Bearing LifeGuard®

A brief tutorial on bearing fault monitoring.

Part #1 Four steps

1. Select point.
2. Hit collect.
3. Check waveform.
4. Read report!
5. Take action?
6. Diagnostics?

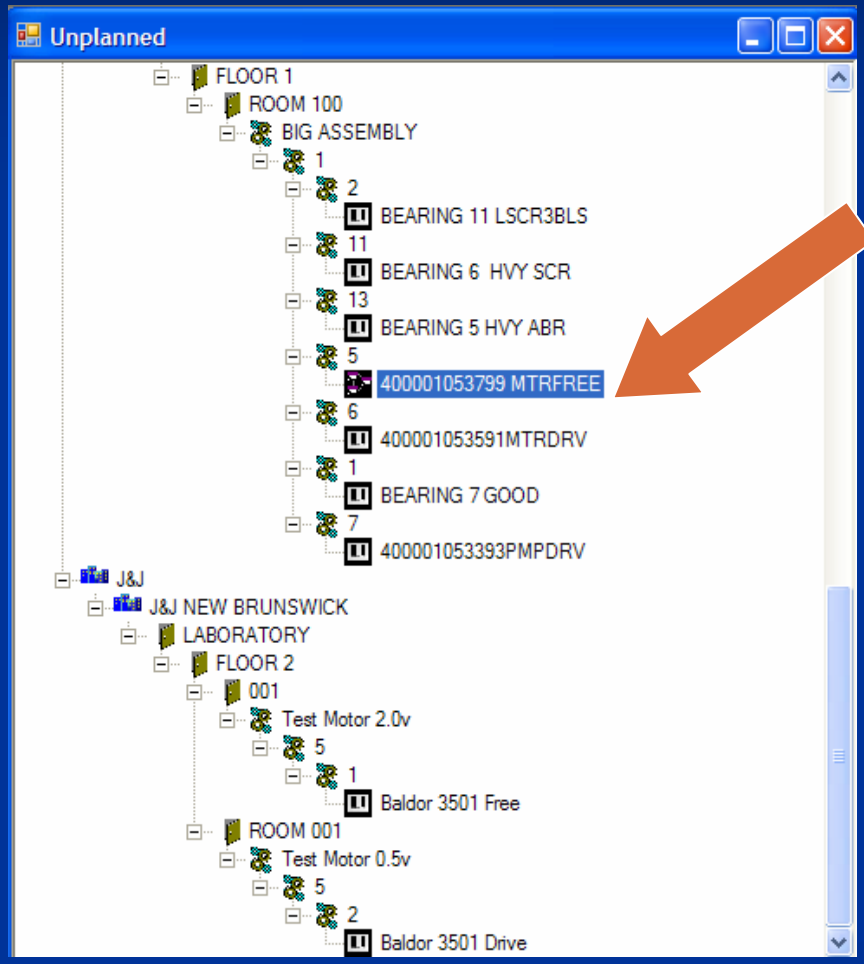
Part #2-Data collection hints.

1. Do's and Don'ts.
2. Getting reliable data.
3. Mounting preparation.
4. Where to mount.
5. High Frequency effects.
6. Hand probe sample response.

Part #1

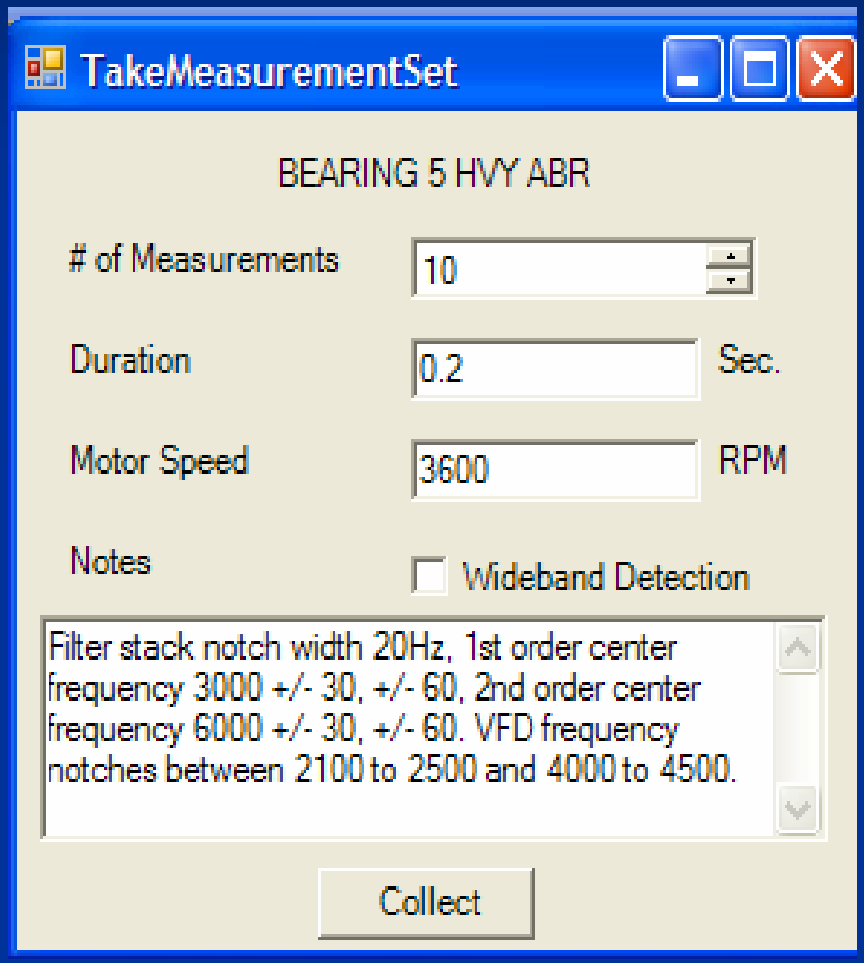
The Four Steps!

STEP # 1 SELECT ID POINT ON THE ASSEMBLY TREE.



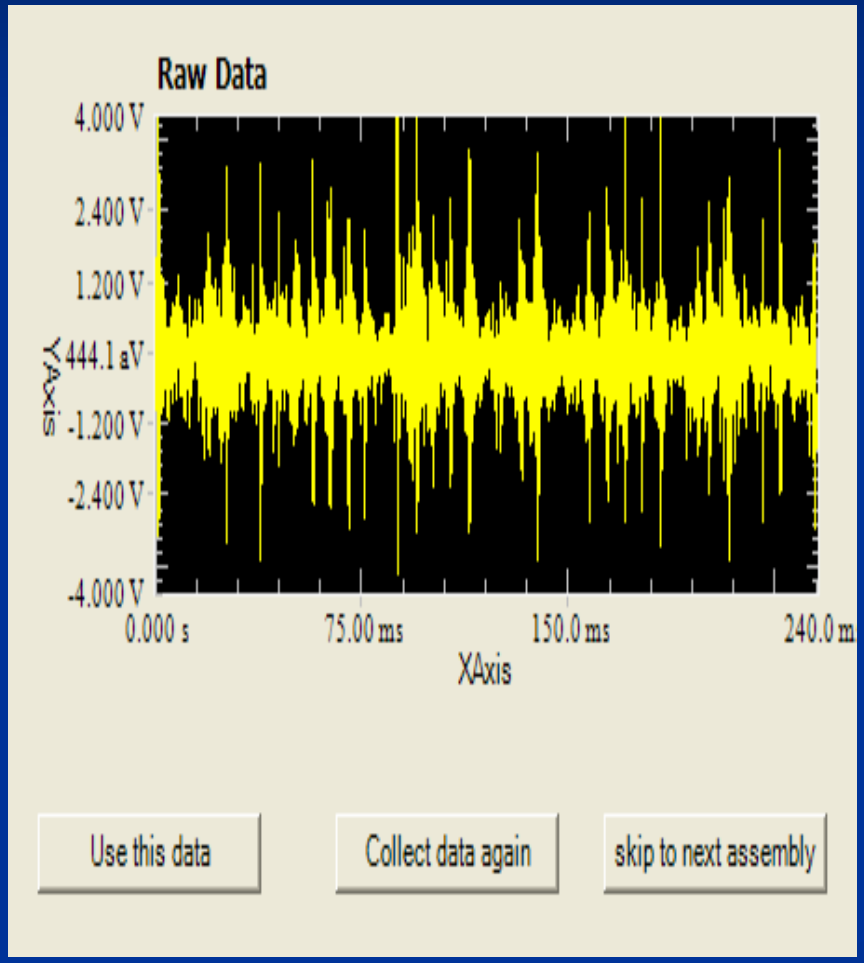
- Select Planned or Unplanned Tab.
- Bring up Assembly tree
- Find assembly and click on ID point.
- Or –scan Barcode at machine to automatically activate point.

STEP # 2 Hit COLLECT on 'take measurement' screen.



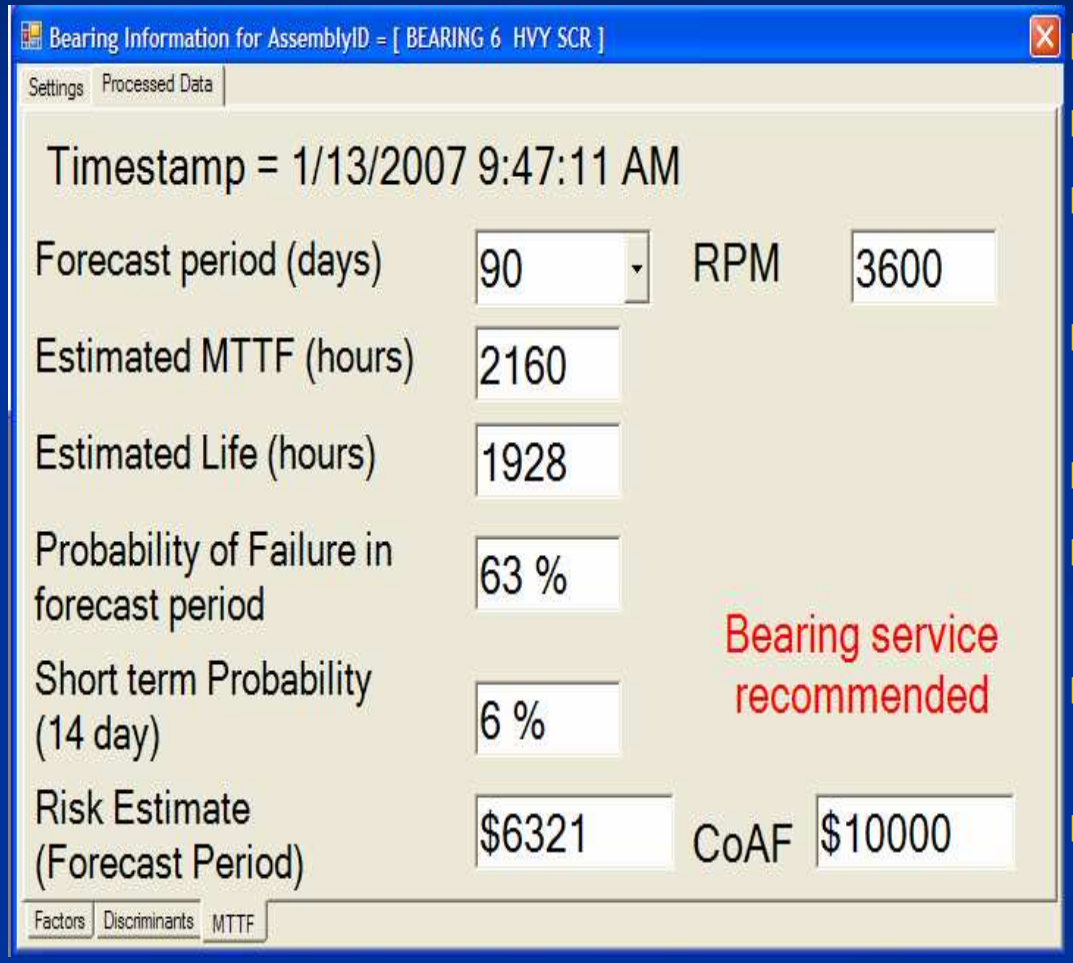
- This will collect and analyze ten data samples.
- Time 0.2 seconds ea.
- Based on 3600 RPM
- Notes tell us we have a notch to reduce Variable Frequency drive noise.
- And notches to reduce gear mesh noise.

3 Examine Waveform before collecting and analyzing.



- This is a ‘test’ signal.
- It looks good!
- Click ‘use this data’.
- Bad signal? ‘Collect again’ ‘Skip’, or check connection Alarms.

#4 Read Report on Bearing Condition.



- Date Time
- Forecast. Period.
- Estimated. mean time to failure. (Hours)
- Estimated mean life. (Hours)
- Probability of Failure.
- Probability of Failure within 14 days.
- Estimated Financial risk.
- Warning to take action.

Bearing LifeGuard-makes it easy!

- Took less than one minute.
- It does the work.
- You make the informed maintenance decision.
- More detailed analysis if you need it.

It Examines:

- High Frequency ‘g’ Energy.
- Envelope Demodulation.
- Crest Factor.
- Peak Acceleration.
- Kurtosis Analysis.
- Dynamic Forces.

Part #2

Data Collection Hints!

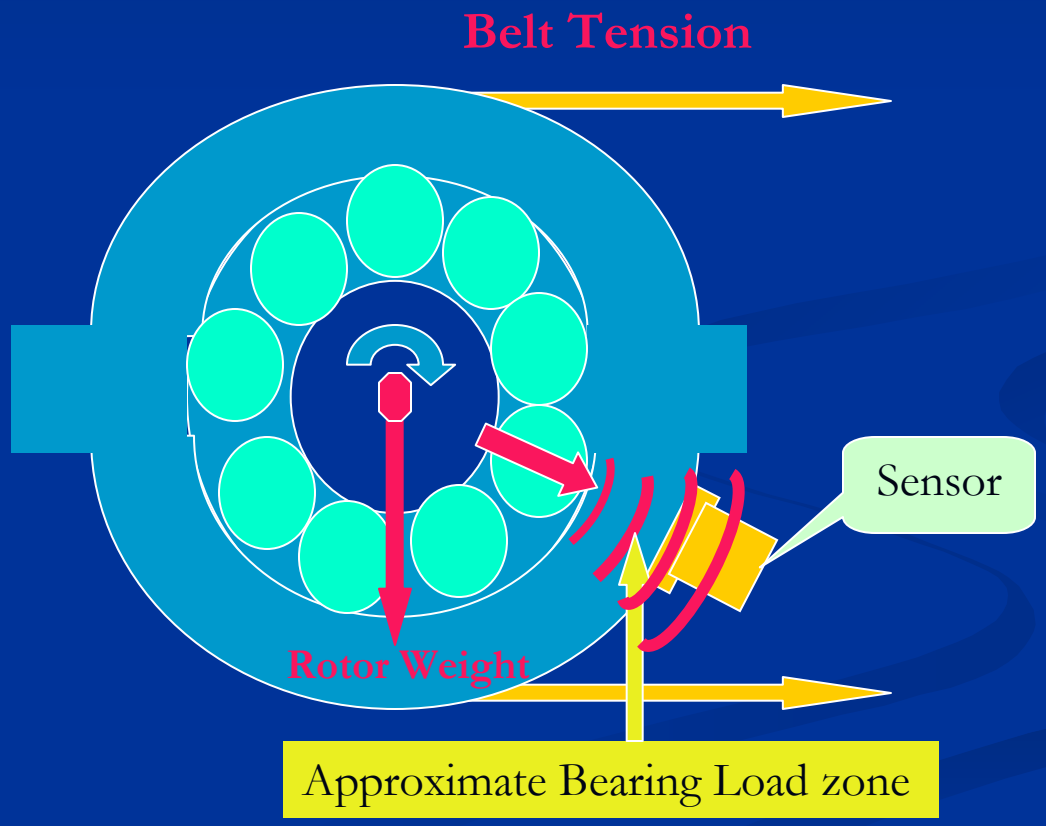
Bearing Analysis-Do's & Don'ts.

- Hand Held Probe----------Don't!
- Horseshoe Magnet----------Don't!
- Mount on bracket----------Don't!
- Mount on motor shell--------Don't!
- Bonded mount----Caution! (Contact Tech support.)
- Super Magnet—use thin film of silicone grease on stud mounted machined bushing -------OK!
- Properly stud mounted accelerometer with thin film of silicone grease.----Best!
- Mount on bearing housing near load zone-----Best!

IMPORTANCE OF ACCELEROMETER MOUNTING IN OBTAINING RELIABLE BEARING DATA.

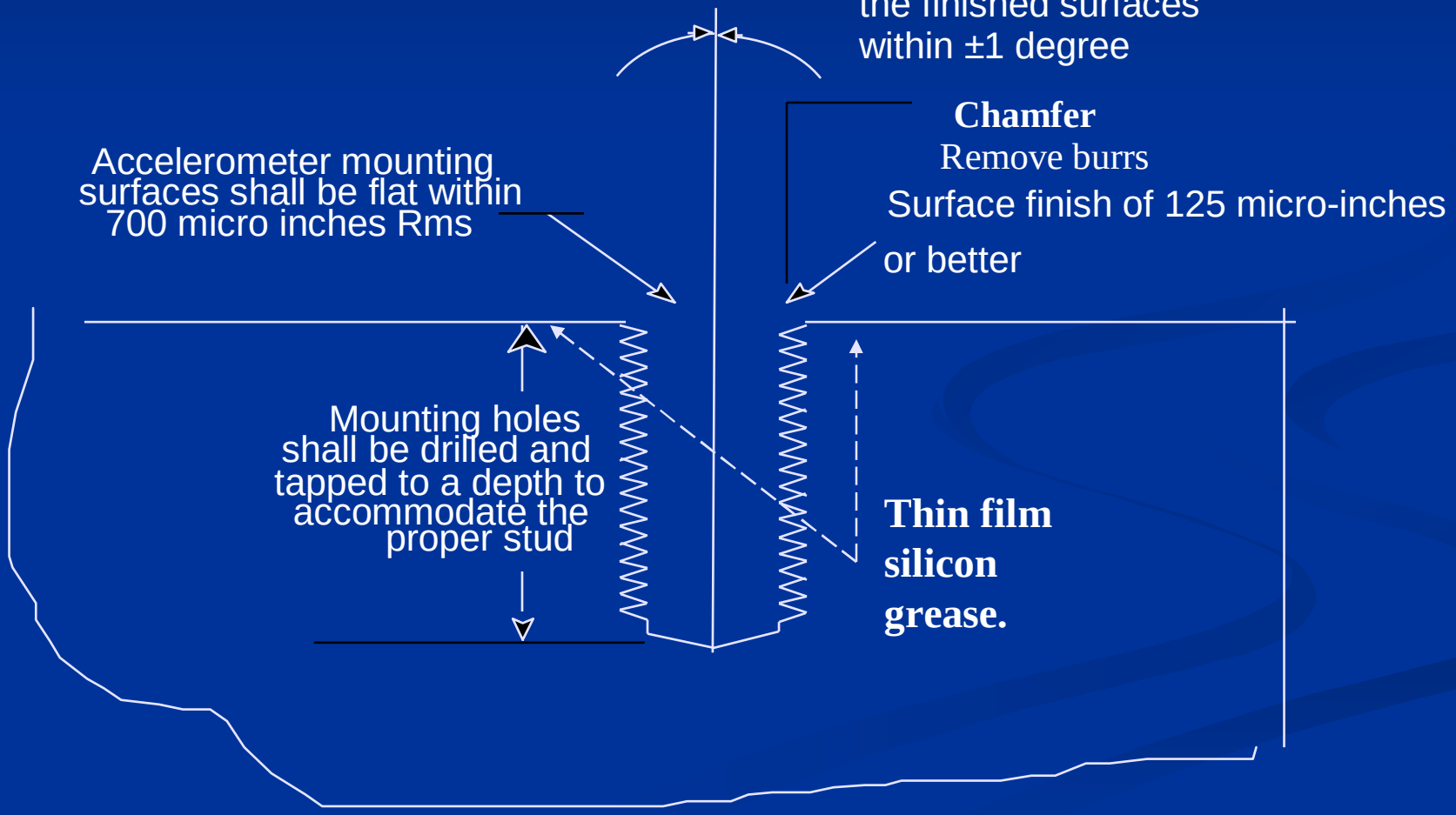
- The use of stud mounted accelerometers is recommended-20 kHz fn-for good high frequency response.
- Do not use hand probes! (See next slide.)
  They are not repeatable and filter out high frequencies.
- Do not use horseshoe magnets.
  They are only useful for measurement of balance, alignment and low frequency bearing components.
- Use only carefully bonded accelerometers.
  Difficult to verify quality of a bond. (Check Tech Support.)

Mount Sensor Close to Load Zone.



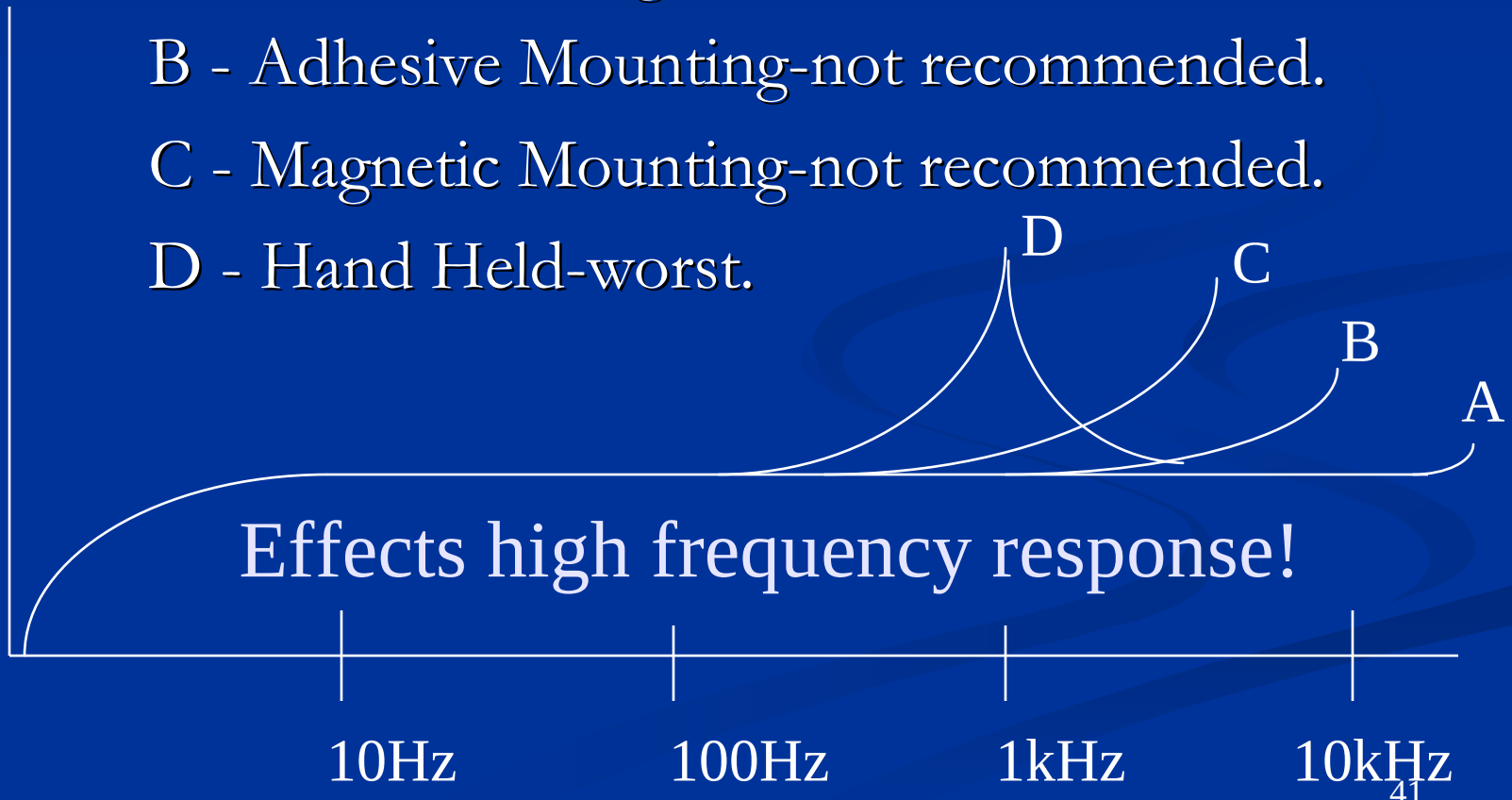
ACCELEROMETER MOUNTING

SURFACE PREPARATION



Mounting - High Frequency Effects

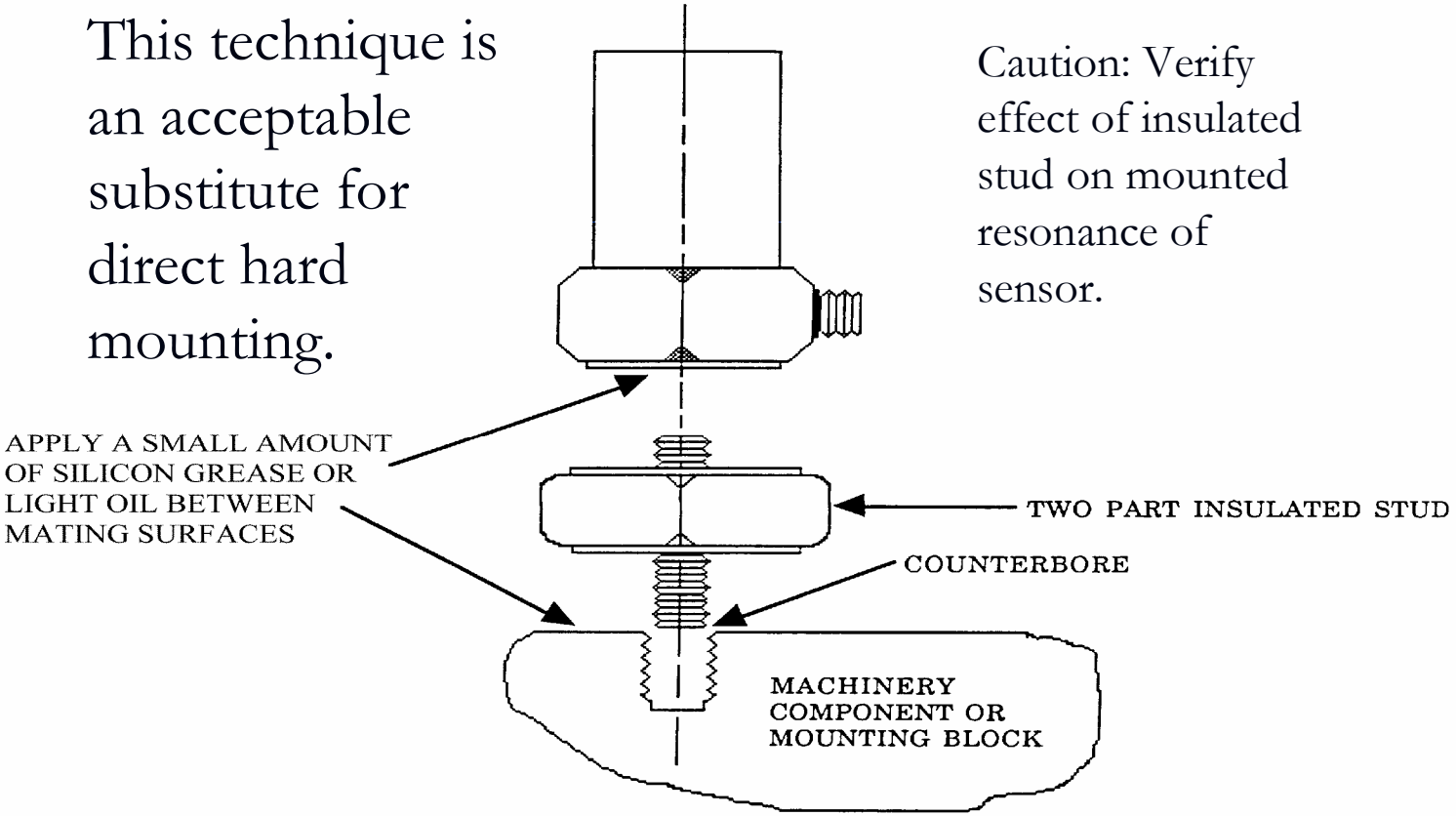
A. Mounting
   A. A - Stud Mounting-best.
   B. B - Adhesive Mounting-not recommended.
   C. C - Magnetic Mounting-not recommended.
   D. D - Hand Held-worst.



Isolating bushing w/stud

STAINLESS STEEL INSULATED STUD USED TO ELECTRICALLY ISOLATE THE ACCELEROMETER FROM THE MACHINERY PART

This technique is an acceptable substitute for direct hard mounting.

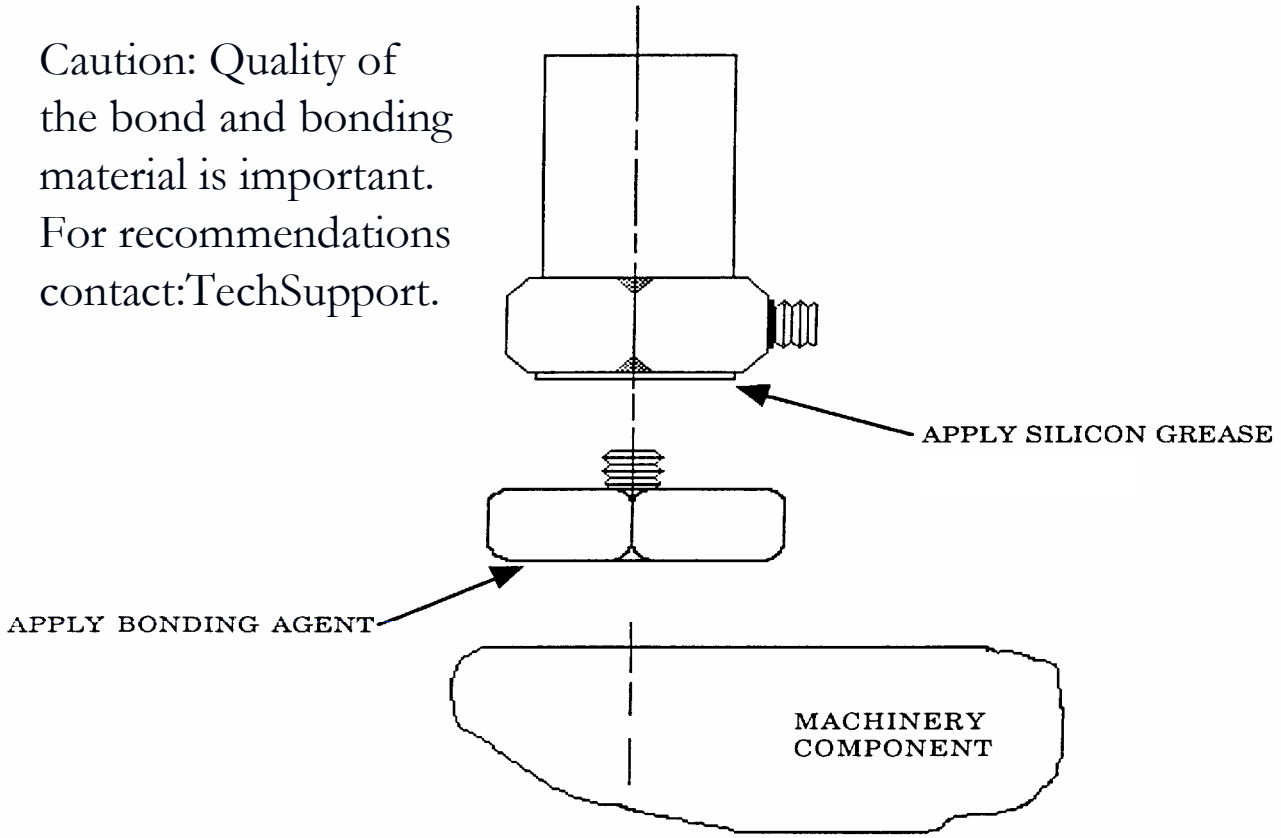


Caution: Verify effect of insulated stud on mounted resonance of sensor.

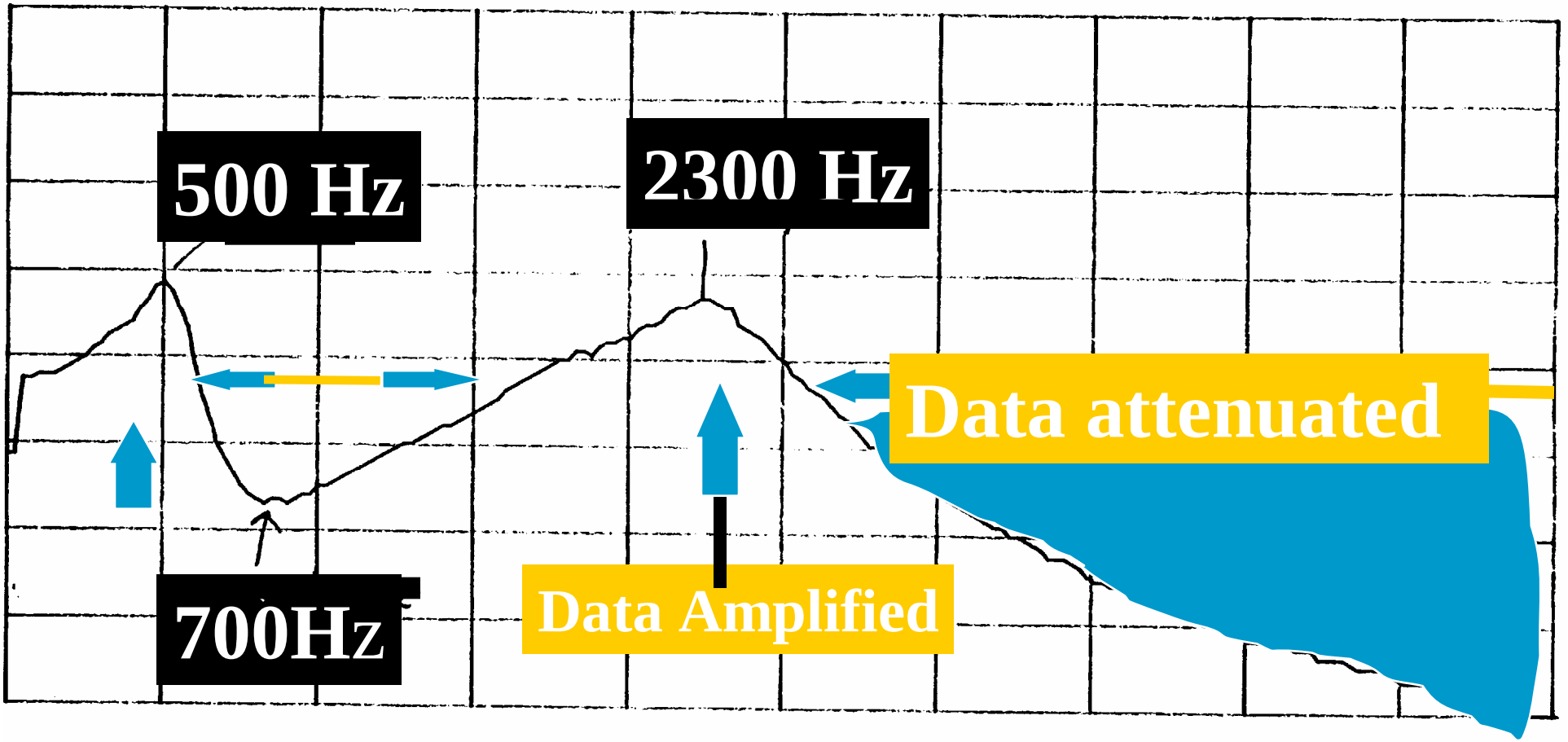
Isolating bushing

ANODIZED ALUMINUM CEMENTING STUD USED TO ELECTRICALLY ISOLATE THE ACCELEROMETER FROM THE MACHINERY PART

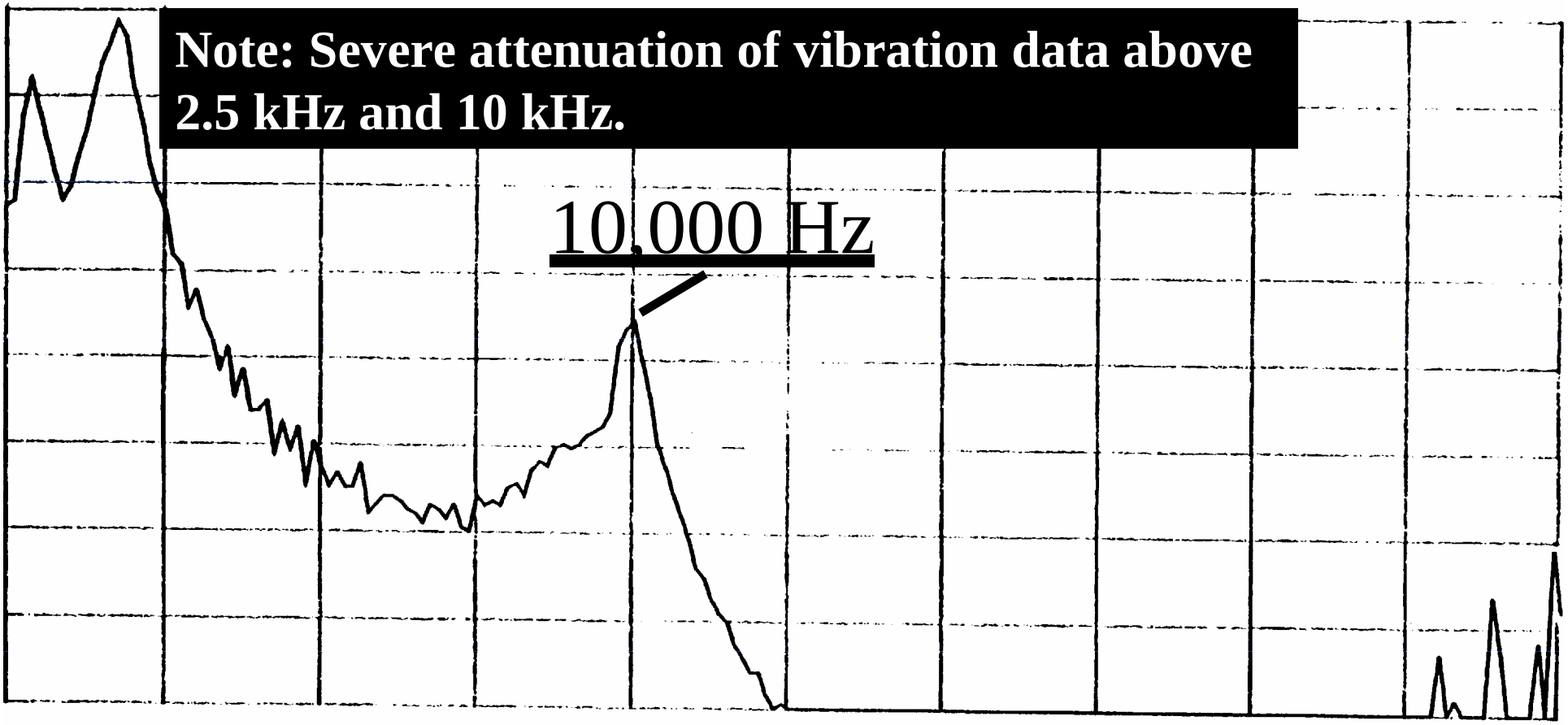
Caution: Quality of the bond and bonding material is important. For recommendations contact:TechSupport.



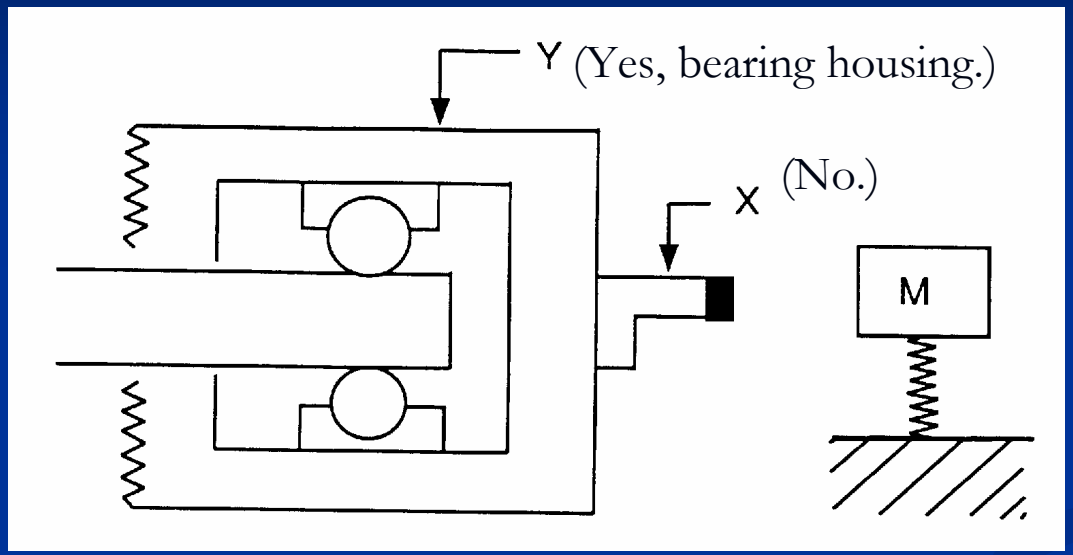
Hand Held Probe- 4 1/2 in stinger

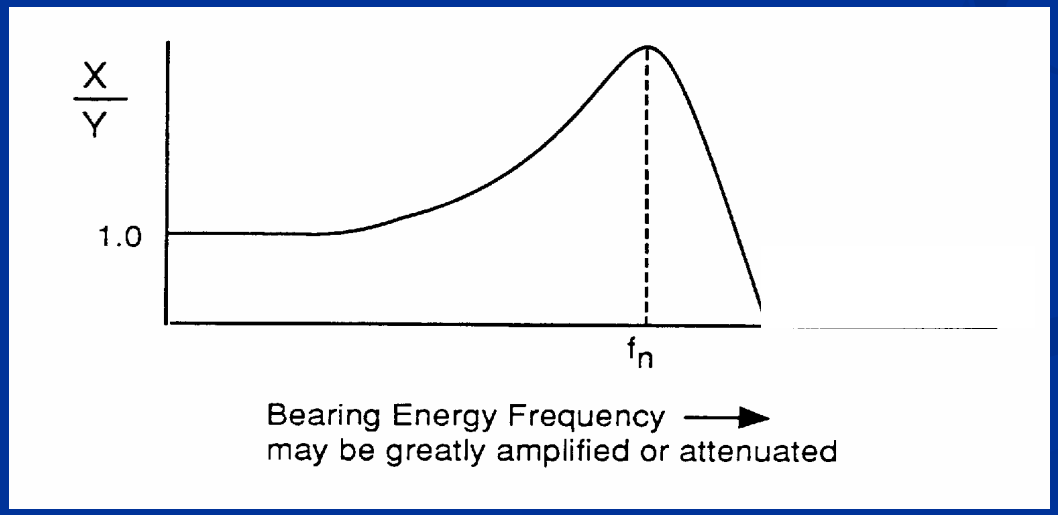


Acceleration vs. frequency-to 25 kHz w/4.5 inch hand probe.



Mount to solid surfaces- avoid brackets!





Bracket resonance can modify machine spectrum!

The Bearing LifeGuard ® System.

YOU DON'T NEED TO BE A VIBRATION EXPERT TO:

- **SEARCH FOR HIGH COST/RISK PROBLEMS.**
- **MAKE TIMELY SHUT DOWN DECISIONS.**
- **MAKE SOUND FINANCIAL DECISIONS.**
- **OPTIMIZE YOUR MACHINERY BEARING LIFE.**
- **TREND MACHINE LIFE EXPECTANCY .**
- **BENCHMARK FACILITIES/DEPARTMENTS.**
- For questions or more info: Sales@bearinglifeguard.com