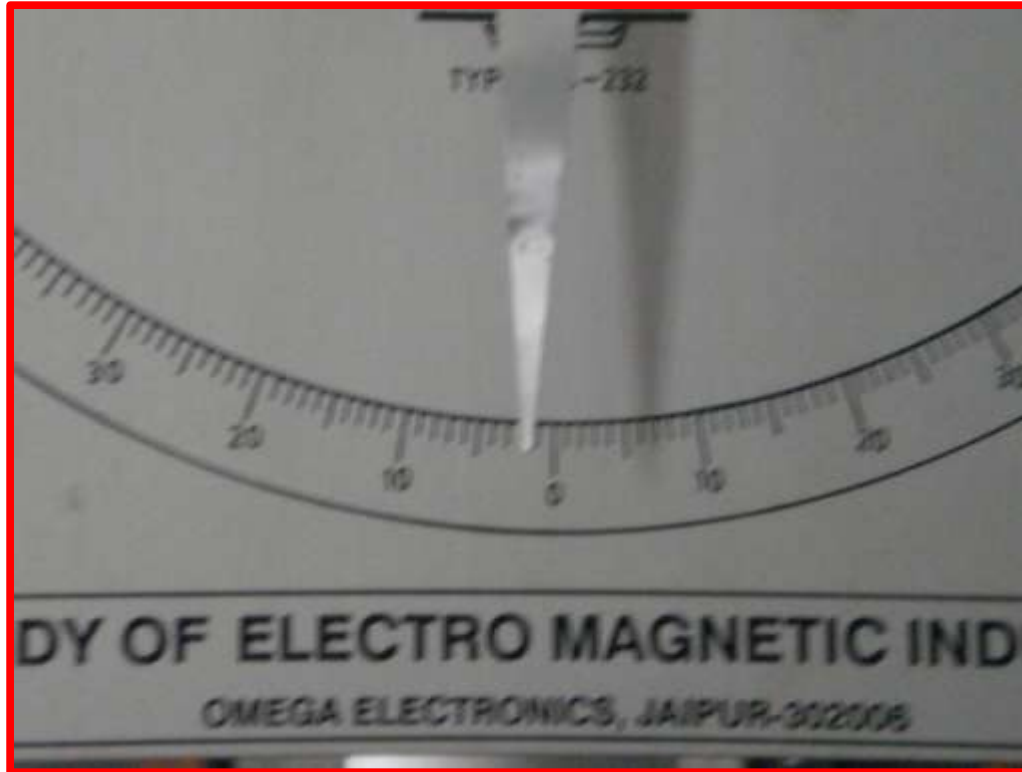


Electromagnetic Induction



PartA:

Measure the time-period of small oscillations

Part B

Connect the Circuit for the
Measurement of ϵ_0



Two Copper Coils Connected in Series

OMEGA
TYPE ES-232

STUDY OF ELECTRO MAGNETIC INDUCTION

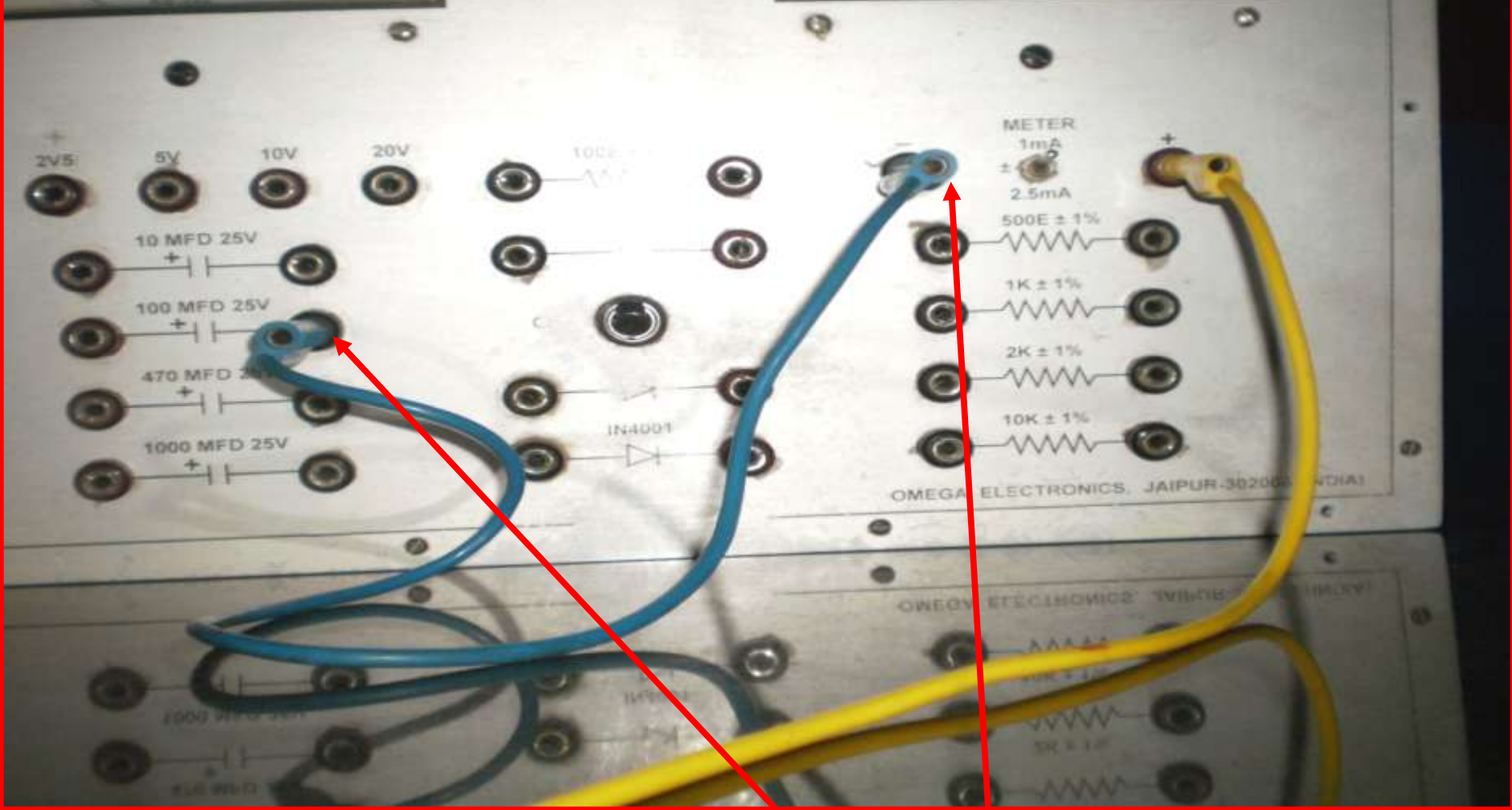


Panel components and connections:

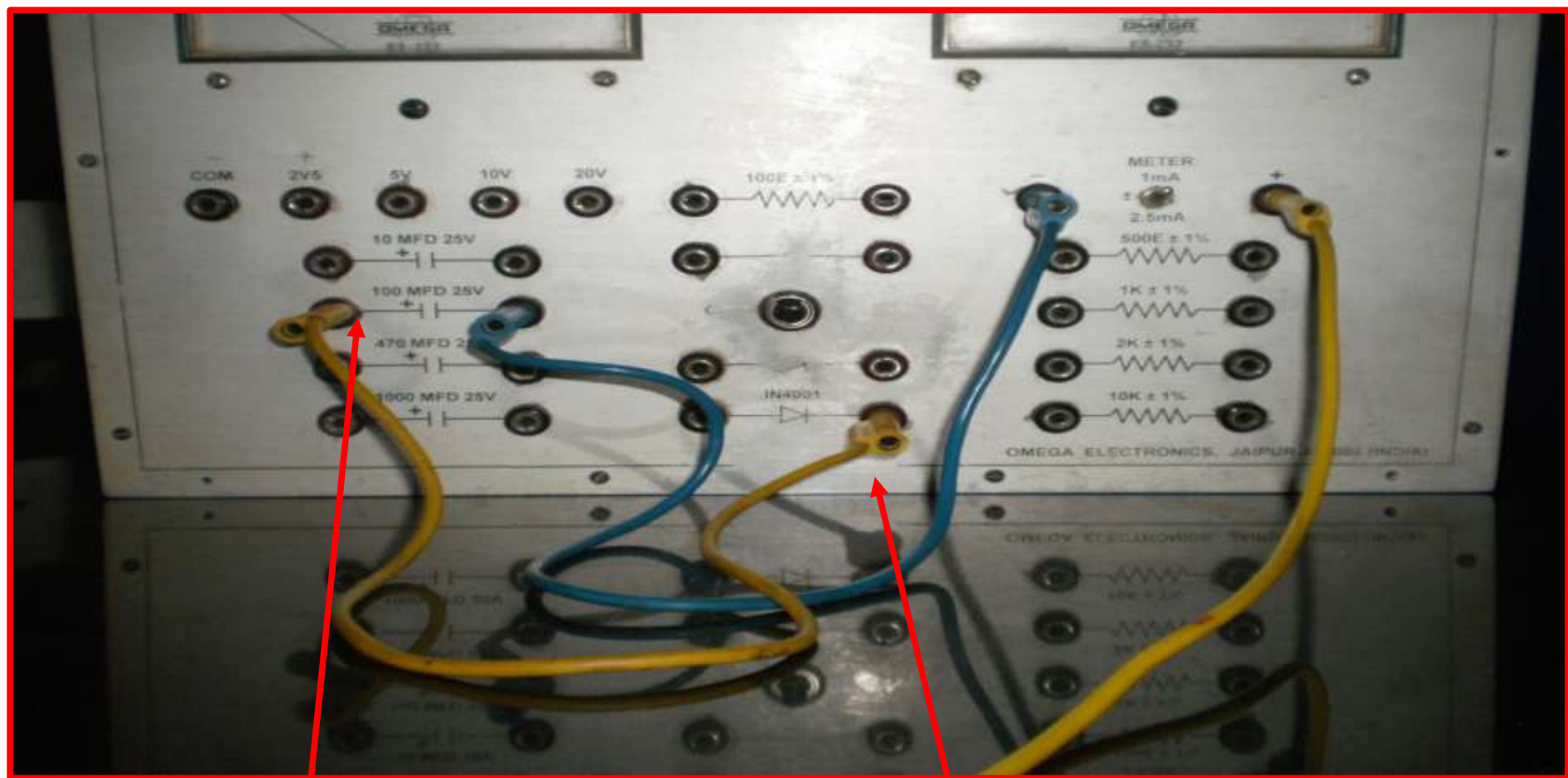
- Voltage Selection:** COM, 2V5, 5V, 10V, 20V terminals.
- Capacitors:** 10 MFD 25V, 100 MFD 25V, 470 MFD 25V, 1000 MFD 25V.
- Resistors:** 100E ± 1%, 500E ± 1%, 1K ± 1%, 2K ± 1%, 10K ± 1%.
- Other Components:** A switch, a central terminal 'C', and an IN4001 diode.
- Meter Selection:** METER 1mA, 2.5mA.
- Connections:** A yellow wire is connected to the positive terminal of the meter.

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Connection of one end of the copper coil to the positive terminal of the milli-ammeter (Yellow Wire)

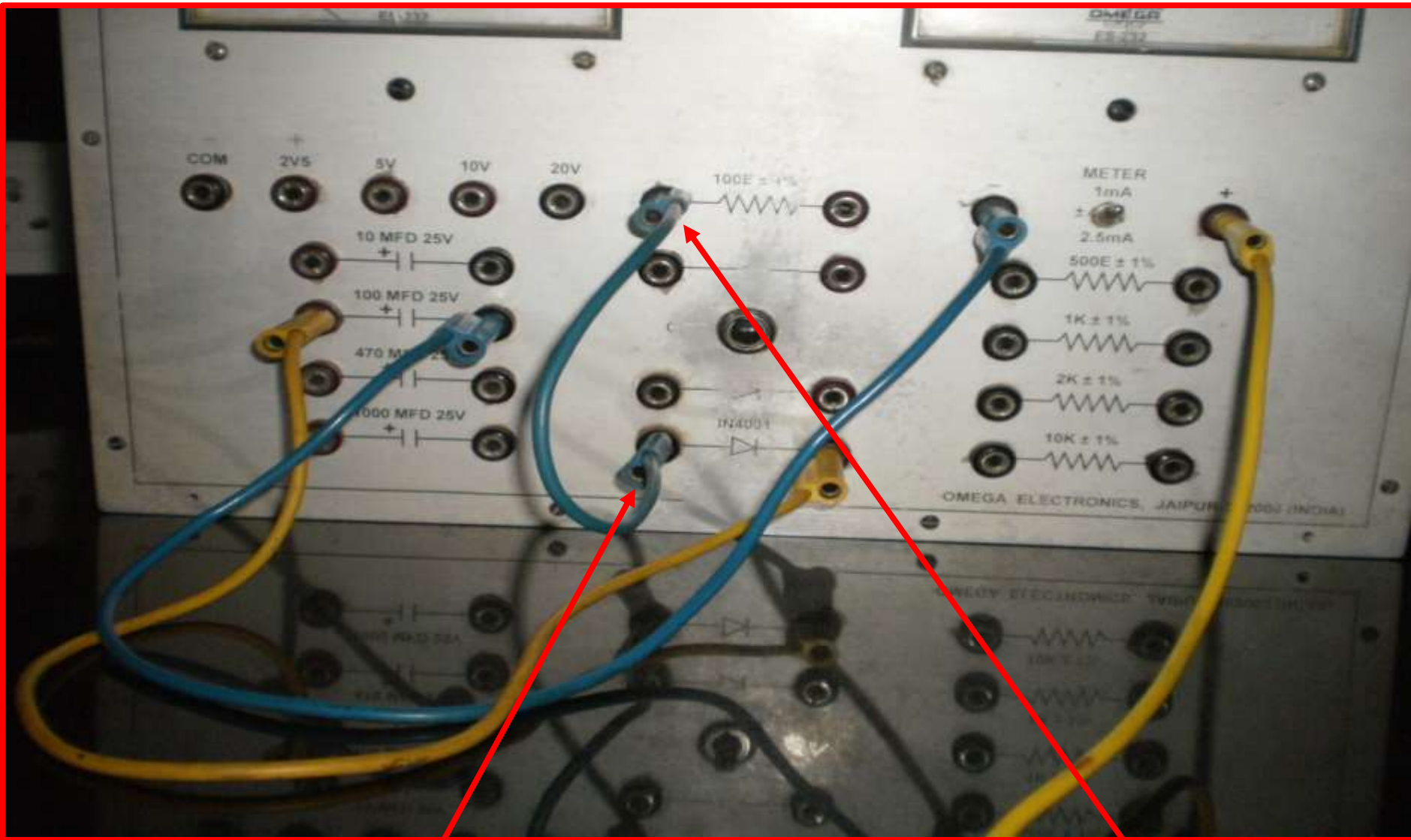


Connect the negative terminal of the ammeter to the negative terminal of the capacitor of $100\mu\text{F}$.



Positive terminal of the diode.

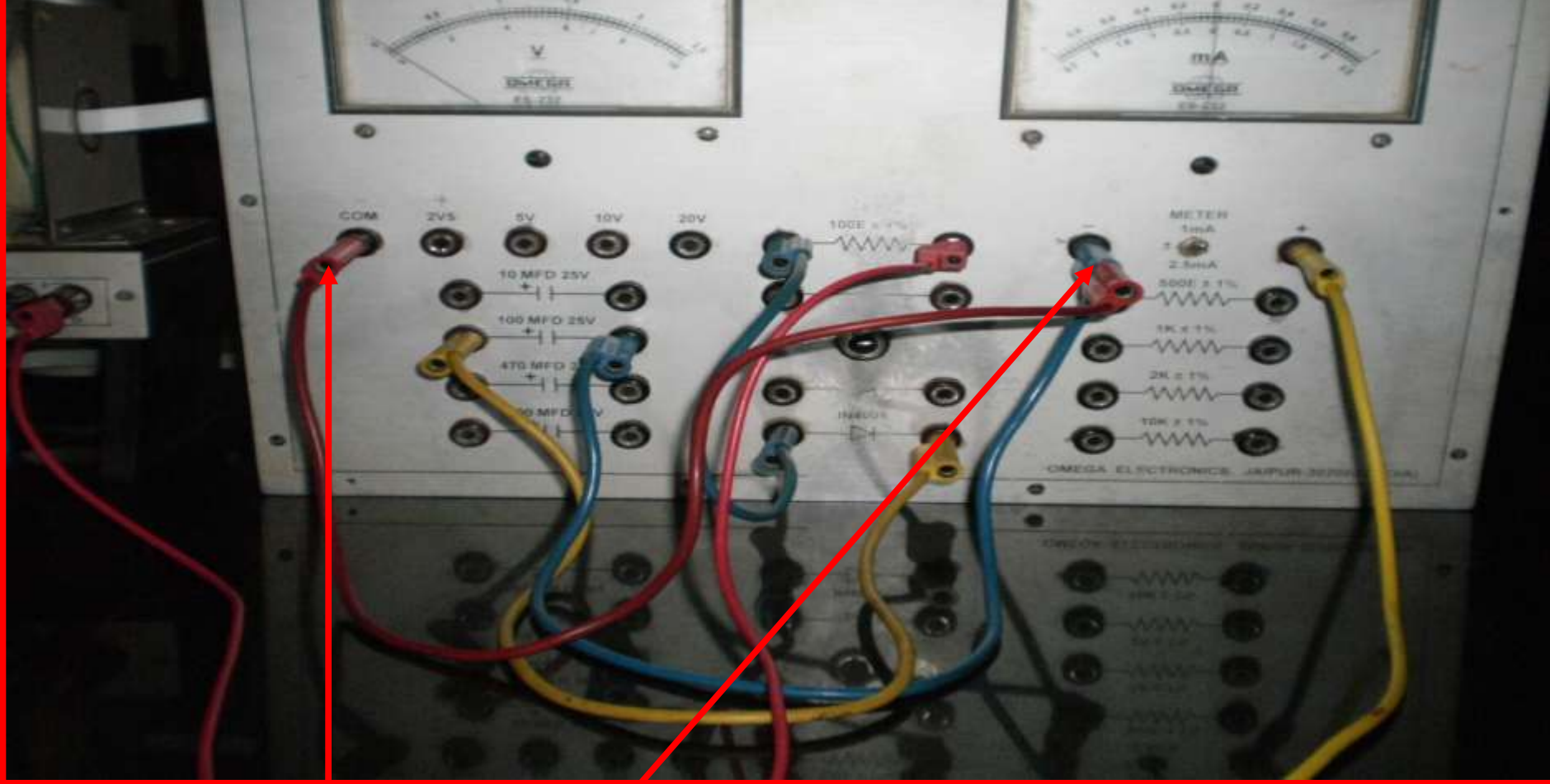
Positive terminal of capacitor



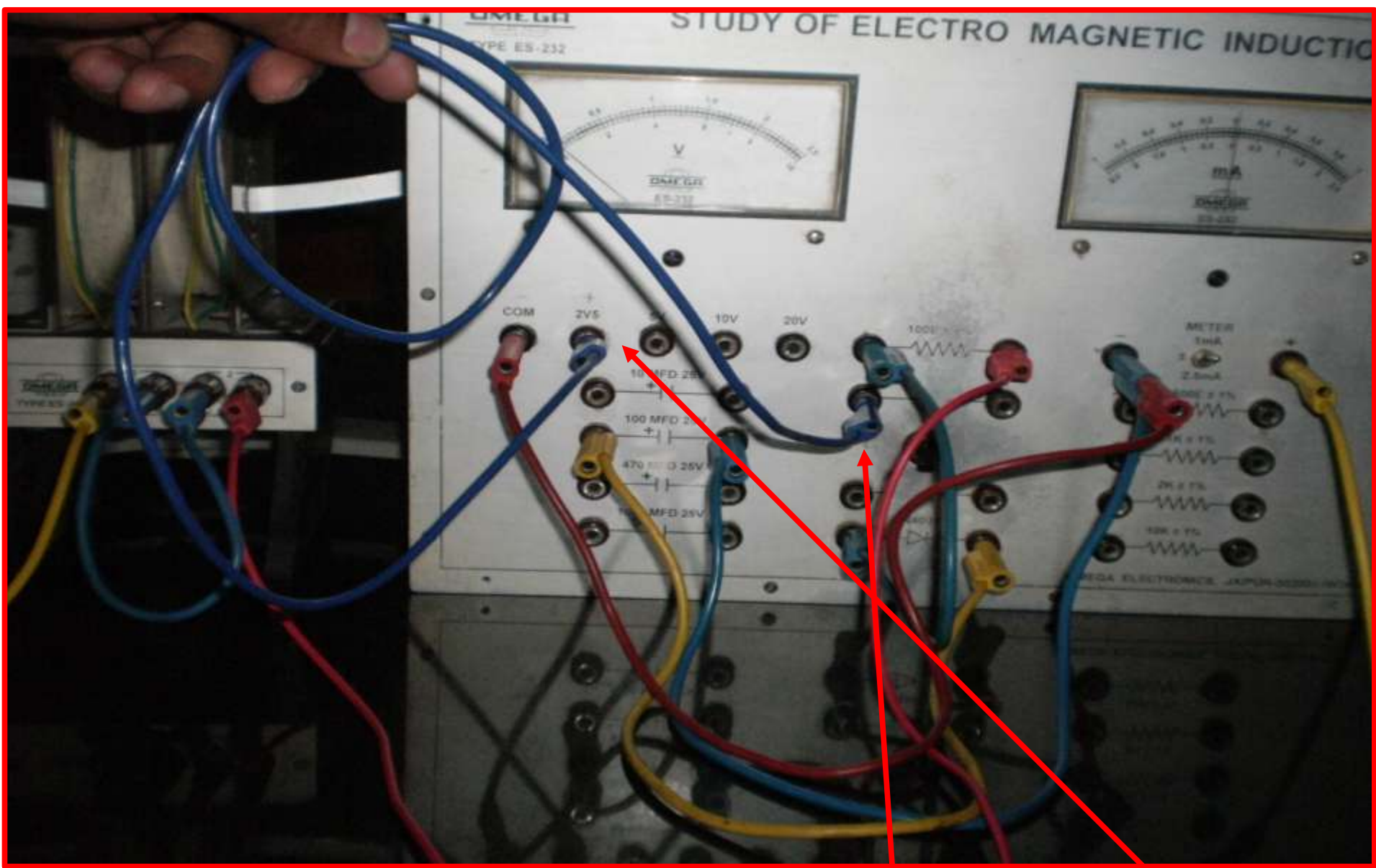
Negative terminal of the diode to the one of the terminals of R = 100 W



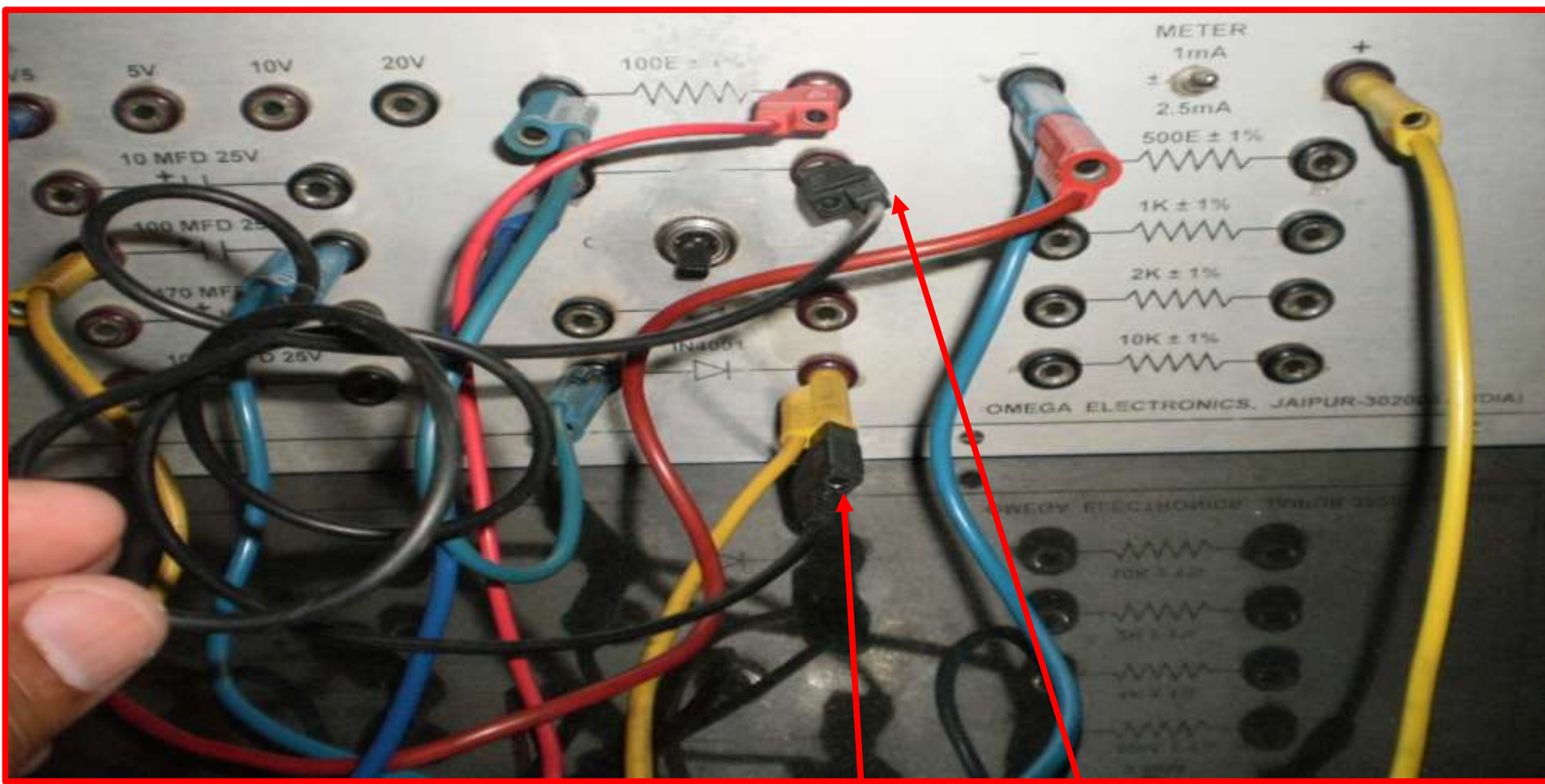
- Connect the **other terminal of R** to the other end of the copper coil. (**Red Wire**).
- The connection for the left loop of the figure 3 is complete.



Negative terminal of the ammeter with the common terminal (COM)



Positive terminal of the voltage source (2V5) to one of the terminals of the switch.



- Connect the other end of the switch to the positive terminal of the diode.
- The right loop of the circuit (fig. 3) is complete.

Perform the experiment to measure

$$\epsilon_0 \text{ vs. } V_{max}$$

End of Part B

Part C

To measure the charge delivered to the capacitor, choose a large value of **$R = 1 \text{ k}\Omega$ & $2 \text{ k}\Omega$** .

Follow the procedure given in the manual

End of Part C

Part D

Follow the procedure given in the manual.