

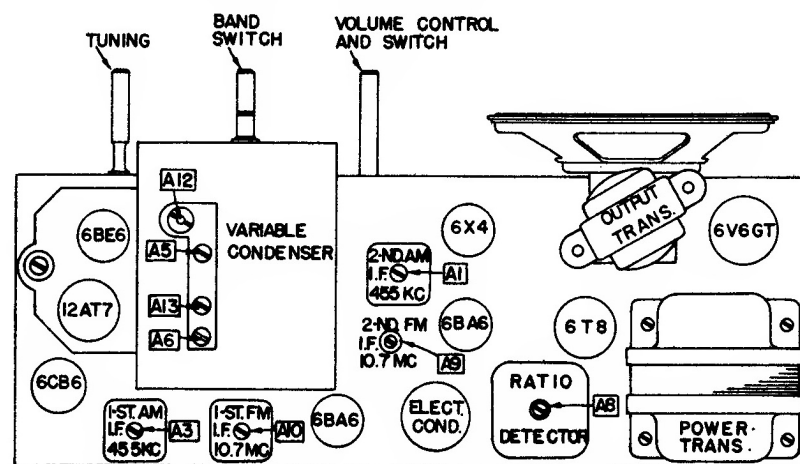
Chassis 333-1 differs from chassis 333 as follows:

R29, 330K changed to R29, 470K part number 20061-474.

R30, 150K changed to R30, 270 ohm part number 22381-271.

C40, 220 uuf changed to C40, .25 uf part number 20067-254.

R34, 2700 ohm part number 20061-272 was added.



AM Tuning range --- 540 Kc to 1600 Kc. Intermediate Frequency --- 455 Kc. I.F. and R.F. measurements made at 600 milliwatt output --- approximately 1.27 volts on a rectifier type voltmeter connected across speaker voice coil.

Approximately input for 500 MW output: I.F. 300 uv; R.F. with standard loop: at 800 Kc, 900 uv; at 1000 Kc, 700 uv/m; at 1400 Kc, 800 uv/m.

FM Tuning range --- 88 megacycles to 108 megacycles. Intermediate Frequency 10.7 megacycles. I.F. and R.F. measurements made at 500 milliwatts output --- approximately 1.27 volts on a rectifier type voltmeter connected across speaker voice coil. Approximate input for 500 MW output: I.F. 300 uv; R.F. "Absolute Measurements": 91 megacycles, 80 uv; 106 megacycles, 70 uv.

ALIGNMENT PROCEDURE

Output meter connection.....Across speaker voice coil. Output meter reading to indicate 500 MW.....1.27 volts. Generator Modulation.....30%, 400 cycles. Position of volume control.....Fully clockwise. Set dial pointer.....Horizontal, variable condenser closed. Set band switch.....To left for AM alignment, right for FM alignment.

AM ALIGNMENT

Position of Variable	Generator Frequency	Dummy Ant.	Generator Connection (high)	Adjust Trimmers In Order Shown For Max. Output	Trimmer Function
Open	455 Kc	.05 mfd.	Mixer Grid	A1, A2, A3, A4	I.F.
Open	1650 Kc		*Test Loop	A5	Oscillator
1400 Kc	1400 Kc		*Test Loop	A5	Antenna
**600 Kc	800 Kc		*Test Loop	Check Point	Antenna

Connect generator lead to a Standard Hazeltine Test Loop Model 1150, placed two feet from the set loop, or three turns of wire about six inches in diameter, placed about one foot from the set loop. Or the generator can be connected with the high side lead to the AM antenna screw terminal and the ground lead to the chassis.

With the generator signal of 600 Kc, tune the set to the point where maximum output is obtained, which should be approximately 600 Kc on the dial. Adjust antenna section slotted blades of variable capacitor for maximum output.

The alignment procedure should be repeated in the original order for greatest accuracy.

Always keep the output from the signal generator at its lowest possible value to make the A.V.C. action of the receiver ineffective.

FM ALIGNMENT

Detector and I.F. alignment using Signal Generator and Oscilloscope.

1. Connect FM Generator, High Side, to grid (pin 1) of 8BA8 2nd I.F. tube through .005 mfd. dummy.
2. Set generator frequency to 10.7 Mc. modulated either 60 cycles or 400 cycles, 250 Kc sweep (125 Kc. deviation.)
3. Connect vertical input of scope across volume control of receiver (grounded terminal to chassis, ungrounded terminal to high side of control.)
4. Set scope switch for external sweep and horizontal oscillator off.
5. Turn variable condenser fully open and band switch to right (FM).

8. Adjust phase shift control in horizontal sweep lead to make double trace on scope coincide.
7. Adjust ratio detector primary slug No. A7 for maximum vertical sweep of the scope pattern.
8. Adjust ratio detector secondary slug No. A8 to center the cross over point of the pattern. Pattern should look like Fig. 1, with the same amount of curve on both ends, and the cross over point in the center.
9. Connect generator high side to pin 1 of the first I.F. tube through .005 dummy. Set generator deviation to 23 Kc. Remove scope terminals from volume control and connect output meter across the voice coil.
10. With volume control maximum and signal reduced to give standard output peak I.F. slug A9 for maximum.
11. Connect generator converter grid (12AT7, pin 7) and tune I.F. slugs A10 and (A-11) for maximum output. Also retouch A9 slightly for maximum output.
12. RF alignment. Generator should be modulated with 400 cps with 45 Kc sweep (22.5 Kc Deviation). Output of generator should be connected to antenna terminals of set with a 270 ohm dummy in series with generator high-side lead. Use only enough signal to give standard output.
13. With variable condenser completely open and Signal Generator tuned to 106.5 mc adjust oscillator trimmer A-12 (small ceramic trimmer) for maximum reading on output meter. Then tune receiver to low end of band (variable completely closed) and Signal Generator to 87.5 mc. If the receiver does not tune to this frequency, the FM oscillator coil L-6 will either have to be squeezed together or lengthened to cover the band, (squeezing lowers and lengthening raises the frequency). Any change in the coil will necessitate readjusting trimmer, A-12 at the high end of the band.
14. With the same Signal Generator connections as in paragraph 13, tune Signal Generator and set to 106 mc. Tune RF trimmer A-13 for maximum output at the same time rock variable back and forth through the frequency. (Rocking is necessary because slight oscillator pulling causes erroneous maximum readings.) Tune Signal Generator and set to 90 mc. Adjust R. P. coil L-4 length for maximum output by squeezing or lengthening. Any change in the coil will have to be compensated at 106 mc by the R.F. trimmer A-13.
15. After steps 4 and 5 are finished, check calibration and band coverage. Steps 4 and 5 have to be repeated if set is off calibration. Band coverage should be 87.5 mc to 106.5 mc. Sensitivity should be approximately 70 uv at 106 mc, 90 uv at 91 mc.

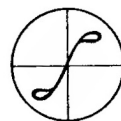


FIG. 1
RATIO DETECTOR
CURVE

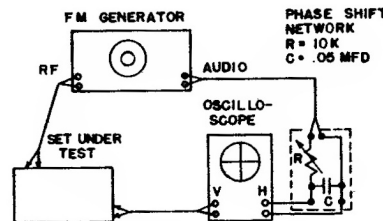


FIG. 2
INSTRUMENT
CONNECTIONS