

AR7030 EEPROM corruption of AGC calibration (s-meter) table

It is possible for the AR7030 AGC table to become corrupt if power is removed from the radio while under computer control. It is important that the PC control software is terminated and the radio switched off from its front panel switch (do not just pull out the power connector or remove supply). Potentially power transients / brownouts could cause similar problems, but this is speculative.

If the table cannot be read by the microprocessor or does not exist, the radio automatically loads DEFAULT DATA so that the receiver at least has a change at operating normally. However, if the table exists but is corrupt, it is possible that the radio will behave strangely (incorrect signal meter or the attenuator switching inappropriately).

It is possible to re-enter the correct AGC calibration data using the SM7030 service kit (7030TEST.EXE) software which operates on a PC in DOS mode (it will run in a window under MS-Windows).

AOR UK hold AGC & performance records for 'every individual' AR7030 produced (not just by batch). For best results, it is a good idea to obtain the AGC calibration data for your specific radio - just ask!

In the absence of the specific data, the following 'typical' AGC data should be usable:

S1	63
S3	12
S5	15
S7	7
S9	8
S9+10	8
S9+30	30
S9+50	14
20dB	17
6dB	3

Run 7030TEST.EXE (77kb) to access the required menu and refer to the service documentation 7030SERV.DOC (106kb MS-WORD format) for instructions. If you do not have a PC lead, you will need to make one up, the connection to your 9-pin RS232 laptop should be as follows:

5-pin DIN AR7030	PC 9-pin female plug
2	3
3	2
5	5 GROUND

The terminology employed here (AGC calibration) and that of the service manual (S-meter calibration) means the same thing.

The following outline of procedure may be helpful to enable the calibration data to be re-entered AND ALL DATA TOTALLY RESET (this will wipe all memory data too, but will ensure that any corruption has been removed).

1) Logon / Setup Debug [ENT]

1) Logon to receiver [ENT]

2) Preset and test memory [ENT]
- warning, enter 1 to continue [1] [ENT]

0) Return to main menu [ENT]

5) IF system & s-meter [ENT]

3) View / edit 's-meter cal values [ENT]

1) ENT 63 [ENT]

2) ENT 12 [ENT]

3) ENT 15 [ENT]

...

...

10)

[0] [ENT] [0] [ENT] [10] [ENT]

In the last section above, substitute YOUR cal values for those in the example.

Carry out a filter re-calibration from the radio CONFIG menu and remember to enable any options such as ATTENUATOR step (10dB for PLUS unit) and NB7030.

Nothing else should be required... but of course, if you executed the preset & test routine, all your memory locations will be completely empty so you will have to 'manually' start filling your memories again.

If your power supply is VERY unreliable or PC software is likely to be running at power-down (we have encountered this with DRM operators), it may be worth considering disabling the WRITE ENABLE pin of the EEPROM which holds the calibration data. Pin-7 of Q7 is connected to ground to enable writing, lifting this pin to supply via a 4.7k resistor will disable writing, the radio will still function, as all volatile memory is still available (frequency / mode / volume etc). A more elegant method is to automatically pull pin-7 high when the removal of supply is detected, see below.

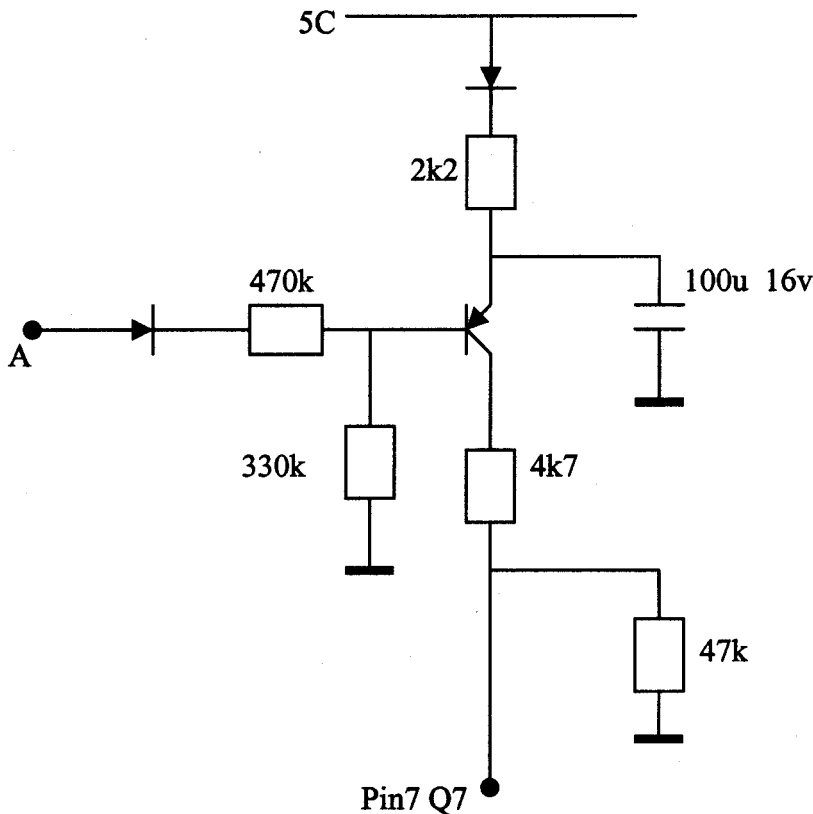
AR7030 'S' meter data corruption

In a very small number of cases, we have experienced corruption of the 's' meter calibration data. In all cases it has been the first data value in the sets calibration table which has been altered to 0 or 254. Normally this figure is between 56 and 64.

In all cases the corruption has occurred in unusual circumstances in that the set has lost its supply (plug pulled out of rear) while under PC control.

A small modification can be added to prevent this occurring. The additional circuit inhibits any writing to EEPROM during power down and for a short while afterwards as the supply level within the set decays.

- Diodes used are general purpose silicon diode.
- Transistor used is a general purpose PNP device (BC327 used o.k.).
- Suitable easily accessible pick up points are; +5C line – at regulator side of L45.
- Point A – cathode end of D50, Q70 or third pin of unused battery option connector J11.
- Ground – at J9 or J11.
- Pin 7, Q7 – This pin will have to be carefully lifted from its ground connection on the front panel.



BC327 Bottom view

