

MODEL SP-230 SPEAKER

OPERATING MANUAL

We're happy that you've chosen the Model SP-230 for your receiving needs. It has undergone stringent quality control inspection and tests prior to packing and has left our factory in perfect operating condition. Please inspect your SP-230 carefully for any signs of damage in transit. If the unit is damaged, immediately notify the sales representative from whom you purchased the unit.

GENERAL

Your SP-230 is a sophisticated external speaker designed to further enhance operation of HF Transceivers. It features precise audio response and matches the KENWOOD HF transceiver in appearance. Its advantages are:

- * Built-in selectable tone filters to attenuate high or low frequency response inputs;
- * Two channel selectable input and the headphone output through the tone filters.

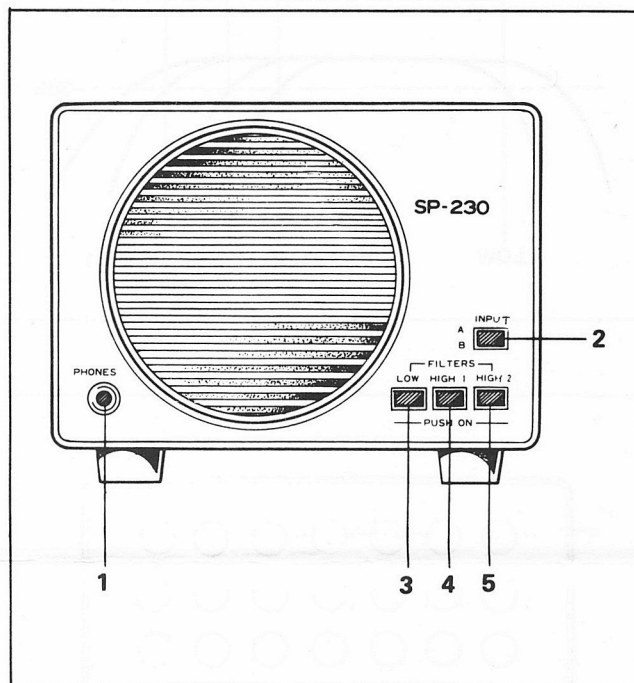
SPECIFICATIONS

Speaker used:	12 cm dia.
Rated Input:	2 Watts
Impedance:	8 Ω
Frequency response:	100Hz to 5kHz.
Filter cut-off frequency,	
LOW:	500Hz, -3dB.
HIGH 1:	3kHz, -3dB.
HIGH 2:	1.5kHz, -3dB.
HIGH 1 + HIGH 2:	1 kHz, -3dB.
Filter attenuation:	-6dB/oct.
Dimensions:	W 180 mm (7-1/16") H 133 mm (5-1/4") D 287 mm (11-5/16")
Net weight:	1.8 kg. (4.0 lbs.)
Accessories furnished:	Speaker cord, 1 pc.(E14-0101-05) Extension foot, 2 pcs. (J02-0049-04) Screw, M4 x 12, 2 pcs. (N30-4012-41) 1 pin plug, 2 pcs. (E20-1610-05)

PACKING

Please save the shipping cartons and packing material. They have been designed for the safe shipping of your unit. There will be considerably less chance of damage if you ship your unit in its original cartons and packing.

CONTROLS AND THEIR FUNCTION

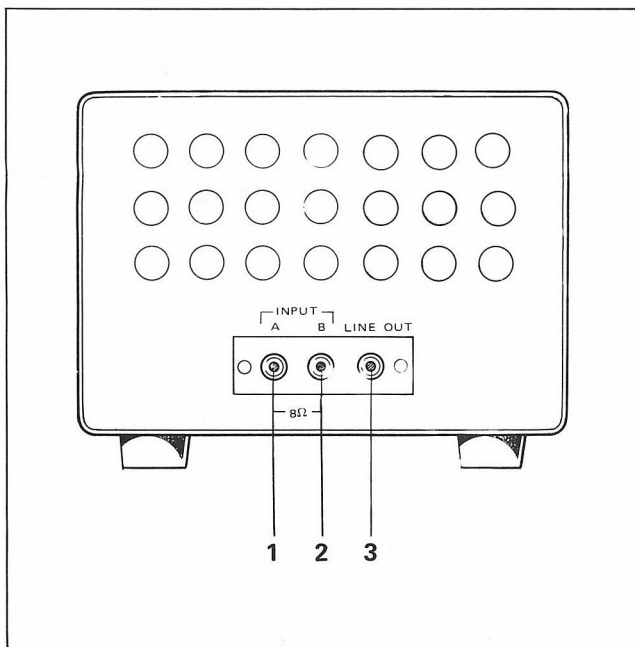
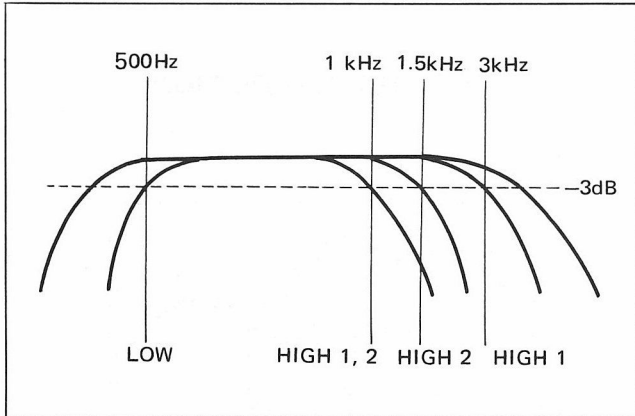


Front Panel

- 1 PHONES Connector**
Standard headphone output, through the tone filters.
 - 2 INPUT Switch**
Selects one of two audio inputs.
 - 3. FILTERS, LOW Switch**
This switch attenuates frequencies below 500 Hz; -3 dB at 500 Hz, -6 dB/octave.
 - 4 FILTERS, HIGH 1 Switch**
This switch attenuates frequencies above 3 kHz; -3 dB at 3 kHz, -6 dB/octave.
 - 5 FILTERS, HIGH 2 Switch**
This switch attenuates frequencies above 1.5 kHz; -3 dB at 1.5 kHz, -6 dB/octave.
- FILTERS, HIGH 1 and HIGH 2 Switch**
These attenuate frequencies above 1 kHz; -3 dB at 1 kHz, -6 dB/octave.

USING COMBINED FILTERS

1. When both LOW and HIGH 1 filters are engaged, the pass bandwidth ranges from 500 Hz to 3 kHz.
2. When both LOW and HIGH 2 filters are engaged, bandwidth is 500 Hz to 1.5 kHz.
3. LOW, HIGH 1 and HIGH 2 filters engaged, 500 Hz to 1 kHz.



REAR PANEL

1, 2 INPUT connectors

Accepts audio output from two sources.

3 LINE OUT Connector

Standard line output through the filters for RTTY, SSTV, or similar use.

USE OF FILTERS

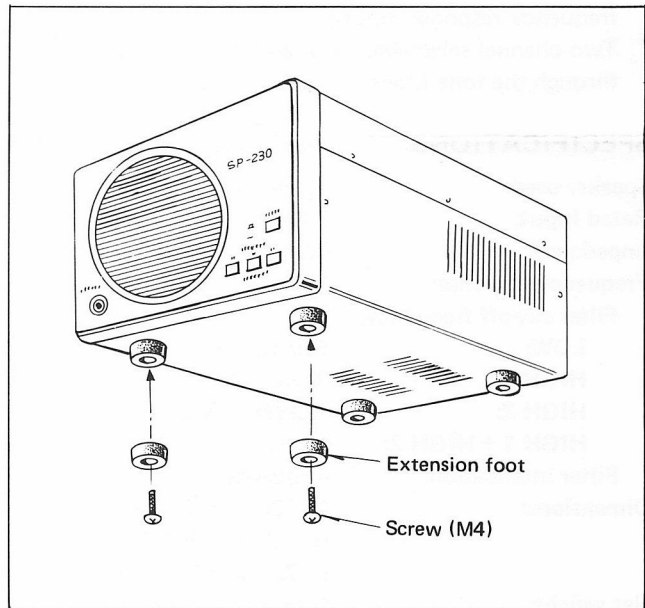
In general, it is desired that a CW, AM, or similar transmission be received clearly within the usual communication audio bandwidth, 300 Hz – 3 kHz. However, QRM, QRN or RFI may lower the overall signal-to-noise ratio at the receiver, resulting in degraded reception. In theory, as the pass-band width of the IF stages is narrowed, the equivalent noise bandwidth will also narrow, thus improving the signal-to-noise ratio. Alternately, the bandwidth of the AF stage can be narrowed to attenuate the noise component, enhancing reception.

Proper filter selection depends on transmission mode and type of noise encountered.

1. SSB: use the HIGH 1 and LOW filters, or the HIGH 2 and LOW filters. In more severe cases, use both HIGH 1 + HIGH 2, and LOW filters.
2. CW: use the HIGH 1 and HIGH 2 filters or HIGH 1 + HIGH 2 and LOW in combination.

INSTALLATION OF EXTENSION FEET

To install the extension feet, screw to the front, bottom of the cabinet as illustrated below.



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