

Electro-Voice

ELECTRO-VOICE, INC.
BUCHANAN, MICHIGAN



6-7-60

Specifications and Instructions RME Model DB23 Preselector



The DB23 preselector is a low-noise, radio-frequency amplifier which can be used to substantially improve receiver performance on the following amateur radio bands:

3.5 mc to 4.0 mc
7.0 mc to 7.3 mc
14.0 mc to 14.5 mc
21.0 mc to 21.5 mc
26.0 mc to 30.0 mc

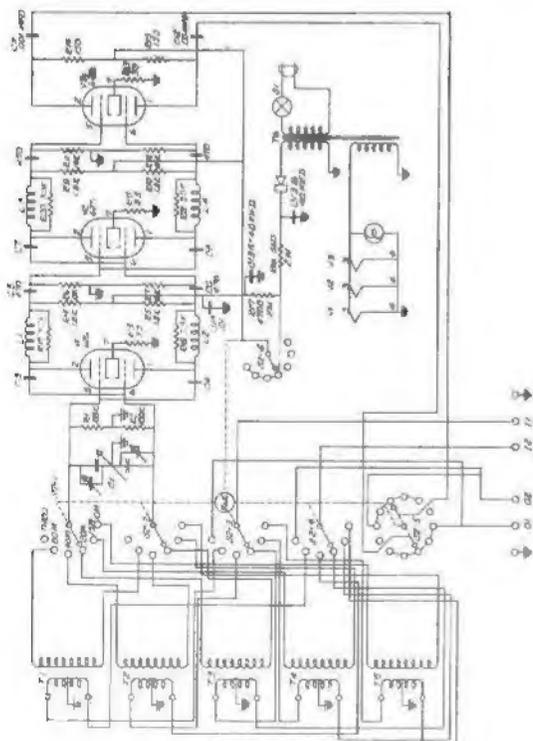
The DB23 consists of one tuned input circuit, which matches input impedance of 75 ohms unbalanced or 300 ohms balanced, followed by two stages of low-noise, neutralized, broadband push-pull 6J6 amplifiers. Finally, a push-pull 6J6 impedance matching stage delivers the amplified signal to the receiver with output impedance of 150 ohms unbalanced or 300 ohms balanced. Input and output impedance values actually encountered can differ within reasonable limits without seriously affecting performance.

The voltage gain which can be expected from the DB23 varies somewhat with the band in use and the output impedance selected (balanced output gives 6 db more gain). Minimum gain, using a balanced output connection, will be about 26 db, while maximum gain, using the same output circuit, will be around 35 db. The tuned circuit in the DB23 adds selectivity to the receiving system. The amount of image rejection due to the DB23 varies with the frequency, and can be as high as 30 db on the lower frequencies.

Because the DB23 is a low-noise device, an improvement in signal plus noise-to-noise ratio (or usable gain) is experienced. This feature is quite pronounced with the less sensitive receivers, but even the better receivers will benefit. An improvement of 7.5 db in signal plus noise-to-noise ratio is not unusual.

SPECIFICATIONS

Tubes:	V1 6J6 R.F. amplifier V2 6J6 R.F. amplifier V3 6J6 R.F. impedance matching amplifier
Power Supply:	Self contained; uses transformer and selenium rectifier
Input Impedance:	75 ohms unbalanced 300 ohms balanced
Output Impedance:	150 ohms unbalanced 300 ohms balanced
Gain:	30 db (average)
Frequency Range:	3.5 to 4.0 mc; 7 to 7.3 mc; 14 to 14.5 mc; 21 to 21.5 mc; 26 to 30 mc.
Size:	7 $\frac{1}{8}$ in. wide x 6 in. deep x 5 in. high
Weight:	6 $\frac{1}{2}$ lb, shipping



Schematic Diagram

INSTRUCTIONS FOR SET-UP AND OPERATION

The voltage chart below is for reference when servicing:

	Band Switch in 40M Position	Band Switch in 80M Position
V1 pin 1	78 volts	40 volts
V1 pin 2	78	40
V1 pin 7	.50	.20
V2 pin 1	78	40
V2 pin 2	78	40
V2 pin 7	.50	.20
V3 pin 1	90	44
V3 pin 2	90	44
V3 pin 7	.65	.25
At Rect. Filter	110	46

All voltages measured to ground with a 20,000 ohm-per-volt meter and are positive.

Voltage Chart

Warranty

ELECTRO-VOICE, INC. warrants each new product manufactured by it to be free from defective material or factory workmanship and agrees to repair or exchange any part thereof which under normal installation, use and service, discloses such defect. Our obligation under this warranty is limited to repairing or exchanging any defective part, with the exception of tubes, if that part is returned, transportation prepaid, within ninety (90) days from the date of original purchase by the consumer through our authorized dealer from whom the consumer purchased this product. This warranty does not apply to any of our products which have been repaired or altered in any way so as, in our judgment, to injure their stability or reliability, or which have been subject to misuse, negligence, or accident, or which have had the serial number altered, effaced, or removed. Neither does this warranty apply to any of our products which have been connected, installed, or adjusted otherwise than in accordance with the instructions furnished by us. Accessories not of our manufacture used with this product are not covered by this warranty.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sales of our product.

SWITCHES—The switching arrangement in the DB23 permits connection of the antenna to the preselector or directly through to the receiver when the use of the preselector is not desired. The input and output terminals of the DB23 are coded for proper operation of this feature. The input terminals are marked IN 1, IN 2, and G (ground), while the output terminals are marked OUT 1, OUT 2, and G. Terminal IN 1 will be connected to terminal OUT 1 and terminal IN 2 will be connected to terminal OUT 2 when the bandswitch is in the "THRU" position. Therefore, when using an unbalanced antenna, it is important to use a paired set of terminals i.e., for an antenna input of IN 1 and G, the output should be taken from terminals OUT 1 and G. If a balanced antenna connection is used (terminals IN 1 and IN 2), it is important to use a balanced receiver input connection for a proper antenna match when the DB23 is set to the "THRU" position. Finally, the DB23 will permit the use of a balanced antenna system into an unbalanced receiver input, or vice versa, but it should be remembered that this will result in unbalance of either the antenna or receiver input when the bandswitch is in the "THRU" position.

Because the DB23 is an amplifier, incorrect installation may result in a part of its output being fed back into the input circuits with regeneration or active oscillation resulting. Therefore, care must be exercised in installing the DB23. Use a good ground between the DB23 and the receiver chassis (a braided strap has low inductance and is highly desirable). Keep connecting leads as short as possible and keep antenna input lead well separated from output leads. These precautions will result in a very stable system.

INSTALLATION —

1. Connect line cord to 117 V, 50-60 cycle power source.
2. Connect antenna to proper input terminals on DB23 (see paragraph on switches). For 75-ohm unbalanced input use terminals IN 1 and G, or IN 2 and G. For 300-ohm balanced input use terminals IN 1 and IN 2.
3. Connect output of DB23 to receiver. For 150-ohm unbalanced output use terminals OUT 1 and G or OUT 2 and G (note if IN 1 and G are used, select OUT 1 and G). For 300-ohm balanced output use terminals OUT 1 and OUT 2. Use a short length of coax or a twisted pair for unbalanced output. For balanced output a twisted pair or 300-ohm twin lead is suitable.
4. Provide a good ground between the DB23 and the receiver.

OPERATION —

1. Turn the "ON-OFF" switch (lower right) to the "ON" position. The dial light should be illuminated indicating the presence of power.
2. Turn the band selector switch (center) to the desired frequency band.
3. Tune receiver to desired frequency.
4. Adjust peaking knob (lower left) for maximum signal. Peaking adjustment should be made each time the frequency is appreciably changed. Two positions of the peaking control may produce a peak in background noise. This is due to image response of the receiver. Always tune peaking knob to most counter-clockwise peak.

MAINTENANCE—The DB23 should require little maintenance. There are two basic adjustments which may be made:

1. Trimmers on the tuning condenser (C1) which are used to trim the input circuits to the proper frequency coverage. These need only be checked if coils are replaced. They are adjusted to give proper frequency coverage on the 3.5 to 4.0-mc band.
2. The neutralizing condensers (twisted wires C3, C4, C7, and C8) are used to keep the triode stages from oscillating. Should oscillations occur, first check the antenna and receiver connections as well as the bond of the DB23 chassis to the receiver chassis. If oscillation persists, remove the DB23 from its cabinet by removing the knobs and the rubber feet on the bottom. Then, adjust each twisted wire condenser by twisting until oscillation stops. Finally, check each band of frequencies and readjust twisted wire condensers if necessary. Usually one adjustment on the 26 to 30-mc band is sufficient (new tubes are the most likely cause for adjustment).

RME RADIO MFG. ENGINEERS DIVISION



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Schematic Diagram

