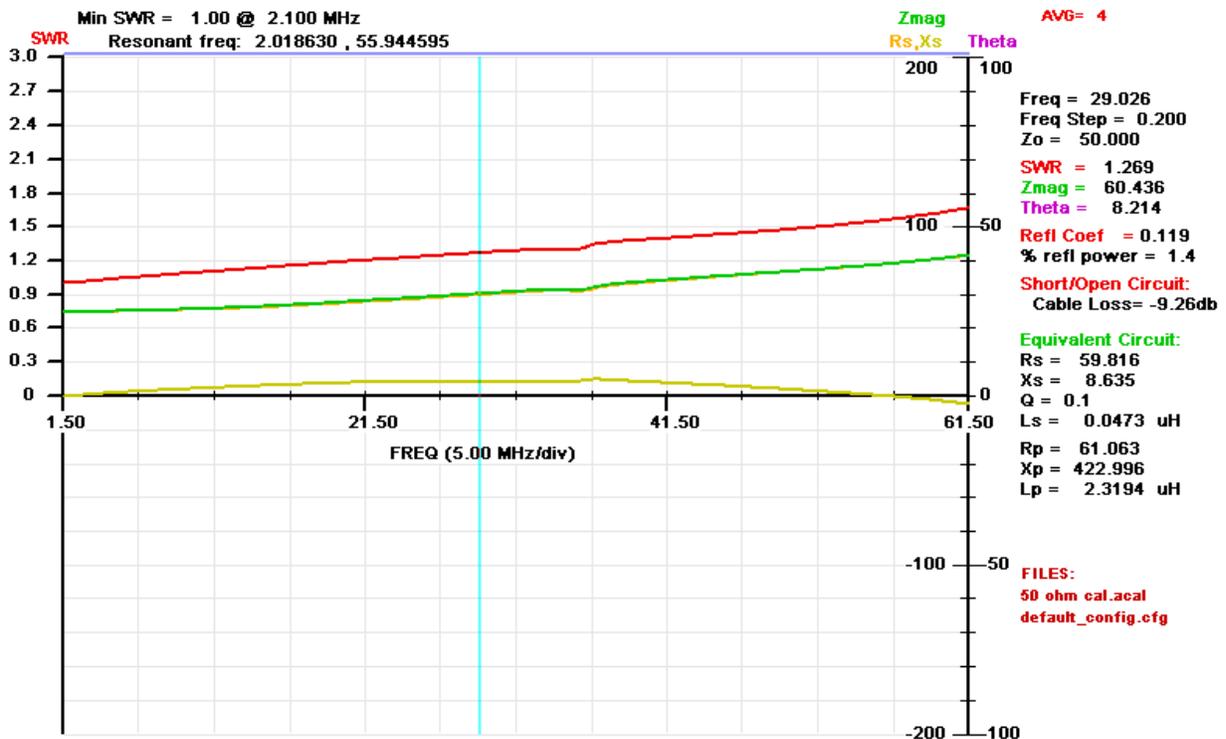


Tune Your Autotuner – Make your MFJ-925/929/998 Autotuners flat when bypassed
 Phil Salas – AD5X

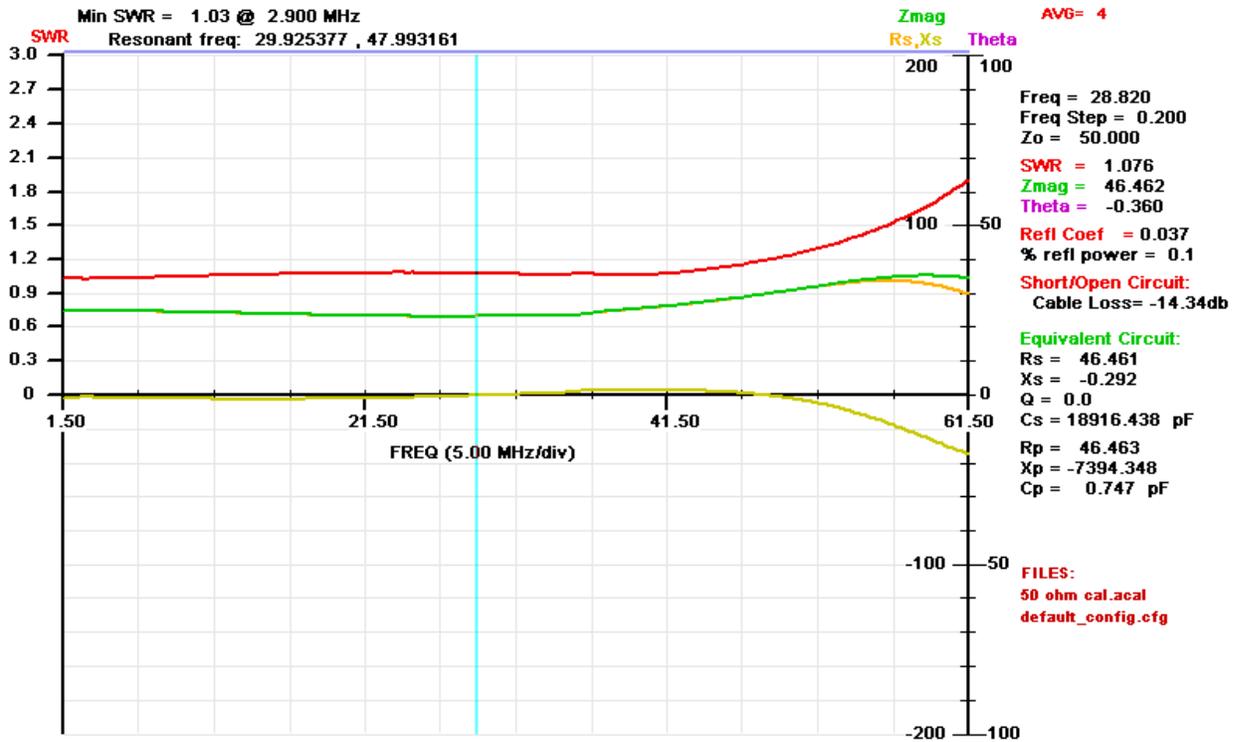
I've completely made the move to auto-tuners for my ham radio operation. I use a MFJ-925 with my portable station, a MFJ-929 with my secondary 100 watt station, and a MFJ-998 with my high power main station. All of these autotuners have a slightly degraded bypassed SWR of between 1.2-to-1.3 as you move to 10 meters. Now this is not a big deal, and if you use the tuner anyway you don't care as it will tune out any high SWR. But I want everything in my shack to be as flat as possible when tuners are in-line but bypassed, so I can feel good about looking at power with an external wattmeter (or the internal autotuner wattmeter). And let's face it, I tend to be a perfectionist!

It turns out that the "fix" for the bypassed SWR is almost identical in the three tuners – which shows how similar the actual designs are. For the MFJ-925 and MFJ-929, 22pf capacitors across both the input and output RF connectors flatten the response. For the MFJ-998, a 10pf input capacitor is used with a 22pf output capacitor. The MFJ-925 has a single RF output, but both the MFJ-929 and MFJ-998 have dual output connectors so place a 22pf capacitor on BOTH outputs of the MFJ-929 and MFJ-998 autotuners. The capacitors are 3KV high voltage capacitors available from Mouser and cost less than 50-cents each. The 22pf capacitors are Mouser 140-602S9-220K, and the 10pf capacitor is a Mouser 140-602S9-100K.

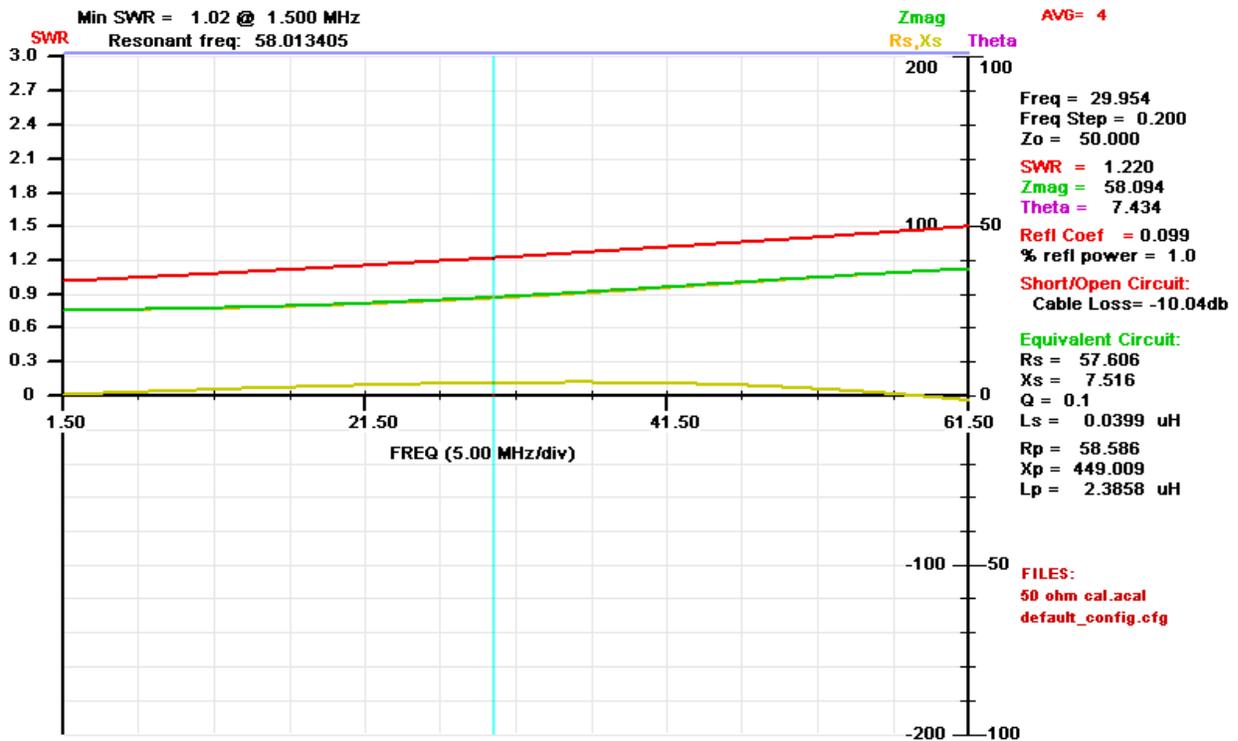
The pictures below show the BEFORE and AFTER bypassed SWR readings of these autotuners taken with my Array Solutions AIM4170C analyzer. The MFJ-925 and MFJ-929 are identical.



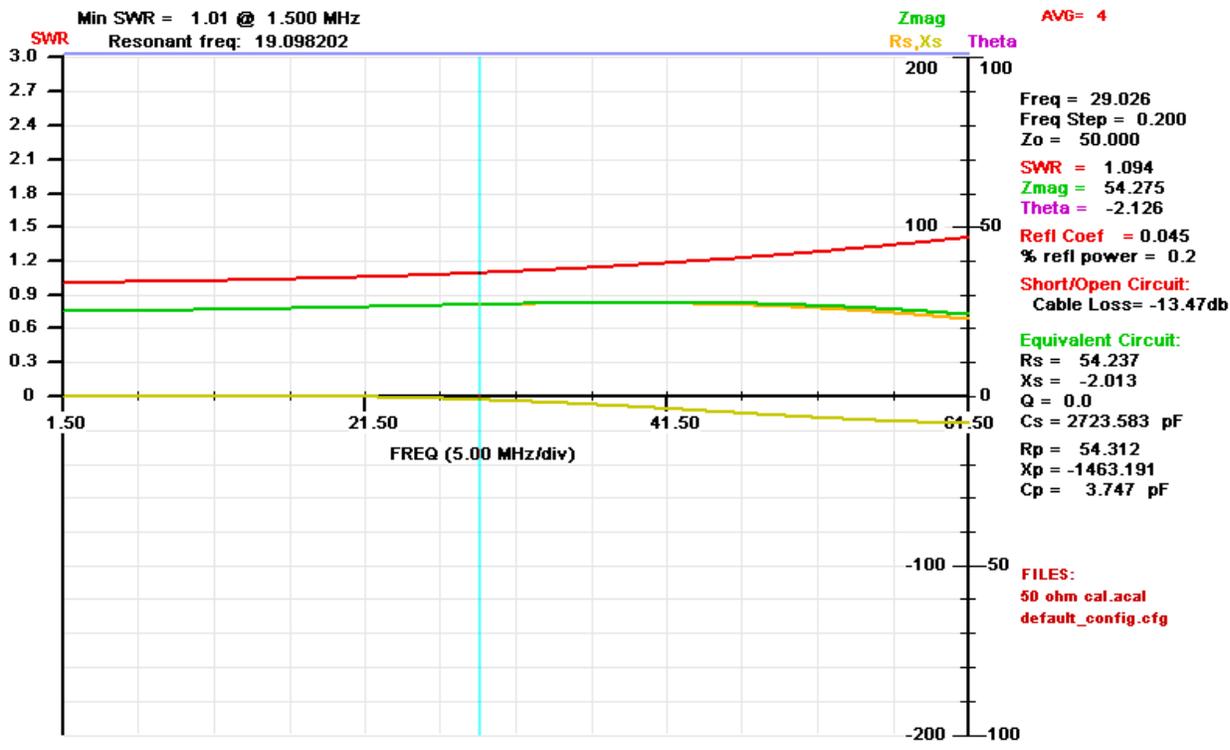
MFJ-925/929 original bypassed SWR



MFJ-925/925 TUNED bypass SWR (22pf capacitors across input and output RF connectors)



MFJ-998 original bypassed SWR

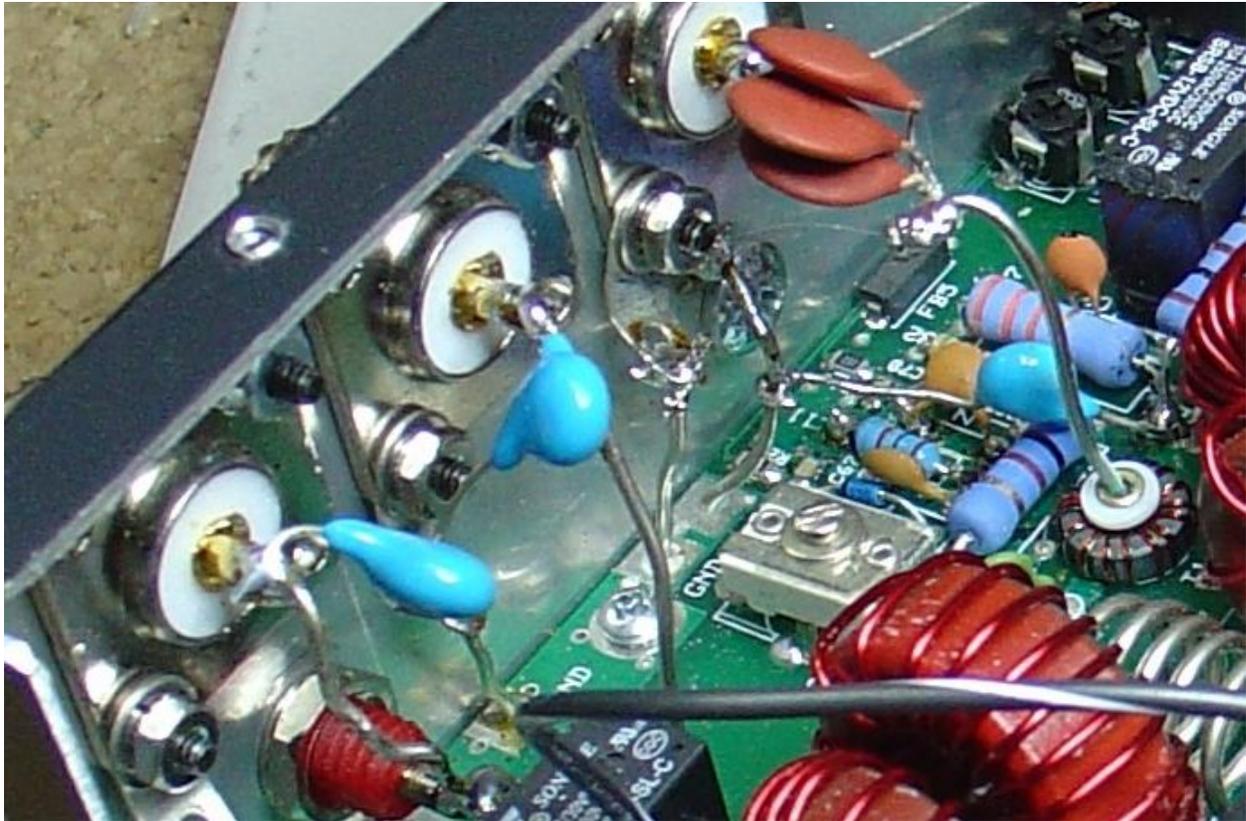


MFJ-998 TUNED bypass SWR (10pf input, 22pf output capacitors)

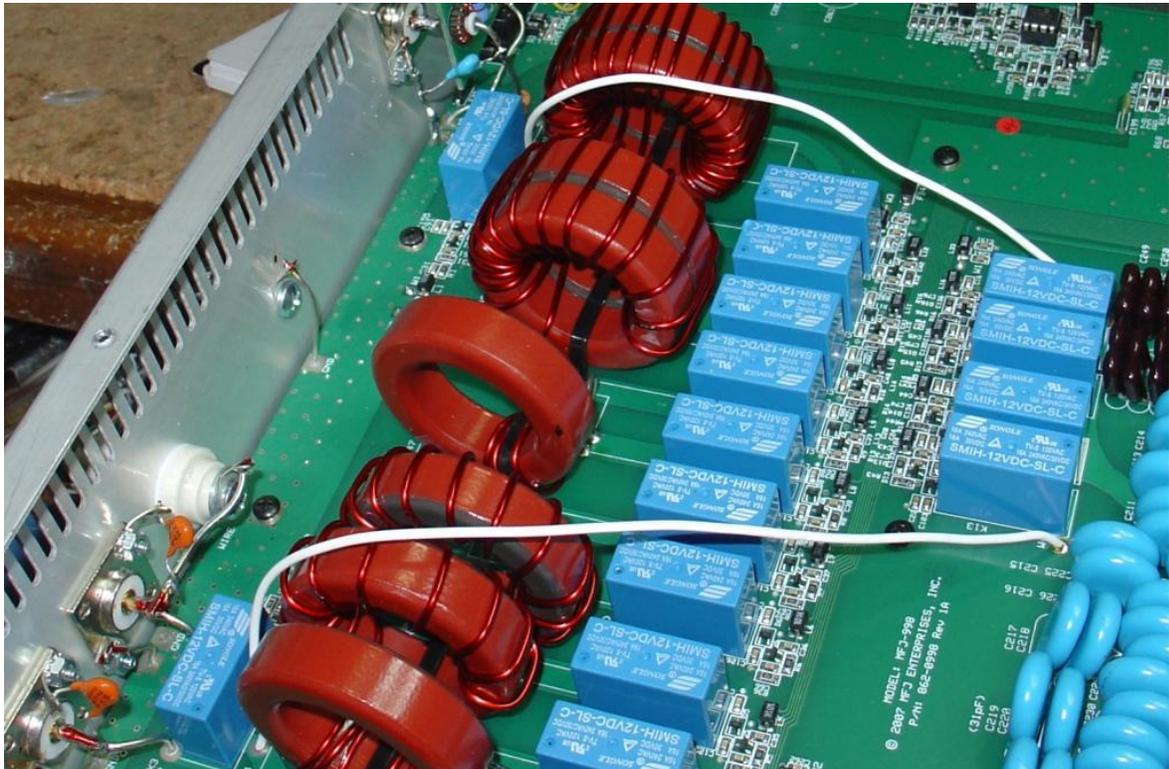
Below are photos showing the actual implementation of the capacitors on the three tuners.



MFJ-925 22pf capacitors installed (blue capacitors)



MFJ-929 22pf capacitors installed (blue capacitors)



MFJ-998 10pf input capacitor (blue) and 22pf output capacitors (orange) installed