	PROBLEM SUMMARY	Sample Rating Trend	VIS DEBRIS
EXPERTISE -			
Machine Id 2126961			
Component Rear Differential Fluid			
VOLVO (QTS)		Aug2023	

No relevant graphs to display

RECOMMENDATION	
----------------	--

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

PROBLEMATIC TEST RESULTS						
Sample Status				ABNORMAL		
Debris	scalar	*Visual	NONE	A MODER		

Customer Id: PERPRIPCA Sample No.: PCA0102666 Lab Number: 05958781 Test Package: FLEET



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> There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS



OIL ANALYSIS REPORT



Machine Id **2126961** Component **Rear Differential** Fluid **VOLVO (--- QTS)**

DIAGNOSIS

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

Moderate concentration of visible dirt/debris present in the oil.

Fluid Condition

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

Machine Age mis Client Info 0 Oil Agage NiA Sample Status Info N/A WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM 05185m >500 287 Trainium ppm ASTM 05185m >10 3 Silver ppm ASTM 05185m >10 4 Copper ppm ASTM 05185m >25 10 Vanadium ppm ASTM 05185m >10 8 Adminum ppm ASTM 05185m >10 8 Vanadium ppm ASTM 05185m 11 Barium ppm ASTM 05185m 11 Magnesum pm ASTM 05185m 11 <	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2					
Sample Date Client Info 21 Aug 2023 Machine Age mis Client Info 0 Oil Age mis Client Info 0 Oil Changed Client Info N/A Sample Status T T ABNORMAL WEAR METALS method limit/base current history1 Nickel ppm ASTM 05158n >10 3 Nickel ppm ASTM 05158n >10 4 Aluminum ppm ASTM 05158n >25 10 Adminum ppm ASTM 05158n >10 8 Adminum ppm ASTM 05158n 10 8 Adminum ppm ASTM 05158n 10 8 Adminum ppm </td <td>Sample Number</td> <td></td> <td>Client Info</td> <td></td> <td>PCA0102666</td> <td></td> <td></td>	Sample Number		Client Info		PCA0102666							
Oil Age mis Client Info 0 Sample Status Client Info N/A WEAR METALS method limitbase current history1 history2 Iron ppm ASTM 05185m >500 287 Chromium ppm ASTM 05185m >10 4 Nickel ppm ASTM 05185m >10 4 Aluminum ppm ASTM 05185m >25 10 Auminum ppm ASTM 05185m >10 8 Auminum ppm ASTM 05185m >10 8 Augentum ppm ASTM 05185m 10 8 Agentum ppm ASTM 05185m 11 Agentum ppm ASTM 05185m 11 -	Sample Date		Client Info		21 Aug 2023							
Oil Age mis Client Info 0 Sample Status Client Info N/A WEAR METALS method limitbase current history1 history2 Iron ppm ASTM 05185m >500 287 Chromium ppm ASTM 05185m >10 4 Nickel ppm ASTM 05185m >10 4 Aluminum ppm ASTM 05185m >25 10 Auminum ppm ASTM 05185m >10 8 Auminum ppm ASTM 05185m >10 8 Augentum ppm ASTM 05185m 10 8 Agentum ppm ASTM 05185m 11 Agentum ppm ASTM 05185m 11 -	Machine Age	mls	Client Info		0							
Sample Status method Imilibase current history1 history2 Iron ppm ASTM D5185m >500 287 Chromium ppm ASTM D5185m >10 3 Nickel ppm ASTM D5185m >10 4 Silver ppm ASTM D5185m >25 2 Aluminum ppm ASTM D5185m >25 10 Copper ppm ASTM D5185m >25 10 Copper ppm ASTM D5185m >25 10 Cadmium ppm ASTM D5185m >10 8 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185m 11 ADDITIVES method limit/base current hi	Oil Age	mls	Client Info		0							
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >500 287 Nickel ppm ASTM D5185m >10 4 Nickel ppm ASTM D5185m >10 4 Aluminum ppm ASTM D5185m >25 2 Aluminum ppm ASTM D5185m >25 10 Auminum ppm ASTM D5185m >25 10 Auminum ppm ASTM D5185m >10 8 Astm D5185m >10 8 Astm D5185m 11 Astm D5185m 113 Magnaense ppm ASTM D5185m 113	Oil Changed		Client Info		N/A							
Iron ppm ASTM D5185m >500 287 Chromium ppm ASTM D5185m >10 3 Nickel ppm ASTM D5185m >10 4 Silver ppm ASTM D5185m >10 Aluminum ppm ASTM D5185m >25 2 Auminum ppm ASTM D5185m >25 10 Auminum ppm ASTM D5185m >100 77 Copper ppm ASTM D5185m >100 Actimum ppm ASTM D5185m >10 8 Actimum ppm ASTM D5185m 112 Actimum ppm ASTM D5185m 113 Magnessum ppm ASTM D5185m <t< td=""><td>Sample Status</td><td></td><td></td><td></td><td>ABNORMAL</td><td></td><td></td></t<>	Sample Status				ABNORMAL							
Chromium ppm ASTM D5185m >10 3 Nickel ppm ASTM D5185m <10 4 Silver ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m >25 2 Lead ppm ASTM D5185m >25 10 Copper ppm ASTM D5185m >100 77 Vanadium ppm ASTM D5185m >100	WEAR METAL	S	method	limit/base	current	history1	history2					
Nickel ppm ASTM D5185m >10 4 Titanium ppm ASTM D5185m 0 Silver ppm ASTM D5185m >25 2 Lead ppm ASTM D5185m >25 10 Copper ppm ASTM D5185m >10 8 Yanadium ppm ASTM D5185m >10 8	Iron	ppm	ASTM D5185m	>500	287							
Titanium ppm ASTM D5185m <1 Silver ppm ASTM D5185m >25 2 Aluminum ppm ASTM D5185m >25 2 Lead ppm ASTM D5185m >25 10 Copper ppm ASTM D5185m >10 8 Copper ppm ASTM D5185m >10 8 Cadmium ppm ASTM D5185m >10 8 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 11 Magnesium ppm ASTM D5185m 113 Magnesium ppm ASTM D5185m 1018 Magnesium ppm ASTM D5185m 24 Sulfur<	Chromium	ppm	ASTM D5185m	>10	3							
Silver ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m >25 2 Lead ppm ASTM D5185m >25 10 Copper ppm ASTM D5185m >100 8 Vanadium ppm ASTM D5185m 10 8 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 122 Malganese ppm ASTM D5185m <11	Nickel	ppm	ASTM D5185m	>10	4							
Aluminum ppm ASTM D5185m >25 2 Lead ppm ASTM D5185m >25 10 Copper ppm ASTM D5185m >100 77 Yanadium ppm ASTM D5185m 100 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 122 Molybdenum ppm ASTM D5185m <1	Titanium	ppm	ASTM D5185m		<1							
Laad ppm ASTM D5185m >25 10 Copper ppm ASTM D5185m >100 77 Tin ppm ASTM D5185m >10 8 Qanadium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 1 Maganese ppm ASTM D5185m -1 Maganese ppm ASTM D5185m -1 Galcium ppm ASTM D5185m -1 Calcium ppm ASTM D5185m -1 Zinc ppm ASTM D5185m 24 Sulfur ppm ASTM D5185m >20 3 VISUAL method limit/base <td>Silver</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <td>0</td> <td></td> <td></td>	Silver	ppm	ASTM D5185m		0							
Copper ppm ASTM D5185m >100 77 Tin ppm ASTM D5185m >10 8 Vanadium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 122 Molybdenum ppm ASTM D5185m 13 Manganese ppm ASTM D5185m <13	Aluminum	ppm	ASTM D5185m	>25	2							
Tin ppm ASTM D5185m >10 8 Vanadium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 122 ADDITIVES method limit/base current history1 nistory2 Barium ppm ASTM D5185m 122 Magnese ppm ASTM D5185m 1 Magnesium ppm ASTM D5185m 13 Calcium ppm ASTM D5185m 1018 Magnesium ppm ASTM D5185m 1018 Colatium ppm ASTM D5185m 23961 Stifur ppm ASTM D5185m >20 3 Sodium ppm ASTM D5185m >20 3 Stotype AS	Lead	ppm	ASTM D5185m	>25	10							
Tin ppm ASTM D5185m >10 8 Vanadium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 122 ADDITIVES method limit/base current history1 nistory2 Barium ppm ASTM D5185m 122 Magnese ppm ASTM D5185m 1 Magnesium ppm ASTM D5185m 13 Calcium ppm ASTM D5185m 1018 Magnesium ppm ASTM D5185m 1018 Colatium ppm ASTM D5185m 23961 Stifur ppm ASTM D5185m >20 3 Sodium ppm ASTM D5185m >20 3 Stotype AS	Copper	ppm	ASTM D5185m	>100	77							
CadmiumppmASTM D5185m0ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m122BariumppmASTM D5185m1MarganeseppmASTM D5185m<1		ppm	ASTM D5185m	>10	8							
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m122BariumppmASTM D5185m1MolybdenumppmASTM D5185m<1	Vanadium	ppm	ASTM D5185m		0							
BoronppmASTM D5185m122BariumppmASTM D5185m1MolybdenumppmASTM D5185m< <td><1</td> MaganeseppmASTM D5185m< <td><1</td> MagnesiumppmASTM D5185m< <td><1</td> CalciumppmASTM D5185m< <td><15</td> CalciumppmASTM D5185m< <td>1018PhosphorusppmASTM D5185m<24</td> SulfurppmASTM D5185m<23961	<1	<1	<1	<15	1018PhosphorusppmASTM D5185m<24	Cadmium	ppm	ASTM D5185m		0		
Barium ppm ASTM D5185m 1 Molybdenum ppm ASTM D5185m <1	ADDITIVES		method	limit/base	current	history1	history2					
Molybdenum ppm ASTM D5185m <1 Marganese ppm ASTM D5185m 13 Magnesium ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m		122							
Marganese ppm ASTM D5185m 13 Magnesium ppm ASTM D5185m <1	Barium	ppm	ASTM D5185m		1							
MagnesiumppmASTM D5185m<1CalciumppmASTM D5185m1018PhosphorusppmASTM D5185m1018ZincppmASTM D5185m24SulfurppmASTM D5185m23961SulfurppmASTM D5185m23961CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>7544SodiumppmASTM D5185m>203PotassiumppmASTM D5185m>203VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONESiltscalar*VisualNONENONESiltscalar*VisualNONENONEDebrisscalar*VisualNORNOREAppearancescalar*VisualNORMLNORMLGudorscalar*VisualNORMLNORMLFree Waterscalar*VisualNORMLNEGFullD PROPERTIESmethodlimit/basecurrenthi	Molybdenum	ppm	ASTM D5185m		<1							
CalciumppmASTM D5185m15PhosphorusppmASTM D5185m1018ZincppmASTM D5185m24SulfurppmASTM D5185m23961CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>7544SodiumppmASTM D5185m>7544PotassiumppmASTM D5185m>203VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONESiltscalar*VisualNONENONESiltscalar*VisualNONENONESiltscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLGodorscalar*VisualNORMLNORMLFree Waterscalar*VisualNORMLNORMLFree Waterscalar*VisualNORMLNEGFree Waterscalar*Visual <t< td=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td></td><td>13</td><td></td><td></td></t<>	Manganese	ppm	ASTM D5185m		13							
PhosphorusppmASTM D5185m1018ZincppmASTM D5185m24SulfurppmASTM D5185m23961CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>7544SodiumppmASTM D5185m>7544PotassiumppmASTM D5185m>203VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONESiltscalar*VisualNONENONESiltscalar*VisualNONENONEDebrisscalar*VisualNONEMODERAppearancescalar*VisualNORMLNORMLQdorscalar*VisualNORMLNORMLFree Waterscalar*VisualNORMLNORMLFree Waterscalar*VisualNORMLNORMLFice Waterscalar*VisualNORMLNORMLFice Waterscalar*VisualNORMLNORMLFice Waterscal	Magnesium	ppm	ASTM D5185m		<1							
ZincppmASTM D5185m24SulfurppmASTM D5185m23961CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>7544SodiumppmASTM D5185m>7544PotassiumppmASTM D5185m>203VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONESiltscalar*VisualNONENONESiltscalar*VisualNONENONEDebrisscalar*VisualNONEMODERAppearancescalar*VisualNORMLAppearancescalar*VisualNORMLOdorscalar*VisualNORMLNORMLFree Waterscalar*Visual>.2NEGFree Waterscalar*Visual>.2NEGVisualNORMLNORMLNoreVisualNORMLNORMLNORYosualNORMLNEG	Calcium	ppm	ASTM D5185m		15							
SulfurppmASTM D5185m23961CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>7544SodiumppmASTM D5185m>203PotassiumppmASTM D5185m>203VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONESiltscalar*VisualNONENONESiltscalar*VisualNONEMODERSand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLQdorscalar*VisualNORMLNORMLMuterscalar*VisualNORMLNORMLAppearancescalar*VisualNORMLNORMLGdorscalar*VisualNORMLNORMLFree Waterscalar*Visual>.2NEGFice Waterscalar*VisualNORMLNEGVisc@ 40°CcstASTM D4594.1	Phosphorus	ppm	ASTM D5185m		1018							
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m<>7544SodiumppmASTM D5185m6PotassiumppmASTM D5185m>203VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONESiltscalar*VisualNONEMODERSand/Dirtscalar*VisualNONEMODERAppearancescalar*VisualNORMLNORMLGoorscalar*VisualNORMLNORMLFree Waterscalar*VisualNORMLNORMLFullD PROPERTIESmethodlimit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	Zinc	ppm	ASTM D5185m		24							
SiliconppmASTM D5185m>7544SodiumppmASTM D5185m6PotassiumppmASTM D5185m>203VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONESiltscalar*VisualNONEMODERDebrisscalar*VisualNONEMODERSand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLFree Waterscalar*VisualNORMLNEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	Sulfur	ppm	ASTM D5185m		23961							
SodiumppmASTM D5185m6PotassiumppmASTM D5185m>203VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONESiltscalar*VisualNONEMODERDebrisscalar*VisualNONEMODERSand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>.2NEGFree Waterscalar*Visual>.2NEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	CONTAMINAN	TS	method	limit/base	current	history1	history2					
PotassiumppmASTM D5185m>203VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONESiltscalar*VisualNONENONEDebrisscalar*VisualNONEMODERSand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLFree Waterscalar*Visual>.2NEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	Silicon	ppm	ASTM D5185m	>75	44							
VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONESiltscalar*VisualNONENONEDebrisscalar*VisualNONEMODERSand/Dirtscalar*VisualNONEMODERAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>.2NEGFree Waterscalar*VisualNORMLNEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	Sodium	ppm	ASTM D5185m		6							
White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONESiltscalar*VisualNONENONEDebrisscalar*VisualNONEMODERSand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>.2NEGFree Waterscalar*VisualImit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	Potassium	ppm	ASTM D5185m	>20	3							
Yellow Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONESiltscalar*VisualNONENONEDebrisscalar*VisualNONEMODERSand/Dirtscalar*VisualNONEMONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>.2NEGFree Waterscalar*VisualNCNEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	VISUAL		method	limit/base	current	history1	history2					
Precipitatescalar*VisualNONENONESiltscalar*VisualNONENONEDebrisscalar*VisualNONEMODERSand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>.2NEGFree Waterscalar*Visual.2NEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	White Metal	scalar	*Visual	NONE	NONE							
Siltscalar*VisualNONENONEDebrisscalar*VisualNONEMODERSand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>.2NEGFree Waterscalar*Visual.2NEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	Yellow Metal	scalar	*Visual	NONE	NONE							
Debrisscalar*VisualNONE<MODERSand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>.2NEGFree Waterscalar*Visual>.2NEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	Precipitate	scalar	*Visual	NONE	NONE							
Sand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>.2NEGFree Waterscalar*VisualImit/basecurrenthistory1history2Visc @ 40°CcStASTM D44594.1	Silt	scalar	*Visual	NONE	NONE							
Appearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>.2NEGFree Waterscalar*VisualImit/baseCurrenthistory1history2Visc @ 40°CcStASTM D44594.1	Debris	scalar	*Visual	NONE								
Odor scalar *Visual NORML NORML Emulsified Water scalar *Visual >.2 NEG Free Water scalar *Visual NEG FLUID PROPERTIES method limit/base current history1 history2 Visc @ 40°C cSt ASTM D445 94.1	Sand/Dirt	scalar	*Visual	NONE	NONE							
Emulsified Water scalar *Visual >.2 NEG Free Water scalar *Visual Imit/base current history1 history2 FLUID PROPERTIES method limit/base current history1 history2 Visc @ 40°C cSt ASTM D445 94.1	Appearance	scalar	*Visual	NORML	NORML							
Free Water scalar *Visual NEG FLUID PROPERTIES method limit/base current history1 history2 Visc @ 40°C cSt ASTM D445 94.1	Odor	scalar	*Visual	NORML	NORML							
FLUID PROPERTIES method limit/base current history1 history2 Visc @ 40°C cSt ASTM D445 94.1	Emulsified Water	scalar	*Visual	>.2	NEG							
Visc @ 40°C cSt ASTM D445 94.1	Free Water	scalar	*Visual		NEG							
-	FLUID PROPE	RTIES	method	limit/base	current	history1	history2					
253:21) Rev: 1 Contact/Location: MICHAEL DAVIS - PERPRIPCA	Visc @ 40°C 7:53:21) Rev: 1	cSt	ASTM D445	_								

Report Id: PERPRIPCA [WUSCAR] 05958781 (Generated: 09/30/2023 07:53:21) Rev: 1

Contact/Location: MICHAEL DAVIS - PERPRIPCA



OIL ANALYSIS REPORT

