

Fitting optional Collins filters to the AR7030 receiver

The AR7030 is designed to accept a total of six IF filters, this means that two optional filters may be fitted in addition to the standard four provided. Within reason, any 455 kHz filter may be fitted but the PCB is drilled to accept Murata and Collins filters.

Before starting, place a cloth on the work surface to prevent scratching the receiver.

To gain access for filter fitting, both top and bottom covers need removing. The top is held by four screws requiring a 2.5mm hex key to undo them. The loudspeaker is connected with wires and sockets J16 & J17. To release the wires lift the black plastic connector up (about 5mm).

The bottom plate is held by six No.2 posi-drive screws.

Collins filters may be fitted in either of the vacant positions on the main PCB X7 or X8, it really doesn't matter which is used as the AR7030 microprocessor will sort it out for you.

Insert the three pins of the filter into the vacant positions, the holes are plate through and should not require clearing first. Solder the three filter contacts from the underside of the receiver.

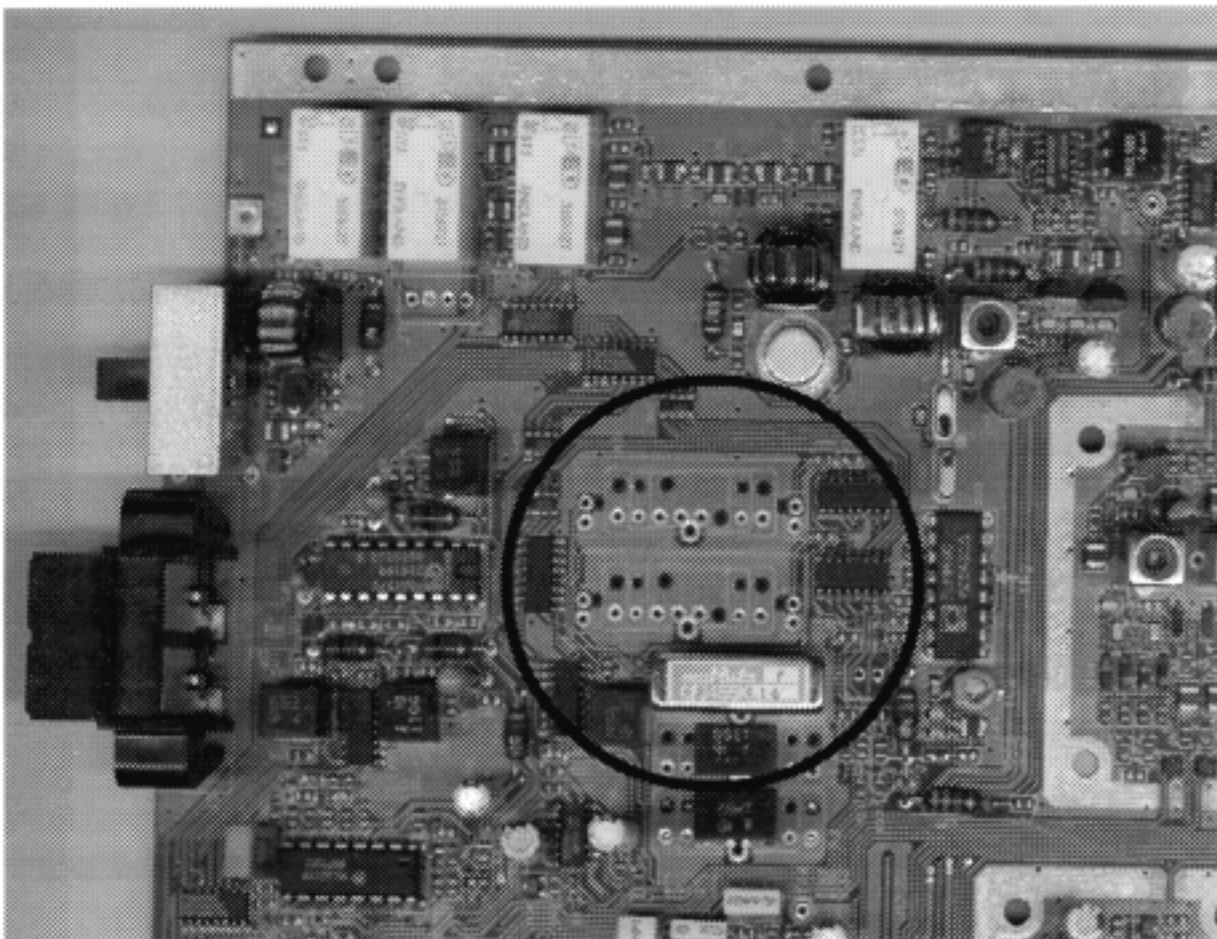
As long as you haven't splashed solder anywhere that is it!

Either test at this point or replace the top & bottom case halves making sure that you reconnect the speaker wires by placing the wires in J16 & J17 then pressing the black plastic cable sockets downward. **It is important that you fit the top case BEFORE the bottom case.**

When replacing the top, make sure that it is pressed fully home (flush to the sides) before putting the screws in. The screw threads are not long enough to pull the top down into the side pieces without damaging the threads. **Tighten the screws only finger tight - do not over tighten.**

You will need to run the filter calibration routine from the receiver's menu... there are no measurements for you to take and no twiddling of adjustment points... you CANNOT improve performance by making manual adjustments. Refer to section 6-2 of the operating manual (page 14) for further information.

End. (sheet V1.0 E&OE)



Technical information addition - AR7030 optional filters:

The AR7030 uses a second IF frequency of 455 kHz. Due to the automatic filter calibration of the receiver, it is electrically possible to fit almost any 455 kHz filter with input/output impedance of 1,500 to 2,000 OHMS and a bandwidth smaller than 9 kHz whether it be ceramic, mechanical or crystal... the AR7030 will take care of alignment and addition to the filter table for you.

The PCB pattern has been designed to accept the Murata ceramic range of filters in the following format: "CFJ", "CFK", "CFW" and the Collins low profile mechanical filters. The receiver is supplied with FOUR filters fitted as standard, provision is made for a total of SIX.

Standard fitted:

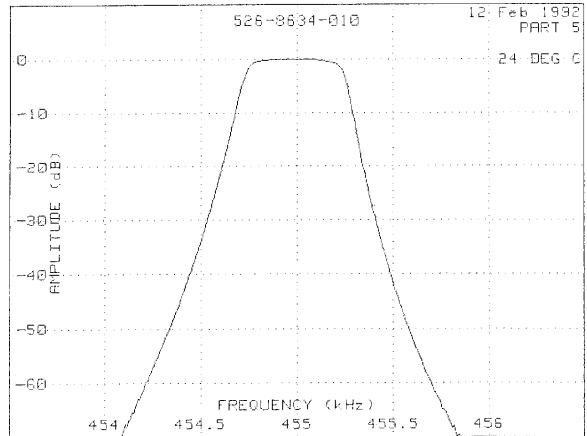
2.2 kHz (nominal) SSB	CFJ455K14	See note A
5.5 kHz (nominal) AM	CFW455IT	See note A
7.0 kHz (nominal) AM wide	CFW455HT	See note A
9.5 kHz (nominal) NFM	CFU455G	See note B
Spare		See note C
Spare		See note C

Notes:

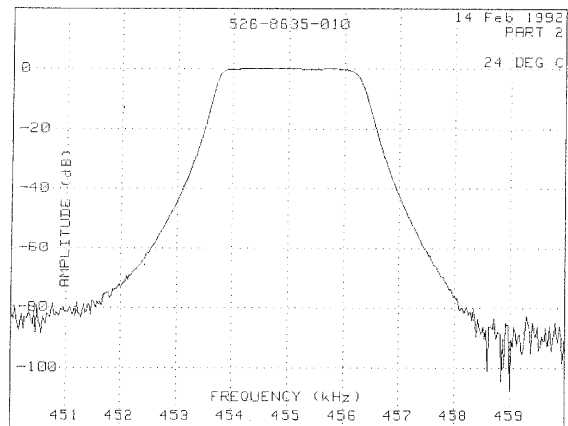
- A Will accept "CFJ", "CFK" or "CFW"
 B Fixed position for CFU455G only
 C Will accept "CFJ", "CFK", "CFW" or Collins low profile (or almost any other 455 kHz filter connected by flying leads)

Optional filters:

500 Hz (nominal) CW	Collins 526-8634-010 (or 526-8693-010)
Centre Frequency	455 ± 0.15 kHz
3dB bandwidth	0.5 ± 0.1 kHz
60dB bandwidth	2.0 kHz Max
No: of resonators	7
Passband variation	3 dB Max
Insertion loss	6dB Max
Spurious rejection ± 100 kHz	60dB Min

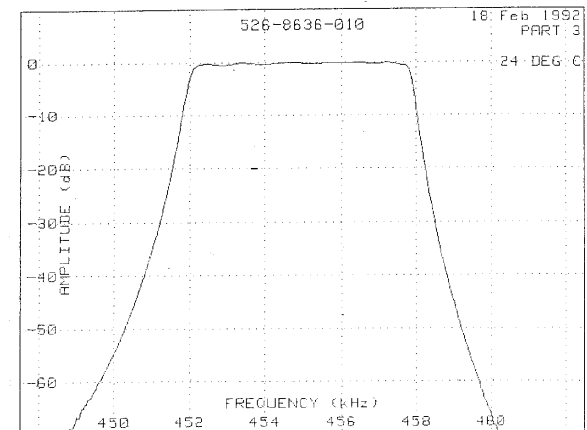


2.5 kHz (nominal) SSB	Collins 526-8635-010 (or 526-8694-010)
Centre Frequency	455 ± 0.15 kHz
3dB bandwidth	2.5 ± 0.1 kHz
60dB bandwidth	5.2 kHz Max
No: of resonators	8
Passband variation	3 dB Max
Insertion loss	5dB Max
Spurious rejection ± 100 kHz	60dB Min



4.0 kHz (nominal) AM	Collins 526-8710-010	Data not available at this time...
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6.0 kHz (nominal) AM	Collins 526-8636-010 (or 526-8695-010)
Centre Frequency	455 ± 0.3 kHz
3dB bandwidth	5.5 kHz Min
60dB bandwidth	11 kHz Max
No: of resonators	8
Passband variation	3 dB Max
Insertion loss	5dB Max
Spurious rejection ± 100 kHz	50dB Min



1.0 kHz (nominal) DATA	Murata CFJ455K8
Centre Frequency	455 kHz
6dB bandwidth	1.0 kHz total
70dB bandwidth	3.0 kHz
Passband variation	1.5 dB
Stop band att 455 ± 100 kHz	60dB
Insertion loss	8dB Max

3.0 kHz (nom) SSB/AM	Murata CFK455J
Centre Frequency	455 kHz
6dB bandwidth	± 1.5 kHz total
70dB bandwidth	± 4.5 kHz
Passband variation	3dB
Stop band att 455 ± 100 kHz	70dB
Insertion loss	8dB Max

4.0 kHz (nominal) AM	Murata CFK455I
Centre Frequency	455 kHz
6dB bandwidth	± 2.0 kHz total
70dB bandwidth	± 5.0 kHz
Passband variation	3dB
Stop band att 455 ± 100 kHz	70dB
Insertion loss	8dB Max

Note: The Collins filter plots shown here have been taken from the Collins sales information and are NOT plotted from the AR7030 receiver.