185m         >50         0         0         0           Water         ppm         ASTM D5185m         >50         0         0         0         0           Vater         %         ASTM D5185m         >20         0         0         0         0         0	Molybdenum	ppm	ASTM D5185m		0	0	0	
Calcium         ppm         ASTM D5185m         6         4         9           Phosphorus         ppm         ASTM D5185m         370         97         84         105           Zinc         ppm         ASTM D5185m         1         0         0           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >50         0         2         1           Sodium         ppm         ASTM D5185m         0         0         0         0           Potassium         ppm         ASTM D5185m         >20         0         0         0           Water         %         ASTM D5185m         >20         0         0         -1           Water         %         ASTM D5185m         >20         0         0         -1         history1	Manganese	ppm	ASTM D5185m		0	<1	<1	
Phosphorus         ppm         ASTM D5185m         370         97         84         105           Zinc         ppm         ASTM D5185m         1         0         0           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >50         0         2         1           Sodium         ppm         ASTM D5185m         >0         0         0         0           Potassium         ppm         ASTM D5185m         >20         0         0         0           Water         %         ASTM D6304         >0.2         0.009         0.030         0.012           Water         %         ASTM D6304         >0.2         0.009         0.030         0.012           ppm Water         ppm         ASTM D6304         >0.2         0.009         0.030         0.012           ppm Water         ppm         ASTM D6304         >0.2         0.009         0.030         0.012           FLUID DEGRADATION         method         limit/base         current         history1         history2           VISUAL         method         limit/base         current <th>Magnesium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>1</th> <th>0</th> <th>5</th>	Magnesium	ppm	ASTM D5185m		1	0	5	
Zinc         ppm         ASTM D5185m         1         0         0           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >50         0         2         1           Sodium         ppm         ASTM D5185m         >0         0         0         0           Potassium         ppm         ASTM D5185m         >20         0         0         0         1           Water         %         ASTM D5185m         >20         0         0         0         -1           Water         %         ASTM D5185m         >20         0         0         0         -1           Water         %         ASTM D5185m         >20         0         0         0         -1           Water         %         ASTM D5185m         >20         0         0         0         -1           Water         %         ASTM D5185m         >20         0         0         0         0         0         -1           Water         ppm         ASTM D5185m         >0.2         0.009         0.030         0.012         0         0	Calcium	ppm	ASTM D5185m		6	4	9	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >50         0         2         1           Sodium         ppm         ASTM D5185m         >0         0         0         0           Potassium         ppm         ASTM D5185m         >20         0         0         0         <1           Water         %         ASTM D6304         >0.2         0.009         0.030         0.012           ppm Water         ppm         ASTM D6304         >2000         93         300.6         127.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Acid Number (AN)         mg KOH/g         ASTM D8045         1.33         0.28         0.26         0.22           VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE         NONE         NONE           Precipitate         scalar	Phosphorus	ppm	ASTM D5185m	370	97	84	105	
Silicon         ppm         ASTM D5185m         >50         0         2         1           Sodium         ppm         ASTM D5185m         0         0         0         0           Potassium         ppm         ASTM D6304 bright         >20         0         0         <1	Zinc	ppm	ASTM D5185m		1	0	0	
Sodium         ppm         ASTM D5185m         0         0         0           Potassium         ppm         ASTM D5185m         >20         0         0         <1           Water         %         ASTM D6304         >0.2         0.009         0.030         0.012           ppm Water         ppm         ASTM D6304         >2000         93         300.6         127.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Acid Number (AN)         mg KOH/g         ASTM D8045         1.33         0.28         0.26         0.22           VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         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	CONTAMINANTS		method	limit/base	current	history1	history2	
Potassium         ppm         ASTM D5185m         >20         0         0         <1           Water         %         ASTM D6304         >0.2         0.009         0.030         0.012           ppm Water         ppm         ASTM D6304         >2000         93         300.6         127.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Acid Number (AN)         mg KOH/g         ASTM D8045         1.33         0.28         0.26         0.22           VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE           Yellow 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	Silicon	ppm	ASTM D5185m	>50	0	2	1	
Water         %         ASTM D6304 >0.2         0.009         0.030         0.012           ppm Water         ppm ASTM D6304 >2000         93         300.6         127.5           FLUID DEGRADATION method limit/base current         history1         history2           Acid Number (AN)         mg KOHlg         ASTM D8045         1.33         0.28         0.26         0.22           VISUAL         method limit/base current         history1         history2           White Metal         scalar *Visual         NONE         NONE         NONE           Yellow Metal         scalar *Visual         NONE         NONE         NONE         NONE           Precipitate         scalar *Visual         NONE         NONE         NONE         NONE         NONE           Silt         scalar *Visual         NONE         NONE         NONE         NONE         NONE           Debris         scalar *Visual         NONE         NONE         NONE         NONE         NONE           Sand/Dirt         scalar *Visual         NORML         NORML         NORML         NORML         NORML           Appearance         scalar *Visual         NORML         NORML         NORML         NORML         NOR	Sodium	ppm	ASTM D5185m		0	0	0	
ppm Water ppm ASTM D6304 >2000 93 300.6 127.5  FLUID DEGRADATION method limit/base current history1 history2  Acid Number (AN) mg KOHlg ASTM D8045 1.33 0.28 0.26 0.22  VISUAL method limit/base current history1 history2  White Metal scalar *Visual NONE 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	Potassium	ppm	ASTM D5185m	>20	0	0	<1	
FLUID DEGRADATION method limit/base current history1 history2  Acid Number (AN) mg KOH/g ASTM D8045 1.33 0.28 0.26 0.22  VISUAL method limit/base current history1 history2  White Metal scalar *Visual NONE NONE NONE NONE NONE  Yellow Metal scalar *Visual NONE NONE NONE NONE NONE  Precipitate scalar *Visual NONE NONE NONE NONE NONE  Silt scalar *Visual NONE NONE NONE NONE NONE  Debris scalar *Visual NONE 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	Water	%	ASTM D6304	>0.2	0.009	0.030	0.012	
Acid Number (AN) mg KOH/g ASTM D8045 1.33 0.28 0.26 0.22  VISUAL method limit/base current history1 history2  White Metal scalar *Visual NONE NONE NONE NONE NONE  Yellow Metal scalar *Visual NONE NONE NONE NONE NONE  Precipitate scalar *Visual NONE NONE NONE NONE NONE  Silt scalar *Visual NONE 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	ppm Water	ppm	ASTM D6304	>2000	93	300.6	127.5	
White Metal scalar *Visual NONE NONE NONE NONE NONE NONE NONE NON	FLUID DEGRADA	TION	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	Acid Number (AN)	mg KOH/g	ASTM D8045	1.33	0.28	0.26	0.22	
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     NORML       Odor     scalar     *Visual     NORML     NORML     NORML     NORML       Emulsified Water     scalar     *Visual     >0.2     NEG     NEG     NEG	VISUAL		method	limit/base		history1	history2	
Precipitate scalar *Visual NONE 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	White Metal	scalar		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	Yellow Metal	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 NORML Odor scalar *Visual NORML NORML NORML NORML NORML Emulsified Water scalar *Visual >0.2 NEG NEG NEG	Precipitate	scalar						
Sand/Dirt     scalar     *Visual     NONE     NONE     NONE     NONE       Appearance     scalar     *Visual     NORML     NEG		scalar	*Visual	NONE	NONE	NONE	NONE	
Appearance     scalar     *Visual     NORML     NORML </td <td>Debris</td> <td>scalar</td> <td>*Visual</td> <td>NONE</td> <th>NONE</th> <td>NONE</td> <td>NONE</td>	Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
Odor scalar *Visual NORML NORML NORML NORML NORML Emulsified Water scalar *Visual >0.2 NEG NEG NEG	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
Emulsified Water scalar *Visual >0.2 NEG NEG NEG	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
Free Water scalar *Visual NEG STERHEN MACIASZNEORBA	Emulsified Water	scalar	*Visual	>0.2	NEG			
	Free Water	scalar	*Visual	_ r	NEG	STERHEN MAC	IASZ <sub>NE</sub> ORBAT	



## **OIL ANALYSIS REPORT**



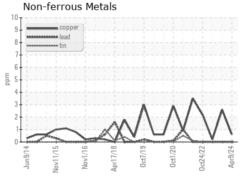


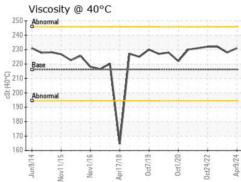


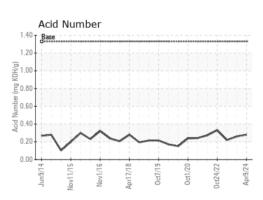


# Ferrous Alloys

**GRAPHS** 











Laboratory Sample No.

: RP0033061 Lab Number : 06147422 Unique Number : 10977500

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 12 Apr 2024

**Tested** : 15 Apr 2024

Diagnosed : 16 Apr 2024 - Don Baldridge

Test Package : IND 2 Certificate 12367 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)

T: F: (225)354-8218

BATON ROUGE, LA

FORMOSA PLASTICS INC

Contact: STEPHEN MACIASZ

smaciasz@flbr.fpcusa.com

PO BOX 271

US 70821