

April 24, 2020

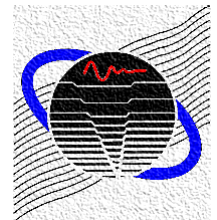
Blocked Force Determination

Explanation and Examples

Questions and Answers

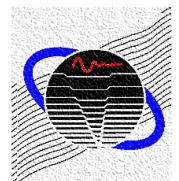
Vibro-Acoustics Consortium Web Meeting
University of Kentucky

Vibro-Acoustics Consortium



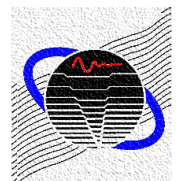
Overview

- How do I identify the source and receiver?
- How should I measure the accelerations?
- Where should I place accelerometers?
- How should I measure transfer functions?

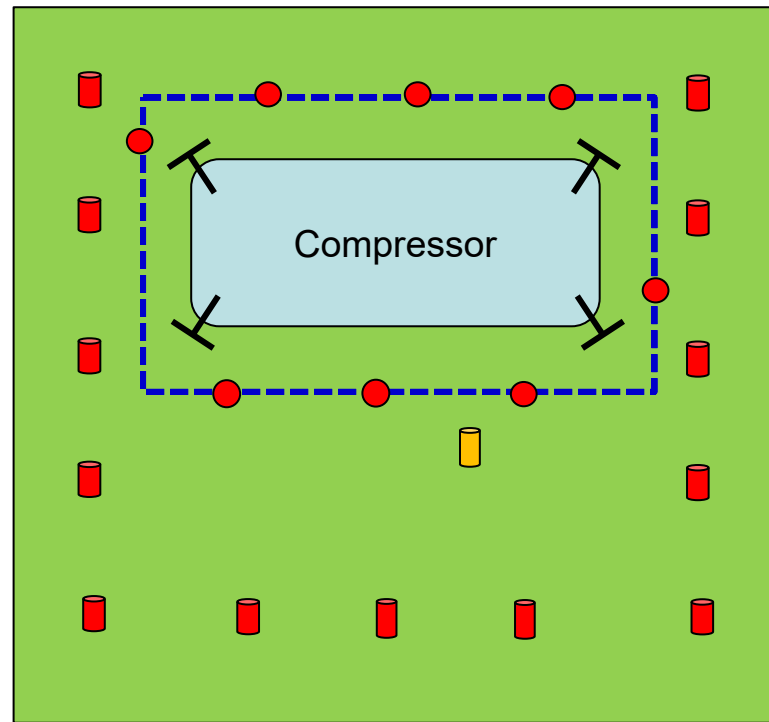


Source and Receiver Identification

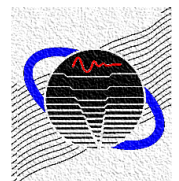
- The source structure should be where all machine input forces arise.
- Beware of significant flanking between source and receiver.



Source and Receiver Identification

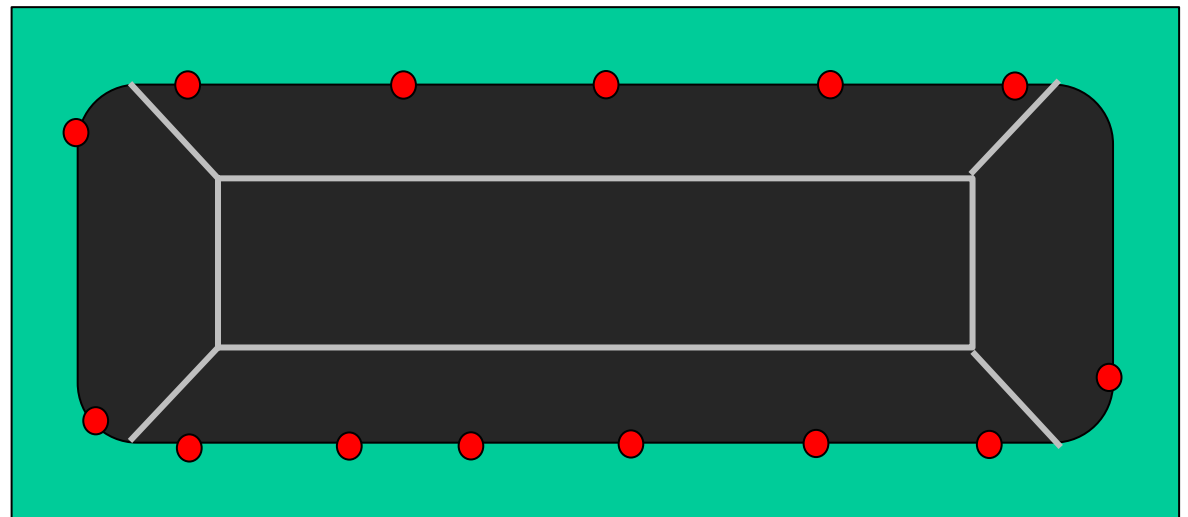
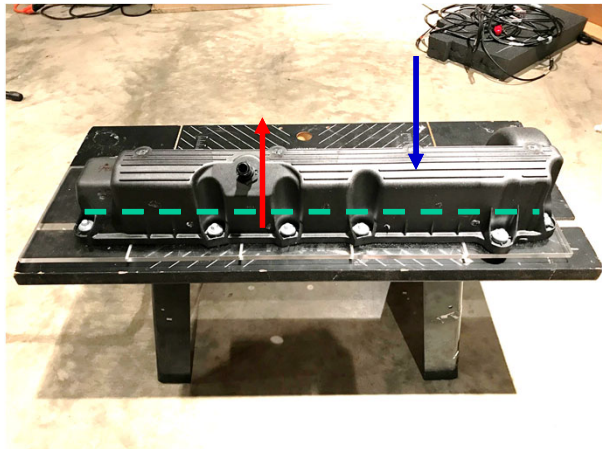


■ Indicator response ■ Target response

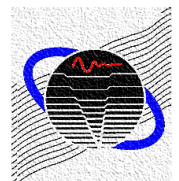


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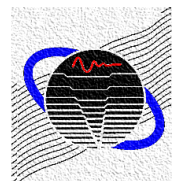
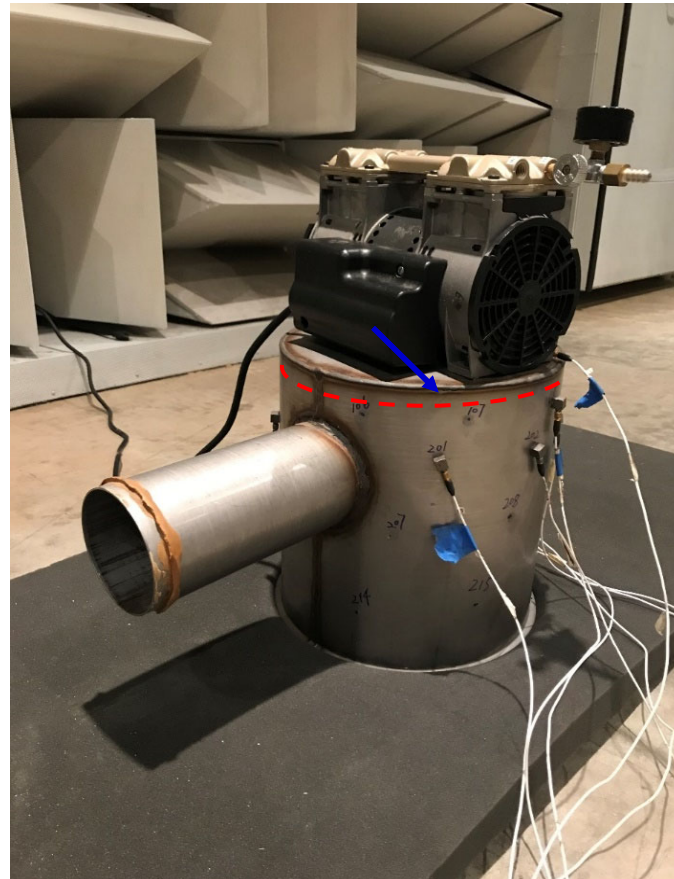
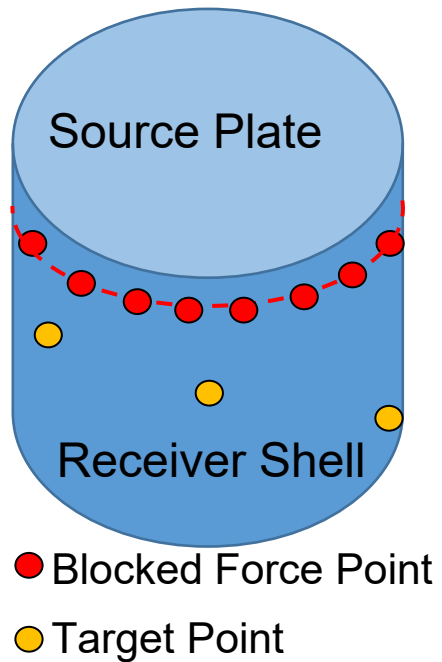
- Bolted locations selected as blocked forces.



● Blocked force input points

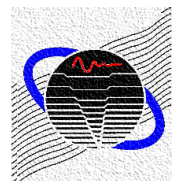


Source and Receiver Identification



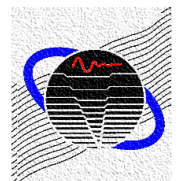
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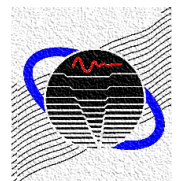
Accelerometer Measurements

- 2-3 times as many accelerometer measurements as the assumed input forces.
- Recommend against roving accelerometers unless dummy masses are used on thin plates.



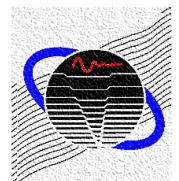
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Transfer Function Measurements

- Place accelerometers so transfer function information is unique.
- The transfer function matrix is inverted so good clean measurements are a must (i.e. troughs become peaks when inverted).
- Impact hammer is recommended because a shaker may change transfer functions when attached.



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