

# **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id VOLVO ECR145 311293 Component Swing Drive

GEAR OIL SAE 85W140 (--- GAL)

# DIAGNOSIS

### Recommendation

The oil change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

## 🔺 Wear

The copper level is abnormal. All other component wear rates are normal.

#### Contamination

There is a light concentration of water present in the oil.

### Fluid Condition

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

Iron     ppm     ASTM D5185m     >1200     949         Chromium     ppm     ASTM D5185m     >10     9         Nickel     ppm     ASTM D5185m     >10     0         Titanium     ppm     ASTM D5185m     >10     0         Aluminum     ppm     ASTM D5185m     >25     4         Aluminum     ppm     ASTM D5185m     >50     0         Lead     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     >10     0         Vanadium     ppm     ASTM D5185m     >10     0         Cadmium     ppm     ASTM D5185m     >10     0         Boron     ppm     ASTM D5185m     200     5         Maganese     ppm     ASTM D5185m     12	story2	histor	history1	current	limit/base	method	IATION	SAMPLE INFORM
Machine Age   hrs   Client Info   2913         Oil Age   hrs   Client Info   1000				ML0000448		Client Info		Sample Number
Oil AgehrsClient Info1000Oil ChangedClient InfoChangedSample StatusImageImit/basecurrenthistory1ImitWEAR METALSmethodImit/basecurrenthistory1ImitIronppmASTM D5185m>100949NickelppmASTM D5185m>109NickelppmASTM D5185m0AluminumppmASTM D5185m0AluminumppmASTM D5185m>500AluminumppmASTM D5185m>500AgeppmASTM D5185m>500CopperppmASTM D5185m>100AdminumppmASTM D5185m100AdminumppmASTM D5185m2005AdminumppmASTM D5185m12<1				08 Apr 2024		Client Info		Sample Date
Oil Changed Sample Status     Client Info     Changed ABNORMAL         WEAR METALS     method     limit/base     current     history1     history1       WEAR METALS     method     limit/base     current     history1     history1       Vickel     ppm     ASTM D5185m     >10     9         Nickel     ppm     ASTM D5185m     >10     0         Aluminum     ppm     ASTM D5185m     >250     0         Aluminum     ppm     ASTM D5185m     >50     0         Age     ASTM D5185m     100           Cadmium     ppm     ASTM D5185m     12     <				2913		Client Info	hrs	Machine Age
Sample Status     Image: S				1000		Client Info	hrs	Oil Age
WEAR METALS     method     limit/base     current     history1     history1       Iron     ppm     ASTM D5185m     >1200     949         Chromium     ppm     ASTM D5185m     >10     0         Nickel     ppm     ASTM D5185m     >10     0         Silver     ppm     ASTM D5185m     >25     4         Aluminum     ppm     ASTM D5185m     >50     0         Aluminum     ppm     ASTM D5185m     >50     0         Aluminum     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     10     0         Vanadium     ppm     ASTM D5185m     10          Cadmium     ppm     ASTM D5185m     12     <1				Changed		Client Info		Oil Changed
Iron     ppm     ASTM D5185m     >1200     949        Chromium     ppm     ASTM D5185m     >10     0         Nickel     ppm     ASTM D5185m     >10     0         Silver     ppm     ASTM D5185m     >25     4         Aluminum     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     >50     0				ABNORMAL				Sample Status
Chromium     ppm     ASTM D5185m     >10     9         Nickel     ppm     ASTM D5185m     >10     0         Silver     ppm     ASTM D5185m     >25     4         Aluminum     ppm     ASTM D5185m     >25     4         Aluminum     ppm     ASTM D5185m     >50     0         Lead     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     >50     0	story2	histor	history1	current	limit/base	method		WEAR METALS
Chromium     ppm     ASTM D5185m     >10     9         Nickel     ppm     ASTM D5185m     >10     0         Titanium     ppm     ASTM D5185m     0         Silver     ppm     ASTM D5185m     >25     4         Aluminum     ppm     ASTM D5185m     >25     4         Lead     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     >50     0         Cadmium     ppm     ASTM D5185m     >10     0				949	>1200	ASTM D5185m	ppm	Iron
Nickel     ppm     ASTM D5185m     >10     0         Titanium     ppm     ASTM D5185m      0         Silver     ppm     ASTM D5185m     >25     4         Aluminum     ppm     ASTM D5185m     >50     0         Lead     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     >50     0				9	>10	ASTM D5185m		Chromium
Titanium     ppm     ASTM D5185m     <1         Silver     ppm     ASTM D5185m     >25     4         Aluminum     ppm     ASTM D5185m     >25     4         Lead     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     >50     0         Cadmium     ppm     ASTM D5185m     >50     0         ADDITIVES     method     limit/base     current     history1     history1        Boron     ppm     ASTM D5185m     200     5         Maganese     ppm     ASTM D5185m     12     -1         Maganesium     ppm     ASTM D5185m     12     -1         Maganesium     ppm     ASTM D5185m     125     62         Sulfur     ppm     ASTM D5185m     22500 <td></td> <td></td> <td></td> <td>0</td> <td>&gt;10</td> <td>ASTM D5185m</td> <td></td> <td>Nickel</td>				0	>10	ASTM D5185m		Nickel
Silver     ppm     ASTM D5185m     0         Aluminum     ppm     ASTM D5185m     >25     4         Lead     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     >50     ▲ 53         Copper     ppm     ASTM D5185m     >10     0         Vanadium     ppm     ASTM D5185m     >10     0				<1		ASTM D5185m		Titanium
AIuminum     ppm     ASTM D5185m     >25     4         Lead     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     >50     ▲ 53         Vanadium     ppm     ASTM D5185m     >10     0         Vanadium     ppm     ASTM D5185m     >10     0         Cadmium     ppm     ASTM D5185m     0     -1         ADDITIVES     method     limit/base     current     history1     his       Boron     ppm     ASTM D5185m     400     <1				0		ASTM D5185m		Silver
Lead     ppm     ASTM D5185m     >50     0         Copper     ppm     ASTM D5185m     >50     ▲ 53         Tin     ppm     ASTM D5185m     >10     0         Vanadium     ppm     ASTM D5185m     >10     0         Cadmium     ppm     ASTM D5185m     10     <1				4	>25	ASTM D5185m		Aluminum
Copper     ppm     ASTM D5185m     >50     53         Tin     ppm     ASTM D5185m     >10     0         Vanadium     ppm     ASTM D5185m      <1				0	>50			Lead
TinppmASTM D5185m>100VanadiumppmASTM D5185mImit D50<								
Vanadium     ppm     ASTM D5185m     <1         Cadmium     ppm     ASTM D5185m     0         ADDITIVES     method     limit/base     current     history1     history1       Boron     ppm     ASTM D5185m     400     <1								
CadmiumppmASTM D5185m0ADDITIVESmethodlimit/basecurrenthistory1history1BoronppmASTM D5185m400<1				-				Vanadium
Boron     ppm     ASTM D5185m     400     <1         Barium     ppm     ASTM D5185m     200     5         Molybdenum     ppm     ASTM D5185m     12     <1								
Barium     ppm     ASTM D5185m     200     5         Molybdenum     ppm     ASTM D5185m     12     <1	story2	histo	history1	current	limit/base	method		ADDITIVES
Molybdenum     ppm     ASTM D5185m     12     <1         Manganese     ppm     ASTM D5185m     10				<1	400	ASTM D5185m	ppm	Boron
Molybdenum     ppm     ASTM D5185m     12     <1         Manganese     ppm     ASTM D5185m     10          Magnesium     ppm     ASTM D5185m     12     <1				5	200	ASTM D5185m		Barium
Manganese     ppm     ASTM D5185m     10         Magnesium     ppm     ASTM D5185m     12     <1				<1	12	ASTM D5185m		Molybdenum
Magnesium     ppm     ASTM D5185m     12     <1         Calcium     ppm     ASTM D5185m     150     16         Phosphorus     ppm     ASTM D5185m     1650     468         Zinc     ppm     ASTM D5185m     125     62         Sulfur     ppm     ASTM D5185m     22500     17884         CONTAMINANTS     method     limit/base     current     history1     history1       Silicon     ppm     ASTM D5185m     >100     18         Sodium     ppm     ASTM D5185m     >100     18         Potassium     ppm     ASTM D5185m     >20     0         Water     %     ASTM D6304     >0.25     0.285         ppm Water     ppm     ASTM D6304     >2500     2850         VISUAL     method     limit/base				10		ASTM D5185m		•
Calcium     ppm     ASTM D5185m     150     16         Phosphorus     ppm     ASTM D5185m     1650     468         Zinc     ppm     ASTM D5185m     125     62         Sulfur     ppm     ASTM D5185m     22500     17884         CONTAMINANTS     method     limit/base     current     history1     hist       Silicon     ppm     ASTM D5185m     >100     18         Sodium     ppm     ASTM D5185m     >20     0         Potassium     ppm     ASTM D5304     >0.25     0.285         Water     pm     ASTM D6304     >2500     2850         VISUAL     method     limit/base     current     history1     hist       White Metal     scalar     *Visual     NONE     NONE    Yellow Metal     scalar     *Visual<				<1	12	ASTM D5185m	ppm	Magnesium
Zinc     ppm     ASTM D5185m     125     62         Sulfur     ppm     ASTM D5185m     22500     17884         CONTAMINANTS     method     limit/base     current     history1     his       Silicon     ppm     ASTM D5185m     >100     18         Sodium     ppm     ASTM D5185m     >100     18         Sodium     ppm     ASTM D5185m     >100     18         Potassium     ppm     ASTM D5185m     >20     0         Water     %     ASTM D6304     >0.25     0.285         ppm Water     ppm     ASTM D6304     >2500     2850         VISUAL     method     limit/base     current     history1     his       White Metal     scalar     *Visual     NONE     NONE         Yellow Metal     scalar     *Vis				16	150	ASTM D5185m	ppm	-
ZincppmASTM D5185m12562SulfurppmASTM D5185m2250017884CONTAMINANTSmethodlimit/basecurrenthistory1hisSiliconppmASTM D5185m>10018SodiumppmASTM D5185m>10018PotassiumppmASTM D5185m>200Water%ASTM D6304>0.250.285ppm WaterppmASTM D6304>25002850VISUALmethodlimit/basecurrenthistory1hisWhite Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONE				468	1650	ASTM D5185m	ppm	Phosphorus
CONTAMINANTSmethodlimit/basecurrenthistory1hisSiliconppmASTM D5185m>10018SodiumppmASTM D5185m<1				62	125	ASTM D5185m		
Silicon     ppm     ASTM D5185m     >100     18         Sodium     ppm     ASTM D5185m     >100     18         Potassium     ppm     ASTM D5185m     >20     0         Water     %     ASTM D6304     >0.25     ▲ 0.285         ppm Water     ppm     ASTM D6304     >2500     ▲ 2850         VISUAL     method     limit/base     current     history1     hist       White Metal     scalar     *Visual     NONE     NONE         Yellow Metal     scalar     *Visual     NONE     NONE         Precipitate     scalar     *Visual     NONE     NONE				17884	22500	ASTM D5185m		Sulfur
Sodium     ppm     ASTM D5185m     <1	story2	histor	history1	current	limit/base	method		CONTAMINANTS
Potassium     ppm     ASTM D5185m     >20     0         Water     %     ASTM D6304     >0.25     ▲ 0.285         ppm Water     ppm     ASTM D6304     >2500     ▲ 2850         VISUAL     method     limit/base     current     history1     history1     history1       White Metal     scalar     *Visual     NONE     NONE         Yellow Metal     scalar     *Visual     NONE     NONE         Precipitate     scalar     *Visual     NONE     NONE				18	>100	ASTM D5185m	ppm	Silicon
Water   %   ASTM D6304   >0.25   0.285       ppm Water   ppm   ASTM D6304   >2500   2850       VISUAL   method   limit/base   current   history1   his     White Metal   scalar   *Visual   NONE   NONE       Yellow Metal   scalar   *Visual   NONE   NONE       Precipitate   scalar   *Visual   NONE   NONE				<1		ASTM D5185m	ppm	Sodium
ppm WaterppmASTM D6304>25002850VISUALmethodlimit/basecurrenthistory1hisWhite Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONE				0	>20	ASTM D5185m	ppm	Potassium
VISUALmethodlimit/basecurrenthistory1hisWhite Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONE							%	
White Metal   scalar   *Visual   NONE   NONE       Yellow Metal   scalar   *Visual   NONE   NONE       Precipitate   scalar   *Visual   NONE   NONE				<b>A</b> 2850	>2500	ASTM D6304	ppm	ppm Water
Yellow Metalscalar*VisualNONENONEPrecipitatescalar*VisualNONENONE	story2	histor	history1	current	limit/base	method		VISUAL
Precipitate scalar *Visual NONE NONE							scalar	
				NONE	NONE	*Visual	scalar	Yellow Metal
Silt scalar Visual NONE MODER								•
				MODER	NONE	*Visual	scalar	Silt
Debris scalar *Visual NONE NONE				NONE	NONE	*Visual	scalar	Debris
Sand/Dirt scalar *Visual NONE NONE				NONE	NONE		scalar	Sand/Dirt
Appearance scalar *Visual NORML HAZY				HAZY	NORML	*Visual	scalar	Appearance
Odor scalar *Visual NORML NORML				NORML	NORML	*Visual	scalar	Odor
Emulsified Water scalar *Visual >0.25 0.2%				0.2%	>0.25	*Visual	scalar	Emulsified Water
Free Water scalar *Visual NEG				NEG		*Visual	scalar	Free Water



# **OIL ANALYSIS REPORT**



MCCLUNG-LOGAN EQUIPMENT CO - WINCHESTER **160 KENTMERE COURT** WINCHESTER, VA US 22603 Contact: JENNIFER MATIAS jmatias@mcclung-logan.com T: (540)722-3700 F: (540)722-4441

history1

history1

no image

no image

current

current

191

history2

history2

no image

no image



Unique Number : 10980775 Diagnosed : 18 Apr 2024 - Sean Felton Test Package : CONST (Additional Tests: KF) 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)

Received

Tested

: 16 Apr 2024

: 18 Apr 2024

: ML0000448

Lab Number : 06150697

Report Id: VOLVO4589 [WUSCAR] 06150697 (Generated: 04/18/2024 19:54:26) Rev: 1

Contact/Location: JENNIFER MATIAS - VOLVO4589

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