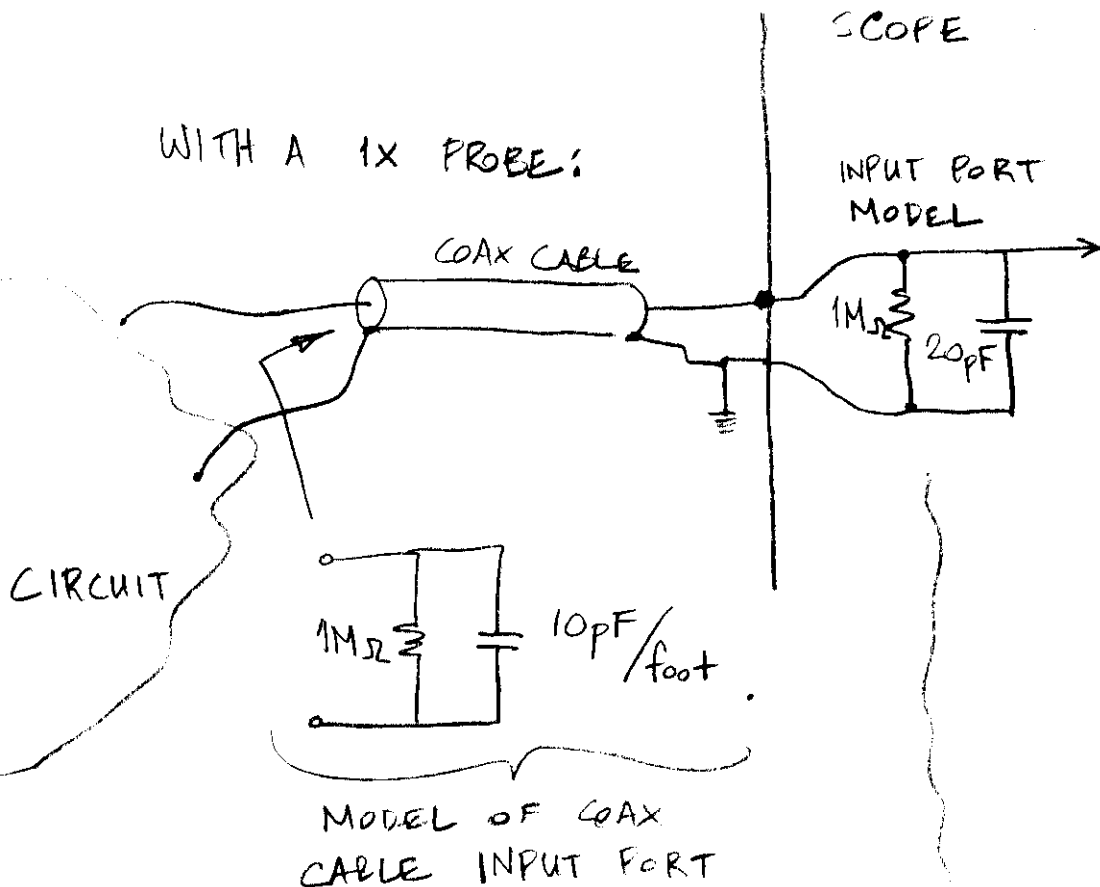
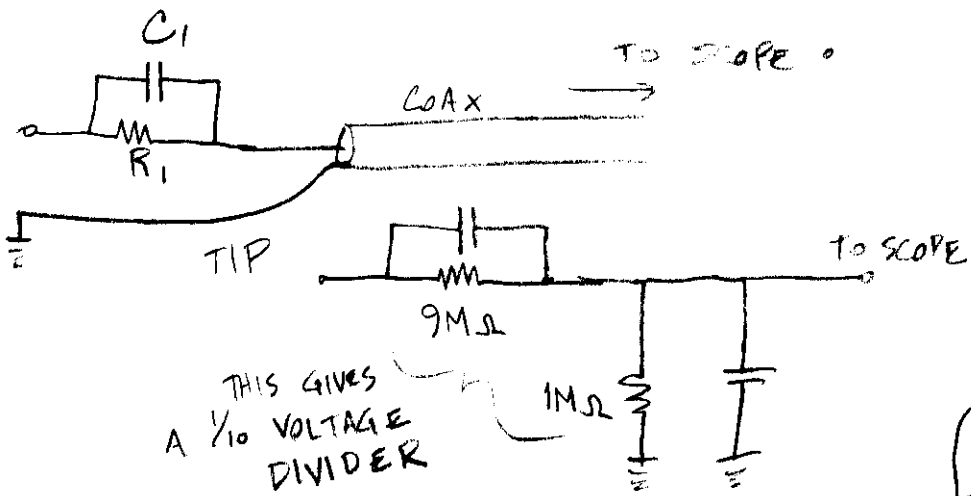


SCOPE VOLTAGE PROBES

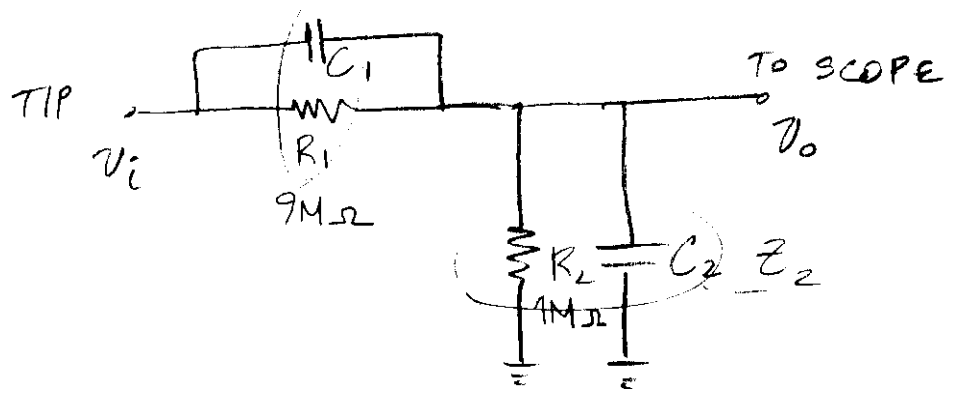


THESE PARASITICS CAN RESULT IN A SIGNIFKANT LOADING, CAUSING YOUR WAVEFORMS TO BE DISTORTED

WITH A 10X PROBE:



10X VOLTAGE PROBE MODEL



$$\frac{V_o}{V_i} = \frac{Z_2}{Z_1 + Z_2}$$
 WE WANT $\frac{V_o}{V_i} = \frac{1}{10}$ FOR ALL FREQUENCIES

$\Rightarrow Z_1 = 9Z_2$

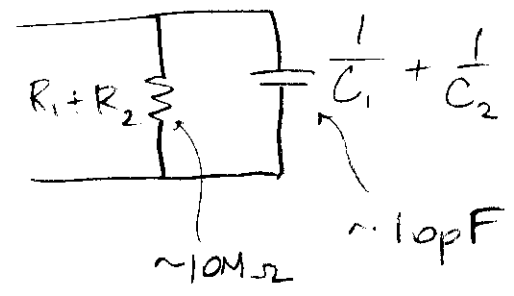
$Z_1 = R_1 \parallel \frac{1}{sC_1}$

PICK $C_1 = \frac{1}{9} C_2$

$Z_2 = R_2 \parallel \frac{1}{sC_2}$

$(C_1 \sim 8 \text{ to } 12 \text{ pF})$

WHAT IS THE EQUIVALENT LOADING?



\Rightarrow THE LOADING IS
 10 TIMES LESS THAN
 A REGULAR 1X PROBE!

THE ONLY DEFICIENCY OF 10X PROBES IS THE ABILITY TO SENSE SMALL-AMPLITUDE SIGNALS (SINCE THERE IS $\frac{1}{10}$ ATTENUATION!)