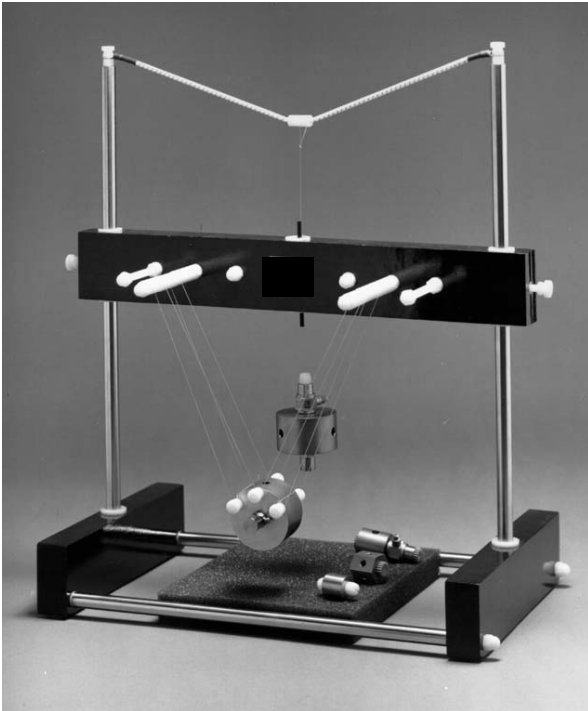


## STRUCTURAL GRAVIMETRIC CALIBRATION SYSTEM



The Structural Gravimetric Calibration Fixture is a simple and versatile calibration system which utilizes the Earth's gravitational field as a reference. It calibrates accelerometers, force sensors, and impact hammers using approved comparison methods. It tests the functional transfer behavior (sensitivity and phase) of sensor structures over a frequency range of 0.5 Hz to 2 kHz. Coupling the system with the model 3960S Calibration Software Suite automates the calibration process on your HP 35670 analyzer. The model 3960S includes model 3960D for automating free-fall calibrations, model 3960H for automating hand-held accelerometer calibrations, and model

3960R for automating ratio calibration of impact hammers via pendulous mass.

### **BENEFITS:**

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- Calibrates accelerometers, force sensors, and impact hammers
- Conforms to approved standards and Handbooks
- Provides single value drop calibration or frequency referenced gravimetric calibration
- Automates routine calibration with PC software



The 996X series Gravimetric-Calibrator functions to transfer known or measured motion caused by gravity and other forces into electrical signals for comparison purposes. Operation relies on the rigid test masses obeying Newton's Laws of Motion, and upon the unusual behavior of a taut monofilament line. Striking the top end (junction) of the line causes it to relax, allowing the test object to experience a 1 "g" step input for a short period of free fall.

The Gravimetric-Calibrator is structured with an adjustable frame, vertical and pendulous suspensions, and calibrated test masses. Coupled to a 2-channel analyzer, this setup delivers drop, low/medium frequency, and hammer calibrations.

For a single value sensitivity, accelerometers and load cells may be "drop" calibrated without a reference sensor; instead, Earth's gravity is used as a reference. Accelerometers are mounted to a mass suspended on a taut line. The junction is tapped, the accelerometer undergoes free fall (a step function of 1 g), and the sensitivity is calculated directly from the measured voltage step function and gravity. Similarly, force sensors are loaded by suspending a calibrated mass on a taut line. The junction is tapped, and the sensitivity is calculated from the measured voltage step and the weight of the known mass.

Gravimetric comparison calibration of accelerometers and force measuring impact hammers are accomplished by evaluating the transfer function of a rigid body mass. A reference sensor (measuring force when calibrating a hammer) is attached to one end of the mass with the test sensor on the other end. By exciting the instrumented mass and measuring the transfer function (A/F) the result should yield a flat line equal to 1/M over the valid frequency range. Any deviation in magnitude or phase from the expected flat line transfer behavior represent the characteristics for the test sensor under calibration. For hammer calibration, input is accomplished by striking a pendulous mass.

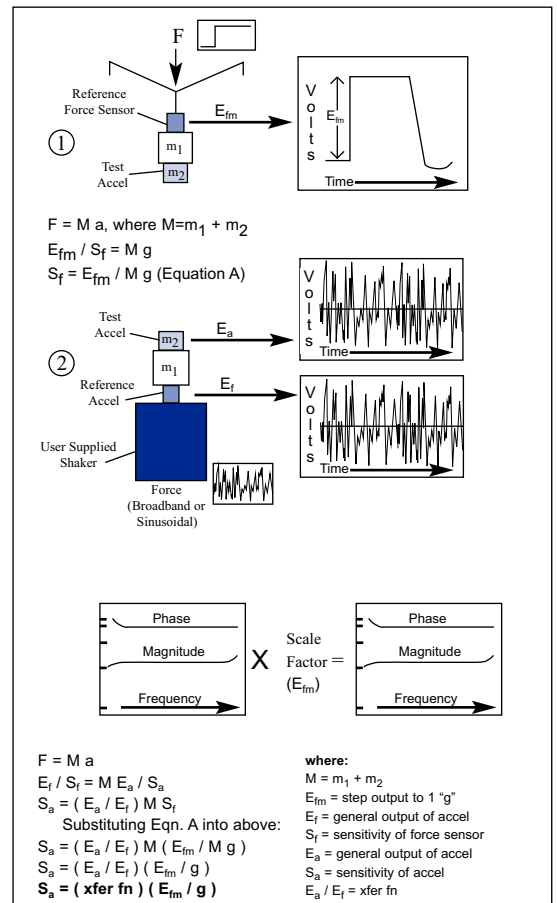
**Specifications:**

Frequency Range: Manual Excitation	0.5 to 2000 Hz
Accuracy	10% for ≤ 2 kHz
Test Masses	1.0 lb (0.4 kg) 2.0 lb (0.8 kg)
Mass Dimensions (dia. x height)	2 x 1.25 in (5.1 x 3.2 cm) 2.625 x 1.25 in (6.7 x 3.2 cm)
Mass Material	Stainless Steel
Suspension Line	Cofilament or Monofilament
Frame Dimensions	16 x 9 x 18 in (40 x 23 x 46 cm)
Total Weight	10 lb (4 kg)

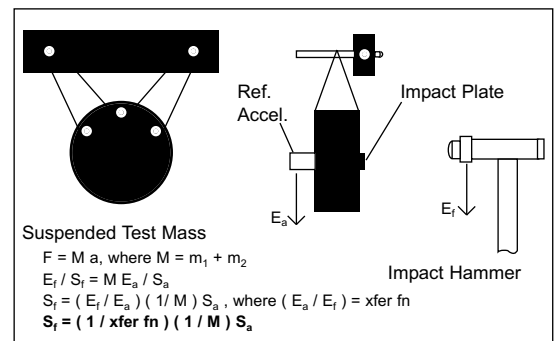
**996X Series:**

- Model 9961C** Gravimetric calibration drop fixture. Includes calibrated masses.
- Model 9962C** Calibrated masses
- Model 9963C** Gravimetric calibration drop fixture kit. Includes reference force sensor, standard accelerometer and calibrated masses.

**Accelerometer Structural Gravimetric Calibration**



**Hammer Calibration**



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