

#### [534195] Machine Id TERRAMAC RT14R 14RH00105

## **Front Left Final Drive**

VOLVO PREMIUM GEAR OIL 80W-90 GL-5 (--- GAL)

## RECOMMENDATION

We advise that you check all areas where dirt can enter the system. We recommend that you drain the oil from the component if this has not already been done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

### WEAR

Gear wear is indicated. Bearing and/or bushing wear is indicated. Generally an abnormal to severe rate of wear throughout the component.

### CONTAMINATION

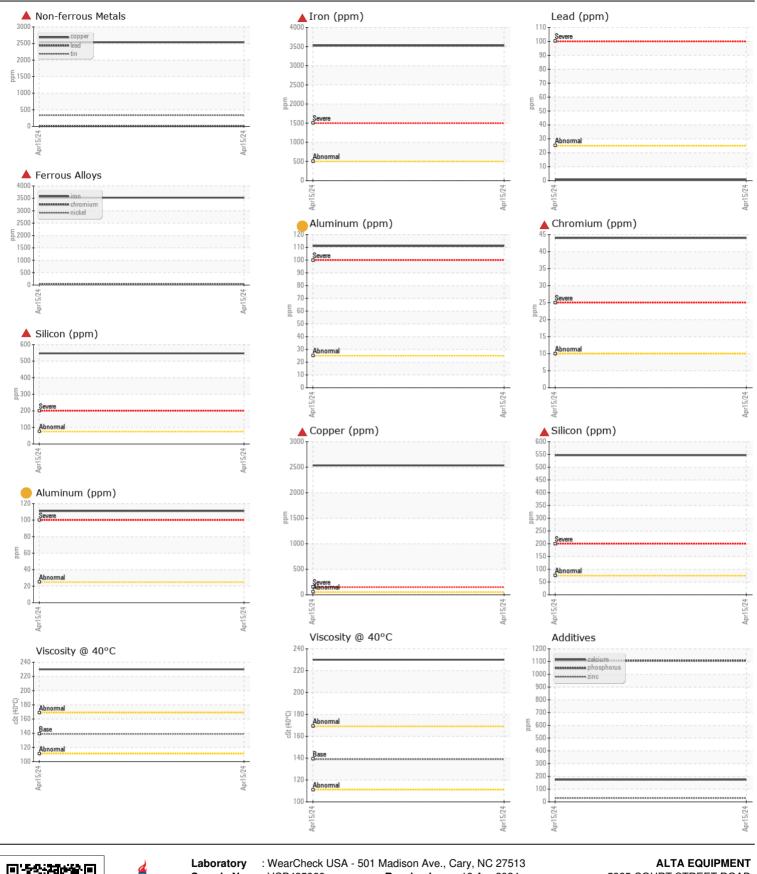
Elemental levels of silicon (Si) and aluminum (Al) indicate aluminasilicate (coarse dirt) ingress.

# FLUID CONDITION

The oil is no longer serviceable due to the presence of contaminants.

TestUOMMethodLimit/ACurrentHistory1History1History2Sample NumberClient Info15 Apr 2024Machine AgehrsClient Info2616Filter AgehrsClient Info0Filter AgehrsClient Info0Filter AgehrsClient InfoN/AFilter ChangedClient InfoN/AFilter ChangedClient InfoN/ASample StatusStoryASTA D5185-500A 3526ChromiumppmASTM D5185>1012NickelppmASTM D5185>1012SilverppmASTM D5185>20-111AluminumppmASTM D5185>20-111VanadiumppmASTM D5185>50A 2535-1VanadiumppmASTM D5185>20A11Yallow Metalscalar'VisualNONENONESiliconppmASTM D5185>20A11Yallow Metalscalar'VisualNONENONESiliconppmASTM D5185>20A11Yallow Metalscalar'VisualNONENONE							
Sample DateClient Info15 Apr 2024Machine AgehrsClient Info2616Oil AgehrsClient Info0Filter AgehrsClient InfoNot ChangdOil ChangedClient InfoNANot ChangdFilter ChangedClient InfoN/ASample StatusClient InfoN/AIronppmASTM D5165>500A 3526IronppmASTM D5165>10A 44NickelppmASTM D5165>1012SilverppmASTM D5165>10A 233AluminumppmASTM D5165>50A 2535VanadiumppmASTM D5165>50A 253VanadiumppmASTM D5165>50A 253VanadiumppmASTM D5165>50A 253VanadiumppmASTM D5165>50A 254VanadiumppmASTM D5165>7A 547SiliconpmASTM D5165>20A11VaterWC Method>0.2NONENONESiliconpmASTM D5165>70A 547	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine Age         hrs         Client Info         Z616             Oil Age         hrs         Client Info         0             Filter Age         hrs         Client Info         Not Changd             Oil Changed         Client Info         N/A              Sample Status         SEVERE              Iron         ppm         ASTM D5185m         >500         A 3526             Iron         ppm         ASTM D5185m         >10         A 44             Nickel         ppm         ASTM D5185m         >10         12             Silver         ppm         ASTM D5185m         >10         12             Qapper         ppm         ASTM D5185m         >50         253         <11             Aluminum         ppm         ASTM D5185m         >50         2535              Vanadium         ppm         ASTM D5185m         >50         2547	Sample Number		Client Info		VCP435060		
Oil Age         hrs         Client Info         0             Filter Age         hrs         Client Info         Not Changd             Oil Changed         Client Info         N/A             Filter Changed         Client Info         N/A             Sample Status         SEVERE             Iron         ppm         ASTM D5185m         >500         A 3526             Chromium         ppm         ASTM D5185m         10         4.44             Nickel         ppm         ASTM D5185m         10         12             Aluminum         ppm         ASTM D5185m          111             Aluminum         ppm         ASTM D5185m         >25         <1             Adminum         ppm         ASTM D5185m         >25         <1             Vanaduium         ppm         ASTM D5185m         >75         A 547             Yellow Metal         scalar	Sample Date		Client Info		15 Apr 2024		
Filter Age         hrs         Client Info         0             Oil Changed         Client Info         Not Changd             Filter Changed         Client Info         N/A             Sample Status         SEVERE             Iron         ppm         ASTM D5185m<>500         A 3526             Chromium         ppm         ASTM D5185m         >10         A 4             Nickel         ppm         ASTM D5185m         >10         A 4             Nickel         ppm         ASTM D5185m         >25         •111             Aluminum         ppm         ASTM D5185m         >25         •111             Aluminum         ppm         ASTM D5185m         >50         A 2535             Vanadium         ppm         ASTM D5185m         >10         A 336             Vanadium         ppm         ASTM D5185m         >75         A 547             Vellow Metal         scalar </th <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>2616</th> <th></th> <th></th>	Machine Age	hrs	Client Info		2616		
Oli Changed Filter ChangedClient InfoNot ChangFilter Changed Sample StatusClient InfoN/AIronppmASTM D5185m>500A 3526ChromiumppmASTM D5185m>104 44NickelppmASTM D5185m>1012TitaniumppmASTM D5185m>20111AluminumppmASTM D5185m>25<11AluminumppmASTM D5185m>25<11CopperppmASTM D5185m>500A 336YanadiumppmASTM D5185m>10A 336Yellow Metalscalar*VisualNONESiliconppmASTM D5185m>20A1Yellow Metalscalar*VisualNONESiliconppmASTM D5185m>20A1SoliconppmASTM D5185m>20A1SiliconppmASTM D5185m>20A1SoliconppmASTM D5185m>20A1SoliconppmASTM D5185m>20A1SoliconppmASTM D5185m>20A1SoliconppmA	Oil Age	hrs	Client Info		0		
Filter Changed         Client Info         NA            Filter Changed         Client Info         NA            Sample Status         SEVERE             Iron         ppm         ASTM D5185m         500         A 3526            Chromium         ppm         ASTM D5185m         >10         A 44            Nickel         ppm         ASTM D5185m         >10         12            Nickel         ppm         ASTM D5185m         >10         12            Aluminum         ppm         ASTM D5185m         >20         111	Filter Age	hrs	Client Info		0		
Sample Status         SEVERE            Iron         ppm         ASTM D5185m         >500         A 3526            Chromium         ppm         ASTM D5185m         >10         A 44            Nickel         ppm         ASTM D5185m         >10         A 44            Nickel         ppm         ASTM D5185m         >10         12            Silver         ppm         ASTM D5185m         >20         111            Aluminum         ppm         ASTM D5185m         >20         111            Lead         ppm         ASTM D5185m         >20         <11            Vanadium         ppm         ASTM D5185m         >10         A 336            Vanadium         ppm         ASTM D5185m         >10         A 336	Oil Changed		Client Info		Not Changd		
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White Metal         scalar         *Visual         NONE         ···         ···           Yellow Metal         scalar         *Visual         NONE         NONE         ···         ···           Silicon         ppm         ASTM D5185m         >75 <b>A</b> 547         ···         ···           Potassium         ppm         ASTM D5185m         >20 <b>41</b> ···<         ···           Water         WC Method         >0.2         NEG         ···<         ···           Debris         scalar         *Visual         NONE         NONE         ···         ···           Sand/Dirt         scalar         *Visual         NONE         ···         ···         ···           Appearance         scalar         *Visual         NORM         NORML         ···         ···           Godor         scalar         *Visual         NORML         ···         ···         ···           Sodium         ppm         ASTM D5185m         NORML         ···         ···         ···           Boron         ppm         ASTM D5185m         0.0         6         ···         ···           Molybdenum         ppm         ASTM D5185m         0.0		ppm		>10	<b>3</b> 36		
Yellow Metal         scalar         *Visual         NONE         ••••         ••••           Silicon         ppm         ASTM D5185m<>75         ▲ 547         ••••         ••••           Potassium         ppm         ASTM D5185m<>20         41         ••••         ••••           Water         WC Method         >0.2         NEG         ••••         ••••           Silt         scalar         *Visual         NONE         NONE         ••••         ••••           Debris         scalar         *Visual         NONE         NONE         ••••         ••••           Sand/Dirt         scalar         *Visual         NONE         NONE         ••••         ••••           Appearance         scalar         *Visual         NORML         NORML         ••••         ••••           Odor         scalar         *Visual         NORML         NORML         ••••         ••••           Boron         ppm         ASTM D5185m         0.2         NEG         •••••         ••••           Molybdenum         ppm         ASTM D5185m         0.7         16         •••••         ••••           Magnesium         ppm         ASTM D5185m         0.0         24 <th></th> <th>ppm</th> <th></th> <th></th> <th></th> <th></th> <th></th>		ppm					
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PotassiumppmASTM D5185m>2041WaterWC Method>0.2NEGSiltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLBoronppmASTM D5185m379146BariumppmASTM D5185m0.06MalgaeseppmASTM D5185m0.132MagnesiumppmASTM D5185m3132PhosphorusppmASTM D5185m10771107ZincppmASTM D5185m10771107SulfurppmASTM D5185m2352624532	Silicon	maa	ASTM D5185m	>75	<b>5</b> 47		
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Sodium         ppm         ASTM D5185m         16            Boron         ppm         ASTM D5185m         379         146            Barium         ppm         ASTM D5185m         0.0         6            Barium         ppm         ASTM D5185m         0.0         6            Molybdenum         ppm         ASTM D5185m         0.8         303            Manganese         ppm         ASTM D5185m         0.0         24            Magnesium         ppm         ASTM D5185m         31         32            Calcium         ppm         ASTM D5185m         38         174            Phosphorus         ppm         ASTM D5185m         1077         1107            Zinc         ppm         ASTM D5185m         46         30            Sulfur         ppm         ASTM D5185m         23526         24532	Water Silt Debris Sand/Dirt	scalar scalar scalar	WC Method *Visual *Visual *Visual	>0.2 NONE NONE NONE	NEG NONE NONE NONE		
Boron         ppm         ASTM D5185m         379         146            Barium         ppm         ASTM D5185m         0.0         6            Molybdenum         ppm         ASTM D5185m         0.8         303            Manganese         ppm         ASTM D5185m         0.0         24            Magnesium         ppm         ASTM D5185m         31         32            Calcium         ppm         ASTM D5185m         38         174            Phosphorus         ppm         ASTM D5185m         36             Zinc         ppm         ASTM D5185m         46         30             Sulfur         ppm         ASTM D5185m         2352         24532	Water Silt Debris Sand/Dirt Appearance	scalar scalar scalar scalar	WC Method *Visual *Visual *Visual *Visual	>0.2 NONE NONE NONE NORML	NEG NONE NONE NONE NORML	  	
Boron         ppm         ASTM D5185m         379         146            Barium         ppm         ASTM D5185m         0.0         6            Molybdenum         ppm         ASTM D5185m         0.8         303            Manganese         ppm         ASTM D5185m         0.0         24            Magnesium         ppm         ASTM D5185m         31         32            Calcium         ppm         ASTM D5185m         38         174            Phosphorus         ppm         ASTM D5185m         36             Zinc         ppm         ASTM D5185m         46         30             Sulfur         ppm         ASTM D5185m         2352         24532	Water Silt Debris Sand/Dirt Appearance Odor	scalar scalar scalar scalar scalar	WC Method *Visual *Visual *Visual *Visual	>0.2 NONE NONE NORML NORML	NEG NONE NONE NONE NORML	  	
Barium         ppm         ASTM D5185m         0.0         6            Molybdenum         ppm         ASTM D5185m         0.8         303            Manganese         ppm         ASTM D5185m         0.0         24            Magnesium         ppm         ASTM D5185m         31         32            Calcium         ppm         ASTM D5185m         38         174            Phosphorus         ppm         ASTM D5185m         1077         1107            Zinc         ppm         ASTM D5185m         46         30            Sulfur         ppm         ASTM D5185m         23526         24532	Water Silt Debris Sand/Dirt Appearance Odor	scalar scalar scalar scalar scalar	WC Method *Visual *Visual *Visual *Visual	>0.2 NONE NONE NORML NORML	NEG NONE NONE NONE NORML	  	
Molybdenum         ppm         ASTM D5185m         0.8         303             Manganese         ppm         ASTM D5185m         0.0         24             Magnesium         ppm         ASTM D5185m         31         32             Calcium         ppm         ASTM D5185m         38         174             Phosphorus         ppm         ASTM D5185m         1077         1107             Zinc         ppm         ASTM D5185m         46         30             Sulfur         ppm         ASTM D5185m         23526         24532	Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water	scalar scalar scalar scalar scalar scalar	WC Method *Visual *Visual *Visual *Visual *Visual	>0.2 NONE NONE NORML NORML	NEG NONE NONE NORML NORML NEG 16		    
Manganese         ppm         ASTM D5185m         0.0         24            Magnesium         ppm         ASTM D5185m         31         32            Calcium         ppm         ASTM D5185m         38         174             Phosphorus         ppm         ASTM D5185m         1077         1107             Zinc         ppm         ASTM D5185m         46         30             Sulfur         ppm         ASTM D5185m         23526         24532	Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium	scalar scalar scalar scalar scalar scalar scalar	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m	>0.2 NONE NONE NORML NORML >0.2	NEG NONE NONE NORML NORML NEG 16		
Magnesium         ppm         ASTM D5185m         31         32            Calcium         ppm         ASTM D5185m         38         174            Phosphorus         ppm         ASTM D5185m         1077         1107            Zinc         ppm         ASTM D5185m         46         30             Sulfur         ppm         ASTM D5185m         23526         24532	Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium	scalar scalar scalar scalar scalar scalar ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>&gt;0.2</li> <li>379</li> <li>0.0</li> </ul>	NEG NONE NONE NORML NORML NEG 16 146		
Calcium         ppm         ASTM D5185m         38         174            Phosphorus         ppm         ASTM D5185m         1077         1107            Zinc         ppm         ASTM D5185m         46         30             Sulfur         ppm         ASTM D5185m         23526         24532	Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium	scalar scalar scalar scalar scalar scalar ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>&gt;0.2</li> <li>379</li> <li>0.0</li> <li>0.8</li> </ul>	NEG NONE NONE NORML NORML NEG 16 146		
Phosphorus         ppm         ASTM D5185m         1077         1107            Zinc         ppm         ASTM D5185m         46         30             Sulfur         ppm         ASTM D5185m         23526         24532	Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese	scalar scalar scalar scalar scalar scalar ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>&gt;0.2</li> <li>379</li> <li>0.0</li> <li>0.8</li> </ul>	NEG NONE NONE NORML NORML NEG 16 146 6 303		
Zinc         ppm         ASTM D5185m         46         30             Sulfur         ppm         ASTM D5185m         23526         24532	Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese	scalar scalar scalar scalar scalar ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 NONE NONE NORML NORML >0.2 379 0.0 0.8 0.0	NEG NONE NONE NORML NORML NEG 16 146 6 303 24		
Sulfur         ppm         ASTM D5185m         23526         24532	Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Malybdenum Manganese Magnesium	scalar scalar scalar scalar scalar ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>&gt;0.2</li> <li>379</li> <li>0.0</li> <li>0.8</li> <li>0.0</li> <li>31</li> </ul>	NEG NONE NONE NORML NORML NEG 16 146 6 303 24 32		
	Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Malybdenum Manganese Magnesium	scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>&gt;0.2</li> <li>379</li> <li>0.0</li> <li>0.8</li> <li>0.0</li> <li>31</li> <li>38</li> </ul>	NEG NONE NONE NORML NORML NEG 16 146 6 303 24 32 32 174		
Visc @ 40°C cSt ASTM D445 139 230	Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>&gt;0.2</li> <li>379</li> <li>0.0</li> <li>0.8</li> <li>0.0</li> <li>31</li> <li>38</li> <li>1077</li> </ul>	NEG NONE NONE NORML NORML NEG 16 146 6 303 24 32 174 1107		
	Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Malybdenum Manganese Magnesium Calcium Phosphorus Zinc	scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>&gt;0.2</li> <li>379</li> <li>0.0</li> <li>0.8</li> <li>0.0</li> <li>31</li> <li>38</li> <li>1077</li> <li>46</li> </ul>	NEG NONE NONE NORML NORML NEG 16 146 6 303 24 32 174 1107 30		

Contact/Location: JIM STRIGLE - VOLVO0142



5985 COURT STREET ROAD Sample No. : VCP435060 Received : 19 Apr 2024 þ. Lab Number : 06154808 : 22 Apr 2024 Tested SYRACUSE, NY : 23 Apr 2024 - Don Baldridge Unique Number : 10990231 Diagnosed US 13206 Test Package : MOB 1 Contact: JIM STRIGLE Certificate L2367 JIM.STRIGLE@ALTG.COM 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. T: (315)437-2611 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (315)434-9471

Contact/Location: JIM STRIGLE - VOLVO0142 Page 2 of 2