We have one goal — improving the noise and vibration quality of our customers’ products. Roush delivers innovative, effective noise and vibration control solutions. By combining advanced analysis capabilities, comprehensive engineering services, and state-of-the-art facilities, Roush has become a proven partner in identifying and resolving challenging noise and vibration issues. Backed by the diverse capabilities of the Roush family of companies, we are uniquely equipped to provide turnkey noise and vibration solutions.

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Roush provides expert operating deflection shape, modal, and transfer path analyses. Each year Roush performs many of these structural vibration-based analyses as either stand-alone projects or as part of larger noise and vibration problem solving efforts. With the ability to perform very high channel count acquisitions (over 100 channels simultaneously), Roush is very capable at solving complex and large scale vibration problems.

Using the results from structural vibration testing, Roush can:
- Identify and characterize system dynamic response and mode shape behavior
- Determine the equivalent stiffness of attachment points, frames, and vehicle bodies
- Pinpoint key/sensitive noise and vibration transfer paths and estimate input forces
- Develop high fidelity images/animations highlighting areas of high vibration
- Measure the moment-of-inertia and center-of-gravity properties of various systems
- Identify correlations between structural vibrations and objectionable noises
- Develop vibration reduction solutions
- Correlate CAE models to test results

Roush can also provide expert analysis using MSC/NX Nastran, Abaqus, AMLS, and Adams CAE tools. Using these tools in parallel with physical testing can significantly accelerate root cause analysis and reduce solution development time.

FEA modal analysis of a computer disk drive cover

Comparison between CAE and Test Frequency Response Functions

Full Vehicle Modal Analysis

Vibration Sensitivity Reduction from Tuned Mass Damper