SUPREME INSTRUMENTS CORPORATION
GREENWOOD, MISSISSIPPI

RE-CALIBRATION OF SUPREME
MODEL 561 SIGNAL GENERATOR

Due to the extreme possible accuracy of the Model 561 calibration, it is suggested that users of Model 561's which require re-calibration should send them to an authorized Supreme Service Station unless they have the necessary equipment and ability to properly align their signal generator.

The necessary equipment required to calibrate the Model 561 Signal Generator is as follows:

1 - Precision ground Piezo-Electric Crystal with two or more multi-vibrator stages capable of delivering harmonic sequencies of 10, 100 and 1000 Kc.

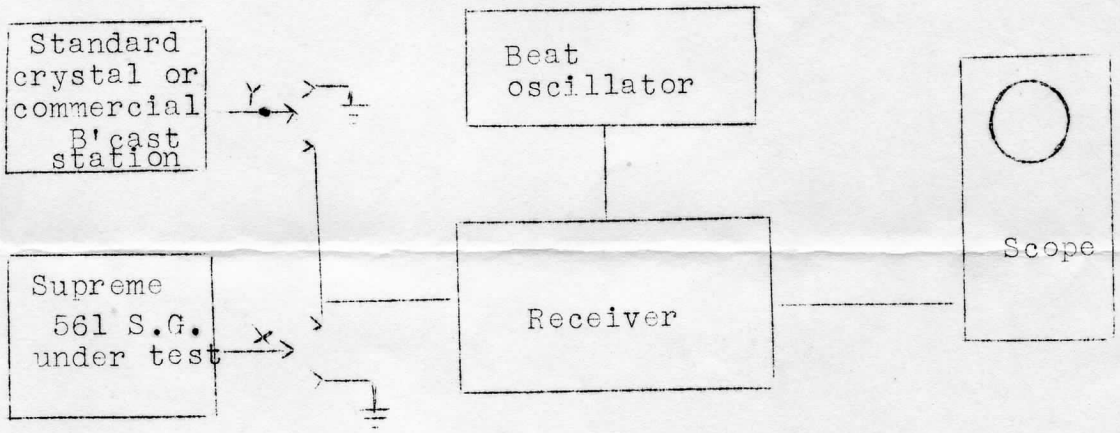
1 - Allwave receiver covering all frequencies between 150 Kc. and 20 Mc. with beat-frequency oscillator. (If a superhetrodyne receiver is used, a complete knowledge of all image frequencies must be known previous to the calibration of the oscillator).

1 - 3" or larger cathode-ray oscilloscope.

1 - Alignment tool.

PROCEDURE: R. F. Calibration

The set-up of the equipment should be as shown in the following block diagram:



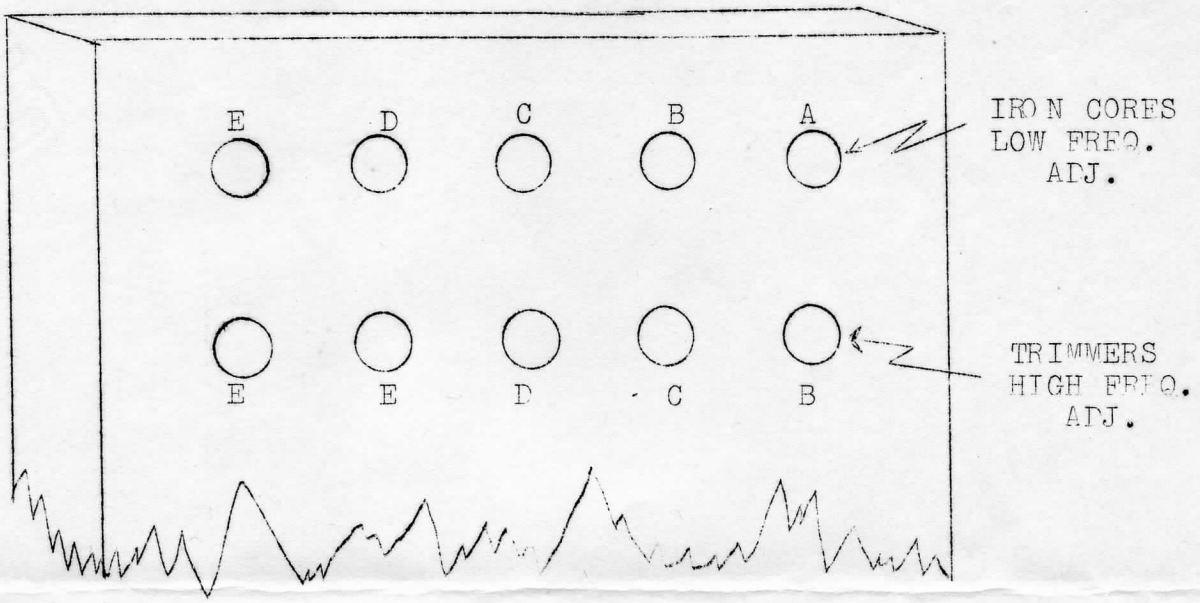
Turn on all equipment and allow time to reach proper operating temperature which should not be less than 15 minutes. Set reference line which is found on the right hand side of dial. (i.e., the index line will coincide with the reference line when the dial is turned in an extreme counter-clockwise direction.) Throw Modulation switch to "OFF" position.

To Calibrate "A" Band;

Close switch "Y" so that the standard connects with the receiver and turn switch "X" to ground position. From the standard, feed the 100 Kc. frequency into the receiver set as 200 Kc. When a zero beat is obtained, cut off the standard and feed the 561 into the receiver. Adjust trimmer and iron core screws until 200 Kc., 100 Kc. and 66.6 Kc. appear at the proper positions on the 561 dial.

To calibrate B, C, D bands, follow the same procedure outlined for the "A" band using the key points of 630 Kc. and 210 Kc. for "B" band with a recheck of 600 Kc. and 300 Kc.; 2000 Kc., 1000 Kc., 666.6 Kc. for the "C" band. 6300 Kc. and 2100 Kc. for "D" band. To calibrate "E" band, use the key points of 20 Mc. and 6.66 Mc. Points other than those indicated should be checked to see if oscillator tracks properly.

Seal the adjustment screws with a non-conducting cement.



NOTE: UNDER NO CONDITION SHOULD THE PLATES OF THE VARIABLE CONDENSER BE SENT TO HELP TRACKING. THIS IS A PRECISION CONDENSER, AND IF PLATES ARE BENT, THE CONDENSER MUST BE REPLACED OR SENT TO AN AUTHORIZED SERVICE STATION!

CALIBRATION OF THE A. F. SECTION OF THE MODEL 561

The equipment required to recalibrate the audio frequency section of the Model 561 is the same as that listed on page 1 of the general instructions.

While allowing the instrument to reach a normal operating temperature (approximately thirty minutes) the following preliminary adjustments should be checked.

AUDIO ZERO ADJUSTER - The "Audio Zero Adjuster" control should be set to approximately 1/2 capacity in order to provide ample adjustment in either direction.

POSITION OF HAIR-LINE INDICATOR - For Model 561's using the No. 5071 capacitor, the hair-line indicator should be set approximately 1/4 inch to the right of the reference mark when the capacity is maximum.

ADJUSTMENT OF THE FIXED OSCILLATOR - The output of the A. F. section of the oscillator should be connected to the input of a Tuned Radio Frequency receiver with the circuits resonating at about 209.5 K. C. The R. F. section of the Model 561 should be adjusted to the same frequency as the TRF receiver. The fixed oscillator of the Model 561 should be brought to zero beat against the R. F. oscillator of the combination generator. The beat indication can be monitored by an oscillograph of the output of the receiver or by the sound from the speaker. The trimmer for adjusting the fixed oscillator is located on the top of the shield can #2 as illustrated in the Model 561 Chassis Layout.

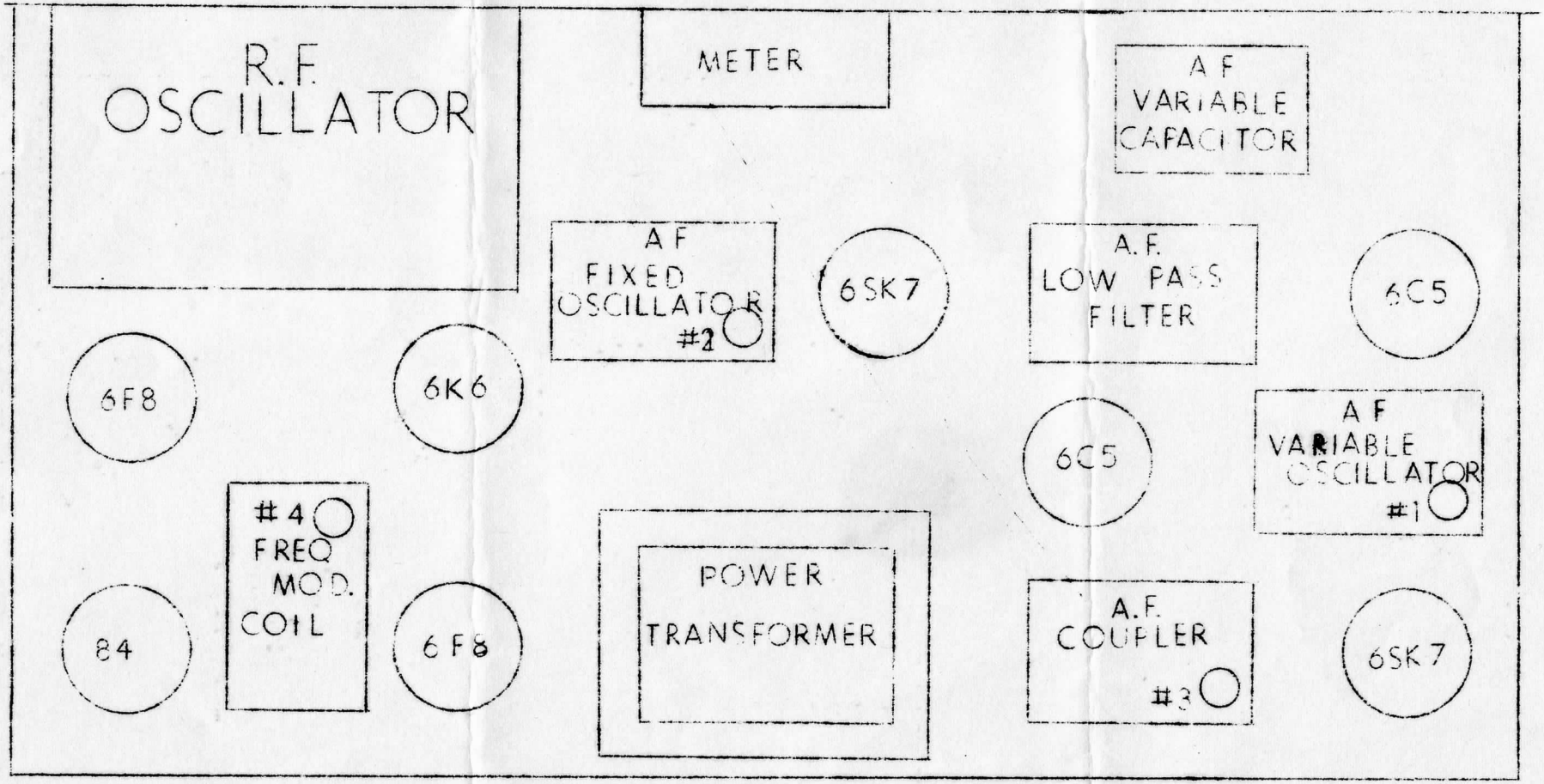
ADJUSTMENT OF THE VARIABLE OSCILLATOR - The variable oscillator dial should be rotated to "0" (zero). Adjust the trimmer on the top of Coil Shield number 1 until the needle on the meter vibrates at an extremely low rate.

REGULATING THE AMPLITUDE OF THE VOLTAGE OUTPUT - Connect the A. F. Output of the Model 561 to the vertical input of the oscillograph and the standard signal to the horizontal input of the oscillograph. (The frequency standard should consist of the 10 K. C. sequence of a multivibrator or an audio frequency generator of known accuracy). The "Output Selector" should be set to amplitude position. Adjust coupler (Coil No. 3) at approximately 15 K. C. for maximum amplitude and follow up by checking points near the center for constant amplitude. The amplitude adjustment should be made using the meter on the 561 as an output indicator.

CALIBRATION OF THE F. M. SECTION OF THE MODEL 561

Using the radio receiver as a wavemeter, adjust to 1000 K. C. (1 M.C.) Turn "Output Selector" to "Freq." position and adjust trimmer No. 4 for coincidence of the peaks of the resulting resonance curve. To check coupling between the Frequency Modulator and the R. F. Section, set R. F. oscillator to 1000 K. C. plus the frequency of the radio dial and note the amplitude of the resonance curve. The amplitude should be slightly less than the 1000 K. C. set-up providing the amplification of the receiver is approximately the same at both calibration points.

Note: The adjustment trimmer capacitor for the "65-205" band is located directly behind the R. F. assembly on the chassis for serial numbers above 150. For serial numbers below 150, it will be necessary to remove the bottom plate to get access to the "65-205" trimmer. This capacitor is located on an insulated lug directly under the R. F. coil assembly.



561 CHASSIS LAYOUT