Mini Equipment Review

The MFJ-247 SWR analyser with LCD frequency counter

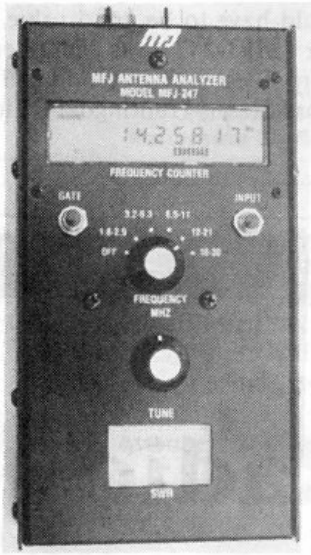
Ron Fisher VK3OM

IN THE MARCH 1992 issue of Amateur Radio, I reviewed the MFJ-207 SWR analyser. At the conclusion of that review, I mentioned that MFJ would soon be releasing an upgraded version which would incorporate an LCD digital readout. The MFJ-247 is that model. The digital readout can be used in two ways. Firstly, it will read the frequency to which the internal oscillator of the SWR analyser is tuned, but it can also be used as an external frequency counter which is useable up to 150 MHz.

However, for those who haven't got the original MFJ-207 review handy, let's take a quick look at just what an SWR analyser does. The oscillator in the analyser is actually a low-power transmitter which is connected to the antenna, the feedline, the ATU, or a combination of all three, to determine if a 50-ohm match exists. A bridge circuit is coupled to the front panel meter which is calibrated in SWR at the following points: 1, 1.2, 1.5, 1.7, 2, 2.5 and 3, which is at about three-quarter scale on a scale length of about 25mm.

The frequency range of 1.8 to 30 MHz is covered in five ranges, as is the MFJ-207, but where the latter offered full coverage between these frequencies, the MFJ-247 has a few gaps. The actual coverage is 1.8 to 2.9, 3.2 to 5.3, 6.5 to 11, 12 to 21 and 18 to 30 MHz. In actual practice there is some slight extension on this coverage both above and below these frequencies. However, it could be a limiting factor for commercial users trying to tune an antenna on an RFDS channel in the 5.5 MHz region.

With the counter built in, the 247 is slightly larger than the 207. It is 101mm wide as against 63mm for the 207. At the same time, the depth is actually 12mm less. External connections are an SO-239 to connect to the antenna under test, a BNC connector for external input to the frequency counter, and an external DC power input which is still not labelled for polarity. Internal battery power has been changed from a nine-volt transistor type battery to six AA cells. It's still necessary to remove eight screws to put new batteries in. Current drain is about 170mA, so the use of alkaline batteries as recommended by MFJ would certainly be a good idea.



The MFJ Model MFJ 247 Antenna Analyser — Front View.

The MFJ-247 in operation

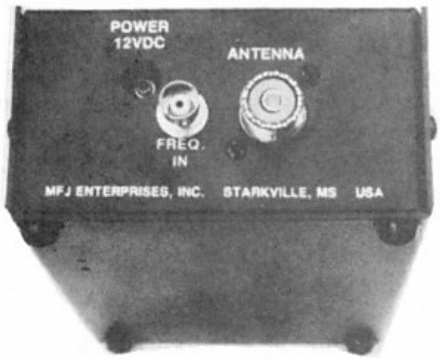
I put the 247 into use with the several HF antennas available around the shack, and the results were most interesting. The frequency counter allows you to set the analyser to your exact operating frequency. However, I found that, in most cases, the analyser gave very different measurements from normal in-line SWR meters. The analyser will get you in the ball park, but you will still need your normal SWR meter to get your antenna tuned to your operating frequency. The frequency counter itself is a rather nice unit. With a whip antenna connected to the BNC input, and the counter input selected to external, I could easily read the frequency of my two-metre equipment. The error at two metres was about 1.5 kHz, but I expect the counter time base could be adjusted to put this right.

The Instruction Manual does not mention that the time base uses a 10 MHz crystal with .01, .1, 1, and 10-second gate times, but these points are covered in the advertising brochure.

Instructions on the use of the analyser are good. You won't have any trouble here except in trying to determine the polarity of the external DC input; however, I will let you into a secret. The tip of the plug is positive.

After a bit of use, I noted a few strange quirks with the 247. Occasion-

The MFJ-247 with the cover removed.



Rear View of the MFJ-247.

ally, the counter would lock up and refuse to read the operating frequency of the analyser. The only way to overcome this was to switch off and start again. The first review sample was quite bad in this respect, so I exchanged it for a second one which was much better.

Also, MFJ has dropped the vernier from the tuning control on this version. I feel that a six-to-one drive would provide much smoother control.

The MFJ-247 conclusions

I would have to say that MFJ has a great idea here. However it is let down by a few details that could be easily corrected with little or no extra expense. The instruction manual should have more information on the counter operation.

Even so, I would like one for my shack, and at a retail price of $409.20 it would have to be good value.

Our MFJ-247 was supplied by Stewart Electronic Components, 44 Stafford Street, Huntingdale, Victoria 3166.

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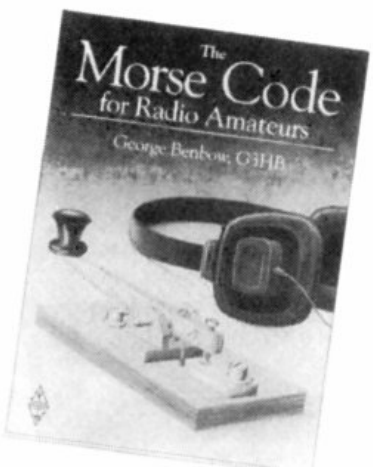
BOOK REVIEW

The Morse Code for Radio Amateurs

Seventh Edition
Edited by George Benbow G3HB
Published by the Radio Society of Great Britain (RSGB)
Reviewed by Evan Jarman VK3ANI



THE MORSE CODE for Radio Amateurs was first written in 1947 by Margaret Mills G3ACC; the first woman to obtain a transmitting licence following the war. In 1991 it was revised and had its scope extended although the majority of the content is still practice exercises.

This book was written for those who have no experience of Morse code and are seeking to pass the amateur examination.

The chapters that are not code exercises are limited in their scope perhaps to match their size. The history of Morse code is one page. So too is the first chapter which outlines some of the advantages of Morse code. A description of the Morse key does slightly better. It acknowledges the American straight key but prefers the solid arm GPO type of key. It includes a schematic circuit for a practice tone oscillator based on a 555 timer IC.

The last chapter on high speed Morse and automatic keys provides a better description, but is still information for newcomers to demonstrate what is available.

The chapter on the examination options applies to Britain and so should be ignored by Australians.

The sending exercises are where this book shines. It breaks up the alphabet and picks various letter groups to practise. Then having completed these groups, text using all letters is given. Finally numbers are added. Exercises also give the time required for transmitting at different speeds. The letter groups have been chosen using a common pattern in Morse. Also letters have been combined so that if spacings are not correct quite different letters or words will be heard, eg MIZMI becomes ZZZ.

These exercises would make good receiving practice. Words like REPEAT and REPENT will sort out any tendency to journalise before it could become a problem. The exercises form 13 of the 28 pages in this book and are worth every page.

No book can provide receiving practice which is the most basic skill in Morse code. It can only point out sources such as scheduled practice sessions on radio or recordings. Again this book is aimed at the British reader and only lists British sources.

The aim of the book is to interest people in the Morse code as a new and different language with which one can communicate world wide. I wish them well but feel that the book is too small to satisfy the interest generated.

There are many amateurs around the world who find it very relaxing and only wish that others could share this enjoyment. What must be the best example of Morse code operation to some is shown in an extract from the book. "In contact with an American amateur, he had commented on his Morse and the American replied that he was in an iron lung and keying the transmitter by blowing down a tube."

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