

--- WINNING ENTRY — CAMEL CONTEST ---

Conversion from AM to FM B. WHITING T.Eng (C.E.I.) ZS6ADC

The exercise to be described began with the acquisition of a Heathkit HW-17A 2 metre transceiver. Being an AM device meant that it was of little use unless it could be converted to another mode of operation. FM was the obvious choice, it hardly being feasible to convert the TX section to SSB.

Converting the Receiver

FM transmissions could be received after a fashion by tuning to one side of the carrier, thus employing "Slope Detection". This proved rather unsatisfactory, so the first task was to fit an FM demodulator. The obvious solution was to employ an integrated circuit and a type SN76660 appeared most suitable. The "Typical Application Circuit" described in the data sheet for this device was built onto a 46 by 87 mm piece of 0,1 pitch veroboard. The two coils were made by rewinding old I.F. transformers to suit the HW-17A I.F. of 2 MHz. The device was mounted on the rear panel of the transceiver and connected as shown in figure 1. Alignment consisted of tuning L1 for maximum signal and L2 for minimum distortion.

Converting the Transmitter

Conversion of the TX section consisted of removing the audio signal from the final RF stage and feeding it via a processing circuit to a phase modulator. The 200 ohms DC resistance of the modulation transformer secondary was replaced by a resistor. The audio signal from the transformer was fed via a diode clipper and low pass filter to the de-emphasis filter and phase modulator. This circuit was built onto a similar piece of veroboard to that of the RX and mounted next to it on the rear panel. Circuit detail is shown in figure 2. The two 100 000 ohm preset resistors provide adjustment for clipping and maximum deviation.

Conclusion

The adjustment of the transmitter section is more complex than that of the receiver and ideally requires workshop equipment. This has still to be carried out, but after rough and ready setting up the equipment was tested on the air, a good 5 & 9 report being received. After further alignment the otherwise obsolete HW-17A is about to provide a hitherto HF only station the facility of operating 2 metres for a conversion cost of less than R5.

(This article is of general interest as the techniques involved can, with suitable adaptation, be applied to much a.m. equipment including the station a.m. communication receiver with v.h.f. converter — Editor).

*5 Nel Avenue,
Highway Gardens,
Isando 1600. Tvl.

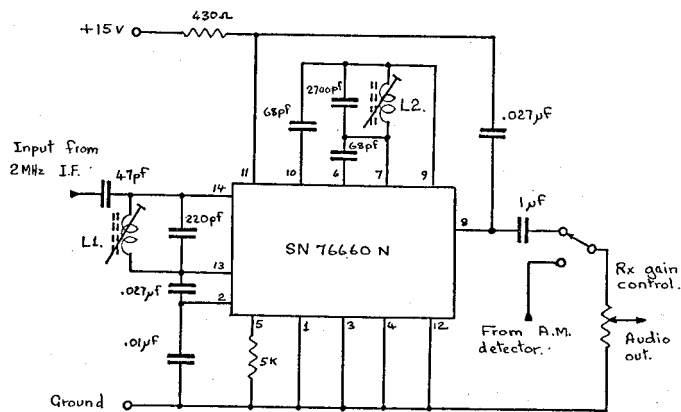
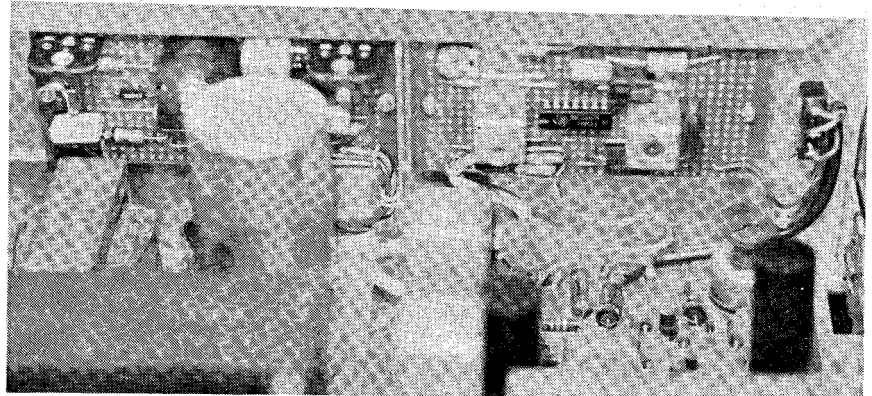


Fig. 1

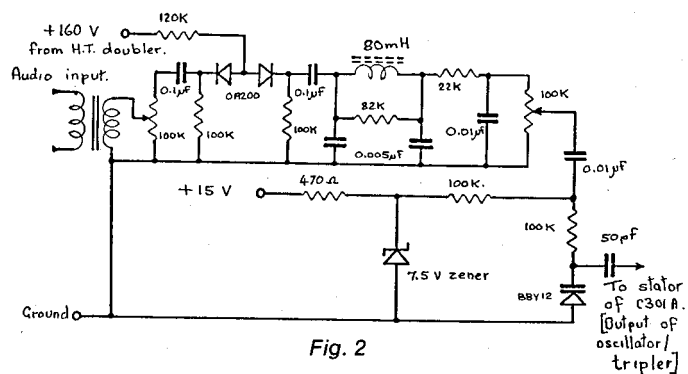


Fig. 2

EDITORIAL NOTES

Deadline: The deadline for publication of advertisements in Radio ZS has been advanced to the first day of the month of publication, unless special arrangements are made with the Advertising Manager. This is to ensure that detailed attention may be given

to advertisers' requirements, and that matters are not dealt with too hurriedly.

Letters: Letters to the Editor intended for publication must be typed, with double spacing. This avoids transcription errors, and reduces magazine costs.