Top Band with the R.1155

NOTES ON A PRACTICABLE MODIFICATION

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ONE of the principal disadvantages of the R.1155 communication receiver (except for the model 1155N) is the non-coverage of 1,800 to 2,000 kc, now one of our most interesting communication channels. The simple modification described in this article should allow even the most inexperienced owner of this type of receiver to obtain coverage of the Top Band. The 160-metre converter previously employed by the writer for his R.1155 suffered severe damage in the removal from GM to the southern reaches of G country. In preparation for the coming winter, when it is hoped that G3JKG will be on the air again, something had to be done, and with minimum cost. Modifying the coils was the first thought. Then, fortunately, it was discovered that the slug cores gave sufficient variation to raise the band 500 kc to cover 1,500 to 2,000 kc for the loss of a few hundred uninteresting kilocycles at the lower end of the main tuning range.

Apparatus

Some form of signal generator giving an output in the range 1,000 to 2,000 kc, an output meter, a trimming tool and a small quantity of methylated spirits are what is required to effect the modification.

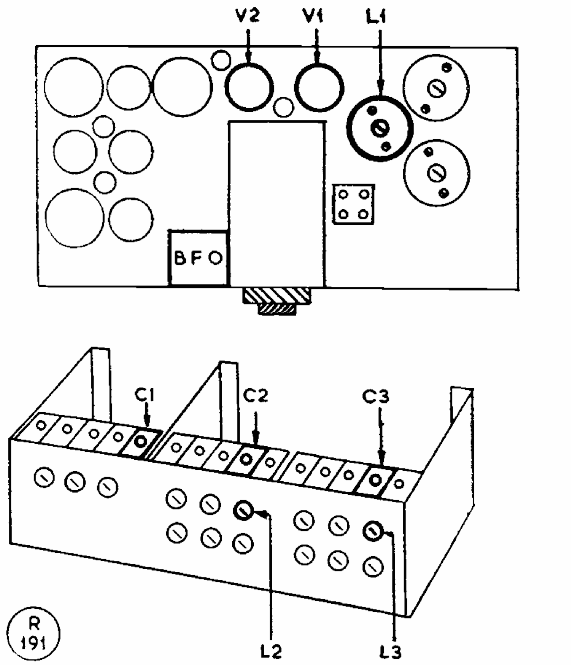
The second harmonic, 2,000 kc, of a 1,000 kc crystal oscillator will do as the "signal generator," and for the "output meter" an AVO on the 12mA AC range was used by the writer.

The upper sketch illustrates the position of L1, the RF amplifier grid circuit tuning coil; V1 is the RF amplifier and V2 the frequency changer.

The lower sketch shows the coil unit on the underside of the chassis looking from the front panel and indicates the location of L2, the hexode grid circuit tuning coil and L3, the local oscillator tuning coil. C1, C2 and C3 are respectively the RF amplifier, hexode and local oscillator trimming condensers.

Setting Frequency Range

With extreme care free the cores of the coils, using the methylated spirit to dissolve the seals. Disconnect the grid (top cap) of V2 and inject



In his article, G3JKG describes how Range 3 of an R.1155 can be modified to cover the 160-metre band. Readers comparing this sketch with the pictorial view of the R.1155 on p. 36 of the "T.1154/R.1155 Manual" will find V1 above shown as V3, and V2 as V4, with L1 marked as D/F (R.3).

a 2,000 kc signal. Set the pointer at the upper end of the scale with the range switch at the position 500/1500. Unscrew the core of L3 until a signal is heard; this will be four or five complete turns of the core. A quick check will show that 1,000 kc now corresponds to the 800 kc mark on the dial.

Replace top cap of V2 and disconnect grid top cap of V1. Inject the 2,000 kc signal at V1 grid and with the output meter connected, or an AC meter across the secondary of the output transformer, unscrew the core of L2 until a maximum deflection on the meter is obtained. Replace V1 grid and inject the signal at the aerial.

Now the top section of the core of L1 must be completely removed. This can be done by taking off the screening can, which is held by the two small screws on the top. The core section to be removed is held by the bakelite top which in turn is fixed by three long brass screws. Get these off and after taking out the top section of the core replace the bakelite and screening can. Adjust C1 for maximum deflection on the meter. The resultant tracking is reasonable over the band 1,800 kc to 2,000 kc but may be improved by adjusting the cores at 1,800 kc and the trimmers at 2,000 kc. Satisfactory tracking over the whole scale can hardly be possible since the coil-condenser combina-

tion was only designed to track over 500 kc to 1,500 kc.

Calibration

It will be found that 800, 1,400 and to the end of the scale correspond to 1,000, 1,800 and 2,000 kc respectively. Complete re-calibration can, of course, be carried out with a variable frequency signal generator.

The BBC stations can be marked in (see *Radio Times* for frequencies)—or by taking a connection from the stator of the BFO variable condenser (found just inside the top of the box shown in the sketch) through a DC blocking capacity and wound round or positioned near the aerial, harmonics of the fundamental 280 kc will be found ranging from 840 kc to 1,960 kc. It should be noted that the accuracy of this latter method will depend on the setting of the BFO condenser.

Conclusion

Without producing selectivity and gain/frequency curves it is the writer's opinion that the selectivity and tracking of an R.1155 modified in this way are satisfactory over the desired band.

BRIMAR SENTERCEL METAL RECTIFIERS

As a result of the recent sharp increases in the price of selenium, combined with the national wage award in the engineering and allied industries, it has been necessary to increase the retail list prices of Brimar SenTerCel metal rectifiers as follows :—

	£	s.	d.
RM0		7	6
RM1		8	0
RM1A		12	6
RM2		8	6
RM3		11	10
RM4	1	3	9
RM5 (*no change*)	1	10	0
DRM1B		14	6
DRM2B		15	4
DRM3B	1	2	3

For the time being, the prices of the M1 and M3 and the "K" and "Q" range of rectifiers will be unchanged, but prices of the special spindle mounted stacks used in industrial and other applications have also been increased.

LET US KNOW

We are always interested in hearing how readers get on, not only with the constructional designs published in SHORT WAVE MAGAZINE, but also the circuits and practical ideas contained in almost every issue. We usually know about it if something *fails* to work out "as described"—but it would also be helpful to have a line from those who get the thing going without any trouble and to their entire satisfaction. In general, they are the ones who practically never write in!

LATEST SHIP-TO-SHORE TELEPHONE

Pye Marine Ltd. has been awarded a contract by the G.P.O. to supply and instal a VHF/FM Coastal R/T Station. This, the first of its kind to be set up in Britain, will be in operation on the Clyde this autumn, and should, in the view of the authorities, be of great assistance to shipping and trade. The Clyde station, using the "first choice International Marine VHF public correspondence channel" (frequencies 157.4 mc receive, 161.9 mc transmit) will also be the first station to operate to the new International Maritime FM Standards proposed by the United Kingdom. The installation on the Clyde will be based on the FM version of the Pye Telecommunication "Ranger" series of equipment now going into production and will employ 100-watt transmitters.

It is expected that this will be followed by many such stations throughout the world, by which ships of all nations will be "on the telephone" to subscribers ashore at a very economical rate.

NEW BBC TV CAMERA

The first of the new Emitron cameras at Lime Grove was brought into service on August 3 when the programme "Nom-de-Plume" was transmitted from Studio D.

The pick-up tubes in these cameras are similar in principle to the former C.P.S. type, but an additional mesh on the scanning side of the mosaic greatly reduces the tendency to instability caused by excessive high-light brilliance. The tubes can accept an illuminuation of ten times the normal peak-white value without instability, and even when instability does set in, it is confined to the area immediately surrounding the point of excess brilliance. The former tendency for the instability to spread over the entire mosaic (causing the effect sometimes known as "peeling off") has been eliminated.

The fundamental sensitivity of the new tubes is approximately the same as the C.P.S. type, but their greater resistance to instability enables them to be worked with twice the previous signal current, giving higher signal-to-noise ratio and an increase in the acceptable contrast ratio.

The normal control of lighting within the camera is by a continuously variable neutral density filter which is remotely controlled. This makes it possible to work with a fixed lens aperture and therefore to maintain a constant depth of field under varying lighting conditions.

ANOTHER TTX STATION

G4XB of Cosham, Portsmouth, reports that he is now on 1820, 1900 and 1915 kc with a transistor transmitter. He can be found on 1820 kc most Sunday mornings from about 10.45 clock time.