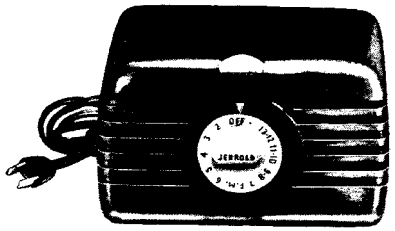

CIRCUIT DESCRIPTION

The Jerrold TV-FM Booster is a high gain wide band r.f. amplifier designed to improve both television and FM reception.

Although it is used primarily in "fringe" areas in conjunction with a good receiving antenna, the Booster also can be used successfully in many "local" areas as an indoor antenna.

The extremely high gain (20 to 30 Db) and low noise factor of the Jerrold TV-FM Booster is achieved by a combination of three design features.

1. It has a tuned-grid, tuned-plate amplifier for each TV channel as well as the FM band. The proper values of grid and plate inductances are inserted in the circuits for *each* frequency band by means of the channel selector switch. This tuned-grid, tuned-plate circuit achieves maximum gain for each frequency.

2. The Booster input circuit has a vernier condenser that can be adjusted to match properly the impedance of any antenna receiving system *for each frequency,* thereby obtaining maximum transfer of energy from the antenna to the Booster. Also this exact match allows considerable voltage gain to be realized without the added noise contribution of the 6AK5 tube.

3. The output circuit of the Booster can be adjusted to operate at maximum efficiency with standard TV receivers by virtue of two important features built into the unit. The plate circuit is very broadly tuned, using no capacity other than tube capacity and strays. This greatly minimizes de-tuning of the circuit by outside influences such as poorly designed front ends of TV receivers, or excessive lead length. Secondly, the unit is provided with the Match-A-Tran, which is in effect an "electronic line stretcher". By simply flicking a switch, the Match-A-Tran can be easily adjusted to permit peak signal voltage at the receiver, for each channel, eliminating losses due to standing waves.

The wide band width (6 megacycles) is accomplished in the Jerrold TV-FM Booster by means of a careful design of the amplifier to obtain high gain without the slightest trace of regeneration. Resistors in the input and output circuits "load" the amplifier and broaden its frequency response in order to pass the full 6 megacycle bandwidth necessary for good TV reception

The video and sound carrier frequencies *peak together* on the Jerrold TV-FM Booster. There is no loss in picture definition.

The Jerrold TV-FM Booster *will not oscillate* on any frequency -- even with no connections made to its input or output terminals -- definite proof that it is an extremely stable amplifier, even with its high gain.

The power supply is for A.C. operation only. The chassis itself is "cold". The unit is shock-proof and there is no fear of fire hazard when used with any type of receiver.

When the Booster is "OFF" the antenna is switched through to the receiver.

By designing a Booster with both grid and plate tuned, a very desirable additional selectivity is added to any TV receiver with which the Booster is used. The addition of two or more cascade and tuned circuits to a receiver results in immeasurably improved performance of the receiver as far as response to spurious signals such as images from FM stations, signals at the I.F. frequency, interchannel interference, etc. In fact, the addition of the Booster will generally completely eradicate such problems. This fact, coupled with the gain of at least 20 to 30 Db over the range and the improved noise factor, made the addition of the Booster extremely worthwhile technically, while its neat appearance and simple operation make it attractive to the TV receiver owner.

INSTALLATION INSTRUCTIONS
JERROLD TV-FM BOOSTER

The main purpose of this Booster is to improve TV and FM reception. Please read the following instructions very carefully so that the maximum benefit may be derived from its use. The manner in which you install and use this Booster may make the entire difference between good reception and poor reception.

1. ANTENNA LEAD-IN

Connect the leads from antenna to terminals #1 and #2 underneath the cabinet. If co-ax cable is used, connect shield to terminal #1.

2. BOOSTER OUTPUT LEAD TO RECEIVER

Using either 300 ohm line or coaxial cable, connect from the booster output terminals #3 and #4 located on the Match-A-Tran box on the back of the Booster. If using coax, connect outer braid to terminal #3.

3. DRESS LEADS CAREFULLY

Dress your output and input leads carefully in order to prevent regeneration or oscillation. Do not allow them to cross.

4. PLUG IN THE BOOSTER

Plug your Booster into any 115 volt, 50-60 A.C. cycle outlet.

5. DIAL YOUR STATION

When Booster is "OFF" antenna is switched through directly to receiver. Turn on TV or FM receiver and tune for stations as you would normally without the Booster.

6. TURN BOOSTER ON

You turn the Booster on by turning the channel selector switch to the desired TV channel or to FM. Allow about 45 seconds for the Booster to warm up.

7. ADJUST FINE TUNING

With your thumb, adjust the vernier (ivory wheel) on the front of the Booster to bring in the best FM or TV signal.

8. If no improvement is noticed in reception between Booster "OFF" and with Booster tuned to station, try reversing polarity of antenna lead on terminals #1 and #2, and also the Booster output lead on terminals #3 and #4.

9. ADJUST THE MATCH-A-TRAN

You will notice that a considerable improvement in signal can sometimes be made by rotating the knob on the Match-A-Tran box. This adjustment may be quite oritical on the high channels and only one position will be best. Every time you tune a new channel, adjust Match-A-Tran for the best picture.

NOTE - OPTIMUM LEAD LENGTH FOR LOW CHANNELS

If a weak low channel station is encountered, and it is desired to get the best possible gain on that station, first note whether the Match-A-Tran switch makes any difference on that channel. If not, add 3 feet of line to the lead between the Booster and the TV receiver. Now it should be possible to rotate the Match-A-Tran switch and peak the low channel.

ADJUSTMENTS

Unless you have accurate frequency measuring equipment and a sweep generator, do not touch the coils in the Jerrold TV-FM Booster. They are aligned properly at the factory and may easily be detuned by improper adjustment.