

## Answer #282

The answer is (b): the current will go up and then return to its original value, as seen in an mpeg video by clicking your mouse on the photograph below.



In order to conserve energy in the magnetic field, as the core is removed the current must rise. Equivalently, as the core is withdrawn the collapsing magnetic field in the coil induces a current in the same direction as the current provided by the power supply, according to Lenz's law. The current therefore rises, but rapidly returns to its original value due to the resistance of the coil.

---

[Archive 15](#)

[Question of the Week](#)

[Outreach Index Page](#)

[Lecture-Demonstration Home Page](#)



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](#).