



TO: ALL SERVICE CENTERS

SUBJECT: Sweep Alignment of Johnson Transceivers

A number of Service Center technicians have asked how to sweep align various JOHNSON transceivers. If you have an FM generator that can be externally modulated, you can sweep align any of our transceivers that have a crystal filter.

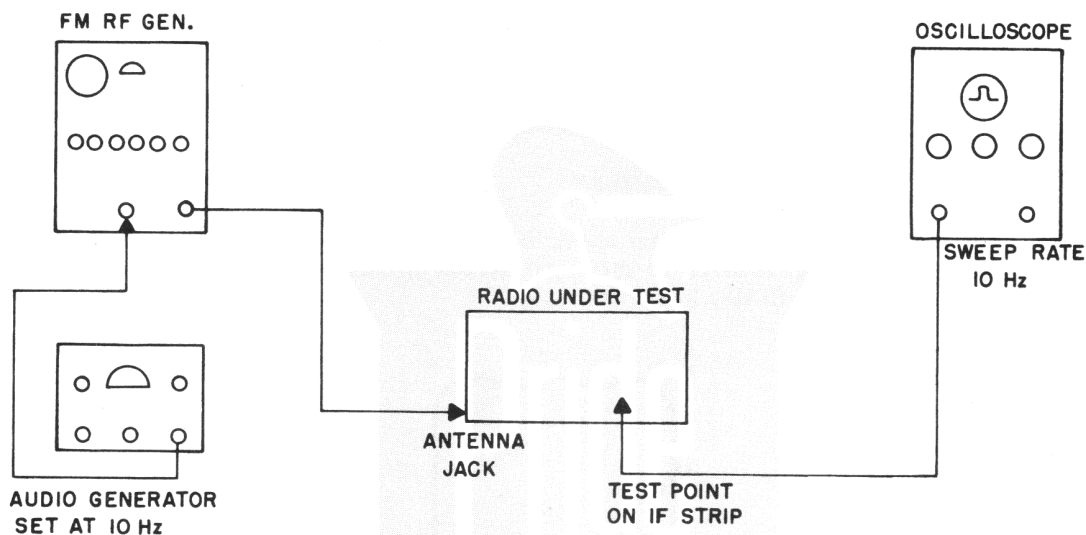
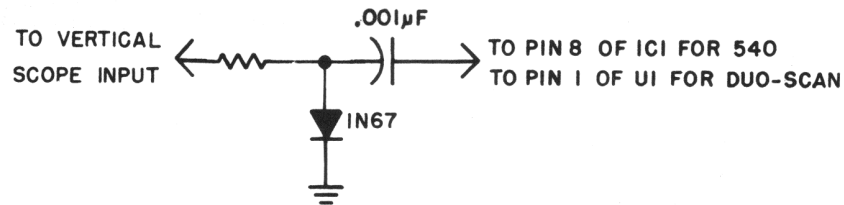


FIGURE 1

### SWEEP ALIGNMENT PROCEDURE

1. Connect the test equipment as shown in Figure 1. Set the FM signal generator on channel frequency. Connect the audio generator to the external modulation jack. Set the audio generator to 10 Hz and adjust the output level of the audio generator to give 15 kHz of deviation on the RF generator.
2. Connect the oscilloscope to a test point in the IF strip. The sweep voltage is taken from different points, as described in the following list.
  - A. Messenger: 323, 323M, 300, 303, 124, 124M, 125, 120, 121, 122, 123A. Connect the oscilloscope probe to the cathode of the detector diode.
  - B. Fleetcom: 501, 504, 526, 527, 550, 557. Connect the oscilloscope probe to TP-1.
  - C. Transcom: 910, 915, 930, 935, 940, 945, 947, 948. Connect the oscilloscope probe to TP-1.

- D. Transcom II: 561, 571. Connect the oscilloscope probe to pin 1 of J2.
- E. Other FM Transceivers: 540, Duo-Scan. Build up a network as shown in Figure 2.

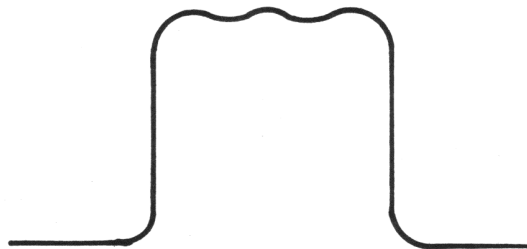


DETECTOR NETWORK  
FIGURE 2

3. Adjust filter circuit components and the IF strip for maximum gain and least ripple on the oscilloscope pattern (refer to Figure 3). Make the sides of the sweep trace as steep as possible and the top as flat as possible.
4. This method will work with any radio that has a crystal filter in it. If the radio does not have a crystal filter, sweep markers would be required.

#### SUMMARY

The measurements Model 800 generator has internal sawtooth voltage for sweep alignment. This voltage can be used to drive the horizontal input of an oscilloscope and the trace presented by the oscilloscope will stay locked in.



BANDPASS WAVEFORM  
FIGURE 3