



Case Study | Wireless Monitoring System



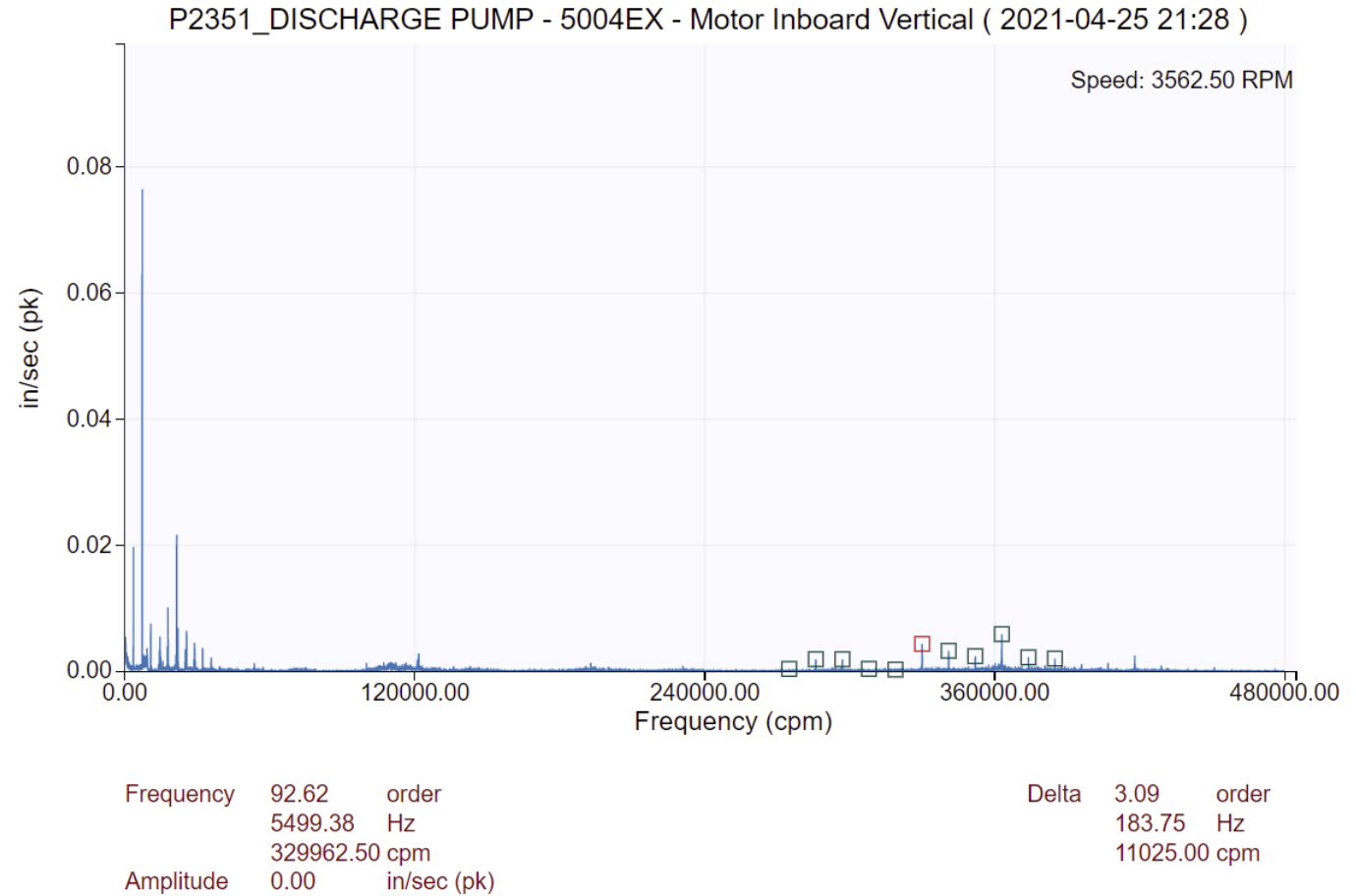
Machine Overview

- Discharge Pump
- Running Speed: 3,562 RPM
- Vibration measurement frequency: **3 times per day** (Wi-care wireless online monitoring system)
- Measurement setup:
 - $F_{\max} = 8,000$ Hz
 - 12,800 Lines for this case study

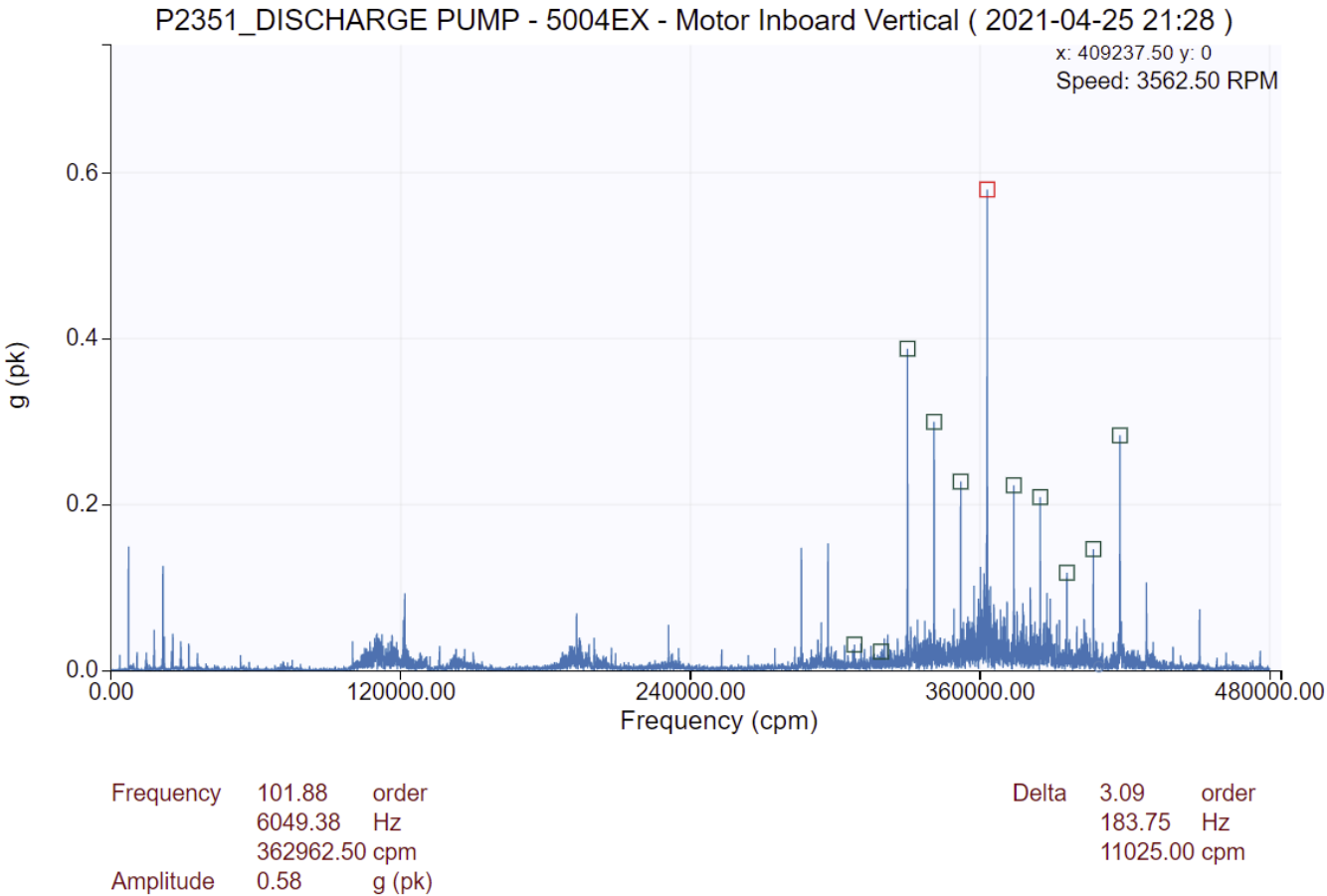


Detected Abnormality

- **Low amplitude sidebands** in the high frequency data at **3.09 orders**, which is very close to the **outer race bearing** defect frequency in the motor bearings.
- The waveform data was also showing just over **14 G's peak to peak**.

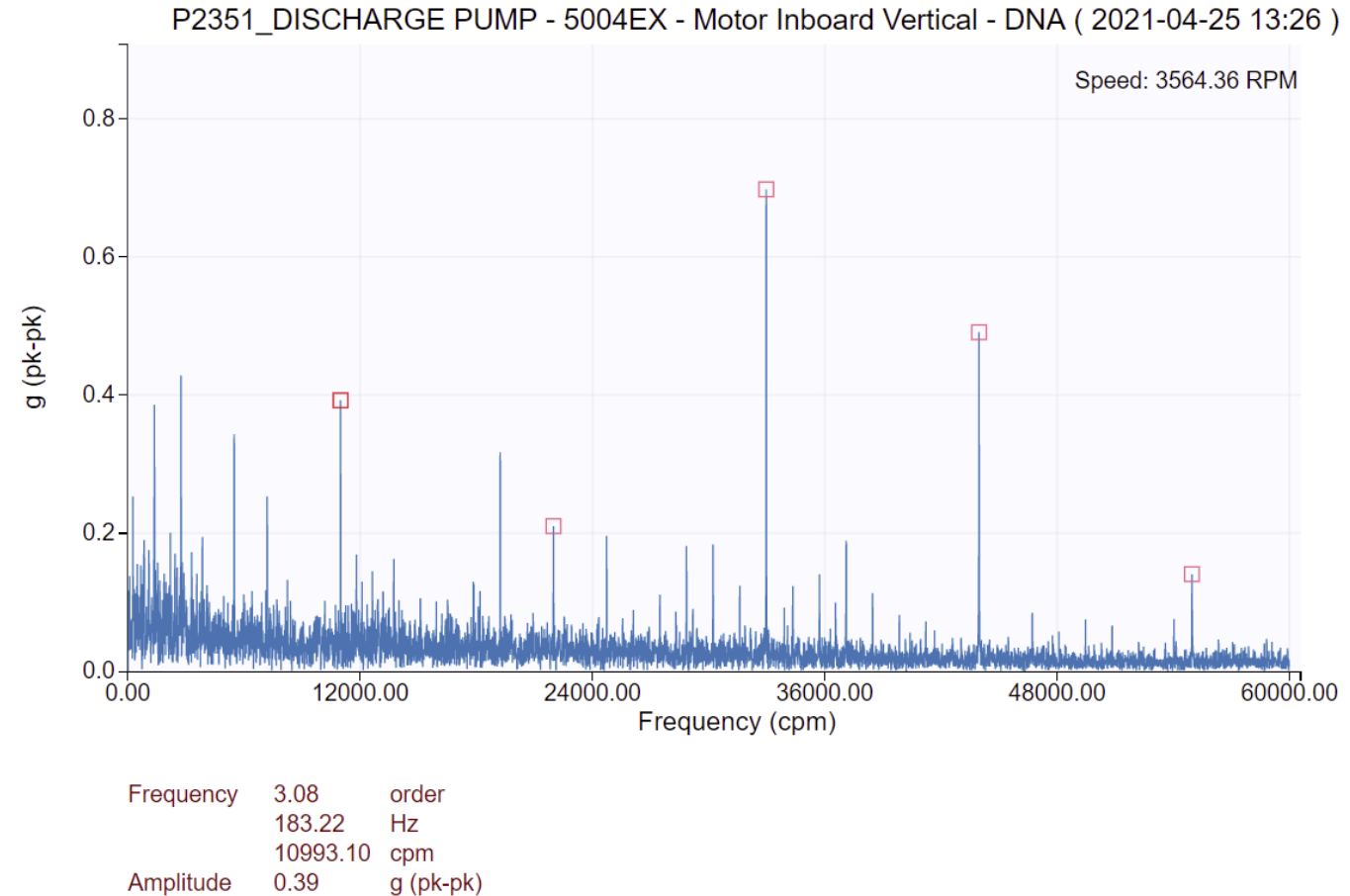


A closer look at the **acceleration spectrum** shows the sidebands of **outer race defect** frequency clearly.



The **I-DNA** measurement (High frequency vibration analysis technique) also shows the **harmonics of 3.09 orders** confirming the **existence of an outer race bearing defect**.

- Based on our findings our recommendation was to **replace the motor** and **laser align the machine**.
- **Ensure the coupling** and all of its components are **in good condition**.
- Ensure that all **machine bolts** are **torqued properly**.

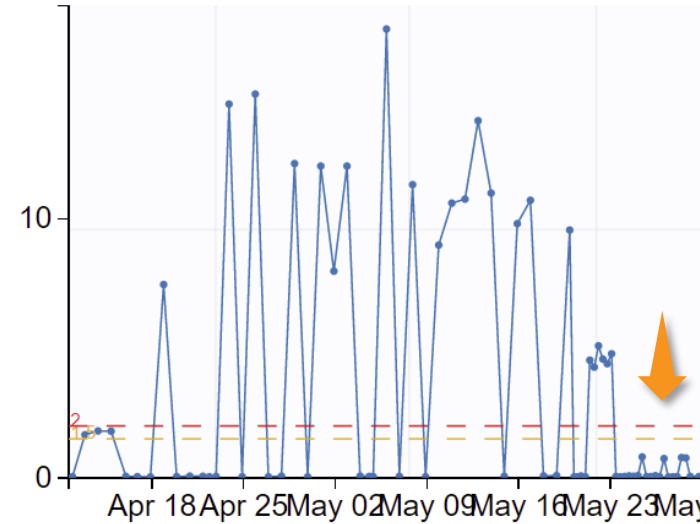


Results

- The motor was **replaced** on **5/25/2021**.
- The trends show a clear **improvement** of the **vibration values** on the motor.

Max Peak-Peak g (pk-pk)

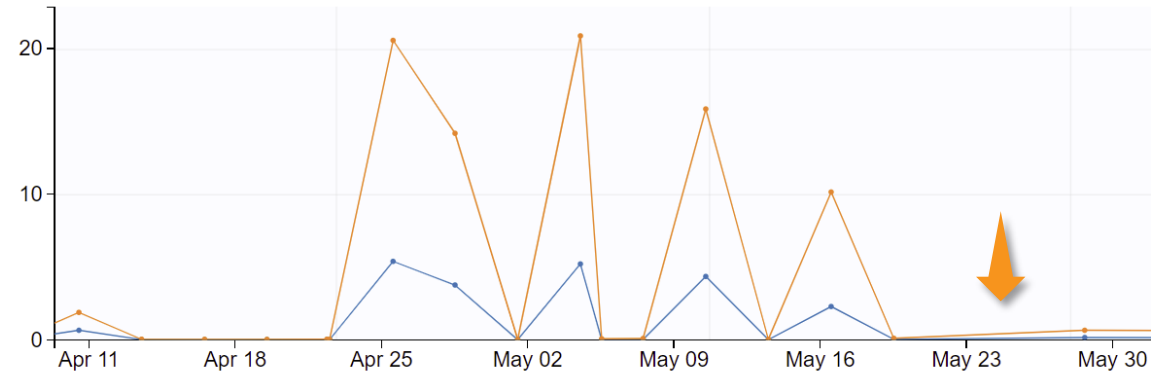
(Double click on the graph to reset the zoom)



5004EX - Motor Inboard Vertical

DNA g (pk-pk)

(Double click on the graph to reset the zoom)



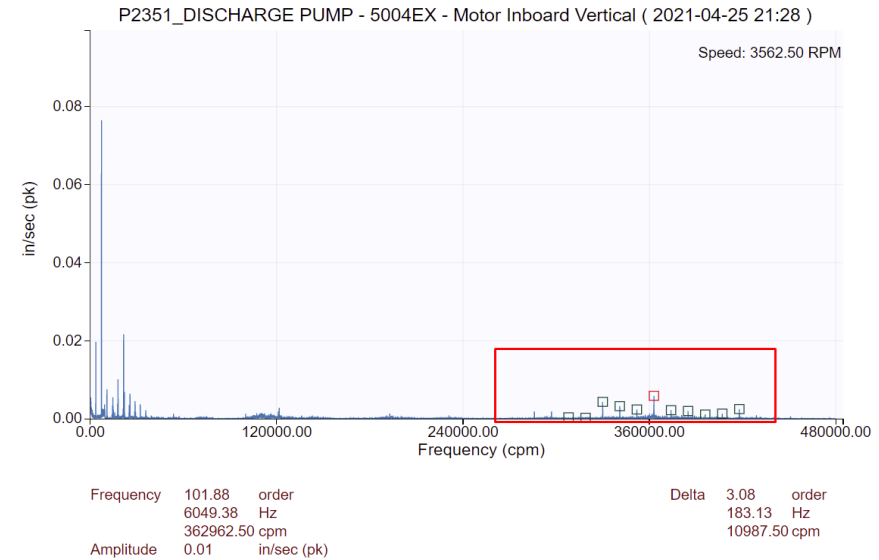
DNA12 DNA500



Results, cont.

- 1 The data showing the defect.
- 2 After repair and lower scale showing no frequencies in the high range related to a bearing defect.

1



2

