

PCB 75045

21.1 Introduction

This filter contains a filter as specified in Section 3.2.5 of the IBA Code of Practice for Local Radio. A high impedance buffer precedes the weighting section in order to meet the interface requirements of the MJS401D. The sub board is intended for use with the Option Filter Motherboard, PCB 75046.

Table 21.1.1 below shows the frequency response.

Nominal Frequency (Hz)	Exact Frequency (Hz)	Response dB
10	10.00	-27.6
12.5	12.59	-25.6
16	15.85	-23.7
20	19.95	-21.8
25	25.12	-19.9
31.5	31.62	-18.1
40	39.81	-16.4
50	50.12	-14.8
63	63.10	-13.3
80	79.43	-11.9
100	100.0	-10.6
125	125.9	- 9.3
160	158.5	- 8.1
200	199.5	- 6.9
250	251.2	- 5.8
315	316.2	- 4.7
400	398.1	- 3.7
500	501.2	- 2.8
630	631.0	- 1.8
800	794.3	- 0.9
1000	1000	0
1250	1259	+ 1.0
1600	1585	+ 1.9
2000	1995	+ 2.7
2500	2512	+ 3.3
3150	3162	+ 3.6
4000	3981	+ 3.5
5000	5012	+ 3.0
6300	6310	+ 2.3
8000	7943	+ 1.1
10000	10000	- 0.3
12500	12590	- 1.9
16000	15850	- 3.6
20000	19950	- 5.4
25000	25120	- 7.3
31500	31620	- 9.2
40000	39810	-11.2
50000	50120	-13.1
63000	63100	-15.1

Table 21.1.1 Frequency Weighting Characteristics, IBA Crosstalk Filter

21.2 Circuit Description

IC1 forms a non-inverting unity gain buffer with almost infinite input impedance. D1 reduces the effect of common-mode failure of the input stage of IC1.

IC2 and its surrounding components perform the weighting. C3 and R2 form a first order high pass filter. C4 and R3 form a first order low pass filter. The remaining components introduce some mid-frequency lift.

Power is supplied at ± 18 V, decoupled by C1 and C2.

21.3 Removal/Replacement

The IBA Crosstalk Filter is fitted to the Option Filter Motherboard. See Section 18.

21.4 Fault Finding

Use extender card PCB 75032.

Logic fault finding is covered in Section 18.

If the IBA Crosstalk Weighting Filter characteristic seems out of tolerance, perform the following procedure:

DESELECT ALL OTHER FILTERS EXCEPT THE IBA CROSSTALK FILTER.

FIRST CHECK PROPER INSTALLATION OF THE LINKS.

Check the response at IC1 pin 6. It should be essentially flat. If not, the fault is upstream from the IBA Crosstalk Weighting Filter.

Check the response at IC2 pin 1 for conformity to Table 21.1.1. If there is an error it will be due to IC2, R2-R8, or C3-C6.

If no error is found, the fault is downstream from the IBA Crosstalk Weighting Filter.

21.5.Calibration

There are no calibration adjustments to be made on the IBA Crosstalk Weighting Filter.

21.6 Installation

Requires OPTION FILTER MOTHERBOARD.

Turn off the MJS401D power switch and remove the mains lead.

In general the IBA Crosstalk Weighting Filter can be used on either OPTION A or OPTION B. Install the sub-board on the Option Filter Motherboard in position 1 to activate by the OPTION A button, or in position 2 to activate by the OPTION B button. However if no other option filter PCB is fitted, this PCB must be fitted in position 1 to be activated by OPTION A button.

If an "A, B, C" filter is also installed, remember that only one weighting should be active. Check that only link 1 is fitted ON THE "A, B, C" CARD.

If two option filter PCBs are fitted, cut link 3 on the Option Filter Motherboard.

Mate the IBA Crosstalk Weighting Filter sub-board socket connectors to the Option Filter Motherboard pin headers in the required position. Fit shakeproof washers over the screw threads. Apply a drop of low strength thread locking compound, e.g. Bostik T22, and secure using the M3 nuts provided. Tighten using a 5.5 mm A/F nut driver.

Remove the 4 screws securing the test set top cover and remove the cover. Locate the main card frame in the centre of the instrument. With the MJS401D facing you the option filter slot is 9th from the left. Using a sharp pair of wire cutters, clip out the link on the test set main motherboard which is marked "IF NO SPARE FILTER LINK" near the rear connector. Temporarily remove the BP/LP filter card if required. Insert the Option Filter Motherboard with the components facing left, and push down until it snaps into place.

Replace the cover and fit the labels supplied over the OPTION A or OPTION B legends on the front panel. Clean the panel area first with a degreasing chemical such as ethyl alcohol or methylated spirit. Do not use white spirit as this is greasy by nature. Do not use an aggressive solvent which may damage the paint. If in doubt, try on an area of paint which is rarely seen, such as the inside of one of the front panels or the back panel. Do not touch the adhesive area with your fingers.

21.7 Check-out

Turn on the MJS401D power. Connect a jumper lead between the oscillator output socket (or external oscillator) and the MJS401D "A" input socket.

Select input "A".

Confirm the system response with the filters all OFF and in LEVEL function as essentially flat by sweeping the oscillator through the measuring system.

Select the required filter option and confirm the response according to Table 21.1.1. Start all measurements at the "0" reference on the meter at 1 kHz. Do not raise the oscillator level by more than 20 dB to measure the filter frequency response as this can overload the instrument inputs when the test system is driven more than 23 dB above the "0" reference level.

If the response seems wrong check out the installation procedure again. Make sure that the correct main motherboard link is cut. Also check the sub-board and option filter motherboard links again.

21.8 Operation

Selection of the required OPTION FILTER buttons singly or together will activate the installed filters.

These are not interlocked in any way except that:-

- a) All filters are disabled in "Read Osc" function to prevent accidental oscillator calibration errors.
- b) CCIR 468-2 and CCIR ARM normally disable all other filters.

PROJECTION



DO NOT SCALE

IF IN DOUBT ASK



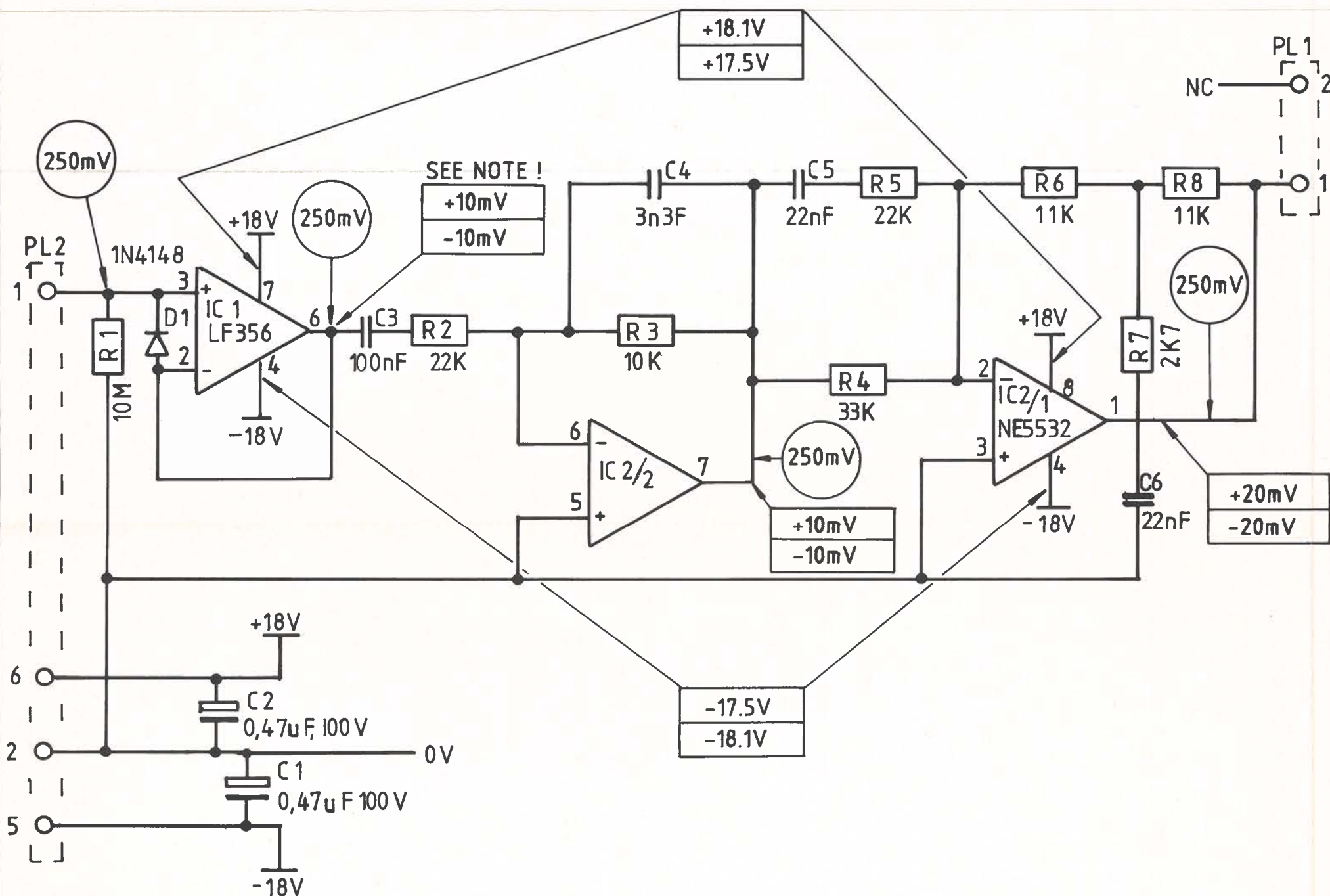
REPRESENTS A.C. VOLTAGES MEASURED WITH AN INPUT IMPEDANCE OF 10K OHMS OR GREATER, WITH 0dBu (0,775V) AT 1KHz INTO A FULLY CALIBRATED TEST SET, 'LEVEL' FUNCTION, 0dB RANGE, THIS OPTION FILTER ACTIVATED.

MAXIMUM

MINIMUM

REPRESENTS D.C. VOLTAGES MEASURED WITH A VOLTMETER OF 20,000Ω/V OR GREATER. MAXIMUM IS DEFINED AS THE MOST POSITIVE VOLTAGE. WHEN MEASURING VOLTAGE AT IC1 PIN 6, SUBTRACT ANY VOLTAGE APPEARING AT IC1 PIN 3 BEFORE COMPARING WITH THESE LIMITS.

THIS CARD FITTED TO OPTION FILTER MOTHERBOARD, PCB 75046.
USE EXTENDER CARD PCB 75032.

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TITLE

CIRCUIT DIAGRAM
IBA CROSSTALK FILTER
PCB 75045

REVISION

NO	DATE	CHANGE	APPROVED
1	2-9-85	PROTOT YPE	
2	14-10-85	F1 AN0140	J.D. Highm

TOLERANCES - UNLESS OTHERWISE STATED

MATERIAL
750/M/440

ORIGINAL SCALE

DRAWN *A. J. J. the*

DATE 20-8-85

FINISH

CHECKED *A. J. J. the*

DATE 2-9-85

USE MJS 401D OPTION
FILTER MOTHERBOARD

DRAWING No.

REV

PROJECT NO TYPE SHEET NO SIZE

750

C

439

3

2