Paper machine: Bearing failure

- High speed paper machine
- System Reporter 200 with software version 5

This example shows a damaged bearing, with data before, during and after the problem occurred.

The RMS trend in Figure 1 shows that the trend starts rising on approximately June 10, 1998. On June 18, the trend passes the low alarm limit (yellow line in Figure 1), and three day after that the trend passes the high alarm limit (red line). High alarm conditions were prevailing for four days before the bearing was replaced on June 25. The new bearing gives a slightly higher RMS trend than the old one.

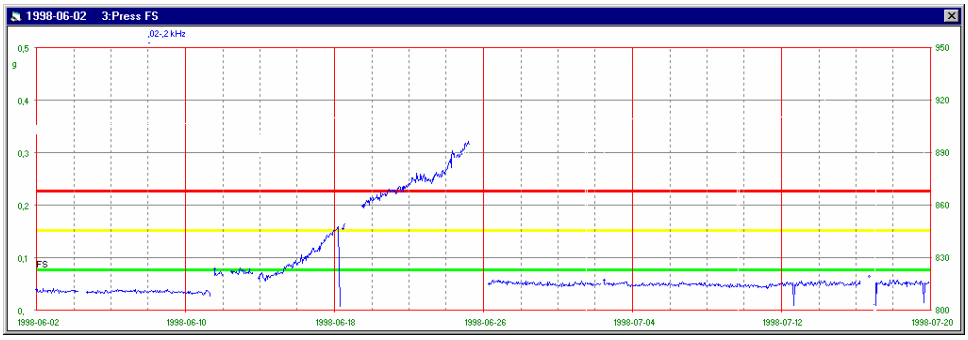

Figure 1. RMS trend.

A spectra from the bearing shows several large solitaire peaks in the range 50 to 500 Hz (Figure 2). The results from a manual frequency analysis are also shown in Figure 2, where the Toolbox has been used to add the BPFO (ball pass frequency outer) frequencies to the spectra. All large frequency peaks below 500 Hz coincides with the BPFO frequencies, wherefore it was concluded that the bearing had a damaged outer ring.

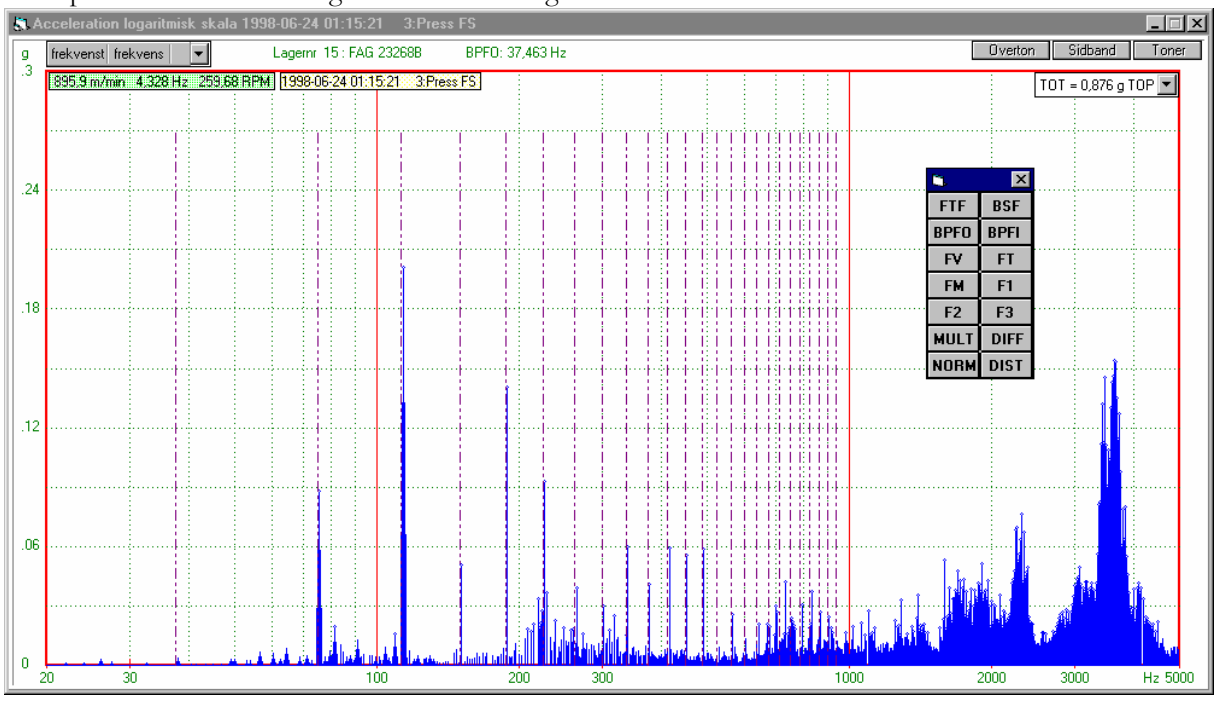

Figure 2. Spectra from damaged bearing. The lower with results from frequency analysis.

The upper spectrum in Figure 3 shows the spectra after the bearing was replaced. Here there are no large peaks below 500 Hz.

The lower part of Figure 3 shows a waterfall spectrum before and after the bearing was replaced. The reduction of peaks after the replacement of the roll is dramatic.

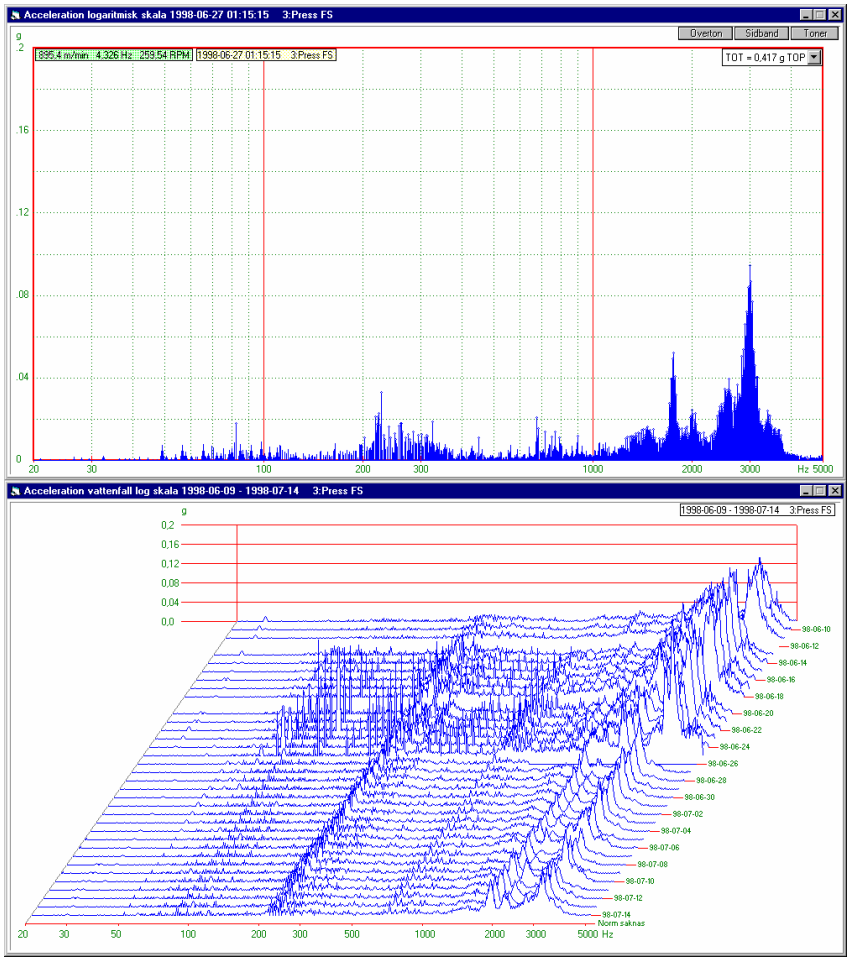

Figure 3. Single spectrum after replacement of bearing (upper) and waterfall spectrum before and after bearing replacement (lower).

LAGGE control ab
Montörvägen 9, S-853 50 Sundsvall, Sweden
telephone: +46-(0)60 61 39 47
facsimile: +46-(0)60 61 39 67
email: info@lagge.se
www: http://www.lagge.se
VAT #: 556053695401