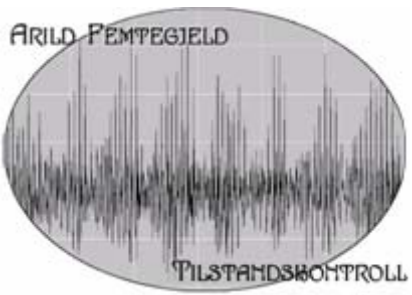


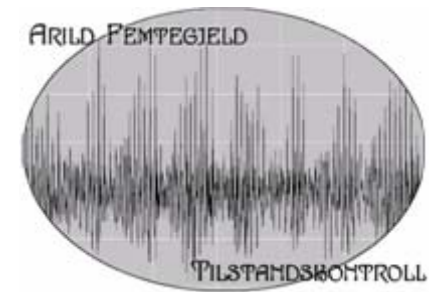
Praktisk bruk av: Tidsmidling/Order Tracking Fase

+ 2 tilfeller av lagerhavarier som er avverget på grunn av tilstandskontroll



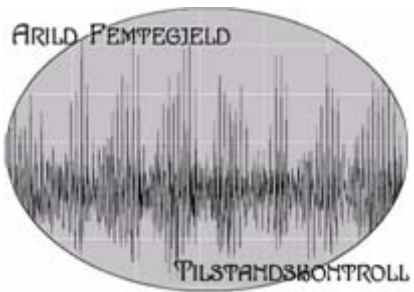
Oppløser under rullmaskin



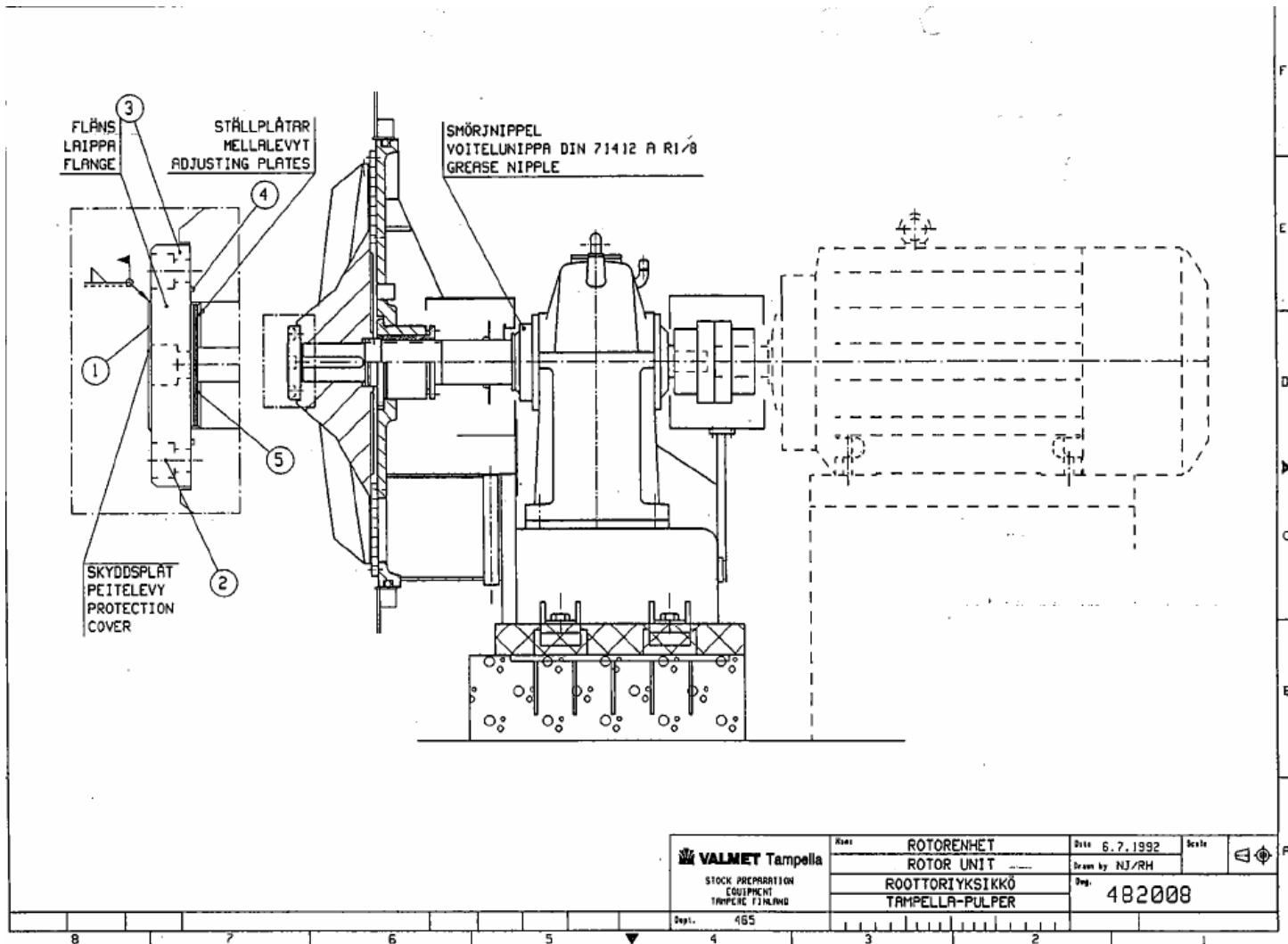


Oppløser under rullmaskin

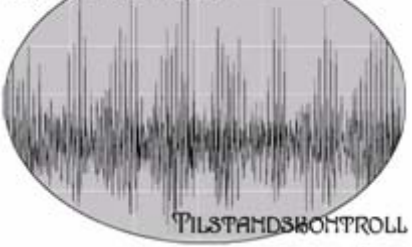
- Oppløseren består av motor, veksel og rotor montert på utgående aksel på veksel.
- Har til oppgave å løse opp papirremser fra rullmaskinen.
- Har vibrert kraftig siden oppstart i 1993
- Rotor ble balansert i september 2005
- Vibrasjonsnivået ble ikke noe lavere etter balansering
- Satte i gang grundigere undersøkelser i oktober 2005



Oppløser under rullmaskin

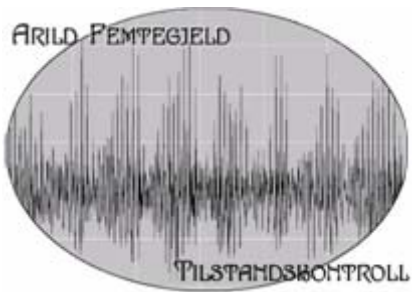


ARILD FEMTEGJELD

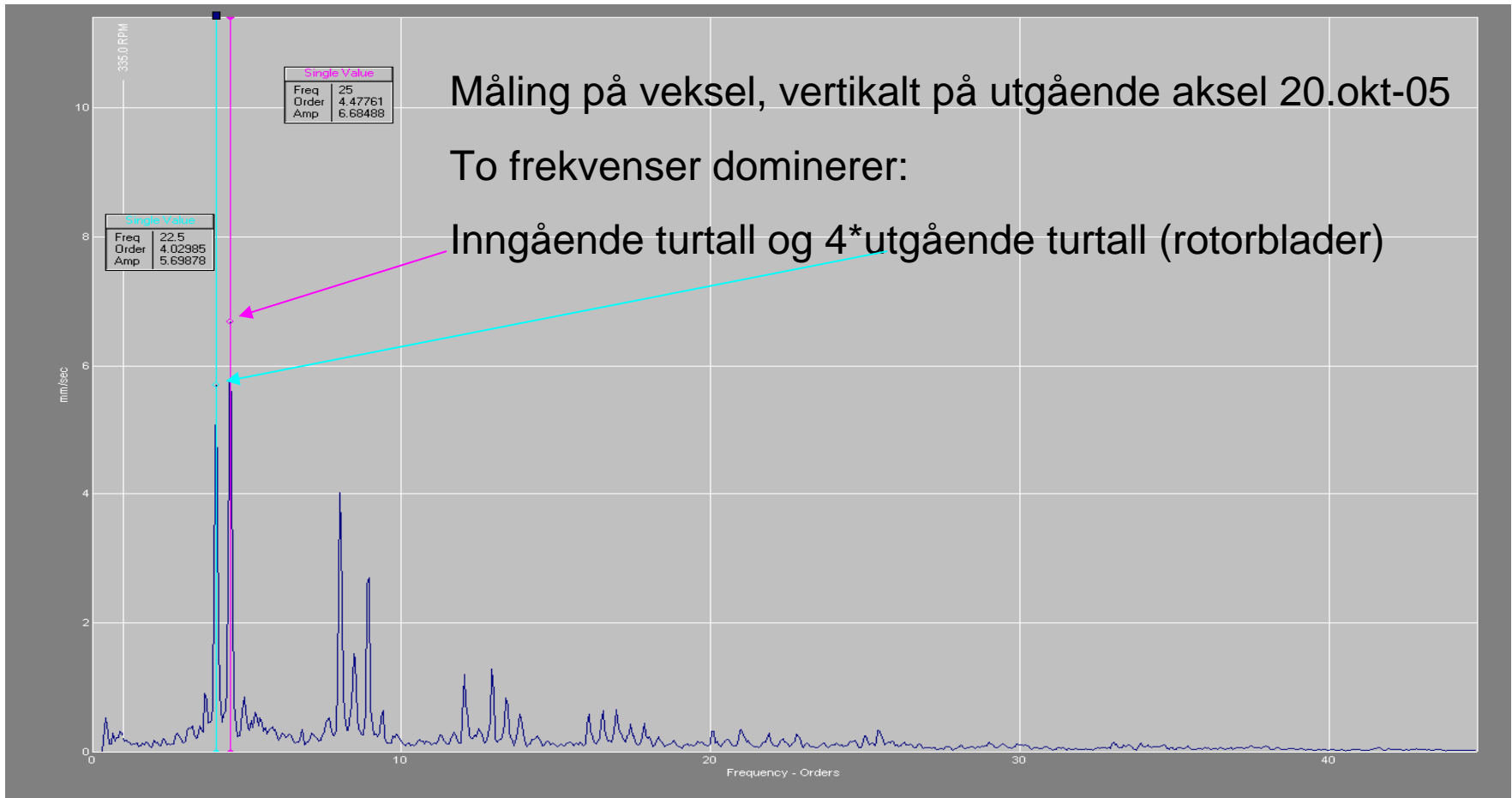


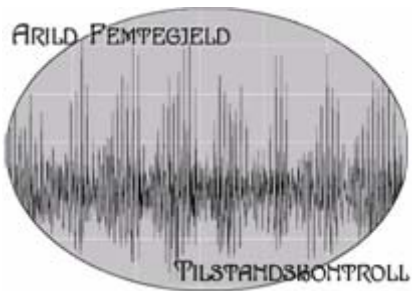
Oppløser under rullmaskin



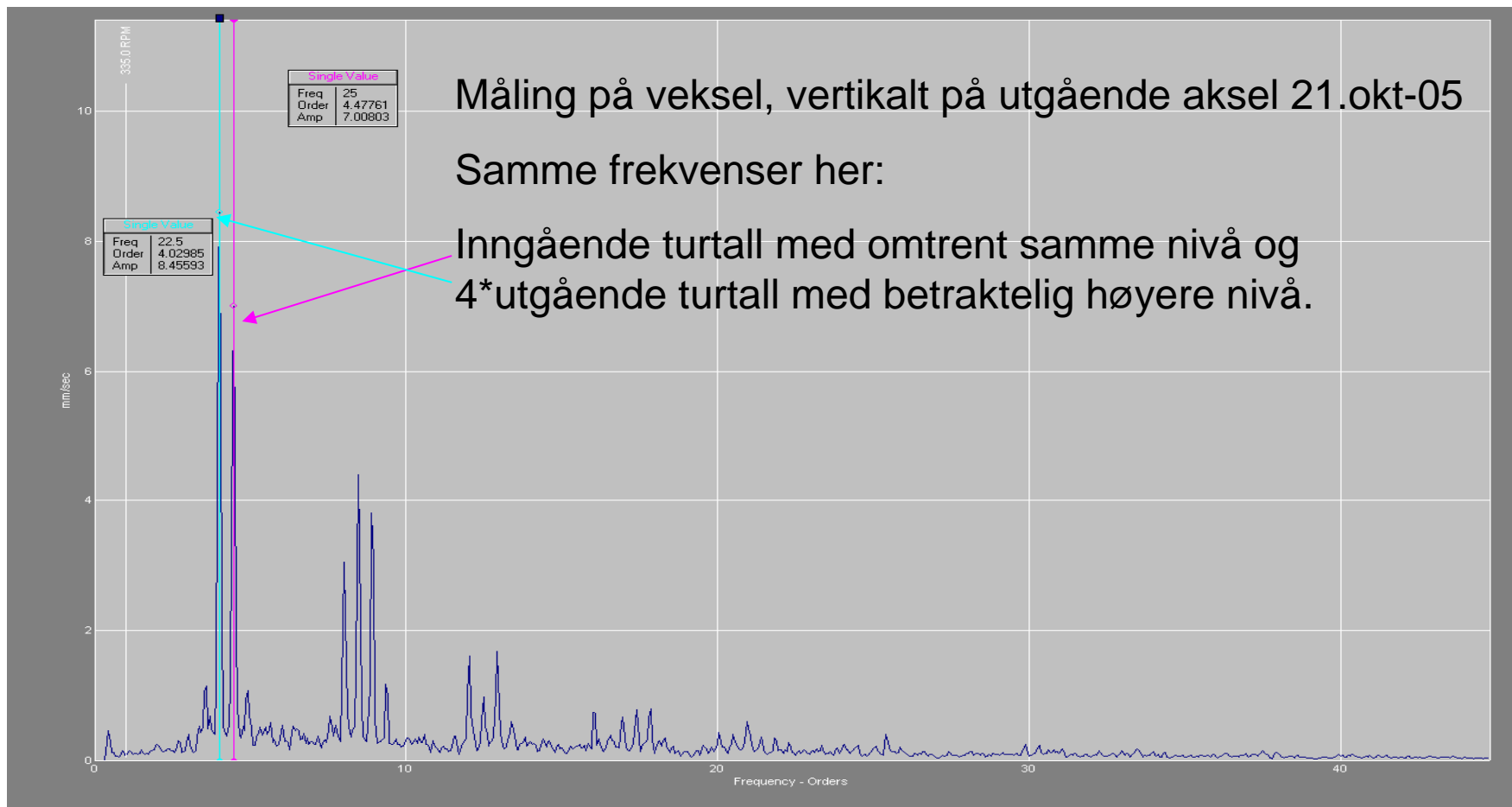


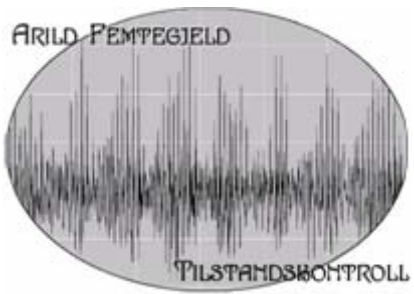
Oppløser under rullmaskin





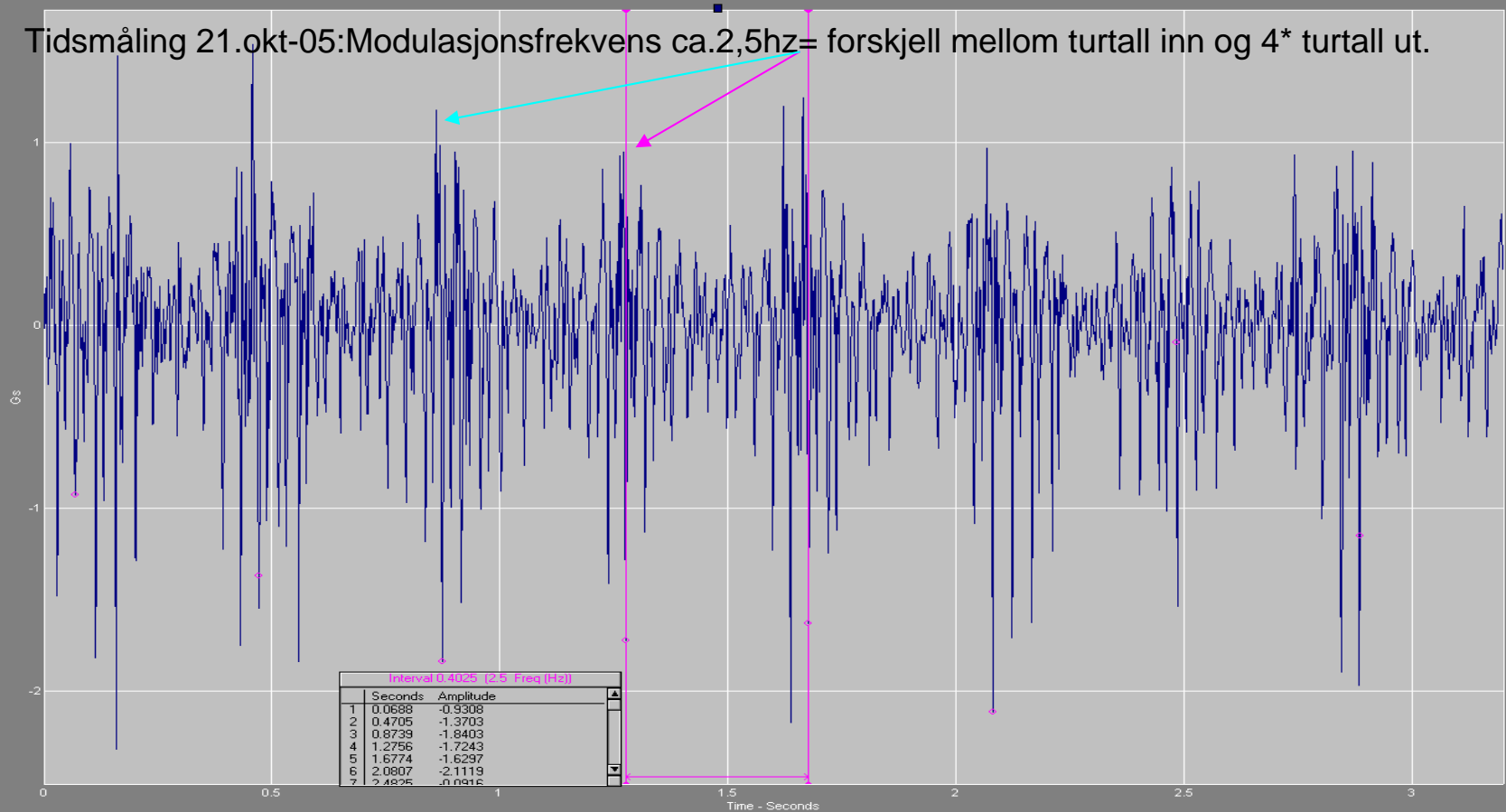
Oppløser under rullmaskin

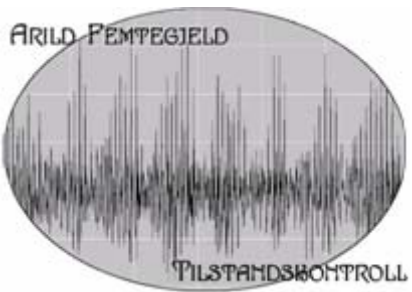




: Oppløser under rullmaskin

Tidsmåling 21.okt-05: Modulasjonsfrekvens ca. 2,5hz = forskjell mellom turtall inn og 4* turtall ut.

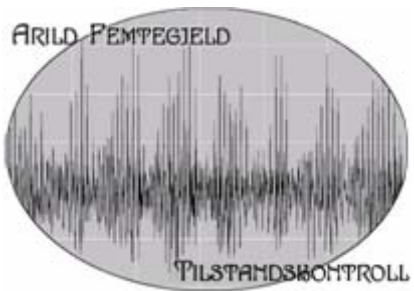




: Oppløser under rullmaskin

- Brukte tidsmidling for å fastslå at de to frekvensene kom fra inngående og utgående aksel
 - Merket begge aksler med hvit merkepenn
 - CMSS6195 Laser phase reference gir et referansesignal. CMSS6155 Optical Phase Reference kan også brukes (er enklere i bruk) men krever reflekterende tape.
 - Tidsmålingene midles (i stedet for midling av spekter) synkront med referansesignalet. Vibrasjoner som ikke er synkront med turtallet blir fjernet.
 - FFT-spekter av tidsmålingen etter midling





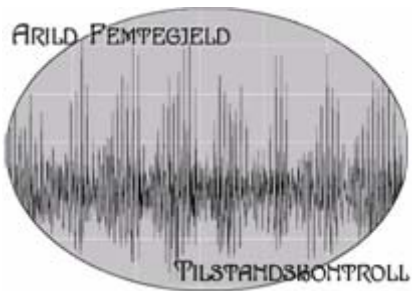
Oppløser under rullmaskin

- Målepunktoppsett (Prism⁴) for tidsmidling:
 - Order track
 - 50 midlinger er som regel nok

The screenshot displays the PRISM4 for Windows software interface. The main window shows a tree view of measurement points under 'Roreverk PM 5'. The 'POINT Setup' dialog box is open, showing the following configuration:

- ID:** 5460.3222 3GV-RV
- Description:** @3GV
- POINT Type:** Velocity (Acc to Vel)
- Enabled:**
- DAD:** Microlog
- Schedule:** 30 days
- Full Scale:** 10 mm/sec
- Input mV/EU:** 100
- Detection:** RMS
- Low Freq. Cutoff:** 2 Hz
- Save Data:** FFT and Time
- Autocapture:** Always
- Freq. Type:** Order Track
- Speed:** 1475 RPM
- Start Orders:** 0
- Lines:** 800
- End Orders:** 40
- Storage Depth:** 200
- Window:** Hanning
- Averages:** 50
- Speed POINT ID:** None
- Speed Ratio:** 1

Red arrows point to the 'Order Track' dropdown menu and the 'Averages: 50' field.



Oppløser under rullmaskin

- Målepunktoppsett (Prism⁴) for tidsmidling:
 - Bruk "Modify by Attribute"
 - "DAD Setup"
 - Sett Avg.Type til "Sync Time"

The screenshot shows the PRISM4 for Windows software interface. The main window displays a project tree for 'Roreverk PM 5' with the following structure:

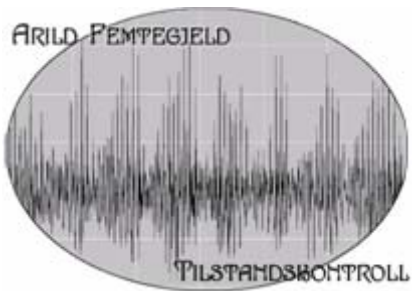
- Roreverk PM 5
 - "Vanlige" målinger
 - 5460.3222 Oppl.8 RM5
 - Order tracking
 - 5460.3222 Oppl.8 RM5
 - Time sync
 - TS60.3222 Oppl.8 RM5
 - TS60.3222 2MH-RV
 - TS60.3222 2MA-RV
 - 5460.3222 3GV-RV
 - 5460.3222 3GH-RV
 - TS60.3222 5GA-RV
 - 5460.3222 5GV-RV
 - 5460.3222 5GH-RV

The 'Modify by Attribute' dialog box is open, showing the following configuration:

- Edit Parameter: Sync Time
- Attribute Group: DAD Setup

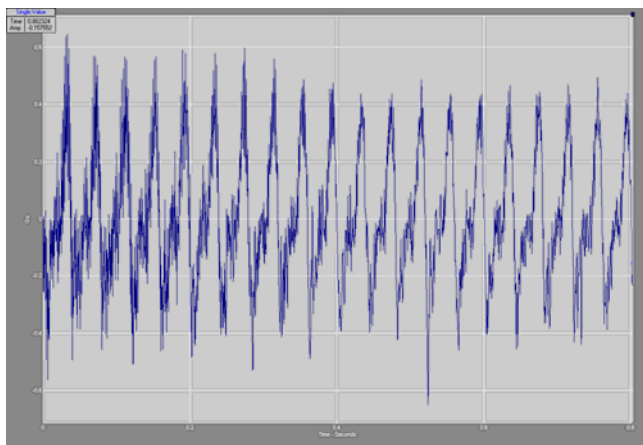
Item	Attribute
Roreverk PM 5	
"Vanlige" målinger	
Order tracking	
Time sync	
TS60.3222 Oppl.8 RM5	
TS60.3222 2MH-RV	Sync Time
TS60.3222 2MA-RV	Sync Time
5460.3222 3GV-RV	Sync Time
5460.3222 3GH-RV	Sync Time
TS60.3222 5GA-RV	Sync Time
5460.3222 5GV-RV	Sync Time
5460.3222 5GH-RV	Sync Time

The dialog box also features a list of attribute groups on the right, with 'Avg. Type' selected under the 'DAD Setup' group. The bottom of the dialog box contains navigation buttons: a green checkmark, a green arrow pointing right, a yellow arrow pointing left, and a question mark.

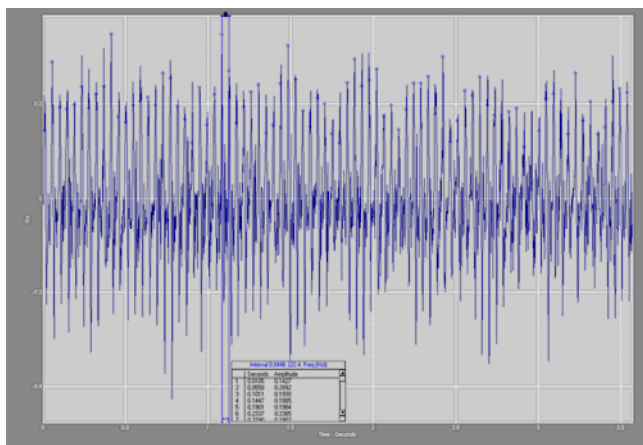
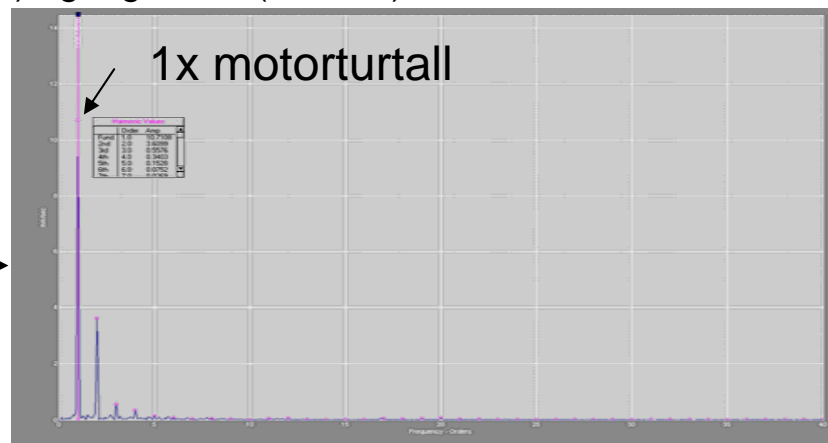


Oppløser under rullmaskin

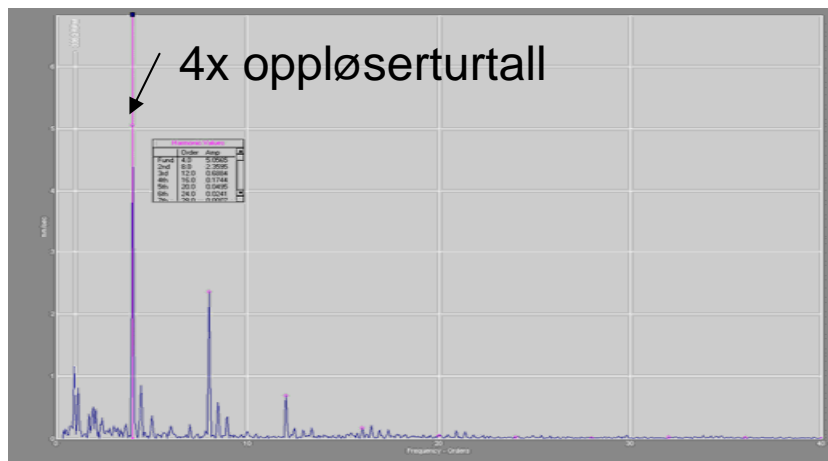
Måling 21.okt-05 tidsmidlet på inngående (øverst) og utgående (nederst) aksel:

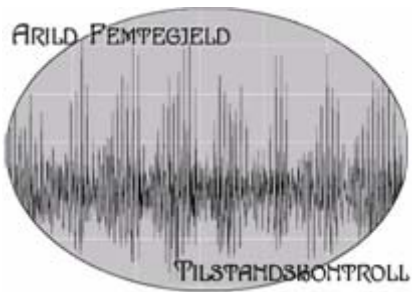


FFT



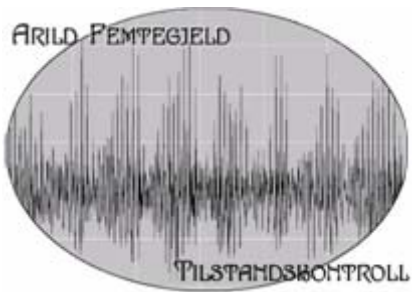
FFT



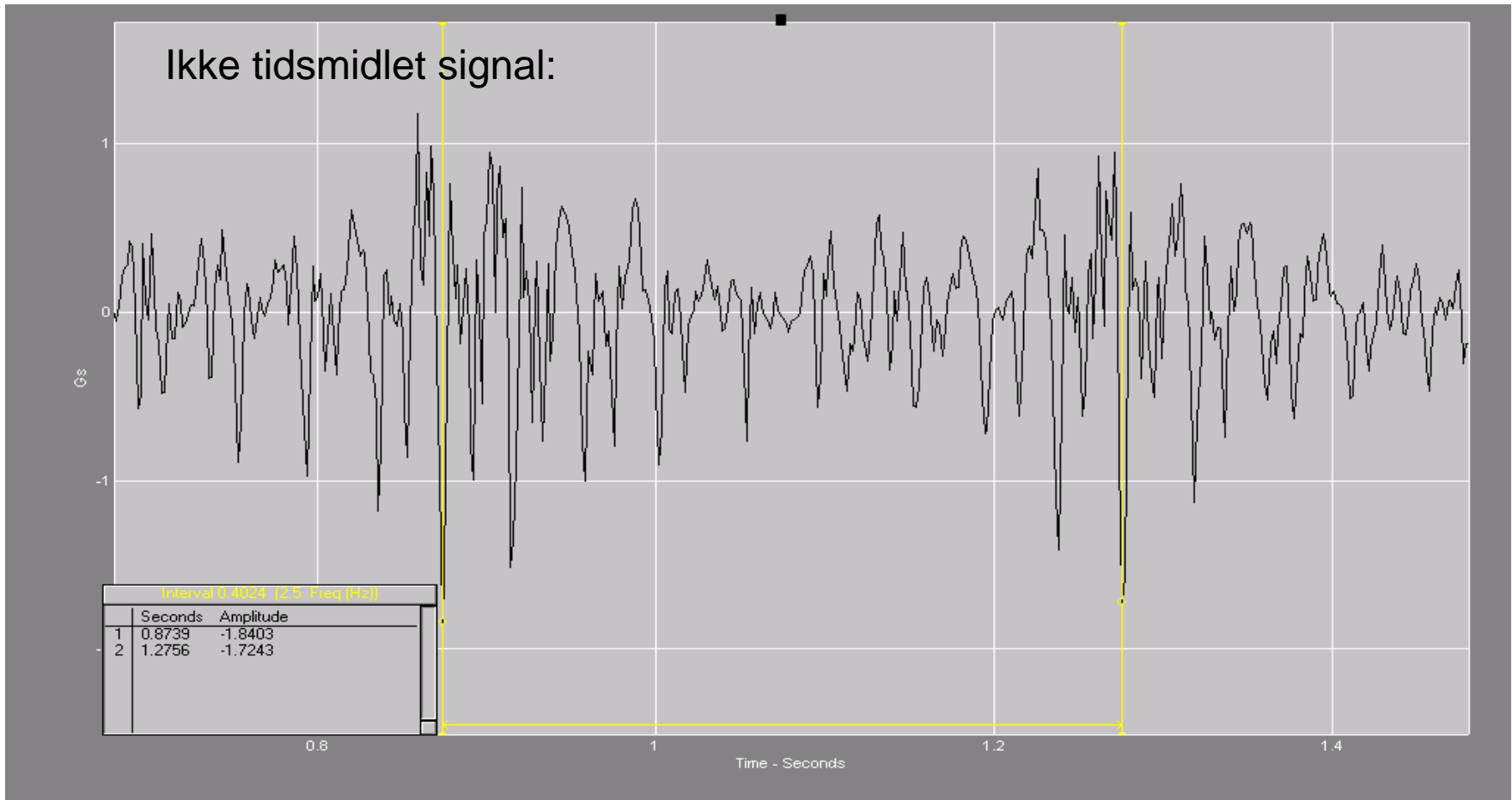


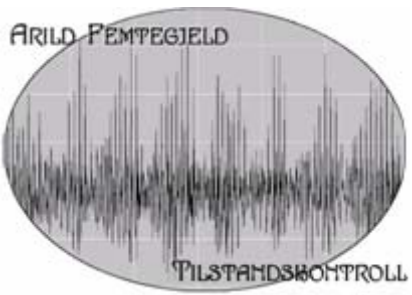
Oppløser under rullmaskin





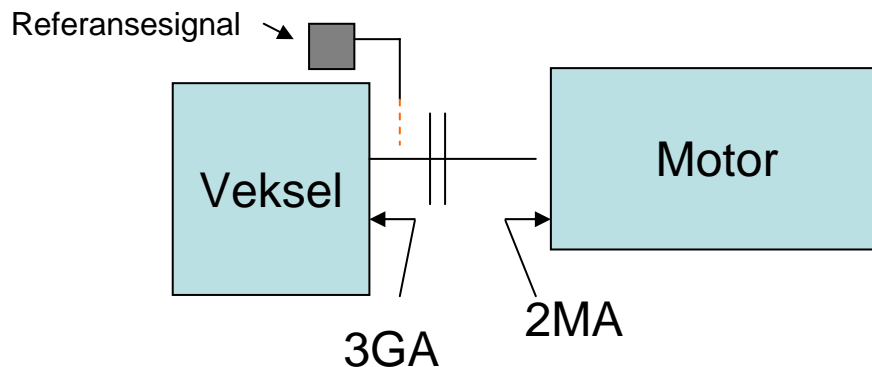
Oppløser under rullmaskin



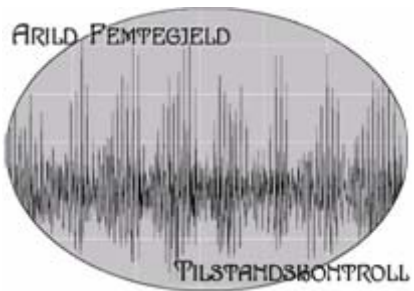


Oppløser under rullmaskin

- Vibrasjonene stammer fra både inngående turtall og fra selve oppløseren
- Komponenten fra oppløseren varierer etter kjøreforhold
 - Mengde i oppløser
 - Konsistens
 - Papirkvalitet som blir oppløst
- Hva med komponenten fra inngående turtall?
 - Oppretting mellom motor og veksel?
 - Tok fasemålinger aksielt på hver side av kobling:



OBS: Fordi målepunktene står 180° på hverandre må referansesignalet inverteres på det ene punktet



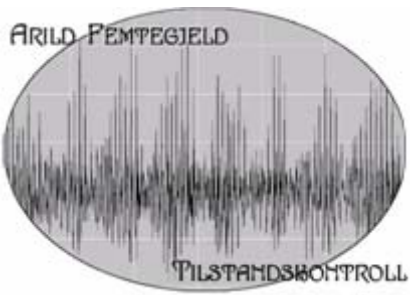
Oppløser under rullmaskin

- Målepunktsett (Prism⁴) for fasemåling:
 - Freq type: "Order track"
 - Save data: "FFT and Phase"

The screenshot displays the PRISM4 for Windows software interface. The main window shows a tree view of measurement points for 'Roreverk PM 5'. A 'POINT Setup' dialog box is open, showing the configuration for a specific point: 'OT60.3222 2MA-RV_F'. The dialog is configured as follows:

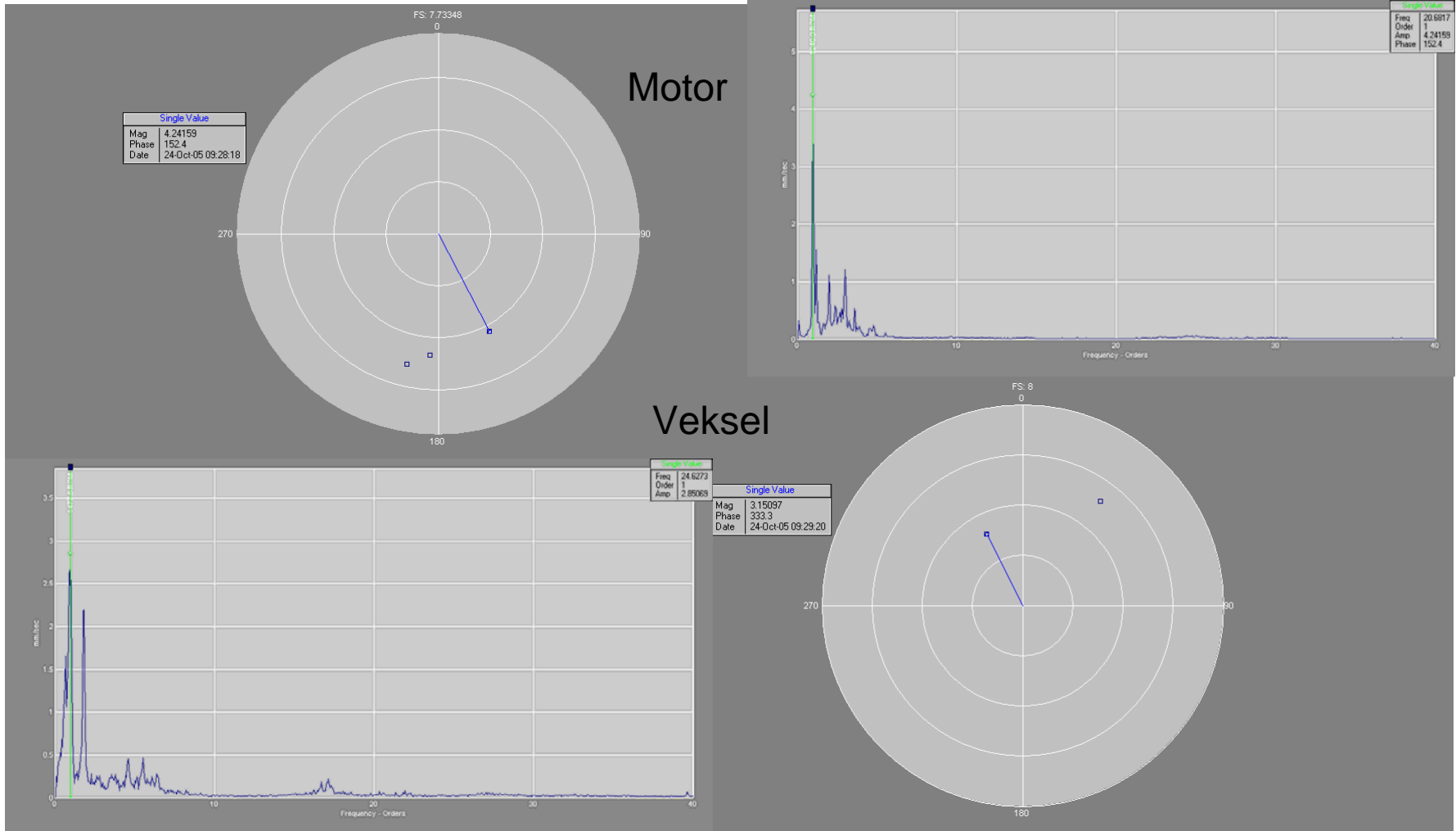
- ID:** OT60.3222 2MA-RV_F
- Description:** @2MA
- POINT Type:** Velocity (Acc to Vel)
- Enabled:**
- DAD:** Microlog
- Schedule:** 30 days
- Full Scale:** 10 mm/sec
- Input mV/EU:** 100
- Detection:** RMS
- Low Freq. Cutoff:** 2 Hz
- Save Data:** FFT and Phase
- Autocapture:** Always
- Freq. Type:** Order Track
- Speed:** 1475 RPM
- Start Orders:** 0
- Lines:** 800
- End Orders:** 40
- Storage Depth:** 200
- Window:** Hanning
- Averages:** 6
- Speed POINT ID:** None
- Speed Ratio:** 1

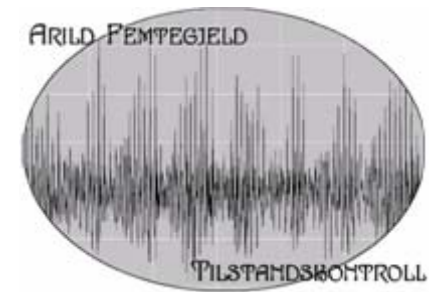
The taskbar at the bottom shows the Windows Start button and several open applications, including 'Planer i dag - M...', 'S19_FS_300605', 'SKF Products - ...', 'SKF Maintenan...', 'PRISM4 for Wi...', 'Desktop PLm - ...', and 'Microsoft Powe...'.



Oppløser under rullmaskin

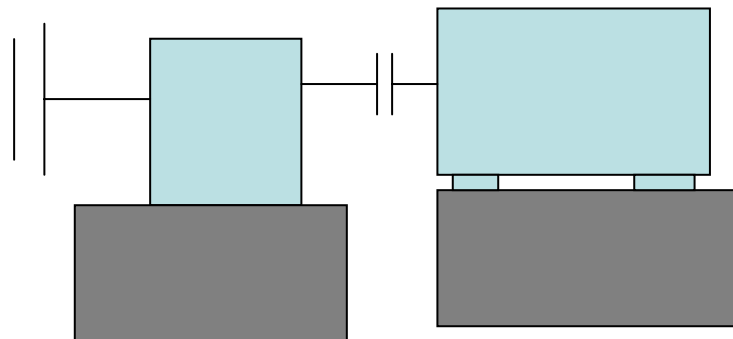
Display->Phase->Polar Vector

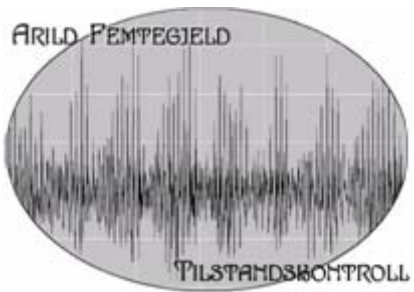




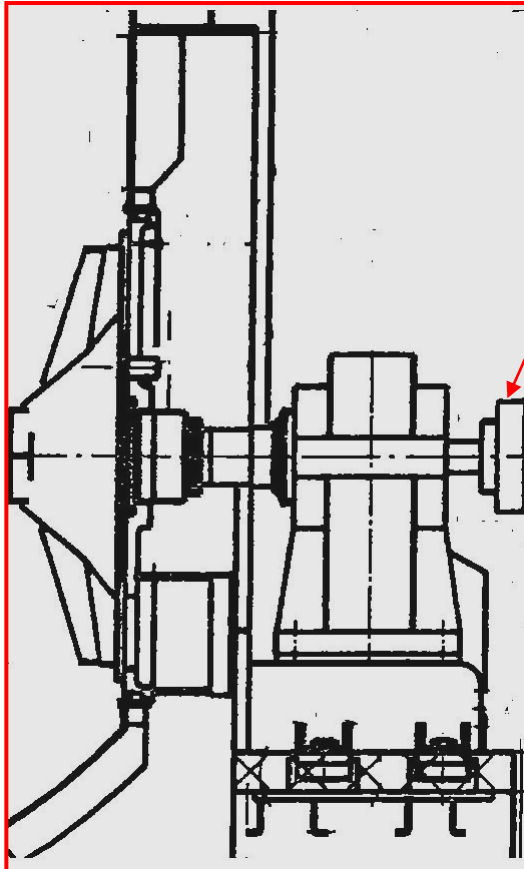
Oppløser under rullmaskin

- Skjevoppretting bekreftet ved faseforskyvning ca. 180° over kobling
- Motor ble rettet opp, sto 1 mm for høyt.
- Ble det noe bedre etterpå? Neeeeei.....
- Hvorfor ikke?
- Er konstruksjonen feil?
 - Oppløser med veksel er bygd som en enhet
 - Motor står på eget fundament
 - Ved drift lever oppløseren sitt eget liv og opprettingen som i utgangspunktet var bra endrer seg.



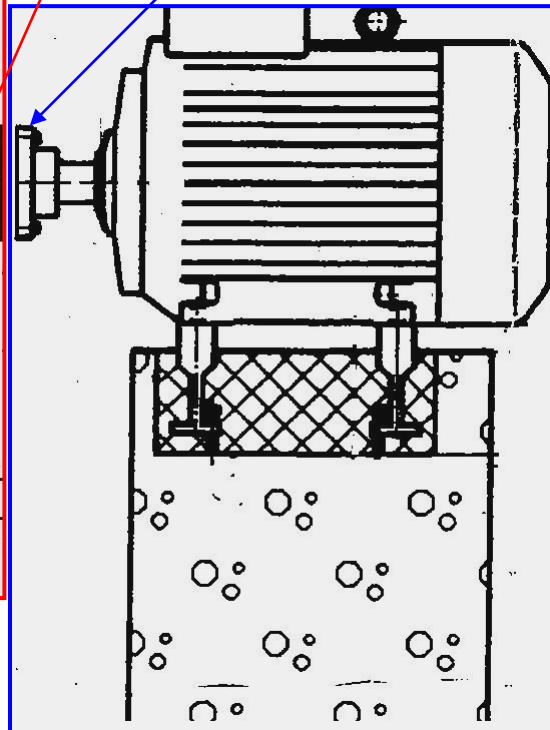


Oppløser under rullmaskin



Veksel og oppløser beveger seg under drift..

...mens motoren står mer i ro



Mulig tiltak:

Endre fundament slik at motor og oppløser står sammen.