National Aeronautics and Space Administration

Self Diagnostic Accelerometer

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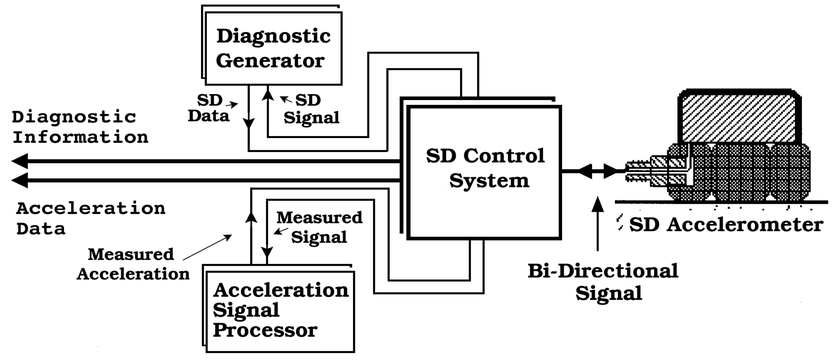
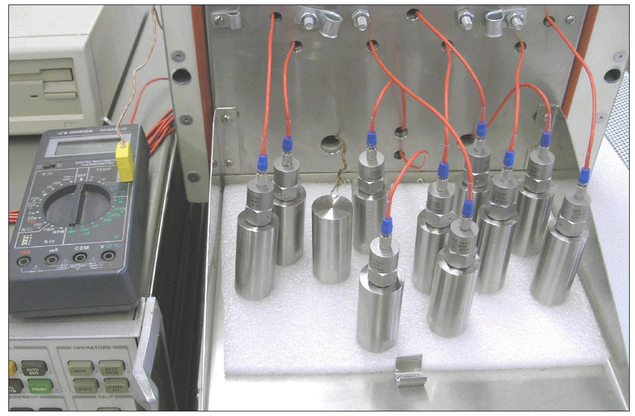
In order to achieve true transfer of vibrations/accelerations, the status of attachment between the sensor and the application must be fully characterized. Current methods of sensor attachment include the use of studs, glues, beeswax, magnets, and other mounting bases.

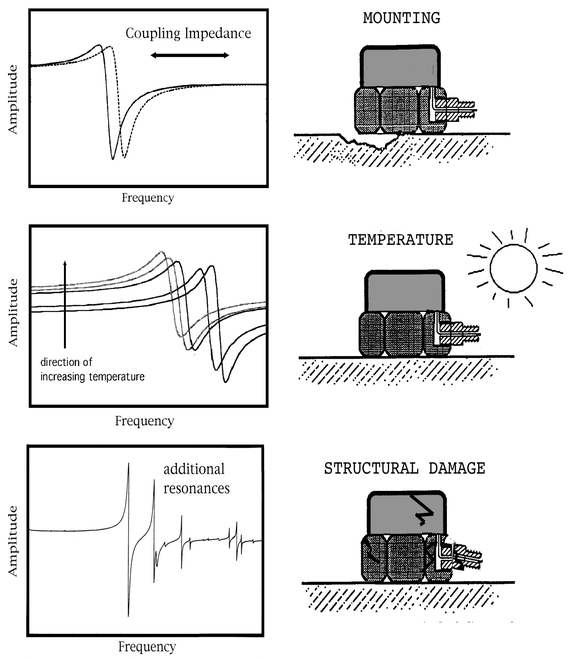
The **Self Diagnostic Accelerometer** (SDA) System actively interrogates its sensor with a low voltage signal to determine if the sensor is properly attached and working.



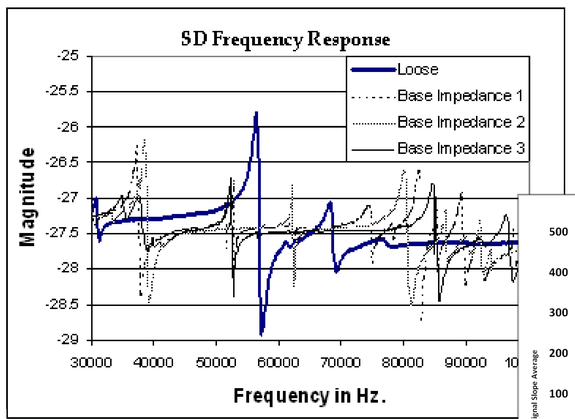
Self Diagnostic Accelerometer (SDA) System

SDA Testing of Ten Accelerometers

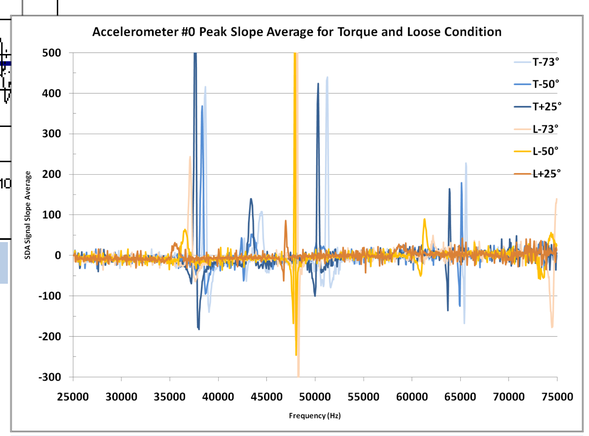




SDA Theory

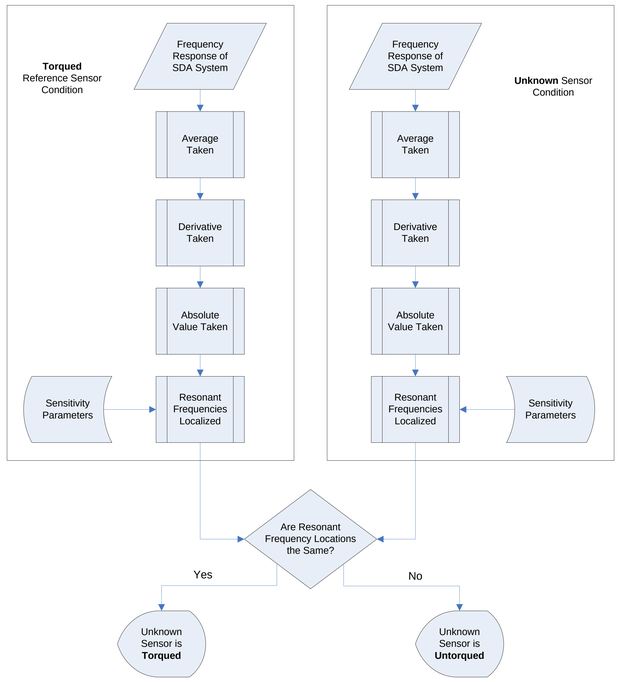


Manual Data from Signal Analyzer



Autonomous Data from SDA System

SDA Software Flow Chart



This Self Diagnostic Accelerometer System was successfully demonstrated in providing electro-mechanical data including the health of the sensor-part attachment under varying temperature, torque-attachment, and electro-mechanical noise.