



# CONSTRUCTION EQUIPMENT

## A10644 FREEDOM VOLVO ECR145E 314328 - HYDRAULIC SYSTEM



**Sample No:** VCP411864  
**Oil Type:** MOBIL HYDRAULIC OIL AW 46  
**Job No:** A10644 FREEDOM



### SAMPLE INFORMATION

Sample Number	<b>VCP411864</b>	VCP399128	VCP365737	VCP339268
Sample Date	<b>11 Jul 2023</b>	15 Feb 2023	05 Dec 2022	18 Feb 2022
Machine Hours	<b>5260</b>	4595	4345	3100
Oil Hours	<b>1000</b>	2000	0	1000
Oil Changed	<b>Not Chngd</b>	Changed	Not Chngd	Not Chngd
Sample Status	<b>ABNORMAL</b>	ATTENTION	ATTENTION	ATTENTION

**HOFFMAN EQUIPMENT - LIONVILLE**  
 120 GORDON DRIVE  
 LIONVILLE, PA  
 US 19341  
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### OIL CONDITION

Visc @ 40°C	cSt	<b>▲ 36.8</b>	▲ 31.9	▲ 32.5	▲ 32.6
Acid Number (AN)	mg KOH/g	<b>■ 0.37</b>	■ 0.32	■ 0.32	■ 0.29



### CONTAMINATION

Particles >4µm		---	■ 19160	■ 9210	▲ 62390
Particles >6µm		---	■ 3797	■ 1676	■ 3170
Particles >14µm		---	■ 133	■ 60	■ 40
ISO 4406:1999 (c)		---	21/19/14	20/18/13	23/19/12
Silicon	ppm	■ 8	■ 11	■ 11	■ 2
Sodium	ppm	■ 3	■ 0	■ 3	■ 2
Potassium	ppm	■ <1	■ 2	■ 0	■ 0

### Diagnosis

The filter change at the time of sampling has been noted. Resample at the next service interval to monitor. We were unable to perform a particle count due to a high concentration of particles present in this sample. All component wear rates are normal. Moderate concentration of visible dirt/debris present in the oil. The oil viscosity is lower than normal. Confirm oil type. The AN level is acceptable for this fluid.



### WEAR METALS

Iron	ppm	■ 5	■ 5	■ 4	■ 3
Copper	ppm	■ 6	■ 5	■ 6	■ 6
Lead	ppm	■ 0	■ <1	■ 0	■ <1
Tin	ppm	■ 0	■ 0	■ 0	0
Aluminum	ppm	■ <1	■ <1	■ <1	■ 2
Chromium	ppm	■ 3	■ 2	■ 2	■ <1
Molybdenum	ppm	■ 3	■ 5	■ 6	■ <1
Nickel	ppm	■ 0	■ 0	■ 0	■ 0
Titanium	ppm	0	0	0	0
Silver	ppm	0	0	<1	0
Manganese	ppm	■ <1	■ 0	■ 0	■ 0
Vanadium	ppm	<1	0	0	0



### ADDITIVES

Calcium	ppm	■ 150	■ 132	■ 177	■ 56
Magnesium	ppm	■ 12	■ 12	■ 15	■ 2
Zinc	ppm	■ 379	■ 316	■ 300	■ 377
Phosphorus	ppm	■ 310	■ 256	■ 263	■ 337
Barium	ppm	■ 0	■ 0	■ 0	■ 0
Boron	ppm	■ 2	■ 4	■ 8	■ <1

**Depot:** VOLVO8879  
**Unique No:** 10559873  
**Signed:** Jonathan Hester  
**Report Date:** 17 Jul 2023

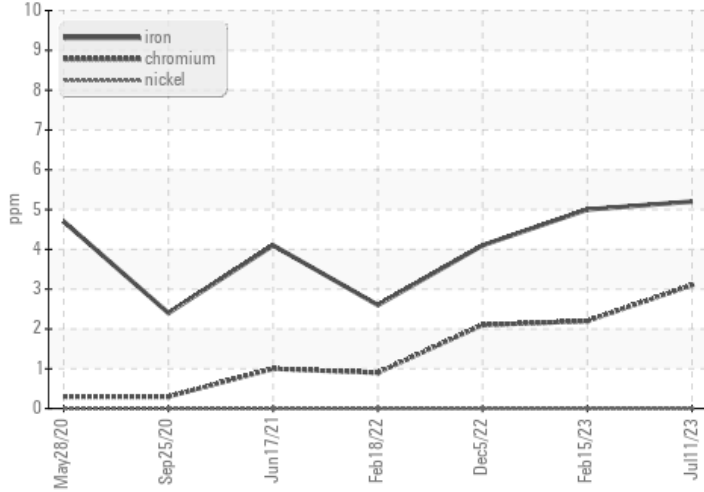


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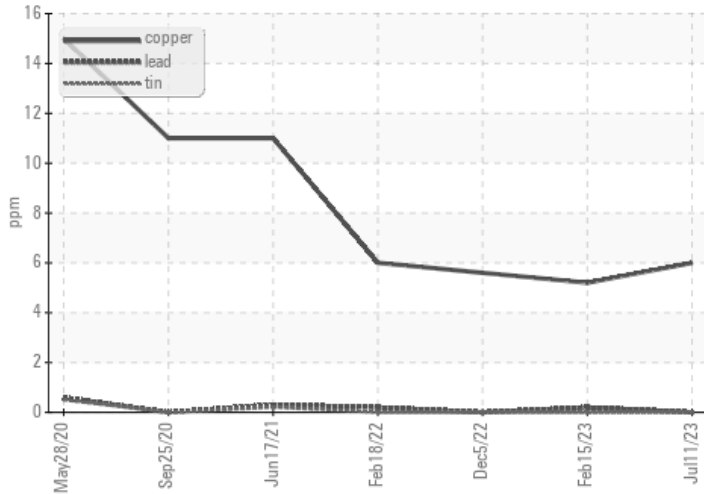


## GRAPHS

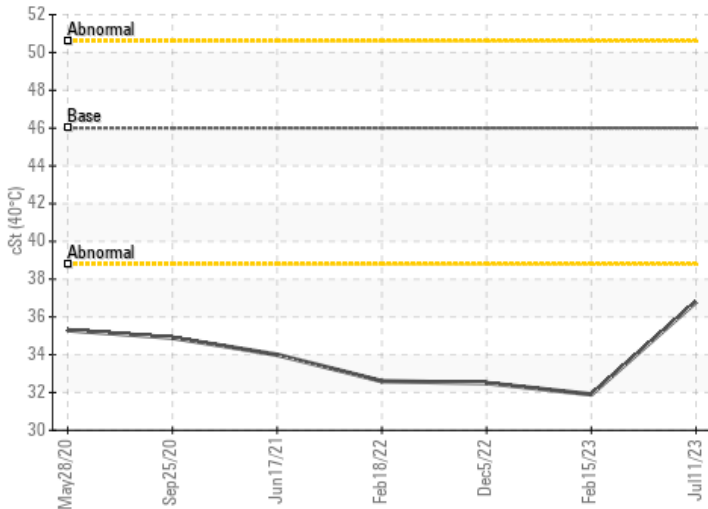
### Ferrous Alloys



### Non-ferrous Metals



### Viscosity @ 40°C



### Acid Number

