# BAND-I COMBINING UNITS FL5/501-505

## Introduction

This series is a complete range for combination of signals on frequencies to transmit vision and sound in the five Band-I channels. The number of the channel for which each unit is designed is indicated by the last figure of the code.

The units are identical to corresponding Helical Resonator Combining Units (Band I T.V.) Type 6307, which are manufactured by Pye T.V.T. Ltd.

## General Specification

| | |
|---|---|
| Frequency Range | FL5/501-5 for Channels 1-5 respectively |
| Maximum Power Input | Vision: 100 watts (peak-vision power)<br>Sound: 25 watts (amplitude modulated) |
| Cross-insertion Loss | |
| At vision-carrier frequency | Not less than 40 dB |
| At sound-carrier frequency | Not less than 40 dB |
| At other frequencies within the channel | Not less than 30 dB |
| Insertion Loss | |
| At vision-carrier frequency | Not more than 0·5 dB |
| At sound-carrier frequency | Not more than 1·0 dB |
| Input and Output Impedances | 50 ohms |
| Input V.S.W.R. | Not greater than 1·15 over the entire channel |
| Dimensions | 19 in. long, 11½ in. deep and 5¼ in. high |
| Weight | Approximately 24 lb |

## General Description

The typical electrical layout of these units is shown in Fig. 1. It is almost identical to that of the FL5/1 and related types; see under that code. The only differences are in the physical sizes of components and in the fitting of quarter-wave transformers to each resonator.

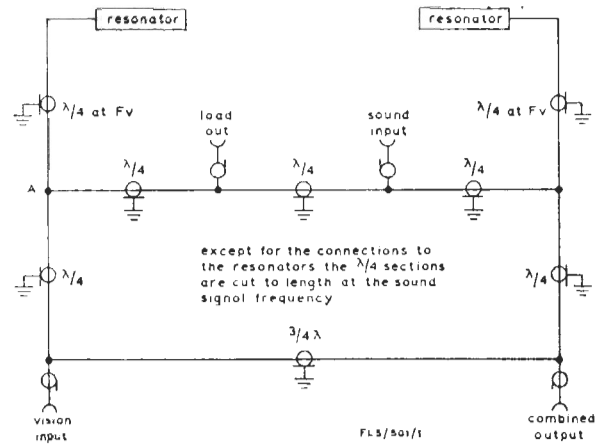


*Fig.1 Electrical Arrangement of the FL5/501-505*

## Setting-up Procedure

The only adjustments that can be made are to the tuning of the resonators. The following description assumes the use of a signal generator and a receiver. Other signal sources and measuring instruments can be used but it is important to remember that:

(a) During the setting-up the input to the combining unit must not be greater than 20 watts, otherwise the balancing-load resistor may be damaged.

(b) When the resonators are being adjusted they present a reactive impedance which may affect operation of the signal source.

*Apparatus Required*

Signal generator with a 50-ohm output impedance.

Receiver with a 50-ohm input impedance and an output-level indicator.

50-ohm load.

*Test Procedure*

1. Remove the covers over the resonator tuning screws.

Short-circuit the inner and outer conductors on the *Combined Output* socket and also at the point where the left-hand resonator, viewed from the front of the unit, joins the bridge-ring (point A in Fig. 1).

This can be done conveniently by inserting 4 B.A. screws into tapped holes, one in the centre of the cover over the back of the *Combined Output* socket and another at the centre of the cable clamp on the rear of the resonator.

Disconnect the cable between the *Load Out* and *Load In* sockets.

2. Connect the signal generator to the *Sound Input* socket and connect the receiver to the *Load Out* socket.
3. Set the signal generator to the sound-input carrier frequency and tune the receiver to this frequency.
4. Tune the right-hand resonator until the input to the receiver is a minimum and note the reading of the output level indicator.
5. Remove the short-circuits applied in (1).

   Replace the cable connecting the *Load Out* and *Load In* sockets.

   Connect the receiver to the *Vision Input* socket.

   Connect the 50-ohm load to the *Combined Output* socket.
6. Tune the left-hand resonator until the input to the receiver is a minimum.

   In this position the receiver input should be at least 45 dB less than the output of the signal generator, and less than that measured in (4).
7. Measure the cross-insertion loss between the *Vision Input* and *Sound Input* sockets. The loss should be not less than 40 dB.

LPB 1/69