

Tuning Instructions for the Model 61-65-50 Signal Booster

GENERAL DESCRIPTION

Tuning instructions are provided in support of field service activities. It is assumed that the procedures listed in this instruction will be carried out by a qualified electronics technician observing all standard safety practices.

The amplifier assemblies used in the model 61-65-50 signal booster is of sufficient bandwidth to cover the entire range of operation. Tuning is not required. The individual filters used in the duplexer are passive devices of rugged electrical and mechanical design. They are tuned at the factory for the original design requirements and require no adjustment or maintenance. These devices will stay properly tuned unless they have been physically damaged or are tampered with. Combine preselector filters provide the input and output selectivity for the system. These filters have a carefully shaped response curve that passes a number of contiguous communication channels.

Test Equipment

A two channel network analyzer that simultaneously displays both transmission and reflection is best for properly tuning a preselector. A single channel tracking generator/spectrum analyzer combination may be adequate but is not accurate enough to verify factory specifications. A return loss bridge would also be required when using a tracking generator. Skill and experience are also needed and the personnel doing the work should be thoroughly familiar with the use of the network analyzer. A Hewlett Packard 8752B or equivalent network analyzer is recommended.

Preselector Tuning

The tuning rods are the thin rods protruding from the top of the filter. The inner six rods are used to adjust the center frequency of the bandpass filter. The outer two thin rods are used to adjust the notch frequency. The thicker rods are used at the factory to adjust the bandwidth of the filters and these rods should not be adjusted in the field. The following is a general outline of the tuning procedure.

- 1) Connect test equipment as shown in **Figure 1**.
- 2) Set the analyzer to the desired center frequency and desired bandwidth.
- 3) Loosen the tuning rod locking nuts.

- 4) If the preselector is severely out of tune, set the analyzer for 10 dB/div vertical scale on the transmission channel and alternately adjust the six inner tuning rods in pairs working from the center to the end rods for maximum signal at the center frequency.
- 5) Adjust the two outer tuning rods to set the notching frequency.
- 6) Repeat steps 4 and 5 tuning to maximize the signal at the center frequency. The response should start to take on the desired shape and symmetry. Setup the analyzer for 1 dB/div (2 dB/div for a tracking generator) on the transmission channel and then re-adjust the rods in the same fashion. Make sure that the return loss curve meets or exceeds the published specification over the range and is relatively symmetrical. Fine adjust the tuning rods to adjust symmetry.
- 7) Lock all tuning rods after the desired response is obtained. Note that a slight dissymmetry in either the transmission or reflection response may be unavoidable.

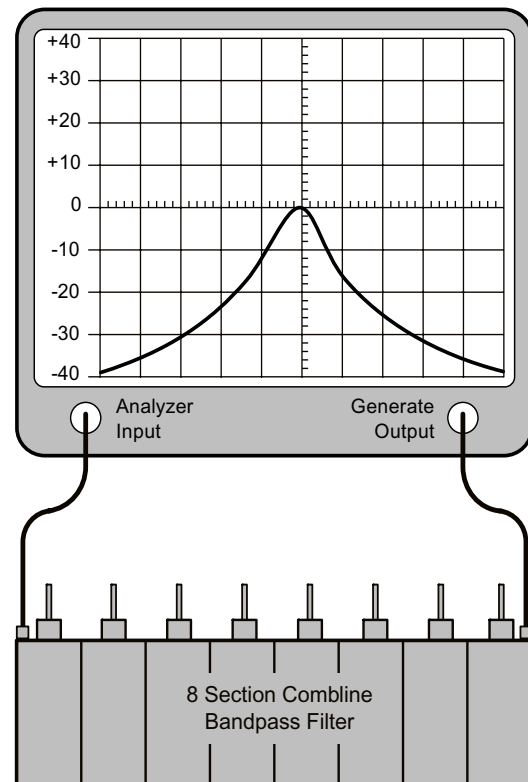


Figure 1: Preselector Tuning.