

User Manual for Self-Synchronization Vibration Table MQP

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The moving parts of the mechanism consist of three unbalanced rotors, each mounted on a small electric motor. Each motor is wired to a toggle switch, all three of which are wired to a single power adapter.

Before beginning the test, make sure all nuts on the mechanism are tightened down to prevent parts coming loose during operation. The rotors are attached to the motors by an epoxy glue, which may weaken after repeated testing, causing a rotor to break off during operation. Therefore, as a precaution, safety glasses are recommended.

Either secure the leaf springs to the vibrator platform or remove them and slide them away. The mechanism will operate with or without them.

To begin, plug the power adapter into a wall outlet. Turn on the center motor (motor 2) and allow it a few seconds to come up to speed. Next, turn on either motor 1 or motor 3. The two active motors will initially run at different velocities, but after a few moments they will synch up and run at the same average velocity. This will be noticeable when the sounds of the motors combine and become a uniform hum and the unbalanced rotors spin at the same velocity and with the same deformation of the free end.

When motors are running, if the platform begins shaking violently, either turn off the motors or steady the platform with your hand, the vibrations will cease and will not return.

At this point, turn off one of the active motors. This motor and its unbalanced rotor will continue to spin (along with the active motor) at the average velocity previously observed, due to vibrations produced by the active motor.

To end the test, simply turn off any active motors and unplug the power adapter from the wall outlet.