IC-E91 Low Power Level Adjustment

Moderator: M1BXF

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M1BXF offline Junior Member **Joined:** Thu Nov 22, 2007 10:06 am **Posts:** 95 **Location:** Melbourn	**Post subject:** IC-E91 Low Power Level Adjustment **Posted:** Sun Jan 13, 2008 6:35 pm

Hi all,

Explanation

After some comments about the IC-E91's power levels being too high or too low I decided to look at a way to change one of them to a more suitable level. I decide to leave the 5w as it is - it's going to be required when working more distant stations or repeaters, there nothing worse than just not having enough power. The 0.5w is too low also but also bringing it up too much would eat battery life very quickly.

After some investigation it turns out that high and low power level adjustments for the E91 are done at 3 voltage levels, 5v, 7.4v (the battery voltage) and 13.4v and are band independent. I decided to look at bringing the 13.4v low power level upto 1w, I suggest leaving the others at 0.5w. The value could be brought up further if you like, 1w should be fine, you decide however. I've also covered how to adjust the 7.4v low power setting but I advise against this due to battery life considerations.

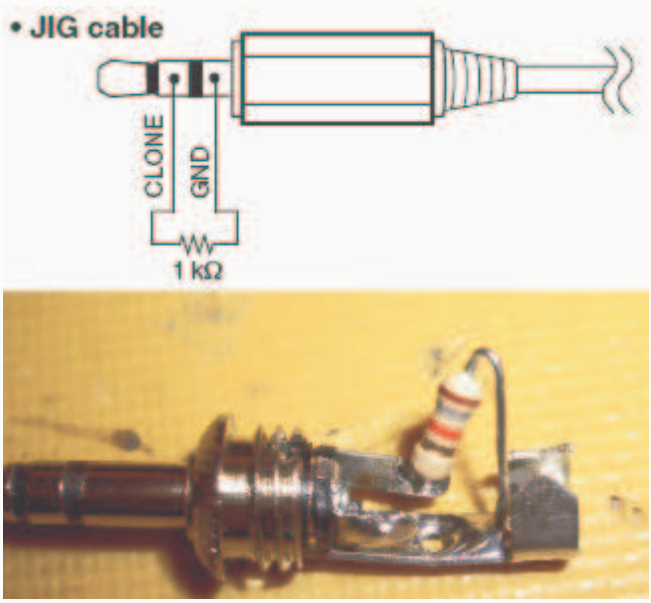
After this change it will allow you to get 1w (or whatever output level you have chosen) when connected to external DC, say at home or in the car, but still keeping the output at 0.5w when running on the battery. I've adjusted my IC-E91 for 5w on high power with external DC and 4w when on the battery and 1w on low power with external DC and 0.5w with the battery. Just the ticket!

DISCLAMER: Make these adjustments are your own risk! Only adjust those settings mentioned in this guide!!!

Equipment

To make these adjustments you will need an RF power meter capable of covering the bands you wish to adjust (VHF/UHF) with good accuracy at 0.5w and 1w. Use a dummy load for the antenna if possible. An external 13.4v supply connected to the DC input and a fully charged battery. A JIG cable (details below) is needed to enable access to the alignment menu.

Attachment:



Jogcable.jpg [21.02 KiB | Viewed 409 times]

Entering The Alignment Menu

1. Turn the power OFF.
2. Connect/Insert the JIG cable into the speaker jack on the radio.
3. While pushing [SQL] and [8] keys, turn the power ON.

The Alignment menu settings are not named so you need to follow these instructions carefully to ensure you adjust the correct setting.

Navigating The Alignment Menu

The following keys navigate the alignment menu:

- Key 2 (up arrow) selects the next adjustment item.
- Key 8 (down arrow) selects the previous adjustment item.
- The rotary control adjusts the value for the item manually.
- The BANK key stores the set value.
- Pushing [VFO], [MR], [BAND] and the power key saves and exits the alignment menu.

DISCLAMER: Make these adjustments at your own risk! Only adjust those settings mentioned in this guide!!!

UHF Low Power Adjustment

CAUTION!: BACK UP the memory data and original alignment values before starting the adjustment.

Connect the external DC to the radio so it's running on 13.4v. Enter the alignment menu as described above, you should see the alignment screen (FR). Navigate though the settings till the last 2 (Po) settings (435.000.00 LOW) by repeatedly pressing the 2 KEY [Next]. On the way you should see settings (LVA), (LVB) and (Id). Do not adjust any of these. The last 2 (Po) settings are just before the (FMV) setting, note down the values of the last 2 (Po) settings. Keep these values in the manual or the box for future reference. To adjust the 13.4v output level connect the external 13.4v and adjust the second last (Po) setting until you get 1w (or your desired level). If you want 1w with the battery also, disconnect the external DC so you are just using the battery for power, move to the last (Po) setting and adjust until you get 1w (or your desired level). Save these settings by pushing [VFO], [MR], [BAND] and the power key. Done!

VHF Low Power Adjustment

CAUTION!: BACK UP the memory data and original alignment values before starting the adjustment.

Connect the external DC to the radio so it's running on 13.4v. Enter the alignment menu as described above, you should see the alignment screen (FR). Navigate to the 5th and 6th (Po) settings (145.000.00 LOW) by repeatedly pressing the 2 KEY [Next]. On the way you should see settings (LVA), (LVB) and (Id). Do not adjust any of these. Note down the values of the 5th and 6th settings and keep these values in the manual or the box for future reference. To adjust the 13.4v output level connect the external 13.4v and adjust the 5th (Po) setting till you get 1w (or your desired level). If you also want 1w with the battery, disconnect the external DC so you are just using the battery for power, move to the 6th (Po) setting and adjust until you get 1w (or your desired level). Save these settings by pushing [VFO], [MR], [BAND] and the power key. Done.

High Power Adjustments

It's also possible to adjust the high power levels to be different between 13.4v and 7.4v. Using the 3rd (13.4v) and 4th (7.4v) menus for VHF settings and 7th (13.4v) and 8th (7.4v) for UHF settings follow the above guide and you can have something like 4w on battery and 5w on external DC.

Footnote

Although in this guide I've talked about 13.4v being an external supply and 7.4v being the battery this has just been for practical reasons. If you were to run the radio purely from an external DC source and it's possible to adjust that source down to 7.4v the radio will behave the same as with a battery and decrease it's output to 0.5w.

Here are my settings before and after (I also adjusted the high power settings).

Orig New
Menu Value Value Freq Power Adjustment
Po 56: 56: 145.000 Low 5v Low
Po 41: 41: 435.000 Low 5v Low
Po 70,BA 70,B0 145.000 High 13.4v High
Po 7A,65 73,5B 145.000 High 7.4v High
Po 40,BC 4B,B5 145.000 Low 13.4v Low
Po 3D,68 40,66 145.000 Low 7.4v Low
Po 8C,B9 8E,AE 435.000 High 13.4v High
Po 93,66 85,5B 435.000 High 7.4v High
Po 3C,BD 4F,B5 435.000 Low 13.2v Low
Po 3B,68 40,61 435.000 Low 7.4v Low

Contact me if you have question about this work.

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