

SOUND IN SYNC'S AUDIO FILTER FL1/31

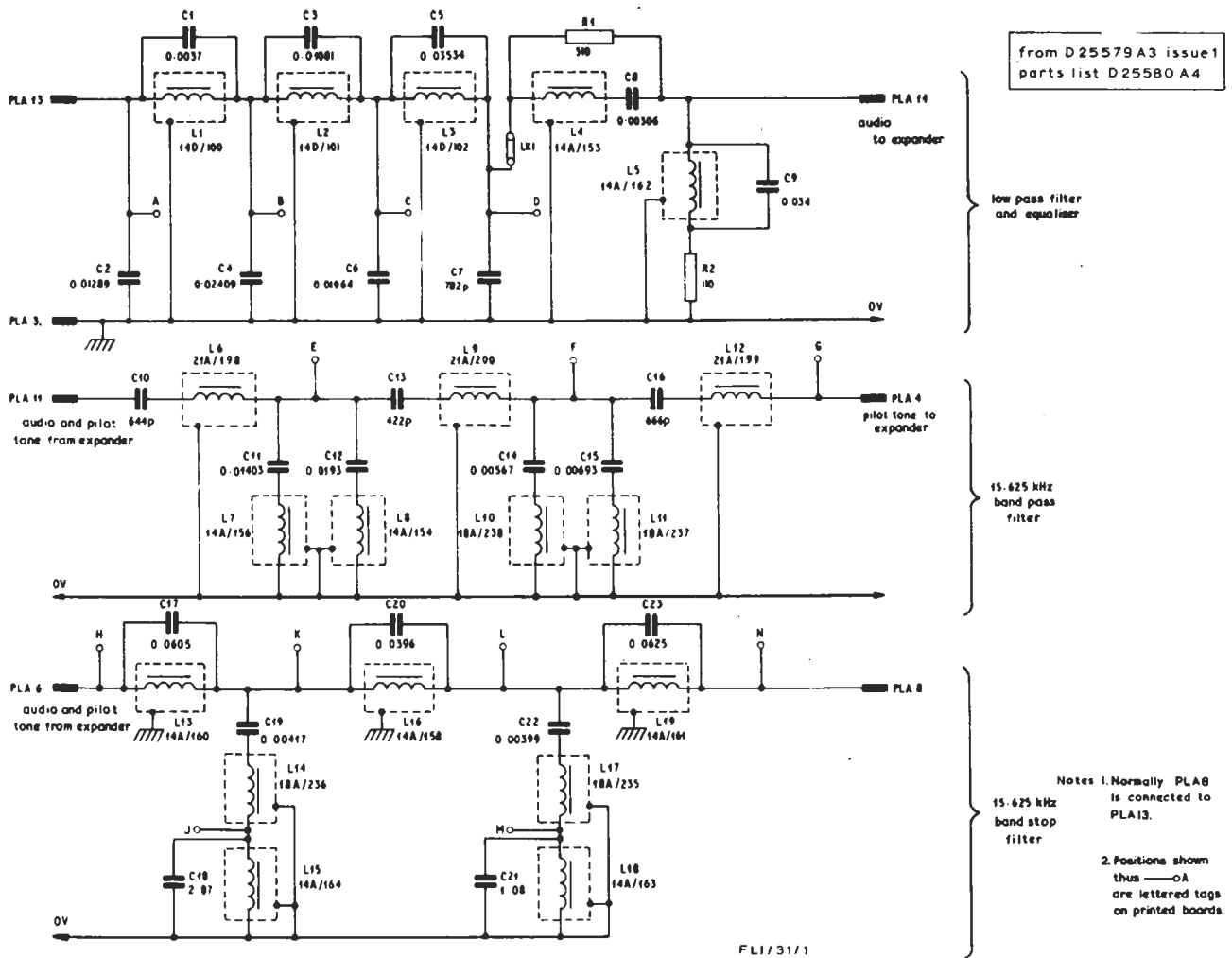


Fig.1 Circuit of the S.i.s. Audio Filter FL1/31

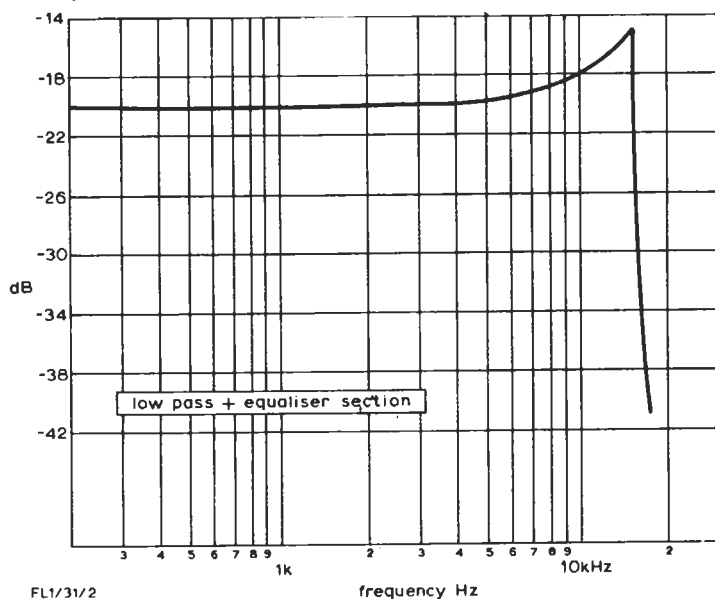


Fig.2 Typical Response of FL1/31

Introduction

The FL1/31 forms part of a sound-in-syncs decoder¹ and contains three filter networks. The unit accepts two audio-plus-pilot-tone signals from an associated audio expander unit² and provides an audio output and a pilot-tone output³.

The filter networks are:

- A 15-kHz low-pass filter which is followed by an equaliser section.
- A 15.625-kHz band-pass filter which provides a pilot-tone output.
- A 15.625-kHz band-stop filter which provides an audio output

General Specification

Impedances 600 ohms (unbalanced)

Filter Characteristics

Low-pass Filter ripple in passband less than 0.2 dB
loss at 15 kHz about 3 dB
loss at 17 kHz and above 40 dB.

Equaliser resonant frequency 26 kHz, basic loss 18 dB.

Band-pass Filter typical loss at 15.625 kHz, about 6 dB
rejection at frequencies below 14 kHz, 60 dB.

Band-stop Filter typical loss at 14.2 kHz, about 3 dB
rejection at 15.625 kHz, more than 75 dB.

Construction CH1/26A chassis

Index Pins 31 and 34.

Circuit Description

A circuit diagram is given in Fig.1.

Low-pass and Band-stop Filters

These two filters are normally connected in cascade and their combined characteristics are such that all frequencies above 14.3 kHz are attenuated by at least 40 dB. The equaliser section (L4, L5 and associated components) which follows the low-pass filter, compensate for high-frequency losses caused by the sampling process. Link L1, between the low-pass filter and the equalizer, allows the response of either section to be checked independently.

Band-pass Filter

All the series sections of this filter are tuned to 15.625 kHz and are adjusted for minimum loss. A typical loss figure for the complete filter is 5 dB, although losses of up to 8 dB may be encountered in some filters.

Maintenance

The frequency response of the low-pass and equaliser sections of the FL1/31 can be checked against the response characteristics shown in Fig.2.

In the event of faults, the resonant frequencies of individual sections of the FL1/31 can be checked by applying the output of an oscillator to the suspect section and monitoring at the appropriate point with an amplifier-detector such as the ATM/1. The injection and monitoring points are given, together with the injection frequencies, in Table 1. On completion of adjustments, apply locking compound to the inductor cores.

TABLE 1

<i>Inject at Tag</i>	<i>Frequency (kHz)</i>	<i>Tune for Max/Min Response</i>	<i>Detect at Tag</i>
A	30.00	L1 for min.	B
B	19.30	L2 for min.	C
C	17.15	L3 for min.	D
E	18.30	L7 for min.	E
E	13.10	L8 for min.	E
F	17.50	L10 for min.	F
F	14.00	L11 for min.	F
H	15.625	L13 for min.	K
K	15.625	L14 for min.	K
J	15.625	L15 for max.	J
K	15.625	L16 for min.	L
L	15.625	L17 for min.	L
M	15.625	L18 for max.	M
L	15.625	L19 for min.	N

References to Typical Associated Equipment

- Sound-in-syncs Decoder CD3M/504
- Audio Expander Unit AM1/38
- Expander Control Unit UN3/27