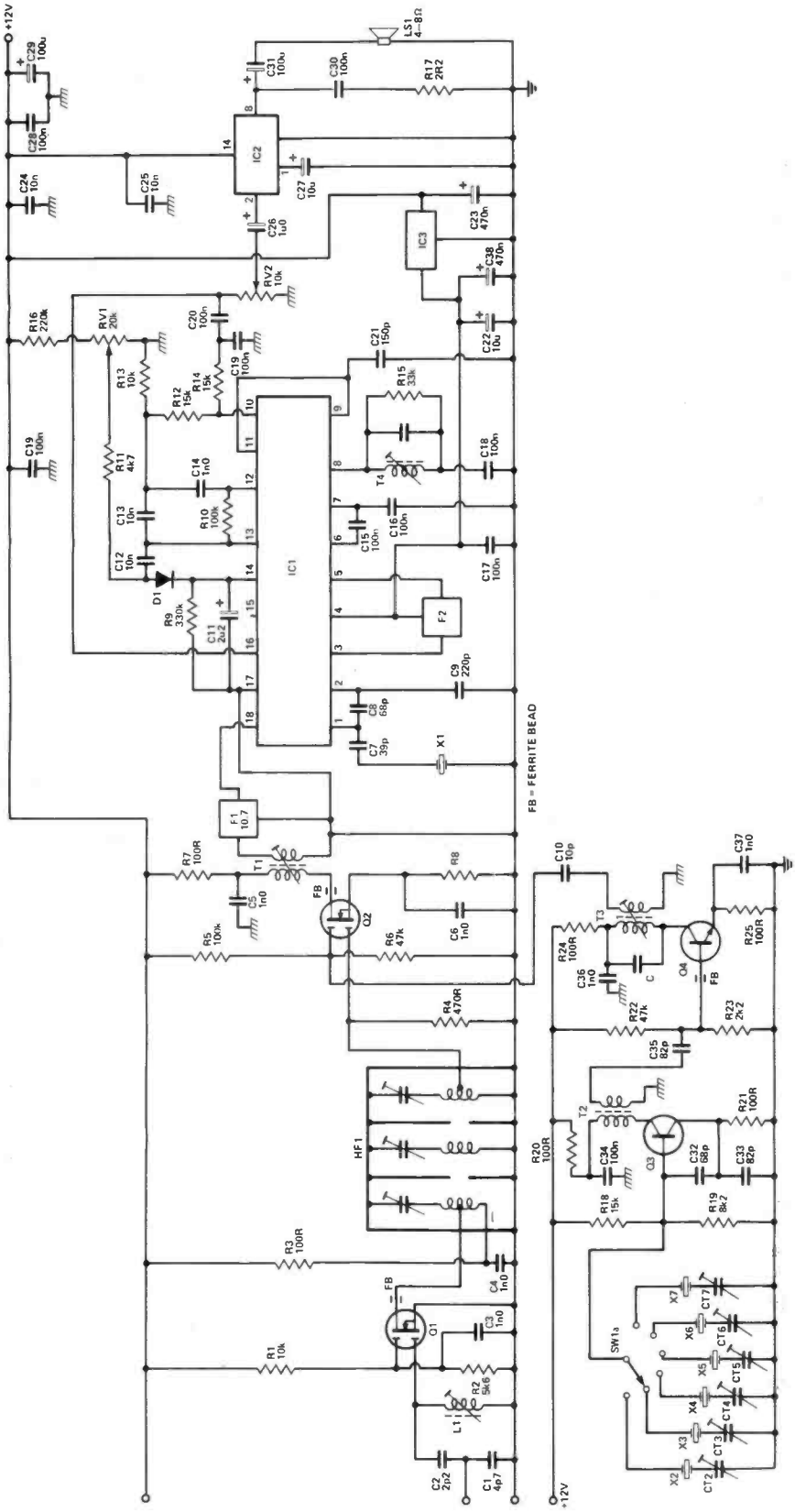
Circuit of 2m FM Talkbox Receiver



solder bridges between tracks on the underside.

Alignment

To align the receiver, you will need a multimeter as a minimum, plus some off-air signals, or if you have them, a frequency counter and signal generator capable of operation at 2 metres.

1. Connect a power supply (switched off) with output voltage between 12 and 14V — positive to the pin marked +12V, and the negative to the top foil — you should insert the multimeter in this circuit so that it can monitor the initial current taken (set to 100mA range). *Note that this receiver is designed for a negative earth power supply if used for mobile applications.* Connect a speaker, with one lead to the top foil, and the squelch and volume controls. If the latter are not PCB mounted, the volume control (RV2) must be wired in using screened audio cable, so that each of the wires to the pot (except the earthed lead which will be at the same potential — earth — as the screens themselves) ends up screened.
2. Connect point A on the PCB to one of the pins connecting to the crystals using a few inches of wire, and insert a crystal.
3. Turn both potentiometer controls fully anticlockwise.
4. Apply power, and check that the current consumption is below 50mA. If a lot more current is drawn, then there is almost certainly a short circuit somewhere, probably between tracks on the PCB.
5. Turn RV2 volume clockwise and establish that there is some noise coming from the speaker. Adjust the core of T4 for maximum noise output. Note that when adjusting cores, *the correct trim tools should be used to avoid damage.*
6. Use your voltmeter probe (range 2.5 or 5V) at point Y (hot end of R25) and adjust the core of T2 for a peak in the reading (about 1.7-2V). When aligned the core of T2 will be approximately level with or slightly above the top of the former.
7. With the voltmeter still at point Y (hot end of R25) adjust the core of T3 also for a dip in the reading — this is not very noticeable and may be difficult to see — the core of T3 will be about 4mm below the top of the former when aligned) — alternatively you should be able to hear a peak in the noise output from the receiver