

# RAYCO 87D 1X3 (S/N L87D0010804) - DIESEL ENGINE

**Sample No:** JR0191298

**Oil Type:** PHILLIPS 66 Fleet Supreme EC 15W40

## SAMPLE INFORMATION

Sample Number	<b>JR0191298</b>	JR0157184	JR0117412	JR0071278
Sample Date	<b>04 Jan 2024</b>	29 Dec 2022	31 Jan 2022	08 Dec 2020
Machine Hours	<b>875</b>	1327	0	1208
Oil Hours	<b>0</b>	250	0	82
Oil Changed	<b>N/A</b>	Changed	N/A	N/A
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	NORMAL

### NC FOREST SERVICE

220 SARDIS RD  
ASHEVILLE, NC  
US 28806

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T: (828)606-7236  
F: (828)665-0331

## OIL CONDITION

Visc @ 100°C	cSt	<b>11.9</b>	15.0	14.8	14.7
Base Number (BN)	mg KOH/g	<b>7.0</b>	8.0	8.1	8.7
Oxidation (PA)	%	<b>49</b>	63	79	64

## CONTAMINATION

Water	%	<b>NEG</b>	NEG	NEG	NEG
Soot %	%	<b>0.1</b>	0.1	0.4	0.1
Nitration (PA)	%	<b>58</b>	55	84	54
Sulfation (PA)	%	<b>46</b>	56	65	57
Glycol	%	<b>NEG</b>	NEG	NEG	NEG
Fuel	%	<b>0.2</b>	<1.0	<1.0	<1.0
Silicon	ppm	<b>3</b>	4	4	4
Sodium	ppm	<b>3</b>	1	2	2
Potassium	ppm	<b>0</b>	2	<1	<1

## WEAR METALS

Iron	ppm	<b>4</b>	6	5	6
Copper	ppm	<b>2</b>	<1	<1	<1
Lead	ppm	<b>8</b>	21	13	15
Tin	ppm	<b>1</b>	<1	0	<1
Aluminum	ppm	<b>2</b>	2	0	2
Chromium	ppm	<b>&lt;1</b>	<1	0	<1
Molybdenum	ppm	<b>45</b>	72	79	54
Nickel	ppm	<b>0</b>	<1	0	<1
Titanium	ppm	<b>&lt;1</b>	<1	<1	<1
Silver	ppm	<b>0</b>	0	0	<1
Manganese	ppm	<b>&lt;1</b>	<1	0	<1
Vanadium	ppm	<b>&lt;1</b>	0	0	0

## ADDITIVES

Calcium	ppm	<b>1821</b>	1736	1715	2018
Magnesium	ppm	<b>82</b>	344	362	259
Zinc	ppm	<b>1097</b>	1386	1226	1347
Phosphorus	ppm	<b>846</b>	1041	1074	1084
Barium	ppm	<b>0</b>	0	0	0
Boron	ppm	<b>108</b>	309	365	260

### Diagnosis

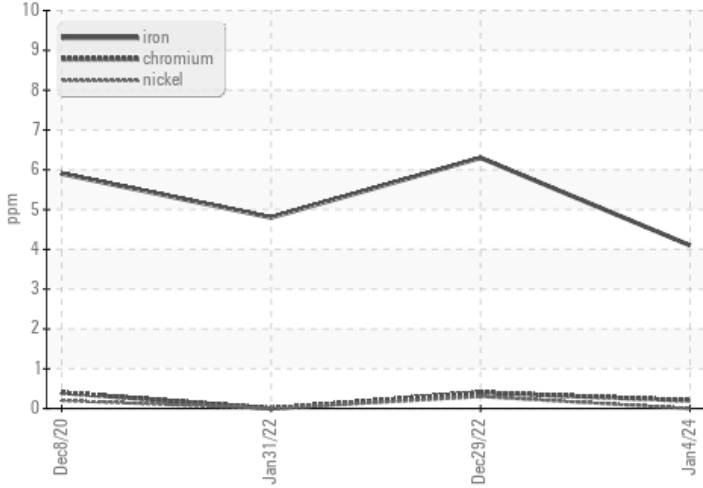
No corrective action is recommended at this time. Resample at the next service interval to monitor. Metal levels are typical for a new component breaking in. Fuel content negligible. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

**Depot:** NCFASHJR  
**Unique No:** 10833256  
**Signed:** Wes Davis  
**Report Date:** 18 Jan 2024

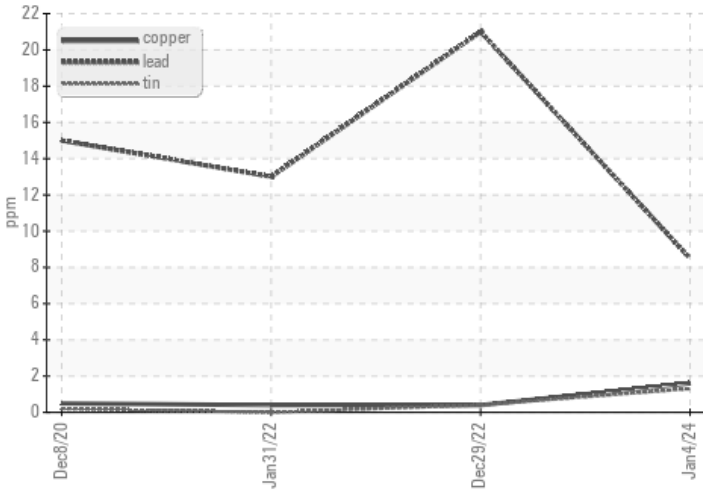
Contact/Location: LLOYD JOHNSON - NCFASHJR

# GRAPHS

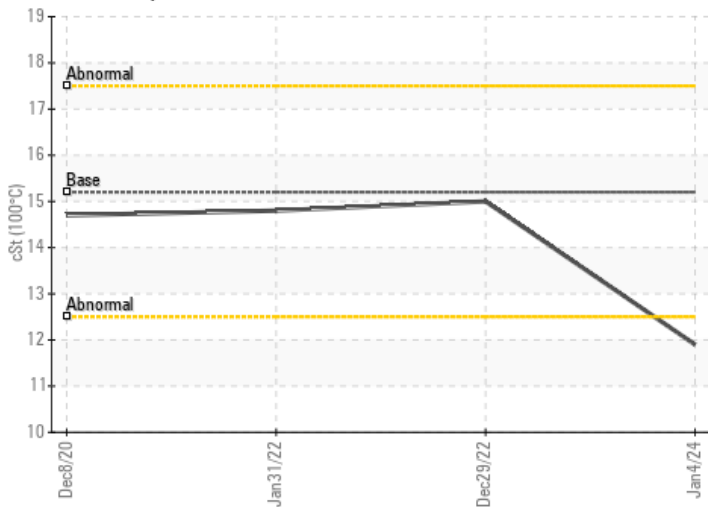
### Ferrous Alloys



### Non-ferrous Metals



### Viscosity @ 100°C



### Base Number

