


## Coast Downs

Performing “Coastdowns with Phase” to test for resonant frequencies with the VibXpert	
Step 1.	Enter the “ <b>Multimode</b> ” module in the VXP (VibXpert)
Step 2.	Go to the “ <b>Advanced</b> ” tab <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> <span style="border: 1px solid black; padding: 2px 10px;">Overall values</span> <span style="border: 1px solid black; padding: 2px 10px; margin-left: 10px;">Signals</span> <span style="border: 1px solid black; padding: 2px 10px; margin-left: 10px; background-color: #e0e0e0;">Advanced</span> </div>
Step 3.	Highlight: “Coastdown/Startup” <div style="text-align: center; margin-top: 10px;">   <small>Coastdown / Startup</small> </div>
<p>Now you will see, on the bottom of the screen, 4 lines of information. These are the instructions the VXP has for doing the ensuing task. They include:</p> <ol style="list-style-type: none"> <li>1. “<b>Task:</b>” (Task name)</li> <li>2. “<b>Channel A:</b>” (The device configured on channel A if any)</li> <li>3. “<b>Channel B:</b>” (The device configured on channel B if any)</li> <li>4. “<b>RPM-Channel:</b>”The device configured for measuring the rpm/phase</li> </ol>	
<p>Check your sensors here. Make sure the channel you are using for vibration pickup, has the correct accelerometer or device showing up on the line here. Make sure your rpm measuring device is correct.</p>	<pre>Task:           Amplitude Startup / Coastdown Vel. ... Channel A:     VIB 6.146 Channel B: RPM-Channel:  VIB 6.630</pre> <p style="text-align: center; margin-top: 5px;">Fig. 3: Task &amp; Hardware list</p>
<p><b>Note:</b> Remember, if you have “<b>Use default sensor</b>” checked on the “default vibration sensor” screen in “Device Setup”, it will lock you into that sensor!</p>	
Step 5.	With the Coastdown/ Startup icon highlighted, press the menu key. Choose: “ <b>Task Manager</b> ”. The “Task Manager” page will present you with the following options:

Task list:

The top pop-down is the list of startup, coastdown tasks. You may find one that fits your immediate requirements, or one you can easily “edit” to your needs. To edit or create one, simply press the “Menu” button and choose “Edit” or “New”. If you chose “New” name your new coastdown task. Be sure to name it so that you can easily recognize it later. This name will show up in the task and hardware list (see fig. 3) on the previous screen.

Measurement channel: Check to make sure the proper channel is the active channel.

Measurement setup: This is the list of measurement setups. You can choose an existing one, edit an existing one or create a new one, just as with the task above. (see section below)

Sensor Setup: Choose the proper sensor. (see the note on page 1).

Evaluation Setup: Not used for this procedure.

RPM Task: Here, the RPM tracking device must be setup. The default is the VIB 6.630 Optical Trigger Sensor. If another is to be used, it must be in the list of configured “Transducers” in the “Device Setup” module of VibXpert

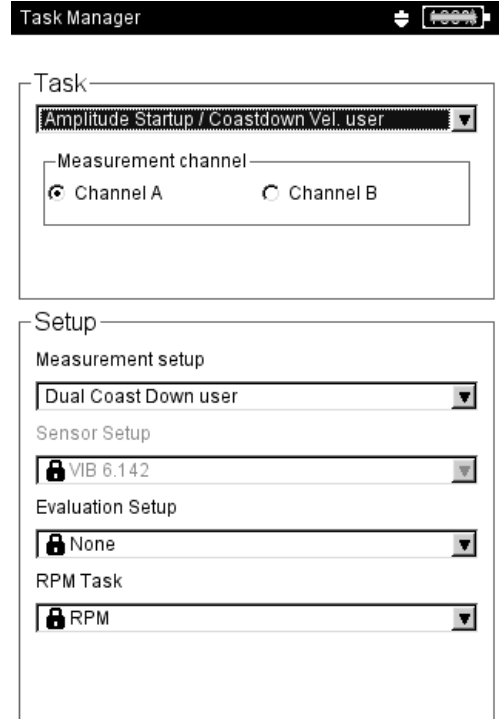


Fig. 4: Task Manager screen

## Measurement Setup

The key to a successful coast down procedure is the “**Measurement Setup**”. To create a new setup, with the measurement list highlighted, press the “**Menu**” button. Choose “**New**”. Name the setup so that you can easily recognize it in the future from the name you have given it. When you are satisfied with the name, press the “**Menu**” button and choose “**OK**”. Now you will get the “**Setup Manager: Measurement**” screen.

In the “Setup Manager: Measurement” screen, you define the parameters of your coastdown task in the following fields:

- Meas. quantity: The units of choice generally should be velocity.
- Lower frequency: This is your fmin on your amplitude plot.
- Measurement range: It is best to set the range at the lowest which will contain the highest amplitude encountered during the coastdown. If in doubt, set a range higher. Auto is a last resort.
- Start RPM: The RPM at which the VibXpert will begin sampling the data.
- Stop RPM: The RPM at which the VibXpert will cease sampling the data.
- RPM deviation: The number of RPM between samples. If this is set to zero, the VibXpert will sample at its highest rate, or ??Khz

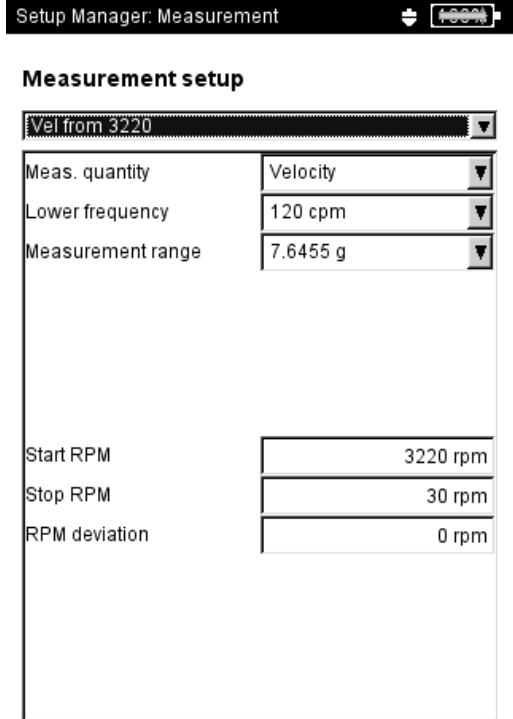


Fig. 5: Setup Manager: Measurement screen

## Display Setup

Plot type:

Choose whether your default display for the coastdown data will be Bode' or Nyquist. You will still be able to access the other.

- a. Bode':** two line graphs, with one showing speed and amplitude and the other showing speed and phase. Both are related together and are called a “Bode” plot.
- b. Nyquist:** A polar plot that displays speed, amplitude, and phase.

<u>Cont phase:</u>	<p><b>No:</b> The scale of the phase axis begins at 0<sup>0</sup> and ends at 360<sup>0</sup>. If the graph runs beyond the 360<sup>0</sup> mark during the measurement, it will jump (discontinuously) to 0<sup>0</sup>.</p> <p><b>Yes:</b> The phase axis begins at 0<sup>0</sup> and if it continues beyond 360<sup>0</sup>, so does the display. It will autoscale to contain as many 0<sup>0</sup> or 360<sup>0</sup> positions as necessary to display the entire coastdown on the line graph.</p>
<u>Zoom:</u>	<p>The “Scale speed” is simply a slider bar that controls the size of the increments used when you use the zoom in on the Y axis.</p> <p>The “Zoom speed” is simply a slider bar that controls the size of the increments used when you use the zoom in on the X axis.</p>
<u>Cursor:</u>	<p>“Line type” is a popdown of different line stiles you can choose for your displayed graphs.</p> <p>“Cursor size” lets you choose between a “long cursor” which goes from the top to the bottom of the display and a “short cursor” which is not as prominent as the long.</p>
<b>The Coastdown</b>	

With the machine running and the coastdown icon highlighted (see fig. 2), press the “Enter” button (joystick). The initializing screen will appear as the VibXpert prepares for the coastdown. (see fig. 6).

When the VibXpert is finished initializing, and the “Measuring” screen is active (see fig. 7), you are ready to power down the machine. When you power down, and the machine speed drops below the “Start rpm” in your setup, the VibXpert will begin taking samples. The sampling will continue until the speed drops below the “Stop rpm” that was configured in the setup.

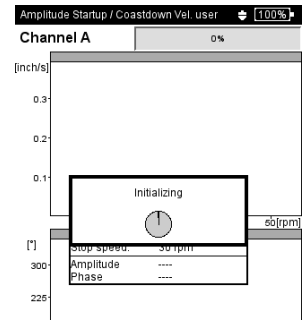


Fig. 6: Initializing for Coastdown screen

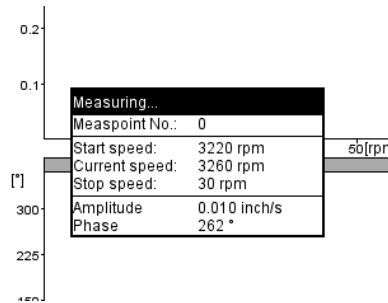


Fig. 7: Measuring screen

The Bode plot shown, displays the phase in a “continuous” plot (see fig. 8). To save your new data, press the “Menu” button. Choose “Save”. Now save it just as you would in your PC. You can create folders to organize your files or simply save.

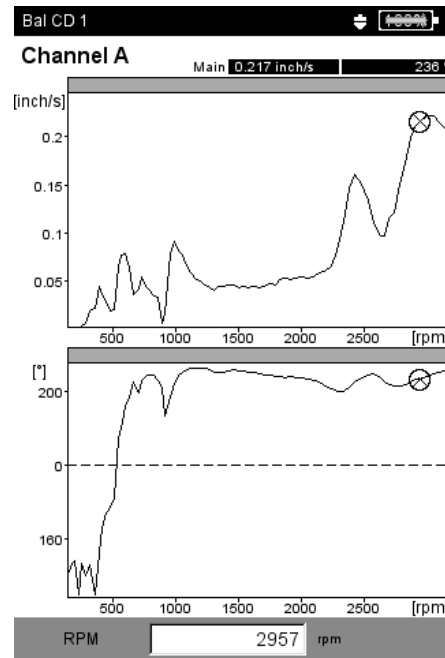


Fig. 8: Bode' Plot