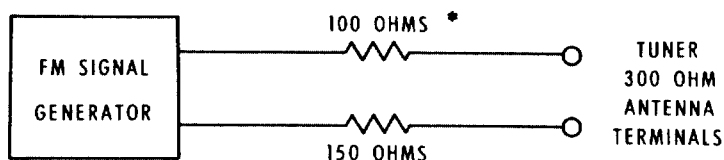


STEPS	TUNER DIAL SETTING	SIGNAL GENERATOR			INDICATOR	
		FREQ	COUPLING	MODULATION	TYPE	CONNECTED TO
1	Point of no interference or signal	10.7MC	Through external .01MF cap to pin 7 of 12AT7 mixer	CW	VTVM	TP #1
2	SAME	SAME	SAME	SAME	MX 110 tuning eye	
3	SAME	SAME	SAME	SAME	VTVM	TP #2
4	SAME	SAME	SAME	SAME	SAME	Pin 6 of discriminator transformer
5	105MC	105MC	300 ohm antenna terminals with * matching network	400 cycles 75KC deviation (100 % modulation)	VTVM connected to TP1 and scope connected to L or R audio output	
6	90MC	90MC	SAME	SAME		SAME
7	105MC	105MC	SAME	SAME		SAME
8	90MC	90MC	SAME	SAME		SAME
9	Point of no interference				Scope	L or R output
10	105MC	105MC	SAME	400 cycles 75KC deviation (100 % modulation) attenuated to 2.5 microvolts output	VTVM connected to TP #1 and Scope connected to L or R audio output	

## ANTENNA MATCHING NETWORK



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\* IF SIGNAL GENERATOR HAS OTHER THAN 50 OHM INTERNAL IMPEDANCE, USE A RESISTOR OF 150 OHMS, LESS INTERNAL GENERATOR IMPEDANCE.

# ALIGNMENT

ADJUST	TEST LIMITS	REMARKS
Top (secondary) and bottom, (primary) of 1st, 2nd and 3rd IF transformers	Maximum possible negative voltage	Shunt to ground the winding not being adjusted with a .01MF capacitor in series with a 1K resistor. Attenuate signal generator until output voltage at TP #1 is less than 1.5 volts with one IF transformer winding shunted. IF transformers have terminal #1 marked with a green dot and are numbered clockwise.
4th IF transformer, top and bottom.		Eye should close to approx. $\frac{1}{16}$ " with strong signal. Make additional adjustments of eye closure by varying the spacing of parallel conductors connected to pins 1 and 4 of the 4th IF transformer. (This changes the capacitive coupling between pins 1 and 4.)
Discriminator transformer top core (secondary)	Adjust for 0 volts	
Discriminator transformer bottom core (primary)	Maximum negative voltage	Repeat step 3 if a large change is made in the setting of the bottom core.
Oscillator trimmer cap.	Maximum negative voltage	As output increases, attenuate signal generator to keep maximum output at TP #1 to less than 2 volts.
Oscillator coil tuning slug	SAME	Repeat steps 5 and 6 until dial calibration is accurate.
Mixer trimmer and RF trimmer	SAME	
Mixer coil tuning slug and RF coil tuning slug	SAME	Repeat steps 7 and 8 until output is as high as possible.
Muting adj. control		Turn muting switch to "in" position. Adjust muting control until background noise just disappears.
	IHFM sensitivity 2.5 microvolt for less than 3% total noise and distortion	Step 10 is an overall sensitivity check, and requires a distortion analyzer and FM signal generator with attenuator. With 2.5 microvolts input at the 300 ohm antenna terminals, TP #1 voltage should be .6 volts or more.

# MR 67 MULTIPLEX

STEPS	TUNER DIAL SETTING	SIGNAL GENERATOR			INDICATOR	
		FREQ.	COUPLING	MODULATION	TYPE	CONNECTED TO
1	Point of no interference or signal	Audio generator set to 67KC, 0.5 volts output or less	TP #2		Audio VTVM	Pin 6 of 38KC transformer (yellow wire connected at this pin)
2	SAME	MPX generator with 19KC pilot attenuated to approx. 5 % level (5 % level is $\frac{1}{2}$ of normal 10 % level) 19KC pilot <i>must</i> be attenuated for correct alignment	SAME		SAME	Pin 3 or 8 of 12AU7 MPX oscillator
3	100MC	100MC modulated by MPX generator, 19KC pilot at normal output	300 ohm antenna terminals with approx. 1000 microvolt signal	1KC 100 % modulation (34KC deviation) modulating left or right only	SAME	Pin 1 or 2 of 38KC transformer
4	SAME	SAME	SAME	SAME	Audio VTVM and scope	L or R output jack
5	SAME	SAME	SAME	SAME	SAME	SAME
6	SAME	SAME	SAME	SAME	SAME	SAME
7	SAME	SAME	SAME	Turn off 1KC audio modulation	SAME	SAME
8	SAME	SAME	SAME	Same as step 3	SAME	SAME

## DECODER ALIGNMENT

ADJUST	TEST LIMITS	REMARKS
67KC trap	Adjust for minimum voltage	
19KC phase coil and 19KC transformer	<ol style="list-style-type: none"> <li>1. Disable local 38KC oscillator by placing a jumper wire across 6.8K resistor connected to pins 1 and 6 of 12AU7 MPX oscillator.</li> <li>2. Shunt pin 2 of 19KC transformer to ground with .01 capacitor in series with 1K resistor.</li> <li>3. Adjust 19KC phase coil for maximum output. Proper adjustment places core approx. <math>\frac{1}{4}</math>" from bottom of coil form.</li> <li>4. Adjust bottom core of 19KC transformer for maximum output.</li> <li>5. Shunt pin 3 of 19KC transformer to ground with .01 capacitor in series with 1K resistor.</li> <li>6. Adjust Top core of 19KC transformer for maximum output.</li> <li>7. Remove jumper used in step 1 above.</li> </ol>	
38KC transformer bottom core	Adjust for maximum voltage	
38KC transformer top core	Adjust for stable scope display	<ol style="list-style-type: none"> <li>1. Turn off 19KC pilot on MPX generator.</li> <li>2. Adjust top core of 38KC transformer to obtain a stable and uniform 1 KC signal scope display. This adjustment may be critical, so turn core very slowly.</li> <li>3. Turn 19KC pilot back on.</li> </ol>
19KC phase coil	30db separation or more	Modulate left channel and measure right channel output. Adjust 19KC phase coil for minimum right channel output (maximum separation). Remove all test leads from TP #2 for separation checks.
	SAME	Modulate right channel and measure left channel output. Separation in steps 5 and 6 should be at least 30db
	This step checks the rejection of 19KC and 38KC frequencies. Residual output should be at least 40db below modulated output.	
		Check for MPX indicator light <ol style="list-style-type: none"> <li>1. MPX light should turn on with MPX signal</li> <li>2. Tuning slowly across dial, MPX light should turn on only with MPX signal.</li> </ol>