

## ICOM 756 Pro II and Pro III S Meter Calibration

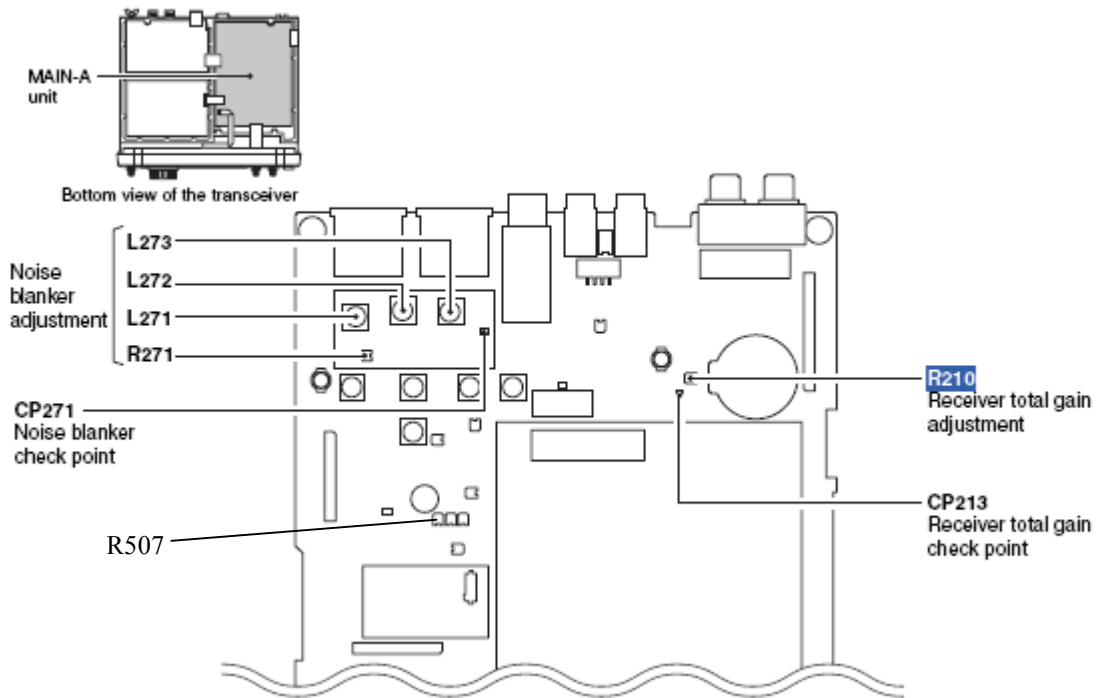
Before calibrating the Icom 756 Pro II or III S meter, you will need a 50 uV signal source such as the Elecraft XG1 or XG2. The following is from the Icom manual. For all the steps below, make sure the preamp and attenuator are off.

- 1) Turn off the radio.
- 2) Terminate the remote jack on the back. This is the center 1/8<sup>th</sup> phono jack of the three phone jacks in a row that are on the right and lower part of the back panel when the radio is turned around so you are facing the back. I did this termination by plugging in a straight key and putting a rubber band around the straight key to hold it in the key down position.
- 3) To enter the S meter calibration setup, simultaneously press `ssb + cw/rtty` and turn on the radio. The message "Adjust" should appear on the screen.
- 4) Next, press `F1` to go into the S meter settings. Look at the analog S meter for changing these settings. Make the following settings using the large tuning knob on the front of the radio:
  - a. Set the S meter to S1 for the S1 setting. Press `set (F5)` to store the setting.
  - b. Set the S meter to read S3 for the S3 setting. Press `set` to store the reading.
  - c. Set the S meter to read S5 for the S5 setting. Press `set` to store the reading.
  - d. Set the S meter to read S7 for the S7 setting. Press `set` to store the reading.
  - e. Set the S meter to read S9 for the S9 setting. Press `set` to store the reading.
  - f. Set the S meter to read S9+20 for the S9+20 setting. Press `set` to store.
  - g. Set the S meter to read S9+40 for the S9+40 setting. Press `set` to store.
  - h. Set the S meter to read S9+60 for the S9+60 setting. Press `set` to store the reading and this last setting will exit from the `F1` setup for the S meter.
- 5) Turn off the radio and remove the remote jack termination. This finishes the Icom soft programming procedure.
- 6) If your XG1 or XG2 do not show there is an S 9 reading for a 50 uV and you want to have your radio calibrated like Icom calibrates it, then you will need to adjust the R210 pot on the bottom as shown on the next page. Continuing:
- 7) Turn off the radio and turn it upside down and take off the bottom cover.
- 8) With the `attn` and `preamps` off, adjust R210 so the 50 uV XG1 or XG2 gives an S9 reading.

This completes the Icom procedure for calibrating the S meter. However, Icom assumes each S unit below S9 is 3 dB. If you want your Icom 756 Pro 2 or 3 to read more closely to the industry standard 6 dB per S unit, then follow the calibration procedure given after the figure on the next page.

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### • MAIN-A unit



Icom has incorrectly assumed 3 dB per S unit on their 756 Pro2 and Pro3 models. The correct amount is 6 dB per S unit. The Icom use of 3 dB per S unit makes the S meter swing twice as widely for signals below S9 as they should be. The S meter can be recalibrated to give readings that are close to the 6 dB per S unit standard below S9. This is done by moving an additional 12 dB into the range below S9. We get this additional 12 dB from the upper end so that the upper end of the S meter range becomes S9+48 instead of S9+60 dB. The readings down to S4 are accurate. Here are the steps:

- 1) The radio should be calibrated to the Icom standard that was given previously.
- 2) Turn off the radio, turn it over, and remove the bottom cover.
- 3) Turn on the radio and adjust R210 so that the XG1 or XG2 gives a S9+12 dB S meter reading for a 50 uV signal.
- 4) Turn off the radio and put the bottom cover back on and turn the radio upright.
- 5) Terminate the remote jack on the back. This is the center 1/8<sup>th</sup> phono jack of the three phone jacks in a row that are on the right and lower part of the back panel when the radio is turned around so you are facing the back. I did this termination by plugging in a straight key and putting a rubber band around the straight key to hold it in the key down position.
- 6) To enter the S meter calibration setup, simultaneously press `ssb + cw/rtty` and turn on the radio. The message "Adjust" should appear on the screen.
- 7) Next, press `F1` to go into the S meter settings. Look at the analog S meter for changing these settings. Make the following settings using the large tuning knob on the front of the radio:
  - a. Set the S meter to 1 for the S1 setting. Press `set` to store the setting.

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- b. Set the S meter to read 2.5 for the S3 setting. Press set to store the reading.
  - c. Set the S meter to read 4 for the S5 setting. Press set to store the reading.
  - d. Set the S meter to read S5.5 for the S7 setting. Press set to store the reading.
  - e. Set the S meter to read S7 for the S9 setting. Press set to store the reading.
  - f. Set the S meter to read S9+8 for the S9+20 setting. Press set to store the reading.
  - g. Set the S meter to read S9+28 for the S9+40 setting. Press set to store the reading.
  - h. Set the S meter to read S9+48 for the S9+60 setting. Press set to store the reading and this last setting will exit from the F1 setup for the S meter.
- 8) Turn off the radio and remove the remote jack termination. This finishes the alternate S meter calibration procedure.

You are finished. As you can see we stole 12 dB at the top of the scale to provide more range at the bottom of the scale. These settings should provide you with an S9 reading (on the analog meter) for a 50 uV signal with correct readings above S9 and nearly 6 dB below S9. The readings will not be correct below about an S4. But its an improvement. If you do not like the way the S meter reads, you can always go back to the original settings of S1, S3, S5, S7, S9, S9+20, S9+40, and S9+60. Note that this adjustment may cause the screen S meter to read high. I'm still trying to find a way to get both meters to read 6 dB per S unit below S9.

The S meter is more pleasing to look at if the movement is slowed down. You can do this by setting the AGC slow recovery time constant to the maximum of 6 seconds. Select slow on the AGC button on the left side of the screen. Then press and hold the AGC button to go into the time constants definitions. I suggest you set the slow recovery time constant to 6 seconds for ssb and cw modes.

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