

the coded audio (dots and dashes) on a telephone call.”

A BBC listing dated January 1953 showed pairs of ET4336 in use singly with a reserve or combined, carrying mainly Home Service at the following sites: Dumfries (temporary using MTT), Exeter, Hastings, Ramsgate, Scarborough, Tywyn (temporary using MTT) and Whitehaven. There was no mention of those in DF service.

## Denis Surridge

From Denis Surridge comes the following:

“After the Second World War there came available many items of ‘surplus’ radio communication equipment including the RCA ET4336. The Director of Engineering, Mr (later Sir) F. C. McLean instituted the purchase of about 150 of these transmitters on the premise that ‘they may come in useful’. I’m sure he did not realise at the time just how useful they would become and the variety of roles in which they would be employed.

The popularity and demand for television was growing and this was further stimulated by the announcement that the Coronation in 1953 would be televised. Financial restrictions and the short time scale prevented the commissioning of further stations in some still unserved, largely-populated areas. It was decided that temporary stations were to be installed to cover the Newcastle and Belfast areas.

As no commercial equipment was available the ET4336 formed the basis of the design. The Transmitter Planning and Installation Department (TP&ID) was charged with the task of design and conversion. For Band I service in both sound and vision transmitters the original crystal drive was retained and the first RF stage was configured as a trebler, the crystals being in the range 15 to 22MHz

The sound transmitter modifications were the easier of the project and the RCA sound modulator was retained in its original form. A Leak Point One Hi-Fi audio amplifier was used with a special high impedance output ( $2 \times 2500$  ohms) to drive directly the grids of the RCA 805 modulator valves. The HF RF circuitry was removed and replaced by new coils and capacitors for the higher TV frequency band of 45 to 64MHz. The original HF output valves, RCA813 were used at the

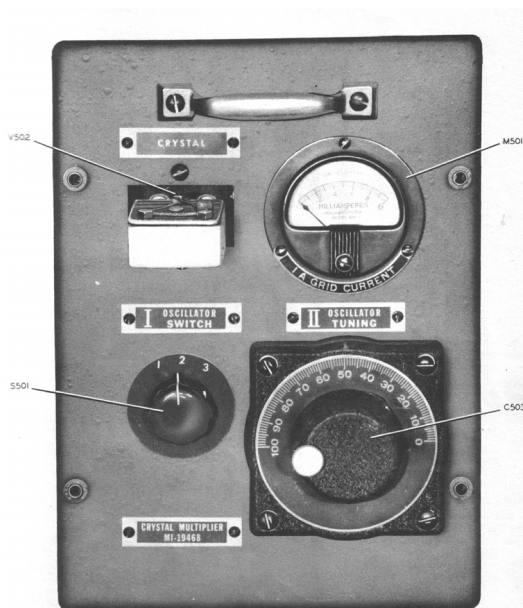
extreme of their frequency range. This unit produced an output power of 125 watts.

The conversion to a vision transmitter was a more formidable task. The original transmitter was completely dismantled with only the HV components and the transmitter framework left. Even then the latter had to be extended to accommodate additional components. To achieve the required peak white vision output power of 500 watts, the then newly-introduced QY4-250 VHF valves were used and the grid-modulated RF output stage consisted of these two tetrodes operating in push-pull.

A television studio synchronising pulse stabilising amplifier was modified to provide a picture/sync ratio of 50/50 to modulate the control grids of the output valves. The grid bias for these valves was obtained from a dry battery. As this battery was being modulated with respect to earth at video frequencies it was mounted in a small

“Attempts were made in the tuning of the vision transmitter to achieve some resemblance of a VSB frequency response but this wasn’t really possible with the RF circuits so a filter incorporated in the Sound/Vision Combining unit provided a degree of RF shaping. The VSB combining filter was of simple construction using quarter-wave lengths of coaxial cable. The dummy load used by both transmitters was not the Robertson lamps, they don’t look like 50 ohms at 50MHz, instead some 20 feet of Pyrotenax cable was found to be lossy enough to present a 50 ohm impedance.

To the TP&ID design two sets of equipment were produced by the Equipment Department and installed in two pre-war Television OB units, which were available. These were shipped to Pontop Pike and to Glencairn in NI, the Divis site not yet accessible. There was a main and reserve transmitter for both sound and vision in each unit.



The crystal oscillator and VFO unit

container designed to present a low capacity to earth. With the output valves operating with no grid current, the battery had a long life. This was just one of the novel expediences that had to be taken to complete the design in the short time-scale. In operation, the anodes of the QY4-250s glowed a very bright cherry-red!”

(The ceramic five-pin valveholders into which the QY4s were plugged, were supplied by the Whiteley Electrical Radio Company of Mansfield, where my father worked. See RB68.)

The success of these stations produced pressure and enthusiasm for further installations. Two more were produced, using yet again another eight of the ET4336 transmitter stock. This time the units were installed in redundant, ex WW2 RAF high-sided four-wheeled trailers with access being by a short run of steps. The outsides were resprayed ‘BBC Green’ to obliterate the camouflage paint and then embossed with the BBC crest on each side. One of these units was installed at Truleigh Hill, serving Brighton and was on the air before the Coronation.