

## 2KL – 10 METER MODIFICATION

1. Remove top cover ( 8 screws)
2. Turn unit upside down and remove 3 screws holding main unit to chassis and one more on back side below "ant" port. Unit should be free from frame chassis.
3. Turn unit on side, with main unit facing up. On left hand side of main unit disconnect J2 & J3, then maneuver the main unit out of chassis about 2 or 3 inches.
4. On bottom right of board disconnect J7. On left side see 4 resistors. Next to them see 4 phono plugs. Disconnect J2 or bottom left one.
5. Remove 8 screws holding main board to filter unit ( They may have blue or green colored loc-tite on them ).
6. Separate the two units and totally lift the LPF unit from chassis. TAKE CARE ...DON'T TEAR ANY CABLES.
7. SET THE 2KL CHASSIS ASIDE.
8. Look at the LPF unit ... Become familiar with design scheme ... Look at relays & coils & caps ... notice empty spot (near ant conn). This is where the 10 meter modification goes.
9. Remove 3 screws holding back cover plate. Remove plate cover.
10. We need to remove some parts that are in the way and some jumpers before installing our parts. so refer to Fig 1 and remove in the following order( so none are missed )
  - 1) Cap on component side
  - 2) Cap on component side( silk screening may say C4 )
  - 3) Coil on component side (silk screen may say L1)
  - 4) Jumper on foil side (It is shorting one side of L1 to ground).
  - 5) Jumper on component side.
- \*\* 6)REMOVE ANY CAPS tacked on the foil side. There should be nothing on the foil side but jumper(insulated) wires.
11. Now we can install our wires & parts. BUT FIRST ... REFER TO FIG 2 and clear solder from the holes where the parts & jumpers go. Let's do the jumper first. Open parts bag & remove a white looking resistor. (its actually an insulated jumper). Cut both leads off at the body and discard body. On component side, install the two jumpers detained in Fig 2 and by dashed lines(silk screening) on the board itself. KEEP THEM FLUSH TO THE BOARD ... NOT BOWED !!

12. All soldering should be CLEAN & NEAT! Trim excess lead lengths .. Now the two wire jumpers.

13. Notice how there is a wire draped across each relay for each band ? This is the idea for our wire, Look below the RL1 spot (on the silk screening) and see "n ". This is where one end of wire #1 goes. Look above RL2, and see "n ". This is the other end. Just to the left of "n " is "g ". This is the one end of wire 2. Dress wire 2 neatly with the other wires in its path and connect the remaining end to "9 ". This final connection may be your hardest as there are some components and wires that have to be SLIGHTLY shifted to get access to the hole. This completes the jumper and wire section.

NOTE: you may want to put your relays in first as wire 1 goes over them.. this is your option.

14. Now install the remainder of your components in the spots detailed in Fig 3, in the order listed. Remember to keep components flush to the board, leads snipped, and solder cleanly

- 1) RL1 & RL2 .. location is obvious
- 2) Two jumpers (insulated) on foil side. (One of them may already be installed.) Use the other jumper component supplied cut leads off and use them as jumpers. Use the supplied insulation and solder these jumpers in the same manner as the other ones on the board. Neat & Clean!
- 3) L15 & L16 .. as per Fig 3.
- 4) D1 diode, orientation on Fig 3. Cathode lead has white stripe. Bend cathode lead towards anode lead. Install anode lead into hole with white circle.
- 5) C1 ... 68pf (cap says 68J)
- 6) C2 ... 33pf ( cap says 33J )
- 7) C2 ... 100pf ( cap says 101J )
- 8) C4 ... 10pf ( cap says 10D )
- 9) C5 ... 82pf ( cap says 82J )
  
- 10) ..... C38 .0047uf ( caps says 472 )
- 11) ..... C39 .0047uf ( cap says 472 )
- 12) ..... C10 82pf ( cap says 82J )
- 13) ..... L1 LA141 ( 4 turns )
- 14) ..... L2 LA142 ( 5 turns )

15. Is everything CLEAN ? Leads cut? Are you PROUD to say you performed this mod? If not, touch up your solder & clean it up till you are !

16. Double check your work, if all ok ( both sides ), re-install LPF cover plate .. ( 3 screws )

17. Put 2KL chassis back on your bench.
18. Maneuver the LPF unit behind the main board( orient the plugs thru the slots ) and secure with 8 screws.
19. Re-seat this assembled unit into the 2KL chassis and install. Three bottom screws (loosely) and one rear panel screw. Once all screws are inserted, then tighten securely.
20. Re-install J2 & J3.
21. Re-install J7 & J2 (on the main board).
22. YOU'RE NOT DONE YET .. We need to fold down the front panel to have access to a circuit trace, so remove the 2 screws on the bottom front & one on each side.
23. With the unit facing you, fold front panel down towards you. See two circuit boards, 8446 & B447A. Notice a circuit board with wires soldered to it. (8447A). See a PURPLE wire soldered to the board ... follow this trace until you come to the first connection off the trace.., with a knife, remove, cut or sever this connection point from this trace.
24. Put the front panel back on. Adj ALC pot on rear panel as you would on the other bands.

**CONGRATULATIONS . . YOU DID IT!**

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**SEE YOU ON 10 METERS.**

Page 3 of 3

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(Source: Modification notes accompanying the Icom America IC-2KL 10/12m Modification Kit)

## Notes on the IC-2KL 10/12m modification

The first thing you do in the ICOM modification is removing the Low Pass Filter unit from the 2KL. I would recommend taking a picture of the manner in which the 12 or more cables are plugged into that unit. I didn't think of that until just now, but I did mark each cable so it would go back in the right spot.

The first three items to be removed from the LPF board are (you guessed it) L31, C57 and C58. These items are only in the A (American) version. The E (European) version has 10 Meters installed. I have a feeling that their "cute" little stunt of removing the 10 Meter band when the FCC passed that silly rule is a little on the weak side.

The next two items to come out are "jumpers". One is underneath the board and if you study their print very closely, you will find it. The second jumper is actually a solder bridge at one side of L1. The board is screened L1 and in the A unit, L31 is mounted there.

I don't recommend this modification to everyone. The board is flow soldered, and all the holes that are going to be used (about 50 them) for new components are soldered over. It would have been a messy job with solder wick or a manual de-soldering tool. Fortunately, I have a \$600 automatic solder sucker and that let me suck out all the holes in less than minute. By hand, it would have taken 30 minutes. As it was, I spent about 4.5 hours doing the modification.

All the parts, except jumper wires and wire insulation, are included in the kit. I installed the little stuff first and left the coils and relays to last. If I had installed the items as they were listed, it would have added an hour to the mod time.

For some reason, they had a cap installed in the unit, that was used only for a jumper. One lead was in a hole of a land that went to nothing, and the other lead tied its land to another circuit. So when you take that jumper out, take that lonesome cap with it.

What it amounts to is that jumpers A and B are removed, and jumpers C, D, E and F are installed. Jumpers C and F are under the board and it is not readily apparent where they are really suppose to be installed. But looking at the bottom of the board, they are just continuations of buss bars extending across the board.

The parts lists indicates two wires (N and G) are to be installed. The wire is not furnished.

Wire N goes from the upper right "N" hole to the lower right "N" hole.

Wire "G" goes from L16 (which is a choke that was installed in the mod sequence) to a "G" hole in the upper right corner of the board, right next to where the N wire went to a "N" hole. The L16 choke is outside of the shielded compartment, and the "G" hole will be found just to the right of L16, inside the shielded compartment.

The last part of the mod is to cut a trace on the LED Display board. This should be done before the LPF unit is reinstalled in the 2KL. The real intent is to disconnect a diode (D8) that is mounted on the other side of the board. I will never understand why they didn't put the D8 diode (which is only used in the A version) on the accessible side of the board. There is no law against components on both sides of a board. I do it all the time, particularly when components are too close to each other.

Anyway, that trace has to be cut, and an X-acto knife is as good a way as any.

This completes the mod. The front panel switch is not changed out, so 10-Meters can only be selected by remote control from the Xcvr, and there is no LED on the front panel to indicate that the 2KL automatically switched to 10 Meters.

To install a 10m indicator LED, I pulled the meter switch knob off of the front panel and removed the plastic face (six screws). Underneath was a black aluminum plate, which covers up the E holes in the A version. I drilled a hole where the 24-28 MHz LED would normally be. Then I held the metal plate on the back of the plastic front plate, and carefully (using the metal plate as a template) drilled just far enough into the plastic plate to remove the black paint on the back of the plastic plate, and just deep enough to accommodate the end of a sub-miniature LED available from Radio Shack. The green matches the ICOM green perfectly.

The little LED is inserted into the D7 (which is shown on the pictorial as D7(E)), with the cathode toward the edge of the board. The short lead is the cathode.

Now, when the exciter is switched to either 24 or 28 MHz, the little green LED lights up, if the 2KL is in the REMOTE position. When it is off, you can't even tell that there is a LED installed there.

A better solution is to install an E version of the bandswitch, the front plastic plate and the black aluminum plate that fits behind it, as well as three green LEDs. The front panel with 24-28 silkscreened on it at the 10 Meter position will give the modified IC-2KL a "factory" look.

(Source: W6SKC's IC-2KL Modification Notes, April 1989)