AR5000+3 OPERATING MANUAL ADDENDUM

The AR5000+3 is a 'feature loaded' version of the AR5000 receiver with three enhanced facilities which can only be fitted in the factory during manufacture:

- Synchronous AM
- Automatic Frequency Control
- Noise blanker

1. Synchronous AM

Synchronous AM is a useful tool to help reduce distortion due to selective fading, in particular on the short wave bands (long & medium wave bands too). In synchronous AM, the original carrier is phase locked to a stable internally generated synthetic reference which is used to replace the (variable) original carrier resulting in more stable reception with greater recovered audio, especially during deep fades. A wide lock rage is provided by this detector to enable simple, quick & efficient operation (unlike some other synchronous units on the market which require extremely accurate tuning).

SAM	Synchronous AM double side band
SAL	Synchronous AM lower side band
SAH	Synchronous AM upper (higher) side band

AM transmissions are constructed of a carrier and both upper & lower sidebands. Usually both side bands carry the same information so both or either may be selected with the same recovered resulting audio, however when adjacent interference is present, selecting synchronous single side band (SAL or SAH) can provide improved results.

The [MODE] key is used to select synchronous AM in the same manner as other receive modes via the *SUB DIAL*, the list of mode has simply become longer: AUTO FM AM LSB USB CW SAM SAL SAH

2. Automatic Frequency Control (A.F.C.)

Automatic frequency control is a 'global' facility, either OFF or ON (default is off). When A.F.C. is used in AM, FM and synchronous AM modes, the receiver is automatically tuned on to the centre frequency to provide the best signal strength and recovered audio. When used in synchronous AM modes, A.F.C. ensures that the signal is pulled within lock range for no-fuss operation. A.F.C. is particularly useful on the VHF-UHF bands to ensure that the AR5000 is receiving spot on frequency, especially when searching through unusual band plans or when the exact band plan is not known.

Restrictions:

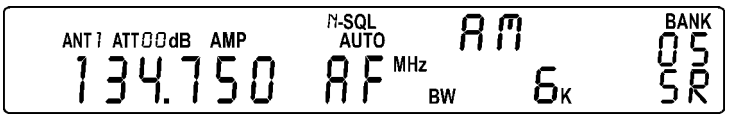
a. *A.F.C. does not operate on USB, LSB or CW modes*
b. *If you are tuned many kHz off frequency (so that there is little recovered audio), you may be outside of A.F.C. range.*
c. *A.F.C. may not exactly centre FM reception when using a wide filter such as 110 kHz or 220 kHz.*
d. *The last three right hand digits of frequency readout (Hz, tens of Hz and hundreds of Hz) will be removed and replaced with the letters "AF" to indicate that A.F.C. is in operation.*

A.F.C. is switched ON/OFF using the OPTION menu while in VFO, SEARCH or SCAN modes.

Press [FUNC] then [0] to access the options menu. "AFC" is the first option on the list:

```
AFC OFF          <<<<
NB  OFF
DTMF OFF
T-ELMT OFF
```

Use the *SUB DIAL* to toggle the A.F.C. OFF/ON. Press [ENTER] to accept any changes or press [CLR] to abort selection. When A.F.C. is switched on, a typical display may look like:



Depending upon how far the A.F.C. has to correct centre frequency, the process may take a few seconds.

3. Noise blanker

The noise blanker is another a 'global' facility, either OFF or ON (default is off). This facility is particularly useful to help reduce impulse noise and interference from vehicles ignition systems, whether from passing traffic or while the AR5000 is fitted into a mobile installation.

The noise blanker is switched ON/OFF using the OPTION menu while in VFO, SEARCH or SCAN modes.

Press [FUNC] then [0] to access the options menu. "NB" is the second option on the list:

```
AFC OFF
NB  OFF          <<<<
DTMF OFF
T-ELMT OFF
```

Use the *SUB DIAL* to toggle the noise blanker OFF/ON. Press [ENTER] to accept any changes or press [CLR] to abort selection. There is no visual indication to show the status of the noise blanker, however it is fairly obvious when switched off/on as ignition noise will be heard!

English language operating manual corrections - AR5000

Section 7-5 page 36 DELETING INDIVIDUAL MEMORY CHANNELS, 2nd paragraph:

Replace

"For example, to recall memory channel "123" press [1] [2] [3] [ENTER] while in memory recall mode".

With

"For example, to recall memory channel "123" press [1] [2] [3] while in memory recall mode".

In other words, omit the [ENTER] key then continue with the procedure stated in the operating manual.

Section 12-19 page 58 STARTING AUTO STORE, top of the second column:

Replace

"The [PASS] key toggles between OFF and ON. Press [PASS] to select ON..."

With

"The *SUB DIAL* is used to toggle between OFF and ON. Rotate the *SUB DIAL* to select ON..."

In other words, use the *SUB DIAL* to toggle auto store ON / OFF instead of using the [PASS] key.

Step-adjust in program search mode using the AR5000

When inputting program search data, there is no entry point for step-adjust, however it is still possible to enter step-adjust data following the programming sequence.

Enter program search data as per section 12-7 (pages 51, 52, 53) of the English language operating manual. Activate the program search in the usual manner by pressing [SRCH] then select the required bank as directed at the end of section 12-7 (page 53).

1. While searching, press the [STEP] key, press [PASS] to engage step-adjust (the "*" legend will be displayed).

2. Press [UP] to display the current step-adjust value, such as 5kHz. Select the required step-adjust value by rotating the *SUB DIAL* or via the keypad (if using the keypad finish the entry with a quick press of [ENTER]).

3. To complete the data entry press [ENTER] for more than one second. The data will be accepted and display will revert to search with the "STEP-ADJ" legend displayed.

Note: if you did not complete the sequence by holding the [ENTER] key for more than one second, an error beep will sound (if the beep is enabled) and the data will not be saved. Remember, there is no entry point for step-adjust data during search program entry.

Program search of the new 8.33kHz airband step using the AR5000

The new airband channel step comes into effect in 1999 and 2000 for most of Europe and is to be further extend after that time. There is much confusion over the issue of 8.33 kHz, in reality it is not 8.33 but eight-and-one-third. As a third cannot be expressed in a decimal fashion, a small compound frequency error will occur every third increment. Ideally the end digits should read '00' '33' '66' '00' but will be display as '00' '33' '66' '99'. In reality, the AR5000 may be programmed in 8.333 kHz steps to further minimise the compound error, the error is then very small indeed, especially when considering the sub band is only expected to occupy 132.000 - 134.500 MHz (one Hz every third tuning increment!).

Work around:

If you do not wish to live with a small compound error, it is possible to program three program search banks as a GROUP (refer to section 12-4 Page 49 onward of the English language operating manual). It is assumed in this addendum that you understand how to program basic functions.

1. Program three program search banks with the limits 132.000 - 134.500 MHz in AUTO mode (AM 25kHz steps). Link all three search banks to form a single group... so all three are searched together. The operating manual does not specifically deal with step-adjust during program search, so ignore it at this time. Let's assume you have used banks 1, 2 & 3.

2. Bank 1 is left 'as is'.

3. Start searching bank 2. Press [STEP] then press [PASS] to engage step-adjust (the "*" legend will be displayed).

Press [UP] to access the sub-menu to allow the step-adjust value to be entered. Key in [8] [•] [3] [3] [ENTER]

Now press and hold the [ENTER] key for more than one second for the data to be accepted (do not simply press ENT momentarily).

As there is no step-adjust entry point during the data input of program search, this LONG HOLD of the [ENTER] key must be used to enter step-adjust while searching in the above fashion. The AR5000 will continue to search but will add 8.33 kHz to every 25 kHz increment.

4. Repeat the process outlined in (3) for the third search bank, in this example (bank 3) but use a step adjust value of 16.66 kHz.

The AR5000 will continue to search but will add 16.66 kHz to every 25 kHz increment.

Outcome:

By searching all three search banks as a group, the exact frequencies will be searched for the new airband allocation without a compound error creeping in. As the AR5000 has 20 search banks (twice), using three banks in this way is no great loss.

SWITCHED EPROM BANKS - more memories!!!

The facility of switching EPROM banks is now supported by the AR5000+3 (see the main operating manual section 18-6, page 71, last two items).

This virtually means that the AR5000 now has 2000 memory channels, 40 search banks, 10 VFOs etc... two sets in one!

AOR Ltd

2-6-4 Misuji, Taito-ku, Tokyo 111-0055, Japan.
Tel: +81 3 3865 1695 Fax: +81 3 3865 1697
post@aorja.com www.aorja.com

AOR (UK) Ltd

4E East Mill, Bridgefoot, Belper, Derbys DE56 2UA, England
Tel: +44 1773 880788 Fax: +44 1773 880780
info@aoruk.com www.aoruk.com

AOR USA, INC.

20655 S. Western Avenue, Suite # 112
Torrance, CA. 90501, USA
Tel: (310) 787 8615 Fax: (310) 787 8619
info@aorusa.com www.aorusa.com