

OIL ANALYSIS REPORT

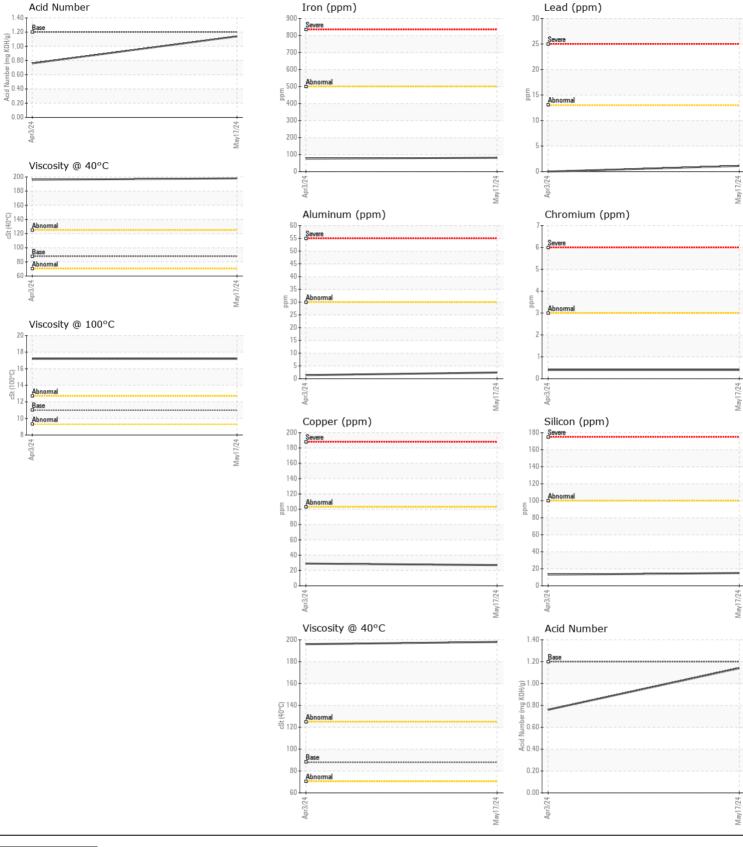
Machine Id CATERPILLAR 972K L11 Z4W00455 Compone **Front Differential** CHEVRON DELO TORQFORCE SAE 30 (--- QTS)

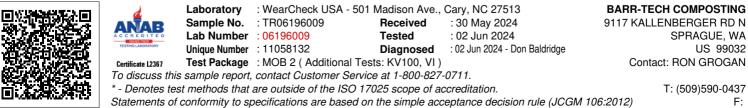
Field UOM Method URM Current History2 Bample Number Client linito Client linito T19619903		,							
Heasample at the next service interval to monifor. Sample Date Client Info ITNey 202 9.0 Apr 2004 Machine Age Ins Client Info ITNey 202 9.0 Apr 2004 Piller Age Ins Client Info Iter 106 0 0 OI Change Client Info Iter 106 Iter 106 Not Change	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2	
Sample Date Client Info TM wig 2021 Sol Apr 2022 Machine Age hrs Client Info 0 0 Oil Age hrs Client Info 0 0 Oil Age hrs Client Info Not Changed Mot Changed M	Resample at the next service interval to monitor.	Sample Number		Client Info		TR06196009	TR06165913		
Oil Age hrs Client Ind O O I Filter Age irs Client Ind Not Changd Not Not Not Not Not Not Not Not		Sample Date		Client Info		17 May 2024	03 Apr 2024		
Filter Age Ins Client Info O O Charged Client Info Not Charged <		Machine Age	hrs	Client Info		17940	17615		
Oil Changed Client Info Not Change Not N		Oil Age	hrs	Client Info		0	0		
Filter Changed Sample Status Client Into Not Change NORMA Not Change NORMA VEAR Iron ppm ASII/DSISm -500 81 76 All component wear rates are normal. Iron ppm ASII/DSISm -20 -1 -1 Nickel ppm ASII/DSISm -2 -1 -1 Nickel ppm ASII/DSISm -2 0 0 Silver ppm ASII/DSISm -2 0 0 Aurinium ppm ASII/DSISm -10 0 Qopper ppm ASII/DSISm -10 0 Visual ppm ASII/DSISm -10 0 Variation ppm ASII/DSISm ADNE NONE NONE Visual ppm ASII/DSISm		Filter Age	hrs	Client Info		0	0		
Sample Status NORMAL NOR NORMAL NOR NORMAL		-		Client Info		Not Changd	Not Changd		
WEAR Iron pp ASTM D5H5m >500 81 76 All component wear rates are normal. Chromium ppm ASTM D5H5m >3 <1		-		Client Info		-			
All component wear rates are normal. Ohromium ppm ASTM 05165m >3 <1		Sample Status				NORMAL	NORMAL		
All component wear rates are normal. Chromium ppm ASTN 05165 >3 <1	WEAR	Iron	mag	ASTM D5185m	>500	81	76		
Nickel ppm ASTM D5185m >3 0 0 Titanium ppm ASTM D5185m >2		Chromium		ASTM D5185m	>3				
Titanium ppm ASTM D5185m >2 <1 <1 ··· Silver ppm ASTM D518m >2 0 0 ··· Aluminum ppm ASTM D518m >20 1 0 ··· Lead ppm ASTM D5185m >13 1 0 ··· Copper ppm ASTM D5185m >13 27 29 ··· Vanadium ppm ASTM D5185m >5 <1						0			
Silver ppm ASTM DS185n -2 0 0		Titanium		ASTM D5185m	>2	<1	<1		
Aluminum ppm ASTM D5185m >30 2 1 Lead ppm ASTM D5185m >13 1 0 Copper ppm ASTM D5185m >13 27 29 Tin ppm ASTM D5185m >5 <1		Silver	ppm	ASTM D5185m	>2	0	0		
Copper pr ASTM D5185m >103 27 29 Tin pp ASTM D5185m < <td><td< td=""><th>Aluminum</th><td></td><td>ASTM D5185m</td><td>>30</td><th>2</th><td>1</td><td></td></td<></td>		<td< td=""><th>Aluminum</th><td></td><td>ASTM D5185m</td><td>>30</td><th>2</th><td>1</td><td></td></td<>	Aluminum		ASTM D5185m	>30	2	1	
Tim prom ASTM D5185m c1 c1 c1 c1 Vanadium ppm ASTM D5185m c1 0 White Metal scalar Visual NONE NORM		Lead	ppm	ASTM D5185m	>13	1	0		
Vanadium ppm ASTM D5165m		Copper	ppm	ASTM D5185m	>103	27	29		
White Metal Yellow Metalscalar*VisualNONENONENONENONENONEScalar*VisualNONENONENONENONESiliconppmASTMD5185m>1001513PotassiumppmASTMD5185m>2000WaterWC Method>.2NEGNEGSiliscalar*VisualNONENONELIGHTDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEOdorscalar*VisualNORMNORMLNORMLOdorscalar*VisualNORMNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLDebrisscalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLDebrisscalar*VisualNORMLNORMLNORMLNORMLMolyberscalar*VisualNORMLNORMLNORMLNORMLMolyberscalar*VisualNORMLNORMLNORMLNORMLMolyberScalar<		Tin	ppm	ASTM D5185m	>5	<1	<1		
Yellow Metal scalar 'Visual NONE NONE CONTAMINATION Silicon ppm ASTM D5185m >20 0 0 There is no indication of any contamination in the oil. Potassium ppm ASTM D5185m >20 0 0 Water WC Method >.2 NEG NEG Silit scalar 'Visual NONE NONE LIGHT Sand/Dirt scalar 'Visual NONE NONE NONE Appearance scalar 'Visual NORH NORML NORML Emulsified Water scalar 'Visual NORH NORML NORML The AN level is acceptable for this fluid. The condition of the oil is suitable for further service. Sofium ppm ASTM D5185m 4 0 -1 Molyddenum ppm ASTM D5185m I 3 9 Maganessice ppm		Vanadium	ppm	ASTM D5185m		<1	0		
SiliconppmASTM D5185m>100115133PotassiumppmASTM D5185m>2000WaterWC Method >-2NEGNEGSittscalar*VisualNONENONELIGHTDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORENONENONEOdorscalar*VisualNORENONENONEEmulsified Waterscalar*VisualNORENORENONESolumppmASTM D5185m-2NEGNEGNether service.SolumppmASTM D5185m402MargareseppmASTM D5185m402MargareseppmASTM D5185m402MargareseppmASTM D5185m112MargareseppmASTM D5185m139PhosphorusppmASTM D5185m13011611133Acid Number (AN)mgKHgASTM D5185m130116310370Acid Number (AN)mgKHgASTM D5185m130116310370SulfurppmASTM D5185m130116310370		White Metal	scalar	*Visual	NONE	NONE	NONE		
PotassiumppmASTM D5185m>2000WaterWC Method>.2NEGNEGSiltscalarVisualNONENONELIGHTDebrisscalarVisualNONENONENONENONESand/DirtscalarVisualNORMNORMLNONENONEAppearancescalarVisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalarVisualNORMLN		Yellow Metal	scalar	*Visual	NONE	NONE	NONE		
PotassiumppmASTM D5185m>2000WaterWC Method>.2NEGNEGSiltscalarVisualNONENONELIGHTDebrisscalarVisualNONENONENONENONESand/DirtscalarVisualNORMNORMLNONENONEAppearancescalarVisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalarVisualNORMLN	CONTAMINATION	Silicon	ppm	ASTM D5185m	>100	15	13		
WaterWaterWaterWaterWaterNeGNeg		Potassium	ppm	ASTM D5185m	>20	0	0		
Debris scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORL NORML		Water		WC Method	>.2	NEG	NEG		
Sand/Dirtscalar'VisualNONENONENONEAppearancescalar'VisualNORML <th>Silt</th> <td>scalar</td> <td>*Visual</td> <td>NONE</td> <th>NONE</th> <td>LIGHT</td> <td></td>		Silt	scalar	*Visual	NONE	NONE	LIGHT		
Appearance Odorscalar*VisualNORML<		Debris	scalar	*Visual	NONE	NONE	NONE		
Normal Emulsified Waterscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*Visual>.2NEGNEGNEGNEG<		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE		
Emulsified Waterscalar*Visual>.2NEGFLUID CONDITIONSodiumppmASTM D5185m402BoronppmASTM D5185m402BariumppmASTM D5185m4021MolybdenumppmASTM D5185m1-1-1ManganeseppmASTM D5185m12MagnesiumppmASTM D5185m1397CalciumppmASTM D5185m13997PhosphorusppmASTM D5185m400033823516ZincppmASTM D5185m131011611133SulfurppmASTM D5185m30101085610670Acid Number (AN)ng KOHgASTM D80451.21.140.76Visc @ 40°CcStASTM D44588198196		Appearance	scalar	*Visual	NORML	NORML	NORML		
SodiumppmASTM D5185m<		Odor	scalar	*Visual	NORML	NORML	NORML		
BoronppmASTM D5185m402BariumppmASTM D5185m0<1		Emulsified Water	scalar	*Visual	>.2	NEG	NEG		
Barium ppm ASTM D5185m O <1 Molybdenum ppm ASTM D5185m I <1	FLUID CONDITION	Sodium	ppm	ASTM D5185m		<1	<1		
Barium ppm ASTM D5185 0 <1 Molybdenum ppm ASTM D5185 0 <1		Boron	ppm	ASTM D5185m	4	0	2		
Manganeseppm $ASTM D5185m$ 12Magnesiumppm $ASTM D5185m$ 13976Calciumppm $ASTM D5185m$ 400033823516Phosphorusppm $ASTM D5185m$ 90095198606Zincppm $ASTM D5185m$ 1310116111333Sulfurppm $ASTM D5185m$ 301010856106706Acid Number (AN)mg K0Hg $ASTM D454$ 881981964		Barium	ppm	ASTM D5185m		0	<1		
Magnesium ppm ASTM D5185m 13 9 7 Calcium ppm ASTM D5185m 4000 3382 3516 Phosphorus ppm ASTM D5185m 900 951 986 Zinc ppm ASTM D5185m 1310 1161 1133 Sulfur ppm ASTM D5185m 3010 10856 10670 Acid Number (AN) mg KOHg ASTM D450 1.2 1.14 0.76 Visc @ 40°C cSt ASTM D450 88 198 196		Molybdenum	ppm	ASTM D5185m		<1	<1		
Calcium ppm ASTM D5185m 4000 3382 3516 Phosphorus ppm ASTM D5185m 990 951 986 Zinc ppm ASTM D5185m 1310 1161 1133 Sulfur ppm ASTM D5185m 3010 10856 10670 Acid Number (AN) mg KOHg ASTM D8045 1.2 1.14 0.76 Visc @ 40°C cSt ASTM D445 88 198 196		Manganese	ppm			1			
Phosphorus ppm ASTM D5185m 990 951 986 Zinc ppm ASTM D5185m 1310 1161 1133 Sulfur ppm ASTM D5185m 3010 10856 10670 Acid Number (AN) mg KOHg ASTM D8045 1.2 1.14 0.76 Visc @ 40°C cSt ASTM D445 88 198 196		-	ppm						
Zinc ppm ASTM D5185m 1310 1161 1133 Sulfur ppm ASTM D5185m 3010 10856 10670 Acid Number (AN) mg KOHg ASTM D8045 1.2 1.14 0.76 Visc @ 40°C cSt ASTM D445 88 198 196			ppm						
Sulfur ppm ASTM D5185m 3010 10856 10670 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.14 0.76 Visc @ 40°C cSt ASTM D445 88 198 196									
Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.14 0.76 Visc @ 40°C cSt ASTM D445 88 198 196									
Visc @ 40°C cSt ASTM D445 88 198 196									
		. ,							
Visc @ 100°C cSt ASTM D445 11 17.2 17.2									
		Visc @ 100°C	cSt	ASTM D445	11	17.2	17.2		

Viscosity Index (VI) Scale ASTM D2270 110

93

92





Contact/Location: RON GROGAN - BARSPRWA Page 2 of 2