

10MK600 For ALS500M and ALS600 Ameritron

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I designed the initial ALS500M and ALS600 around 1990 and turned the designs over to MFJ. MFJ had people who did not understand Radio Frequency board layouts randomly change things in these units. Some units fail FCC harmonic requirements due to these changes. The changes slightly affects board fitment, power, PA current, and harmonics.

Units to be concerned with are:

All units with remote control jacks have safety and performance issues!!

- These unit have the ten meter through 160-meter positions inverted in the filter. This causes long foil traces to the ten-meter filters, reducing harmonic suppression and mismatching the ten-meter board.
- I recommend fuse resistors in the mobile amplifiers. The 12V for remote metering is sample directly from the ~75 ampere high current line. ***This voltage appears at the CAT5 jacks without any fusing!*** This is a major safety issue. If the CAT5 cables are connected to the wrong jacks wrong, if they short out, or if CAT6 cables are used you can have a wiring fire. There have been cases of damage from melted CAT5 cables. You MUST install a 10-ohm ¼ watt fusible resistor in the 12V feeds to the jacks. This will limit CAT-5 cable current to less than 2-amperes while the resistor burn open.
- If your board has a long (normally white) wire along one side of the board to a small RF transformer, you should replace that wire with small 50-ohm Teflon coax. Ground the shield at both ends.
- If your unit is “down on power” after correction it means the PA modules are not matched to 50 ohms. The proper correction is to change the compensating capacitors on the transformers, but this is difficult. A patch would involve spreading turns on one coil in the filter board the least amount possible to restore power. You can find the coil that needs spread by inserting a small metal cylinder or rod into each coil while watching power. The coil that increases power with the insert is the coil that needs spread. While brass or aluminum is better, even a large iron or steel nail will work. Anything that looks like a shorted turn, even if made from iron, will reduce inductance for this test. Be careful you do not cause excessive PA current. If the power loss is minor, it is better to leave the filter alone.
- When MFJ re-laid this board, they stuffed two mica capacitors that vary in size too close to this board. Some “fatter” capacitors might bump the 10MK600 board and/or the 15-meter coil. If you have a fit issue, it is okay to file the 10MK600 board edge at the capacitor. We have already cleared the interference area but it might still bump.

If your unit is pre-remote:

- You still must watch for the white wire. If your board has a long (normally white) wire along one side of the board to a small RF transformer, you should replace that wire with small 50-ohm Teflon coax. Ground the shield at both ends.
- Your PA module output transformer might be mismatched by incorrect compensating capacitors. If your unit is “down on power” after correction it means the PA modules are not matched to 50 ohms. The proper correction is to change the compensating capacitors on the transformers, but this is difficult. A patch would involve spreading turns on one coil in the filter board the least amount possible to restore power. You can find the coil that needs spread by inserting a small metal cylinder or rod into each coil while watching power. The coil that increases power with the insert is the coil that needs spread. While brass or aluminum is better, even a large iron or steel nail will work. Anything that looks like a shorted turn, even if made from iron, will reduce inductance for this test. Be careful you do not cause excessive PA current. If the power loss is minor, it is better to leave the filter alone.