THE FISHER
FM-200-B
SERVICE MANUAL

MODEL FM-200-B

CHASSIS SERIAL NUMBERS
FROM 30001 TO 49999 INCLUSIVE

PRICE: $1.00

FISHER RADIO CORPORATION · NEW YORK

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ALIGNMENT INSTRUCTIONS

Read These Instructions With Extreme Care Before Attempting Alignment.

CHASSIS: Turn the TUNING knob completely counterclockwise without forcing. Dial pointer should be at zero index mark on logging scale. If not, reset the dial pointer. Disconnect the external antenna. When using an oscilloscope for alignment, set the AUDIO LEVEL control for no overload, as shown by the proper waveform shape. Set remaining controls as follows: SELECTOR, MONO; MUTING, OFF; AFC, OFF; SENSITIVITY, DISTANT; ANTENNA SELECTOR (on rear panel), 300.

SIGNAL GENERATOR: The signal generator equipment must be able to supply RF ±22.5 KC deviation at 400 cps.

INDICATOR: DC VTVM, and scope for alignment.

ALIGNMENT: Allow the chassis and test instruments to warm up for at least 15 minutes. Adjust the line voltage for 117 volts AC, 50-60 cps. Use fully insulated tools: a small screwdriver for all trimming capacitors; a K-tran tool for Z1, Z2, Z3; a hex tool for Z4, Z5, Z6, L3, L9, L25, L10, and L14.

NOTES:

1—For accurate alignment, signal generator output voltage must be adjusted to produce meter readings within the range specified in the INDICATION column for each step.

2—Signal generator frequency should be held constant for IF, limiter, and ratio detector alignment (Z1 through Z6).

3—If adjustment of muting oscillator is necessary, adjust L14 for 3MC oscillation using a grid-dip meter.

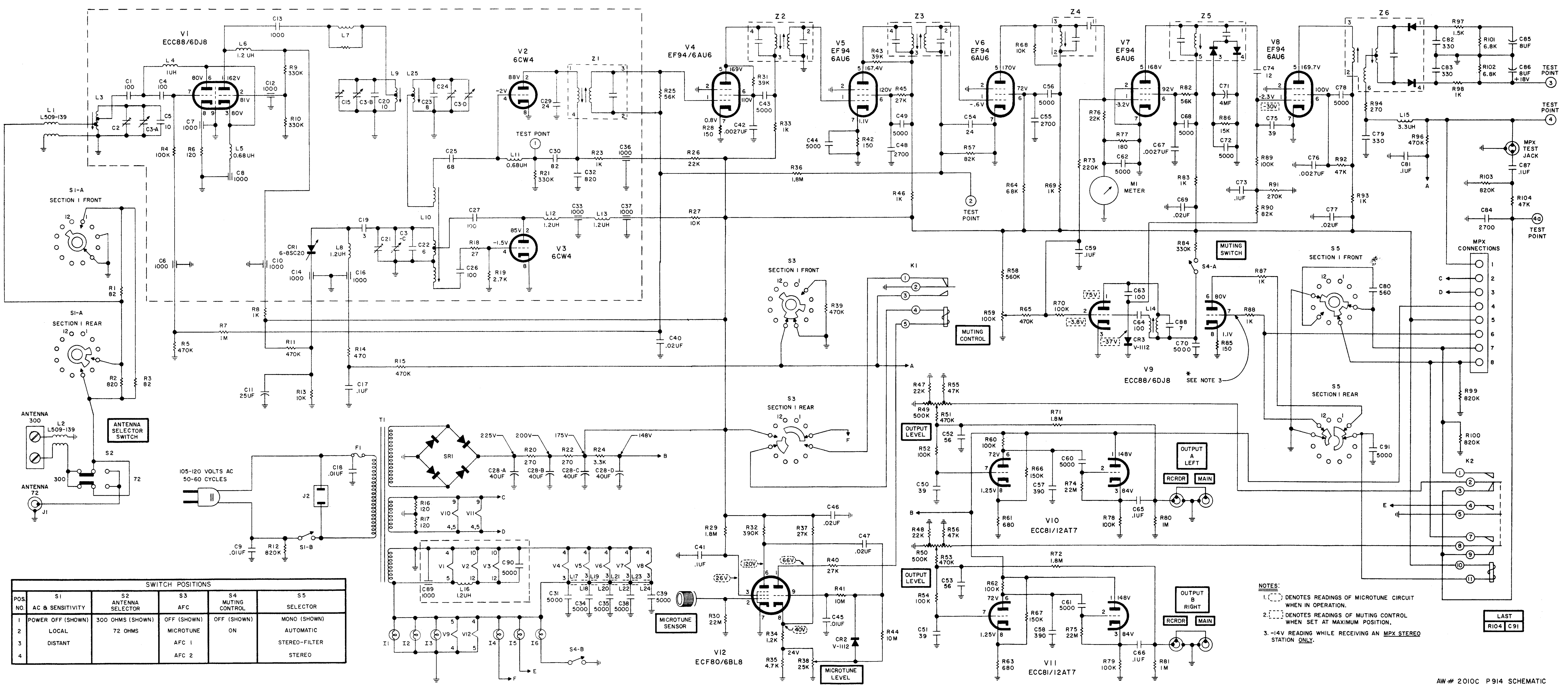
4—Do not tamper with adjustments on multiplex sub-chassis. These circuits are extremely stable and should require no service other than tube replacement, which does not affect alignment. Multiplex alignment requires special test equipment which will be available in the near future. If servicing is required, write to:

FISHER RADIO CORPORATION · 21-21 44th DRIVE · LONG ISLAND CITY 1, N. Y.

FM ALIGNMENT (tuner only)

STEPS	CHASSIS	SIGNAL GENERATOR			INDICATOR	ALIGNMENT	
	TUNING	COUPLING	FREQ.	MOD.	TYPE CONNECTION	ADJUST	INDICATION
1	Point of no signal and no interference	FM generator connected to pin 1 of V6	10.7 MC	None	Connect DC VTVM to test point 3	Z4, Z5 top, Z6 bottom and top for max. indication	Between +5 and +9 volts
2	Point of no signal and no interference	FM generator connected to pin 1 of V6	10.7 MC	None	Connect DC VTVM to test point 4	Z6 top for min. indication	Zero reading on zero center scale
3	Point of no signal and no interference	FM generator connected to pin 1 of V5	10.7 MC	None	Connect DC VTVM to test point 2	Z3 top and bottom for max. indication	Between —0.5 and —1.0 volt
4	Point of no signal and no interference	FM generator connected to test point 1 through wire "gimmick" (less than 0.5 uuf)	10.7 MC	None	Connect DC VTVM to test point 2	Z1 and Z2 top and bottom for max. indication	Between —0.5 and —1.0 volt
5	90 MC	FM generator connected to 300 ohm terminals through 120 ohm carbon resistors	90 MC	30% FM (22.5 KC Dev.) at 400 cps.	DC VTVM to test point 2 and scope to RIGHT or LEFT OUTPUT jack	L10, L25, L9 and L3 for sine waveform and max. neg. voltage	Less than —3 volts
6	106 MC	FM generator connected to 300 ohm terminals through 120 ohm carbon resistors	106 MC	30% FM (22.5 KC Dev.) at 400 cps.	DC VTVM to test point 2 and scope to RIGHT or LEFT OUTPUT jack	C21, C24, C15 and C2 for sine waveform and max. neg. voltage	Less than —3 volts
7	Repeat steps 5 and 6 for proper dial calibration and maximum output.						

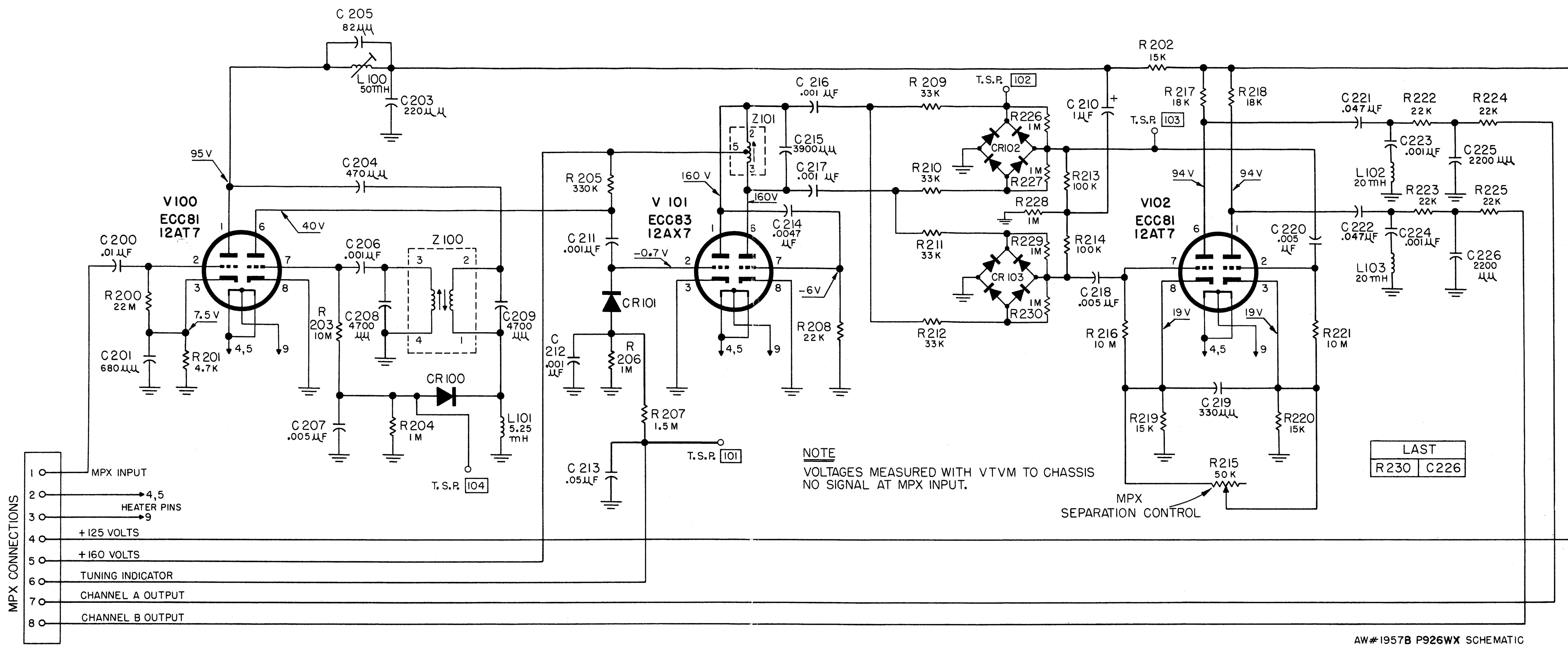
SCHEMATIC DIAGRAM



SWITCH POSITIONS

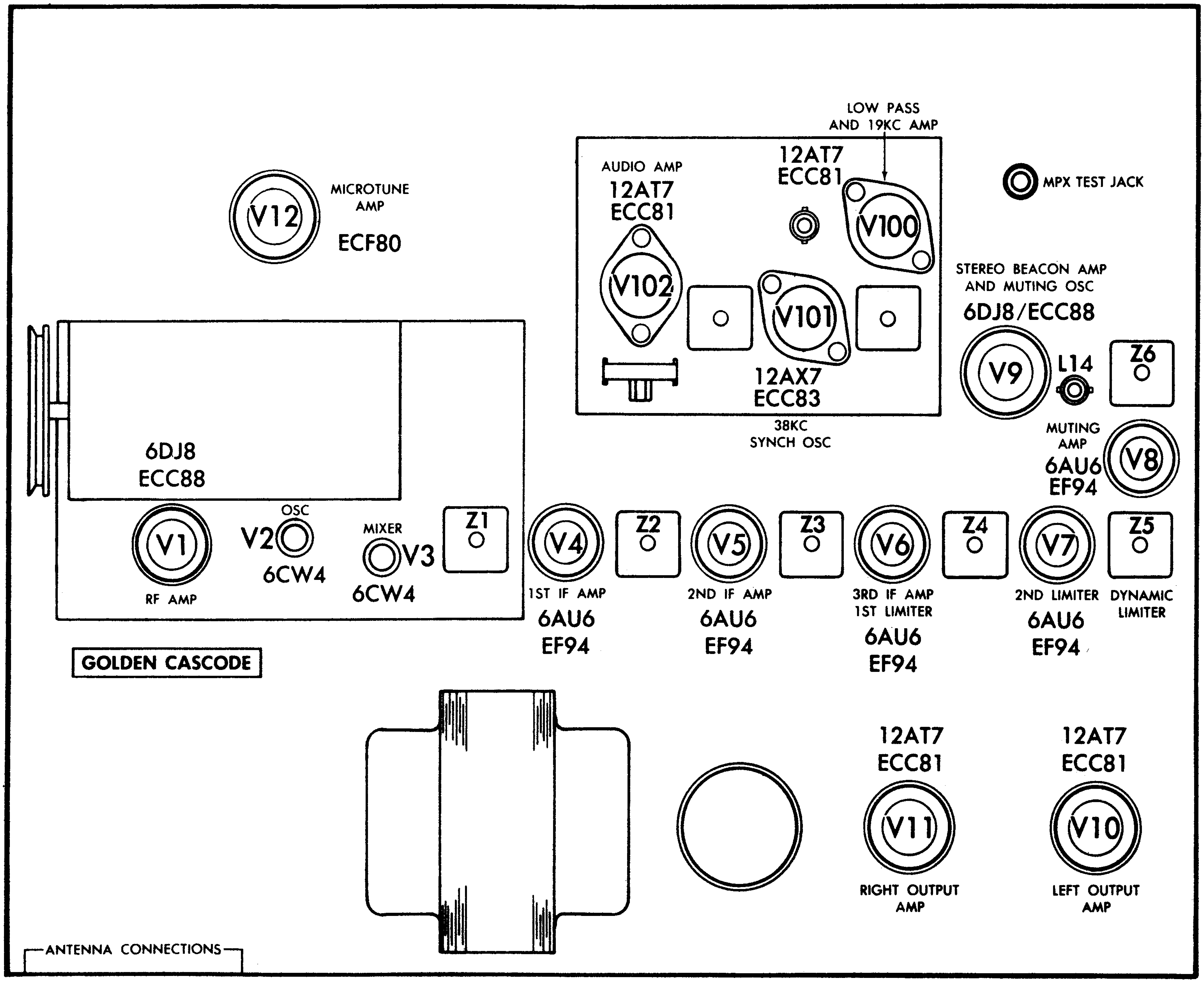
POS. NO.	S1 AC & SENSITIVITY	S2 ANTENNA SELECTOR	S3 AFC	S4 MUTING CONTROL	S5 SELECTOR
1	POWER OFF (SHOWN)	300 OHMS (SHOWN)	OFF (SHOWN)	OFF (SHOWN)	MONO (SHOWN)
2	LOCAL	72 OHMS	MICROTUNE	ON	AUTOMATIC
3	DISTANT		AFC 1		STEREO-FILTER
4			AFC 2		STEREO

SCHEMATIC DIAGRAM • MULTIPLEX SECTION



AW#1957B P926WX SCHEMATIC

TUBE LAYOUT



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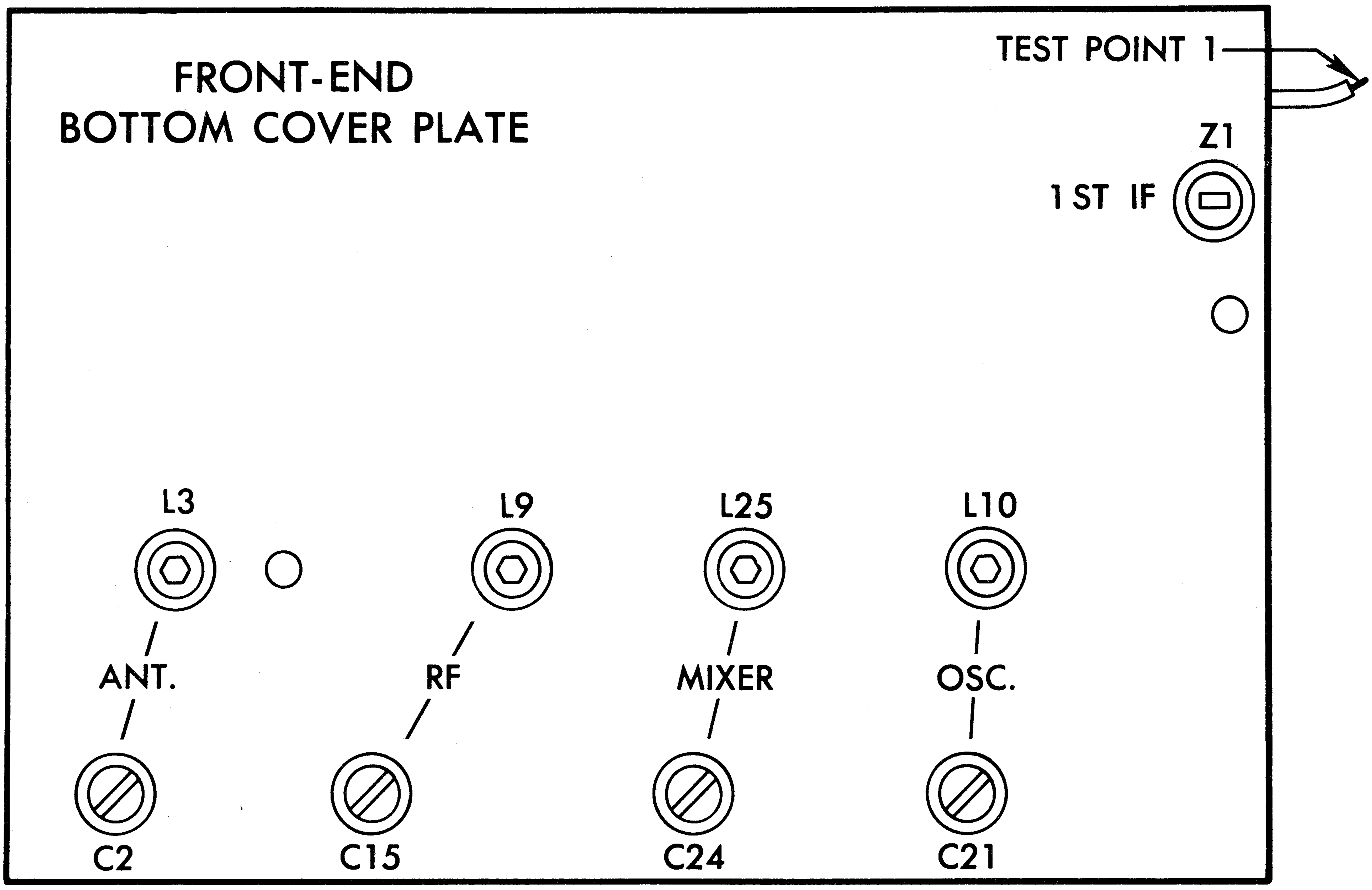
FRONT-END ADJUSTMENTS



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ALIGNMENT INSTRUCTIONS • MULTIPLEX SECTION

STEPS	GENERATOR			INDICATOR	ALIGNMENT		
	CONNECTION	AUDIO FREQUENCY	RF MODU-LATION	TYPE & CONNECTION	ADJUST	INDICATION	NOTES
1	Audio oscillator connected to lug 1	80 KC—1 volt	None	AC VTVM to junction of C210 and R228	L100 (Use hex alignment tool)	Minimum voltage	
2	Multiplex generator audio output to lug 1 (See Note 1)	19 KC (±5 cps) pilot tone, 100 mv	None	DC VTVM to T.S.P. 101	Z100 top and bottom (Use hex alignment tool)	Maximum voltage	1
3	Same as Step 2	19 KC pilot tone, 50 mv	None	Scope horiz. input to 19 KC output of gen.; vert. input to junction of C216 and R209. External sweep	Z101 (Use K-tran alignment tool)	Stable 2:1 Lissajous pattern. Disregard phase of pattern	1
4	Same as Step 2	19 KC	None	Same as Step 3	Vary generator 19 KC output from 50 to 200 mv	Lissajous pattern should remain stationary over the entire 150 mv range	1, 2
5	Same as Step 2	1000 cps on left (A) channel only, 1 volt rms (2.8 P-P)	None	AC VTVM and scope vert. input to channel A output lug. Internal sweep. DC VTVM to T.S.P. 101	Z100 top (Use hex tool)	Maximum indication on AC VTVM. Clean 1000 cps waveform on scope	1, 3
6	Same as Step 2	1000 cps on right (B) channel only, 1 volt rms (2.8 P-P)	None	Same as Step 5	MPX separation R215	Minimum reading on AC VTVM should be at least 33 db below reading obtained in Step 5	1
7	Same as Step 2	Same as Step 6	None	Move scope input and AC VTVM to channel B output lug	——	Note and record voltage reading on AC VTVM	1
8	Same as Step 2	1000 cps on left (A) channel only, 1 volt rms (2.8 P-P)	None	Same as Step 7	——	AC VTVM reading should be at least 33 db below reading observed in Step 7	1
9	Same as Step 2	8000 cps on right (B) channel only, 1 volt rms (2.8 P-P)	None	Same as Step 7	——	AC VTVM reading should be the same as observed in Step 7	1
10	Same as Step 2	8000 cps on left (A) channel only, 1 volt rms (2.8 P-P)	None	Same as Step 7	——	AC VTVM reading should be at least 18 db below reading observed in Step 9	1
11	Repeat Steps 9 and 10 with scope and AC VTVM connected to channel A output lug, but start with 8000 cps applied to left channel for first reading, then switch to right channel for second reading.						
12	Multiplex generator RF output to 300-ohm antenna terminals	1000 cps on left (A) channel only	100% (75 KC Dev.) No pre-emphasis	Move scope input and AC VTVM to channel A output lug	——	Note and record voltage reading on AC VTVM	4
13	Same as Step 12	1000 cps on right (B) channel only	Same as Step 12	Same as Step 12	R215	Minimum reading on AC VTVM should be at least 33 db below reading observed in Step 12	4
14	Same as Step 12	8000 cps on left (A) channel only	Same as Step 12	Same as Step 12	——	AC VTVM reading should be 10 db below reading observed in Step 12	4
15	Same as Step 12	8000 cps on right (B) channel only	Same as Step 12	Same as Step 12	——	AC VTVM reading should be 28 db below reading observed in Step 12	4

NOTES:

1 — In steps 2 through 11, the audio output of the Multiplex Generator should be connected to lug 1 of the multiplex sub-chassis through a 12,000 ohm, ½-watt, carbon resistor, and a 180 uuf capacitor should be connected between lug 1 and ground. The wiring from the MPX TEST jack on the main chassis to lug 1 must be disconnected during Steps 2 through 11.

2 — The vertical amplitude of the Lissajous pattern will increase slightly as the generator output is increased. This is a normal occurrence.

3 — If DC VTVM reading falls below —9 volts when maximum reading is obtained on the AC VTVM, readjust bottom of Z100, then repeat Step 5. Repeat this procedure until maximum AC VTVM reading is obtained with DC VTVM reading greater than —9 volts.

4 — Tune the FMR-1 to the RF output frequency of the Multiplex Generator.