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**Title:** Vibration Studies: Related to Electron Microscopy

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### Abstract

This paper describes a convenient scheme for detecting and measuring vibration as related to the performance of an RCA electron microscope (Type EMU). The procedure involves the use of a Webster Model F5P2 phonograph pick-up arm in conjunction with a cathode-ray oscillograph. The cathode-ray oscillograph signal amplitude which represents the vibration of the location being investigated was calibrated by means of a Brush Development Company Type BL-301 vibration pick-up whose voltage output is proportional to the product of the vibration amplitude

and the square of the frequency. An audio oscillator was used to calibrate the voltage output of the Webster (rochelle salt) pick-up as a function of frequency. After calibration, these oscillographic measurements may be used to determine absolute mechanical displacements.

Electron micrographs are included to illustrate the image displacements due to several different amplitudes of vibration. Cognizance of vibration is often necessary, especially in high resolution electron microscopy. This scheme may be used as a guide in high resolution electron microscopy.

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