

CW Fans: Give Superior Selectivity to your Atlas Rig

— this mod uses an inexpensive MFJ filter

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As have many other hams who enjoy the use of the great Atlas solid-state, no-tune-up rigs, I quickly discovered that

while it was great for SSB, it lacked a little in CW reception ability. This simple modification will bring it around and make CW as enjoyable as sideband.

The Atlas rigs have a fine SSB i-f filter, but if you try to copy CW with this unit, you find that there is no original factory CW filter, nor any adjustments to nar-

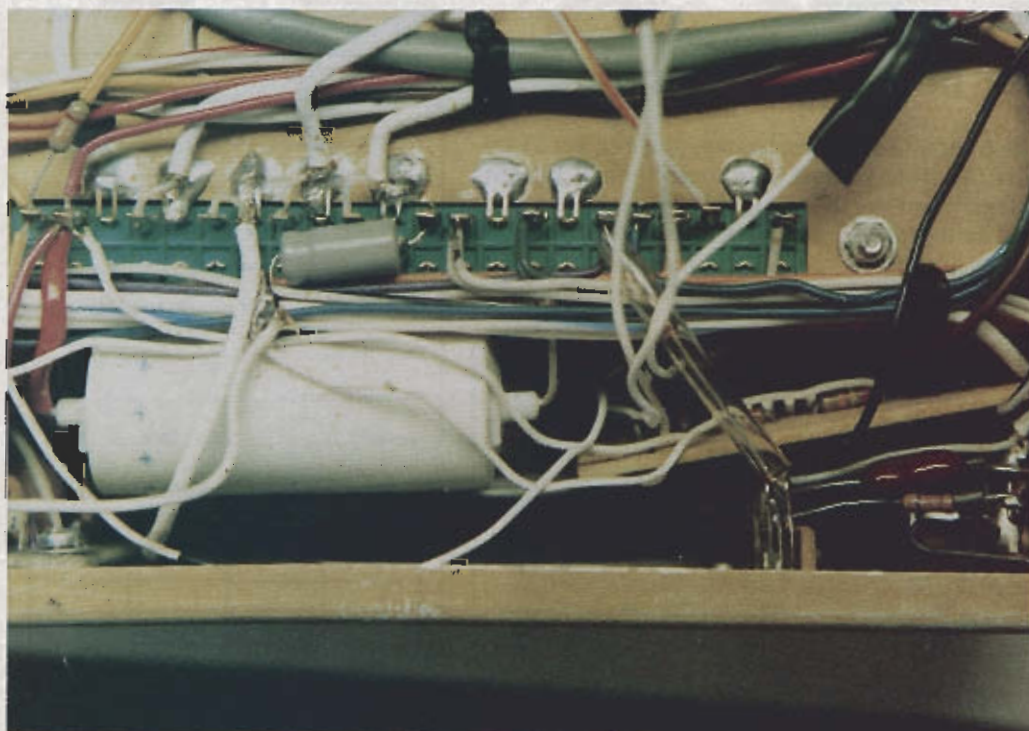
row the i-f bandwidth. The problem of separating close CW signals by tone alone is difficult and frustrating, especially if you are a Tech trying to upgrade. (I finally got my Advanced using this rig on the Novice bands!)

MFJ makes a dandy CW audio filter with a selectable bandpass which is

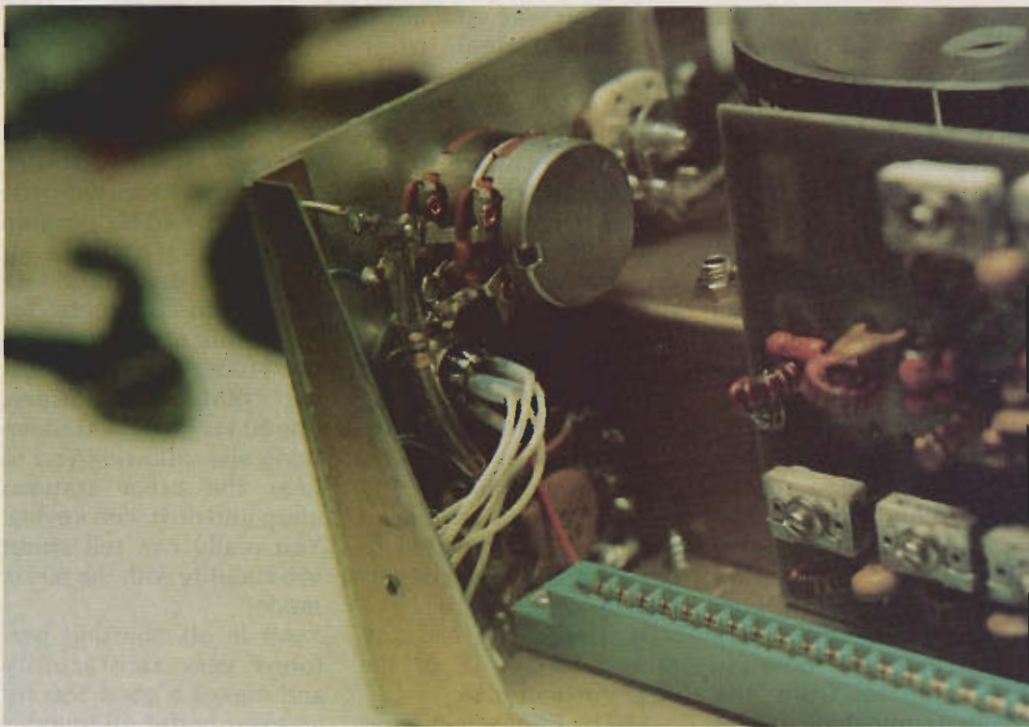
centered at 750 Hz and which is also the CW offset of the Atlas, making it an ideal choice. While you could outboard the unit and keep buying 9-volt batteries for the filter, I found it could be placed easily inside the Atlas, deriving power and operational benefits from its location. While an audio filter is not as good as an i-f filter for CW, the performance of the hybrid unit when completed was more than adequate, and only the worst of QRM and zero-beating of signals could not be overcome. A more demanding CW operator would prefer the narrower i-f filter, but this works fine for most of us, and, since it can fit inside the rig, allows unimpeded mobile or portable operation.

The MFJ filter, model CWF-2, like most MFJ products, comes in a small box and is powered by an internal 9-volt battery. Because of the small size and super compactness of the Atlas, there isn't much room inside for add-on goodies, but the MFJ fits.

The first step is to familiarize yourself with the operation of the MFJ filter. It employs a series of



Audio circuit connections, showing new wires and placement of the filter output capacitor (small electrolytic) in the center of the picture.



Mounted bandwidth selector switch.

active audio filters using IC chips and matched components for a 750-Hz center frequency and a variable bandwidth of 180, 110, or 80 Hz. This allows easy copy without resorting to very low audio notes—nice in a non-CW rig—so you don't walk down the

band, retuning to hear the other guy. The selectivity is chosen from a multi-position slide switch. The MFJ unit is designed for use either between audio stages or between the rig output and a headphone jack, supplied on the front of the MFJ box.

Modification Steps

1. To complete the conversion as pictured in the photos, follow these easy steps. No mechanical work is necessary unless you have the noise blanker option in your unit, in which case a single 3/8" hole is required.

2. First, remove the screws holding the MFJ unit together. There are four, two on each side of the box.

3. Once the unit is open, you will see that the actual filter is contained on one PC board, held to the rear and bottom of the box with a rubber-like cement. Using an X-acto® or similar knife, carefully remove the PC board from the box. A wedging action between box and board is sufficient.

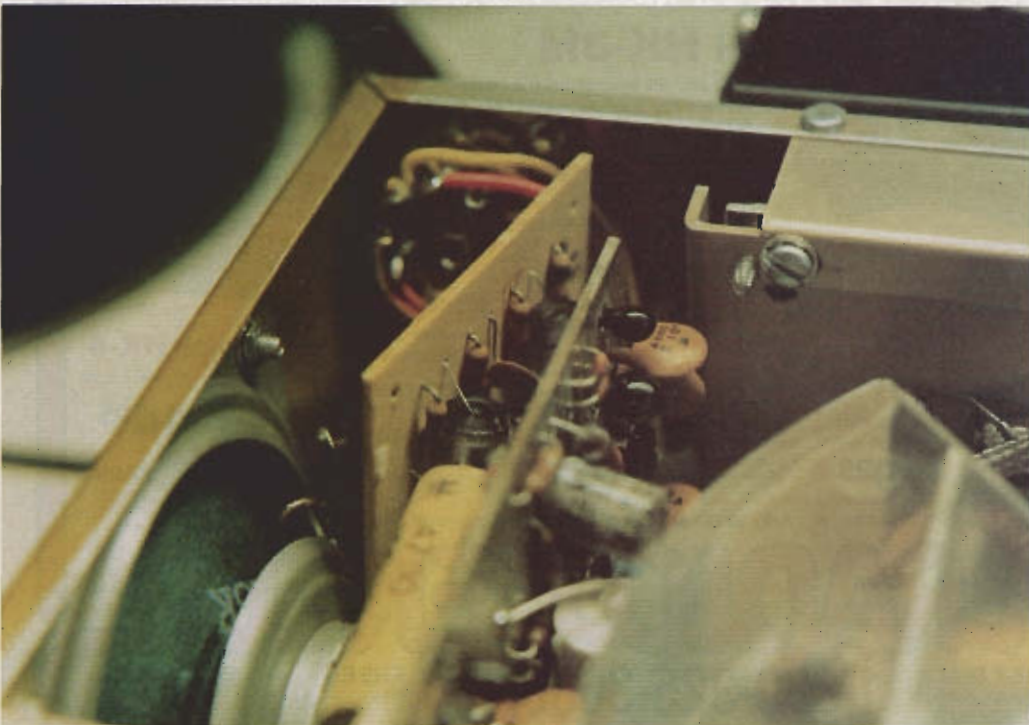
4. Remove the switches and headphone jack from the box by removing the four screws and a large nut holding the 1/4" jack. The box should be set aside and all loose hardware stored in the bottom shell of the MFJ box.

5. Label or identify on the PC board each wire on the MFJ unit. There are two wires for power, + and -, audio in, and three audio out wires. The electrolytic capacitor attached to the multi-position switch is removed and saved for later use. After removal of the wires, the switches and connector can be remounted in the MFJ box. The box can be reassembled and set aside for other projects.

6. Remove both the top and bottom covers from the Atlas.

7. Remove the hole plug on the front panel below the NB (noise blanker) notation or, alternatively, drill a small (3/8") hole wherever you would like the bandwidth selector switch to go. A good spot is near the af/rf gain controls, positioned to allow as much room as possible for fingers to turn the knobs.

8. The switch selected for the rig shown in the photos was a Dale SP10T. A very small Alco or similar rotary with 4 positions is adequate. The Dale was in the ever-growing junk box. The type of switch used is the same as found on many HTs for frequency selec-



The filter board is nestled between the speaker and the back wall of the chassis.

tion and is available from most parts houses, FM specialty houses, and ham stores. Spectronics (1009 Garfield, Oak Park IL 60304) has some for use on Motorola HTs for adding more frequencies. The cost is about \$4.

9. Because the switch is really nestled in the rig, it is necessary to prewire the terminals. Five lengths of stranded no. 26 in your favorite colors, each about 14" long, will do nicely. Prepare the switch for insertion.

10. The PC board in the Atlas on the far right (facing front) is removed for insertion of the switch. This is the rf module, PC-100; or, if you have the noise blanker, find your hole and insert the switch as best you can.

11. The wires from the switch are routed to the front corner and down through the open space by the wafer selector switch

to the underside of the Atlas. There is a channel in the rf cover over the vfo near the front lip which can serve as a cable raceway, or the wires can be run around the outside of the Atlas chassis over the audio board.

12. If you take the time and are neat, you can run the switch wires directly to the MFJ PC board. Or, use the wires attached to the MFJ unit and splice in midstream. Being naturally sloppy (according to the XYL), I chose to splice in midstream. The MFJ board slips between the speaker magnet and the rear connectors of the Atlas.

13. There is a red/white wire coming from the center terminal on the af level control which goes to the edge connector of the audio board in the Atlas. Remove the end attached to the edge connector. This is the input to the MFJ

filter. This wire attaches to the #1 terminal (filter-bypass) position on the rotary switch. The audio input wire coming from the MFJ filter board is attached to the af level center terminal.

14. The output terminal on your selector switch is run to the vicinity of the edge connector and is connected to terminal 12 of the edge connector, using the electrolytic capacitor supplied with the filter (series connection).

15. The + power lead of the filter is connected to pin 2 of the edge connector.

16. The ground lead is attached to pin 18 of the edge connector.

17. The filter-select wires of the MFJ unit are connected to the terminals of the rotary switch in the order desired: 80, 110, 180, or 180, 110, 80 Hz.

18. The Atlas covers are

replaced.

19. Turn on and enjoy!

Performance of the unit on the crowded 80- and 40-meter Novice bands was excellent. Needless to say, tuning the Atlas with the filter in the 80-Hz position makes for fast tuning. It was found that the 180-Hz mode was adequate for most work and tuning, and the 110-Hz mode was best for QRM-laden stations. The 80-Hz mode was something else, allowing you to hear the other stations chirp and drift with keying. You really can tell about vfo stability with the 80-Hz mode!

All in all, the unit performs very satisfactorily and makes a good SSB rig an even better all-rounder for those of us who only dabble in CW. The MFJ unit is currently priced at \$29.95 and is available from a number of sources, including MFJ direct. ■

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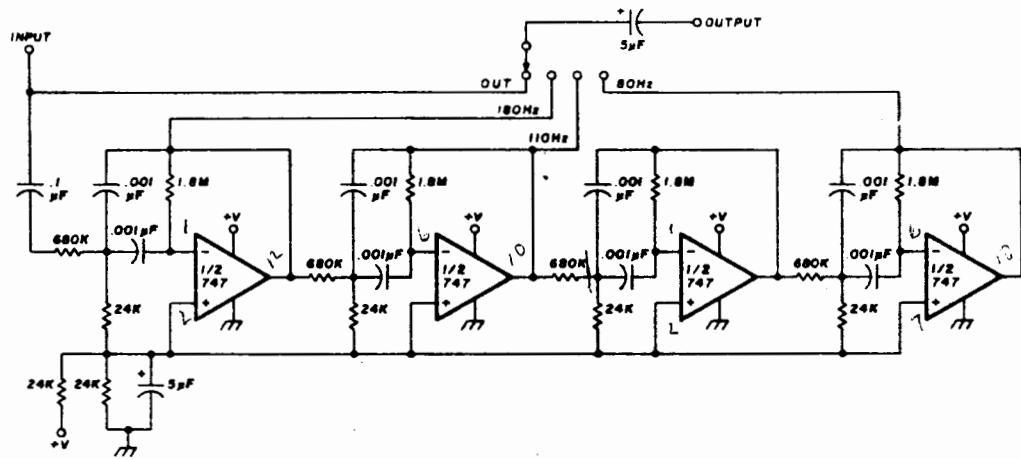


fig. 1. Schematic of the MFJ Enterprises Model CWF-2 CW filter featuring selectable bandwidths of 80, 110, and 180 Hz centered on 750 Hz.