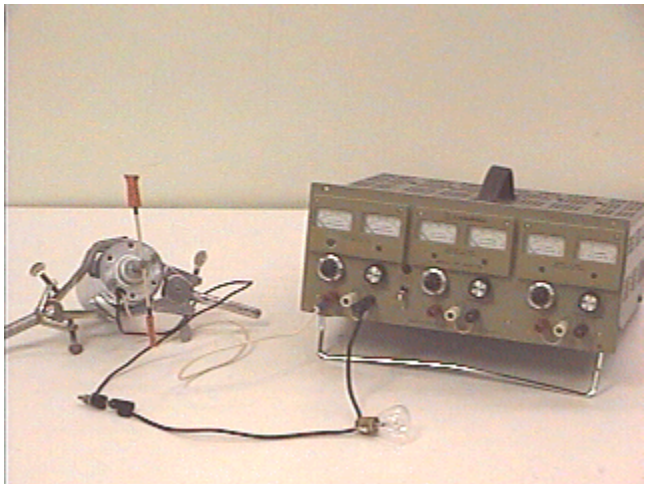
Answer #196

The answer is (a): Both the motor and the light bulb will operate, as can be seen by clicking your mouse on the photograph below.



You can hear the sound (speed) of the motor as the light bulb becomes hot and settles into its long-term steady state speed.

As can be seen by comparing the results from this version with the version of Question #37, exactly what happens is dependent on both the circuit elements (light bulb and motor) and the power supply! This is a complicated problem - somewhat more complicated than it appeared in the original setup.

What might happen if, while the motor and light bulb are operating in series, the motor shaft is stopped from rotating by grabbing it and squeezing. Click here to see what happens when the motor is stopped while the system is running with both the motor and the light bulb. Click here to see the reverse: the system is started up while holding the motor shaft, and the motor is then released.

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For questions and comments regarding the *Question of the Week* contact Dr. Richard E. Berg by e-mail or using phone number or regular mail address given on the Lecture-Demonstration Home Page.