X36. RC Circuit; TV-Projected Oscilloscope - 5W

Purpose: Demonstrate wave forms for RC Circuit with an oscilloscope.

Equipment: RC Circuit driven by square wave generator as shown in figure; 2-trace oscilloscope

Procedure:
- Display $V_R$ and $V_C$ vs time $t$ on 2 traces of scope.
- Shows current $i$ and charge $q$ on capacitor during charging and discharging.
- Current: $i = \frac{V_R}{R}$ and charge $q = CV_C$
- Measure RC time; compare to calculated value:
  - $emf = 1 \text{ Volt, } R = 500 \text{ ohm, } C = 1 \mu \text{F}$
  - $\tau = RC = 0.5 \times 10^{-3} \text{ s} = 0.5 \text{ ms}$
- Compare waveforms to Fig. in text H&R p.709 (hb transparency).

Ref: wl video V58; tape 4, 04:33:55, item 9 of 14.