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OSI.S

SP-150 LOUDSPEAKER UNIT

User's Manual.

CONTENTS

Introduction

Connections

- Power Supply**
- Audio Input**
- Headphones**
- Loudspeaker**

Operating the SP-150

- Power Switch**
- Notch Filter**
- High Pass Filter**
- Low Pass Filter**
- Signal Meter Adjust**

Technical Information

Fig 1 - Front Panel

Fig 2 - Rear Panel

**(c) 1994 Lowe Production Ltd
Cromford, Matlock
Derbyshire.
Printed in England M07-1500**

- 1 Notch Filter Adjust
- 2 Low Pass Filter Adjust
- 3 High Pass Filter on/off
- 4 Notch Filter on/off
- 5 Power on/off
- 6 Signal Meter
- 7 Speaker Out
- 8 Headphones Out
- 9 Audio In
- 10 Signal Meter Adjust
- 11 Power Input DC 12v
- 12 Power Input DC 12v

INTRODUCTION

The SP-150 Loudspeaker is an accessory that can enhance the performance of many HF band receivers. It is suitable for use with receivers that have a standard external speaker connection. It makes an ideal accessory to complement the other items in the Lowe 150 product range.

The main advantages of the SP150, when used with the 150 range is the added out-put power (10W), and a forward facing loudspeaker, plus an 'S' meter, (your HF150 will require a small modification to supply a signal for this meter.)

We have incorporated various filters to enhance the performance on the crowded HF bands, these comprise of switch able but fixed high pass, a variable low pass, and a variable notch filter.

CONNECTIONS

Power Supply

The SP-150 operates from an external DC supply of between 11 and 15 volts. If it is used with a power supply unit then the unit should ideally be regulated.

The receiver power supply (if one is used of adequate current) can also be used to power the loudspeaker unit, the two power sockets on the SP-150 are for this purpose. The sockets are identical and it does not matter which connects to the PSU and which connects to the receiver.

Audio In

The Audio input connection is in the form of a 3.5mm Jack socket. It connects directly into the 'External Loudspeaker' socket on the rear panel of the HF-150 receiver, and you still use your normal volume control.

Headphones

The Jack socket on the back panel is suitable for use with most types of headphones or headsets.

Speaker

An external loudspeaker of 4 ohms minimum impedance can be connected to the SP-150 via another 3.5 jack plug and lead.

OPERATING THE SP-150

Power Switch

The SP- 150 must be switched on if its internal amplifier and filters are to be active. When the unit is switched off, the SP150 loudspeaker will operate from the receivers own amplifier.

Notch Filter

The Notch filter provides the facility to be able to attenuate an interfering signal. It is activated by depressing the middle push button and can be adjusted using the central rotary control.

High Pass Filter

The high pass filter is fixed and can be operated by depressing the left hand push button.

Low Pass Filter

The low pass filter can be set to the desired level by turning the outer rotary control.

Signal Meter Adjust

The Signal Meter displays relative values of signal strength. It can be calibrated by turning the adjuster screw on the rear panel of the unit. Calibration can be achieved by either connecting the aerial input of the receiver up to a signal generator or comparing the meter readings with those of a correctly calibrated receiver. An aerial input of $50\mu\text{V}$ corresponds to a meter reading of S9.

TECHNICAL INFORMATION

Circuit Description

The SP150 speaker/filter unit consists of a bridge audio amplifier with boot strap delivering 10W into 4 ohms, and into an external high quality speaker will produce excellent results. The high pass filter is an RC type giving 6db/octave and is activated by push button switch on the front panel.

Next we have a low pass filter, this filter is a switched capacitor type, 4th order butterworth and it is variable from the front panel, the attenuation is in the order of 40db > @ 2khz .

The last filter is a notch, this filter is also a switched capacitor type of the second order, it is activated from the front panel and it is adjustable.

The S meter is driven from a fet input op-amp, with a feed taken from the receivers agc system.

SPECIFICATIONS

Controls

Power on/off	Notch Filter on/off
High Pass Filter on/off	Notch Filter adjust
Low Pass Filter adjust	Signal Meter adjust

Connections

DC Power input 12v via 2.1mm power jack. Duplicate socket for power loop-through.
Audio in via 3.5mm jack socket.
Headphones output socket.
Speaker Output (Min Impedance 4 ohms)

Power Supply

12v DC supply @ 500 mA min

Notch Filter

400 Hz - 4 kHz variable 2nd order > 40db attn
Band Width
- 6db 100Hz
- 20db 15Hz

Low Cut Filter (High Pass)

500 Hz fixed RC type 1 pole 6db/octave
- 6db 500Hz
- 20db 300Hz

Low Pass Filter

800 Hz - 6 kHz variable 4th order Butterworth 24db/octave
- 6db 2.5kHz
- 40db 7.0kHz

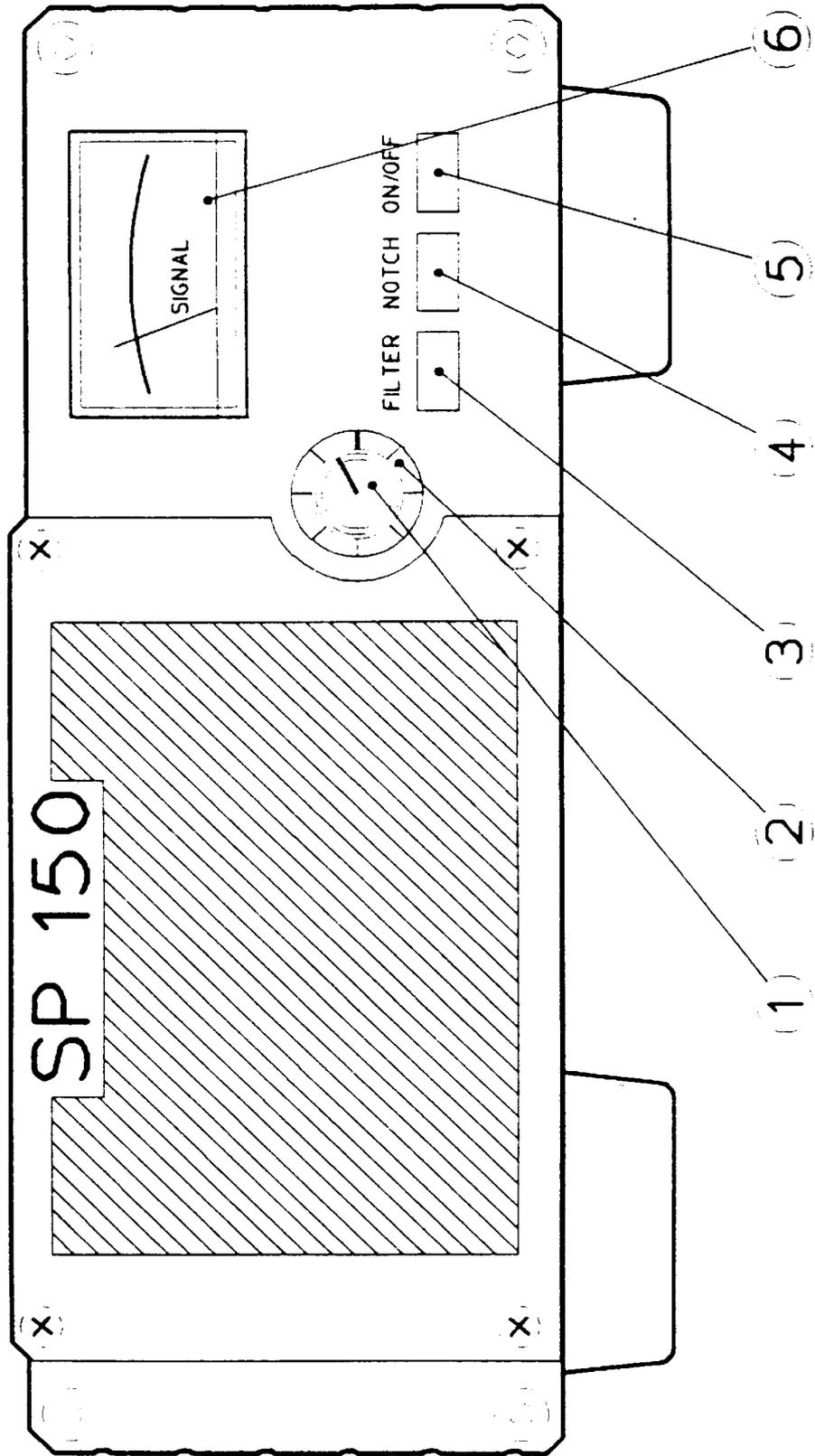
Audio Output

10 Watts RMS into 4 ohms @ 4% THD

Dimensions

185 x 80 x 175mm (W x H x D, overall)

FIGURE 1



Modification For 's' meter operation

Modification of the HF150 for use with the 's' meter, if your set has a serial number of 142617 or less it will require the addition of a 470k resistor.

To modify your HF150 you will need to remove any power and remove the batteries if fitted, lay the set upside down on a piece of cloth or similar to prevent scratching the case then remove the bottom panel.

With the front panel facing you locate the wire aerial connector, the black terminal being earth, if you now look at diagram No.1 you will see a thin track connecting to the earth plane, you will need to cut this tiny track, now you can solder the 470k resistor from the black terminal to pin 16 of IC Q32, please refer to drawing no 1.

For set's after No. 142617 the 470k resistor will be fitted and all that will be needed is to cut the thin track to earth as to allow the agc signal out from the black terminal.

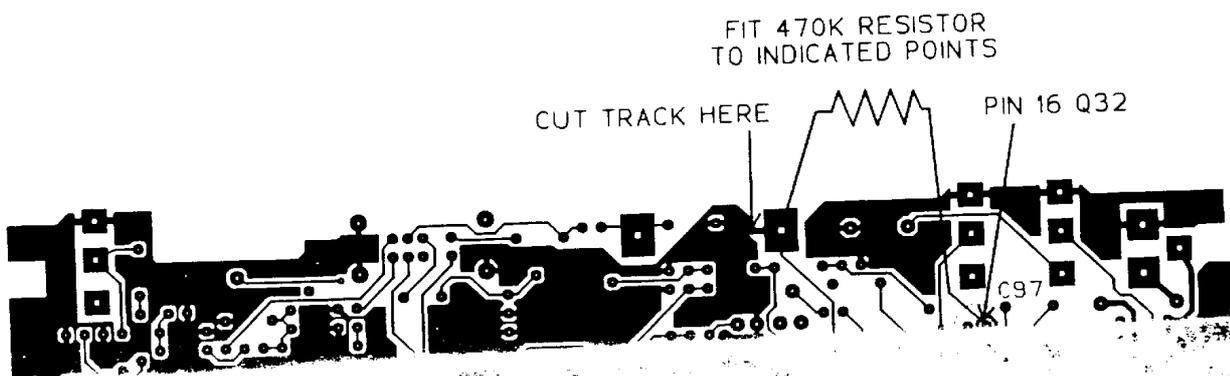
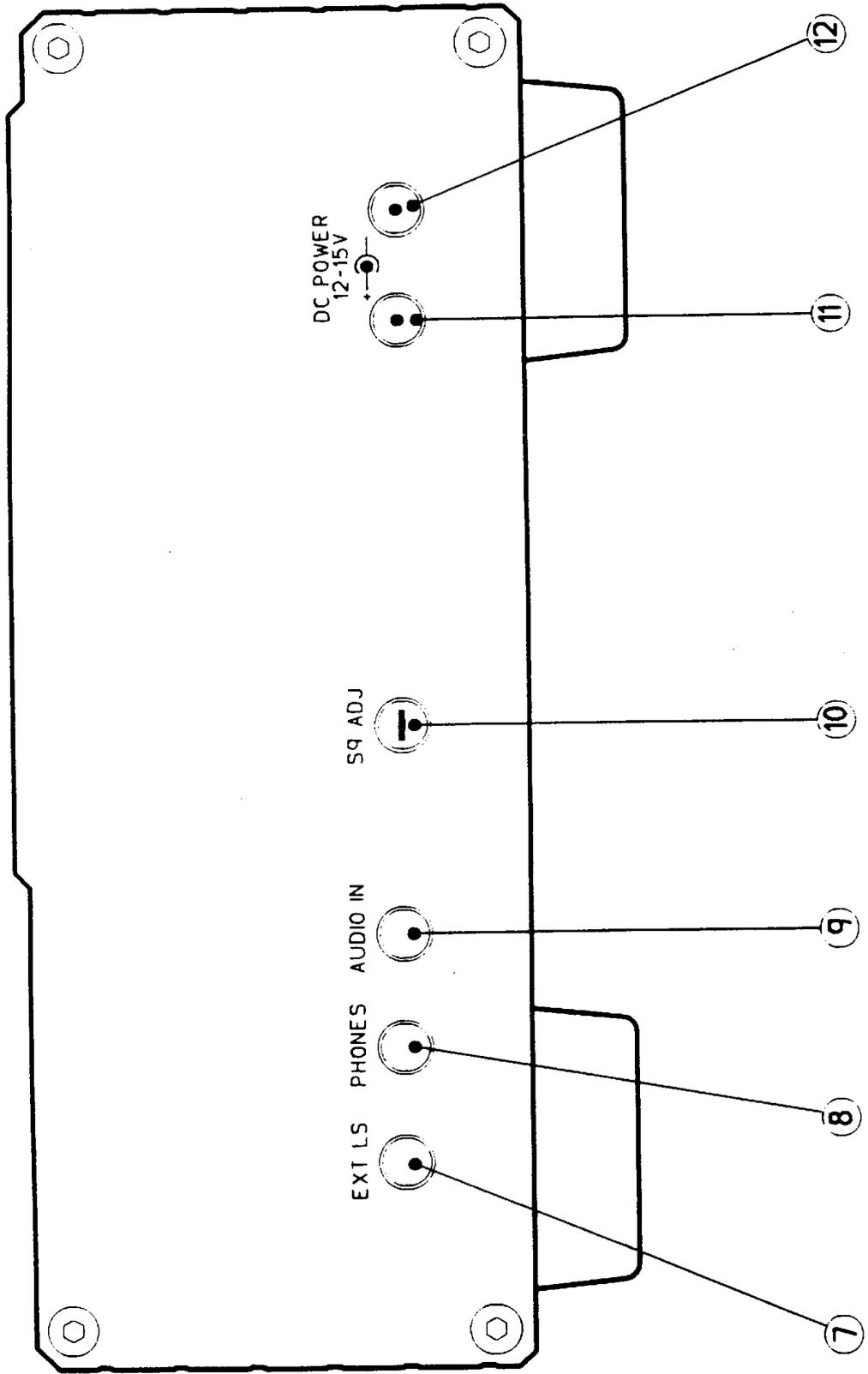


FIGURE 2



- IC 1/2 TDA1985
- IC 3/4 LMC100
- IC 5/6 TL061
- IC 7/8 4069
- IC9 78L09

