50-Watt VHF Telephone Transmitter

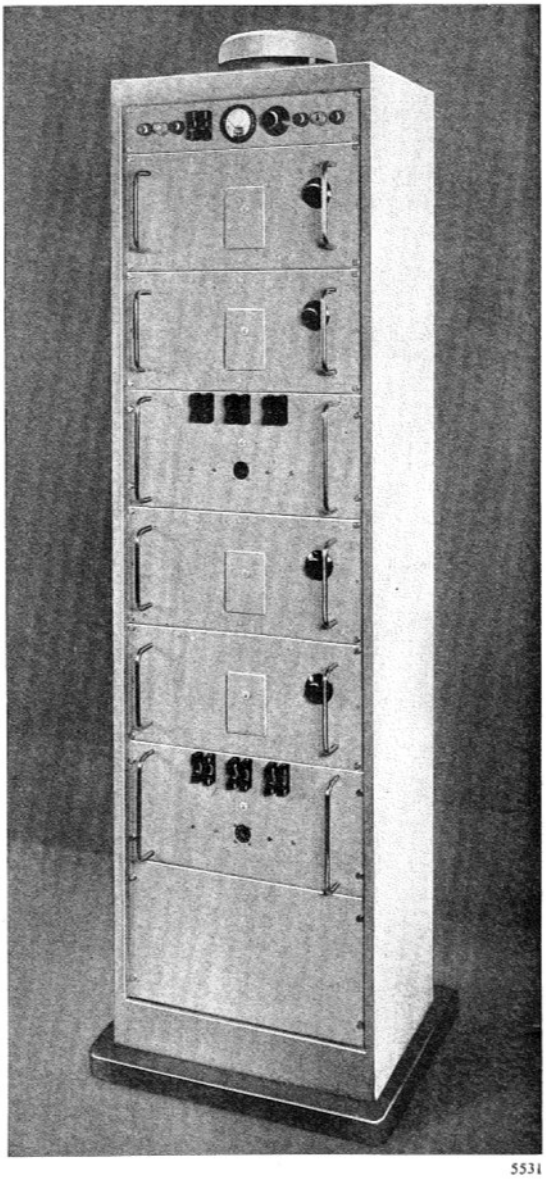
Type TGV472

THE TYPE TGV 472 50 W transmitter is the ideal headquarters main transmitter. Its applications are manifold and it is commonly used as a main station for police headquarters, airfield control towers, harbour masters' offices and for point-to-point working generally. Furthermore, these transmitters may be arranged to provide a flexible and comprehensive multi-channel communication system.

The units are built on to 19 in. panels and a single transmitter is comprised of the transmitter, rectifier and meter panels built into a standard cabinet. To this single-channel installation other units may be added and built up in standard cabinets to form a multi-channel equipment. For instance, in a 6 ft cabinet, it is possible to mount four transmitter panels (two of which would provide alternative channels), two main rectifiers, two auxiliary supply units and one meter panel with switches to all circuits. This arrangement provides four RF channels, two of which may be operated simultaneously. Various combinations can be provided in this way and an associated receiver may also be accommodated if required. All panels are easily removed from the main cabinet and in multiple installations servicing of one transmitter unit may be carried out without interfering with the remainder and with complete protection from live circuits.

The transmitter is normally operated from a desk-mounted unit similar to an ordinary telephone which has an associated line amplifier and relay supply unit. This may be situated at any distant point up to five miles from the transmitter. Full control of each transmitter is given over one pair of lines.

A local/remote switch in the transmitter en-



5531

ables full control to be obtained at the transmitter cabinet for purposes of lining up and testing.

CIRCUITS

The RF unit is driven by a high frequency crystal so that a maximum of only five RF stages are required. The first valve is used as a crystal-controlled oscillator and multiplier (except in the 36–44 Mc/s band) and is followed by a further multiplier and three stages of amplification at the carrier frequency. The second of these amplifiers is a twin tetrode which is link-coupled to the tuned-grid circuit of the final power amplifier. The final amplifier is anode modulated.

The modulator input is fed to two amplifiers which are coupled to a cathode follower driver valve. This is followed by a push-pull power amplifier operating under Class AB2 conditions. A modulation limiter circuit is used, which works on the principle of DC voltage feedback to the first amplifier. A delay voltage is applied to the system, so that the depth of modulation is limited to 80%.

Adjacent channel operation is also possible, the RF chain being driven by two crystals whose frequencies lie within 400 kc/s of each other. A relay circuit provides crystal switching and no retuning of the other stages is necessary.

AERIALS

The choice of aerial is normally dependent on the conditions under which the transmitter operates but the following types are in common use:

Half-wave concentric dipoles suitable for mounting on wooden or metal masts.

Wideband (100–156 Mc/s) half-wave vertically polarised dipoles.

High gain Yagi directional arrays.

DATA SUMMARY

Power output: 40–70 watts, depending on frequency range.

Frequency ranges:
36–44 Mc/s, 65–78 Mc/s, 78–100 Mc/s, 118–132 Mc/s, 156–184 Mc/s.

Frequency tolerance: ±0·01%.

Crystal frequencies:
9·0–16·7 Mc/s (fundamental).
29·5–40 Mc/s (third overtone).

Multiplication:
Between 4 and 12 times, depending on frequency range.

Depth of modulation: 95%.

Service: Telephony (with MCW optional).

Audio input: 15 db below 1 mW.

AF response: Within ±2 db from 200 to 3500 c/s.

Power supply: 110–130 V and/or 200–250 V, 50–60 c/s, single phase, AC mains.

Power consumption: AM: 550 W.

Dimensions:

Width	Depth	Height	Weight
1 ft 9 in. (53 cm)	1 ft 3 in. (36 cm)	6 ft (183 cm)	400 lb (181·6 kg)

Marconi

MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED
Head Office: Marconi House, Chelmsford
Telephone: Chelmsford 3221. Telegraphic Address: Expanse, Chelmsford