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Electrodynamic Shaker Peripheral Equipment

3-Axis Fixture

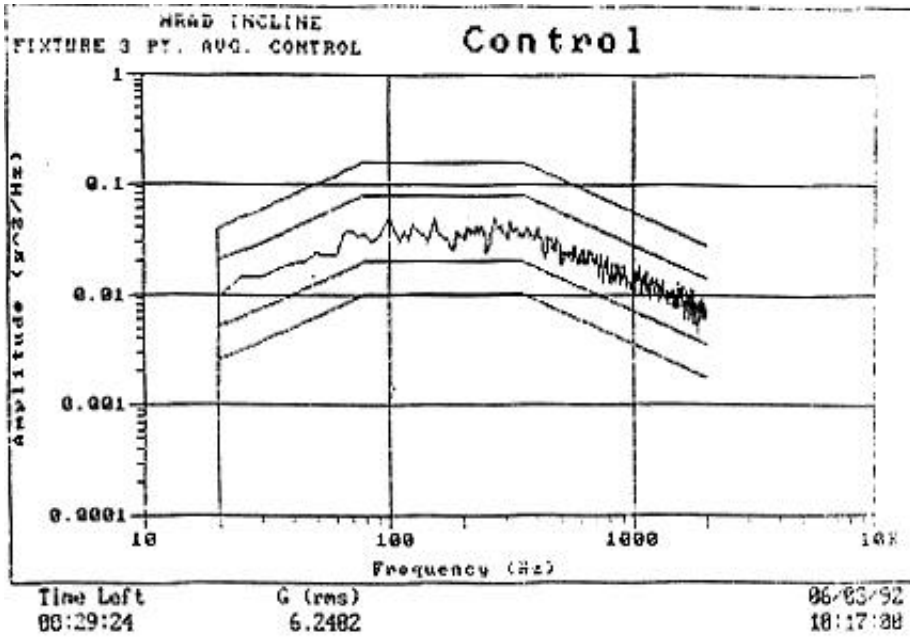
In conjunction with the design and testing of various products, e.g. consumer electronic goods and military products, vibration forces are applied to the product along selected axes to determine if the product can tolerate such forces and function properly. Often, it is necessary to perform vibration screens to weed out manufacturing defects such as poor solder joints, loose screw connections, etc. Because it is typically time consuming and somewhat difficult to attach and detach a test item from the vibration shaker, fixtures have been developed for facilitating the mechanical coupling of a test item with the vibration shaker.



M/RAD has designed and developed a vibration test fixture adapted for attachment to a conventional shaker table to support a test item relative to the shaker table so that the test item can be vibrated along three mutually orthogonal axes in a single vibration test procedure without repositioning the test item during the procedure. This fixture shall simultaneously apply three equal mutually orthogonal X, Y and Z axes by a single attachment of the test item to the test fixture.

The test fixture is comprised of a flat plate assembly which has a bottom edge and a support structure. The support structure is designed to support the test item in a selected fixed relationship to the vertical or horizontal vibration input. The test item, as secured to the support structure, is inclined at an angle with respect to the mounting surface of the vibration shaker. As a result of this inclination, the Z axis of the test item is also inclined. By rotating the test item on the inclined flat plate, each of the three equal, mutually orthogonal vibration force components of the input vibration force will extend along the corresponding X, Y and Z axes of the test item with one exposure instead of three separate exposures resulting in significant labor and time savings.

The 3 axis Vibration Fixture may be designed to accommodate test items of varying sizes and payloads. The fixture is constructed of AZ31B magnesium to insure the lightest possible weight and is a weldment to provide the optimum in strength and rigidity.



(Patent 5,156,051)

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