LIEBHERR
CONSTRUCTION EQUIPMENT

[[572723]] LIEBHERR PR766 024157-1681 - Diesel Engine

Sample No: LH0269746

Oil Type: DIESEL ENGINE OIL SAE 40

NUTRIEN CORY POTASH
12KM WEST OF SASKATOON HWY #7
SASKATOON, SK
CA S7K 3L6
Contact: Service Manager

T:
F:

SAMPLE INFORMATION

Sample Number		**LH0269746**	---	---	---
Sample Date		**04 Aug 2023**	---	---	---
Machine Hours		**0**	---	---	---
Oil Hours		**0**	---	---	---
Oil Changed		**Not Changd**	---	---	---
Sample Status		**SEVERE**	---	---	---

OIL CONDITION

Visc @ 100°C	cSt	**13.8**	---	---	---
Oxidation (PA)	%	**69**	---	---	---

CONTAMINATION

Water	%	**0.332**	---	---	---
Soot %	%	**0**	---	---	---
Nitration (PA)	%	**66**	---	---	---
Sulfation (PA)	%	**57**	---	---	---
Glycol	%	**0.0**	---	---	---
Fuel	%	**<1.0**	---	---	---
Silicon	ppm	**84**	---	---	---
Sodium	ppm	**656**	---	---	---
Potassium	ppm	**476**	---	---	---

WEAR METALS

Iron	ppm	**128**	---	---	---
Copper	ppm	**160**	---	---	---
Lead	ppm	**35**	---	---	---
Tin	ppm	**6**	---	---	---
Aluminum	ppm	**36**	---	---	---
Chromium	ppm	**4**	---	---	---
Molybdenum	ppm	**4**	---	---	---
Nickel	ppm	**<1**	---	---	---
Titanium	ppm	**2**	---	---	---
Silver	ppm	**<1**	---	---	---
Manganese	ppm	**3**	---	---	---
Vanadium	ppm	**<1**	---	---	---

ADDITIVES

Calcium	ppm	**2027**	---	---	---
Magnesium	ppm	**117**	---	---	---
Zinc	ppm	**982**	---	---	---
Phosphorus	ppm	**923**	---	---	---
Barium	ppm	**1**	---	---	---
Boron	ppm	**10**	---	---	---

Diagnosis

Check for low coolant level. We advise that you check all areas where contaminants can enter the system. We advise that you check for visible metal particles in the oil. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) DIESEL ENGINE OIL SAE 40. Please confirm. We suspect that the abnormal contaminant(s) is the result of incorrect sampling technique. DISCLAIMER: Interpretation of results is based on the sample as received from the customer. The condition of the sample and the method of sampling cannot be verified.PQ levels are abnormal. Tin and iron and lead ppm levels are abnormal. Aluminum ppm levels are noted. Light concentration of visible metal present. Piston, ring and cylinder wear is indicated. Cylinder, crank, or cam shaft wear is indicated. Bearing wear is indicated. Slide bearing wear is indicated. The high ferrous density (PQ) index indicates that abnormal wear is occurring. Water treatment chemicals present, indicating slow coolant leak. There is a light concentration of water present in the oil. Moderate concentration of visible dirt/debris present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Test for glycol is negative. High amount of ingressed dirt has caused abrasive wear to the component. The oil is no longer serviceable as a result of the abnormal and/or severe wear. The condition of the oil is acceptable for the time in service (see recommendation).

Depot: NUT12SAS
Unique No: 5619769
Signed: Kevin Marson
Report Date: 14 Aug 2023

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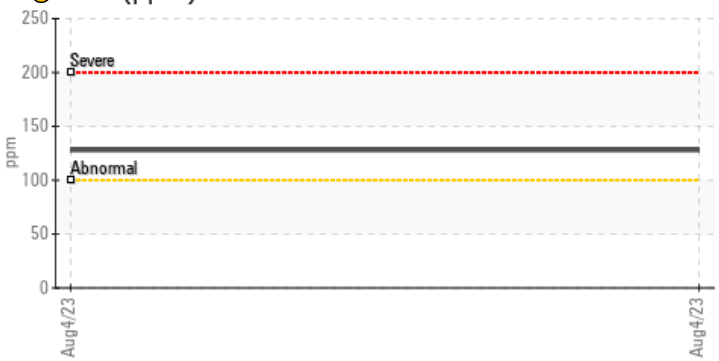
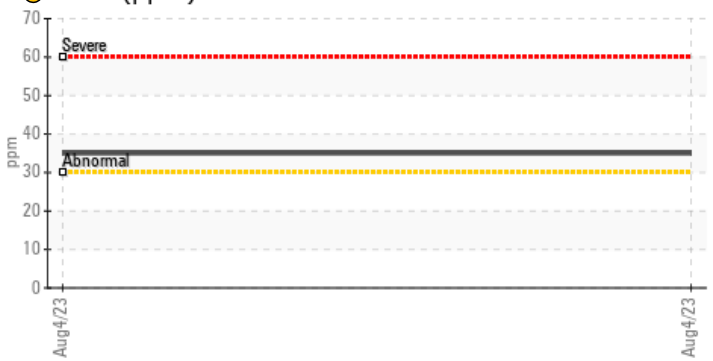
GRAPHS

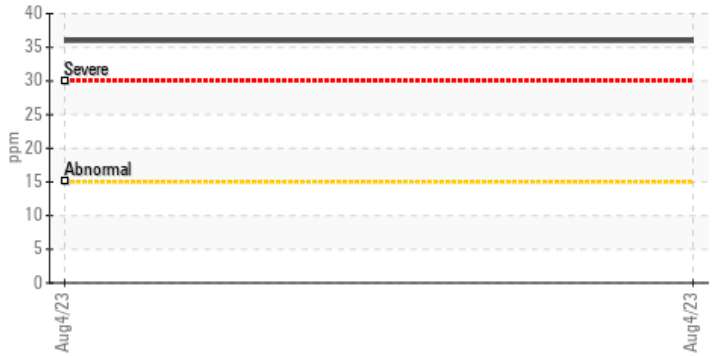
Iron (ppm)



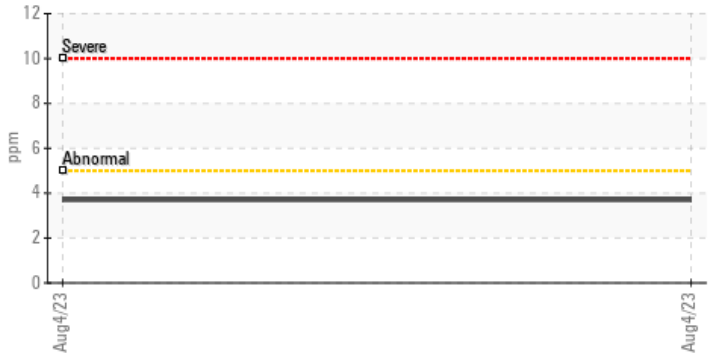
Lead (ppm)



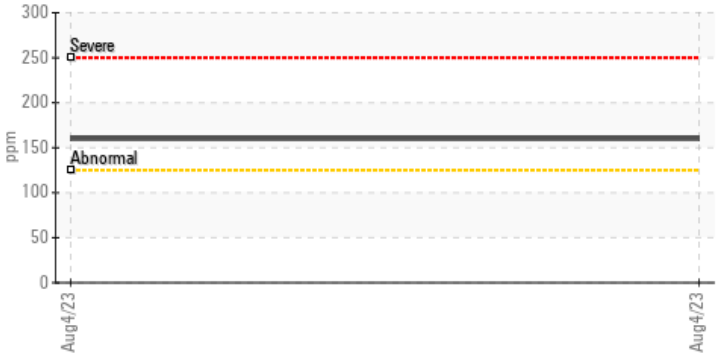
Aluminum (ppm)



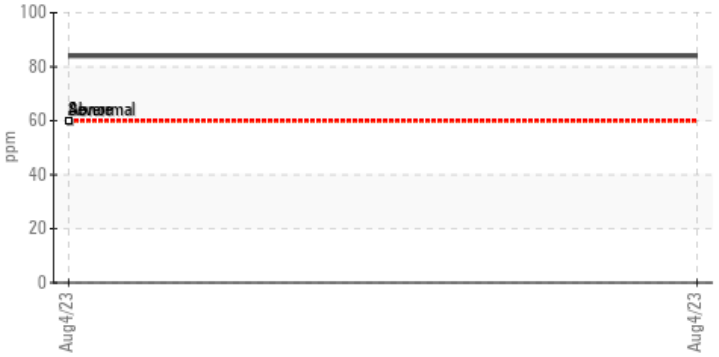
Chromium (ppm)



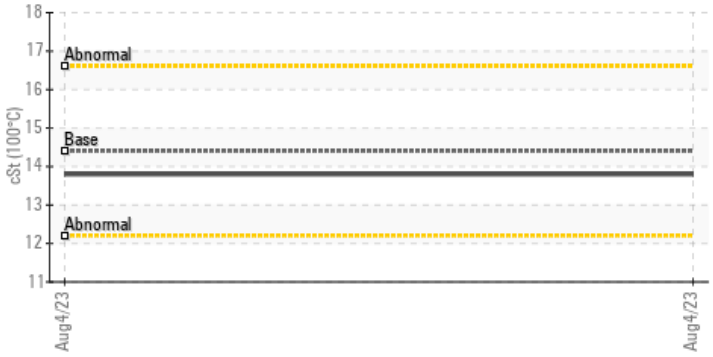
Copper (ppm)



Silicon (ppm)



Viscosity @ 100°C



Water