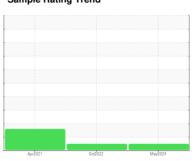


# **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id **80-217**Component

Component Rear Differential

Fluid

CONOCO PHILLIPS POWERTRAN (--- 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 oil

## **Fluid Condition**

The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION	)		Ap	r2021	Oct2022 May20	24		
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2	
Sample Date	Sample Number		Client Info		WC0766472	WC0619515	WC0548865	
Machine Age         hrs         Client Info         6923         5863         4870           Oil Age         hrs         Client Info         6923         730         1000           Oil Changed         Client Info         Changed         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         55         52         217           Chromium         ppm         ASTM D5185m         >10         <1			Client Info		06 May 2024	18 Oct 2022	02 Apr 2021	
Oil Age         hrs         Client Info         6923         730         1000           Oil Changed Sample Status         Client Info         Changed Changed Changed Changed Changed ABNORMAL ABNORMAL           CONTAMINATION         method         limit/base         current         history2           Water         WC Method         >.2         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history2           Iron         ppm         ASTM D5185m         >500         55         52         217           Chromium         ppm         ASTM D5185m         >10         <1	•	hrs			-			
Oil Changed Sample Status         Client Info         Changed NORMAL         Changed NORMAL         Changed ABNORMAL         Current         Changed ABNORMAL         Current         Changed ABNORMAL         Current         Changed ABNORMAL         Changed ABNORMAL         Changed ABNORMAL         Change ABNORMAL         Change ABNORMAL         Change ABNORMAL         Change ABNORMAL         Change ABNORMA	Oil Age	hrs	Client Info		6923	730	1000	
Sample Status	•		Client Info		Changed	Changed	Changed	
Water         WC Method         x2         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         55         52         217           Chromium         ppm         ASTM D5185m         >10         0         0         <1					_	_	Ü	
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         55         52         217           Chromium         ppm         ASTM D5185m         >10         <1         1         3           Nickel         ppm         ASTM D5185m         >10         0         0         <1           Titanium         ppm         ASTM D5185m         >20         2         2         5           Silver         ppm         ASTM D5185m         >25         3         2         7           Lead         ppm         ASTM D5185m         >25         <1         0         1           Copper         ppm         ASTM D5185m         >10         3         2         6           Tin         ppm         ASTM D5185m         >10         3         2         6           Antimony         ppm         ASTM D5185m         >5         -1         <1         <1           Antimony         ppm         ASTM D5185m         >5           <1           Vanadium         ppm         ASTM D5185m         5         -1         1	CONTAMINATION	١	method	limit/base	current	history1	history2	
Iron	Water		WC Method	>.2	NEG	NEG	NEG	
Chromium         ppm         ASTM D5185m         >10         <1         1         3           Nickel         ppm         ASTM D5185m         >10         0         0         <1	WEAR METALS		method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>500	55	52	217	
Titanium	Chromium	ppm	ASTM D5185m	>10	<1	1	3	
Silver         ppm         ASTM D5185m         <1         <1         0           Aluminum         ppm         ASTM D5185m         >25         3         2         7           Lead         ppm         ASTM D5185m         >25         <1         0         1           Copper         ppm         ASTM D5185m         >100         3         2         6           Tin         ppm         ASTM D5185m         >10         <1         <1         1           Antimory         ppm         ASTM D5185m         >5          <-1         <1         1           Vanadium         ppm         ASTM D5185m         0         0         0         <1         1         <1           Cadmium         ppm         ASTM D5185m         0         0         0         <1         1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1	Nickel	ppm	ASTM D5185m	>10	0	0	<1	
Aluminum         ppm         ASTM D5185m         >25         3         2         7           Lead         ppm         ASTM D5185m         >25         <1	Titanium	ppm	ASTM D5185m		2	2	5	
Lead         ppm         ASTM D5185m         >25         <1         0         1           Copper         ppm         ASTM D5185m         >100         3         2         6           Tin         ppm         ASTM D5185m         >10         <1         <1         1           Antimony         ppm         ASTM D5185m         >5           <1         1           Vanadium         ppm         ASTM D5185m         0         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         5           Barium         ppm         ASTM D5185m         0         0         5         0         5           Molybdenum         ppm         ASTM D5185m         1         1         1         1         <1         2         1           Manganese         ppm         ASTM D5185m         3654         3395         3736         26         22         1         25	Silver	ppm	ASTM D5185m		<1	<1	0	
Copper         ppm         ASTM D5185m         >100         3         2         6           Tin         ppm         ASTM D5185m         >10         <1	Aluminum	ppm	ASTM D5185m	>25	3	2	7	
Tin         ppm         ASTM D5185m         >10         <1         <1         1           Antimony         ppm         ASTM D5185m         >5           <1           Vanadium         ppm         ASTM D5185m         <1         1         <1         <1           Cadmium         ppm         ASTM D5185m         0         0         <1         <1         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         127         144         125           Barium         ppm         ASTM D5185m         0         0         5           Molybdenum         ppm         ASTM D5185m         1         1         <1         <1           Magnesium         ppm         ASTM D5185m         30         24         26           Calcium         ppm         ASTM D5185m         3654         3395         3736           Phosphorus         ppm         ASTM D5185m         1237         1065         1258           Zinc         ppm         ASTM D5185m         4335         4161         9119           CONTAMINANTS	Lead	ppm	ASTM D5185m	>25	<1	0	1	
Antimony         ppm         ASTM D5185m         >5          <1           Vanadium         ppm         ASTM D5185m         <1	Copper	ppm	ASTM D5185m	>100	3	2	6	
Vanadium         ppm         ASTM D5185m         <1         1         <1         <1           Cadmium         ppm         ASTM D5185m         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         127         144         125           Barium         ppm         ASTM D5185m         0         0         5           Molybdenum         ppm         ASTM D5185m         1         1         1         <1           Manganese         ppm         ASTM D5185m         -1         2         10           Magnesium         ppm         ASTM D5185m         3654         3395         3736           Calcium         ppm         ASTM D5185m         1237         1065         1258           Zinc         ppm         ASTM D5185m         1454         1424         1541           Sulfur         ppm         ASTM D5185m         23         4161         9119           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m <th< td=""><td>Tin</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;10</td><th>&lt;1</th><td>&lt;1</td><td>1</td></th<>	Tin	ppm	ASTM D5185m	>10	<1	<1	1	
Cadmium         ppm         ASTM D5185m         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         127         144         125           Barium         ppm         ASTM D5185m         0         0         5           Molybdenum         ppm         ASTM D5185m         1         1         1         <1	Antimony	ppm	ASTM D5185m	>5			<1	
Boron	Vanadium	ppm	ASTM D5185m		<1	1	<1	
Boron	Cadmium	ppm	ASTM D5185m		0	0	<1	
Barium         ppm         ASTM D5185m         0         0         5           Molybdenum         ppm         ASTM D5185m         1         1         -         1           Manganese         ppm         ASTM D5185m         -         1         2         10           Magnesium         ppm         ASTM D5185m         30         24         26           Calcium         ppm         ASTM D5185m         3654         3395         3736           Phosphorus         ppm         ASTM D5185m         1237         1065         1258           Zinc         ppm         ASTM D5185m         1454         1424         1541           Sulfur         ppm         ASTM D5185m         4335         4161         9119           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         28         30         44           Sodium         ppm         ASTM D5185m         >20         2         0         4           VISUAL         method         limit/base         current         history1         history2           White Metal	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum         ppm         ASTM D5185m         1         1         <1         <1           Manganese         ppm         ASTM D5185m         <1	<td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>127</th> <td>144</td> <td>125</td>	Boron	ppm	ASTM D5185m		127	144	125
Manganese         ppm         ASTM D5185m         <1         2         10           Magnesium         ppm         ASTM D5185m         30         24         26           Calcium         ppm         ASTM D5185m         3654         3395         3736           Phosphorus         ppm         ASTM D5185m         1237         1065         1258           Zinc         ppm         ASTM D5185m         1454         1424         1541           Sulfur         ppm         ASTM D5185m         4335         4161         9119           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         28         30         44           Sodium         ppm         ASTM D5185m         >20         2         0         4           VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE         NONE         NONE           Precipitate	Barium	ppm	ASTM D5185m		0	0	5	
Magnesium         ppm         ASTM D5185m         30         24         26           Calcium         ppm         ASTM D5185m         3654         3395         3736           Phosphorus         ppm         ASTM D5185m         1237         1065         1258           Zinc         ppm         ASTM D5185m         1454         1424         1541           Sulfur         ppm         ASTM D5185m         4335         4161         9119           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         28         30         44           Sodium         ppm         ASTM D5185m         >75         28         30         44           Sodium         ppm         ASTM D5185m         >20         2         0         4           VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE         NONE         NONE	Molybdenum	ppm	ASTM D5185m		1	1	<1	
Calcium         ppm         ASTM D5185m         3654         3395         3736           Phosphorus         ppm         ASTM D5185m         1237         1065         1258           Zinc         ppm         ASTM D5185m         1454         1424         1541           Sulfur         ppm         ASTM D5185m         4335         4161         9119           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         28         30         44           Sodium         ppm         ASTM D5185m         50         6         6         13           Potassium         ppm         ASTM D5185m         >20         2         0         4           VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE         NONE </td <td>Manganese</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>&lt;1</th> <td>2</td> <td>10</td>	Manganese	ppm	ASTM D5185m		<1	2	10	
Phosphorus         ppm         ASTM D5185m         1237         1065         1258           Zinc         ppm         ASTM D5185m         1454         1424         1541           Sulfur         ppm         ASTM D5185m         4335         4161         9119           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         28         30         44           Sodium         ppm         ASTM D5185m         6         6         6         13           Potassium         ppm         ASTM D5185m         >20         2         0         4           VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE         NONE         NONE         NONE         NONE           Precipitate         scalar         *Visual         NONE         NONE         NONE         NONE         NONE         NONE         NONE         NONE	Magnesium	ppm	ASTM D5185m		30	24	26	
Zinc         ppm         ASTM D5185m         1454         1424         1541           Sulfur         ppm         ASTM D5185m         4335         4161         9119           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         28         30         44           Sodium         ppm         ASTM D5185m         6         6         6         13           Potassium         ppm         ASTM D5185m         >20         2         0         4           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         NONE         NONE         <	Calcium	ppm	ASTM D5185m		3654	3395	3736	
Sulfur         ppm         ASTM D5185m         4335         4161         9119           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         28         30         44           Sodium         ppm         ASTM D5185m         6         6         6         13           Potassium         ppm         ASTM D5185m         >20         2         0         4           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         NONE         NONE         NONE         NONE           Sand/Dirt         scalar         *Visual         NORML         NORM	Phosphorus	ppm	ASTM D5185m		1237	1065	1258	
CONTAMINANTS method limit/base current history1 history2  Silicon ppm ASTM D5185m >75 28 30 44  Sodium ppm ASTM D5185m   6 6 6 13  Potassium ppm ASTM D5185m >20 2 0 4  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  Silt scalar *Visual NONE NONE NONE NONE  Silt scalar *Visual NONE NONE NONE NONE  Silt scalar *Visual NONE NONE NONE NONE  Appearance scalar *Visual NONE NONE NONE NONE  Appearance scalar *Visual NONE NONE NONE NONE  Appearance scalar *Visual NORML NORML NORML NORML  NORML NORML	Zinc	ppm	ASTM D5185m		1454	1424	1541	
Silicon         ppm         ASTM D5185m         >75         28         30         44           Sodium         ppm         ASTM D5185m         6         6         6         13           Potassium         ppm         ASTM D5185m         >20         2         0         4           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         NORML         NORML         NORML         NORML           Odor         scalar         *Visual         NORML         NORML         NORML         NORML         NORML	Sulfur	ppm	ASTM D5185m		4335	4161	9119	
Sodium         ppm         ASTM D5185m         6         6         13           Potassium         ppm         ASTM D5185m         >20         2         0         4           VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         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         NORM         NORML         NORML <td>CONTAMINANTS</td> <td></td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history2</td>	CONTAMINANTS		method	limit/base	current	history1	history2	
PotassiumppmASTM D5185m>20204VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONEVLITENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML	Silicon	ppm	ASTM D5185m	>75	28	30	44	
PotassiumppmASTM D5185m>20204VISUALmethodlimit/basecurrenthistory1history2White Metalscalar *VisualNONENONENONENONEYellow Metalscalar *VisualNONENONENONENONEPrecipitatescalar *VisualNONENONENONENONESiltscalar *VisualNONENONENONENONEDebrisscalar *VisualNONENONENONENONESand/Dirtscalar *VisualNORMLNORMLNORMLNORMLNORMLOdorscalar *VisualNORMLNORMLNORMLNORMLNORMLOdorscalar *VisualNORMLNORMLNORMLNORMLNORML	Sodium	ppm	ASTM D5185m		6	6	13	
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 VLITE 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	Potassium		ASTM D5185m	>20	2	0	4	
Yellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONEVLITENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML	VISUAL		method	limit/base	current	history1	history2	
Precipitate scalar *Visual NONE NONE NONE NONE Silt scalar *Visual NONE NONE VLITE 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	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
Silt scalar *Visual NONE NONE VLITE 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	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
Debrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML	Silt	scalar	*Visual	NONE	NONE	VLITE	NONE	
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML	Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
Odor scalar *Visual NORML NORML NORML NORML								
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	

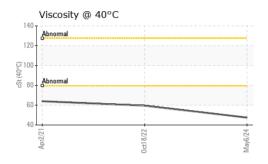
Submitted By: RICHARD PUGH

NEG

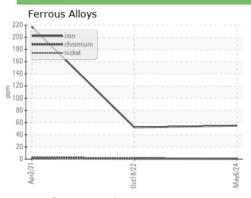
scalar \*Visual

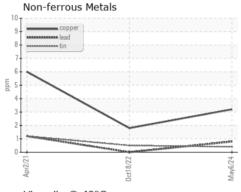


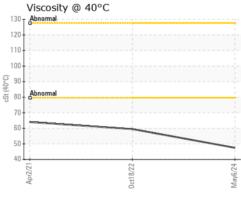
## **OIL ANALYSIS REPORT**















Certificate 12367

Laboratory Sample No. : WC0766472 Lab Number : 06181843 Unique Number : 11033169

Test Package : CONST

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 16 May 2024 Tested : 17 May 2024

Diagnosed : 20 May 2024 - Sean Felton

5601 S 122ND E AVE TULSA, OK US 74146

**MANHATTAN ROAD AND BRIDGE** 

Contact: BEN CALDWELL kevin.marson@wearcheck.com T: (918)728-5749

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)