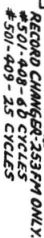


(PF = MMFD)

(er)



In order to realign F.M. receivers properly, the serviceman should have available the following testing instruments:

(a) An FM-AM Signal Generator with a frequency coverage from 465 K.C. to at least 110 M.C., and capable of supplying a variable frequency sweep of 0 K.C. to 450 K.C.

(b) A vacuum tube voltmeter or high resistance-high sensitivity D.C. voltmeter.

(c) An oscilloscope with synchronizing adjustment.
ADJUSTMENT OF INTERMEDIATE FREQUENCY AMPLIFIER, F.M. CHANNEL

(1) Set W.C. Switch in F.M. position and tuning control at maximum frequency.

(2) For alignment using a sawtooth sweep generator and oscilloscope, disconnect shorting link from panel on rear of chassis, connect a 5000 ohm resistor across terminals, and connect vertical input of oscilloscope across this resistor.

(3) For alignment with fixed frequency generator, connect a 0 - 50 microammeter between terminals of rear panel.

(4) Apply a 10.7 M.C. signal to the 6AU6 I.F. amplifier and adjust L13 & L12.

(5) Apply a 10.7 M.C. signal to the 6BA1 I.F. amplifier and adjust L9 and L8.

(6) Apply a 10.7 M.C. signal to the 6AU6 detector and adjust L5 and L4.

Connecting points for applying signal in operation #4, #5, and #6 are provided in the form of short leads protruding through the holes in top of chassis next to stage under adjustment. Output signal from S.G. to be as low as is consistent with serviceable meter reading or oscilloscope picture.

(7) With a frequency modulated signal of 10.7 M.C., 200 K.C. linear deviation applied to the 6AU6 I.F. amplifier and a synchronized oscilloscope connected to the junction of C74 and R31, adjust L16 and L17 for S shaped curve centered about axis and crossing axis at 10.7 M.C. L17 adjusts the location of the curve while L16 adjusts the linearity. In making these two adjustments L16 should be located in the "Close to terminal Panel" position and L17 in the "Far from panel" position.

(8) Check crossover by removing modulation of input signal and connect high resistance-high sensitivity D.C. voltmeter at the junction of C74/R31 and ground. Adjust L17 for zero reading. Junction of C74/R31 is in the form of a short lead protruding through an opening located between power transformer and front edge of chassis.

Note: While accurate alignment of the discriminator can be assured only by the use of a sawtooth sweep generator and oscilloscope, an approximate adjustment using a fixed frequency generator can be achieved by the following procedure:

Connect a D.C. vacuum tube voltmeter to the junction of C-74 and R-31. Detune L-17 as much as possible by screwing core tight up against the terminal panel of the transformer. With a signal input of 10.7 Mc. adjust L-16 for maximum reading of V.T.V.M. Adjust L-17 for zero reading of V.T.V.M. The linearity of response should then be checked by point measurement.

ADJUSTMENT OF INTERMEDIATE FREQUENCY AMPLIFIER, A.M. CHANNEL

(1) Set W.C. Switch on broadcast band and gang capacitor at minimum capacity. Output meter across speaker voice coil.

(2) Apply a 462.5 K.C. signal to the 6AU6 I.F. amplifier and adjust L14 and L15.

(3) Apply a 462.5 K.C. signal to the 6BA6 I.F. amplifier and adjust L10 and L11.

(4) Apply a 462.5 K.C. signal to the 6BE6 1st detector and adjust L6 and L7

(5) Set W.C. Switch to automatic tuning and apply 462.5 K.C. signal to antenna terminal. Adjust C-46 for minimum output. In receivers provided with an A.M. antenna terminal the 462.5 K.C. should be applied to this terminal.

R.F. ALIGNMENT - A.M.

(1) With gang capacitor plates fully meshed, set cursor to last graduation mark on left hand side of 88 on F.M. band scale.

(2) Set W.C. Switch to B.C. band and cursor to 58 on dial. Apply a 580 K.C. signal to antenna terminals and adjust L20, rocking gang capacitor for maximum output.

(3) Set cursor to 150 on dial, apply a 1500 K.C. signal to antenna terminals and adjust C55, C45, and C35 for maximum output.

(4) Repeat operation No. 2 with best compromise between sensitivity and calibration.

(5) Set W.C. Switch to S.W. night band and cursor to 6.2 on dial; apply a 6.2 M.C. signal to antenna terminals and adjust L19, rocking gang capacitor for maximum output.

(6) Set cursor to 9.5 on dial, apply a 9.5 M.C. signal to antenna terminals and adjust C54, C44, and C34, for maximum output.

(7) Repeat operation No. 5 with best compromise between sensitivity and calibration.

(8) Set W.C. Switch to S.W. day band and cursor to 12 on dial. Apply a 12 M.C. signal to antenna terminals and adjust L18, rocking gang capacitor for maximum output.

(9) Set cursor to 17 on dial, apply a 17 M.C. signal to antenna terminals and adjust C53, C43, and C33 for maximum output.

(10) Repeat operation No. 8 with best compromise between sensitivity and calibration.

VOLTAGE AND CURRENT DATA

Rectifier Output	A.M. 305 V.	F.M. 300 V.
High Tension	A.M. 270 V.	F.M. 260 V.
Screen (6BA6)	A.M. 93 V.	F.M. 90 V.
Bias (6AQ5)	A.M. 16.5 V.	F.M. 16 V.
Choke Current	A.M. 136.5 M.A.	F.M. 149.5 M.A.
Total Current	A.M. 127 M.A.	F.M. 140 M.A.

R. F. ALIGNMENT - F.M.

(1) Set cursor to 98 M.C. on dial.

(2) Connect a 50 microammeter across terminals of rear panel, having first disconnected shorting link.

(3) Apply a 98 M.C. unmodulated signal to antenna terminals through a 300 Ohm dummy antenna balanced to ground.

(4) Tune in signal by adjusting L2, L2, and L1, rocking gang capacitor in process. Check overall performance on at least one F.M. broadcast station.

Marconi Models 252-FM, 253-FM Alignment Procedure

CIRCUIT

Combined FM and AM superheterodyne consisting of a radio frequency amplifier common to both AM and FM; a pentagrid mixer and oscillator for AM, which tube on FM serves only as an oscillator to supply a separate mixer; two dual frequency I.F. stages feeding, on AM a diode detector with AVC, and on FM a two stage limiter and differential discriminator; one stage of audio amplification and a phase inverter driving a pair of beam power output tubes coupled to a dynamic loudspeaker.

FREQUENCY COVERAGE

FM Band -----88-108 mc.
Broadcast Band-----535-1725 K.C.
Short Wave, Night -----585-10.0 mc.
Short Wave, Day -----11.0-18.5 mc.
Automatic, six stations-----from 540 to 1500 K.C.

POWER OUTPUT

Undistorted -----5 Watts
Maximum -----10 Watts

POWER RATING

117 volts 60 cycles -----115 Watts
117 volts 25/60 cycles -----130 Watts