



APPLICATION NOTES

RB

APPLICATION NOTE 41D

DECREASING THE RESPONSE TIME OF THE MODEL 405 INPUT FILTER

The input filter of the Model 405 is designed primarily for maximum ac rejection compatible with reasonable response time to a step function. The ac rejection at 60 cps is typically about 50 db while the response time to a step of voltage is less than a second - normally 750 milliseconds.

The response time of the filter can be reduced to make it compatible with the maximum sampling rate where there are only 200 milliseconds between successive samplings. CAUTION: with filter response times this low the ac rejection at 60cps will typically be only 10 db. Extra care must be taken to be sure

that high level 60 cps signals are not present on the voltage being measured low.

Modification 1 - To reduce the response time on the $\pm .999$ volt range, remove C1 and replace C2 with a $0.01 \mu\text{f}$, 1000 vdcw polystyrene capacitor. For convenience, two $0.02 \mu\text{f}$ 600 vdcw capacitors may be used in series.

Modification 2 - To reduce the response time on all ranges, perform Modification 1 and in addition remove C3 and replace with a $0.01 \mu\text{f}$, 600 vdcw polystyrene or mylar dielectric capacitor.

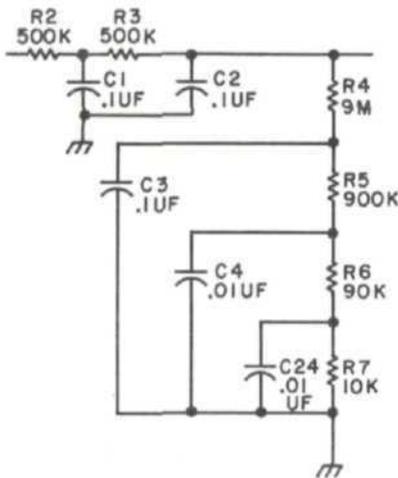


Figure 1.

Input Filter as Furnished on 405

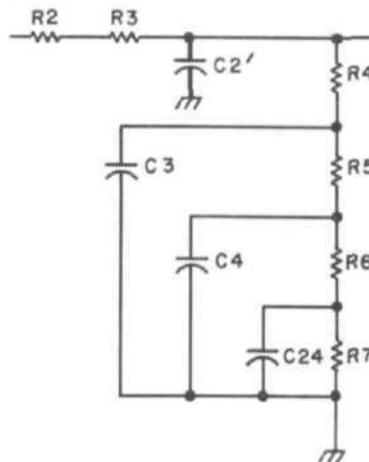


Figure 2.

Input Filter Modified for Fast Response on $\pm .999$ V Ranges

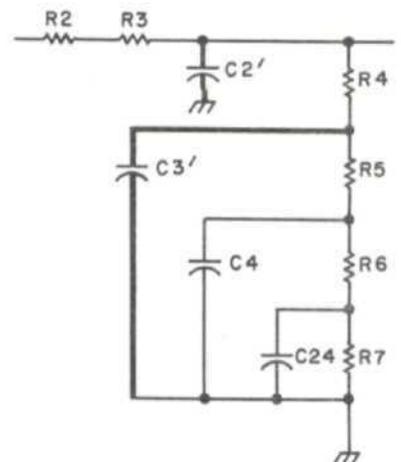


Figure 3.

Input Filter Modified for Fast Response on all Ranges