

BOOK OF INSTRUCTIONS.

FOR

OUTFIT QD.

CHAPTER 1.

1. Purpose.

Outfit QD is a receiving equipment for the interception of R/T, W/T and non-morse transmissions, mainly in the 38 Mc/s to 50 Mc/s band.

The receiver incorporated in this equipment, the S27U, has facilities for the reception of either amplitude modulated or frequency modulated signals. Normally the reception of amplitude modulated signals only will be required of Outfit QD. "There is, however, a possibility of frequency modulated signals being used."

2. Description of Outfit.

General.

Outfit QD comprises a simple vertical dipole aerial with pyrotenax feeder, Aerial Outfit AQJ, a junction box with a short length of flexible polythene feeder, and a receiver S27U. The layout is shown in diagram Fig.1.

3. Aerial Outfit AQJ.

This aerial outfit is made up of two parts.

- (a) A heat proof moulding containing the stub connections to the dipole rods and permanently fixed to the end of a 150 foot length of pyrotenax feeder, screened, twin concentric, Patt. 13945.

The description and pattern number of this part of Aerial Outfit AQJ is :-

Moulding, with 150 ft. of feeder Patt. 56114.

- (b) Dipole rods fixed with stand-off insulators to a wooden support.

The description of this part of Aerial Outfit AQJ is :-

Dipole rods, set of, with insulators, and support, Patt. 56115.

It should be noted that some Outfits QD may be fitted with Aerial Outfit ARH, which is a similar dipole aerial used with polythene feeder throughout.

The two above mentioned aerial outfits, ARH and AQJ, are designed for use in the 38 Mc/s to 50 Mc/s band, so that some falling off in reception efficiency may be noticed at frequencies outside this band.

At some future date Outfit QD may be fitted with a wide band aerial designed to cover the whole tuning range of the S27U receiver, i.e. 28 Mc/s - 143 Mc/s. (See Chapter 6)".

#### 4. Junction Box and Flexible Feeder.

The free end of the pyrotcnax feeder goes into a junction box Patt. W7966, where it is connected to a 6 ft. length of flexible screened, twin concentric, polythene feeder Patt. 13811, which provides connected to the receiver aerial terminals. It should be noted that this junction box and short length of feeder form two separate items, apart from Aerial Outfit AQJ.

#### 5. Receiver S27U.

The 27U is a superheterodyne receiver having an intermediate frequency of 5.25 Mc/s. The R.F. and mixer stages employ acorn pentodes with a separate acorn triode local oscillator. These valve circuits together with the tuning coils, band switch and three section ganged tuning condenser, are mounted on a sub-chassis, which forms the R/F tuning unit of the receiver.

The frequency range covered by the S27U receiver is 28 - 143 Mc/s, in three bands as follows:-

BAND 1.	27.5 to 47 Mc/s
BAND 2.	46 to 82 Mc/s
BAND 3.	82 to 145 Mc/s

In Outfit QD, Bands 1 and 2 only will normally be used.

The intermediate frequency amplifier has four stages of amplification with alternative bandwidths selected by a switch, viz:- "Sharp" and "Broad".

Following the I.F.A. are the two demodulating stages, the A.M. detector and the F.M. detector. These can be selected by means of a switch, which also connects the selected detector to the audio frequency output stages.

Included in the A.M. detector is a crash noise limiter which can be switched into circuit if required. This limiter is very effective on low and medium frequency impulsive noise.

Included in the F.M. detector is a pre-discriminator limiter stage which serves to remove all traces of amplitude modulation from the signal and reduces impulse noise having no wide band frequency components.

Incorporated in the receiver is a variable beat frequency oscillator for the reception of C.W. transmissions, with an on/off switch on the front panel. See Figs. 2 and 4.

#### 6. Headphone Set.

The receiver provides either 5 watts in a 500 ohm or 5000 ohms speaker load or a lesser output to a phone jack matched for high impedance working.

High resistance headphones will be used for Outfit QD. The tone control should be used in the normal position.

7. Additions to S27U for QD application.

The S27U, for its application in Outfit QD, will have the following items added to it:-

- (a) An aerial terminal shroud is fitted over the aerial terminals, which also incorporates a clamp for the flexible polythene feeder.

Its full description is :-

Screen (terminal) for receiver Patt. 55855.

- (b) The receiver will be mounted on a resilient tray. Its full description is :-

Mount for receiver (sprung) Patt. 55927.

These two items will be fitted according to instructions in the fitting out specification.

“8. R.F. Filter Units

Two low pass filter units, A.P. 57673 Filter Unit Design 21, providing protection against transmissions above 170 Mc/s have now been included in this outfit. (See Figs. 1 and 1A.)

A through connector adaptor, fitted adjacent to the filter units, allows the filter units to be disconnected when not required and at the same time preserves the continuity of the feeder line.”

Chapter 5. Page 9. Paragraph 1. Add Note :-

“NOTE.—The R.F. filter units should be out of circuit for these checks, i.e. the feeder lines should be connected to the through connector adaptors.”