

ANSWER: GLASS CAPACITORS

The answer is: a. The glass in the capacitor is polarized, so the side of the glass near the + plate becomes - and the glass near the - plate becomes +. When the glass is removed, the - charge on the glass is removed from the vicinity of the + charge on the plate and the + charge on the glass is removed from the vicinity of the - charge on the plate and doing that requires work to overcome the attraction of like charges. So work is required to remove the glass and that work shows up in the spark.

Another way to view the situation is to say the glass weakens the electric field between the plates. Removing the glass restores the field and so increases the potential difference or voltage between the plates, hence a bigger spark.

Of course, it could also be said removing the glass decreases the condenser's capacitance and therefore increases its voltage which again is saying what has been said in different words.

