FIG.10. Broadband pre-amplifier.

The maximum frequency tunable with the arrangement as shown is about 35MHz.

The number of turns on L5 is quite critical and individual circuits may require turns adjustment on this toroidal inductor. It controls band-pass ripple, particularly towards the HF end of the tuning range. If you add too many turns, the tuning response becomes very narrow and can lead to high transmission losses. Too few turns, creates the classic 'double hump' of over coupling which, while not serious, is annoy-ing in an otherwise perfect circuit. The 9MHz traps are adjusted by feeding in a massive 9MHz signal and tuning the slugs for minimum response in the receiver. When everything is correctly adjusted the preselector allows coverage of every amateur band (including 10M) without-resetting.

Broadband pre-amplifier

The pre-amp design is fairly straightforward and uses a bipolar low noise, high level amplifier to produce a gain in the order of 20dB ($\times$ 10). Its use is only occasionally needed — mostly on 15 and 10M where signal levels tend to be rather lower than on the LF bands. However, the performance without the amp in circuit is nearly always ade-quate when used in conjunction with a half decent aerial system; the limiting factor tends to be QRN and solar noise rather than receiver sen-sitivity. Since it operates in the receive mode only, the entire cir-cuitry of **Fig. 10** can be left out if desired.

The IF board

This is, in essence, the design pro-duced by James Bryant G4CLF as an applications exercise for the company he was then working for, Plessey. The complete IF board is available from a couple of suppliers including Ambit International. I understand though that Ambit sup-plies the board fitted with 10.7MHz SSB crystal filters. There should be no problem in departing from the 9MHz IF used in the prototype. However the 'B' input diode matrix will have to be rewired to pro-gramme 10.7MHz offset into the HEF4751 divider/synthesiser chip. Brief details of how to do this were included in last month's article.

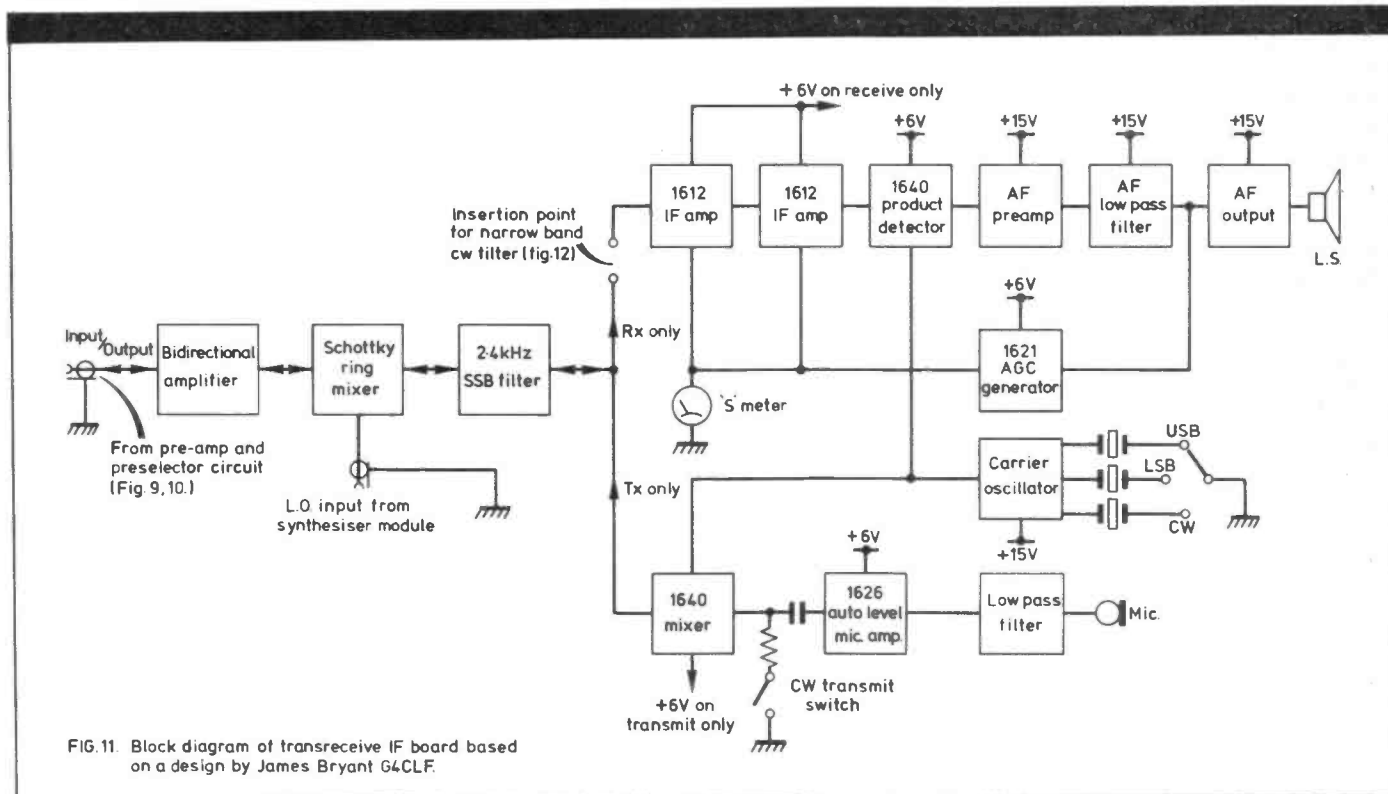Since the board is essentially a 'black box' type article, I don't pro-pose to go into great lengths ex-

FIG.11. Block diagram of transreceive IF board based on a design by James Bryant G4CLF.