

T109 Experiment using 75 ohm coax Length =18 meters.

The Left hand end is open circuit.

The Right Hand end of coax is connected to a small 1cm long normally open Reed Switch on the far Side of the reed switch is a 75 Ohm Termination resistor. A hand held magnet is used to operate the switch.

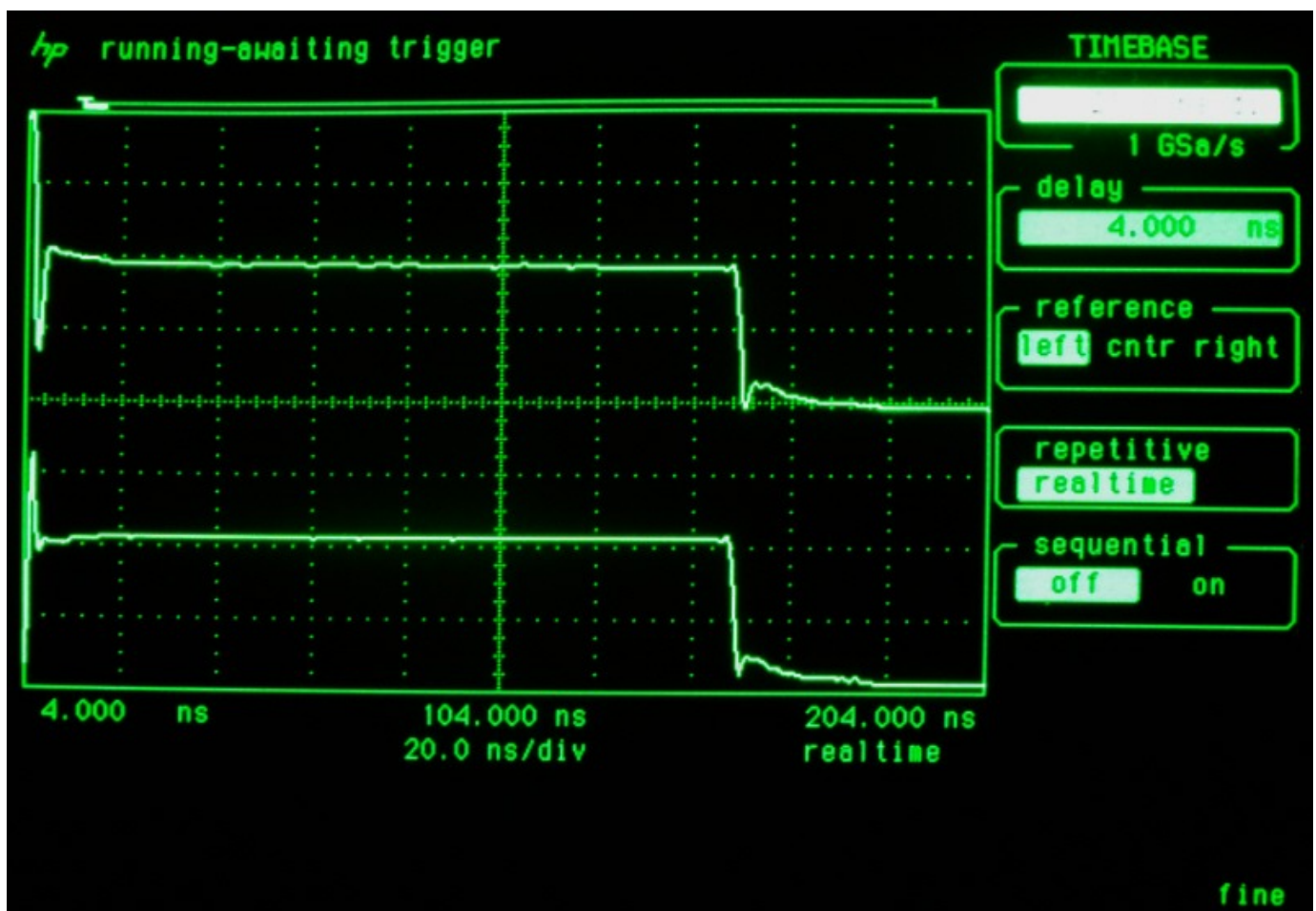
The Coax is charged up from a 9v battery via 2 x 1 meg ohm resistors close coupled at the switch to center and ground. Two resistors are used to isolate the relatively long battery wires from the coax. High value resistors are used so as to minimize any supply charge when the switch is closed relative to when the switch is open.

A 2 channel HP 54510B digital sampling scope set to 2v/div Vertical and 20ns/div horizontal, is used to capture 5 images :-

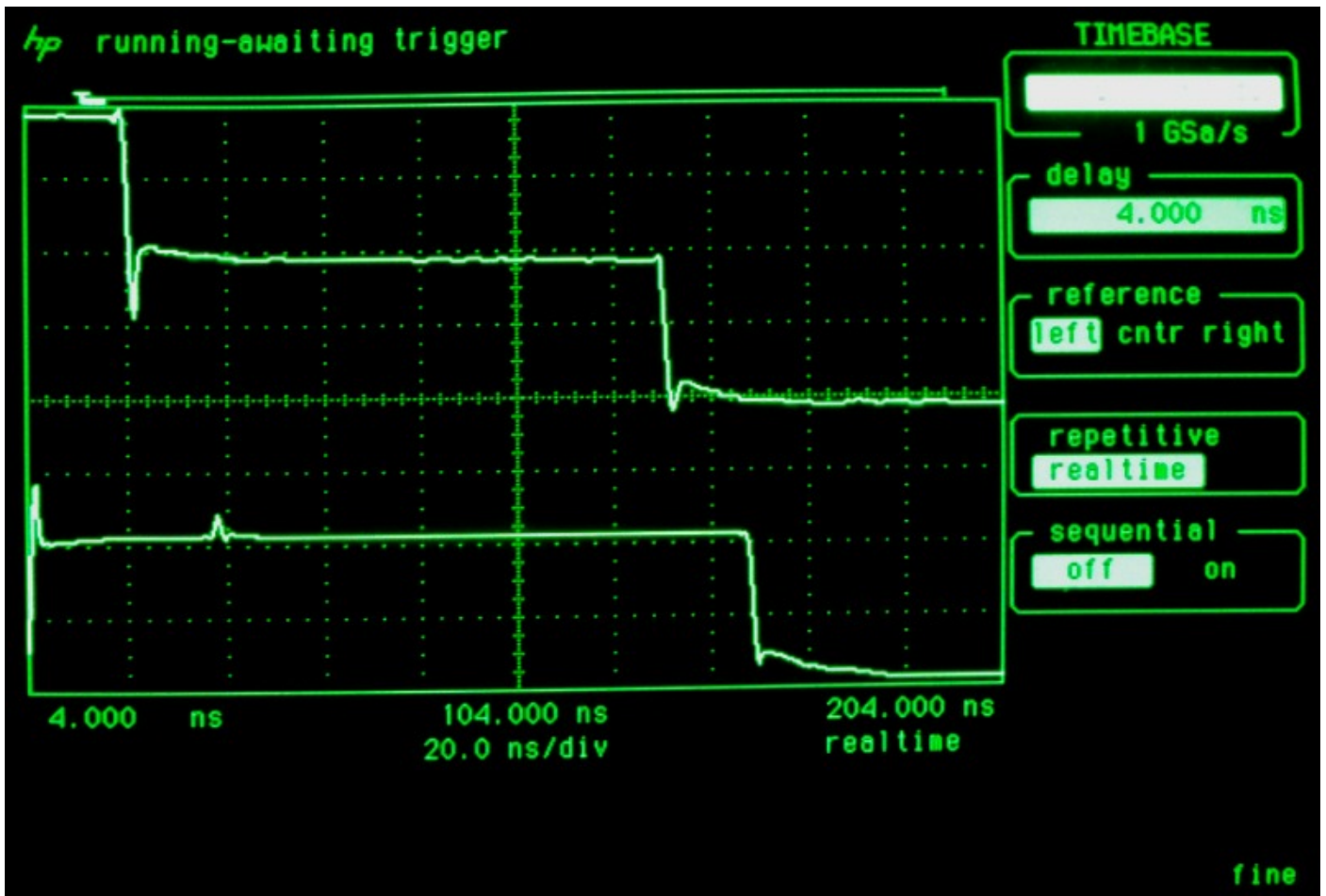
The bottom trace probe is cross the 75 terminator used as a trigger shown on the bottom trace of all the captures and shows a pulse of $\frac{1}{2}$ battery volts (actual battery volts = 8v after the 2 x 1 meg ohm resistors and the probe loading).

- 1) Right hand side of coax connected to the reed switch.
- 2) 25% to the left of the reed switch [4.5 meters].
- 3) 50% to the left of the read switch [9 meters].
- 4) 75% to the left of the read switch [13.5 meters].
- 5) At extreme left the un-terminated end of the coax [18 meters].

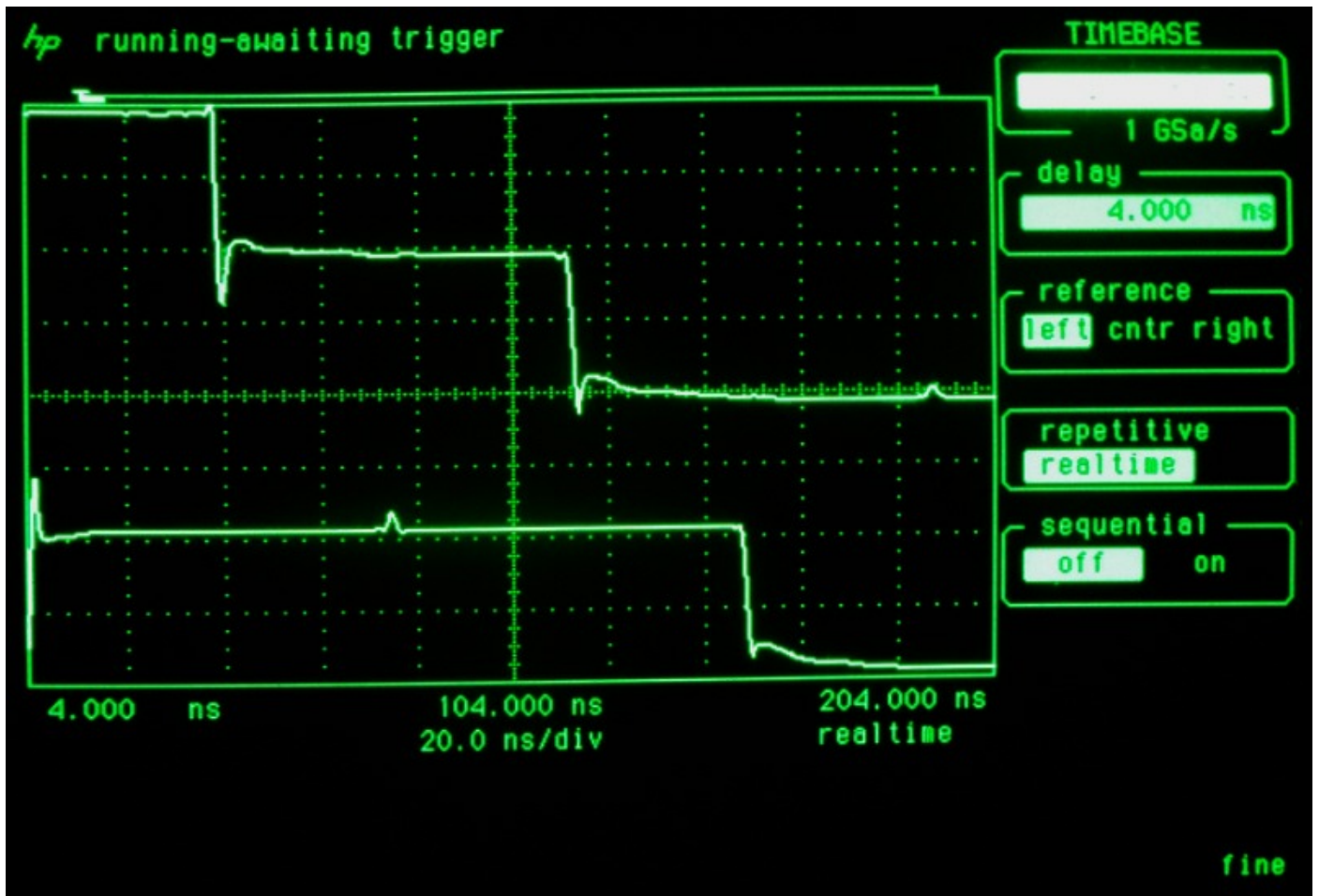
NOTE: Probe ground ring at tip is connected to braid (coax outer) to minimize and ringing that the ground



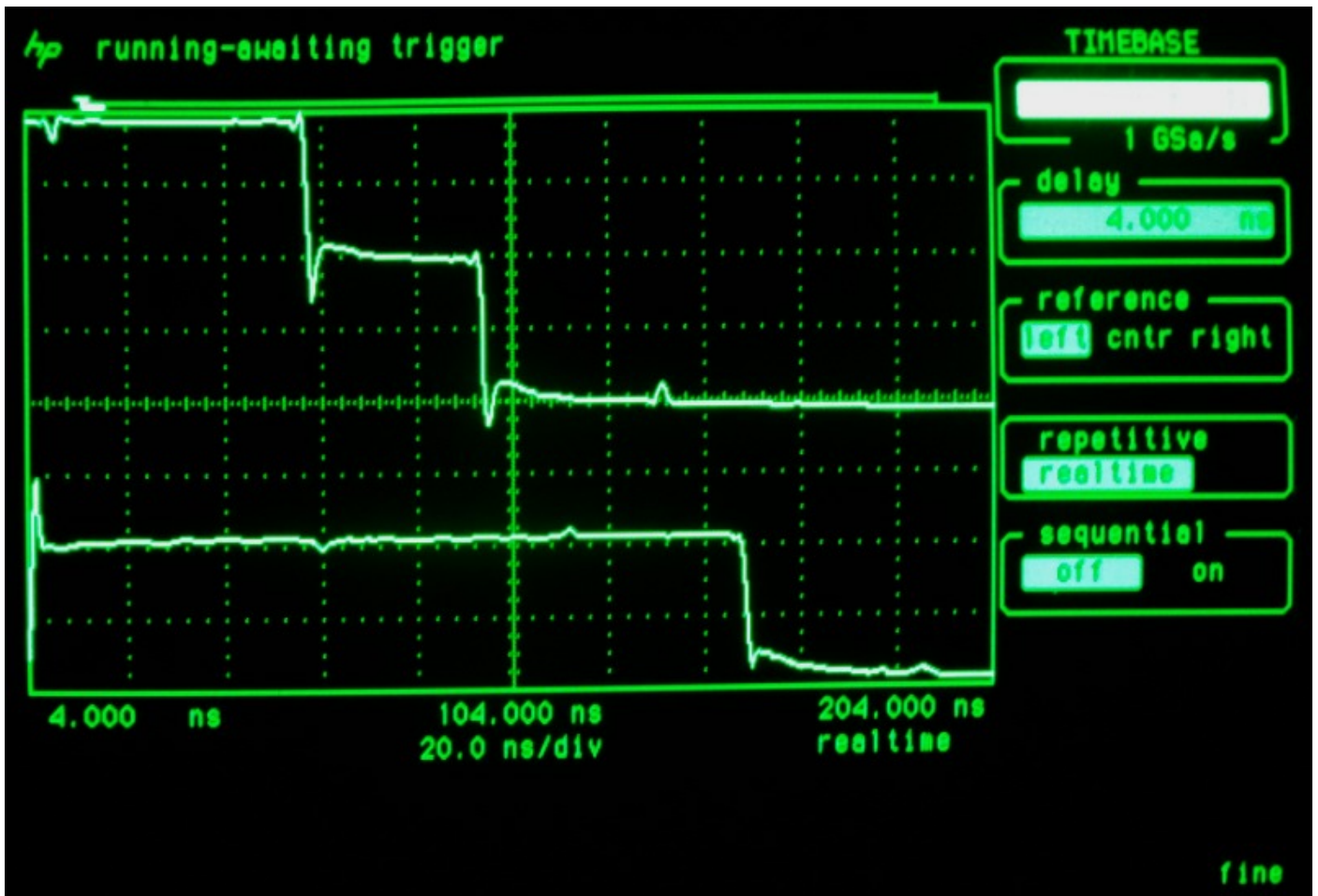
- 1) Right hand side of coax connected to the reed switch.



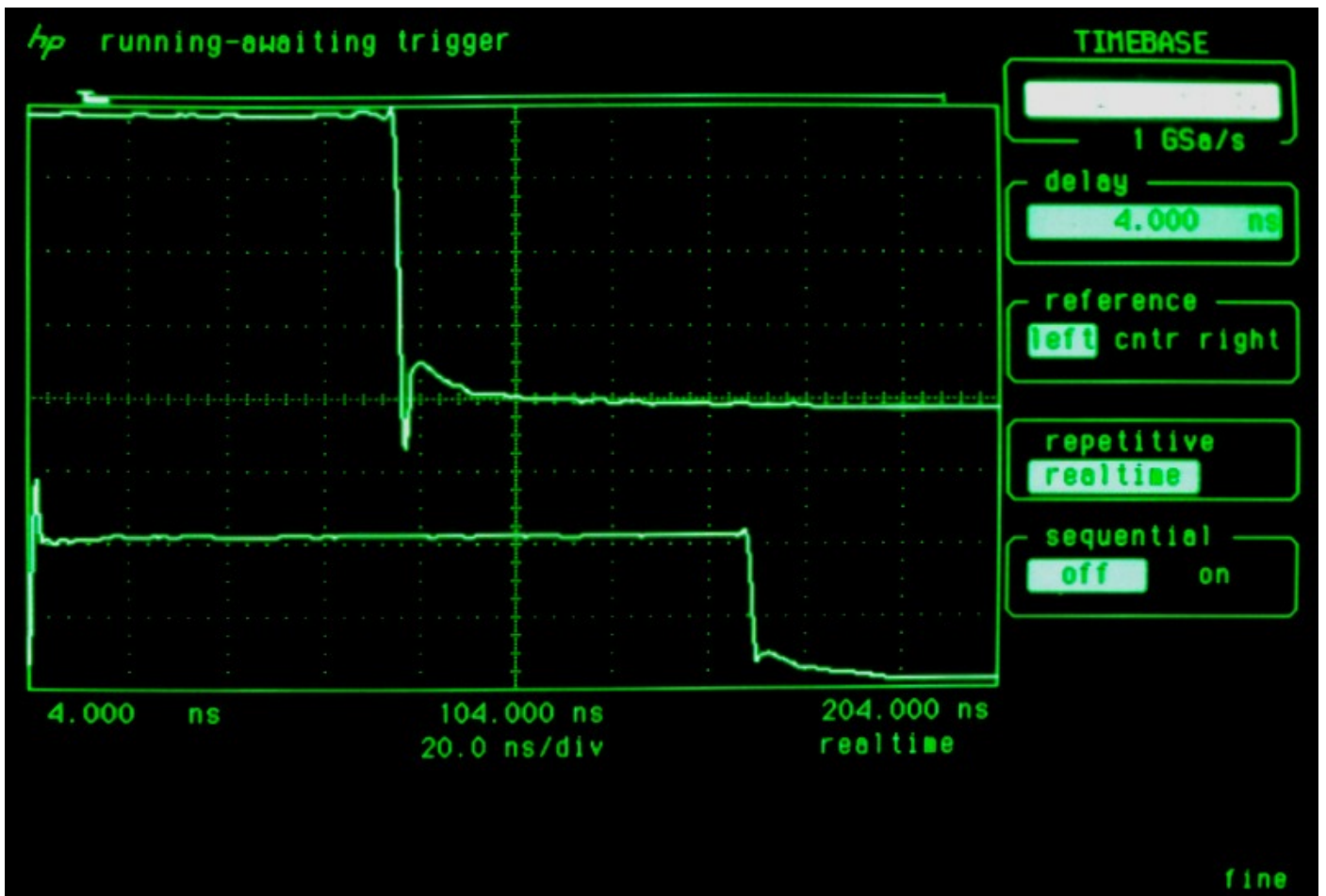
2) 25% to the left of the reed switch.



3) 50% to the left of the read switch.



4) 75% to the left of the read switch.



5) At extreme left the un-terminated end of the coax.