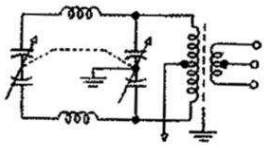

As MANY of you know, the MB-40L (formerly MB-20) originally grew out of a *QST* article. Recently, the MB-40L multi-band tank was redesigned to improve both its electrical and mechanical performance. The original MB-40L worked well. It is our belief that the new tank will prove to be even better. The mechanical features which in the first model were improvised from standard parts have been much improved and the condenser assembly is now a rugged one piece unit similar in appearance to its big brother, the MB-150. The tuning range is the same, 3.45 mc. to 10 mc. and 12 mc. to 30 mc. The output circuit has been modified to include an electrostatic shield on the output link and a tap on the output coil. The need for the electrostatic shield is well known to most of our fellow hams — the others are finding out every time the coaxial cable is extended. We do not make any claim that the electrostatic shield will eliminate harmonics from the driver to the final, or from the final to the antenna, but we do know it will serve as another link in the battle for harmonic elimination.

Some peculiar troubles presented themselves during the design period. It was found that the capacity from the center of the low frequency inductance to the electrostatic shield had to be kept low to eliminate a peculiar tuning characteristic brought about by two grounds appearing on this tuned circuit — one, the rotor of the tuning condenser and the other through the capacity existing between the link shield and the center of the low frequency coil. Originally, the shield was a flat ribbon insulated from the low frequency inductance. The final result was air insulation, low coil to shield capacity and low shield to ground inductance. It should be pointed out here that the inductance of any lead or condenser grounding the frame of the tuning condenser should be low to prevent any impedance existing between the shield and ground.

The tap on the output link provides a choice of three output impedances. These impedances will vary with the particular tubes in use of course. Two, three or five turns are available to work into (or from) any line impedance between 50 and 300 ohms. Tests indicated that when used with a resistive load, the loading was quite uniform over the entire range of 3.5 to 30 mc.

During the testing of the first sample something was noticed that may be of some interest to users of this, as well as the MB-150 tank. The MB-40 was connected in the plate circuit of a single 807 tube, the 807 being driven by a 6L6. The 6L6 was highly biased and was generating a fair supply of harmonics. When excited on 3.5 mc. the 807 plate circuit could be tuned to many of the harmonics of 3.5 mc. and gave the impression, at first, that the dips in 807 plate current were due to false resonances in the MB-40L. Investigation proved that this condition was due to high harmonic content in the drive voltage. The MB-40L can, of course, be tuned to harmonics of the driving frequency. Although the MB-40L is tuned to two frequencies at the same time, they are not harmonically related, 40 meters does not occur at the same condenser setting 80 meters does etc. Occasionally, a 10-meter doubler will be used to drive a final amplifier, with a multi-band tank assembly in the final plate circuit. The multi-band tank can be tuned to 20-meters and a dip in plate current will be noted. This is not due to any defect in the multi-band tank assembly. The driving voltage from a doubler often contains enough 20-meter component to drive the final to fair output if the plate circuit is tuned to 20. This condition also exists of course with conventional plug-in coils.

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