



CONSTRUCTION EQUIPMENT

SPM646904 ALPINE DEM VOLVO EC 140EL 311517 - DIESEL ENGINE



Sample No: VCP435703
Oil Type: DIESEL ENGINE OIL SAE 15W40
Job No: SPM646904 ALPINE DEM



SAMPLE INFORMATION

Sample Number	VCP435703	VCP423228	VCP410631	VCP358937
Sample Date	03 Feb 2024	28 Jul 2023	13 Apr 2023	23 Mar 2022
Machine Hours	2856	2507	2262	1740
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

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 5000 INDUSTRIAL HWY
 GARY, IN
 US 46406
 Contact: DAVE ENG
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 T: (312)350-2560
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OIL CONDITION

Visc @ 100°C	cSt	14.4	13.8	13.9	13.2
Base Number (BN)	mg KOH/g	9.9	9.3	8.6	10.5
Oxidation (PA)	%	56	55	59	84

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.2	0.2	0.3	0.4
Nitration (PA)	%	57	52	68	90
Sulfation (PA)	%	51	49	48	63
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	4	4	4	9
Sodium	ppm	1	1	1	<1
Potassium	ppm	2	2	0	2

WEAR METALS

Iron	ppm	9	9	20	43
Copper	ppm	2	7	4	6
Lead	ppm	0	<1	0	0
Tin	ppm	0	<1	<1	1
Aluminum	ppm	5	5	7	13
Chromium	ppm	<1	<1	1	3
Molybdenum	ppm	46	62	40	30
Nickel	ppm	0	<1	0	0
Titanium	ppm	<1	0	0	<1
Silver	ppm	0	0	0	0
Manganese	ppm	0	<1	<1	<1
Vanadium	ppm	<1	0	0	0

ADDITIVES

Calcium	ppm	961	1136	803	1790
Magnesium	ppm	835	1004	709	602
Zinc	ppm	1124	1368	872	1281
Phosphorus	ppm	852	1115	797	1072
Barium	ppm	11	0	0	0
Boron	ppm	12	2	9	51

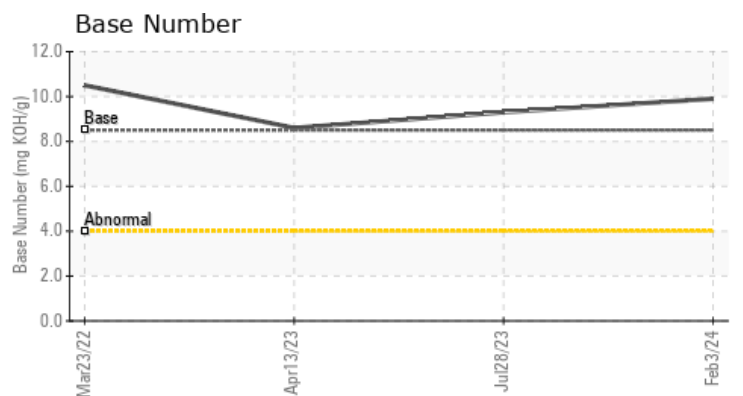
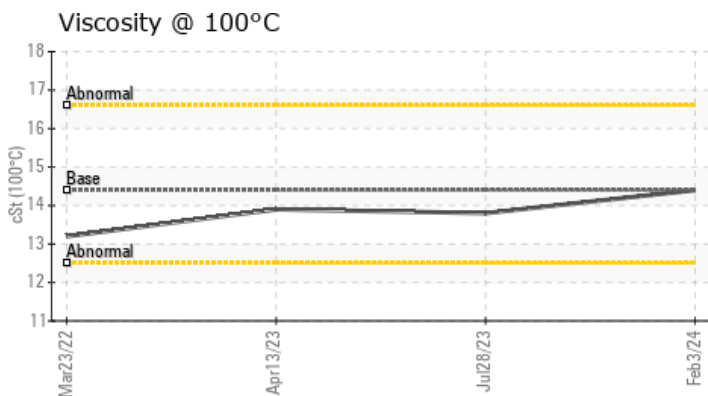
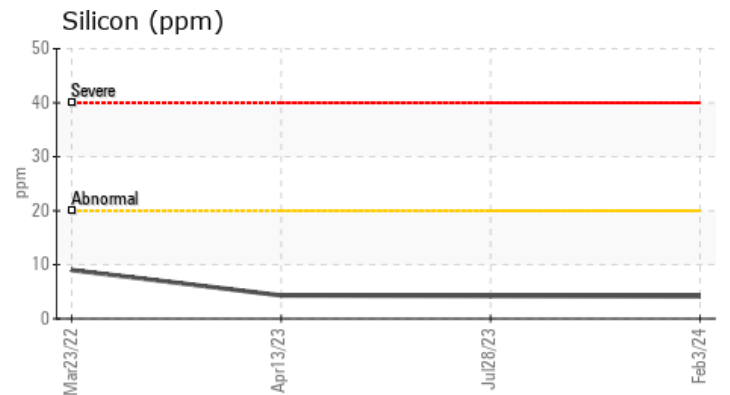
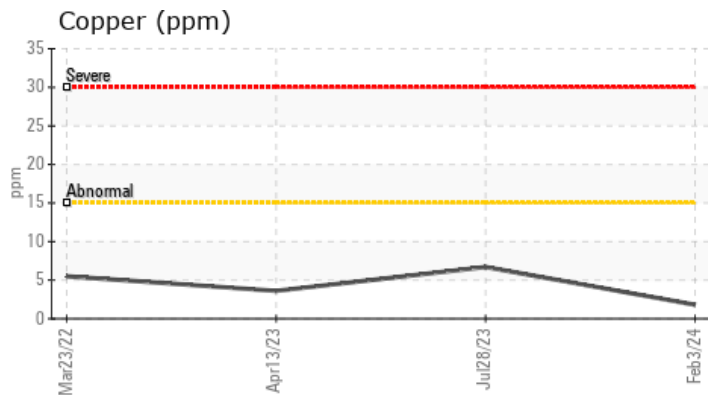
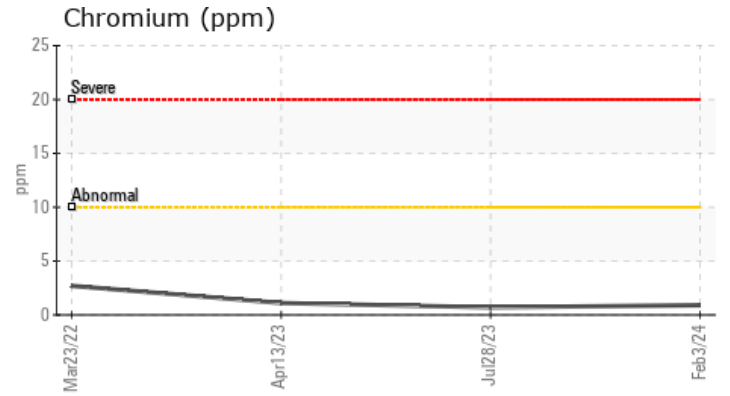
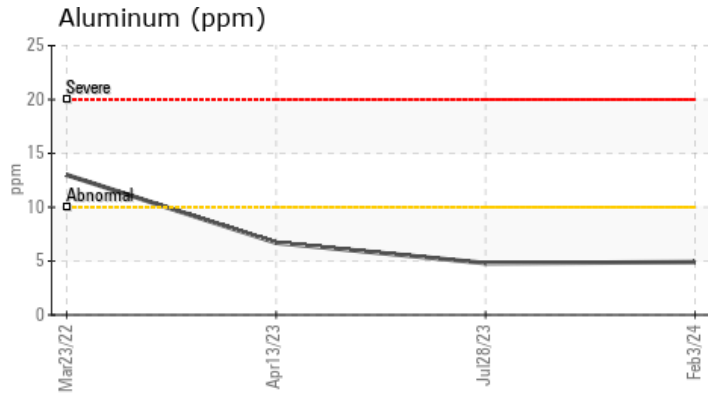
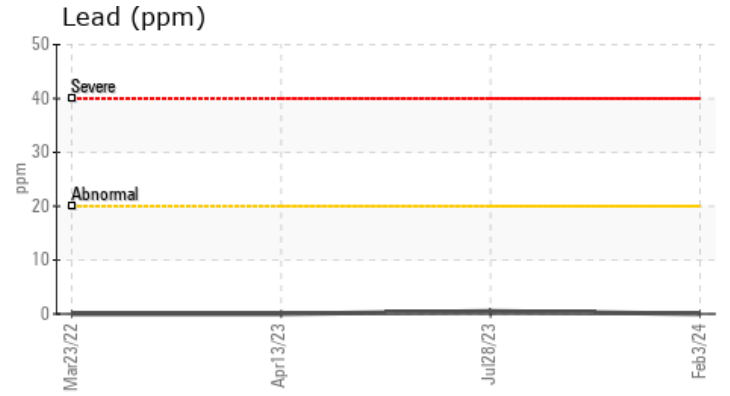
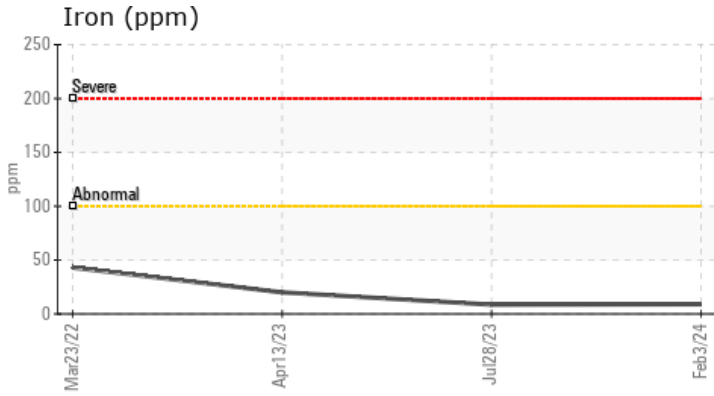
Depot: VOLVO8885
Unique No: 10882806
Signed: Wes Davis
Report Date: 16 Feb 2024



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

SPM581123 ALPINE DEM VOLVO EC140EL 311517 - HYDRAULIC SYSTEM



Sample No: VCP423285
Oil Type: VOLVO SUPER HYDRAULIC OIL 46
Job No: SPM581123 ALPINE DEM



SAMPLE INFORMATION

Sample Number	VCP423285	VCP411428	VCP361088	---
Sample Date	28 Jul 2023	13 Apr 2023	23 Mar 2022	---
Machine Hours	2507	2262	1740	---
Oil Hours	0	0	0	---
Oil Changed	Not Chngd	Not Chngd	Not Chngd	---
Sample Status	NORMAL	ABNORMAL	NORMAL	---

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5000 INDUSTRIAL HWY
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OIL CONDITION

Visc @ 40°C	cSt	47.1	44.0	45.3	---
Acid Number (AN)	mg KOH/g	0.25	0.53	0.56	---



CONTAMINATION

Particles >4µm		2717	▲ 134143	34627	---
Particles >6µm		740	▲ 38213	950	---
Particles >14µm		57	855	46	---
ISO 4406:1999 (c)		19/17/13	24/22/17	22/17/13	---
Silicon	ppm	<1	3	3	---
Sodium	ppm	<1	<1	0	---
Potassium	ppm	<1	0	0	---

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



WEAR METALS

Iron	ppm	0	9	6	---
Copper	ppm	<1	14	13	---
Lead	ppm	0	0	<1	---
Tin	ppm	0	0	<1	---
Aluminum	ppm	1	1	<1	---
Chromium	ppm	0	0	<1	---
Molybdenum	ppm	0	<1	<1	---
Nickel	ppm	0	0	0	---
Titanium	ppm	0	0	0	---
Silver	ppm	0	0	<1	---
Manganese	ppm	<1	2	1	---
Vanadium	ppm	<1	0	0	---



ADDITIVES

Calcium	ppm	54	739	1039	---
Magnesium	ppm	2	10	10	---
Zinc	ppm	403	599	733	---
Phosphorus	ppm	310	470	646	---
Barium	ppm	0	0	0	---
Boron	ppm	0	14	22	---

Depot: VOLVO8885
Unique No: 10602083
Signed: Wes Davis
Report Date: 14 Aug 2023

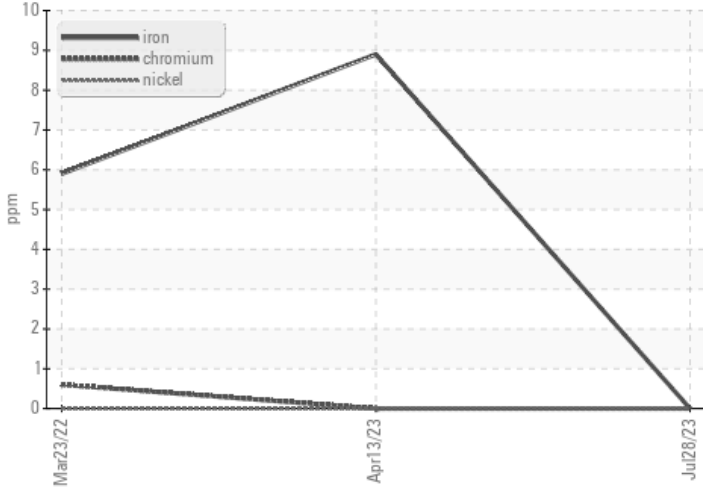


CONSTRUCTION EQUIPMENT

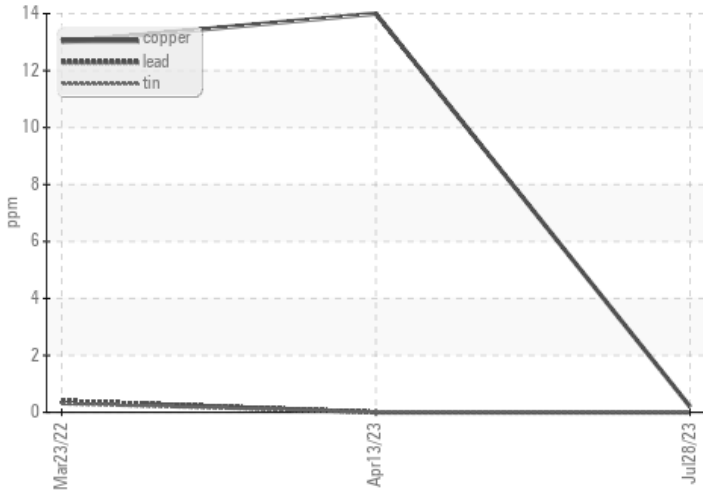


VOLVO GRAPHS

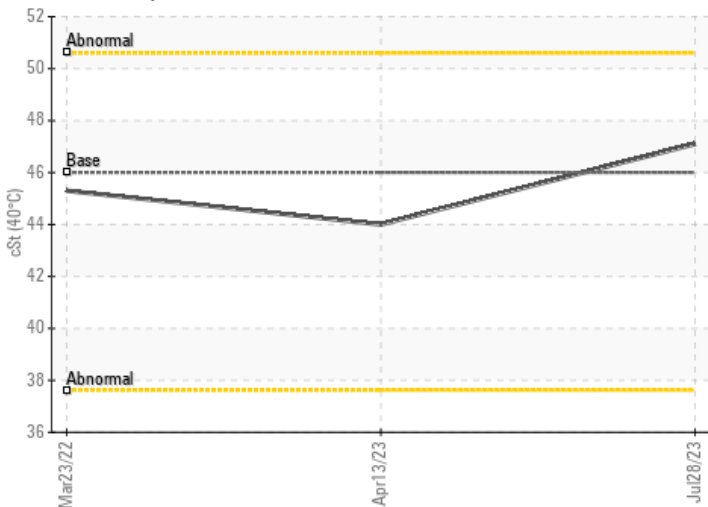
Ferrous Alloys



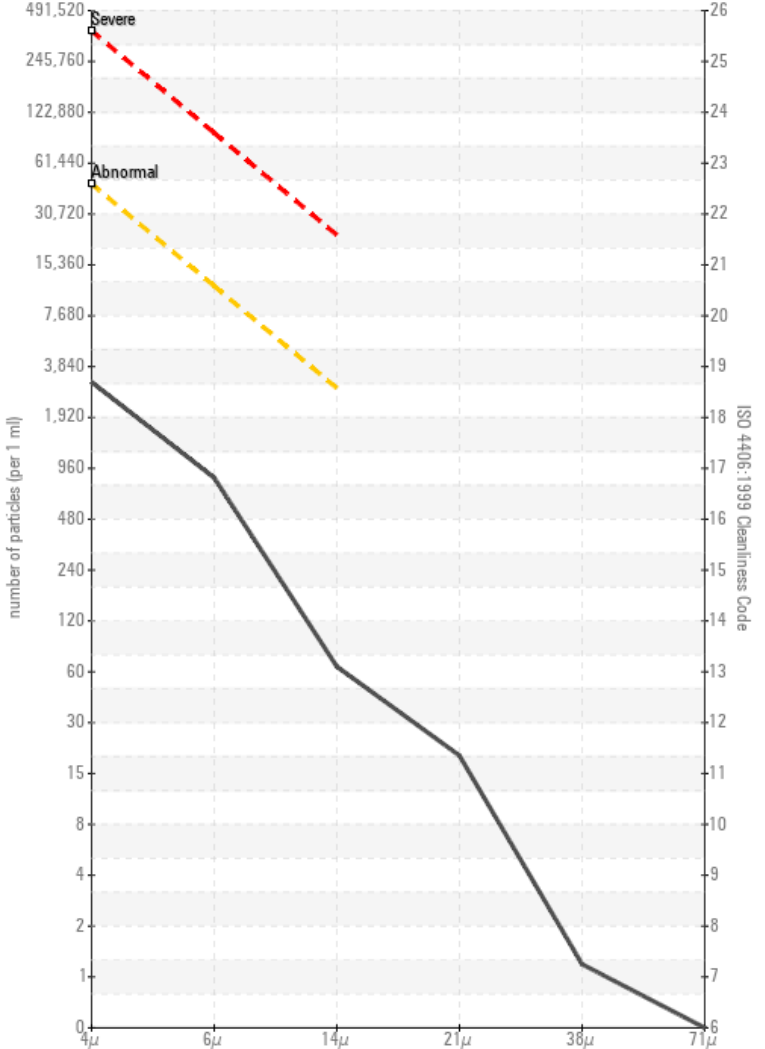
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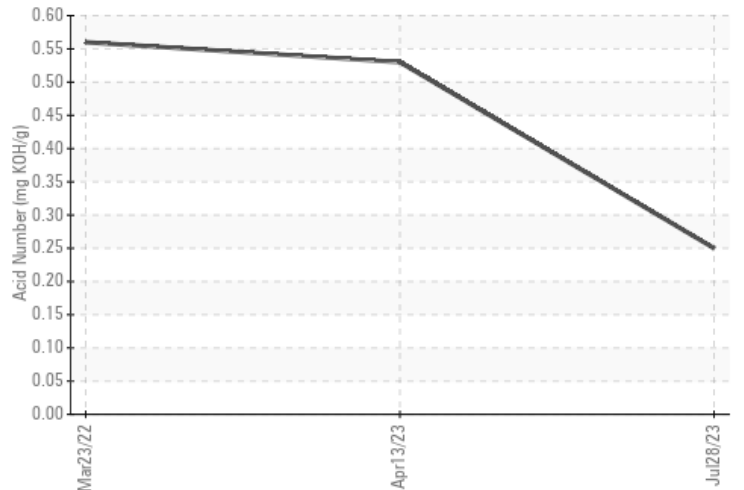
Viscosity @ 40°C



Particle Count



Acid Number





CONSTRUCTION EQUIPMENT

SPM581123 ALPINE VOLVO EC140EL 311517 - SWING DRIVE



Sample No: VCP422853
Oil Type: VOLVO PREMIUM GEAR OIL 80W-90 GL-5
Job No: SPM581123 ALPINE



SAMPLE INFORMATION

Sample Number	VCP422853	VCP411407	VCP330104	---
Sample Date	28 Jul 2023	13 Apr 2023	23 Mar 2022	---
Machine Hours	2507	2262	1740	---
Oil Hours	0	0	0	---
Oil Changed	Not Chngd	Changed	Not Chngd	---
Sample Status	NORMAL	NORMAL	NORMAL	---

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OIL CONDITION

Visc @ 40°C	cSt	152	151	150	---
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CONTAMINATION

Silicon	ppm	4	4	28	---
Sodium	ppm	0	2	8	---
Potassium	ppm	<1	0	0	---



WEAR METALS

Iron	ppm	55	85	124	---
Copper	ppm	5	6	8	---
Lead	ppm	0	0	0	---
Tin	ppm	0	0	0	---
Aluminum	ppm	<1	<1	2	---
Chromium	ppm	<1	<1	1	---
Molybdenum	ppm	<1	<1	<1	---
Nickel	ppm	<1	0	<1	---
Titanium	ppm	0	0	<1	---
Silver	ppm	0	0	0	---
Manganese	ppm	<1	2	2	---
Vanadium	ppm	0	0	0	---



ADDITIVES

Calcium	ppm	19	20	23	---
Magnesium	ppm	15	4	0	---
Zinc	ppm	26	26	11	---
Phosphorus	ppm	854	891	907	---
Barium	ppm	2	<1	0	---
Boron	ppm	153	147	145	---

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

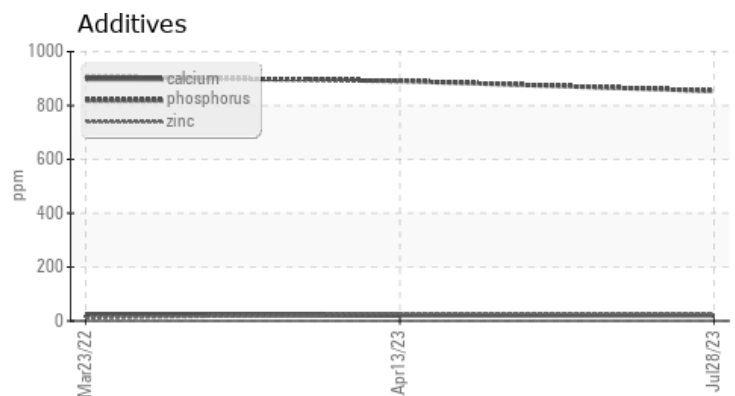
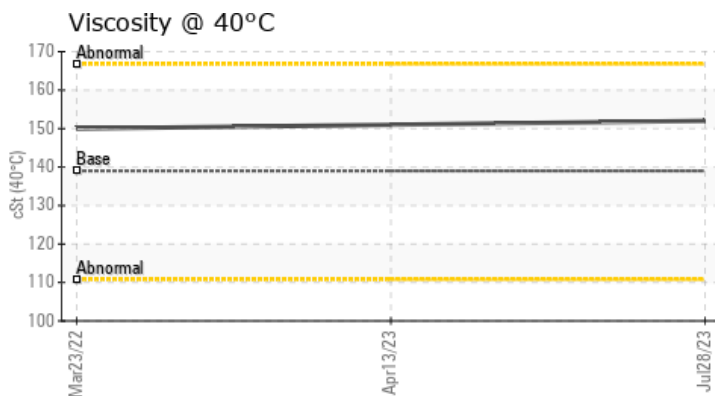
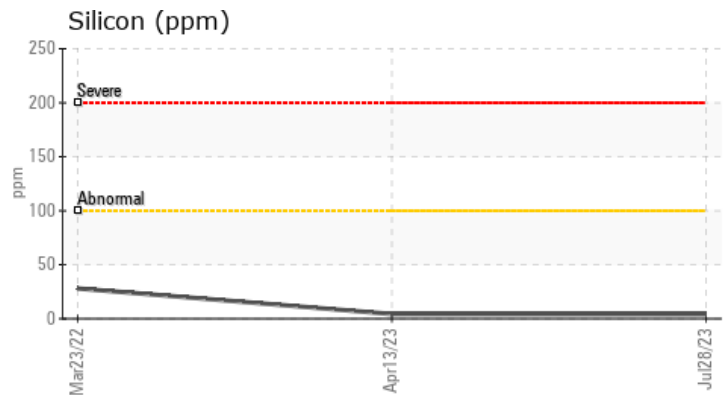
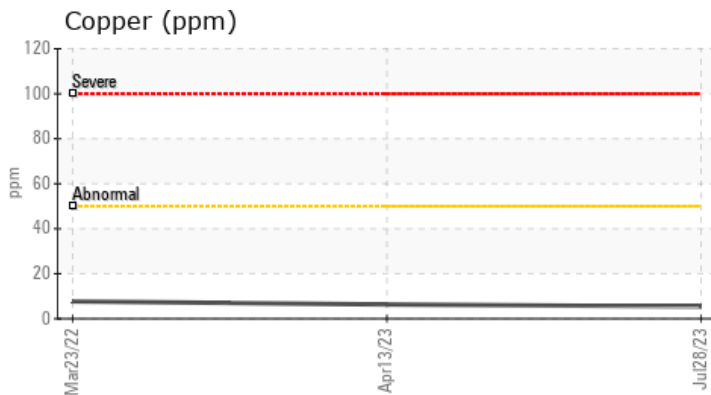
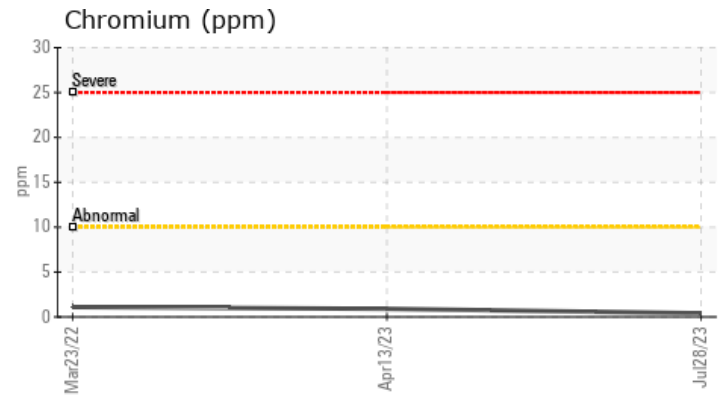
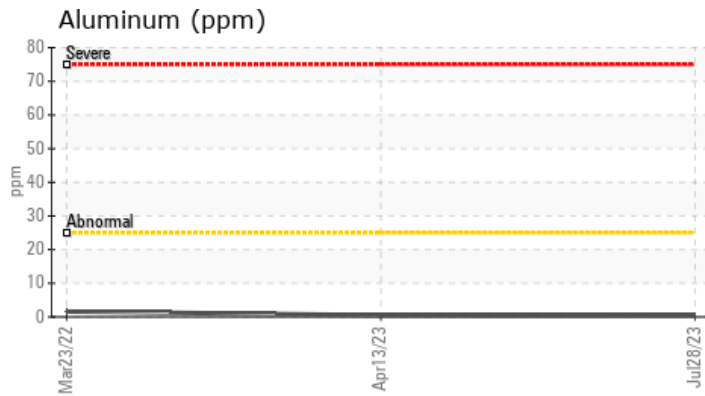
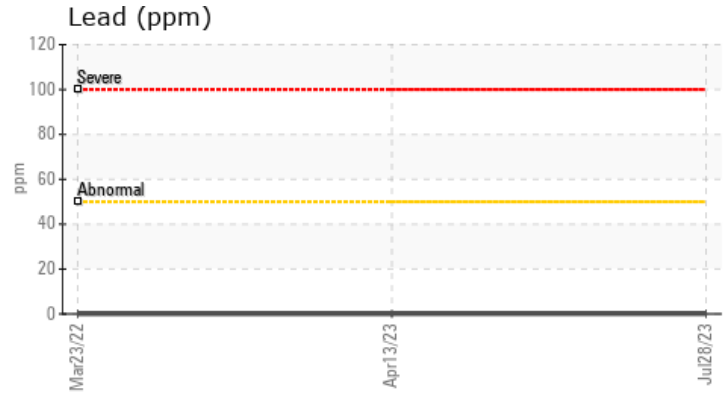
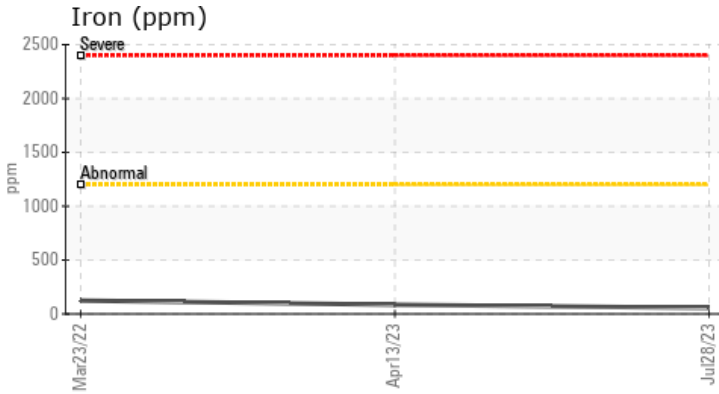
Depot: VOLVO8885
Unique No: 10602469
Signed: Wes Davis
Report Date: 12 Aug 2023



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

SPM581123 VOLVO EC140EL 311517 - LEFT FINAL DRIVE



Sample No: VCP423229
Oil Type: VOLVO PREMIUM GEAR OIL 80W-90 GL-5
Job No: SPM581123



SAMPLE INFORMATION

Sample Number	VCP423229	VCP410634	VCP330106	---
Sample Date	28 Jul 2023	13 Apr 2023	23 Mar 2022	---
Machine Hours	2507	2262	1740	---
Oil Hours	0	0	0	---
Oil Changed	Not Chngd	Changed	Not Chngd	---
Sample Status	NORMAL	NORMAL	NORMAL	---

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OIL CONDITION

Visc @ 40°C	cSt	189	172	118	---
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CONTAMINATION

Silicon	ppm	27	21	13	---
Sodium	ppm	0	2	3	---
Potassium	ppm	1	0	0	---



WEAR METALS

Iron	ppm	68	190	312	---
Copper	ppm	<1	1	2	---
Lead	ppm	0	0	0	---
Tin	ppm	0	0	<1	---
Aluminum	ppm	2	2	3	---
Chromium	ppm	<1	2	4	---
Molybdenum	ppm	4	2	<1	---
Nickel	ppm	<1	<1	1	---
Titanium	ppm	<1	<1	<1	---
Silver	ppm	0	0	0	---
Manganese	ppm	<1	2	4	---
Vanadium	ppm	0	0	0	---



ADDITIVES

Calcium	ppm	2918	2302	52	---
Magnesium	ppm	74	29	1	---
Zinc	ppm	1048	903	56	---
Phosphorus	ppm	893	978	1669	---
Barium	ppm	1	0	0	---
Boron	ppm	10	36	119	---

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

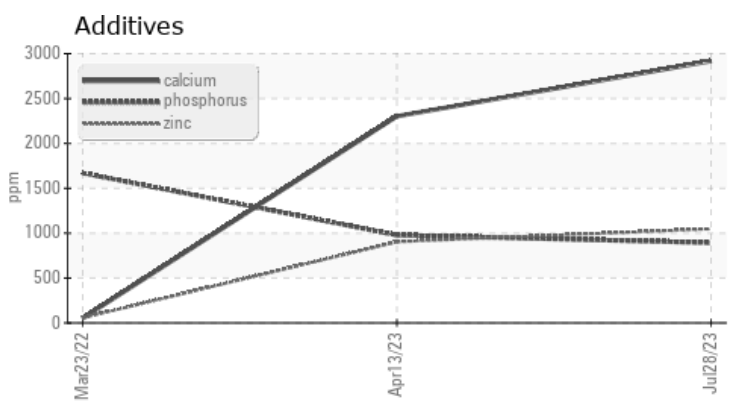
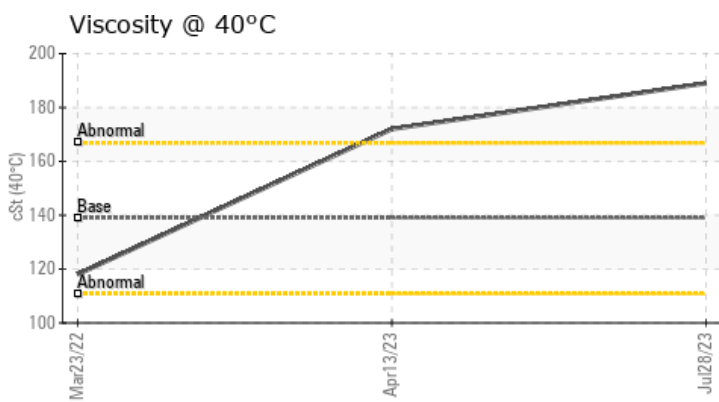
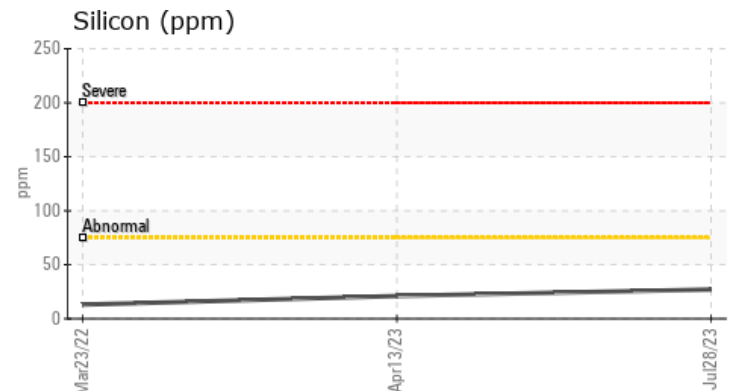
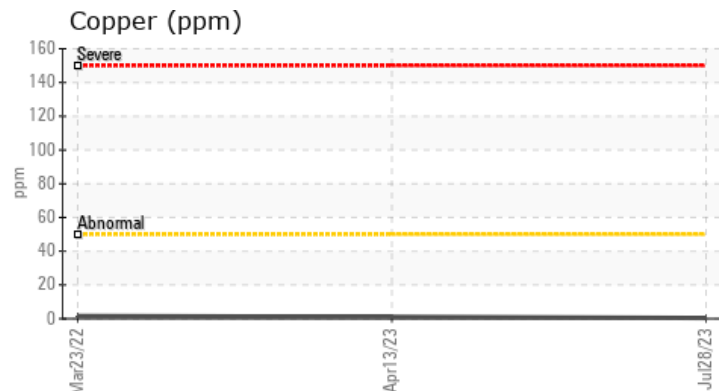
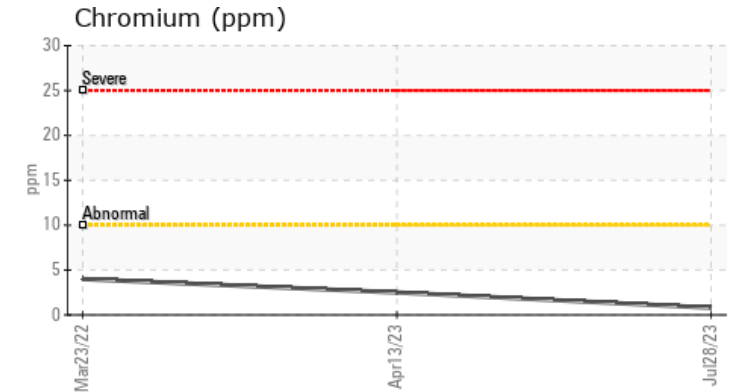
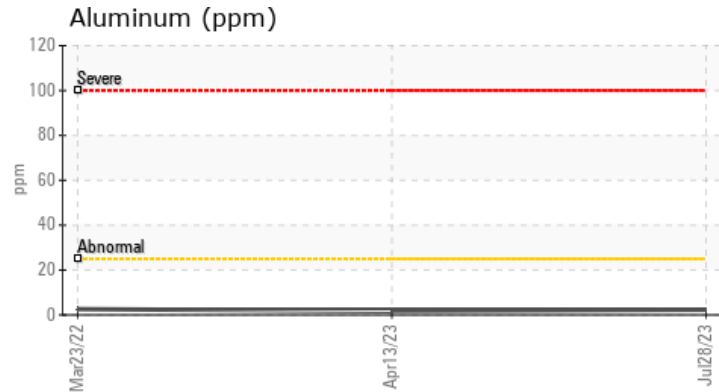
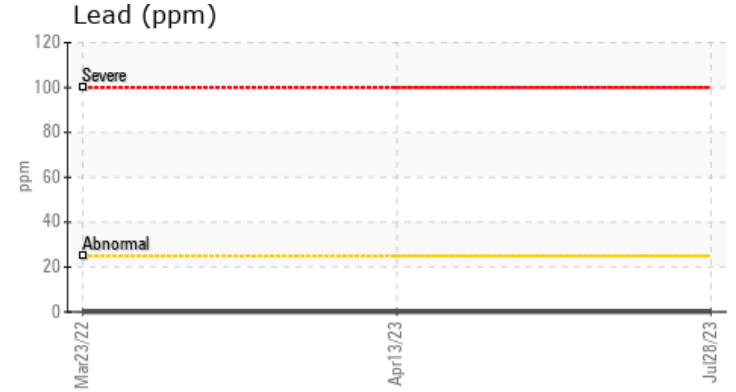
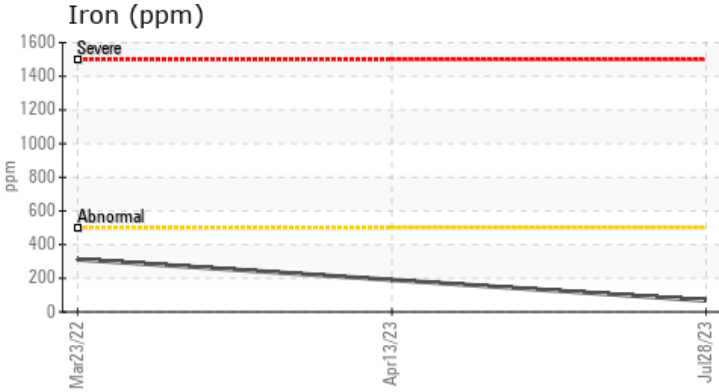
Depot: VOLVO8885
Unique No: 10602454
Signed: Sean Felton
Report Date: 14 Aug 2023



CONSTRUCTION EQUIPMENT



VOLVO GRAPHS





CONSTRUCTION EQUIPMENT

SPM581123 ALPINE VOLVO EC140EL 311517 - RIGHT FINAL DRIVE



Sample No: VCP423226
Oil Type: VOLVO PREMIUM GEAR OIL 80W-90 GL-5
Job No: SPM581123 ALPINE



SAMPLE INFORMATION

Sample Number	VCP423226	VCP411408	VCP361085	---
Sample Date	28 Jul 2023	13 Apr 2023	23 Mar 2022	---
Machine Hours	2507	2262	1740	---
Oil Hours	0	0	0	---
Oil Changed	Not Chngd	Changed	Not Chngd	---
Sample Status	NORMAL	NORMAL	MARGINAL	---

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OIL CONDITION

Visc @ 40°C	cSt	190	169	121	---
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CONTAMINATION

Silicon	ppm	30	30	37	---
Sodium	ppm	0	3	3	---
Potassium	ppm	2	<1	<1	---

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.



WEAR METALS

Iron	ppm	69	183	237	---
Copper	ppm	<1	2	2	---
Lead	ppm	<1	0	0	---
Tin	ppm	0	0	<1	---
Aluminum	ppm	3	4	9	---
Chromium	ppm	<1	2	3	---
Molybdenum	ppm	3	2	<1	---
Nickel	ppm	<1	<1	1	---
Titanium	ppm	<1	<1	<1	---
Silver	ppm	0	0	0	---
Manganese	ppm	<1	2	4	---
Vanadium	ppm	0	0	0	---



ADDITIVES

Calcium	ppm	2906	2040	47	---
Magnesium	ppm	66	29	10	---
Zinc	ppm	1040	793	35	---
Phosphorus	ppm	905	1035	1652	---
Barium	ppm	1	0	0	---
Boron	ppm	12	46	114	---

Depot: VOLVO8885
Unique No: 10602459
Signed: Sean Felton
Report Date: 14 Aug 2023



CONSTRUCTION EQUIPMENT



GRAPHS

